Geotechnical Report

Proposed Imperial Valley Data Center Campus Site #2
287 W. Aten Road
Imperial, California

Prepared for:

Imperial Valley Computer Manufacturing, LLC
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Huntington Beach, CA 92649

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July 23, 2025

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Geotechnical Report
Proposed Imperial Valley Data Center Campus Site #2
287 W. Aten Road
Imperial, California
LCI Report No. LE25111

Dear Mr. Rucci:

This geotechnical report is provided for design and construction of the proposed Imperial Valley Data Center campus project located at 287 W. Aten Road in southeastern Imperial, California. Our geotechnical exploration was conducted in response to your request for our services. The enclosed report describes our soil engineering site evaluation and presents our professional opinions regarding geotechnical conditions at the site to be considered in the design and construction of the project.

Based on the geotechnical conditions encountered at the points of exploration, the project site appears suitable for the proposed construction provided the professional opinions contained in this report are considered in the design and construction of this project.

We appreciate the opportunity to provide our findings and professional opinions regarding geotechnical conditions at the site. Please provide our office with a set of the foundation plans and civil plans for review to ensure that the geotechnical site constraints have been included in the design documents. If you have any questions or comments regarding our findings, please call our office at (760) 370-3000.

Respectfully Submitted,
Landmark Consultants, Inc.

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EXECUTIVE SUMMARY

This executive summary presents ***selected*** elements of our findings and professional opinions. This summary ***may not*** present all details needed for the proper application of our findings and professional opinions. Our findings, professional opinions, and application options are ***best related through reading the full report***, and are best evaluated with the active participation of the engineer of record who developed them. The findings of this study are summarized below:

- Clay soils (CL) of medium to high expansion (EI = 70 to 110) predominate the near surface soils at the project site.

- Foundation designs should mitigate expansive soil conditions by either the removal and replacement of the upper 3.0 feet of clay soils with non-expansive soil or design of foundations to resist expansive forces, such as flat plate structural mats, grade-beam stiffened floor slabs, or post-tensioned floor slabs. A combination of the methods described above may also be used.

- Design soil bearing pressure = 1,500 psf with standard increases allowed by the California Building Code. Differential movement of 1.0 to 2.0 inches over 100 feet can be expected for slab on grade foundations placed on clay soils.

- The risk of liquefaction induced settlement is low to moderate. Liquefaction may occur in isolated silt and sand layers encountered at depths of 8 to 50 feet below ground surface. Potential liquefaction induced settlements of ¾ to 1¾ inches have been estimated for the project site. There is a moderate risk of ground rupture and/or sand boil formation should liquefaction occur.

- The native soils are aggressive to concrete and steel. Concrete mixes for concrete placed in contact with native soils shall have a maximum water cement ratio of 0.45 and a minimum compressive strength of 4,500 psi (minimum of 6.25 sacks Type V cement per cubic yard). All concrete should be thoroughly vibrated to remove rock pockets and minimize air voids.

- All reinforcing bars, anchor bolts and hold down bolts shall have a minimum concrete cover of 5.0 inches unless epoxy coated (ASTM D3963/A934). Hold-down straps at the foundation perimeter and pressurized water lines below or within the foundations are not allowed.

- Pavement structural sections should be designed for clay subgrade soils (R-Value = 5) and an appropriate Traffic Index (TI) selected by the civil designer.

Section 1
INTRODUCTION

1.1 Project Description

This report presents the findings of our geotechnical exploration and soil testing for the proposed Imperial Valley Data Center campus project located at 287 W. Aten Road in southeastern Imperial, California (See Vicinity Map, Plate A-1). The proposed development will consist of several data center buildings, an electrical substation, and stormwater basins. A site plan for the proposed development was not provided by the client.

The structures are anticipated to consist of slabs-on-grade foundations and steel-frame roof system. Footing loads at exterior bearing walls are estimated at 0.5 to 5 kips per lineal foot. Column loads are estimated to range from 10 to 50 kips. If structural loads exceed those stated above, we should be notified so we may evaluate their impact on foundation settlement and bearing capacity. The interior data center equipment components are sensitive to tilting and differential movement. Site development will include building pad preparation, underground utility installation including trench backfill, concrete foundation construction, roadway and parking lot construction, and concrete hardscape placement.

1.2 Purpose and Scope of Work

The purpose of this geotechnical study was to investigate the subsurface soil at selected locations within the site for evaluation of physical/engineering properties and liquefaction potential during seismic events. Professional opinions were developed from field and laboratory test data and are provided in this report regarding geotechnical conditions at this site and the effect on design and construction. The scope of our services consisted of the following:

- Field exploration and in-situ testing of the site soils at selected locations and depths.
- Laboratory testing for physical and/or chemical properties of selected samples.
- Review of the available literature and publications pertaining to local geology, faulting, and seismicity.
- Engineering analysis and evaluation of the data collected.
- Preparation of this report presenting our findings and professional opinions regarding the geotechnical aspects of project design and construction.

This report addresses the following geotechnical parameters:

- Subsurface soil and groundwater conditions
- Site geology, regional faulting and seismicity, near source factors, and site seismic accelerations
- Liquefaction potential and its mitigation
- Expansive soil and methods of mitigation
- Aggressive soil conditions to metals and concrete

Professional opinions with regard to the above parameters are provided for the following:

- Site grading and earthwork
- Building pad and foundation subgrade preparation
- Allowable soil bearing pressures and estimated settlements
- Concrete slabs-on-grade
- Lateral earth pressures
- Excavation conditions and buried utility installations
- Mitigation of the potential effects of salt concentrations in native soil to concrete mixes and steel reinforcement
- Seismic design parameters
- Pavement structural sections

Our scope of work for this report did not include an evaluation of the site for the presence of environmentally hazardous materials or conditions, storm water infiltration, groundwater mounding, or landscape suitability of the soil.

1.3 Authorization

Mr. Sebastian Rucci of Imperial Valley Computer Manufacturing, LLC provided authorization by written agreement to proceed with our work on June 3, 2025. We conducted our work in general accordance with our written proposal dated December 26, 2024.

Section 2
METHODS OF INVESTIGATION

2.1 Field Exploration

Subsurface exploration was performed on July 14, 2025 using Kehoe Testing and Engineering, Inc. of Huntington Beach, California to advance seven (7) electric cone penetrometer (CPT) soundings to an approximate depth of 50 feet below existing ground surface. The soundings were made at the locations shown on the Site and Exploration Plan (Plate A-2). The approximate sounding locations were established in the field and plotted on the site map by sighting to discernible site features. Shallow (4-foot deep) hand auger borings (3-inch diameter) were made adjacent to the CPT soundings in order to obtain near surface soil samples for laboratory analysis.

CPT soundings provide a continuous profile of the soil stratigraphy with readings every 2.5cm (1 inch) in depth. Direct sampling for visual and physical confirmation of soil properties has been used by our firm to establish direct correlations with CPT exploration in this geographical region.

The CPT exploration was conducted by hydraulically advancing an instrumented 15cm^2 conical probe into the ground at a rate of 2cm per second using a 30-ton truck as a reaction mass. An electronic data acquisition system recorded a nearly continuous log of the resistance of the soil against the cone tip (Qc) and soil friction against the cone sleeve (Fs) as the probe was advanced. Empirical relationships (Robertson and Campanella, 1989) were then applied to the data to give a continuous profile of the soil stratigraphy. Interpretation of CPT data provides correlations for SPT blow count, phi (ϕ) angle (soil friction angle), undrained shear strength (S_u) of clays and over-consolidation ratio (OCR). These correlations may then be used to evaluate vertical and lateral soil bearing capacities and consolidation characteristics of the subsurface soil.

Interpretive logs of the CPT soundings are presented on Plates B-1 through B-7 in Appendix B. A key to the interpretation of CPT soundings is presented on Plate B-8. The stratification lines shown on the subsurface logs represent the approximate boundaries between the various strata. However, the transition from one stratum to another may be gradual over some range of depth.

2.2 Laboratory Testing

Laboratory tests were conducted on selected bulk soil samples obtained from hand auger borings made adjacent to the CPT locations to aid in classification and evaluation of selected engineering properties of the near surface soils. The tests were conducted in general conformance to the procedures of the American Society for Testing and Materials (ASTM) or other standardized methods as referenced below. The laboratory testing program consisted of the following tests:

- Plasticity Index (ASTM D4318)
- Particle Size Analyses (ASTM D6913/D7928)
- Moisture-Density Relationship (ASTM D1557)
- Chemical Analyses (soluble sulfates & chlorides, pH, and resistivity) (Caltrans Methods)

The laboratory test results are presented in Appendix C.

Engineering parameters of soil strength, compressibility and relative density utilized for developing design criteria provided within this report were either extrapolated from correlations with the subsurface CPT data or from data obtained from the field and laboratory testing program.

Section 3
DISCUSSION

3.1 Site Conditions

The project site is located at 287 W. Aten Road in southeastern Imperial, California. The project site is predominantly vacant, flat lying with very little, if any, vegetation covering the site. The site consists of four (4) parcels totaling approximately 70-acres and is currently predominantly fallow agricultural land except for the northwestern portion of the subject property (APN 044-220-045) which is an abandoned light industrial site with a large concrete pad and 4 pond areas. Leimgruber Road, an unpaved road, traverses the central portion of the subject property in a north-south direction.

Adjacent properties consist of the abandoned Dune Company site west of the project site across Clark Road, which 86 forms the western boundary of the project site, and Golden Valley Applicators and the US Border Patrol training facility adjacent to the northwest portion. The Central Drain, an earthen open agricultural run-off drainage ditch, forms the southern property boundary. The US Border Patrol El Centro Headquarters and a single-family residential subdivision are located adjacent to the east side of the project site.

The project site lies at an elevation of approximately 55 feet below mean sea level (MSL) (El. 945 local datum) in the Imperial Valley region of the California low desert. The surrounding properties lie on terrain which is flat (planar), part of a large agricultural valley, which was previously an ancient lakebed covered with fresh water to an elevation of 43± feet above MSL. Annual rainfall in this arid region is less than 3 inches per year with four months of average summertime temperatures above 100 ^{o}F. Winter temperatures are mild, seldom reaching freezing.

3.2 Geologic Setting

The project site is located in the Salton Trough region of the Colorado Desert geomorphic province of southeastern California. The Salton Trough is a topographic and geologic structural depression resulting extending from the San Gorgonio Pass to the Gulf of California (Norris & Webb, 1990). The Salton Trough is bounded on the northeast by the San Andreas fault and Chocolate Mountains and the southwest by the Peninsular Range and faults of the San Jacinto Fault Zone.

The Salton Trough represents the northward extension of the Gulf of California, containing both marine and non-marine sediments deposited since the Miocene Epoch (Morton, 1977).

Tectonic activity that formed the trough continues at a high rate as evidenced by deformed young sedimentary deposits and high levels of seismicity. Figure 1 shows the location of the site in relation to regional faults and physiographic features.

The Imperial Valley is directly underlain by lacustrine deposits, which consist of interbedded lenticular and tabular silt, sand, and clay. The Late Pleistocene to Holocene (present) lake deposits are probably less than 100 feet thick and derived from periodic flooding of the Colorado River which intermittently formed a freshwater lake (Lake Cahuilla). Older deposits consist of Miocene to Pleistocene non-marine and marine sediments deposited during intrusions of the Gulf of California. Basement rock consisting of Mesozoic granite and Paleozoic metamorphic rocks are estimated to exist at depths between 15,000 - 20,000 feet.

3.3 Subsurface Soil

The USDA Natural Resources Conservation Service "Web Soil Survey" (USDA, 2025) website indicates that surficial deposits at the project site consist predominantly of silty clay loams of the Imperial and Imperial-Glenbar soil groups and fine sandy loam of the Meloland soil group (see Plate A-3). These loams are formed in sediment and alluvium of mixed origin (Colorado River overflows and fresh-water lake-bed sediments).

The subsurface soils encountered during the field exploration conducted on February 25, 2025, consist of approximately 5 to 10 feet of surficial clay soils underlain by interbedded sands, silts and clays of varying thicknesses and depths to a depth of 50 feet, the maximum depth of exploration. The subsurface logs (Plates B-1 through B-7) depict the stratigraphic relationships of the subsurface soil encountered at the points of exploration. Variations in subsurface stratigraphy may occur between the points of exploration. The stratification lines shown on the subsurface log represent the approximate boundaries between the various strata. However, the transition from one stratum to another may be gradual over some range of depth.

The native surface clays likely exhibit moderate to high swell potential (Expansion Index, EI = 70 to 110) when correlated to Plasticity Index tests (ASTM D4318) performed on the native soils.

The clay is expansive when wet and can shrink with moisture loss (drying). Development of building foundations and concrete flatwork should include provisions for mitigating potential swelling forces and reduction in soil strength, which can occur from saturation of the soil. Causes for soil saturation include landscape irrigation, broken utility lines, or capillary rise in moisture upon sealing the ground surface to evaporation. Moisture losses can occur with lack of landscape watering, close proximity of structures to downslopes and root system moisture extraction from deep rooted shrubs and trees placed near the foundations. The design structural engineer (foundations) should consider the effects of non-uniform moisture conditions around the entire foundation when selecting design criteria for the foundations. Differential shrink/swell movement of 1.0 to 2.0 inches over 100 feet can be expected for slab on grade foundations placed on clay soils. Typical measures used for similar projects to remediate expansive soil include:

- Replacement of expansive silts/clays (3.0 feet) with non-expansive sands or silts.
- Moisture conditioning subgrade soils to a minimum of 5% above optimum moisture (ASTM D1557) within the drying zone of surface soils.
- Capping silt/clay soil with a non-expansive sand layer of sufficient thickness (3.0 feet minimum) to reduce the effects of soil shrink/swell.
- Design of foundations that are resistant to shrink/swell forces of silt/clay soil.
- A combination of the methods described above

Site Soil Classification: Soil Site Classification for soil layers was determined with shear wave velocity and soil layer thickness as per Chapter 20 of ASCE 7-16 Section 20.4.1 as shown on Table 3. Shear wave velocity measurements of the subsurface soils were obtained at 10-foot intervals to a depth of 50 feet at CPT-1, CPT-4, and CPT-7. Shear wave velocities averaged 642 to 769 ft/sec with extrapolation of the shear wave velocity to a depth of 100 feet (Table 3). Based on the shear wave velocities, the site soils have been classified as Site Class D.

3.4 Groundwater

Groundwater was not noted in the CPT soundings but is typically encountered at approximately 8 to 10 feet below ground surface in the vicinity of the project site based on groundwater monitoring wells at the old Caspian site located within the west-central portion of the project site. Free flowing water bearing strata are located at a depth of 8 to 10 feet below ground surface. There is uncertainty in the accuracy of short-term water level measurements, particularly in fine-grained soil.

Groundwater levels may fluctuate with precipitation, irrigation of adjacent properties, site landscape watering, drainage, and site grading. The referenced groundwater level should not be interpreted to represent an accurate or permanent condition.

3.5 Faulting

The project site is located in the seismically active Imperial Valley of southern California with numerous mapped faults of the San Andreas Fault System traversing the region. The San Andreas Fault System is comprised of the San Andreas, San Jacinto, and Elsinore Fault Zones in southern California. The Imperial fault represents a transition from the more continuous San Andreas fault to a more nearly echelon pattern characteristic of the faults under the Gulf of California. We have performed a computer-aided search of known faults or seismic zones that lie within a 37-mile radius of the project site (Table 1).

A fault map illustrating known active faults relative to the site is presented on Figure 1, *Regional Fault Map*. Figure 2 shows the project site in relation to local faults. The criterion for fault classification adopted by the California Geological Survey defines Earthquake Fault Zones along Holocene-active or pre-Holocene faults (CGS, 2025b). Earthquake Fault Zones are regulatory zones that address the hazard of surface fault rupture. A Holocene-active fault is one that has ruptured during Holocene time (within the last 11,700 years). A pre-Holocene fault is a fault that has not ruptured in the last 11,700 years. Pre-Holocene faults may still be capable of surface rupture in the future but are not regulated by the Alquist-Priolo Act (AP).

Review of the current Earthquake Fault Zone maps (CGS, 2025a) indicates that the nearest zoned faults are the Superstition Hills fault located approximately 2.6 miles northwest of the project site and the Imperial fault located approximately 3.1 miles east of the project site.

3.6 General Ground Motion Analysis

The project site is considered likely to be subjected to moderate to strong ground motion from earthquakes in the region. Ground motions are dependent primarily on the earthquake magnitude and distance to the seismogenic (rupture) zone.

Acceleration magnitudes also are dependent upon attenuation by rock and soil deposits, direction of rupture and type of fault; therefore, ground motions may vary considerably in the same general area.

2022 CBC General Ground Motion Parameters: The California Building Code (CBC) requires that a site-specific ground motion hazard analysis be performed in accordance with ASCE 7-16 Section 11.4.8 (ASCE, 2016) for structures on Site Class D with S_1 greater than or equal to 0.2 and Site Class E sites with S_s greater than or equal to 1.0 (CBC, 2023). **This project site has been classified as Site Class D and has a S_1 value of 0.60, which would require a site-specific ground motion hazard analysis**. However, ASCE 7-16 Section 11.4.8 Supplement 3 provides exceptions which permit the use of conservative values of design parameters for certain conditions for Site Class D and E sites in lieu of a site-specific hazard analysis. The exceptions are:

- Site Class D sites: A ground motion hazard analysis is not required where the value of the parameter S_{M1} determined by Equation 11.4-2 is increased by 50% for all applications of S_{M1} in ASCE 7-16. The resulting value of the parameter S_{D1} determined by ASCE 7-16 Equation 11.4-4 shall be used for all applications of S_{D1} in ASCE 7-16.

- Site Class E sites: A ground motion hazard analysis is not required:
  a. Where the equivalent lateral force procedure is used for design and the value of C_S is determined by ASCE 7-16 Equation 12.8-2 for all values of T, or
  b. Where (i) the value of S_{ai} is determined by ASCE 7-16 Equation 15.7-7 for all values of T_i and (ii) the value of the parameter S_{D1} is replaced with $1.5S_{D1}$ in ASCE 7-16 Equation 15.7-10 and ASCE 7-16 Equation 15.7-11.

Based on the project site being classified as Site Class D, the structural engineer should increase the parameter S_{M1} provided in Table 2 by 50% for all applications of S_{M1} in ASCE 7-16. If a site-specific ground motion hazard analysis is required for the project, our office should be consulted to perform a site-specific ground motion hazard analysis. **Design earthquake ground motion parameters are provided in Table 2.**

The 2022 CBC general ground motion parameters are based on the Risk-Targeted Maximum Considered Earthquake (MCE_R). The Structural Engineers Association of California (SEAOC) and Office of Statewide Health Planning and Development (OSHPD) Seismic Design Maps Web Application (SEAOC, 2025) was used to obtain the site coefficients and adjusted maximum considered earthquake spectral response acceleration parameters.

Design spectral response acceleration parameters are defined as the earthquake ground motions that are two-thirds (2/3) of the corresponding MCE_R ground motions. The Maximum Considered Earthquake Geometric Mean (MCE_G) peak ground acceleration adjusted for soil site class effects (PGA_M) value to be used for liquefaction and seismic settlement analysis in accordance with 2022 CBC Section 1803.5.12.2 is estimated at 0.78g for the project site.

3.7 Seismic and Other Hazards

- **Ground Shaking.** The primary seismic hazard at the project site is the potential for strong ground shaking during earthquakes along the Imperial, Brawley, and Superstition Hills faults.
- **Surface Rupture.** The California Geological Survey (2025b) has established Earthquake Fault Zones in accordance with the 1972 Alquist-Priolo Earthquake Fault Zone Act. The Earthquake Fault Zones consists of boundary zones surrounding well defined, active faults or fault segments. The project site does not lie within a currently mapped A-P Earthquake Fault Zone; therefore, surface fault rupture is considered to be low at the project site.
- **Liquefaction and lateral spreading.** Liquefaction is a potential design consideration because of underlying saturated sandy substrata. Although the Imperial Valley has not yet been evaluated for seismic hazards by the California Geological Survey seismic hazards zonation program, liquefaction is well documented in the Imperial Valley after strong seismic events (McCrink, et al, 2011 and Rymer et al, 2011). The potential for liquefaction at the site is discussed in more detail in Section 3.8. Liquefaction induced lateral spreading is not expected to occur at this site due to the planar topography.

Other Potential Geologic Hazards.

- **Landsliding.** The hazard of landsliding is unlikely due to the regional planar topography. No ancient landslides are shown on geologic maps, aerial photographs and topographic maps of the region and no indications of landslides were observed during our site investigation.
- **Volcanic hazards.** The site is not located proximal to any known volcanically active area and the risk of volcanic hazards is considered low. Obsidian Butte and Red Hill, located at the south end of the Salton Sea approximately 15 miles north of the project site, are small remnants of volcanic domes. The domes erupted about 1,800 to 2,500 years ago (Wright et al, 2015). The subsurface brine fluids around the domes have a high heat flow and are currently being utilized to produce geothermal energy.

- **Tsunamis and seiches.** Tsunamis are giant ocean waves created by strong underwater seismic events, asteroid impact, or large landslides. Seiches are large waves generated in enclosed bodies of water in response to strong ground shaking. The site is not located near any large bodies of water, so the threat of tsunami, seiches, or other seismically induced flooding is considered unlikely.
- **Flooding.** Based on our review of Federal Emergency Management Agency (FEMA) FIRM Panel 06025C1725C which encompasses the project site, the project site is located in Flood Zone X, an area determined to be outside the 0.2% annual chance (500-year) floodplain (FEMA, 2008).
- **Collapsible soils.** Collapsible soil generally consists of dry, loose, low-density material that have the potential collapse and compact (decrease in volume) when subjected to the addition of water or excessive loading. Soils found to be most susceptible to collapse include loess (fine grained wind-blown soils), young alluvium fan deposits in semi-arid to arid climates, debris flow deposits and residual soil deposits. Due to the cohesive nature of the subsurface soils and shallow groundwater, the potential for hydro-collapse of the subsurface soils at this project site is considered very low.
- **Expansive soils.** In general, much of the near surface soils in the Imperial Valley consist of silty clays and clays which are moderate to highly expansive. The expansive soil conditions are discussed in more detail in Section 3.3.

3.8 Liquefaction

Liquefaction occurs when granular soils below the water table are subjected to vibratory motions, such as those produced by earthquakes. With strong ground shaking, the pore water pressure increases as the soil tends to reduce in volume. If the increase in pore water pressure is sufficient to reduce the vertical effective stress (suspending the soil particles in water), the soil strength decreases and the soil behaves as a liquid (similar to quicksand). Liquefaction can produce excessive settlement, ground rupture, lateral spreading, or failure of shallow bearing foundations.

Four conditions are generally required for liquefaction to occur:

(1) the soil must be saturated (relatively shallow groundwater);
(2) the soil must be loosely packed (low to medium relative density);
(3) the soil must be relatively cohesionless (not clayey); and
(4) groundshaking of sufficient intensity must occur to function as a trigger mechanism.

All of these conditions exist to some degree at this site.

Methods of Analysis: The computer program CLiq (Version 3.5.3.10, Geologismiki, 2025) was utilized for liquefaction assessment at the project site. The estimated settlements have been adjusted for transition zones between layers. Computer printouts of the liquefaction analyses are provided in Appendix D.

The liquefaction potential at the project site was evaluated using the 1997 NCEER Liquefaction Workshop (NCEER, 1997 and Youd, et.al., 2001). The 1997 NCEER methods utilize CPT cone readings from site exploration and earthquake magnitude/PGA estimates from the seismic hazard analysis. The resistance to liquefaction is plotted on a chart of cyclic shear stress ratio (CSR) versus a corrected tip pressures $Q_{tn,cs}$. The analysis was performed using a PGA_M value of 0.78g was used in the analysis with an 8-foot groundwater depth and a threshold factor of safety (FS) of 1.3.

The fines content of the liquefiable sands and silts increases their liquefaction resistance in that more ground motion cycles are required to fully develop the increased pore pressures. The CPT tip pressures (Qc) were adjusted to an equivalent clean sand pressure ($Q_{tn,cs}$) in accordance with NCEER (1997).

The soils encountered at the points of exploration included saturated silts and silty sands that could liquefy during a Maximum Considered Earthquake. Liquefaction can occur within several isolated silt and sand layers between depths of 8 to 50 feet. The likely triggering mechanism for liquefaction appears to be strong ground shaking associated with the rupture of the Superstition Hills, Imperial and other nearby faults.

The analysis is summarized in the table below.

Summary of Liquefaction Analysis

Boring Location	Depth To First Liquefiable Zone (ft)	Potential Induced Settlement (in)
CPT-1	8.5	1¾
CPT-2	10	1¾
CPT-3	10.5	1¾
CPT-4	8	1¼
CPT-5	10.5	1
CPT-6	9	¾
CPT-7	9.5	1¼

Liquefaction Induced Settlements: ***Based on empirical relationships, total induced settlements are estimated to be about ¾ to 1¾ inches should liquefaction occur.*** Differential settlement is estimated at less than ¼ inch over a distance of 100 feet for a majority of the project site.

Because of the depth of the liquefiable layer, the approximately 8 to 10-foot-thick non-liquefiable clay layer may act as a bridge over the liquefiable layer resulting in a fairly uniform ground surface settlement; therefore, wide area subsidence of the soil overburden would be the expected effect of liquefaction rather than bearing capacity failure of the proposed structures.

Liquefaction Induced Ground Failure: Based on research from Ishihara (1985) and Youd and Garris (1995) small ground fissure or sand boil formation is possible because of the relatively thin layer of the overlying unliquefiable soil. Sand boils are conical piles of sand derived from the upward flow of groundwater caused by excess porewater pressures created during strong ground shaking. Sand boils are not inherently damaging by themselves, but are an indication that liquefaction occurred at depth (Jones, 2003). Liquefaction induced lateral spreading is not expected to occur at this site due to the planar topography.

According to Youd (2005), if the liquefiable layer lies at a depth greater than about twice the height of a free face, lateral spread is not likely to develop. No slopes or free faces occur at this site except for the Central Drain located along the southern margin of the project site.

Mitigation: Ground improvement methods are available to mitigate liquefaction such as deep soil mixing (cement), vibro-compaction, vibro-replacement, geopiers, stone columns, compaction grouting, or deep dynamic compaction. Some other means to mitigate liquefaction damage include either a deep foundation system or rigid mat foundations and grade-beam reinforced foundations that can withstand the differential movement or tilting but will not protect fracturing of buried utilities from damage (CGS, 2008).

ASCE 7-16 section 12.13.9 exception limits liquefaction differential settlement to one-fourth of the differential settlement threshold (ASCE 7-16 Table 12.13-3). The differential settlement caused by liquefaction for this project site is estimated at approximately ¼ inch over 100 feet. If the exception is not applicable the designer may consider:

1) Foundations that use grade-beam footings to tie floor slabs and isolated columns to continuous footings (conventional or post-tensioned).

2) Structural flat-plate mats, either conventionally reinforced or tied with post-tensioned tendons.

These alternatives reduce the potential effects of liquefaction-induced settlements by making the structures more able to withstand differential settlement.

Section 4
DESIGN CRITERIA

4.1 Site Preparation

Preconstruction Meeting: A preconstruction conference should be held at the site prior to the beginning of grading operations with, as a minimum, the owner's representative, grading contractor and geotechnical engineer in attendance.

Clearing and Grubbing: All surface improvements, debris or vegetation including grass, trees, and weeds on the site at the time of construction should be removed from the construction area. Root balls should be completely excavated. Organic strippings should be stockpiled and not used as engineered fill. All trash, construction debris, concrete slabs, old pavement, landfill, contaminated soil, and buried obstructions such as old foundations and utility lines exposed during rough grading should be traced to the limits of the foreign material by the grading contractor and removed under our supervision. Any excavations resulting from site clearing should be sloped to a bowl shape to the lowest depth of disturbance and backfilled under the observation of the geotechnical engineer's representative.

It should be noted that there is a portion of the project site that has an environmental land use restriction (LUR) due to soils containing chemicals from past use on the project site. The area of the LUR has a rocky cap and surrounded by a chain link fence. No excavation of materials within the LUR area is permitted without Department of Toxic Substances Control (DTSC) review and approval.

Mass Grading: Prior to placing any fills, the surface 3.5 feet of soil should be prewetted (minimum of 20% moisture content). Subsequent to prewetting, the surface 12 inches of soil ***in areas planned for fill soil placement*** should be removed, the exposed surface uniformly moisture conditioned to a depth of 8 inches by discing and wetting to a minimum of optimum plus 5% and recompacted to 85% to 90% of ASTM D1557 maximum density.

The surface soils are loose with 2 to 4 inches of "fluff" on the surface, as indicated by wheel load depressions. Prior to placing any fills, the surface 12 inches of soil should be removed, the exposed surface uniformly moisture conditioned to a depth of 8 inches by discing and wetting to a minimum of optimum plus 5% and recompacted to 85% to 90% of ASTM D1557 maximum density.

Onsite native clays placed as engineered fill should be uniformly moisture conditioned by discing and wetting or drying to optimum plus 5 to 10% and compacted in 6-inch maximum lifts to 85% to 90% relative compaction. Clods shall be reduced by discing to a maximum dimension of 1.0 inch prior to being placed as fill.

Building Pad Preparation for Foundations Placed on Native Clay Soils: The existing soils within the building pad/foundation areas should be overexcavated to a minimum depth of 36 inches below the existing natural surface grade or 12 inches below the deepest footing (whichever is deeper) and should extend at least five (5) feet beyond all exterior wall/column lines (including concreted areas adjacent to the building). Exposed subgrade should be scarified to a depth of 8 inches, uniformly moisture conditioned to 5 to 10% above optimum moisture content and recompacted to 85 to 90% of the maximum density determined in accordance with ASTM D1557 methods.

Prior to over-excavation of the surface soil, deep moisture penetration may be achieved by bordering the site and applying multiple floodings or by sprinkler application to allow water to permeate to a minimum depth of 3.5 feet (20% minimum moisture content) below existing natural surface. Extended drying periods may be required when utilizing this method of pre-saturation.

The native soil is suitable for use as engineered fill provided it is free from concentrations of organic matter or other deleterious material. The fill soil should be uniformly moisture conditioned by discing and watering to the limits specified above, placed in maximum 8-inch lifts (loose), and compacted to the limits specified above. Clay soil should not be overcompacted because highly compacted soil will result in increased swelling. Imported fill soil (for foundations designed for expansive soil conditions) should have a Plasticity Index less than 25 and sulfates (SO_4) less than 4,000 ppm.

Due to the highly alkaline soil conditions, a separation fabric such as Petromat, Mirafi 180 or Supac 6NP should be placed over the compacted native soil prior to placing granular or import fill.

Building Pad Preparation for Foundations Placed on Imported Non-expansive Soil: If foundation designs are to be utilized which do not include provisions for expansive soil, an engineered building support pad consisting of 3.0 feet of imported non-expansive soil should be used.

The existing soils within the building pad/foundation areas should be overexcavated to a minimum depth of 36 inches below the existing natural surface grade or 12 inches below the deepest footing (whichever is deeper) and should extend at least five (5) feet beyond all exterior wall/column lines (including concreted areas adjacent to the building). The imported non-expansive fill material shall be placed in maximum 8-inch lifts (loose), compacted to a minimum of 90% of ASTM D1557 maximum density at 2% below to 4% above optimum moisture, should be placed below the bottom of the slab. The imported non-expansive soils should be placed over a minimum of 12 inches of uniformly moisture conditioned native soil (5-10% above optimum moisture content) which has been compacted to 85-90% of ASTM D1557 maximum dry density.

The imported soils should meet the USCS classifications of ML (non-plastic), SM, SP-SM, or SW-SM with a maximum rock size of 3 inches and no less than 5% passing the No. 200 sieve. The geotechnical engineer should approve imported fill soil sources before hauling material to the site. Imported fill should be placed in lifts no greater than 8 inches in loose thickness and compacted to a minimum of 90% of ASTM D1557 maximum dry density at optimum moisture ±2%.

Sidewalk and Concrete Hardscape Areas: In areas other than the building pads which are to receive sidewalks or area concrete slabs, the ground surface ***(extending minimum 1 foot laterally beyond the improvements)***, should be presaturated (20% minimum moisture content) to a minimum depth of 24 inches and then scarified to 8 inches, moisture conditioned to a minimum of 5% over optimum, and recompacted to 85-90% ***(minimum 1 foot laterally beyond the improvement)*** of ASTM D1557 maximum density just prior to concrete placement.

Moisture Control and Drainage: If clay soils are used at building pads (without 3.0 feet of granular, non-plastic soil), the moisture condition of the building pad should be maintained during trenching and utility installation until concrete is placed or should be rewetted by use of multiple applications of water with sprinklers before initiating delayed construction.

Adequate site drainage is essential to the future performance of the project. Infiltration of excess irrigation water and stormwaters can adversely affect the performance of the subsurface soil at the site. Positive drainage should be maintained away from all structures (5% for 10 feet minimum across unpaved areas) to prevent ponding and subsequent saturation of the native clay soil. Swales or stormwater catch basins and drainage piping may be used to divert water away from the foundation when obstructions or property lines prohibit 10 feet of horizontal distance.

Drainage swales within 10 feet of the foundation should have a minimum slope of 2% (California Building Code Section 1804.4). Gutters and downspouts may be considered as a means to convey water away from foundations. If landscape irrigation is allowed next to the building, drip irrigation systems or lined planter boxes should be used. The subgrade soil around the entire foundation should be maintained in a moist, but not saturated state, and not allowed to dry out.

The owner/developer should consider utilizing drip irrigation systems around the entire building perimeter to maintain soil moisture. Drainage should be maintained without ponding. Trees should be set back from foundations a minimum of 20 feet from the foundation.

Observation and Density Testing: All site preparation and fill placement should be continuously observed and tested by a representative of a qualified geotechnical engineering firm. Full-time observation services during the excavation and scarification process are necessary to detect undesirable materials or conditions and soft areas that may be encountered in the construction area. The geotechnical firm that provides observation and testing during construction shall assume the responsibility of "*geotechnical engineer of record*" and, as such, shall perform additional tests and investigation as necessary to satisfy themselves as to the site conditions and the geotechnical parameters for site development.

Auxiliary Structures Foundation Preparation: Auxiliary structures such as free standing or retaining walls should have footings extended to a minimum of 30 inches below grade. The existing soil beneath the structure foundation prepared in the manner described for the building pad except the preparation needed only to extend 18 inches below and beyond the footing.

4.2 Foundations and Settlements

Expansive Soil Engineered Building Pad: For foundations placed on an engineered building pad consisting of native clay soils, shallow spread or continuous footings are suitable to support the building provided they are structurally tied with grade-beams to continuous perimeter wall footings to resist differential movement associated with expansive soils and potential soil liquefaction at depth.

A minimum of 18 inches of compacted fill should exist beneath the footings. Continuous wall footings should have a minimum depth of 24 inches and minimum width of 12 inches. Spread footings should have a minimum dimension of 24 inches and should be structurally tied to perimeter footings or grade beams. Concrete reinforcement and sizing for all footings should be provided by the structural engineer.

The foundations may be designed using an allowable soil bearing pressure of 1,500 psf for compacted native clay soil. The allowable soil pressure may be increased by 20% for each foot of embedment depth of the footings in excess of 18 inches and by one-third for short term loads induced by winds or seismic events. The maximum allowable soil pressure at increased embedment depths shall not exceed 3,000 psf (clays).

Resistance to horizontal loads will be developed by passive earth pressure on the sides of footings and frictional resistance developed along the bases of footings and concrete slabs. Passive resistance to lateral earth pressure may be calculated using an equivalent fluid pressure of 250 pcf to resist lateral loadings. The top one foot of embedment should not be considered in computing passive resistance unless the adjacent area is confined by a slab or pavement. An allowable friction coefficient of 0.25 may also be used at the base of the footings to resist lateral loading.

Flat plate structural mats, grade-beam reinforced foundations, or post tensioned reinforced foundations may be used to mitigate expansive soil heave and/or liquefaction related movement.

- Flat Plate Structural Mats: Flat plate structural mats may be used to mitigate expansive soils at the project site. The structural mat shall have a double mat of steel (minimum No. 4's @ 12 inches O.C. each way – top and bottom) and a minimum thickness of 10 inches. Mat edges shall have a minimum edge footing of 12 inches width and 24 inches depth (below the building pad surface). Mats may be designed by CBC Chapter 18, Section 1808.6.2 methods (*WRI/CRSI Design of Slab-on-Ground Foundations*).

  Structural mats may be designed for a modulus of subgrade reaction (Ks) of 50 pci when placed on compacted clay or a subgrade modulus of 250 pci when placed on 2.5 feet of granular fill. Mats shall overlay 2 inches of sand and a 10-mil polyethylene vapor retarder. The building support pad shall be moisture conditioned and recompacted as specified in Section 4.1 of this report.

- Grade-beam Reinforced Foundations: Specific soil data for structures with grade-beam reinforced foundations placed on the native clays are presented below in accordance with the design method given in CBC Chapter 18 Section 1808.6.2 (*WRI/CRSI Design of Slab-on-Ground Foundations*):

  Weighted Plasticity Index (PI) = 24
  Slope Coefficient (C_s) = 1.0
  Strength Coefficient (C_o) = 0.8
  Climatic Rating (C_w) = 15
  Effective PI = 22
  Maximum Grade-beam Spacing = 21 feet

  Exterior footings shall be founded a minimum of 24 inches below the surface of the building support pad on a layer of properly prepared and compacted native soil as described in Section 4.1. Interior footings shall have a minimum embedment depth of 12 inches.

- Post-tensioned Slabs: If post-tensioned slabs are considered for this project, the following basic (minimum) soil criteria should be used in accordance with CBC Chapter 18 Section 1808.6.2 (*PTI 10.5 Standard Requirements for Design and Analysis of Shallow Post-Tensioned Concrete Foundations on Expansive Soils*). ***The design engineer may consider other site conditions that may warrant more conservative design values.***

Atterberg Limits:		
Liquid Limit	43	
Plasticity Limit	24	
Plasticity Index	19	
Fines Content (<#200 sieve)	90	
% finer than 2μ	32	
Fabric Factor	1	
Thornthwaite Moisture Index	-40	
Maximum Edge Moisture Variation Distance, e_m		Edge: 4.2 ft. Center: 8.2 ft.
Differential Soil Movement, y_m		Edge: 1.36 in. Center: 0.25 in.
Bearing Capacity:		1,500 psf
Maximum Allowable Slab Deflection		Center: L/480 Edge: L/720

Clamping devices and end anchors for post-tensioned tendons are susceptible to corrosion from aggressive soil and landscape water conditions. Therefore, a fully encapsulated tendon and positive end seal system is required. Torched-off ends of cables are only allowed if the flame heat does not distort the end seal for the cable clamping devices. Grease caps must form a complete seal to the cup. Apply a bonding agent to the recessed pocket area and fill with polymer modified non-shrink grout.

All exterior footings for post-tensioned slabs should be embedded a minimum of 24 inches below the building support pad or lowest adjacent final grade, whichever is deeper. The minimum embedment depth of interior slab stiffening elements for post-tensioned slabs should be at least 12 inches into the building support pad to account for variable environmental conditions. Interior and exterior embedment depths listed herein are minimum depths and greater depths/widths may be required by the structural engineer/designer and should be sufficient to limit differential movement to L/480 for center lift and L/720 for edge lift to comply with the current standards.

Non-expansive Soil Engineered Building Pad: Shallow spread or continuous conventional footings are suitable to support the buildings provided they are structurally tied with grade-beams to continuous perimeter wall footings to resist differential movement associated with potential soil liquefaction at depth. Exterior footings shall be founded a minimum of 18 inches below the surface of the building support pad when supported on a non-expansive granular fill as described in Section 4.1. Interior footings shall have a minimum embedment depth of 12 inches.

The foundations may be designed using an allowable soil bearing pressure of 2,000 psf when foundations are supported on imported sands (extending a minimum of 1.0 feet below footings). Column footings with greater than 50-kip loading need to be evaluated for settlement and additional granular fill. The allowable soil pressure may be increased by 20% for each foot of embedment depth of the footings in excess of 18 inches and by one-third for short term loads induced by winds or seismic events. The maximum allowable soil pressure at increased embedment depths shall not exceed 3,000 psf.

Resistance to horizontal loads will be developed by passive earth pressure on the sides of footings and frictional resistance developed along the bases of footings and concrete slabs. Passive resistance to lateral earth pressure may be calculated using an equivalent fluid pressure of 300 pcf to resist lateral loadings. The top one foot of embedment should not be considered in computing passive resistance unless the adjacent area is confined by a slab or pavement. An allowable friction coefficient of 0.35 may also be used at the base of the footings to resist lateral loading.

Settlements: Foundation movement under the estimated static (non-seismic) loadings and static site conditions are estimated to not exceed 1 inch with differential movement of about two-thirds of total movement for the loading assumptions stated above when the subgrade preparation guidelines given above are followed. Seismically induced liquefaction settlement of the surrounding land mass and structure may be on the order of ¾ to 1¾ inches (total) with differential settlements of approximately ¼ inch over a distance of 100 across the project site.

4.3 Slabs-On-Grade

Structural Concrete: Structural concrete slabs are those slabs (foundations) that underlie structures or patio covers (shades). These slabs that are placed over native clay soil should be designed in accordance with CBC Chapter 18 Section 1808.6 and shall be a minimum of 5 inches thick due to expansive soil conditions. Concrete floor slabs shall be monolithically placed with the footings (no cold joints) unless placed on 2.5 feet of granular fill.

American Concrete Institute (ACI) guidelines (ACI 302.1R-15 Chapter 5, Section 5.2.3) provide recommendations regarding the use of moisture barriers beneath concrete slabs. The concrete floor slabs should be underlain by a 10-mil polyethylene vapor retarder that works as a capillary break to reduce moisture migration into the slab section. All laps and seams should be overlapped 6-inches or as recommended by the manufacturer. The vapor retarder should be protected from puncture. The joints and penetrations should be sealed with the manufacturer's recommended adhesive, pressure-sensitive tape, or both. The vapor retarder should extend a minimum of 12 inches into the footing excavations. The vapor retarder should be covered by 4 inches of clean sand (Sand Equivalent SE>30) unless placed on 2.5 feet of granular fill, in which case, the vapor retarder may lie directly on the granular fill with 2 inches of clean sand cover.

Placing sand over the vapor retarder may increase moisture transmission through the slab, because it provides a reservoir for bleed water from the concrete to collect. The sand placed over the vapor retarder may also move and mound prior to concrete placement, resulting in an irregular slab thickness. For areas with moisture sensitive flooring materials, ACI (2015) recommends that concrete slabs be placed without a sand cover directly over the vapor retarder, provided that the concrete mix uses a low-water cement ratio and concrete curing methods are employed to compensate for release of bleed water through the top of the slab. The vapor retarder should have a minimum thickness of 15-mil (Stego-Wrap or equivalent).

Structural concrete slab reinforcement over native clay soil pads should consist of chaired rebar slab reinforcement (minimum of No. 3 bars at 16-inch centers, both horizontal directions) placed at slab mid-height to resist potential swell forces and cracking. Slab thickness and steel reinforcement are minimums only and should be verified by the structural engineer/designer knowing the actual project loadings. All steel components of the foundation system should be protected from corrosion by maintaining a 5-inch minimum concrete cover of densely consolidated concrete at footings (by use of a vibrator).

The construction joint between the foundation and any mowstrips/sidewalks placed adjacent to foundations should be sealed with a polyurethane based non-hardening sealant to prevent moisture migration between the joint. Epoxy coated embedded steel components (ASTM D3963/A934) or permanent waterproofing membranes placed at the exterior footing sidewall may also be used to mitigate the corrosion potential of concrete placed in contact with native soil.

Control joints should be provided in all concrete slabs-on-grade at a maximum spacing (in feet) of 2 to 3 times the slab thickness (in inches) as recommended by ACI guidelines. All joints should form approximately square patterns to reduce randomly oriented contraction cracks. Contraction joints in the slabs should be tooled at the time of the pour or sawcut (¼ of slab depth) within 6 to 8 hours of concrete placement. Construction (cold) joints in foundations and area flatwork should either be thickened butt-joints with dowels or a thickened keyed-joint designed to resist vertical deflection at the joint. All joints in flatwork should be sealed to prevent moisture, vermin, or foreign material intrusion. Precautions should be taken to prevent curling of slabs in this arid desert region (refer to ACI guidelines).

Non-structural Concrete: All non-structural independent flatwork (sidewalks and uncovered patios) shall be a minimum of 4 inches thick and should be placed on a minimum of 2 inches of concrete sand or aggregate base, dowelled to the perimeter foundations where adjacent to the building to prevent separation and sloped 2% (sidewalks) or 1 to 2% (patios) away from the building. Patio slabs with shade structures shall have a perimeter footing (18-inch embedment depth) and shall have interior grade beams (12-inch minimum embedment depth) at 15 feet on center. Planters that trap water between sidewalks and foundations are not allowed.

A minimum of 24 inches of moisture conditioned (5% minimum above optimum) and 8 inches of compacted subgrade (85 to 90%) should underlie all independent flatwork ***(extending minimum 1 foot laterally beyond the improvement***. Flatwork which contains steel reinforcing (except wire mesh) should be underlain by a 10-mil (minimum) polyethylene separation sheet and at least a 2-inch sand cover. All flatwork should be jointed in square patterns and at irregularities in shape at a maximum spacing of 8 feet or the least width of the sidewalk.

4.4 Concrete Mixes and Corrosivity

Selected chemical analyses for corrosivity were conducted on bulk samples of the near surface soil from the project site (Plate C-3). The native soils were found to have S2 (severe) levels of sulfate ion concentration (4,614 to 7,848 ppm). Sulfate ions in high concentrations can attack the cementitious material in concrete, causing weakening of the cement matrix and eventual deterioration by raveling. The following table provides American Concrete Institute (ACI, 2019) recommended cement types, water-cement ratio and minimum compressive strengths for concrete in contact with soils:

Concrete Mix Design Criteria due to Soluble Sulfate Exposure

Sulfate Exposure Class	Water-soluble Sulfate (SO_4) in soil, ppm	Cement Type	Maximum Water-Cement Ratio by weight	Minimum Strength f'c (psi)
S0	0-1,000	–	–	–
S1	1,000-2,000	II	0.50	4,000
S2	2,000-20,000	V	0.45	4,500
S3 – Option 1	Over 20,000	V (plus Pozzolon)	0.45	4,500
S3 – Option 2	Over 20,000	V	0.40	5,000

Note: From ACI 318-19 Table 19.3.1.1 and Table 19.3.2.1

A minimum of 6.25 sacks per cubic yard of concrete (4,500 psi) of Type V Portland Cement with a maximum water/cement ratio of 0.45 (by weight) should be used for concrete placed in contact with native soil on this project (sitework including streets, sidewalks, driveways, patios, and foundations). Admixtures may be required to allow placement of this low water/cement ratio concrete. Thorough concrete consolidation and hard trowel finishes should be used due to the aggressive soil exposure.

The native soil has very severe levels of chloride ion concentration (>18,000 ppm). Chloride ions can cause corrosion of reinforcing steel, anchor bolts and other buried metallic conduits. Resistivity determinations on the soil indicate very severe potential for metal loss because of electrochemical corrosion processes.

Mitigation of the corrosion of steel can be achieved by using steel pipes coated with epoxy corrosion inhibitors, asphaltic and epoxy coatings, cathodic protection or by encapsulating the portion of the pipe lying above groundwater with a minimum of 5 inches of densely consolidated concrete. ***No metallic water pipes or conduits should be placed below foundations.***

Foundation designs shall provide a minimum concrete cover of five (5) inches around steel reinforcing or embedded components (anchor bolts, etc.) exposed to native soil or landscape water (to 18 inches above grade). If the 5-inch concrete edge distance cannot be achieved, all embedded steel components (anchor bolts, etc.) shall be epoxy coated for corrosion protection (in accordance with ASTM D3963/A934) or a corrosion inhibitor and a permanent waterproofing membrane shall be placed along the exterior face of the exterior footings. ***Hold-down straps should not be used at foundation edges due to corrosion of metal at its protrusion from the slab edge.*** Additionally, the concrete should be thoroughly vibrated at footings during placement to decrease the permeability of the concrete.

Exterior foundation faces exposed to native soils (without adjacent mowstrips, sidewalks, or patios) should be coated with a permanent waterproofing membrane to prevent salt migration into concrete.

Copper water piping (except for trap primers) should not be placed under floor slabs. All copper piping within 18 inches of ground surface shall be sleeved or wrapped with two layers of 10 mil plumbers tape or sleeved with PVC piping to prevent contact with soil.

The trap primer pipe shall be completely encapsulated in a PVC sleeve and Type K copper should be utilized if polyethylene tubing cannot be used. Pressurized waterlines are not allowed under the floor slab. ***Fire protection piping (risers) should be placed outside of the building foundation.***

Landmark does not practice corrosion engineering. We recommend that a qualified corrosion engineer evaluate the corrosion potential on metal construction materials and concrete at the site to obtain final design recommendations.

4.5 Excavations

All site excavations should conform to CalOSHA requirements for Type B soil. The contractor is solely responsible for the safety of workers entering trenches. Temporary excavations with depths of 4 feet or less may be cut nearly vertical for short duration. Excavations deeper than 4 feet will require shoring or slope inclinations in conformance to CAL/OSHA regulations for Type B soil. Surcharge loads of stockpiled soil or construction materials should be set back from the top of the slope a minimum distance equal to the height of the slope. All permanent slopes should not be steeper than 3:1 to reduce wind and rain erosion. Protected slopes with ground cover may be as steep as 2:1. However, maintenance with motorized equipment may not be possible at this inclination.

Groundwater is anticipated to be encountered at a depth of 8 to 10 feet at the project site. The contractor is cautioned to evaluate soil moisture and groundwater conditions at the time of bidding. Running ground conditions should be anticipated below 8 feet. Dewatering (by well points) will be necessary (prior to trenching) to install utilities in trenches greater than 8 to 10 feet below ground surface.

4.6 Utility Trench Backfill

Utility Trench Backfill: Prior to placement of utility bedding, the exposed subgrade at the bottom of trench excavations should be examined for soft, loose, or unstable soil. Loose materials at trench bottoms resulting from excavation disturbance should be removed to firm material. If extensive soft or unstable areas are encountered, these areas should be over-excavated to a depth of at least 2 feet or to a firm base and be replaced with additional bedding material.

Backfill Materials: Pipe zone backfill (i.e., material beneath and in the immediate vicinity of the pipe) should consist of a 4-to-8-inch bed of ⅜-inch crushed rock, sand/cement slurry (3 sack cement factor), and/or crusher fines (sand) extending to a minimum of 12 inches above the top of pipe. If crushed rock is used for pipe zone backfill for utilities, the crushed rock material should be completed surrounded by a non-woven filter fabric such as Mirafi 140N or equivalent. The filter fabric shall cover the trench bottom, sidewalls and over the top of the crushed rock. The filter fabric is recommended to inhibit the migration of fine material into void spaces in the crushed rock which may create the potential for sinkholes or depressions to develop at the ground surface. Pipe bedding should be in accordance with pipe manufacturer's recommendations. Recommendations provided above for pipe zone backfill are minimum requirements only. More stringent material specifications may be required to fulfill local codes and/or bedding requirements for specific types of pipes. On-site soil free of debris, vegetation, and other deleterious matter may be suitable for use as utility trench backfill above pipezone but may be difficult to uniformly maintain at specified moistures and compact to the specified densities. Native backfill should only be placed and compacted after encapsulating buried pipes with suitable bedding and pipe envelope material.

Compaction Criteria: Mechanical compaction is recommended; ponding or jetting should not be allowed, especially in areas supporting structural loads or beneath concrete slabs supported-on-grade, pavements, or other improvements. All trench backfill should be placed and compacted in accordance with recommendations provided above for engineered fill.

The pipe zone material (crusher fines, sand) shall be compacted to a minimum of 95% of ASTM D1557 maximum density. Pipe deflection should be checked to not exceed 2% of pipe diameter. Native clay/silt soils may be used to backfill the remainder of the trench. Soils used for trench backfill shall be placed in maximum 6-inch lifts (loose), compacted to a minimum of 90% of ASTM D1557 maximum density at a minimum of 4% above optimum moisture.

Imported granular material is acceptable for backfill of utility trenches. Granular trench backfill used in building pad areas should be plugged with a solid (no clods or voids) 2-foot width of native clay soils at each end of the building foundation to prevent landscape water migration into the trench below the building.

Backfill soil of utility trenches within paved areas should be uniformly moisture conditioned to a minimum of 4% above optimum moisture, placed in layers not more than 6 inches in thickness and mechanically compacted to a minimum of 90% of the ASTM D1557 maximum dry density, except that the top 12 inches shall be compacted to 95% (if granular trench backfill).

4.7 Seismic Design

This site is located in the seismically active southern California area and the site structures are subject to strong ground shaking due to potential fault movements along the Brawley, Superstition Hills, and Imperial faults. Engineered design and earthquake-resistant construction are the common solutions to increase safety and development of seismic areas. Designs should comply with the latest edition of the CBC for Site Class D using the seismic coefficients given in Section 3.6 and Table 2 of this report.

4.8 Pavements

Pavements should be designed according to the 2020 Caltrans Highway Design Manual or other acceptable methods. Traffic indices were not provided by the project engineer or owner; therefore, we have provided structural sections for several traffic indices for comparative evaluation. The public agency or design engineer should decide the appropriate traffic index for the site. Maintenance of proper drainage is necessary to prolong the service life of the pavements.

Based on the current Caltrans method, an estimated R-value of 5 for the subgrade soil and assumed traffic indices, the following table provides our estimates for asphaltic concrete (AC) and Portland Cement Concrete (PCC) pavement sections.

Pavement Structural Sections

R-Value of Subgrade Soil - 5 (estimated) Design Method - Caltrans 2020

Traffic Index	Flexible Pavements		Rigid (PCC) Pavements	
	Asphaltic Concrete Thickness (in.)	Aggregate Base Thickness (in.)	Concrete Thickness (in.)	Aggregate Base Thickness (in.)
4.0	3.0	6.5	5.0	6.0
5.0	3.0	10.0	5.5	6.0
6.0	4.0	11.5	6.0	8.0
6.5	4.0	14.0	7.0	8.0
8.0	5.0	17.5	8.0	11.0

Notes:

1) Asphaltic concrete shall be Caltrans, Type A HMA (Hot Mix Asphalt), ¾ inch maximum (½ inch maximum for parking areas), with PG70-10 asphalt concrete, compacted to a minimum of 95% of the Hveem density (CAL 308) or a minimum of 92% of the Maximum Theoretical Density (ASTM D2041).
2) Aggregate base shall conform to Caltrans Class 2 (¾ in. maximum), compacted to a minimum of 95% of ASTM D1557 maximum dry density.
3) Place pavements on 12 inches of moisture conditioned (minimum 4% above optimum if clays) native clay soil compacted to a minimum of 90% (95% if sand subgrade) of the maximum dry density determined by ASTM D1557. Prewetting of subgrade soils (to 3.5 feet) may be required depending on moisture of subgrade at time of aggregate base placement.
4) Portland cement concrete for pavements should have Type V cement, a minimum compressive strength of 4,500 psi at 28 days, and a maximum water-cement ratio of 0.45.
5) Typical Street Classifications (Imperial County).

Parking Areas:	TI = 4.0
Cul-de-Sacs:	TI = 5.0
Local Streets:	TI = 6.0
Minor Collectors:	TI = 6.5 (trash truck areas)
Major Collectors:	TI = 8.0

If recycled base material is planned to be incorporated into flexible pavement structural sections for this project, a minimum of 4 inches (TI=4) or 6 inches (TI>4) of natural aggregate base meeting Caltrans Class 2 aggregate base specifications should be placed over the recycled base material prior to placing flexible pavement. The recycled base material shall be sampled by the *Geotechnical Engineer of Record* and tested for conformance of Caltrans Class 2 specifications prior to arrival at the project site. If the recycled base material does not meet Caltrans Class 2 specifications, it may be considered subbase material and an alternate structural section thickness could be provided upon request.

Pavement curbs adjacent to stormwater basin cuts shall have a 12-inch concrete deep perimeter edge below surface grade. All curbs and edges of pavements shall have soil preparation and compaction extending a minimum 1 foot laterally beyond the edge of surface improvements.

Section 5
LIMITATIONS AND ADDITIONAL SERVICES

5.1 Limitations

The findings and professional opinions within this report are based on current information regarding the proposed Imperial Valley Data Center campus Site #2 project located at 287 W. Aten Road in southern Imperial, California. The conclusions and professional opinions of this report are invalid if:

- Structural loads change from those stated or the structures are relocated.
- The Additional Services section of this report is not followed.
- This report is used for adjacent or other property.
- Changes of grade or groundwater occur between the issuance of this report and construction other than those anticipated in this report.
- Any other change that materially alters the project from that proposed at the time this report was prepared.

This report was prepared according to the generally accepted *geotechnical engineering standards of practice* that existed in Imperial County at the time the report was prepared. No express or implied warranties are made in connection with our services.

Findings and professional opinions in this report are based on selected points of field exploration, geologic literature, limited laboratory testing, and our understanding of the proposed project. Our analysis of data and professional opinions presented herein are based on the assumption that soil conditions do not vary significantly from those found at specific exploratory locations. Variations in soil conditions can exist between and beyond the exploration points or groundwater elevations may change. The nature and extent of such variations may not become evident until, during or after construction. If variations are detected, we should immediately be notified as these conditions may require additional studies, consultation, and possible design revisions.

Environmental or hazardous materials evaluations were not performed by Landmark for this project. Landmark 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.

The client has the responsibility to see that all parties to the project including designer, contractor, and subcontractor are made aware of this entire report within a reasonable time from its issuance. This report should be considered invalid for periods after two years from the date of report issuance without a review of the validity of the findings and professional opinions by our firm, because of potential changes in the Geotechnical Engineering Standards of Practice. This report is based upon government regulations in effect at the time of preparation of this report. Future changes or modifications to these regulations may require modification of this report. Land or facility use, on and off-site conditions, regulations, design criteria, procedures, or other factors may change over time, which may require additional work. Any party other than the client who wishes to use this report shall notify Landmark of such intended use. Based on the intended use of the report, Landmark 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 Landmark from any liability resulting from the use of this report by any unauthorized party and client agrees to defend, indemnify, and hold Landmark harmless from any claim or liability associated with such unauthorized use or non-compliance.

This report contains information that may be useful in the preparation of contract specifications. However, the report is not worded in such a manner that we recommend its use as a construction specification document without proper modification. The use of information contained in this report for bidding purposes should be done at the contractor's option and risk.

5.2 Plan Review

Landmark Consultants, Inc. should be retained during development of design and construction documents to check that the geotechnical professional opinions are appropriate for the proposed project and that the geotechnical professional opinions are properly interpreted and incorporated into the documents. Landmark should have the opportunity to review the final design plans and specifications for the project prior to the issuance of such for bidding.

Governmental agencies may require review of the plans by the geotechnical engineer of record for compliance to the geotechnical report.

5.3 Additional Services

We recommend that Landmark Consultant be retained to provide the tests and observations services during construction. *The geotechnical engineering firm providing such tests and observations shall become the geotechnical engineer of record and assume responsibility for the project.*

Landmark Consultants, Inc.'s professional opinions for this site are, to a high degree, dependent upon appropriate quality control of subgrade preparation, fill placement, and foundation construction. Accordingly, the findings and professional opinions in this report are contingent upon the opportunity for Landmark Consultants to observe grading operations and foundation excavations for the proposed construction.

If parties other than Landmark Consultants, Inc. are engaged to provide observation and testing services during construction, such parties must be notified that they will be required to assume complete responsibility as the geotechnical engineer of record for the geotechnical phase of the project by concurring with the professional opinions in this report and/or by providing alternative professional guidance.

Additional information concerning the scope and cost of these services can be obtained from our office.

Section 6
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TABLES

Table 1
Summary of Characteristics of Closest Known Active Faults

Fault Name	Approximate Distance (miles)	Approximate Distance (km)	Maximum Moment Magnitude (Mw)	Fault Length (km)	Slip Rate (mm/yr)
Superstition Hills	2.6	4.1	6.6	23 ± 2	4 ± 2
Imperial	3.1	5.0	7	62 ± 6	20 ± 5
Brawley *	5.0	8.0			
Superstition Mountain	8.6	13.8	6.6	24 ± 2	5 ± 3
Rico *	9.2	14.8			
Northern Centinela*	11.9	19.1			
Route 247*	12.4	19.8			
Yuha*	14.3	22.9			
Shell Beds	16.5	26.4			
Yuha Well *	16.7	26.7			
Borrego (Mexico)*	19.3	30.8			
Laguna Salada	19.7	31.6	7	67 ± 7	3.5 ± 1.5
Vista de Anza*	20.0	32.0			
Painted Gorge Wash*	20.5	32.8			
Elmore Ranch	22.0	35.3	6.6	29 ± 3	1 ± 0.5
Cerro Prieto *	22.7	36.3			
Ocotillo*	24.2	38.7			
Pescadores (Mexico)*	24.6	39.4			
Cucapah (Mexico)*	25.9	41.5			
Elsinore - Coyote Mountain	27.5	44.0	6.8	39 ± 4	4 ± 2
San Jacinto - Borrego	28.4	45.4	6.6	29 ± 3	4 ± 2
Algodones *	35.9	57.4			

* Note: Faults not included in CGS database.

Table 2
2022 California Building Code (CBC) and ASCE 7-16 Seismic Parameters

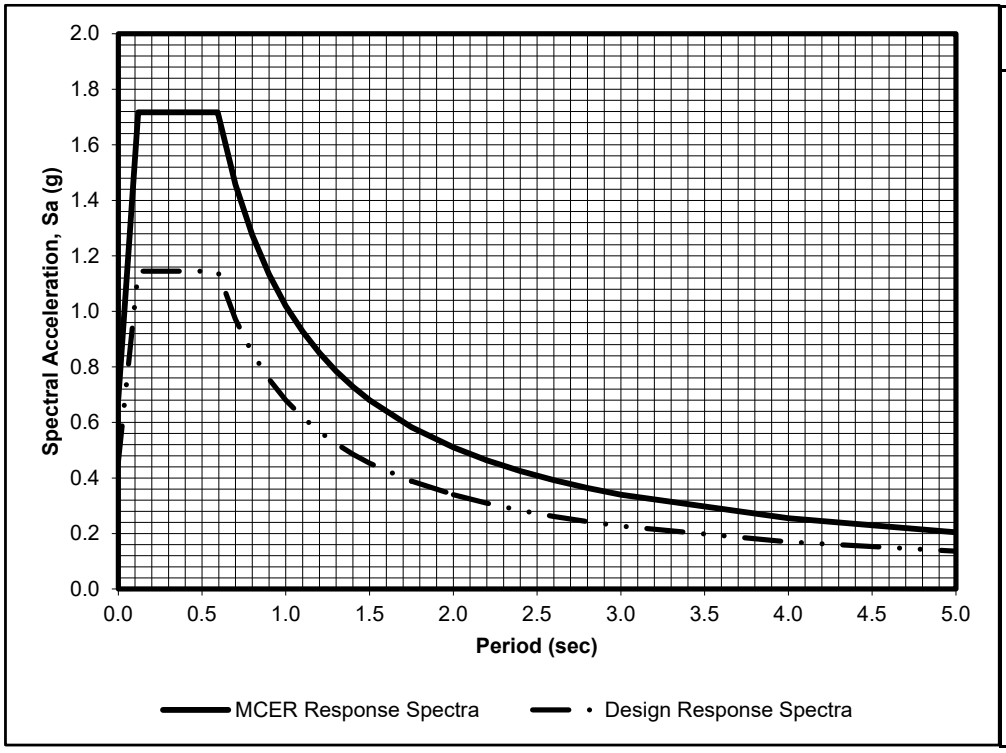
		ASCE 7-16 Reference
Soil Site Class:	**D**	Table 20.3-1
Latitude:	32.8221 N	
Longitude:	-115.5587 W	
Risk Category:	II	
Seismic Design Category:	D	

Maximum Considered Earthquake (MCE) Ground Motion

Mapped MCE_R Short Period Spectral Response	S_s	1.717 g	ASCE Figure 22-1	
Mapped MCE_R 1 second Spectral Response	S_1	0.600 g	ASCE Figure 22-2	
Short Period (0.2 s) Site Coefficient	F_a	1.00	ASCE Table 11.4-1	
Long Period (1.0 s) Site Coefficient	F_v	1.70	ASCE Table 11.4-2	
MCE_R Spectral Response Acceleration Parameter (0.2 s)	S_{MS}	1.717 g	= Fa * S_s	ASCE Equation 11.4-1
MCE_R Spectral Response Acceleration Parameter (1.0 s)	S_{M1}	1.020 g	= Fv * S_1	ASCE Equation 11.4-2

Design Earthquake Ground Motion

Design Spectral Response Acceleration Parameter (0.2 s)	S_{DS}	1.145 g	= 2/3*S_{MS}	ASCE Equation 11.4-3
Design Spectral Response Acceleration Parameter (1.0 s)	S_{D1}	0.680 g	= 2/3*S_{M1}	ASCE Equation 11.4-4
Risk Coefficient at Short Periods (less than 0.2 s)	C_{RS}	0.957		ASCE Figure 22-17
Risk Coefficient at Long Periods (greater than 1.0 s)	C_{R1}	0.928		ASCE Figure 22-18
	T_L	8.00 sec		ASCE Figure 22-12
	T_O	0.12 sec	=0.2*S_{D1}/S_{DS}	
	T_S	0.59 sec	=S_{D1}/S_{DS}	
Peak Ground Acceleration	PGA_M	0.78 g		ASCE Equation 11.8-1



Period T (sec)	Sa (g)	MCE_R Sa (g)
0.00	0.46	0.69
0.12	1.14	1.72
0.59	1.14	1.72
0.70	0.97	1.46
0.80	0.85	1.28
0.90	0.76	1.13
1.00	0.68	1.02
1.10	0.62	0.93
1.20	0.57	0.85
1.30	0.52	0.78
1.40	0.49	0.73
1.50	0.45	0.68
1.75	0.39	0.58
2.00	0.34	0.51
2.20	0.31	0.46
2.40	0.28	0.43
2.60	0.26	0.39
2.80	0.24	0.36
3.00	0.23	0.34
4.00	0.17	0.26
5.00	0.14	0.20

Table 3
Soil Site Class Determination per ASCE 7-16, Section 20.4
Imperial Valley Data Center Campus - Imperial, CA
LCI Project No. LE25111

CPT-1

Sample Depth	S-wave Velocity (ft/sec)	di/Ni	Sum di/vsi	Avg. Vs
0			0.13	**769**
10.01	505	0.02		
20.01	623	0.02		
29.99	650	0.02		
39.99	717	0.01		
50	924	0.01		
100	924	0.05		

CPT-4

Sample Depth	S-wave Velocity (ft/sec)	di/Ni	Sum di/vsi	Avg. Vs
0			0.16	**642**
10.01	499	0.02		
19.98	532	0.02		
29.99	616	0.02		
39.99	753	0.01		
50	687	0.01		
100	687	0.07		

CPT-7

Sample Depth	S-wave Velocity (ft/sec)	di/Ni	Sum di/vsi	Avg. Vs
0			0.15	**653**
10.01	533	0.02		
20.01	573	0.02		
30.02	565	0.02		
39.99	677	0.01		
50	710	0.01		
100	710	0.07		

FIGURES

Source: California Geological Survey 2010 Fault Activity Map of California
http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html#

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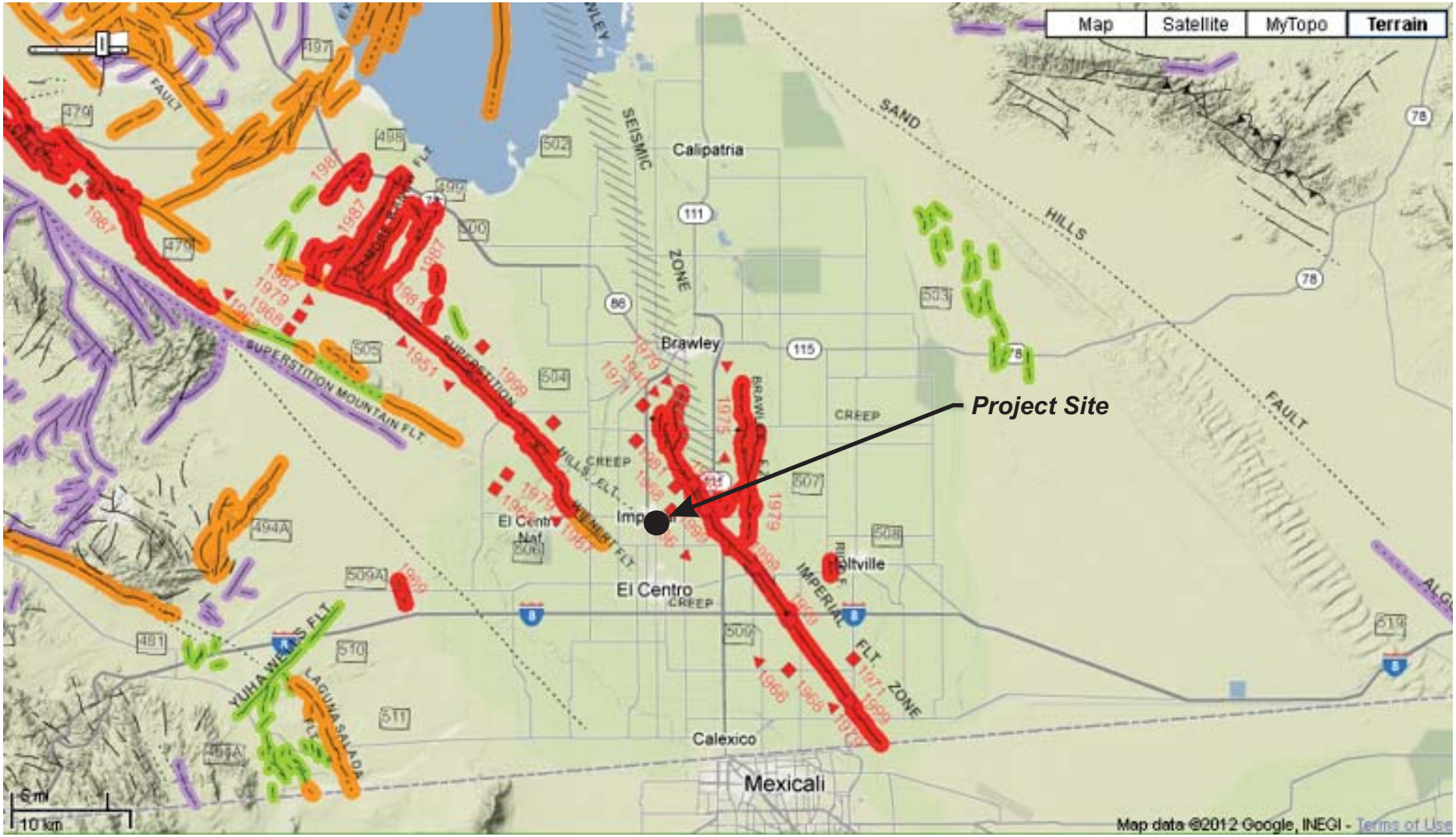
Regional Fault Map

Figure 1



Source: California Geological Survey 2010 Fault Activity Map of California
http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html#

LANDMARK Geo-Engineers and Geologists **Project No.: LE25111**	**Map of Local Faults**	**Figure 2**

EXPLANATION

Fault traces on land are indicated by solid lines where well located, by dashed lines where approximately located or inferred, and by dotted lines where concealed by younger rocks or by lakes or bays. Fault traces are queried where continuation or existence is uncertain. Concealed faults in the Great Valley are based on maps of selected subsurface horizons, so locations shown are approximate and may indicate structural trend only. All offshore faults based on seismic reflection profile records are shown as solid lines where well defined, dashed where inferred, queried where uncertain.

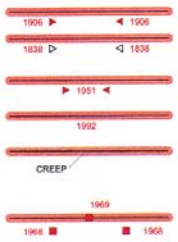
FAULT CLASSIFICATION COLOR CODE
(Indicating Recency of Movement)

Fault along which historic (last 200 years) displacement has occurred and is associated with one or more of the following:

(a) a recorded earthquake with surface rupture. (Also included are some well-defined surface breaks caused by ground shaking during earthquakes, e.g. extensive ground breakage, not on the White Wolf fault, caused by the Arvin-Tehachapi earthquake of 1952). The date of the associated earthquake is indicated. Where repeated surface ruptures on the same fault have occurred, only the date of the latest movement may be indicated, especially if earlier reports are not well documented as to location of ground breaks.

(b) fault creep slippage - slow ground displacement usually without accompanying earthquakes.

(c) displaced survey lines.



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

Date bracketed by triangles indicates local fault break.

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

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

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

Holocene fault displacement (during past 11,700 years) without historic record. Geomorphic evidence for Holocene faulting includes sag ponds, scarps showing little erosion, or the following features in Holocene age deposits: offset stream courses, linear scarps, shutter ridges, and triangular faceted spurs. Recency of faulting offshore is based on the interpreted age of the youngest strata displaced by faulting.

Late Quaternary fault displacement (during past 700,000 years). Geomorphic evidence similar to that described for Holocene faults except features are less distinct. Faulting may be younger, but lack of younger overlying deposits precludes more accurate age classification.

Quaternary fault (age undifferentiated). Most faults of this category show evidence of displacement sometime during the past 1.6 million years; possible exceptions are faults which displace rocks of undifferentiated Plio-Pleistocene age. Unnumbered Quaternary faults were based on Fault Map of California, 1975. See Bulletin 201, Appendix D for source data.

Pre-Quaternary fault (older that 1.6 million years) or fault without recognized Quaternary displacement. Some faults are shown in this category because the source of mapping used was of reconnaissnce nature, or was not done with the object of dating fault displacements. Faults in this category are not necessarily inactive.

ADDITIONAL FAULT SYMBOLS

Bar and ball on downthrown side (relative or apparent).

Arrows along fault indicate relative or apparent direction of lateral movement.

Arrow on fault indicates direction of dip.

Low angle fault (barbs on upper plate). Fault surface generally dips less than 45° but locally may have been subsequently steepened. On offshore faults, barbs simply indicate a reverse fault regardless of steepness of dip.

OTHER SYMBOLS

Numbers refer to annotations listed in the appendices of the accompanying report. Annotations include fault name, age of fault displacement, and pertinent references including Earthquake Fault Zone maps where a fault has been zoned by the Alquist-Priolo Earthquake Fault Zoning Act. This Act requires the State Geologist to delineate zones to encompass faults with Holocene displacement.

Structural discontinuity (offshore) separating differing Neogene structural domains. May indicate discontinuities between basement rocks.

Brawley Seismic Zone, a linear zone of seismicity locally up to 10 km wide associated with the releasing step between the Imperial and San Andreas faults.

Geologic Time Scale			Years Before Present (Approx.)	Fault Symbol	Recency of Movement	DESCRIPTION	
						ON LAND	OFFSHORE
Quaternary	Late Quaternary	Historic	200			Displacement during historic time (e.g. San Andreas fault 1906). Includes areas of known fault creep.	
		Holocene			? ? ?	Displacement during Holocene time.	Fault offsets seafloor sediments or strata of Holocene age.
		Pleistocene	11,700		? ?	Faults showing evidence of displacement during late Quaternary time.	Fault cuts strata of Late Pleistocene age.
	Early Quaternary		700,000		?	Undivided Quaternary faults - most faults in this category show evidence of displacement during the last 1,600,000 years; possible exceptions are faults which displace rocks of undifferentiated Plio-Pleistocene age.	Fault cuts strata of Quaternary age.
Pre-Quaternary			1,600,000*			Faults without recognized Quaternary displacement or showing evidence of no displacement during Quaternary time. Not necessarily inactive.	Fault cuts strata of Pliocene or older age.
			4.5 billion (Age of Earth)				

* Quaternary now recognized as extending to 2.6 Ma (Walker and Geissman, 2009). Quaternary faults in this map were established using the previous 1.6 Ma criterion.

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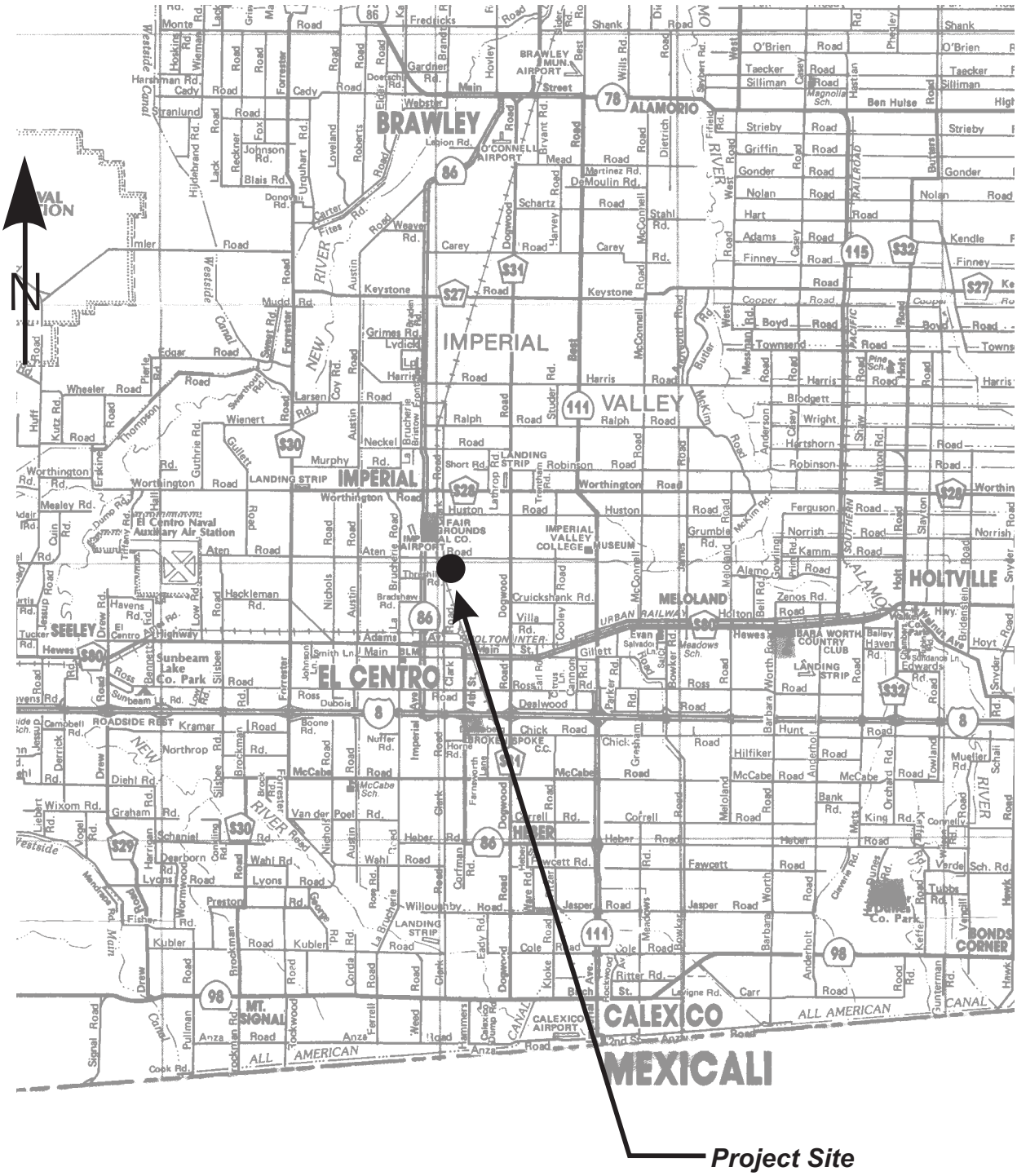
Fault Map Legend

Figure 3

APPENDIX A



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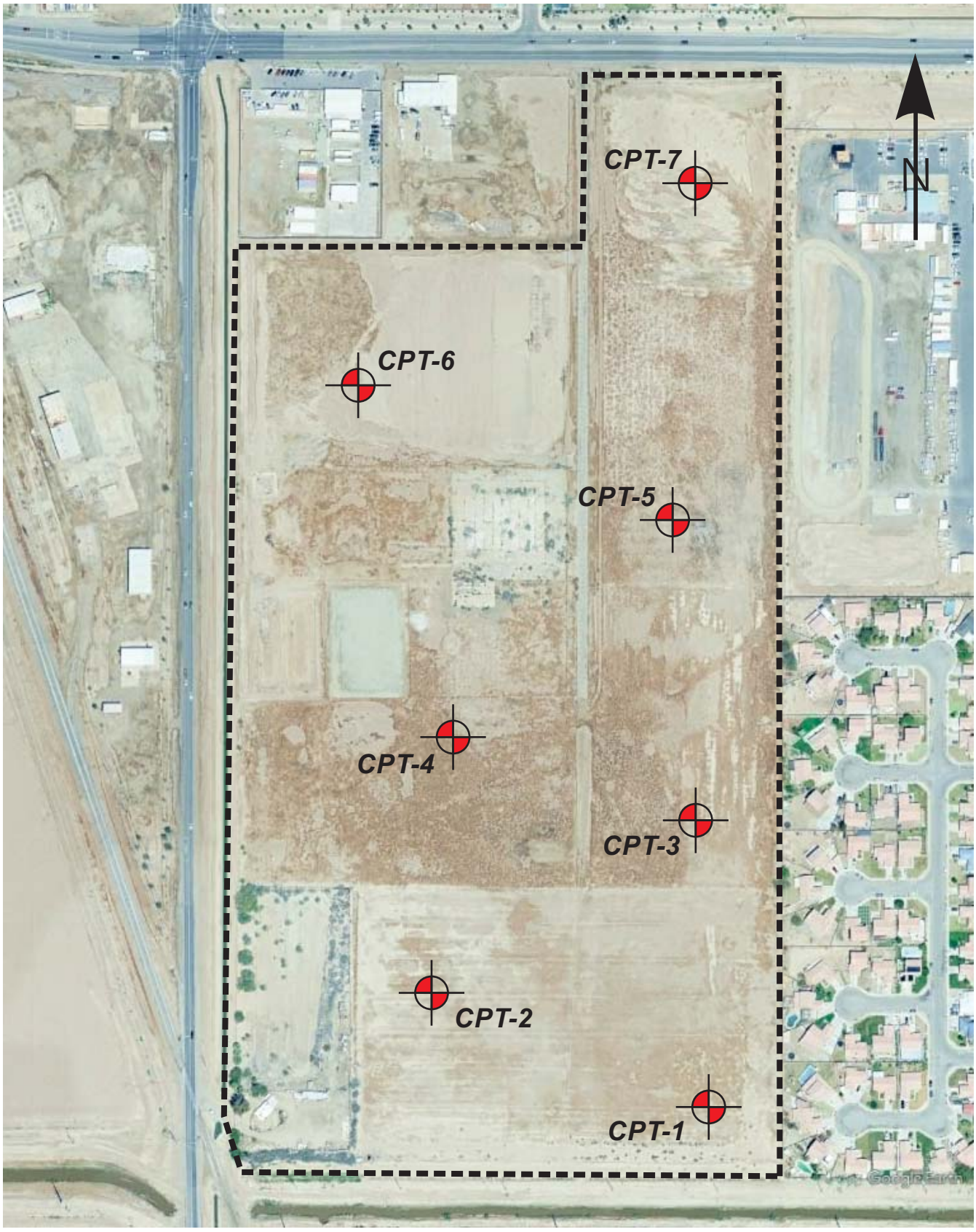
Vicinity Map

Plate A-1



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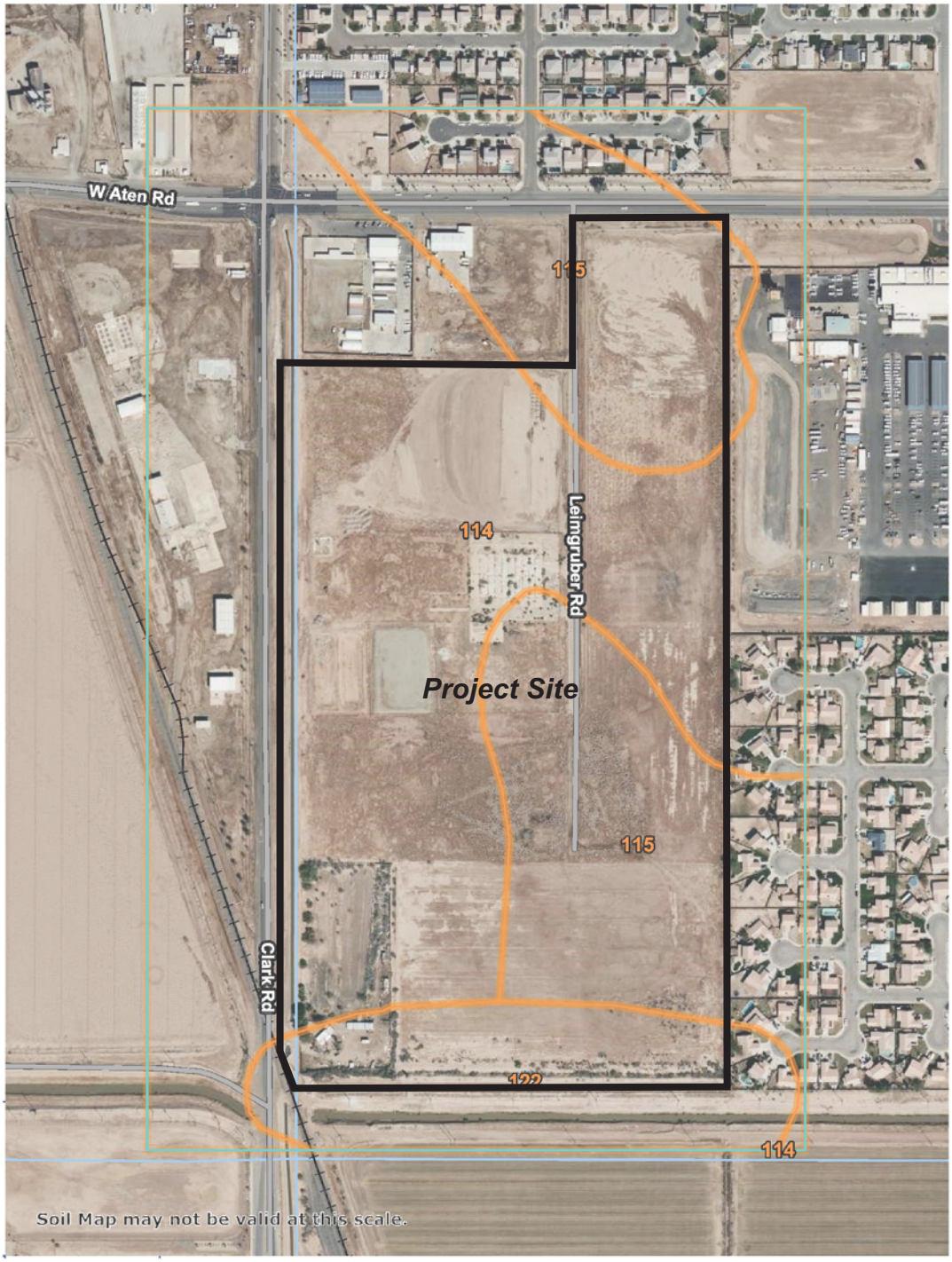
Site and Exploration Map

Plate
A-2



115° 33' 50" W

Map Scale: 1:5,420 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84

115° 33' 18" W

N

USDA Natural Resources Conservation Service

Web Soil Survey
National Cooperative Soil Survey

6/3/2025
Page 1 of 3

LANDMARK Geo-Engineers and Geologists Project No.: LE25111	Soil Survey Map	Plate A-3

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Imperial County, California, Imperial Valley Area
Survey Area Data: Version 17, Sep 10, 2024

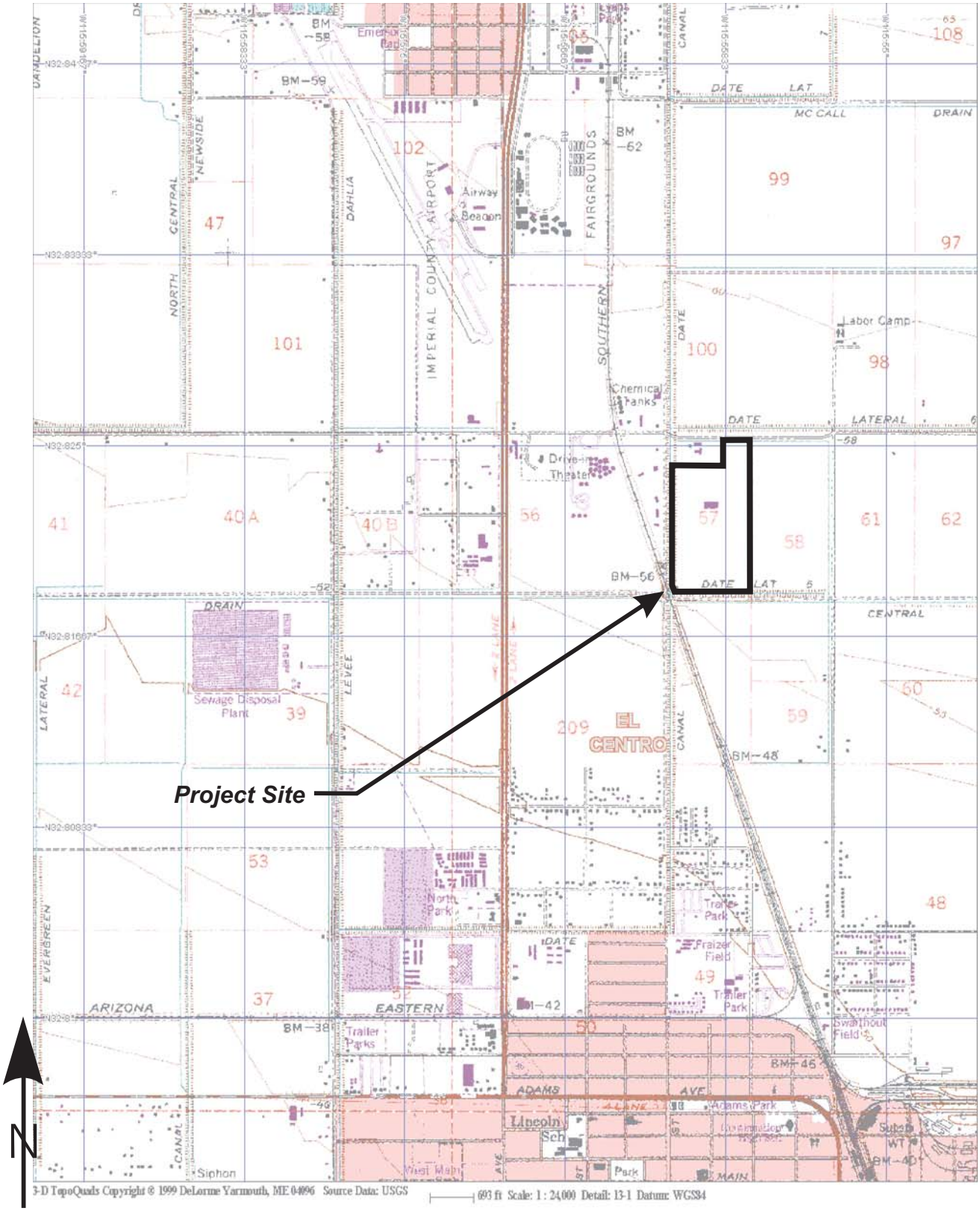
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 17, 2021—May 22, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
114	Imperial silty clay, wet	81.9	61.1%
115	Imperial-Glenbar silty clay loams complex, 0 to 2 percent slopes, wet	38.1	28.4%
122	Meloland very fine sandy loam, wet	14.1	10.5%
Totals for Area of Interest		**134.1**	**100.0%**



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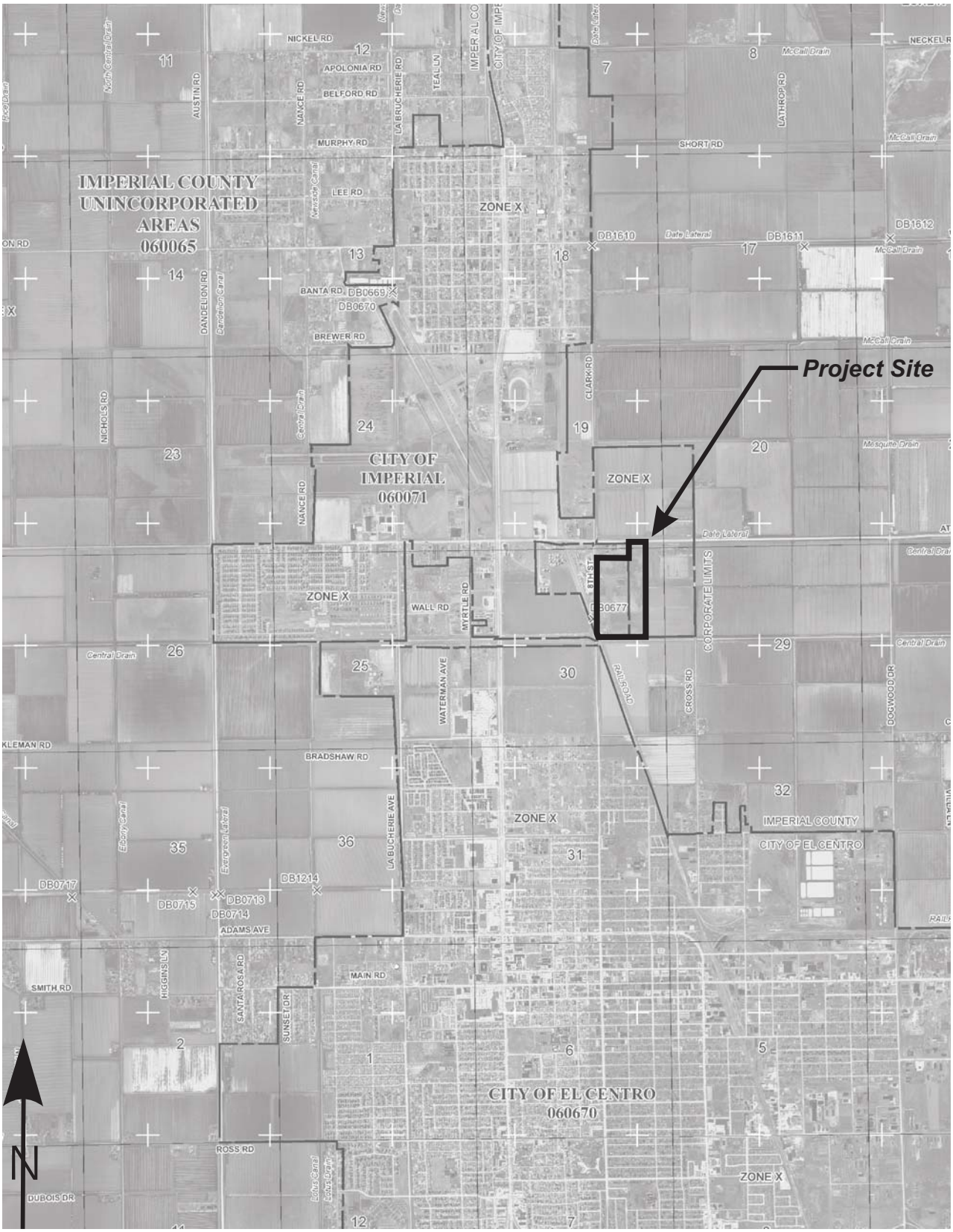
Topographic Map

Plate A-4



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FEMA Flood Zones

Plate A-5

LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

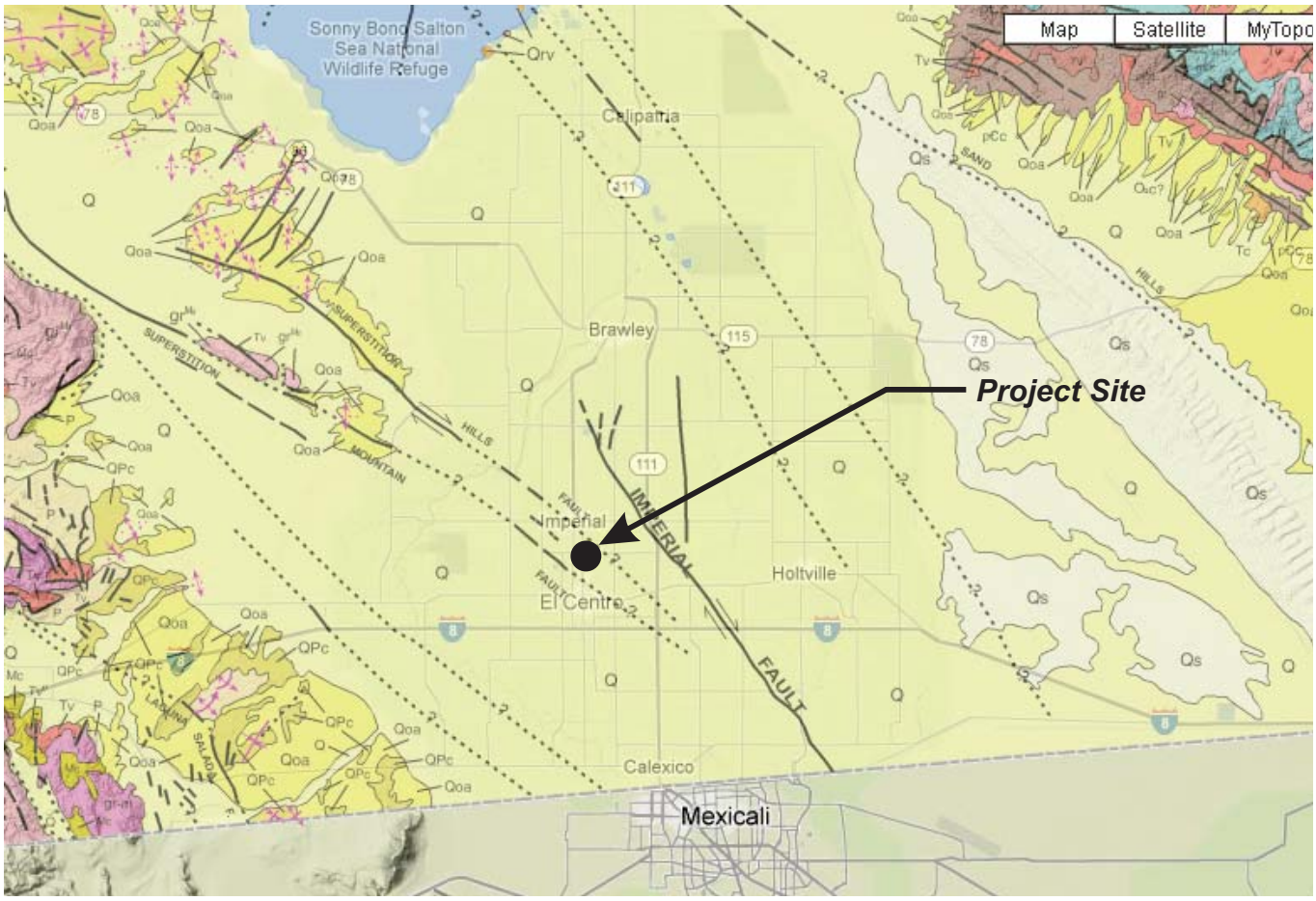
OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

A — A	Cross section line
23 — 23	Transect line
87°07'45", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
$^{24}76^{000m}$N	1000-meter Universal Transverse Mercator grid values, zone 11N
600000 FT	5000-foot grid ticks: California State Plane coordinate system, zone VI (FIPSZONE 0406), Lambert Conformal Conic projection
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
● M1.5	River Mile



GEOLOGIC LEGEND

Quaternary Deposits
Qs, Q, Qls, Qg, Qoa, QPc

Quaternary Volcanic Rocks
Qrv, Qrv^{p}, Qv, Qv^{p}

Tertiary Sedimentary Rocks
Tc, P, M, Mc, Os, Osc, E, Ec, Ep

Tertiary Volcanic Rocks
Tv, Tv^{p}, Ti

Tertiary Plutonic Rocks
gr^{Cx}

Mesozoic Sedimentary and Metasedimentary Rocks
TK, K, Ku, Kl, KJf, KJf$_m$, KJf$_s$, J, Tr, sch, ls

Mesozoic Mixed Rocks
gr-m

Mesozoic Metavolcanic Rocks
Mzv, mv

Mesozoic Plutonic Rocks
gr^{Mx}, um, gb, gr

Paleozoic Sedimentary and Metasedimentary Rocks
Pz, Pm, C, D, SO, €

Paleozoic Mixed Rocks
m

Paleozoic Metavolcanic Rocks
Pzv

Paleozoic Plutonic Rocks
gr^{Px}

Pre-Cambrian Rocks
pC, pCc, gr^{pC}

SYMBOLS

Geologic boundary

Fault traces - solid where well located, dashed where approximately located or inferred, dotted where concealed, and queried where continuation or existence is uncertain. Ball and bar on downthrown side (relative or apparent). Arrows indicate direction of lateral movement (relative or apparent).

Thrust fault (barbs on upper plate).

Regional strike and dip of stratified rocks.

Regional strike and dip of stratified rocks (overturned).

Anticlinal fold.

Synclinal fold.

Monoclinal fold.

N

Site Location
Lat: 32.8221N Long: -115.5587W

LANDMARK
Geo-Engineers and Geologists

Project No.: LE25111

Regional Geologic Map

Plate A-6

APPENDIX B

CLIENT: Imperial Valley Computer Manufacturing, LLC
PROJECT: IV Data Center Campus #2 - Imperial, CA

CONE PENETROMETER: Kehoe Testing & Engineering Truck Mounted Electric Cone with 30 ton reaction weight

LOCATION: See Site and Boring Location Plan

DATE: 7/14/2025

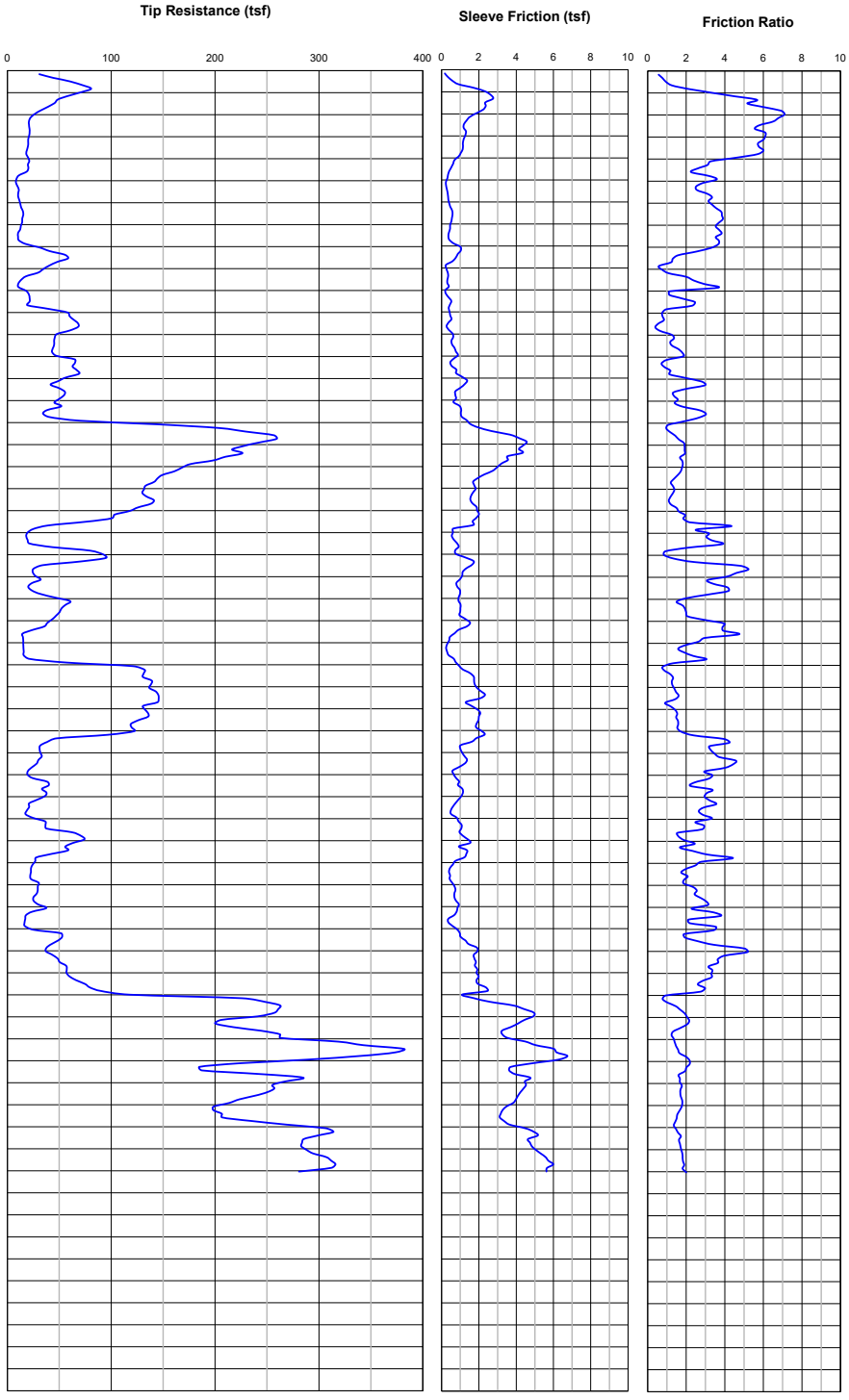
CONE SOUNDING DATA CPT-1

INTERPRETED SOIL PROFILE
From Robertson and Campanella (1989

GROUND ELEVATION +/-

DEPTH			
	Silty Sand to Sandy Silt	SM/ML	very dense
	Clay	CL/CH	hard
	Clay	" "	very stiff
	Clay	" "	very stiff
5	Clayey Silt to Silty Clay	ML/CL	stiff
	Silty Clay to Clay	CL	stiff
	Silty Clay to Clay	" "	stiff
	Silty Clay to Clay	" "	stiff
	Silty Sand to Sandy Silt	SM/ML	medium dense
10	Clayey Silt to Silty Clay	ML/CL	stiff
	Sandy Silt to Clayey Silt	ML	medium dense
	Sand to Silty Sand	SP/SM	medium dense
	Silty Sand to Sandy Silt	SM/ML	medium dense
	Silty Sand to Sandy Silt	" "	medium dense
15	Sandy Silt to Clayey Silt	ML	medium dense
	Silty Sand to Sandy Silt	SM/ML	medium dense
	Sand to Silty Sand	SP/SM	very dense
	Sand to Silty Sand	" "	very dense
	Sand to Silty Sand	" "	dense
20	Sand to Silty Sand	" "	dense
	Sandy Silt to Clayey Silt	ML	medium dense
	Sandy Silt to Clayey Silt	" "	medium dense
	Clayey Silt to Silty Clay	ML/CL	hard
	Clayey Silt to Silty Clay	" "	very stiff
25	Silty Sand to Sandy Silt	SM/ML	medium dense
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Sandy Silt to Clayey Silt	ML	medium dense
	Sand to Silty Sand	SP/SM	dense
	Sand to Silty Sand	" "	dense
30	Sand to Silty Sand	" "	dense
	Clayey Silt to Silty Clay	ML/CL	hard
	Clayey Silt to Silty Clay	" "	very stiff
	Sandy Silt to Clayey Silt	ML	loose
	Clayey Silt to Silty Clay	ML/CL	very stiff
35	Sandy Silt to Clayey Silt	ML	medium dense
	Sandy Silt to Clayey Silt	" "	medium dense
	Sandy Silt to Clayey Silt	" "	loose
	Sandy Silt to Clayey Silt	" "	loose
	Clayey Silt to Silty Clay	ML/CL	very stiff
40	Clayey Silt to Silty Clay	" "	hard
	Clayey Silt to Silty Clay	" "	hard
	Sandy Silt to Clayey Silt	ML	medium dense
	Sand to Silty Sand	SP/SM	very dense
	Sand to Silty Sand	" "	very dense
45	Sand to Silty Sand	" "	very dense
	Sand to Silty Sand	" "	very dense
	Sand to Silty Sand	" "	very dense
	Sand to Silty Sand	" "	very dense
50	Sand to Silty Sand	" "	very dense
55			

END OF SOUNDING AT 50 ft.



Project No.		PLATE
LE25111	LANDMARK Geo-Engineers and Geologists	B-1

LANDMARK CONSULTANTS, INC.
CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989, refer to Key to CPT logs)

Project: IV Data Center Campus #2 - Imperial, CA **Project No:** LE25111 **Date:** 7/14/2025

CONE SOUNDING: CPT-1
Est. GWT (ft): 8
Phi Correlation: **0** 0-Schm(78),1-R&C(83),2-PHT(74)

Base Depth (m)	Base Depth (ft)	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	SPT N(60)	Norm. Qc1n	Est. % Fines	Rel. Dens. Dr (%)	**Nk:** Phi (deg.)	**17** Su (tsf)	OCR
0.15	0.5	45.13	0.77	Silty Sand to Sandy Silt	SM/ML	very dense	115	10	85.3	25	111	44		
0.30	1.0	74.47	2.24	Silty Sand to Sandy Silt	SM/ML	very dense	115	17	140.8	35	109	43		
0.45	1.5	50.84	5.13	Silty Clay to Clay	CL	hard	125	29		60			2.99	>10
0.60	2.0	32.65	6.68	Clay	CL/CH	very stiff	125	26		80			1.91	>10
0.75	2.5	21.30	6.36	Clay	CL/CH	very stiff	125	17		90			1.24	>10
0.93	3.0	21.21	5.92	Clay	CL/CH	very stiff	125	17		90			1.24	>10
1.08	3.5	19.96	5.84	Clay	CL/CH	very stiff	125	16		90			1.16	>10
1.23	4.0	18.90	5.44	Clay	CL/CH	very stiff	125	15		90			1.10	>10
1.38	4.5	20.40	2.99	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		70			1.18	>10
1.53	5.0	12.82	2.99	Silty Clay to Clay	CL	stiff	125	7		85			0.74	>10
1.68	5.5	9.85	2.76	Silty Clay to Clay	CL	stiff	125	6		90			0.56	>10
1.83	6.0	11.51	3.28	Silty Clay to Clay	CL	stiff	125	7		90			0.66	>10
1.98	6.5	14.53	3.74	Silty Clay to Clay	CL	stiff	125	8		85			0.83	>10
2.13	7.0	13.83	3.71	Silty Clay to Clay	CL	stiff	125	8		90			0.79	>10
2.28	7.5	10.98	3.69	Clay	CL/CH	stiff	125	9		95			0.62	>10
2.45	8.0	19.71	3.54	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		75			1.13	>10
2.60	8.5	51.40	1.80	Silty Sand to Sandy Silt	SM/ML	medium dense	115	11	71.3	35	62	37		
2.75	9.0	40.98	0.85	Silty Sand to Sandy Silt	SM/ML	medium dense	115	9	56.1	25	55	36		
2.90	9.5	20.08	1.83	Sandy Silt to Clayey Silt	ML	loose	115	6	27.1	60	34	33		
3.05	10.0	13.08	2.58	Clayey Silt to Silty Clay	ML/CL	stiff	120	5		85			0.74	>10
3.20	10.5	21.18	1.79	Sandy Silt to Clayey Silt	ML	loose	115	6	27.9	60	35	33		
3.35	11.0	38.92	1.34	Silty Sand to Sandy Silt	SM/ML	medium dense	115	9	50.6	40	52	35		
3.50	11.5	63.84	0.72	Sand to Silty Sand	SP/SM	medium dense	115	12	82.1	20	67	37		
3.65	12.0	58.54	0.76	Sand to Silty Sand	SP/SM	medium dense	115	11	74.4	20	64	37		
3.80	12.5	45.19	1.27	Silty Sand to Sandy Silt	SM/ML	medium dense	115	10	56.8	35	56	36		
3.95	13.0	44.60	1.75	Silty Sand to Sandy Silt	SM/ML	medium dense	115	10	55.5	40	55	36		
4.13	13.5	64.18	0.86	Sand to Silty Sand	SP/SM	medium dense	115	12	79.0	25	66	37		
4.28	14.0	64.12	1.43	Silty Sand to Sandy Silt	SM/ML	medium dense	115	14	78.1	30	65	37		
4.43	14.5	46.91	2.60	Sandy Silt to Clayey Silt	ML	medium dense	115	13	56.5	50	56	36		
4.58	15.0	53.11	1.42	Silty Sand to Sandy Silt	SM/ML	medium dense	115	12	63.4	35	59	36		
4.73	15.5	45.27	1.99	Sandy Silt to Clayey Silt	ML	medium dense	115	13	53.5	45	54	36		
4.88	16.0	72.30	2.16	Silty Sand to Sandy Silt	SM/ML	medium dense	115	16	84.6	40	68	37		
5.03	16.5	229.73	1.19	Sand	SP	very dense	110	35	266.5	10	101	42		
5.18	17.0	243.23	1.80	Sand to Silty Sand	SP/SM	very dense	115	44	279.7	20	103	42		
5.33	17.5	217.56	1.84	Sand to Silty Sand	SP/SM	very dense	115	40	247.9	20	99	42		
5.48	18.0	180.82	1.80	Sand to Silty Sand	SP/SM	very dense	115	33	204.2	20	94	41		
5.65	18.5	151.57	1.53	Sand to Silty Sand	SP/SM	dense	115	28	169.7	20	88	40		
5.80	19.0	135.23	1.30	Sand to Silty Sand	SP/SM	dense	115	25	150.1	20	84	40		
5.95	19.5	134.98	1.19	Sand to Silty Sand	SP/SM	dense	115	25	148.5	20	84	40		
6.10	20.0	127.27	1.44	Sand to Silty Sand	SP/SM	dense	115	23	138.9	25	82	40		
6.25	20.5	93.13	2.00	Silty Sand to Sandy Silt	SM/ML	dense	115	21	100.8	35	73	38		
6.40	21.0	27.91	3.35	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		80			1.59	>10
6.55	21.5	19.52	3.42	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		95			1.10	>10
6.70	22.0	71.70	1.29	Silty Sand to Sandy Silt	SM/ML	medium dense	115	16	75.7	35	64	37		
6.85	22.5	66.59	2.86	Sandy Silt to Clayey Silt	ML	medium dense	115	19	69.7	50	62	37		
7.00	23.0	25.57	4.66	Clay	CL/CH	very stiff	125	20		95			1.45	>10
7.18	23.5	25.20	3.55	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		90			1.43	>10
7.33	24.0	33.78	3.10	Clayey Silt to Silty Clay	ML/CL	very stiff	120	14		75			1.93	>10
7.48	24.5	56.20	1.75	Silty Sand to Sandy Silt	SM/ML	medium dense	115	12	57.0	45	56	36		
7.63	25.0	46.81	2.32	Sandy Silt to Clayey Silt	ML	medium dense	115	13	47.1	60	50	35		
7.78	25.5	32.56	3.92	Clayey Silt to Silty Clay	ML/CL	very stiff	120	13		85			1.86	>10
7.93	26.0	14.97	3.45	Silty Clay to Clay	CL	stiff	125	9		100			0.82	6.32
8.08	26.5	15.58	1.95	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		95			0.86	9.39
8.23	27.0	66.62	1.71	Silty Sand to Sandy Silt	SM/ML	medium dense	115	15	65.1	45	60	36		
8.38	27.5	131.36	1.12	Sand to Silty Sand	SP/SM	dense	115	24	127.5	25	80	39		
8.53	28.0	138.03	1.30	Sand to Silty Sand	SP/SM	dense	115	25	133.1	25	81	39		
8.68	28.5	144.62	1.50	Sand to Silty Sand	SP/SM	dense	115	26	138.6	25	82	39		
8.85	29.0	135.88	1.18	Sand to Silty Sand	SP/SM	dense	115	25	129.4	25	80	39		
9.00	29.5	132.23	1.53	Sand to Silty Sand	SP/SM	dense	115	24	125.1	30	79	39		
9.15	30.0	120.35	1.62	Sand to Silty Sand	SP/SM	dense	115	22	113.2	30	76	39		
9.30	30.5	60.69	3.53	Clayey Silt to Silty Clay	ML/CL	hard	120	24		65			3.51	>10
9.45	31.0	31.48	3.31	Clayey Silt to Silty Clay	ML/CL	very stiff	120	13		85			1.79	>10
9.60	31.5	30.41	4.24	Silty Clay to Clay	CL	very stiff	125	17		95			1.72	>10
9.75	32.0	20.96	3.43	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		100			1.17	>10
9.90	32.5	34.15	2.61	Sandy Silt to Clayey Silt	ML	loose	115	10	31.1	80	38	33		
10.05	33.0	35.66	3.12	Clayey Silt to Silty Clay	ML/CL	hard	120	14		80			2.03	>10
10.20	33.5	23.47	3.22	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		100			1.31	>10
10.38	34.0	20.21	2.95	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		100			1.12	>10
10.53	34.5	36.90	2.74	Sandy Silt to Clayey Silt	ML	loose	115	11	32.8	80	40	34		
10.68	35.0	69.05	1.68	Silty Sand to Sandy Silt	SM/ML	medium dense	115	15	61.0	45	58	36		
10.83	35.5	59.04	2.15	Silty Sand to Sandy Silt	SM/ML	medium dense	115	13	51.9	55	53	35		
10.98	36.0	32.47	3.43	Clayey Silt to Silty Clay	ML/CL	very stiff	120	13		90			1.84	>10
11.13	36.5	22.93	2.07	Sandy Silt to Clayey Silt	ML	loose	115	7	19.9	90	25	31		
11.28	37.0	27.44	2.04	Sandy Silt to Clayey Silt	ML	loose	115	8	23.7	85	30	32		
11.43	37.5	27.57	2.57	Sandy Silt to Clayey Silt	ML	loose	115	8	23.7	90	30	32		
11.58	38.0	30.83	2.81	Clayey Silt to Silty Clay	ML/CL	very stiff	120	12		90			1.74	>10
11.73	38.5	19.65	3.10	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		100			1.08	8.27

LANDMARK CONSULTANTS, INC.
CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989, refer to Key to CPT logs)

Project: IV Data Center Campus #2 - Imperial, CA **Project No:** LE25111 **Date:** 7/14/2025

CONE SOUNDING: CPT-1
Est. GWT (ft): 8
Phi Correlation: **0** 0-Schm(78),1-R&C(83),2-PHT(74)

Base Depth (m)	Base Depth (ft)	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	SPT N(60)	Norm. Qc1n	Est. % Fines	Rel. Dens. Dr (%)	**Nk:** Phi (deg.)	**17** Su (tsf)	OCR
11.88	39.0	19.37	3.05	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		100			1.06	8.00
12.05	39.5	51.06	2.15	Sandy Silt to Clayey Silt	ML	medium dense	115	15	43.0	65	48	35		
12.20	40.0	39.05	4.54	Silty Clay to Clay	CL	hard	125	22		95			2.22	>10
12.35	40.5	47.47	3.75	Clayey Silt to Silty Clay	ML/CL	hard	120	19		85			2.71	>10
12.50	41.0	56.90	3.27	Sandy Silt to Clayey Silt	ML	medium dense	115	16	47.1	75	50	35		
12.65	41.5	66.99	2.92	Sandy Silt to Clayey Silt	ML	medium dense	115	19	55.2	65	55	36		
12.80	42.0	95.80	2.22	Silty Sand to Sandy Silt	SM/ML	medium dense	115	21	78.6	50	65	37		
12.95	42.5	245.63	1.09	Sand	SP	very dense	110	38	200.7	20	93	41		
13.10	43.0	252.96	1.89	Sand to Silty Sand	SP/SM	very dense	115	46	205.8	25	94	41		
13.25	43.5	207.90	1.97	Sand to Silty Sand	SP/SM	dense	115	38	168.3	30	88	40		
13.40	44.0	256.55	1.30	Sand	SP	very dense	110	39	206.8	20	94	41		
13.58	44.5	347.74	1.48	Sand	SP	very dense	110	53	279.2	20	103	42		
13.73	45.0	333.92	1.94	Sand to Silty Sand	SP/SM	very dense	115	61	267.0	25	101	42		
13.88	45.5	198.95	2.04	Sand to Silty Sand	SP/SM	dense	115	36	158.4	35	86	40		
14.03	46.0	265.65	1.65	Sand to Silty Sand	SP/SM	very dense	115	48	210.5	25	94	41		
14.18	46.5	254.27	1.72	Sand to Silty Sand	SP/SM	very dense	115	46	200.6	25	93	41		
14.33	47.0	218.52	1.76	Sand to Silty Sand	SP/SM	dense	115	40	171.7	30	88	40		
14.48	47.5	203.90	1.56	Sand to Silty Sand	SP/SM	dense	115	37	159.5	30	86	40		
14.63	48.0	269.89	1.42	Sand	SP	very dense	110	42	210.3	20	94	41		
14.78	48.5	299.58	1.64	Sand to Silty Sand	SP/SM	very dense	115	54	232.5	25	97	42		
14.93	49.0	284.94	1.71	Sand to Silty Sand	SP/SM	very dense	115	52	220.2	25	96	41		
15.10	49.5	304.48	1.82	Sand to Silty Sand	SP/SM	very dense	115	55	234.3	25	98	42		
15.25	50.0	302.86	1.90	Sand to Silty Sand	SP/SM	very dense	115	55	232.1	25	97	42		

CLIENT: Imperial Valley Computer Manufacturing, LLC
PROJECT: IV Data Center Campus #2 - Imperial, CA

CONE PENETROMETER: Kehoe Testing & Engineering Truck Mounted Electric Cone with 30 ton reaction weight

LOCATION: See Site and Boring Location Plan

DATE: 7/14/2025

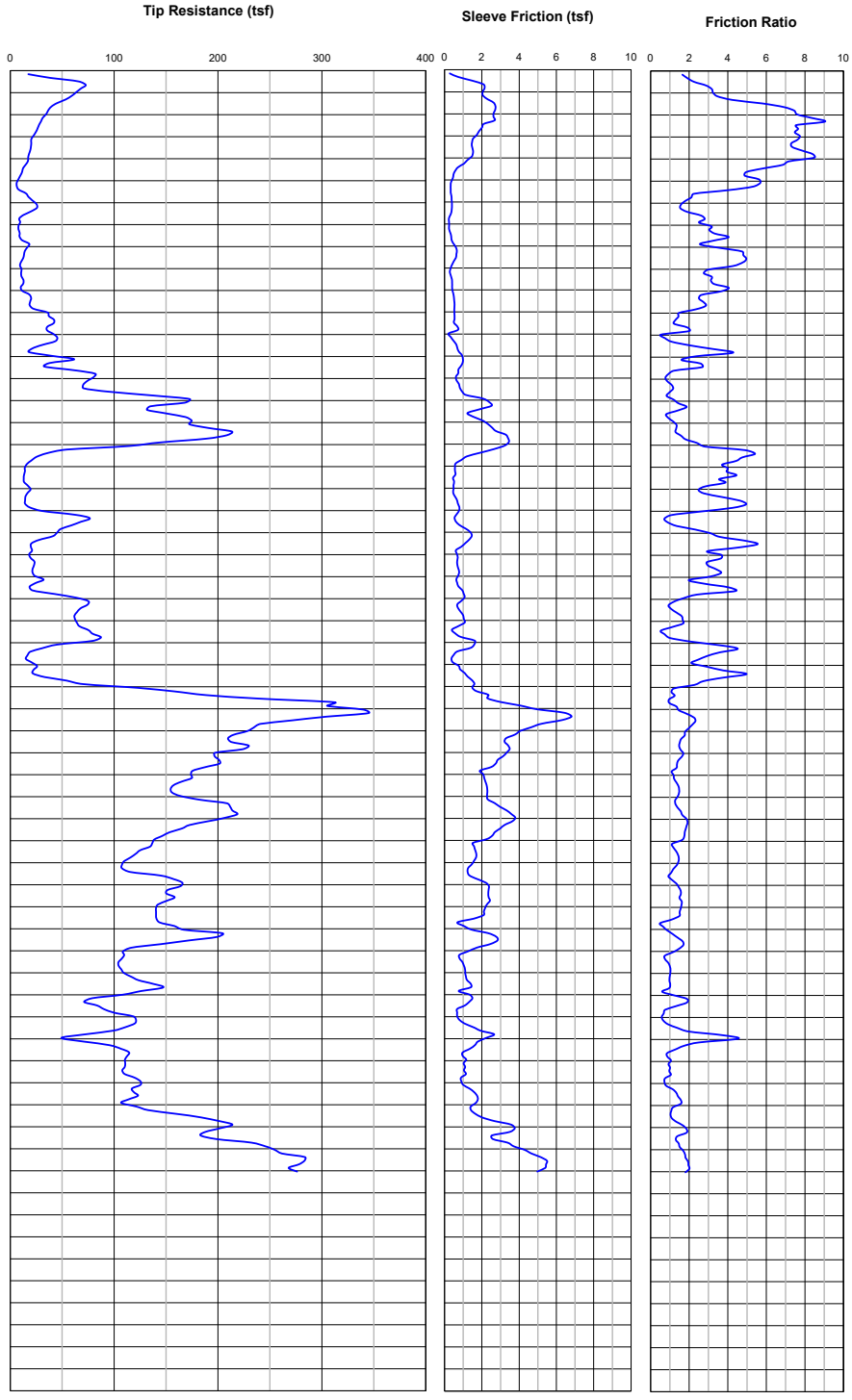
CONE SOUNDING DATA CPT-2

INTERPRETED SOIL PROFILE
From Robertson and Campanella (1989

GROUND ELEVATION +/-

DEPTH			
	Sandy Silt to Clayey Silt	ML	very dense
	Clay	CL/CH	hard
	Clay	" "	very stiff
	Clay	" "	very stiff
5	Clay	" "	stiff
	Silty Clay to Clay	CL	stiff
	Clayey Silt to Silty Clay	ML/CL	stiff
	Silty Clay to Clay	CL	stiff
	Clay	CL/CH	stiff
10	Silty Clay to Clay	CL	stiff
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Silty Sand to Sandy Silt	SM/ML	medium dense
	Sandy Silt to Clayey Silt	ML	medium dense
	Silty Sand to Sandy Silt	SM/ML	medium dense
15	Sand to Silty Sand	SP/SM	dense
	Sand to Silty Sand	" "	very dense
	Sand to Silty Sand	" "	very dense
	Silty Clay to Clay	CL	very stiff
	Silty Clay to Clay	" "	stiff
20	Silty Clay to Clay	" "	very stiff
	Silty Sand to Sandy Silt	SM/ML	medium dense
	Silty Clay to Clay	CL	very stiff
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Sandy Silt to Clayey Silt	ML	medium dense
25	Silty Sand to Sandy Silt	SM/ML	medium dense
	Sand to Silty Sand	SP/SM	medium dense
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Sandy Silt to Clayey Silt	ML	medium dense
	Sand	SP	very dense
30	Sand to Silty Sand	SP/SM	very dense
	Sand to Silty Sand	" "	very dense
	Sand to Silty Sand	" "	dense
	Sand to Silty Sand	" "	dense
	Sand to Silty Sand	" "	very dense
35	Sand to Silty Sand	" "	dense
	Sand to Silty Sand	" "	dense
	Sand to Silty Sand	" "	dense
	Sand to Silty Sand	" "	dense
	Sand	SP	dense
40	Sand to Silty Sand	SP/SM	dense
	Sand to Silty Sand	" "	medium dense
	Sand	SP	dense
	Sand to Silty Sand	SP/SM	medium dense
	Silty Sand to Sandy Silt	SM/ML	medium dense
45	Sand to Silty Sand	SP/SM	medium dense
	Sand	SP	medium dense
	Sand to Silty Sand	SP/SM	dense
	Sand to Silty Sand	" "	dense
	Sand to Silty Sand	" "	dense
50	Sand to Silty Sand	" "	very dense
55			

END OF SOUNDING AT 50 ft.



Project No.		PLATE
LE25111	LANDMARK Geo-Engineers and Geologists	B-2

LANDMARK CONSULTANTS, INC.
CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989, refer to Key to CPT logs)

Project: IV Data Center Campus #2 - Imperial, CA **Project No:** LE25111 **Date:** 7/14/2025

CONE SOUNDING: CPT-2
Est. GWT (ft): 8
Phi Correlation: **0** 0-Schm(78),1-R&C(83),2-PHT(74)

Base Depth (m)	Base Depth (ft)	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	SPT N(60)	Norm. Qc1n	Est. % Fines	Rel. Dens. Dr (%)	**Nk:** Phi (deg.)	**17** Su (tsf)	OCR
0.15	0.5	40.54	1.94	Sandy Silt to Clayey Silt	ML	very dense	115	12	76.6	40	108	43		
0.30	1.0	68.01	3.09	Sandy Silt to Clayey Silt	ML	very dense	115	19	128.6	40	107	43		
0.45	1.5	52.50	4.50	Silty Clay to Clay	CL	hard	125	30		55			3.08	>10
0.60	2.0	36.89	7.32	Clay	CL/CH	hard	125	30		80			2.16	>10
0.75	2.5	29.65	8.31	Clay	CL/CH	very stiff	125	24		90			1.74	>10
0.93	3.0	24.50	7.62	Clay	CL/CH	very stiff	125	20		95			1.43	>10
1.08	3.5	20.13	7.42	Clay	CL/CH	very stiff	125	16		100			1.17	>10
1.23	4.0	18.26	8.24	Clay	CL/CH	very stiff	125	15		100			1.06	>10
1.38	4.5	14.82	6.61	Clay	CL/CH	stiff	125	12		100			0.86	>10
1.53	5.0	9.80	5.15	Clay	CL/CH	stiff	125	8		100			0.56	>10
1.68	5.5	8.95	4.32	Clay	CL/CH	stiff	125	7		100			0.51	>10
1.83	6.0	21.44	1.83	Sandy Silt to Clayey Silt	ML	medium dense	115	6	35.1	55	42	34		
1.98	6.5	19.54	2.02	Sandy Silt to Clayey Silt	ML	loose	115	6	30.7	60	38	33		
2.13	7.0	8.71	2.82	Silty Clay to Clay	CL	firm	125	5		95			0.49	>10
2.28	7.5	8.65	3.47	Clay	CL/CH	firm	125	7		100			0.48	7.00
2.45	8.0	15.39	3.13	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		80			0.88	>10
2.60	8.5	13.20	4.84	Clay	CL/CH	stiff	125	11		100			0.75	>10
2.75	9.0	10.20	4.02	Clay	CL/CH	stiff	125	8		100			0.57	7.56
2.90	9.5	11.27	3.02	Silty Clay to Clay	CL	stiff	125	6		95			0.63	>10
3.05	10.0	11.36	3.67	Clay	CL/CH	stiff	125	9		100			0.64	8.27
3.20	10.5	19.13	2.62	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		70			1.09	>10
3.35	11.0	25.78	2.22	Sandy Silt to Clayey Silt	ML	medium dense	115	7	33.4	60	40	34		
3.50	11.5	40.26	1.31	Silty Sand to Sandy Silt	SM/ML	medium dense	115	9	51.5	40	53	35		
3.65	12.0	37.64	1.48	Silty Sand to Sandy Silt	SM/ML	medium dense	115	8	47.6	40	51	35		
3.80	12.5	39.73	1.31	Silty Sand to Sandy Silt	SM/ML	medium dense	115	9	49.7	40	52	35		
3.95	13.0	26.19	3.30	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		70			1.50	>10
4.13	13.5	44.10	2.29	Sandy Silt to Clayey Silt	ML	medium dense	115	13	54.0	50	54	36		
4.28	14.0	74.40	0.96	Sand to Silty Sand	SP/SM	medium dense	115	14	90.1	25	69	38		
4.43	14.5	71.60	1.05	Sand to Silty Sand	SP/SM	medium dense	115	13	85.8	25	68	38		
4.58	15.0	135.33	1.00	Sand to Silty Sand	SP/SM	dense	115	25	160.6	15	86	40		
4.73	15.5	144.88	1.57	Sand to Silty Sand	SP/SM	dense	115	26	170.3	20	88	40		
4.88	16.0	166.64	1.05	Sand	SP	very dense	110	26	194.1	15	92	41		
5.03	16.5	204.21	1.40	Sand to Silty Sand	SP/SM	very dense	115	37	235.8	15	98	42		
5.18	17.0	148.87	2.34	Silty Sand to Sandy Silt	SM/ML	dense	115	33	170.3	30	88	40		
5.33	17.5	38.39	5.02	Clay	CL/CH	hard	125	31		80			2.21	>10
5.48	18.0	16.82	4.05	Silty Clay to Clay	CL	stiff	125	10		100			0.95	>10
5.65	18.5	13.42	3.99	Clay	CL/CH	stiff	125	11		100			0.74	5.88
5.80	19.0	16.61	3.07	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		95			0.93	>10
5.95	19.5	15.20	3.71	Silty Clay to Clay	CL	stiff	125	9		100			0.85	9.00
6.10	20.0	21.19	3.92	Silty Clay to Clay	CL	very stiff	125	12		95			1.20	>10
6.25	20.5	68.76	0.89	Sand to Silty Sand	SP/SM	medium dense	115	13	73.5	30	63	37		
6.40	21.0	50.75	2.26	Sandy Silt to Clayey Silt	ML	medium dense	115	14	53.8	50	54	36		
6.55	21.5	29.68	4.64	Silty Clay to Clay	CL	very stiff	125	17		90			1.70	>10
6.70	22.0	19.69	3.70	Silty Clay to Clay	CL	very stiff	125	11		100			1.11	>10
6.85	22.5	21.88	3.18	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		90			1.23	>10
7.00	23.0	22.22	3.39	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		90			1.25	>10
7.18	23.5	24.91	2.94	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		85			1.41	>10
7.33	24.0	42.38	2.84	Sandy Silt to Clayey Silt	ML	medium dense	115	12	42.8	65	47	35		
7.48	24.5	72.29	1.07	Sand to Silty Sand	SP/SM	medium dense	115	13	72.4	30	63	37		
7.63	25.0	62.83	1.54	Silty Sand to Sandy Silt	SM/ML	medium dense	115	14	62.5	40	59	36		
7.78	25.5	68.79	1.11	Sand to Silty Sand	SP/SM	medium dense	115	13	68.0	35	61	37		
7.93	26.0	81.90	1.25	Sand to Silty Sand	SP/SM	medium dense	115	15	80.4	35	66	37		
8.08	26.5	28.04	3.65	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		90			1.59	>10
8.23	27.0	20.63	2.51	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		90			1.15	>10
8.38	27.5	25.75	4.17	Silty Clay to Clay	CL	very stiff	125	15		100			1.45	>10
8.53	28.0	82.65	2.07	Silty Sand to Sandy Silt	SM/ML	medium dense	115	18	78.8	45	65	37		
8.68	28.5	195.44	1.09	Sand	SP	very dense	110	30	185.3	20	91	41		
8.85	29.0	319.12	1.25	Sand	SP	very dense	110	49	300.8	15	105	43		
9.00	29.5	307.02	2.14	Sand to Silty Sand	SP/SM	very dense	115	56	287.7	25	104	43		
9.15	30.0	234.45	1.98	Sand to Silty Sand	SP/SM	very dense	115	43	218.4	25	96	41		
9.30	30.5	212.45	1.62	Sand to Silty Sand	SP/SM	very dense	115	39	196.7	25	92	41		
9.45	31.0	216.72	1.58	Sand to Silty Sand	SP/SM	very dense	115	39	199.5	20	93	41		
9.60	31.5	199.86	1.46	Sand to Silty Sand	SP/SM	very dense	115	36	182.9	25	90	41		
9.75	32.0	178.80	1.21	Sand	SP	dense	110	28	162.7	20	87	40		
9.90	32.5	165.45	1.33	Sand to Silty Sand	SP/SM	dense	115	30	149.7	25	84	40		
10.05	33.0	158.14	1.45	Sand to Silty Sand	SP/SM	dense	115	29	142.3	25	83	40		
10.20	33.5	201.12	1.32	Sand to Silty Sand	SP/SM	dense	115	37	180.0	20	90	41		
10.38	34.0	213.14	1.67	Sand to Silty Sand	SP/SM	very dense	115	39	189.7	25	91	41		
10.53	34.5	175.93	1.87	Sand to Silty Sand	SP/SM	dense	115	32	155.7	30	86	40		
10.68	35.0	146.25	1.71	Sand to Silty Sand	SP/SM	dense	115	27	128.8	30	80	39		
10.83	35.5	132.08	1.20	Sand to Silty Sand	SP/SM	dense	115	24	115.7	30	77	39		
10.98	36.0	115.45	1.44	Sand to Silty Sand	SP/SM	dense	115	21	100.6	35	73	38		
11.13	36.5	118.75	1.13	Sand to Silty Sand	SP/SM	dense	115	22	102.9	30	73	38		
11.28	37.0	162.26	1.30	Sand to Silty Sand	SP/SM	dense	115	30	139.9	25	82	40		
11.43	37.5	153.37	1.54	Sand to Silty Sand	SP/SM	dense	115	28	131.5	30	81	39		
11.58	38.0	144.47	1.59	Sand to Silty Sand	SP/SM	dense	115	26	123.3	30	79	39		
11.73	38.5	140.48	1.36	Sand to Silty Sand	SP/SM	dense	115	26	119.3	30	78	39		

LANDMARK CONSULTANTS, INC.
CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989, refer to Key to CPT logs)

Project: IV Data Center Campus #2 - Imperial, CA **Project No:** LE25111 **Date:** 7/14/2025

CONE SOUNDING: CPT-2
Est. GWT (ft): 8
Phi Correlation: **0** 0-Schm(78),1-R&C(83),2-PHT(74)

Base Depth (m)	Base Depth (ft)	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	SPT N(60)	Norm. Qc1n	Est. % Fines	Rel. Dens. Dr (%)	**Nk:** Phi (deg.)	**17** Su (tsf)	OCR
11.88	39.0	156.24	0.67	Sand	SP	dense	110	24	132.0	20	81	39		
12.05	39.5	191.63	1.40	Sand to Silty Sand	SP/SM	dense	115	35	161.2	25	87	40		
12.20	40.0	123.25	1.46	Sand to Silty Sand	SP/SM	dense	115	22	103.1	35	73	38		
12.35	40.5	107.08	0.80	Sand to Silty Sand	SP/SM	medium dense	115	19	89.2	30	69	38		
12.50	41.0	106.86	1.02	Sand to Silty Sand	SP/SM	medium dense	115	19	88.6	30	69	38		
12.65	41.5	125.84	0.99	Sand to Silty Sand	SP/SM	dense	115	23	103.8	30	74	38		
12.80	42.0	127.34	0.93	Sand	SP	dense	110	20	104.6	25	74	38		
12.95	42.5	77.81	1.69	Silty Sand to Sandy Silt	SM/ML	medium dense	115	17	63.6	50	59	36		
13.10	43.0	102.90	0.67	Sand to Silty Sand	SP/SM	medium dense	115	19	83.7	25	67	37		
13.25	43.5	117.23	0.98	Sand to Silty Sand	SP/SM	dense	115	21	95.0	30	71	38		
13.40	44.0	73.25	3.41	Sandy Silt to Clayey Silt	ML	medium dense	115	21	59.1	70	57	36		
13.58	44.5	91.17	1.84	Silty Sand to Sandy Silt	SM/ML	medium dense	115	20	73.2	45	63	37		
13.73	45.0	112.45	0.93	Sand to Silty Sand	SP/SM	medium dense	115	20	89.9	30	69	38		
13.88	45.5	109.58	0.96	Sand to Silty Sand	SP/SM	medium dense	115	20	87.2	30	68	38		
14.03	46.0	118.41	0.84	Sand	SP	dense	110	18	93.8	30	71	38		
14.18	46.5	120.44	1.09	Sand to Silty Sand	SP/SM	dense	115	22	95.0	30	71	38		
14.33	47.0	116.36	1.43	Sand to Silty Sand	SP/SM	medium dense	115	21	91.4	35	70	38		
14.48	47.5	158.61	1.07	Sand	SP	dense	110	24	124.1	25	79	39		
14.63	48.0	205.62	1.62	Sand to Silty Sand	SP/SM	dense	115	37	160.2	30	86	40		
14.78	48.5	189.88	1.52	Sand to Silty Sand	SP/SM	dense	115	35	147.4	30	84	40		
14.93	49.0	244.11	1.55	Sand to Silty Sand	SP/SM	very dense	115	44	188.6	25	91	41		
15.10	49.5	276.21	1.85	Sand to Silty Sand	SP/SM	very dense	115	50	212.6	25	95	41		
15.25	50.0	274.06	1.92	Sand to Silty Sand	SP/SM	very dense	115	50	210.1	30	94	41		

CLIENT: Imperial Valley Computer Manufacturing, LLC
PROJECT: IV Data Center Campus #2 - Imperial, CA

CONE PENETROMETER: Kehoe Testing & Engineering Truck Mounted Electric Cone with 30 ton reaction weight

LOCATION: See Site and Boring Location Plan

DATE: 7/14/2025

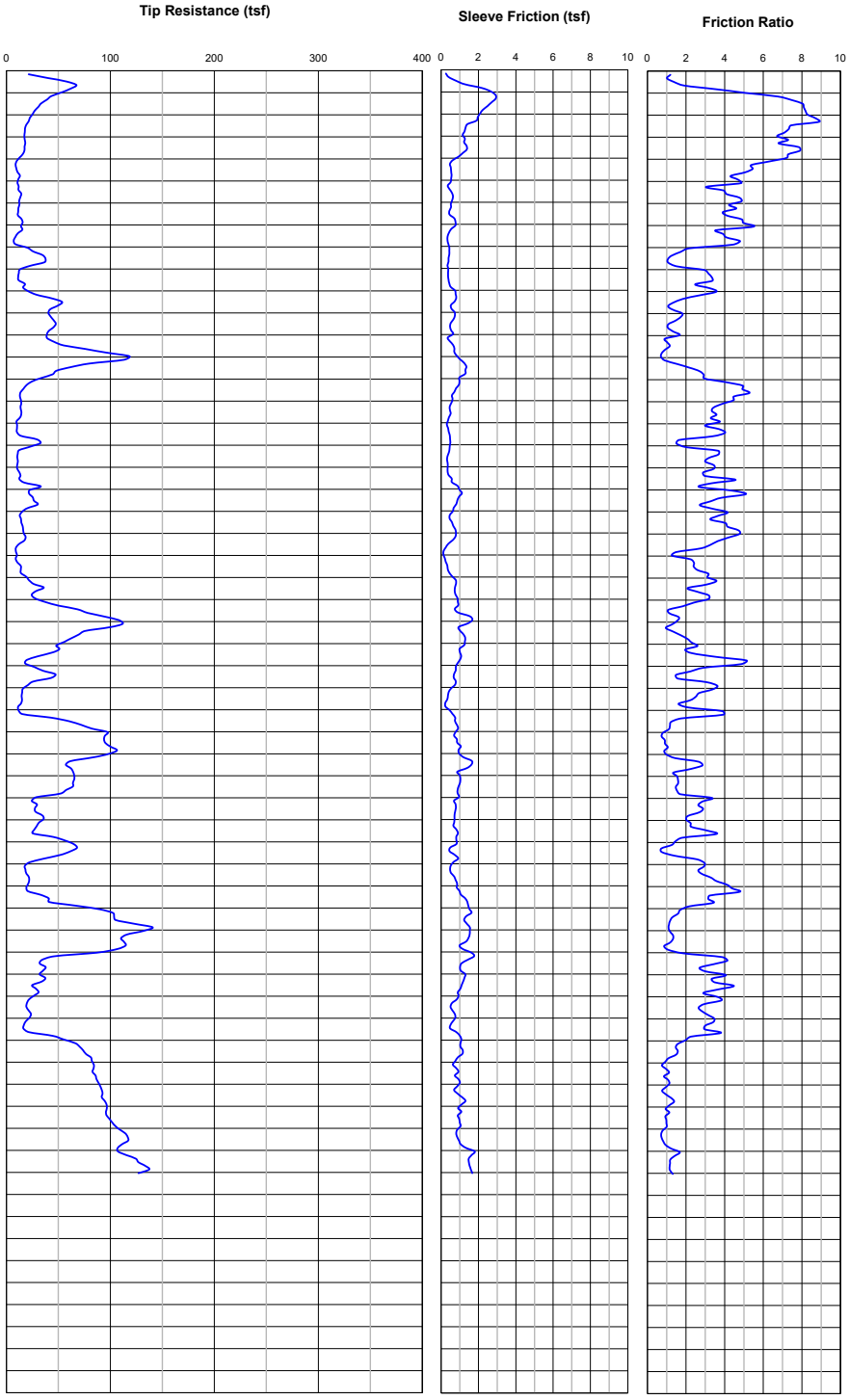
CONE SOUNDING DATA CPT-3

INTERPRETED SOIL PROFILE
From Robertson and Campanella (1989

GROUND ELEVATION +/-

DEPTH			
	Sandy Silt to Clayey Silt	ML	very dense
	Clay	CL/CH	very stiff
	Clay	" "	very stiff
	Clay	" "	stiff
5	Clay	" "	stiff
	Clay	" "	stiff
	Clay	" "	stiff
	Clay	" "	stiff
	Sandy Silt to Clayey Silt	ML	medium dense
10	Clayey Silt to Silty Clay	ML/CL	stiff
	Silty Sand to Sandy Silt	SM/ML	medium dense
	Silty Sand to Sandy Silt	" "	medium dense
	Sand to Silty Sand	SP/SM	medium dense
	Silty Sand to Sandy Silt	SM/ML	medium dense
15	Clay	CL/CH	stiff
	Silty Clay to Clay	CL	stiff
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Silty Clay to Clay	CL	stiff
	Clayey Silt to Silty Clay	ML/CL	very stiff
20	Clayey Silt to Silty Clay	" "	very stiff
	Clay	CL/CH	stiff
	Clayey Silt to Silty Clay	ML/CL	stiff
	Clayey Silt to Silty Clay	" "	stiff
	Clayey Silt to Silty Clay	" "	very stiff
25	Silty Sand to Sandy Silt	SM/ML	medium dense
	Silty Sand to Sandy Silt	" "	medium dense
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Sandy Silt to Clayey Silt	ML	loose
	Clayey Silt to Silty Clay	ML/CL	stiff
30	Silty Sand to Sandy Silt	SM/ML	medium dense
	Sand to Silty Sand	SP/SM	medium dense
	Silty Sand to Sandy Silt	SM/ML	medium dense
	Silty Sand to Sandy Silt	" "	medium dense
	Sandy Silt to Clayey Silt	ML	loose
35	Sandy Silt to Clayey Silt	" "	loose
	Silty Sand to Sandy Silt	SM/ML	medium dense
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Sandy Silt to Clayey Silt	ML	medium dense
	Sand to Silty Sand	SP/SM	dense
40	Sand to Silty Sand	" "	medium dense
	Clayey Silt to Silty Clay	ML/CL	hard
	Clayey Silt to Silty Clay	" "	very stiff
	Clayey Silt to Silty Clay	" "	very stiff
	Clayey Silt to Silty Clay	" "	very stiff
45	Silty Sand to Sandy Silt	SM/ML	medium dense
	Sand to Silty Sand	SP/SM	medium dense
	Sand to Silty Sand	" "	medium dense
	Sand to Silty Sand	" "	medium dense
	Sand to Silty Sand	" "	medium dense
50	Sand to Silty Sand	" "	dense
55			

END OF SOUNDING AT 50 ft.



Project No.		PLATE
LE25111	LANDMARK Geo-Engineers and Geologists	B-3

LANDMARK CONSULTANTS, INC.
CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989, refer to Key to CPT logs)

Project: IV Data Center Campus #2 - Imperial, CA **Project No:** LE25111 **Date:** 7/14/2025

CONE SOUNDING: CPT-3
Est. GWT (ft): 8
Phi Correlation: **0** 0-Schm(78),1-R&C(83),2-PHT(74)

Base Depth (m)	Base Depth (ft)	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	SPT N(60)	Norm. Qc1n	Est. % Fines	Rel. Dens. Dr (%)	**Nk:** Phi (deg.)	**17** Su (tsf)	OCR
0.15	0.5	39.69	1.20	Silty Sand to Sandy Silt	SM/ML	very dense	115	9	75.0	35	107	43		
0.30	1.0	60.66	3.50	Clayey Silt to Silty Clay	ML/CL	hard	120	24		45			3.57	>10
0.45	1.5	38.63	7.42	Clay	CL/CH	hard	125	31		80			2.27	>10
0.60	2.0	27.77	8.19	Clay	CL/CH	very stiff	125	22		90			1.63	>10
0.75	2.5	21.00	8.34	Clay	CL/CH	very stiff	125	17		100			1.23	>10
0.93	3.0	17.60	7.04	Clay	CL/CH	very stiff	125	14		100			1.03	>10
1.08	3.5	17.69	7.31	Clay	CL/CH	very stiff	125	14		100			1.03	>10
1.23	4.0	15.38	7.47	Clay	CL/CH	stiff	125	12		100			0.89	>10
1.38	4.5	9.39	5.70	Clay	CL/CH	stiff	125	8		100			0.54	>10
1.53	5.0	11.70	4.69	Clay	CL/CH	stiff	125	9		100			0.67	>10
1.68	5.5	12.04	3.98	Clay	CL/CH	stiff	125	10		95			0.69	>10
1.83	6.0	12.70	4.62	Clay	CL/CH	stiff	125	10		100			0.73	>10
1.98	6.5	11.26	4.22	Clay	CL/CH	stiff	125	9		100			0.64	>10
2.13	7.0	14.64	5.12	Clay	CL/CH	stiff	125	12		95			0.84	>10
2.28	7.5	11.58	3.85	Clay	CL/CH	stiff	125	9		95			0.65	>10
2.45	8.0	11.95	3.79	Clay	CL/CH	stiff	125	10		95			0.67	>10
2.60	8.5	32.64	1.35	Silty Sand to Sandy Silt	SM/ML	medium dense	115	7	45.1	40	49	35		
2.75	9.0	23.99	1.86	Sandy Silt to Clayey Silt	ML	loose	115	7	32.7	55	39	34		
2.90	9.5	11.67	3.28	Silty Clay to Clay	CL	stiff	125	7		95			0.66	>10
3.05	10.0	18.26	3.08	Clayey Silt to Silty Clay	ML/CL	very stiff	120	7		75			1.04	>10
3.20	10.5	42.22	1.96	Sandy Silt to Clayey Silt	ML	medium dense	115	12	55.3	45	55	36		
3.35	11.0	43.97	1.40	Silty Sand to Sandy Silt	SM/ML	medium dense	115	10	56.9	35	56	36		
3.50	11.5	45.06	1.42	Silty Sand to Sandy Silt	SM/ML	medium dense	115	10	57.6	35	56	36		
3.65	12.0	41.56	1.35	Silty Sand to Sandy Silt	SM/ML	medium dense	115	9	52.6	40	53	35		
3.80	12.5	46.71	1.03	Silty Sand to Sandy Silt	SM/ML	medium dense	115	10	58.4	30	57	36		
3.95	13.0	96.85	0.79	Sand to Silty Sand	SP/SM	dense	115	18	119.9	15	78	39		
4.13	13.5	85.00	1.54	Silty Sand to Sandy Silt	SM/ML	dense	115	19	104.1	30	74	38		
4.28	14.0	42.03	2.85	Sandy Silt to Clayey Silt	ML	medium dense	115	12	50.9	55	53	35		
4.43	14.5	20.06	4.63	Clay	CL/CH	very stiff	125	16		95			1.14	>10
4.58	15.0	13.39	4.74	Clay	CL/CH	stiff	125	11		100			0.75	7.27
4.73	15.5	13.98	3.55	Silty Clay to Clay	CL	stiff	125	8		100			0.78	>10
4.88	16.0	11.82	3.40	Silty Clay to Clay	CL	stiff	125	7		100			0.65	7.13
5.03	16.5	11.34	3.70	Clay	CL/CH	stiff	125	9		100			0.62	5.00
5.18	17.0	28.37	1.72	Sandy Silt to Clayey Silt	ML	loose	115	8	32.2	60	39	33		
5.33	17.5	11.14	3.51	Silty Clay to Clay	CL	stiff	125	6		100			0.61	5.88
5.48	18.0	10.51	3.29	Silty Clay to Clay	CL	stiff	125	6		100			0.57	5.21
5.65	18.5	12.70	3.48	Silty Clay to Clay	CL	stiff	125	7		100			0.70	6.76
5.80	19.0	24.31	3.45	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		85			1.38	>10
5.95	19.5	24.52	4.07	Silty Clay to Clay	CL	very stiff	125	14		90			1.39	>10
6.10	20.0	21.87	3.40	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		90			1.24	>10
6.25	20.5	13.73	3.65	Silty Clay to Clay	CL	stiff	125	8		100			0.76	6.88
6.40	21.0	16.10	4.55	Clay	CL/CH	stiff	125	13		100			0.90	6.65
6.55	21.5	15.79	3.70	Silty Clay to Clay	CL	stiff	125	9		100			0.88	8.27
6.70	22.0	9.42	1.85	Clayey Silt to Silty Clay	ML/CL	stiff	120	4		100			0.50	4.57
6.85	22.5	11.07	2.35	Clayey Silt to Silty Clay	ML/CL	stiff	120	4		100			0.60	5.88
7.00	23.0	15.60	2.96	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		100			0.86	>10
7.18	23.5	28.02	2.90	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		80			1.59	>10
7.33	24.0	26.74	2.98	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		85			1.52	>10
7.48	24.5	51.95	1.77	Silty Sand to Sandy Silt	SM/ML	medium dense	115	12	51.6	50	53	35		
7.63	25.0	93.42	1.44	Sand to Silty Sand	SP/SM	dense	115	17	92.1	35	70	38		
7.78	25.5	95.45	1.19	Sand to Silty Sand	SP/SM	dense	115	17	93.5	30	71	38		
7.93	26.0	62.65	2.02	Silty Sand to Sandy Silt	SM/ML	medium dense	115	14	61.0	50	58	36		
8.08	26.5	43.25	2.60	Sandy Silt to Clayey Silt	ML	medium dense	115	12	41.8	65	47	35		
8.23	27.0	21.65	4.31	Silty Clay to Clay	CL	very stiff	125	12		100			1.21	>10
8.38	27.5	41.72	1.76	Sandy Silt to Clayey Silt	ML	medium dense	115	12	39.8	60	45	34		
8.53	28.0	20.66	3.35	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		100			1.15	>10
8.68	28.5	14.91	2.47	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		100			0.81	7.27
8.85	29.0	12.35	2.54	Clayey Silt to Silty Clay	ML/CL	stiff	120	5		100			0.66	5.21
9.00	29.5	39.54	2.31	Sandy Silt to Clayey Silt	ML	medium dense	115	11	36.7	70	43	34		
9.15	30.0	83.74	1.03	Sand to Silty Sand	SP/SM	medium dense	115	15	77.3	30	65	37		
9.30	30.5	94.58	0.85	Sand to Silty Sand	SP/SM	medium dense	115	17	86.8	25	68	38		
9.45	31.0	101.63	0.97	Sand to Silty Sand	SP/SM	dense	115	18	92.7	30	70	38		
9.60	31.5	67.27	2.32	Sandy Silt to Clayey Silt	ML	medium dense	115	19	61.0	55	58	36		
9.75	32.0	63.79	1.71	Silty Sand to Sandy Silt	SM/ML	medium dense	115	14	57.5	50	56	36		
9.90	32.5	64.37	1.55	Silty Sand to Sandy Silt	SM/ML	medium dense	115	14	57.7	45	56	36		
10.05	33.0	46.06	2.20	Sandy Silt to Clayey Silt	ML	medium dense	115	13	41.1	65	46	34		
10.20	33.5	27.08	2.79	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		90			1.52	>10
10.38	34.0	32.73	2.26	Sandy Silt to Clayey Silt	ML	loose	115	9	28.9	80	36	33		
10.53	34.5	29.05	2.52	Sandy Silt to Clayey Silt	ML	loose	115	8	25.5	85	32	32		
10.68	35.0	42.41	2.27	Sandy Silt to Clayey Silt	ML	medium dense	115	12	37.0	70	43	34		
10.83	35.5	64.68	0.91	Sand to Silty Sand	SP/SM	medium dense	115	12	56.1	40	55	36		
10.98	36.0	36.57	2.31	Sandy Silt to Clayey Silt	ML	loose	115	10	31.6	75	38	33		
11.13	36.5	19.10	2.91	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		100			1.05	8.14
11.28	37.0	20.65	4.02	Silty Clay to Clay	CL	very stiff	125	12		100			1.14	6.54
11.43	37.5	31.45	3.72	Clayey Silt to Silty Clay	ML/CL	very stiff	120	13		95			1.77	>10
11.58	38.0	65.84	2.43	Sandy Silt to Clayey Silt	ML	medium dense	115	19	55.6	60	55	36		
11.73	38.5	103.69	1.35	Sand to Silty Sand	SP/SM	medium dense	115	19	87.1	35	68	38		

LANDMARK CONSULTANTS, INC.
CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989, refer to Key to CPT logs)

Project: IV Data Center Campus #2 - Imperial, CA **Project No:** LE25111 **Date:** 7/14/2025

CONE SOUNDING: CPT-3
Est. GWT (ft): 8
Phi Correlation: **0** 0-Schm(78),1-R&C(83),2-PHT(74)

Base Depth (m)	Base Depth (ft)	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	SPT N(60)	Norm. Qc1n	Est. % Fines	Rel. Dens. Dr (%)	**Nk:** Phi (deg.)	**17** Su (tsf)	OCR
11.88	39.0	131.64	1.13	Sand to Silty Sand	SP/SM	dense	115	24	110.1	30	75	39		
12.05	39.5	113.01	1.28	Sand to Silty Sand	SP/SM	dense	115	21	94.0	35	71	38		
12.20	40.0	102.63	1.27	Sand to Silty Sand	SP/SM	medium dense	115	19	85.0	35	68	37		
12.35	40.5	37.41	3.80	Clayey Silt to Silty Clay	ML/CL	hard	120	15		95			2.12	>10
12.50	41.0	34.91	3.26	Clayey Silt to Silty Clay	ML/CL	very stiff	120	14		90			1.97	>10
12.65	41.5	32.01	3.77	Clayey Silt to Silty Clay	ML/CL	very stiff	120	13		100			1.80	>10
12.80	42.0	28.46	3.38	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		100			1.59	>10
12.95	42.5	20.10	3.15	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		100			1.10	7.13
13.10	43.0	22.37	3.14	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		100			1.23	8.56
13.25	43.5	17.25	3.12	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		100			0.93	5.31
13.40	44.0	40.22	2.68	Sandy Silt to Clayey Silt	ML	loose	115	11	32.0	85	39	33		
13.58	44.5	69.99	1.54	Silty Sand to Sandy Silt	SM/ML	medium dense	115	16	55.5	50	55	36		
13.73	45.0	79.94	1.17	Sand to Silty Sand	SP/SM	medium dense	115	15	63.1	45	59	36		
13.88	45.5	83.59	0.95	Sand to Silty Sand	SP/SM	medium dense	115	15	65.7	40	60	36		
14.03	46.0	86.96	1.02	Sand to Silty Sand	SP/SM	medium dense	115	16	68.0	40	61	37		
14.18	46.5	91.52	0.89	Sand to Silty Sand	SP/SM	medium dense	115	17	71.3	35	62	37		
14.33	47.0	94.73	1.17	Sand to Silty Sand	SP/SM	medium dense	115	17	73.5	40	63	37		
14.48	47.5	97.07	1.01	Sand to Silty Sand	SP/SM	medium dense	115	18	75.0	35	64	37		
14.63	48.0	105.25	0.92	Sand to Silty Sand	SP/SM	medium dense	115	19	81.0	35	66	37		
14.78	48.5	116.01	0.76	Sand	SP	medium dense	110	18	88.9	30	69	38		
14.93	49.0	108.55	1.29	Sand to Silty Sand	SP/SM	medium dense	115	20	82.8	40	67	37		
15.10	49.5	122.29	1.26	Sand to Silty Sand	SP/SM	dense	115	22	93.0	35	70	38		
15.25	50.0	132.64	1.21	Sand to Silty Sand	SP/SM	dense	115	24	100.4	35	73	38		

CLIENT: Imperial Valley Computer Manufacturing, LLC
PROJECT: IV Data Center Campus #2 - Imperial, CA

CONE PENETROMETER: Kehoe Testing & Engineering Truck Mounted Electric Cone with 30 ton reaction weight

LOCATION: See Site and Boring Location Plan

DATE: 7/14/2025

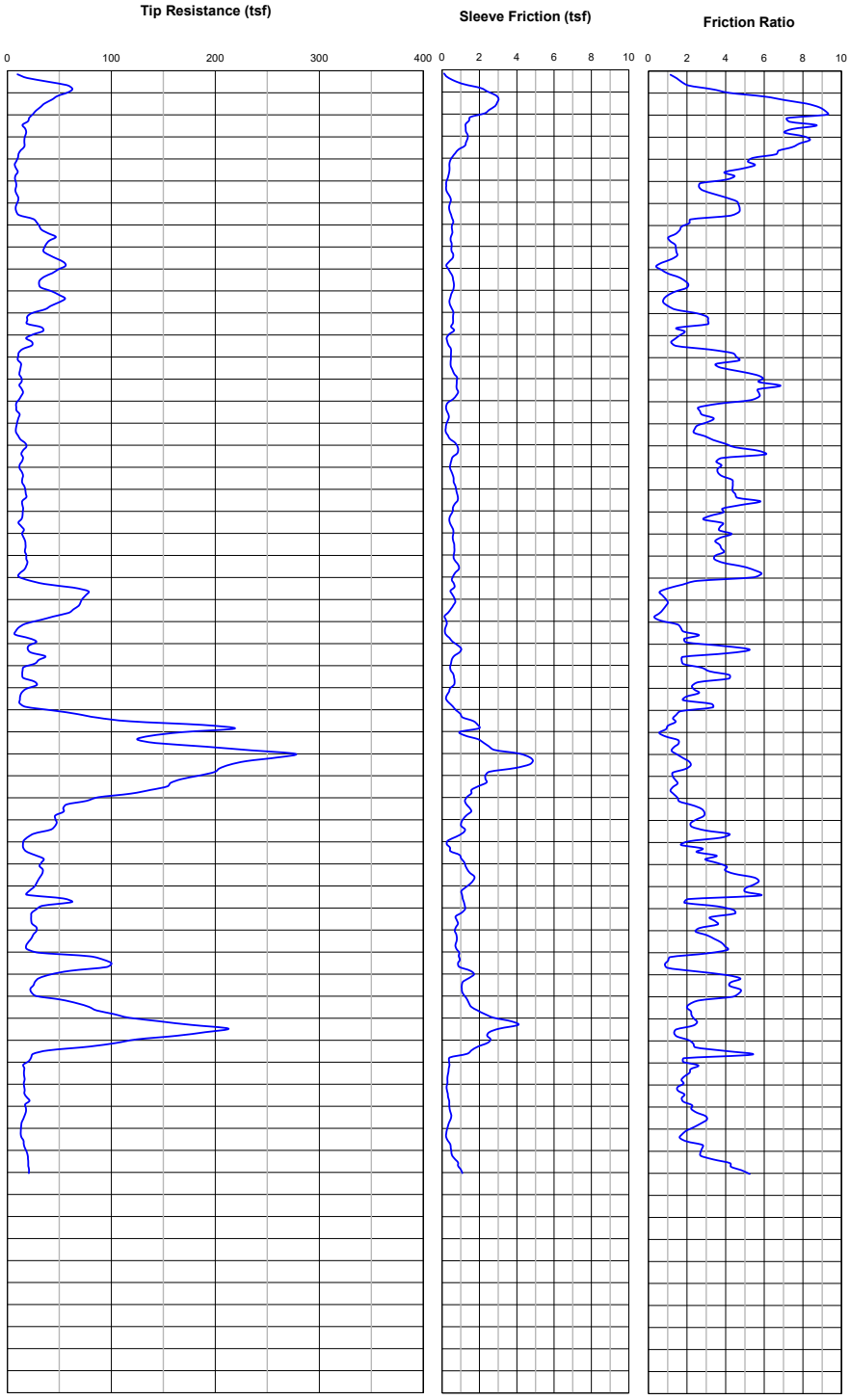
CONE SOUNDING DATA CPT-4

INTERPRETED SOIL PROFILE
From Robertson and Campanella (1989

GROUND ELEVATION +/-

DEPTH			
	Sandy Silt to Clayey Silt	ML	very dense
	Clay	CL/CH	hard
	Clay	" "	very stiff
	Clay	" "	stiff
5	Clay	" "	firm
	Clay	" "	stiff
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Silty Sand to Sandy Silt	SM/ML	medium dense
	Silty Sand to Sandy Silt	" "	medium dense
10	Silty Sand to Sandy Silt	" "	medium dense
	Silty Sand to Sandy Silt	" "	medium dense
	Sandy Silt to Clayey Silt	ML	loose
	Clayey Silt to Silty Clay	ML/CL	stiff
	Clay	CL/CH	stiff
15	Clay	" "	stiff
	Silty Clay to Clay	CL	stiff
	Silty Clay to Clay	" "	stiff
	Clay	CL/CH	stiff
	Clay	" "	stiff
20	Clay	" "	stiff
	Silty Clay to Clay	CL	stiff
	Silty Clay to Clay	" "	stiff
	Clay	CL/CH	stiff
	Silty Sand to Sandy Silt	SM/ML	medium dense
	Sand to Silty Sand	SP/SM	medium dense
25	Clayey Silt to Silty Clay	ML/CL	stiff
	Clayey Silt to Silty Clay	" "	very stiff
	Clayey Silt to Silty Clay	" "	very stiff
	Clayey Silt to Silty Clay	" "	very stiff
	Sand to Silty Sand	SP/SM	dense
30	Sand to Silty Sand	" "	dense
	Sand to Silty Sand	" "	very dense
	Sand to Silty Sand	" "	dense
	Sandy Silt to Clayey Silt	ML	medium dense
	Clayey Silt to Silty Clay	ML/CL	very stiff
35	Clayey Silt to Silty Clay	" "	very stiff
	Clay	CL/CH	very stiff
	Clayey Silt to Silty Clay	ML/CL	hard
	Clayey Silt to Silty Clay	" "	very stiff
	Clayey Silt to Silty Clay	" "	very stiff
40	Silty Sand to Sandy Silt	SM/ML	medium dense
	Silty Clay to Clay	CL	very stiff
	Silty Sand to Sandy Silt	SM/ML	medium dense
	Sand to Silty Sand	SP/SM	dense
	Sandy Silt to Clayey Silt	ML	medium dense
45	Clayey Silt to Silty Clay	ML/CL	stiff
	Sandy Silt to Clayey Silt	ML	very loose
	Clayey Silt to Silty Clay	ML/CL	stiff
	Clayey Silt to Silty Clay	" "	stiff
50	Silty Clay to Clay	CL	very stiff
55			

END OF SOUNDING AT 50 ft.



Project No.		PLATE
LE25111	LANDMARK Geo-Engineers and Geologists	B-4

LANDMARK CONSULTANTS, INC.
CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989, refer to Key to CPT logs)

Project: IV Data Center Campus #2 - Imperial, CA **Project No:** LE25111 **Date:** 7/14/2025

CONE SOUNDING: CPT-4
Est. GWT (ft): 8
Phi Correlation: **0** 0-Schm(78),1-R&C(83),2-PHT(74)

Base Depth (m)	Base Depth (ft)	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	SPT N(60)	Norm. Qc1n	Est. % Fines	Rel. Dens. Dr (%)	**Nk:** Phi (deg.)	**17** Su (tsf)	OCR
0.15	0.5	22.27	1.45	Sandy Silt to Clayey Silt	ML	dense	115	6	42.1	50	90	41		
0.30	1.0	59.32	3.19	Sandy Silt to Clayey Silt	ML	very dense	115	17	112.1	45	103	42		
0.45	1.5	42.35	7.07	Clay	CL/CH	hard	125	34		75			2.49	>10
0.60	2.0	28.13	9.10	Clay	CL/CH	very stiff	125	23		95			1.65	>10
0.75	2.5	18.46	7.74	Clay	CL/CH	very stiff	125	15		100			1.08	>10
0.93	3.0	17.40	7.51	Clay	CL/CH	very stiff	125	14		100			1.01	>10
1.08	3.5	16.31	7.89	Clay	CL/CH	stiff	125	13		100			0.95	>10
1.23	4.0	11.32	6.26	Clay	CL/CH	stiff	125	9		100			0.65	>10
1.38	4.5	7.99	5.16	Clay	CL/CH	firm	125	6		100			0.45	>10
1.53	5.0	8.37	4.14	Clay	CL/CH	firm	125	7		100			0.48	>10
1.68	5.5	8.26	2.89	Silty Clay to Clay	CL	firm	125	5		100			0.47	>10
1.83	6.0	9.82	4.43	Clay	CL/CH	stiff	125	8		100			0.56	>10
1.98	6.5	9.35	4.54	Clay	CL/CH	stiff	125	7		100			0.53	>10
2.13	7.0	27.88	2.01	Sandy Silt to Clayey Silt	ML	medium dense	115	8	42.0	50	47	35		
2.28	7.5	39.61	1.35	Silty Sand to Sandy Silt	SM/ML	medium dense	115	9	57.8	35	56	36		
2.45	8.0	37.71	1.31	Silty Sand to Sandy Silt	SM/ML	medium dense	115	8	53.3	35	54	36		
2.60	8.5	40.76	1.38	Silty Sand to Sandy Silt	SM/ML	medium dense	115	9	56.8	35	56	36		
2.75	9.0	52.99	0.59	Sand to Silty Sand	SP/SM	medium dense	115	10	72.9	20	63	37		
2.90	9.5	36.58	1.49	Silty Sand to Sandy Silt	SM/ML	medium dense	115	8	49.7	40	52	35		
3.05	10.0	35.06	1.80	Sandy Silt to Clayey Silt	ML	medium dense	115	10	47.0	45	50	35		
3.20	10.5	51.71	0.86	Silty Sand to Sandy Silt	SM/ML	medium dense	115	11	68.5	25	61	37		
3.35	11.0	34.15	1.67	Sandy Silt to Clayey Silt	ML	medium dense	115	10	44.7	45	49	35		
3.50	11.5	19.09	3.07	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		75			1.09	>10
3.65	12.0	30.53	1.66	Sandy Silt to Clayey Silt	ML	medium dense	115	9	39.0	50	45	34		
3.80	12.5	21.64	1.33	Sandy Silt to Clayey Silt	ML	loose	115	6	27.3	55	34	33		
3.95	13.0	12.04	4.02	Clay	CL/CH	stiff	125	10		100			0.67	7.27
4.13	13.5	11.94	3.98	Clay	CL/CH	stiff	125	10		100			0.67	6.88
4.28	14.0	12.35	5.40	Clay	CL/CH	stiff	125	10		100			0.69	7.00
4.43	14.5	12.94	6.08	Clay	CL/CH	stiff	125	10		100			0.72	7.27
4.58	15.0	13.16	5.58	Clay	CL/CH	stiff	125	11		100			0.73	7.13
4.73	15.5	8.57	2.96	Silty Clay to Clay	CL	firm	125	5		100			0.46	4.37
4.88	16.0	10.25	2.95	Silty Clay to Clay	CL	stiff	125	6		100			0.56	5.76
5.03	16.5	8.95	2.57	Silty Clay to Clay	CL	firm	125	5		100			0.48	4.37
5.18	17.0	15.97	3.93	Silty Clay to Clay	CL	stiff	125	9		100			0.90	>10
5.33	17.5	14.50	5.19	Clay	CL/CH	stiff	125	12		100			0.81	7.00
5.48	18.0	12.60	3.63	Silty Clay to Clay	CL	stiff	125	7		100			0.70	7.00
5.65	18.5	14.41	3.91	Silty Clay to Clay	CL	stiff	125	8		100			0.80	8.56
5.80	19.0	15.94	4.36	Clay	CL/CH	stiff	125	13		100			0.89	7.41
5.95	19.5	16.76	4.97	Clay	CL/CH	stiff	125	13		100			0.94	7.85
6.10	20.0	14.75	4.17	Clay	CL/CH	stiff	125	12		100			0.82	6.10
6.25	20.5	12.94	3.30	Silty Clay to Clay	CL	stiff	125	7		100			0.71	6.21
6.40	21.0	14.41	3.90	Silty Clay to Clay	CL	stiff	125	8		100			0.80	7.13
6.55	21.5	16.56	3.63	Silty Clay to Clay	CL	stiff	125	9		100			0.92	9.00
6.70	22.0	17.46	3.72	Silty Clay to Clay	CL	stiff	125	10		100			0.97	9.79
6.85	22.5	18.49	4.07	Silty Clay to Clay	CL	very stiff	125	11		100			1.03	>10
7.00	23.0	13.07	5.59	Clay	CL/CH	stiff	125	10		100			0.71	4.18
7.18	23.5	39.76	1.78	Sandy Silt to Clayey Silt	ML	medium dense	115	11	40.0	55	45	34		
7.33	24.0	75.35	0.73	Sand to Silty Sand	SP/SM	medium dense	115	14	75.3	25	64	37		
7.48	24.5	67.61	0.88	Sand to Silty Sand	SP/SM	medium dense	115	12	67.1	30	61	36		
7.63	25.0	44.75	0.50	Sand to Silty Sand	SP/SM	medium dense	115	8	44.1	35	48	35		
7.78	25.5	12.23	1.67	Clayey Silt to Silty Clay	ML/CL	stiff	120	5		100			0.66	5.88
7.93	26.0	18.71	2.15	Clayey Silt to Silty Clay	ML/CL	very stiff	120	7		90			1.04	>10
8.08	26.5	24.91	3.77	Silty Clay to Clay	CL	very stiff	125	14		95			1.41	>10
8.23	27.0	24.20	2.10	Sandy Silt to Clayey Silt	ML	loose	115	7	23.2	80	29	32		
8.38	27.5	14.75	3.85	Silty Clay to Clay	CL	stiff	125	8		100			0.81	5.42
8.53	28.0	24.05	2.40	Sandy Silt to Clayey Silt	ML	loose	115	7	22.7	85	29	32		
8.68	28.5	12.76	2.13	Clayey Silt to Silty Clay	ML/CL	stiff	120	5		100			0.69	5.53
8.85	29.0	24.48	2.75	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		90			1.38	>10
9.00	29.5	90.72	1.38	Sand to Silty Sand	SP/SM	medium dense	115	16	84.0	35	67	37		
9.15	30.0	191.46	0.83	Sand	SP	dense	110	29	176.3	15	89	40		
9.30	30.5	135.01	1.33	Sand to Silty Sand	SP/SM	dense	115	25	123.6	25	79	39		
9.45	31.0	233.81	1.34	Sand	SP	very dense	110	36	212.9	20	95	41		
9.60	31.5	234.66	2.03	Sand to Silty Sand	SP/SM	very dense	115	43	212.5	25	95	41		
9.75	32.0	196.08	1.48	Sand to Silty Sand	SP/SM	dense	115	36	176.6	25	89	40		
9.90	32.5	159.43	1.39	Sand to Silty Sand	SP/SM	dense	115	29	142.8	25	83	40		
10.05	33.0	114.71	1.33	Sand to Silty Sand	SP/SM	dense	115	21	102.1	30	73	38		
10.20	33.5	62.28	2.21	Sandy Silt to Clayey Silt	ML	medium dense	115	18	55.2	55	55	36		
10.38	34.0	48.81	2.75	Sandy Silt to Clayey Silt	ML	medium dense	115	14	43.0	70	48	35		
10.53	34.5	44.88	2.47	Sandy Silt to Clayey Silt	ML	medium dense	115	13	39.3	70	45	34		
10.68	35.0	20.61	3.36	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		100			1.14	>10
10.83	35.5	16.12	2.33	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		100			0.87	6.21
10.98	36.0	31.37	3.35	Clayey Silt to Silty Clay	ML/CL	very stiff	120	13		95			1.77	>10
11.13	36.5	32.54	4.49	Silty Clay to Clay	CL	very stiff	125	19		100			1.84	>10
11.28	37.0	27.35	5.40	Clay	CL/CH	very stiff	125	22		100			1.53	8.14
11.43	37.5	31.00	4.28	Silty Clay to Clay	CL	very stiff	125	18		100			1.75	>10
11.58	38.0	41.36	3.28	Clayey Silt to Silty Clay	ML/CL	hard	120	17		85			2.35	>10
11.73	38.5	23.02	3.70	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		100			1.27	>10

LANDMARK CONSULTANTS, INC.
CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989, refer to Key to CPT logs)

Project: IV Data Center Campus #2 - Imperial, CA **Project No:** LE25111 **Date:** 7/14/2025

CONE SOUNDING: CPT-4
Est. GWT (ft): 8
Phi Correlation: **0** 0-Schm(78),1-R&C(83),2-PHT(74)

Base Depth (m)	Base Depth (ft)	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	SPT N(60)	Norm. Qc1n	Est. % Fines	Rel. Dens. Dr (%)	**Nk:** Phi (deg.)	**17** Su (tsf)	OCR
11.88	39.0	26.54	2.89	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		100			1.48	>10
12.05	39.5	22.86	3.41	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		100			1.26	>10
12.20	40.0	22.27	3.70	Silty Clay to Clay	CL	very stiff	125	13		100			1.23	6.65
12.35	40.5	90.63	1.00	Sand to Silty Sand	SP/SM	medium dense	115	16	74.3	35	64	37		
12.50	41.0	66.02	2.50	Sandy Silt to Clayey Silt	ML	medium dense	115	19	53.8	60	54	36		
12.65	41.5	27.48	4.41	Silty Clay to Clay	CL	very stiff	125	16		100			1.53	9.19
12.80	42.0	24.36	4.61	Clay	CL/CH	very stiff	125	19		100			1.35	5.53
12.95	42.5	65.55	2.26	Sandy Silt to Clayey Silt	ML	medium dense	115	19	52.6	60	54	35		
13.10	43.0	101.83	2.26	Silty Sand to Sandy Silt	SM/ML	medium dense	115	23	81.4	50	66	37		
13.25	43.5	178.67	2.10	Silty Sand to Sandy Silt	SM/ML	dense	115	40	142.2	35	83	40		
13.40	44.0	159.15	1.63	Sand to Silty Sand	SP/SM	dense	115	29	126.1	35	79	39		
13.58	44.5	74.23	2.92	Sandy Silt to Clayey Silt	ML	medium dense	115	21	58.6	65	57	36		
13.73	45.0	22.73	3.00	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		100			1.25	8.14
13.88	45.5	15.84	2.30	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		100			0.84	4.28
14.03	46.0	16.15	1.80	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		100			0.86	4.37
14.18	46.5	16.37	1.64	Sandy Silt to Clayey Silt	ML	very loose	115	5	12.7	100	12	30		
14.33	47.0	18.69	2.00	Sandy Silt to Clayey Silt	ML	very loose	115	5	14.4	100	15	30		
14.48	47.5	16.56	2.83	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		100			0.88	4.37
14.63	48.0	13.32	2.36	Clayey Silt to Silty Clay	ML/CL	stiff	120	5		100			0.69	3.14
14.78	48.5	13.91	1.79	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		100			0.72	3.28
14.93	49.0	16.97	2.76	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		100			0.90	4.37
15.10	49.5	19.80	3.44	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		100			1.07	5.53
15.25	50.0	20.50	4.78	Clay	CL/CH	very stiff	125	16		100			1.11	3.43

CLIENT: Imperial Valley Computer Manufacturing, LLC
PROJECT: IV Data Center Campus #2 - Imperial, CA

CONE PENETROMETER: Kehoe Testing & Engineering Truck Mounted Electric Cone with 30 ton reaction weight

LOCATION: See Site and Boring Location Plan

DATE: 7/14/2025

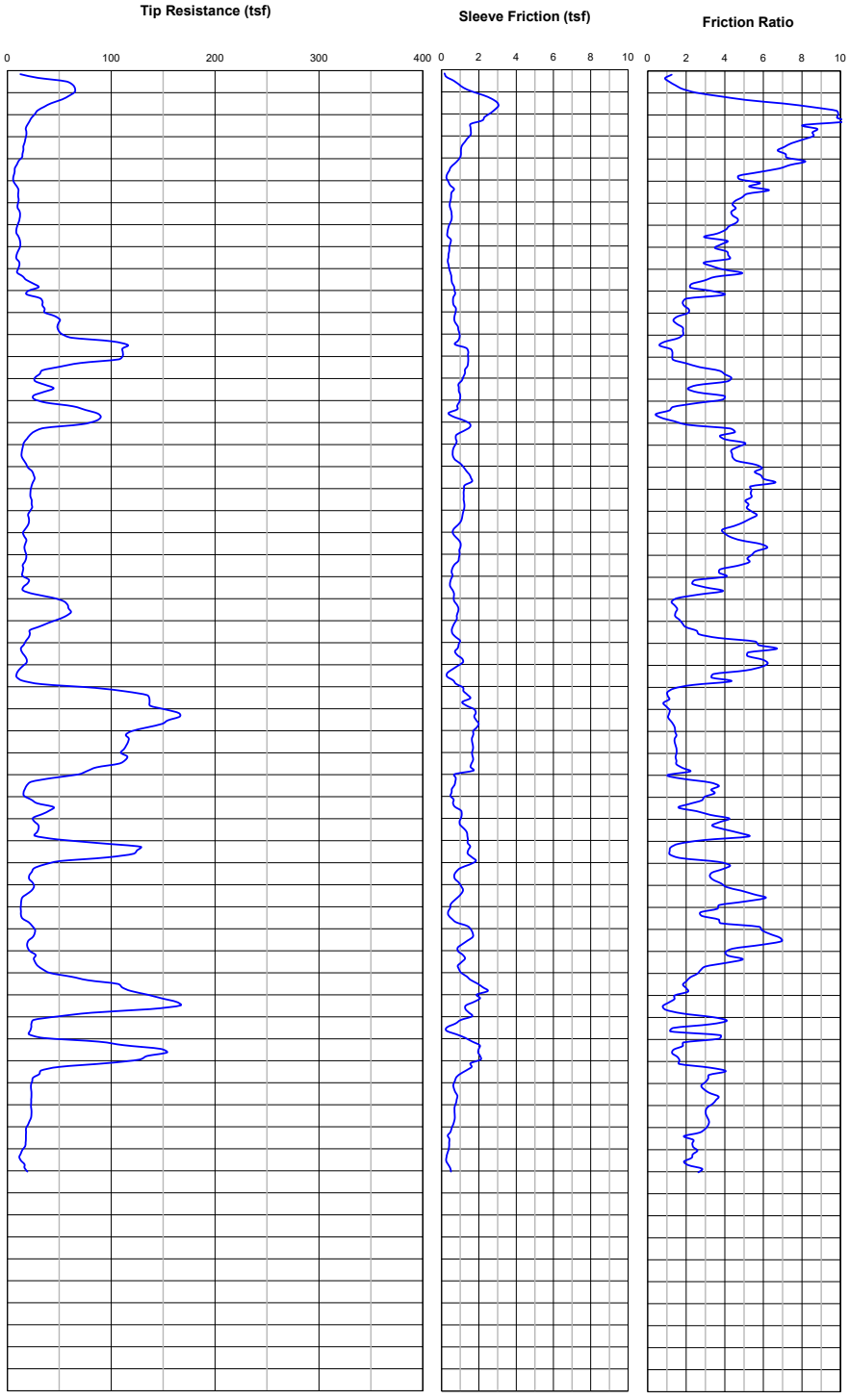
CONE SOUNDING DATA CPT-5

INTERPRETED SOIL PROFILE
From Robertson and Campanella (1989

GROUND ELEVATION +/-

DEPTH			
	Silty Sand to Sandy Silt	SM/ML	very dense
	Clay	CL/CH	hard
	Clay	" "	very stiff
	Clay	" "	stiff
5	Clay	" "	firm
	Clay	" "	stiff
	Clay	" "	stiff
	Silty Clay to Clay	CL	stiff
	Clay	CL/CH	stiff
10	Clayey Silt to Silty Clay	ML/CL	very stiff
	Sandy Silt to Clayey Silt	ML	medium dense
	Silty Sand to Sandy Silt	SM/ML	medium dense
	Sand to Silty Sand	SP/SM	dense
	Sandy Silt to Clayey Silt	ML	medium dense
15	Clayey Silt to Silty Clay	ML/CL	very stiff
	Silty Sand to Sandy Silt	SM/ML	medium dense
	Silty Clay to Clay	CL	very stiff
	Clay	CL/CH	stiff
	Clay	" "	very stiff
20	Clay	" "	very stiff
	Clay	" "	very stiff
	Clay	" "	stiff
	Clay	" "	stiff
	Clayey Silt to Silty Clay	ML/CL	very stiff
25	Silty Sand to Sandy Silt	SM/ML	medium dense
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Clay	CL/CH	stiff
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Sand to Silty Sand	SP/SM	dense
30	Sand to Silty Sand	" "	dense
	Sand to Silty Sand	" "	dense
	Silty Sand to Sandy Silt	SM/ML	medium dense
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Sandy Silt to Clayey Silt	ML	loose
35	Clayey Silt to Silty Clay	ML/CL	very stiff
	Silty Sand to Sandy Silt	SM/ML	medium dense
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Clay	CL/CH	stiff
	Silty Clay to Clay	CL	very stiff
40	Clay	CL/CH	very stiff
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Silty Sand to Sandy Silt	SM/ML	medium dense
	Sand to Silty Sand	SP/SM	dense
	Clayey Silt to Silty Clay	ML/CL	very stiff
45	Sand to Silty Sand	SP/SM	dense
	Sandy Silt to Clayey Silt	ML	medium dense
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Clayey Silt to Silty Clay	" "	very stiff
	Clayey Silt to Silty Clay	" "	stiff
50	Clayey Silt to Silty Clay	" "	stiff
55			

END OF SOUNDING AT 50 ft.



Project No.
LE25111

LANDMARK
Geo-Engineers and Geologists

PLATE
B-5

LANDMARK CONSULTANTS, INC.
CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989, refer to Key to CPT logs)

Project: IV Data Center Campus #2 - Imperial, CA **Project No:** LE25111 **Date:** 7/14/2025

CONE SOUNDING: CPT-5
Est. GWT (ft): 8
Phi Correlation: **0** 0-Schm(78),1-R&C(83),2-PHT(74)

Base Depth (m)	Base Depth (ft)	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	SPT N(60)	Norm. Qc1n	Est. % Fines	Rel. Dens. Dr (%)	**Nk:** Phi (deg.)	**17** Su (tsf)	OCR
0.15	0.5	32.87	1.10	Silty Sand to Sandy Silt	SM/ML	very dense	115	7	62.1	35	101	42		
0.30	1.0	64.26	1.93	Silty Sand to Sandy Silt	SM/ML	very dense	115	14	121.5	30	105	43		
0.45	1.5	51.43	5.29	Clay	CL/CH	hard	125	41		60			3.02	>10
0.60	2.0	30.46	9.41	Clay	CL/CH	very stiff	125	24		95			1.79	>10
0.75	2.5	21.41	9.38	Clay	CL/CH	very stiff	125	17		100			1.25	>10
0.93	3.0	18.07	8.65	Clay	CL/CH	very stiff	125	14		100			1.05	>10
1.08	3.5	16.39	7.53	Clay	CL/CH	stiff	125	13		100			0.95	>10
1.23	4.0	14.70	7.04	Clay	CL/CH	stiff	125	12		100			0.85	>10
1.38	4.5	9.11	7.46	Clay	CL/CH	stiff	125	7		100			0.52	>10
1.53	5.0	6.21	5.09	Clay	CL/CH	firm	125	5		100			0.35	8.27
1.68	5.5	9.07	5.64	Clay	CL/CH	stiff	125	7		100			0.51	>10
1.83	6.0	10.46	4.61	Clay	CL/CH	stiff	125	8		100			0.59	>10
1.98	6.5	11.30	4.44	Clay	CL/CH	stiff	125	9		100			0.64	>10
2.13	7.0	10.74	4.50	Clay	CL/CH	stiff	125	9		100			0.61	>10
2.28	7.5	9.40	3.52	Clay	CL/CH	stiff	125	8		100			0.53	8.14
2.45	8.0	12.14	3.81	Clay	CL/CH	stiff	125	10		95			0.69	>10
2.60	8.5	9.24	4.18	Clay	CL/CH	stiff	125	7		100			0.51	6.54
2.75	9.0	10.99	3.40	Silty Clay to Clay	CL	stiff	125	6		95			0.62	>10
2.90	9.5	14.14	3.79	Silty Clay to Clay	CL	stiff	125	8		90			0.80	>10
3.05	10.0	25.12	2.64	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		65			1.45	>10
3.20	10.5	27.87	2.60	Sandy Silt to Clayey Silt	ML	medium dense	115	8	36.4	60	43	34		
3.35	11.0	35.14	2.04	Sandy Silt to Clayey Silt	ML	medium dense	115	10	45.3	50	49	35		
3.50	11.5	48.41	1.46	Silty Sand to Sandy Silt	SM/ML	medium dense	115	11	61.7	35	58	36		
3.65	12.0	49.97	1.83	Silty Sand to Sandy Silt	SM/ML	medium dense	115	11	63.0	40	59	36		
3.80	12.5	92.82	1.02	Sand to Silty Sand	SP/SM	dense	115	17	115.8	20	77	39		
3.95	13.0	111.05	1.25	Sand to Silty Sand	SP/SM	dense	115	20	137.0	20	82	39		
4.13	13.5	76.31	2.02	Silty Sand to Sandy Silt	SM/ML	dense	115	17	93.2	35	70	38		
4.28	14.0	30.62	4.02	Silty Clay to Clay	CL	very stiff	125	17		75			1.76	>10
4.43	14.5	35.58	2.91	Sandy Silt to Clayey Silt	ML	medium dense	115	10	42.5	60	47	35		
4.58	15.0	28.75	3.49	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		75			1.65	>10
4.73	15.5	58.65	1.66	Silty Sand to Sandy Silt	SM/ML	medium dense	115	13	68.6	40	61	37		
4.88	16.0	83.40	1.16	Sand to Silty Sand	SP/SM	dense	115	15	96.7	25	71	38		
5.03	16.5	27.62	4.18	Silty Clay to Clay	CL	very stiff	125	16		80			1.58	>10
5.18	17.0	16.63	4.60	Clay	CL/CH	stiff	125	13		100			0.94	9.39
5.33	17.5	13.95	4.38	Clay	CL/CH	stiff	125	11		100			0.78	6.54
5.48	18.0	17.98	5.38	Clay	CL/CH	very stiff	125	14		100			1.01	>10
5.65	18.5	25.09	5.82	Clay	CL/CH	very stiff	125	20		100			1.43	>10
5.80	19.0	23.47	5.78	Clay	CL/CH	very stiff	125	19		100			1.33	>10
5.95	19.5	22.60	5.26	Clay	CL/CH	very stiff	125	18		100			1.28	>10
6.10	20.0	23.00	5.26	Clay	CL/CH	very stiff	125	18		100			1.30	>10
6.25	20.5	20.47	5.31	Clay	CL/CH	very stiff	125	16		100			1.15	>10
6.40	21.0	17.29	4.11	Silty Clay to Clay	CL	stiff	125	10		100			0.97	>10
6.55	21.5	17.29	5.00	Clay	CL/CH	stiff	125	14		100			0.97	7.27
6.70	22.0	17.14	5.74	Clay	CL/CH	stiff	125	14		100			0.96	6.88
6.85	22.5	16.60	5.03	Clay	CL/CH	stiff	125	13		100			0.92	6.43
7.00	23.0	14.79	3.85	Silty Clay to Clay	CL	stiff	125	8		100			0.82	6.65
7.18	23.5	18.60	2.59	Clayey Silt to Silty Clay	ML/CL	very stiff	120	7		95			1.04	>10
7.33	24.0	27.84	2.69	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		80			1.58	>10
7.48	24.5	56.99	1.39	Silty Sand to Sandy Silt	SM/ML	medium dense	115	13	56.4	45	56	36		
7.63	25.0	55.90	1.51	Silty Sand to Sandy Silt	SM/ML	medium dense	115	12	55.0	45	55	36		
7.78	25.5	30.77	2.10	Sandy Silt to Clayey Silt	ML	loose	115	9	30.1	70	37	33		
7.93	26.0	20.01	3.97	Silty Clay to Clay	CL	very stiff	125	11		100			1.12	>10
8.08	26.5	14.77	5.72	Clay	CL/CH	stiff	125	12		100			0.81	4.37
8.23	27.0	17.20	6.03	Clay	CL/CH	stiff	125	14		100			0.95	5.42
8.38	27.5	9.74	3.94	Clay	CL/CH	stiff	125	8		100			0.51	2.27
8.53	28.0	43.91	2.69	Sandy Silt to Clayey Silt	ML	medium dense	115	13	41.3	70	46	34		
8.68	28.5	128.37	1.06	Sand to Silty Sand	SP/SM	dense	115	23	120.1	25	78	39		
8.85	29.0	142.32	0.98	Sand	SP	dense	110	22	132.4	20	81	39		
9.00	29.5	161.89	1.12	Sand	SP	dense	110	25	149.8	20	84	40		
9.15	30.0	134.14	1.39	Sand to Silty Sand	SP/SM	dense	115	24	123.4	30	79	39		
9.30	30.5	115.70	1.43	Sand to Silty Sand	SP/SM	dense	115	21	105.8	30	74	38		
9.45	31.0	111.95	1.49	Sand to Silty Sand	SP/SM	dense	115	20	101.8	35	73	38		
9.60	31.5	112.11	1.48	Sand to Silty Sand	SP/SM	dense	115	20	101.4	35	73	38		
9.75	32.0	77.06	1.68	Silty Sand to Sandy Silt	SM/ML	medium dense	115	17	69.3	45	62	37		
9.90	32.5	28.15	2.90	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		90			1.59	>10
10.05	33.0	16.26	3.24	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		100			0.89	6.88
10.20	33.5	32.12	2.18	Sandy Silt to Clayey Silt	ML	loose	115	9	28.4	80	35	33		
10.38	34.0	32.89	3.34	Clayey Silt to Silty Clay	ML/CL	very stiff	120	13		90			1.86	>10
10.53	34.5	28.56	3.68	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		100			1.61	>10
10.68	35.0	34.58	4.29	Silty Clay to Clay	CL	very stiff	125	20		95			1.96	>10
10.83	35.5	113.51	1.31	Sand to Silty Sand	SP/SM	dense	115	21	98.0	35	72	38		
10.98	36.0	88.92	2.18	Silty Sand to Sandy Silt	SM/ML	medium dense	115	20	76.3	50	65	37		
11.13	36.5	26.29	3.68	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		100			1.47	>10
11.28	37.0	23.70	3.77	Silty Clay to Clay	CL	very stiff	125	14		100			1.32	8.27
11.43	37.5	19.26	5.49	Clay	CL/CH	very stiff	125	15		100			1.05	4.37
11.58	38.0	13.11	4.12	Clay	CL/CH	stiff	125	10		100			0.69	2.49
11.73	38.5	13.69	3.08	Silty Clay to Clay	CL	stiff	125	8		100			0.73	3.21

LANDMARK CONSULTANTS, INC.
CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989, refer to Key to CPT logs)

Project: IV Data Center Campus #2 - Imperial, CA **Project No:** LE25111 **Date:** 7/14/2025

CONE SOUNDING: CPT-5
Est. GWT (ft): 8
Phi Correlation: **0** 0-Schm(78),1-R&C(83),2-PHT(74)

Base Depth (m)	Base Depth (ft)	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	SPT N(60)	Norm. Qc1n	Est. % Fines	Rel. Dens. Dr (%)	**Nk:** Phi (deg.)	**17** Su (tsf)	OCR
11.88	39.0	23.75	5.16	Clay	CL/CH	very stiff	125	19		100			1.32	5.88
12.05	39.5	23.75	6.71	Clay	CL/CH	very stiff	125	19		100			1.32	5.76
12.20	40.0	20.19	4.80	Clay	CL/CH	very stiff	125	16		100			1.11	4.28
12.35	40.5	26.47	4.39	Silty Clay to Clay	CL	very stiff	125	15		100			1.47	8.70
12.50	41.0	34.80	2.77	Sandy Silt to Clayey Silt	ML	loose	115	10	28.2	90	35	33		
12.65	41.5	81.68	2.02	Silty Sand to Sandy Silt	SM/ML	medium dense	115	18	66.0	50	60	36		
12.80	42.0	121.50	1.83	Silty Sand to Sandy Silt	SM/ML	dense	115	27	97.7	40	72	38		
12.95	42.5	159.17	1.08	Sand	SP	dense	110	24	127.5	25	80	39		
13.10	43.0	89.33	2.02	Silty Sand to Sandy Silt	SM/ML	medium dense	115	20	71.2	50	62	37		
13.25	43.5	23.81	2.90	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		100			1.31	9.19
13.40	44.0	25.84	2.89	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		100			1.43	>10
13.58	44.5	115.70	1.68	Silty Sand to Sandy Silt	SM/ML	medium dense	115	26	91.0	40	70	38		
13.73	45.0	138.39	1.49	Sand to Silty Sand	SP/SM	dense	115	25	108.4	35	75	38		
13.88	45.5	59.30	2.97	Sandy Silt to Clayey Silt	ML	medium dense	115	17	46.2	75	50	35		
14.03	46.0	26.50	3.11	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		100			1.47	>10
14.18	46.5	22.88	2.97	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		100			1.25	7.70
14.33	47.0	22.94	3.42	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		100			1.26	7.70
14.48	47.5	23.07	3.05	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		100			1.26	7.56
14.63	48.0	19.76	3.10	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		100			1.07	5.76
14.78	48.5	17.90	2.31	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		100			0.96	4.78
14.93	49.0	16.35	2.42	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		100			0.86	4.09
15.10	49.5	12.55	2.17	Clayey Silt to Silty Clay	ML/CL	stiff	120	5		100			0.64	2.73
15.25	50.0	17.40	2.51	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		100			0.92	4.37

CLIENT: Imperial Valley Computer Manufacturing, LLC
PROJECT: IV Data Center Campus #2 - Imperial, CA

CONE PENETROMETER: Kehoe Testing & Engineering Truck Mounted Electric Cone with 30 ton reaction weight

LOCATION: See Site and Boring Location Plan

DATE: 7/14/2025

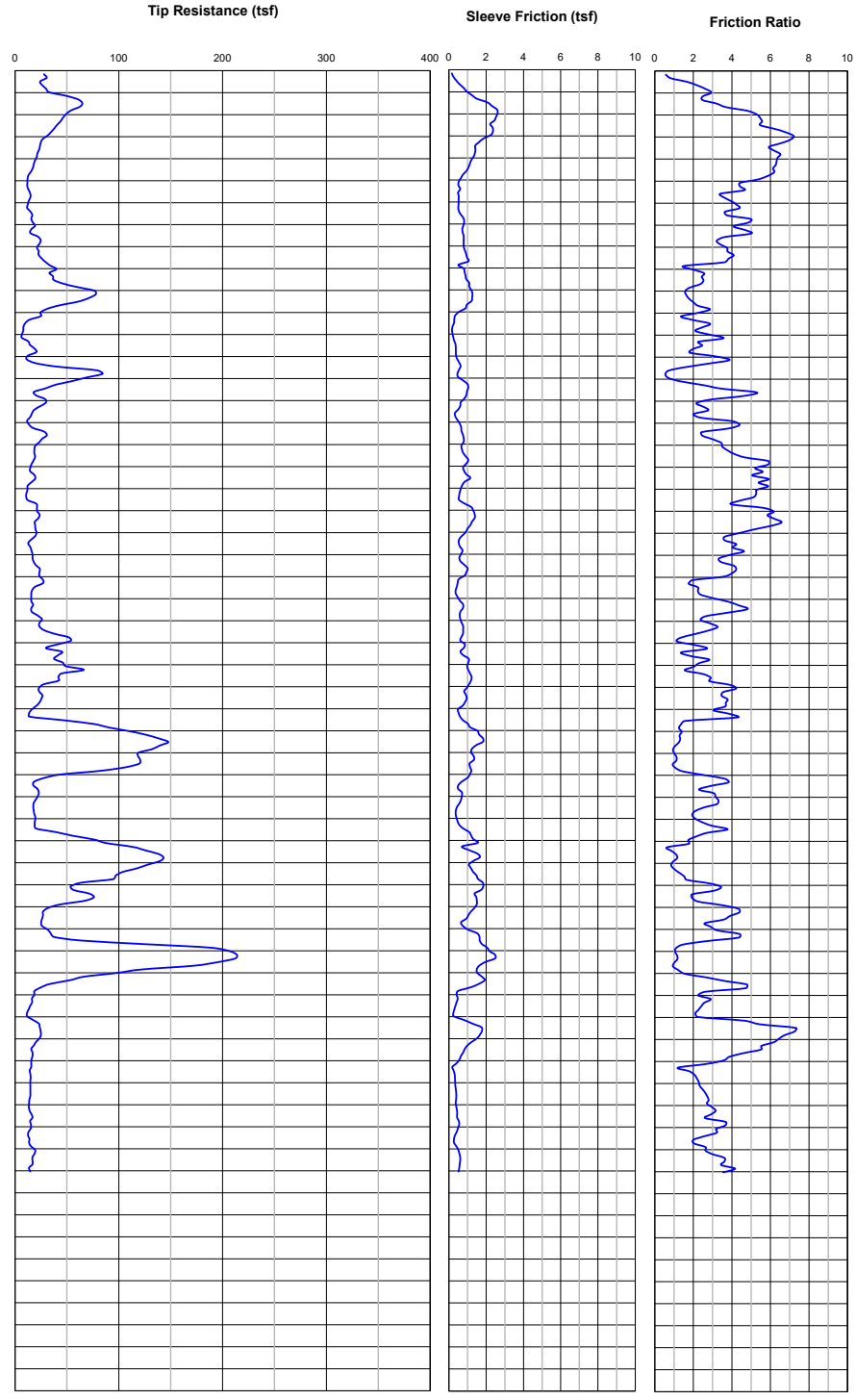
CONE SOUNDING DATA CPT-6

INTERPRETED SOIL PROFILE
From Robertson and Campanella (1989

GROUND ELEVATION +/-

DEPTH			
	Sandy Silt to Clayey Silt	ML	dense
	Clayey Silt to Silty Clay	ML/CL	hard
	Clay	CL/CH	hard
	Clay	" "	very stiff
5	Clay	" "	stiff
	Clay	" "	stiff
	Clay	" "	stiff
	Silty Clay to Clay	CL	very stiff
	Clayey Silt to Silty Clay	ML/CL	very stiff
10	Sandy Silt to Clayey Silt	ML	medium dense
	Sandy Silt to Clayey Silt	" "	medium dense
	Clayey Silt to Silty Clay	ML/CL	stiff
	Clayey Silt to Silty Clay	" "	stiff
	Silty Sand to Sandy Silt	SM/ML	medium dense
15	Clayey Silt to Silty Clay	ML/CL	very stiff
	Clayey Silt to Silty Clay	" "	very stiff
	Clayey Silt to Silty Clay	" "	very stiff
	Clay	CL/CH	stiff
	Clay	" "	stiff
	Clay	" "	stiff
20	Clay	" "	very stiff
	Silty Clay to Clay	CL	stiff
	Silty Clay to Clay	" "	very stiff
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Silty Clay to Clay	CL	very stiff
25	Sandy Silt to Clayey Silt	ML	medium dense
	Sandy Silt to Clayey Silt	" "	medium dense
	Sandy Silt to Clayey Silt	" "	medium dense
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Sandy Silt to Clayey Silt	ML	medium dense
30	Sand to Silty Sand	SP/SM	dense
	Sand to Silty Sand	" "	medium dense
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Clayey Silt to Silty Clay	" "	very stiff
	Sandy Silt to Clayey Silt	ML	medium dense
35	Sand to Silty Sand	SP/SM	dense
	Silty Sand to Sandy Silt	SM/ML	medium dense
	Sandy Silt to Clayey Silt	ML	medium dense
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Silty Sand to Sandy Silt	SM/ML	medium dense
40	Sand	SP	dense
	Clayey Silt to Silty Clay	ML/CL	hard
	Clayey Silt to Silty Clay	" "	stiff
	Clay	CL/CH	very stiff
	Clay	" "	stiff
45	Clayey Silt to Silty Clay	ML/CL	stiff
	Clayey Silt to Silty Clay	" "	stiff
	Clayey Silt to Silty Clay	" "	stiff
	Clayey Silt to Silty Clay	" "	stiff
50	Silty Clay to Clay	CL	stiff
55			

END OF SOUNDING AT 50 ft.



Project No.		PLATE
LE25111	LANDMARK Geo-Engineers and Geologists	B-6

LANDMARK CONSULTANTS, INC.
CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989, refer to Key to CPT logs)

Project: IV Data Center Campus #2 - Imperial, CA **Project No:** LE25111 **Date:** 7/14/2025

CONE SOUNDING: CPT-6
Est. GWT (ft): 8
Phi Correlation: **0** 0-Schm(78),1-R&C(83),2-PHT(74)

Base Depth (m)	Base Depth (ft)	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	SPT N(60)	Norm. Qc1n	Est. % Fines	Rel. Dens. Dr (%)	**Nk:** Phi (deg.)	**17** Su (tsf)	OCR
0.15	0.5	27.48	1.02	Silty Sand to Sandy Silt	SM/ML	very dense	115	6	51.9	40	96	41		
0.30	1.0	29.48	2.60	Sandy Silt to Clayey Silt	ML	dense	115	8	55.7	55	82	39		
0.45	1.5	58.40	2.71	Sandy Silt to Clayey Silt	ML	very dense	115	17	110.4	40	95	41		
0.60	2.0	55.31	4.59	Silty Clay to Clay	CL	hard	125	32		55			3.25	>10
0.75	2.5	43.64	5.50	Clay	CL/CH	hard	125	35		65			2.56	>10
0.93	3.0	34.63	6.75	Clay	CL/CH	hard	125	28		80			2.03	>10
1.08	3.5	25.02	6.51	Clay	CL/CH	very stiff	125	20		85			1.46	>10
1.23	4.0	21.77	6.36	Clay	CL/CH	very stiff	125	17		90			1.27	>10
1.38	4.5	18.03	6.24	Clay	CL/CH	very stiff	125	14		95			1.05	>10
1.53	5.0	13.35	5.82	Clay	CL/CH	stiff	125	11		100			0.77	>10
1.68	5.5	12.78	4.22	Clay	CL/CH	stiff	125	10		95			0.73	>10
1.83	6.0	13.48	3.93	Clay	CL/CH	stiff	125	11		90			0.77	>10
1.98	6.5	14.26	3.93	Silty Clay to Clay	CL	stiff	125	8		90			0.82	>10
2.13	7.0	17.25	4.64	Clay	CL/CH	stiff	125	14		85			0.99	>10
2.28	7.5	17.44	4.42	Clay	CL/CH	stiff	125	14		85			1.00	>10
2.45	8.0	23.06	3.45	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		70			1.33	>10
2.60	8.5	23.65	3.90	Silty Clay to Clay	CL	very stiff	125	14		70			1.36	>10
2.75	9.0	34.28	2.37	Sandy Silt to Clayey Silt	ML	medium dense	115	10	46.9	50	50	35		
2.90	9.5	35.62	2.50	Sandy Silt to Clayey Silt	ML	medium dense	115	10	48.1	50	51	35		
3.05	10.0	61.08	1.92	Silty Sand to Sandy Silt	SM/ML	medium dense	115	14	81.4	35	66	37		
3.20	10.5	69.91	1.80	Silty Sand to Sandy Silt	SM/ML	dense	115	16	92.1	30	70	38		
3.35	11.0	32.88	2.44	Sandy Silt to Clayey Silt	ML	medium dense	115	9	42.8	55	47	35		
3.50	11.5	16.25	2.09	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		75			0.92	>10
3.65	12.0	7.60	2.47	Silty Clay to Clay	CL	firm	125	4		100			0.41	4.68
3.80	12.5	11.17	2.76	Silty Clay to Clay	CL	stiff	125	6		95			0.62	8.56
3.95	13.0	17.16	2.30	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		75			0.97	>10
4.13	13.5	23.39	2.77	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		70			1.34	>10
4.28	14.0	77.24	0.65	Sand to Silty Sand	SP/SM	dense	115	14	93.4	15	70	38		
4.43	14.5	41.49	2.47	Sandy Silt to Clayey Silt	ML	medium dense	115	12	49.7	55	52	35		
4.58	15.0	22.55	4.26	Silty Clay to Clay	CL	very stiff	125	13		85			1.29	>10
4.73	15.5	24.02	2.48	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		70			1.37	>10
4.88	16.0	13.92	3.20	Silty Clay to Clay	CL	stiff	125	8		100			0.78	>10
5.03	16.5	25.20	2.91	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		75			1.44	>10
5.18	17.0	22.87	3.32	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		85			1.30	>10
5.33	17.5	18.80	4.17	Silty Clay to Clay	CL	very stiff	125	11		100			1.06	>10
5.48	18.0	16.13	5.66	Clay	CL/CH	stiff	125	13		100			0.90	8.14
5.65	18.5	17.50	5.52	Clay	CL/CH	stiff	125	14		100			0.98	9.19
5.80	19.0	13.38	5.52	Clay	CL/CH	stiff	125	11		100			0.74	5.53
5.95	19.5	11.32	4.94	Clay	CL/CH	stiff	125	9		100			0.62	4.09
6.10	20.0	20.93	5.26	Clay	CL/CH	very stiff	125	17		100			1.18	>10
6.25	20.5	21.71	6.21	Clay	CL/CH	very stiff	125	17		100			1.23	>10
6.40	21.0	19.84	5.16	Clay	CL/CH	very stiff	125	16		100			1.12	9.79
6.55	21.5	15.72	3.82	Silty Clay to Clay	CL	stiff	125	9		100			0.87	8.14
6.70	22.0	15.82	4.19	Clay	CL/CH	stiff	125	13		100			0.88	6.10
6.85	22.5	18.22	3.62	Silty Clay to Clay	CL	very stiff	125	10		100			1.02	>10
7.00	23.0	23.54	3.95	Silty Clay to Clay	CL	very stiff	125	13		95			1.33	>10
7.18	23.5	24.36	1.99	Sandy Silt to Clayey Silt	ML	loose	115	7	24.5	75	31	32		
7.33	24.0	15.88	2.55	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		100			0.88	>10
7.48	24.5	16.22	4.34	Clay	CL/CH	stiff	125	13		100			0.90	5.53
7.63	25.0	21.40	2.94	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		95			1.20	>10
7.78	25.5	24.92	2.96	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		90			1.41	>10
7.93	26.0	47.66	1.49	Silty Sand to Sandy Silt	SM/ML	medium dense	115	11	46.2	50	50	35		
8.08	26.5	39.07	2.01	Sandy Silt to Clayey Silt	ML	medium dense	115	11	37.6	65	44	34		
8.23	27.0	44.08	2.38	Sandy Silt to Clayey Silt	ML	medium dense	115	13	42.2	65	47	35		
8.38	27.5	51.00	2.32	Sandy Silt to Clayey Silt	ML	medium dense	115	15	48.5	60	51	35		
8.53	28.0	30.98	3.66	Clayey Silt to Silty Clay	ML/CL	very stiff	120	12		90			1.76	>10
8.68	28.5	24.96	3.60	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		95			1.41	>10
8.85	29.0	20.03	3.46	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		100			1.11	>10
9.00	29.5	24.96	3.23	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		95			1.40	>10
9.15	30.0	92.06	1.33	Sand to Silty Sand	SP/SM	medium dense	115	17	84.7	35	68	37		
9.30	30.5	137.32	1.28	Sand to Silty Sand	SP/SM	dense	115	25	125.6	25	79	39		
9.45	31.0	129.86	1.00	Sand to Silty Sand	SP/SM	dense	115	24	118.1	25	77	39		
9.60	31.5	119.71	1.06	Sand to Silty Sand	SP/SM	dense	115	22	108.2	25	75	38		
9.75	32.0	77.33	1.71	Silty Sand to Sandy Silt	SM/ML	medium dense	115	17	69.5	45	62	37		
9.90	32.5	21.18	3.45	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		100			1.18	>10
10.05	33.0	22.11	2.84	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		100			1.23	>10
10.20	33.5	18.37	3.02	Clayey Silt to Silty Clay	ML/CL	very stiff	120	7		100			1.01	8.41
10.38	34.0	18.75	2.04	Sandy Silt to Clayey Silt	ML	very loose	115	5	16.5	100	19	31		
10.53	34.5	19.37	3.05	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		100			1.07	8.85
10.68	35.0	57.24	2.19	Sandy Silt to Clayey Silt	ML	medium dense	115	16	49.7	60	52	35		
10.83	35.5	108.44	1.09	Sand to Silty Sand	SP/SM	dense	115	20	93.7	30	71	38		
10.98	36.0	140.13	1.07	Sand to Silty Sand	SP/SM	dense	115	25	120.4	25	78	39		
11.13	36.5	111.49	1.16	Sand to Silty Sand	SP/SM	dense	115	20	95.3	30	71	38		
11.28	37.0	70.53	2.65	Sandy Silt to Clayey Silt	ML	medium dense	115	20	60.0	60	57	36		
11.43	37.5	67.91	2.32	Sandy Silt to Clayey Silt	ML	medium dense	115	19	57.5	55	56	36		
11.58	38.0	47.35	3.34	Clayey Silt to Silty Clay	ML/CL	hard	120	19		80			2.71	>10
11.73	38.5	26.64	3.96	Silty Clay to Clay	CL	very stiff	125	15		100			1.49	>10

LANDMARK CONSULTANTS, INC.
CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989, refer to Key to CPT logs)

Project: IV Data Center Campus #2 - Imperial, CA **Project No:** LE25111 **Date:** 7/14/2025

CONE SOUNDING: CPT-6
Est. GWT (ft): 8
Phi Correlation: **0** 0-Schm(78),1-R&C(83),2-PHT(74)

Base Depth (m)	Base Depth (ft)	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	SPT N(60)	Norm. Qc1n	Est. % Fines	Rel. Dens. Dr (%)	**Nk:** Phi (deg.)	**17** Su (tsf)	OCR
11.88	39.0	27.58	2.91	Clayey Silt to Silty Clay	ML/CL	very stiff	120	11		95			1.54	>10
12.05	39.5	44.95	3.80	Clayey Silt to Silty Clay	ML/CL	hard	120	18		85			2.56	>10
12.20	40.0	173.88	1.19	Sand to Silty Sand	SP/SM	dense	115	32	143.3	25	83	40		
12.35	40.5	207.07	1.11	Sand	SP	dense	110	32	169.9	20	88	40		
12.50	41.0	130.83	1.24	Sand to Silty Sand	SP/SM	dense	115	24	106.9	30	74	38		
12.65	41.5	51.13	3.68	Clayey Silt to Silty Clay	ML/CL	hard	120	20		80			2.92	>10
12.80	42.0	20.70	3.19	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		100			1.13	7.56
12.95	42.5	15.84	2.63	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		100			0.85	4.78
13.10	43.0	12.17	2.20	Clayey Silt to Silty Clay	ML/CL	stiff	120	5		100			0.63	3.14
13.25	43.5	21.30	5.80	Clay	CL/CH	very stiff	125	17		100			1.17	4.28
13.40	44.0	24.39	6.81	Clay	CL/CH	very stiff	125	20		100			1.35	5.21
13.58	44.5	18.09	5.73	Clay	CL/CH	stiff	125	14		100			0.97	3.28
13.73	45.0	16.44	4.01	Silty Clay to Clay	CL	stiff	125	9		100			0.88	3.50
13.88	45.5	15.10	1.89	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		100			0.80	4.00
14.03	46.0	14.82	2.18	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		100			0.78	3.83
14.18	46.5	14.72	2.48	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		100			0.77	3.74
14.33	47.0	13.83	2.80	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		100			0.72	3.35
14.48	47.5	15.35	2.89	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		100			0.81	3.83
14.63	48.0	15.02	3.50	Silty Clay to Clay	CL	stiff	125	9		100			0.79	2.82
14.78	48.5	13.10	2.60	Clayey Silt to Silty Clay	ML/CL	stiff	120	5		100			0.67	3.00
14.93	49.0	16.00	2.43	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		100			0.84	3.91
15.10	49.5	17.44	3.41	Silty Clay to Clay	CL	stiff	125	10		100			0.93	3.35
15.25	50.0	14.97	3.72	Silty Clay to Clay	CL	stiff	125	9		100			0.78	2.65

CLIENT: Imperial Valley Computer Manufacturing, LLC
PROJECT: IV Data Center Campus #2 - Imperial, CA

CONE PENETROMETER: Kehoe Testing & Engineering Truck Mounted Electric Cone with 30 ton reaction weight

LOCATION: See Site and Boring Location Plan

DATE: 7/14/2025

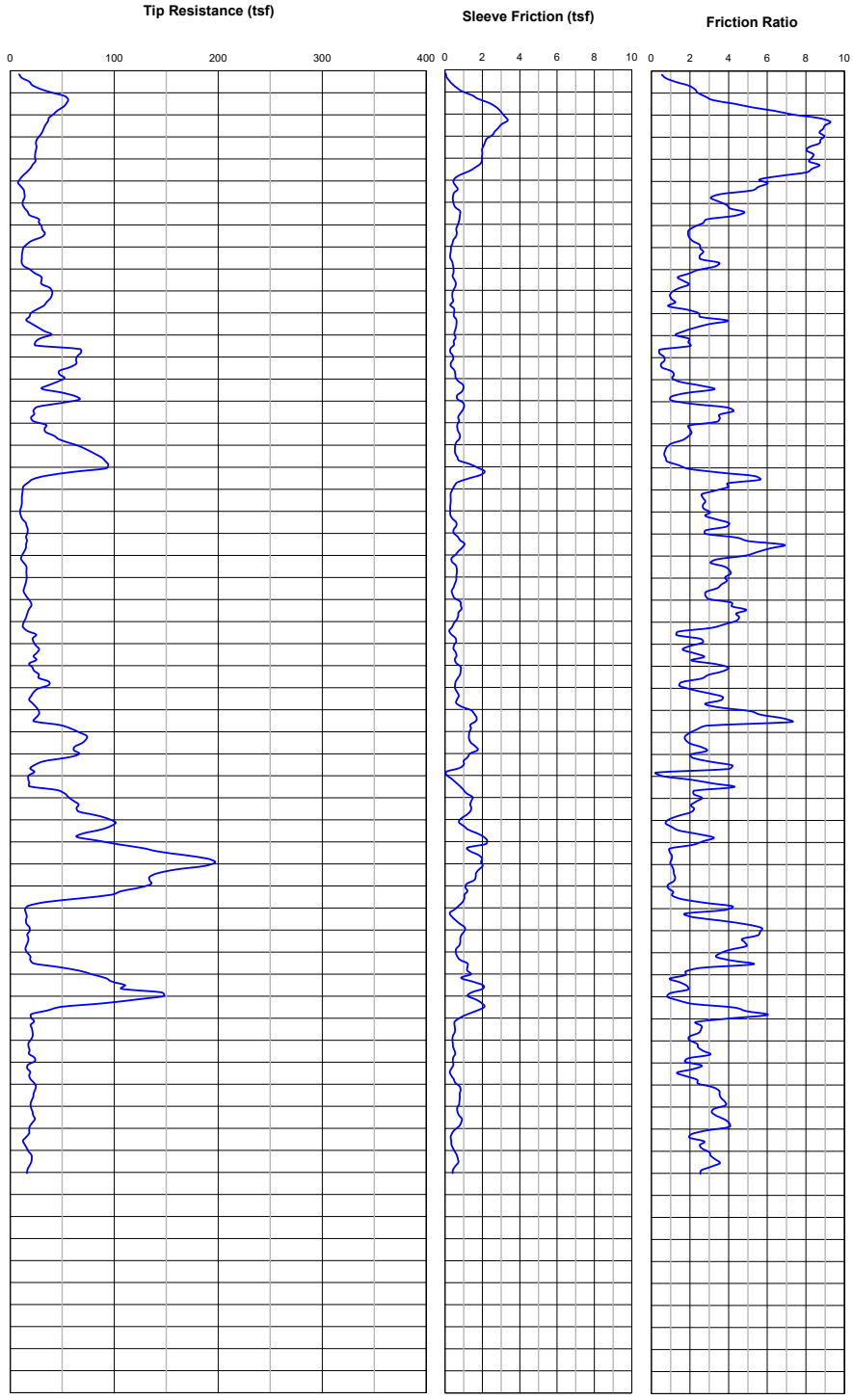
CONE SOUNDING DATA CPT-7

INTERPRETED SOIL PROFILE
From Robertson and Campanella (1989

GROUND ELEVATION +/-

DEPTH			
	Sandy Silt to Clayey Silt	ML	dense
	Silty Clay to Clay	CL	hard
	Clay	CL/CH	very stiff
	Clay	" "	very stiff
5	Clay	" "	stiff
	Clay	" "	stiff
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Sandy Silt to Clayey Silt	ML	medium dense
	Clayey Silt to Silty Clay	ML/CL	stiff
10	Sandy Silt to Clayey Silt	ML	medium dense
	Silty Sand to Sandy Silt	SM/ML	medium dense
	Sandy Silt to Clayey Silt	ML	loose
	Silty Sand to Sandy Silt	SM/ML	medium dense
	Sand to Silty Sand	SP/SM	medium dense
15	Silty Sand to Sandy Silt	SM/ML	medium dense
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Silty Sand to Sandy Silt	SM/ML	medium dense
	Sand to Silty Sand	SP/SM	dense
	Silty Clay to Clay	CL	very stiff
20	Silty Clay to Clay	" "	stiff
	Silty Clay to Clay	" "	stiff
	Clay	CL/CH	stiff
	Silty Clay to Clay	CL	stiff
	Silty Clay to Clay	" "	stiff
	Clay	CL/CH	stiff
25	Clayey Silt to Silty Clay	ML/CL	very stiff
	Clayey Silt to Silty Clay	" "	very stiff
	Sandy Silt to Clayey Silt	ML	loose
	Clayey Silt to Silty Clay	ML/CL	very stiff
	Silty Clay to Clay	CL	hard
30	Silty Sand to Sandy Silt	SM/ML	medium dense
	Sandy Silt to Clayey Silt	ML	loose
	Sandy Silt to Clayey Silt	" "	loose
	Silty Sand to Sandy Silt	SM/ML	medium dense
	Silty Sand to Sandy Silt	" "	medium dense
35	Sand to Silty Sand	SP/SM	dense
	Sand	SP	dense
	Sandy Silt to Clayey Silt	ML	medium dense
	Silty Clay to Clay	CL	stiff
	Clay	CL/CH	stiff
40	Sandy Silt to Clayey Silt	ML	medium dense
	Sand to Silty Sand	SP/SM	dense
	Clayey Silt to Silty Clay	ML/CL	hard
	Clayey Silt to Silty Clay	" "	very stiff
	Clayey Silt to Silty Clay	" "	very stiff
45	Clayey Silt to Silty Clay	" "	very stiff
	Clayey Silt to Silty Clay	" "	very stiff
	Clayey Silt to Silty Clay	" "	very stiff
	Clayey Silt to Silty Clay	" "	stiff
50	Clayey Silt to Silty Clay	" "	very stiff
55			

END OF SOUNDING AT 50 ft.



Project No.		PLATE
LE25111	LANDMARK Geo-Engineers and Geologists	B-7

LANDMARK CONSULTANTS, INC.
CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989, refer to Key to CPT logs)

Project: IV Data Center Campus #2 - Imperial, CA **Project No:** LE25111 **Date:** 7/14/2025

CONE SOUNDING: CPT-7
Est. GWT (ft): 8
Phi Correlation: **0** 0-Schm(78),1-R&C(83),2-PHT(74)

Base Depth (m)	Base Depth (ft)	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	SPT N(60)	Norm. Qc1n	Est. % Fines	Rel. Dens. Dr (%)	**Nk:** Phi (deg.)	**17** Su (tsf)	OCR
0.15	0.5	12.57	0.86	Sandy Silt to Clayey Silt	ML	dense	115	4	23.8	55	73	38		
0.30	1.0	29.57	2.19	Sandy Silt to Clayey Silt	ML	dense	115	8	55.9	50	82	39		
0.45	1.5	53.96	3.41	Clayey Silt to Silty Clay	ML/CL	hard	120	22		50			3.17	>10
0.60	2.0	46.07	6.30	Clay	CL/CH	hard	125	37		70			2.70	>10
0.75	2.5	35.74	8.98	Clay	CL/CH	hard	125	29		85			2.09	>10
0.93	3.0	30.41	8.85	Clay	CL/CH	very stiff	125	24		90			1.78	>10
1.08	3.5	25.14	8.54	Clay	CL/CH	very stiff	125	20		95			1.47	>10
1.23	4.0	24.08	8.25	Clay	CL/CH	very stiff	125	19		95			1.40	>10
1.38	4.5	21.70	8.40	Clay	CL/CH	very stiff	125	17		100			1.26	>10
1.53	5.0	12.57	6.75	Clay	CL/CH	stiff	125	10		100			0.72	>10
1.68	5.5	11.02	5.10	Clay	CL/CH	stiff	125	9		100			0.63	>10
1.83	6.0	12.66	3.47	Silty Clay to Clay	CL	stiff	125	7		90			0.72	>10
1.98	6.5	16.31	4.40	Clay	CL/CH	stiff	125	13		85			0.94	>10
2.13	7.0	28.19	2.59	Sandy Silt to Clayey Silt	ML	medium dense	115	8	42.6	55	47	35		
2.28	7.5	31.44	1.93	Sandy Silt to Clayey Silt	ML	medium dense	115	9	45.9	45	49	35		
2.45	8.0	16.50	2.39	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		70			0.94	>10
2.60	8.5	11.35	2.58	Clayey Silt to Silty Clay	ML/CL	stiff	120	5		85			0.64	>10
2.75	9.0	14.16	3.07	Silty Clay to Clay	CL	stiff	125	8		85			0.80	>10
2.90	9.5	27.75	1.65	Sandy Silt to Clayey Silt	ML	medium dense	115	8	37.6	50	44	34		
3.05	10.0	35.93	1.49	Silty Sand to Sandy Silt	SM/ML	medium dense	115	8	48.0	40	51	35		
3.20	10.5	37.89	1.08	Silty Sand to Sandy Silt	SM/ML	medium dense	115	8	50.0	35	52	35		
3.35	11.0	25.95	1.74	Sandy Silt to Clayey Silt	ML	medium dense	115	7	33.8	55	40	34		
3.50	11.5	18.18	3.15	Clayey Silt to Silty Clay	ML/CL	very stiff	120	7		80			1.04	>10
3.65	12.0	32.87	1.71	Sandy Silt to Clayey Silt	ML	medium dense	115	9	41.8	50	47	35		
3.80	12.5	25.86	1.96	Sandy Silt to Clayey Silt	ML	loose	115	7	32.5	60	39	34		
3.95	13.0	66.46	0.50	Sand to Silty Sand	SP/SM	medium dense	115	12	82.8	15	67	37		
4.13	13.5	61.47	0.58	Sand to Silty Sand	SP/SM	medium dense	115	11	75.7	20	64	37		
4.28	14.0	48.93	1.10	Silty Sand to Sandy Silt	SM/ML	medium dense	115	11	59.7	30	57	36		
4.43	14.5	37.64	2.46	Sandy Silt to Clayey Silt	ML	medium dense	115	11	45.4	55	49	35		
4.58	15.0	58.98	1.29	Silty Sand to Sandy Silt	SM/ML	medium dense	115	13	70.5	30	62	37		
4.73	15.5	31.81	3.41	Clayey Silt to Silty Clay	ML/CL	very stiff	120	13		70			1.83	>10
4.88	16.0	24.94	3.10	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		75			1.43	>10
5.03	16.5	36.46	1.99	Sandy Silt to Clayey Silt	ML	medium dense	115	10	42.2	55	47	35		
5.18	17.0	57.26	1.16	Silty Sand to Sandy Silt	SM/ML	medium dense	115	13	65.7	35	60	36		
5.33	17.5	81.30	0.71	Sand to Silty Sand	SP/SM	dense	115	15	92.5	20	70	38		
5.48	18.0	92.57	1.39	Sand to Silty Sand	SP/SM	dense	115	17	104.4	25	74	38		
5.65	18.5	39.23	4.83	Silty Clay to Clay	CL	hard	125	22		75			2.26	>10
5.80	19.0	13.85	3.75	Silty Clay to Clay	CL	stiff	125	8		100			0.77	8.14
5.95	19.5	11.29	2.70	Clayey Silt to Silty Clay	ML/CL	stiff	120	5		100			0.62	7.56
6.10	20.0	10.17	2.81	Silty Clay to Clay	CL	stiff	125	6		100			0.55	4.47
6.25	20.5	12.10	3.41	Silty Clay to Clay	CL	stiff	125	7		100			0.66	5.76
6.40	21.0	16.28	3.16	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		100			0.91	>10
6.55	21.5	15.44	5.44	Clay	CL/CH	stiff	125	12		100			0.86	6.32
6.70	22.0	13.32	5.50	Clay	CL/CH	stiff	125	11		100			0.73	4.78
6.85	22.5	12.66	3.41	Silty Clay to Clay	CL	stiff	125	7		100			0.69	5.53
7.00	23.0	15.63	3.98	Silty Clay to Clay	CL	stiff	125	9		100			0.87	7.70
7.18	23.5	14.54	3.65	Silty Clay to Clay	CL	stiff	125	8		100			0.80	6.54
7.33	24.0	14.72	2.87	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		100			0.81	9.19
7.48	24.5	19.27	4.41	Clay	CL/CH	very stiff	125	15		100			1.08	7.70
7.63	25.0	15.34	4.45	Clay	CL/CH	stiff	125	12		100			0.85	5.10
7.78	25.5	13.72	2.75	Clayey Silt to Silty Clay	ML/CL	stiff	120	5		100			0.75	7.41
7.93	26.0	22.89	2.18	Sandy Silt to Clayey Silt	ML	loose	115	7	22.4	80	28	32		
8.08	26.5	25.05	2.15	Sandy Silt to Clayey Silt	ML	loose	115	7	24.4	80	31	32		
8.23	27.0	21.42	3.14	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		95			1.20	>10
8.38	27.5	25.87	3.07	Clayey Silt to Silty Clay	ML/CL	very stiff	120	10		90			1.46	>10
8.53	28.0	33.37	1.69	Sandy Silt to Clayey Silt	ML	loose	115	10	31.8	65	39	33		
8.68	28.5	20.15	3.39	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		100			1.12	>10
8.85	29.0	24.42	3.81	Silty Clay to Clay	CL	very stiff	125	14		100			1.37	>10
9.00	29.5	25.01	6.59	Clay	CL/CH	very stiff	125	20		100			1.41	9.79
9.15	30.0	57.04	2.42	Sandy Silt to Clayey Silt	ML	medium dense	115	16	52.9	60	54	36		
9.30	30.5	71.76	1.84	Silty Sand to Sandy Silt	SM/ML	medium dense	115	16	66.1	45	60	36		
9.45	31.0	63.19	2.50	Sandy Silt to Clayey Silt	ML	medium dense	115	18	57.9	55	56	36		
9.60	31.5	37.43	3.15	Clayey Silt to Silty Clay	ML/CL	hard	120	15		80			2.13	>10
9.75	32.0	19.99	1.62	Sandy Silt to Clayey Silt	ML	loose	115	6	18.1	90	22	31		
9.90	32.5	18.03	3.18	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		100			0.99	8.70
10.05	33.0	50.99	2.35	Sandy Silt to Clayey Silt	ML	medium dense	115	15	45.6	65	49	35		
10.20	33.5	63.40	2.19	Silty Sand to Sandy Silt	SM/ML	medium dense	115	14	56.4	55	56	36		
10.38	34.0	81.09	1.44	Silty Sand to Sandy Silt	SM/ML	medium dense	115	18	71.7	40	63	37		
10.53	34.5	94.78	1.07	Sand to Silty Sand	SP/SM	medium dense	115	17	83.4	30	67	37		
10.68	35.0	72.73	2.78	Sandy Silt to Clayey Silt	ML	medium dense	115	21	63.6	60	59	36		
10.83	35.5	123.69	1.34	Sand to Silty Sand	SP/SM	dense	115	22	107.7	30	75	38		
10.98	36.0	184.57	1.03	Sand	SP	dense	110	28	159.8	20	86	40		
11.13	36.5	155.61	1.16	Sand to Silty Sand	SP/SM	dense	115	28	134.1	25	81	39		
11.28	37.0	131.33	0.97	Sand to Silty Sand	SP/SM	dense	115	24	112.6	25	76	39		
11.43	37.5	89.85	1.26	Sand to Silty Sand	SP/SM	medium dense	115	16	76.6	35	65	37		
11.58	38.0	22.08	3.59	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		100			1.22	>10
11.73	38.5	15.31	2.53	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		100			0.82	5.21

LANDMARK CONSULTANTS, INC.
CONE PENETROMETER INTERPRETATION (based on Robertson & Campanella, 1989, refer to Key to CPT logs)

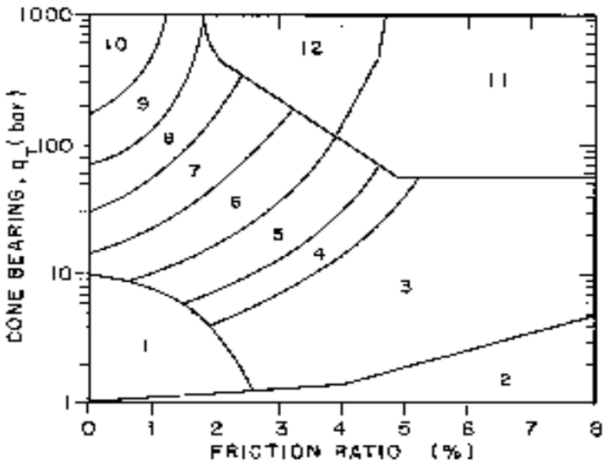
Project: IV Data Center Campus #2 - Imperial, CA **Project No:** LE25111 **Date:** 7/14/2025

CONE SOUNDING: CPT-7
Est. GWT (ft): 8
Phi Correlation: **0** 0-Schm(78),1-R&C(83),2-PHT(74)

Base Depth (m)	Base Depth (ft)	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	SPT N(60)	Norm. Qc1n	Est. % Fines	Rel. Dens. Dr (%)	**Nk:** Phi (deg.)	**17** Su (tsf)	OCR
11.88	39.0	17.53	5.44	Clay	CL/CH	stiff	125	14		100			0.95	3.74
12.05	39.5	16.87	5.02	Clay	CL/CH	stiff	125	13		100			0.91	3.50
12.20	40.0	15.47	4.18	Clay	CL/CH	stiff	125	12		100			0.83	3.07
12.35	40.5	20.41	4.27	Silty Clay to Clay	CL	very stiff	125	12		100			1.12	5.76
12.50	41.0	63.84	2.04	Silty Sand to Sandy Silt	SM/ML	medium dense	115	14	52.4	60	53	35		
12.65	41.5	99.89	1.42	Sand to Silty Sand	SP/SM	medium dense	115	18	81.6	40	66	37		
12.80	42.0	133.35	1.24	Sand to Silty Sand	SP/SM	dense	115	24	108.4	30	75	38		
12.95	42.5	86.30	2.63	Sandy Silt to Clayey Silt	ML	medium dense	115	25	69.8	55	62	37		
13.10	43.0	25.29	5.00	Clay	CL/CH	very stiff	125	20		100			1.40	5.88
13.25	43.5	21.11	2.49	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		100			1.16	7.56
13.40	44.0	20.99	2.13	Sandy Silt to Clayey Silt	ML	very loose	115	6	16.7	100	20	31		
13.58	44.5	17.87	2.49	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		100			0.96	5.53
13.73	45.0	21.52	2.24	Sandy Silt to Clayey Silt	ML	loose	115	6	17.0	100	20	31		
13.88	45.5	17.53	2.03	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		100			0.94	5.21
14.03	46.0	20.15	2.21	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		100			1.09	6.43
14.18	46.5	23.58	3.41	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		100			1.30	8.41
14.33	47.0	20.44	3.63	Silty Clay to Clay	CL	very stiff	125	12		100			1.11	4.68
14.48	47.5	22.33	3.45	Clayey Silt to Silty Clay	ML/CL	very stiff	120	9		100			1.22	7.27
14.63	48.0	19.43	3.64	Silty Clay to Clay	CL	very stiff	125	11		100			1.05	4.18
14.78	48.5	15.19	2.27	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		100			0.80	3.74
14.93	49.0	15.66	2.72	Clayey Silt to Silty Clay	ML/CL	stiff	120	6		100			0.83	3.91
15.10	49.5	20.37	3.31	Clayey Silt to Silty Clay	ML/CL	very stiff	120	8		100			1.10	5.88
15.25	50.0	16.96	2.74	Clayey Silt to Silty Clay	ML/CL	stiff	120	7		100			0.90	4.28

Simplified Soil Classification Chart

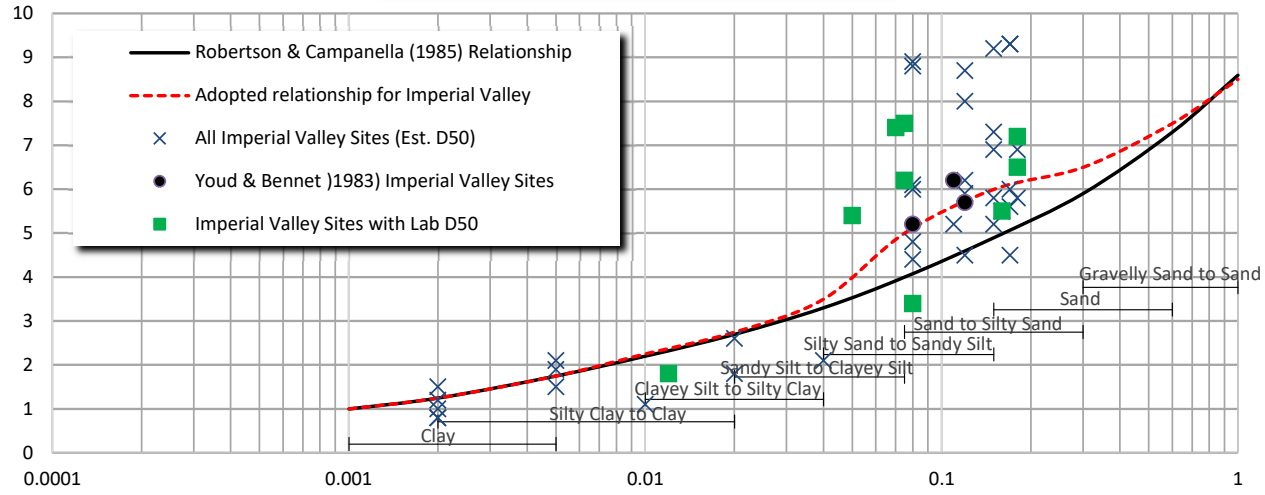
After Robertson & Campanella (1989)



Geotechnical Parameters from CPT Data:

Equivalent SPT N(60) blow count = Qc/(Qc/N Ratio)
N1(60) = Cn*N(60) Normalized SPT blow count
Cn = 1/(p'o)^0.5 < 1.6 max. from Liao & Whitman (1986)
p'o = effective overburden pressure (tsf) using unit densities given below and estimated groundwater table.
Dr = Relative density (%) from Jamiolkowski et. al. (1986) relationship
= -98 +68*log(Qc/p'o^0.5) where Qc, p'o in tonne/sqm
Note: 1 tonne/sqm = 0.1024 tsf, 1 bar =1.0443 tsf
Phi = Friction Angle estimated from either:
1. Roberton & Campanella (1983) chart:
Phi = 5.3 + 24*(log(Qc/p'o))+3(log(Qc/p'o))^2
2. Peck, Hansen & Thornburn (1974) N-Phi Correlation
3. Schmertman (1978) chart [Phi = 28+0.14*Dr for fine uniform sands]
Su = undrained shear strength (tsf)
= (Qc-p'o)/Nk where Nk varies from 10 to 22, 17 for OC clays
OCR = Overconsolidation Ratio estimated from Schmertman (1978) chart using Su/p'o ratio and estimated normal consolidated Su/p'o

Variation of Qc/N Ratio with Grain Size



Note: Assumed Properties and Adopted Qc/N Ratio based on correlations from Imperial Valley, California soils

Table of Soil Types and Assumed Properties

Zone	Soil Classification	UCS	Density (pcf)	R&C Qc/N	Adopted Qc/N	Est. PI	Fines (%)	D50 (mm)
1	Sensitive fine grained	ML	120	2	2	NP-15	65-100	0.02
2	Organic Material	OL/OH	120	1	1	--	--	--
3	Clay	CL/CH	125	1	1.25	25-40+	90-100	0.002
4	Silty Clay to Clay	CL	125	1.5	2	15-40	90-100	0.01
5	Clayey Silt to Silty Clay	ML/CL	120	2	2.75	25-May	90-100	0.02
6	Sandy Silt to Clayey Silt	ML	115	2.5	3.5	NP-10	65-100	0.04
7	Silty Sand to Sandy Silt	SM/ML	115	3	5	NP	35-75	0.075
8	Sand to Silty Sand	SP/SM	115	4	6	NP	May-35	0.15
9	Sand	SP	110	5	6.5	NP	0-5	0.3
10	Gravelly Sand to Sand	SW	115	6	7.5	NP	0-5	0.6
11	Overconsolidated Soil	--	120	1	1	NP	90-100	0.01
12	Sand to Clayey Sand	SP/SC	115	2	2	NP-5	--	---

Su (tsf)	Consistency
0-0.13	very soft
0.13-.25	soft
0.25-0.5	firm
0.5-1.0	stiff
1.0-2.0	very stiff
>2.0	hard
Dr (%)	**Relative Density**
0-15	very loose
15-35	loose
35-65	medium dense
65-85	dense
>85	very dense

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Project No: LE25111

Key to CPT Interpretation of Logs

Plate B-8

APPENDIX C

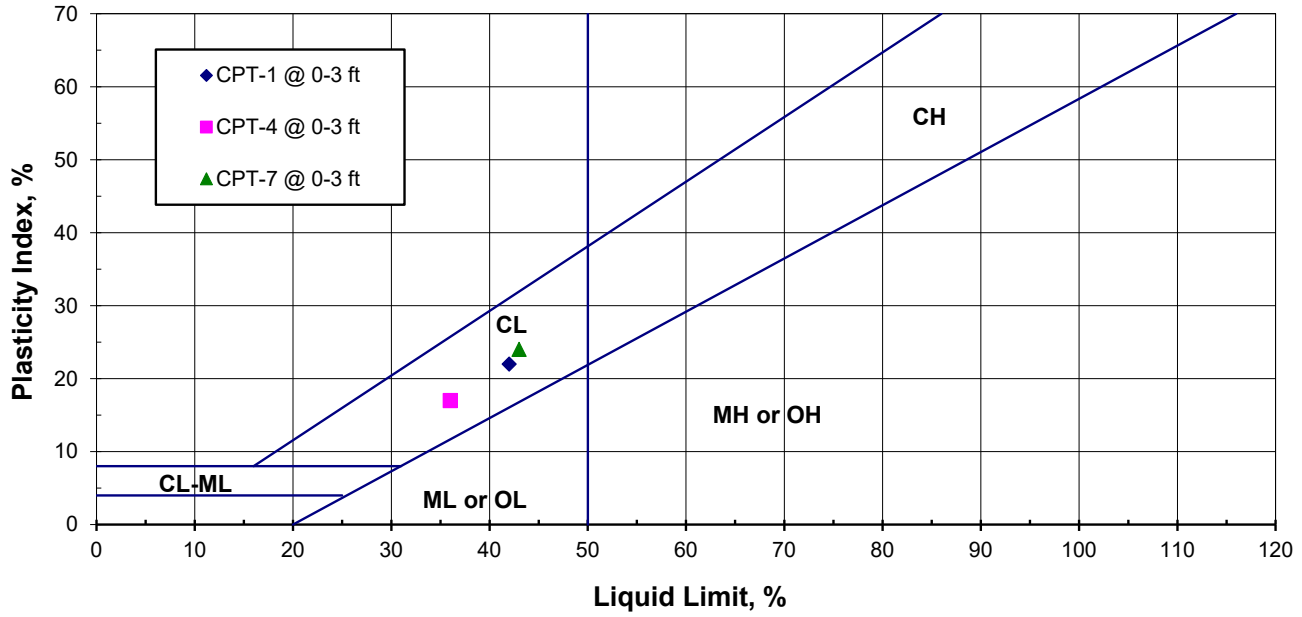
LANDMARK CONSULTANTS, INC.

CLIENT: Imperial Valley Computer Manufacturing, LLC
PROJECT: IV Data Center Campus #2 - Imperial, CA
JOB No.: LE25111
DATE: 06/19/25

ATTERBERG LIMITS (ASTM D4318)

Sample Location	Sample Depth (ft)	Liquid Limit (LL)	Plastic Limit (PL)	Plasticity Index (PI)	USCS Classification
CPT-1	0-3	42	20	22	CL
CPT-4	0-3	36	19	17	CL
CPT-7	0-3	43	19	24	CL

PLASTICITY CHART



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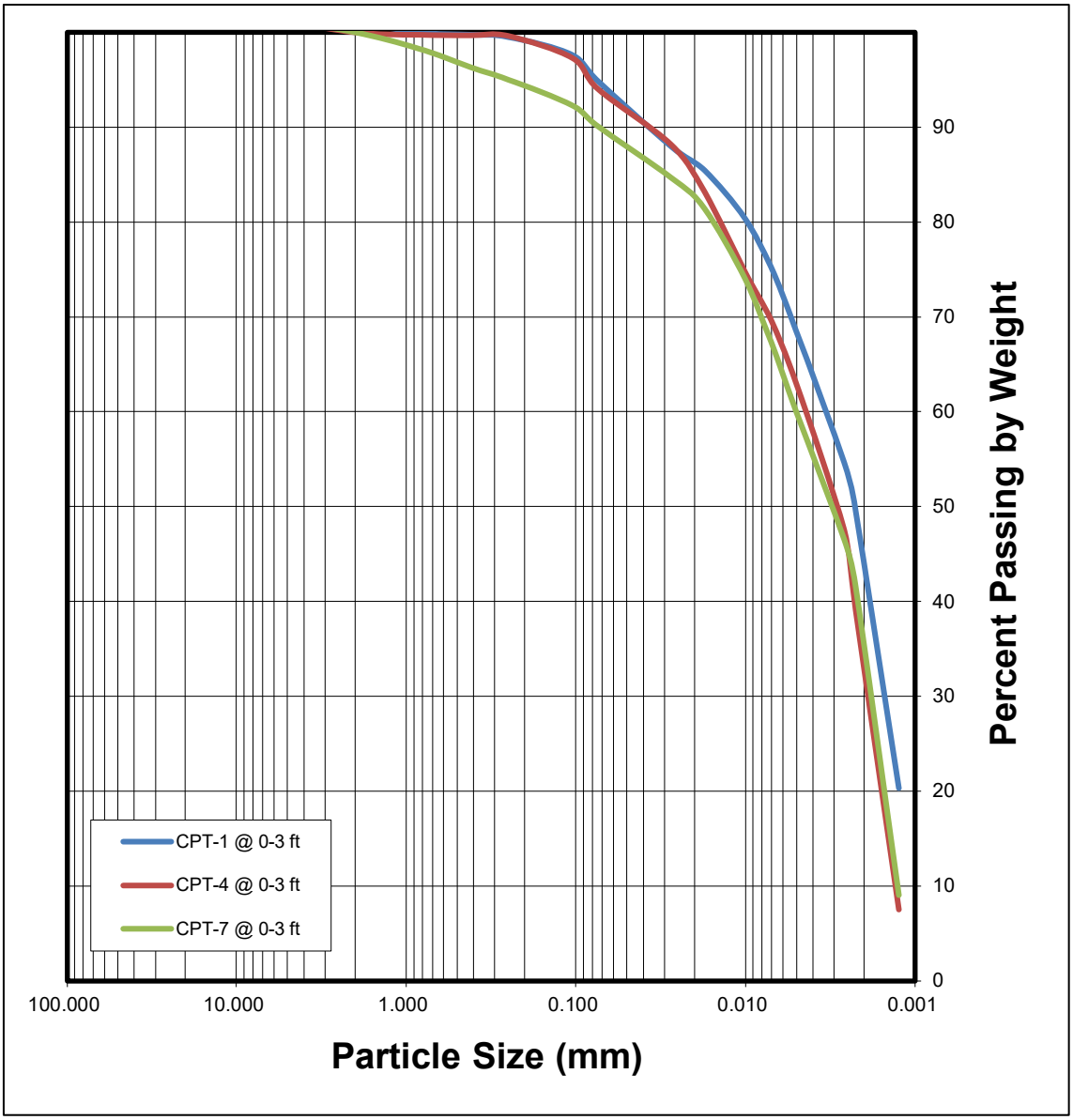
Atterberg Limits Test Results

Plate C-1

SIEVE ANALYSIS					HYDROMETER ANALYSIS
Gravel		Sand			Silt and Clay Fraction
Coarse	Fine	Coarse	Medium	Fine	



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Grain Size Analysis

Plate C-2

LANDMARK CONSULTANTS, INC.

CLIENT: Imperial Valley Computer Manufacturing, LLC
PROJECT: IV Data Center Campus #2 - Imperial, CA
JOB No.: LE25111
DATE: 06/19/25

CHEMICAL ANALYSIS

Boring: / **Sample Depth, ft:**	CPT-1 0-3	CPT-4 0-3	CPT-7 0-3	**Caltrans Method**
pH:	7.3	8.3	8.3	**643**
Electrical Conductivity (mmhos):	--	--	--	**424**
Resistivity (ohm-cm):	50	31	41	**643**
Chloride (Cl), ppm:	> 18000	> 18000	> 18000	**422**
Sulfate (SO4), ppm:	7,848	4,614	6,846	**417**

General Guidelines for Soil Corrosivity

Material Affected	Chemical Agent	Range of Values	Degree of Corrosivity
Concrete	Soluble Sulfates (ppm)	0 - 1,000	Low
		1,000 - 2,000	Moderate
		2,000 - 20,000	Severe
		> 20,000	Very Severe
Normal Grade Steel	Soluble Chlorides (ppm)	0 - 200	Low
		200 - 700	Moderate
		700 - 1,500	Severe
		> 1,500	Very Severe
Normal Grade Steel	Resistivity (ohm-cm)	1 - 1,000	Very Severe
		1,000 - 2,000	Severe
		2,000 - 10,000	Moderate
		> 10,000	Low

LANDMARK Geo-Engineers and Geologists

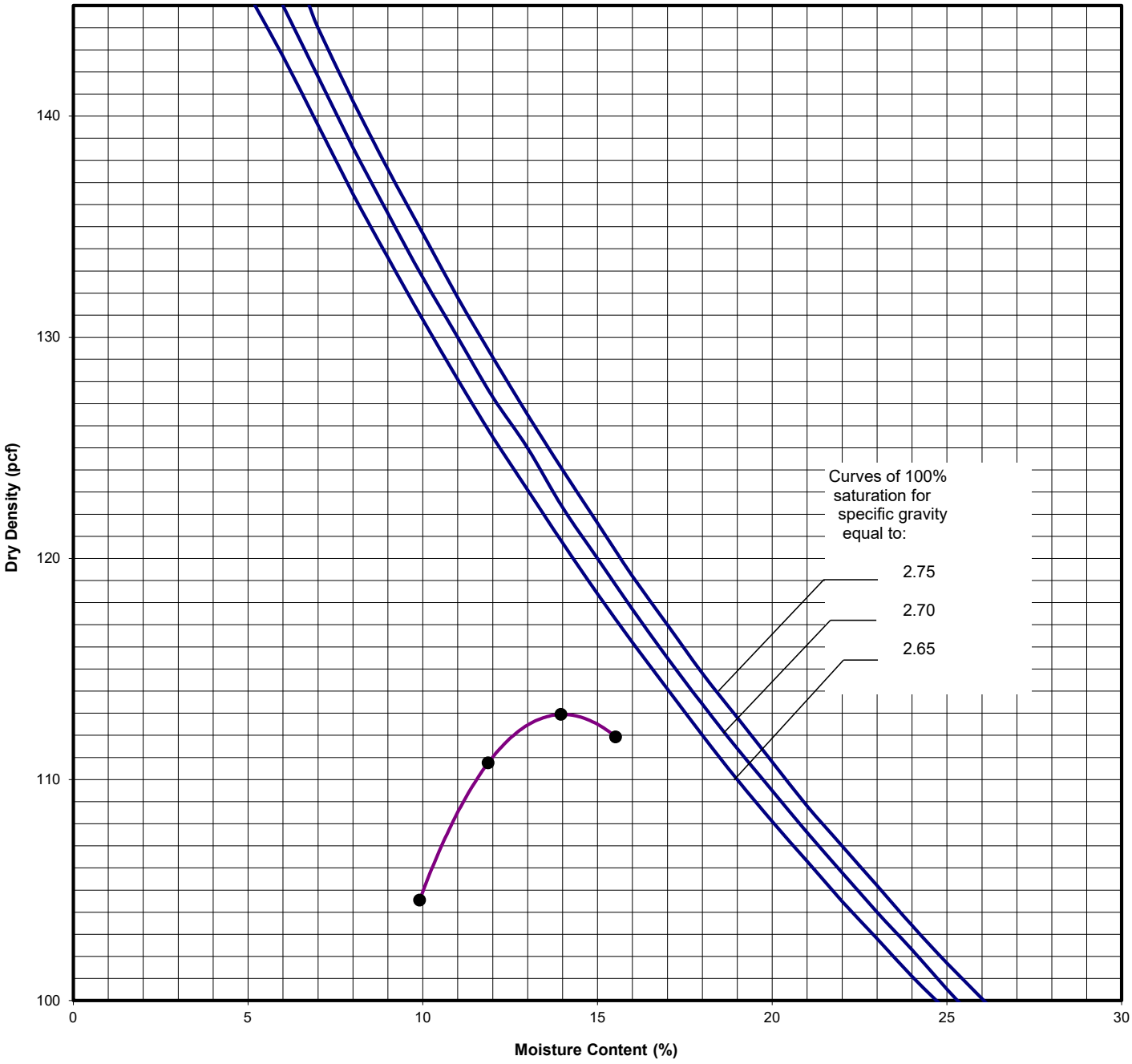
Project No.: LE25111

Selected Chemical Test Results

Plate C-3

Client: I.V Computer Manufacturing, LLC
Project: IV Data Center Campus Site # 2 - Imperial, CA
Project No.: LE25111
Date: 6/19/2025
Lab. No.: 390

Soil Description: Silty Clay (CL)
Sample Location: CPT-2 @ 0-3 ft.
Test Method: ASTM A-1557
Maximum Dry Density (pcf): **112.9**
Optimum Moisture Content (%): **14.1**



LANDMARK
Geo-Engineers and Geologists

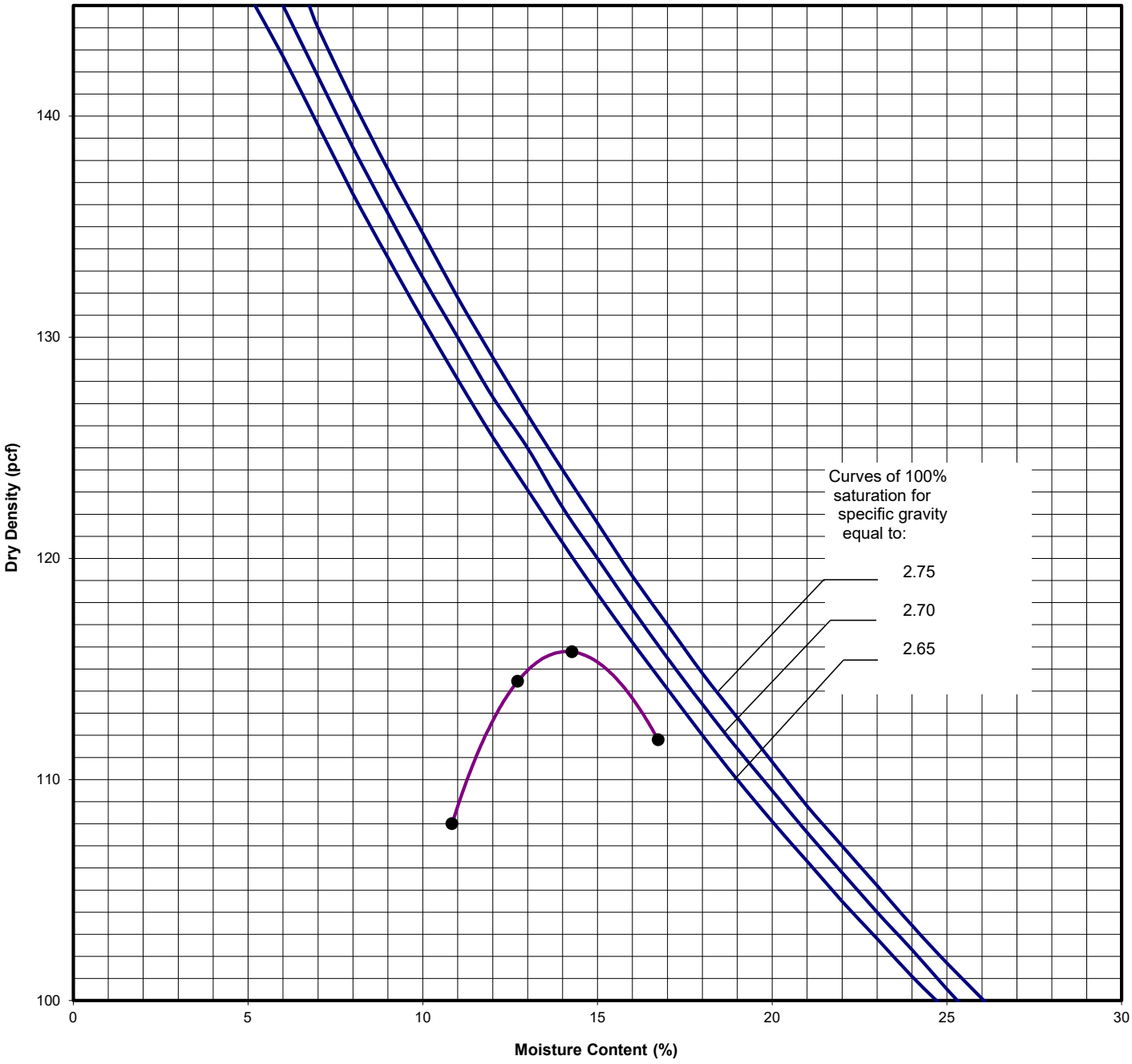
Project No.: LE25111

Moisture Density Relationship

Plate C-4

Client: I.V Computer Manufacturing, LLC
Project: IV Data Center Campus Site #2 - Imperial, CA
Project No.: LE25111
Date: 6/19/2025
Lab. No.: 393

Soil Description: Silty Clay (CL)
Sample Location: CPT-5 @ 0-3 ft.
Test Method: ASTM A-1557
Maximum Dry Density (pcf): **115.8**
Optimum Moisture Content (%): **14.1**



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Project No.: LE25111

Moisture Density Relationship

Plate C-5

APPENDIX D

Landmark Consultants, Inc.
780 N. 4th Street
El Centro, CA 92243

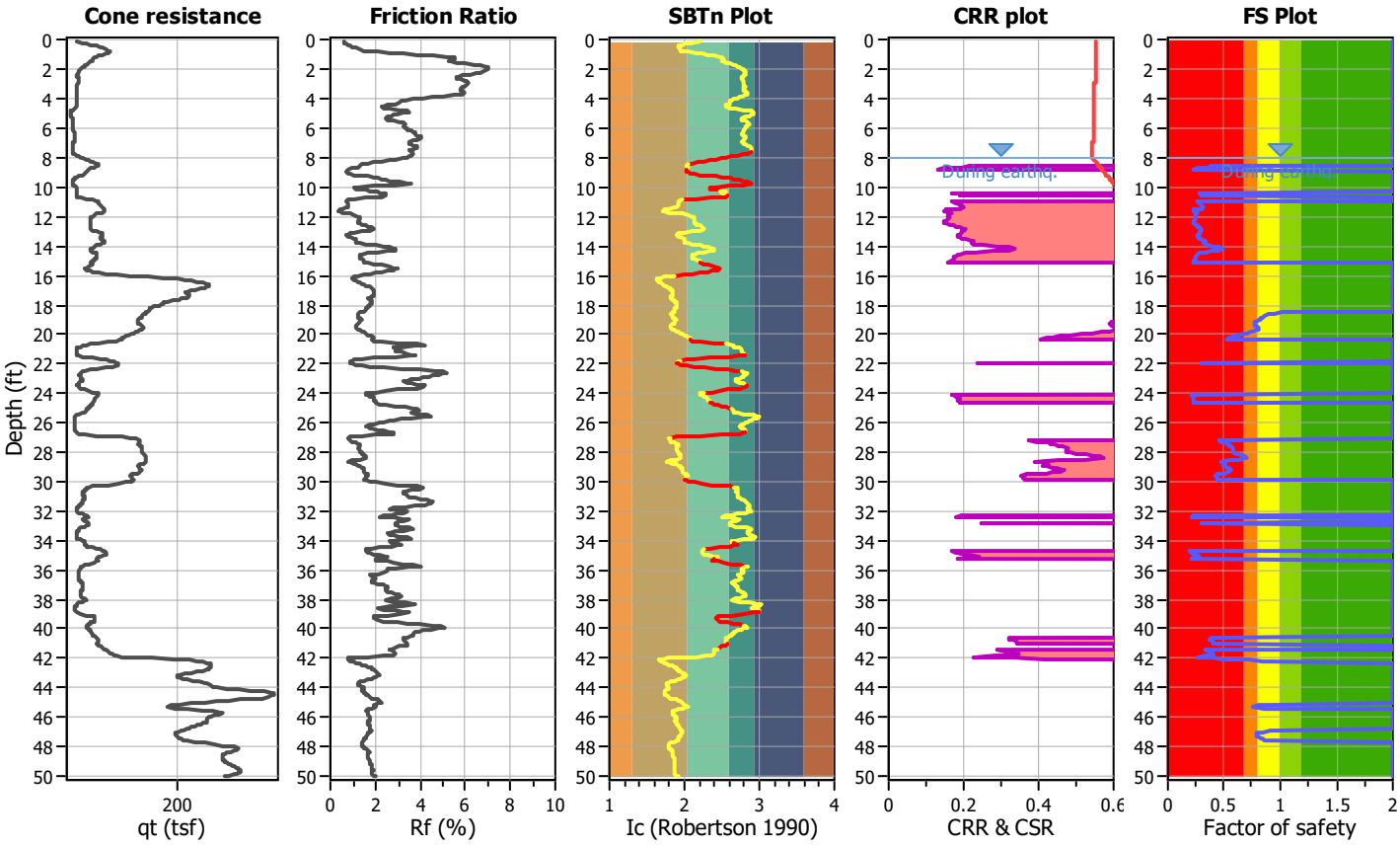
LIQUEFACTION ANALYSIS REPORT

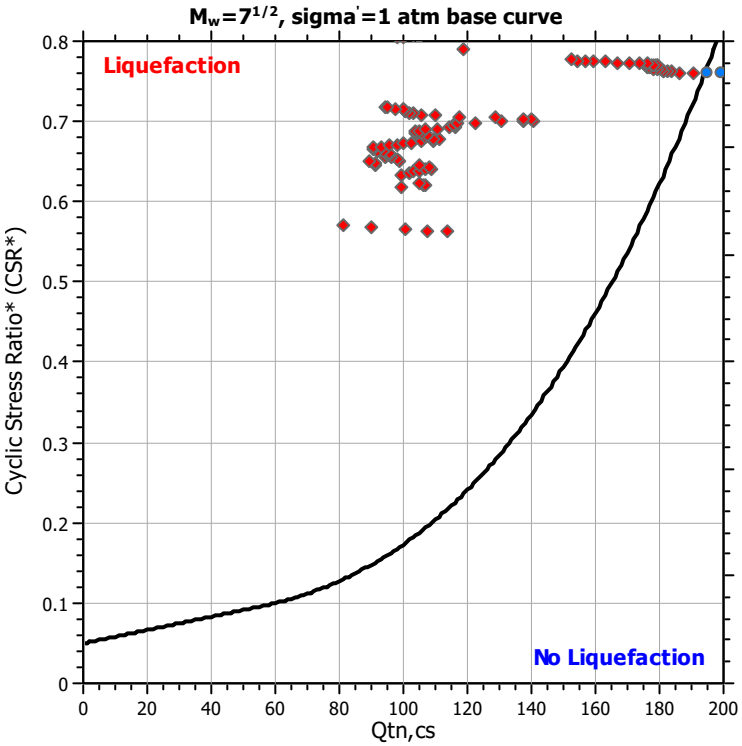
Project title : IV Data Center Campus Site #2 **Location : Imperial, CA**

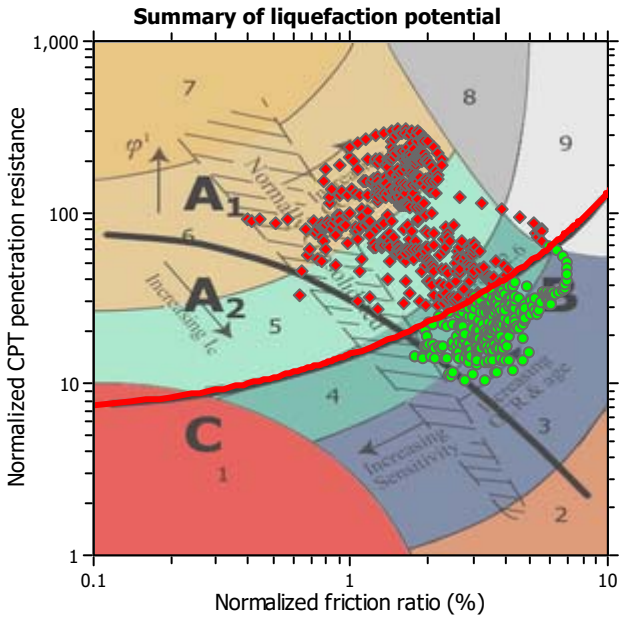
CPT file : CPT-1

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	8.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	8.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.00	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.78	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

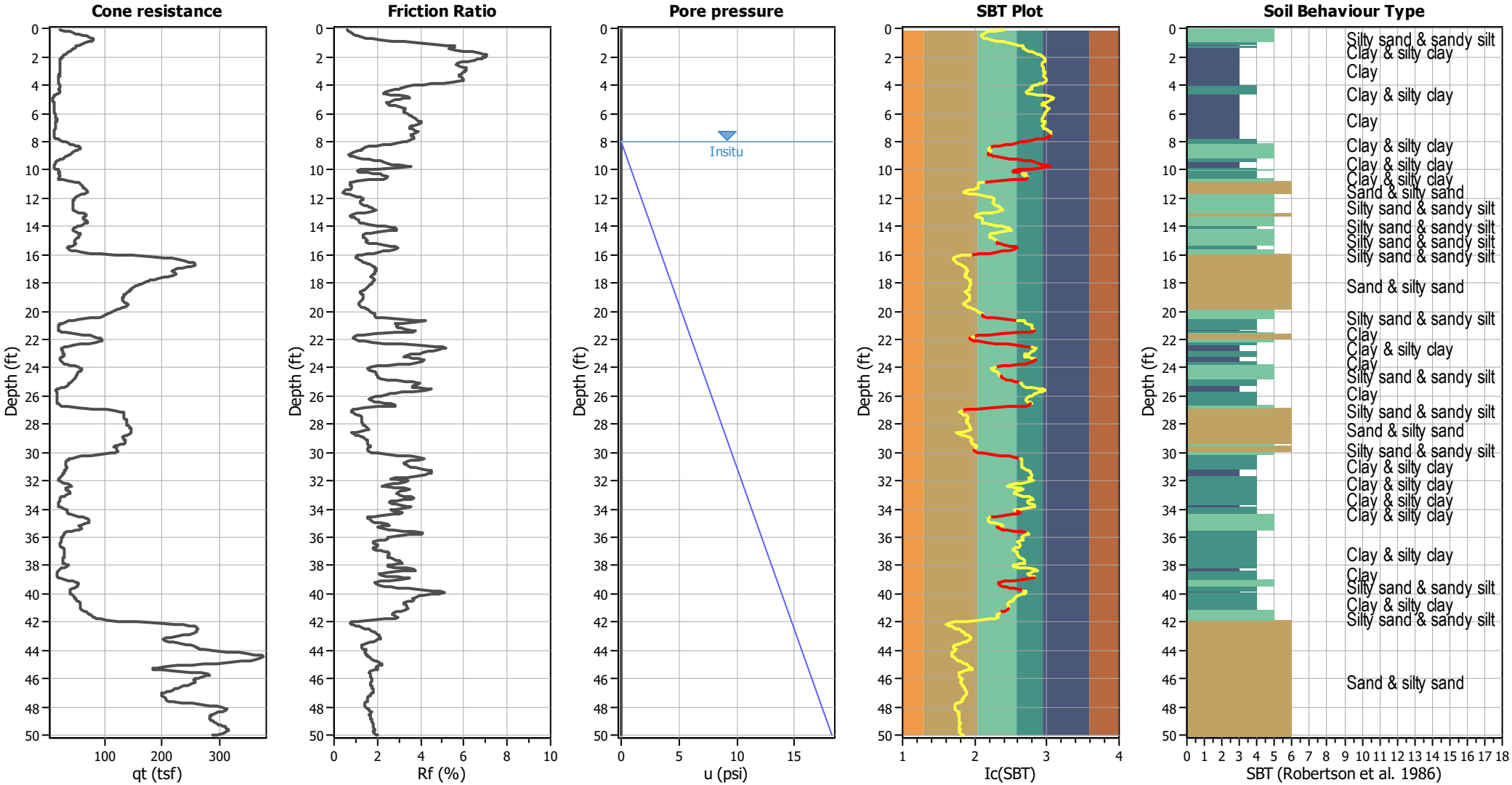






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



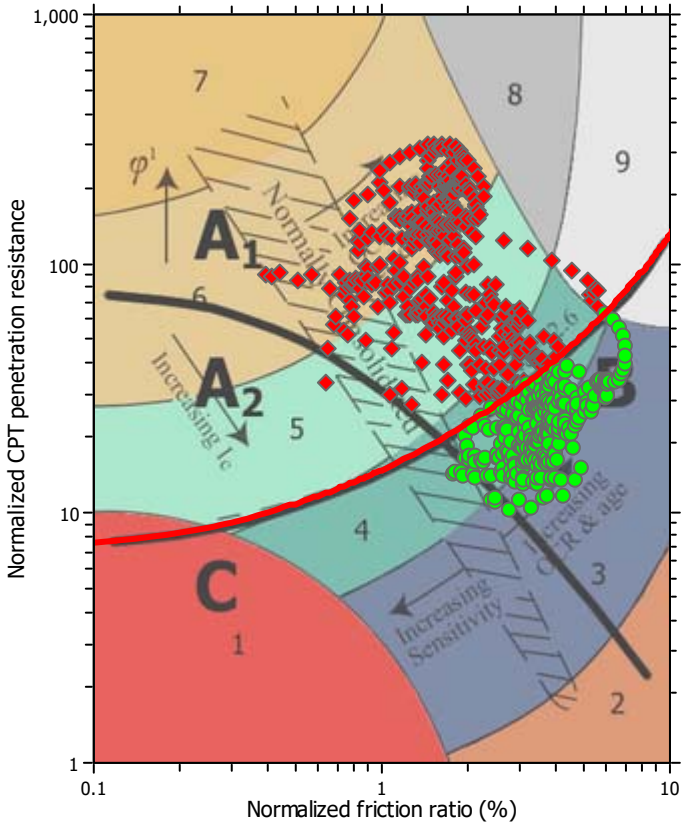
Input parameters and analysis data

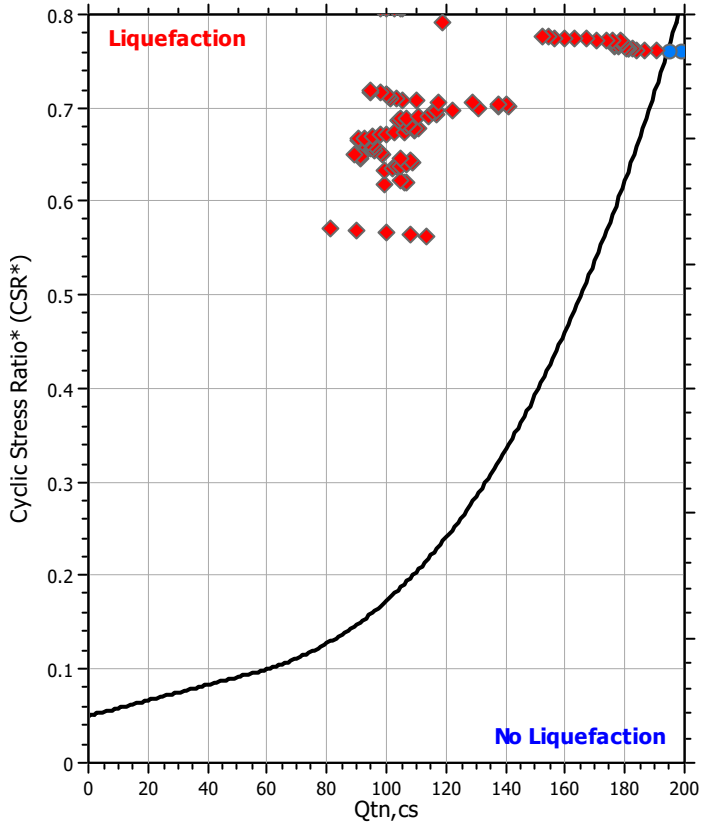
Analysis method:	NCEER (1998)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.78	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	8.00 ft	Fill height:	N/A	Limit depth:	N/A

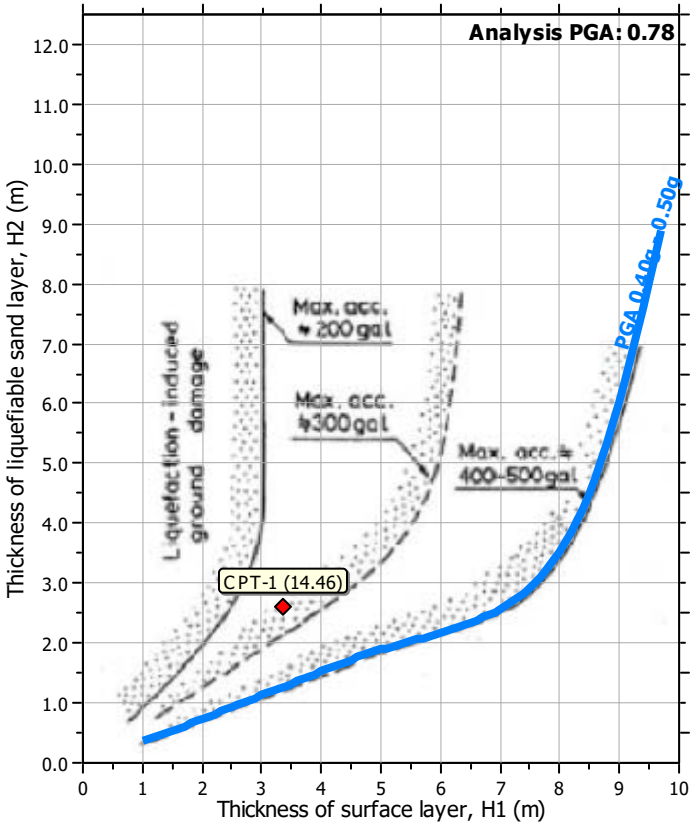
SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

Liquefaction analysis summary plots



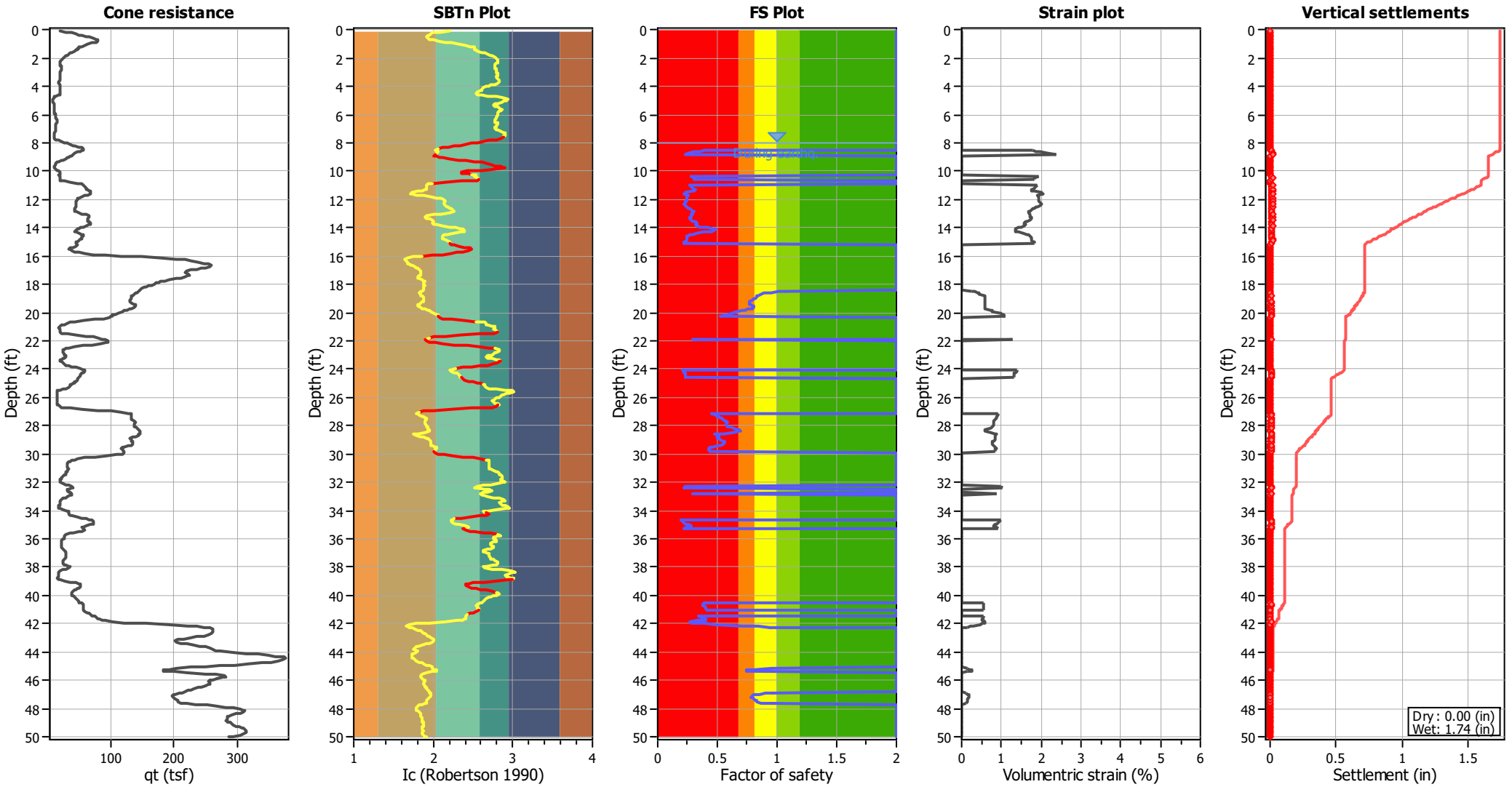




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.78	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	8.00 ft	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
8.03	140.57	2.00	0.00	0.86	0.00	8.08	136.67	2.00	0.00	0.86	0.00
8.18	131.90	2.00	0.00	0.86	0.00	8.21	126.59	2.00	0.00	0.86	0.00
8.27	122.79	2.00	0.00	0.86	0.00	8.36	121.11	2.00	0.00	0.86	0.00
8.41	120.46	2.00	0.00	0.86	0.00	8.47	118.04	2.00	0.00	0.86	0.00
8.54	113.51	0.38	1.80	0.86	0.02	8.61	107.75	0.35	1.88	0.85	0.01
8.66	100.31	0.31	1.99	0.85	0.01	8.73	90.04	0.26	2.17	0.85	0.02
8.81	80.95	0.23	2.36	0.85	0.02	8.89	74.81	2.00	0.00	0.85	0.00
8.96	73.25	2.00	0.00	0.85	0.00	9.00	72.05	2.00	0.00	0.85	0.00
9.05	72.07	2.00	0.00	0.85	0.00	9.14	74.20	2.00	0.00	0.85	0.00
9.20	78.80	2.00	0.00	0.84	0.00	9.25	84.22	2.00	0.00	0.84	0.00
9.32	88.87	2.00	0.00	0.84	0.00	9.38	92.73	2.00	0.00	0.84	0.00
9.45	94.25	2.00	0.00	0.84	0.00	9.53	96.22	2.00	0.00	0.84	0.00
9.60	98.38	2.00	0.00	0.84	0.00	9.65	104.05	2.00	0.00	0.84	0.00
9.73	109.94	2.00	0.00	0.84	0.00	9.79	112.96	2.00	0.00	0.83	0.00
9.85	103.74	2.00	0.00	0.83	0.00	9.94	86.56	2.00	0.00	0.83	0.00
9.98	69.01	2.00	0.00	0.83	0.00	10.05	64.37	2.00	0.00	0.83	0.00
10.11	68.39	2.00	0.00	0.83	0.00	10.18	79.71	2.00	0.00	0.83	0.00
10.26	86.86	2.00	0.00	0.83	0.00	10.31	95.32	2.00	0.00	0.83	0.00
10.37	99.21	0.28	1.94	0.82	0.01	10.45	106.30	0.31	1.83	0.82	0.02
10.51	107.01	0.31	1.82	0.82	0.01	10.56	104.95	0.30	1.84	0.82	0.01
10.65	101.32	2.00	0.00	0.82	0.00	10.71	86.21	2.00	0.00	0.82	0.00
10.80	80.27	2.00	0.00	0.82	0.00	10.85	88.00	2.00	0.00	0.82	0.00
10.90	95.19	2.00	0.00	0.82	0.00	10.99	99.25	0.27	1.91	0.81	0.02
11.05	101.76	0.28	1.87	0.81	0.01	11.10	103.03	0.29	1.85	0.81	0.01
11.16	104.88	0.29	1.82	0.81	0.01	11.24	106.91	0.30	1.79	0.81	0.02
11.29	108.80	0.31	1.76	0.81	0.01	11.36	108.38	0.31	1.77	0.81	0.01
11.44	104.76	0.29	1.81	0.81	0.02	11.49	91.51	0.23	2.02	0.81	0.01
11.55	91.01	0.23	2.03	0.80	0.02	11.64	89.31	0.22	2.06	0.80	0.02
11.68	98.45	0.26	1.90	0.80	0.01	11.76	98.31	0.26	1.90	0.80	0.02
11.82	96.03	0.25	1.93	0.80	0.01	11.88	94.67	0.24	1.95	0.80	0.02
11.96	95.23	0.24	1.94	0.80	0.02	12.01	95.91	0.25	1.93	0.80	0.01
12.07	95.50	0.24	1.93	0.80	0.01	12.16	93.88	0.24	1.95	0.79	0.02
12.22	91.84	0.23	1.99	0.79	0.01	12.27	90.61	0.22	2.01	0.79	0.01
12.36	90.88	0.22	2.00	0.79	0.02	12.42	92.82	0.23	1.96	0.79	0.01
12.51	95.42	0.24	1.91	0.79	0.02	12.56	98.02	0.25	1.87	0.79	0.01
12.61	100.10	0.26	1.84	0.79	0.01	12.68	102.40	0.27	1.80	0.79	0.01
12.73	105.84	0.28	1.75	0.78	0.01	12.80	109.20	0.30	1.70	0.78	0.02
12.87	111.03	0.31	1.68	0.78	0.01	12.93	109.57	0.30	1.69	0.78	0.01
13.00	106.90	0.28	1.72	0.78	0.01	13.09	107.53	0.29	1.71	0.78	0.02
13.14	107.56	0.29	1.71	0.78	0.01	13.22	105.48	0.28	1.74	0.78	0.02
13.28	103.89	0.27	1.75	0.77	0.01	13.34	103.73	0.27	1.75	0.77	0.01
13.39	104.78	0.27	1.74	0.77	0.01	13.48	106.86	0.28	1.71	0.77	0.02
13.54	110.70	0.30	1.66	0.77	0.01	13.59	114.29	0.32	1.61	0.77	0.01
13.66	116.48	0.33	1.58	0.77	0.01	13.73	116.27	0.33	1.58	0.77	0.01
13.78	115.42	0.32	1.59	0.77	0.01	13.87	116.64	0.33	1.58	0.76	0.02
13.92	122.46	0.36	1.51	0.76	0.01	13.98	130.58	0.41	1.43	0.76	0.01
14.07	137.43	0.46	1.37	0.76	0.01	14.12	140.61	0.48	1.34	0.76	0.01
14.19	140.08	0.48	1.35	0.76	0.01	14.24	137.34	0.46	1.37	0.76	0.01

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
14.31	128.56	0.39	1.44	0.76	0.01	14.38	117.33	0.33	1.55	0.76	0.01
14.44	109.80	0.29	1.63	0.76	0.01	14.51	105.64	0.27	1.68	0.75	0.01
14.58	103.04	0.26	1.72	0.75	0.01	14.64	101.60	0.25	1.73	0.75	0.01
14.70	100.51	0.25	1.75	0.75	0.01	14.78	100.46	0.24	1.74	0.75	0.02
14.84	100.27	0.24	1.75	0.75	0.01	14.92	99.98	0.24	1.75	0.75	0.02
14.98	97.70	0.23	1.78	0.75	0.01	15.04	94.40	0.22	1.83	0.75	0.01
15.11	94.83	0.22	1.82	0.74	0.01	15.16	101.49	2.00	0.00	0.74	0.00
15.22	111.76	2.00	0.00	0.74	0.00	15.30	119.50	2.00	0.00	0.74	0.00
15.38	125.66	2.00	0.00	0.74	0.00	15.44	128.87	2.00	0.00	0.74	0.00
15.49	130.77	2.00	0.00	0.74	0.00	15.55	130.71	2.00	0.00	0.74	0.00
15.64	129.18	2.00	0.00	0.73	0.00	15.69	124.87	2.00	0.00	0.73	0.00
15.75	122.42	2.00	0.00	0.73	0.00	15.82	124.38	2.00	0.00	0.73	0.00
15.89	131.89	2.00	0.00	0.73	0.00	15.96	148.18	2.00	0.00	0.73	0.00
16.02	171.91	2.00	0.00	0.73	0.00	16.08	191.65	2.00	0.00	0.73	0.00
16.17	210.03	2.00	0.00	0.73	0.00	16.21	238.20	2.00	0.00	0.73	0.00
16.27	254.52	2.00	0.00	0.72	0.00	16.36	267.38	2.00	0.00	0.72	0.00
16.41	280.11	2.00	0.00	0.72	0.00	16.51	290.48	2.00	0.00	0.72	0.00
16.56	299.45	2.00	0.00	0.72	0.00	16.61	308.78	2.00	0.00	0.72	0.00
16.67	323.33	2.00	0.00	0.72	0.00	16.75	332.70	2.00	0.00	0.72	0.00
16.81	335.31	2.00	0.00	0.72	0.00	16.89	331.62	2.00	0.00	0.71	0.00
16.95	324.87	2.00	0.00	0.71	0.00	17.00	316.29	2.00	0.00	0.71	0.00
17.09	308.84	2.00	0.00	0.71	0.00	17.13	304.35	2.00	0.00	0.71	0.00
17.20	304.44	2.00	0.00	0.71	0.00	17.26	307.89	2.00	0.00	0.71	0.00
17.34	310.97	2.00	0.00	0.71	0.00	17.39	304.61	2.00	0.00	0.71	0.00
17.46	293.97	2.00	0.00	0.70	0.00	17.54	282.13	2.00	0.00	0.70	0.00
17.60	278.67	2.00	0.00	0.70	0.00	17.66	270.33	2.00	0.00	0.70	0.00
17.73	261.68	2.00	0.00	0.70	0.00	17.82	253.02	2.00	0.00	0.70	0.00
17.86	249.12	2.00	0.00	0.70	0.00	17.92	243.97	2.00	0.00	0.70	0.00
18.00	238.06	2.00	0.00	0.69	0.00	18.07	232.15	2.00	0.00	0.69	0.00
18.12	225.45	2.00	0.00	0.69	0.00	18.21	219.28	2.00	0.00	0.69	0.00
18.24	213.12	2.00	0.00	0.69	0.00	18.32	208.32	2.00	0.00	0.69	0.00
18.40	203.49	2.00	0.00	0.69	0.00	18.45	199.53	1.08	0.24	0.69	0.00
18.51	195.09	1.01	0.33	0.69	0.00	18.58	190.39	0.95	0.41	0.69	0.00
18.64	186.29	0.89	0.43	0.68	0.00	18.70	183.92	0.86	0.43	0.68	0.00
18.80	182.26	0.84	0.58	0.68	0.01	18.83	181.34	0.83	0.58	0.68	0.00
18.90	181.03	0.83	0.58	0.68	0.00	18.97	180.57	0.82	0.58	0.68	0.01
19.04	179.66	0.81	0.59	0.68	0.00	19.09	178.09	0.79	0.59	0.68	0.00
19.19	176.76	0.77	0.60	0.67	0.01	19.23	176.32	0.77	0.60	0.67	0.00
19.32	176.43	0.77	0.60	0.67	0.01	19.38	176.74	0.77	0.59	0.67	0.00
19.43	177.58	0.78	0.59	0.67	0.00	19.52	178.57	0.79	0.58	0.67	0.01
19.58	179.48	0.80	0.58	0.67	0.00	19.63	179.52	0.80	0.58	0.67	0.00
19.69	178.32	0.79	0.58	0.67	0.00	19.77	176.13	0.76	0.59	0.66	0.01
19.82	173.74	0.73	0.75	0.66	0.01	19.89	170.74	0.70	0.76	0.66	0.01
19.97	167.05	0.66	0.78	0.66	0.01	20.02	162.96	0.62	0.99	0.66	0.01
20.10	159.53	0.59	1.02	0.66	0.01	20.16	156.57	0.56	1.04	0.66	0.01
20.24	154.20	0.54	1.08	0.66	0.01	20.29	152.20	0.53	1.09	0.66	0.01
20.34	148.02	2.00	0.00	0.66	0.00	20.43	141.40	2.00	0.00	0.65	0.00
20.49	137.67	2.00	0.00	0.65	0.00	20.54	146.46	2.00	0.00	0.65	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
20.63	161.51	2.00	0.00	0.65	0.00	20.68	162.89	2.00	0.00	0.65	0.00
20.74	143.13	2.00	0.00	0.65	0.00	20.82	123.86	2.00	0.00	0.65	0.00
20.89	110.91	2.00	0.00	0.65	0.00	20.94	111.93	2.00	0.00	0.65	0.00
21.02	109.52	2.00	0.00	0.64	0.00	21.07	107.86	2.00	0.00	0.64	0.00
21.15	108.84	2.00	0.00	0.64	0.00	21.20	113.46	2.00	0.00	0.64	0.00
21.29	118.09	2.00	0.00	0.64	0.00	21.35	124.03	2.00	0.00	0.64	0.00
21.40	128.76	2.00	0.00	0.64	0.00	21.46	129.42	2.00	0.00	0.64	0.00
21.52	119.63	2.00	0.00	0.64	0.00	21.59	101.61	2.00	0.00	0.63	0.00
21.69	97.57	2.00	0.00	0.63	0.00	21.72	102.79	2.00	0.00	0.63	0.00
21.79	107.90	2.00	0.00	0.63	0.00	21.87	112.99	2.00	0.00	0.63	0.00
21.93	118.86	0.30	1.27	0.63	0.01	22.00	123.56	2.00	0.00	0.63	0.00
22.06	127.73	2.00	0.00	0.63	0.00	22.12	128.69	2.00	0.00	0.63	0.00
22.18	128.72	2.00	0.00	0.62	0.00	22.26	133.33	2.00	0.00	0.62	0.00
22.32	147.26	2.00	0.00	0.62	0.00	22.41	161.77	2.00	0.00	0.62	0.00
22.47	171.47	2.00	0.00	0.62	0.00	22.51	170.92	2.00	0.00	0.62	0.00
22.58	167.13	2.00	0.00	0.62	0.00	22.66	161.18	2.00	0.00	0.62	0.00
22.71	156.35	2.00	0.00	0.62	0.00	22.79	152.15	2.00	0.00	0.61	0.00
22.84	149.17	2.00	0.00	0.61	0.00	22.91	145.25	2.00	0.00	0.61	0.00
22.99	142.00	2.00	0.00	0.61	0.00	23.03	135.31	2.00	0.00	0.61	0.00
23.10	130.01	2.00	0.00	0.61	0.00	23.19	125.02	2.00	0.00	0.61	0.00
23.25	125.24	2.00	0.00	0.61	0.00	23.30	127.20	2.00	0.00	0.61	0.00
23.38	130.42	2.00	0.00	0.60	0.00	23.44	133.92	2.00	0.00	0.60	0.00
23.49	137.44	2.00	0.00	0.60	0.00	23.58	139.25	2.00	0.00	0.60	0.00
23.64	137.15	2.00	0.00	0.60	0.00	23.73	132.16	2.00	0.00	0.60	0.00
23.75	123.16	2.00	0.00	0.60	0.00	23.83	112.83	2.00	0.00	0.60	0.00
23.90	103.26	2.00	0.00	0.59	0.00	23.95	97.99	2.00	0.00	0.59	0.00
24.02	97.06	2.00	0.00	0.59	0.00	24.08	98.01	0.21	1.41	0.59	0.01
24.15	100.11	0.21	1.38	0.59	0.01	24.22	102.91	0.22	1.35	0.59	0.01
24.28	104.88	0.23	1.32	0.59	0.01	24.36	105.35	0.23	1.31	0.59	0.01
24.42	104.58	0.23	1.32	0.59	0.01	24.49	104.46	0.23	1.32	0.58	0.01
24.55	105.16	0.23	1.31	0.58	0.01	24.61	104.97	0.23	1.31	0.58	0.01
24.69	104.90	2.00	0.00	0.58	0.00	24.76	108.44	2.00	0.00	0.58	0.00
24.83	116.97	2.00	0.00	0.58	0.00	24.89	128.75	2.00	0.00	0.58	0.00
24.94	139.04	2.00	0.00	0.58	0.00	25.02	147.50	2.00	0.00	0.58	0.00
25.08	152.37	2.00	0.00	0.57	0.00	25.13	152.60	2.00	0.00	0.57	0.00
25.20	146.76	2.00	0.00	0.57	0.00	25.28	139.59	2.00	0.00	0.57	0.00
25.35	134.44	2.00	0.00	0.57	0.00	25.41	133.96	2.00	0.00	0.57	0.00
25.46	132.75	2.00	0.00	0.57	0.00	25.55	128.52	2.00	0.00	0.57	0.00
25.61	120.98	2.00	0.00	0.57	0.00	25.66	111.86	2.00	0.00	0.57	0.00
25.74	103.91	2.00	0.00	0.56	0.00	25.81	97.93	2.00	0.00	0.56	0.00
25.86	94.48	2.00	0.00	0.56	0.00	25.92	90.44	2.00	0.00	0.56	0.00
26.00	85.70	2.00	0.00	0.56	0.00	26.05	80.53	2.00	0.00	0.56	0.00
26.12	76.41	2.00	0.00	0.56	0.00	26.19	73.96	2.00	0.00	0.56	0.00
26.25	74.53	2.00	0.00	0.56	0.00	26.32	76.79	2.00	0.00	0.55	0.00
26.38	80.04	2.00	0.00	0.55	0.00	26.45	84.83	2.00	0.00	0.55	0.00
26.52	90.28	2.00	0.00	0.55	0.00	26.58	97.72	2.00	0.00	0.55	0.00
26.67	104.51	2.00	0.00	0.55	0.00	26.73	108.01	2.00	0.00	0.55	0.00
26.77	95.37	2.00	0.00	0.55	0.00	26.87	87.87	2.00	0.00	0.54	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
26.92	101.34	2.00	0.00	0.54	0.00	26.98	119.50	2.00	0.00	0.54	0.00
27.04	132.11	2.00	0.00	0.54	0.00	27.12	139.92	2.00	0.00	0.54	0.00
27.17	146.29	0.45	0.92	0.54	0.01	27.27	150.45	0.48	0.90	0.54	0.01
27.32	153.23	0.50	0.88	0.54	0.01	27.37	154.93	0.52	0.87	0.54	0.01
27.44	155.85	0.52	0.87	0.53	0.01	27.51	157.18	0.54	0.86	0.53	0.01
27.56	158.49	0.55	0.85	0.53	0.01	27.65	160.59	0.56	0.81	0.53	0.01
27.71	162.23	0.58	0.80	0.53	0.01	27.78	162.62	0.58	0.79	0.53	0.01
27.82	162.11	0.58	0.80	0.53	0.00	27.90	162.00	0.58	0.79	0.53	0.01
27.97	161.98	0.58	0.79	0.53	0.01	28.05	163.10	0.59	0.78	0.52	0.01
28.09	165.49	0.61	0.77	0.52	0.00	28.18	168.67	0.64	0.74	0.52	0.01
28.24	171.59	0.67	0.60	0.52	0.00	28.29	173.16	0.68	0.59	0.52	0.00
28.35	174.62	0.70	0.58	0.52	0.00	28.42	173.77	0.69	0.58	0.52	0.00
28.49	167.98	0.63	0.74	0.52	0.01	28.56	159.00	0.55	0.82	0.52	0.01
28.62	149.23	0.47	0.87	0.51	0.01	28.68	153.73	0.51	0.84	0.51	0.01
28.75	154.64	0.51	0.84	0.51	0.01	28.82	153.48	0.50	0.84	0.51	0.01
28.88	152.32	0.49	0.84	0.51	0.01	28.94	154.23	0.51	0.83	0.51	0.01
29.02	156.19	0.53	0.82	0.51	0.01	29.07	158.44	0.54	0.81	0.51	0.00
29.14	160.35	0.56	0.77	0.51	0.01	29.22	160.95	0.56	0.77	0.50	0.01
29.27	159.49	0.55	0.78	0.50	0.00	29.36	156.61	0.53	0.81	0.50	0.01
29.41	153.91	0.51	0.82	0.50	0.00	29.47	147.97	0.46	0.85	0.50	0.01
29.53	145.46	0.44	0.86	0.50	0.01	29.61	143.20	0.43	0.87	0.50	0.01
29.66	144.96	0.44	0.86	0.50	0.01	29.73	144.33	0.43	0.86	0.50	0.01
29.81	144.73	0.44	0.85	0.49	0.01	29.86	145.45	0.44	0.85	0.49	0.00
29.92	147.43	2.00	0.00	0.49	0.00	30.00	147.45	2.00	0.00	0.49	0.00
30.07	145.94	2.00	0.00	0.49	0.00	30.12	143.86	2.00	0.00	0.49	0.00
30.20	147.00	2.00	0.00	0.49	0.00	30.27	154.26	2.00	0.00	0.49	0.00
30.32	156.67	2.00	0.00	0.49	0.00	30.41	157.38	2.00	0.00	0.48	0.00
30.47	153.13	2.00	0.00	0.48	0.00	30.53	144.89	2.00	0.00	0.48	0.00
30.58	134.04	2.00	0.00	0.48	0.00	30.65	127.05	2.00	0.00	0.48	0.00
30.72	124.17	2.00	0.00	0.48	0.00	30.81	124.52	2.00	0.00	0.48	0.00
30.85	125.95	2.00	0.00	0.48	0.00	30.91	127.74	2.00	0.00	0.48	0.00
30.98	129.83	2.00	0.00	0.47	0.00	31.05	132.61	2.00	0.00	0.47	0.00
31.11	137.74	2.00	0.00	0.47	0.00	31.20	143.70	2.00	0.00	0.47	0.00
31.25	148.50	2.00	0.00	0.47	0.00	31.30	150.04	2.00	0.00	0.47	0.00
31.39	148.94	2.00	0.00	0.47	0.00	31.45	146.43	2.00	0.00	0.47	0.00
31.50	142.73	2.00	0.00	0.47	0.00	31.59	137.51	2.00	0.00	0.46	0.00
31.64	125.65	2.00	0.00	0.46	0.00	31.73	114.13	2.00	0.00	0.46	0.00
31.76	102.17	2.00	0.00	0.46	0.00	31.84	97.78	2.00	0.00	0.46	0.00
31.89	100.21	2.00	0.00	0.46	0.00	31.98	108.03	2.00	0.00	0.46	0.00
32.03	114.55	2.00	0.00	0.46	0.00	32.10	115.91	2.00	0.00	0.46	0.00
32.18	114.42	2.00	0.00	0.45	0.00	32.23	112.18	2.00	0.00	0.45	0.00
32.30	106.55	0.23	1.00	0.45	0.01	32.37	102.74	0.21	1.03	0.45	0.01
32.42	104.43	0.22	1.02	0.45	0.01	32.48	114.86	2.00	0.00	0.45	0.00
32.55	123.78	2.00	0.00	0.45	0.00	32.62	128.39	2.00	0.00	0.45	0.00
32.69	126.20	2.00	0.00	0.45	0.00	32.74	123.75	2.00	0.00	0.45	0.00
32.81	121.65	0.29	0.88	0.44	0.01	32.89	120.34	2.00	0.00	0.44	0.00
32.95	119.61	2.00	0.00	0.44	0.00	33.04	119.02	2.00	0.00	0.44	0.00
33.10	119.95	2.00	0.00	0.44	0.00	33.14	121.61	2.00	0.00	0.44	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
33.23	120.67	2.00	0.00	0.44	0.00	33.29	116.51	2.00	0.00	0.44	0.00
33.34	110.23	2.00	0.00	0.43	0.00	33.40	103.58	2.00	0.00	0.43	0.00
33.48	98.05	2.00	0.00	0.43	0.00	33.54	95.42	2.00	0.00	0.43	0.00
33.60	96.31	2.00	0.00	0.43	0.00	33.66	97.83	2.00	0.00	0.43	0.00
33.73	102.46	2.00	0.00	0.43	0.00	33.80	108.89	2.00	0.00	0.43	0.00
33.88	115.35	2.00	0.00	0.43	0.00	33.93	116.03	2.00	0.00	0.42	0.00
34.03	111.79	2.00	0.00	0.42	0.00	34.07	109.35	2.00	0.00	0.42	0.00
34.12	112.14	2.00	0.00	0.42	0.00	34.19	116.30	2.00	0.00	0.42	0.00
34.27	121.78	2.00	0.00	0.42	0.00	34.37	120.38	2.00	0.00	0.42	0.00
34.39	115.50	2.00	0.00	0.42	0.00	34.45	104.40	2.00	0.00	0.42	0.00
34.54	96.39	2.00	0.00	0.41	0.00	34.59	93.08	2.00	0.00	0.41	0.00
34.65	94.79	2.00	0.00	0.41	0.00	34.71	98.19	0.20	0.98	0.41	0.01
34.79	101.30	0.21	0.95	0.41	0.01	34.85	104.64	0.22	0.92	0.41	0.01
34.93	108.68	0.23	0.89	0.41	0.01	34.99	114.17	0.26	0.85	0.41	0.01
35.04	120.45	0.28	0.81	0.41	0.00	35.13	120.90	0.29	0.81	0.40	0.01
35.19	111.57	0.25	0.86	0.40	0.01	35.24	103.52	0.21	0.91	0.40	0.01
35.31	103.48	2.00	0.00	0.40	0.00	35.39	111.76	2.00	0.00	0.40	0.00
35.44	118.24	2.00	0.00	0.40	0.00	35.52	122.69	2.00	0.00	0.40	0.00
35.58	129.25	2.00	0.00	0.40	0.00	35.64	134.64	2.00	0.00	0.40	0.00
35.72	137.40	2.00	0.00	0.39	0.00	35.77	133.56	2.00	0.00	0.39	0.00
35.83	122.37	2.00	0.00	0.39	0.00	35.91	110.12	2.00	0.00	0.39	0.00
35.97	100.94	2.00	0.00	0.39	0.00	36.04	98.32	2.00	0.00	0.39	0.00
36.10	97.03	2.00	0.00	0.39	0.00	36.16	92.87	2.00	0.00	0.39	0.00
36.24	86.92	2.00	0.00	0.39	0.00	36.30	81.78	2.00	0.00	0.38	0.00
36.35	80.16	2.00	0.00	0.38	0.00	36.45	80.66	2.00	0.00	0.38	0.00
36.49	83.11	2.00	0.00	0.38	0.00	36.55	85.37	2.00	0.00	0.38	0.00
36.62	85.44	2.00	0.00	0.38	0.00	36.69	83.77	2.00	0.00	0.38	0.00
36.75	82.35	2.00	0.00	0.38	0.00	36.81	83.57	2.00	0.00	0.38	0.00
36.89	87.84	2.00	0.00	0.37	0.00	36.96	93.04	2.00	0.00	0.37	0.00
37.02	97.80	2.00	0.00	0.37	0.00	37.08	100.70	2.00	0.00	0.37	0.00
37.15	102.15	2.00	0.00	0.37	0.00	37.23	102.47	2.00	0.00	0.37	0.00
37.28	101.30	2.00	0.00	0.37	0.00	37.35	100.28	2.00	0.00	0.37	0.00
37.41	99.95	2.00	0.00	0.37	0.00	37.47	101.30	2.00	0.00	0.36	0.00
37.54	104.11	2.00	0.00	0.36	0.00	37.62	107.14	2.00	0.00	0.36	0.00
37.69	109.60	2.00	0.00	0.36	0.00	37.74	111.48	2.00	0.00	0.36	0.00
37.81	113.59	2.00	0.00	0.36	0.00	37.89	113.86	2.00	0.00	0.36	0.00
37.94	109.44	2.00	0.00	0.36	0.00	38.00	104.97	2.00	0.00	0.36	0.00
38.07	103.92	2.00	0.00	0.35	0.00	38.14	108.60	2.00	0.00	0.35	0.00
38.20	113.72	2.00	0.00	0.35	0.00	38.28	113.47	2.00	0.00	0.35	0.00
38.34	109.68	2.00	0.00	0.35	0.00	38.39	100.34	2.00	0.00	0.35	0.00
38.48	90.84	2.00	0.00	0.35	0.00	38.54	83.32	2.00	0.00	0.35	0.00
38.59	81.63	2.00	0.00	0.35	0.00	38.65	82.07	2.00	0.00	0.34	0.00
38.73	85.12	2.00	0.00	0.34	0.00	38.78	92.78	2.00	0.00	0.34	0.00
38.87	102.06	2.00	0.00	0.34	0.00	38.92	110.18	2.00	0.00	0.34	0.00
38.98	111.94	2.00	0.00	0.34	0.00	39.07	107.39	2.00	0.00	0.34	0.00
39.12	100.66	2.00	0.00	0.34	0.00	39.18	97.23	2.00	0.00	0.34	0.00
39.24	96.49	2.00	0.00	0.33	0.00	39.32	97.57	2.00	0.00	0.33	0.00
39.38	102.26	2.00	0.00	0.33	0.00	39.47	108.29	2.00	0.00	0.33	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
39.52	115.72	2.00	0.00	0.33	0.00	39.58	123.34	2.00	0.00	0.33	0.00
39.65	133.55	2.00	0.00	0.33	0.00	39.73	144.78	2.00	0.00	0.33	0.00
39.77	155.13	2.00	0.00	0.33	0.00	39.84	162.04	2.00	0.00	0.32	0.00
39.90	166.08	2.00	0.00	0.32	0.00	39.97	162.88	2.00	0.00	0.32	0.00
40.05	157.21	2.00	0.00	0.32	0.00	40.11	150.77	2.00	0.00	0.32	0.00
40.16	147.92	2.00	0.00	0.32	0.00	40.22	145.70	2.00	0.00	0.32	0.00
40.30	143.95	2.00	0.00	0.32	0.00	40.36	143.86	2.00	0.00	0.32	0.00
40.45	144.40	2.00	0.00	0.31	0.00	40.50	144.14	2.00	0.00	0.31	0.00
40.55	140.59	0.40	0.55	0.31	0.00	40.65	137.71	0.38	0.56	0.31	0.01
40.70	137.28	0.38	0.56	0.31	0.00	40.78	139.31	0.39	0.55	0.31	0.01
40.83	141.00	0.40	0.54	0.31	0.00	40.89	140.88	0.40	0.54	0.31	0.00
40.95	141.27	0.40	0.54	0.31	0.00	41.01	142.56	0.41	0.53	0.30	0.00
41.09	143.31	2.00	0.00	0.30	0.00	41.16	141.32	2.00	0.00	0.30	0.00
41.21	136.55	2.00	0.00	0.30	0.00	41.28	132.28	2.00	0.00	0.30	0.00
41.36	129.21	2.00	0.00	0.30	0.00	41.41	128.19	2.00	0.00	0.30	0.00
41.47	130.54	0.34	0.56	0.30	0.00	41.54	135.55	0.37	0.54	0.30	0.00
41.62	140.56	0.40	0.52	0.29	0.00	41.68	142.25	0.41	0.51	0.29	0.00
41.75	141.37	0.40	0.51	0.29	0.00	41.81	129.82	0.33	0.55	0.29	0.00
41.89	116.93	0.27	0.60	0.29	0.01	41.95	120.01	0.28	0.58	0.29	0.00
42.01	140.32	0.40	0.51	0.29	0.00	42.09	153.30	0.49	0.47	0.29	0.00
42.15	178.05	0.71	0.31	0.29	0.00	42.20	189.29	0.84	0.23	0.28	0.00
42.28	197.19	0.93	0.16	0.28	0.00	42.33	214.03	2.00	0.00	0.28	0.00
42.39	228.61	2.00	0.00	0.28	0.00	42.47	238.09	2.00	0.00	0.28	0.00
42.53	243.42	2.00	0.00	0.28	0.00	42.59	246.24	2.00	0.00	0.28	0.00
42.68	247.82	2.00	0.00	0.28	0.00	42.74	248.31	2.00	0.00	0.28	0.00
42.78	245.72	2.00	0.00	0.27	0.00	42.89	241.08	2.00	0.00	0.27	0.00
42.92	232.21	2.00	0.00	0.27	0.00	43.02	223.30	2.00	0.00	0.27	0.00
43.05	213.88	2.00	0.00	0.27	0.00	43.13	207.08	2.00	0.00	0.27	0.00
43.18	202.22	2.00	0.00	0.27	0.00	43.24	200.21	2.00	0.00	0.27	0.00
43.32	201.58	2.00	0.00	0.27	0.00	43.38	204.51	2.00	0.00	0.26	0.00
43.45	209.53	2.00	0.00	0.26	0.00	43.52	214.77	2.00	0.00	0.26	0.00
43.59	217.73	2.00	0.00	0.26	0.00	43.65	218.76	2.00	0.00	0.26	0.00
43.71	220.22	2.00	0.00	0.26	0.00	43.79	222.50	2.00	0.00	0.26	0.00
43.85	226.02	2.00	0.00	0.26	0.00	43.90	233.31	2.00	0.00	0.26	0.00
43.98	242.37	2.00	0.00	0.25	0.00	44.03	255.08	2.00	0.00	0.25	0.00
44.10	266.23	2.00	0.00	0.25	0.00	44.18	275.62	2.00	0.00	0.25	0.00
44.23	285.21	2.00	0.00	0.25	0.00	44.30	294.52	2.00	0.00	0.25	0.00
44.36	304.30	2.00	0.00	0.25	0.00	44.43	311.20	2.00	0.00	0.25	0.00
44.49	315.13	2.00	0.00	0.25	0.00	44.56	317.89	2.00	0.00	0.24	0.00
44.63	319.66	2.00	0.00	0.24	0.00	44.70	317.30	2.00	0.00	0.24	0.00
44.75	309.87	2.00	0.00	0.24	0.00	44.82	294.43	2.00	0.00	0.24	0.00
44.92	277.71	2.00	0.00	0.24	0.00	44.96	259.50	2.00	0.00	0.24	0.00
45.02	241.25	2.00	0.00	0.24	0.00	45.08	218.60	2.00	0.00	0.24	0.00
45.16	197.14	0.95	0.13	0.23	0.00	45.22	185.38	0.80	0.19	0.23	0.00
45.30	180.23	0.75	0.25	0.23	0.00	45.36	180.33	0.75	0.25	0.23	0.00
45.41	189.77	0.86	0.14	0.23	0.00	45.48	205.64	2.00	0.00	0.23	0.00
45.54	226.54	2.00	0.00	0.23	0.00	45.61	240.15	2.00	0.00	0.23	0.00
45.69	250.84	2.00	0.00	0.23	0.00	45.75	252.84	2.00	0.00	0.22	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
45.80	248.91	2.00	0.00	0.22	0.00	45.89	243.15	2.00	0.00	0.22	0.00
45.95	237.93	2.00	0.00	0.22	0.00	46.01	235.13	2.00	0.00	0.22	0.00
46.09	233.75	2.00	0.00	0.22	0.00	46.14	233.50	2.00	0.00	0.22	0.00
46.20	233.13	2.00	0.00	0.22	0.00	46.27	232.15	2.00	0.00	0.22	0.00
46.34	230.05	2.00	0.00	0.21	0.00	46.42	226.41	2.00	0.00	0.21	0.00
46.49	221.97	2.00	0.00	0.21	0.00	46.53	217.14	2.00	0.00	0.21	0.00
46.61	212.69	2.00	0.00	0.21	0.00	46.66	208.74	2.00	0.00	0.21	0.00
46.73	205.29	2.00	0.00	0.21	0.00	46.82	201.71	2.00	0.00	0.21	0.00
46.87	197.42	0.96	0.10	0.21	0.00	46.92	192.86	0.90	0.12	0.20	0.00
46.99	188.33	0.85	0.16	0.20	0.00	47.06	184.99	0.81	0.17	0.20	0.00
47.12	183.04	0.79	0.17	0.20	0.00	47.21	182.44	0.78	0.17	0.20	0.00
47.25	182.92	0.79	0.17	0.20	0.00	47.31	184.46	0.81	0.16	0.20	0.00
47.40	185.85	0.82	0.16	0.20	0.00	47.46	186.55	0.83	0.16	0.20	0.00
47.51	186.88	0.83	0.16	0.19	0.00	47.59	189.21	0.86	0.12	0.19	0.00
47.65	195.93	0.95	0.11	0.19	0.00	47.73	205.36	2.00	0.00	0.19	0.00
47.78	216.18	2.00	0.00	0.19	0.00	47.85	226.96	2.00	0.00	0.19	0.00
47.93	237.17	2.00	0.00	0.19	0.00	47.97	246.83	2.00	0.00	0.19	0.00
48.04	254.73	2.00	0.00	0.19	0.00	48.12	261.20	2.00	0.00	0.18	0.00
48.17	265.16	2.00	0.00	0.18	0.00	48.23	265.49	2.00	0.00	0.18	0.00
48.32	263.67	2.00	0.00	0.18	0.00	48.36	259.43	2.00	0.00	0.18	0.00
48.43	253.93	2.00	0.00	0.18	0.00	48.51	248.88	2.00	0.00	0.18	0.00
48.57	246.44	2.00	0.00	0.18	0.00	48.63	246.33	2.00	0.00	0.18	0.00
48.70	246.98	2.00	0.00	0.17	0.00	48.76	246.74	2.00	0.00	0.17	0.00
48.83	246.77	2.00	0.00	0.17	0.00	48.89	247.54	2.00	0.00	0.17	0.00
48.98	248.95	2.00	0.00	0.17	0.00	49.02	251.55	2.00	0.00	0.17	0.00
49.08	253.89	2.00	0.00	0.17	0.00	49.16	256.46	2.00	0.00	0.17	0.00
49.23	259.23	2.00	0.00	0.17	0.00	49.28	262.35	2.00	0.00	0.16	0.00
49.36	265.42	2.00	0.00	0.16	0.00	49.42	267.90	2.00	0.00	0.16	0.00
49.48	269.55	2.00	0.00	0.16	0.00	49.54	271.53	2.00	0.00	0.16	0.00
49.61	272.84	2.00	0.00	0.16	0.00	49.68	272.77	2.00	0.00	0.16	0.00
49.74	270.82	2.00	0.00	0.16	0.00	49.81	267.16	2.00	0.00	0.16	0.00
49.90	264.00	2.00	0.00	0.15	0.00	49.95	257.09	2.00	0.00	0.15	0.00
50.00	251.80	2.00	0.00	0.15	0.00						

Total estimated settlement: 1.74

Abbreviations

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

Landmark Consultants, Inc.
780 N. 4th Street
El Centro, CA 92243

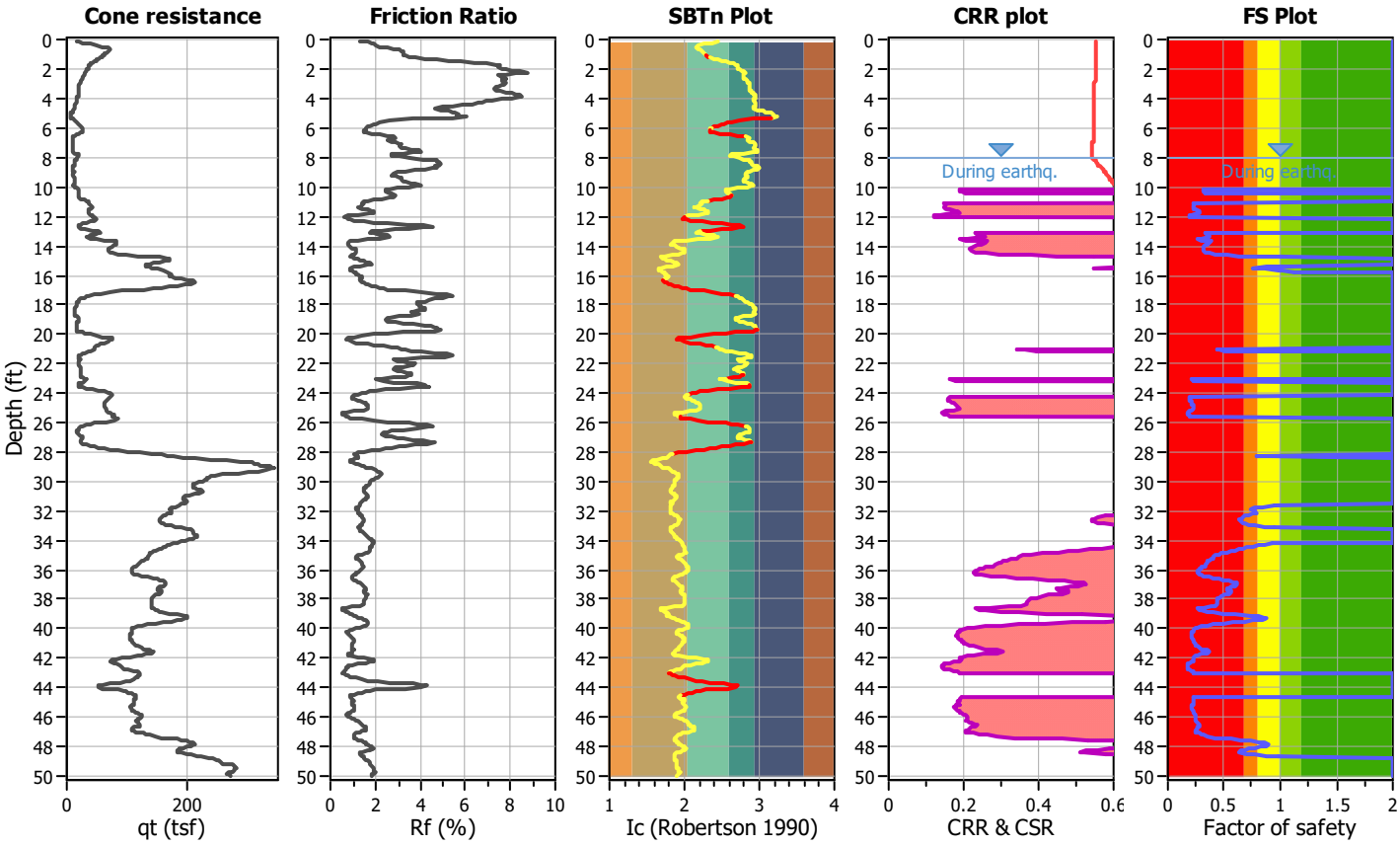
LIQUEFACTION ANALYSIS REPORT

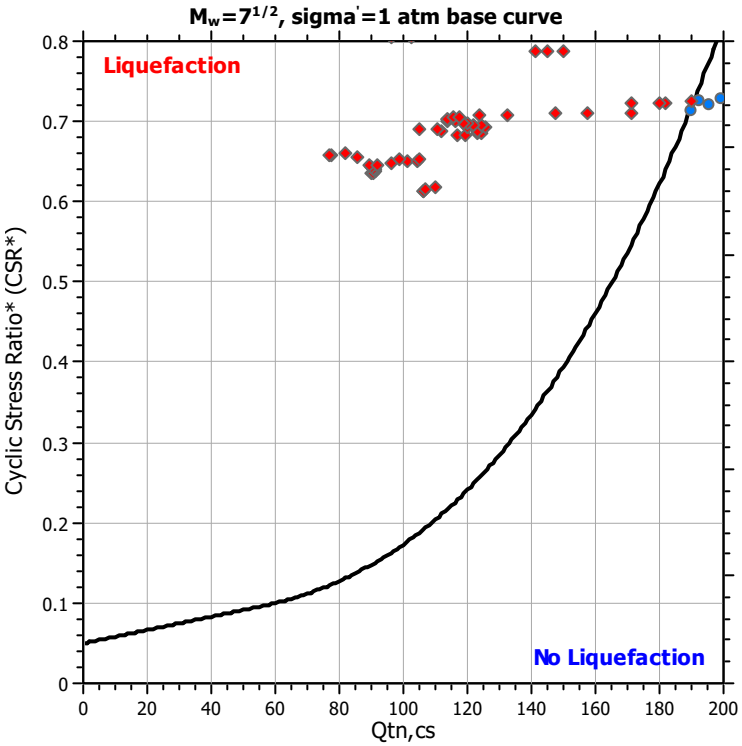
Project title : IV Data Center Campus Site #2 **Location : Imperial, CA**

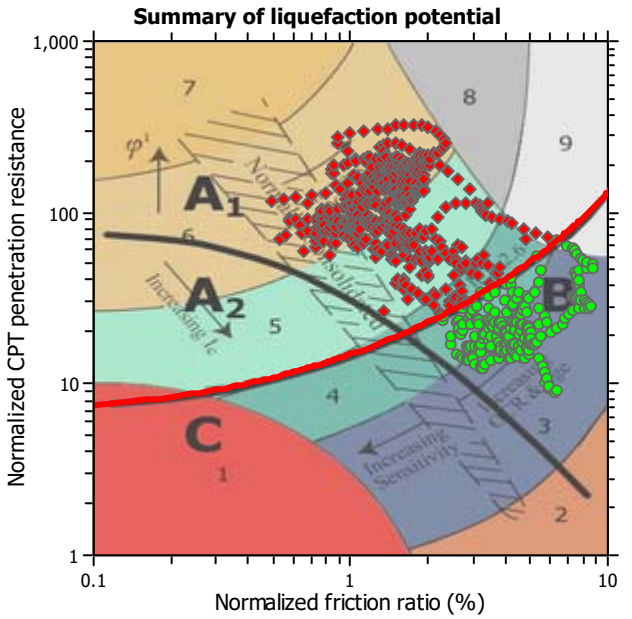
CPT file : CPT-2

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	8.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	8.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.00	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.78	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

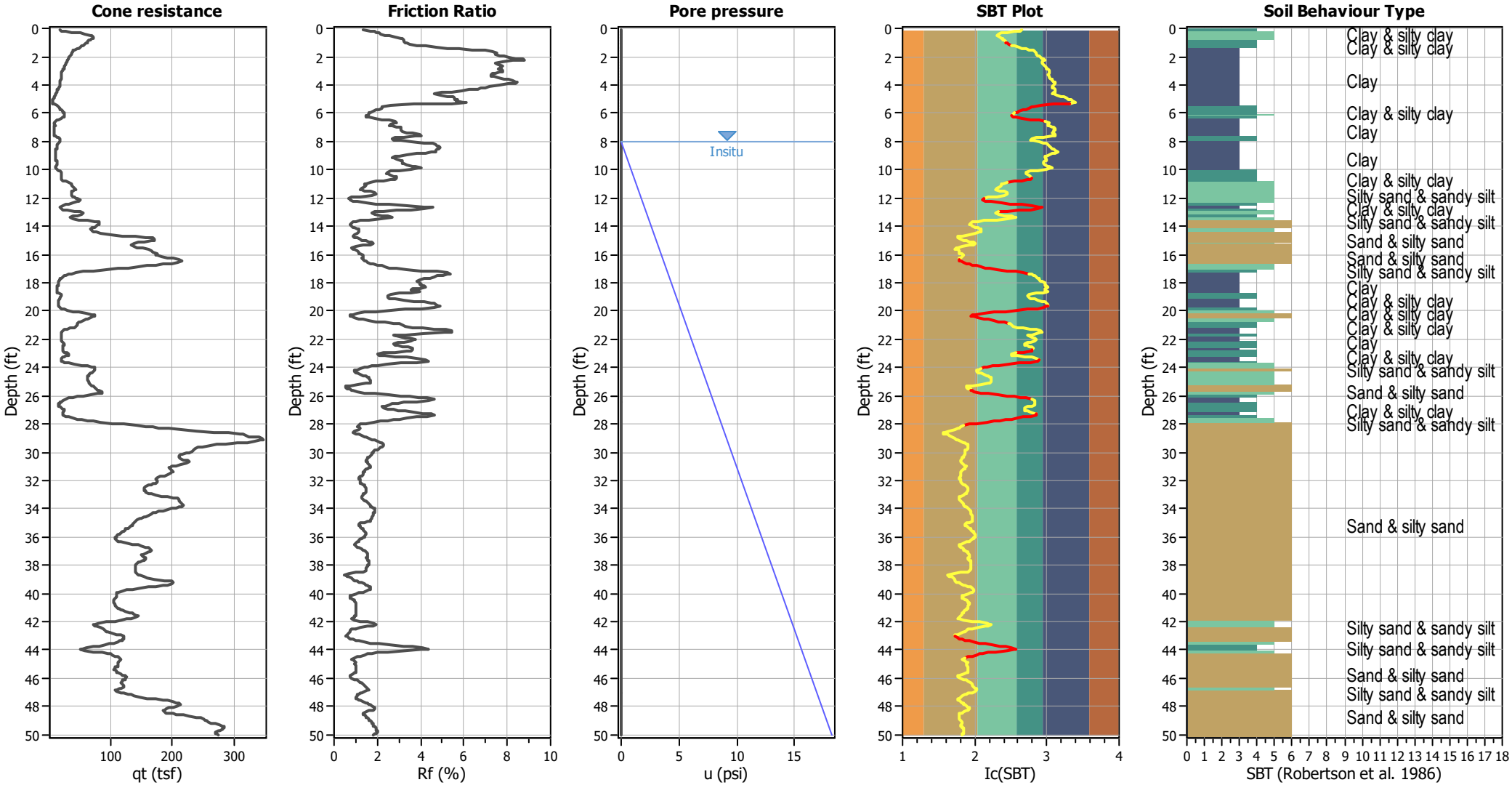






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



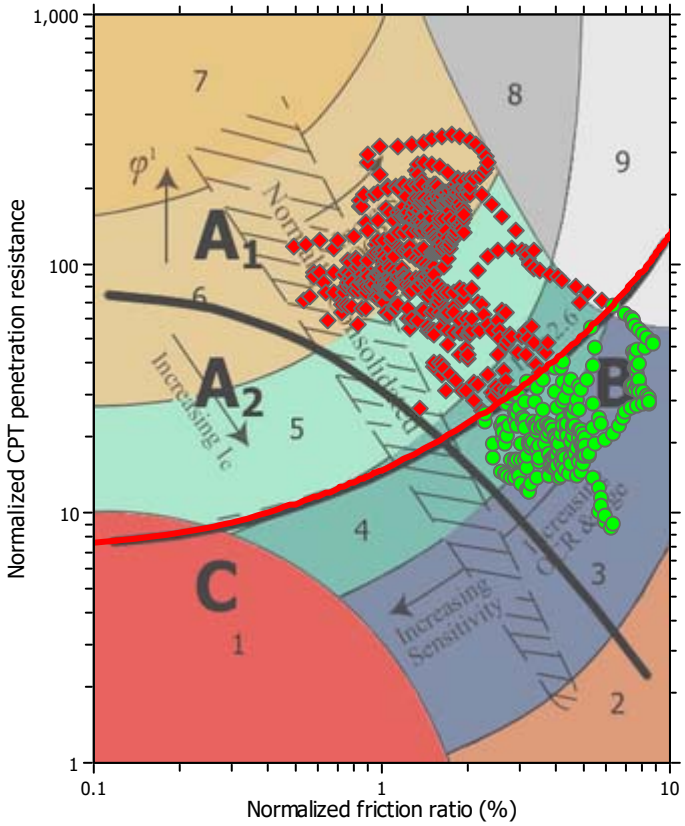
Input parameters and analysis data

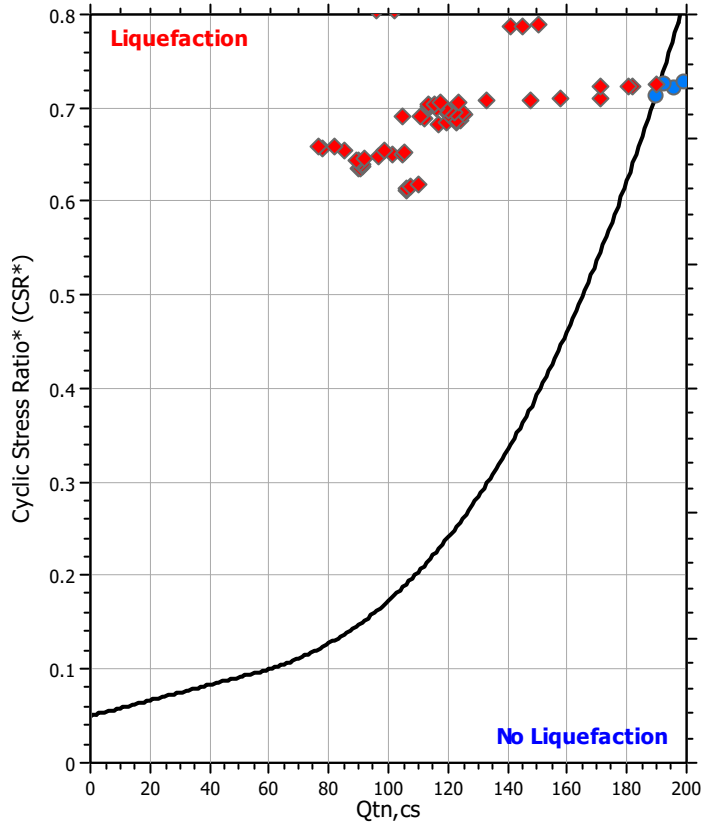
Analysis method:	NCEER (1998)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.78	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	8.00 ft	Fill height:	N/A	Limit depth:	N/A

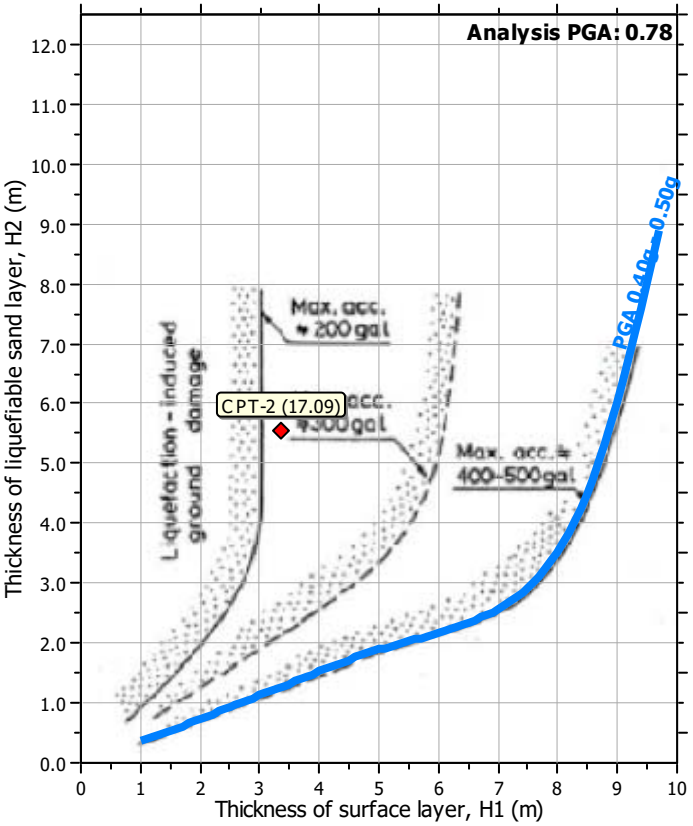
SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

Liquefaction analysis summary plots



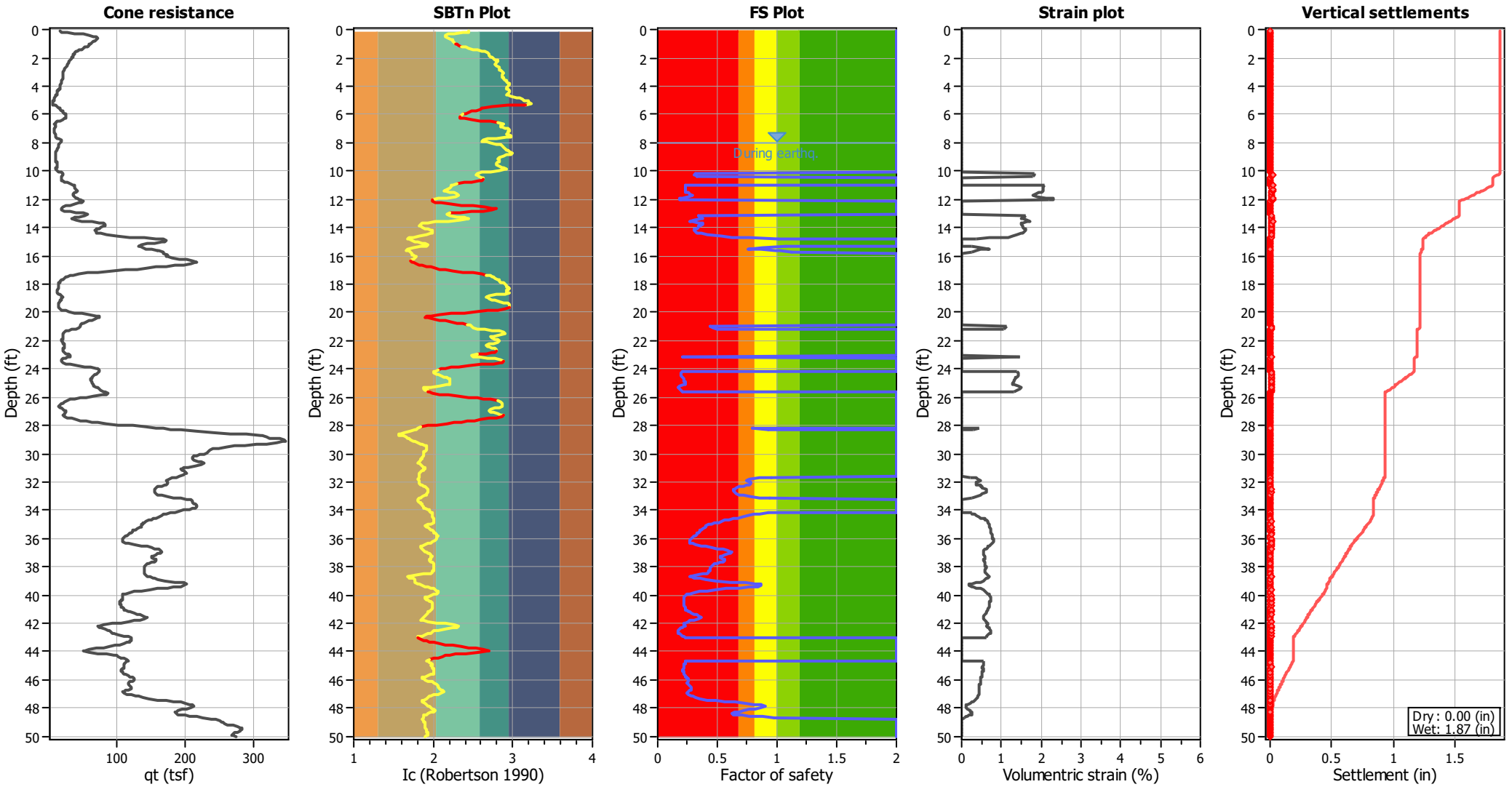




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.78	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	8.00 ft	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
8.02	127.49	2.00	0.00	0.86	0.00	8.08	137.22	2.00	0.00	0.86	0.00
8.15	142.68	2.00	0.00	0.86	0.00	8.20	144.68	2.00	0.00	0.86	0.00
8.31	144.46	2.00	0.00	0.86	0.00	8.34	144.34	2.00	0.00	0.86	0.00
8.41	144.21	2.00	0.00	0.86	0.00	8.49	140.84	2.00	0.00	0.86	0.00
8.54	136.65	2.00	0.00	0.86	0.00	8.60	130.72	2.00	0.00	0.85	0.00
8.70	127.73	2.00	0.00	0.85	0.00	8.73	123.59	2.00	0.00	0.85	0.00
8.83	120.23	2.00	0.00	0.85	0.00	8.87	114.88	2.00	0.00	0.85	0.00
8.95	109.37	2.00	0.00	0.85	0.00	9.00	103.71	2.00	0.00	0.85	0.00
9.06	100.08	2.00	0.00	0.85	0.00	9.16	97.65	2.00	0.00	0.84	0.00
9.20	98.20	2.00	0.00	0.84	0.00	9.26	101.25	2.00	0.00	0.84	0.00
9.32	105.69	2.00	0.00	0.84	0.00	9.41	109.07	2.00	0.00	0.84	0.00
9.48	110.48	2.00	0.00	0.84	0.00	9.54	111.38	2.00	0.00	0.84	0.00
9.60	112.36	2.00	0.00	0.84	0.00	9.65	113.95	2.00	0.00	0.84	0.00
9.72	116.51	2.00	0.00	0.84	0.00	9.78	118.39	2.00	0.00	0.83	0.00
9.88	120.69	2.00	0.00	0.83	0.00	9.91	120.05	2.00	0.00	0.83	0.00
9.99	117.80	2.00	0.00	0.83	0.00	10.07	112.77	2.00	0.00	0.83	0.00
10.13	108.48	2.00	0.00	0.83	0.00	10.18	106.12	0.31	1.84	0.83	0.01
10.24	105.94	0.31	1.84	0.83	0.01	10.32	107.16	0.32	1.82	0.83	0.02
10.38	109.75	0.33	1.78	0.82	0.01	10.45	112.67	2.00	0.00	0.82	0.00
10.52	115.45	2.00	0.00	0.82	0.00	10.57	116.37	2.00	0.00	0.82	0.00
10.65	114.56	2.00	0.00	0.82	0.00	10.71	110.49	2.00	0.00	0.82	0.00
10.77	104.22	2.00	0.00	0.82	0.00	10.84	97.21	2.00	0.00	0.82	0.00
10.91	92.42	2.00	0.00	0.82	0.00	10.96	90.26	2.00	0.00	0.81	0.00
11.04	90.04	0.23	2.07	0.81	0.02	11.10	90.46	0.23	2.06	0.81	0.01
11.16	91.49	0.24	2.04	0.81	0.01	11.23	91.30	0.24	2.04	0.81	0.02
11.30	90.54	0.23	2.05	0.81	0.02	11.37	89.71	0.23	2.06	0.81	0.02
11.43	89.42	0.23	2.06	0.81	0.01	11.48	91.63	0.23	2.02	0.81	0.01
11.56	96.46	0.25	1.94	0.80	0.02	11.63	101.52	0.27	1.85	0.80	0.02
11.69	104.49	0.29	1.81	0.80	0.01	11.77	105.11	0.29	1.80	0.80	0.02
11.82	98.78	0.26	1.89	0.80	0.01	11.88	85.45	0.21	2.12	0.80	0.01
11.96	77.64	0.19	2.29	0.80	0.02	12.02	76.75	0.19	2.31	0.80	0.02
12.08	82.14	0.20	2.18	0.80	0.02	12.14	86.74	2.00	0.00	0.79	0.00
12.21	87.85	2.00	0.00	0.79	0.00	12.28	87.42	2.00	0.00	0.79	0.00
12.34	90.42	2.00	0.00	0.79	0.00	12.42	99.57	2.00	0.00	0.79	0.00
12.48	113.88	2.00	0.00	0.79	0.00	12.54	131.46	2.00	0.00	0.79	0.00
12.63	145.06	2.00	0.00	0.79	0.00	12.67	151.70	2.00	0.00	0.79	0.00
12.74	146.53	2.00	0.00	0.78	0.00	12.81	137.78	2.00	0.00	0.78	0.00
12.87	127.60	2.00	0.00	0.78	0.00	12.93	118.15	2.00	0.00	0.78	0.00
12.99	115.77	2.00	0.00	0.78	0.00	13.08	117.25	2.00	0.00	0.78	0.00
13.15	117.08	0.34	1.60	0.78	0.01	13.22	119.34	0.35	1.57	0.78	0.01
13.27	122.97	0.37	1.53	0.78	0.01	13.33	124.33	0.38	1.51	0.77	0.01
13.40	122.83	0.37	1.53	0.77	0.01	13.46	111.75	0.30	1.65	0.77	0.01
13.55	104.75	0.27	1.73	0.77	0.02	13.59	110.44	0.30	1.66	0.77	0.01
13.66	119.81	0.35	1.55	0.77	0.01	13.71	125.42	0.38	1.49	0.77	0.01
13.80	124.61	0.37	1.49	0.77	0.02	13.86	122.06	0.36	1.52	0.77	0.01
13.93	120.28	0.35	1.53	0.76	0.01	13.98	118.64	0.34	1.55	0.76	0.01
14.05	116.33	0.32	1.57	0.76	0.01	14.13	113.79	0.31	1.60	0.76	0.01
14.19	113.69	0.31	1.60	0.76	0.01	14.25	113.58	0.31	1.60	0.76	0.01

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
14.31	115.40	0.32	1.57	0.76	0.01	14.39	117.46	0.33	1.55	0.76	0.01
14.44	123.62	0.36	1.48	0.76	0.01	14.53	132.63	0.42	1.40	0.75	0.02
14.59	147.41	0.53	1.28	0.75	0.01	14.66	157.78	0.63	1.18	0.75	0.01
14.70	171.17	0.77	0.70	0.75	0.00	14.77	190.19	1.01	0.36	0.75	0.00
14.84	204.66	2.00	0.00	0.75	0.00	14.90	220.62	2.00	0.00	0.75	0.00
14.98	231.84	2.00	0.00	0.75	0.00	15.04	235.51	2.00	0.00	0.75	0.00
15.11	231.46	2.00	0.00	0.74	0.00	15.16	222.46	2.00	0.00	0.74	0.00
15.22	214.09	2.00	0.00	0.74	0.00	15.30	205.53	2.00	0.00	0.74	0.00
15.36	195.67	1.08	0.26	0.74	0.00	15.44	181.60	0.88	0.48	0.74	0.00
15.51	171.05	0.75	0.68	0.74	0.01	15.55	180.21	0.86	0.48	0.74	0.00
15.63	189.92	0.99	0.36	0.74	0.00	15.69	192.32	1.02	0.35	0.73	0.00
15.76	199.07	1.12	0.26	0.73	0.00	15.85	210.25	2.00	0.00	0.73	0.00
15.90	216.99	2.00	0.00	0.73	0.00	15.96	224.02	2.00	0.00	0.73	0.00
16.04	230.28	2.00	0.00	0.73	0.00	16.09	236.13	2.00	0.00	0.73	0.00
16.15	240.67	2.00	0.00	0.73	0.00	16.21	244.40	2.00	0.00	0.73	0.00
16.28	248.08	2.00	0.00	0.72	0.00	16.34	256.62	2.00	0.00	0.72	0.00
16.43	267.64	2.00	0.00	0.72	0.00	16.48	276.14	2.00	0.00	0.72	0.00
16.56	277.86	2.00	0.00	0.72	0.00	16.62	274.76	2.00	0.00	0.72	0.00
16.68	266.93	2.00	0.00	0.72	0.00	16.75	255.81	2.00	0.00	0.72	0.00
16.81	242.19	2.00	0.00	0.72	0.00	16.87	228.65	2.00	0.00	0.71	0.00
16.94	215.44	2.00	0.00	0.71	0.00	17.00	204.40	2.00	0.00	0.71	0.00
17.07	198.97	2.00	0.00	0.71	0.00	17.16	202.24	2.00	0.00	0.71	0.00
17.21	209.53	2.00	0.00	0.71	0.00	17.26	208.74	2.00	0.00	0.71	0.00
17.34	201.26	2.00	0.00	0.71	0.00	17.41	187.31	2.00	0.00	0.70	0.00
17.49	175.47	2.00	0.00	0.70	0.00	17.54	164.86	2.00	0.00	0.70	0.00
17.60	156.59	2.00	0.00	0.70	0.00	17.66	147.39	2.00	0.00	0.70	0.00
17.74	138.50	2.00	0.00	0.70	0.00	17.79	130.52	2.00	0.00	0.70	0.00
17.87	125.83	2.00	0.00	0.70	0.00	17.93	123.56	2.00	0.00	0.70	0.00
17.99	123.96	2.00	0.00	0.70	0.00	18.06	124.08	2.00	0.00	0.69	0.00
18.11	123.86	2.00	0.00	0.69	0.00	18.18	124.12	2.00	0.00	0.69	0.00
18.24	125.95	2.00	0.00	0.69	0.00	18.33	125.32	2.00	0.00	0.69	0.00
18.38	120.13	2.00	0.00	0.69	0.00	18.46	114.69	2.00	0.00	0.69	0.00
18.51	113.78	2.00	0.00	0.69	0.00	18.58	117.10	2.00	0.00	0.69	0.00
18.64	119.43	2.00	0.00	0.68	0.00	18.71	115.37	2.00	0.00	0.68	0.00
18.77	109.54	2.00	0.00	0.68	0.00	18.87	103.72	2.00	0.00	0.68	0.00
18.90	101.93	2.00	0.00	0.68	0.00	18.96	100.62	2.00	0.00	0.68	0.00
19.05	100.12	2.00	0.00	0.68	0.00	19.11	101.09	2.00	0.00	0.68	0.00
19.16	105.76	2.00	0.00	0.68	0.00	19.24	111.85	2.00	0.00	0.67	0.00
19.31	119.52	2.00	0.00	0.67	0.00	19.36	126.86	2.00	0.00	0.67	0.00
19.43	131.64	2.00	0.00	0.67	0.00	19.50	135.37	2.00	0.00	0.67	0.00
19.58	136.98	2.00	0.00	0.67	0.00	19.65	139.53	2.00	0.00	0.67	0.00
19.69	140.57	2.00	0.00	0.67	0.00	19.77	140.16	2.00	0.00	0.66	0.00
19.83	135.65	2.00	0.00	0.66	0.00	19.89	125.51	2.00	0.00	0.66	0.00
19.95	112.74	2.00	0.00	0.66	0.00	20.02	98.89	2.00	0.00	0.66	0.00
20.08	90.96	2.00	0.00	0.66	0.00	20.16	92.22	2.00	0.00	0.66	0.00
20.23	97.98	2.00	0.00	0.66	0.00	20.28	101.10	2.00	0.00	0.66	0.00
20.35	101.06	2.00	0.00	0.66	0.00	20.41	99.02	2.00	0.00	0.65	0.00
20.47	96.67	2.00	0.00	0.65	0.00	20.57	95.53	2.00	0.00	0.65	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
20.61	97.13	2.00	0.00	0.65	0.00	20.67	101.26	2.00	0.00	0.65	0.00
20.74	108.21	2.00	0.00	0.65	0.00	20.80	118.36	2.00	0.00	0.65	0.00
20.87	128.63	2.00	0.00	0.65	0.00	20.93	136.74	2.00	0.00	0.65	0.00
21.01	141.22	0.43	1.13	0.64	0.01	21.08	144.71	0.46	1.11	0.64	0.01
21.15	150.13	0.50	1.07	0.64	0.01	21.20	157.21	2.00	0.00	0.64	0.00
21.27	163.21	2.00	0.00	0.64	0.00	21.35	166.20	2.00	0.00	0.64	0.00
21.42	165.79	2.00	0.00	0.64	0.00	21.47	162.65	2.00	0.00	0.64	0.00
21.54	155.07	2.00	0.00	0.63	0.00	21.59	136.26	2.00	0.00	0.63	0.00
21.66	119.24	2.00	0.00	0.63	0.00	21.73	108.04	2.00	0.00	0.63	0.00
21.79	112.50	2.00	0.00	0.63	0.00	21.88	117.58	2.00	0.00	0.63	0.00
21.93	121.79	2.00	0.00	0.63	0.00	21.98	125.53	2.00	0.00	0.63	0.00
22.06	126.09	2.00	0.00	0.63	0.00	22.12	123.93	2.00	0.00	0.63	0.00
22.18	118.80	2.00	0.00	0.62	0.00	22.27	113.66	2.00	0.00	0.62	0.00
22.33	110.95	2.00	0.00	0.62	0.00	22.40	111.31	2.00	0.00	0.62	0.00
22.46	114.04	2.00	0.00	0.62	0.00	22.51	118.45	2.00	0.00	0.62	0.00
22.58	122.94	2.00	0.00	0.62	0.00	22.64	126.29	2.00	0.00	0.62	0.00
22.72	127.16	2.00	0.00	0.61	0.00	22.80	126.06	2.00	0.00	0.61	0.00
22.86	122.83	2.00	0.00	0.61	0.00	22.91	113.69	2.00	0.00	0.61	0.00
22.99	102.72	2.00	0.00	0.61	0.00	23.05	95.60	2.00	0.00	0.61	0.00
23.10	96.30	0.20	1.47	0.61	0.01	23.18	102.22	0.22	1.39	0.61	0.01
23.25	111.64	2.00	0.00	0.61	0.00	23.30	120.76	2.00	0.00	0.61	0.00
23.37	126.86	2.00	0.00	0.60	0.00	23.43	133.36	2.00	0.00	0.60	0.00
23.52	137.90	2.00	0.00	0.60	0.00	23.58	141.42	2.00	0.00	0.60	0.00
23.62	137.10	2.00	0.00	0.60	0.00	23.69	126.41	2.00	0.00	0.60	0.00
23.77	114.58	2.00	0.00	0.60	0.00	23.83	107.50	2.00	0.00	0.60	0.00
23.89	106.29	2.00	0.00	0.60	0.00	23.96	107.34	2.00	0.00	0.59	0.00
24.02	106.72	2.00	0.00	0.59	0.00	24.10	104.27	2.00	0.00	0.59	0.00
24.16	100.89	2.00	0.00	0.59	0.00	24.21	97.91	0.21	1.40	0.59	0.01
24.30	95.57	0.20	1.43	0.59	0.02	24.36	94.18	0.19	1.44	0.59	0.01
24.42	94.06	0.19	1.44	0.59	0.01	24.50	95.11	0.20	1.42	0.58	0.01
24.55	97.01	0.20	1.40	0.58	0.01	24.61	99.15	0.21	1.37	0.58	0.01
24.68	100.88	0.22	1.35	0.58	0.01	24.74	101.93	0.22	1.34	0.58	0.01
24.80	102.61	0.22	1.33	0.58	0.01	24.89	103.30	0.22	1.32	0.58	0.01
24.94	104.15	0.23	1.30	0.58	0.01	25.01	104.78	0.23	1.30	0.58	0.01
25.07	105.01	0.23	1.29	0.58	0.01	25.14	100.59	0.21	1.33	0.57	0.01
25.21	92.34	0.19	1.43	0.57	0.01	25.26	87.26	0.17	1.49	0.57	0.01
25.34	86.44	0.17	1.50	0.57	0.01	25.41	89.96	0.18	1.45	0.57	0.01
25.47	93.91	0.19	1.40	0.57	0.01	25.53	95.33	0.20	1.38	0.57	0.01
25.59	99.38	0.21	1.33	0.57	0.01	25.68	103.68	2.00	0.00	0.56	0.00
25.72	111.08	2.00	0.00	0.56	0.00	25.79	116.18	2.00	0.00	0.56	0.00
25.88	122.21	2.00	0.00	0.56	0.00	25.93	132.38	2.00	0.00	0.56	0.00
25.99	141.21	2.00	0.00	0.56	0.00	26.06	148.07	2.00	0.00	0.56	0.00
26.13	152.10	2.00	0.00	0.56	0.00	26.18	154.58	2.00	0.00	0.56	0.00
26.25	153.35	2.00	0.00	0.56	0.00	26.32	141.40	2.00	0.00	0.55	0.00
26.41	125.61	2.00	0.00	0.55	0.00	26.47	110.75	2.00	0.00	0.55	0.00
26.51	102.40	2.00	0.00	0.55	0.00	26.59	96.89	2.00	0.00	0.55	0.00
26.64	93.14	2.00	0.00	0.55	0.00	26.71	90.99	2.00	0.00	0.55	0.00
26.78	90.45	2.00	0.00	0.55	0.00	26.85	93.24	2.00	0.00	0.54	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
26.91	100.15	2.00	0.00	0.54	0.00	26.98	108.00	2.00	0.00	0.54	0.00
27.05	114.03	2.00	0.00	0.54	0.00	27.10	120.22	2.00	0.00	0.54	0.00
27.18	126.74	2.00	0.00	0.54	0.00	27.25	133.62	2.00	0.00	0.54	0.00
27.30	140.74	2.00	0.00	0.54	0.00	27.37	145.59	2.00	0.00	0.54	0.00
27.44	146.21	2.00	0.00	0.53	0.00	27.52	142.01	2.00	0.00	0.53	0.00
27.58	137.29	2.00	0.00	0.53	0.00	27.64	132.85	2.00	0.00	0.53	0.00
27.71	128.94	2.00	0.00	0.53	0.00	27.77	126.14	2.00	0.00	0.53	0.00
27.82	123.16	2.00	0.00	0.53	0.00	27.89	122.68	2.00	0.00	0.53	0.00
27.95	130.19	2.00	0.00	0.53	0.00	28.03	146.27	2.00	0.00	0.52	0.00
28.10	162.32	2.00	0.00	0.52	0.00	28.16	173.92	2.00	0.00	0.52	0.00
28.22	184.30	0.80	0.43	0.52	0.00	28.29	194.75	0.92	0.30	0.52	0.00
28.35	207.20	2.00	0.00	0.52	0.00	28.45	210.53	2.00	0.00	0.52	0.00
28.50	228.09	2.00	0.00	0.52	0.00	28.56	252.91	2.00	0.00	0.52	0.00
28.63	275.78	2.00	0.00	0.51	0.00	28.69	294.26	2.00	0.00	0.51	0.00
28.75	297.30	2.00	0.00	0.51	0.00	28.82	302.69	2.00	0.00	0.51	0.00
28.90	307.34	2.00	0.00	0.51	0.00	28.95	320.84	2.00	0.00	0.51	0.00
29.04	334.71	2.00	0.00	0.51	0.00	29.09	353.28	2.00	0.00	0.51	0.00
29.14	362.88	2.00	0.00	0.51	0.00	29.21	364.56	2.00	0.00	0.50	0.00
29.29	358.55	2.00	0.00	0.50	0.00	29.34	346.29	2.00	0.00	0.50	0.00
29.42	330.99	2.00	0.00	0.50	0.00	29.48	316.24	2.00	0.00	0.50	0.00
29.54	302.59	2.00	0.00	0.50	0.00	29.61	290.47	2.00	0.00	0.50	0.00
29.67	280.52	2.00	0.00	0.50	0.00	29.73	273.75	2.00	0.00	0.50	0.00
29.80	269.18	2.00	0.00	0.49	0.00	29.86	264.88	2.00	0.00	0.49	0.00
29.95	260.63	2.00	0.00	0.49	0.00	30.01	255.41	2.00	0.00	0.49	0.00
30.07	249.36	2.00	0.00	0.49	0.00	30.14	243.25	2.00	0.00	0.49	0.00
30.20	238.20	2.00	0.00	0.49	0.00	30.25	234.63	2.00	0.00	0.49	0.00
30.33	231.92	2.00	0.00	0.49	0.00	30.38	230.71	2.00	0.00	0.49	0.00
30.46	232.13	2.00	0.00	0.48	0.00	30.53	235.42	2.00	0.00	0.48	0.00
30.59	239.43	2.00	0.00	0.48	0.00	30.65	242.35	2.00	0.00	0.48	0.00
30.72	243.04	2.00	0.00	0.48	0.00	30.77	240.85	2.00	0.00	0.48	0.00
30.84	234.72	2.00	0.00	0.48	0.00	30.93	227.47	2.00	0.00	0.48	0.00
30.99	220.90	2.00	0.00	0.47	0.00	31.04	218.06	2.00	0.00	0.47	0.00
31.11	215.76	2.00	0.00	0.47	0.00	31.18	215.04	2.00	0.00	0.47	0.00
31.23	214.58	2.00	0.00	0.47	0.00	31.32	214.78	2.00	0.00	0.47	0.00
31.38	214.16	2.00	0.00	0.47	0.00	31.43	212.02	2.00	0.00	0.47	0.00
31.51	208.88	2.00	0.00	0.47	0.00	31.57	204.41	2.00	0.00	0.46	0.00
31.66	197.92	0.95	0.22	0.46	0.00	31.72	189.70	0.85	0.37	0.46	0.00
31.77	182.98	0.77	0.39	0.46	0.00	31.86	180.06	0.74	0.49	0.46	0.00
31.89	181.03	0.75	0.49	0.46	0.00	31.96	182.79	0.77	0.39	0.46	0.00
32.04	183.89	0.78	0.38	0.46	0.00	32.11	184.05	0.78	0.38	0.46	0.00
32.17	182.70	0.77	0.38	0.45	0.00	32.23	180.83	0.75	0.48	0.45	0.00
32.29	178.09	0.72	0.49	0.45	0.00	32.36	175.14	0.69	0.50	0.45	0.00
32.41	172.81	0.66	0.51	0.45	0.00	32.51	171.20	0.65	0.63	0.45	0.01
32.57	170.51	0.64	0.63	0.45	0.00	32.62	170.40	0.64	0.63	0.45	0.00
32.70	170.70	0.64	0.62	0.45	0.01	32.75	171.22	0.65	0.62	0.44	0.00
32.81	172.48	0.66	0.50	0.44	0.00	32.88	174.43	0.68	0.49	0.44	0.00
32.94	178.43	0.72	0.48	0.44	0.00	33.04	183.77	0.78	0.37	0.44	0.00
33.10	190.40	0.85	0.27	0.44	0.00	33.15	197.77	0.94	0.25	0.44	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
33.23	204.50	2.00	0.00	0.44	0.00	33.29	210.18	2.00	0.00	0.44	0.00
33.35	214.14	2.00	0.00	0.43	0.00	33.42	217.00	2.00	0.00	0.43	0.00
33.48	219.30	2.00	0.00	0.43	0.00	33.54	221.42	2.00	0.00	0.43	0.00
33.60	224.51	2.00	0.00	0.43	0.00	33.69	227.28	2.00	0.00	0.43	0.00
33.74	229.14	2.00	0.00	0.43	0.00	33.81	228.63	2.00	0.00	0.43	0.00
33.86	226.32	2.00	0.00	0.43	0.00	33.93	221.90	2.00	0.00	0.42	0.00
33.99	215.76	2.00	0.00	0.42	0.00	34.07	209.43	2.00	0.00	0.42	0.00
34.12	202.48	2.00	0.00	0.42	0.00	34.21	196.45	0.92	0.24	0.42	0.00
34.27	190.51	0.85	0.25	0.42	0.00	34.32	186.15	0.80	0.34	0.42	0.00
34.39	182.13	0.76	0.35	0.42	0.00	34.46	177.76	0.71	0.45	0.42	0.00
34.55	173.64	0.67	0.47	0.41	0.00	34.61	169.71	0.63	0.58	0.41	0.00
34.66	166.31	0.60	0.60	0.41	0.00	34.71	162.62	0.56	0.62	0.41	0.00
34.80	159.01	0.53	0.66	0.41	0.01	34.85	155.77	0.51	0.66	0.41	0.00
34.92	152.35	0.48	0.68	0.41	0.01	34.98	147.90	0.45	0.69	0.41	0.01
35.04	144.23	0.42	0.70	0.41	0.00	35.11	141.90	0.41	0.71	0.40	0.01
35.20	141.42	0.40	0.71	0.40	0.01	35.24	140.65	0.40	0.71	0.40	0.00
35.31	138.25	0.38	0.72	0.40	0.01	35.39	135.94	0.37	0.73	0.40	0.01
35.44	133.86	0.36	0.73	0.40	0.01	35.50	133.04	0.35	0.74	0.40	0.01
35.58	131.80	0.34	0.74	0.40	0.01	35.65	130.22	0.34	0.74	0.40	0.01
35.73	128.36	0.32	0.75	0.39	0.01	35.78	126.46	0.31	0.76	0.39	0.00
35.84	124.55	0.30	0.77	0.39	0.01	35.90	122.52	0.29	0.77	0.39	0.01
35.98	120.47	0.28	0.78	0.39	0.01	36.03	118.73	0.28	0.79	0.39	0.01
36.10	117.32	0.27	0.80	0.39	0.01	36.16	116.22	0.27	0.80	0.39	0.01
36.23	116.49	0.27	0.80	0.39	0.01	36.32	117.90	0.27	0.78	0.38	0.01
36.35	122.09	0.29	0.76	0.38	0.00	36.42	128.07	0.32	0.73	0.38	0.01
36.50	135.17	0.36	0.70	0.38	0.01	36.57	141.52	0.40	0.67	0.38	0.01
36.62	148.71	0.45	0.64	0.38	0.00	36.71	154.90	0.50	0.62	0.38	0.01
36.76	161.05	0.55	0.60	0.38	0.00	36.84	164.88	0.58	0.55	0.38	0.01
36.91	167.79	0.61	0.54	0.37	0.00	36.95	168.74	0.62	0.53	0.37	0.00
37.02	168.09	0.61	0.53	0.37	0.00	37.08	166.13	0.59	0.54	0.37	0.00
37.15	162.90	0.57	0.55	0.37	0.00	37.23	159.87	0.54	0.59	0.37	0.01
37.29	157.91	0.52	0.59	0.37	0.00	37.34	158.57	0.53	0.59	0.37	0.00
37.42	160.42	0.54	0.58	0.37	0.01	37.47	162.32	0.56	0.55	0.36	0.00
37.55	162.33	0.56	0.55	0.36	0.00	37.62	160.68	0.55	0.57	0.36	0.01
37.69	158.03	0.52	0.58	0.36	0.00	37.74	155.13	0.50	0.59	0.36	0.00
37.82	152.44	0.48	0.59	0.36	0.01	37.88	150.25	0.46	0.60	0.36	0.00
37.93	148.73	0.45	0.60	0.36	0.00	38.00	147.65	0.45	0.60	0.36	0.00
38.06	146.94	0.44	0.60	0.35	0.00	38.12	146.54	0.44	0.60	0.35	0.00
38.20	146.22	0.44	0.60	0.35	0.01	38.26	146.00	0.43	0.60	0.35	0.00
38.33	145.80	0.43	0.60	0.35	0.01	38.39	145.58	0.43	0.60	0.35	0.00
38.45	143.47	0.42	0.61	0.35	0.00	38.53	137.71	0.38	0.62	0.35	0.01
38.58	126.30	0.31	0.67	0.35	0.00	38.66	117.60	0.27	0.71	0.34	0.01
38.73	120.50	0.28	0.69	0.34	0.01	38.79	124.21	0.30	0.67	0.34	0.00
38.85	133.43	0.35	0.63	0.34	0.00	38.93	142.07	0.41	0.60	0.34	0.01
38.98	154.11	0.49	0.56	0.34	0.00	39.06	167.22	0.60	0.49	0.34	0.00
39.13	179.86	0.73	0.36	0.34	0.00	39.19	187.57	0.82	0.27	0.34	0.00
39.25	191.63	0.86	0.20	0.33	0.00	39.32	192.08	0.87	0.20	0.33	0.00
39.38	189.37	0.84	0.27	0.33	0.00	39.44	182.85	0.76	0.28	0.33	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
39.52	175.00	0.68	0.37	0.33	0.00	39.57	163.83	0.57	0.49	0.33	0.00
39.67	153.34	0.49	0.54	0.33	0.01	39.72	142.25	0.41	0.57	0.33	0.00
39.77	133.18	0.35	0.60	0.33	0.00	39.85	124.61	0.31	0.63	0.32	0.01
39.91	117.00	0.27	0.66	0.32	0.01	39.96	111.39	0.25	0.69	0.32	0.00
40.04	107.85	0.23	0.71	0.32	0.01	40.09	105.99	0.22	0.71	0.32	0.00
40.16	105.13	0.22	0.72	0.32	0.01	40.25	104.27	0.22	0.72	0.32	0.01
40.30	103.53	0.22	0.72	0.32	0.00	40.38	103.04	0.21	0.72	0.32	0.01
40.44	102.87	0.21	0.72	0.31	0.01	40.50	103.39	0.22	0.71	0.31	0.01
40.59	103.72	0.22	0.71	0.31	0.01	40.63	104.36	0.22	0.70	0.31	0.00
40.70	104.87	0.22	0.70	0.31	0.01	40.77	105.67	0.22	0.69	0.31	0.01
40.82	106.46	0.23	0.68	0.31	0.00	40.88	107.25	0.23	0.68	0.31	0.01
40.95	108.21	0.23	0.67	0.31	0.01	41.03	109.22	0.24	0.66	0.30	0.01
41.08	110.97	0.24	0.65	0.30	0.00	41.16	113.15	0.25	0.64	0.30	0.01
41.22	116.08	0.27	0.62	0.30	0.00	41.27	120.13	0.28	0.60	0.30	0.00
41.37	124.30	0.31	0.58	0.30	0.01	41.42	128.39	0.33	0.57	0.30	0.00
41.49	131.45	0.34	0.55	0.30	0.00	41.55	134.44	0.36	0.54	0.30	0.00
41.62	134.77	0.36	0.54	0.29	0.00	41.69	131.23	0.34	0.55	0.29	0.00
41.74	123.21	0.30	0.58	0.29	0.00	41.80	116.98	0.27	0.60	0.29	0.00
41.89	112.22	0.25	0.62	0.29	0.01	41.95	107.73	0.23	0.64	0.29	0.01
42.00	104.97	0.22	0.65	0.29	0.00	42.06	105.37	0.22	0.64	0.29	0.00
42.16	106.52	0.23	0.63	0.29	0.01	42.21	105.04	0.22	0.64	0.28	0.00
42.26	100.74	0.21	0.66	0.28	0.00	42.34	95.85	0.19	0.68	0.28	0.01
42.40	90.92	0.18	0.71	0.28	0.00	42.50	88.63	0.17	0.72	0.28	0.01
42.55	87.29	0.17	0.73	0.28	0.00	42.59	87.49	0.17	0.73	0.28	0.00
42.69	88.60	0.17	0.71	0.28	0.01	42.73	90.84	0.18	0.70	0.28	0.00
42.78	95.47	0.19	0.67	0.27	0.00	42.87	100.46	0.21	0.64	0.27	0.01
42.94	104.17	0.22	0.62	0.27	0.00	42.99	105.98	0.23	0.60	0.27	0.00
43.05	107.60	2.00	0.00	0.27	0.00	43.11	109.15	2.00	0.00	0.27	0.00
43.18	110.76	2.00	0.00	0.27	0.00	43.28	111.74	2.00	0.00	0.27	0.00
43.33	112.38	2.00	0.00	0.27	0.00	43.38	112.24	2.00	0.00	0.26	0.00
43.45	112.58	2.00	0.00	0.26	0.00	43.52	114.63	2.00	0.00	0.26	0.00
43.57	121.94	2.00	0.00	0.26	0.00	43.65	133.67	2.00	0.00	0.26	0.00
43.71	147.91	2.00	0.00	0.26	0.00	43.77	155.81	2.00	0.00	0.26	0.00
43.84	160.63	2.00	0.00	0.26	0.00	43.91	160.44	2.00	0.00	0.26	0.00
43.97	152.62	2.00	0.00	0.25	0.00	44.05	137.62	2.00	0.00	0.25	0.00
44.11	120.57	2.00	0.00	0.25	0.00	44.18	112.11	2.00	0.00	0.25	0.00
44.24	109.09	2.00	0.00	0.25	0.00	44.29	107.52	2.00	0.00	0.25	0.00
44.36	106.62	2.00	0.00	0.25	0.00	44.42	106.04	2.00	0.00	0.25	0.00
44.50	105.97	2.00	0.00	0.25	0.00	44.58	106.57	2.00	0.00	0.24	0.00
44.63	107.00	2.00	0.00	0.24	0.00	44.69	106.50	0.23	0.54	0.24	0.00
44.78	105.97	0.23	0.54	0.24	0.01	44.83	105.25	0.23	0.54	0.24	0.00
44.91	105.15	0.23	0.54	0.24	0.00	44.97	104.21	0.22	0.54	0.24	0.00
45.03	104.24	0.22	0.53	0.24	0.00	45.13	104.59	0.22	0.53	0.24	0.01
45.15	104.81	0.22	0.53	0.23	0.00	45.22	102.66	0.22	0.53	0.23	0.00
45.29	101.29	0.21	0.54	0.23	0.00	45.35	100.41	0.21	0.54	0.23	0.00
45.42	101.85	0.21	0.53	0.23	0.00	45.51	102.84	0.22	0.52	0.23	0.01
45.56	103.91	0.22	0.52	0.23	0.00	45.61	104.87	0.23	0.51	0.23	0.00
45.70	105.92	0.23	0.50	0.23	0.01	45.76	107.50	0.24	0.49	0.22	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
45.81	109.03	0.24	0.49	0.22	0.00	45.88	110.26	0.25	0.48	0.22	0.00
45.95	111.36	0.25	0.47	0.22	0.00	46.00	111.98	0.25	0.47	0.22	0.00
46.10	111.93	0.25	0.47	0.22	0.01	46.13	111.26	0.25	0.47	0.22	0.00
46.20	110.89	0.25	0.47	0.22	0.00	46.29	111.36	0.25	0.46	0.22	0.01
46.34	112.90	0.26	0.45	0.21	0.00	46.39	115.15	0.27	0.44	0.21	0.00
46.47	117.32	0.28	0.44	0.21	0.00	46.53	118.62	0.28	0.43	0.21	0.00
46.63	118.27	0.28	0.43	0.21	0.01	46.68	117.09	0.28	0.43	0.21	0.00
46.72	115.22	0.27	0.43	0.21	0.00	46.79	113.19	0.26	0.44	0.21	0.00
46.88	111.22	0.25	0.44	0.21	0.00	46.93	110.09	0.25	0.44	0.20	0.00
47.01	110.78	0.25	0.44	0.20	0.00	47.07	113.30	0.26	0.43	0.20	0.00
47.12	116.79	0.28	0.41	0.20	0.00	47.18	120.30	0.29	0.40	0.20	0.00
47.25	124.80	0.32	0.39	0.20	0.00	47.32	131.58	0.35	0.37	0.20	0.00
47.41	140.70	0.41	0.35	0.20	0.00	47.46	150.53	0.48	0.33	0.20	0.00
47.51	160.62	0.57	0.30	0.19	0.00	47.59	169.42	0.65	0.27	0.19	0.00
47.65	177.90	0.74	0.21	0.19	0.00	47.74	184.09	0.80	0.16	0.19	0.00
47.80	189.20	0.87	0.12	0.19	0.00	47.85	191.89	0.90	0.11	0.19	0.00
47.90	191.82	0.90	0.11	0.19	0.00	47.97	189.56	0.87	0.11	0.19	0.00
48.04	185.49	0.82	0.15	0.19	0.00	48.10	180.54	0.77	0.16	0.18	0.00
48.19	176.09	0.72	0.20	0.18	0.00	48.23	172.55	0.68	0.21	0.18	0.00
48.32	168.66	0.64	0.26	0.18	0.00	48.38	166.73	0.63	0.26	0.18	0.00
48.43	167.90	0.64	0.26	0.18	0.00	48.49	175.13	0.71	0.20	0.18	0.00
48.56	180.24	0.77	0.15	0.18	0.00	48.63	189.62	0.88	0.11	0.18	0.00
48.71	197.18	0.97	0.08	0.17	0.00	48.76	207.37	2.00	0.00	0.17	0.00
48.82	213.23	2.00	0.00	0.17	0.00	48.89	218.20	2.00	0.00	0.17	0.00
48.97	221.54	2.00	0.00	0.17	0.00	49.02	223.16	2.00	0.00	0.17	0.00
49.09	225.66	2.00	0.00	0.17	0.00	49.16	230.34	2.00	0.00	0.17	0.00
49.23	236.44	2.00	0.00	0.17	0.00	49.28	242.25	2.00	0.00	0.16	0.00
49.35	246.42	2.00	0.00	0.16	0.00	49.45	248.52	2.00	0.00	0.16	0.00
49.49	249.01	2.00	0.00	0.16	0.00	49.55	248.21	2.00	0.00	0.16	0.00
49.61	246.75	2.00	0.00	0.16	0.00	49.70	244.38	2.00	0.00	0.16	0.00
49.74	241.05	2.00	0.00	0.16	0.00	49.82	238.31	2.00	0.00	0.16	0.00
49.88	236.53	2.00	0.00	0.15	0.00	49.94	237.34	2.00	0.00	0.15	0.00
50.02	238.22	2.00	0.00	0.15	0.00						

Total estimated settlement: 1.87

Abbreviations

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

Landmark Consultants, Inc.
780 N. 4th Street
El Centro, CA 92243

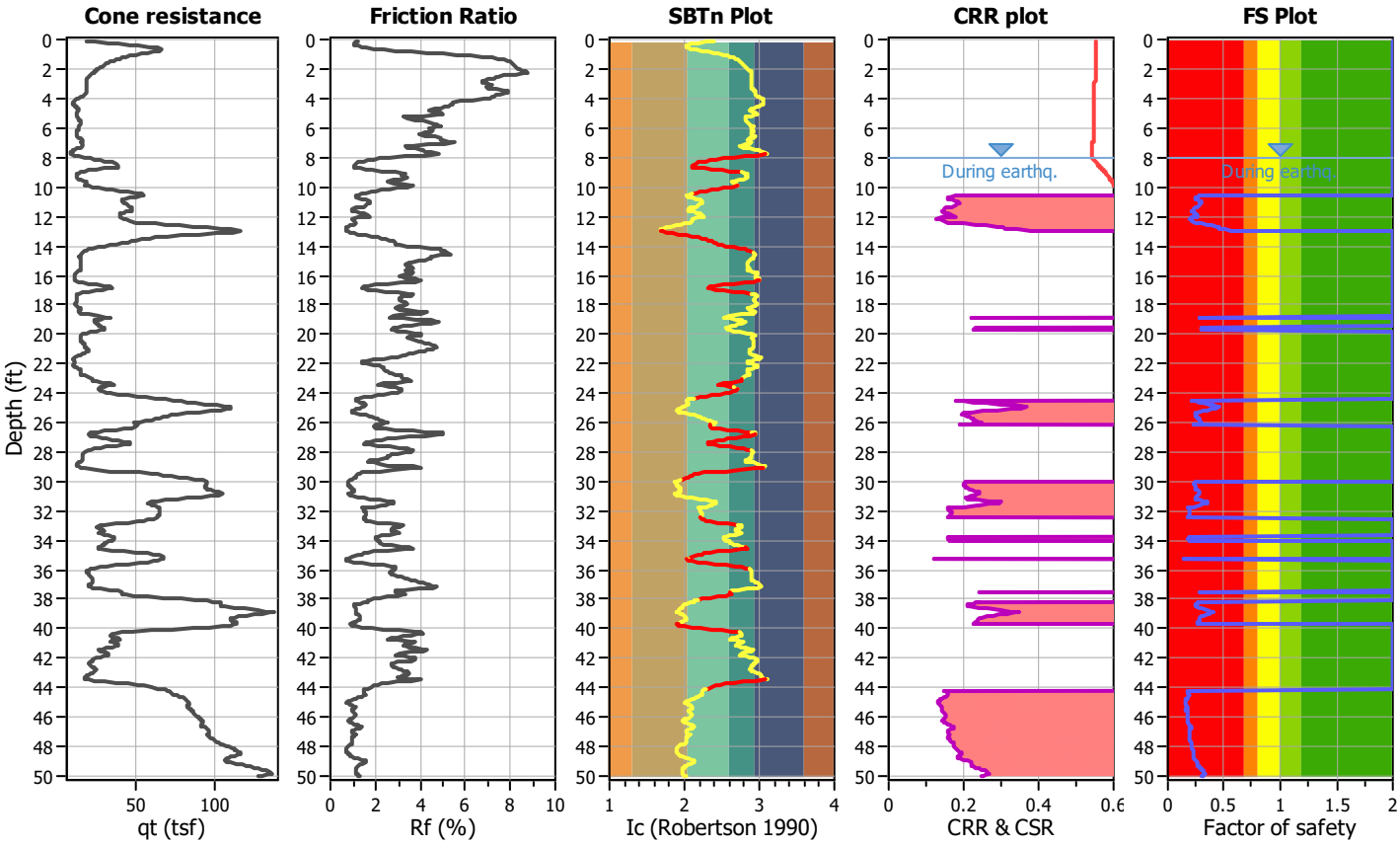
LIQUEFACTION ANALYSIS REPORT

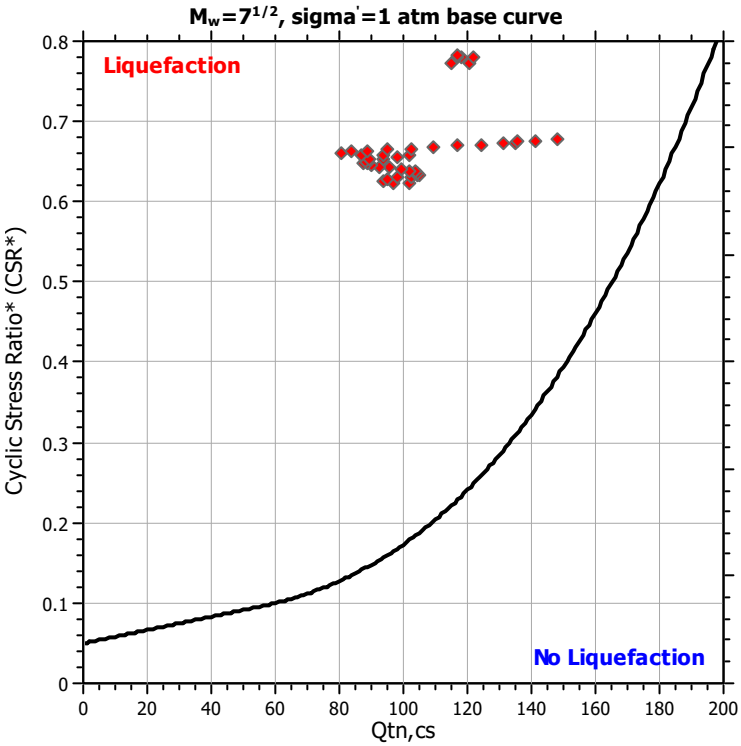
Project title : IV Data Center Campus Site #2 **Location : Imperial, CA**

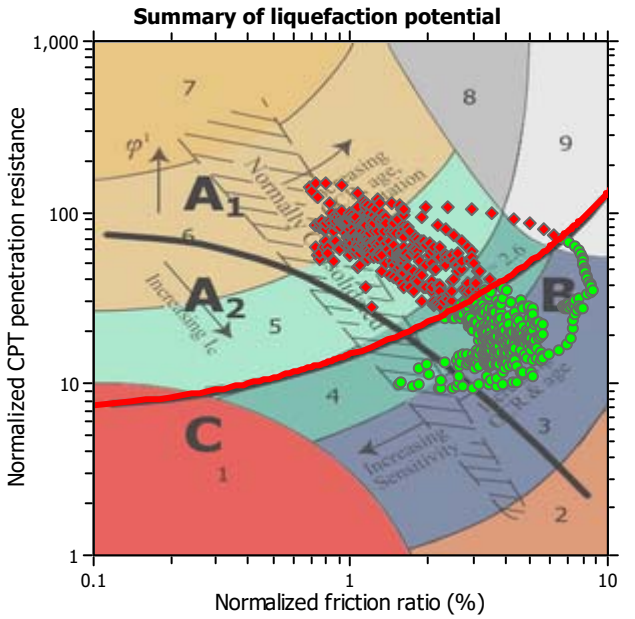
CPT file : CPT-3

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	8.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	8.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.00	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.78	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

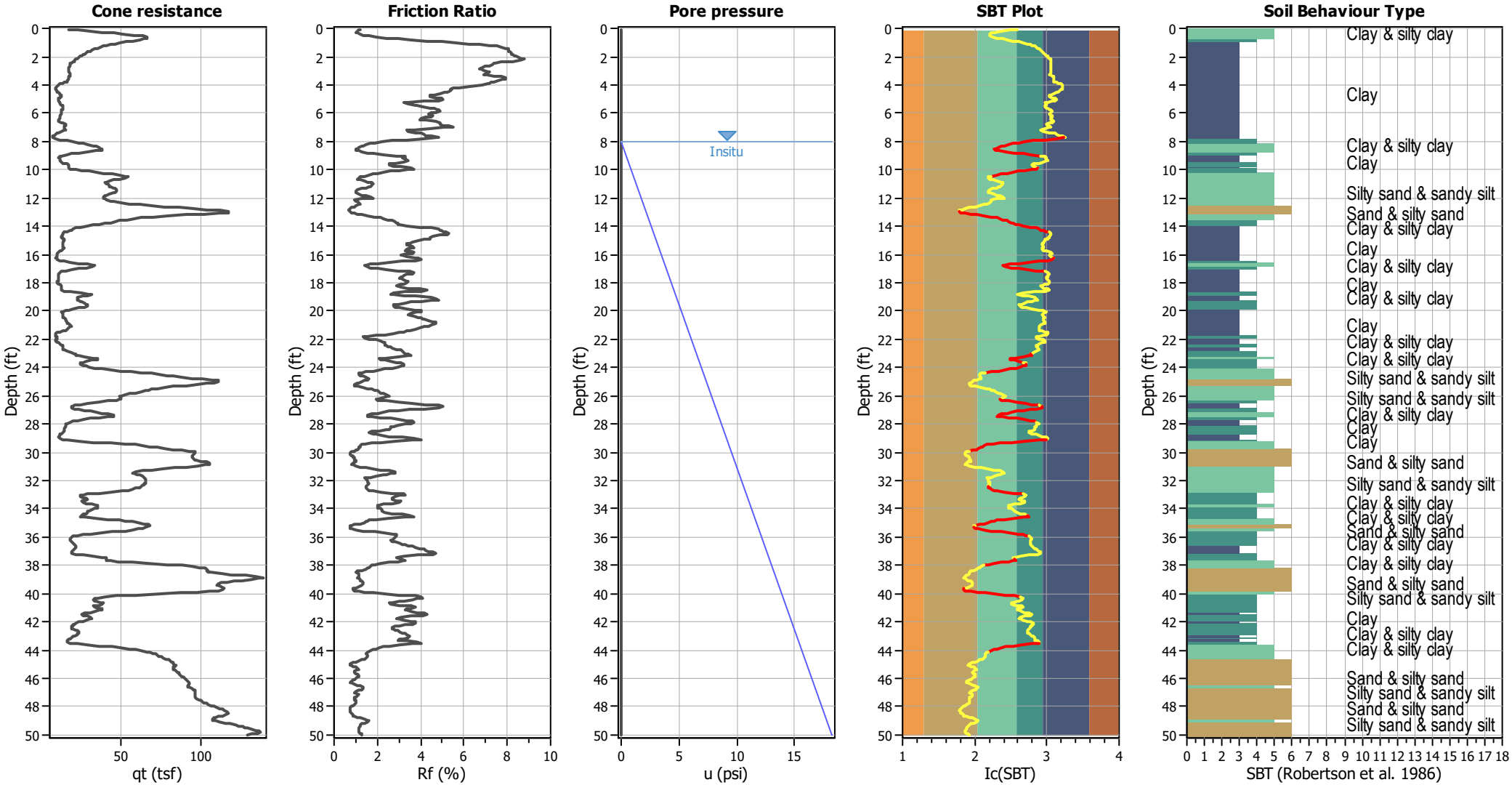






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



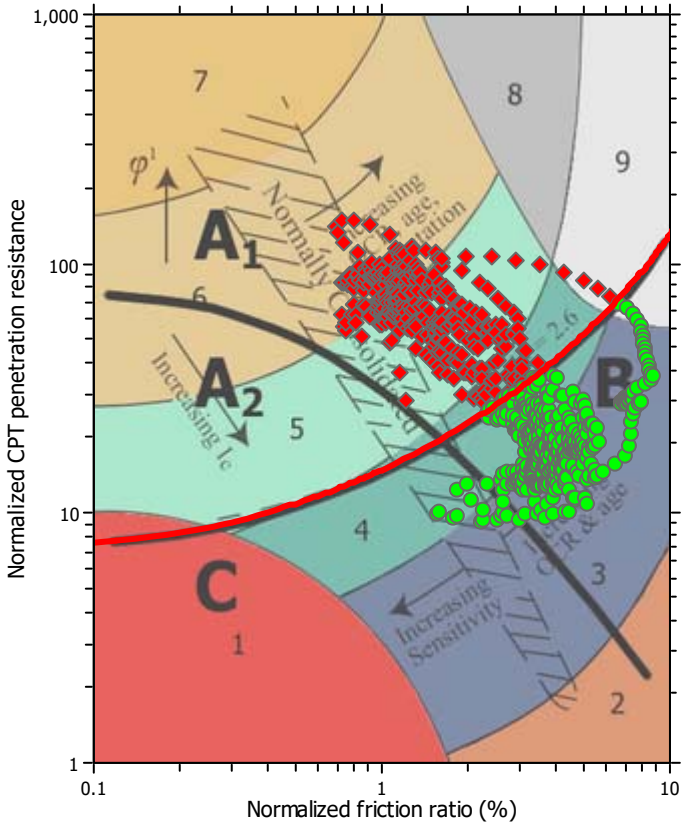
Input parameters and analysis data

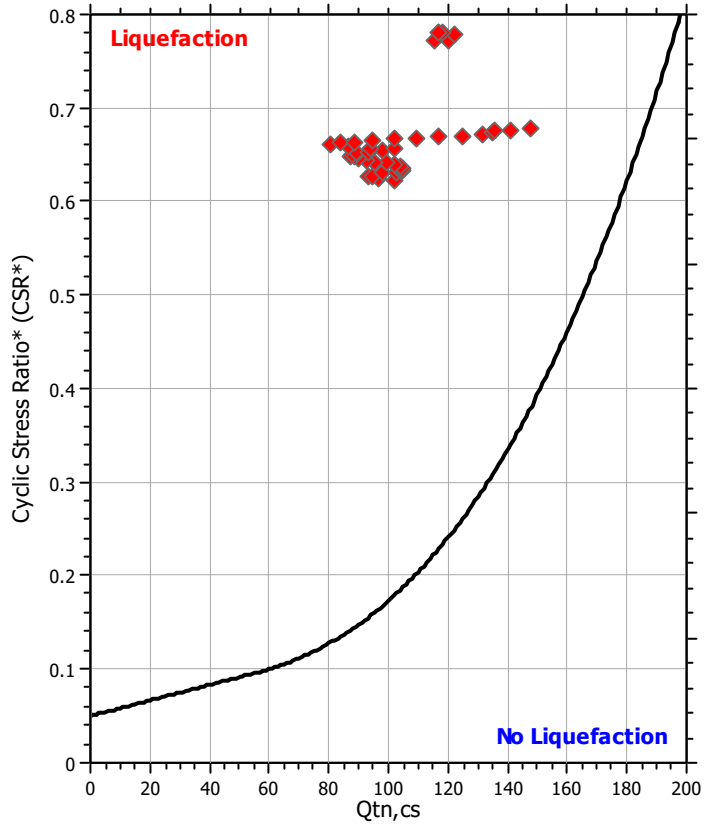
Analysis method:	NCEER (1998)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.78	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	8.00 ft	Fill height:	N/A	Limit depth:	N/A

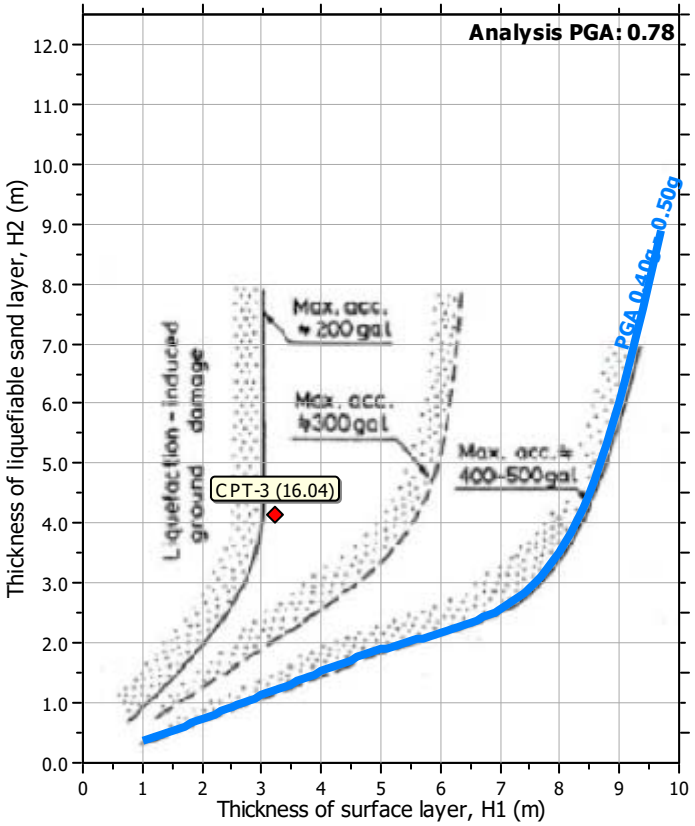
SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

Liquefaction analysis summary plots



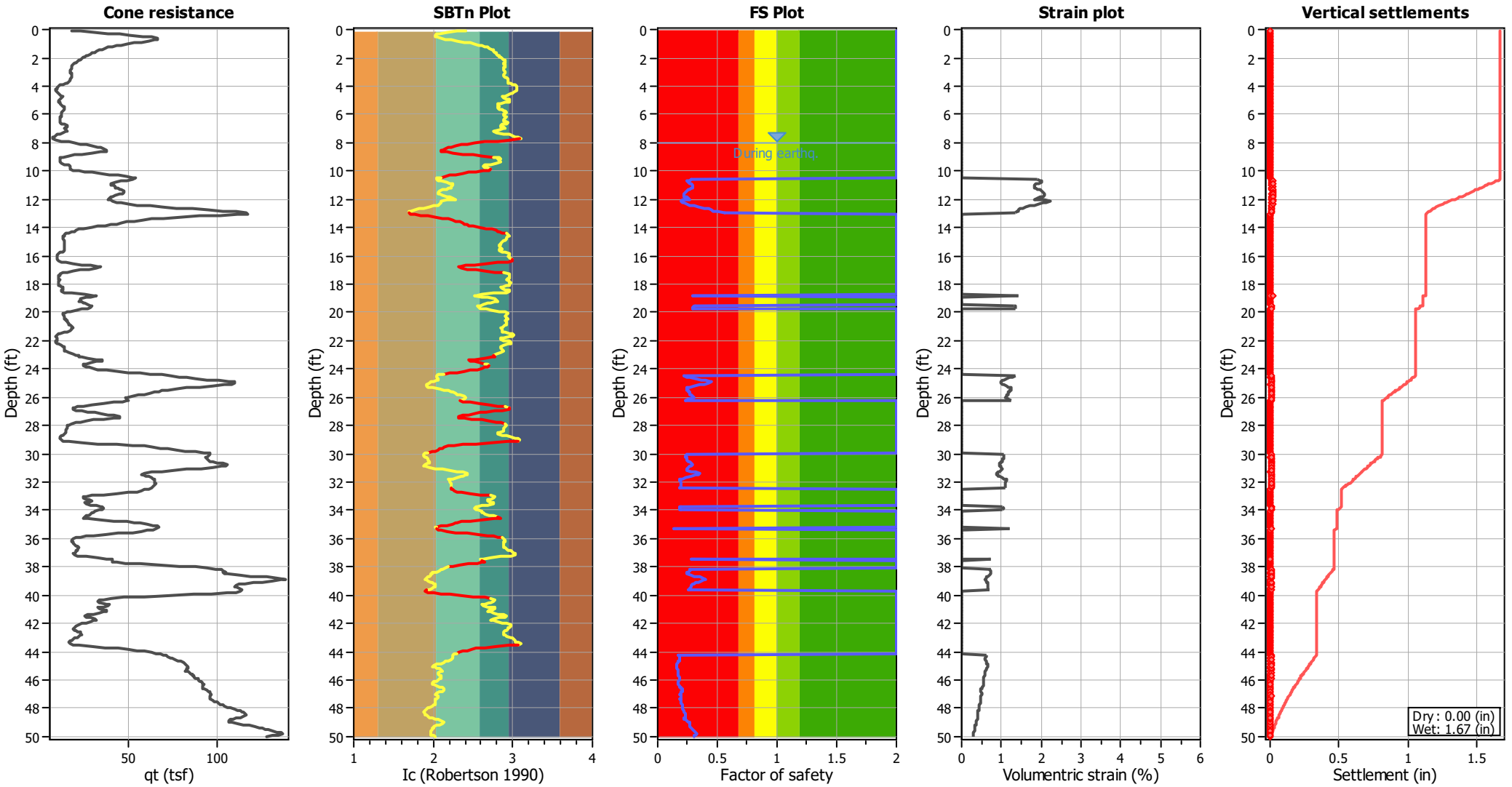




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.78	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	8.00 ft	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
8.02	98.24	2.00	0.00	0.86	0.00	8.09	92.73	2.00	0.00	0.86	0.00
8.14	88.91	2.00	0.00	0.86	0.00	8.22	86.77	2.00	0.00	0.86	0.00
8.29	85.87	2.00	0.00	0.86	0.00	8.34	85.82	2.00	0.00	0.86	0.00
8.41	85.31	2.00	0.00	0.86	0.00	8.48	84.40	2.00	0.00	0.86	0.00
8.54	83.69	2.00	0.00	0.86	0.00	8.61	83.31	2.00	0.00	0.85	0.00
8.66	82.16	2.00	0.00	0.85	0.00	8.73	80.73	2.00	0.00	0.85	0.00
8.82	83.20	2.00	0.00	0.85	0.00	8.86	87.99	2.00	0.00	0.85	0.00
8.93	96.89	2.00	0.00	0.85	0.00	9.01	106.63	2.00	0.00	0.85	0.00
9.06	111.13	2.00	0.00	0.85	0.00	9.13	110.56	2.00	0.00	0.85	0.00
9.20	108.92	2.00	0.00	0.84	0.00	9.26	110.32	2.00	0.00	0.84	0.00
9.36	113.10	2.00	0.00	0.84	0.00	9.39	113.65	2.00	0.00	0.84	0.00
9.46	111.30	2.00	0.00	0.84	0.00	9.55	107.18	2.00	0.00	0.84	0.00
9.59	104.12	2.00	0.00	0.84	0.00	9.65	104.88	2.00	0.00	0.84	0.00
9.71	110.54	2.00	0.00	0.84	0.00	9.79	117.41	2.00	0.00	0.83	0.00
9.85	129.11	2.00	0.00	0.83	0.00	9.94	134.83	2.00	0.00	0.83	0.00
9.98	134.90	2.00	0.00	0.83	0.00	10.07	128.20	2.00	0.00	0.83	0.00
10.11	121.59	2.00	0.00	0.83	0.00	10.19	115.49	2.00	0.00	0.83	0.00
10.27	111.64	2.00	0.00	0.83	0.00	10.31	110.55	2.00	0.00	0.83	0.00
10.38	109.45	2.00	0.00	0.82	0.00	10.47	108.67	2.00	0.00	0.82	0.00
10.51	105.95	2.00	0.00	0.82	0.00	10.58	101.78	0.29	1.89	0.82	0.01
10.64	96.66	0.26	1.97	0.82	0.02	10.71	93.49	0.25	2.02	0.82	0.02
10.77	94.73	0.25	2.00	0.82	0.01	10.87	98.21	0.27	1.93	0.82	0.02
10.91	102.56	0.29	1.87	0.82	0.01	10.96	104.28	0.29	1.84	0.81	0.01
11.03	104.90	0.30	1.83	0.81	0.01	11.10	104.64	0.29	1.83	0.81	0.02
11.16	103.90	0.29	1.84	0.81	0.01	11.22	101.98	0.28	1.86	0.81	0.01
11.30	99.16	0.27	1.90	0.81	0.02	11.35	95.53	0.25	1.96	0.81	0.01
11.42	92.37	0.24	2.01	0.81	0.02	11.50	89.93	0.23	2.05	0.81	0.02
11.58	88.65	0.22	2.07	0.80	0.02	11.62	87.46	0.22	2.09	0.80	0.01
11.69	87.85	0.22	2.08	0.80	0.02	11.78	89.24	0.22	2.05	0.80	0.02
11.82	93.52	0.24	1.97	0.80	0.01	11.89	97.90	0.26	1.90	0.80	0.02
11.98	101.78	0.27	1.84	0.80	0.02	12.02	94.03	0.24	1.96	0.80	0.01
12.08	86.62	0.21	2.09	0.80	0.02	12.17	80.60	0.19	2.21	0.79	0.02
12.21	83.96	0.20	2.14	0.79	0.01	12.27	88.72	0.22	2.04	0.79	0.01
12.37	94.75	0.24	1.93	0.79	0.02	12.41	102.22	0.27	1.81	0.79	0.01
12.48	109.56	0.30	1.71	0.79	0.01	12.54	117.02	0.34	1.62	0.79	0.01
12.60	124.51	0.39	1.54	0.79	0.01	12.68	131.30	0.43	1.47	0.79	0.01
12.73	134.78	0.46	1.43	0.78	0.01	12.81	135.84	0.46	1.42	0.78	0.01
12.88	141.18	0.51	1.38	0.78	0.01	12.93	147.91	0.56	1.34	0.78	0.01
13.01	152.16	2.00	0.00	0.78	0.00	13.07	158.67	2.00	0.00	0.78	0.00
13.12	156.45	2.00	0.00	0.78	0.00	13.20	148.37	2.00	0.00	0.78	0.00
13.26	139.59	2.00	0.00	0.78	0.00	13.36	135.21	2.00	0.00	0.77	0.00
13.40	135.14	2.00	0.00	0.77	0.00	13.45	135.21	2.00	0.00	0.77	0.00
13.54	135.74	2.00	0.00	0.77	0.00	13.60	137.08	2.00	0.00	0.77	0.00
13.65	139.40	2.00	0.00	0.77	0.00	13.73	140.20	2.00	0.00	0.77	0.00
13.80	137.08	2.00	0.00	0.77	0.00	13.89	133.68	2.00	0.00	0.76	0.00
13.92	133.05	2.00	0.00	0.76	0.00	13.99	139.71	2.00	0.00	0.76	0.00
14.05	149.43	2.00	0.00	0.76	0.00	14.12	156.92	2.00	0.00	0.76	0.00
14.18	160.69	2.00	0.00	0.76	0.00	14.25	160.14	2.00	0.00	0.76	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
14.32	157.56	2.00	0.00	0.76	0.00	14.38	154.72	2.00	0.00	0.76	0.00
14.44	152.75	2.00	0.00	0.76	0.00	14.52	151.67	2.00	0.00	0.75	0.00
14.57	148.01	2.00	0.00	0.75	0.00	14.64	142.13	2.00	0.00	0.75	0.00
14.72	135.95	2.00	0.00	0.75	0.00	14.77	133.49	2.00	0.00	0.75	0.00
14.84	134.20	2.00	0.00	0.75	0.00	14.91	134.84	2.00	0.00	0.75	0.00
14.96	132.07	2.00	0.00	0.75	0.00	15.05	126.58	2.00	0.00	0.74	0.00
15.11	120.02	2.00	0.00	0.74	0.00	15.17	116.30	2.00	0.00	0.74	0.00
15.24	114.42	2.00	0.00	0.74	0.00	15.31	114.84	2.00	0.00	0.74	0.00
15.36	116.55	2.00	0.00	0.74	0.00	15.43	119.52	2.00	0.00	0.74	0.00
15.50	121.17	2.00	0.00	0.74	0.00	15.56	118.14	2.00	0.00	0.74	0.00
15.63	114.40	2.00	0.00	0.74	0.00	15.70	111.69	2.00	0.00	0.73	0.00
15.75	111.78	2.00	0.00	0.73	0.00	15.82	111.38	2.00	0.00	0.73	0.00
15.89	110.69	2.00	0.00	0.73	0.00	15.95	104.74	2.00	0.00	0.73	0.00
16.03	100.69	2.00	0.00	0.73	0.00	16.09	100.07	2.00	0.00	0.73	0.00
16.15	105.52	2.00	0.00	0.73	0.00	16.22	110.18	2.00	0.00	0.73	0.00
16.28	114.20	2.00	0.00	0.72	0.00	16.34	117.41	2.00	0.00	0.72	0.00
16.42	116.42	2.00	0.00	0.72	0.00	16.48	112.14	2.00	0.00	0.72	0.00
16.57	103.74	2.00	0.00	0.72	0.00	16.62	93.71	2.00	0.00	0.72	0.00
16.67	86.00	2.00	0.00	0.72	0.00	16.77	82.82	2.00	0.00	0.72	0.00
16.81	82.48	2.00	0.00	0.72	0.00	16.86	83.75	2.00	0.00	0.71	0.00
16.94	86.77	2.00	0.00	0.71	0.00	17.01	92.52	2.00	0.00	0.71	0.00
17.07	100.81	2.00	0.00	0.71	0.00	17.14	108.52	2.00	0.00	0.71	0.00
17.21	113.51	2.00	0.00	0.71	0.00	17.26	113.94	2.00	0.00	0.71	0.00
17.34	110.26	2.00	0.00	0.71	0.00	17.40	105.38	2.00	0.00	0.71	0.00
17.47	102.00	2.00	0.00	0.70	0.00	17.54	101.16	2.00	0.00	0.70	0.00
17.60	100.85	2.00	0.00	0.70	0.00	17.69	100.56	2.00	0.00	0.70	0.00
17.74	101.20	2.00	0.00	0.70	0.00	17.79	103.17	2.00	0.00	0.70	0.00
17.87	106.00	2.00	0.00	0.70	0.00	17.94	106.61	2.00	0.00	0.70	0.00
17.99	105.94	2.00	0.00	0.70	0.00	18.05	103.18	2.00	0.00	0.69	0.00
18.13	101.62	2.00	0.00	0.69	0.00	18.18	100.10	2.00	0.00	0.69	0.00
18.25	101.33	2.00	0.00	0.69	0.00	18.32	105.66	2.00	0.00	0.69	0.00
18.38	110.96	2.00	0.00	0.69	0.00	18.45	119.28	2.00	0.00	0.69	0.00
18.52	126.12	2.00	0.00	0.69	0.00	18.57	125.45	2.00	0.00	0.69	0.00
18.65	119.18	2.00	0.00	0.68	0.00	18.71	114.62	2.00	0.00	0.68	0.00
18.81	115.24	0.29	1.42	0.68	0.02	18.84	120.36	0.31	1.37	0.68	0.00
18.90	130.93	2.00	0.00	0.68	0.00	18.97	141.55	2.00	0.00	0.68	0.00
19.03	152.97	2.00	0.00	0.68	0.00	19.11	157.74	2.00	0.00	0.68	0.00
19.19	159.76	2.00	0.00	0.67	0.00	19.23	153.55	2.00	0.00	0.67	0.00
19.32	144.85	2.00	0.00	0.67	0.00	19.36	135.99	2.00	0.00	0.67	0.00
19.43	128.81	2.00	0.00	0.67	0.00	19.52	121.98	0.32	1.33	0.67	0.01
19.56	118.08	0.30	1.36	0.67	0.01	19.63	116.94	0.29	1.37	0.67	0.01
19.72	116.88	0.29	1.37	0.67	0.01	19.76	118.61	2.00	0.00	0.67	0.00
19.82	122.39	2.00	0.00	0.66	0.00	19.91	126.22	2.00	0.00	0.66	0.00
19.96	126.56	2.00	0.00	0.66	0.00	20.04	122.50	2.00	0.00	0.66	0.00
20.11	117.49	2.00	0.00	0.66	0.00	20.15	112.94	2.00	0.00	0.66	0.00
20.24	110.87	2.00	0.00	0.66	0.00	20.28	111.81	2.00	0.00	0.66	0.00
20.35	116.30	2.00	0.00	0.66	0.00	20.44	121.03	2.00	0.00	0.65	0.00
20.49	123.79	2.00	0.00	0.65	0.00	20.55	125.85	2.00	0.00	0.65	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
20.61	129.25	2.00	0.00	0.65	0.00	20.68	133.67	2.00	0.00	0.65	0.00
20.75	137.31	2.00	0.00	0.65	0.00	20.80	139.25	2.00	0.00	0.65	0.00
20.88	140.64	2.00	0.00	0.65	0.00	20.93	141.66	2.00	0.00	0.65	0.00
21.02	140.95	2.00	0.00	0.64	0.00	21.07	138.74	2.00	0.00	0.64	0.00
21.13	134.77	2.00	0.00	0.64	0.00	21.19	129.55	2.00	0.00	0.64	0.00
21.26	122.87	2.00	0.00	0.64	0.00	21.35	115.95	2.00	0.00	0.64	0.00
21.42	109.92	2.00	0.00	0.64	0.00	21.46	103.23	2.00	0.00	0.64	0.00
21.55	95.86	2.00	0.00	0.63	0.00	21.61	88.98	2.00	0.00	0.63	0.00
21.66	82.61	2.00	0.00	0.63	0.00	21.75	74.72	2.00	0.00	0.63	0.00
21.79	67.52	2.00	0.00	0.63	0.00	21.86	64.37	2.00	0.00	0.63	0.00
21.92	65.05	2.00	0.00	0.63	0.00	21.99	68.95	2.00	0.00	0.63	0.00
22.05	74.38	2.00	0.00	0.63	0.00	22.14	78.81	2.00	0.00	0.62	0.00
22.18	82.47	2.00	0.00	0.62	0.00	22.25	84.87	2.00	0.00	0.62	0.00
22.33	87.40	2.00	0.00	0.62	0.00	22.38	89.19	2.00	0.00	0.62	0.00
22.46	90.99	2.00	0.00	0.62	0.00	22.53	93.21	2.00	0.00	0.62	0.00
22.58	95.09	2.00	0.00	0.62	0.00	22.65	97.15	2.00	0.00	0.62	0.00
22.72	100.73	2.00	0.00	0.61	0.00	22.77	105.09	2.00	0.00	0.61	0.00
22.84	109.79	2.00	0.00	0.61	0.00	22.92	114.59	2.00	0.00	0.61	0.00
23.00	119.09	2.00	0.00	0.61	0.00	23.05	123.71	2.00	0.00	0.61	0.00
23.11	127.75	2.00	0.00	0.61	0.00	23.17	126.64	2.00	0.00	0.61	0.00
23.25	118.54	2.00	0.00	0.61	0.00	23.31	107.11	2.00	0.00	0.60	0.00
23.40	101.14	2.00	0.00	0.60	0.00	23.44	101.29	2.00	0.00	0.60	0.00
23.50	105.11	2.00	0.00	0.60	0.00	23.57	111.00	2.00	0.00	0.60	0.00
23.64	115.74	2.00	0.00	0.60	0.00	23.70	119.51	2.00	0.00	0.60	0.00
23.76	121.87	2.00	0.00	0.60	0.00	23.84	123.35	2.00	0.00	0.60	0.00
23.89	123.54	2.00	0.00	0.60	0.00	23.97	120.86	2.00	0.00	0.59	0.00
24.04	116.14	2.00	0.00	0.59	0.00	24.09	110.55	2.00	0.00	0.59	0.00
24.16	105.16	2.00	0.00	0.59	0.00	24.23	100.41	2.00	0.00	0.59	0.00
24.29	95.70	2.00	0.00	0.59	0.00	24.36	94.31	2.00	0.00	0.59	0.00
24.42	97.42	2.00	0.00	0.59	0.00	24.52	102.31	0.22	1.34	0.58	0.02
24.55	109.17	0.24	1.27	0.58	0.00	24.62	116.08	0.27	1.20	0.58	0.01
24.68	124.72	0.32	1.13	0.58	0.01	24.75	132.97	0.36	1.07	0.58	0.01
24.81	140.21	0.41	1.03	0.58	0.01	24.87	144.85	0.44	1.00	0.58	0.01
24.95	146.12	0.45	0.99	0.58	0.01	25.01	143.20	0.43	1.00	0.58	0.01
25.10	138.38	0.39	1.03	0.57	0.01	25.14	131.63	0.35	1.07	0.57	0.01
25.20	123.39	0.31	1.13	0.57	0.01	25.29	115.48	0.27	1.19	0.57	0.01
25.34	109.26	0.24	1.24	0.57	0.01	25.42	108.01	0.24	1.25	0.57	0.01
25.49	109.21	0.24	1.23	0.57	0.01	25.54	111.69	0.25	1.21	0.57	0.01
25.61	113.81	0.26	1.19	0.57	0.01	25.66	115.45	0.27	1.17	0.57	0.01
25.74	116.14	0.27	1.16	0.56	0.01	25.80	116.64	0.27	1.16	0.56	0.01
25.86	118.09	0.28	1.15	0.56	0.01	25.93	120.40	0.29	1.12	0.56	0.01
25.99	122.02	0.30	1.11	0.56	0.01	26.05	120.04	0.29	1.12	0.56	0.01
26.13	113.47	0.26	1.17	0.56	0.01	26.19	105.47	0.23	1.24	0.56	0.01
26.27	101.75	2.00	0.00	0.55	0.00	26.33	103.66	2.00	0.00	0.55	0.00
26.38	113.32	2.00	0.00	0.55	0.00	26.46	124.05	2.00	0.00	0.55	0.00
26.51	136.20	2.00	0.00	0.55	0.00	26.60	142.44	2.00	0.00	0.55	0.00
26.67	147.21	2.00	0.00	0.55	0.00	26.71	147.50	2.00	0.00	0.55	0.00
26.80	145.67	2.00	0.00	0.55	0.00	26.84	141.36	2.00	0.00	0.55	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
26.91	133.83	2.00	0.00	0.54	0.00	27.00	125.41	2.00	0.00	0.54	0.00
27.04	116.11	2.00	0.00	0.54	0.00	27.11	109.28	2.00	0.00	0.54	0.00
27.20	104.02	2.00	0.00	0.54	0.00	27.24	97.19	2.00	0.00	0.54	0.00
27.30	91.33	2.00	0.00	0.54	0.00	27.39	87.64	2.00	0.00	0.54	0.00
27.45	86.75	2.00	0.00	0.53	0.00	27.50	91.90	2.00	0.00	0.53	0.00
27.59	100.20	2.00	0.00	0.53	0.00	27.63	111.21	2.00	0.00	0.53	0.00
27.69	117.01	2.00	0.00	0.53	0.00	27.78	120.51	2.00	0.00	0.53	0.00
27.82	121.37	2.00	0.00	0.53	0.00	27.90	119.02	2.00	0.00	0.53	0.00
27.98	114.45	2.00	0.00	0.53	0.00	28.02	107.78	2.00	0.00	0.53	0.00
28.11	101.43	2.00	0.00	0.52	0.00	28.18	96.60	2.00	0.00	0.52	0.00
28.22	94.64	2.00	0.00	0.52	0.00	28.31	93.22	2.00	0.00	0.52	0.00
28.37	92.26	2.00	0.00	0.52	0.00	28.42	89.88	2.00	0.00	0.52	0.00
28.48	83.20	2.00	0.00	0.52	0.00	28.55	76.63	2.00	0.00	0.52	0.00
28.61	72.86	2.00	0.00	0.52	0.00	28.71	75.12	2.00	0.00	0.51	0.00
28.74	77.10	2.00	0.00	0.51	0.00	28.81	81.02	2.00	0.00	0.51	0.00
28.90	85.97	2.00	0.00	0.51	0.00	28.95	95.44	2.00	0.00	0.51	0.00
29.01	104.60	2.00	0.00	0.51	0.00	29.07	112.67	2.00	0.00	0.51	0.00
29.14	114.03	2.00	0.00	0.51	0.00	29.20	108.14	2.00	0.00	0.51	0.00
29.30	98.79	2.00	0.00	0.50	0.00	29.34	90.91	2.00	0.00	0.50	0.00
29.40	87.35	2.00	0.00	0.50	0.00	29.47	87.55	2.00	0.00	0.50	0.00
29.54	89.23	2.00	0.00	0.50	0.00	29.60	91.87	2.00	0.00	0.50	0.00
29.67	95.40	2.00	0.00	0.50	0.00	29.74	99.21	2.00	0.00	0.50	0.00
29.79	103.06	2.00	0.00	0.50	0.00	29.86	106.90	2.00	0.00	0.49	0.00
29.93	110.06	2.00	0.00	0.49	0.00	29.99	111.07	2.00	0.00	0.49	0.00
30.08	109.95	0.24	1.06	0.49	0.01	30.13	108.94	0.24	1.07	0.49	0.01
30.22	109.11	0.24	1.06	0.49	0.01	30.26	109.81	0.24	1.05	0.49	0.00
30.32	110.55	0.24	1.05	0.49	0.01	30.39	110.96	0.24	1.04	0.48	0.01
30.46	111.69	0.25	1.03	0.48	0.01	30.52	112.94	0.25	1.02	0.48	0.01
30.59	115.22	0.26	1.00	0.48	0.01	30.66	118.17	0.28	0.98	0.48	0.01
30.71	120.33	0.29	0.96	0.48	0.01	30.79	120.64	0.29	0.96	0.48	0.01
30.84	119.13	0.28	0.97	0.48	0.01	30.92	117.29	0.27	0.98	0.48	0.01
30.99	114.57	0.26	0.99	0.47	0.01	31.05	111.30	0.25	1.01	0.47	0.01
31.11	109.77	0.24	1.02	0.47	0.01	31.19	112.17	0.25	1.00	0.47	0.01
31.24	119.10	0.28	0.95	0.47	0.01	31.31	126.96	0.32	0.90	0.47	0.01
31.39	132.72	0.35	0.87	0.47	0.01	31.44	131.75	0.34	0.87	0.47	0.01
31.51	126.21	0.31	0.90	0.47	0.01	31.58	120.66	0.29	0.93	0.46	0.01
31.64	118.71	0.28	0.94	0.46	0.01	31.71	108.76	0.23	1.01	0.46	0.01
31.76	100.88	0.21	1.07	0.46	0.01	31.83	93.21	0.18	1.14	0.46	0.01
31.91	95.10	0.19	1.12	0.46	0.01	31.97	96.75	0.19	1.10	0.46	0.01
32.07	97.67	0.20	1.09	0.46	0.01	32.11	98.00	0.20	1.08	0.46	0.01
32.18	97.91	0.20	1.08	0.45	0.01	32.23	97.64	0.20	1.08	0.45	0.01
32.31	97.13	0.19	1.08	0.45	0.01	32.35	95.83	0.19	1.09	0.45	0.01
32.42	93.85	0.18	1.11	0.45	0.01	32.51	92.06	2.00	0.00	0.45	0.00
32.55	91.22	2.00	0.00	0.45	0.00	32.62	91.51	2.00	0.00	0.45	0.00
32.71	92.25	2.00	0.00	0.45	0.00	32.75	94.86	2.00	0.00	0.44	0.00
32.81	102.08	2.00	0.00	0.44	0.00	32.88	112.82	2.00	0.00	0.44	0.00
32.95	121.65	2.00	0.00	0.44	0.00	33.01	119.08	2.00	0.00	0.44	0.00
33.08	112.24	2.00	0.00	0.44	0.00	33.15	106.82	2.00	0.00	0.44	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
33.21	106.61	2.00	0.00	0.44	0.00	33.29	107.77	2.00	0.00	0.44	0.00
33.35	108.84	2.00	0.00	0.43	0.00	33.41	111.53	2.00	0.00	0.43	0.00
33.48	114.38	2.00	0.00	0.43	0.00	33.54	112.95	2.00	0.00	0.43	0.00
33.60	107.13	2.00	0.00	0.43	0.00	33.68	100.59	2.00	0.00	0.43	0.00
33.73	96.41	0.19	1.03	0.43	0.01	33.80	94.83	0.19	1.04	0.43	0.01
33.88	94.21	0.18	1.04	0.43	0.01	33.93	94.96	0.19	1.04	0.42	0.01
33.99	96.42	0.19	1.02	0.42	0.01	34.07	97.69	2.00	0.00	0.42	0.00
34.12	96.38	2.00	0.00	0.42	0.00	34.20	96.08	2.00	0.00	0.42	0.00
34.27	99.69	2.00	0.00	0.42	0.00	34.35	106.95	2.00	0.00	0.42	0.00
34.40	115.93	2.00	0.00	0.42	0.00	34.46	122.47	2.00	0.00	0.42	0.00
34.55	125.43	2.00	0.00	0.41	0.00	34.58	120.42	2.00	0.00	0.41	0.00
34.65	106.98	2.00	0.00	0.41	0.00	34.74	95.33	2.00	0.00	0.41	0.00
34.79	88.84	2.00	0.00	0.41	0.00	34.85	87.32	2.00	0.00	0.41	0.00
34.91	88.30	2.00	0.00	0.41	0.00	34.99	88.23	2.00	0.00	0.41	0.00
35.05	84.90	2.00	0.00	0.41	0.00	35.12	81.05	2.00	0.00	0.40	0.00
35.19	78.25	2.00	0.00	0.40	0.00	35.24	77.12	2.00	0.00	0.40	0.00
35.32	74.87	0.14	1.19	0.40	0.01	35.38	73.53	2.00	0.00	0.40	0.00
35.44	73.31	2.00	0.00	0.40	0.00	35.51	75.84	2.00	0.00	0.40	0.00
35.58	82.01	2.00	0.00	0.40	0.00	35.63	93.18	2.00	0.00	0.40	0.00
35.72	103.72	2.00	0.00	0.39	0.00	35.77	110.31	2.00	0.00	0.39	0.00
35.84	109.67	2.00	0.00	0.39	0.00	35.91	105.86	2.00	0.00	0.39	0.00
35.97	102.91	2.00	0.00	0.39	0.00	36.04	99.26	2.00	0.00	0.39	0.00
36.11	96.96	2.00	0.00	0.39	0.00	36.17	95.47	2.00	0.00	0.39	0.00
36.24	95.44	2.00	0.00	0.39	0.00	36.30	96.84	2.00	0.00	0.38	0.00
36.35	99.80	2.00	0.00	0.38	0.00	36.44	103.71	2.00	0.00	0.38	0.00
36.51	107.70	2.00	0.00	0.38	0.00	36.56	111.84	2.00	0.00	0.38	0.00
36.64	115.01	2.00	0.00	0.38	0.00	36.68	117.89	2.00	0.00	0.38	0.00
36.75	120.47	2.00	0.00	0.38	0.00	36.84	122.99	2.00	0.00	0.38	0.00
36.89	124.30	2.00	0.00	0.37	0.00	36.97	124.77	2.00	0.00	0.37	0.00
37.04	124.89	2.00	0.00	0.37	0.00	37.08	127.23	2.00	0.00	0.37	0.00
37.17	130.30	2.00	0.00	0.37	0.00	37.23	132.27	2.00	0.00	0.37	0.00
37.28	129.76	2.00	0.00	0.37	0.00	37.36	122.97	2.00	0.00	0.37	0.00
37.42	118.20	2.00	0.00	0.37	0.00	37.47	119.97	0.28	0.73	0.36	0.00
37.55	125.56	2.00	0.00	0.36	0.00	37.62	131.46	2.00	0.00	0.36	0.00
37.66	131.38	2.00	0.00	0.36	0.00	37.76	126.57	2.00	0.00	0.36	0.00
37.81	118.99	2.00	0.00	0.36	0.00	37.88	113.10	2.00	0.00	0.36	0.00
37.95	111.51	2.00	0.00	0.36	0.00	38.01	113.47	2.00	0.00	0.36	0.00
38.08	116.43	2.00	0.00	0.35	0.00	38.15	118.74	0.27	0.72	0.35	0.01
38.19	119.82	0.28	0.71	0.35	0.00	38.26	118.35	0.27	0.72	0.35	0.01
38.34	115.98	0.26	0.72	0.35	0.01	38.39	111.66	0.24	0.75	0.35	0.00
38.47	111.39	0.24	0.74	0.35	0.01	38.52	112.79	0.25	0.73	0.35	0.00
38.59	119.95	0.28	0.70	0.35	0.01	38.68	125.45	0.30	0.67	0.34	0.01
38.73	133.77	0.35	0.63	0.34	0.00	38.82	138.77	0.38	0.61	0.34	0.01
38.86	142.42	0.40	0.60	0.34	0.00	38.92	140.60	0.39	0.60	0.34	0.00
38.98	136.68	0.37	0.61	0.34	0.00	39.06	132.46	0.34	0.63	0.34	0.01
39.12	128.51	0.32	0.64	0.34	0.00	39.18	125.07	0.30	0.65	0.34	0.01
39.26	122.14	0.29	0.66	0.33	0.01	39.31	120.27	0.28	0.67	0.33	0.00
39.38	119.44	0.28	0.67	0.33	0.01	39.45	119.24	0.28	0.67	0.33	0.01

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
39.51	118.86	0.27	0.67	0.33	0.00	39.58	117.88	0.27	0.67	0.33	0.01
39.64	116.17	0.26	0.68	0.33	0.00	39.72	114.77	2.00	0.00	0.33	0.00
39.79	113.42	2.00	0.00	0.33	0.00	39.84	111.86	2.00	0.00	0.32	0.00
39.91	110.52	2.00	0.00	0.32	0.00	39.98	113.19	2.00	0.00	0.32	0.00
40.03	122.79	2.00	0.00	0.32	0.00	40.10	135.29	2.00	0.00	0.32	0.00
40.18	146.77	2.00	0.00	0.32	0.00	40.23	146.60	2.00	0.00	0.32	0.00
40.30	143.39	2.00	0.00	0.32	0.00	40.37	135.84	2.00	0.00	0.32	0.00
40.46	129.64	2.00	0.00	0.31	0.00	40.50	121.75	2.00	0.00	0.31	0.00
40.57	117.11	2.00	0.00	0.31	0.00	40.66	111.85	2.00	0.00	0.31	0.00
40.70	109.07	2.00	0.00	0.31	0.00	40.75	110.93	2.00	0.00	0.31	0.00
40.82	118.08	2.00	0.00	0.31	0.00	40.90	128.63	2.00	0.00	0.31	0.00
40.95	133.57	2.00	0.00	0.31	0.00	41.02	132.06	2.00	0.00	0.30	0.00
41.09	128.63	2.00	0.00	0.30	0.00	41.15	126.40	2.00	0.00	0.30	0.00
41.21	126.99	2.00	0.00	0.30	0.00	41.29	128.28	2.00	0.00	0.30	0.00
41.35	130.44	2.00	0.00	0.30	0.00	41.41	132.58	2.00	0.00	0.30	0.00
41.49	132.91	2.00	0.00	0.30	0.00	41.54	130.28	2.00	0.00	0.30	0.00
41.62	123.59	2.00	0.00	0.29	0.00	41.68	116.11	2.00	0.00	0.29	0.00
41.77	111.66	2.00	0.00	0.29	0.00	41.81	112.61	2.00	0.00	0.29	0.00
41.88	116.11	2.00	0.00	0.29	0.00	41.95	119.01	2.00	0.00	0.29	0.00
42.01	119.30	2.00	0.00	0.29	0.00	42.07	115.19	2.00	0.00	0.29	0.00
42.17	111.28	2.00	0.00	0.29	0.00	42.20	105.46	2.00	0.00	0.28	0.00
42.27	99.88	2.00	0.00	0.28	0.00	42.32	96.14	2.00	0.00	0.28	0.00
42.41	94.10	2.00	0.00	0.28	0.00	42.46	94.49	2.00	0.00	0.28	0.00
42.54	96.35	2.00	0.00	0.28	0.00	42.61	99.37	2.00	0.00	0.28	0.00
42.66	103.06	2.00	0.00	0.28	0.00	42.74	105.80	2.00	0.00	0.28	0.00
42.78	108.09	2.00	0.00	0.27	0.00	42.85	109.77	2.00	0.00	0.27	0.00
42.95	110.70	2.00	0.00	0.27	0.00	42.99	109.38	2.00	0.00	0.27	0.00
43.06	107.22	2.00	0.00	0.27	0.00	43.14	103.80	2.00	0.00	0.27	0.00
43.19	99.48	2.00	0.00	0.27	0.00	43.24	95.61	2.00	0.00	0.27	0.00
43.31	93.53	2.00	0.00	0.27	0.00	43.38	98.79	2.00	0.00	0.26	0.00
43.47	106.02	2.00	0.00	0.26	0.00	43.51	113.02	2.00	0.00	0.26	0.00
43.58	113.04	2.00	0.00	0.26	0.00	43.64	110.94	2.00	0.00	0.26	0.00
43.72	106.09	2.00	0.00	0.26	0.00	43.77	102.83	2.00	0.00	0.26	0.00
43.87	100.67	2.00	0.00	0.26	0.00	43.90	98.50	2.00	0.00	0.26	0.00
43.97	95.53	2.00	0.00	0.25	0.00	44.06	93.17	2.00	0.00	0.25	0.00
44.10	91.43	2.00	0.00	0.25	0.00	44.16	90.77	2.00	0.00	0.25	0.00
44.23	90.54	0.18	0.63	0.25	0.01	44.30	91.74	0.18	0.62	0.25	0.01
44.39	93.27	0.18	0.61	0.25	0.01	44.45	94.72	0.19	0.60	0.25	0.00
44.49	94.84	0.19	0.60	0.25	0.00	44.58	94.00	0.19	0.60	0.24	0.01
44.64	92.45	0.18	0.61	0.24	0.00	44.69	90.04	0.17	0.62	0.24	0.00
44.77	88.10	0.17	0.63	0.24	0.01	44.84	86.10	0.16	0.63	0.24	0.01
44.89	83.73	0.16	0.65	0.24	0.00	44.97	82.21	0.16	0.65	0.24	0.01
45.04	81.84	0.15	0.65	0.24	0.00	45.08	83.23	0.16	0.64	0.24	0.00
45.17	84.61	0.16	0.63	0.23	0.01	45.22	85.95	0.16	0.62	0.23	0.00
45.30	87.25	0.17	0.61	0.23	0.01	45.34	88.04	0.17	0.60	0.23	0.00
45.41	87.71	0.17	0.60	0.23	0.00	45.50	86.53	0.17	0.60	0.23	0.01
45.55	86.71	0.17	0.60	0.23	0.00	45.61	87.57	0.17	0.59	0.23	0.00
45.70	89.07	0.17	0.58	0.23	0.01	45.75	90.02	0.18	0.57	0.22	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
45.80	91.22	0.18	0.56	0.22	0.00	45.90	91.93	0.18	0.56	0.22	0.01
45.95	92.04	0.18	0.55	0.22	0.00	46.00	91.22	0.18	0.56	0.22	0.00
46.07	90.16	0.18	0.56	0.22	0.00	46.14	88.99	0.17	0.56	0.22	0.00
46.20	88.47	0.17	0.56	0.22	0.00	46.27	88.76	0.17	0.56	0.22	0.00
46.34	89.85	0.18	0.55	0.21	0.00	46.40	91.52	0.18	0.54	0.21	0.00
46.47	93.61	0.19	0.52	0.21	0.00	46.53	95.97	0.19	0.51	0.21	0.00
46.60	98.27	0.20	0.50	0.21	0.00	46.67	100.04	0.21	0.49	0.21	0.00
46.73	100.79	0.21	0.48	0.21	0.00	46.78	99.71	0.21	0.48	0.21	0.00
46.86	97.38	0.20	0.49	0.21	0.00	46.92	95.07	0.19	0.50	0.20	0.00
46.99	94.03	0.19	0.50	0.20	0.00	47.06	94.49	0.19	0.50	0.20	0.00
47.16	95.46	0.19	0.49	0.20	0.01	47.19	96.33	0.19	0.48	0.20	0.00
47.25	95.75	0.19	0.48	0.20	0.00	47.31	94.64	0.19	0.48	0.20	0.00
47.39	93.93	0.19	0.48	0.20	0.00	47.45	94.49	0.19	0.48	0.20	0.00
47.53	95.61	0.19	0.47	0.19	0.00	47.58	96.63	0.20	0.47	0.19	0.00
47.65	97.32	0.20	0.46	0.19	0.00	47.70	98.38	0.20	0.45	0.19	0.00
47.78	99.46	0.21	0.45	0.19	0.00	47.84	99.42	0.21	0.44	0.19	0.00
47.91	99.43	0.21	0.44	0.19	0.00	47.98	99.60	0.21	0.44	0.19	0.00
48.04	101.07	0.21	0.43	0.19	0.00	48.13	102.40	0.22	0.42	0.18	0.00
48.17	102.80	0.22	0.42	0.18	0.00	48.27	103.23	0.22	0.41	0.18	0.00
48.32	103.92	0.22	0.41	0.18	0.00	48.37	105.51	0.23	0.40	0.18	0.00
48.44	106.57	0.23	0.40	0.18	0.00	48.51	106.89	0.23	0.39	0.18	0.00
48.57	106.23	0.23	0.39	0.18	0.00	48.66	105.15	0.23	0.39	0.18	0.00
48.69	104.19	0.22	0.39	0.17	0.00	48.76	104.29	0.22	0.39	0.17	0.00
48.83	105.75	0.23	0.38	0.17	0.00	48.89	108.46	0.24	0.37	0.17	0.00
48.95	111.71	0.25	0.36	0.17	0.00	49.03	114.49	0.27	0.35	0.17	0.00
49.09	115.15	0.27	0.35	0.17	0.00	49.15	114.54	0.27	0.35	0.17	0.00
49.22	114.27	0.27	0.35	0.17	0.00	49.29	115.30	0.27	0.34	0.16	0.00
49.36	116.82	0.28	0.34	0.16	0.00	49.43	118.13	0.28	0.33	0.16	0.00
49.48	119.13	0.29	0.33	0.16	0.00	49.55	120.38	0.29	0.32	0.16	0.00
49.62	121.94	0.30	0.32	0.16	0.00	49.67	124.06	0.31	0.31	0.16	0.00
49.75	125.61	0.32	0.30	0.16	0.00	49.82	126.35	0.33	0.30	0.16	0.00
49.87	125.25	0.32	0.30	0.15	0.00	49.96	123.11	0.31	0.30	0.15	0.00
50.02	121.33	0.30	0.30	0.15	0.00						

Total estimated settlement: 1.67

Abbreviations

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

Landmark Consultants, Inc.
780 N. 4th Street
El Centro, CA 92243

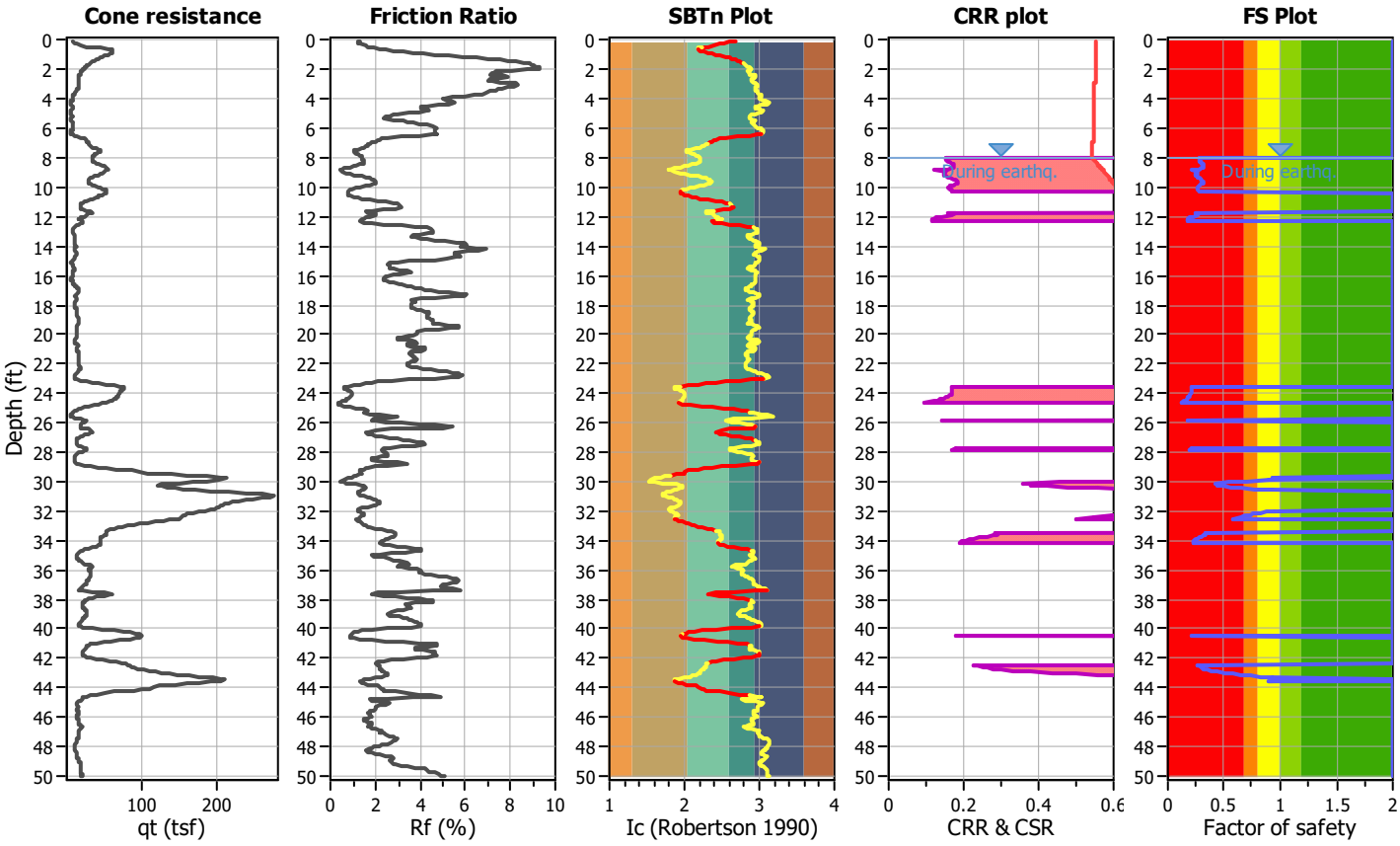
LIQUEFACTION ANALYSIS REPORT

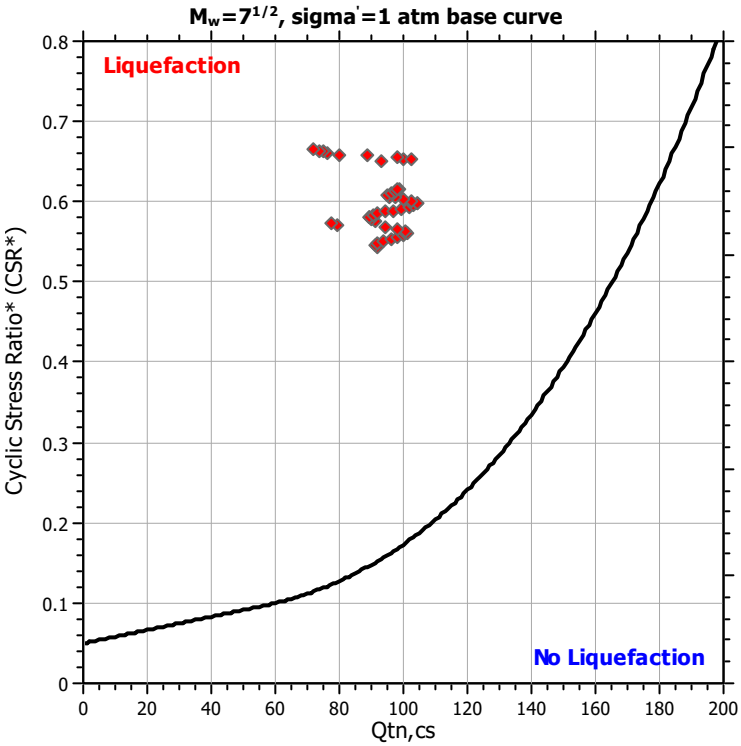
Project title : IV Data Center Campus Site #2 **Location : Imperial, CA**

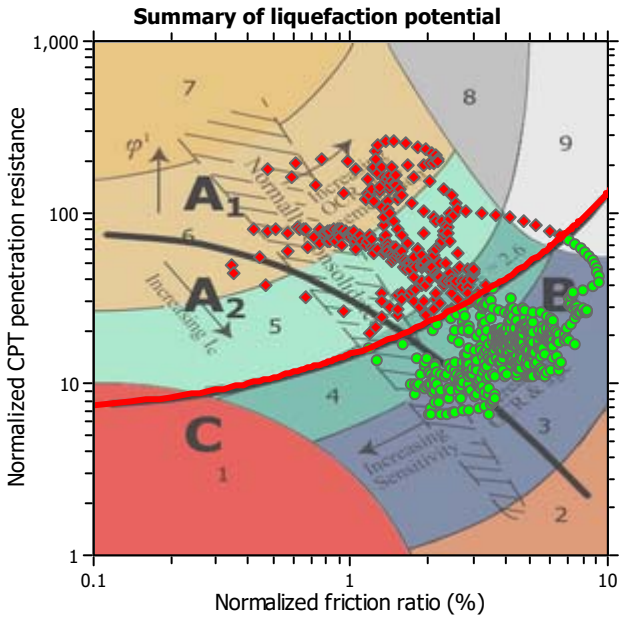
CPT file : CPT-4

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	8.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	8.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.00	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.78	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

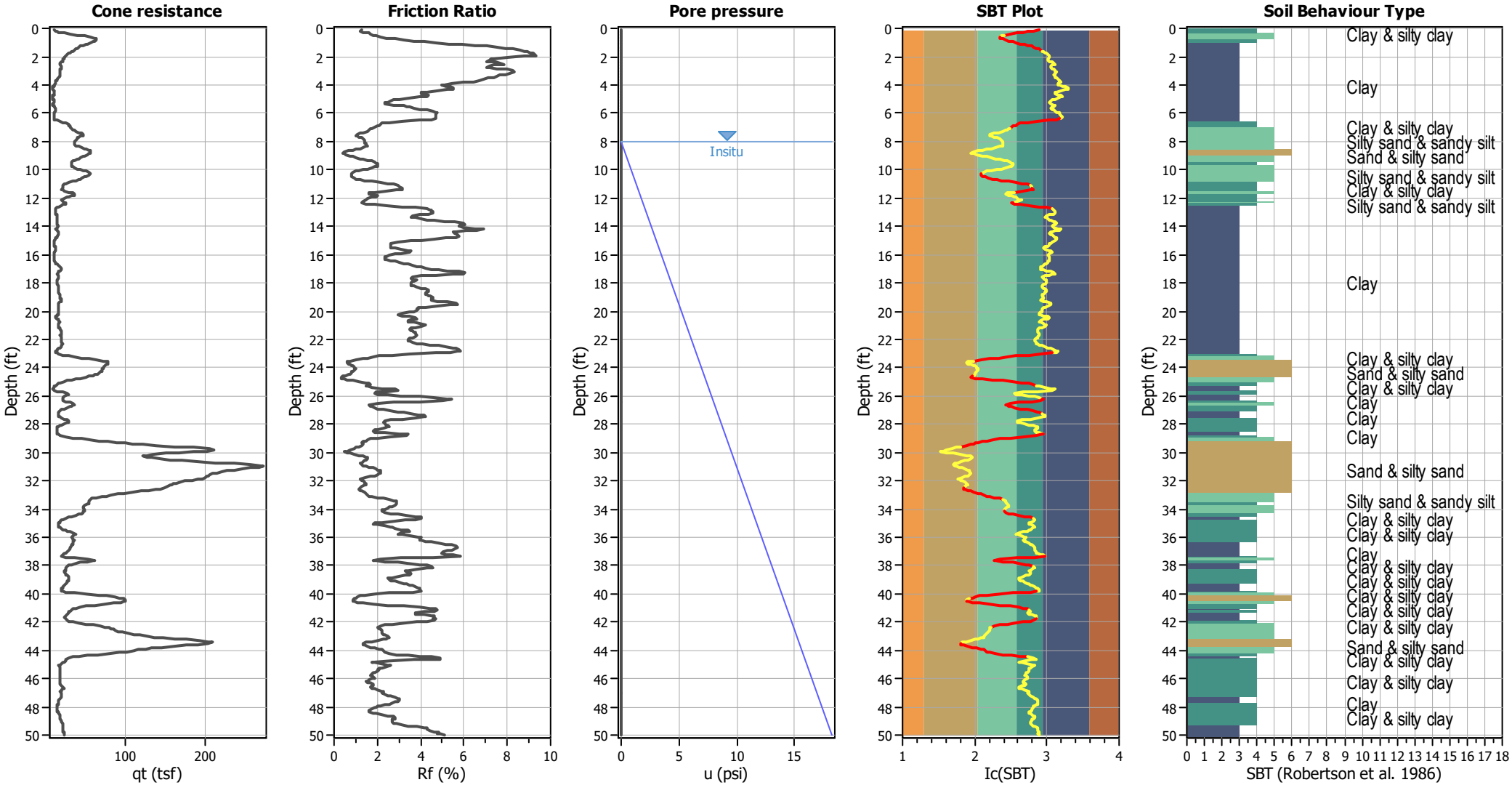






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



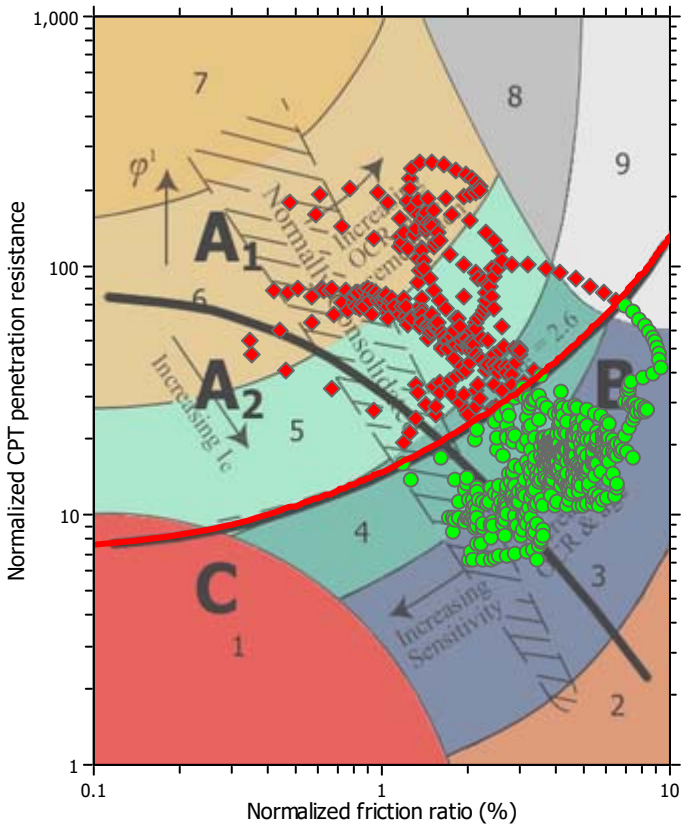
Input parameters and analysis data

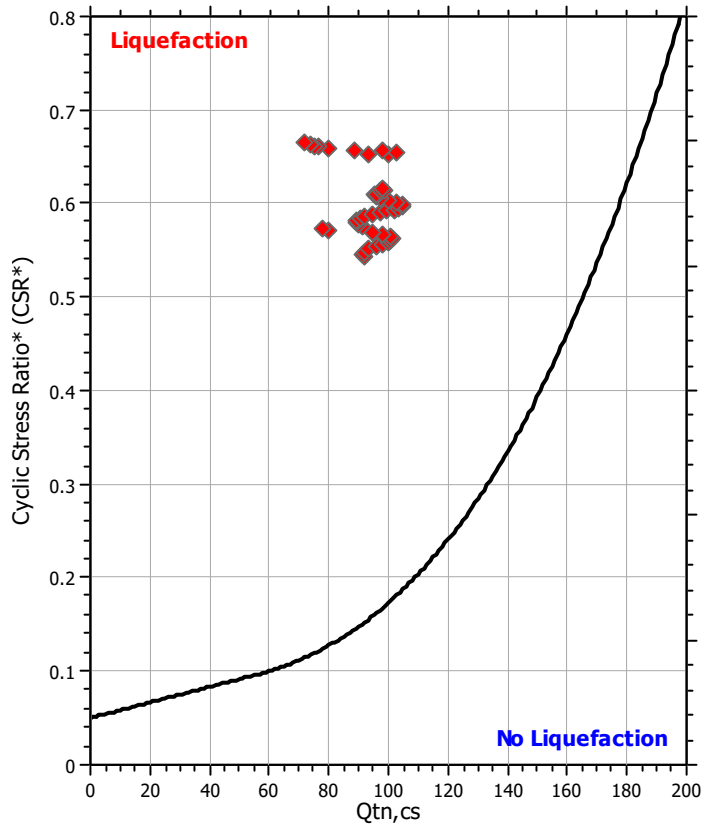
Analysis method:	NCEER (1998)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.78	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	8.00 ft	Fill height:	N/A	Limit depth:	N/A

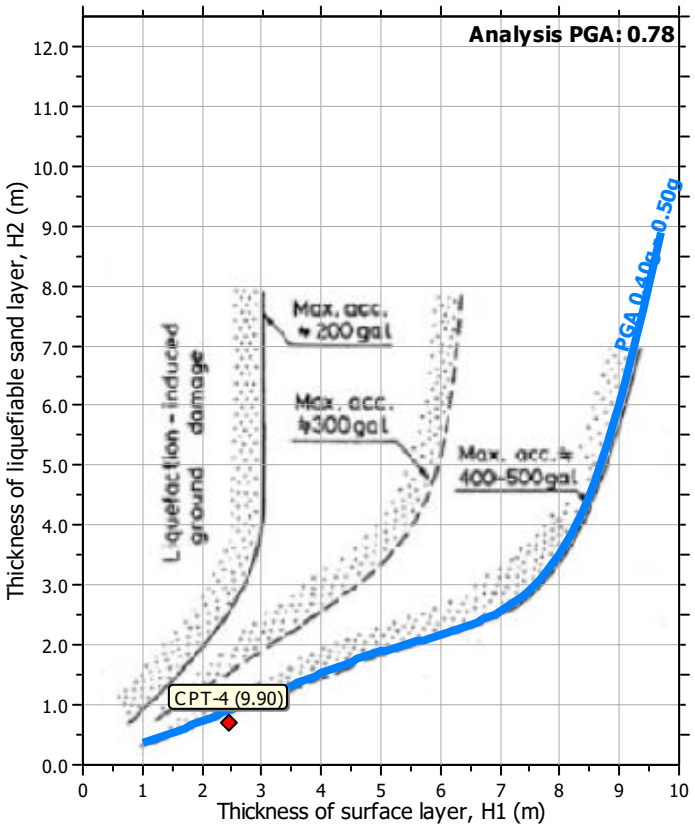
SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

Liquefaction analysis summary plots



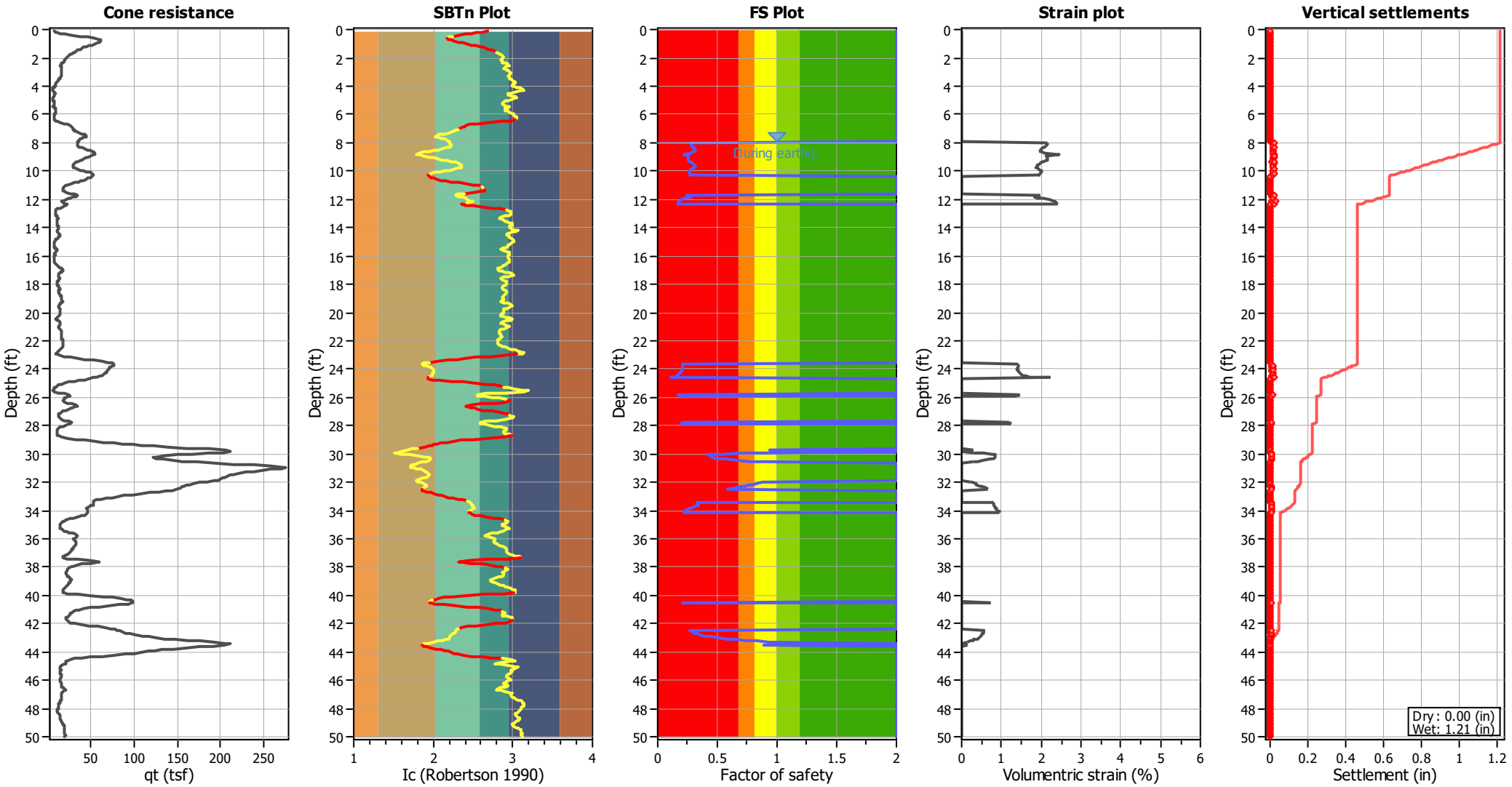




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.78	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	8.00 ft	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
8.02	91.91	0.28	2.16	0.86	0.02	8.08	91.26	0.28	2.17	0.86	0.02
8.14	91.76	0.28	2.16	0.86	0.02	8.21	93.53	0.28	2.12	0.86	0.02
8.28	96.00	0.29	2.08	0.86	0.02	8.36	98.24	0.30	2.04	0.86	0.02
8.42	99.76	0.31	2.01	0.86	0.01	8.47	100.59	0.31	1.99	0.86	0.01
8.53	101.07	0.31	1.98	0.86	0.01	8.60	100.64	0.31	1.99	0.85	0.02
8.66	98.17	0.30	2.02	0.85	0.01	8.74	94.31	0.28	2.09	0.85	0.02
8.81	79.57	0.22	2.40	0.85	0.02	8.86	77.63	0.22	2.44	0.85	0.01
8.95	91.12	0.26	2.14	0.85	0.02	9.01	90.18	0.26	2.16	0.85	0.02
9.09	89.46	0.25	2.17	0.85	0.02	9.14	89.38	0.25	2.17	0.85	0.01
9.20	90.48	0.26	2.14	0.84	0.01	9.26	92.12	0.26	2.11	0.84	0.02
9.34	94.34	0.27	2.06	0.84	0.02	9.39	97.10	0.28	2.01	0.84	0.01
9.47	99.54	0.29	1.97	0.84	0.02	9.53	101.77	0.30	1.93	0.84	0.01
9.59	103.37	0.31	1.90	0.84	0.01	9.65	104.47	0.31	1.89	0.84	0.02
9.72	104.53	0.31	1.88	0.84	0.01	9.78	102.49	0.30	1.91	0.83	0.02
9.87	99.76	0.29	1.95	0.83	0.02	9.92	97.33	0.27	1.99	0.83	0.01
9.98	95.64	0.27	2.01	0.83	0.01	10.05	95.25	0.26	2.02	0.83	0.02
10.11	96.15	0.27	2.00	0.83	0.01	10.21	97.49	0.27	1.97	0.83	0.02
10.26	98.83	0.28	1.95	0.83	0.01	10.31	98.08	0.27	1.96	0.83	0.01
10.39	95.43	2.00	0.00	0.82	0.00	10.45	91.83	2.00	0.00	0.82	0.00
10.51	88.50	2.00	0.00	0.82	0.00	10.58	86.52	2.00	0.00	0.82	0.00
10.64	86.13	2.00	0.00	0.82	0.00	10.71	87.21	2.00	0.00	0.82	0.00
10.77	90.15	2.00	0.00	0.82	0.00	10.83	96.06	2.00	0.00	0.82	0.00
10.90	103.66	2.00	0.00	0.82	0.00	10.98	111.10	2.00	0.00	0.81	0.00
11.03	116.38	2.00	0.00	0.81	0.00	11.09	119.19	2.00	0.00	0.81	0.00
11.16	120.50	2.00	0.00	0.81	0.00	11.22	120.76	2.00	0.00	0.81	0.00
11.30	122.80	2.00	0.00	0.81	0.00	11.35	123.08	2.00	0.00	0.81	0.00
11.43	117.92	2.00	0.00	0.81	0.00	11.51	105.86	2.00	0.00	0.80	0.00
11.57	93.55	2.00	0.00	0.80	0.00	11.63	90.06	2.00	0.00	0.80	0.00
11.71	93.40	0.24	1.98	0.80	0.02	11.77	99.98	0.26	1.87	0.80	0.01
11.82	102.63	0.28	1.83	0.80	0.01	11.90	98.10	0.26	1.90	0.80	0.02
11.96	88.47	0.22	2.06	0.80	0.02	12.01	79.78	0.19	2.24	0.80	0.01
12.11	76.46	0.18	2.31	0.79	0.03	12.14	75.20	0.18	2.34	0.79	0.01
12.21	73.50	0.18	2.39	0.79	0.02	12.29	72.05	0.17	2.42	0.79	0.02
12.34	73.20	2.00	0.00	0.79	0.00	12.41	78.78	2.00	0.00	0.79	0.00
12.47	89.16	2.00	0.00	0.79	0.00	12.55	101.70	2.00	0.00	0.79	0.00
12.60	114.71	2.00	0.00	0.79	0.00	12.69	123.24	2.00	0.00	0.78	0.00
12.75	127.90	2.00	0.00	0.78	0.00	12.81	129.06	2.00	0.00	0.78	0.00
12.87	129.24	2.00	0.00	0.78	0.00	12.93	129.35	2.00	0.00	0.78	0.00
13.00	129.71	2.00	0.00	0.78	0.00	13.08	129.38	2.00	0.00	0.78	0.00
13.13	128.15	2.00	0.00	0.78	0.00	13.19	123.96	2.00	0.00	0.78	0.00
13.27	120.57	2.00	0.00	0.78	0.00	13.32	119.67	2.00	0.00	0.77	0.00
13.40	122.77	2.00	0.00	0.77	0.00	13.47	127.45	2.00	0.00	0.77	0.00
13.52	132.36	2.00	0.00	0.77	0.00	13.59	137.02	2.00	0.00	0.77	0.00
13.67	143.97	2.00	0.00	0.77	0.00	13.72	151.17	2.00	0.00	0.77	0.00
13.80	157.96	2.00	0.00	0.77	0.00	13.86	162.74	2.00	0.00	0.77	0.00
13.91	163.49	2.00	0.00	0.76	0.00	13.99	160.75	2.00	0.00	0.76	0.00
14.04	164.40	2.00	0.00	0.76	0.00	14.13	166.90	2.00	0.00	0.76	0.00
14.20	168.65	2.00	0.00	0.76	0.00	14.26	167.14	2.00	0.00	0.76	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
14.33	164.47	2.00	0.00	0.76	0.00	14.38	157.88	2.00	0.00	0.76	0.00
14.44	158.12	2.00	0.00	0.76	0.00	14.53	159.97	2.00	0.00	0.75	0.00
14.58	162.45	2.00	0.00	0.75	0.00	14.64	161.10	2.00	0.00	0.75	0.00
14.71	160.38	2.00	0.00	0.75	0.00	14.78	152.98	2.00	0.00	0.75	0.00
14.83	141.07	2.00	0.00	0.75	0.00	14.93	128.50	2.00	0.00	0.75	0.00
14.97	116.02	2.00	0.00	0.75	0.00	15.03	105.52	2.00	0.00	0.75	0.00
15.12	95.91	2.00	0.00	0.74	0.00	15.18	88.70	2.00	0.00	0.74	0.00
15.25	88.64	2.00	0.00	0.74	0.00	15.31	89.64	2.00	0.00	0.74	0.00
15.37	90.40	2.00	0.00	0.74	0.00	15.43	92.79	2.00	0.00	0.74	0.00
15.51	95.62	2.00	0.00	0.74	0.00	15.56	99.96	2.00	0.00	0.74	0.00
15.62	103.99	2.00	0.00	0.74	0.00	15.71	108.17	2.00	0.00	0.73	0.00
15.76	110.43	2.00	0.00	0.73	0.00	15.84	107.66	2.00	0.00	0.73	0.00
15.89	100.18	2.00	0.00	0.73	0.00	15.95	94.44	2.00	0.00	0.73	0.00
16.01	89.00	2.00	0.00	0.73	0.00	16.09	85.58	2.00	0.00	0.73	0.00
16.16	84.13	2.00	0.00	0.73	0.00	16.22	83.77	2.00	0.00	0.73	0.00
16.30	83.54	2.00	0.00	0.72	0.00	16.35	85.19	2.00	0.00	0.72	0.00
16.41	89.61	2.00	0.00	0.72	0.00	16.47	94.74	2.00	0.00	0.72	0.00
16.54	100.52	2.00	0.00	0.72	0.00	16.62	105.75	2.00	0.00	0.72	0.00
16.67	112.74	2.00	0.00	0.72	0.00	16.74	119.37	2.00	0.00	0.72	0.00
16.82	126.52	2.00	0.00	0.71	0.00	16.87	133.82	2.00	0.00	0.71	0.00
16.96	140.44	2.00	0.00	0.71	0.00	17.02	146.63	2.00	0.00	0.71	0.00
17.08	151.78	2.00	0.00	0.71	0.00	17.17	156.18	2.00	0.00	0.71	0.00
17.21	159.85	2.00	0.00	0.71	0.00	17.27	162.80	2.00	0.00	0.71	0.00
17.33	158.58	2.00	0.00	0.71	0.00	17.41	150.24	2.00	0.00	0.70	0.00
17.46	136.90	2.00	0.00	0.70	0.00	17.53	127.08	2.00	0.00	0.70	0.00
17.61	120.01	2.00	0.00	0.70	0.00	17.66	118.19	2.00	0.00	0.70	0.00
17.75	118.13	2.00	0.00	0.70	0.00	17.81	117.86	2.00	0.00	0.70	0.00
17.86	115.80	2.00	0.00	0.70	0.00	17.92	114.00	2.00	0.00	0.70	0.00
18.00	113.05	2.00	0.00	0.69	0.00	18.05	114.25	2.00	0.00	0.69	0.00
18.14	115.95	2.00	0.00	0.69	0.00	18.18	118.11	2.00	0.00	0.69	0.00
18.24	120.77	2.00	0.00	0.69	0.00	18.31	124.30	2.00	0.00	0.69	0.00
18.38	128.21	2.00	0.00	0.69	0.00	18.44	130.64	2.00	0.00	0.69	0.00
18.52	131.92	2.00	0.00	0.69	0.00	18.57	132.03	2.00	0.00	0.69	0.00
18.66	131.58	2.00	0.00	0.68	0.00	18.72	131.43	2.00	0.00	0.68	0.00
18.78	133.29	2.00	0.00	0.68	0.00	18.86	136.38	2.00	0.00	0.68	0.00
18.91	138.78	2.00	0.00	0.68	0.00	18.97	140.15	2.00	0.00	0.68	0.00
19.05	140.99	2.00	0.00	0.68	0.00	19.11	142.25	2.00	0.00	0.68	0.00
19.16	143.16	2.00	0.00	0.68	0.00	19.26	144.36	2.00	0.00	0.67	0.00
19.30	147.51	2.00	0.00	0.67	0.00	19.38	150.95	2.00	0.00	0.67	0.00
19.45	155.66	2.00	0.00	0.67	0.00	19.50	155.25	2.00	0.00	0.67	0.00
19.56	149.78	2.00	0.00	0.67	0.00	19.64	138.51	2.00	0.00	0.67	0.00
19.69	129.13	2.00	0.00	0.67	0.00	19.75	124.32	2.00	0.00	0.67	0.00
19.84	123.64	2.00	0.00	0.66	0.00	19.89	123.78	2.00	0.00	0.66	0.00
19.98	122.82	2.00	0.00	0.66	0.00	20.02	120.12	2.00	0.00	0.66	0.00
20.09	115.65	2.00	0.00	0.66	0.00	20.16	109.77	2.00	0.00	0.66	0.00
20.23	104.92	2.00	0.00	0.66	0.00	20.29	103.18	2.00	0.00	0.66	0.00
20.35	104.54	2.00	0.00	0.66	0.00	20.41	108.72	2.00	0.00	0.65	0.00
20.48	112.12	2.00	0.00	0.65	0.00	20.55	115.17	2.00	0.00	0.65	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
20.61	115.22	2.00	0.00	0.65	0.00	20.67	115.76	2.00	0.00	0.65	0.00
20.75	117.53	2.00	0.00	0.65	0.00	20.82	121.04	2.00	0.00	0.65	0.00
20.87	124.81	2.00	0.00	0.65	0.00	20.95	127.03	2.00	0.00	0.64	0.00
21.00	126.66	2.00	0.00	0.64	0.00	21.09	124.30	2.00	0.00	0.64	0.00
21.14	121.50	2.00	0.00	0.64	0.00	21.20	119.82	2.00	0.00	0.64	0.00
21.28	119.79	2.00	0.00	0.64	0.00	21.34	121.28	2.00	0.00	0.64	0.00
21.39	123.05	2.00	0.00	0.64	0.00	21.48	124.08	2.00	0.00	0.64	0.00
21.54	124.64	2.00	0.00	0.63	0.00	21.60	125.35	2.00	0.00	0.63	0.00
21.68	125.70	2.00	0.00	0.63	0.00	21.74	126.12	2.00	0.00	0.63	0.00
21.79	124.88	2.00	0.00	0.63	0.00	21.87	123.27	2.00	0.00	0.63	0.00
21.92	120.74	2.00	0.00	0.63	0.00	21.99	119.37	2.00	0.00	0.63	0.00
22.06	119.01	2.00	0.00	0.63	0.00	22.12	120.59	2.00	0.00	0.63	0.00
22.18	124.85	2.00	0.00	0.62	0.00	22.27	129.57	2.00	0.00	0.62	0.00
22.32	134.82	2.00	0.00	0.62	0.00	22.39	140.17	2.00	0.00	0.62	0.00
22.46	145.66	2.00	0.00	0.62	0.00	22.52	149.69	2.00	0.00	0.62	0.00
22.58	152.16	2.00	0.00	0.62	0.00	22.65	149.97	2.00	0.00	0.62	0.00
22.73	146.01	2.00	0.00	0.61	0.00	22.78	141.01	2.00	0.00	0.61	0.00
22.85	136.25	2.00	0.00	0.61	0.00	22.92	131.14	2.00	0.00	0.61	0.00
22.98	125.16	2.00	0.00	0.61	0.00	23.04	114.93	2.00	0.00	0.61	0.00
23.12	105.08	2.00	0.00	0.61	0.00	23.16	95.79	2.00	0.00	0.61	0.00
23.24	91.87	2.00	0.00	0.61	0.00	23.30	90.08	2.00	0.00	0.61	0.00
23.38	89.68	2.00	0.00	0.60	0.00	23.43	91.45	2.00	0.00	0.60	0.00
23.50	95.10	2.00	0.00	0.60	0.00	23.57	97.55	2.00	0.00	0.60	0.00
23.63	98.64	0.21	1.42	0.60	0.01	23.72	99.00	0.21	1.41	0.60	0.02
23.76	98.89	0.21	1.41	0.60	0.01	23.82	98.60	0.21	1.41	0.60	0.01
23.89	98.38	0.20	1.41	0.59	0.01	23.97	98.26	0.20	1.41	0.59	0.01
24.02	98.12	0.20	1.41	0.59	0.01	24.09	97.53	0.20	1.41	0.59	0.01
24.15	96.11	0.20	1.43	0.59	0.01	24.22	94.05	0.19	1.45	0.59	0.01
24.29	91.49	0.18	1.48	0.59	0.01	24.36	88.82	0.18	1.51	0.59	0.01
24.43	85.64	0.17	1.55	0.59	0.01	24.48	81.67	0.16	1.61	0.59	0.01
24.55	76.03	0.15	1.71	0.58	0.01	24.63	54.97	0.12	2.22	0.58	0.02
24.69	49.80	2.00	0.00	0.58	0.00	24.74	43.95	2.00	0.00	0.58	0.00
24.82	38.06	2.00	0.00	0.58	0.00	24.88	53.74	2.00	0.00	0.58	0.00
24.94	58.50	2.00	0.00	0.58	0.00	25.01	65.67	2.00	0.00	0.58	0.00
25.07	72.58	2.00	0.00	0.58	0.00	25.14	74.21	2.00	0.00	0.57	0.00
25.21	72.08	2.00	0.00	0.57	0.00	25.27	67.08	2.00	0.00	0.57	0.00
25.33	66.04	2.00	0.00	0.57	0.00	25.42	69.35	2.00	0.00	0.57	0.00
25.47	74.66	2.00	0.00	0.57	0.00	25.53	81.34	2.00	0.00	0.57	0.00
25.61	87.06	2.00	0.00	0.57	0.00	25.67	89.00	2.00	0.00	0.56	0.00
25.73	86.83	2.00	0.00	0.56	0.00	25.81	87.31	0.17	1.47	0.56	0.01
25.87	92.45	0.18	1.40	0.56	0.01	25.93	103.03	2.00	0.00	0.56	0.00
26.01	116.61	2.00	0.00	0.56	0.00	26.06	131.97	2.00	0.00	0.56	0.00
26.14	143.58	2.00	0.00	0.56	0.00	26.20	152.28	2.00	0.00	0.56	0.00
26.25	155.44	2.00	0.00	0.56	0.00	26.34	149.76	2.00	0.00	0.55	0.00
26.39	136.28	2.00	0.00	0.55	0.00	26.45	114.10	2.00	0.00	0.55	0.00
26.54	96.81	2.00	0.00	0.55	0.00	26.59	85.51	2.00	0.00	0.55	0.00
26.64	83.80	2.00	0.00	0.55	0.00	26.73	84.35	2.00	0.00	0.55	0.00
26.79	86.13	2.00	0.00	0.55	0.00	26.84	87.24	2.00	0.00	0.55	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
26.91	89.54	2.00	0.00	0.54	0.00	26.97	93.79	2.00	0.00	0.54	0.00
27.04	97.82	2.00	0.00	0.54	0.00	27.11	101.69	2.00	0.00	0.54	0.00
27.18	105.58	2.00	0.00	0.54	0.00	27.25	110.93	2.00	0.00	0.54	0.00
27.32	116.12	2.00	0.00	0.54	0.00	27.38	120.27	2.00	0.00	0.54	0.00
27.44	122.46	2.00	0.00	0.53	0.00	27.50	123.29	2.00	0.00	0.53	0.00
27.57	120.37	2.00	0.00	0.53	0.00	27.65	114.81	2.00	0.00	0.53	0.00
27.70	106.85	2.00	0.00	0.53	0.00	27.77	101.67	0.21	1.22	0.53	0.01
27.82	99.06	0.20	1.24	0.53	0.01	27.90	98.61	2.00	0.00	0.53	0.00
27.95	96.76	2.00	0.00	0.53	0.00	28.05	95.59	2.00	0.00	0.52	0.00
28.09	93.82	2.00	0.00	0.52	0.00	28.15	92.64	2.00	0.00	0.52	0.00
28.23	89.59	2.00	0.00	0.52	0.00	28.30	84.68	2.00	0.00	0.52	0.00
28.38	79.58	2.00	0.00	0.52	0.00	28.43	75.85	2.00	0.00	0.52	0.00
28.49	75.05	2.00	0.00	0.52	0.00	28.56	75.60	2.00	0.00	0.52	0.00
28.61	84.49	2.00	0.00	0.52	0.00	28.69	96.48	2.00	0.00	0.51	0.00
28.75	107.64	2.00	0.00	0.51	0.00	28.83	110.74	2.00	0.00	0.51	0.00
28.88	103.37	2.00	0.00	0.51	0.00	28.96	95.23	2.00	0.00	0.51	0.00
29.02	91.41	2.00	0.00	0.51	0.00	29.07	93.55	2.00	0.00	0.51	0.00
29.16	98.25	2.00	0.00	0.51	0.00	29.22	105.15	2.00	0.00	0.50	0.00
29.27	114.70	2.00	0.00	0.50	0.00	29.36	125.25	2.00	0.00	0.50	0.00
29.41	136.76	2.00	0.00	0.50	0.00	29.46	149.29	2.00	0.00	0.50	0.00
29.53	164.38	2.00	0.00	0.50	0.00	29.60	181.15	2.00	0.00	0.50	0.00
29.66	190.14	2.00	0.00	0.50	0.00	29.74	197.84	0.94	0.28	0.50	0.00
29.79	202.95	2.00	0.00	0.50	0.00	29.88	194.40	0.89	0.29	0.49	0.00
29.94	178.04	0.71	0.53	0.49	0.00	29.99	159.43	0.54	0.78	0.49	0.00
30.08	143.93	0.42	0.85	0.49	0.01	30.14	148.90	0.45	0.82	0.49	0.01
30.19	147.92	0.45	0.83	0.49	0.01	30.25	147.84	0.45	0.83	0.49	0.01
30.32	154.56	0.50	0.79	0.49	0.01	30.39	162.52	0.56	0.73	0.48	0.01
30.46	172.65	0.65	0.55	0.48	0.00	30.53	183.71	0.77	0.40	0.48	0.00
30.58	196.91	0.93	0.28	0.48	0.00	30.64	211.45	2.00	0.00	0.48	0.00
30.73	222.74	2.00	0.00	0.48	0.00	30.78	234.56	2.00	0.00	0.48	0.00
30.87	245.44	2.00	0.00	0.48	0.00	30.92	264.36	2.00	0.00	0.48	0.00
31.00	279.71	2.00	0.00	0.47	0.00	31.04	289.31	2.00	0.00	0.47	0.00
31.11	288.23	2.00	0.00	0.47	0.00	31.19	282.67	2.00	0.00	0.47	0.00
31.24	275.46	2.00	0.00	0.47	0.00	31.31	268.44	2.00	0.00	0.47	0.00
31.38	261.32	2.00	0.00	0.47	0.00	31.43	254.45	2.00	0.00	0.47	0.00
31.50	248.27	2.00	0.00	0.47	0.00	31.59	242.59	2.00	0.00	0.46	0.00
31.65	237.08	2.00	0.00	0.46	0.00	31.70	228.94	2.00	0.00	0.46	0.00
31.78	219.08	2.00	0.00	0.46	0.00	31.84	207.21	2.00	0.00	0.46	0.00
31.90	203.25	2.00	0.00	0.46	0.00	31.98	198.99	0.95	0.21	0.46	0.00
32.03	193.65	0.88	0.27	0.46	0.00	32.10	188.88	0.83	0.37	0.46	0.00
32.16	185.41	0.79	0.38	0.45	0.00	32.22	182.80	0.76	0.38	0.45	0.00
32.30	180.09	0.73	0.48	0.45	0.00	32.35	176.60	0.69	0.50	0.45	0.00
32.42	171.53	0.64	0.63	0.45	0.01	32.50	165.12	0.58	0.66	0.45	0.01
32.56	159.02	2.00	0.00	0.45	0.00	32.62	153.33	2.00	0.00	0.45	0.00
32.68	146.35	2.00	0.00	0.45	0.00	32.74	137.92	2.00	0.00	0.45	0.00
32.82	129.34	2.00	0.00	0.44	0.00	32.88	120.92	2.00	0.00	0.44	0.00
32.97	113.97	2.00	0.00	0.44	0.00	33.02	108.84	2.00	0.00	0.44	0.00
33.08	106.30	2.00	0.00	0.44	0.00	33.16	105.84	2.00	0.00	0.44	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
33.21	108.37	2.00	0.00	0.44	0.00	33.28	113.79	2.00	0.00	0.44	0.00
33.35	120.86	2.00	0.00	0.43	0.00	33.40	126.60	2.00	0.00	0.43	0.00
33.47	130.01	0.33	0.82	0.43	0.01	33.55	131.66	0.34	0.80	0.43	0.01
33.60	131.43	0.34	0.80	0.43	0.01	33.67	128.81	0.32	0.82	0.43	0.01
33.76	124.95	0.30	0.83	0.43	0.01	33.81	120.30	0.28	0.86	0.43	0.01
33.87	116.43	0.26	0.88	0.43	0.01	33.94	113.24	0.25	0.90	0.42	0.01
34.01	109.72	0.24	0.92	0.42	0.01	34.06	106.98	0.23	0.93	0.42	0.01
34.15	105.98	0.22	0.94	0.42	0.01	34.20	106.31	2.00	0.00	0.42	0.00
34.26	109.79	2.00	0.00	0.42	0.00	34.34	115.44	2.00	0.00	0.42	0.00
34.39	123.79	2.00	0.00	0.42	0.00	34.46	130.47	2.00	0.00	0.42	0.00
34.54	135.03	2.00	0.00	0.41	0.00	34.59	134.71	2.00	0.00	0.41	0.00
34.65	129.20	2.00	0.00	0.41	0.00	34.73	119.66	2.00	0.00	0.41	0.00
34.78	107.85	2.00	0.00	0.41	0.00	34.85	96.06	2.00	0.00	0.41	0.00
34.93	85.03	2.00	0.00	0.41	0.00	34.98	77.82	2.00	0.00	0.41	0.00
35.04	75.88	2.00	0.00	0.41	0.00	35.10	78.91	2.00	0.00	0.41	0.00
35.17	85.96	2.00	0.00	0.40	0.00	35.25	90.76	2.00	0.00	0.40	0.00
35.30	93.43	2.00	0.00	0.40	0.00	35.39	98.23	2.00	0.00	0.40	0.00
35.45	106.67	2.00	0.00	0.40	0.00	35.50	116.70	2.00	0.00	0.40	0.00
35.59	122.60	2.00	0.00	0.40	0.00	35.64	122.67	2.00	0.00	0.40	0.00
35.71	120.79	2.00	0.00	0.39	0.00	35.78	120.38	2.00	0.00	0.39	0.00
35.83	124.90	2.00	0.00	0.39	0.00	35.90	131.67	2.00	0.00	0.39	0.00
35.98	137.03	2.00	0.00	0.39	0.00	36.04	139.88	2.00	0.00	0.39	0.00
36.09	140.40	2.00	0.00	0.39	0.00	36.18	140.95	2.00	0.00	0.39	0.00
36.23	142.81	2.00	0.00	0.39	0.00	36.29	146.83	2.00	0.00	0.38	0.00
36.35	153.09	2.00	0.00	0.38	0.00	36.43	159.41	2.00	0.00	0.38	0.00
36.48	165.13	2.00	0.00	0.38	0.00	36.55	168.94	2.00	0.00	0.38	0.00
36.63	170.27	2.00	0.00	0.38	0.00	36.72	169.75	2.00	0.00	0.38	0.00
36.76	167.61	2.00	0.00	0.38	0.00	36.83	164.76	2.00	0.00	0.38	0.00
36.89	160.10	2.00	0.00	0.37	0.00	36.95	154.32	2.00	0.00	0.37	0.00
37.02	148.26	2.00	0.00	0.37	0.00	37.09	142.38	2.00	0.00	0.37	0.00
37.15	139.04	2.00	0.00	0.37	0.00	37.21	138.89	2.00	0.00	0.37	0.00
37.29	140.40	2.00	0.00	0.37	0.00	37.34	142.84	2.00	0.00	0.37	0.00
37.41	138.09	2.00	0.00	0.37	0.00	37.49	122.28	2.00	0.00	0.36	0.00
37.55	104.66	2.00	0.00	0.36	0.00	37.60	100.33	2.00	0.00	0.36	0.00
37.66	102.80	2.00	0.00	0.36	0.00	37.75	110.66	2.00	0.00	0.36	0.00
37.80	121.84	2.00	0.00	0.36	0.00	37.89	129.66	2.00	0.00	0.36	0.00
37.94	136.50	2.00	0.00	0.36	0.00	38.00	139.48	2.00	0.00	0.36	0.00
38.08	139.91	2.00	0.00	0.35	0.00	38.14	137.57	2.00	0.00	0.35	0.00
38.19	131.45	2.00	0.00	0.35	0.00	38.26	122.64	2.00	0.00	0.35	0.00
38.33	115.29	2.00	0.00	0.35	0.00	38.40	112.61	2.00	0.00	0.35	0.00
38.45	114.06	2.00	0.00	0.35	0.00	38.53	116.05	2.00	0.00	0.35	0.00
38.59	117.83	2.00	0.00	0.35	0.00	38.65	118.18	2.00	0.00	0.34	0.00
38.73	115.51	2.00	0.00	0.34	0.00	38.79	110.60	2.00	0.00	0.34	0.00
38.85	105.21	2.00	0.00	0.34	0.00	38.94	101.39	2.00	0.00	0.34	0.00
38.99	101.15	2.00	0.00	0.34	0.00	39.08	103.18	2.00	0.00	0.34	0.00
39.11	106.68	2.00	0.00	0.34	0.00	39.18	109.80	2.00	0.00	0.34	0.00
39.26	112.69	2.00	0.00	0.33	0.00	39.32	114.40	2.00	0.00	0.33	0.00
39.38	115.35	2.00	0.00	0.33	0.00	39.44	115.94	2.00	0.00	0.33	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
39.51	115.75	2.00	0.00	0.33	0.00	39.57	115.39	2.00	0.00	0.33	0.00
39.66	114.55	2.00	0.00	0.33	0.00	39.71	114.48	2.00	0.00	0.33	0.00
39.77	115.64	2.00	0.00	0.33	0.00	39.83	118.25	2.00	0.00	0.32	0.00
39.91	118.58	2.00	0.00	0.32	0.00	39.96	107.25	2.00	0.00	0.32	0.00
40.05	94.17	2.00	0.00	0.32	0.00	40.09	87.80	2.00	0.00	0.32	0.00
40.17	89.40	2.00	0.00	0.32	0.00	40.23	94.17	2.00	0.00	0.32	0.00
40.30	98.16	2.00	0.00	0.32	0.00	40.36	101.32	2.00	0.00	0.32	0.00
40.43	102.58	2.00	0.00	0.31	0.00	40.50	102.44	0.21	0.72	0.31	0.01
40.58	101.42	2.00	0.00	0.31	0.00	40.62	99.51	2.00	0.00	0.31	0.00
40.69	98.53	2.00	0.00	0.31	0.00	40.78	104.04	2.00	0.00	0.31	0.00
40.83	118.31	2.00	0.00	0.31	0.00	40.89	134.26	2.00	0.00	0.31	0.00
40.96	147.73	2.00	0.00	0.31	0.00	41.02	152.94	2.00	0.00	0.30	0.00
41.08	153.09	2.00	0.00	0.30	0.00	41.17	150.53	2.00	0.00	0.30	0.00
41.21	144.27	2.00	0.00	0.30	0.00	41.28	133.05	2.00	0.00	0.30	0.00
41.34	124.95	2.00	0.00	0.30	0.00	41.41	123.66	2.00	0.00	0.30	0.00
41.47	129.42	2.00	0.00	0.30	0.00	41.55	131.17	2.00	0.00	0.30	0.00
41.61	131.69	2.00	0.00	0.29	0.00	41.67	131.51	2.00	0.00	0.29	0.00
41.75	131.72	2.00	0.00	0.29	0.00	41.81	133.68	2.00	0.00	0.29	0.00
41.87	135.32	2.00	0.00	0.29	0.00	41.95	136.52	2.00	0.00	0.29	0.00
42.01	133.55	2.00	0.00	0.29	0.00	42.06	126.51	2.00	0.00	0.29	0.00
42.15	118.65	2.00	0.00	0.29	0.00	42.20	112.75	2.00	0.00	0.28	0.00
42.26	110.43	2.00	0.00	0.28	0.00	42.35	110.54	2.00	0.00	0.28	0.00
42.40	113.03	2.00	0.00	0.28	0.00	42.49	116.13	0.26	0.58	0.28	0.01
42.54	119.58	0.28	0.56	0.28	0.00	42.59	122.34	0.29	0.55	0.28	0.00
42.66	125.09	0.31	0.54	0.28	0.00	42.72	128.72	0.32	0.52	0.28	0.00
42.79	133.58	0.35	0.51	0.27	0.00	42.86	139.65	0.39	0.49	0.27	0.00
42.92	147.57	0.44	0.46	0.27	0.00	42.99	156.45	0.51	0.44	0.27	0.00
43.06	164.99	0.58	0.40	0.27	0.00	43.12	172.87	0.65	0.30	0.27	0.00
43.18	180.66	0.73	0.28	0.27	0.00	43.26	188.80	0.83	0.21	0.27	0.00
43.31	197.38	0.93	0.15	0.27	0.00	43.39	202.79	2.00	0.00	0.26	0.00
43.47	202.78	2.00	0.00	0.26	0.00	43.52	194.42	0.89	0.15	0.26	0.00
43.60	184.15	2.00	0.00	0.26	0.00	43.64	172.37	2.00	0.00	0.26	0.00
43.70	159.95	2.00	0.00	0.26	0.00	43.80	149.72	2.00	0.00	0.26	0.00
43.85	143.78	2.00	0.00	0.26	0.00	43.90	141.98	2.00	0.00	0.26	0.00
43.97	140.68	2.00	0.00	0.25	0.00	44.05	138.65	2.00	0.00	0.25	0.00
44.10	134.23	2.00	0.00	0.25	0.00	44.18	129.10	2.00	0.00	0.25	0.00
44.24	127.28	2.00	0.00	0.25	0.00	44.30	131.17	2.00	0.00	0.25	0.00
44.38	138.30	2.00	0.00	0.25	0.00	44.44	143.07	2.00	0.00	0.25	0.00
44.49	144.46	2.00	0.00	0.25	0.00	44.58	141.38	2.00	0.00	0.24	0.00
44.64	134.49	2.00	0.00	0.24	0.00	44.69	114.92	2.00	0.00	0.24	0.00
44.75	94.91	2.00	0.00	0.24	0.00	44.83	78.00	2.00	0.00	0.24	0.00
44.88	79.02	2.00	0.00	0.24	0.00	44.95	82.68	2.00	0.00	0.24	0.00
45.02	84.48	2.00	0.00	0.24	0.00	45.09	84.97	2.00	0.00	0.24	0.00
45.15	83.08	2.00	0.00	0.23	0.00	45.22	80.12	2.00	0.00	0.23	0.00
45.29	77.57	2.00	0.00	0.23	0.00	45.35	77.09	2.00	0.00	0.23	0.00
45.41	77.44	2.00	0.00	0.23	0.00	45.49	76.61	2.00	0.00	0.23	0.00
45.55	74.55	2.00	0.00	0.23	0.00	45.61	73.54	2.00	0.00	0.23	0.00
45.69	72.79	2.00	0.00	0.23	0.00	45.75	72.06	2.00	0.00	0.22	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
45.80	72.34	2.00	0.00	0.22	0.00	45.89	72.30	2.00	0.00	0.22	0.00
45.95	73.49	2.00	0.00	0.22	0.00	46.00	71.70	2.00	0.00	0.22	0.00
46.09	70.38	2.00	0.00	0.22	0.00	46.15	68.44	2.00	0.00	0.22	0.00
46.20	68.14	2.00	0.00	0.22	0.00	46.27	69.27	2.00	0.00	0.22	0.00
46.34	71.37	2.00	0.00	0.21	0.00	46.40	74.34	2.00	0.00	0.21	0.00
46.47	75.19	2.00	0.00	0.21	0.00	46.53	75.18	2.00	0.00	0.21	0.00
46.62	75.29	2.00	0.00	0.21	0.00	46.67	76.50	2.00	0.00	0.21	0.00
46.72	78.76	2.00	0.00	0.21	0.00	46.81	80.81	2.00	0.00	0.21	0.00
46.87	81.62	2.00	0.00	0.21	0.00	46.92	81.85	2.00	0.00	0.20	0.00
47.01	81.93	2.00	0.00	0.20	0.00	47.06	82.07	2.00	0.00	0.20	0.00
47.12	83.73	2.00	0.00	0.20	0.00	47.20	86.06	2.00	0.00	0.20	0.00
47.26	88.67	2.00	0.00	0.20	0.00	47.31	90.55	2.00	0.00	0.20	0.00
47.40	91.38	2.00	0.00	0.20	0.00	47.45	91.19	2.00	0.00	0.20	0.00
47.51	89.80	2.00	0.00	0.19	0.00	47.60	87.97	2.00	0.00	0.19	0.00
47.65	85.63	2.00	0.00	0.19	0.00	47.71	83.00	2.00	0.00	0.19	0.00
47.80	80.15	2.00	0.00	0.19	0.00	47.85	76.83	2.00	0.00	0.19	0.00
47.94	74.31	2.00	0.00	0.19	0.00	47.98	72.23	2.00	0.00	0.19	0.00
48.04	71.01	2.00	0.00	0.19	0.00	48.10	69.36	2.00	0.00	0.18	0.00
48.17	67.42	2.00	0.00	0.18	0.00	48.23	65.23	2.00	0.00	0.18	0.00
48.31	64.76	2.00	0.00	0.18	0.00	48.36	66.57	2.00	0.00	0.18	0.00
48.43	70.52	2.00	0.00	0.18	0.00	48.51	74.26	2.00	0.00	0.18	0.00
48.56	78.49	2.00	0.00	0.18	0.00	48.65	82.78	2.00	0.00	0.18	0.00
48.71	86.77	2.00	0.00	0.17	0.00	48.76	88.59	2.00	0.00	0.17	0.00
48.84	88.71	2.00	0.00	0.17	0.00	48.90	88.13	2.00	0.00	0.17	0.00
48.95	88.58	2.00	0.00	0.17	0.00	49.05	89.58	2.00	0.00	0.17	0.00
49.10	90.81	2.00	0.00	0.17	0.00	49.15	92.45	2.00	0.00	0.17	0.00
49.23	95.10	2.00	0.00	0.17	0.00	49.30	98.62	2.00	0.00	0.16	0.00
49.35	103.11	2.00	0.00	0.16	0.00	49.41	108.56	2.00	0.00	0.16	0.00
49.49	113.97	2.00	0.00	0.16	0.00	49.54	115.72	2.00	0.00	0.16	0.00
49.63	115.81	2.00	0.00	0.16	0.00	49.69	117.25	2.00	0.00	0.16	0.00
49.76	120.75	2.00	0.00	0.16	0.00	49.82	124.04	2.00	0.00	0.16	0.00
49.87	125.14	2.00	0.00	0.15	0.00	49.95	126.69	2.00	0.00	0.15	0.00
50.01	127.83	2.00	0.00	0.15	0.00						

Total estimated settlement: 1.21

Abbreviations

$Q_{tn,cs}$: Equivalent clean sand normalized cone resistance
FS: Factor of safety against liquefaction
e_v (%): Post-liquefaction volumentric strain
DF: e_v depth weighting factor
Settlement: Calculated settlement

Landmark Consultants, Inc.
780 N. 4th Street
El Centro, CA 92243

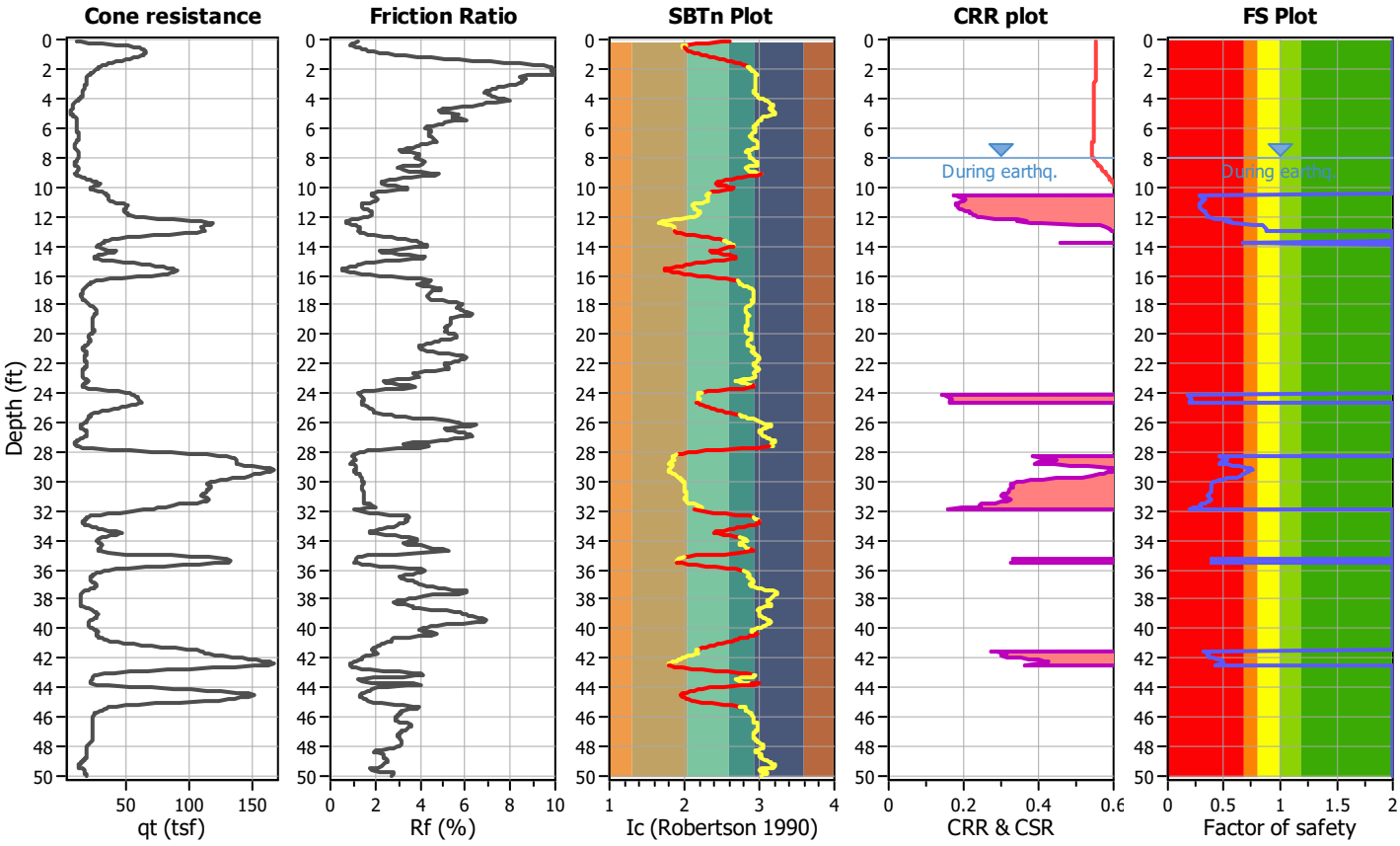
LIQUEFACTION ANALYSIS REPORT

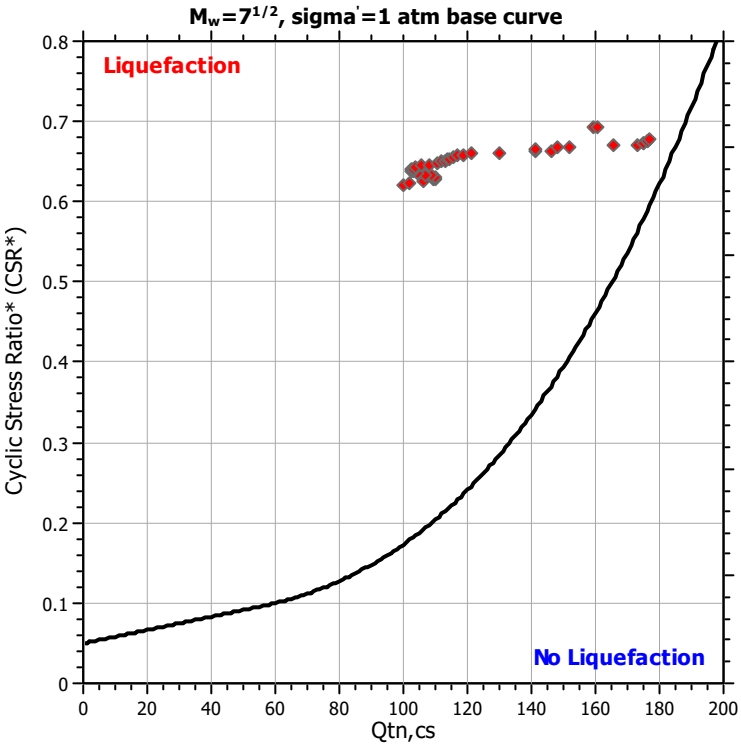
Project title : IV Data Center Campus Site #2 **Location : Imperial, CA**

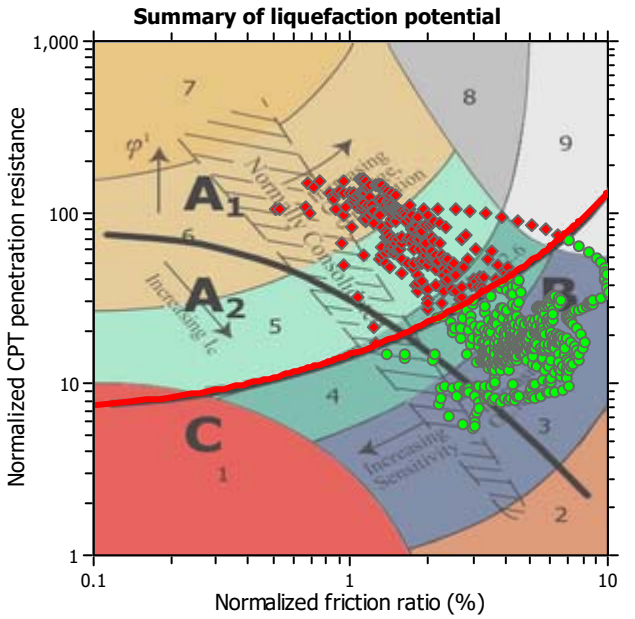
CPT file : CPT-5

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	8.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	8.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.00	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.78	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

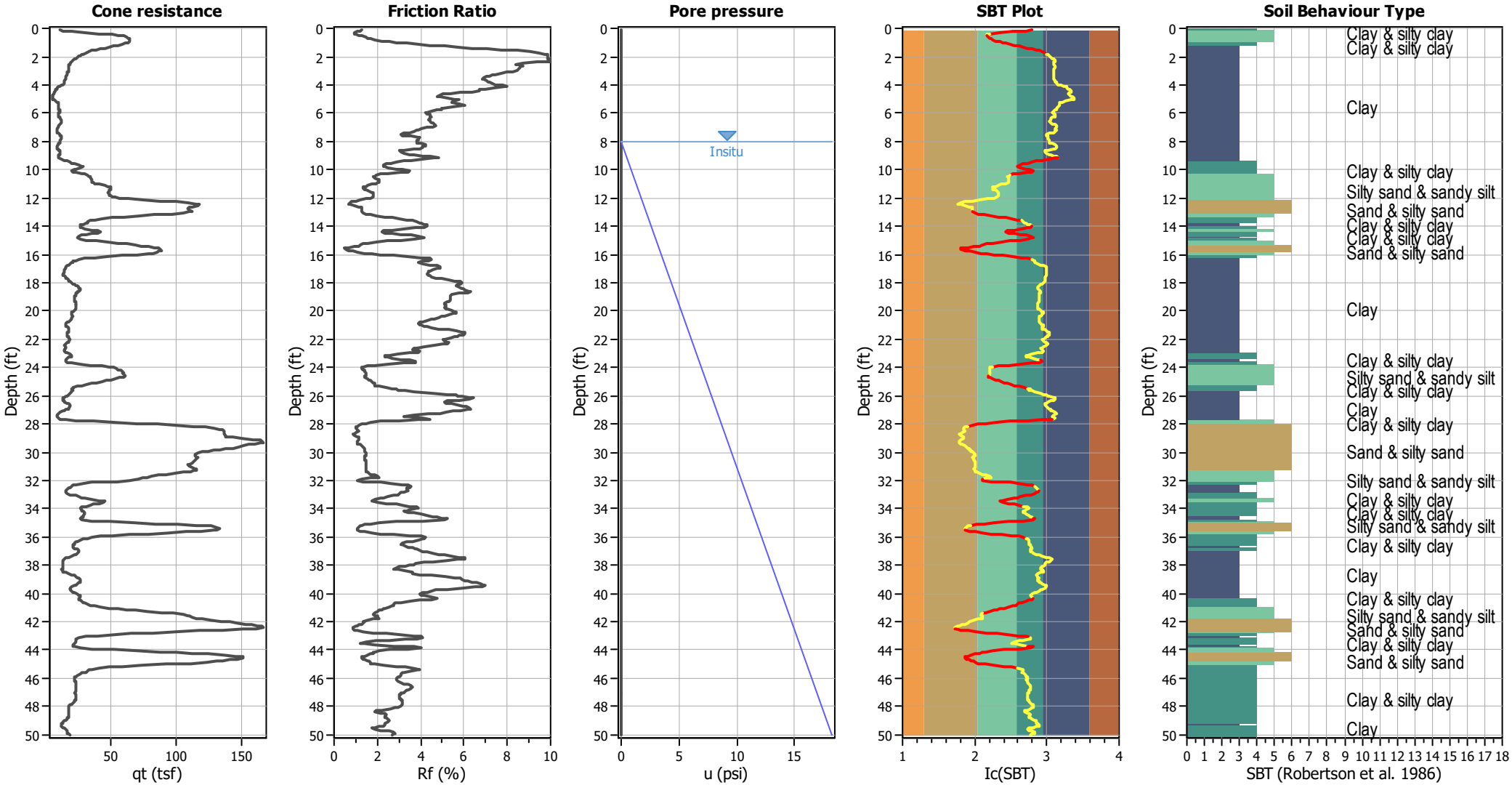






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



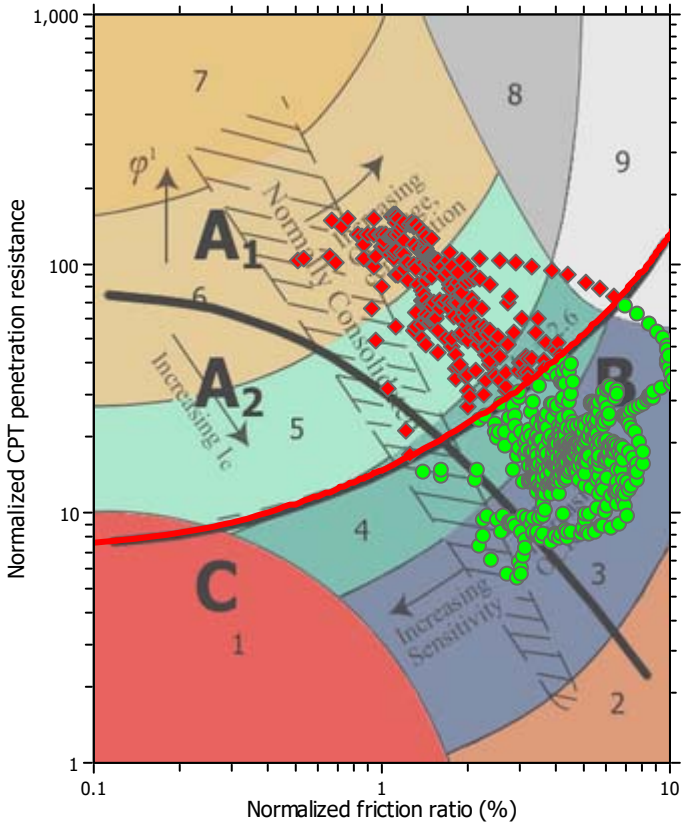
Input parameters and analysis data

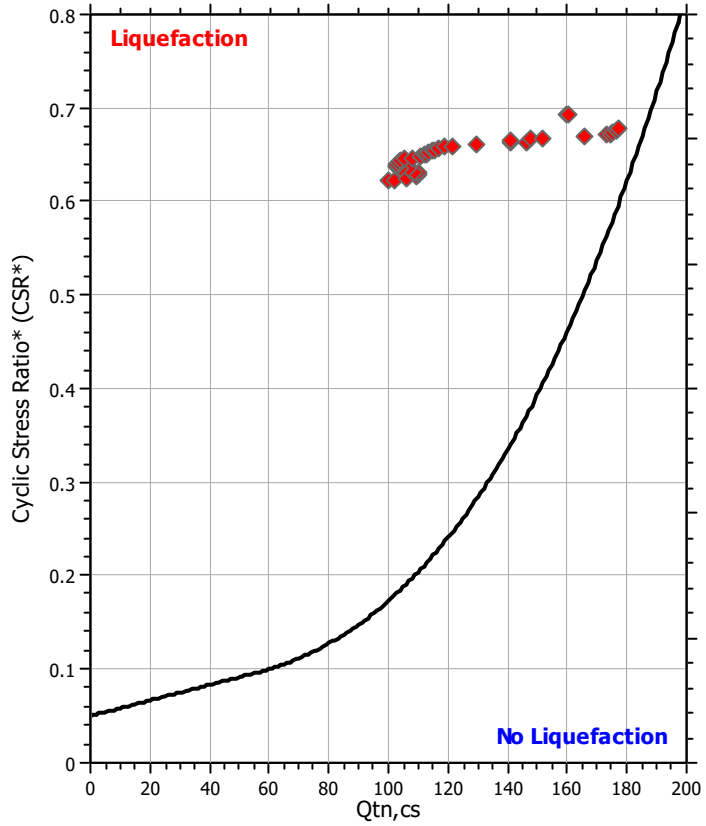
Analysis method:	NCEER (1998)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.78	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	8.00 ft	Fill height:	N/A	Limit depth:	N/A

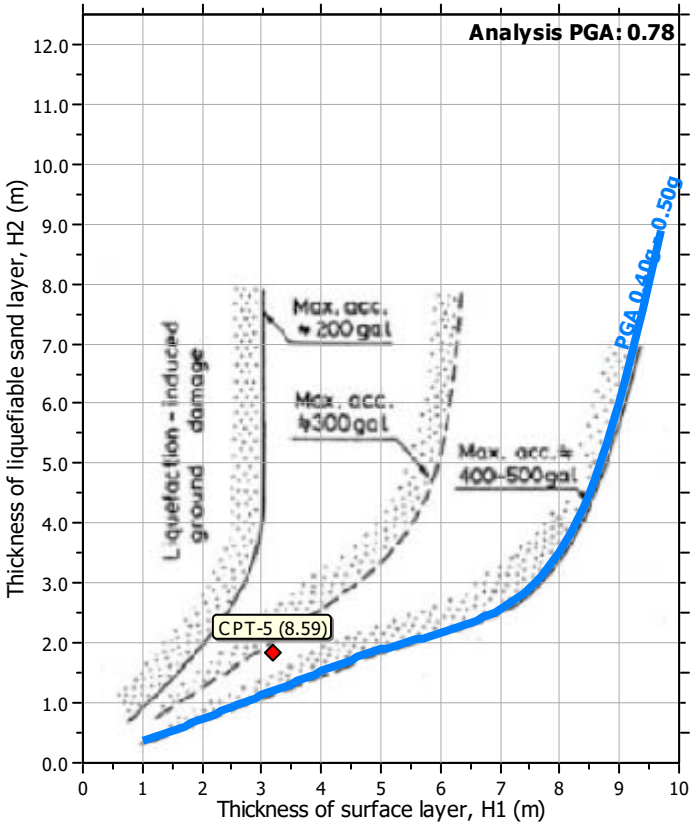
SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

Liquefaction analysis summary plots



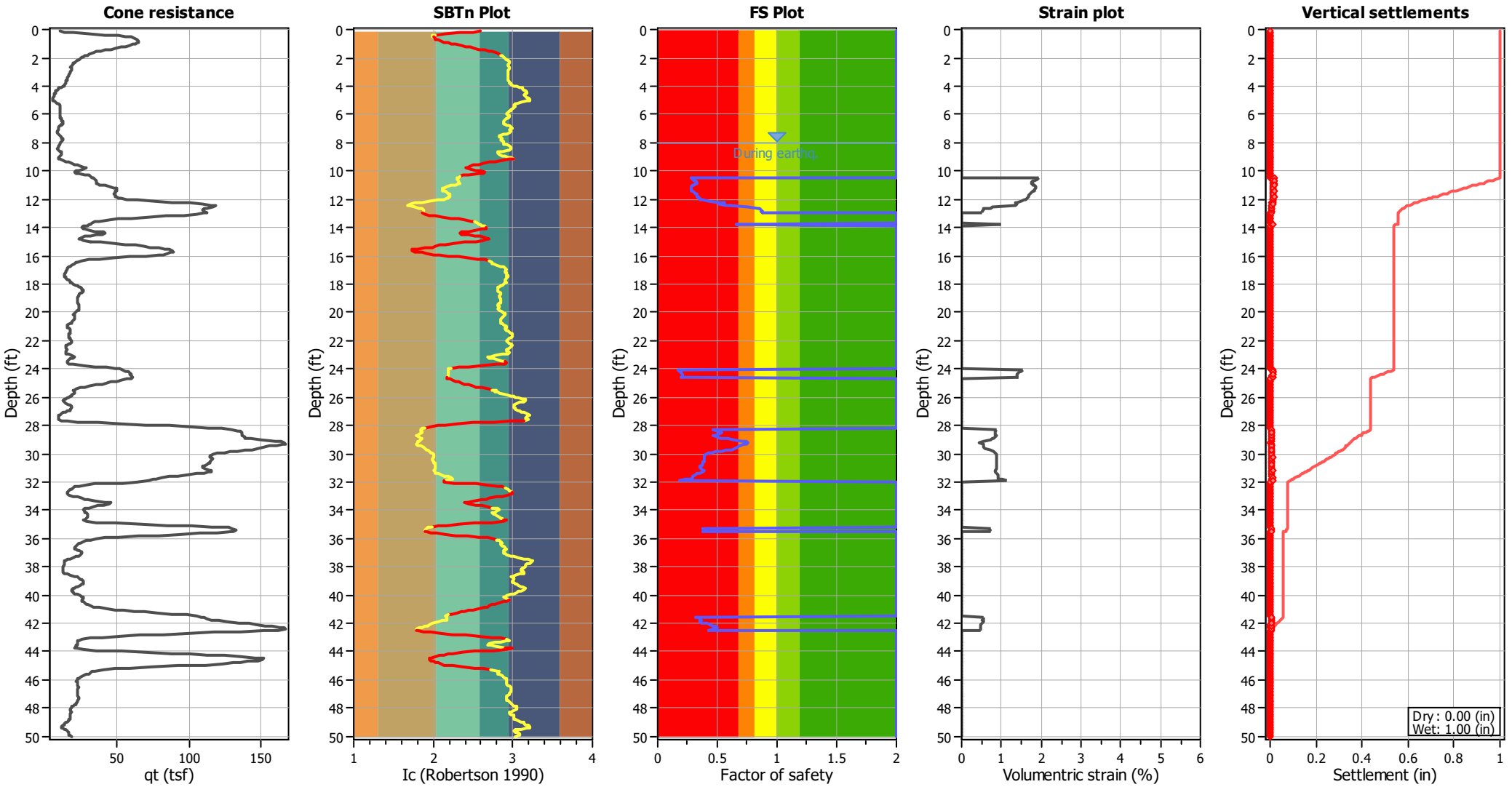




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.78	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	8.00 ft	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
8.02	118.73	2.00	0.00	0.86	0.00	8.07	118.73	2.00	0.00	0.86	0.00
8.15	120.65	2.00	0.00	0.86	0.00	8.21	120.94	2.00	0.00	0.86	0.00
8.27	119.57	2.00	0.00	0.86	0.00	8.34	117.27	2.00	0.00	0.86	0.00
8.40	116.12	2.00	0.00	0.86	0.00	8.49	114.43	2.00	0.00	0.86	0.00
8.54	111.58	2.00	0.00	0.86	0.00	8.60	107.12	2.00	0.00	0.85	0.00
8.68	104.84	2.00	0.00	0.85	0.00	8.73	106.60	2.00	0.00	0.85	0.00
8.80	109.01	2.00	0.00	0.85	0.00	8.89	112.45	2.00	0.00	0.85	0.00
8.95	114.87	2.00	0.00	0.85	0.00	8.99	119.48	2.00	0.00	0.85	0.00
9.07	124.44	2.00	0.00	0.85	0.00	9.12	128.92	2.00	0.00	0.85	0.00
9.19	129.70	2.00	0.00	0.84	0.00	9.26	127.56	2.00	0.00	0.84	0.00
9.34	123.78	2.00	0.00	0.84	0.00	9.40	120.29	2.00	0.00	0.84	0.00
9.46	115.70	2.00	0.00	0.84	0.00	9.52	110.83	2.00	0.00	0.84	0.00
9.59	107.36	2.00	0.00	0.84	0.00	9.65	107.00	2.00	0.00	0.84	0.00
9.74	108.03	2.00	0.00	0.83	0.00	9.80	110.88	2.00	0.00	0.83	0.00
9.85	115.28	2.00	0.00	0.83	0.00	9.93	122.51	2.00	0.00	0.83	0.00
9.98	127.47	2.00	0.00	0.83	0.00	10.04	133.35	2.00	0.00	0.83	0.00
10.13	132.85	2.00	0.00	0.83	0.00	10.19	126.54	2.00	0.00	0.83	0.00
10.26	114.12	2.00	0.00	0.83	0.00	10.32	106.11	2.00	0.00	0.83	0.00
10.38	102.22	2.00	0.00	0.82	0.00	10.44	100.31	2.00	0.00	0.82	0.00
10.51	99.84	0.28	1.92	0.82	0.02	10.57	102.12	0.29	1.89	0.82	0.01
10.66	106.02	0.31	1.82	0.82	0.02	10.72	109.15	0.32	1.78	0.82	0.01
10.77	110.17	0.33	1.76	0.82	0.01	10.85	110.22	0.32	1.76	0.82	0.02
10.91	108.71	0.32	1.78	0.82	0.01	11.00	106.75	0.30	1.80	0.81	0.02
11.05	104.14	0.29	1.84	0.81	0.01	11.11	102.83	0.28	1.85	0.81	0.01
11.16	102.68	0.28	1.85	0.81	0.01	11.23	102.78	0.28	1.85	0.81	0.02
11.29	103.04	0.28	1.84	0.81	0.01	11.39	103.72	0.29	1.83	0.81	0.02
11.45	105.32	0.29	1.81	0.81	0.01	11.49	107.92	0.30	1.77	0.81	0.01
11.57	110.45	0.32	1.73	0.80	0.02	11.63	112.08	0.32	1.71	0.80	0.01
11.69	113.07	0.33	1.69	0.80	0.01	11.78	113.71	0.33	1.68	0.80	0.02
11.83	114.58	0.34	1.67	0.80	0.01	11.88	115.74	0.34	1.66	0.80	0.01
11.96	117.09	0.35	1.64	0.80	0.01	12.02	118.66	0.36	1.62	0.80	0.01
12.08	121.30	0.37	1.59	0.80	0.01	12.15	129.77	0.43	1.50	0.79	0.01
12.22	141.15	0.52	1.40	0.79	0.01	12.27	145.99	0.56	1.36	0.79	0.01
12.36	141.07	0.51	1.39	0.79	0.01	12.42	147.97	0.57	1.36	0.79	0.01
12.48	151.65	0.61	1.31	0.79	0.01	12.55	165.89	0.75	0.76	0.79	0.01
12.62	173.15	0.84	0.72	0.79	0.01	12.67	174.76	0.86	0.54	0.79	0.00
12.76	175.25	0.86	0.54	0.78	0.01	12.82	176.48	0.88	0.53	0.78	0.00
12.87	176.19	0.87	0.53	0.78	0.00	12.93	176.90	0.88	0.53	0.78	0.00
13.00	175.38	2.00	0.00	0.78	0.00	13.06	170.55	2.00	0.00	0.78	0.00
13.12	161.45	2.00	0.00	0.78	0.00	13.19	149.50	2.00	0.00	0.78	0.00
13.28	141.16	2.00	0.00	0.77	0.00	13.34	138.55	2.00	0.00	0.77	0.00
13.40	140.39	2.00	0.00	0.77	0.00	13.46	144.15	2.00	0.00	0.77	0.00
13.53	149.50	2.00	0.00	0.77	0.00	13.60	153.84	2.00	0.00	0.77	0.00
13.65	157.97	2.00	0.00	0.77	0.00	13.74	159.64	0.66	0.97	0.77	0.01
13.79	160.69	0.67	0.96	0.77	0.01	13.87	161.31	2.00	0.00	0.76	0.00
13.93	162.74	2.00	0.00	0.76	0.00	13.98	161.45	2.00	0.00	0.76	0.00
14.05	157.07	2.00	0.00	0.76	0.00	14.12	148.76	2.00	0.00	0.76	0.00
14.18	135.93	2.00	0.00	0.76	0.00	14.27	123.27	2.00	0.00	0.76	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
14.32	115.25	2.00	0.00	0.76	0.00	14.37	114.90	2.00	0.00	0.76	0.00
14.45	117.04	2.00	0.00	0.76	0.00	14.51	124.49	2.00	0.00	0.75	0.00
14.61	132.78	2.00	0.00	0.75	0.00	14.64	142.31	2.00	0.00	0.75	0.00
14.70	149.06	2.00	0.00	0.75	0.00	14.78	153.36	2.00	0.00	0.75	0.00
14.85	152.71	2.00	0.00	0.75	0.00	14.90	144.90	2.00	0.00	0.75	0.00
14.98	132.83	2.00	0.00	0.75	0.00	15.03	119.35	2.00	0.00	0.75	0.00
15.10	109.93	2.00	0.00	0.74	0.00	15.17	107.58	2.00	0.00	0.74	0.00
15.23	109.24	2.00	0.00	0.74	0.00	15.29	113.55	2.00	0.00	0.74	0.00
15.39	117.51	2.00	0.00	0.74	0.00	15.43	120.01	2.00	0.00	0.74	0.00
15.52	116.98	2.00	0.00	0.74	0.00	15.58	107.33	2.00	0.00	0.74	0.00
15.63	110.46	2.00	0.00	0.74	0.00	15.72	120.64	2.00	0.00	0.73	0.00
15.77	126.96	2.00	0.00	0.73	0.00	15.82	130.74	2.00	0.00	0.73	0.00
15.90	132.41	2.00	0.00	0.73	0.00	15.96	135.58	2.00	0.00	0.73	0.00
16.01	137.97	2.00	0.00	0.73	0.00	16.08	145.50	2.00	0.00	0.73	0.00
16.15	157.41	2.00	0.00	0.73	0.00	16.23	165.29	2.00	0.00	0.72	0.00
16.29	167.04	2.00	0.00	0.72	0.00	16.35	161.49	2.00	0.00	0.72	0.00
16.43	153.36	2.00	0.00	0.72	0.00	16.49	144.42	2.00	0.00	0.72	0.00
16.54	138.99	2.00	0.00	0.72	0.00	16.61	136.75	2.00	0.00	0.72	0.00
16.67	138.66	2.00	0.00	0.72	0.00	16.74	142.46	2.00	0.00	0.72	0.00
16.82	146.68	2.00	0.00	0.71	0.00	16.87	147.85	2.00	0.00	0.71	0.00
16.95	145.63	2.00	0.00	0.71	0.00	17.01	142.09	2.00	0.00	0.71	0.00
17.06	138.31	2.00	0.00	0.71	0.00	17.16	135.27	2.00	0.00	0.71	0.00
17.22	132.69	2.00	0.00	0.71	0.00	17.27	131.62	2.00	0.00	0.71	0.00
17.34	130.40	2.00	0.00	0.71	0.00	17.40	129.71	2.00	0.00	0.71	0.00
17.46	130.04	2.00	0.00	0.70	0.00	17.53	132.59	2.00	0.00	0.70	0.00
17.61	136.48	2.00	0.00	0.70	0.00	17.66	142.59	2.00	0.00	0.70	0.00
17.74	149.13	2.00	0.00	0.70	0.00	17.79	156.82	2.00	0.00	0.70	0.00
17.86	164.42	2.00	0.00	0.70	0.00	17.92	171.11	2.00	0.00	0.70	0.00
17.98	175.84	2.00	0.00	0.70	0.00	18.08	177.62	2.00	0.00	0.69	0.00
18.11	178.50	2.00	0.00	0.69	0.00	18.19	179.47	2.00	0.00	0.69	0.00
18.25	182.99	2.00	0.00	0.69	0.00	18.32	187.35	2.00	0.00	0.69	0.00
18.38	190.90	2.00	0.00	0.69	0.00	18.46	192.60	2.00	0.00	0.69	0.00
18.53	194.10	2.00	0.00	0.69	0.00	18.57	197.26	2.00	0.00	0.69	0.00
18.66	196.17	2.00	0.00	0.68	0.00	18.72	191.19	2.00	0.00	0.68	0.00
18.77	181.25	2.00	0.00	0.68	0.00	18.84	174.39	2.00	0.00	0.68	0.00
18.91	170.84	2.00	0.00	0.68	0.00	18.96	170.16	2.00	0.00	0.68	0.00
19.03	169.36	2.00	0.00	0.68	0.00	19.11	168.72	2.00	0.00	0.68	0.00
19.18	168.40	2.00	0.00	0.67	0.00	19.24	168.79	2.00	0.00	0.67	0.00
19.30	168.69	2.00	0.00	0.67	0.00	19.37	167.78	2.00	0.00	0.67	0.00
19.43	166.46	2.00	0.00	0.67	0.00	19.52	165.88	2.00	0.00	0.67	0.00
19.56	166.63	2.00	0.00	0.67	0.00	19.64	167.25	2.00	0.00	0.67	0.00
19.71	167.40	2.00	0.00	0.67	0.00	19.77	167.12	2.00	0.00	0.66	0.00
19.83	167.18	2.00	0.00	0.66	0.00	19.90	167.31	2.00	0.00	0.66	0.00
19.95	167.81	2.00	0.00	0.66	0.00	20.02	168.46	2.00	0.00	0.66	0.00
20.08	168.33	2.00	0.00	0.66	0.00	20.17	167.12	2.00	0.00	0.66	0.00
20.21	164.91	2.00	0.00	0.66	0.00	20.30	162.05	2.00	0.00	0.66	0.00
20.36	158.88	2.00	0.00	0.65	0.00	20.41	155.30	2.00	0.00	0.65	0.00
20.51	151.92	2.00	0.00	0.65	0.00	20.55	147.89	2.00	0.00	0.65	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
20.63	143.72	2.00	0.00	0.65	0.00	20.69	138.54	2.00	0.00	0.65	0.00
20.75	132.98	2.00	0.00	0.65	0.00	20.81	127.80	2.00	0.00	0.65	0.00
20.87	124.44	2.00	0.00	0.65	0.00	20.94	123.65	2.00	0.00	0.65	0.00
21.02	124.69	2.00	0.00	0.64	0.00	21.08	127.42	2.00	0.00	0.64	0.00
21.13	131.84	2.00	0.00	0.64	0.00	21.20	138.58	2.00	0.00	0.64	0.00
21.28	145.78	2.00	0.00	0.64	0.00	21.33	152.97	2.00	0.00	0.64	0.00
21.43	158.99	2.00	0.00	0.64	0.00	21.46	162.05	2.00	0.00	0.64	0.00
21.53	163.08	2.00	0.00	0.64	0.00	21.61	162.31	2.00	0.00	0.63	0.00
21.66	160.48	2.00	0.00	0.63	0.00	21.72	157.97	2.00	0.00	0.63	0.00
21.79	157.45	2.00	0.00	0.63	0.00	21.85	156.70	2.00	0.00	0.63	0.00
21.95	153.56	2.00	0.00	0.63	0.00	22.00	150.86	2.00	0.00	0.63	0.00
22.06	149.49	2.00	0.00	0.63	0.00	22.14	149.69	2.00	0.00	0.62	0.00
22.20	149.61	2.00	0.00	0.62	0.00	22.25	148.84	2.00	0.00	0.62	0.00
22.34	145.68	2.00	0.00	0.62	0.00	22.38	140.16	2.00	0.00	0.62	0.00
22.46	133.52	2.00	0.00	0.62	0.00	22.53	125.08	2.00	0.00	0.62	0.00
22.59	119.80	2.00	0.00	0.62	0.00	22.64	116.86	2.00	0.00	0.62	0.00
22.71	115.85	2.00	0.00	0.62	0.00	22.77	117.25	2.00	0.00	0.61	0.00
22.86	119.25	2.00	0.00	0.61	0.00	22.93	119.94	2.00	0.00	0.61	0.00
22.98	115.95	2.00	0.00	0.61	0.00	23.05	108.65	2.00	0.00	0.61	0.00
23.11	100.99	2.00	0.00	0.61	0.00	23.17	96.59	2.00	0.00	0.61	0.00
23.24	95.57	2.00	0.00	0.61	0.00	23.30	97.41	2.00	0.00	0.61	0.00
23.37	100.44	2.00	0.00	0.60	0.00	23.43	106.33	2.00	0.00	0.60	0.00
23.51	112.85	2.00	0.00	0.60	0.00	23.56	118.21	2.00	0.00	0.60	0.00
23.64	119.82	2.00	0.00	0.60	0.00	23.69	115.85	2.00	0.00	0.60	0.00
23.75	105.15	2.00	0.00	0.60	0.00	23.84	93.88	2.00	0.00	0.60	0.00
23.90	86.97	2.00	0.00	0.59	0.00	23.96	85.14	2.00	0.00	0.59	0.00
24.02	85.49	2.00	0.00	0.59	0.00	24.09	87.55	0.18	1.54	0.59	0.01
24.17	90.38	0.18	1.50	0.59	0.01	24.23	93.41	0.19	1.46	0.59	0.01
24.28	95.50	0.20	1.43	0.59	0.01	24.35	96.87	0.20	1.41	0.59	0.01
24.43	97.57	0.20	1.40	0.59	0.01	24.48	97.60	0.20	1.39	0.59	0.01
24.56	96.93	0.20	1.40	0.58	0.01	24.62	95.78	0.20	1.41	0.58	0.01
24.67	94.39	2.00	0.00	0.58	0.00	24.75	93.33	2.00	0.00	0.58	0.00
24.81	93.32	2.00	0.00	0.58	0.00	24.90	93.64	2.00	0.00	0.58	0.00
24.95	93.63	2.00	0.00	0.58	0.00	25.01	93.14	2.00	0.00	0.58	0.00
25.07	92.82	2.00	0.00	0.57	0.00	25.15	93.07	2.00	0.00	0.57	0.00
25.21	90.90	2.00	0.00	0.57	0.00	25.28	88.82	2.00	0.00	0.57	0.00
25.33	91.30	2.00	0.00	0.57	0.00	25.40	98.30	2.00	0.00	0.57	0.00
25.49	104.13	2.00	0.00	0.57	0.00	25.55	107.72	2.00	0.00	0.57	0.00
25.59	109.98	2.00	0.00	0.57	0.00	25.66	116.72	2.00	0.00	0.57	0.00
25.73	125.08	2.00	0.00	0.56	0.00	25.79	137.87	2.00	0.00	0.56	0.00
25.88	147.32	2.00	0.00	0.56	0.00	25.94	151.46	2.00	0.00	0.56	0.00
25.99	150.31	2.00	0.00	0.56	0.00	26.07	149.19	2.00	0.00	0.56	0.00
26.14	148.52	2.00	0.00	0.56	0.00	26.19	146.81	2.00	0.00	0.56	0.00
26.27	142.81	2.00	0.00	0.55	0.00	26.33	137.57	2.00	0.00	0.55	0.00
26.38	133.81	2.00	0.00	0.55	0.00	26.46	134.93	2.00	0.00	0.55	0.00
26.52	140.41	2.00	0.00	0.55	0.00	26.58	148.40	2.00	0.00	0.55	0.00
26.66	154.19	2.00	0.00	0.55	0.00	26.72	157.91	2.00	0.00	0.55	0.00
26.80	159.91	2.00	0.00	0.55	0.00	26.86	161.09	2.00	0.00	0.54	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
26.91	158.75	2.00	0.00	0.54	0.00	27.00	152.94	2.00	0.00	0.54	0.00
27.05	143.14	2.00	0.00	0.54	0.00	27.11	132.44	2.00	0.00	0.54	0.00
27.20	122.80	2.00	0.00	0.54	0.00	27.24	114.90	2.00	0.00	0.54	0.00
27.30	106.05	2.00	0.00	0.54	0.00	27.39	96.58	2.00	0.00	0.54	0.00
27.45	90.39	2.00	0.00	0.53	0.00	27.50	93.36	2.00	0.00	0.53	0.00
27.56	102.75	2.00	0.00	0.53	0.00	27.64	112.78	2.00	0.00	0.53	0.00
27.72	117.63	2.00	0.00	0.53	0.00	27.78	113.03	2.00	0.00	0.53	0.00
27.84	101.45	2.00	0.00	0.53	0.00	27.91	96.24	2.00	0.00	0.53	0.00
27.96	101.69	2.00	0.00	0.53	0.00	28.03	111.83	2.00	0.00	0.52	0.00
28.11	123.22	2.00	0.00	0.52	0.00	28.17	134.50	2.00	0.00	0.52	0.00
28.22	142.28	2.00	0.00	0.52	0.00	28.30	148.42	0.46	0.88	0.52	0.01
28.36	152.95	0.49	0.86	0.52	0.01	28.42	156.06	0.52	0.84	0.52	0.01
28.51	157.66	0.53	0.83	0.52	0.01	28.55	157.75	0.53	0.83	0.52	0.00
28.61	154.52	0.51	0.84	0.52	0.01	28.70	150.90	0.48	0.86	0.51	0.01
28.76	148.95	0.46	0.86	0.51	0.01	28.81	153.72	0.50	0.84	0.51	0.01
28.88	157.28	0.53	0.82	0.51	0.01	28.95	163.27	0.58	0.76	0.51	0.01
29.01	169.62	0.64	0.72	0.51	0.01	29.09	176.41	0.71	0.56	0.51	0.01
29.15	179.70	0.74	0.54	0.51	0.00	29.21	180.49	0.75	0.43	0.50	0.00
29.28	179.52	0.74	0.54	0.50	0.00	29.33	177.19	0.71	0.55	0.50	0.00
29.41	175.61	0.70	0.55	0.50	0.00	29.48	174.39	0.69	0.56	0.50	0.01
29.55	173.16	0.67	0.56	0.50	0.00	29.59	170.96	0.65	0.57	0.50	0.00
29.69	167.33	0.62	0.71	0.50	0.01	29.74	162.68	0.57	0.74	0.50	0.00
29.81	157.87	0.53	0.79	0.49	0.01	29.88	152.73	0.49	0.81	0.49	0.01
29.93	147.97	0.46	0.83	0.49	0.01	29.99	143.75	0.43	0.85	0.49	0.01
30.06	140.91	0.41	0.87	0.49	0.01	30.13	139.19	0.39	0.87	0.49	0.01
30.22	138.60	0.39	0.87	0.49	0.01	30.26	138.80	0.39	0.87	0.49	0.00
30.32	139.26	0.39	0.87	0.49	0.01	30.41	139.30	0.39	0.86	0.48	0.01
30.47	138.65	0.39	0.86	0.48	0.01	30.52	137.71	0.38	0.87	0.48	0.01
30.59	137.36	0.38	0.87	0.48	0.01	30.66	137.48	0.38	0.86	0.48	0.01
30.72	137.26	0.38	0.86	0.48	0.01	30.80	135.96	0.37	0.87	0.48	0.01
30.84	134.04	0.36	0.88	0.48	0.00	30.91	132.93	0.35	0.88	0.48	0.01
30.99	132.90	0.35	0.88	0.47	0.01	31.04	134.70	0.36	0.87	0.47	0.01
31.13	136.61	0.38	0.85	0.47	0.01	31.17	138.32	0.39	0.84	0.47	0.00
31.24	137.88	0.38	0.84	0.47	0.01	31.32	136.33	0.37	0.85	0.47	0.01
31.37	133.48	0.36	0.86	0.47	0.00	31.44	129.45	0.33	0.88	0.47	0.01
31.50	125.35	0.31	0.90	0.47	0.01	31.56	121.67	0.29	0.93	0.47	0.01
31.63	120.74	0.29	0.93	0.46	0.01	31.72	121.20	0.29	0.92	0.46	0.01
31.77	119.63	0.28	0.93	0.46	0.01	31.83	106.71	0.23	1.02	0.46	0.01
31.90	93.97	0.19	1.13	0.46	0.01	31.97	83.62	2.00	0.00	0.46	0.00
32.06	84.19	2.00	0.00	0.46	0.00	32.12	89.80	2.00	0.00	0.46	0.00
32.15	97.54	2.00	0.00	0.46	0.00	32.27	105.62	2.00	0.00	0.45	0.00
32.31	113.12	2.00	0.00	0.45	0.00	32.35	115.55	2.00	0.00	0.45	0.00
32.44	114.95	2.00	0.00	0.45	0.00	32.50	112.44	2.00	0.00	0.45	0.00
32.55	109.11	2.00	0.00	0.45	0.00	32.64	106.84	2.00	0.00	0.45	0.00
32.69	105.84	2.00	0.00	0.45	0.00	32.75	104.71	2.00	0.00	0.44	0.00
32.81	102.01	2.00	0.00	0.44	0.00	32.88	99.56	2.00	0.00	0.44	0.00
32.97	100.91	2.00	0.00	0.44	0.00	33.03	103.38	2.00	0.00	0.44	0.00
33.09	104.13	2.00	0.00	0.44	0.00	33.14	101.29	2.00	0.00	0.44	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
33.22	97.62	2.00	0.00	0.44	0.00	33.28	95.17	2.00	0.00	0.44	0.00
33.33	90.48	2.00	0.00	0.44	0.00	33.43	88.43	2.00	0.00	0.43	0.00
33.47	90.81	2.00	0.00	0.43	0.00	33.53	99.01	2.00	0.00	0.43	0.00
33.62	109.27	2.00	0.00	0.43	0.00	33.67	118.19	2.00	0.00	0.43	0.00
33.75	123.79	2.00	0.00	0.43	0.00	33.81	128.76	2.00	0.00	0.43	0.00
33.87	132.21	2.00	0.00	0.43	0.00	33.92	131.69	2.00	0.00	0.43	0.00
34.01	129.76	2.00	0.00	0.42	0.00	34.06	124.19	2.00	0.00	0.42	0.00
34.14	121.66	2.00	0.00	0.42	0.00	34.20	120.50	2.00	0.00	0.42	0.00
34.25	125.05	2.00	0.00	0.42	0.00	34.32	131.09	2.00	0.00	0.42	0.00
34.39	138.26	2.00	0.00	0.42	0.00	34.48	143.77	2.00	0.00	0.42	0.00
34.54	148.09	2.00	0.00	0.41	0.00	34.59	150.30	2.00	0.00	0.41	0.00
34.66	152.56	2.00	0.00	0.41	0.00	34.72	155.99	2.00	0.00	0.41	0.00
34.78	156.69	2.00	0.00	0.41	0.00	34.84	146.27	2.00	0.00	0.41	0.00
34.93	127.25	2.00	0.00	0.41	0.00	34.98	111.83	2.00	0.00	0.41	0.00
35.05	110.45	2.00	0.00	0.41	0.00	35.12	117.96	2.00	0.00	0.40	0.00
35.19	127.83	2.00	0.00	0.40	0.00	35.24	137.19	2.00	0.00	0.40	0.00
35.31	138.90	0.38	0.72	0.40	0.01	35.38	140.71	0.40	0.71	0.40	0.01
35.47	138.39	0.38	0.71	0.40	0.01	35.52	137.29	2.00	0.00	0.40	0.00
35.57	129.76	2.00	0.00	0.40	0.00	35.65	122.67	2.00	0.00	0.40	0.00
35.71	118.86	2.00	0.00	0.39	0.00	35.77	121.09	2.00	0.00	0.39	0.00
35.83	131.43	2.00	0.00	0.39	0.00	35.90	145.03	2.00	0.00	0.39	0.00
35.97	150.82	2.00	0.00	0.39	0.00	36.05	149.05	2.00	0.00	0.39	0.00
36.11	143.00	2.00	0.00	0.39	0.00	36.16	136.29	2.00	0.00	0.39	0.00
36.24	129.41	2.00	0.00	0.39	0.00	36.30	121.82	2.00	0.00	0.38	0.00
36.35	114.75	2.00	0.00	0.38	0.00	36.42	110.10	2.00	0.00	0.38	0.00
36.50	108.17	2.00	0.00	0.38	0.00	36.58	108.43	2.00	0.00	0.38	0.00
36.63	109.80	2.00	0.00	0.38	0.00	36.69	112.71	2.00	0.00	0.38	0.00
36.75	117.14	2.00	0.00	0.38	0.00	36.82	121.23	2.00	0.00	0.38	0.00
36.89	124.67	2.00	0.00	0.37	0.00	36.97	127.97	2.00	0.00	0.37	0.00
37.03	131.22	2.00	0.00	0.37	0.00	37.08	134.97	2.00	0.00	0.37	0.00
37.16	138.08	2.00	0.00	0.37	0.00	37.21	139.40	2.00	0.00	0.37	0.00
37.27	139.98	2.00	0.00	0.37	0.00	37.36	139.25	2.00	0.00	0.37	0.00
37.42	138.02	2.00	0.00	0.37	0.00	37.48	135.33	2.00	0.00	0.36	0.00
37.54	131.35	2.00	0.00	0.36	0.00	37.61	124.48	2.00	0.00	0.36	0.00
37.70	118.17	2.00	0.00	0.36	0.00	37.73	110.57	2.00	0.00	0.36	0.00
37.81	105.13	2.00	0.00	0.36	0.00	37.88	100.26	2.00	0.00	0.36	0.00
37.95	98.48	2.00	0.00	0.36	0.00	38.00	96.20	2.00	0.00	0.36	0.00
38.09	93.41	2.00	0.00	0.35	0.00	38.13	89.66	2.00	0.00	0.35	0.00
38.20	87.40	2.00	0.00	0.35	0.00	38.26	86.35	2.00	0.00	0.35	0.00
38.34	88.14	2.00	0.00	0.35	0.00	38.39	93.32	2.00	0.00	0.35	0.00
38.48	98.63	2.00	0.00	0.35	0.00	38.53	103.07	2.00	0.00	0.35	0.00
38.59	108.44	2.00	0.00	0.35	0.00	38.66	118.02	2.00	0.00	0.34	0.00
38.73	130.78	2.00	0.00	0.34	0.00	38.81	142.78	2.00	0.00	0.34	0.00
38.87	151.17	2.00	0.00	0.34	0.00	38.92	156.98	2.00	0.00	0.34	0.00
39.01	160.40	2.00	0.00	0.34	0.00	39.06	163.23	2.00	0.00	0.34	0.00
39.11	165.09	2.00	0.00	0.34	0.00	39.20	166.59	2.00	0.00	0.34	0.00
39.25	167.88	2.00	0.00	0.33	0.00	39.31	167.77	2.00	0.00	0.33	0.00
39.39	165.92	2.00	0.00	0.33	0.00	39.44	162.31	2.00	0.00	0.33	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
39.50	157.31	2.00	0.00	0.33	0.00	39.57	150.23	2.00	0.00	0.33	0.00
39.65	141.06	2.00	0.00	0.33	0.00	39.73	132.18	2.00	0.00	0.33	0.00
39.78	126.07	2.00	0.00	0.33	0.00	39.84	124.06	2.00	0.00	0.32	0.00
39.91	122.92	2.00	0.00	0.32	0.00	39.97	123.05	2.00	0.00	0.32	0.00
40.03	125.09	2.00	0.00	0.32	0.00	40.10	128.73	2.00	0.00	0.32	0.00
40.17	132.52	2.00	0.00	0.32	0.00	40.22	137.49	2.00	0.00	0.32	0.00
40.31	139.27	2.00	0.00	0.32	0.00	40.37	139.32	2.00	0.00	0.32	0.00
40.44	136.25	2.00	0.00	0.31	0.00	40.50	129.22	2.00	0.00	0.31	0.00
40.57	121.17	2.00	0.00	0.31	0.00	40.64	113.21	2.00	0.00	0.31	0.00
40.69	108.38	2.00	0.00	0.31	0.00	40.76	107.90	2.00	0.00	0.31	0.00
40.82	109.91	2.00	0.00	0.31	0.00	40.88	110.78	2.00	0.00	0.31	0.00
40.95	109.55	2.00	0.00	0.31	0.00	41.03	108.29	2.00	0.00	0.30	0.00
41.10	108.22	2.00	0.00	0.30	0.00	41.15	109.29	2.00	0.00	0.30	0.00
41.22	110.36	2.00	0.00	0.30	0.00	41.29	111.83	2.00	0.00	0.30	0.00
41.34	114.73	2.00	0.00	0.30	0.00	41.43	119.18	2.00	0.00	0.30	0.00
41.49	124.17	2.00	0.00	0.30	0.00	41.55	127.97	0.32	0.56	0.30	0.00
41.62	131.18	0.34	0.55	0.29	0.00	41.67	134.11	0.36	0.54	0.29	0.00
41.74	136.76	0.37	0.53	0.29	0.00	41.80	133.38	0.35	0.54	0.29	0.00
41.88	133.60	0.35	0.53	0.29	0.00	41.96	136.19	0.37	0.52	0.29	0.01
42.02	142.80	0.41	0.50	0.29	0.00	42.07	147.08	0.44	0.49	0.29	0.00
42.16	150.77	0.47	0.48	0.29	0.01	42.22	153.05	0.48	0.47	0.28	0.00
42.27	154.76	0.50	0.46	0.28	0.00	42.33	153.97	0.49	0.46	0.28	0.00
42.40	150.68	0.47	0.47	0.28	0.00	42.46	145.07	0.43	0.48	0.28	0.00
42.56	138.98	2.00	0.00	0.28	0.00	42.61	129.74	2.00	0.00	0.28	0.00
42.66	117.15	2.00	0.00	0.28	0.00	42.74	106.89	2.00	0.00	0.28	0.00
42.80	106.47	2.00	0.00	0.27	0.00	42.85	116.48	2.00	0.00	0.27	0.00
42.92	129.24	2.00	0.00	0.27	0.00	42.99	136.29	2.00	0.00	0.27	0.00
43.07	133.91	2.00	0.00	0.27	0.00	43.14	127.82	2.00	0.00	0.27	0.00
43.19	117.94	2.00	0.00	0.27	0.00	43.26	109.31	2.00	0.00	0.27	0.00
43.32	95.71	2.00	0.00	0.27	0.00	43.38	82.24	2.00	0.00	0.26	0.00
43.45	71.01	2.00	0.00	0.26	0.00	43.51	65.41	2.00	0.00	0.26	0.00
43.57	70.30	2.00	0.00	0.26	0.00	43.66	79.97	2.00	0.00	0.26	0.00
43.70	96.54	2.00	0.00	0.26	0.00	43.77	113.01	2.00	0.00	0.26	0.00
43.84	126.82	2.00	0.00	0.26	0.00	43.91	126.88	2.00	0.00	0.26	0.00
43.97	114.94	2.00	0.00	0.25	0.00	44.04	108.65	2.00	0.00	0.25	0.00
44.11	111.40	2.00	0.00	0.25	0.00	44.17	118.10	2.00	0.00	0.25	0.00
44.23	124.81	2.00	0.00	0.25	0.00	44.30	130.73	2.00	0.00	0.25	0.00
44.38	136.98	2.00	0.00	0.25	0.00	44.44	142.75	2.00	0.00	0.25	0.00
44.50	146.02	2.00	0.00	0.25	0.00	44.57	145.56	2.00	0.00	0.24	0.00
44.63	142.87	2.00	0.00	0.24	0.00	44.69	138.75	2.00	0.00	0.24	0.00
44.78	136.02	2.00	0.00	0.24	0.00	44.82	133.35	2.00	0.00	0.24	0.00
44.89	129.14	2.00	0.00	0.24	0.00	44.96	120.67	2.00	0.00	0.24	0.00
45.02	114.06	2.00	0.00	0.24	0.00	45.11	114.85	2.00	0.00	0.24	0.00
45.17	126.20	2.00	0.00	0.23	0.00	45.22	131.59	2.00	0.00	0.23	0.00
45.31	135.06	2.00	0.00	0.23	0.00	45.35	136.21	2.00	0.00	0.23	0.00
45.42	131.41	2.00	0.00	0.23	0.00	45.52	123.74	2.00	0.00	0.23	0.00
45.56	115.71	2.00	0.00	0.23	0.00	45.61	111.28	2.00	0.00	0.23	0.00
45.70	108.67	2.00	0.00	0.23	0.00	45.76	107.30	2.00	0.00	0.22	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
45.81	106.01	2.00	0.00	0.22	0.00	45.89	103.84	2.00	0.00	0.22	0.00
45.95	101.44	2.00	0.00	0.22	0.00	46.00	99.64	2.00	0.00	0.22	0.00
46.08	99.12	2.00	0.00	0.22	0.00	46.13	99.54	2.00	0.00	0.22	0.00
46.22	100.64	2.00	0.00	0.22	0.00	46.26	102.10	2.00	0.00	0.22	0.00
46.34	103.91	2.00	0.00	0.21	0.00	46.39	106.79	2.00	0.00	0.21	0.00
46.47	108.76	2.00	0.00	0.21	0.00	46.53	110.88	2.00	0.00	0.21	0.00
46.63	111.54	2.00	0.00	0.21	0.00	46.66	110.70	2.00	0.00	0.21	0.00
46.72	109.74	2.00	0.00	0.21	0.00	46.81	108.46	2.00	0.00	0.21	0.00
46.87	107.17	2.00	0.00	0.21	0.00	46.92	105.61	2.00	0.00	0.20	0.00
47.00	103.92	2.00	0.00	0.20	0.00	47.07	102.47	2.00	0.00	0.20	0.00
47.11	103.02	2.00	0.00	0.20	0.00	47.19	102.72	2.00	0.00	0.20	0.00
47.26	102.62	2.00	0.00	0.20	0.00	47.36	102.66	2.00	0.00	0.20	0.00
47.40	102.81	2.00	0.00	0.20	0.00	47.45	103.17	2.00	0.00	0.20	0.00
47.51	102.23	2.00	0.00	0.19	0.00	47.58	102.61	2.00	0.00	0.19	0.00
47.64	102.28	2.00	0.00	0.19	0.00	47.73	101.36	2.00	0.00	0.19	0.00
47.79	99.92	2.00	0.00	0.19	0.00	47.84	98.35	2.00	0.00	0.19	0.00
47.92	96.88	2.00	0.00	0.19	0.00	47.97	95.08	2.00	0.00	0.19	0.00
48.04	92.90	2.00	0.00	0.19	0.00	48.12	90.61	2.00	0.00	0.18	0.00
48.18	87.54	2.00	0.00	0.18	0.00	48.23	81.64	2.00	0.00	0.18	0.00
48.31	76.89	2.00	0.00	0.18	0.00	48.37	74.94	2.00	0.00	0.18	0.00
48.44	78.83	2.00	0.00	0.18	0.00	48.52	82.03	2.00	0.00	0.18	0.00
48.57	83.47	2.00	0.00	0.18	0.00	48.63	83.06	2.00	0.00	0.18	0.00
48.71	82.15	2.00	0.00	0.17	0.00	48.77	81.96	2.00	0.00	0.17	0.00
48.82	82.60	2.00	0.00	0.17	0.00	48.89	82.95	2.00	0.00	0.17	0.00
48.97	82.61	2.00	0.00	0.17	0.00	49.02	80.65	2.00	0.00	0.17	0.00
49.10	78.12	2.00	0.00	0.17	0.00	49.16	75.79	2.00	0.00	0.17	0.00
49.22	74.38	2.00	0.00	0.17	0.00	49.28	73.15	2.00	0.00	0.16	0.00
49.36	71.64	2.00	0.00	0.16	0.00	49.44	70.05	2.00	0.00	0.16	0.00
49.49	69.10	2.00	0.00	0.16	0.00	49.55	69.51	2.00	0.00	0.16	0.00
49.62	72.16	2.00	0.00	0.16	0.00	49.69	77.79	2.00	0.00	0.16	0.00
49.75	83.26	2.00	0.00	0.16	0.00	49.82	87.02	2.00	0.00	0.16	0.00
49.88	88.32	2.00	0.00	0.15	0.00	49.94	88.76	2.00	0.00	0.15	0.00
50.03	88.83	2.00	0.00	0.15	0.00						

Total estimated settlement: 1.00

Abbreviations

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

Landmark Consultants, Inc.
780 N. 4th Street
El Centro, CA 92243

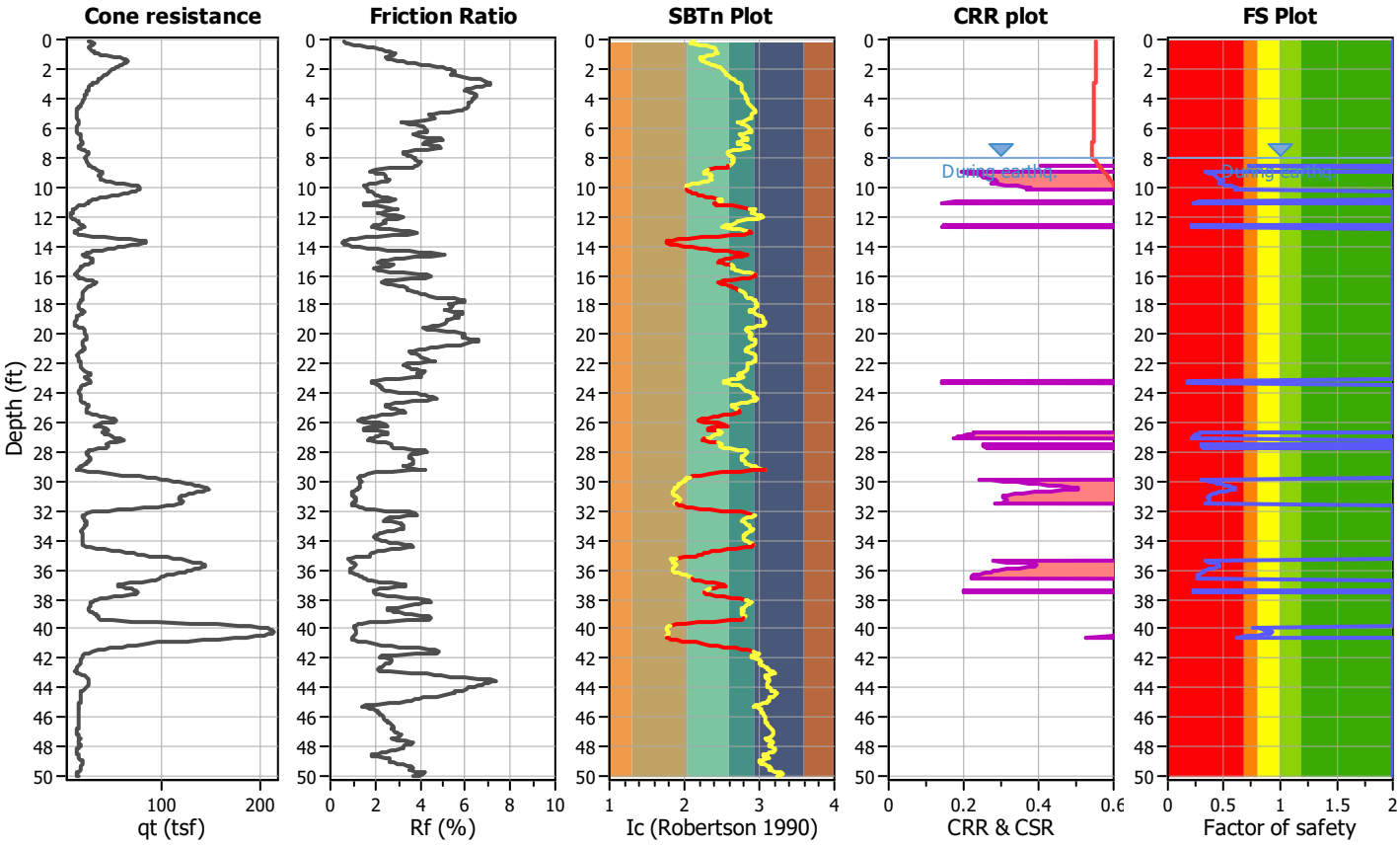
LIQUEFACTION ANALYSIS REPORT

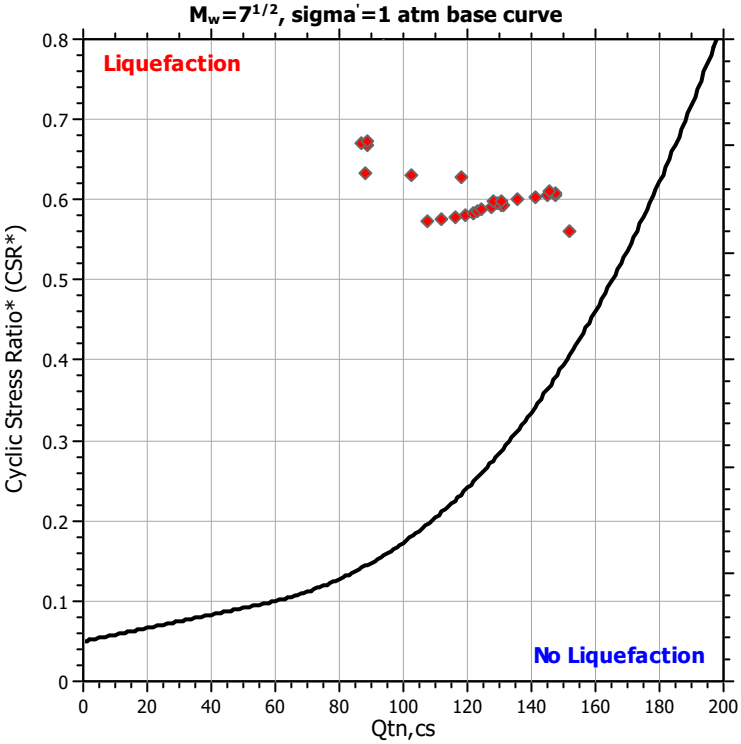
Project title : IV Data Center Campus Site #2 **Location : Imperial, CA**

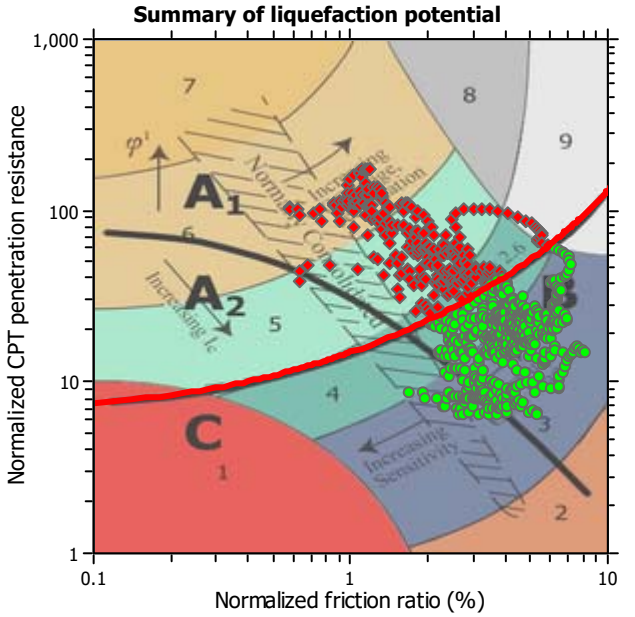
CPT file : CPT-6

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	8.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	8.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.00	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.78	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

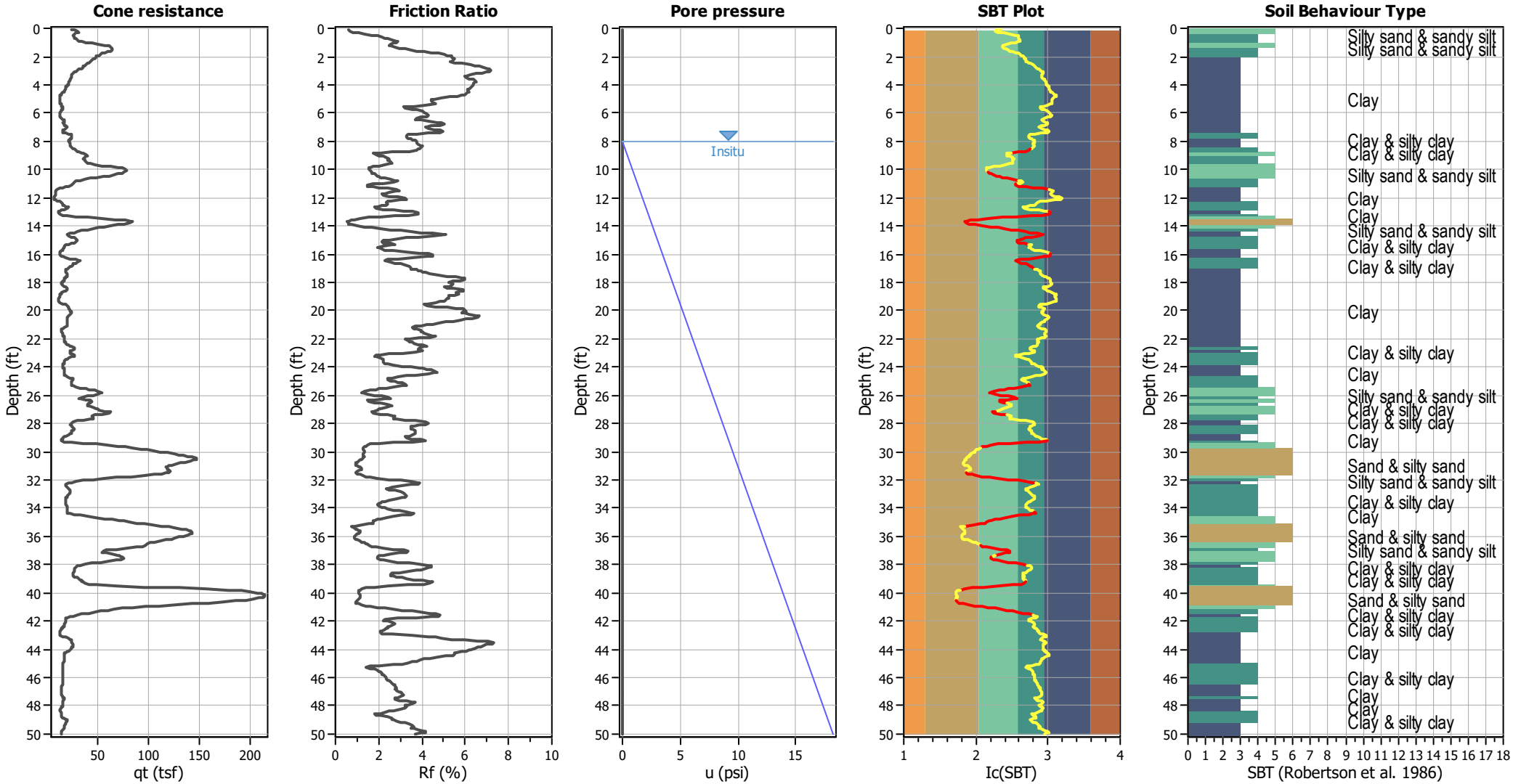






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



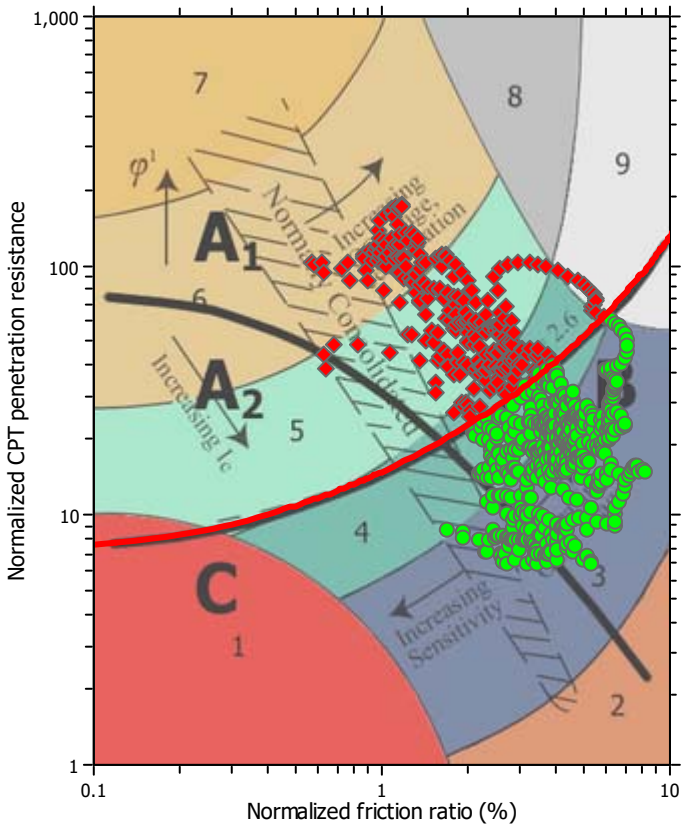
Input parameters and analysis data

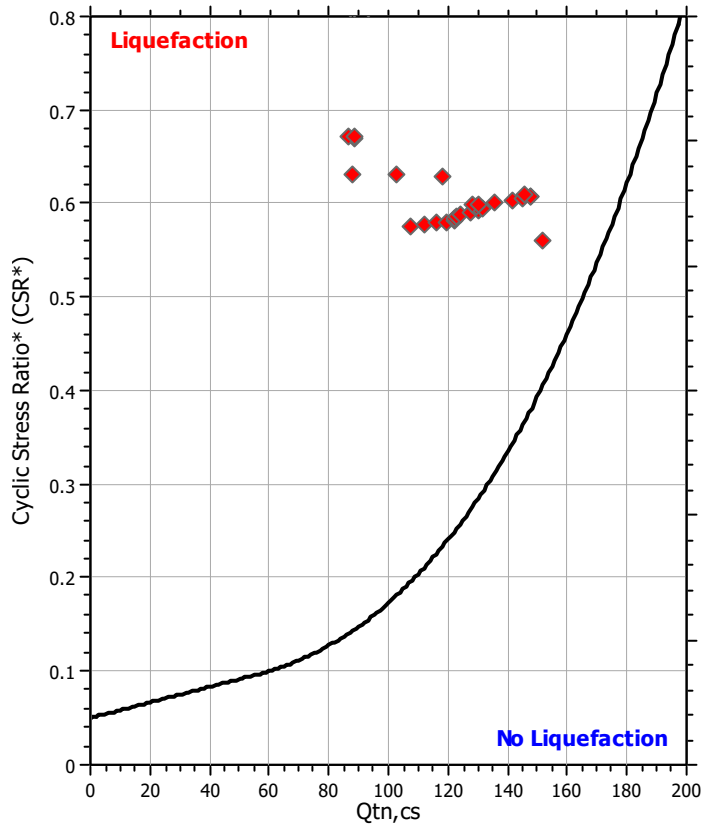
Analysis method:	NCEER (1998)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.78	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	8.00 ft	Fill height:	N/A	Limit depth:	N/A

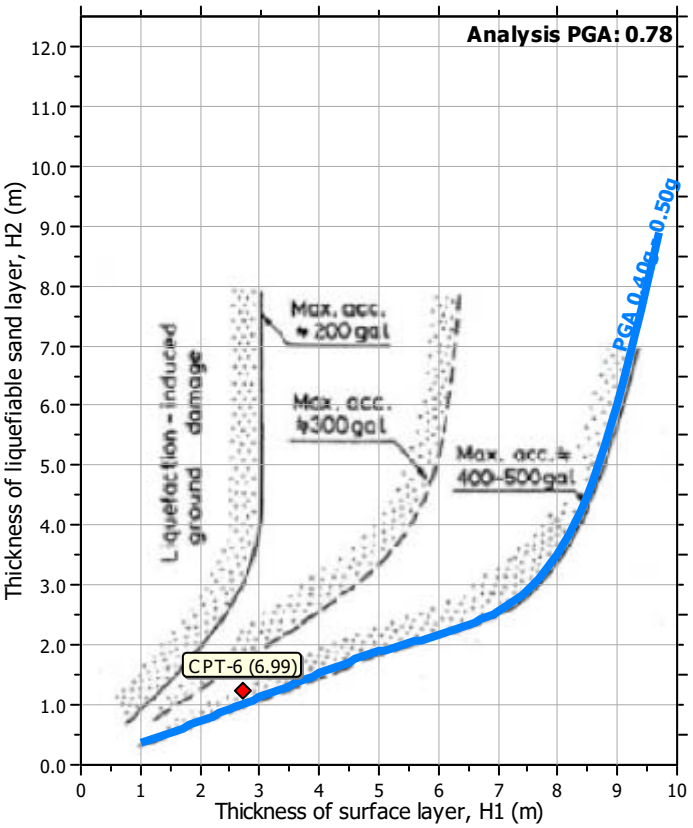
SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

Liquefaction analysis summary plots



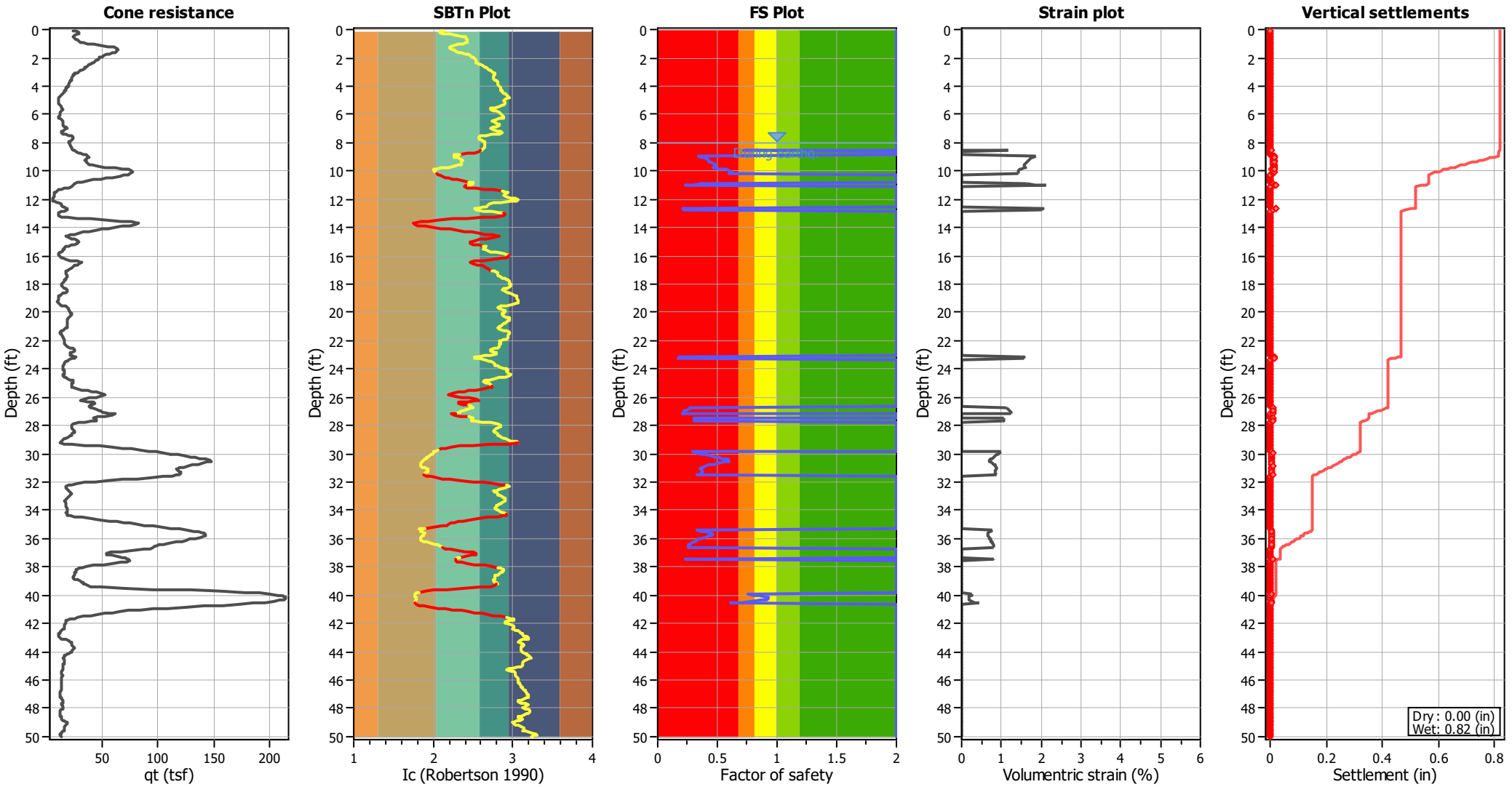




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.78	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	8.00 ft	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
8.01	141.66	2.00	0.00	0.86	0.00	8.10	142.37	2.00	0.00	0.86	0.00
8.16	143.52	2.00	0.00	0.86	0.00	8.20	145.77	2.00	0.00	0.86	0.00
8.28	149.02	2.00	0.00	0.86	0.00	8.34	151.48	2.00	0.00	0.86	0.00
8.40	152.00	2.00	0.00	0.86	0.00	8.48	151.57	2.00	0.00	0.86	0.00
8.53	151.92	0.72	1.16	0.86	0.01	8.62	151.67	2.00	0.00	0.85	0.00
8.69	145.32	2.00	0.00	0.85	0.00	8.74	123.48	2.00	0.00	0.85	0.00
8.81	107.81	2.00	0.00	0.85	0.00	8.88	100.52	2.00	0.00	0.85	0.00
8.94	107.56	0.34	1.87	0.85	0.01	9.01	111.92	0.36	1.81	0.85	0.02
9.08	116.31	0.39	1.75	0.85	0.01	9.13	119.37	0.41	1.71	0.85	0.01
9.20	122.09	0.43	1.67	0.84	0.01	9.26	122.07	0.43	1.67	0.84	0.01
9.34	123.05	0.43	1.66	0.84	0.01	9.40	124.36	0.44	1.64	0.84	0.01
9.46	127.27	0.46	1.61	0.84	0.01	9.53	130.46	0.48	1.58	0.84	0.01
9.59	131.51	0.49	1.56	0.84	0.01	9.66	129.66	0.47	1.58	0.84	0.01
9.73	128.13	0.46	1.59	0.84	0.01	9.78	130.42	0.48	1.57	0.83	0.01
9.87	135.36	0.52	1.52	0.83	0.02	9.91	141.39	0.57	1.46	0.83	0.01
9.98	145.17	0.60	1.43	0.83	0.01	10.06	147.33	0.62	1.44	0.83	0.01
10.12	147.55	0.62	1.43	0.83	0.01	10.17	145.72	0.60	1.42	0.83	0.01
10.27	143.36	2.00	0.00	0.83	0.00	10.30	140.19	2.00	0.00	0.83	0.00
10.39	136.96	2.00	0.00	0.82	0.00	10.44	132.26	2.00	0.00	0.82	0.00
10.51	126.55	2.00	0.00	0.82	0.00	10.60	121.86	2.00	0.00	0.82	0.00
10.64	121.48	2.00	0.00	0.82	0.00	10.70	124.21	2.00	0.00	0.82	0.00
10.80	127.74	2.00	0.00	0.82	0.00	10.84	126.39	2.00	0.00	0.82	0.00
10.89	117.97	0.37	1.66	0.82	0.01	10.97	102.74	0.29	1.86	0.81	0.02
11.04	87.97	0.23	2.11	0.81	0.02	11.10	79.95	2.00	0.00	0.81	0.00
11.19	78.59	2.00	0.00	0.81	0.00	11.23	82.49	2.00	0.00	0.81	0.00
11.29	88.18	2.00	0.00	0.81	0.00	11.36	94.17	2.00	0.00	0.81	0.00
11.43	97.80	2.00	0.00	0.81	0.00	11.48	97.09	2.00	0.00	0.81	0.00
11.56	93.18	2.00	0.00	0.80	0.00	11.62	87.64	2.00	0.00	0.80	0.00
11.72	83.19	2.00	0.00	0.80	0.00	11.75	80.23	2.00	0.00	0.80	0.00
11.83	80.84	2.00	0.00	0.80	0.00	11.91	83.74	2.00	0.00	0.80	0.00
11.96	89.03	2.00	0.00	0.80	0.00	12.02	93.53	2.00	0.00	0.80	0.00
12.09	95.53	2.00	0.00	0.80	0.00	12.16	95.57	2.00	0.00	0.79	0.00
12.21	93.43	2.00	0.00	0.79	0.00	12.28	94.11	2.00	0.00	0.79	0.00
12.35	95.79	2.00	0.00	0.79	0.00	12.40	97.58	2.00	0.00	0.79	0.00
12.50	96.28	2.00	0.00	0.79	0.00	12.54	93.48	2.00	0.00	0.79	0.00
12.61	88.83	0.22	2.02	0.79	0.02	12.69	86.89	0.21	2.06	0.78	0.02
12.74	88.69	0.22	2.02	0.78	0.01	12.80	95.27	2.00	0.00	0.78	0.00
12.89	102.89	2.00	0.00	0.78	0.00	12.94	109.59	2.00	0.00	0.78	0.00
13.00	115.03	2.00	0.00	0.78	0.00	13.06	119.98	2.00	0.00	0.78	0.00
13.13	122.09	2.00	0.00	0.78	0.00	13.22	119.45	2.00	0.00	0.78	0.00
13.28	112.08	2.00	0.00	0.77	0.00	13.32	100.03	2.00	0.00	0.77	0.00
13.41	93.05	2.00	0.00	0.77	0.00	13.48	98.08	2.00	0.00	0.77	0.00
13.53	108.81	2.00	0.00	0.77	0.00	13.60	115.63	2.00	0.00	0.77	0.00
13.67	115.29	2.00	0.00	0.77	0.00	13.73	112.98	2.00	0.00	0.77	0.00
13.81	111.51	2.00	0.00	0.77	0.00	13.87	109.92	2.00	0.00	0.76	0.00
13.92	107.06	2.00	0.00	0.76	0.00	14.00	103.35	2.00	0.00	0.76	0.00
14.07	103.15	2.00	0.00	0.76	0.00	14.12	107.31	2.00	0.00	0.76	0.00
14.19	113.73	2.00	0.00	0.76	0.00	14.26	122.84	2.00	0.00	0.76	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
14.34	132.86	2.00	0.00	0.76	0.00	14.38	143.46	2.00	0.00	0.76	0.00
14.45	150.76	2.00	0.00	0.76	0.00	14.50	158.26	2.00	0.00	0.75	0.00
14.58	162.89	2.00	0.00	0.75	0.00	14.64	162.73	2.00	0.00	0.75	0.00
14.70	154.02	2.00	0.00	0.75	0.00	14.78	142.95	2.00	0.00	0.75	0.00
14.84	132.16	2.00	0.00	0.75	0.00	14.90	123.41	2.00	0.00	0.75	0.00
14.97	113.35	2.00	0.00	0.75	0.00	15.03	104.98	2.00	0.00	0.75	0.00
15.13	100.41	2.00	0.00	0.74	0.00	15.17	102.31	2.00	0.00	0.74	0.00
15.23	108.91	2.00	0.00	0.74	0.00	15.30	112.10	2.00	0.00	0.74	0.00
15.37	105.60	2.00	0.00	0.74	0.00	15.43	94.73	2.00	0.00	0.74	0.00
15.50	87.02	2.00	0.00	0.74	0.00	15.57	87.64	2.00	0.00	0.74	0.00
15.62	90.19	2.00	0.00	0.74	0.00	15.70	93.05	2.00	0.00	0.73	0.00
15.77	99.21	2.00	0.00	0.73	0.00	15.82	108.23	2.00	0.00	0.73	0.00
15.89	118.81	2.00	0.00	0.73	0.00	15.96	126.88	2.00	0.00	0.73	0.00
16.05	131.63	2.00	0.00	0.73	0.00	16.10	134.72	2.00	0.00	0.73	0.00
16.16	134.23	2.00	0.00	0.73	0.00	16.21	127.28	2.00	0.00	0.73	0.00
16.30	117.42	2.00	0.00	0.72	0.00	16.34	109.08	2.00	0.00	0.72	0.00
16.43	107.15	2.00	0.00	0.72	0.00	16.50	108.30	2.00	0.00	0.72	0.00
16.54	113.09	2.00	0.00	0.72	0.00	16.63	118.25	2.00	0.00	0.72	0.00
16.67	124.18	2.00	0.00	0.72	0.00	16.74	127.87	2.00	0.00	0.72	0.00
16.83	130.40	2.00	0.00	0.71	0.00	16.87	130.44	2.00	0.00	0.71	0.00
16.94	128.96	2.00	0.00	0.71	0.00	17.03	127.90	2.00	0.00	0.71	0.00
17.07	129.92	2.00	0.00	0.71	0.00	17.13	131.36	2.00	0.00	0.71	0.00
17.22	134.02	2.00	0.00	0.71	0.00	17.27	134.86	2.00	0.00	0.71	0.00
17.32	139.35	2.00	0.00	0.71	0.00	17.40	144.22	2.00	0.00	0.71	0.00
17.47	151.95	2.00	0.00	0.70	0.00	17.56	158.99	2.00	0.00	0.70	0.00
17.60	165.14	2.00	0.00	0.70	0.00	17.66	168.09	2.00	0.00	0.70	0.00
17.72	168.85	2.00	0.00	0.70	0.00	17.79	166.53	2.00	0.00	0.70	0.00
17.86	160.48	2.00	0.00	0.70	0.00	17.93	153.68	2.00	0.00	0.70	0.00
17.99	150.33	2.00	0.00	0.70	0.00	18.05	149.31	2.00	0.00	0.69	0.00
18.12	151.08	2.00	0.00	0.69	0.00	18.20	153.73	2.00	0.00	0.69	0.00
18.27	153.82	2.00	0.00	0.69	0.00	18.32	155.85	2.00	0.00	0.69	0.00
18.39	160.32	2.00	0.00	0.69	0.00	18.44	166.42	2.00	0.00	0.69	0.00
18.52	172.54	2.00	0.00	0.69	0.00	18.57	168.33	2.00	0.00	0.69	0.00
18.65	162.55	2.00	0.00	0.68	0.00	18.73	152.07	2.00	0.00	0.68	0.00
18.78	149.33	2.00	0.00	0.68	0.00	18.83	146.08	2.00	0.00	0.68	0.00
18.92	142.40	2.00	0.00	0.68	0.00	18.97	138.57	2.00	0.00	0.68	0.00
19.04	136.53	2.00	0.00	0.68	0.00	19.10	134.85	2.00	0.00	0.68	0.00
19.16	133.22	2.00	0.00	0.68	0.00	19.23	131.51	2.00	0.00	0.67	0.00
19.29	131.04	2.00	0.00	0.67	0.00	19.36	129.46	2.00	0.00	0.67	0.00
19.44	130.87	2.00	0.00	0.67	0.00	19.52	129.86	2.00	0.00	0.67	0.00
19.56	133.64	2.00	0.00	0.67	0.00	19.63	141.13	2.00	0.00	0.67	0.00
19.72	151.30	2.00	0.00	0.67	0.00	19.76	162.67	2.00	0.00	0.67	0.00
19.83	169.52	2.00	0.00	0.66	0.00	19.89	175.48	2.00	0.00	0.66	0.00
19.97	178.92	2.00	0.00	0.66	0.00	20.02	181.13	2.00	0.00	0.66	0.00
20.09	181.21	2.00	0.00	0.66	0.00	20.16	181.28	2.00	0.00	0.66	0.00
20.21	182.34	2.00	0.00	0.66	0.00	20.29	184.58	2.00	0.00	0.66	0.00
20.34	186.40	2.00	0.00	0.66	0.00	20.41	184.90	2.00	0.00	0.65	0.00
20.50	182.84	2.00	0.00	0.65	0.00	20.55	177.43	2.00	0.00	0.65	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
20.61	171.09	2.00	0.00	0.65	0.00	20.70	166.85	2.00	0.00	0.65	0.00
20.75	161.71	2.00	0.00	0.65	0.00	20.82	155.72	2.00	0.00	0.65	0.00
20.89	149.03	2.00	0.00	0.65	0.00	20.95	144.42	2.00	0.00	0.64	0.00
21.01	139.24	2.00	0.00	0.64	0.00	21.09	133.33	2.00	0.00	0.64	0.00
21.13	125.18	2.00	0.00	0.64	0.00	21.22	119.92	2.00	0.00	0.64	0.00
21.28	117.45	2.00	0.00	0.64	0.00	21.33	117.29	2.00	0.00	0.64	0.00
21.41	119.38	2.00	0.00	0.64	0.00	21.48	119.78	2.00	0.00	0.64	0.00
21.53	122.21	2.00	0.00	0.64	0.00	21.61	123.55	2.00	0.00	0.63	0.00
21.67	128.43	2.00	0.00	0.63	0.00	21.76	132.52	2.00	0.00	0.63	0.00
21.80	136.01	2.00	0.00	0.63	0.00	21.87	133.16	2.00	0.00	0.63	0.00
21.92	125.19	2.00	0.00	0.63	0.00	22.00	116.63	2.00	0.00	0.63	0.00
22.06	112.79	2.00	0.00	0.63	0.00	22.12	114.64	2.00	0.00	0.63	0.00
22.20	116.36	2.00	0.00	0.62	0.00	22.25	119.54	2.00	0.00	0.62	0.00
22.32	122.13	2.00	0.00	0.62	0.00	22.39	127.91	2.00	0.00	0.62	0.00
22.47	133.65	2.00	0.00	0.62	0.00	22.51	140.34	2.00	0.00	0.62	0.00
22.57	142.02	2.00	0.00	0.62	0.00	22.67	140.56	2.00	0.00	0.62	0.00
22.71	138.97	2.00	0.00	0.62	0.00	22.79	139.42	2.00	0.00	0.61	0.00
22.86	137.09	2.00	0.00	0.61	0.00	22.91	129.52	2.00	0.00	0.61	0.00
22.99	116.06	2.00	0.00	0.61	0.00	23.04	102.78	2.00	0.00	0.61	0.00
23.11	93.60	0.19	1.50	0.61	0.01	23.16	88.52	0.18	1.57	0.61	0.01
23.24	86.95	0.17	1.59	0.61	0.01	23.30	88.13	0.18	1.57	0.61	0.01
23.39	90.68	2.00	0.00	0.60	0.00	23.44	92.46	2.00	0.00	0.60	0.00
23.50	91.68	2.00	0.00	0.60	0.00	23.59	90.59	2.00	0.00	0.60	0.00
23.64	90.19	2.00	0.00	0.60	0.00	23.72	90.78	2.00	0.00	0.60	0.00
23.77	92.99	2.00	0.00	0.60	0.00	23.83	98.02	2.00	0.00	0.60	0.00
23.93	105.05	2.00	0.00	0.59	0.00	23.96	112.72	2.00	0.00	0.59	0.00
24.03	120.17	2.00	0.00	0.59	0.00	24.12	125.64	2.00	0.00	0.59	0.00
24.16	130.00	2.00	0.00	0.59	0.00	24.22	132.95	2.00	0.00	0.59	0.00
24.28	135.22	2.00	0.00	0.59	0.00	24.35	136.84	2.00	0.00	0.59	0.00
24.42	133.49	2.00	0.00	0.59	0.00	24.51	127.99	2.00	0.00	0.58	0.00
24.55	119.43	2.00	0.00	0.58	0.00	24.63	113.74	2.00	0.00	0.58	0.00
24.68	108.53	2.00	0.00	0.58	0.00	24.75	104.16	2.00	0.00	0.58	0.00
24.80	101.63	2.00	0.00	0.58	0.00	24.87	102.14	2.00	0.00	0.58	0.00
24.95	105.28	2.00	0.00	0.58	0.00	25.02	108.89	2.00	0.00	0.58	0.00
25.09	111.85	2.00	0.00	0.57	0.00	25.14	115.91	2.00	0.00	0.57	0.00
25.22	119.64	2.00	0.00	0.57	0.00	25.27	121.70	2.00	0.00	0.57	0.00
25.34	118.86	2.00	0.00	0.57	0.00	25.40	112.04	2.00	0.00	0.57	0.00
25.47	104.42	2.00	0.00	0.57	0.00	25.54	98.86	2.00	0.00	0.57	0.00
25.59	95.31	2.00	0.00	0.57	0.00	25.66	90.13	2.00	0.00	0.57	0.00
25.73	85.85	2.00	0.00	0.56	0.00	25.81	83.29	2.00	0.00	0.56	0.00
25.86	84.24	2.00	0.00	0.56	0.00	25.93	88.59	2.00	0.00	0.56	0.00
26.02	95.50	2.00	0.00	0.56	0.00	26.05	103.42	2.00	0.00	0.56	0.00
26.12	108.30	2.00	0.00	0.56	0.00	26.22	109.83	2.00	0.00	0.56	0.00
26.26	102.66	2.00	0.00	0.55	0.00	26.31	91.52	2.00	0.00	0.55	0.00
26.38	85.11	2.00	0.00	0.55	0.00	26.46	86.49	2.00	0.00	0.55	0.00
26.54	93.00	2.00	0.00	0.55	0.00	26.59	102.05	2.00	0.00	0.55	0.00
26.65	111.00	2.00	0.00	0.55	0.00	26.71	116.23	0.27	1.13	0.55	0.01
26.78	116.84	0.27	1.12	0.55	0.01	26.85	111.72	0.25	1.16	0.54	0.01

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
26.91	106.75	0.23	1.20	0.54	0.01	26.99	104.45	0.22	1.22	0.54	0.01
27.05	102.24	0.22	1.24	0.54	0.01	27.11	100.99	0.21	1.25	0.54	0.01
27.18	101.93	2.00	0.00	0.54	0.00	27.24	103.75	2.00	0.00	0.54	0.00
27.32	108.13	2.00	0.00	0.54	0.00	27.38	115.21	2.00	0.00	0.54	0.00
27.43	121.50	2.00	0.00	0.54	0.00	27.51	123.50	0.31	1.05	0.53	0.01
27.58	123.25	0.30	1.05	0.53	0.01	27.63	122.64	0.30	1.05	0.53	0.01
27.72	124.80	0.31	1.03	0.53	0.01	27.76	130.72	2.00	0.00	0.53	0.00
27.83	136.48	2.00	0.00	0.53	0.00	27.89	140.65	2.00	0.00	0.53	0.00
27.97	140.28	2.00	0.00	0.53	0.00	28.04	136.95	2.00	0.00	0.52	0.00
28.11	131.13	2.00	0.00	0.52	0.00	28.15	126.20	2.00	0.00	0.52	0.00
28.23	124.33	2.00	0.00	0.52	0.00	28.30	125.04	2.00	0.00	0.52	0.00
28.35	127.07	2.00	0.00	0.52	0.00	28.43	129.28	2.00	0.00	0.52	0.00
28.50	130.09	2.00	0.00	0.52	0.00	28.55	129.02	2.00	0.00	0.52	0.00
28.63	127.34	2.00	0.00	0.51	0.00	28.68	126.48	2.00	0.00	0.51	0.00
28.74	125.20	2.00	0.00	0.51	0.00	28.82	120.75	2.00	0.00	0.51	0.00
28.88	114.79	2.00	0.00	0.51	0.00	28.94	108.31	2.00	0.00	0.51	0.00
29.01	106.97	2.00	0.00	0.51	0.00	29.08	107.67	2.00	0.00	0.51	0.00
29.14	112.13	2.00	0.00	0.51	0.00	29.21	114.58	2.00	0.00	0.50	0.00
29.27	113.76	2.00	0.00	0.50	0.00	29.37	106.07	2.00	0.00	0.50	0.00
29.41	94.50	2.00	0.00	0.50	0.00	29.47	90.03	2.00	0.00	0.50	0.00
29.56	92.08	2.00	0.00	0.50	0.00	29.60	97.27	2.00	0.00	0.50	0.00
29.67	102.32	2.00	0.00	0.50	0.00	29.75	107.86	2.00	0.00	0.50	0.00
29.80	114.58	2.00	0.00	0.49	0.00	29.87	120.87	0.29	0.99	0.49	0.01
29.94	127.87	0.33	0.94	0.49	0.01	30.00	134.42	0.36	0.90	0.49	0.01
30.07	141.09	0.41	0.86	0.49	0.01	30.14	146.82	0.45	0.83	0.49	0.01
30.20	151.13	0.48	0.81	0.49	0.01	30.27	155.04	0.51	0.79	0.49	0.01
30.33	159.34	0.54	0.78	0.49	0.01	30.39	163.81	0.58	0.72	0.48	0.01
30.47	166.05	0.60	0.70	0.48	0.01	30.52	165.76	0.60	0.70	0.48	0.00
30.59	161.40	0.56	0.73	0.48	0.01	30.67	155.66	0.51	0.78	0.48	0.01
30.71	149.24	0.46	0.81	0.48	0.00	30.78	144.30	0.43	0.83	0.48	0.01
30.86	140.07	0.40	0.85	0.48	0.01	30.92	136.74	0.38	0.86	0.48	0.01
30.98	134.32	0.36	0.87	0.47	0.01	31.04	133.87	0.36	0.87	0.47	0.01
31.11	134.19	0.36	0.87	0.47	0.01	31.17	136.02	0.37	0.86	0.47	0.01
31.24	136.45	0.37	0.85	0.47	0.01	31.31	136.57	0.37	0.85	0.47	0.01
31.37	134.95	0.36	0.86	0.47	0.01	31.46	132.81	0.35	0.86	0.47	0.01
31.50	129.90	0.34	0.88	0.47	0.00	31.60	126.43	2.00	0.00	0.46	0.00
31.63	121.14	2.00	0.00	0.46	0.00	31.70	114.26	2.00	0.00	0.46	0.00
31.76	105.98	2.00	0.00	0.46	0.00	31.83	100.92	2.00	0.00	0.46	0.00
31.90	102.69	2.00	0.00	0.46	0.00	31.97	113.31	2.00	0.00	0.46	0.00
32.03	122.30	2.00	0.00	0.46	0.00	32.09	126.56	2.00	0.00	0.46	0.00
32.16	126.47	2.00	0.00	0.45	0.00	32.24	122.80	2.00	0.00	0.45	0.00
32.28	117.71	2.00	0.00	0.45	0.00	32.35	110.72	2.00	0.00	0.45	0.00
32.45	103.60	2.00	0.00	0.45	0.00	32.48	97.18	2.00	0.00	0.45	0.00
32.57	94.54	2.00	0.00	0.45	0.00	32.63	93.78	2.00	0.00	0.45	0.00
32.68	97.71	2.00	0.00	0.45	0.00	32.76	103.71	2.00	0.00	0.44	0.00
32.81	109.91	2.00	0.00	0.44	0.00	32.88	111.93	2.00	0.00	0.44	0.00
32.97	111.95	2.00	0.00	0.44	0.00	33.01	111.01	2.00	0.00	0.44	0.00
33.08	110.57	2.00	0.00	0.44	0.00	33.17	109.90	2.00	0.00	0.44	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
33.22	108.44	2.00	0.00	0.44	0.00	33.27	104.32	2.00	0.00	0.44	0.00
33.37	99.07	2.00	0.00	0.43	0.00	33.41	92.66	2.00	0.00	0.43	0.00
33.50	88.94	2.00	0.00	0.43	0.00	33.53	86.15	2.00	0.00	0.43	0.00
33.61	84.71	2.00	0.00	0.43	0.00	33.69	83.29	2.00	0.00	0.43	0.00
33.74	82.73	2.00	0.00	0.43	0.00	33.80	83.58	2.00	0.00	0.43	0.00
33.90	84.89	2.00	0.00	0.43	0.00	33.93	87.05	2.00	0.00	0.42	0.00
34.00	89.62	2.00	0.00	0.42	0.00	34.06	93.13	2.00	0.00	0.42	0.00
34.13	97.39	2.00	0.00	0.42	0.00	34.20	102.93	2.00	0.00	0.42	0.00
34.28	108.70	2.00	0.00	0.42	0.00	34.33	114.38	2.00	0.00	0.42	0.00
34.39	119.99	2.00	0.00	0.42	0.00	34.48	122.28	2.00	0.00	0.42	0.00
34.52	120.67	2.00	0.00	0.41	0.00	34.58	115.49	2.00	0.00	0.41	0.00
34.65	110.89	2.00	0.00	0.41	0.00	34.73	107.21	2.00	0.00	0.41	0.00
34.81	105.70	2.00	0.00	0.41	0.00	34.85	105.83	2.00	0.00	0.41	0.00
34.91	107.74	2.00	0.00	0.41	0.00	34.97	111.35	2.00	0.00	0.41	0.00
35.05	115.67	2.00	0.00	0.41	0.00	35.12	117.40	2.00	0.00	0.40	0.00
35.18	116.69	2.00	0.00	0.40	0.00	35.25	118.72	2.00	0.00	0.40	0.00
35.31	121.40	2.00	0.00	0.40	0.00	35.38	129.39	0.33	0.76	0.40	0.01
35.45	136.80	0.37	0.72	0.40	0.01	35.50	142.29	0.40	0.70	0.40	0.00
35.58	147.05	0.44	0.68	0.40	0.01	35.65	149.48	0.45	0.67	0.40	0.01
35.71	150.47	0.46	0.66	0.39	0.00	35.78	149.15	0.45	0.66	0.39	0.01
35.83	146.36	0.43	0.67	0.39	0.00	35.90	141.86	0.40	0.69	0.39	0.01
35.98	136.04	0.36	0.71	0.39	0.01	36.04	131.22	0.34	0.73	0.39	0.01
36.10	128.83	0.32	0.74	0.39	0.01	36.18	127.21	0.32	0.74	0.39	0.01
36.23	124.35	0.30	0.75	0.39	0.00	36.30	120.05	0.28	0.77	0.38	0.01
36.37	116.51	0.26	0.79	0.38	0.01	36.43	114.76	0.26	0.80	0.38	0.01
36.50	114.63	0.26	0.80	0.38	0.01	36.57	115.04	0.26	0.79	0.38	0.01
36.62	115.68	0.26	0.79	0.38	0.00	36.71	116.24	2.00	0.00	0.38	0.00
36.75	117.89	2.00	0.00	0.38	0.00	36.82	121.87	2.00	0.00	0.38	0.00
36.90	130.18	2.00	0.00	0.37	0.00	36.94	139.28	2.00	0.00	0.37	0.00
37.03	142.45	2.00	0.00	0.37	0.00	37.10	140.92	2.00	0.00	0.37	0.00
37.15	133.12	2.00	0.00	0.37	0.00	37.24	123.41	2.00	0.00	0.37	0.00
37.30	114.76	2.00	0.00	0.37	0.00	37.34	110.04	2.00	0.00	0.37	0.00
37.43	108.44	0.23	0.80	0.37	0.01	37.49	109.31	0.23	0.79	0.36	0.01
37.54	110.72	2.00	0.00	0.36	0.00	37.62	112.43	2.00	0.00	0.36	0.00
37.68	114.88	2.00	0.00	0.36	0.00	37.73	120.38	2.00	0.00	0.36	0.00
37.82	127.56	2.00	0.00	0.36	0.00	37.86	136.38	2.00	0.00	0.36	0.00
37.93	141.66	2.00	0.00	0.36	0.00	38.02	144.48	2.00	0.00	0.36	0.00
38.06	143.83	2.00	0.00	0.35	0.00	38.15	141.75	2.00	0.00	0.35	0.00
38.22	138.45	2.00	0.00	0.35	0.00	38.26	134.27	2.00	0.00	0.35	0.00
38.34	130.14	2.00	0.00	0.35	0.00	38.39	125.68	2.00	0.00	0.35	0.00
38.46	117.62	2.00	0.00	0.35	0.00	38.55	109.24	2.00	0.00	0.35	0.00
38.59	101.84	2.00	0.00	0.35	0.00	38.66	99.94	2.00	0.00	0.34	0.00
38.75	99.70	2.00	0.00	0.34	0.00	38.79	102.32	2.00	0.00	0.34	0.00
38.86	107.23	2.00	0.00	0.34	0.00	38.91	113.90	2.00	0.00	0.34	0.00
38.99	121.52	2.00	0.00	0.34	0.00	39.06	129.86	2.00	0.00	0.34	0.00
39.11	139.30	2.00	0.00	0.34	0.00	39.19	147.37	2.00	0.00	0.34	0.00
39.25	151.91	2.00	0.00	0.33	0.00	39.34	152.12	2.00	0.00	0.33	0.00
39.39	148.51	2.00	0.00	0.33	0.00	39.45	138.00	2.00	0.00	0.33	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
39.51	121.41	2.00	0.00	0.33	0.00	39.59	117.92	2.00	0.00	0.33	0.00
39.63	135.91	2.00	0.00	0.33	0.00	39.72	156.84	2.00	0.00	0.33	0.00
39.79	171.62	2.00	0.00	0.33	0.00	39.83	178.99	2.00	0.00	0.32	0.00
39.92	183.40	0.76	0.27	0.32	0.00	39.98	187.73	0.81	0.26	0.32	0.00
40.03	191.98	0.86	0.19	0.32	0.00	40.11	195.32	0.90	0.19	0.32	0.00
40.17	197.42	0.93	0.18	0.32	0.00	40.25	197.40	0.93	0.18	0.32	0.00
40.32	196.37	0.91	0.18	0.32	0.00	40.36	192.08	0.86	0.19	0.32	0.00
40.45	185.25	0.78	0.26	0.31	0.00	40.52	177.20	0.70	0.34	0.31	0.00
40.56	168.71	0.61	0.44	0.31	0.00	40.63	159.91	2.00	0.00	0.31	0.00
40.70	150.37	2.00	0.00	0.31	0.00	40.75	139.30	2.00	0.00	0.31	0.00
40.83	127.15	2.00	0.00	0.31	0.00	40.90	116.83	2.00	0.00	0.31	0.00
40.95	111.98	2.00	0.00	0.31	0.00	41.03	112.76	2.00	0.00	0.30	0.00
41.09	118.51	2.00	0.00	0.30	0.00	41.15	126.68	2.00	0.00	0.30	0.00
41.23	135.77	2.00	0.00	0.30	0.00	41.29	145.15	2.00	0.00	0.30	0.00
41.35	150.33	2.00	0.00	0.30	0.00	41.43	152.77	2.00	0.00	0.30	0.00
41.48	151.66	2.00	0.00	0.30	0.00	41.55	146.96	2.00	0.00	0.30	0.00
41.62	137.44	2.00	0.00	0.29	0.00	41.67	126.39	2.00	0.00	0.29	0.00
41.75	112.23	2.00	0.00	0.29	0.00	41.82	95.82	2.00	0.00	0.29	0.00
41.87	86.07	2.00	0.00	0.29	0.00	41.95	84.73	2.00	0.00	0.29	0.00
42.02	88.40	2.00	0.00	0.29	0.00	42.07	90.18	2.00	0.00	0.29	0.00
42.15	91.09	2.00	0.00	0.29	0.00	42.20	90.19	2.00	0.00	0.28	0.00
42.30	88.05	2.00	0.00	0.28	0.00	42.35	85.99	2.00	0.00	0.28	0.00
42.40	84.18	2.00	0.00	0.28	0.00	42.47	82.04	2.00	0.00	0.28	0.00
42.55	79.70	2.00	0.00	0.28	0.00	42.59	77.01	2.00	0.00	0.28	0.00
42.67	74.41	2.00	0.00	0.28	0.00	42.74	72.57	2.00	0.00	0.28	0.00
42.79	72.00	2.00	0.00	0.27	0.00	42.88	72.76	2.00	0.00	0.27	0.00
42.92	79.79	2.00	0.00	0.27	0.00	42.98	93.83	2.00	0.00	0.27	0.00
43.08	107.73	2.00	0.00	0.27	0.00	43.12	118.70	2.00	0.00	0.27	0.00
43.18	128.68	2.00	0.00	0.27	0.00	43.27	139.67	2.00	0.00	0.27	0.00
43.32	150.17	2.00	0.00	0.27	0.00	43.37	159.11	2.00	0.00	0.26	0.00
43.46	165.27	2.00	0.00	0.26	0.00	43.52	168.85	2.00	0.00	0.26	0.00
43.60	168.81	2.00	0.00	0.26	0.00	43.66	167.60	2.00	0.00	0.26	0.00
43.71	165.70	2.00	0.00	0.26	0.00	43.79	162.84	2.00	0.00	0.26	0.00
43.86	159.44	2.00	0.00	0.26	0.00	43.91	155.13	2.00	0.00	0.26	0.00
43.99	151.08	2.00	0.00	0.25	0.00	44.03	146.86	2.00	0.00	0.25	0.00
44.10	141.93	2.00	0.00	0.25	0.00	44.18	136.19	2.00	0.00	0.25	0.00
44.23	130.45	2.00	0.00	0.25	0.00	44.29	126.84	2.00	0.00	0.25	0.00
44.36	124.24	2.00	0.00	0.25	0.00	44.43	121.91	2.00	0.00	0.25	0.00
44.49	118.78	2.00	0.00	0.25	0.00	44.59	115.52	2.00	0.00	0.24	0.00
44.63	112.19	2.00	0.00	0.24	0.00	44.69	109.15	2.00	0.00	0.24	0.00
44.78	105.98	2.00	0.00	0.24	0.00	44.83	102.68	2.00	0.00	0.24	0.00
44.91	99.93	2.00	0.00	0.24	0.00	44.96	96.68	2.00	0.00	0.24	0.00
45.02	92.43	2.00	0.00	0.24	0.00	45.08	86.43	2.00	0.00	0.24	0.00
45.16	76.09	2.00	0.00	0.23	0.00	45.22	68.24	2.00	0.00	0.23	0.00
45.29	64.66	2.00	0.00	0.23	0.00	45.36	67.25	2.00	0.00	0.23	0.00
45.41	70.68	2.00	0.00	0.23	0.00	45.50	73.29	2.00	0.00	0.23	0.00
45.56	75.28	2.00	0.00	0.23	0.00	45.61	76.05	2.00	0.00	0.23	0.00
45.67	76.78	2.00	0.00	0.23	0.00	45.76	77.44	2.00	0.00	0.22	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
45.81	78.22	2.00	0.00	0.22	0.00	45.87	78.91	2.00	0.00	0.22	0.00
45.96	79.38	2.00	0.00	0.22	0.00	46.00	79.59	2.00	0.00	0.22	0.00
46.08	79.65	2.00	0.00	0.22	0.00	46.15	80.30	2.00	0.00	0.22	0.00
46.20	81.35	2.00	0.00	0.22	0.00	46.29	82.16	2.00	0.00	0.22	0.00
46.33	82.89	2.00	0.00	0.21	0.00	46.40	83.79	2.00	0.00	0.21	0.00
46.49	84.62	2.00	0.00	0.21	0.00	46.52	84.94	2.00	0.00	0.21	0.00
46.59	84.82	2.00	0.00	0.21	0.00	46.68	84.58	2.00	0.00	0.21	0.00
46.73	84.16	2.00	0.00	0.21	0.00	46.78	83.34	2.00	0.00	0.21	0.00
46.85	83.35	2.00	0.00	0.21	0.00	46.93	83.87	2.00	0.00	0.20	0.00
47.01	84.91	2.00	0.00	0.20	0.00	47.06	85.73	2.00	0.00	0.20	0.00
47.12	86.75	2.00	0.00	0.20	0.00	47.21	87.73	2.00	0.00	0.20	0.00
47.24	88.49	2.00	0.00	0.20	0.00	47.32	88.71	2.00	0.00	0.20	0.00
47.40	88.32	2.00	0.00	0.20	0.00	47.45	87.42	2.00	0.00	0.20	0.00
47.51	87.72	2.00	0.00	0.19	0.00	47.61	89.10	2.00	0.00	0.19	0.00
47.64	92.48	2.00	0.00	0.19	0.00	47.71	95.36	2.00	0.00	0.19	0.00
47.77	97.46	2.00	0.00	0.19	0.00	47.85	97.12	2.00	0.00	0.19	0.00
47.91	95.16	2.00	0.00	0.19	0.00	48.00	93.07	2.00	0.00	0.19	0.00
48.05	91.64	2.00	0.00	0.19	0.00	48.10	90.02	2.00	0.00	0.18	0.00
48.19	87.31	2.00	0.00	0.18	0.00	48.24	83.34	2.00	0.00	0.18	0.00
48.32	80.23	2.00	0.00	0.18	0.00	48.36	77.44	2.00	0.00	0.18	0.00
48.44	75.21	2.00	0.00	0.18	0.00	48.53	73.01	2.00	0.00	0.18	0.00
48.56	70.07	2.00	0.00	0.18	0.00	48.63	69.99	2.00	0.00	0.18	0.00
48.69	73.02	2.00	0.00	0.17	0.00	48.76	78.84	2.00	0.00	0.17	0.00
48.82	83.50	2.00	0.00	0.17	0.00	48.92	85.93	2.00	0.00	0.17	0.00
48.97	87.81	2.00	0.00	0.17	0.00	49.03	89.71	2.00	0.00	0.17	0.00
49.09	92.14	2.00	0.00	0.17	0.00	49.16	94.58	2.00	0.00	0.17	0.00
49.22	96.72	2.00	0.00	0.17	0.00	49.29	98.30	2.00	0.00	0.16	0.00
49.36	99.30	2.00	0.00	0.16	0.00	49.45	99.64	2.00	0.00	0.16	0.00
49.48	99.22	2.00	0.00	0.16	0.00	49.56	98.38	2.00	0.00	0.16	0.00
49.61	97.94	2.00	0.00	0.16	0.00	49.71	97.92	2.00	0.00	0.16	0.00
49.76	98.06	2.00	0.00	0.16	0.00	49.80	97.71	2.00	0.00	0.16	0.00
49.88	96.93	2.00	0.00	0.15	0.00	49.95	95.74	2.00	0.00	0.15	0.00
50.01	94.84	2.00	0.00	0.15	0.00						

Total estimated settlement: 0.82

Abbreviations

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

Landmark Consultants, Inc.
780 N. 4th Street
El Centro, CA 92243

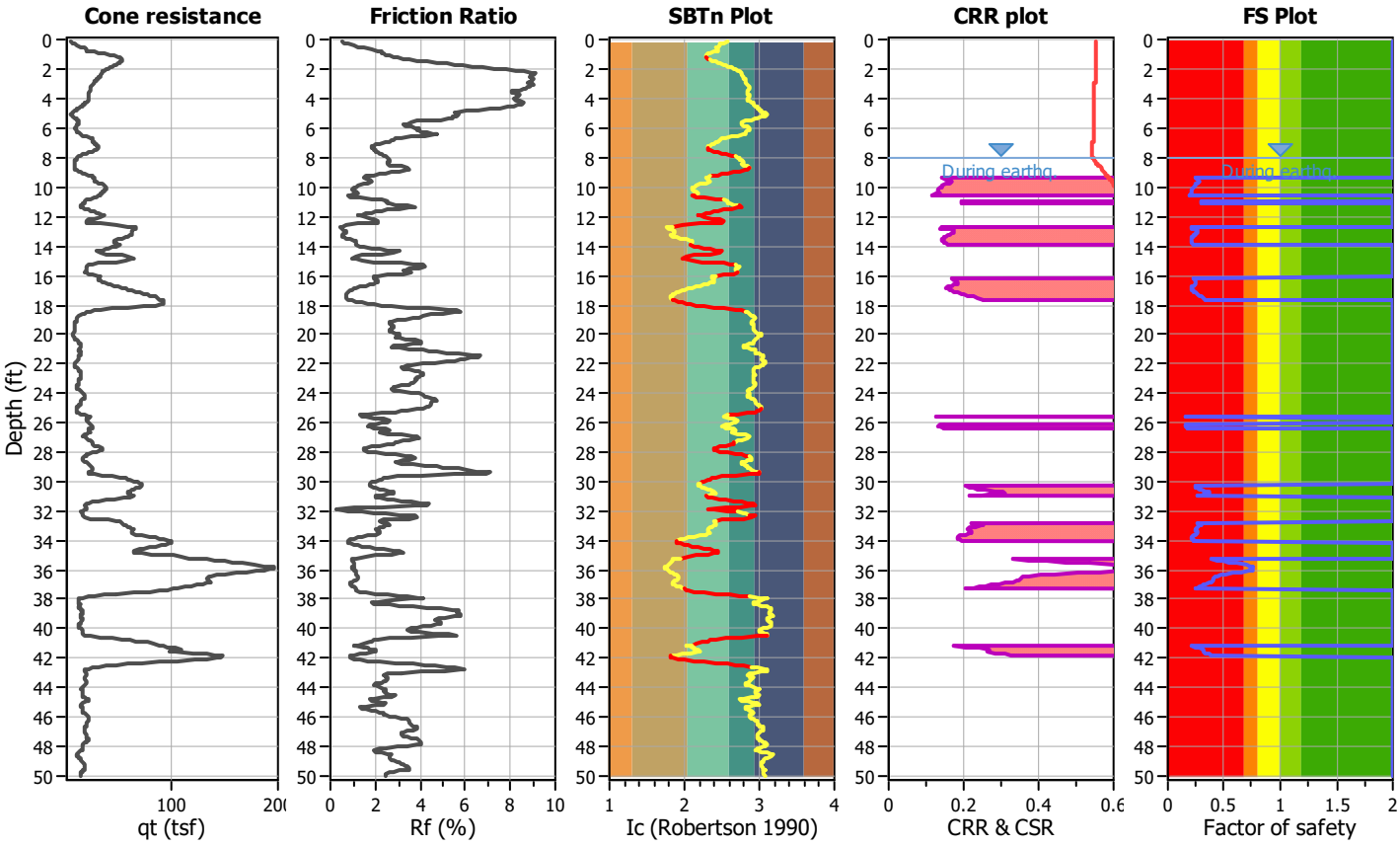
LIQUEFACTION ANALYSIS REPORT

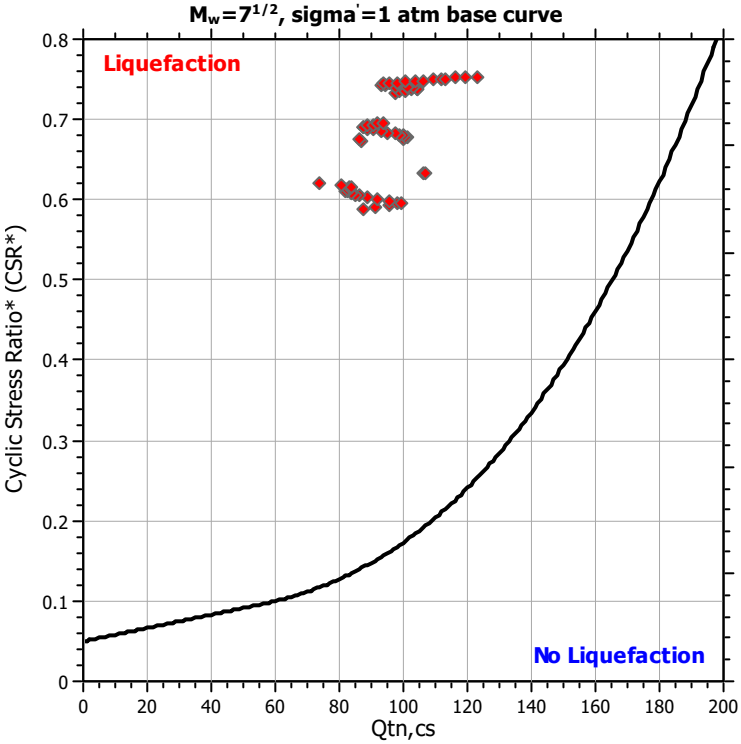
Project title : IV Data Center Campus Site #2 **Location : Imperial, CA**

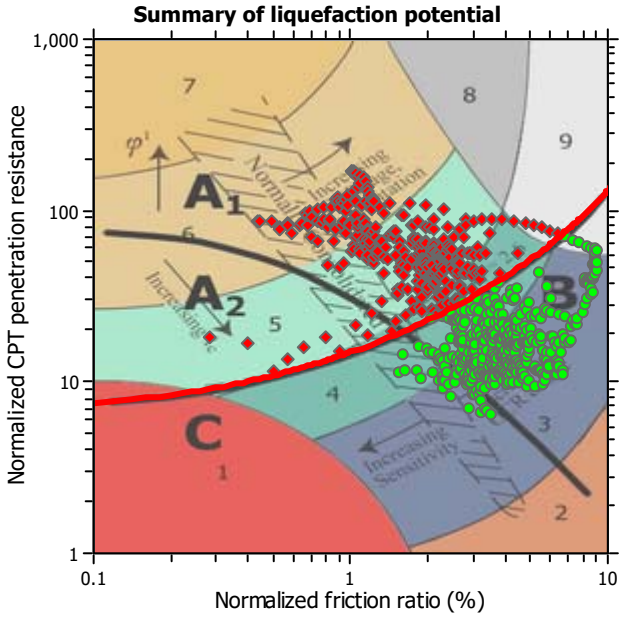
CPT file : CPT-7

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	8.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	8.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.00	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.78	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

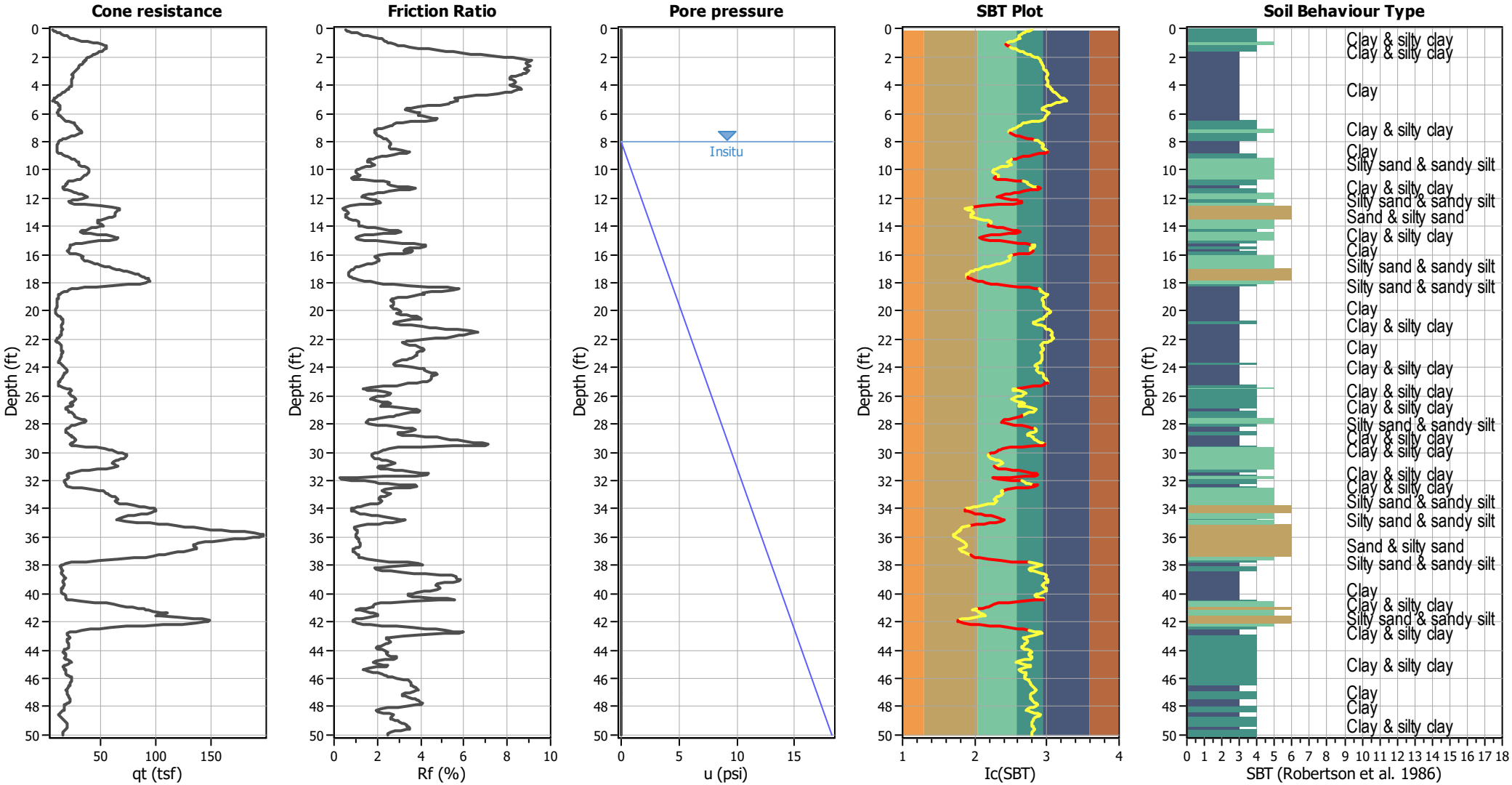






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



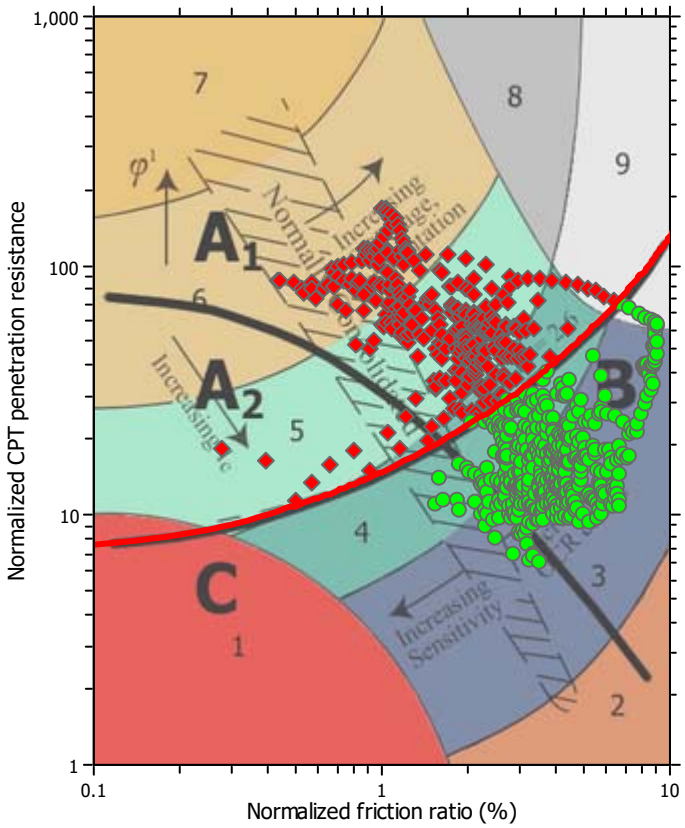
Input parameters and analysis data

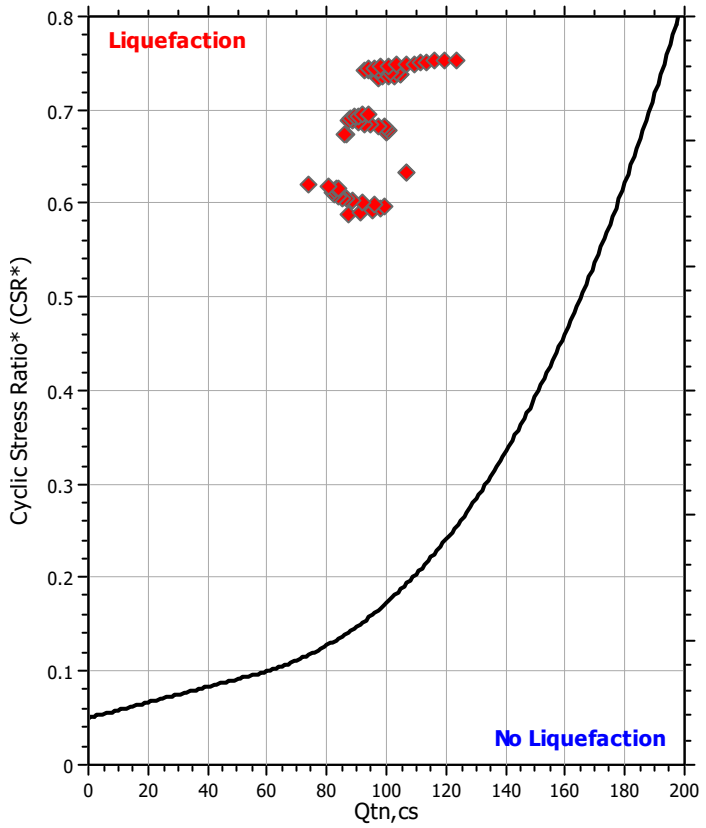
Analysis method:	NCEER (1998)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.78	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	8.00 ft	Fill height:	N/A	Limit depth:	N/A

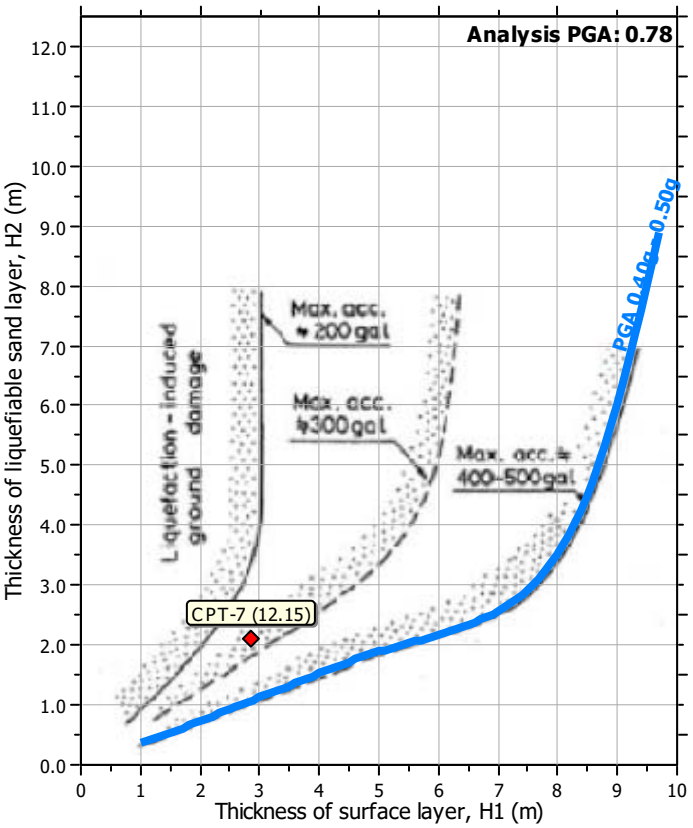
SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

Liquefaction analysis summary plots



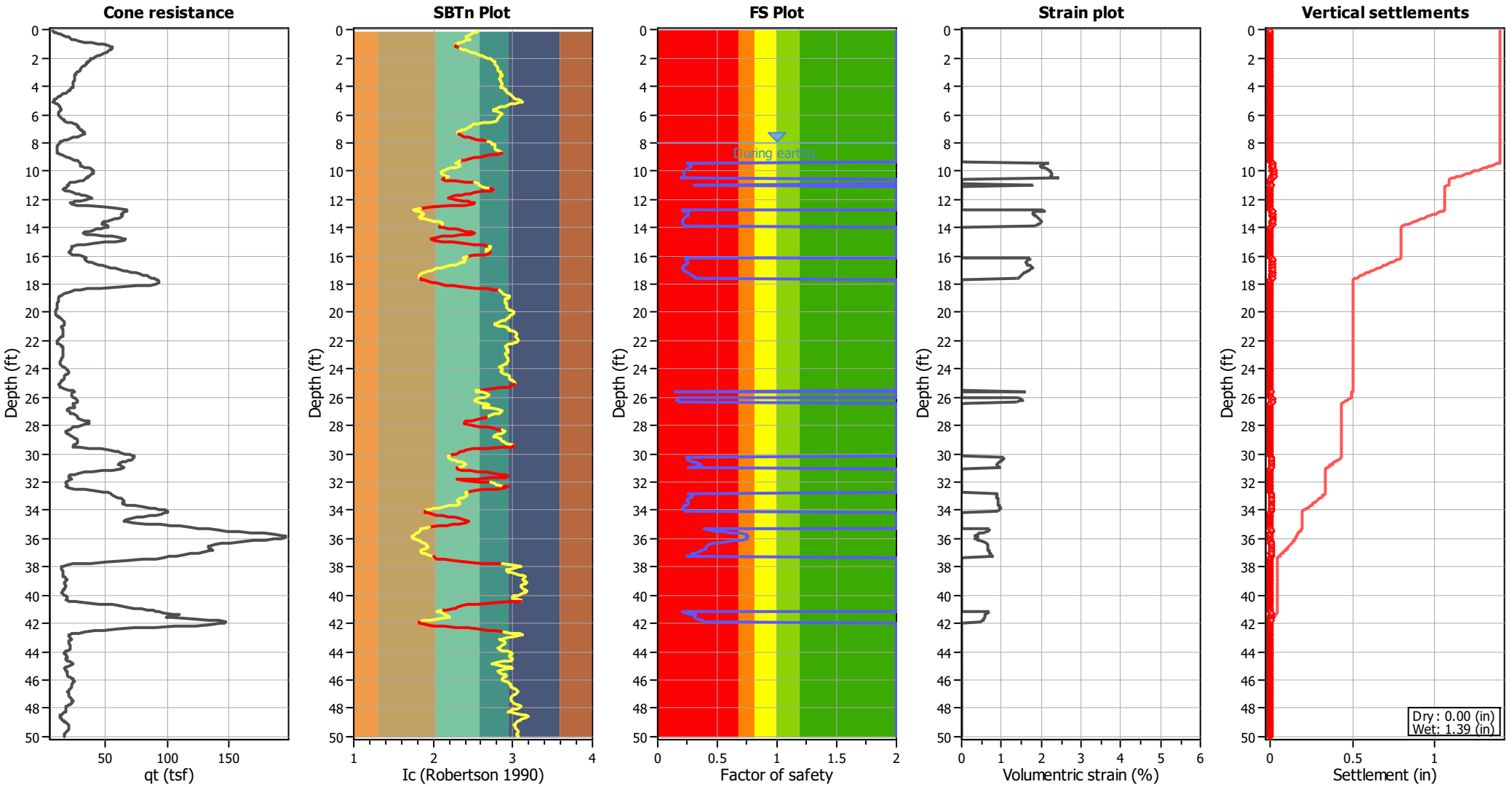




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.78	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	8.00 ft	Fill height:	N/A	Limit depth:	N/A

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
8.04	98.19	2.00	0.00	0.86	0.00	8.09	98.48	2.00	0.00	0.86	0.00
8.14	98.48	2.00	0.00	0.86	0.00	8.22	97.46	2.00	0.00	0.86	0.00
8.27	95.74	2.00	0.00	0.86	0.00	8.33	94.78	2.00	0.00	0.86	0.00
8.42	94.80	2.00	0.00	0.86	0.00	8.48	96.50	2.00	0.00	0.86	0.00
8.53	100.13	2.00	0.00	0.86	0.00	8.60	106.07	2.00	0.00	0.85	0.00
8.68	111.94	2.00	0.00	0.85	0.00	8.75	114.94	2.00	0.00	0.85	0.00
8.81	115.42	2.00	0.00	0.85	0.00	8.87	112.27	2.00	0.00	0.85	0.00
8.96	108.46	2.00	0.00	0.85	0.00	9.02	104.01	2.00	0.00	0.85	0.00
9.06	99.21	2.00	0.00	0.85	0.00	9.15	94.42	2.00	0.00	0.84	0.00
9.21	90.92	2.00	0.00	0.84	0.00	9.26	86.86	2.00	0.00	0.84	0.00
9.33	86.31	2.00	0.00	0.84	0.00	9.40	87.54	0.24	2.19	0.84	0.02
9.46	91.49	0.26	2.11	0.84	0.01	9.52	95.37	0.27	2.04	0.84	0.02
9.61	98.28	0.28	1.98	0.84	0.02	9.66	99.09	0.29	1.97	0.84	0.01
9.71	95.92	0.27	2.02	0.84	0.01	9.79	91.85	0.25	2.09	0.83	0.02
9.86	88.52	0.24	2.15	0.83	0.02	9.95	86.38	0.23	2.19	0.83	0.02
9.98	85.13	0.23	2.22	0.83	0.01	10.04	83.96	0.22	2.24	0.83	0.02
10.13	82.79	0.22	2.26	0.83	0.02	10.20	81.92	0.21	2.28	0.83	0.02
10.25	82.29	0.22	2.27	0.83	0.01	10.35	82.93	0.22	2.25	0.82	0.03
10.38	83.56	0.22	2.23	0.82	0.01	10.44	80.60	0.21	2.30	0.82	0.02
10.50	73.66	0.19	2.47	0.82	0.02	10.56	69.25	2.00	0.00	0.82	0.00
10.64	70.05	2.00	0.00	0.82	0.00	10.71	79.47	2.00	0.00	0.82	0.00
10.78	92.56	2.00	0.00	0.82	0.00	10.83	102.95	2.00	0.00	0.82	0.00
10.91	107.76	2.00	0.00	0.82	0.00	10.97	106.56	0.30	1.81	0.81	0.01
11.03	106.65	0.30	1.80	0.81	0.01	11.10	108.55	2.00	0.00	0.81	0.00
11.16	115.00	2.00	0.00	0.81	0.00	11.25	124.37	2.00	0.00	0.81	0.00
11.31	131.38	2.00	0.00	0.81	0.00	11.36	129.15	2.00	0.00	0.81	0.00
11.45	121.39	2.00	0.00	0.81	0.00	11.48	112.13	2.00	0.00	0.81	0.00
11.56	105.72	2.00	0.00	0.80	0.00	11.65	100.37	2.00	0.00	0.80	0.00
11.70	95.99	2.00	0.00	0.80	0.00	11.76	90.37	2.00	0.00	0.80	0.00
11.84	86.40	2.00	0.00	0.80	0.00	11.89	85.31	2.00	0.00	0.80	0.00
11.95	86.84	2.00	0.00	0.80	0.00	12.01	90.34	2.00	0.00	0.80	0.00
12.10	93.91	2.00	0.00	0.80	0.00	12.14	94.72	2.00	0.00	0.79	0.00
12.21	93.04	2.00	0.00	0.79	0.00	12.27	96.78	2.00	0.00	0.79	0.00
12.38	98.24	2.00	0.00	0.79	0.00	12.41	90.19	2.00	0.00	0.79	0.00
12.47	80.48	2.00	0.00	0.79	0.00	12.54	85.70	2.00	0.00	0.79	0.00
12.63	93.22	2.00	0.00	0.79	0.00	12.69	86.72	2.00	0.00	0.78	0.00
12.74	86.83	0.21	2.06	0.78	0.01	12.80	86.15	0.21	2.07	0.78	0.02
12.88	100.05	0.26	1.83	0.78	0.02	12.93	100.96	0.26	1.81	0.78	0.01
13.00	100.81	0.26	1.81	0.78	0.01	13.08	100.22	0.26	1.82	0.78	0.02
13.13	99.05	0.25	1.83	0.78	0.01	13.20	97.21	0.24	1.86	0.78	0.02
13.26	94.96	0.23	1.89	0.78	0.01	13.33	92.87	0.23	1.92	0.77	0.02
13.39	90.93	0.22	1.95	0.77	0.02	13.47	88.63	0.21	1.99	0.77	0.02
13.52	87.36	0.21	2.01	0.77	0.01	13.60	87.63	0.21	2.00	0.77	0.02
13.66	89.01	0.21	1.98	0.77	0.01	13.73	90.39	0.21	1.95	0.77	0.02
13.81	91.77	0.22	1.92	0.77	0.02	13.85	93.85	0.23	1.88	0.77	0.01
13.95	95.13	2.00	0.00	0.76	0.00	14.00	95.88	2.00	0.00	0.76	0.00
14.05	98.54	2.00	0.00	0.76	0.00	14.12	104.77	2.00	0.00	0.76	0.00
14.18	113.16	2.00	0.00	0.76	0.00	14.25	122.12	2.00	0.00	0.76	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
14.31	130.34	2.00	0.00	0.76	0.00	14.37	133.12	2.00	0.00	0.76	0.00
14.44	127.17	2.00	0.00	0.76	0.00	14.51	116.41	2.00	0.00	0.75	0.00
14.59	108.19	2.00	0.00	0.75	0.00	14.63	103.70	2.00	0.00	0.75	0.00
14.71	104.12	2.00	0.00	0.75	0.00	14.78	105.70	2.00	0.00	0.75	0.00
14.83	107.19	2.00	0.00	0.75	0.00	14.90	107.50	2.00	0.00	0.75	0.00
14.97	106.64	2.00	0.00	0.75	0.00	15.05	111.87	2.00	0.00	0.74	0.00
15.11	124.13	2.00	0.00	0.74	0.00	15.16	136.32	2.00	0.00	0.74	0.00
15.24	144.84	2.00	0.00	0.74	0.00	15.30	150.03	2.00	0.00	0.74	0.00
15.36	150.84	2.00	0.00	0.74	0.00	15.44	149.79	2.00	0.00	0.74	0.00
15.51	144.17	2.00	0.00	0.74	0.00	15.56	132.81	2.00	0.00	0.74	0.00
15.62	127.01	2.00	0.00	0.74	0.00	15.70	125.11	2.00	0.00	0.73	0.00
15.76	132.31	2.00	0.00	0.73	0.00	15.82	132.11	2.00	0.00	0.73	0.00
15.89	126.98	2.00	0.00	0.73	0.00	15.95	112.70	2.00	0.00	0.73	0.00
16.04	102.41	2.00	0.00	0.73	0.00	16.09	97.29	2.00	0.00	0.73	0.00
16.15	97.46	0.23	1.73	0.73	0.01	16.23	98.88	0.23	1.71	0.72	0.02
16.29	100.84	0.24	1.68	0.72	0.01	16.36	102.77	0.25	1.65	0.72	0.01
16.42	104.45	0.25	1.63	0.72	0.01	16.47	104.50	0.25	1.62	0.72	0.01
16.56	103.35	0.25	1.64	0.72	0.02	16.62	101.10	0.24	1.66	0.72	0.01
16.67	97.38	0.22	1.71	0.72	0.01	16.75	94.13	0.21	1.76	0.72	0.02
16.81	92.85	0.21	1.78	0.72	0.01	16.87	93.99	0.21	1.76	0.71	0.01
16.96	95.91	0.22	1.72	0.71	0.02	17.02	98.28	0.23	1.69	0.71	0.01
17.06	100.62	0.23	1.65	0.71	0.01	17.13	103.50	0.24	1.61	0.71	0.01
17.21	106.49	0.26	1.57	0.71	0.02	17.26	109.35	0.27	1.54	0.71	0.01
17.35	111.58	0.28	1.51	0.71	0.02	17.41	113.43	0.29	1.49	0.70	0.01
17.46	116.33	0.30	1.45	0.70	0.01	17.55	119.61	0.32	1.42	0.70	0.02
17.60	123.32	0.34	1.38	0.70	0.01	17.65	126.88	2.00	0.00	0.70	0.00
17.72	131.88	2.00	0.00	0.70	0.00	17.79	137.32	2.00	0.00	0.70	0.00
17.86	142.52	2.00	0.00	0.70	0.00	17.92	147.06	2.00	0.00	0.70	0.00
17.99	150.92	2.00	0.00	0.70	0.00	18.07	154.12	2.00	0.00	0.69	0.00
18.12	158.42	2.00	0.00	0.69	0.00	18.19	168.06	2.00	0.00	0.69	0.00
18.25	184.01	2.00	0.00	0.69	0.00	18.31	194.86	2.00	0.00	0.69	0.00
18.38	192.22	2.00	0.00	0.69	0.00	18.45	184.68	2.00	0.00	0.69	0.00
18.51	172.50	2.00	0.00	0.69	0.00	18.57	156.11	2.00	0.00	0.69	0.00
18.66	141.38	2.00	0.00	0.68	0.00	18.72	129.08	2.00	0.00	0.68	0.00
18.77	125.71	2.00	0.00	0.68	0.00	18.85	119.81	2.00	0.00	0.68	0.00
18.91	113.39	2.00	0.00	0.68	0.00	18.98	106.70	2.00	0.00	0.68	0.00
19.05	100.46	2.00	0.00	0.68	0.00	19.10	95.99	2.00	0.00	0.68	0.00
19.16	93.94	2.00	0.00	0.68	0.00	19.25	93.08	2.00	0.00	0.67	0.00
19.30	93.24	2.00	0.00	0.67	0.00	19.36	93.90	2.00	0.00	0.67	0.00
19.43	94.59	2.00	0.00	0.67	0.00	19.49	94.75	2.00	0.00	0.67	0.00
19.56	93.95	2.00	0.00	0.67	0.00	19.64	92.76	2.00	0.00	0.67	0.00
19.69	91.63	2.00	0.00	0.67	0.00	19.76	91.08	2.00	0.00	0.67	0.00
19.82	92.20	2.00	0.00	0.66	0.00	19.89	93.39	2.00	0.00	0.66	0.00
19.96	94.93	2.00	0.00	0.66	0.00	20.02	95.18	2.00	0.00	0.66	0.00
20.11	94.48	2.00	0.00	0.66	0.00	20.16	94.81	2.00	0.00	0.66	0.00
20.21	99.27	2.00	0.00	0.66	0.00	20.30	105.51	2.00	0.00	0.66	0.00
20.36	110.93	2.00	0.00	0.65	0.00	20.41	117.26	2.00	0.00	0.65	0.00
20.50	122.97	2.00	0.00	0.65	0.00	20.56	125.35	2.00	0.00	0.65	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
20.61	119.86	2.00	0.00	0.65	0.00	20.70	112.65	2.00	0.00	0.65	0.00
20.75	106.21	2.00	0.00	0.65	0.00	20.81	104.28	2.00	0.00	0.65	0.00
20.89	103.27	2.00	0.00	0.65	0.00	20.95	107.67	2.00	0.00	0.64	0.00
21.02	115.48	2.00	0.00	0.64	0.00	21.07	124.74	2.00	0.00	0.64	0.00
21.14	131.58	2.00	0.00	0.64	0.00	21.22	137.92	2.00	0.00	0.64	0.00
21.27	146.88	2.00	0.00	0.64	0.00	21.33	155.97	2.00	0.00	0.64	0.00
21.41	163.98	2.00	0.00	0.64	0.00	21.48	167.60	2.00	0.00	0.64	0.00
21.53	165.02	2.00	0.00	0.64	0.00	21.61	160.33	2.00	0.00	0.63	0.00
21.67	155.83	2.00	0.00	0.63	0.00	21.73	150.44	2.00	0.00	0.63	0.00
21.81	143.06	2.00	0.00	0.63	0.00	21.87	134.22	2.00	0.00	0.63	0.00
21.92	123.47	2.00	0.00	0.63	0.00	22.01	112.60	2.00	0.00	0.63	0.00
22.06	103.78	2.00	0.00	0.63	0.00	22.12	101.21	2.00	0.00	0.63	0.00
22.18	101.60	2.00	0.00	0.62	0.00	22.26	102.31	2.00	0.00	0.62	0.00
22.32	107.17	2.00	0.00	0.62	0.00	22.39	113.34	2.00	0.00	0.62	0.00
22.45	119.22	2.00	0.00	0.62	0.00	22.51	122.35	2.00	0.00	0.62	0.00
22.59	124.45	2.00	0.00	0.62	0.00	22.66	125.63	2.00	0.00	0.62	0.00
22.71	125.86	2.00	0.00	0.62	0.00	22.78	124.87	2.00	0.00	0.61	0.00
22.84	123.07	2.00	0.00	0.61	0.00	22.90	121.15	2.00	0.00	0.61	0.00
22.98	120.43	2.00	0.00	0.61	0.00	23.04	120.65	2.00	0.00	0.61	0.00
23.10	120.27	2.00	0.00	0.61	0.00	23.16	118.20	2.00	0.00	0.61	0.00
23.24	115.23	2.00	0.00	0.61	0.00	23.32	112.78	2.00	0.00	0.60	0.00
23.39	110.73	2.00	0.00	0.60	0.00	23.44	107.74	2.00	0.00	0.60	0.00
23.50	103.01	2.00	0.00	0.60	0.00	23.58	98.60	2.00	0.00	0.60	0.00
23.63	96.35	2.00	0.00	0.60	0.00	23.69	97.20	2.00	0.00	0.60	0.00
23.76	98.77	2.00	0.00	0.60	0.00	23.83	101.94	2.00	0.00	0.60	0.00
23.89	109.01	2.00	0.00	0.60	0.00	23.96	119.52	2.00	0.00	0.59	0.00
24.02	128.67	2.00	0.00	0.59	0.00	24.09	133.54	2.00	0.00	0.59	0.00
24.15	134.90	2.00	0.00	0.59	0.00	24.22	135.52	2.00	0.00	0.59	0.00
24.29	137.01	2.00	0.00	0.59	0.00	24.35	139.77	2.00	0.00	0.59	0.00
24.41	140.14	2.00	0.00	0.59	0.00	24.50	138.27	2.00	0.00	0.58	0.00
24.55	134.84	2.00	0.00	0.58	0.00	24.61	132.99	2.00	0.00	0.58	0.00
24.68	131.93	2.00	0.00	0.58	0.00	24.75	130.80	2.00	0.00	0.58	0.00
24.82	128.21	2.00	0.00	0.58	0.00	24.87	124.68	2.00	0.00	0.58	0.00
24.95	121.04	2.00	0.00	0.58	0.00	25.00	116.25	2.00	0.00	0.58	0.00
25.07	111.02	2.00	0.00	0.58	0.00	25.14	105.08	2.00	0.00	0.57	0.00
25.21	101.46	2.00	0.00	0.57	0.00	25.29	97.13	2.00	0.00	0.57	0.00
25.33	87.66	2.00	0.00	0.57	0.00	25.41	77.25	2.00	0.00	0.57	0.00
25.47	69.85	2.00	0.00	0.57	0.00	25.55	72.71	2.00	0.00	0.57	0.00
25.61	78.03	0.15	1.62	0.57	0.01	25.66	88.22	2.00	0.00	0.57	0.00
25.75	97.67	2.00	0.00	0.56	0.00	25.81	104.33	2.00	0.00	0.56	0.00
25.86	104.89	2.00	0.00	0.56	0.00	25.92	102.35	2.00	0.00	0.56	0.00
26.00	97.17	2.00	0.00	0.56	0.00	26.06	90.78	0.18	1.41	0.56	0.01
26.14	85.22	0.17	1.48	0.56	0.01	26.20	82.60	0.16	1.52	0.56	0.01
26.25	85.04	0.16	1.48	0.56	0.01	26.35	90.20	0.18	1.41	0.55	0.02
26.40	96.92	2.00	0.00	0.55	0.00	26.45	101.92	2.00	0.00	0.55	0.00
26.52	104.36	2.00	0.00	0.55	0.00	26.58	100.88	2.00	0.00	0.55	0.00
26.64	96.09	2.00	0.00	0.55	0.00	26.72	94.63	2.00	0.00	0.55	0.00
26.78	101.95	2.00	0.00	0.55	0.00	26.84	111.99	2.00	0.00	0.55	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
26.91	120.82	2.00	0.00	0.54	0.00	26.97	126.52	2.00	0.00	0.54	0.00
27.04	130.14	2.00	0.00	0.54	0.00	27.12	130.53	2.00	0.00	0.54	0.00
27.17	126.16	2.00	0.00	0.54	0.00	27.26	120.78	2.00	0.00	0.54	0.00
27.32	117.14	2.00	0.00	0.54	0.00	27.37	115.40	2.00	0.00	0.54	0.00
27.45	112.21	2.00	0.00	0.53	0.00	27.50	106.39	2.00	0.00	0.53	0.00
27.56	96.98	2.00	0.00	0.53	0.00	27.66	88.86	2.00	0.00	0.53	0.00
27.71	84.04	2.00	0.00	0.53	0.00	27.76	82.12	2.00	0.00	0.53	0.00
27.83	79.95	2.00	0.00	0.53	0.00	27.90	79.07	2.00	0.00	0.53	0.00
27.95	82.67	2.00	0.00	0.53	0.00	28.04	90.82	2.00	0.00	0.52	0.00
28.10	100.94	2.00	0.00	0.52	0.00	28.16	109.81	2.00	0.00	0.52	0.00
28.24	116.92	2.00	0.00	0.52	0.00	28.30	120.97	2.00	0.00	0.52	0.00
28.38	122.10	2.00	0.00	0.52	0.00	28.44	120.46	2.00	0.00	0.52	0.00
28.49	116.55	2.00	0.00	0.52	0.00	28.56	111.51	2.00	0.00	0.52	0.00
28.62	107.59	2.00	0.00	0.51	0.00	28.68	109.42	2.00	0.00	0.51	0.00
28.76	115.83	2.00	0.00	0.51	0.00	28.82	127.81	2.00	0.00	0.51	0.00
28.88	140.08	2.00	0.00	0.51	0.00	28.95	152.34	2.00	0.00	0.51	0.00
29.02	160.96	2.00	0.00	0.51	0.00	29.08	168.27	2.00	0.00	0.51	0.00
29.14	174.34	2.00	0.00	0.51	0.00	29.22	179.84	2.00	0.00	0.50	0.00
29.28	184.31	2.00	0.00	0.50	0.00	29.33	187.35	2.00	0.00	0.50	0.00
29.40	188.35	2.00	0.00	0.50	0.00	29.48	186.00	2.00	0.00	0.50	0.00
29.53	172.11	2.00	0.00	0.50	0.00	29.63	151.13	2.00	0.00	0.50	0.00
29.68	130.48	2.00	0.00	0.50	0.00	29.73	122.10	2.00	0.00	0.50	0.00
29.80	118.86	2.00	0.00	0.49	0.00	29.87	118.03	2.00	0.00	0.49	0.00
29.93	115.40	2.00	0.00	0.49	0.00	30.00	112.85	2.00	0.00	0.49	0.00
30.06	110.74	2.00	0.00	0.49	0.00	30.14	110.15	2.00	0.00	0.49	0.00
30.19	109.89	2.00	0.00	0.49	0.00	30.26	109.94	0.24	1.05	0.49	0.01
30.34	110.80	0.24	1.04	0.49	0.01	30.40	112.75	0.25	1.03	0.48	0.01
30.45	115.66	0.26	1.00	0.48	0.01	30.53	119.15	0.28	0.98	0.48	0.01
30.59	123.96	0.30	0.94	0.48	0.01	30.65	129.82	0.34	0.91	0.48	0.01
30.73	134.34	0.36	0.88	0.48	0.01	30.79	135.04	0.37	0.87	0.48	0.01
30.84	129.43	0.33	0.90	0.48	0.01	30.93	121.36	0.29	0.95	0.48	0.01
30.99	113.45	0.25	1.00	0.47	0.01	31.04	109.88	2.00	0.00	0.47	0.00
31.13	110.59	2.00	0.00	0.47	0.00	31.18	116.05	2.00	0.00	0.47	0.00
31.25	120.23	2.00	0.00	0.47	0.00	31.30	124.33	2.00	0.00	0.47	0.00
31.38	129.13	2.00	0.00	0.47	0.00	31.44	133.91	2.00	0.00	0.47	0.00
31.52	134.99	2.00	0.00	0.47	0.00	31.57	130.90	2.00	0.00	0.46	0.00
31.64	120.87	2.00	0.00	0.46	0.00	31.70	92.20	2.00	0.00	0.46	0.00
31.77	61.93	2.00	0.00	0.46	0.00	31.83	18.37	2.00	0.00	0.46	0.00
31.89	38.94	2.00	0.00	0.46	0.00	31.96	53.42	2.00	0.00	0.46	0.00
32.04	69.70	2.00	0.00	0.46	0.00	32.11	80.89	2.00	0.00	0.46	0.00
32.16	86.62	2.00	0.00	0.45	0.00	32.22	94.48	2.00	0.00	0.45	0.00
32.30	105.35	2.00	0.00	0.45	0.00	32.35	116.90	2.00	0.00	0.45	0.00
32.41	123.01	2.00	0.00	0.45	0.00	32.50	123.21	2.00	0.00	0.45	0.00
32.55	115.04	2.00	0.00	0.45	0.00	32.63	108.48	2.00	0.00	0.45	0.00
32.69	106.56	2.00	0.00	0.45	0.00	32.75	109.79	2.00	0.00	0.44	0.00
32.81	115.52	0.26	0.92	0.44	0.01	32.89	120.59	0.28	0.89	0.44	0.01
32.95	123.26	0.30	0.87	0.44	0.01	33.01	121.44	0.29	0.88	0.44	0.01
33.09	117.99	0.27	0.90	0.44	0.01	33.14	114.12	0.25	0.92	0.44	0.01

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
33.23	112.14	0.25	0.93	0.44	0.01	33.29	111.77	0.24	0.93	0.44	0.01
33.34	113.20	0.25	0.92	0.43	0.01	33.41	114.50	0.26	0.91	0.43	0.01
33.48	115.57	0.26	0.90	0.43	0.01	33.53	114.15	0.25	0.90	0.43	0.01
33.61	110.82	0.24	0.92	0.43	0.01	33.67	106.12	0.22	0.96	0.43	0.01
33.76	103.92	0.21	0.97	0.43	0.01	33.80	103.35	0.21	0.97	0.43	0.01
33.86	103.79	0.21	0.97	0.43	0.01	33.95	105.29	0.22	0.95	0.42	0.01
34.00	107.40	0.23	0.93	0.42	0.01	34.06	108.54	0.23	0.92	0.42	0.01
34.14	109.11	2.00	0.00	0.42	0.00	34.20	109.17	2.00	0.00	0.42	0.00
34.26	108.52	2.00	0.00	0.42	0.00	34.34	107.84	2.00	0.00	0.42	0.00
34.40	108.11	2.00	0.00	0.42	0.00	34.46	110.79	2.00	0.00	0.42	0.00
34.52	116.56	2.00	0.00	0.41	0.00	34.60	123.82	2.00	0.00	0.41	0.00
34.65	134.42	2.00	0.00	0.41	0.00	34.74	143.40	2.00	0.00	0.41	0.00
34.79	149.45	2.00	0.00	0.41	0.00	34.85	146.74	2.00	0.00	0.41	0.00
34.94	141.65	2.00	0.00	0.41	0.00	34.99	138.52	2.00	0.00	0.41	0.00
35.04	136.13	2.00	0.00	0.41	0.00	35.11	129.97	2.00	0.00	0.40	0.00
35.19	130.11	2.00	0.00	0.40	0.00	35.26	132.42	2.00	0.00	0.40	0.00
35.31	139.76	0.39	0.71	0.40	0.00	35.38	146.72	0.43	0.68	0.40	0.01
35.45	153.99	0.49	0.65	0.40	0.01	35.52	161.65	0.55	0.63	0.40	0.01
35.57	169.89	0.62	0.56	0.40	0.00	35.63	177.31	0.69	0.43	0.40	0.00
35.72	181.90	0.74	0.41	0.39	0.00	35.77	182.80	0.75	0.33	0.39	0.00
35.83	181.90	0.74	0.41	0.39	0.00	35.90	181.94	0.74	0.41	0.39	0.00
35.97	182.76	0.75	0.33	0.39	0.00	36.03	182.35	0.75	0.41	0.39	0.00
36.09	179.15	0.71	0.42	0.39	0.00	36.16	173.11	0.65	0.44	0.39	0.00
36.24	165.72	0.58	0.56	0.39	0.01	36.29	157.63	0.51	0.62	0.38	0.00
36.37	151.41	0.47	0.64	0.38	0.01	36.43	146.46	0.43	0.65	0.38	0.00
36.50	144.33	0.42	0.66	0.38	0.01	36.57	143.19	0.41	0.66	0.38	0.01
36.63	142.75	0.41	0.66	0.38	0.00	36.69	142.40	0.40	0.66	0.38	0.00
36.75	141.27	0.40	0.66	0.38	0.01	36.82	139.09	0.38	0.67	0.38	0.01
36.88	135.80	0.36	0.68	0.37	0.00	36.95	132.02	0.34	0.70	0.37	0.01
37.03	128.06	0.32	0.71	0.37	0.01	37.08	124.02	0.30	0.73	0.37	0.00
37.15	119.89	0.28	0.75	0.37	0.01	37.22	115.74	0.26	0.77	0.37	0.01
37.27	111.14	0.24	0.79	0.37	0.00	37.35	106.58	2.00	0.00	0.37	0.00
37.42	101.64	2.00	0.00	0.37	0.00	37.47	96.30	2.00	0.00	0.36	0.00
37.54	94.47	2.00	0.00	0.36	0.00	37.62	100.38	2.00	0.00	0.36	0.00
37.71	109.71	2.00	0.00	0.36	0.00	37.74	114.71	2.00	0.00	0.36	0.00
37.80	117.03	2.00	0.00	0.36	0.00	37.88	116.11	2.00	0.00	0.36	0.00
37.94	111.79	2.00	0.00	0.36	0.00	38.00	101.44	2.00	0.00	0.36	0.00
38.08	89.01	2.00	0.00	0.35	0.00	38.14	78.18	2.00	0.00	0.35	0.00
38.20	75.87	2.00	0.00	0.35	0.00	38.27	78.01	2.00	0.00	0.35	0.00
38.34	82.42	2.00	0.00	0.35	0.00	38.39	88.99	2.00	0.00	0.35	0.00
38.48	96.29	2.00	0.00	0.35	0.00	38.54	103.72	2.00	0.00	0.35	0.00
38.59	111.80	2.00	0.00	0.35	0.00	38.65	121.37	2.00	0.00	0.34	0.00
38.73	129.91	2.00	0.00	0.34	0.00	38.78	135.52	2.00	0.00	0.34	0.00
38.87	137.67	2.00	0.00	0.34	0.00	38.93	138.55	2.00	0.00	0.34	0.00
38.98	138.10	2.00	0.00	0.34	0.00	39.04	136.60	2.00	0.00	0.34	0.00
39.13	133.84	2.00	0.00	0.34	0.00	39.18	129.87	2.00	0.00	0.34	0.00
39.25	126.01	2.00	0.00	0.33	0.00	39.32	123.44	2.00	0.00	0.33	0.00
39.37	122.69	2.00	0.00	0.33	0.00	39.45	122.87	2.00	0.00	0.33	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
39.52	122.97	2.00	0.00	0.33	0.00	39.57	121.93	2.00	0.00	0.33	0.00
39.64	120.11	2.00	0.00	0.33	0.00	39.70	116.46	2.00	0.00	0.33	0.00
39.79	112.10	2.00	0.00	0.33	0.00	39.85	107.85	2.00	0.00	0.32	0.00
39.91	105.32	2.00	0.00	0.32	0.00	39.99	104.46	2.00	0.00	0.32	0.00
40.04	104.89	2.00	0.00	0.32	0.00	40.10	106.86	2.00	0.00	0.32	0.00
40.19	110.00	2.00	0.00	0.32	0.00	40.25	114.08	2.00	0.00	0.32	0.00
40.30	121.90	2.00	0.00	0.32	0.00	40.36	131.76	2.00	0.00	0.32	0.00
40.44	139.44	2.00	0.00	0.31	0.00	40.49	139.08	2.00	0.00	0.31	0.00
40.56	129.55	2.00	0.00	0.31	0.00	40.63	114.59	2.00	0.00	0.31	0.00
40.70	104.68	2.00	0.00	0.31	0.00	40.76	100.56	2.00	0.00	0.31	0.00
40.83	101.37	2.00	0.00	0.31	0.00	40.92	103.18	2.00	0.00	0.31	0.00
40.95	105.96	2.00	0.00	0.31	0.00	41.02	101.79	2.00	0.00	0.30	0.00
41.11	98.50	2.00	0.00	0.30	0.00	41.17	96.29	2.00	0.00	0.30	0.00
41.21	100.88	0.20	0.70	0.30	0.00	41.28	109.97	0.24	0.65	0.30	0.01
41.34	120.78	0.28	0.60	0.30	0.00	41.41	126.64	0.31	0.57	0.30	0.00
41.47	126.40	0.31	0.57	0.30	0.00	41.54	126.07	0.31	0.57	0.30	0.00
41.60	125.74	0.31	0.57	0.29	0.00	41.67	129.68	0.33	0.55	0.29	0.00
41.75	135.18	0.36	0.53	0.29	0.00	41.81	138.74	0.38	0.52	0.29	0.00
41.87	139.28	0.39	0.52	0.29	0.00	41.97	137.75	2.00	0.00	0.29	0.00
42.02	136.93	2.00	0.00	0.29	0.00	42.06	132.97	2.00	0.00	0.29	0.00
42.15	126.67	2.00	0.00	0.29	0.00	42.20	121.18	2.00	0.00	0.28	0.00
42.26	125.09	2.00	0.00	0.28	0.00	42.34	137.43	2.00	0.00	0.28	0.00
42.40	151.69	2.00	0.00	0.28	0.00	42.46	159.10	2.00	0.00	0.28	0.00
42.53	160.97	2.00	0.00	0.28	0.00	42.60	159.82	2.00	0.00	0.28	0.00
42.68	154.03	2.00	0.00	0.28	0.00	42.74	149.70	2.00	0.00	0.28	0.00
42.79	141.52	2.00	0.00	0.27	0.00	42.86	130.57	2.00	0.00	0.27	0.00
42.92	116.69	2.00	0.00	0.27	0.00	42.99	105.01	2.00	0.00	0.27	0.00
43.07	95.79	2.00	0.00	0.27	0.00	43.12	91.90	2.00	0.00	0.27	0.00
43.19	91.52	2.00	0.00	0.27	0.00	43.27	91.72	2.00	0.00	0.27	0.00
43.32	92.79	2.00	0.00	0.27	0.00	43.37	93.21	2.00	0.00	0.26	0.00
43.45	93.65	2.00	0.00	0.26	0.00	43.51	92.82	2.00	0.00	0.26	0.00
43.58	91.17	2.00	0.00	0.26	0.00	43.65	88.58	2.00	0.00	0.26	0.00
43.72	85.41	2.00	0.00	0.26	0.00	43.77	82.75	2.00	0.00	0.26	0.00
43.83	81.53	2.00	0.00	0.26	0.00	43.90	82.06	2.00	0.00	0.26	0.00
43.97	83.70	2.00	0.00	0.25	0.00	44.05	84.38	2.00	0.00	0.25	0.00
44.10	85.57	2.00	0.00	0.25	0.00	44.17	85.86	2.00	0.00	0.25	0.00
44.25	86.15	2.00	0.00	0.25	0.00	44.30	86.51	2.00	0.00	0.25	0.00
44.37	88.38	2.00	0.00	0.25	0.00	44.45	91.15	2.00	0.00	0.25	0.00
44.49	94.03	2.00	0.00	0.25	0.00	44.57	94.82	2.00	0.00	0.24	0.00
44.62	92.60	2.00	0.00	0.24	0.00	44.69	88.56	2.00	0.00	0.24	0.00
44.76	82.86	2.00	0.00	0.24	0.00	44.82	79.64	2.00	0.00	0.24	0.00
44.88	79.58	2.00	0.00	0.24	0.00	44.95	82.76	2.00	0.00	0.24	0.00
45.03	86.17	2.00	0.00	0.24	0.00	45.08	86.67	2.00	0.00	0.24	0.00
45.16	84.38	2.00	0.00	0.23	0.00	45.21	77.77	2.00	0.00	0.23	0.00
45.30	70.59	2.00	0.00	0.23	0.00	45.36	65.68	2.00	0.00	0.23	0.00
45.42	67.84	2.00	0.00	0.23	0.00	45.49	71.48	2.00	0.00	0.23	0.00
45.55	76.37	2.00	0.00	0.23	0.00	45.63	80.60	2.00	0.00	0.23	0.00
45.67	84.53	2.00	0.00	0.23	0.00	45.75	87.42	2.00	0.00	0.22	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

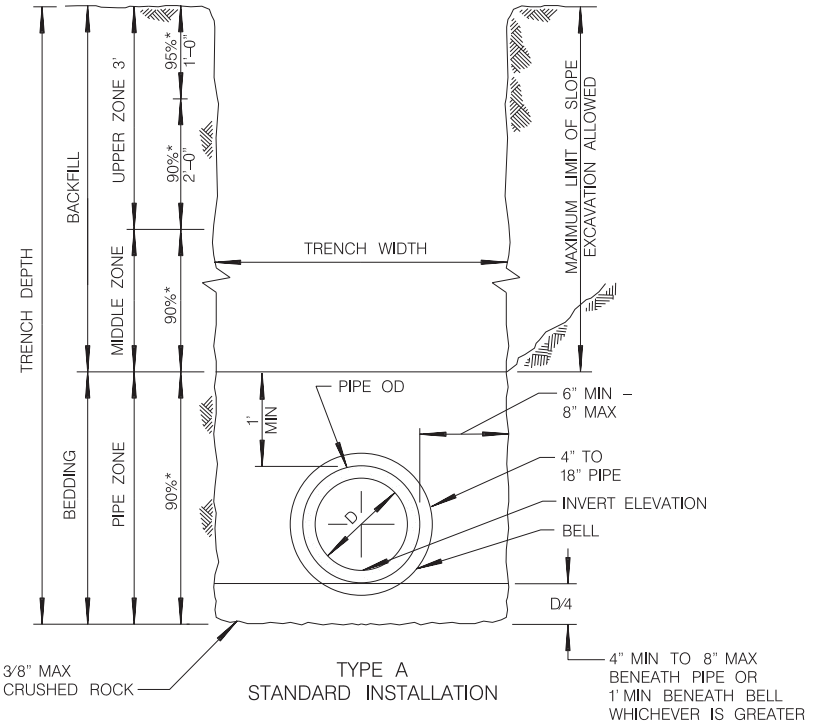
Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
45.81	89.99	2.00	0.00	0.22	0.00	45.87	93.39	2.00	0.00	0.22	0.00
45.95	97.93	2.00	0.00	0.22	0.00	46.01	103.40	2.00	0.00	0.22	0.00
46.07	108.49	2.00	0.00	0.22	0.00	46.15	111.72	2.00	0.00	0.22	0.00
46.20	111.52	2.00	0.00	0.22	0.00	46.30	110.97	2.00	0.00	0.22	0.00
46.35	110.36	2.00	0.00	0.21	0.00	46.40	110.04	2.00	0.00	0.21	0.00
46.47	110.13	2.00	0.00	0.21	0.00	46.53	110.39	2.00	0.00	0.21	0.00
46.59	110.58	2.00	0.00	0.21	0.00	46.66	110.60	2.00	0.00	0.21	0.00
46.72	110.88	2.00	0.00	0.21	0.00	46.79	110.66	2.00	0.00	0.21	0.00
46.85	109.65	2.00	0.00	0.21	0.00	46.92	107.43	2.00	0.00	0.20	0.00
46.98	104.65	2.00	0.00	0.20	0.00	47.07	102.00	2.00	0.00	0.20	0.00
47.13	100.90	2.00	0.00	0.20	0.00	47.21	101.71	2.00	0.00	0.20	0.00
47.27	104.10	2.00	0.00	0.20	0.00	47.32	107.53	2.00	0.00	0.20	0.00
47.41	110.94	2.00	0.00	0.20	0.00	47.46	113.92	2.00	0.00	0.20	0.00
47.52	115.50	2.00	0.00	0.19	0.00	47.59	116.37	2.00	0.00	0.19	0.00
47.65	116.23	2.00	0.00	0.19	0.00	47.71	115.20	2.00	0.00	0.19	0.00
47.79	113.19	2.00	0.00	0.19	0.00	47.85	110.60	2.00	0.00	0.19	0.00
47.90	106.01	2.00	0.00	0.19	0.00	47.99	99.79	2.00	0.00	0.19	0.00
48.05	92.63	2.00	0.00	0.19	0.00	48.10	85.93	2.00	0.00	0.18	0.00
48.17	80.43	2.00	0.00	0.18	0.00	48.24	77.34	2.00	0.00	0.18	0.00
48.30	74.79	2.00	0.00	0.18	0.00	48.36	74.94	2.00	0.00	0.18	0.00
48.44	76.64	2.00	0.00	0.18	0.00	48.52	79.06	2.00	0.00	0.18	0.00
48.58	81.22	2.00	0.00	0.18	0.00	48.63	81.23	2.00	0.00	0.18	0.00
48.70	81.76	2.00	0.00	0.17	0.00	48.78	82.56	2.00	0.00	0.17	0.00
48.83	84.39	2.00	0.00	0.17	0.00	48.89	86.76	2.00	0.00	0.17	0.00
48.97	89.50	2.00	0.00	0.17	0.00	49.03	92.98	2.00	0.00	0.17	0.00
49.09	95.77	2.00	0.00	0.17	0.00	49.15	98.71	2.00	0.00	0.17	0.00
49.24	100.86	2.00	0.00	0.17	0.00	49.29	102.20	2.00	0.00	0.16	0.00
49.35	102.99	2.00	0.00	0.16	0.00	49.41	103.92	2.00	0.00	0.16	0.00
49.48	104.07	2.00	0.00	0.16	0.00	49.56	102.74	2.00	0.00	0.16	0.00
49.61	99.48	2.00	0.00	0.16	0.00	49.67	94.69	2.00	0.00	0.16	0.00
49.75	89.60	2.00	0.00	0.16	0.00	49.81	85.38	2.00	0.00	0.16	0.00
49.87	83.21	2.00	0.00	0.15	0.00	49.95	82.69	2.00	0.00	0.15	0.00
50.02	82.94	2.00	0.00	0.15	0.00						

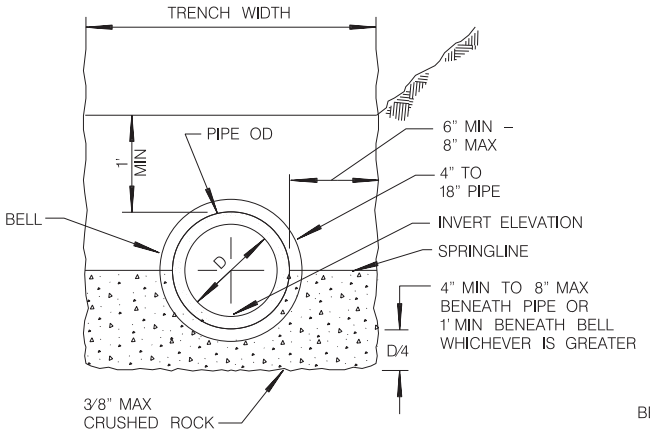
Total estimated settlement: 1.39

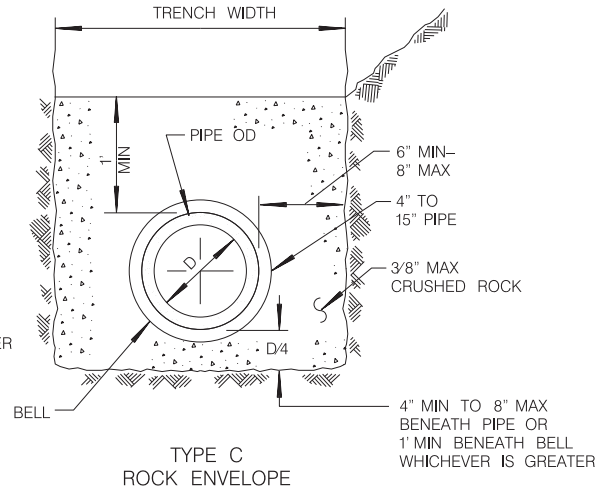
Abbreviations

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

APPENDIX E







NOTES

1. FOR TRENCH RESURFACING IN IMPROVED STREETS, SEE STANDARD DRAWINGS SDG–107 AND SDG–108.
2. (*) INDICATES MINIMUM RELATIVE COMPACTION.
3. MINIMUM DEPTH OF COVER FROM THE TOP OF PIPE TO FINISH GRADE FOR PVC SDR 35 SEWER MAIN SHALL BE 5'. FOR SHALLOWER DEPTH, SPECIAL DESIGN IS REQUIRED. SEE SDS–101.
4. SEE TYPE A INSTALLATION FOR DETAILS NOT SHOWN FOR TYPES B AND C.
5. FOR PIPE SIZE ENCASEMENT LARGER THAN 15", MAXIMUM SIDE WALL CLEARANCE SHALL BE 12" OR AS SHOWN ON THE PLANS.
6. 6" METAL TAPE SHALL BE INSTALLED ABOVE PIPE 4" BELOW TRENCH CAP AND 12" BELOW FINISH GRADE IN UNIMPROVED STREETS.
7. 1' SAND CUSHION OR A 6" MINIMUM SAND CUSHION WITH 1" NEOPRENE PAD SHALL BE PLACED FOR CROSSINGS UTILITIES WHEN VERTICAL CLEARANCE IS 1' OR LESS. THE NEOPRENE PAD SHALL BE PLACED ON THE MOST FRAGILE UTILITY.

From: City of San Diego Standard Drawing SDS-110 (2016)

LANDMARK Geo-Engineers and Geologists **Project No.: LE25111**	**Pipe Bedding and Trench Backfill Recommendations**	**Plate E-1**