DRAFT INITIAL STUDY/MITIGATED NEGATIVE DECLARATION IP 18-052

EAST GARDEN GROVE-WINTERSBURG CHANNEL, WARNER TO 1,250 FEET DOWNSTREAM OF GOLDENWEST SHEET PILE PROJECT

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Acronyms and Abbreviations

AB	Assembly Bill
AQMP	Air Quality Management Plan
Basin	South Coast Air Basin
BMP	best management practice
C05	East Garden Grove-Wintersburg Channel
C06	Oceanview Channel System
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAL FIRE	California Department of Forestry and Fire Protection
CalEEMod	California Emissions Estimator Model
CDC	California Department of Conservation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CH_4	methane
City	City of Huntington Beach
CMP	Congestion Management Plan
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
County	County of Orange
CPT	Cone Penetration Testing
CRHR	California Register of Historical Resources
CSS	coastal sage scrub
CWA	Clean Water Act
dBA	A-weighted decibel
DOGGR	Division of Oil, Gas & Geothermal Resources
DOT	Department of Transportation
EFH	Essential Fish Habitat

EIR	Environmental Impact Report
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
GHG	greenhouse gas
GSC	Government Section Code
IS	initial study
Kizh Nation	Gabrieleño Band of Mission Indians – Kizh Nation
LOS	level of service
LST	localized significance threshold
LUST	Leaking Underground Storage Tank
MND	mitigated negative declaration
MRZ	Mineral Resource Zone
N_2O	nitrous oxide
NCCP	Natural Community Conservation Planning
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Planning
NISZ	Newport-Inglewood Structural Zone
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O_3	ozone
OCC	Orange County Coroner
OCFCD	Orange County Flood Control District
OCPW	Orange County Public Works
OCWD	Orange County Water District
OCWR	Orange County Waste and Recycling Department
OSHA	Occupational Safety and Health Administration
Pb	lead
PM_{10}	particulate matter 10 microns or less
$PM_{2.5}$	particulate matter 2.5 microns or less
PPV	peak particle velocity

PRC	Public Resources Code
proposed project	East Garden Grove-Wintersburg Channel, Warner to 1,250 Feet Downstream of Goldenwest Sheet Pile Project
RCRA	Resource Conservation and Recovery Act
RWQCB	Regional Water Quality Control Board
SA	survey area
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SIP	State Implementation Plan
SO_2	sulfur dioxide
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TPD	tons per day
USACE	United States Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USPS	U.S. Postal Service
WoUS	waters of the U.S.

Chapter 1
Introduction and Overview

1.1 Overview

The County of Orange (County), as the lead agency under the California Environmental Quality Act (CEQA), has prepared this initial study (IS) and proposed mitigated negative declaration (MND) to evaluate the potential environmental effects associated with the proposed East Garden Grove-Wintersburg Channel, Warner to 1,250 Feet Downstream of Goldenwest Sheet Pile Project (proposed project). The proposed project is located within Orange County Public Works' (OCPW) right-of-way for the East Garden Grove-Wintersburg Channel (C05) between Warner Avenue and Goldenwest Street in the City of Huntington Beach, California. The project proposes improvements to this segment of OCPW's C05 facility to increase the flood conveyance capacity of the channel and to address liquefaction issues and erosion issues, and to remediate reported sand-boils issues. The County of Orange and the Orange County Flood Control District (OCFCD) can be used interchangeably in this document. The lead agency for the proposed project is the OCFCD. The governing board of the OCFCD is the Orange County Board of Supervisors. The duties of the OCFCD are carried out by the staff of the OCPW department under direction of the Orange County Board of Supervisors.

This chapter includes a brief overview of the proposed project's previous environmental documentation, requirements pursuant to CEQA, the scope of the environmental analysis, and the document's organizational structure and content.

1.1 Requirements of an Initial Study/Mitigated Negative Declaration

The preparation of an IS/MND is governed by two principal sets of laws: CEQA Statute (Public Resources Code [PRC] §21000 et seq.) and the State CEQA Guidelines (California Code of Regulations §15000 et seq.). Specifically, State CEQA Guidelines Section 15063 ("Initial Study") and Sections 15070–15075 ("Negative Declaration Process") guide the process for the preparation of an IS/MND. Where appropriate and supportive to an understanding of the issues, reference is made either to the statute, the State CEQA Guidelines, or appropriate case law.

This IS/MND, as required by State CEQA Guidelines Section 15071, contains (1) a brief description of the proposed project, (2) the proposed project location, (3) a proposed finding that the proposed project will not have a significant effect on the environment, (4) a copy of the IS documenting support for the findings, and (5) all mitigation measures to be implemented.

1.2 Purpose and Preparation of an Initial Study/Mitigated Negative Declaration

As described below in Section 1.4, *Previous Environmental Documentation*, a different design of the proposed project was previously evaluated as a component of the *East Garden Grove-Wintersburg/Oceanview Channel System (C05/C06) Environmental Impact Report (EIR) No. 560* (Orange County 1998). Since that time, OCPW has identified an altered project design to be implemented within the C05 channel between Warner Avenue and Goldenwest Street in the City of Huntington Beach, California. The modifications to the project design include installation of additional sheet piles and use of a soil-cement mix column matrix to be injected between the sheet piles. Because of these changes to the project design and the extended period of time that has passed between certification of EIR No. 560, OCPW has prepared this IS/MND to evaluate the potential impacts that would occur as a result of implementation of the modified project design within the C05 channel between Warner Avenue and Goldenwest Street.

Pursuant to Section 15367 of the State CEQA Guidelines, the County is the lead agency for the proposed project. The lead agency is the public agency that has the principal responsibility for carrying out or approving a project. The County, as the lead agency, will have the authority for project approval and adoption of the accompanying environmental documentation.

Based on the environmental checklist form prepared for the proposed project and the supporting environmental analysis, the proposed project would have no impact or a less-than-significant impact in the following topical environmental areas: Aesthetics; Agriculture and Forestry Resources, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Noise, Population and Housing, Recreation, and Utilities and Service Systems.

The proposed project has the potential to have significant impacts unless the recommended mitigation measures are incorporated into the proposed project in the following environmental areas: Air Quality, Biological Resources, Cultural Resources, Public Services, Transportation/Traffic, and Tribal Cultural Resources.

According to the State CEQA Guidelines, it is appropriate to prepare an MND for the proposed project because, after incorporation of the recommended mitigation measures, potentially significant environmental impacts would be eliminated or reduced to a level considered less than significant.

1.3 Environmental Issues Addressed

This IS/MND evaluates the proposed project's effects on the following resource topics.

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation and Traffic
- Tribal Cultural Resources
- Utilities and Service Systems
- Mandatory Findings of Significance

The environmental setting and impact analysis discussion for each of these topics is provided in Chapter 3, *OCPW Environmental Checklist*.

1.4 Previous Environmental Documentation

The proposed project is located within OCPW's C05 facility and was originally evaluated as a component of the *East Garden Grove-Wintersburg/Oceanview Channel System (C05/C06) EIR No. 560* (Orange County 1998) and the *East Garden Grove-Wintersburg Channel (C05) Improvements Addendum to Environmental Impact Report No. 560* (Orange County 2007a). In addition, as discussed in Section 1.4.3 below, in 2009 an IS/MND was prepared for improvements to a portion of the C05 facility immediately south of the proposed project that was not previously covered by EIR No. 560 or the 2007 Addendum.

Due to modifications in the project design and the extended period of time that has passed between certification of EIR No. 560 in 1998, OCPW has prepared this IS/MND to evaluate the potential impacts that would occur as a result of implementation of the modified project design within the C05 channel between Warner Avenue and Goldenwest Street.

1.4.1 East Garden Grove-Wintersburg/Oceanview Channel System (C05/C06) Final Environmental Impact Report (EIR No. 560)

OCPW's EIR No. 560 is a programmatic EIR previously prepared and certified by the County covering improvements to C05/C06. It identified and evaluated all phases of channel improvements to occur along the C05/C06 facilities including the proposed project. Final EIR No. 560 was certified in February 1998. The adopted improvements solution evaluated in EIR No. 560 consisted of a sheet pile concept on the channel side along with a retaining wall system on the leeward (or development) side.

In accordance with Section 15150 of the State CEQA Guidelines, OCPW's EIR No. 560 is hereby incorporated by reference into this IS/MND where referenced specially and is available for public

review at the County of Orange Public Works Department at 300 North Flower Street, Santa Ana, CA 92703.

1.4.2 East Garden Grove-Wintersburg Channel (C05) Improvements Addendum to Environmental Impact Report No. 560

The IS/Addendum to EIR No. 560 was prepared to address channel improvements to a 5,462-linear-foot section of the C05 facility reaching from just south of Bates Circle to just north of Warner Avenue. The Addendum was prepared in 2007 and project construction was completed in 2014. The levee design refined the original design stated in the EIR by proposing the use of marine grade sheet pile instead of fiber-reinforced polymer sheet pile of coated steel sheet pile. The modified design consisted of a soil-mix pattern sandwiched between two parallel rows of sheet piles.

1.4.3 Final Initial Study/Mitigated Negative Declaration IP09-311 East Garden Grove-Wintersburg Maintenance and Repair Project (Tide Gates to Warner Avenue)

In 2009 the County prepared an IS/MND to implement improvements to the C05 facility for a portion of the channel south of Bates Circle to the Bolsa Chica tide gates not previously covered by EIR No. 560 or the 2007 Addendum, and incorporated the area evaluated in the 2007 Addendum from just south of Bates Circle to just north of Warner Avenue. The project was approved in 2009 and, as mentioned above for the 2007 Addendum, construction was completed in 2014.

1.5 Document Organization and Content

The content and format of this IS/MND are designed to meet the requirements of CEQA. This report is organized as follows:

- Chapter 1, *Introduction and Overview*, identifies the intent and requirements of the IS/MND and a list of the environmental resources and issue areas to be analyzed.
- Chapter 2, *Project Description*, describes the project location, existing setting, project background, project components, purpose and intent, and characteristics of the proposed project's construction and operational activities.
- Chapter 3, *Environmental Analysis*, presents the environmental setting and impact analysis for each resource topic.
- Chapter 4, *References*, identifies all sources and individuals cited in this IS/MND.
- Chapter 5, *List of Preparers*, identifies the individuals who prepared this report and their areas of technical expertise.

Chapter 2
Project Description and Environmental Setting

2.1 Overview

The purpose of this chapter is to describe the characteristics of the proposed project, project site, and surrounding vicinity. This chapter describes the proposed project's location, project background, purpose and intent, project components, construction, maintenance, and required permits and approvals needed to implement the proposed project.

2.2 Project Location

The proposed project is located between the upstream side of the Warner Avenue bridge and approximately 1,250 linear feet downstream of Goldenwest Street bridge in the City of Huntington Beach, California, within the right-of-way for facility C05. Improvements would take place on a portion of the channel system known as Reach 1. A "reach" is a tributary that branches off from the larger body of water (i.e., a stream or river channel). Reach 1 consists of a 70-foot-wide soft-bottom trapezoidal section with a levee condition and 2:1 earthen side slopes and portions of the downstream reach lined with riprap. The height of the side slopes varies from 12 feet to 15 feet above the channel bottom. Reach 1 begins approximately 4,200 feet upstream of the Bolsa Chica tide gates, continues 14,600 feet upstream, and ends at the eastern border of the proposed project, 1,250 linear feet downstream of Goldenwest Street (Williamson & Schmid 1994). In total, the proposed improvements would extend for approximately 4,970 linear feet in the City of Huntington Beach.

The proposed project is covered under EIR No. 560 as part of phased channel improvements located from south of Bates Circle in the City of Huntington Beach to Haster Basin in the City of Garden Grove. The proposed project is a continuation of channel improvements completed in 2014 in the southwestern segment of Reach 1 from just south of Bates Circle to just upstream of Warner Avenue. Figures 2-1 and 2-2 depict the regional location and project vicinity, and Figure 2-3 provides an aerial view of the proposed project limits in relation to nearby projects' alignments, as discussed in EIR No. 560, the 2007 Addendum to EIR No. 560, and the 2009 IS/MND incorporating the area south of Bates Circle to the Bolsa Chica tide gates into the program.

2.3 Existing Setting

The C05 facility and its tributaries, including C06, collect and convey stormwater and urban runoff from over 28 square miles to Bolsa Bay. The C05 facility begins in northwestern Orange County within the cities of Huntington Beach, Fountain Valley, Garden Grove, Orange, Westminster, Santa Ana, Anaheim, and terminates in Bolsa Bay in an unincorporated portion of Orange County. It exists on flat coastal plains that are bound by the Santa Ana River, Talbert Mesa, the Pacific Ocean, and the Westminster Channel System.

The C05 facility is approximately 11.5 miles long and consists of 12 channels for stormwater conveyance. The engineered channels were originally built to interim standards as part of the 1956

Bond Act for the conveyance of stormwater. The channel system consists almost exclusively of an earthen channel with a minimal amount of riprap and concrete lining. It was designed to convey less than 65 percent of the 25-year peak discharge based on the Orange County hydrology standards in effect prior to 1973. No part of the proposed project is within the Coastal Zone; however, the majority of the proposed project reach is tidally influenced.

Adjacent land uses on both sides of the channel alignment are predominantly residential in an urbanized area. The City of Huntington Beach General Plan designation for land adjacent to the north of the project alignment is Low Density Residential. Land use designations to the south of the proposed project are a mix of Medium Density and Medium High Density Residential, and General Commercial (City of Huntington Beach 2017a). The channel system along the proposed project alignment is lined by chain-link, wood, and concrete fences.

The maintenance roads along both sides of the channel are 15 feet wide and are composed of an earthen/gravel cover. They can be accessed from the east near the intersection of the channel and Goldenwest Street, and from the west access at the intersection of the channel and Springdale Street and Warner Avenue. The existing access ramp to the channel invert is located at the intersection of the channel and Gothard Street. These maintenance roads are not open to the public and do not have undercrossings at the Warner Avenue, Springdale Street, or Edwards Street bridges.

2.4 Project Background

The C05 facility is a deficient system that requires extensive improvements to meet local and federal 100-year flood protection standards. The system was designed to carry 65 percent of the 25-year peak discharge based on the Orange County hydrology standards that were in effect before 1973. The proposed project components are part of a $150 million comprehensive improvement program recommended by a project report prepared by Williamson and Schmid in 1994 (Orange County 1998).

The project report outlined the channels' deficiencies and analyzed several improvement alternatives for the entire C05/C06 watershed system. Each improvement alternative was evaluated based on (1) the need for additional right-of-way, (2) the impact on committed water surface elevation, (3) flood control protection, (4) maintenance, (5) environmental impacts, and (6) construction cost.

A construction phasing analysis for the entire C05/C06 system was performed in the 1994 project report. OCPW staff later revised the phasing analysis so that improvements start from the most downstream reach of the channel to the most upstream. This plan is intended to provide improvements to those areas of the channel system with the greatest deficiencies prior to those areas with fewer deficiencies.

In addition to the changed construction phasing analysis, the proposed project also has modified design specifications as compared to EIR No. 560. The proposed sheet pile design is consistent with the project description as contained in EIR No. 560, but with the design modifications contained in the Addendum. The EIR description included a single row of sheet piles, but the Addendum modified this to include a double row of sheet piles between the maintenance road for an additional factor of safety. The modified design consists of a soil-cement mix column matrix below the maintenance road, sandwiched between two parallel rows of sheet piles.

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Figure 2-1
Regional Location
East Garden Grove-Wintersburg Channel, Warner to 1,250 Feet Downstream of Goldenwest Sheet Pile Project

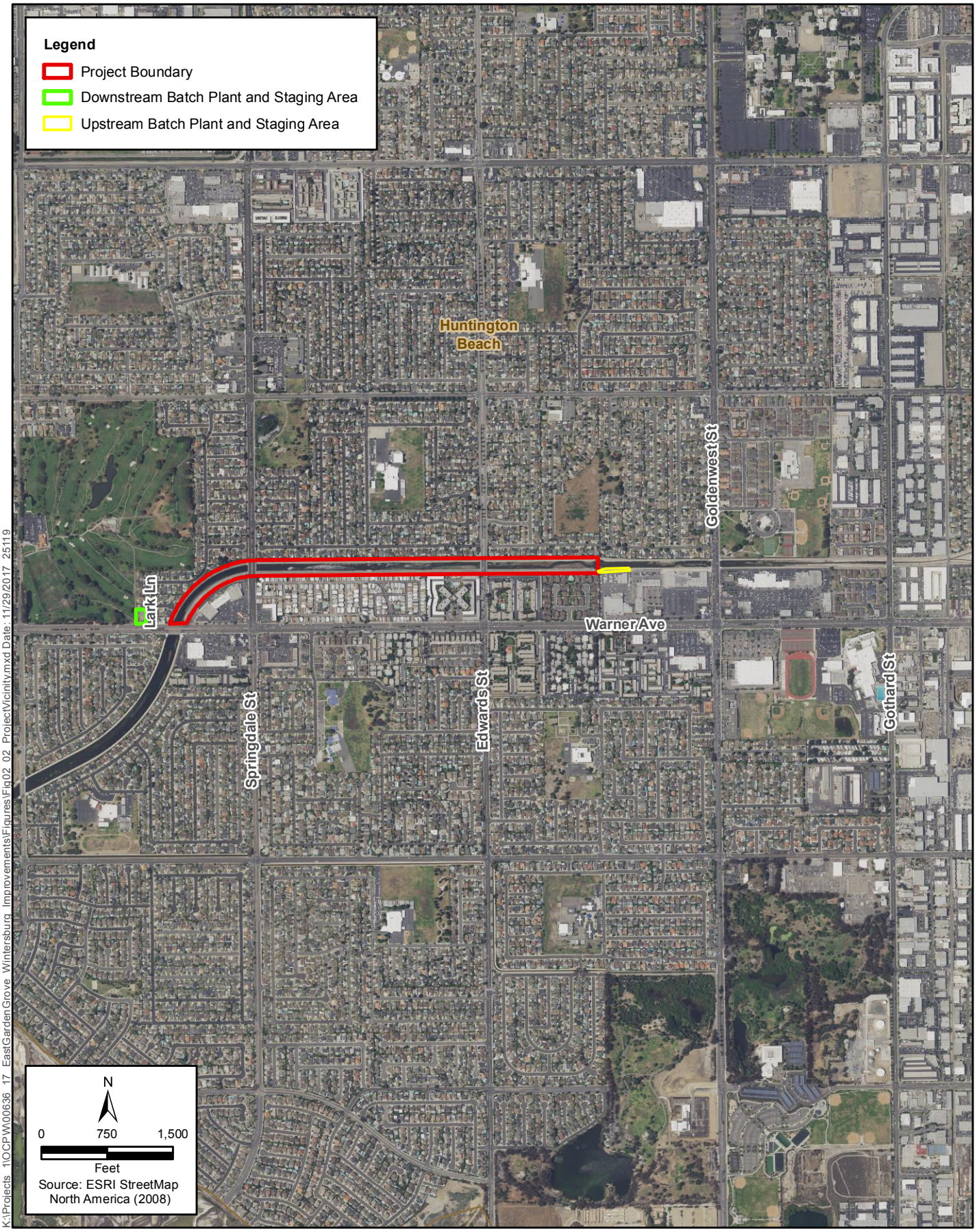

Figure 2-2
Project Vicinity
East Garden Grove-Wintersburg Channel, Warner to 1,250 Feet Downstream of Goldenwest Sheet Pile Project

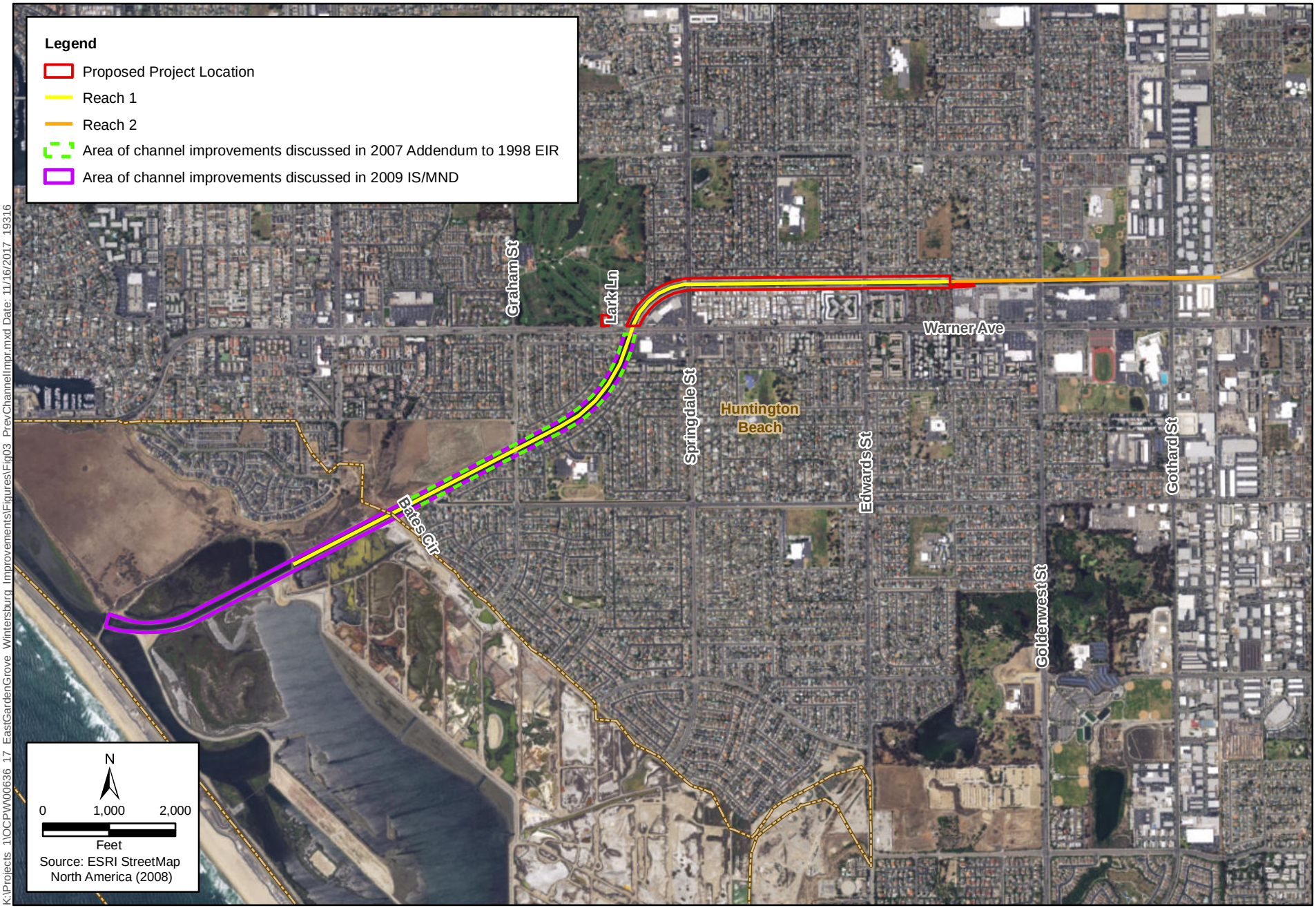

Figure 2-3
Previous Channel Improvements
East Garden Grove-Wintersburg Channel, Warner to 1,250 Feet Downstream of Goldenwest Sheet Pile Project

Using the modified sheet pile design of two parallel rows on each side of the channel, the C05 reach between Graham Street and Warner Avenue immediately downstream from the proposed project was completed in 2014. The proposed project represents a continuation of that project using the same design concept.

Table 2-1 provides a summary of the project components and activities covered by prior environmental documentation (see Section 1.5, *Previous Environmental Documentation*) as well as project components that would be covered by this proposed IS/MND.

Table 2-1. Project Components and Activities Covered by Prior Environmental Documentation and this Proposed IS/MND

Project Component	Final EIR No. 560	Proposed IS/MND
Channel Improvements	Convert the existing earthen trapezoidal channel to a vertical walled channel with two rows of steel sheet piles and an earthen bottom.	Convert the existing earthen trapezoidal channel to a vertical walled channel with four rows of sheet piles (two rows on each side of the channel) with soil-cement mix columns between.

2.5 Purpose and Intent

The most recent flooding within the C05/C06 watershed was caused by short-duration, high-intensity coastal storms that occurred in Orange County during January and February 2005 and 2017. These past storms resulted in erosion to the channel side slopes that must be repaired to maintain the structural integrity of the levee system. In addition, future storms could worsen this by creating conditions that increase the potential for levee failure and damage to adjacent homes.

Project development would accomplish the following goals:

- Increase the flood conveyance capacity of the channel
- Prevent future erosion
- Address seismically induced levee liquefaction
- Address reported sand-boils and piping behind the levee

2.6 Project Description Characteristics

The proposed project involves improvements to the C05 facility from Warner Avenue to 1,250 feet downstream of Goldenwest Street to correct channel erosion, provide additional protection from flooding, and increase flood conveyance capacity. The length of the proposed construction is approximately 4,970 linear feet.

The project design is similar to the overall design used in the downstream reach between Graham Street and Warner Avenue that was completed in 2014. Project construction would consist of inserting two parallel sheet pile walls on both sides of the northern maintenance road and both sides of the southern maintenance road. One row of sheet piles would be inserted at the landside hinge point between the maintenance road and the existing top-of-channel slope, and the second

row would be driven 15 feet farther from the channel and parallel to the first row. The second row of sheet piles would be almost half way down the levee backslope. All four rows of sheet piles (two rows on each side of the channel) would be located outside of waters of the U.S. (WoUS) and waters of the State of California.

The Giken silent pile machine would be utilized for the insertion of the 45-foot-deep piles. The Giken machine pushes the pile into the ground without an impact hammer or vibration. The operation, with the exception of the crane engine (to hold the sheet) and the generator to power the Giken machine, is almost silent.

The steel sheet piles would be 45 feet long. The existing flood control channel is approximately 12 to 13 feet below the top of levee. The steel sheet piles would be embedded 30 feet below the grade of the existing channel invert and 15 feet above the grade of the existing channel invert. Most of the 15 feet of above grade sheet pile would be below the existing top of slope; up to 3 feet of sheet pile would extend above the existing top of slope. In addition, guard cables would be strung above the sheet pile cap for additional safety purposes and would be 3 feet in height, double strand, and one-quarter inch thick. The soil cement columns would be 30 feet below the existing channel invert grade and 10 feet above the invert grade. See Figure 2-4 for a cross-section of the typical channel improvements.

The steel sheet piles would be marine grade and corrosion resistant. No cathodic protection would be required. There are two bridge crossings, Springdale Street and Edwards Street, between Warner and Goldenwest, and the bridge structures would not be altered as part of the proposed project. The slopes on the sides of the bridges would be modified during installation of the sheet piles, temporary access ramps would be constructed, and shotcrete would be sprayed on the retaining wall at the abutments and under the bridge for additional protection. However, no modifications to the abutments, footings, or superstructure are proposed as part of the proposed project.

Upon completion of the sheet pile wall installation and during the installation of the soil-cement columns between the sheet piles, the earthen trapezoid side slopes inside the channel would be excavated to expose the vertical sheet piles to the channel flows, thus providing for the 100-year stormwater conveyance capacity within this channel reach. The final earthen invert grade elevation would be the same invert elevation that exists today. The soil would be removed from the channel with either an excavator or a front loader and placed in dump trucks for transport off the site. Access to the channel invert to remove the soil would occur from an existing concrete vehicle access ramp at Gothard Street east of Goldenwest Street and from temporary access ramps at the bridges. The temporary ramps are essential for rapid channel evacuation ahead of forecast storms.

After the four rows of sheet piles have been installed, cement would be mixed with the soil between the two parallel sheet pile walls to create soil-cement columns. The purpose of the soil-cement columns is to provide structural stability to the parallel sheet pile wall system and prevent piping of the poor quality, liquefiable, in-situ soils through joints in the sheet pile walls or under the sheet piles (see Figure 2-5). An asphalt maintenance road would be reconstructed on top of the soil-cement columns after they have cured. The dual rows of sheet piles would act as construction best management practices (BMPs) for the soil-mix columns.

Prior to excavating the channel walls, installation of one temporary coffer dam at Warner Avenue and one temporary coffer dam near Goldenwest Street would be required to block flows within the channel. The downstream coffer dam at Warner Avenue would prevent tidal inundation from downstream, and the upstream coffer dam near Goldenwest Street would prevent inundation from

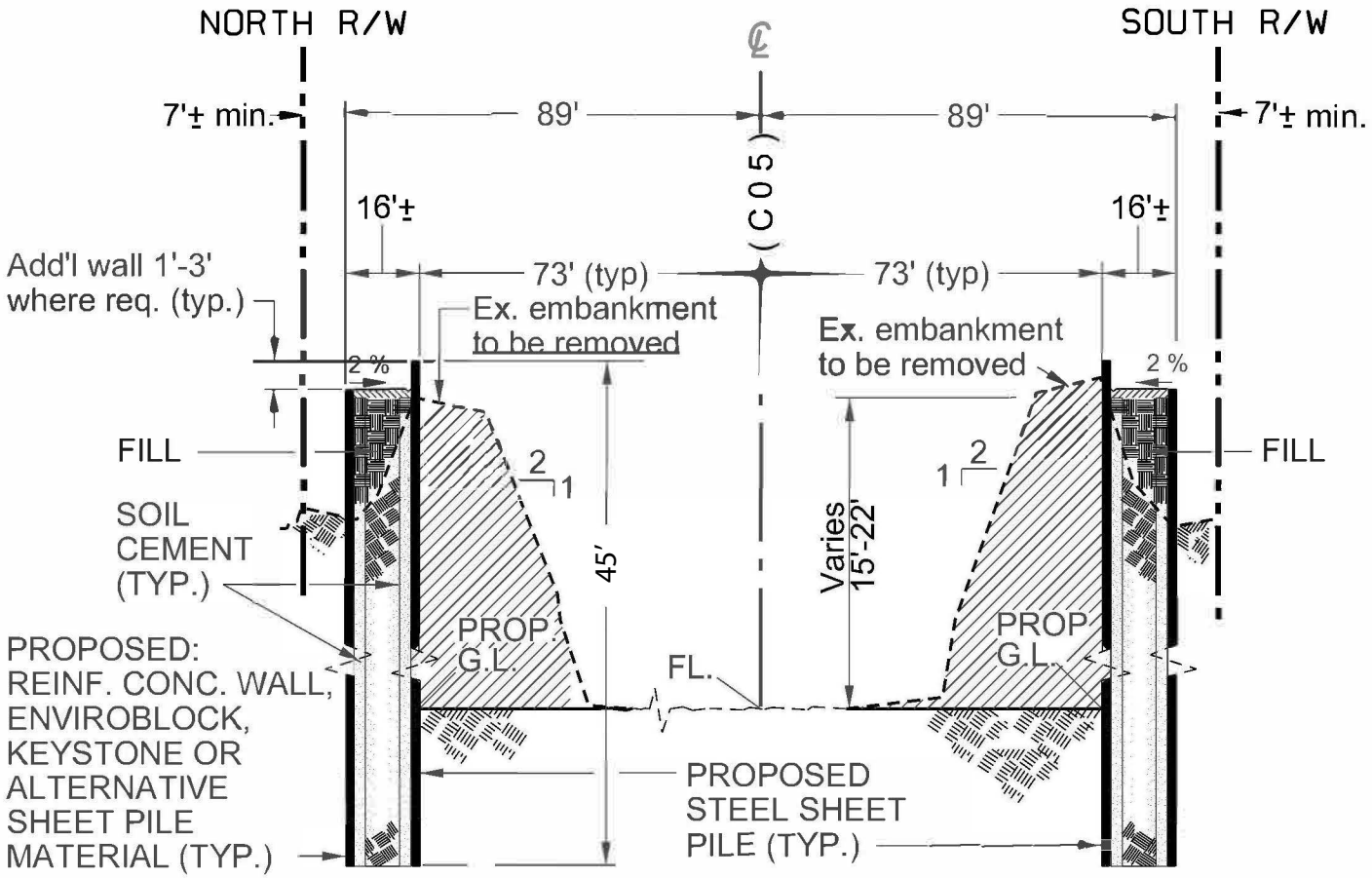

Figure 2-4
Typical Section
East Garden Grove-Wintersburg Channel, Warner to 1,250 Feet Downstream of Goldenwest Sheet Pile Project

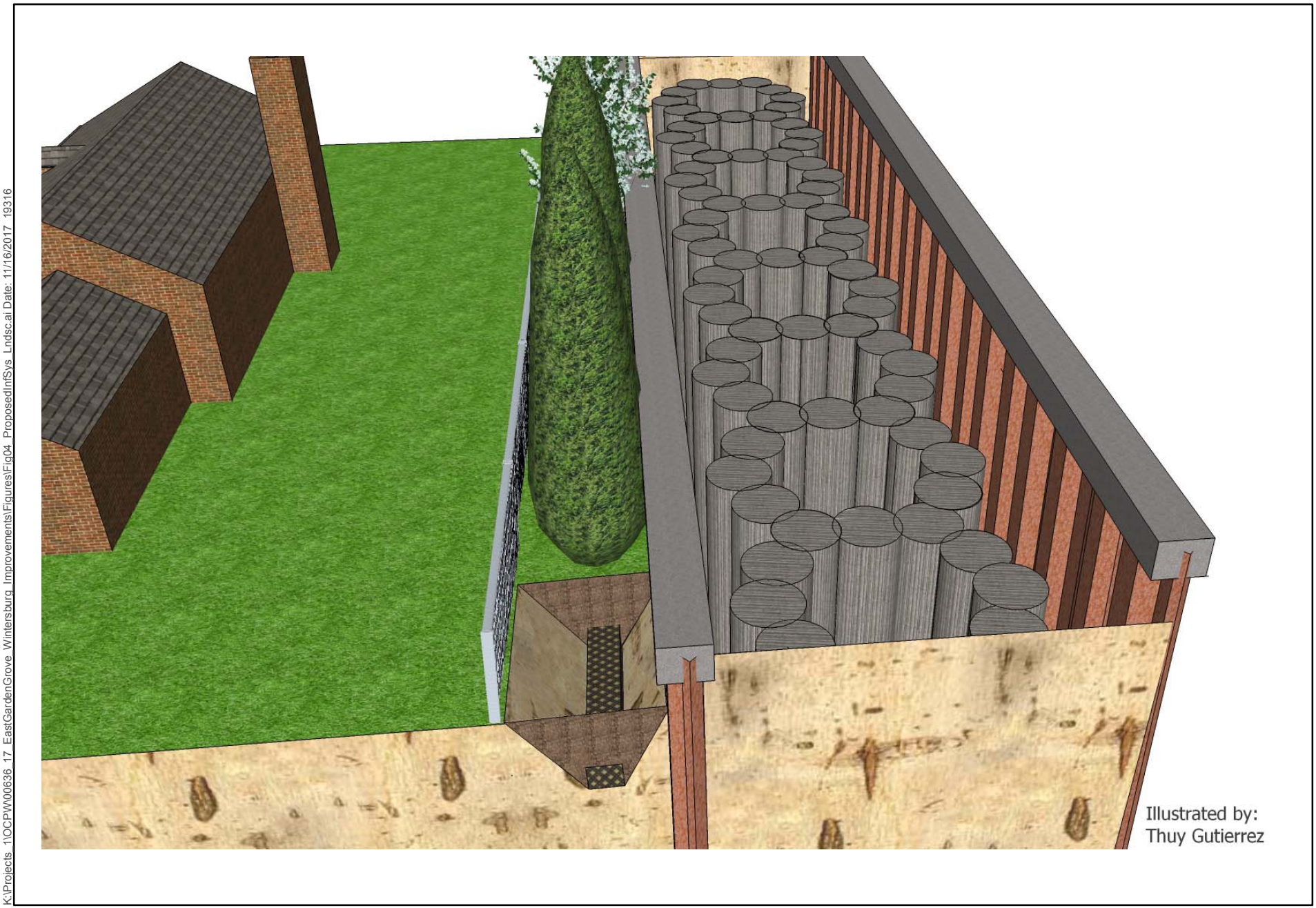

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Figure 2-5
Proposed Infiltration System and Landscaping Plan
East Garden Grove-Wintersburg Channel, Warner to 1,250 Feet Downstream of Goldenwest Sheet Pile Project

stormwater and urban runoff flows from upstream. The urban runoff would be directed into a pipe and pumped around the project site.

Two portable soil cement batch plants would be utilized for the proposed project. One batch plant would be at the northwest corner of Warner Avenue and Lark Lane to provide cement for the portion of the proposed project between Warner Avenue and just downstream of Edwards Street. The upstream batch plant would be on the existing widened portion of the existing maintenance road directly behind a U.S. Post Office just upstream of the upstream limit of the channel reconstruction. Dry cement would be delivered to the batch plants. Pumps would be positioned at the portable batch plants to pump the cement to the job site. A cement hose (up to 3,000 feet long) would be used between the portable batch plant/pumps and the location of the soil cement columns under the maintenance road. Only one portable batch plant would operate at a time. The downstream batch plant is expected to be in operation for approximately 4 to 5 months. The upstream batch plant is expected to be in operation for approximately 2 to 3 months. When the upstream cement batch plant is not in operation, that site (behind the U.S. Post Office) would be used as a staging area for the storage of equipment, supplies, and office trailers.

There would be some excavation of soil between the parallel sheet pile walls to allow for the volume of cement that would be added to the soil. This excavated soil would be temporarily stockpiled on the invert of the flood control channel and would be removed during the excavation of the earthen side slopes. Total export of soil from the project site is estimated to be approximately 141,694 cubic yards.

An approximately 16-foot-wide asphalt maintenance road would be constructed on each side of the channel; however, similar to the existing condition, the maintenance roads would not be open to the public. The maintenance roads would be shifted toward the homes. The slope between the homes and the new maintenance roads would be steepened; however, the overall stability of the slopes would be enhanced due to the addition of the steel sheet pile walls and soil-cement columns.

As part of the proposed project's infiltration system and landscaping plan, the proposed project would install a subgrade continuous drainage system and tree plantings (see Figure 2-5 for a visual illustration). The trees, anticipated to be Leyland Cypress (*Cupressocyparis Leylandii*), would be procured in heights of 2 to 3 feet and planted in 5-gallon containers at a distance of approximately 15 to 20 feet apart from each other. The Leyland Cypress can grow to heights of 3 feet or more per year with a 15-foot spread and can reach heights of between 45 and 60 feet.

The subgrade continuous drainage system would consist of interconnected modular polypropylene underground water detention tank structures and drainage cells. The invert of the continuous drainage gallery would match the design grade invert of the channel. The modular underground water detention tanks would be made of recycled injection-molded polypropylene materials with a void space between 90 and 95 percent for a single drainage unit having a width of 16.06 inches, height of 17.72 inches, and length of 26.97 inches. Each single drainage unit would have a water storage volume of 4.22 cubic feet with a tank volume of 4.44 cubic feet, and a minimum of two interior panels and two end panels. The modular drainage units and cells would be installed interconnected with each unit to maintain continuous water flow.

The planters would be planted selected shrubs or trees prior to contact of stormwater runoff and reintroduction of treated runoff into the ground as groundwater recharge.

Implementation of the proposed project would not require:

- Permanent lighting
- Signage
- Import of soil
- Relocation of any utilities
- Off-site improvements necessary to implement the proposed project

The proposed project would be an environmental enhancement and provide improved functions and values to biological resources, as additional soft-bottom, estuarine habitat would be created where there was previously bare earthen slope. The increase in the amount of estuarine habitat would be approximately 3.42 acres.

2.7 Project Construction

The proposed project would be installed in one phase and would take approximately 18 months to construct. The primary types of construction activities include site preparation, sheet pile driving, soil-cement drilling and installation, soil excavation, paving of maintenance roads, and landscaping. Construction would also include temporary diversion structures for surface water flow consisting of two coffer dams.

Vehicular access would be via existing access points to the existing maintenance roads on both sides of the channel. The proposed project would require 12 construction workers on the job site on a daily basis. Construction workers would park in the project vicinity in the commercial areas and residential community.

Construction staging and laydown areas would be at the upstream batch plant located on the existing widened portion of the existing maintenance road directly behind a U.S. Post Office just upstream of the eastern project boundary. When the upstream cement batch plant is not in operation, that site (behind the U.S. Post Office) would be used as a staging area for the storage of equipment, supplies, and office trailers.

2.8 Maintenance

Maintenance and operation activities associated with the proposed improvements would be similar to those associated with the existing channel improvements. The design of the reach is such that maintenance is expected to be very minimal to non-existent. The project area is not prone to sediment deposition or scour. Standard maintenance activities would include inspections after every significant rainfall and driving the channel once a month for inspection. Inspection for large tree growth would also occur every month as well as after every significant rainfall event. However, large trees are not expected to grow due to the brackish tidal water. Typical future maintenance activities would also include trash removal.

2.9 Discretionary Approvals and Regulatory Permits

This document, together with EIR No. 560 and the associated Addendum, are intended to provide sufficient information to allow the state and federal regulatory permitting agencies to evaluate the potential impacts from the proposed project. All permit applications will be submitted following the approval of the CEQA documentation. Discretionary approvals needed and regulatory permits to be submitted are as follows. A summary of the approval actions and permits required for the proposed project is presented in Table 2-2.

Table 2-2. Public Agency Approvals and Regulatory Permits

Entity	Action
County of Orange	
Board of Supervisors	Construction Plans and Specifications Approval Adoption of Final Initial Study with Mitigated Negative Declaration
Local Jurisdictions	
City of Huntington Beach	Haul route approval Encroachment permit
State of California	
California Department of Fish and Wildlife	Section 1602 Permit Lake and Streambed Alteration Agreement
Santa Ana Regional Water Quality Control Board	Clean Water Act Section 401 Water Quality Certification Clean Water Act Section 402 National Pollutant Discharge Elimination System Permit – Construction General Permit
Federal	
U.S. Army Corps of Engineers	Section 10 Rivers and Harbors Act Permit Section 404 Permit

2.9.1 County of Orange

Within the County's approval process, the proposed project will require adoption of a final IS/MND and approval of the proposed project.

Adoption of the Final IS/MND. The proposed project requires the acceptance of an environmental document having been prepared in compliance with CEQA, the State CEQA Guidelines, and the County of Orange Local CEQA Procedures Manual, and certification that the data were considered in the final decision on the proposed project.

Approval of Construction Plans and Specifications. The County of Orange will be required to approve the construction plans and specifications for the proposed project.

2.9.2 Local Jurisdictions

City of Huntington Beach. In accordance with the Orange County Flood Control Act, the proposed project is required to be approved by the City of Huntington Beach. For construction activities, a haul route and encroachment permit are required from the City.

2.9.3 State of California

State of California, Regional Water Quality Control Board Santa Ana Region. Pursuant to Section 401(a)(1) of the Clean Water Act (CWA), a Section 401 water quality certification or waiver would be required for the proposed project before any federal permit (i.e., Section 404 permit) can be issued "to conduct any activity including but not limited to, the construction or operation of facilities, which may result in any discharge to navigable waters."

Pursuant to CWA Section 402(p), requiring regulations for permitting of certain stormwater discharges, the State Water Resources Control Board (SWRCB) has issued a statewide general National Pollutant Discharge Elimination System (NPDES) Permit for stormwater discharges from construction sites (NPDES No. CAS618030, Santa Ana Regional Water Quality Control Board on May 22, 2009). Under this Construction General Permit, discharges of stormwater from construction sites with a disturbed area of 1 or more acres are required to either obtain individual NPDES permits for stormwater discharges or be covered by the Construction General Permit. Coverage under the Construction General Permit is accomplished by completing and filing a Notice of Intent with the SWRCB. Each applicant under the Construction General Permit must ensure that a Stormwater Pollution Prevention Plan (SWPPP) is prepared prior to the initiation of any ground-disturbing activities and ensure that the SWPPP is implemented during construction (SC 5.5-1). The primary objective of the SWPPP is to identify, construct, implement, and maintain BMPs to reduce and/or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the construction site during construction (SC 5.5-2).

California Department of Fish and Wildlife. The proposed project would require a California Department of Fish and Wildlife Streambed Alteration Agreement pursuant to Section 1602 of the California Fish and Game Code for modification of the bed, bank, and channel. An agreement is required prior to allowing development that may threaten, harm, or destroy existing wildlife habitats within areas of jurisdiction.

2.9.4 Federal

United States Army Corps of Engineers (USACE). The proposed project will require a USACE CWA Section 404 permit due to impacts on WoUS from the proposed project. USACE has jurisdiction over discharges within navigable WoUS, pursuant to Section 10 of the Rivers and Harbors Act (in the case of tidal waters) and CWA Section 404 (in the case of non-tidal waters). A USACE permit is required prior to discharging any dredge or fill material into WoUS, pursuant to Section 10 of the Rivers and Harbors Act and Section 404 of the CWA.

2.9.5 California Native American Tribal Consultation

California Native American tribes traditionally and culturally affiliated with the project area are required to be consulted pursuant to PRC Section 21080.3.1. OCPW sent certified Assembly Bill (AB) 52 letters on December 19, 2017. OCPW received a written consultation request from the Gabrieleño Band of Mission Indians – Kizh Nation (Kizh Nation) on December 28, 2017. A consultation meeting was held on February 25, 2018. OCPW sent a continued consultation letter on March 30, 2018, and re-sent the letter on April 16, 2017, and May 17, 2018. The Kizh Nation responded to the letter on May 18, 2018. OCPW concluded consultation with the Kizh Nation on September 17, 2018.

Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts on Tribal Cultural Resources, and reduce the potential for delay and conflict in the environmental review process (see PRC §21083.3.2). Information may also be available from the California Native American Heritage Commission's (NAHC's) Sacred Lands File per PRC Section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that PRC Section 21082.3(c) contains provisions specific to confidentiality.

Chapter 3
OCPW Environmental Checklist

3.1 Introduction

This section conforms to and provides the content contained in Appendix G: Environmental Checklist of the CEQA Guidelines.

3.1.1 Project Title

East Garden Grove-Wintersburg Channel, Warner to 1,250 Feet Downstream of Goldenwest Sheet Pile Project

3.1.2 Lead Agency Name and Address

County of Orange
OC Public Works
OCPW Infrastructure Programs/Project Management
300 North Flower
Santa Ana, California 92703-4048

3.1.3 Contact Person and Telephone Number

Justin Golliher
Telephone: (714) 647-3979

3.1.4 Project Location

The proposed project is located between the upstream side of the Warner Avenue Bridge and about 1,250 linear feet downstream of Goldenwest Street in the City of Huntington Beach, California, within the right-of-way for facility C05.

3.1.5 Project Sponsor Name and Address

The project sponsor is the lead agency, Orange County Public Works. See Section 3.1.12, *Lead Agency Name and Address*, for the address.

3.1.6 General Plan Designations

The City of Huntington Beach General Plan land use designation for land adjacent to the north of the project alignment is Low Density Residential. Land to the south of the proposed project is a mix of Low Density and Medium High Density Residential, and General Commercial (City of Huntington Beach 2017a).

3.1.7 Zoning Districts

The City of Huntington Beach Zoning Districts surrounding the project site correspond with the affiliated General Plan designations identified above in Section 3.1.6, and include Low Density Residential, Medium Density Residential and General Commercial District (City of Huntington Beach 1997; 2014).

3.1.8 Project Description

The proposed project involves improvements to the C05 facility from Warner Avenue to 1,250 feet downstream of Goldenwest Street to correct channel erosion, provide additional protection from flooding, and increase flood conveyance capacity. Project construction would consist of inserting two parallel sheet pile walls on both sides of the northern maintenance road and both sides of the southern maintenance road. After the four rows of sheet piles have been installed, cement would be mixed with the soil between the two parallel sheet pile walls to create soil-cement columns. An asphalt maintenance road would be reconstructed on top of the soil-cement columns after they have cured. Upon completion of the sheet pile wall installation and during the installation of the soil-cement columns between the sheet piles, the earthen trapezoid side slopes inside the channel would be excavated to expose the vertical sheet piles to the channel flows, thus providing for the 100-year stormwater conveyance capacity within this channel reach. The soil would be removed from the channel with either an excavator or a front loader and placed in dump trucks for transport off the site.

The proposed project also includes temporary coffer dams to blocks flows within the channel prior to excavation. In addition, two portable soil cement batch plants would be located near each terminus of the project alignment (see Figure 2-2). Lastly, as part of the proposed project's infiltration system and landscaping plan, the proposed project would install a subgrade continuous drainage system and tree plantings.

The proposed project would be an environmental enhancement and provide improved functions and values to biological resources, as additional soft-bottom, estuarine habitat would be created where there was previously bare earthen slope. The increase in the amount of estuarine habitat would be about 3.42 acres. See Section 2.6, *Project Description*, for a comprehensive discussion of the proposed project.

3.1.9 Environmental Setting

The C05 facility is in northwestern Orange County within the cities of Huntington Beach, Fountain Valley, Garden Grove, Orange, Westminster, Santa Ana, and Anaheim. It exists on flat coastal plains that are bound by the Santa Ana River, Talbert Mesa, the Pacific Ocean, and the Westminster Channel System. The C05 facility is approximately 11.5 miles long and consists of 12 channels for stormwater conveyance. The channel system consists almost exclusively of an earthen channel with a minimal amount of riprap and concrete lining.

The length of the channel system where the proposed project is located is encompassed by chain-link, wood, and concrete fences. The maintenance roads along both sides of the channel are 15 feet wide and composed of an earthen/gravel cover. These maintenance roads are not open to the public

and do not have undercrossings at the Warner Avenue, Springdale Street, or Edwards Street bridges. See Section 2.3, *Existing Setting*, for a comprehensive discussion of the proposed project.

3.1.10 Public Agency Approvals and Recommendations

The County of Orange Board of Supervisors will adopt the Final IS/MND and decide on the approval of the Construction Plans and Specifications. The City of Huntington Beach will need to approve the haul route and an encroachment permit for construction activities. A Section 1602 Permit Lake and Streambed Alteration Agreement will be required from CDFW. A CWA Section 401 Water Quality Certification and NPDES Permit will be required from the Santa Ana Regional Water Quality Control Board (RWQCB). A Section 10 Rivers and Harbors Act Permit and Section 404 Permit will be required from USACE. Approval actions and permits required for the proposed project are discussed in more detail in Section 2.9, *Discretionary Approvals and Regulatory Permits*, and in Table 2-2.

3.1.11 California Native American Tribal Consultation

California Native American tribes traditionally and culturally affiliated with the project area are required to be consulted pursuant to PRC Section 21080.3.1. OCPW sent certified AB 52 letters on December 19, 2017 to the Kizh Nation, Gabrieleño Tongva San Gabriel Band of Mission Indians, Juaneno Band of Mission Indians, and the Soboba Band of Luiseno Indians. OCPW received a written consultation request from the Kizh Nation on December 28, 2017, and a consultation meeting was held on February 25, 2018. OCPW sent a continued consultation letter on March 30, 2018, and re-sent the letter on April 16, 2017, and May 17, 2018. The Kizh Nation responded to the letter on May 18, 2018. OCPW concluded consultation with the Kizh Nation on September 17, 2018. OCPW concluded consultation with the tribe on September 17, 2018. Refer to Section 3.3.17 for a discussion on Tribal Cultural Resources.

Environmental Factors Potentially Affected

This document incorporates the Environmental Checklist Form from Appendix G of the Orange County Local CEQA Procedures Manual.

Table 3.1-1 below lists the environmental factors that are evaluated in Section 3 of this document. Environmental factors that are checked contain at least one impact that has been determined to be a "Potentially Significant Impact." Environmental factors unchecked indicate that impacts were determined to have resulted in no impacts, less than significant impacts, or less than significant impacts with mitigation measures or County Standard Conditions of Approval incorporated into the proposed project.

Section numbers in parentheses following each environmental factor correspond to the environmental impact analysis in Section 3.

Table 3.1-1. Environmental Factors Potentially Affected

☐ Aesthetics (3.3.1)	☐ Mineral Resources (3.3.11)
☐ Agriculture & Forestry Resources (3.3.2)	☐ Noise (3.3.12)
☐ Air Quality (3.3.3)	☐ Population & Housing (3.3.13)
☐ Biological Resources (3.3.4)	☐ Public Services (3.3.14)
☐ Cultural Resources/Scientific Resources (3.3.5)	☐ Recreation (3.3.15)
☐ Geology and Soils (3.3.6)	☐ Transportation/Traffic (3.3.16)
☐ Greenhouse Gas Emissions (3.3.7)	☐ Tribal Cultural Resources (3.3.17)
☐ Hazards & Hazardous Materials (3.3.8)	☐ Utilities & Service Systems (3.3.18)
☐ Hydrology & Water Quality (3.3.9)	☐ Mandatory Findings (3.3.19)
☐ Land Use & Planning (3.3.10)	

Environmental Determination

Based on the analysis conducted in this Initial Study, the following has been determined:

Table 3.1-2. Environmental Determination

I find that there is no substantial evidence that the project will have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.	☐
I find that although the proposed project could have a significant effect on the environment, revisions to the project or proposals have been made by or agreed to by the project proponent, that will avoid the effects or mitigate the effects to where no significant effects on the environmental will occur. A **MITIGATED NEGATIVE DECLARATION** will be prepared.	☒
I find that the proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.	☐
I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.	☐

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier **EIR** or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier **EIR** or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.	☐
I find that the proposed project has previously been analyzed as part of an earlier CEQA document (which either mitigated the project or adopted impacts pursuant to findings) adopted/certified pursuant to State and County CEQA Guidelines. The proposed project is a component of the whole action analyzed in the previously adopted/certified CEQA document.	☐
I find that the proposed project has previously been analyzed as part of an earlier CEQA document (which either mitigated the project or adopted impacts pursuant to findings) adopted/certified pursuant to State and County CEQA Guidelines. Minor additions and/or clarifications are needed to make the previous documentation adequate to cover the project which are documented in this addendum to the earlier CEQA document (CEQA §15164).	☐
I find that the proposed project Has previously been analyzed as part of an earlier CEQA document (which either mitigated the project or adopted impacts pursuant to findings) adopted/certified pursuant to State and County CEQA Guidelines. However, there is important new information and/or substantial changes have occurred requiring the preparation of an additional CEQA document (ND or EIR) pursuant to CEQA Guidelines Sections 15162 through 15163.	☐

Cindy Salazar — Signature

3/18/2019 — Date

Cindy Salazar — Name

Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained if it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off site as well as on site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
4. "Negative Declaration: Less than Significant with Mitigation Incorporated" applies when the incorporation of mitigation measures has reduced an effect from a "Potentially Significant Impact" to a "Less-than-Significant Impact." The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less-than-significant level. (Mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced.)
5. Earlier analyses may be used if, pursuant to tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration [Section 15063(c)(3)(D)]. In this case, a brief discussion should identify the following:
    a. Earlier Analysis Used. Identify and state where earlier analyses are available for review.
    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Incorporated," describe the mitigation measures that were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, when appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. The explanation of each issue should identify:
    a. the significance criteria or threshold, if any, used to evaluate each question; and
    b. the mitigation measure identified, if any, to reduce the impact to a less-than-significant level.

The following information is provided to supplement the Evaluation of Environmental Impacts discussed above.

Thresholds of Significance

Thresholds of significance are identifiable quantitative, qualitative or a performance level of a particular environmental effect. Non-compliance with a threshold means the effect will normally be determined to be significant and, conversely, compliance with a threshold means the effect will normally be less than significant (Guidelines §15064.7).

The County relies upon the specific questions relating to environmental impact areas listed in Appendix G of the State CEQA Guidelines to determine a level of significance.

Environmental Baseline

To adequately determine the significance of a potential environmental impact, the environmental baseline must be established. Guidelines Section 15125(a) states in pertinent part that the existing environmental setting will normally constitute the baseline physical conditions by which a lead agency will determine if an impact is significant.

Therefore, the environmental baseline for the proposed project constitutes the existing physical conditions as they exist at the time that the environmental process commenced.

3.2 Project Description

The following sections provide a summary of the proposed project description. See Chapter 2 for a more detailed description of the proposed project.

3.2.1 Purpose and Intent

The most recent flooding within the C05/C06 watershed was caused by short-duration, high-intensity coastal storms that occurred in Orange County during January and February 2005 and 2017. These past storms resulted in erosion to the channel side slopes that must be repaired to maintain the structural integrity of the levee system. In addition, future storms could worsen this by creating conditions that increase the potential for levee failure and damage to adjacent homes.

Project development would accomplish the following goals:

- Increase the flood conveyance capacity of the channel
- Prevent future erosion
- Address seismically induced levee liquefaction
- Address reported sand-boils and piping behind the levee

3.2.2 Project Characteristics

The proposed project involves facilitating improvements to the C05 facility from Warner Avenue to 1,250 feet downstream of Goldenwest Street to correct channel erosion, provide additional protection from flooding, and increase flood conveyance capacity. The project design is similar to the overall design used in the downstream reach between Graham Street and Warner Avenue completed in 2014. Project construction would consist of inserting two parallel sheet pile walls on both sides of the northern maintenance road and both sides of the southern maintenance road. An

asphalt maintenance road would be reconstructed on top of the soil-cement columns after they have cured. Upon completion of the sheet pile wall installation and during the installation of the soil-cement columns between the sheet piles, the earthen trapezoid side slopes inside the channel would be excavated to expose the vertical sheet piles to the channel flows, thus providing for the 100-year stormwater conveyance capacity within this channel reach.

3.2.3 Site Characteristics

The proposed project is a stormwater conveyance project. The proposed project does not include any signage other than a temporary project information sign during construction. The height of the sheet pile will extend less than 3 feet above the existing grade. The maintenance roads would be shifted toward the adjacent properties. The slope between the homes and the new maintenance road will be steepened; however the overall stability of the slope will be enhanced due to the addition of the steel sheet pile walls and soil-cement columns.

Vehicular access would be via existing access points to the existing maintenance roads on both sides of the channel. Access to the channel invert to remove the soil would occur from an existing concrete vehicle access ramp at Gothard Street east of Goldenwest Street and from temporary access ramps at the bridges. The proposed project would require 12 construction workers on the job site on a daily basis. Construction workers would park in the project vicinity in the commercial areas and residential community.

Construction staging and laydown areas would be at the upstream batch plant located on the existing widened portion of the existing maintenance road directly behind a U.S. Post Office just upstream of the eastern project boundary. When the upstream cement batch plant is not in operation, that site (behind the U.S. Post Office) would be used as a staging area for the storage of equipment, supplies, and office trailers.

There will be no off-site improvements necessary to implement the proposed project.

3.2.4 Utilities Characteristics

The proposed project would not require the relocation of any utilities.

3.2.5 Project Phasing

The proposed project would be installed in one phase.

3.2.6 Soil Balance

There will be no import of soil for the proposed project. Soil (approximately 141,694 cubic yards) will be removed from the channel with an excavator or a front loader and placed in dump trucks for transport off the site. The excavated soil will become the property of the construction contractor to be disposed of in any legal method. One likely method of disposal would be to deliver the excavated soil to the County's nearest landfill; both the Olinda Alpha Landfill, located in the city of Brea, and the Frank R. Bowerman Landfill, located in the city of Irvine, are distanced approximately 17 miles from the project site.

3.2.7 Schedule

The proposed project would take approximately 18 months to construct, with an estimated completion in 2020. The primary types of construction activities include site preparation, sheet pile driving, soil-cement drilling and installation, soil excavation, paving of maintenance roads, and landscaping.

3.3 Environmental Evaluation

3.3.1 Aesthetics	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?	☐	☐	☒	☐
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	☒	☐

Introduction

This section evaluates potential impacts on aesthetics that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the project applicant, and information sources identified in this section. Responses to the impact questions listed above are provided below.

Channel improvements would take place in the upstream section of Reach 1 of the C05 channel system. Both the channel and the batch plants are within an urbanized area of the City of Huntington Beach. Generally, Huntington Beach consists of urban and suburban views, with intermittent views of surrounding natural features (i.e., mountains and the ocean), depending on the particular location within the city. The City of Huntington Beach identifies views of the Pacific Ocean and the Bolsa Chica Ecological Reserve as the City's two scenic vistas (City of Huntington Beach 2017a). The project alignment is 0.9 mile north of the Bolsa Chica Ecological Reserve and 1.9 miles from the shoreline of the Pacific Ocean. Typically, views of the channel system are limited to the adjacent land uses, which are designated Low Density Residential on the northern border of the project alignment and a mix of Low Density and Medium Density Residential and General Commercial on the southern border (City of Huntington Beach 2017a). Views are further limited by landscaping and wood and concrete fencing along the channel system. Visual character and quality of this area is low to moderate because of the fragmented nature of the different land uses and the non-unique value of the views in the area.

Viewers along the alignment include residents adjacent to the channel, workers in the adjacent commercial and office buildings, and pedestrians walking and drivers passing over the bridges where Warner Avenue, Springdale Street, and Edwards Street intersect the channel. Typically, the viewers who are most sensitive to visual changes in the environment are residential viewers because they cannot move away from their views. Office workers and drivers have low visual

sensitivity because office workers are not located at their viewing locations permanently, and drivers' views are typically temporary as they move along a road.

Within the project area, the C05 channel system consists almost exclusively of an earthen bottom with a minimal amount of riprap. The channel slopes are mostly devoid of vegetation and contain erosion. The current channel supports a vegetated, sinuous low flow channel that attracts wildlife.

There are no state designated scenic highways near the project alignment. The nearest scenic highway, Route 91 from State Route 55 to east of Anaheim city limit, is located approximately 10 miles northeast of the project area. The Pacific Coast Highway, 1.8 miles from the southern terminus of the project alignment, is the nearest eligible state scenic highway that is not officially designated (California Department of Transportation 2011).

Scenic resources identified by the City include aspects its two scenic vistas—the Pacific Ocean and the Bolsa Chica Ecological Reserve—as well as Huntington Beach Municipal Pier, Huntington Beach Wetlands, Downtown landscaping features, Huntington Harbour, and parks including Huntington Beach Central Park (City of Huntington Beach 2017a). Huntington Beach Central Park is the nearest scenic resource, located 0.8 mile south of the project alignment's eastern terminus.

The City of Huntington Beach designates Warner Avenue as a Major Urban Scenic Corridor and Goldenwest Street as a Minor Urban Scenic Corridor. Major Urban Scenic Corridors are defined as corridors offering views of either natural or built environments. Major urban scenic corridors are prominent, signature boulevards conveying arrival and identity, and in many cases will connect with adjacent cities. Minor Urban Scenic Corridors are defined as corridors that terminate within the city boundaries and typically carry less traffic than major corridors. For both Major and Minor Urban Scenic Corridors, development may be regulated to preserve views within the coastal zone, and landscaping and detailing are required to reinforce the aesthetic beauty of the surrounding area (City of Huntington Beach 2017a). Both the southern terminus of the proposed project and the downstream batch plant are adjacent to the northern side of Warner Avenue. The northern terminus of the proposed project is located 1,250 feet downstream of Goldenwest Street.

Goal CIRC-7 of the general plan requires that designated scenic corridors protect and enhance visual quality and scenic views. Policy E of Goal CIRC-7 requires that development projects adjacent to a designated scenic corridor include open spaces, plazas, gardens, and/or landscaping that enhance the corridor and create a buffer between the building site and the roadway (City of Huntington Beach 2017a).

Nighttime views along the project area consist of urban streetscapes. In general, lights line the City streets and intersecting bridges for safety and security purposes. The southern side of the channel from Warner Avenue to Springdale Street is adjacent to land designated for commercial use (City of Huntington Beach 2017a). The parking lot for this commercial building cluster has streetlights located adjacent to the southern maintenance road within the project alignment. Indirect light from the streetlights may spill onto the edge of the project alignment.

Both the City of Huntington Beach and County of Orange prohibit construction activities from occurring between the hours of 8:00 p.m. and 7:00 am on weekdays and Saturdays, or at any time on Sundays or federal holidays. See Section 3.3.12, Noise, for further discussion of construction timeframe restrictions.

Discussion

Response to Impact Question a): No Impact.

For purposes of determining significance under CEQA, a scenic vista is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. In addition, some scenic vistas are officially designated by public agencies, or informally designated by tourist guides. A significant impact on such a scenic vista is one that degrades the view from such a designated view spot. Views of the city's two identified scenic vistas—views of the Pacific Ocean and the Bolsa Chica Ecological Reserve—are obstructed by distance, buildings, and intervening vegetation. Given this distance, no scenic vistas would be obstructed or altered by project-related construction equipment, vehicles, or personnel. Construction activities would not have a long-term adverse effect on a scenic vista. Operation activities would be similar to those associated with the existing channel—inspection for large tree growth and trash removal. Operation activities would not have a long-term adverse effect on a scenic vista. Therefore, no impact would occur.

Response to Impact Question b): Less-than-Significant Impact.

There are no state designated scenic highways near the project alignment. While there are city designated scenic roads in the project vicinity, there are no scenic resources of significant visual quality—including trees, rock cropping or historical structures—within the project site. Huntington Beach Central Park is the nearest scenic resource, located 0.8 mile south of the project alignment's eastern terminus. Because the topography of the surrounding area is a coastal plain, the proposed project is located far enough away from Huntington Beach Central Park to not substantially damage this scenic resource.

During construction, views of the project site downstream from the Goldenwest Street Bridge, a Minor Urban Scenic Corridor, would be limited to the upstream batch plant on the southern maintenance road and any channel improvements upstream of the Edwards Street Bridge. Views during construction of the project site from Warner Avenue, a Major Urban Scenic Corridor, would include construction vehicles traveling to and from the downstream batch plant onto the northern maintenance road and any channel improvements that would occur downstream of Springdale Street. Aesthetic impacts for both scenic corridors are limited to the view sheds along the Goldenwest Street Bridge and Edwards Street Bridge. Impacts would occur during construction of the proposed project and are therefore temporary. Operation activities would be similar to those that already occur in the channel and therefore have no long-term impact. No physical changes to either corridor would occur.

Furthermore, the project design includes features that are aesthetically beneficial to viewers located in the scenic corridor, primarily drivers and pedestrians crossing the bridges. The proposed project includes installation of trees anticipated to be Leyland Cypress (*Cupressocyparis Leylandii*), which would be procured in heights of 2–3 feet and planted in 5-gallon containers at a distance of approximately 15 to 20 feet apart from each other. The Leyland Cypress can grow to heights of 3 feet or more per year with a 15 foot spread and can reach heights of between 45 and 60 feet. By including landscaping that enhances the corridor and creates a buffer between the project site and the scenic roadways, the project design features are compatible with Goal CIRC-7, Policy E, of the general plan. Given that impacts on scenic corridors are temporary, limited to the view sheds of each bridge, and project design would add aesthetically beneficially features, less than significant impacts would occur.

Response to Impact Question c): Less-than-Significant Impact.

Due the short-term nature of the construction activities, the visual impact of construction activities would be less than significant along the length of the project alignment. Although ongoing construction equipment and activities (i.e., construction traffic, portable soil cement batch plants, coffer dams, Giken silent pile machine, and stockpiled soil) may be visible from adjacent land uses in the short term, the visual character of the channel reaches would not be adversely altered because implementation would not require any construction that would negatively affect the aesthetic character of the channel. Visual character and quality of this area is considered low to moderate. Construction activities would be temporary. Construction would occur in one phase and take approximately 18 months to complete. Furthermore, areas in which construction would occur would be relatively small and isolated. The proposed improvements would extend for approximately 4,970 linear feet of the channel. Lastly, construction vehicle operation and transportation would not be highly visible to the public. Construction vehicles moving from the upstream batch plant to the channel would use the channel's southern maintenance road, which is not open to the public. Construction vehicles moving from the downstream batch plant, a gated and vacant property, would use a 950-foot stretch of Warner Avenue to enter the northern maintenance road. The presence of construction equipment, vehicles and personnel within the project site, staging areas, and on local roadways in the immediate project vicinity would temporarily alter the existing visual character and quality experienced by adjacent land uses. However, once construction is complete, visual conditions would be similar to the current condition.

Operation-related visual impacts along the project alignment could include minor obstruction of views of and across the channel from the adjacent land uses due to raised sheet piles. The existing flood control channel is approximately 13 feet deep. While most of the 15 feet above grade sheet pile would be below the existing top of slope, up to 3 feet of sheet pile could extend above the existing top of slope. This further obstruction of views of and across the channel would not be considered significant because views of the channel from adjacent land uses are primarily obstructed by fences and vegetation. In addition, views from most of the adjacent properties are already obscured by the current height of the top of the banks on both sides of the channel The added height to the banks would not further obscure views from adjacent properties. Therefore, improvements in the bottom of the channel would not be viewable from most adjacent properties. Except from what can be seen from the Warner Avenue Bridge, Springdale Street Bridge, and the Edwards Avenue Bridge, the channel itself is not visually accessible to the public. Increases in traffic volumes are not expected and maintenance activities would occur in a manner similar to existing conditions. Operation of the proposed project would not result in any long-term increases over existing traffic conditions. Less than significant impacts would occur.

Response to Impact Question d): Less-than-Significant Impact.

The proposed project does not include any features that would create a new source of substantial light or glare beyond the project site, and it would not affect daytime or nighttime views in the area. As part of SOC-1, discussed in Section 3.3.12, Noise, noise-generating activities of the proposed project would be limited to the hours of 7:00 a.m. to 8:00 p.m. on weekdays and Saturdays, in compliance with city and county noise standards. As such, most construction activity would occur during daylight hours. Materials selected for the proposed project would not create glare. Nighttime security lighting would be used to protect equipment, office trailers, and staging areas during construction, but any light would be directed downward and onto the construction site. Security lighting would only be used during the 18-month construction period and removed afterward.

Lighting impacts would therefore be temporary and cease following construction. Long-term, operations-related activities would not generate any new light or glare. Therefore, less-than-significant impacts would occur.

3.3.2 Agricultural and Forestry Resources	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts on forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project, and forest carbon measurement methodology provided in the Forest Protocols adopted by the California Air Resources Board. Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Introduction

This section evaluates potential impacts on agriculture and forestry resources that could result from project implementation. Analysis in this section is based on the existing environmental setting

conditions, information provided by the project applicant, and information sources identified in this section. Responses to the impact questions listed above are provided below.

The State CEQA Guidelines provides the following guidance for this environmental factor:

> In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

The proposed project would be located in an urban environment, consisting primarily of residential and commercial land uses. According to the California Department of Conservation's (CDC's) Farmland Mapping and Monitoring Program (FMMP) Orange County Important Farmland Map 2014, the project site is classified as Urban and Built-Up; none of the land uses adjacent to the proposed project involve Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Important Grazing Land. The nearest agricultural resource is an approximately 5,100 feet long by 150 feet wide plot of Unique Farmland that extends from the eastern border of Huntington Beach into Santa Ana (CDC 2014). It is located 1.9 miles to the east of the eastern terminus of the project alignment. In addition, the CDC does not identify any land within the City of Huntington Beach that is under a Williamson Act contract (CDC 2004).

California PRC Section 12220 defines forest land as "land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits" (PRC §12220 2007). California PRC Section 4526 defines timberland as "land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees" (PRC §4526 2011). Government Section Code (GSC) 51004(g) defines timberland production zone as an area "devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses" (GSC §51004[g] 1982). No land in the project area or the City of Huntington Beach is zoned as forest land, timberland, or a timberland production zone.

The proposed project would have no operational impacts related to agriculture and forestry resources. Construction impacts are discussed below.

Discussion

Response to Impact Question a): No Impact.

As described above, no agricultural resources have been designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance on the project site or within the immediate project vicinity, as shown on the most recent available FMMP mapping for Orange County. The proposed project would not result in changes to or conflicts with existing land uses surrounding the C05

channel system; therefore, there is no possibility of agricultural uses being converted to a non-agricultural use. No impact would occur.

Response to Impact Question b): No Impact.

Neither the C05 channel system nor any land in the City of Huntington Beach are under a Williamson Act contract. There are no agricultural resources within the vicinity of the project alignment, as shown on the most recent FMMP mapping for Orange County. In addition, no parcels adjacent to the project alignment are zoned for agricultural use. Therefore, no impact would occur.

Response to Impact Question c): No Impact.

The City of Huntington Beach's zoning designations for the land adjacent to the project site consists of residential and commercial land. As defined in PRC §12220, PRC §4526, and GSC §51004(g), no land is zoned as forest land, timberland, or a timberland production zone. Therefore, no impact would occur.

Response to Impact Question d): No Impact.

As discussed in Responses (a) through (c), there would be no conversion of farmland to non-agricultural use or forestland to non-forested use. Therefore, no impact would occur.

Response to Impact Question e): No Impact.

The proposed project would be located in an urban environment with adjacent land use designations for residential and commercial development. Channel improvements would occur entirely within the channel bed of the existing C05 channel system. Upon completion of construction, the channel would continue to function as a water conveyance system. There are no agricultural uses within the vicinity of the project site, and no conversion of non-agricultural use would occur. Therefore, no impact would occur.

3.3.3 Air Quality	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d. Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
e. Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Introduction

This section evaluates potential impacts on air quality that could result from project implementation. Analysis in this section is based on the existing environmental setting, information provided by the project applicant, and sources identified in this section. Responses to the impact questions listed above are provided below.

The proposed project site is within the Orange County portion of the South Coast Air Basin (Basin), which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). SCAQMD has jurisdiction over an area of approximately 10,743 square miles, including all of Orange County; Los Angeles County, except for the Antelope Valley; the non-desert portion of western San Bernardino County; and the western and Coachella Valley portions of Riverside County. The Basin is a sub-region of SCAQMD's jurisdiction.

The Southern California region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild and tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography) as well as human-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and dispersion of pollutants throughout the Basin, making it an area of high pollution potential.

Clean Air Act

The Federal Clean Air Act (CAA) was first enacted in 1963, but has been amended numerous times in subsequent years (1967, 1970, 1977, and 1990). The CAA establishes the National Ambient Air Quality Standards (NAAQS) for the six criteria pollutants (ozone [O_3], carbon monoxide [CO], nitrogen dioxide [NO_2], sulfur dioxide [SO_2], particulate matter 10 microns or less and 2.5 microns or less [PM_{10} and $PM_{2.5}$], and lead [Pb]), and specifies future dates for achieving compliance. The CAA also mandates that the states submit a State Implementation Plan (SIP) for regions that fail to meet the standards. The plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA identify specific emissions-reduction goals for areas that fail to meet the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or meet interim milestones. Table 3.3.3-1 shows the NAAQS and the analogous California Ambient Air Quality Standards (CAAQS) set by the California Clean Air Act that are currently in effect for each criteria pollutant. Table 3.3.3-2 shows the region's attainment status for the NAAQS and CAAQS.

Table 3.3.3-1. Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS[a]	NAAQS[b]
O_3	1 hour	0.09 ppm[c]	—
	8 hour	0.070 ppm	0.070 ppm
CO	1 hour	20 ppm	35 ppm
	8 hour	9.0 ppm	9 ppm
NO_2	1 hour	0.18 ppm	100 ppb
	Annual Arithmetic Mean	0.030 ppm	53 ppb
SO_2	1 hour	0.25 ppm	75 ppb
	24 hour	0.04 ppm	0.14 ppm
PM_{10}	24 hour	50 µg/m^3 [c]	150 µg/m^3
	Annual Arithmetic Mean	20 µg/m^3	—
$PM_{2.5}$	24 hour	—	35 µg/m^3
	Annual Arithmetic Mean	12 µg/m^3	12.0 µg/m^3
Sulfates	24 hour	25 µg/m^3	—
Pb	30 day average	1.5 µg/m^3	—
	Calendar quarter	—	1.5 µg/m^3
	Rolling 3-Month Average	—	0.15 µg/m^3
Hydrogen Sulfide	1 hour	0.03 ppm	—
Vinyl Chloride	24 hour	0.01 ppm	—

Notes:

[a] The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and $PM_{2.5}$ are values not to be exceeded. All other California standards shown are values not to be equaled or exceeded.

[b] The NAAQS, other than O_3 and those pollutants using annual arithmetic mean, are not to be exceeded more than once a year. The O_3 standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than 1.

[c] ppm = parts per million by volume; ppb = parts per billion; µg/m^3 = micrograms per cubic meter.

Source: ARB 2016.

Table 3.3.3-2. Federal and State Attainment Status for the South Coast Air Basin

Pollutants	Federal Classification	State Classification
O_3 (1-hour standard)	—	Nonattainment
O_3 (8-hour standard)	Nonattainment, Extreme	Nonattainment
PM_{10}	Attainment/Maintenance	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment/Maintenance	Attainment
NO_2	Attainment/Maintenance	Attainment
SO_2	Attainment	Attainment
Pb	Nonattainment*	Attainment

*Note that only the Los Angeles County portion of the Basin is nonattainment for NAAQS for Pb. The remainder of the Basin is in attainment.
Sources: ARB 2015

Analysis Methods

Because the proposed project would not change the flood control function of the portion of Reach 1 that would be modified, operation of the proposed project would be similar to existing conditions with respect to inspection and maintenance activities, which would be minimal. Therefore, the analysis of the effects of the proposed project related to air quality is primarily focused on those effects that would occur during the construction period.

Construction phasing information, construction equipment that would be used, excavation and paving quantities, and truck trips were obtained from OCPW staff. The project-specific parameters were used as the basis for modeling in the California Emissions Estimator Model (CalEEMod), version 2016.3.2. The resulting output was compared to SCAQMD regional mass emissions thresholds and localized significance thresholds to determine the potential for impacts. Compliance with SCAQMD Rule 403 (fugitive dust control) was assumed in the estimate of emissions. The CalEEMod output tables are included as Appendix A.

Discussion

Response to Impact Question a): No Impact.

The proposed project is located within the Basin, which is under the jurisdiction of SCAQMD. SCAQMD is required, pursuant to the CAA, to reduce emissions of criteria pollutants for which the Basin is in nonattainment. SCAQMD's most recent plan to achieve air quality standards is the 2016 AQMP, adopted by the SCAQMD Governing Board on March 3, 2017. The 2016 AQMP outlines comprehensive control strategies to meet $PM_{2.5}$ and ozone standards and maintain lead, CO, NO_2, and PM_{10} standards. These strategies are based, in part, on regional population, housing, and employment projections prepared by the region's cities and counties and incorporated by the Southern California Association of Governments (SCAG) in their growth forecasts. As such, projects that propose development that is consistent with the growth anticipated in the relevant land use plans that were used in the formulation of the AQMP are therefore considered to be consistent with the AQMP. The governing land use document relevant to the proposed project is the OCPW 7-Year

Capital Improvement Program covering fiscal years 2017/18 through 2023/24, which identifies the proposed project for implementation in fiscal year 2018/2019 (OCPW 2017).

Because the proposed project would be consistent with local plans, does not propose development, and would not indirectly change development patterns in the area, and would not change the function of the existing flood control channel, the proposed project would be consistent with development patterns that were used in the development of the AQMP and the SIP. Therefore, the proposed project would not conflict with, or obstruct implementation of, the AQMP. No impact would occur.

Response to Impact Question b): Less-than-Significant Impact.

Pollutants would be emitted as a result of construction activities stemming from the use of construction equipment (primarily diesel-powered), haul and material delivery vehicle trips, worker commute trips, and fugitive dust. Table 3.3.3-3 shows estimated daily emissions for the proposed project for each of the project construction stages, as well as the maximum daily emissions that would occur after assuming that construction stage overlaps could occur for the end of the Site Preparation of Levees, Infiltration Cistern stage and the start of the Sheet Pile Installation stage as well as at the end of the Sheet Pile Installation stage and the start of the Soil Cement Mixing, Levee Work, Maintenance Road Prep stage. No exceedances of regional mass thresholds would occur. The proposed project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation, and impacts would be less than significant.

Table 3.3.3-3. Construction-Period Regional Mass Emissions of Criteria Pollutants and Precursors

	Total Regional Pollutant Emissions (pounds per day)					
Construction Stage	**VOC**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
2018						
Site Preparation of Levees, Infiltration Cistern	4	37	19	< 1	7	4
Sheet Pile Installation	3	34	14	< 1	1	1
2019						
Sheet Pile Installation	3	30	14	< 1	1	1
Soil Cement Mixing, Levee Work, Maintenance Road Prep	3	33	19	< 1	2	1
2020						
Soil Cement Mixing, Levee Work, Maintenance Road Prep	3	30	19	< 1	2	1
Pile Caps and Retaining Walls	< 1	2	3	< 1	< 1	< 1
Grading/Excavation Inside Channel	3	35	28	< 1	18	10
Asphalt Paving of Maintenance Roads	1	8	7	< 1	1	< 1
Landscaping	1	12	8	< 1	1	1
Maximum Daily Emissions [a]	**6**	**71**	**34**	**< 1**	**18**	**10**
Regional Significance Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Exceed Threshold?	No	No	No	No	No	No

Source: CalEEMod version 2016.3.2, modeling output provided in Appendix A.

[a] Maximum daily emissions identifies emissions that would be experienced at a given time for each pollutant irrespective of the stage in which it would occur. It also takes into consideration overlap between stages, which could occur for the end of the Site Preparation of Levees, Infiltration Cistern stage and the start of the Sheet Pile Installation stage as well as at the end of the Sheet Pile Installation stage and the start of the Soil Cement Mixing, Levee Work, Maintenance Road Prep stage.

VOC = volatile organic compounds	PM_{10} = particulate matter less than 10 microns in diameter
NO_X = nitrogen oxides	$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
CO = carbon monoxide	SO_X = sulfur oxides

Response to Impact Question c): Less-than-Significant Impact.

See the Response to Impact Question b) and Table 3.3.3-3 above. The SCAQMD regional mass emissions thresholds were developed to help the Basin come into attainment for those pollutants for which the Basin is in nonattainment as well as maintain attainment status for those pollutant for which the Basin in attainment. Because the proposed project would not exceed the regional mass emissions thresholds, the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment. Impacts would be less than significant.

Response to Impact Question d): Less-than-Significant Impact with Mitigation Incorporated.

To assess the potential localized air quality impacts resulting from the proposed project on nearby sensitive receptors during construction, the daily on-site construction emissions generated at the project site were compared with SCAQMD's applicable construction localized significance thresholds (LSTs) for a 5-acre site, which is the largest site size identified in the LST methodology. The nearest sensitive receptors to the project site are the adjacent residential neighborhoods to the north and south of the proposed project. Because the mass rate look-up tables provided by SCAQMD provide only LSTs at receptor distances of 25, 50, 100, 200, and 500 meters or 82, 164, 328, 656, and 1,640 feet, the LSTs for a receptor distance of 50 meters were used to evaluate the potential localized air quality impacts associated with the proposed project's peak-day on-site construction emissions.[1]

Table 3.3.3-4 shows the localized on-site emissions that are estimated during peak construction days for each year of the proposed project's construction schedule. As shown in Table 3.3.3-4, the daily unmitigated emissions generated on-site by construction of the proposed project would not exceed the applicable SCAQMD LST screening threshold for any pollutants in 2018 and 2019 for a 5-acre site in SRA 18 (North Coastal Orange County). However, in 2020, daily on-site emissions would exceed the LST screening threshold for PM_{10} and would be at the threshold (but would not exceed the threshold) for $PM_{2.5}$ as a result of the amount of construction activity that would occur during the Grading/Excavation Inside Channel stage. With the implementation of **Mitigation Measure AQ-1**, involving the use of Tier 4-compliant construction equipment, daily on-site emissions would be at the threshold (but would not exceed the threshold) for PM_{10} and would not exceed the threshold for $PM_{2.5}$.

[1] According to SCAQMD's LST methodology, it is recommended that projects with boundaries closer than 25 meters from the nearest receptor use the LSTs for receptors located at 25 meters.

Table 3.3.3-4. Construction-Period On-Site Emissions

	Estimated Maximum Daily On-Site Emissions (pounds per day)			
Construction Year	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**
2018 [a]	64	30	8	5
2019 [b]	58	30	2	2
2020 (Unmitigated) [c]	34	26	16	9
2020 (Mitigated) [d]	5	38	14	8
LST Screening Thresholds[e]	**197**	**1,711**	**14**	**9**
Threshold Exceeded?	No	No	No	No

Source: CalEEMod version 2016.3.2, modeling output provided in Appendix A.

[a] Includes the potential overlap of the Site Preparation of Levees, Infiltration Cistern stage and the Sheet Pile Installation stage.

[b] Includes the potential overlap of the Sheet Pile Installation stage and the Soil Cement Mixing, Levee Work, Maintenance Road Prep stage.

[c] No stage overlap assumed. Maximum on-site emissions would occur during the Grading/Excavation Inside Channel stage.

[d] Mitigated with Tier 4 equipment for the Grading/Excavation Inside Channel stage only.

[d] Construction LSTs for a 5-acre site in Source Receptor Area 18 (North Coastal Orange County) at a 25-meter distance for receptors.

Note: Emissions would be slightly different during the summer and winter seasons. The maximum emissions for each pollutant over the course of the summer and winter seasons are shown in this table.

NO_X = nitrogen oxides
CO = carbon monoxide
PM_{10} = particulate matter less than 10 microns in diameter
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter

With respect to the potential for the proposed project to result in CO hotspots, trips generated during the construction period would be limited to worker commute trips, deliveries, and material hauling trips, only a portion of which would occur during the most congested peak hours. The proposed project is not expected to result in a substantial increase in traffic volumes at study area intersections such that CO impacts would occur. Impacts related to exposing sensitive receptors to substantial pollutant concentrations would be less than significant with implementation of **Mitigation Measure AQ-1**.

Mitigation Measures

Mitigation Measure AQ-1: In order to reduce localized emissions of particulate matter, the contractor shall use construction equipment consistent with the U.S. Environmental Protection Agency's Tier 4 equipment during the Grading/Excavation Inside Channel stage of construction.

Response to Impact Question e): Less-than-Significant Impact.

According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints typically include agricultural uses, wastewater treatment facilities, food processing plants, chemical plants, composting areas, refineries, landfills, dairies, and fiberglass molding facilities (SCAQMD 1993). Rehabilitation includes none of these land uses. In addition, because the proposed project's upper limit was designated as the limit of tidal influence, the invert would be flushed with the cycles of the tide. Thus, no increase in standing water capable of producing odors would result from long-term operation of the proposed project.

During the rehabilitation process, some limited odor may result from asphalt paving activities, which may be detectable by people immediately adjacent to work sites. However, asphalt paving would occur for a limited time period at each excavation site (less than 1 week), and the locations of paving activities would be distributed over several excavation sites along the entire alignment. Furthermore, SCAQMD Rule 402 prohibits the discharge of air contaminants that cause nuisance or annoyance to the public, including odors. Also SCAQMD maintains both a toll-free phone line (1-800-CUT-SMOG) and a web-based platform (http://www.aqmd.gov/contact/complaints) for reporting complaints related to air quality, including odors. Given the limited duration and location of asphalt paving, mandatory compliance with SCAQMD Rule 402, and ability for the public to report complaints to SCAQMD, rehabilitation would not create a significant level of objectionable odors. Impacts would be less than significant.

3.3.4 Biological Resources	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Introduction

This section evaluates potential impacts on biological resources that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the project applicant, the Biological Resources Technical Report, and information sources identified in this section (Orange County 2017). Responses to the impact questions listed above are provided below.

A biological habitat assessment was conducted by ICF biologists Ryan Winkleman and Phillip Richards on September 5, 2017 (Appendix B). The survey area (SA) for the biological survey included the project limits and a 250-foot buffer, during which the biologists evaluated the site for the presence, absence, or likelihood of occurrence of special-status species and sensitive vegetation types as well as general biological resource issues that could pose a constraint to the proposed

project through applicable laws and regulations. Wildlife species were detected by sight, calls, tracks, scat, or other signs. A literature review was conducted to evaluate the environmental setting of the proposed project and identify special-status biological resources that may be found on or near the SA. The literature review included the U.S. Fish and Wildlife Service (USFWS) mapping of designated critical habitat (USFWS 2017a) and generation of a species list (USFWS 2017b). The California Natural Diversity Database (CNDDB) (CDFW 2017) and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2017) were reviewed for the U.S. Geological Survey (USGS) Seal Beach 7.5-minute quadrangle (USGS 1965 [photorevised 1981]; Appendix B). Finally, a review of the National Marine Fisheries Service (NMFS) Essential Fish Habitat (EFH) Mapper identified the presence or absence of EFH (NMFS 2017a), and a search of the NMFS West Coast Region Species List (NMFS 2017b) provided an informal list of NMFS-protected aquatic species could be present within the general vicinity of the proposed project.

Special-Status Species

For the purposes of this IS/MND, "special-status" species are (1) listed, proposed for listing, or candidates for listing under the federal Endangered Species Act as threatened or endangered; (2) listed or candidates for listing under the CESA as threatened or endangered; (3) a California Department of Fish and Wildlife (CDFW) fully protected species; (4) a CDFW species of special concern; or (5) species that have a California Rare Plant Rank of 1A, 1B, 2A, or 2B.

Special-Status Plant Species

Twelve special-status plant species were reported in the literature search results for the USGS Seal Beach 7.5-minute quadrangle, including three that are listed as both federally and state threatened and/or endangered (CDFW 2017; CNPS 2017; USFWS 2017b). Because of the routine seasonal scouring in the channel, periodic maintenance of the channel, and the heavily developed state of the 250-foot buffer around the channel, all 12 species were determined to be absent within the SA.

Eelgrass and Invasive Algae

No eelgrass (*Zostera marina*) or invasive algae was observed within the SA and there was no indication that either had been present in the SA in the near past.

Special-Status Wildlife Species

A total of 24 special-status wildlife species were reported in the CDFW and USFWS literature search results for the USGS Seal Beach 7.5-minute quadrangle, ten of which are listed as federally and/or state threatened and/or endangered (CDFW 2017; USFWS 2017b). Of these 24 special-status wildlife species, 20 were determined to be absent within the SA because of a lack of suitable habitat and high level of natural and human disturbance within the channel and surrounding SA. Two special-status species—black skimmer (*Rynchops niger*; CDFW species of special concern) and California least tern (*Sternula antillarum browni*; state and federal endangered, CDFW fully protected)—may occur in the channel in small numbers strictly for foraging purposes; peregrine falcon (*Falco peregrinus*; CDFW fully protected) may forage throughout the entire SA, including the channel. Yellow warbler (*Setophaga petechia*; CDFW species of special concern) may forage in larger trees in the SA but would not be likely to nest anywhere within the SA due to lack of suitable nesting habitat.

An additional and separate 4 species of sea turtles and 12 species of fish, invertebrates, whales, and pinnipeds were also identified by the informal NMFS record search (NMFS 2017b). These species are all listed as threatened or endangered. However, all of these species are considered to be absent from the SA due to being out of range (for strictly marine species) and/or due to the presence of tide gates in the Bolsa Chica Bay, which limit the influx of marine water upstream into the channel and therefore limit the opportunities for these species, most of which are large (sea turtles, whales, and pinnipeds), to occur within the SA or within the channel at all.

No special-status wildlife species were observed within the SA during the biological survey and no bats or bat sign was observed during the habitat assessment. The bridges over the channel within the SA do not provide suitable habitat for roosting bats.

Sensitive Vegetation Communities

The channel within the SA did not contain any substantial riparian vegetation communities or any sensitive vegetation communities, but had small patches of vegetation growing on open mudflats within the channel. The sections of East Garden Grove-Wintersburg Channel where sediment has been deposited above the low flow channel contained recent growth primarily consisting of upland weedy plant species. Most areas were dominated by upland plant species that are not indicative of hydrophytic vegetation. Some edges along the low flow channel and depressions within the areas of sediment deposition contained emerging riparian species consisting primarily of bulrush and sedge in small immature patches.

ICF conducted a routine-level delineation of jurisdictional waters and wetlands for the proposed project on November 7, 2017. The detailed results of the Jurisdictional Delineation Report can be found in Appendix C. Based on mapping that was conducted as part of the jurisdictional delineation, it was determined that at the time of the delineation approximately 0.78 acre of riparian habitat was scattered throughout the SA. However, based on the surveyors' field observations of the vegetation growth within the SA and analyses of aerial imagery showing varying levels of vegetation growth over the course of several years, it appears the channel is maintained periodically to reduce vegetation growth and to help maintain flood capacity. When combined with substantial volume flow from winter storms scouring the channel of vegetation each year, there is likely never enough time for riparian plant species to become established at a level to offer substantial biological functions and value because winter floods scour vegetation and periodic maintenance removes vegetation. Therefore, the distribution and abundance of vegetation is dependent on routine disturbance from scouring and maintenance activities. The SA exists in a dynamic environment in which the location and extent of riparian growth likely varies continuously due to fluvial processes. This was evidenced particularly by the relative lack of riparian vegetation during the September 2017 biological resources survey and the increase that occurred between that survey and the jurisdictional delineation.

In addition, based on the November 7, 2017 jurisdictional delineation, it was determined that at the time of the delineation approximately 0.78 acre of wetlands and 9.97 acres of non-wetland WoUS were present within the SA. WoUS fall under the jurisdiction of the U.S. Army Corps of Engineers and are regulated under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. They generally include navigable coastal and inland waters, lakes, rivers, and streams and their tributaries, interstate waters and their tributaries, wetlands adjacent to such waters, intermittent streams, and other waters that could affect interstate commerce. As mapped, the jurisdictional wetlands within the SA were determined to be equal to the riparian habitat.

In the short-term, project-related construction would result in partial removal of low-quality emergent riparian habitat and jurisdictional wetlands and non-wetlands, and may result in disturbance to nearby nesting birds if project construction occurs during the nesting season. It may temporarily disrupt the daily activities (foraging, roosting) of waterfowl and wading birds that are utilizing the project site at the time of construction by causing them to leave the area and avoid returning during times of active construction.

The long-term operation of the proposed project is likely to result in an increase in jurisdictional wetlands by increasing the surface area of the channel bottom. The channel is soft-bottomed and upstream of Springdale Street contains moderate levels of sediment buildup that, outside of direct water flow, provide a substrate for vegetation growth that qualifies as both emergent riparian and as hydrophytic. With an expansion of the width of the channel, the amount of wetland and non-wetland waters within the project area is expected to increase by a combined 3.42 acres. By removing the earthen banks on either side of the channel, the proposed project will remove habitat that may be used by roosting or perch-hunting birds. However, birds would still be able to utilize the tops of sheetpile walls or any associated fencelines in order to perch or roost if needed, and they may on occasion perch on top of the trees that will be planted in the SA. Much of the earthen channel walls is eroded, which decreases perching areas compared to as-built conditions.

Discussion

Response to Impact Question a): Less-than-Significant Impact.

As described above, no special-status plant species were determined to be present within the SA. All species of sea turtles, fish, invertebrates, whales, pinnipeds, and bats are considered to be absent from the SA. Additionally, no eelgrass (*Zostera marina*) or invasive algae was observed within the SA and there was no indication that either had been present in the SA in near past. The proposed project is not expected to have any impacts on eelgrass or invasive algae due to the high concentration of freshwater and the extensive duration of exposed mudflats that preclude eelgrass and invasive algae habitation.

As mentioned above, of the 4 special-status wildlife species determined to have potential to occur within the SA, black skimmer (*Rynchops niger*; CDFW species of special concern) and California least tern (*Sternula antillarum browni*; state and federal endangered, CDFW fully protected)—may occur in the channel in small numbers strictly for foraging purposes. Additionally, peregrine falcon (*Falco peregrinus*; CDFW fully protected) may forage throughout the entire SA, including the channel. Yellow warbler (*Setophaga petechia*; CDFW species of special concern) may forage in larger trees in the SA but would not be likely to nest anywhere within the SA due to lack of suitable nesting habitat. Although they could occur in the SA, no direct impacts on black skimmer, California least tern, peregrine falcon, or yellow warbler are expected from the proposed project due to lack of suitable nesting habitat within the SA. Thus, impacts would be less than significant and no mitigation would be required.

Response to Impact Question b): Less-than-Significant Impact with Mitigation Incorporated.

Project implementation would result in the removal of existing, generally barren, earthen slopes in order to convert the currently trapezoidal channel into a box channel with vertical walls. In order to do so, some existing vegetation, some of which may qualify as riparian, is likely to be removed during the short-term construction operation. However, as previously stated, this vegetation grows

opportunistically and in a dynamic environment. There are stable mudflats within the SA that enable vegetation growth when conditions are appropriate, but are subsequently removed during periodic maintenance or are scoured during winter storms. Implementation of **Mitigation Measure BIO-1** would reduce any impacts on riparian habitat to less than significant levels.

Mitigation Measures

BIO-1: Standard BMPs will be implemented to ensure that habitats; wildlife; and air, water, and soil quality are safeguarded throughout the construction period. This may include but is not limited to the following:

- Clearly delineating project/work limits;
- Keeping a water truck on site to control dust;
- Keeping spill kits on site to contain vehicle spills;
- Checking vehicles daily for spills, leaks, or mechanical problems;
- Allowing wildlife to leave the site on their own instead of intentionally hazing them;
- Removing all trash from the site; and
- Refueling all vehicles and equipment off site

Response to Impact Question c): Less-than-Significant Impact with Mitigation Incorporated.

WoUS would be temporarily affected in order to convert the channel from a trapezoid to a box with vertical walls. However, because the proposed project would be increasing the channel bottom surface area by approximately 3.42 acres, upon completion of project construction, the areas of both wetland and non-wetland WoUS are expected to increase, ultimately resulting in a net benefit of increased wetland and non-wetland mudflat habitat. Implementation of **Mitigation Measure BIO-1** and **BIO-2** would reduce any impacts on federally protected wetland resources to less than significant levels.

Mitigation Measures

BIO-2: Prior to work within the channel, the OCPW Director or his designee will confirm that CWA Section 404/Rivers and Harbors Act Section 10 authorization is obtained from the USACE, 401 Water Quality Certification is obtained from the Santa Ana RWQCB, and a 1600 Streambed Alteration Agreement is obtained from the CDFW prior to the initiation of any work that would result in a fill into WoUS or Waters of the State resulting from the movement and removal of soil in the Channel. All permit conditions would be appropriately met during and after construction as applicable.

Response to Impact Question d): Less-than-Significant Impact with Mitigation Incorporated.

The in-stream wildlife species that were observed or that could potentially occur within the SA include those generally associated with similarly disturbed and developed waterways. Although mosquitofish (*Gambusia affinis*) were observed within the SA, no native fish were observed and it is uncertain if native fish are present in any significant numbers during tidal events or high freshwater flow. Hydrology within the East Garden Grove Wintersburg Channel is a result primarily of urban runoff and seasonal storm flows with muted tidal influence in its downstream reaches. No native

fish populations would be expected to be present upstream because of the limited volume of water, and no native fish would be expected to swim upstream from the ocean due to the presence of several barriers including the tidegates at Bolsa Chica Ecological Reserve, occasional weirs altering the in-stream elevation of the channel, and the generally ephemeral or low-volume perennial urban runoff flow, particularly upstream of the SA. Regardless, the SA does not function in any substantial fashion as a movement corridor due to the lack of a substantial connection between occupied perennial water bodies, or as a nursery area due to a lack of suitable habitat.

Because the channel in its entirety, with some exceptions where emergent vegetation is present between flood regimes and maintenance, is generally devoid of vegetation, particularly upstream of Gothard Street, it is highly unlikely to be used as a migration corridor by any native birds. Similarly, project implementation would not result in any permanent impacts on native large mammal (e.g., coyote [*Canis latrans*], bobcat [*Lynx rufus*]) movements along upland access roads or in the channel, though it may result in temporary exclusion during project construction.

There are sections of the channel that could be used as a nursery site by bird species if vegetation is lush enough during the nesting season, particularly those that nest on the ground or low in dense vegetation. For these species, project construction during the nesting season may reduce nesting opportunities. In addition, the existing earthen banks provide perching habitat for birds outside of the streambed where they can roost. By eliminating the banks and converting the channel to a box channel, earthen slopes would be removed, which would remove the perching habitat. However, the creation of vertical banks/walls would continue to provide perching and roosting habitat along the edges for birds above and outside of the streambed. Implementation of **Mitigation Measures BIO-1, BIO-3,** and **BIO-4** would reduce any impacts on wildlife corridors and nursery sites to less than significant levels.

Mitigation Measures

Refer to **Mitigation Measure BIO-1** above as well as to **BIO-3** and **BIO-4** below for suitable mitigation to offset any significant impacts in this regard.

BIO-3: Prior to approval of the plans and specifications, the OCPW Director or his designee, will confirm that construction is scheduled to occur outside the bird nesting season (generally February 1 through August 31), if possible. If vegetation must be cleared during this time period, a Qualified Biologist will conduct a nesting bird survey within 150 feet of the project footprint no more than one week prior to the start of construction. Each nest observed will be protected by an appropriate buffer determined by the Biologist where no construction activity is allowed until the nestlings have fledged or the nest is no longer active, as determined by the Biologist.

BIO-4: Baseline and pre-construction wildlife surveys will be carried out for the proposed project in order to document on-site biological resources in the period immediately prior to construction. Should any special-status biological resources be found, federal and state wildlife agencies will be consulted with as appropriate in order to avoid adverse or significant impacts. All necessary measures will be taken to comply with federal and state environmental legislation.

Response to Impact Question e): Less-than-Significant Impact.

Minor ornamental tree-trimming may be required along the access roads in order for equipment to safely pass, but no native trees are expected to be removed. This action would not conflict with any local or county tree preservation ordinance. Flood control channels are described in the Huntington

Beach General Plan's *Environmental Resources and Conservation Element* as providing important habitat for local and migratory species. Most of the wildlife species (birds) that were within the SA during biological surveys are year-round residents, with only a few migratory species present. None of these species were special-status, but most of them were water birds that directly depend upon the East Garden Grove-Wintersburg Channel, its aquatic habitat, and its mudflats. These areas would be temporarily cleared during project construction, water would be routed out of this stretch, and the channel would be temporarily restricted when construction equipment is active within it. However, following the completion of construction, the channel bottom would eventually return to its normal condition and would continue to support local and migratory birds that depend upon mudflats and wading habitat. No special-status biological resources would be permanently affected and no local ordinances protecting biological resources would be violated because the channel is expected to return to its normal, but wider, condition after construction is complete. Thus, impacts would be less than significant and no mitigation would be required.

Response to Impact Question f): No Impact.

The Natural Community Conservation Planning (NCCP) program was authorized by the California Natural Community Conservation Planning Act of 1991 (AB 2172) and is set forth in Section 2800 et seq. of the California Fish and Game Code. The purpose of the NCCP program is to have a broad-based approach to ecosystem conservation for the protection and perpetuation of biological diversity. The NCCP program aims to provide regional or area wide protection of plants, animals, and their habitats while continuing to accommodate compatible land uses. This broad-based approach differs from the objectives of the California and federal Endangered Species Acts, which focus on the preservation of individual species that have already significantly declined in numbers. The NCCP particularly targets coastal sage scrub (CSS) habitat, CSS-obligate species, and other covered habitats and species, and mitigates anticipated impacts on those habitats and species on a programmatic, sub-regional level.

The project site is within the NCCP Matrix Area but outside the Coastal and Central Subregions, which protect natural communities and species while providing certainty to the public and affected landowners with respect to the location of future development and open space in the SUBREGIONS. The Matrix Area contains large open areas that could contain CSS habitat, land with value as corridors or as a habitat buffer for CSS, and that may include natural communities of conservation value.

The NCCP vegetation mapping does not identify any CSS habitat, CSS-obligate species, or other covered habitats on the project site. The site is not located within one of the subregions, the Reserve System, Special Linkage Area, Existing Use Area, or Non-Reserve Area, and does not contain any NCCP targeted habitat. Therefore, no impacts related to conflicting with the NCCP would result from project implementation and no mitigation would be necessary.

3.3.5 Cultural/Scientific Resources	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☐	☒
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d. Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

Introduction

This section evaluates potential impacts on cultural/scientific resources that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the project applicant, and information sources identified in this section. Responses to the impact questions listed above are provided below.

A cultural resources records search was conducted on November 8, 2017, at the South Central Coastal Information Center, part of the California Historical Resources Information System. The records search was conducted to determine if any cultural resources have been previously recorded within or in proximity close to the project site. The records search area included the project area and a half-mile buffer.

The records search results indicated that one cultural resources study has been previously conducted in the project area and 31 studies have been conducted within the half-mile buffer around the proposed project. The record search results also show that no previously recorded archaeological resources have been identified within the project area. Six previously recorded archaeological resources have been recorded within a half-mile of the proposed project. All of the resources are situated at an elevation well above the original marshy ground of the Bolsa Chica wetlands. A segment of one built environment resource (the East Garden Grove-Wintersburg Channel- between Tidal Gates and Warner Ave) was previously recorded and evaluated (Daly 2010). No surveys were conducted for the proposed project.

The results of a Sacred Lands File Search of the project area, conducted by the NAHC on December 20, 2017, indicated that no sacred lands have been previously reported in the project area. On January 4, 2018, due diligence outreach letters were sent to nine tribal representatives identified by the NAHC. The letters requested the recipients to respond with any knowledge of, concerns, or recommendations about cultural resources in the project area. No responses have been received.

Discussion

Response to Impact Question a): No Impact.

One of 46 flood control channels funded by a $43 million bond act approved by Orange County voters in 1956, the East Garden Grove-Wintersburg Channel (C05) was constructed from Sunset Beach to Wintersburg Avenue east of the project area in 1959–1960. In 2010, Pamela Daly of Daly & Associates recorded a segment of the channel west of the project area, between Graham Street and Sunset Beach, and determined that it did not meet the criteria for listing in the California Register of Historical Resources (CRHR) or the National Register of Historic Places (NRHP). Hence Daly determined that the channel segment west of the proposed project did not qualify as a historical resource for the purposes of CEQA (Daly 2010). Daly's 2010 finding is applicable to the portion of the C05 facility in the current project area, including the bridges constructed in 1959–60 across the channel, because it shares the same initial development history and the same general design features as the segment recorded by Daly in 2010 and altered since then. The California Department of Transportation maintains an inventory of state agency bridges and their historical significance. The Warner Avenue bridge (Bridge 55-0394), Springdale Street bridge (Bridge 55-0398), and Edwards Street bridge (Bridge 55-0273) are not eligible for listing in the NRHP (Caltrans 2018). No other built environment resource with potential to reach the 50-year age benchmark for consideration as a potential historical resource is located within the project area. Therefore neither project construction nor long-term operations would have any impact on the significance of a historical resource, and no impacts would result.

Response to Impact Question b): Less-than-Significant Impact with Mitigation Incorporated.

Although prehistoric period archaeological resources have been recorded in the project vicinity, all have been recorded at elevations on mesas well above the original marshy lands of Bolsa Chica. The archaeological sensitivity of the project area is assumed low due to its location on previously marshy and inundated lowlands, agricultural activities such as plowing and deep ripping, and later extensive grading and earth-moving activities that occurred during the construction of the East Garden Grove-Wintersburg Channel in 1959–1960. Figure VI-10 of the Orange County General Plan Resources Element identifies the project site as outside the general areas of sensitivity for prehistoric archaeology. Previously recorded archaeological resources in the vicinity of the proposed project have been found up to 5 feet in depth while the channel is currently 13 feet deep. Any potential significant archaeological resource would have likely been destroyed during the channel construction given the size and depth of the channel. All proposed channel improvements would occur within the already disturbed footprint of the channel itself and would include excavation of native disturbed soils and native undisturbed soils along the channel slope; therefore, no impacts are expected to occur to archaeological resources from project construction or long-term operations. However, in the unlikely event that archaeological resources are exposed during project construction, **Mitigation Measure CUL-1** would be followed. Implementation of this mitigation measure would result in a less-than-significant impact on archaeological resources.

Mitigation Measure

CUL-1. If unanticipated archaeological resources or deposits are discovered during earth-moving activities, OCPW will implement the following measures.

- **Halt Work**. All work will halt within a 50-foot radius of the discovery. OCPW will have a qualified professional archaeologist assess the significance of the find. If the resources are Native American in origin, the Tribe shall coordinate with the County regarding treatment, curation, and preservation of these resources. The archaeologist will have the authority to modify the no-work radius as appropriate, using professional judgment in consultation with OCPW. Work will not continue within the no-work radius until the archaeologist conducts sufficient research, evidence and data collection to establish that the resource is either: (1) not cultural in origin; or (2) not potentially eligible for listing on the California Register of Historical Resources.
- **Provide Treatment of Potentially Eligible Resources**. If a potentially eligible resource is encountered, then the archaeologist and OCPW as lead agency will arrange for either: (1) avoidance of the resource, if possible; or (2) test excavations to evaluate eligibility, and if eligible, attempt to resolve adverse effects to determine appropriate mitigation. The assessment of eligibility will be formally documented in writing as verification that the provisions in CEQA for managing unanticipated discoveries and PRC 5024 have been met.

Response to Impact Question c): Less-than-Significant Impact with Mitigation Incorporated.

A paleontological record search was conducted by the Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County on December 15, 2017 (McLeod 2017). The search indicated that in the entire project area, surface deposits consist of younger Quaternary Alluvium. These deposits typically do not contain significant vertebrate fossils. However, younger Quaternary Alluvium is usually underlain by older Quaternary deposits which do frequently contain significant vertebrate fossils. The paleontological search identified three previously recorded fossil localities within 2 miles of the proposed project, including specimens of mammoth recovered from between 6 and 8 feet below the ground surface.

According to Orange County paleontological sensitivity guidelines (Eisentraut and Cooper 2002), older Quaternary Alluvium has a high sensitivity for paleontological resources, which means fossils from these sediments are considered scientifically significant and important for research and educational display.

According to the Natural History Museum of Los Angeles County, deeper excavations may uncover significant fossil vertebrates of Quaternary (late Pleistocene) age. Figure VI-9 of the Orange County General Plan Resources Element identifies the project site as outside the general areas of sensitivity for paleontology. Any fossils present could be damaged or destroyed as a result of earthwork during project construction. Substantial damage to or destruction of fossils associated with the geologic units found at the project site would result in a potentially significant impact. For these reasons, the proposed project would be subject to **Mitigation Measure CUL-2**. Implementation of this mitigation measure would result in a less-than-significant impact on unique paleontological resources.

Mitigation Measure

CUL-2. Prior to commencement of significant grading activities, an Orange County-certified professional paleontologist will be retained by the OCPW to provide professional paleontological services which will include, as necessary, review of construction drawings, survey, education of construction workers, on-site construction monitoring, appropriate recovery and reporting. This mitigation measure and the details included below must be included on the approved project grading plans.

- Grading plans will be provided for review to an Orange County qualified paleontologist prior to the start of construction. Based on the review of grading plan, the paleontologist will determine if and when monitoring is necessary. Should paleontological monitoring be necessary then the following will be included.
- OCPW will include in the scope of work for the paleontologist that all construction personnel receive training provided by the paleontologist to ensure recognition of fossil materials in the event any are discovered during earthwork.
- The paleontologist will conduct monitoring for each concentrated grading activity during the course of project construction (Eisentraut and Cooper 2002). If a project has more than one area of concentrated grading activity, more certified monitors may be required. The monitor will have authority to divert grading away from exposed fossils temporarily in order to recover the fossil specimens.
- Monitoring will be conducted until the paleontologist determines there is no more need for further monitoring for a specific area based on their expertise and site findings during construction.
- If fossil remains are discovered during project-related activities, activities in the vicinity of the find will stop immediately until the paleontologist can assess the nature and importance of the find and recommend appropriate treatment. Treatment may include preparation and recovery of fossil materials to be housed in an appropriate museum or university collection and may also include preparation of a report for publication. The work will be conducted in conformance with the Orange County paleontological sensitivity guidelines (Eisentraut and Cooper 2002) and meet the requirements for recovery, salvage, laboratory preparation, preparation to the point of taxonomic identification, transferal, and preparation and submittal. OCPW will be responsible for ensuring that recommendations regarding treatment and reporting are implemented; this will be accomplished by describing lines of communication and authority between the paleontologist, OCPW and construction company, decision thresholds, and reporting procedures in the approved project grading plans.
- Fossils recovered will be prepared, identified, and catalogued before donation to the accredited repository designated by the OCPW.
- The retained qualified paleontologist will prepare a final report to be filed with the OCPW. If applicable, the report will include a list of specimens recovered, documentation of each locality, interpretation of fossils recovered, and all specialists' reports as appendices. The report will be required despite the presence or absence of fossils.

Response to Impact Question d): Less-than-Significant Impact.

The project site is not a formal cemetery and is not near a formal cemetery. The project site and surrounding area are fully developed, and there is no record of human remains being identified during construction of the channel. The site is not known to be on a burial ground. Therefore, it is highly unlikely that the proposed project would disturb any human remains during construction at the project site. Should human remains be uncovered during construction, as specified by State Health and Safety Code Section 7050.5, no further disturbance would occur until the County Coroner has made the necessary findings as to the origin and disposition pursuant to PRC 5097.98. If such a discovery occurs, excavation or construction would halt in the area of the discovery, the area would

be protected, and consultation and treatment would occur as prescribed by law. If the County Coroner recognizes the remains to be Native American, he or she would contact the NAHC, who would appoint the Most Likely Descendant. Additionally, if the bones are determined to be Native American, a plan would be developed regarding the treatment of human remains and associated burial objects, and the plan would be implemented in coordination with the Most Likely Descendant. Therefore, impacts would be less than significant. Refer also to Section 3.3.17 for a discussion pertaining to Tribal Cultural Resources.

3.3.6 Geology, Soils, and Paleontological Resources	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
2. Strong seismic ground shaking?	☐	☒	☐	☐
3. Seismic-related ground failure, including liquefaction?	☐	☒	☐	☐
4. Landslides?	☐	☒	☐	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☒	☐	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☒	☐	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

Introduction

This section evaluates potential impacts on geology and soils that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the project applicant, and information sources identified in this section. Responses to the impact questions listed above are provided below.

The geology and soils information contained herein is based on the Final Geotechnical Investigation Report East Garden Grove-Wintersburg Channel Improvements from Warner Avenue to Upstream of Edwards Street (Station 101+00 to 151+25) prepared by Earth Mechanics, Inc. (Appendix D). The project area is on a very flat alluvial plain just northeast of the hills and mesas of the Newport-

Inglewood Structural Zone (NISZ) with Bolsa Mesa just to the west and Huntington Beach Mesa to the south within the Los Angeles Basin. These are surfaces elevated by faulting and folding associated with the NISZ. The Los Angeles Basin is a structural basin formed in a tectonically active environment.

Faults and Seismicity

The proposed project is not located within an Alquist-Priolo Earthquake Fault Zone, however it is located in relative proximity to several major faults: the San Jacinto, Whittier-Elsinore, Newport-Inglewood, and Palos Verdes Faults. Due to the proposed project site's proximity to the aforementioned faults; seismic shaking and strong ground motion resulting from seismic activity could have impacts on the project site.

Liquefaction

According to the Earth Mechanics, Inc.'s geotechnical investigation (Appendix D), liquefaction potential was evaluated on site using Cone Penetration Testing (CPT). Based on the analysis, sandy and silty soils at varying elevations between ground surface and 50 feet were classified as potentially liquefiable.

Landslides

The project site is located in the low flat lands of the City of Huntington Beach in an area not known to be prone to landslides.

Subsidence

Subsidence is the downward settling of surface materials caused by natural or artificial removal of underlying support. The long-term rate of subsidence is considered to be generally uniform throughout the Santa Ana River Floodplain (rate of 0.01 feet/year), which means that the possibility for subsidence would be low (Orange County 2009).

Expansive Soils

Expansive soils are fine-grained soils (generally high-plasticity clays) that can undergo a significant increase in volume with an increase in water content as well as a significant decrease in volume with a decrease in water content. Changes in the water content of highly expansive soils can result in severe distress for structures constructed on or against the soils. Soils in the upper 10 to 12 feet in the project area are fills soils placed to create the existing earthen levees. These soils are generally moist, firm to very stiff fine-grained clay and silt with varying amounts of sand. The aforementioned levee fills soils overlie a sequence of native soils that consist of randomly alternating layers of non-plastic and low-plasticity silts, low-to-high plasticity clays and poorly graded sand and silty sand (to approximately 60 feet below ground surface). Below 60 feet or so, soils become denser and coarser and consist of mostly thick beds of fine to coarse, poorly graded sand and poorly graded sand with silt with minor to significant amounts of gravel and an occasional cobble. Although expansion potential was not evaluated during Earth Mechanics, Inc.'s geotechnical investigation, the subsurface soil conditions described above (summarized from the Final Geotechnical Investigation Report) suggest that portions of on-site soils could contain expansive properties.

Discussion

Response to Impact Question a.1): No Impact.

The project site is located in a seismically active region in relative proximity to several major faults. Each of these faults is either active or potentially active. According to the California Geological Survey's Earthquake Zones of Required Investigation Seal Beach Quadrangle (1999), the western terminus of the proposed project site is located approximately 0.86 mile to the northeast of an Alquist-Priolo Earthquake Fault Zone, specifically the Newport-Inglewood Fault Zone. The Newport-Inglewood Fault Zone consists of a series of sub-parallel faults that begin off the coast and extend from the City of Dana Point inland through the Cities of Newport Beach, Long Beach, and Torrance until it merges with the Santa Monica Fault. Alquist-Priolo Earthquake Fault Zone requirements limit the development of structures used for human occupancy; however, the project site is located just outside the Alquist-Priolo fault zone and limitations do not apply to flood-control improvements and/or repairs. Thus, proposed project features would not be subject to Alquist-Priolo Earthquake Fault Zone limitations and would not expose people or structures to significant impacts related to fault rupture. No impact.

Response to Impact Question a.2): Less-than-Significant Impact with Mitigation Incorporated.

As mentioned under response to 3.3.6.a.1, the project site is located in a seismically active region in relative proximity to several major faults. The western terminus of the proposed project site is located approximately 0.86 mile to the northeast of the Newport-Inglewood Fault Zone. As a result, the proposed project could be subject to future seismic shaking and strong ground motion resulting from seismic activity. However, the soil-cement columns proposed as part of the project design would provide structural stability to the parallel sheet pile wall system. Also, the proposed project is not expected to draw a substantial amount of people, either during project construction activities (less than 10 construction personnel would be on site during construction) or permanently (no structures intended for human occupancy would be built), and the small number of personnel required for maintenance and operation activities would be similar to those associated with the existing channel. The project design is such that maintenance is expected to be very minimal to non-existent. Maintenance activities would include; inspection for large tree growth (would occur every month as well after every significant rainfall event) and trash removal. Finally, implementation of **Mitigation Measure GEO-1** would further reduce anticipated impacts related to the proximity of earthquake faults by requiring the proposed project to be built taking into consideration the project area's geologic and subsurface conditions and specific recommendations found in the site-specific *Final Geotechnical Investigation Report* prepared by Earth Mechanics, Inc. (Appendix D). Therefore, impacts would be less than significant with incorporation of mitigation.

Mitigation Measure

GEO-1: During construction activities associated with the proposed project improvements, the project applicant shall incorporate the conclusions and recommendations included in the October 2009 *Final Geotechnical Investigation Report* prepared by Earth Mechanics, Inc. Geotechnical conclusions and recommendations are located in Section 5.0, *Conclusions* (pages 26 through 31) and discuss geologic hazards such as slope stability, liquefaction, settlement potential, soil suitability, soil corrosivity, etc. The *Final Geotechnical Investigation Report* is included as Appendix D to the *East Garden Grove-Wintersburg Channel, Warner to 1,250 Feet Downstream of Goldenwest Sheet Pile Project Draft IS/MND*.

Response to Impact Question a.3): Less-than-Significant Impact with Mitigation Incorporated.

Based on the liquefaction analysis, soils at varying elevations between ground surface and 50 feet were classified as potentially liquefiable. However, to provide structural stability and address poor quality and liquefiable soils, cement would be mixed in with soil between parallel sheet pile walls to create soil-cement columns. The soil-cement columns would provide structural stability to the parallel sheet pile wall system and prevent piping of liquefiable soils through joints in the sheet pile walls or under sheet piles. Moreover, proposed project features would not include structures intended for human occupancy. Operation activities associated with the proposed improvements would be similar to existing channel conditions and project design is such that maintenance is expected to be very minimal to non-existent. Finally, implementation of **Mitigation Measure GEO-1** would require the incorporation of conclusions and recommendations included in the *Final Geotechnical Investigation Report* prepared by Earth Mechanics, Inc. (Appendix D), which would further reduce potential impacts related to liquefaction by requiring the proposed project to be built taking into consideration the project area's geologic and subsurface conditions. Therefore, impacts would be less than significant with mitigation incorporated.

Response to Impact Question a.4): Less-than-Significant Impact with Mitigation Incorporated.

The project site is located in an area characterized as flat land in an area not known to contain landslides. Although this is the case, high intensity coastal storms in 2005 and 2017 resulted in erosion to the channel side slopes in the proposed project area that require repairs to maintain structural integrity of the levee system. Also, future storms could exacerbate those conditions thereby increasing the potential for levee failure and damage to adjacent homes. However, the overall stability of the side slopes would be enhanced as a result of implementation of the proposed project as a result of the addition of the steel sheet pile walls and soil-cement columns. Furthermore, implementation of **Mitigation Measure GEO-1** would require the incorporation of conclusions and recommendations included in the *Final Geotechnical Investigation Report* prepared by Earth Mechanics, Inc. (Appendix D), which would further reduce potential impacts related to landslides by requiring the proposed project to be built taking into consideration on-site geologic conditions. Therefore, impacts would be less than significant with mitigation incorporated.

Response to Impact Question b): Less-than-Significant Impact

Short-Term Construction

The proposed project would disturb over one acre of soils. As such, the proposed project would comply with provisions of the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Order No. 2009-0009-DWQ, NPDES No. CAS000002. As part of coverage under the Construction General Permit for the duration of construction activities, the proposed project is required to implement a SWPPP. The contractor would implement the erosion and sediment control BMPs specified in the proposed project's Construction General Permit SWPPP to minimize erosion and sediment and suspended solids from discharging from the project site and entering the receiving waters. Other construction site BMPs would also be implemented on the project site, including but not limited to, the use of temporary cover for materials storage, street sweeping, water conservation practices, vehicle and equipment cleaning, fueling, and maintenance, material delivery and storage, spill prevention and control, solid waste management and sanitary/septic waste management. The proposed project would also comply with local stormwater and grading ordinances.

Long-Term Operations

As mentioned under item 3.3.6.a.4*,* high-intensity coastal storms in 2005 and 2017 resulted in significant erosion to channel side slopes requiring repairs to maintain structural integrity of the levee system. Also, future storms could worsen erosion conditions in the project area thereby increasing the potential for levee failure and damage to adjacent homes. As described in Chapter 3, *Project Description*, the current channel system in the project area consists almost exclusively of an earthen channel with a minimal amount of riprap and concrete lining. To improve both channel conveyance and prevent erosion, project features would include installation of soil-cement columns that would provide structural stability to the parallel sheet pile wall system and reduce soil erosion potential. As one of the proposed project's primary goals is to address long term erosion in the project area, impacts would be less than significant.

Response to Impact Question c): Less-than-Significant Impact with Mitigation Incorporated.

On-site sandy and silty soils between ground surface and 50 feet are considered potentially liquefiable. Clays found throughout the project area's top 60 feet could potentially be expansive (discussed in more detail under item d, below). Although the project site is located in a flat area, additional erosion to the channel side slopes could increase the potential for levee failure. However, due to the nature of the proposed project, it would not create substantial risks as project design does not include habitable structures and overall stability of the side slopes would be enhanced due to the addition of the steel sheet pile walls and soil-cement columns. Furthermore, implementation of **Mitigation Measure GEO-1** would require the incorporation of conclusions and recommendations included in the *Final Geotechnical Investigation Report* prepared by Earth Mechanics, Inc. (Appendix D), which would further reduce potential impacts related to unstable soils by requiring the proposed project to be built taking into consideration on-site soils and geologic conditions. Therefore, impacts would be less than significant with mitigation incorporated.

Response to Impact Question d): Less-than-Significant Impact with Mitigation Incorporated.

Expansive soils are fine-grained soils (generally high-plasticity clays) that can undergo a significant increase in volume with an increase in water content as well as a significant decrease in volume with a decrease in water content. Changes in the water content of highly expansive soils can result in severe distress for structures constructed on or against the soils.

As described under the *Introduction* section above, fill soils in the upper 12 feet of the project area consist of moist, firm to very stiff fine-grained clay and silt with varying amounts of sand. Additionally, soils between 12 and 60 feet below ground surface are composed of native soils containing randomly alternating layers of non-plastic and low-plasticity silts, low-to-high plasticity clays, and poorly graded sand and silty sand. As such, on-site soils could contain expansive properties. However, due to the nature of the proposed project, it would not create substantial risks to life or property as project design does not include habitable structures and the parallel sheet pile wall system being proposed would provide project stability using soil-cement columns. Furthermore, implementation of **Mitigation Measure GEO-1** would require the incorporation of conclusions and recommendations included in the *Final Geotechnical Investigation Report* prepared by Earth Mechanics, Inc. (Appendix D), which would further reduce potential impacts related to unsuitable soils by requiring the proposed project to be built taking into consideration subsurface conditions. Therefore, impacts would be less than significant with mitigation incorporated.

Response to Impact Question e): No Impact.

The proposed project does not include the installation of septic tanks or the development of alternative wastewater systems. No related impacts would result, and no mitigation is required.

3.3.7 Greenhouse Gas Emissions	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Introduction

This section evaluates potential impacts on greenhouse gas (GHG) emissions that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the project applicant, and information sources identified in this section. Responses to the impact questions listed above are provided below.

According to the U.S. Environmental Protection Agency, a GHG is any gas that absorbs infrared radiation in the atmosphere. This absorption traps heat within the atmosphere, maintaining the earth's surface temperature at a level higher than would be the case in the absence of GHGs. GHGs include water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), O_3, perfluorocarbons, hydrofluorocarbons, and halogenated chlorofluorocarbons. Naturally occurring GHGs include water vapor, CO_2, CH_4, N_2O, and O_3. Human activities add to the levels of most of these naturally occurring gases.

Increasing levels of GHGs in the atmosphere result in an increase in the average temperature of the earth's lower atmosphere. Warming of the Earth's lower atmosphere induces a suite of additional changes, including changes in global precipitation patterns; ocean circulation, temperature, and acidity; global mean sea level; species distribution and diversity; and the timing of biological processes. These large-scale changes are collectively referred to as "global climate change."

Analysis Methods

There are no established federal, state, or local quantitative thresholds applicable to the proposed project to determine the quantity of GHG emissions that may have a significant effect on the environment. The California Air Resources Board, SCAQMD, and various cities and agencies have proposed, or adopted on an interim basis, thresholds of significance that require the implementation of GHG emission reduction measures.

For the proposed project, the most appropriate screening threshold for determining GHG emissions is the SCAQMD proposed Tier 3 screening threshold (SCAQMD 2008); therefore, a significant impact would occur if the proposed project would exceed the SCAQMD proposed Tier 3 screening threshold of 3,000 metric tons of CO_2e per calendar year. As the Tier 3 screening threshold proposed by SCAQMD is tied to meeting the reduction goals outlined by California's AB 32 and Senate Bill (SB) 32, this numeric threshold is also used as the basis for evaluating the proposed project's impacts

related to Question b). Based on SCAQMD guidance, construction emissions are amortized over the life of the proposed project, which SCAQMD identifies as 30 years.

Similar to the method of estimating air pollutant emission as discussed in Section 3.3.3, GHG emissions were estimated using emissions factors for off-road construction equipment and on-road vehicle trips using CalEEMod, version 2016.3.2. Also, similar to the analysis conducted for air quality, because the proposed project would not change the function of Reach 1 as a flood control channel, and project operation would involve negligible changes to GHG emissions, this analysis is focused on the construction-period effects of the proposed project.

Discussion

Response to Impact Question a): Less-than-Significant Impact.

Short-term construction activities would result in GHG emissions from fuel combustion associated with on- and off-road construction equipment and vehicles. Emissions associated with construction are summarized in Table 3.3.7-1. Construction emissions are summed and amortized over the SCAQMD-identified 30-year period. As shown in Table 3.3.7-1, the proposed project would result in amortized annual emissions of just over 54 metric tons, which is lower than the SCAQMD threshold of 3,000 metric tons. As such, impacts would be less than significant.

Table 3.3.7-1. Estimate of Construction-Period GHG Emissions (metric tons)

Year	CO_2e Emissions
2018	227
2019	1,119
2020	279
Total	**1,625**
30-year Amortized Total	54.2

Source: CalEEMod version 2016.3.2, modeling output provided in Appendix A.
CO2e = carbon dioxide-equivalent

Response to Impact Question b): Less-than-Significant Impact.

The proposed project would result in a short-term increase in GHG emissions due to the amount of construction activities that would be undertaken to implement the proposed project. This would involve the emissions of over 1,600 metric tons of carbon dioxide-equivalent (CO_2e) as a result of the use of construction equipment and vehicles, as identified in Table 3.3.7-1. Although this would be a temporary increase over existing conditions during construction, the proposed project would enhance the area's flood control capacity, which is an essential service for maintenance of safety during storm conditions. The enhanced flood control capacity would not change the development pattern of the surrounding area, and would therefore not impede implementation of GHG reduction measures discussed in AB 32, SB 32, and local/regional plans. Impacts would be less than significant.

3.3.8 Hazards and Hazardous Materials	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f. Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

Introduction

This section evaluates potential impacts on hazards and hazardous materials that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the project applicant, and information sources identified in this section. Responses to the impact questions listed above are provided below.

Hazardous Materials

The proposed project footprint was not identified in any environmental database during an online records review conducted in January of 2018 on the State Water Resources Control Board's Geotracker and Department of Toxic Substances Control's Envirostor websites. Five off-site properties have been identified within 0.25 mile of the proposed project area, all within the Leaking Underground Storage Tank (LUST) database.

According to the State of California Department of Conservation's Division of Oil, Gas & Geothermal Resources (DOGGR), an abandoned oil/gas well site is potentially located near the southern service road of the East Garden Grove-Wintersburg channel, approximately 280 feet east of the Springdale Street overpass (this according to location data presented by DOGGR in its online Well Search database) (CDC 2017). Based on this description, the well would be located southwest of the Springdale Street overpass.

Schools

Spring View Middle School (16662 Trudy Lane), is the closest school to the project site and is the only school located within 0.25 mile of the proposed project. It is located approximately 0.10 mile north of the project segment bound between Springdale Street and Edwards Street. Ocean View Elementary School (17200 Pinehurst Lane) is the next closest school to the project site and is located approximately 0.23 mile south of the project site.

Emergency Response

According to the City of Huntington Beach General Plan Natural and Environmental Hazards chapter, Springdale and Edwards Streets, which cross the proposed project, are classified as Tsunami Evacuation Routes.

Fire Hazards

The proposed project site does not exist within a CAL FIRE Very High Fire Hazard Severity Zones, and is surrounded by a fully developed area of the City.

Discussion

Response to Impact Question a): Less-than-Significant Impact.

Short-Term Construction

Construction of the proposed project is expected to occur in one phase taking approximately 18 months to complete. During this time; routine transport, use, and disposal of hazardous materials such as fuel, solvents, paints, oils, and grease would occur. Such transport, use, and disposal must be compliant with applicable regulations such as the Resource Conservation and Recovery Act (RCRA), Department of Transportation (DOT) Hazardous Materials Regulations, and Occupational Safety and Health Administration (OSHA). Although small amounts of solvents, paints, oils, and grease would be transported, used, and disposed of during construction, these materials are typically used in construction projects and would not represent the transport, use, and disposal of acutely hazardous materials.

Long-Term Operations

No hazardous materials would be used or stored on site during normal project operations. Operational activities associated with the proposed improvements would be similar to existing channel conditions and project design is such that maintenance is expected to be very minimal to non-existent. Impacts would be less than significant.

Response to Impact Question b): Less-than-Significant Impact.

Short-Term Construction

Hazardous Materials Handling

As mentioned under Response to Impact Question a), construction-related hazardous materials would be used during construction of the proposed project, including fuel, solvents, paints, oils, and grease. It is possible that any of these substances could be released during construction activities. However, the proposed project would comply with the provisions of the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Order No. 2009-0009-DWQ, NPDES No. CAS000002 (the permit applies to construction activities disturbing 1 acre or more). Compliance with federal, state, and local regulations, in combination with construction BMPs implemented from a SWPPP required as part of the Construction General Permit, would ensure that all hazardous materials are used, stored, and disposed properly, which would minimize potential impacts.

Off-site Properties

Research conducted on Geotracker and Envirostor websites during an online records review identified 5 sites within 0.25 mile of the project site, all located in the LUST database. Four of the five sites have been remediated to the oversight agency's satisfaction and received closure. The remaining site, ARCO #3053 located at 5981 Warner Avenue at the southwest corner of Springdale Street, is listed as an open case and undergoing remediation. Review of online files identified the site as a hydrocarbon-impacted soil and groundwater site located approximately 370 feet to the southeast from the channel (at its closest point). Impacts on soil and groundwater were discovered in 1988 and several phases of investigation and remediation have been completed on site since then, including groundwater and soil vapor extraction and treatment, soil and groundwater sampling, etc. However, offsite groundwater monitoring wells MW-17 and MW-18 (nearest to the East Garden Grove-Wintersburg Channel) have resulted in analytical result concentrations below laboratory detection limits since being installed in 2016, and according to the most recent Stratus Environmental, Inc. Quarterly Monitoring Report (Third Quarter of 2017) (Stratus Environmental, Inc. 2017); define the lateral extent of hydrocarbons in groundwater. Moreover, a review of isoconcentration maps within the report suggest that the contaminant plume is generally stable and concentrated within the existing gas station footprint and the parking lot directly to the northwest. Furthermore, the proposed project does not include construction activities that would expose construction personnel to groundwater (i.e., dewatering). Impacts would be less than significant.

Oil and Gas Wells

The "Crane 1" well was constructed in the early 1940s and a Notice of Intention to Abandon Well was submitted to DOGGR in March of 1943 (noting that the well did not produce any oil or gas). A final abandonment letter was not found in the online database, however, the well's current status is

denoted by DOGGR as plugged and abandoned (CDC 2018). As recent as 1977, a DOGGR inspector searched for the well site and could not locate it. Inspection notes reviewed during research conducted on the DOGGR Well Finder site suggest that the well site had been graded over and a shopping center constructed over it. As information reviewed appears to suggest that Crane 1 has been plugged and abandoned (due to non-production), potential impacts on implementation of the proposed project would be less than significant.

Long-Term Operations

No hazardous materials would be used or stored on site during normal project operations. Operation activities associated with the proposed improvements would be similar to existing channel conditions and project design is such that maintenance is expected to be very minimal to non-existent. Impacts would be less than significant.

Response to Impact Question c): Less-than-Significant Impact.

Short-Term Construction

Spring View Middle School is the closest school to the project site. As mentioned under item a, *r*outine transport, use, and disposal of hazardous materials such as fuel, solvents, paints, oils, and grease would occur during construction of the proposed project. Such transport, use, and disposal would be compliant with applicable regulations such as the RCRA, DOT, and OSHA regulations. Although small amounts of hazardous materials would be transported, used, and disposed of during construction, these materials are typically used in construction projects and would not represent the transport, use, and disposal of acutely hazardous materials. Hazardous material spills would be small, localized and cleaned up as they occur. Thus, the proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of a school, including Spring View Middle School.

Long-Term Operations

No hazardous materials (including acutely hazardous materials) would be used or stored on site during normal project operations. Operation activities associated with the proposed improvements would be similar to existing channel conditions and project design is such that maintenance is expected to be very minimal to non-existent. Impacts would be less than significant.

Response to Impact Question d): No Impact.

Implementation of the proposed project would not create any impacts associated with being included on list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Research conducted on Geotracker and Envirostor during an online records review provided no current or historical hazardous material information regarding the proposed project site. Therefore, no impact would occur.

Response to Impact Question e): No Impact.

Implementation of the proposed project would not result in a safety hazard for people residing or working in the project area because the proposed project area is not located within an airport land use plan area or within 2 miles of a public airport or public use airport. The closest airport to the site is the Joint Forces Training Base – Los Alamitos, which includes the Los Alamitos Army Airfield. This

facility is located approximately 5 miles northwest of the project site. John Wayne Airport, the next closest airport, is located approximately 8.5 miles to the southeast of the project site. No impact would occur.

Response to Impact Question f): No Impact.

Implementation of the proposed project would not result in a safety hazard for people residing or working in the project area because the proposed project area is not located within the vicinity of a private airstrip. No impact would occur.

Response to Impact Question g): Less-than-Significant Impact.

The proposed improvements would extend for approximately 4,970 linear feet on a portion of the East Garden Grove-Wintersburg Channel system Reach 1. Project implementation would occur within the channel's right-of-way and thus would not result in substantial traffic queuing along surrounding roadways. Also, the proposed project does not include any characteristics (e.g., permanent road closures, long-term blocking of road access) that would physically impair or otherwise interfere with emergency response or evacuation in the project vicinity. If temporary lane closures are required during construction, the proposed project would implement a construction traffic control plan (as part of **Mitigation Measure TR-1** discussed in Section 3.3.16, *Transportation/Traffic*) to ensure unrestricted access to evacuation routes and passage for emergency vehicles. Moreover, maintenance roadway stability would be enhanced due to the addition of the steel sheet pile walls and soil-cement columns should emergency vehicles or personnel need to access the channel in an emergency. Impacts would be less than significant.

Response to Impact Question h): No Impact.

Implementation of the proposed project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. According to information obtained from the California Department of Forestry and Fire Protection (CAL FIRE), the proposed project site does not exist within a CAL FIRE Very High Fire Hazard Severity Zones (CAL FIRE 2007) and is located within a fully developed area of Huntington Beach without dense vegetation on site or nearby. The closest High Fire Hazard Severity Zone is located 0.45 mile to the southwest in the Bolsa Chica Basin State Marine Conservation Area. No impact would occur.

3.3.9 Hydrology and Water Quality	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite?	☐	☐	☒	☐
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite?	☐	☐	☐	☒
e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f. Otherwise substantially degrade water quality?	☐	☐	☒	☐
g. Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h. Place within a 100-year flood hazard area structures that would impede or redirect floodflows?	☐	☐	☐	☒
i. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j. Contribute to inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Introduction

This section evaluates potential impacts on hydrology and water quality that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the project applicant, and information sources identified in this section. Responses to the impact questions listed above are provided below.

The area drained by the East Garden Grove-Wintersburg channel (channel) is a section of the floodplain between the Santa Ana River and the San Gabriel River. The channel drains to Bolsa Bay, and is less than 2 miles east of the Pacific Ocean. Land use adjacent to the channel system are predominantly residential in an urbanized area, with flat terrain and topography ranging from approximately 1 to 17 feet above mean sea level.

The proposed project is within the jurisdiction of the Santa Ana RWQCB. The proposed project lies within the Anaheim Bay-Huntington Harbor Watershed within the larger Anaheim Bay Watershed (USGS Hydrologic Unit Code 180702010001). The Anaheim Bay-Huntington Harbor Watershed is composed of a number of channels, including the East Garden Grove Wintersburg Channel. None of the channels are a dominant river for the watershed, with each draining a substantial section of the watershed. These channels are not included in the Water Quality Control Plan for the Santa Ana River Basin (OCPW n.d.). The proposed project is within the Coastal Plain of Orange County Groundwater Basin (DWR 2017). According to the Orange County Water District (OCWD) 2015 groundwater contour maps, groundwater levels underlying the project site range from -40 to -50 feet mean sea level (OCWD 2015).

The East Garden Grove-Wintersburg Channel is 303(d) listed in the 2014 – 2016 California Integrated Report as impaired for Ammonia (Unionized) (State Water Resources Control Board 2015). The Integrated Report does not identify a source pollutant. Although there are no beneficial uses listed for the East Garden Grove Wintersburg Channel, the Basin Plan identifies Water Contact Recreation (REC1), Non-contact Water Recreation (REC2), Commercial and Sportfishing (COMM), Preservation of Biological Habitats of Special Significance (BIOL), Wildlife Habitat (WILD), Rare, Threatened or Endangered Species (RARE), Spawning, Reproduction and Development (SPWN), Marine Habitat (MAR), and Shellfish Harvesting (SHEL) as beneficial uses in receiving waters of Bolsa Bay (Santa Ana RWQCB 2011).

According to the Federal Emergency Management Agency's (FEMA's) Flood Insurance Rate Maps (dated December 2, 2009) Panel 06059C0234J, the proposed project limits are within the Special Flood Hazard Area Zone A (FEMA 2009). Lands in Zone A are subject to inundation by the 1 percent (100-year) annual chance flood. The 1 percent annual chance flood, also called the base flood, is the flood that has a 1 percent chance of being equaled or exceeded in any given year. Within Zone A, no base flood elevations have been determined.

The California Supreme Court concluded in its California Building Industry Association v. Bay Area Air Quality Management District decision that "CEQA generally does not require an analysis of how existing environmental conditions will impact a project's future users or residents." With this ruling, CEQA no longer considers the impact of the environment on a project (such as the impact of existing flooding hazards on new project receptors) to be an impact requiring consideration under CEQA, unless the project could exacerbate an existing environmental hazard. The proposed project would not change flood risk. Therefore, discussions of flooding are provided for informational purposes only.

Discussion

Response to Impact Question a): Less-than-Significant Impact.

Construction activities associated with the proposed project would cause disturbance of soil during excavation, soil-cement drilling and installation, and sheet pile driving, which could adversely impact water quality. Short-term impacts on water quality would occur during project construction including increased sediment and dust generated or temporarily increased suspended particulates and turbidity or eroded soil being temporarily discharged into the channel during storm events from disturbed soil areas, including staging and storage during construction activities. This could adversely affect receiving water quality of Bolsa Bay. Construction would also include diversion structures for surface water flow. Contaminants from construction vehicles and equipment and sediment from soil erosion could increase the pollutant load in runoff being transported to receiving waters during construction, which would be a potentially significant impact.

Construction of the proposed project would involve the temporary use of heavy construction equipment (i.e., excavators, backhoes, and dump trucks), which may result in deposits or accidental discharge of oil, grease, heavy metals, or other contaminants. These contaminants can be transported into surface waters during storm events. However, the discharge of any hazardous materials into receiving waters is prohibited. The proposed project would disturb over 1 acre, the proposed project would comply with the provisions of the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Order No. 2009-0009-DWQ, NPDES No. CAS000002, and any subsequent permits in effect at the time of construction. As part of coverage under the Construction General Permit for the duration of construction activities, the proposed project is required to implement a SWPPP. The contractor would implement the erosion and sediment control BMPs specified in the proposed project's Construction General Permit SWPPP to minimize sediment and suspended solids from discharging from the project site and entering the receiving waters. Other construction site BMPs would also be implemented on the project site, including but not limited to, the use of temporary cover for materials storage, street sweeping, water conservation practices, vehicle and equipment cleaning, fueling, and maintenance, material delivery and storage, spill prevention and control, solid waste management and sanitary/septic waste management.

Construction BMPs would be implemented to capture and treat polluted runoff, as described in the SWPPP. Spill prevention and control measures will be implemented to ensure the proper handling and storage of petroleum products and other construction materials. BMPs and good housing keeping practices will be implemented to prevent spillage and/or runoff of demolition of construction related materials, and to contain associated sediment or contaminants during construction activities. Construction would also include diversion structures to manage surface water flow for removal of soil in the channel. Prior to excavating the channel walls, installation of one temporary coffer dam at Warner Avenue and one temporary coffer dam near Goldenwest Street would be required to block flows within the channel. The downstream coffer dam would prevent tidal inundation from downstream and the upstream coffer dam would prevent inundation from urban runoff flows from upstream. Coffer dams or stream diversions that fail for any reason would be immediately assessed, and repairs would commence following the assessment. The normal urban runoff flows would be placed in a pipe and pumped around the project site. Therefore, the proposed project construction activities would have a less than significant impact on water quality.

The engineered channels were originally built, and would continue, for the conveyance of stormwater. Stormwater would be treated to the standards contained within the County's NPDES municipal separate storm sewer system permit, prior to discharge into Bolsa Bay. As part of the proposed project's infiltration system and landscaping plan, the proposed project would install a subgrade continuous drainage system (infiltration cistern) and tree plantings. Stormwater runoff would be captured by the infiltration cistern prior to slow infiltration into the ground. Therefore, the proposed project's operation would have an overall positive impact on water quality and no violation of water quality standards or waste discharge requirements are anticipated.

Response to Impact Question b): No Impact.

The proposed project involves the rehabilitation of an existing channel conveyance system. No changes to water usage or supply would occur as a result of the proposed project as demand would remain unchanged. In addition, the proposed project would not increase the amount of impervious surface on the site. Therefore, the proposed project would not result in a reduction in infiltration on the project site. In fact, infiltration would be improved due to the installation of the subgrade continuous drainage system and the introduction of new wetlands on the channel side, which would result in an increase of infiltration on site. Therefore, construction and operation of the proposed project would not substantially interfere with groundwater recharge or reduce aquifer volume. No adverse impact related to groundwater supplies or recharge would occur as a result of the proposed project's implementation.

Response to Impact Question c): Less-than-Significant Impact.

During construction, installation of a coffer dam would temporarily alter the course of water within the channel. Prior to excavating the channel walls, installation of two temporary coffer dams would be required, one at Warner Avenue and one near Goldenwest Street, to block flows within the channel. The downstream coffer dam would prevent tidal inundation from downstream and the upstream coffer dam would prevent inundation from urban runoff flows from upstream. Coffer dams or stream diversions that fail for any reason would be immediately assessed, and repairs would commence following the assessment. The normal urban runoff flows would be placed in a pipe and pumped around the project site. After construction is completed, the coffer dams would be removed, and water conveyance through the channel would be increased to accommodate the 100-year storm, with improved channel walls and reduced scour potential.

The existing drainage pattern within the project site would also be temporarily affected by excavation during construction. However, the proposed project would not permanently alter the existing drainage pattern of the site or surrounding area. Once construction is completed, the area would be returned to original/existing condition. Therefore, there would be no long-term or permanent change in drainage patterns. One of the goals of the proposed project is to address existing erosion issues. Impervious surfaces on the site would not substantially change as part of the proposed project, drainage patterns would generally remain the same, and ultimately drainage would be improved due to the proposed project's infiltration system and landscaping plan. As such, the proposed project would not be expected to result in substantial erosion or siltation associated with changes in drainage patterns. Compliance with the erosion control BMPs contained in the SWPPP and the Orange County Grading and Excavation Code would ensure that erosion and siltation during construction would be minimized. In addition, as previously mentioned, the contractor would implement the erosion and sediment control BMPs specified in the proposed project's Construction General Permit SWPPP to minimize sediment and suspended solids from discharging

from the project site and entering the receiving waters. A less-than-significant impact would result from the proposed project's implementation.

Response to Impact Question d): No Impact.

As noted above in Response (c), the course of the channel would be temporarily altered during construction activities. Two temporary coffer dams would be installed to block flows within the channel during construction. Coffer dams or stream diversions that fail for any reason would be immediately assessed, and repairs would commence following the assessment. Stormwater would be placed in a pipe and pumped around the project site. However, after construction is completed, the coffer dams would be removed, and water conveyance through the channel would be increased to accommodate the 100-year storm, with improved erosion conditions. The proposed project would provide needed maintenance, repairs, and improvements to existing channel operation and would not cause increased flood flows to downstream areas over existing conditions. A goal of the proposed project is to increase the flood conveyance capacity of the channel.

Neither construction nor operation of the proposed project would alter drainage patterns such that they would cause flooding on or off site. There would be some excavation of soil between the parallel sheet pile walls but would be restored to previous conditions with the addition of cement that would be added to the soil. The excavated soil would be temporarily stockpiled on the invert of the flood control channel and would be removed during the excavation of the earthen side slopes. Given the nature of the proposed project and its location, there is no potential for flooding as a result of the proposed project. Impervious surfaces on the site would not substantially change, drainage patterns would generally remain the same, and ultimately drainage would be improved. As such, the proposed project would not be expected to result in substantial flooding associated with changes in drainage patterns; and potential to result in flooding would have no impact.

Response to Impact Question e): Less-than-Significant Impact.

Long-term impacts on the aquatic environment include alterations in stormwater runoff rates and volumes. However, the project design includes treatment BMPs and drainage capacity improvements to manage the existing stormwater runoff rates and peak volumes. The proposed project would install a subgrade continuous drainage system to collect, capture, and immobilize pollutants from surface stormwater. The subgrade continuous drainage system would consist of interconnected modular polypropylene underground water detention tank structures and drainage cells. The invert of the continuous drainage gallery would match the design grade invert of the channel. The modular drainage units and cells would be installed and interconnected with each unit to maintain continuous water flow resulting in infiltration of treated runoff into the ground for groundwater recharge.

Upon completion of the sheet pile wall installation and during the installation of the soil-cement columns between the sheet piles, the earthen trapezoid side slopes inside the channel would be excavated to expose the vertical sheet piles to the channel flows, thus providing for the 100-year stormwater conveyance capacity within this channel reach. The proposed project would not increase or create runoff beyond existing conditions. Implementation of the proposed subgrade continuous drainage system and tree plantings would increase pollutant removal and stormwater infiltration on the project site. Therefore, the proposed project would not exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. This impact would be less than significant.

Response to Impact Question f): Less-than-Significant Impact.

Additional degradation to water quality may result from dredge and fill activities during construction. Construction activities would be conducted within the requirements of the associated USACE 404 Dredging and RWQCB 401 Water Quality Certification permits which allows work to be conducted and dredge and fill material to be discharged into WoUS. Additional fill material and activity requirements would also be provided in the associated Streambed Alteration Agreement. Excavation of soil for the soil-cement mix would be temporarily stockpiled on the invert of the flood control channel, but would be removed during the excavation of the earthen side slopes. Further, the proposed project would comply with the NPDES Construction General Permit requirements, including implementation of a SWPPP and construction BMPs during construction activities, which would reduce or avoid adverse water quality impacts. Once construction is completed, the channel would operate as it currently does, conveying water to Bolsa Bay. Impacts would be less than significant.

Response to Impact Question g): No Impact.

The proposed project is located within a 100-year flood hazard area. However, the proposed project does not include the construction of housing, therefore no housing would be placed within a 100-year flood hazard area and the proposed project would not cause flooding in areas with housing that otherwise would not be subject to flooding without the proposed project. No impacts would occur.

Response to Impact Question h): No Impact.

The proposed project is located within a 100-year flood hazard area and would implement improvements to increase the flood conveyance capacity of the channel to accommodate the 100-year storm within the limits of the project boundaries. During construction, equipment may be temporarily located within a flood hazard area. However, construction equipment would be removed in the event of a flood so that construction activities do not impede or redirect flood flows. In addition, a goal of the proposed project is to increase the flood conveyance capacity of the channel. The modified levee design consists of a soil-cement mix column matrix below the maintenance road and sandwiched between two parallel rows of sheet piles. The earthen trapezoid side slopes inside the channel would be excavated to expose the vertical sheet piles to the channel flows, thus providing for the 100-year stormwater conveyance capacity within this channel reach. Therefore, construction and operation of the proposed project would not place structures within a 100-year flood hazard area that would impede or redirect flood flows. The proposed project would not exacerbate flooding or cause flooding to occur in areas that would not be subject to flooding without the proposed project. The proposed project would not impede or redirect flood flows within a 100-year flood hazard area. No impacts would occur.

Response to Impact Question i): No Impact.

According to the 2017 City of Huntington Beach General Plan (Natural and Environmental Hazards Element), the proposed project is within the inundation area of the Prado Dam, located upstream along the Santa Ana River. In the event of dam failure, the project area could experience flooding. The dam is used for flood control, and typically stores water during and after a flood event. However, Prado Dam also stores water most of the year and releases it in a controlled manner down the Santa Ana River to recharge the groundwater aquifer underlying Orange County. Although upstream dam failure could occur, it is likely only a threat during a small portion of the year when

the reservoir behind Prado Dam is at its fullest (City of Huntington Beach 2017a). However, the proposed project would not exacerbate dam hazards in the project area, or increase the frequency or severity of flooding or cause flooding to occur in an area that would not be subject to flooding without the proposed project in the event of dam failure.

A goal of the proposed project is to increase the flood conveyance capacity of the channel. Future storms could worsen the structural integrity of the channel by creating conditions that increase the potential for levee failure and damage to adjacent homes. The proposed project would provide needed improvements to maintain the structural integrity of the levee system. In addition, the proposed project would not exacerbate the risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. Therefore, no impacts would occur.

Response to Impact Question j): No Impact.

The west half of the East Garden Grove-Wintersburg channel within the project area, is within a tsunami inundation area (CalEMA 2009). However, the section of the channel east of Edwards Street is not within a tsunami inundation area. The proposed project would increase the flood conveyance capacity of the channel and provide improvements to maintain the structural integrity of the levee system. Therefore, there would be no adverse risks due to a tsunami. Due to the flat terrain, the project area would not be subject to mudflow. Seiche occurs in an enclosed or partially enclosed body of water, such as a lake or reservoir. Therefore, there would be with no immediate risk of seiche in the project vicinity. The proposed project would not contribute to inundation by seiche, tsunami, or mudflow. There would be no impact.

3.3.10 Land Use and Planning	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	☐	☐	☐	☒
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Introduction

This section evaluates potential impacts on land use and planning that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the project applicant, and information sources identified in this section. Responses to the impact questions listed above are provided below.

The project alignment is within the jurisdiction of the City of Huntington Beach and the County of Orange. The County of Orange General Plan does not identify any unincorporated areas with land use designations within or adjacent to the project alignment (Orange County 2015). Land use designations for the project area are determined in the City of Huntington Beach General Plan. Beginning from the downstream terminus of the project alignment and moving east, the adjacent land on the southern side of the channel changes from General Commercial to Medium Density and Medium High Density Residential. The adjacent land on the northern side of the channel is Low Density Residential. Zoning designations for the project area are the same as the land use designations, besides for the middle area of the land adjacent to the southern side of the alignment; the land has a land use designation of Medium Density Residential and a zoning designation of Residential (manufactured home park) (City of Huntington Beach 2015). The majority of the land surrounding the project area is developed with single- and multi-family residential, commercial, and roadway/transportation land uses. The project alignment is within the channel right-of-way, which is fenced off from the public on both sides and at street crossings.

This City of Huntington Beach jurisdiction is governed by its own general plan and zoning code, which serve as the long-range planning guide for development and direct the form and character of the community. Additionally, the general plan includes provisions to ensure adequate infrastructure for existing and proposed land uses. Goals of the general plan relevant to the proposed project's purpose (See Section 2.5, *Purpose and Intent*) include Goal HAZ-3, PSI-7, N-4, and ERC-7. Goal HAZ-3 requires that residents, businesses, visitors, and resources are adequately protected from risks associated with flood and tsunami hazards." Goal PSI-7 requires that the flood control system supports permitted land uses while preserving public safety. Goal N-4 requires that noise from construction activities associated with discretionary projects, maintenance vehicles, special events, and other nuisances is minimized in residential areas and near noise-sensitive land uses. Goal ERC-7

requires that wetland areas that serve as important biological resources for threatened and endangered birds, fish, and other species are protected and restored (City of Huntington Beach 2017a). As discussed in the *Jurisdictional Delineation Report*, there is 0.78 acre of USACE/RWQCB wetlands within the study area (Orange County 2018). These wetlands were identified as portions of the channel located on the edges off the retaining wall within areas of sediment deposition that contain emergent bulrush. Consistency with these goals is discussed in response (b).

None of the project alignment is within or adjacent to the Coastal Zone. Coastal Zone areas are generally 3,000 feet inland from California's mean high tide and demarcated by the California Coastal Commission.

As discussed in EIR No. 560, because the proposed project consists of improvements to an existing channel system and no additional maintenance activities (beyond existing maintenance activities within the channel) would occur after construction, the proposed project would have no operational impacts related to land use and planning. Construction impacts are discussed below.

Discussion

Response to Impact Question a): No Impact.

The proposed project consists of improvements to an existing channel system. The proposed project would not involve construction of any structures or alterations that would physically divide an established community. No impact would occur.

Response to Impact Question b): No Impact.

The General Plan for the City of Huntington Beach provides policies that guide development and the character of land uses and neighborhoods in the vicinity of the proposed project. The proposed improvements to existing infrastructure would occur entirely within the channel and the adjacent temporary construction staging areas, and would not require or result in changes to land uses or existing zoning designations. The proposed project would result in corrected channel erosion and additional protection from flooding to the adjacent lands as well as increase in flood conveyance capacity. By protecting from flood risks and preserving public safety, the proposed project is consistent with Goal HAZ-3 (Natural and Environmental Hazards Element) and Goal PSI-7 (Public Services and Infrastructure Element) of the Huntington Beach General Plan. Consistency with Goal N-4 (Noise Element) is achieved by the use of a Giken silent pile machine for installation of the sheet piles. Consistency with Goal ERC-7 (Environmental Resources and Conservation Element) is achieved in the long-term. In the short-term, project-related construction would result in partial removal of jurisdictional wetlands. However, the long-term operation of the proposed project is likely to result in an increase in jurisdictional wetlands by increasing the surface area of the channel bottom. With an expansion of the width of the channel, the amount of wetland and non-wetland waters within the project area is expected to increase by a combined 3.42 acres. See Section 3.3.4, Biological Resources, for further discussion. Therefore, the proposed project would not conflict with general plan objectives, goals, or policies applicable to the proposed project. No impact would occur.

Response to Impact Question c): No Impact.

The project site is not located within a Natural Community Conservation Plan or other approved local, regional, or State habitat conservation plan. See Section 3.3.4, *Biological Resources*, for further

discussion. Therefore, the proposed project would not conflict with any conservation plan. No impact would occur.

3.3.11 Mineral Resources	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Introduction

This section evaluates potential impacts on mineral resources that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the project applicant, and information sources identified in this section. Responses to the impact questions listed above are provided below.

A review of the general plan for the City of Huntington Beach indicates that oil, natural gas, and peat are the three mineral resources in the region. While soils in Huntington Beach are known to contain peat, production of peat occurred only from 1941 to 1954. Huntington Beach has been the site of oil extraction since the 1920s, and large-scale oil and gas production continues today. Oil wells in Huntington Beach are scattered throughout the city (City of Huntington Beach 2017a). According to the State of California Department of Conservation's DOGGR, an abandoned oil/gas well site is potentially located near the southern service road of the East Garden Grove-Wintersburg channel, approximately 280 feet east of the Springdale Street overpass (this according to location data presented by DOGGR in its online Well Search database). See section 3.8.8, *Hazards and Hazardous Materials*, for further discussion. There are no active mines and mineral extraction operations (i.e., oil and natural gas) do not occur within the vicinity of the project alignment.

The CDC's State Mining and Geology Board identifies Mineral Resource Zone (MRZ) classifications for land located in California. Based on this mapping, all of the project site and surrounding vicinity is designated as MRZ-3, which is defined as "areas containing mineral deposits (aggregate), the significance of which cannot be evaluated from available data" (CDC 1981). Additionally, the urbanized character of Huntington Beach generally precludes mining activities.

The proposed project would have no operational impacts related to mineral resources. Construction impacts are discussed below.

Discussion

Response to Impact Question a): No Impact.

As stated previously, other than oil extraction, no mines or other mineral resource recovery sites are known to be within the vicinity of the project site. The "Crane 1" oil/gas well identified by DOGGR is located 280 feet east of the Springdale Street overpass. However, this well appears to be plugged

and abandoned. The well was constructed in the early 1940s and a Notice of Intention to Abandon Well was submitted to DOGGR in March of 1943 (noting that the well did not produce any oil or gas). A final abandonment letter was not found in the online database, however, the well's current status is denoted by DOGGR as plugged and abandoned (CDC 2018). As recent as 1977, a DOGGR inspector searched for the well site and could not locate it. Inspection notes suggest that the well site had been graded over and a shopping center constructed over it. As information reviewed appears to suggest that Crane 1 has been plugged and abandoned (due to non-production), no impacts would occur at any point along the project alignment.

Response to Impact Question b): No Impact.

Inspection notes from the 1977 DOGGR inspection of the "Crane 1" oil/gas well suggest the site has been graded over and a shopping center has been constructed over it. Construction activities associated with the proposed project would have no effect on the well given its plugged and abandoned status and distance from the proposed project. No impact on a locally important mineral resource recovery site would occur.

3.3.12 Noise	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	☐	☐	☒	☐
b. Expose persons to or generate excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e. Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f. Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Introduction

This section evaluates potential impacts on noise that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the project applicant, and information sources identified in this section. Responses to the impact questions listed above are provided below.

Environmental Setting

Existing noise-sensitive receptors in the project vicinity consist of single-family residences located on the northern side of the project alignment and mobile homes, multi-family residences located on the southern side of the project alignment, and public schools in the project site vicinity.

Regulatory Setting

County of Orange Noise Ordinance

Division 6, Article 1, Section 4-6-7 of the *County of Orange Municipal Code* (Orange County 2007b) noise sources associated with construction, repair, remodeling, or grading of any real property are exempt from the County Noise Ordinance, provided said activities do not take place

between the hours of 8:00 p.m. and 7:00 a.m. on weekdays or Saturday, or at any time on Sunday or a federal holiday.

City of Huntington Beach Noise Ordinance

Chapter 8.40.090 Special Provisions Noise Control of the *City of Huntington Beach Municipal Code* (City of Huntington Beach 1979) noise sources associated with construction, repair, remodeling, or grading of any real property, provided a permit has been obtained from the City are exempt from the County Noise Ordinance, provided said activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays or Saturday, or at any time on Sunday or a federal holiday.

Short-Term Construction

During construction noise levels will be elevated above existing ambient levels and above Noise Ordinance Standards. Project design requires the driving of a double row of sheet steel piles along the length of both banks of the channel, as well as the excavation of soil and mixing of concrete. Pile driving can be expected to generate some noise levels at close proximity to the pile driving equipment, however it is proposed to utilize the Giken method of pile driving, which does not generate significant noise levels.

A construction phasing table with a list of construction equipment, provided by the project applicant is provided below:

Table 3.3.12-1. Typical Construction Noise Levels

Construction Phasing	Construction Equipment (Number of pieces)	Noise Level (dBA) at a distance of 50 Feet [b c]
Site preparation of levee, infiltration cistern	Dozers (2)	85
	Loaders (2)	85
	Backhoes (2)	80
Sheet pile installation	Service Crane (1)	83
	Silent piler power units (2) [d]	62
Soil cement mixing, levee work, maintenance road prep	Soil cement drill rig (2) [a]	85
	Mixer (2)	85
	Pump (2)	82
	Dozer (1)	85
	Loaders/Backhoes (1)	80
Pile caps and retaining wall	Loaders (1)	80
	Backhoes (1)	80
Grading/excavation inside channel	Dozers (2)	85
	Loaders/Backhoes (1)	80
	Excavators (1)	83
Asphalt paving of maintenance roads	AC paving Machine (1)	89
	Skip loader (1)	85
	Rollers (1)	74
Landscaping	Loaders (1)	80
	Backhoes (1)	80
	Dozers (1)	85

Construction Phasing	Construction Equipment (Number of pieces)	Noise Level (dBA) at a distance of 50 Feet [b c]

[a] Noise level for an auger drill rig, included in the table above, has been substituted for the cement drill rig. FHWA 2006
[b] FTA 2006
[c] Noise levels have been substituted for pieces of equipment provided by the applicant, which are not represented in the FTA table.
[d] Giken 2016.

Pile driving will be limited the time frame outlined in the County's Municipal Code (7:00 a.m.–8:00 p.m.).

The proposed project requires the export of 141,694 cubic yards of soil and import of dry cement. This, combined with the import of the sheet piles and other construction equipment, would result in an increase in the number of truck movements in the vicinity of the construction work areas. Truck haul trips would be confined to normal hours of work (7:00 a.m. through 8:00 p.m.) and to travel along appropriate truck routes to and from the site. Loading and unloading would also be limited to normal working hours (7:00 a.m. through 8:00 p.m.) as detailed below.

Long-Term Operations

Operational noise would be the same as what currently occurs and includes periodic maintenance to clear excessive in-channel vegetation, manmade debris and sediment using excavators and other construction equipment.

Discussion

Response to Impact Question a): Less-than-Significant Impact.

Short-Term Construction

Construction of this reach of the C05 Channel would have the potential to generate temporary noise impacts above Noise Ordinance standards. Both the County of Orange and City of Huntington Beach Noise Ordinances referenced above exempt noise associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays or Saturday, or at any time on Sunday or a federal holiday. Project implementation would comply with both Ordinances. Implementation of the proposed project would result in a temporary increase in ambient noise resulting from the use of construction equipment; however, any increase in noise levels would cease upon completion of construction. While noise levels could reach up to 85 A-weighted decibels (dBA) at 50 feet from construction activity, the noise impacts at a single residence rapidly diminishes with distance as construction proceeds down the channel. As the proposed project would adhere to the City and County's construction noise ordinances and time frames, as well as the standard conditions listed below, impacts would be less than significant.

Long-Term Operations

On completion of the proposed project, noise impacts would be the same as the existing conditions. The completed project would not result in above ambient noise under normal, everyday conditions. The channel would require periodic maintenance to clear excessive in-channel vegetation, manmade

debris and sediment using excavators and other construction equipment, though this will be no more than what currently occurs. Periodic maintenance would not result in significant noise increase and would not result in an exceedance of an established standard. As such, no impact would occur associated with operation of the proposed project.

Response to Impact Question b): Less-than-Significant Impact.

Short-Term Construction

The potential for groundborne noise and/or vibration resulting from implementation of the proposed project would be considered less than significant with adherence to **Standard Condition SC-2**. The Giken method would be used to install the steel sheet piles. This method consists of pushing the sheet pile into the ground using the adjacent sheet pile. No impact pile driver or vibratory pile driver would be used. Furthermore, the proposed project would not use other vibration intensive construction equipment. Dozers produce vibration levels of 0.089 peak particle velocity (PPV) measured in inches per second (in/sec) at a distance of 25 feet (FTA 2006). Vibration levels of this magnitude would be well below the 0.12 PPV damage threshold for extremely vibration susceptible buildings referenced in the FTA's Transit Noise and Vibration Impact Assessment. Therefore impacts would be less than significant.

Long-Term Operations

Upon completion of the proposed project, no vibration sources would occur associated with the proposed project. No impact would occur.

Response to Impact Question c): No Impact.

As discussed above, upon completion of the proposed project noise impacts would be the same as the existing conditions. The channel would require periodic maintenance to clear excessive in-channel vegetation, manmade debris and sediment using excavators and other construction equipment, though this would be no more than what currently occurs and would not result in substantial permanent noise increases. As such no impact would occur associated with operation of the proposed project.

Response to Impact Question d): Less-than-Significant Impact.

Construction of this reach of the C05 Channel would have the potential to generate temporary noise increases above the ambient noise levels. Noise levels could reach up to 85 dBA at 50 feet from construction activity. However, the proposed project would comply with both the County of Orange and City of Huntington Beach Noise Ordinances referenced above and the project compliance measures listed below to reduce noise to the greatest extent practical. Impacts from project construction would be less than significant.

Response to Impact Question e): No Impact.

The proposed project is not located within an airport land use plan, nor is it within the vicinity of a private airstrip or heliport. It would not, therefore, expose people to excessive noise levels associated with airport operations or aircraft travel. The closest airport to the project site is the John Wayne Airport, located approximately 13 miles to the southeast. No impact would occur.

Response to Impact Question f): No Impact.

The proposed project is not located within an airport land use plan, nor is it within the vicinity of a private airstrip or heliport. It would not, therefore, expose people to excessive noise levels associated with airport operations or aircraft travel. The closest airport to the project site is the John Wayne Airport, located approximately 13 miles to the southeast. No impact would occur.

Standard Conditions of Approval

SC-1: Prior to the approval of the plans and specifications, the OCPW Director or designee will confirm that all noise-generating activities are limited to the hours of 7:00 a.m. to 8:00 p.m. on weekdays and Saturdays. No noise-generating activities shall occur on Sundays or holidays in accordance with the County of Orange Noise Ordinances and the construction time restrictions referenced in the Huntington Beach Municipal Code.

SC-2: Prior to the approval of the plans and specifications, the OCPW Director or designee will confirm that the contractor produces evidence that:

1. All construction vehicles or equipment, fixed or mobile, operated within 1,000 feet of a dwelling shall be equipped with properly operating and maintained mufflers.
2. All operations shall comply with Orange County Codified Ordinance Division 6 (Noise Control) and the construction time restrictions referenced in the Huntington Beach Municipal Code.
3. Stockpiling and/or vehicle staging areas shall be located as far as practicable from dwellings.

3.3.13 Population and Housing	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c. Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Introduction

Affected Environment

This section evaluates potential impacts on population and housing that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the project applicant, and information sources identified in this section. Responses to the impact questions listed above are provided below.

The land adjacent land to the alignment is designated for residential and commercial uses.

Discussion

Response to Impact Question a): No Impact.

The project proposes to improve the existing C05 flood control facility. While there are residential uses and other urban uses located adjacent to the project site, these uses are outside the project boundaries and would not be affected by the proposed project. The proposed project would not include the construction of new homes or businesses, thus direct population growth would not occur with implementation of the proposed project. Furthermore, while the proposed project would increase the flood conveyance capacity of the channel, it would not provide enhancements that could induce population growth. Rather, the proposed project is expected to improve infrastructure and address erosions issues in the channel slopes. The proposed project would not affect the location, distribution, density, or growth rate of populations within the vicinity of the project area. Therefore, the proposed project would not induce substantial population growth, either directly or indirectly, and no impacts would occur.

Response to Impact Question b): No Impact.

The proposed project does not include the demolition, destruction, or displacement of any existing housing. Construction activities would occur within the channel right-of-way and the two temporary staging areas. The upstream staging area would be on the widened section of the existing

maintenance road along the channel, which is not open to the public. The downstream temporary construction staging area is located on a gated, vacant property at the intersection of Lark Lane and Warner Avenue. The upstream temporary construction staging area is not located adjacent to any residential structures. The project proposes to improve flood conveyance capacity within the C05 channel and address erosion of the channel slopes. Impacts related to displacing substantial numbers of existing housing units would not occur.

Response to Impact Question c): No Impact.

As described above, the nature of the proposed project is to improve flood conveyance capacity with the C05 channel and address erosion of the channel slopes. The proposed project does not include the demolition or destruction of any existing housing, and no people would be displaced as a result of the proposed project. The proposed project would not result in an impact related to the displacement of people or necessitate the construction of replacement housing.

3.3.14 Public Services	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
a-i) Fire protection?	☐	☒	☐	☐
a-ii) Police protection?	☐	☒	☐	☐
a-iii) Schools?	☐	☐	☐	☒
a-iv) Parks?	☐	☐	☐	☒
a-v) Other public facilities?	☐	☐	☐	☒

Introduction

This section evaluates potential impacts on public services that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the project applicant, and information sources identified in this section. Responses to the impact questions listed above are provided below.

An inventory of existing public facilities and service providers in the project area is provided below and was compared with the proposed project to determine what, if any, impacts on public facilities and services would occur. Potentially significant impacts on public services and facilities would occur if physical effects from the proposed project on existing fire, police, park, school, or other public facilities and services would require the construction or expansion of such facilities or affect the service providers' ability to provide adequate service ratios or response times, thereby requiring additional facilities.

Except for specifying that the contractor simultaneously insert sheet piles on both sides of the channel, only a portion of the project area would undergo construction at any given time, and all construction activities would be coordinated with the City of Huntington Beach and emergency service providers to ensure that adequate notice regarding construction disruptions is provided. The hours of construction would comply with the requirements of the City of Huntington Beach municipal code.

Fire

The project area is served by the Huntington Beach Fire Department. The Huntington Beach Fire Department provides emergency and public safety services to the City of Huntington Beach through

its 8 stations, and 198 employees (City of Huntington Beach 2017c). There is one Huntington Beach Fire Department station located 0.36 mile north of the project alignment: Heil Fire Station #8 located at 5891 Heil Avenue. It is the city's oldest active fire station and serves the north part of the City, including the large industrial area. Its apparatus includes one paramedic engine company with four fire fighters (City of Huntington Beach 2017d). The average response time is 3 minutes and 49 seconds (J. Van Mullem, personal communication, 2017).

Police

The project area is served by the Huntington Beach Police Department which consists of four divisions: Executive, Administrative Operations, Uniform, and Investigations. There are 333 employees, 212 in funded sworn positions and 122 in civilian positions (City of Huntington Beach 2017e). The Uniform Division is the largest division, with the greatest number of personnel assigned to it. Within the Uniform Division is the Patrol Bureau, Traffic/Aero Bureau, and Special Enforcement Bureau. The Patrol Bureau is the most visible unit and consists of the officers seen in police cars, on foot beats, and on the beach quads. Patrol officers are assigned to geographical areas known as beats. The city is divided into 8 beats to allow sufficient coverage 24 hours a day (City of Huntington Beach 2017f). The project area is served by patrol officers in the seventh and eighth beat (City of Huntington Beach 2017g). The average response time for priority 1 emergency calls is 4 minutes and 32 seconds (City of Huntington Beach 2018).

The Huntington Beach Police Department station is located at 2000 Main Street, approximately 2.8 miles south of the project alignment. In addition, three police substations are located on Beach Boulevard and Slater Avenue, on 5th Street, and at Bella Terra shopping mall (City of Huntington Beach 2017a).

Schools

The project area includes lands within the Huntington Beach Union High School District and Ocean View School District. The following schools are located within 0.5 mile of the project alignment:

- Spring View Middle School, 16662 Trudy Lane (approximately 0.10 mile away)
- Golden View Elementary School, 17251 Golden View Lane (approximately 0.30 mile away)
- Marine View Middle School, 5682 Tilburg Drive (approximately 0.38 mile away)
- Coast High School, 17231 Gothard Street (approximately 0.43 mile away)

Parks

Seven recreational facilities are located within 0.5 mile of the project alignment:

- Irby Park, 16661 Simonne Lane (approximately 0.05 mile away)
- Carr Park, 16532 Springdale Street (approximately 0.20 mile away)
- Lark View Park, 17100 Fraser Lane (approximately 0.23 mile away)
- Golden View Park, 17201 Cobra Lane (approximately 0.30 mile away)
- Gibbs Park, 16641 Graham Street (approximately 0.45 mile away)
- Murdy Park and Community Center, 7000 Norma Drive (approximately 0.27 mile away)

- Meadowlark Golf Course, 16782 Graham Street (adjacent to the downstream batch plant)

Other Community Facilities

The only other community facility located within 0.5 mile of the project area is a U.S. Postal Service (USPS) Office, 6771 Warne Avenue (located southerly adjacent to the upstream batch plant).

Discussion

Response to Impact Question a-i): Less-than-Significant Impact with Mitigation Incorporated.

There are no fire protection facilities adjacent to the project alignment. Construction would not affect the daily operations and functions of fire protection services such that new or expanded facilities would be required. However, construction activities have the potential to affect response times because construction vehicles would be delivered to the project site via public roadways. Construction activities would occur within the channel right-of-way and the two temporary batch plants. The upstream batch plant would be on the widened section of the existing maintenance road along the channel, which is not open to the public. The downstream batch plant would be located on a gated, vacant property at the intersection of Lark Lane and Warner Avenue. Materials would be stored at both batch plants/staging areas and hauled to the site of the channel that is being improved. As required by **Mitigation Measure TR-1**, the construction contractor would be required to submit a traffic control plan for approval by the County. The traffic control plan would be prepared to ensure adequate through-street accessed is maintained for emergency and fire services during construction. Therefore, construction impacts on fire response time would be less than significant with mitigation incorporated. See Section 3.3.16, *Transportation/Traffic*, for further discussion of the traffic control plan.

Response to Impact Question a-ii): Less-than-Significant Impact with Mitigation Incorporated.

Similar to fire protection service, impacts on police protection would be related to traffic delays and limited access resulting from construction activities. While this may impact police protection services and response times, impacts would be temporary less than significant with implementation of **Mitigation Measure TR-1** which requires the construction contractor to prepare a traffic control plan for approval by the County. The traffic control plan would be prepared to ensure adequate through-street access is maintained for emergency and police services during construction. Therefore, construction impacts on police protection services would be less than significant with mitigation incorporated. See Section 3.3.16, *Transportation/Traffic*, for further discussion of the traffic control plan.

Response to Impact Question a-iii): No Impact.

The proposed project would increase the flood conveyance capacity of the existing channel, correct channel erosion, and provide additional protection from flooding. It does not include the construction of new homes or businesses or involve activities that would otherwise induce direct population growth, which could result in the need for additional or expanded school facilities. As a result, the proposed project would not increase school enrollment or result in the need for new or expanded school facilities. Moreover, no schools are located adjacent to the project site. Impacts related to schools would not occur.

Response to Impact Question a-iv): No Impact.

The purpose of the proposed project is to correct channel erosion, provide additional protection from flooding, and increase flood conveyance capacity in the channel. Project activities would be limited to construction along the existing channel, maintenance roads, and two adjacent staging areas. The proposed project does not include nor require the provision, expansion, or construction of park facilities. Moreover, no parks are located adjacent to the project site. The proposed project would not result in impacts related to the construction of parks.

As described previously, while the proposed project would increase the flood conveyance capacity of the channel, it would not provide enhancements that could affect the location, distribution, density, or growth rate of the population within the vicinity of the project area. Because growth would not occur, the proposed project would not result in an increase in the use of existing parks such that new parks would be needed or that physical deterioration of the parks would occur. The proposed project would result in no impacts related to increased usage and physical deterioration of park facilities.

Response to Impact Question a-v): No Impact.

A USPS office is located adjacent to the upstream batch plant of the proposed project. The northern border of the USPS parking lot is adjacent to the southern border of the maintenance road where the upstream batch plant would be located. Given that construction would take place within the channel and adjacent staging areas, vehicle access to entrances and exits of the USPS would not be affected. No physical effects nor traffic delays on the USPS parking lot are expected. Therefore, no impacts would occur.

3.3.15 Recreation	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

Introduction

This section evaluates potential impacts on recreation that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the project applicant, and information sources identified in this section. Responses to the impact questions listed above are provided below.

The proposed project activities would be limited to improvement of an existing water conveyance channel. The proposed project would not include any residential component or other development that would increase the use of existing parks or recreational facilities or require the construction of new or expanded facilities.

Seven recreational facilities are within 0.5 mile of the project alignment:

- Irby Park, 16661 Simonne Lane (approximately 0.05 mile away)
- Carr Park, 16532 Springdale Street (approximately 0.20 mile away)
- Lark View Park, 17100 Fraser Lane (approximately 0.23 mile away)
- Golden View Park, 17201 Cobra Lane (approximately 0.30 mile away)
- Gibbs Park, 16641 Graham Street (approximately 0.45 mile away)
- Murdy Park and Community Center, 7000 Norma Drive (approximately 0.27 mile away)
- Meadowlark Golf Course, 16782 Graham Street (adjacent to the downstream batch plant)

Public schools also provide recreational amenities. Most school sites have areas of green open space and recreational amenities such as sports fields and courts. The schools within 0.5 mile of the project alignment are listed below:

- Spring View Middle School, 16662 Trudy Lane (approximately 0.10 mile away)
- Golden View Elementary School, 17251 Golden View Lane (approximately 0.30 mile away)
- Marine View Middle School, 5682 Tilburg Drive (approximately 0.38 mile away)
- Coast High School, 17231 Gothard Street (approximately 0.43 mile away)

Discussion

Response to Impact Question a): No Impact.

The proposed project activities would be limited to improvement of existing flood control facility. The proposed project would not include any residential component or other development that would increase the use of existing parks or recreational facilities or require the construction of new or expanded facilities. Therefore, no impacts would occur.

Response to Impact Question b): No Impact.

The purpose of the proposed project is to correct channel erosion, provide additional protection from flooding, and increase flood conveyance capacity in the channel. Project activities would be limited to maintenance and construction along the existing channel, maintenance roads, and the two adjacent staging areas. The proposed project does not include nor require construction or expansion of recreational facilities, nor is the proposed project growth inducing, which could require the construction of new recreational facilities. The proposed project would result in no adverse environmental impacts related to the construction of recreational facilities.

3.3.16 Transportation/Traffic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☒	☐	☐
b. Conflict with an applicable congestion management program, including, but not limited to, level-of-service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d. Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e. Result in inadequate emergency access?	☐	☒	☐	☐
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☒	☐	☐

Introduction

Affected Environment

This section evaluates potential impacts on transportation/traffic that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the project applicant, and information sources identified in this section. Responses to the impact questions listed above are provided below.

The project site is located entirely within an existing OCPW right-of-way. Access to the site and staging areas and during construction would be provided from the east near the intersection of the channel and Goldenwest Street, and from the west at the intersection of the channel and Springdale Street and Warner Avenue. Also, access to the channel invert to remove soil would occur from the existing concrete access ramp at Gothard Street and from temporary access ramps at the bridges. The upstream construction staging area and batch plant would be located on the widened portion of

the existing maintenance road directly behind a USPS Office just upstream of the eastern project boundary. The downstream construction staging area and batch plant would be located at the northwest corner of Warner Avenue and Lark Lane. Edwards Street crosses the existing channel approximately 1,250 feet south of project site's eastern limit, however, would not be used as an access point for the proposed project.

According to the Huntington Beach General Plan (City of Huntington Beach 2017a), Warner Avenue is identified as a major six-lane divided roadway for its entire extent through the city of Huntington Beach. Goldenwest Street is identified as an augmented primary roadway with added capacity. There are three lanes in either direction on Goldenwest Street near the project site. Springdale Street is classified as a primary four-lane divided roadway where it crosses over the existing channel. Edwards Street and Gothard Street are identified as secondary four lane undivided roadways.

The quality of service provided by a roadway or intersection is typically described in terms of level of service (LOS). LOS is a scale used to determine the operating quality of a roadway section or intersection according to the average delay experienced by vehicles on the facility. The levels range from A to F, with LOS A representing free traffic flow and LOS F representing severe traffic congestion. As identified by the City of Huntington Beach General Plan EIR, the intersections nearest the project site are operating at the following LOS (City of Huntington Beach 2017h):

- Springdale Street & Warner Avenue: LOS B
- Edwards Street & Warner Avenue: LOS A
- Goldenwest Street & Warner Avenue: LOS B
- Gothard & Warner Avenue: LOS B

Warner Avenue is also the main roadway for Bus Route 72, which has a stop located adjacent to the location of the downstream construction staging area. Goldenwest Street is the main roadway for Bus Route 25. There are two stops for Bus Route 25 in the vicinity of the channel. Both are located on the northbound side of the street with one approximately 373 feet north of the channel and one approximately 415 feet south of the channel. Neither Springdale Street, Edwards Street, nor Gothard Street are designated transit routes. Additionally, all five roadways have class II bike lanes (on-roadway) in the vicinity of the project site.

The Orange County Transportation Authority is designated as the Congestion Management Agency to oversee the Orange County Congestion Management Plan (CMP). The CMP Highway System includes specific roadways, which include State highways, and CMP arterial monitoring locations/intersection. CMP-designated intersections have a performance standard of LOS E or better and a significant impact would occur if an intersection were operating at an LOS less than this established threshold as a result of implementation of a project. There are seven CMP intersections within the City, none of which are located in the immediate vicinity of the project site or construction staging areas as depicted on Figure 2 of the 2017 Congestion Management Program.

Discussion

Response to Impact Question a): Less-than-Significant Impact with Mitigation Incorporated.

Although the proposed project is located entirely within existing OCPW right-of-way, there is a potential for project-related construction traffic to affect adjacent roadways providing access to the

project site during construction. No full roadway closures are expected to result from construction of the proposed project. The proposed project would require temporary construction worker parking at parking and staging areas that would be located on County of Orange property away from the existing streets and parking areas. Construction workers could also park on the flood control channel maintenance roads upstream and downstream of the project site. Additionally, these areas would be of adequate size to accommodate the anticipated number of worker vehicles and construction equipment and would not serve the parking demand of any other land use.

As mentioned above, access to the site during construction would be provided from the east near the intersection of the channel and Goldenwest Street, and from the west at the intersection of the channel and Springdale Street and Warner Avenue. Also, access to the channel invert to remove the soil would occur from an existing concrete access ramp at Gothard Street and from temporary access ramps at the bridges. Construction activities would generate construction-related traffic, which could create a temporary increase in localized traffic. Additionally, construction related traffic could potentially disrupt or reduce pedestrian, bicycle, and vehicular accessibility in the area during construction hours. To address this issue, OCPW would implement **Mitigation Measure TR-1**, which would require the construction contractor to prepare and submit a detailed traffic control plan for approval by the County. The purpose of the traffic control plan would be to minimize temporary construction traffic impacts and would cover issues related to construction signing, vehicular traffic control, pedestrian traffic control and safety, and access to adjacent properties where necessary. Any lane closures would be communicated to the community through advance notices and all construction contractors would be required to comply with the traffic control plan. With implementation of the traffic control plan, temporary construction traffic impacts would be less than significant.

During operation, increases in traffic volumes are not expected and maintenance activities would occur similar to existing conditions. The design of the reach is such that maintenance is expected to be very minimal to nonexistent. Thus, operational traffic impacts would be less than significant.

Mitigation Measure

TR-1: The construction contractor shall develop a construction traffic control plan subject to approval by the City and County prior to the start of construction. The plan shall incorporate the applicable measures to reduce temporary construction traffic impacts from the following:

- City of Huntington Beach General Traffic Control Notes
- City of Huntington Beach Standard Plan No. 100, General Notes – Traffic Control and Safety
- OC Public Works, Standard Plan No. 1150 – Traffic Control System Tables for Lane and Shoulder Closures
- OC Public Works, Standard Plan No. 1151 – Traffic Control System for Shoulder Closure on Arterial Highways
- OC Public Works, Standard Plan No. 1152 – Traffic Control System for Lane Closure on Principal Major and Primary Arterial Highways and Expressways
- OC Public Works, Standard Plan No. 1153 – Traffic Control System for Lane Closure on Secondary Arterial Highways
- OC Public Works, Standard Plan No. 1154 – Traffic Control System for Half Road Closure on Secondary Arterial Highways

Develop a plan for notifications and process for communication with affected residences and transit agencies prior to the start of construction subject to approval by the City and OCPW. Advanced public notification will include providing written notification to adjacent residences and transit agencies at least 10 days prior to construction start and providing appropriate signage of construction activities. The written notification will include the construction schedule, exact location and duration of activities, and a local telephone number for receiving questions and complaints.

Response to Impact Question b): Less-than-Significant Impact.

As mentioned above, there are no CMP designated intersections within proximity of the project site. Also, as discussed above in Response 3.3.16(a), although the proposed project would generate construction-related traffic creating a temporary increase in localized traffic, this short-term construction-related traffic would not create a substantial impact on traffic volumes or change traffic patterns in such a way as to conflict with any congestion management programs. In addition, operation of the proposed project not result in any long-term increases over existing traffic conditions. Since the proposed project would not introduce any new facilities that would generate long-term changes in traffic, the proposed project would not conflict with the applicable congestion management plan. Impacts would be less than significant.

Response to Impact Question c): No Impact.

The proposed project does not propose any uses that would affect air traffic patterns either through direct increases in local population or through development of a project element that would create an aviation hazard. No impacts would occur.

Response to Impact Question d): No Impact.

The proposed project would facilitate maintenance, repairs, and improvements to this reach of the existing C05 channel. These project improvements would have a beneficial impact because the proposed project would serve to remediate existing hazards instead of increasing hazards. No impacts would occur.

Response to Impact Question e): Less-than-Significant Impact with Mitigation Incorporated.

Emergency access to the project vicinity could be affected by project construction; specifically, if temporary lane closures are required and construction-related traffic could delay or obstruct the movement of emergency vehicles. However, the proposed project would implement **Mitigation Measure TR-1** to ensure unrestricted access and passage for emergency vehicles. With implementation of **Mitigation Measure TR-1**, impacts on emergency access would be less than significant.

Response to Impact Question f): Less-than-Significant Impact with Mitigation Incorporated.

Construction could require temporary lane closures which could interfere with bus services and bicycle traffic. However, implementation of **Mitigation Measure TR-1** would provide measures to maintain safe and efficient passage for buses and bicyclists. Construction activities are therefore not expected to result in significant impacts related to conflicts with alternative transportation. Construction impacts would be less than significant after implementation of mitigation. Long-term operational impacts would be identical to the existing conditions and therefore less than significant.

3.3.17 Tribal Cultural Resources	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a-i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☐	☒
a-ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

Introduction

This section evaluates potential impacts on tribal cultural resources that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the project applicant, and information sources identified in this section. Responses to the impact questions listed above are provided below.

EIR No. 560 evaluated the Native American cultural tradition within the cultural resources section of the Draft EIR. This analysis identified the project site as being within the territorial boundaries of the Gabrieleño Indians. The Final EIR did not change the findings of the analysis in the Draft EIR.

A cultural resources records search was conducted on November 8, 2017, at the South Central Coastal Information Center, part of the California Historical Resources Information System at California State University, Fullerton to determine if any cultural resources have been previously recorded within or in proximity close to the project site and within a 0.5-mile buffer around the project site.

The records search results indicated that one cultural resources study has been previously conducted in the project area and 31 studies have been conducted within the 0.5-mile buffer around the proposed project. The record search results also show that no previously recorded archaeological resources have been identified within the project area. Six previously recorded archaeological resources have been recorded within the 0.5-mile buffer. All of the resources are situated at an elevation well above the original marshy ground of the Bolsa Chica wetlands. One built

environment resource (the East Garden Grove-Wintersburg Channel between Tidal Gates and Warner Ave) was previously recorded.

The results of a Sacred Lands File Search of the project site, conducted by the NAHC on December 20, 2017, indicated that no sacred lands have been previously reported in the project area.

Discussion

Response to Impact Question a-i): No Impact.

A records search at the South Central Coastal Information Center was conducted for the proposed project to determine if tribal cultural resources are present within the project site and a 0.5-mile buffer around the project site. No tribal cultural resources that are listed in or eligible for listing in the CRHR were identified during the records search. The results of a Sacred Lands File Search of the project area, conducted by the NAHC on December 20, 2017, indicated that no sacred lands have been previously reported in the project area. Therefore, the proposed project would not cause a substantial adverse change in the significance of a tribal cultural resource and no impacts would occur.

Response to Impact Question a-ii): Less-than-Significant Impact with Mitigation Incorporated.

Pursuant to Public Resources Code Section 21080.3.1 (AB 52), California Native American tribes traditionally and culturally affiliated with the project area can request notification of projects in their traditional cultural territory. OCPW sent AB 52 letters via U.S. certified mail on December 19, 2017 to those tribal governments who had previously requested notification of projects providing details on the proposed project. The tribal governments who received notification are the Gabrieleño Band of Mission Indians – Kizh Nation (Appendix E), Gabrieleño Tongva San Gabriel Band of Mission Indians, Juaneno Band of Mission Indians, and Soboba Band of Luiseno Indians.

OCPW received a written consultation request letter from Kizh Nation on December 28, 2017 (Appendix E). The consultation request letter stated the project site is located within the Kizh Nation's ancestral tribal territory that represents a higher degree of kinship than traditional or cultural affiliation. In addition, the consultation request letter stated the project site is located within an area deemed by the Kizh Nation to be potentially sensitive for tribal cultural resources and may be in close proximity to historic villages, trade routes, cemeteries, and sacred/religious sites.

Formal consultation was held on January 25, 2018, between representatives of the Kizh Nation and staff from OCPW. Staff from ICF was also in attendance on the consultation, having received prior written permission from the Tribe. The Kizh Nation provided the following considerations in the consultation:

- A historic channel of the Santa Ana River may have been located in close proximity to the existing East Garden Grove-Wintersburg Channel alignment, resulting in a relatively higher potential for the discovery of tribal cultural resources including burial of deceased individuals;
- Trade was the "fabric of the tribe" with extensive trading with other tribes in present-day Southern California and beyond this region;
- Areas in close proximity to rivers served as transportation corridors to facilitate trade and typically artifacts were intentionally buried along these routes; and

- The cyclical climate and corresponding floods have a tendency to wash sediments downstream along with any artifacts that may have been buried, and the Kizh Nation believe there is a potential for Native American artifacts to be buried in the project site.
- Tribal cultural resources are not known to exist within the project site boundary.

Following the consultation, the Kizh Nation submitted to OCPW a circa 1921 map titled *Ancient Indian Camp Sites* and a 1937 map titled *Principal Historic Sites, Old Highways, and Battle Fields in Old Los Angeles County (Principal Historic Sites)*, which included a portion of northern Orange County. A standard set of mitigation measures approved by the Kizh Nation Tribal Government was also submitted.

The Ancient Indian Camp Sites map identifies several sites approximately 1 mile southwest of the southerly limit of the project site near present-day Bolsa Bay. The Principal Historic Sites map identifies an Indian Village approximately 1.5 miles south of the project site.

Culturally appropriate mitigation for a tribal cultural resource differ than mitigation for archaeological or historical resources and appropriate mitigation measures should be identified through consultation with a tribal government.

The statement that tribal cultural resources are not known to exist with the project site boundary is consistent with the determination in the Cultural Resources section of Draft EIR No. 560, supported by a cultural resources technical study, which determined no indicators were present for buried remains or prehistoric or historic resources along the channel system. Final EIR No. 560 did not identify any impacts beyond those evaluated in Draft EIR No. 560. Because unknown tribal cultural resources could be unexpectedly discovered during construction of the proposed project, the following mitigation measures are provided to reduce impacts on a tribal cultural resource to less-than-significant levels.

MM TCR-1

Should evidence of human remains be discovered during project construction, the Orange County Coroner (OCC) shall be immediately notified of the discovery. Evidence of human remains requires mandatory compliance with the provisions of State Health and Safety Code Section 7050.5, which restricts further disturbance in the vicinity of the discovery, defined herein as a 50-foot radius, until the OCC has made a determination within 2 business days of the origin and disposition pursuant to PRC Section 5097.98. If the remains are determined to be Native American, the OCC shall notify the NAHC within 24 hours that remains have been discovered. The NAHC shall determine the identity of the Most Likely Descendant. The Most Likely Descendant shall complete the inspection of the remains within 48 hours of notification by the NAHC.

MM TCR-2

If unanticipated archaeological resources or deposits are discovered during earth-moving activities, OCPW will implement the following measures.

All work will halt within a 50-foot radius of the discovery. OCPW will have a qualified professional archaeologist assess the significance of the find. If the resources are Native American in origin, the County shall coordinate with the Tribe regarding evaluation, treatment, curation, and preservation of these resources. The archaeologist will have the authority to

modify the no-work radius as appropriate, using professional judgment in consultation with OCPW. Work will not continue within the no-work radius until the archaeologist conducts sufficient research and evidence and data collection to establish that the resource is either: (1) not cultural in origin; or (2) not potentially eligible for listing on the CRHR.

If a potentially eligible resource is encountered, then the archaeologist and OCPW, as lead agency, in consultation with the Tribe, will arrange for either: (1) avoidance of the resource, if possible; or (2) test excavations to evaluate eligibility, and if eligible, an attempt to resolve adverse effects to determine appropriate mitigation. The assessment of eligibility will be formally documented in writing as verification that the provisions in CEQA for managing unanticipated discoveries and PRC Section 5024 have been met.

On March 30, 2018, OCPW submitted a continued consultation letter via email to the Kizh Nation with suggested mitigation measures for review and comment. This letter was re-sent via email on April 26, 2018, and again on May 17, 2018. The Kizh Nation provided a response via email on May 18, 2018, stating the OCPW-recommended mitigation measures are inadequate to protect tribal cultural resources should they be present on the project site and resending a mitigation measure from their standard set of mitigation measures the Tribe deems applicable to all projects. On September 17, 2018, OCPW provided a final consultation letter via email and U.S. certified mail that concluded consultation in accordance with PRC Section 21080.3.2(b)(2).

Because mutual agreement on the mitigation measures to be imposed upon the project cannot be reached, recommended **Mitigation Measures TCR-1 and TCR-2** are sufficient to reduce potential impacts on previously unknown tribal cultural resources that may exist on the project site below the level of significance during construction. No impacts would occur during the long-term operations because ground-disturbing activities are not proposed. **Mitigation Measures TCR-1 and TCR-2** comport with the standard set of sample mitigation measures recommended by the NAHC when agreement cannot be reached.

3.3.18 Utilities and Service Systems	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?	☐	☐	☒	☐
e. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g. Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

Introduction

This section evaluates potential impacts on utilities and service systems that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the project applicant, and information sources identified in this section. Responses to the impact questions listed above are provided below.

Utilities and service systems discussed as part of this analysis are related to water supply, wastewater, and solid waste. The following describes the utility and service system providers and facilities that serve the project area.

Water Supply

The water supply in the project area is from the Orange County groundwater basin. The majority of the City's water is supplied by 10 groundwater wells throughout the City. The remainder of the water supply is imported by the Metropolitan Water District from the State Water Project and the

Colorado River. The City of Huntington Beach's Water Division and the Municipal Water District of Orange County are responsible for providing water to residents in the project area.

Wastewater

The wastewater management facilities in the project area are managed by the Orange County Sanitation District and the City of Huntington Beach's Utilities Division of the Public Works Department.

Solid Waste

Landfills serving the project area are owned and operated by the Orange County Waste and Recycling Department (OCWR). The OCWR maintains three landfills within the county (Olinda Alpha, Frank R. Bowerman, and Prima Deshecha Sanitary Landfills). Both the Olinda Alpha Landfill, located in Brea, and Frank R. Bowerman Landfill, located in Irvine, are located approximately 17 miles from the project alignment. The Prima Deshecha Sanitary Landfill is located in San Juan Capistrano, approximately 31 miles from the project site. The Olinda Alpha Landfill is a Class III municipal solid waste landfill featuring 565 total acres, 453 of which are permitted for refuse disposal. The Olinda Alpha Landfill's average disposal rate is nearly 7,000 tons per day (TPD), although it is permitted 8,000 TPD. With an average 1,000 TPD of remaining capacity, Olinda Alpha Landfill is at 13 percent remaining capacity. The landfill has enough projected remaining capacity to serve residents and businesses until 2030, at which point it will be closed and converted to a park (Orange County Waste and Recycling 2017a). The Frank R. Bowerman Landfill is a Class III, municipal solid waste landfill. The property spans approximately 725 acres with 534 acres allocated for waste disposal. It is permitted for 11,500 TPD maximum with an annual average of 8,500 TPD. With an average 3,000 TPD of remaining capacity, Frank R. Bowerman Landfill is at 26 percent remaining capacity. The landfill has enough project capacity to serve residents and businesses until approximately 2053 (Orange County Waste and Recycling 2017b). The Prima Deshecha Sanitary Landfill is a Class III site featuring 1,530 total acres, 697 of which are permitted for refuse disposal. Its average disposal rate is approximately 1,400 TPD, with a daily maximum permitted tonnage of 4,000. With an average 2,600 of remaining capacity, Prima Deshecha Sanitary Landfill is at 65 percent remaining capacity.

As discussed in EIR No. 560, the existing channel bisects numerous utilities lines that provide natural gas, sewer, water, and oil services. The majority of the utility lines that bisect the channel system follow under roadways that extend over the existing channel. None of these utility lines extend over the area of Reach 1 of the C05 channel system where the project alignment is located.

The proposed project would have no operational impacts related to utilities and service systems. Construction impacts are discussed below.

Discussion

Response to Impact Question a): No Impact.

As discussed in Section 3.9, *Hydrology and Water Quality*, the proposed project is subject to the requirements of the Santa Ana RWQCB, CWA, NPDES, and Construction General Permit. The proposed project is also required to comply with Santa Ana RWQCB waste discharge requirements

(NPDES No. CAS618030, Order No. 96-31). As stated previously, the proposed project would be in compliance with and would not exceed all and any applicable RWQCB requirements.

The proposed project would not necessitate a need for long-term water resources, although during construction there may be up to one water truck per day required for site preparation, soil-cement mixing, excavation, maintenance road, and landscaping activities. A temporary coffer dam will be constructed on both ends of the construction. The downstream coffer dam would prevent tidal inundation from downstream and the upstream coffer dam would prevent inundation from urban runoff flows from upstream. Coffer dams or stream diversions that fail for any reason would be immediately assessed, and repairs would commence following the assessment. The urban runoff would be placed in a pipe and pumped around the project site. None of the diverted urban runoff will be pumped to the sanitary sewer. No impact would occur.

Response to Impact Question b): No Impact.

The proposed project would increase the flood conveyance capacity of the existing channel, correct channel erosion, and provide additional protection from flooding. It would not create wastewater flows, although during construction there may be up to one water truck per day required for site preparation, soil-cement mixing, excavation, maintenance road, and landscaping activities as well as water requirements for two portable toilets. None of the diverted urban runoff will be pumped to the sanitary sewer. Therefore, no impact would occur.

Response to Impact Question c): No Impact.

The existing drainage pattern within the project site would be temporarily affected by excavation during construction and use of the two coffer dams. However, the proposed project would not permanently alter the existing drainage pattern of the site or surrounding area. Once construction is completed, the area would be returned to original/existing condition. Therefore, there would be no long-term or permanent change in drainage patterns. As such, the proposed construction activities would be served by the existing storm drain system and would not require new or expanded facilities. No impact on stormwater facilities would occur.

Response to Impact Question d): Less-than-Significant Impact.

The proposed project would increase the flood conveyance capacity of the existing channel, correct channel erosion, and provide additional protection from flooding. The proposed project would not result in an increase in water demand during operation of the proposed project. During construction of the proposed project, a slight increase in water demand from use of the water truck. Therefore, less-than-significant impacts on water supply would occur.

Response to Impact Question e): No Impact.

Wastewater would be generated during construction of the proposed project and serviced by two portable toilets. Wastewater would not be generated during operation of the proposed project. No impact on wastewater treatment providers would occur.

Response to Impact Question f): Less-than-Significant Impact.

During construction, the proposed project would excavate approximately 141,694 cubic yards of soil, which would become the property of the construction contractor and be disposed of in any legal

method. It is expected that the construction contractor would either retain the soil, or a portion thereof, for use on another construction project or could transfer it at any of the three landfills in Orange County which have between 15 to 63 percent of remaining capacity. Operation and maintenance activities would be similar to those associated with the existing channel—inspection for large tree growth and trash removal, and would not generate a significant amount of solid waste. Minor amounts of solid waste would also be generated from construction workers, equipment packaging, etc. that would require disposal at a permitted landfill. Therefore, between the construction contractor and the three landfills in Orange County, the minimal amount of solid waste generated by the proposed project could be accommodated and impacts would be less than significant. No mitigation is required.

Response to Impact Question g): No Impact.

Construction of the proposed project would comply with federal, state, and local statutes related to solid waste. No impact would occur as a result of the proposed project.

3.3.19 Mandatory Findings of Significance		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a.	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b.	Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☒	☐	☐
c.	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Discussion

Response to Impact Question a): Less-than-Significant Impact with Mitigation Incorporated.

Implementation of the proposed project together with the mitigation measures listed in sections 3.3.4, Biological Resources, and 3.3.5, Cultural/Scientific Resources, would reduce any impacts on fish, wildlife species and habitat, and cultural resources to a less-than-significant level.

Response to Impact Question b): Less-than-Significant Impact with Mitigation Incorporated.

A cumulative impact could occur if the proposed project would result in an incrementally considerable contribution to a significant cumulative impact identified from past, present, and reasonably foreseeable future projects for each resource area. Past projects have occurred and represent the existing condition. Present projects are currently under construction. Future projects have development applications in process or approved, but no physical construction has yet occurred.

In all, three present and future projects were identified in the project vicinity. The following table provides a summary of related projects in the vicinity of the project site, which is used in the cumulative impact analysis.

Table 3.3.19-1. Related Projects

Project Description	Location	Distance from Project Site	Entitlement Type
City of Huntington Beach			
Demolish an existing building and construct a new 5,385-square-foot drive through.	6100 Warner Avenue	775 feet south	Conditional Use Permit
Request to amend the land use designation to medium density residential and the zoning designation to a specific plan to subdivide and allow development of 36 townhomes on a vacant 2.5-acre site; includes request for development agreement	17202 Bolsa Chica Street	0.90 mile southwest	General Plan Amendment; Zoning Map Amendment; Zoning Text Amendment; Local Coastal Program Amendment; Conditional Use Permit; Coastal Development Permit; Tentative Tract Map; Development Agreement; Environmental Assessment
Development of 111 single-family residences, 23 acres of preserved, restored, and enhanced open space, 1.6-acre neighborhood park, public trails, and water quality treatment system	West side of Graham Street, south of Warner Avenue, along the East Garden Grove-Wintersburg Flood Channel	0.40 mile southwest	General Plan Amendment; Zoning Map Amendment; Zoning Text Amendment; Local Coastal Program Amendment; Conditional Use Permit; Coastal Development Permit; Tentative Tract Map

Source: City of Huntington Beach 2017b

The proposed project would facilitate maintenance, repairs, and improvements to an existing channel, would be temporary in nature, and would mitigate any potential for impacts to a less than significant level. As discussed in Sections 3.3.1 through 3.3.18, the proposed project would not result in any unavoidable significant impacts. Resource areas for which the proposed project could contribute to cumulative impacts include aesthetics, air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hydrology and water quality, noise, transportation/traffic, and tribal cultural resources.

Aesthetics

As described in Section 3.3.1, *Aesthetics*, the proposed project's aesthetic impacts would be less than significant because construction impacts would be short in duration and temporary, views of the project site are limited to immediately surrounding areas, and the project site is not visible from any distance because of intervening development and topography. In addition, existing site aesthetics would improve after construction with the installation of landscaping including planters and Leyland cypress. None of the proposed project's impacts on aesthetics would be considered cumulatively considerable when considered in connection with the cumulative projects. Impacts would be less than significant and no mitigation is required.

Air Quality

According to State CEQA Guidelines Section 15130 (b), a summary of projections contained in a local, regional, or statewide plan may be used for a discussion of cumulative impacts. The SCAQMD has responsibility for managing the Basin's air resources, and is responsible for bringing the Basin into attainment for federal and state air quality standards. To achieve this goal, the SCAQMD prepares/updates the Basin's Air Quality Management Plan (AQMP) every 4 years.

The 2016 AQMP was adopted by the SCAQMD as a program to lead the Basin into compliance with several criteria pollutant standards and other federal requirements. It relies on emissions forecasts based on the demographic and economic growth projections provided by the SCAG Regional Transportation Plan/Sustainable Communities Strategy (SCAQMD 2016: 4-42). SCAG is charged by California law to prepare and approve "the portions of each AQMP relating to demographic projections and integrated regional land use, housing, employment, and transportation programs, measures and strategies" (SCAQMD 2016: 4-42). Projects whose growth is included in the projections used in the formulation of the AQMP are considered to be consistent with the plan and to not obstruct its implementation. The SCAQMD recommends that, when determining whether a project is consistent with the current AQMP, a lead agency must assess: (1) whether the project would directly obstruct implementation of the plan through an increase in the frequency or severity of existing air quality violations, or cause or contribute to, new violations, or delay timely attainment of air quality standards, and (2) whether it is consistent with the demographic and economic assumptions (typically land use–related, such as resultant employment or residential units) upon which the plan is based (SCAQMD 1993).

The proposed project would not obstruct implementation of the AQMP, as emissions resulting from its construction and operation would not exceed SCAQMD's regional mass emissions thresholds and LSTs (see Tables 3.3.3-3 and 3.3.3-4) with implementation of **Mitigation Measure AQ-1**. The proposed project's emissions would not increase concentrations of criteria pollutants or their precursors in a manner that could obstruct SCAQMD's efforts to achieve attainment of ambient air quality standards for any criteria pollutant for which it is currently not in attainment, or jeopardize the current attainment status of the Basin for other criteria pollutants. Given that the proposed project would involve maintenance, repairs, and improvements to an existing channel, and would not change development patterns that would increase employment or residential units in the project area or elsewhere in the region, the proposed project is consistent with the demographic and economic assumptions upon which the AQMP is based.

Because the proposed project would not exceed regional or localized emissions thresholds with the implementation of **Mitigation Measure AQ-1**, and the proposed project would be consistent with demographic and economic assumptions upon which the AQMP is based, air quality impacts would not be cumulatively considerable.

Biological Resources

Project-related impacts on biological resources would be primarily confined to the temporary loss of in-stream habitat, which would be restored over time through sediment buildup and water flow, and the temporary loss of perching habitat for wading birds, which would be replaced by guard rails along the edges of the new vertical banks. Based on a review of nearby related projects, there are no other known planned projects in the vicinity that would similarly affect in-stream habitat for aquatic or semi-aquatic wildlife. All effects from nearby projects are expected to be in upland areas that would be unlikely to support the same wildlife species. Therefore, impacts from the proposed

project would not contribute to any cumulative effects with nearby related projects. Furthermore, through implementation of proposed mitigation measures, project impacts would be further reduced. The application of **Mitigation Measures BIO-1** and **BIO-2** would reduce the level of impacts on the channel by requiring project personnel to implement a variety of BMPs and permit conditions to protect water quality and in-stream habitat. **Mitigation Measure BIO-3** would require a qualified biologist to search for active nests in the construction area if construction cannot be timed for outside of the nesting season, and would require that those nests be appropriately protected, if present, while **Mitigation Measure BIO-4** would require pre-construction clearance surveys to ensure that any special-status species in the project site are protected. The successful implementation of these four mitigation measures, along with the absence of any cumulative contribution from any nearby related projects, will help to ensure that all project-related impacts on biological resources are ultimately less than significant.

Cultural Resources

There are no historical resources in the proposed project area. In addition, there are no adjacent historical resources that would be affected directly or indirectly by the proposed project. While past, present, and future cumulative development may have the potential to result in potential cumulative impacts on historical resources, the proposed project's contribution to potential significant historical resources would not be cumulatively considerable. The proposed project and the three projects listed in Table 3.3.19-1 are generally located within areas that have been disturbed and developed over time. Future development in the project vicinity could include excavation and grading that could potentially affect archaeological and paleontological resources and human remains. The cumulative effect of the proposed project would be the incremental loss of these resources. The proposed project, in conjunction with other development in the vicinity, has the potential to cumulatively affect archaeological and paleontological resources; however, it should be noted that each development proposal undergoes environmental review pursuant to CEQA. If there is a potential for significant impacts on archaeological or paleontological resources, an investigation would be required to determine the nature and extent of the resources and identify appropriate mitigation measures. If subsurface cultural resources are assessed and/or protected as they are discovered, impacts on these resources would be less than significant. In addition, applicable regulations would be implemented as appropriate to reduce the effects of additional development in the vicinity. **Mitigation Measures CUL-1** and **CUL-2** would be implemented during construction of the proposed project to reduce potential project impacts by ensuring avoidance, evaluation, and, as applicable, scientific recovery and study of any resources encountered. Therefore, with implementation of mitigation measures, the contribution of the proposed project to the cumulative loss of known and unknown cultural resources would be reduced to a less-than-significant level and would not be cumulatively considerable.

Geology and Soils

As discussed in Section 3.3.6, *Geology, Soils and Paleontological Resources*, the project site is located in relative proximity to several major faults. As such, development in a seismically active region can put people and structures at risk from a wide range of earthquake-related effects, including seismic ground shaking, seismically induced landslides, liquefaction, etc. The existing level of seismic risk exposure represents a significant cumulative impact. However, various mechanisms are in place to reduce risks at the project level, including project-specific hazards evaluation processes mandated by the *Seismic Hazards Mapping Act* as well as the seismic design standards promulgated by the State and local building codes. In the case of the proposed project, a geotechnical investigation was

prepared to characterize subsurface conditions and reduce potential impacts of geologic hazards. Moreover, adverse environmental effects associated with seismic hazards as well as those associated with on-site soils usually are site-specific and generally do not combine with similar effects that could occur with other nearby projects. Although there would be some residual level of risk because seismic hazards cannot be entirely avoided, the proposed project would not contribute considerably to the existing cumulative impact related to seismic hazards.

Greenhouse Gas Emissions

GHG emissions and climate change are exclusively cumulative impacts; there are no non-cumulative GHG emissions impacts from a climate change perspective. Climate change is the result of cumulative global emissions. No single project, when considered in isolation, can cause climate change because a single project's emissions are not enough to change the radiative balance of the atmosphere. Because climate change is the result of GHG emissions and GHGs are emitted by innumerable sources worldwide, global climate change will have a significant cumulative impact on the natural environment as well as human development and activity. As such, GHGs and climate change are cumulatively considerable, even though the contribution may be individually limited (SCAQMD 2008). SCAQMD methodology and thresholds are thus cumulative in nature.

As discussed above, the proposed project would result in a short-term increase in GHG emissions due to the amount of construction activities that would be undertaken to implement the proposed project. This would involve the emissions of over 1,600 metric tons of CO_2e as a result of the use of construction equipment and vehicles, as identified in Table 3.3.7-1. Although this would be a temporary increase over existing conditions, the enhanced flood control capacity would not change the development pattern of the surrounding area, and would therefore not impede implementation of GHG reduction measures identified in AB 32, SB 32, and local/regional plans. Thus, impacts related to GHG emissions would not be cumulatively considerable.

Hazards and Hazardous Materials

The hazardous materials geographic study area considered for cumulative impacts consists of the area that could be affected by proposed project activities, and the areas affected by other projects whose activities could directly or indirectly affect the project site. In general, only projects occurring adjacent or very close to the project site are considered due to the limited potential impact area associated with the release of hazardous materials into the environment. As discussed in Section 3.3.8, *Hazards and Hazardous Materials*, no potentially significant impacts related to hazards and hazardous materials resulting from the proposed project have been identified. Furthermore, off-site properties that handle hazardous materials or have a history of hazardous material releases would be subject to agency oversight, would comply with applicable federal, State, and local regulations and conduct remediation activities (if necessary). Therefore, implementation of the proposed project would not contribute to regional cumulative hazardous materials conditions.

Hydrology and Water Quality

Water Quality

Development of the proposed project, combined with other past and future development or redevelopment within the potentially affected geographic area (the Anaheim Bay-Huntington Harbor Watershed for surface water quality and the Coastal Plain of Orange County Groundwater

Basin for groundwater quality), could degrade stormwater quality through an increase in impervious surface area and an increase in contaminated runoff. This could ultimately violate water quality standards, affect beneficial uses, and/or further impair 303(d)-listed waters within the watershed. The quality of stormwater runoff varies with surrounding land uses, topography, and the amount of impervious cover as well as the intensity (energy) and frequency of irrigation or rainfall.

Stormwater drainage can result in cumulative effects on water quality within the affected basin. Development within the vicinity of the proposed project could degrade stormwater quality during construction through land disturbance and during operation through an increase in impervious surface area and contaminated runoff. During construction, runoff may contain sediments and other construction materials and wastes (e.g., concrete debris), resulting from activities such as site clearing, demolition and the removal of the existing structure and pavement, grading and excavation, paving, and landscaping. During operation, runoff may contain oil, grease, and metals that accumulated in streets and parking lots as well as pesticides, nutrients, animal waste, and trash from landscaped areas.

When the effects of the proposed project on water quality are considered in combination with the overall project and potential effects of other cumulative projects, there would be the potential for cumulative impacts on surface and groundwater quality. The incremental water quality impact contribution from implementation of the proposed project would be minor. The combined effects on water quality from the proposed project and other projects could result in a cumulatively significant impact. However, new projects are subject to the requirements of the Orange County municipal separate storm sewer system permit, the construction general permit, and city municipal codes as they relate to water quality; these regulatory requirements have been designed to protect water quality. Additionally, development projects would be subject to an environmental review process, which would identify potential site- and/or project-specific water quality impacts and mitigate for any potential significant impacts. Therefore, cumulative impacts on water quality as a result of the proposed project would be less than considerable.

Groundwater

During construction of other reasonably foreseeable development projects within the Coastal Plain of Orange County Groundwater Basin, potential dewatering could be conducted on a one-time or temporary basis during construction but would not result in a loss of water that would deplete groundwater supplies. During operation, new impervious areas can reduce the potential for groundwater recharge. However, most other reasonably foreseeable projects in the basin would be redevelopment or infill projects in highly urbanized areas where there is limited existing recharge through infiltration due to impervious area. Development in highly urbanized areas would not be expected to increase the amount of impervious surfaces substantially because this development would be occurring mostly in areas with a substantial amount of existing impervious surfaces. Therefore, groundwater recharge from percolating rainfall would not be adversely affected, and an indirect lowering of the local groundwater table is not likely to occur. Implementation of the proposed project would not result in an increase in impervious surface area; therefore, the proposed project would not reduce groundwater recharge. Installation of a subgrade continuous drainage system (infiltration cistern) and new wetlands on the channel side would avoid net outflow of runoff from the site and allow water to infiltrate. Therefore, groundwater recharge would not be adversely affected and cumulative groundwater recharge impacts would be less than considerable.

Cumulative development could require increases in water supplies. The proposed project would not rely on surface or groundwater supplies and, therefore, would not affect groundwater supplies during construction or operation. Landscape features and the infiltration system would continue to allow for groundwater infiltration. Because of the presence of existing impervious surfaces on the project site, the Project Change Site would contribute only minimally to cumulative impacts on groundwater recharge. Therefore, impacts related to development of the proposed project would not be cumulatively considerable and cumulative impacts on groundwater recharge and supply would be less than considerable.

Flooding

Cumulative development within the vicinity of the proposed project could increase the volume and rate of stormwater runoff. Such increases could cause localized flooding if the storm drainage capacity is exceeded or convey excess flows to overbank areas where flood storage may not be available. Generally, cumulative projects would occur in developed areas with existing impervious surfaces, and would not be expected to substantially increase the amount of new impervious surfaces.

All new development is required to handle stormwater in a manner that ensures that flooding will not increase and flood flows will not be redirected to other areas that are not currently prone to flooding. All cumulative projects would be required to include stormwater management features, such as low-impact development measures into project designs to reduce flows to pre-project conditions. If improvements to storm drainage capacity are needed, the County would be required to coordinate with local agencies to ensure the appropriate conditions of approval for storm drainage improvements are identified. The proposed project would not result in an increase in impervious surfaces. Post-construction stormwater management BMPs including permanent structural and non-structural BMPs, such as a subgrade continuous drainage system and consideration in landscape design, would be included. The overall effect of these design features would be a reduction in the total system stormwater runoff rate at the project site. Therefore, the proposed project would not likely contribute to the cumulative exceedance of storm drainage capacity, and there would be a less-than-considerable contribution to the cumulative impact.

Implementation of the proposed project would not contribute to the potential for flooding or the exposure of people and structures to flood risks. Although the proposed project is located within a FEMA-designated 100-year flood zone, the proposed project would implement improvements to increase the flood conveyance capacity of the channel to accommodate the 100-year storm within the limits of the project boundaries. Development that is located in existing or future flood-prone areas could have an effect on contributing to cumulative impacts related to flooding. However, with the implementation of drainage improvements, and incorporation of landscaped and continuous drainage system features, any potential for overland flood flows would be minimized. Therefore, the risk of flooding would have a less-than-considerable contribution to the cumulative impact. Compliance by other reasonably foreseeable development projects to relevant regulations would also reduce or avoid any significant cumulative impact. Therefore, the cumulative flood risk impact would be less than considerable.

Noise

Potential noise and vibration impacts associated with the construction of the proposed project could occur due to other nearby construction noise sources. Construction activities for the proposed

project could coincide with construction activities from any of the cumulative projects listed above provided that these projects go into construction during the 18-month construction window planned for the proposed project. However, the closest cumulative project to the proposed project site is the demolition and construction of a 5,385-foot drive through, which is located approximately 800 feet to the south of the project site. Attenuation due to distance, as well as intervening topography and building structures, would substantially reduce construction noise and groundborne vibration to levels that would be imperceptible or barely audible to people in the immediate project vicinity. Furthermore, project construction noise impacts would be less than significant, as the proposed project would comply with the limits of construction activities to the hours permitted by the County and City of Huntington Beach's Municipal Code. Therefore, because the proposed project would not result in any significant construction noise or vibration impacts and cumulative projects would not add noticeably to the overall construction noise and vibration levels in the project vicinity, construction noise and vibration impacts would not be cumulatively considerable.

The proposed project would not result in operational noise sources; therefore, no impacts would occur and impacts would not be cumulatively considerable.

Transportation/Traffic

As described in Section 3.3.16, *Transportation/Traffic*, there is a potential for project-related construction traffic to affect adjacent roadways providing access to the project site during construction. However, no full roadway closures are expected and access for emergency vehicles, buses, and bicyclists would be maintained. The proposed project would also implement **Mitigation Measure TR-1**, which would require the construction contractor to prepare and submit a detailed traffic control plan to minimize temporary construction traffic impacts. The related cumulative projects are located in proximity to the project site and construction schedules could overlap with the proposed project. Should construction overlap, the related cumulative projects could utilize the same roadways as the proposed project. However, each development project would be subject to an environmental review process, which would identify potential transportation and traffic impacts and mitigate for any potential significant impacts. Thus, the adjacent roadway network is expected to be able to accommodate the anticipated additional construction traffic in combination with the other cumulative projects. Therefore, the proposed project would not contribute to or create a cumulatively significant impact related to construction traffic.

During operation of the proposed project, increases in traffic volumes are not expected and maintenance activities would occur similar to existing conditions. Therefore, there would be no operational cumulative impact.

Tribal Cultural Resources

As listed in Table 3.3.19-1, three related projects have been identified in the vicinity of the proposed project. These related projects consist of a variety of land uses, including residential, commercial, open space, and recreation.

No tribal cultural resources have been identified on the proposed project site or within the immediate vicinity. Any cumulative impacts on tribal cultural resources would be reduced by compliance with applicable regulatory requirements in the event of an unanticipated discovery. In addition, in association with CEQA review, related projects would be required to comply with the consultation requirements of AB 52 to determine and mitigate any potential impacts on tribal

cultural resources. **Mitigation Measures TCR-1** and **TCR-2** would be implemented during construction of the proposed project to reduce potential project impacts on tribal cultural resources. Therefore, cumulative impacts on tribal cultural resources would be less than significant and would not be cumulatively considerable.

Response to Impact Question c): Less-than-Significant Impact.

As described in Chapter 2, *Project Description*, the proposed project would serve to maintain the existing C05 channel system, increase flood conveyance capacity of the channel, and address erosion issues. All impacts identified in this IS were below the level of significance or were reduced to less-than-significant levels with the implementation mitigation measures; therefore, the proposed project would not cause substantial adverse effects on human beings.

Chapter 4
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Chapter 5
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5.1 Orange County Public Works

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5.2 ICF

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Rusty Whisman	Air Quality & Greenhouse Gas Emissions
Ryan Winkleman	Biological Resources
Karolina Chmiel Karen Crawford Timothy Yates	Cultural Resources/Scientific Resources & Tribal Cultural Resources
Mario Barrera	Geology and Soils & Hazards & Hazardous Materials
Laura Rocha Katrina Sukola	Hydrology & Water Quality
Peter Hardie	Noise

Appendix A

Air Quality and Greenhouse Gases

OCPW EGGW Channel Improvement Project

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	3.42	Acre	3.42	148,975.20	0
General Office Building	1.00	1000sqft	0.02	1,000.00	0
City Park	13.11	Acre	13.11	571,071.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

OCPW EGGW Channel Improvement Project - Orange County, Summer

Project Characteristics - Start of construction assumed to be late 2018. In the event that construction occurs later, emissions would be lower due to the retirement of older, higher-emitting pieces of equipment.

Land Use - Other asphlt surfaces land use type used to represent 3.42 acres of maintenance roads on top of soil cement columns, city park land use type used to represent sheet piling/soil cement column installation (13.11-acre site); two office buildings (approximately 500 sf each) are assumed and operational emissions will be added to the construction emissions.

Construction Phase - Phases and durations provided by project manager; phase type has been approximated to capture the types of activities that would be performed under during each phase. Approximately one-month overlaps would occur between the first through third phases.

Off-road Equipment - Equipment list provided by OCPW; horsepower and load factors are default

Off-road Equipment - Equipment list provided by OCPW; horsepower and load factors for the crane is default, and horsepower for the piling equipment power units (generators) was provided by OCPW

Off-road Equipment - Equipment list provided by OCPW; horsepower and load factors are default for dozers and backhoe; horsepower for drill rigs, cement mixers, and pumps were provided by OCPW.

Off-road Equipment - Equipment list provided by OCPW; horsepower and load factors are default

Off-road Equipment - Equipment list and horsepower provided by OCPW; load factors are default

Off-road Equipment - Equipment list provided by OCPW; horsepower and load factors are default

Off-road Equipment - Equipment list provided by OCPW; horsepower and load factors are default

Grading - Approximately 104,000 cy of soil cement would be used to do the columns; excavation within the channel would require approximately 142,000 cy of export

Trips and VMT - Worker trip estimates provided by OCPW. Deliveries of cement and piles assumed to be equally divided for the pile installation phase. Export to occur during grading/excavation in channel phase. All trip lengths are defaults.

Vehicle Trips - County inspector trips captured in the operational mobile emissions; contractor trips are captured in the construction mobile emissions. After construction, maintenance would be minimal, and would not increase relative to existing condtions.

Area Coating - No architectural coatings would be applied.

Energy Use -

Construction Off-road Equipment Mitigation - Rule 403

Table Name	Column Name	Default Value	New Value
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tblAreaCoating	Area_Nonresidential_Interior	858108	0
tblAreaCoating	Area_Parking	8939	0
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tblConstructionPhase	NumDays	30.00	100.00

tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	30.00	45.00
tblConstructionPhase	NumDays	10.00	45.00
tblConstructionPhase	NumDays	10.00	45.00
tblConstructionPhase	NumDays	300.00	150.00
tblConstructionPhase	PhaseEndDate	12/7/2018	2/4/2020
tblConstructionPhase	PhaseEndDate	1/18/2019	6/23/2020
tblConstructionPhase	PhaseEndDate	4/24/2020	9/15/2020
tblConstructionPhase	PhaseEndDate	3/1/2019	8/25/2020
tblConstructionPhase	PhaseEndDate	10/12/2018	11/30/2018
tblConstructionPhase	PhaseEndDate	5/22/2020	11/17/2020
tblConstructionPhase	PhaseEndDate	10/26/2018	5/29/2019
tblConstructionPhase	PhaseStartDate	10/27/2018	5/1/2019
tblConstructionPhase	PhaseStartDate	12/8/2018	2/5/2020
tblConstructionPhase	PhaseStartDate	3/2/2019	8/26/2020
tblConstructionPhase	PhaseStartDate	1/19/2019	6/24/2020
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tblConstructionPhase	PhaseStartDate	10/13/2018	11/1/2018
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tblGrading	AcresOfGrading	0.00	1.00
tblGrading	AcresOfGrading	0.00	1.00
tblGrading	AcresOfGrading	0.00	1.00
tblGrading	MaterialExported	0.00	141,694.00
tblGrading	MaterialImported	0.00	104,271.00
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tblOffRoadEquipment	HorsePower	247.00	350.00
tblOffRoadEquipment	HorsePower	221.00	450.00

tblOffRoadEquipment	HorsePower	9.00	350.00
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tblOffRoadEquipment	HorsePower	97.00	350.00
tblOffRoadEquipment	HorsePower	84.00	350.00
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tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
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tblOffRoadEquipment	PhaseName		Soil cement mixing, levee work, maintenance road prep
tblOffRoadEquipment	PhaseName		Landscaping
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tblTripsAndVMT	VendorTripNumber	0.00	12.00
tblTripsAndVMT	VendorTripNumber	118.00	48.00
tblTripsAndVMT	WorkerTripNumber	15.00	20.00
tblTripsAndVMT	WorkerTripNumber	8.00	20.00
tblTripsAndVMT	WorkerTripNumber	10.00	20.00
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tblTripsAndVMT	WorkerTripNumber	5.00	20.00

tblTripsAndVMT	WorkerTripNumber	8.00	20.00
tblVehicleTrips	ST_TR	2.46	0.00
tblVehicleTrips	SU_TR	1.05	0.00
tblVehicleTrips	WD_TR	11.03	6.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	6.3172	70.8431	33.5051	0.1008	12.8747	2.9479	15.8225	6.8494	2.7644	9.6138	0.0000	10,852.6435	10,852.6435	1.4345	0.0000	10,888.5053
2019	5.8594	63.5231	33.2060	0.1546	1.6826	1.9195	3.6021	0.6598	1.8594	2.5192	0.0000	16,758.7155	16,758.7155	1.8867	0.0000	16,805.8831
2020	3.4745	34.6444	27.9859	0.0887	38.4545	1.4980	39.9526	20.4020	1.3782	21.7802	0.0000	9,364.9891	9,364.9891	1.4158	0.0000	9,400.3836
Maximum	**6.3172**	**70.8431**	**33.5051**	**0.1546**	**38.4545**	**2.9479**	**39.9526**	**20.4020**	**2.7644**	**21.7802**	**0.0000**	**16,758.7155**	**16,758.7155**	**1.8867**	**0.0000**	**16,805.8831**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	6.3172	70.8431	33.5051	0.1008	5.5277	2.9479	8.4756	2.8109	2.7644	5.5753	0.0000	10,852.6435	10,852.6435	1.4345	0.0000	10,888.5053
2019	5.8594	63.5231	33.2060	0.1546	1.1842	1.9195	3.1038	0.4016	1.8594	2.2610	0.0000	16,758.7155	16,758.7155	1.8867	0.0000	16,805.8831
2020	3.4745	34.6444	27.9859	0.0887	16.1534	1.4980	17.6514	8.2490	1.3782	9.6273	0.0000	9,364.9891	9,364.9891	1.4158	0.0000	9,400.3836
Maximum	**6.3172**	**70.8431**	**33.5051**	**0.1546**	**16.1534**	**2.9479**	**17.6514**	**8.2490**	**2.7644**	**9.6273**	**0.0000**	**16,758.7155**	**16,758.7155**	**1.8867**	**0.0000**	**16,805.8831**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**56.87**	**0.00**	**50.77**	**58.94**	**0.00**	**48.51**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1022	2.0000e-005	1.8000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8400e-003	3.8400e-003	1.0000e-005		4.0900e-003
Energy	2.7000e-004	2.4600e-003	2.0600e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		2.9460	2.9460	6.0000e-005	5.0000e-005	2.9635
Mobile	0.0100	0.0406	0.1333	4.8000e-004	0.0410	4.7000e-004	0.0415	0.0110	4.4000e-004	0.0114		48.5371	48.5371	2.0300e-003		48.5879
Total	**0.1125**	**0.0431**	**0.1372**	**4.9000e-004**	**0.0410**	**6.7000e-004**	**0.0417**	**0.0110**	**6.4000e-004**	**0.0116**		**51.4869**	**51.4869**	**2.1000e-003**	**5.0000e-005**	**51.5555**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1022	2.0000e-005	1.8000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8400e-003	3.8400e-003	1.0000e-005		4.0900e-003
Energy	2.7000e-004	2.4600e-003	2.0600e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		2.9460	2.9460	6.0000e-005	5.0000e-005	2.9635
Mobile	0.0100	0.0406	0.1333	4.8000e-004	0.0410	4.7000e-004	0.0415	0.0110	4.4000e-004	0.0114		48.5371	48.5371	2.0300e-003		48.5879
Total	**0.1125**	**0.0431**	**0.1372**	**4.9000e-004**	**0.0410**	**6.7000e-004**	**0.0417**	**0.0110**	**6.4000e-004**	**0.0116**		**51.4869**	**51.4869**	**2.1000e-003**	**5.0000e-005**	**51.5555**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site preparation of levees, infiltration cistern	Site Preparation	10/1/2018	11/30/2018	5	45	
2	Sheet pile installation	Building Construction	11/1/2018	5/29/2019	5	150	
3	Soil cement mixing, levee work, maintenance road prep	Grading	5/1/2019	2/4/2020	5	200	
4	Pile caps and retaining walls	Grading	2/5/2020	6/23/2020	5	100	
5	Grading/excavation inside channel	Grading	6/24/2020	8/25/2020	5	45	
6	Asphalt paving of maintenance roads	Paving	8/26/2020	9/15/2020	5	15	
7	Landscaping	Site Preparation	9/16/2020	11/17/2020	5	45	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 3.42

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

OCPW EGGW Channel Improvement Project - Orange County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Soil cement mixing, levee work, maintenance road prep	Tractors/Loaders/Backhoes	1	1.00	97	0.37
Grading/excavation inside channel	Excavators	1	4.00	350	0.38
Grading/excavation inside channel	Rubber Tired Dozers	2	8.00	350	0.40
Asphalt paving of maintenance roads	Rubber Tired Loaders	1	6.00	203	0.36
Landscaping	Rubber Tired Dozers	1	6.00	247	0.40
Sheet pile installation	Cranes	1	8.00	231	0.29
Soil cement mixing, levee work, maintenance road prep	Bore/Drill Rigs	2	8.00	450	0.50
Soil cement mixing, levee work, maintenance road prep	Cement and Mortar Mixers	2	8.00	350	0.56
Asphalt paving of maintenance roads	Pavers	1	8.00	130	0.42
Landscaping	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Asphalt paving of maintenance roads	Rollers	1	8.00	80	0.38
Site preparation of levees, infiltration cistern	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site preparation of levees, infiltration cistern	Rubber Tired Dozers	2	8.00	247	0.40
Soil cement mixing, levee work, maintenance road prep	Pumps	2	8.00	350	0.74
Grading/excavation inside channel	Tractors/Loaders/Backhoes	1	8.00	350	0.37
Soil cement mixing, levee work, maintenance road prep	Rubber Tired Dozers	1	1.00	247	0.40
Pile caps and retaining walls	Tractors/Loaders/Backhoes	2	4.00	97	0.37
Sheet pile installation	Generator Sets	2	8.00	350	0.74

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Landscaping	3	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site preparation of levees, infiltration cist	6	20.00	12.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Landscaping	3	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading/excavation inside channel	4	20.00	0.00	60.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading/excavation inside channel	4	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading/excavation inside channel	4	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Sheet pile installation	3	20.00	48.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Soil cement mixing, levee work, maintenan	8	30.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pile caps and retaining walls	2	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Asphalt paving of maintenance roads	3	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site preparation of levees, infiltration cistern - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.0442	0.0000	12.0442	6.6205	0.0000	6.6205			0.0000			0.0000
Off-Road	3.3966	35.6388	18.0998	0.0295		1.9663	1.9663		1.8090	1.8090		2,971.4505	2,971.4505	0.9251		2,994.5768
Total	**3.3966**	**35.6388**	**18.0998**	**0.0295**	**12.0442**	**1.9663**	**14.0105**	**6.6205**	**1.8090**	**8.4295**		**2,971.4505**	**2,971.4505**	**0.9251**		**2,994.5768**

3.2 Site preparation of levees, infiltration cistern - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0486	1.4315	0.3841	3.0300e-003	0.0767	0.0106	0.0873	0.0221	0.0101	0.0322		329.1940	329.1940	0.0286		329.9082
Worker	0.0896	0.0609	0.7856	2.3200e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		231.3351	231.3351	6.1300e-003		231.4883
Total	**0.1382**	**1.4924**	**1.1697**	**5.3500e-003**	**0.3002**	**0.0121**	**0.3123**	**0.0814**	**0.0115**	**0.0929**		**560.5291**	**560.5291**	**0.0347**		**561.3965**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.6972	0.0000	4.6972	2.5820	0.0000	2.5820			0.0000			0.0000
Off-Road	3.3966	35.6388	18.0998	0.0295		1.9663	1.9663		1.8090	1.8090	0.0000	2,971.4505	2,971.4505	0.9251		2,994.5768
Total	**3.3966**	**35.6388**	**18.0998**	**0.0295**	**4.6972**	**1.9663**	**6.6636**	**2.5820**	**1.8090**	**4.3910**	**0.0000**	**2,971.4505**	**2,971.4505**	**0.9251**		**2,994.5768**

3.2 Site preparation of levees, infiltration cistern - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0486	1.4315	0.3841	3.0300e-003	0.0767	0.0106	0.0873	0.0221	0.0101	0.0322		329.1940	329.1940	0.0286		329.9082
Worker	0.0896	0.0609	0.7856	2.3200e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		231.3351	231.3351	6.1300e-003		231.4883
Total	**0.1382**	**1.4924**	**1.1697**	**5.3500e-003**	**0.3002**	**0.0121**	**0.3123**	**0.0814**	**0.0115**	**0.0929**		**560.5291**	**560.5291**	**0.0347**		**561.3965**

3.3 Sheet pile installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4984	27.9248	11.9136	0.0515		0.9256	0.9256		0.9020	0.9020		5,772.5527	5,772.5527	0.3543		5,781.4109
Total	**2.4984**	**27.9248**	**11.9136**	**0.0515**		**0.9256**	**0.9256**		**0.9020**	**0.9020**		**5,772.5527**	**5,772.5527**	**0.3543**		**5,781.4109**

3.3 Sheet pile installation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1944	5.7261	1.5363	0.0121	0.3067	0.0424	0.3491	0.0883	0.0405	0.1288		1,316.7760	1,316.7760	0.1143		1,319.6328
Worker	0.0896	0.0609	0.7856	2.3200e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		231.3351	231.3351	6.1300e-003		231.4883
Total	**0.2840**	**5.7870**	**2.3219**	**0.0145**	**0.5303**	**0.0439**	**0.5741**	**0.1476**	**0.0419**	**0.1894**		**1,548.1112**	**1,548.1112**	**0.1204**		**1,551.1210**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4984	27.9248	11.9136	0.0515		0.9256	0.9256		0.9020	0.9020	0.0000	5,772.5527	5,772.5527	0.3543		5,781.4109
Total	**2.4984**	**27.9248**	**11.9136**	**0.0515**		**0.9256**	**0.9256**		**0.9020**	**0.9020**	**0.0000**	**5,772.5527**	**5,772.5527**	**0.3543**		**5,781.4109**

3.3 Sheet pile installation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1944	5.7261	1.5363	0.0121	0.3067	0.0424	0.3491	0.0883	0.0405	0.1288		1,316.7760	1,316.7760	0.1143		1,319.6328
Worker	0.0896	0.0609	0.7856	2.3200e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		231.3351	231.3351	6.1300e-003		231.4883
Total	**0.2840**	**5.7870**	**2.3219**	**0.0145**	**0.5303**	**0.0439**	**0.5741**	**0.1476**	**0.0419**	**0.1894**		**1,548.1112**	**1,548.1112**	**0.1204**		**1,551.1210**

3.3 Sheet pile installation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3221	24.7905	11.5660	0.0515		0.8211	0.8211		0.8007	0.8007		5,763.1653	5,763.1653	0.3452		5,771.7946
Total	**2.3221**	**24.7905**	**11.5660**	**0.0515**		**0.8211**	**0.8211**		**0.8007**	**0.8007**		**5,763.1653**	**5,763.1653**	**0.3452**		**5,771.7946**

3.3 Sheet pile installation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1800	5.4470	1.4399	0.0121	0.3067	0.0368	0.3435	0.0883	0.0352	0.1235		1,310.2506	1,310.2506	0.1106		1,313.0158
Worker	0.0824	0.0541	0.7135	2.2600e-003	0.2236	1.4900e-003	0.2251	0.0593	1.3800e-003	0.0607		225.2281	225.2281	5.5400e-003		225.3665
Total	**0.2624**	**5.5011**	**2.1534**	**0.0143**	**0.5303**	**0.0383**	**0.5686**	**0.1476**	**0.0366**	**0.1841**		**1,535.4786**	**1,535.4786**	**0.1162**		**1,538.3823**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3221	24.7905	11.5660	0.0515		0.8211	0.8211		0.8007	0.8007	0.0000	5,763.1653	5,763.1653	0.3452		5,771.7946
Total	**2.3221**	**24.7905**	**11.5660**	**0.0515**		**0.8211**	**0.8211**		**0.8007**	**0.8007**	**0.0000**	**5,763.1653**	**5,763.1653**	**0.3452**		**5,771.7946**

3.3 Sheet pile installation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1800	5.4470	1.4399	0.0121	0.3067	0.0368	0.3435	0.0883	0.0352	0.1235		1,310.2506	1,310.2506	0.1106		1,313.0158
Worker	0.0824	0.0541	0.7135	2.2600e-003	0.2236	1.4900e-003	0.2251	0.0593	1.3800e-003	0.0607		225.2281	225.2281	5.5400e-003		225.3665
Total	**0.2624**	**5.5011**	**2.1534**	**0.0143**	**0.5303**	**0.0383**	**0.5686**	**0.1476**	**0.0366**	**0.1841**		**1,535.4786**	**1,535.4786**	**0.1162**		**1,538.3823**

3.4 Soil cement mixing, levee work, maintenance road prep - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.8170	0.0000	0.8170	0.4233	0.0000	0.4233			0.0000			0.0000
Off-Road	3.1513	33.1504	18.4164	0.0854		1.0579	1.0579		1.0201	1.0201		9,122.2294	9,122.2294	1.4171		9,157.6564
Total	**3.1513**	**33.1504**	**18.4164**	**0.0854**	**0.8170**	**1.0579**	**1.8750**	**0.4233**	**1.0201**	**1.4434**		**9,122.2294**	**9,122.2294**	**1.4171**		**9,157.6564**

3.4 Soil cement mixing, levee work, maintenance road prep - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1236	0.0811	1.0702	3.3900e-003	0.3353	2.2400e-003	0.3376	0.0889	2.0600e-003	0.0910		337.8421	337.8421	8.3100e-003		338.0497
Total	**0.1236**	**0.0811**	**1.0702**	**3.3900e-003**	**0.3353**	**2.2400e-003**	**0.3376**	**0.0889**	**2.0600e-003**	**0.0910**		**337.8421**	**337.8421**	**8.3100e-003**		**338.0497**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3186	0.0000	0.3186	0.1651	0.0000	0.1651			0.0000			0.0000
Off-Road	3.1513	33.1504	18.4164	0.0854		1.0579	1.0579		1.0201	1.0201	0.0000	9,122.2294	9,122.2294	1.4171		9,157.6564
Total	**3.1513**	**33.1504**	**18.4164**	**0.0854**	**0.3186**	**1.0579**	**1.3766**	**0.1651**	**1.0201**	**1.1852**	**0.0000**	**9,122.2294**	**9,122.2294**	**1.4171**		**9,157.6564**

3.4 Soil cement mixing, levee work, maintenance road prep - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1236	0.0811	1.0702	3.3900e-003	0.3353	2.2400e-003	0.3376	0.0889	2.0600e-003	0.0910		337.8421	337.8421	8.3100e-003		338.0497
Total	**0.1236**	**0.0811**	**1.0702**	**3.3900e-003**	**0.3353**	**2.2400e-003**	**0.3376**	**0.0889**	**2.0600e-003**	**0.0910**		**337.8421**	**337.8421**	**8.3100e-003**		**338.0497**

3.4 Soil cement mixing, levee work, maintenance road prep - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.8170	0.0000	0.8170	0.4233	0.0000	0.4233			0.0000			0.0000
Off-Road	3.0040	29.6847	18.1296	0.0854		0.9605	0.9605		0.9253	0.9253		9,037.9760	9,037.9760	1.4083		9,073.1841
Total	**3.0040**	**29.6847**	**18.1296**	**0.0854**	**0.8170**	**0.9605**	**1.7775**	**0.4233**	**0.9253**	**1.3486**		**9,037.9760**	**9,037.9760**	**1.4083**		**9,073.1841**

3.4 Soil cement mixing, levee work, maintenance road prep - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1153	0.0726	0.9820	3.2800e-003	0.3353	2.2200e-003	0.3376	0.0889	2.0400e-003	0.0910		327.0131	327.0131	7.4500e-003		327.1995
Total	**0.1153**	**0.0726**	**0.9820**	**3.2800e-003**	**0.3353**	**2.2200e-003**	**0.3376**	**0.0889**	**2.0400e-003**	**0.0910**		**327.0131**	**327.0131**	**7.4500e-003**		**327.1995**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3186	0.0000	0.3186	0.1651	0.0000	0.1651			0.0000			0.0000
Off-Road	3.0040	29.6847	18.1296	0.0854		0.9605	0.9605		0.9253	0.9253	0.0000	9,037.9760	9,037.9760	1.4083		9,073.1841
Total	**3.0040**	**29.6847**	**18.1296**	**0.0854**	**0.3186**	**0.9605**	**1.2791**	**0.1651**	**0.9253**	**1.0904**	**0.0000**	**9,037.9760**	**9,037.9760**	**1.4083**		**9,073.1841**

3.4 Soil cement mixing, levee work, maintenance road prep - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1153	0.0726	0.9820	3.2800e-003	0.3353	2.2200e-003	0.3376	0.0889	2.0400e-003	0.0910		327.0131	327.0131	7.4500e-003		327.1995
Total	**0.1153**	**0.0726**	**0.9820**	**3.2800e-003**	**0.3353**	**2.2200e-003**	**0.3376**	**0.0889**	**2.0400e-003**	**0.0910**		**327.0131**	**327.0131**	**7.4500e-003**		**327.1995**

3.5 Pile caps and retaining walls - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2095	2.1052	2.2797	3.1100e-003		0.1331	0.1331		0.1225	0.1225		300.7685	300.7685	0.0973		303.2004
Total	**0.2095**	**2.1052**	**2.2797**	**3.1100e-003**		**0.1331**	**0.1331**		**0.1225**	**0.1225**		**300.7685**	**300.7685**	**0.0973**		**303.2004**

3.5 Pile caps and retaining walls - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0769	0.0484	0.6547	2.1900e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		218.0087	218.0087	4.9700e-003		218.1330
Total	**0.0769**	**0.0484**	**0.6547**	**2.1900e-003**	**0.2236**	**1.4800e-003**	**0.2250**	**0.0593**	**1.3600e-003**	**0.0607**		**218.0087**	**218.0087**	**4.9700e-003**		**218.1330**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2095	2.1052	2.2797	3.1100e-003		0.1331	0.1331		0.1225	0.1225	0.0000	300.7685	300.7685	0.0973		303.2004
Total	**0.2095**	**2.1052**	**2.2797**	**3.1100e-003**		**0.1331**	**0.1331**		**0.1225**	**0.1225**	**0.0000**	**300.7685**	**300.7685**	**0.0973**		**303.2004**

3.5 Pile caps and retaining walls - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0769	0.0484	0.6547	2.1900e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		218.0087	218.0087	4.9700e-003		218.1330
Total	**0.0769**	**0.0484**	**0.6547**	**2.1900e-003**	**0.2236**	**1.4800e-003**	**0.2250**	**0.0593**	**1.3600e-003**	**0.0607**		**218.0087**	**218.0087**	**4.9700e-003**		**218.1330**

3.6 Grading/excavation inside channel - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					36.5593	0.0000	36.5593	19.9229	0.0000	19.9229			0.0000			0.0000
Off-Road	3.2339	34.1325	25.9293	0.0409		1.4924	1.4924		1.3730	1.3730		3,965.1856	3,965.1856	1.2824		3,997.2461
Total	**3.2339**	**34.1325**	**25.9293**	**0.0409**	**36.5593**	**1.4924**	**38.0517**	**19.9229**	**1.3730**	**21.2959**		**3,965.1856**	**3,965.1856**	**1.2824**		**3,997.2461**

3.6 Grading/excavation inside channel - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0101	0.3666	0.0926	1.0200e-003	0.0585	1.1900e-003	0.0597	0.0150	1.1400e-003	0.0161		113.7411	113.7411	0.0118		114.0358
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2306	0.1453	1.9640	6.5600e-003	1.8368	4.4300e-003	1.8412	0.4641	4.0800e-003	0.4682		654.0262	654.0262	0.0149		654.3989
Total	**0.2407**	**0.5119**	**2.0566**	**7.5800e-003**	**1.8952**	**5.6200e-003**	**1.9009**	**0.4791**	**5.2200e-003**	**0.4843**		**767.7672**	**767.7672**	**0.0267**		**768.4347**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.2581	0.0000	14.2581	7.7699	0.0000	7.7699			0.0000			0.0000
Off-Road	3.2339	34.1325	25.9293	0.0409		1.4924	1.4924		1.3730	1.3730	0.0000	3,965.1856	3,965.1856	1.2824		3,997.2461
Total	**3.2339**	**34.1325**	**25.9293**	**0.0409**	**14.2581**	**1.4924**	**15.7505**	**7.7699**	**1.3730**	**9.1429**	**0.0000**	**3,965.1856**	**3,965.1856**	**1.2824**		**3,997.2461**

3.6 Grading/excavation inside channel - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0101	0.3666	0.0926	1.0200e-003	0.0585	1.1900e-003	0.0597	0.0150	1.1400e-003	0.0161		113.7411	113.7411	0.0118		114.0358
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2306	0.1453	1.9640	6.5600e-003	1.8368	4.4300e-003	1.8412	0.4641	4.0800e-003	0.4682		654.0262	654.0262	0.0149		654.3989
Total	**0.2407**	**0.5119**	**2.0566**	**7.5800e-003**	**1.8952**	**5.6200e-003**	**1.9009**	**0.4791**	**5.2200e-003**	**0.4843**		**767.7672**	**767.7672**	**0.0267**		**768.4347**

3.7 Asphalt paving of maintenance roads - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7514	8.1986	6.0182	0.0120		0.3791	0.3791		0.3488	0.3488		1,163.2085	1,163.2085	0.3762		1,172.6136
Paving	0.5974					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3487**	**8.1986**	**6.0182**	**0.0120**		**0.3791**	**0.3791**		**0.3488**	**0.3488**		**1,163.2085**	**1,163.2085**	**0.3762**		**1,172.6136**

3.7 Asphalt paving of maintenance roads - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0769	0.0484	0.6547	2.1900e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		218.0087	218.0087	4.9700e-003		218.1330
Total	**0.0769**	**0.0484**	**0.6547**	**2.1900e-003**	**0.2236**	**1.4800e-003**	**0.2250**	**0.0593**	**1.3600e-003**	**0.0607**		**218.0087**	**218.0087**	**4.9700e-003**		**218.1330**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7514	8.1986	6.0182	0.0120		0.3791	0.3791		0.3488	0.3488	0.0000	1,163.2085	1,163.2085	0.3762		1,172.6136
Paving	0.5974					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3487**	**8.1986**	**6.0182**	**0.0120**		**0.3791**	**0.3791**		**0.3488**	**0.3488**	**0.0000**	**1,163.2085**	**1,163.2085**	**0.3762**		**1,172.6136**

3.7 Asphalt paving of maintenance roads - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0769	0.0484	0.6547	2.1900e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		218.0087	218.0087	4.9700e-003		218.1330
Total	**0.0769**	**0.0484**	**0.6547**	**2.1900e-003**	**0.2236**	**1.4800e-003**	**0.2250**	**0.0593**	**1.3600e-003**	**0.0607**		**218.0087**	**218.0087**	**4.9700e-003**		**218.1330**

3.8 Landscaping - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1239	11.6569	6.5183	0.0111		0.6159	0.6159		0.5666	0.5666		1,071.6596	1,071.6596	0.3466		1,080.3246
Total	**1.1239**	**11.6569**	**6.5183**	**0.0111**		**0.6159**	**0.6159**		**0.5666**	**0.5666**		**1,071.6596**	**1,071.6596**	**0.3466**		**1,080.3246**

3.8 Landscaping - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1537	0.0968	1.3093	4.3700e-003	0.8358	2.9600e-003	0.8388	0.2140	2.7200e-003	0.2167		436.0174	436.0174	9.9400e-003		436.2659
Total	**0.1537**	**0.0968**	**1.3093**	**4.3700e-003**	**0.8358**	**2.9600e-003**	**0.8388**	**0.2140**	**2.7200e-003**	**0.2167**		**436.0174**	**436.0174**	**9.9400e-003**		**436.2659**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1239	11.6569	6.5183	0.0111		0.6159	0.6159		0.5666	0.5666	0.0000	1,071.6596	1,071.6596	0.3466		1,080.3246
Total	**1.1239**	**11.6569**	**6.5183**	**0.0111**		**0.6159**	**0.6159**		**0.5666**	**0.5666**	**0.0000**	**1,071.6596**	**1,071.6596**	**0.3466**		**1,080.3246**

3.8 Landscaping - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1537	0.0968	1.3093	4.3700e-003	0.8358	2.9600e-003	0.8388	0.2140	2.7200e-003	0.2167		436.0174	436.0174	9.9400e-003		436.2659
Total	**0.1537**	**0.0968**	**1.3093**	**4.3700e-003**	**0.8358**	**2.9600e-003**	**0.8388**	**0.2140**	**2.7200e-003**	**0.2167**		**436.0174**	**436.0174**	**9.9400e-003**		**436.2659**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0100	0.0406	0.1333	4.8000e-004	0.0410	4.7000e-004	0.0415	0.0110	4.4000e-004	0.0114		48.5371	48.5371	2.0300e-003		48.5879
Unmitigated	0.0100	0.0406	0.1333	4.8000e-004	0.0410	4.7000e-004	0.0415	0.0110	4.4000e-004	0.0114		48.5371	48.5371	2.0300e-003		48.5879

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
User Defined Industrial	0.00	0.00	0.00		
General Office Building	6.00	0.00	0.00	13,806	13,806
Total	6.00	0.00	0.00	13,806	13,806

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002
User Defined Industrial	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002
General Office Building	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.7000e-004	2.4600e-003	2.0600e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		2.9460	2.9460	6.0000e-005	5.0000e-005	2.9635
NaturalGas Unmitigated	2.7000e-004	2.4600e-003	2.0600e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		2.9460	2.9460	6.0000e-005	5.0000e-005	2.9635

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	25.0411	2.7000e-004	2.4600e-003	2.0600e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		2.9460	2.9460	6.0000e-005	5.0000e-005	2.9635
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.7000e-004**	**2.4600e-003**	**2.0600e-003**	**1.0000e-005**		**1.9000e-004**	**1.9000e-004**		**1.9000e-004**	**1.9000e-004**		**2.9460**	**2.9460**	**6.0000e-005**	**5.0000e-005**	**2.9635**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	0.0250411	2.7000e-004	2.4600e-003	2.0600e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		2.9460	2.9460	6.0000e-005	5.0000e-005	2.9635
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.7000e-004**	**2.4600e-003**	**2.0600e-003**	**1.0000e-005**		**1.9000e-004**	**1.9000e-004**		**1.9000e-004**	**1.9000e-004**		**2.9460**	**2.9460**	**6.0000e-005**	**5.0000e-005**	**2.9635**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1022	2.0000e-005	1.8000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8400e-003	3.8400e-003	1.0000e-005		4.0900e-003
Unmitigated	0.1022	2.0000e-005	1.8000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8400e-003	3.8400e-003	1.0000e-005		4.0900e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1020					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.7000e-004	2.0000e-005	1.8000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8400e-003	3.8400e-003	1.0000e-005		4.0900e-003
Total	**0.1022**	**2.0000e-005**	**1.8000e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**3.8400e-003**	**3.8400e-003**	**1.0000e-005**		**4.0900e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1020					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.7000e-004	2.0000e-005	1.8000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8400e-003	3.8400e-003	1.0000e-005		4.0900e-003
Total	**0.1022**	**2.0000e-005**	**1.8000e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**3.8400e-003**	**3.8400e-003**	**1.0000e-005**		**4.0900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

OCPW EGGW Channel Improvement Project

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	3.42	Acre	3.42	148,975.20	0
General Office Building	1.00	1000sqft	0.02	1,000.00	0
City Park	13.11	Acre	13.11	571,071.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

OCPW EGGW Channel Improvement Project - Orange County, Annual

Project Characteristics - Start of construction assumed to be late 2018. In the event that construction occurs later, emissions would be lower due to the retirement of older, higher-emitting pieces of equipment.

Land Use - Other asphlt surfaces land use type used to represent 3.42 acres of maintenance roads on top of soil cement columns, city park land use type used to represent sheet piling/soil cement column installation (13.11-acre site); two office buildings (approximately 500 sf each) are assumed and operational emissions will be added to the construction emissions.

Construction Phase - Phases and durations provided by project manager; phase type has been approximated to capture the types of activities that would be performed under during each phase. Approximately one-month overlaps would occur between the first through third phases.

Off-road Equipment - Equipment list provided by OCPW; horsepower and load factors are default

Off-road Equipment - Equipment list provided by OCPW; horsepower and load factors for the crane is default, and horsepower for the piling equipment power units (generators) was provided by OCPW

Off-road Equipment - Equipment list provided by OCPW; horsepower and load factors are default for dozers and backhoe; horsepower for drill rigs, cement mixers, and pumps were provided by OCPW.

Off-road Equipment - Equipment list provided by OCPW; horsepower and load factors are default

Off-road Equipment - Equipment list and horsepower provided by OCPW; load factors are default

Off-road Equipment - Equipment list provided by OCPW; horsepower and load factors are default

Off-road Equipment - Equipment list provided by OCPW; horsepower and load factors are default

Grading - Approximately 104,000 cy of soil cement would be used to do the columns; excavation within the channel would require approximately 142,000 cy of export

Trips and VMT - Worker trip estimates provided by OCPW. Deliveries of cement and piles assumed to be equally divided for the pile installation phase. Export to occur during grading/excavation in channel phase. All trip lengths are defaults.

Vehicle Trips - County inspector trips captured in the operational mobile emissions; contractor trips are captured in the construction mobile emissions. After construction, maintenance would be minimal, and would not increase relative to existing condtions.

Area Coating - No architectural coatings would be applied.

Energy Use -

Construction Off-road Equipment Mitigation - Rule 403 and Tier 4 Equipment

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	286036	0
tblAreaCoating	Area_Nonresidential_Interior	858108	0
tblAreaCoating	Area_Parking	8939	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	30.00	200.00
tblConstructionPhase	NumDays	30.00	100.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	30.00	45.00
tblConstructionPhase	NumDays	10.00	45.00
tblConstructionPhase	NumDays	10.00	45.00
tblConstructionPhase	NumDays	300.00	150.00

tblConstructionPhase	PhaseEndDate	12/7/2018	2/4/2020
tblConstructionPhase	PhaseEndDate	1/18/2019	6/23/2020
tblConstructionPhase	PhaseEndDate	4/24/2020	9/15/2020
tblConstructionPhase	PhaseEndDate	3/1/2019	8/25/2020
tblConstructionPhase	PhaseEndDate	10/12/2018	11/30/2018
tblConstructionPhase	PhaseEndDate	5/22/2020	11/17/2020
tblConstructionPhase	PhaseEndDate	10/26/2018	5/29/2019
tblConstructionPhase	PhaseStartDate	10/27/2018	5/1/2019
tblConstructionPhase	PhaseStartDate	12/8/2018	2/5/2020
tblConstructionPhase	PhaseStartDate	3/2/2019	8/26/2020
tblConstructionPhase	PhaseStartDate	1/19/2019	6/24/2020
tblConstructionPhase	PhaseStartDate	4/25/2020	9/16/2020
tblConstructionPhase	PhaseStartDate	10/13/2018	11/1/2018
tblGrading	AcresOfGrading	0.00	1.00
tblGrading	AcresOfGrading	0.00	1.00
tblGrading	AcresOfGrading	0.00	1.00
tblGrading	AcresOfGrading	0.00	1.00
tblGrading	MaterialExported	0.00	141,694.00
tblGrading	MaterialImported	0.00	104,271.00
tblOffRoadEquipment	HorsePower	158.00	350.00
tblOffRoadEquipment	HorsePower	247.00	350.00
tblOffRoadEquipment	HorsePower	221.00	450.00
tblOffRoadEquipment	HorsePower	9.00	350.00
tblOffRoadEquipment	HorsePower	84.00	350.00
tblOffRoadEquipment	HorsePower	97.00	350.00
tblOffRoadEquipment	HorsePower	84.00	350.00
tblOffRoadEquipment	LoadFactor	0.38	0.38

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tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	PhaseName		Asphalt paving of maintenance roads
tblOffRoadEquipment	PhaseName		Landscaping

tblOffRoadEquipment	PhaseName		Soil cement mixing, levee work, maintenance road prep
tblOffRoadEquipment	PhaseName		Soil cement mixing, levee work, maintenance road prep
tblOffRoadEquipment	PhaseName		Landscaping
tblOffRoadEquipment	PhaseName		Soil cement mixing, levee work, maintenance road prep
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblTripsAndVMT	HaulingTripNumber	0.00	60.00
tblTripsAndVMT	VendorTripNumber	0.00	12.00
tblTripsAndVMT	VendorTripNumber	118.00	48.00
tblTripsAndVMT	WorkerTripNumber	15.00	20.00
tblTripsAndVMT	WorkerTripNumber	8.00	20.00
tblTripsAndVMT	WorkerTripNumber	10.00	20.00
tblTripsAndVMT	WorkerTripNumber	10.00	20.00
tblTripsAndVMT	WorkerTripNumber	10.00	20.00
tblTripsAndVMT	WorkerTripNumber	8.00	20.00
tblTripsAndVMT	WorkerTripNumber	303.00	20.00
tblTripsAndVMT	WorkerTripNumber	20.00	30.00
tblTripsAndVMT	WorkerTripNumber	5.00	20.00
tblTripsAndVMT	WorkerTripNumber	8.00	20.00
tblVehicleTrips	ST_TR	2.46	0.00
tblVehicleTrips	SU_TR	1.05	0.00
tblVehicleTrips	WD_TR	11.03	6.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.1395	1.5638	0.7400	2.1900e-003	0.2889	0.0654	0.3542	0.1539	0.0613	0.2152	0.0000	214.1903	214.1903	0.0289	0.0000	214.9131
2019	0.4252	4.5354	2.4361	0.0113	0.1290	0.1388	0.2678	0.0526	0.1343	0.1868	0.0000	1,103.0380	1,103.0380	0.1356	0.0000	1,106.4286
2020	0.1711	1.5869	1.2350	2.9000e-003	0.9154	0.0693	0.9847	0.4741	0.0642	0.5384	0.0000	265.0317	265.0317	0.0573	0.0000	266.4631
Maximum	**0.4252**	**4.5354**	**2.4361**	**0.0113**	**0.9154**	**0.1388**	**0.9847**	**0.4741**	**0.1343**	**0.5384**	**0.0000**	**1,103.0380**	**1,103.0380**	**0.1356**	**0.0000**	**1,106.4286**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0308	0.2544	0.9479	2.1900e-003	0.1236	4.0800e-003	0.1276	0.0630	4.0300e-003	0.0671	0.0000	214.1901	214.1901	0.0289	0.0000	214.9129
2019	0.1496	0.8471	4.7742	0.0113	0.0849	0.0188	0.1038	0.0299	0.0187	0.0487	0.0000	1,103.0368	1,103.0368	0.1356	0.0000	1,106.4274
2020	0.0498	0.1503	1.3297	2.9000e-003	0.4040	4.3500e-003	0.4083	0.1970	4.3300e-003	0.2013	0.0000	265.0315	265.0315	0.0573	0.0000	266.4628
Maximum	**0.1496**	**0.8471**	**4.7742**	**0.0113**	**0.4040**	**0.0188**	**0.4083**	**0.1970**	**0.0187**	**0.2013**	**0.0000**	**1,103.0368**	**1,103.0368**	**0.1356**	**0.0000**	**1,106.4274**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**68.73**	**83.71**	**-59.87**	**0.00**	**54.06**	**90.03**	**60.18**	**57.41**	**89.57**	**66.29**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**10-1-2018**	**12-31-2018**	1.6822	0.2829
2	**1-1-2019**	**3-31-2019**	1.0577	0.2923
3	**4-1-2019**	**6-30-2019**	1.4881	0.3166
4	**7-1-2019**	**9-30-2019**	1.1995	0.1894
5	**10-1-2019**	**12-31-2019**	1.2003	0.1901
6	**1-1-2020**	**3-31-2020**	0.4603	0.0790
7	**4-1-2020**	**6-30-2020**	0.1685	0.0184
8	**7-1-2020**	**9-30-2020**	0.9047	0.0850
		Highest	1.6822	0.3166

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0186	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004
Energy	5.0000e-005	4.5000e-004	3.8000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	4.9453	4.9453	1.9000e-004	5.0000e-005	4.9641
Mobile	1.2500e-003	5.5300e-003	0.0168	6.0000e-005	5.2400e-003	6.0000e-005	5.3000e-003	1.4000e-003	6.0000e-005	1.4600e-003	0.0000	5.5354	5.5354	2.4000e-004	0.0000	5.5414
Waste						0.0000	0.0000		0.0000	0.0000	0.1888	0.0000	0.1888	0.0112	0.0000	0.4677
Water						0.0000	0.0000		0.0000	0.0000	0.0564	1.1230	1.1794	5.8400e-003	1.5000e-004	1.3689
Total	**0.0199**	**5.9800e-003**	**0.0174**	**6.0000e-005**	**5.2400e-003**	**9.0000e-005**	**5.3300e-003**	**1.4000e-003**	**9.0000e-005**	**1.4900e-003**	**0.2452**	**11.6041**	**11.8493**	**0.0174**	**2.0000e-004**	**12.3426**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0186	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004
Energy	5.0000e-005	4.5000e-004	3.8000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	4.9453	4.9453	1.9000e-004	5.0000e-005	4.9641
Mobile	1.2500e-003	5.5300e-003	0.0168	6.0000e-005	5.2400e-003	6.0000e-005	5.3000e-003	1.4000e-003	6.0000e-005	1.4600e-003	0.0000	5.5354	5.5354	2.4000e-004	0.0000	5.5414
Waste						0.0000	0.0000		0.0000	0.0000	0.1888	0.0000	0.1888	0.0112	0.0000	0.4677
Water						0.0000	0.0000		0.0000	0.0000	0.0564	1.1230	1.1794	5.8400e-003	1.5000e-004	1.3689
Total	**0.0199**	**5.9800e-003**	**0.0174**	**6.0000e-005**	**5.2400e-003**	**9.0000e-005**	**5.3300e-003**	**1.4000e-003**	**9.0000e-005**	**1.4900e-003**	**0.2452**	**11.6041**	**11.8493**	**0.0174**	**2.0000e-004**	**12.3426**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

OCPW EGGW Channel Improvement Project - Orange County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site preparation of levees, infiltration cistern	Site Preparation	10/1/2018	11/30/2018	5	45	
2	Sheet pile installation	Building Construction	11/1/2018	5/29/2019	5	150	
3	Soil cement mixing, levee work, maintenance road prep	Grading	5/1/2019	2/4/2020	5	200	
4	Pile caps and retaining walls	Grading	2/5/2020	6/23/2020	5	100	
5	Grading/excavation inside channel	Grading	6/24/2020	8/25/2020	5	45	
6	Asphalt paving of maintenance roads	Paving	8/26/2020	9/15/2020	5	15	
7	Landscaping	Site Preparation	9/16/2020	11/17/2020	5	45	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 3.42

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

OCPW EGGW Channel Improvement Project - Orange County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Soil cement mixing, levee work, maintenance road prep	Tractors/Loaders/Backhoes	1	1.00	97	0.37
Grading/excavation inside channel	Excavators	1	4.00	350	0.38
Grading/excavation inside channel	Rubber Tired Dozers	2	8.00	350	0.40
Asphalt paving of maintenance roads	Rubber Tired Loaders	1	6.00	203	0.36
Landscaping	Rubber Tired Dozers	1	6.00	247	0.40
Sheet pile installation	Cranes	1	8.00	231	0.29
Soil cement mixing, levee work, maintenance road prep	Bore/Drill Rigs	2	8.00	450	0.50
Soil cement mixing, levee work, maintenance road prep	Cement and Mortar Mixers	2	8.00	350	0.56
Asphalt paving of maintenance roads	Pavers	1	8.00	130	0.42
Landscaping	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Asphalt paving of maintenance roads	Rollers	1	8.00	80	0.38
Site preparation of levees, infiltration cistern	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site preparation of levees, infiltration cistern	Rubber Tired Dozers	2	8.00	247	0.40
Soil cement mixing, levee work, maintenance road prep	Pumps	2	8.00	350	0.74
Grading/excavation inside channel	Tractors/Loaders/Backhoes	1	8.00	350	0.37
Soil cement mixing, levee work, maintenance road prep	Rubber Tired Dozers	1	1.00	247	0.40
Pile caps and retaining walls	Tractors/Loaders/Backhoes	2	4.00	97	0.37
Sheet pile installation	Generator Sets	2	8.00	350	0.74

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Landscaping	3	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site preparation of levees, infiltration cist	6	20.00	12.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Landscaping	3	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading/excavation inside channel	4	20.00	0.00	60.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading/excavation inside channel	4	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading/excavation inside channel	4	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Sheet pile installation	3	20.00	48.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Soil cement mixing, levee work, maintenan	8	30.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pile caps and retaining walls	2	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Asphalt paving of maintenance roads	3	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Site preparation of levees, infiltration cistern - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2710	0.0000	0.2710	0.1490	0.0000	0.1490	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0764	0.8019	0.4073	6.6000e-004		0.0442	0.0442		0.0407	0.0407	0.0000	60.6522	60.6522	0.0189	0.0000	61.1243
Total	**0.0764**	**0.8019**	**0.4073**	**6.6000e-004**	**0.2710**	**0.0442**	**0.3152**	**0.1490**	**0.0407**	**0.1897**	**0.0000**	**60.6522**	**60.6522**	**0.0189**	**0.0000**	**61.1243**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1100e-003	0.0329	9.0700e-003	7.0000e-005	1.7000e-003	2.4000e-004	1.9400e-003	4.9000e-004	2.3000e-004	7.2000e-004	0.0000	6.6514	6.6514	6.0000e-004	0.0000	6.6663
Worker	2.0400e-003	1.5400e-003	0.0168	5.0000e-005	4.9400e-003	3.0000e-005	4.9700e-003	1.3100e-003	3.0000e-005	1.3400e-003	0.0000	4.5374	4.5374	1.2000e-004	0.0000	4.5404
Total	**3.1500e-003**	**0.0344**	**0.0259**	**1.2000e-004**	**6.6400e-003**	**2.7000e-004**	**6.9100e-003**	**1.8000e-003**	**2.6000e-004**	**2.0600e-003**	**0.0000**	**11.1888**	**11.1888**	**7.2000e-004**	**0.0000**	**11.2067**

3.2 Site preparation of levees, infiltration cistern - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1057	0.0000	0.1057	0.0581	0.0000	0.0581	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.1200e-003	0.0352	0.3833	6.6000e-004		1.0800e-003	1.0800e-003		1.0800e-003	1.0800e-003	0.0000	60.6522	60.6522	0.0189	0.0000	61.1242
Total	**8.1200e-003**	**0.0352**	**0.3833**	**6.6000e-004**	**0.1057**	**1.0800e-003**	**0.1068**	**0.0581**	**1.0800e-003**	**0.0592**	**0.0000**	**60.6522**	**60.6522**	**0.0189**	**0.0000**	**61.1242**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1100e-003	0.0329	9.0700e-003	7.0000e-005	1.7000e-003	2.4000e-004	1.9400e-003	4.9000e-004	2.3000e-004	7.2000e-004	0.0000	6.6514	6.6514	6.0000e-004	0.0000	6.6663
Worker	2.0400e-003	1.5400e-003	0.0168	5.0000e-005	4.9400e-003	3.0000e-005	4.9700e-003	1.3100e-003	3.0000e-005	1.3400e-003	0.0000	4.5374	4.5374	1.2000e-004	0.0000	4.5404
Total	**3.1500e-003**	**0.0344**	**0.0259**	**1.2000e-004**	**6.6400e-003**	**2.7000e-004**	**6.9100e-003**	**1.8000e-003**	**2.6000e-004**	**2.0600e-003**	**0.0000**	**11.1888**	**11.1888**	**7.2000e-004**	**0.0000**	**11.2067**

3.3 Sheet pile installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0537	0.6004	0.2561	1.1100e-003		0.0199	0.0199		0.0194	0.0194	0.0000	112.5906	112.5906	6.9100e-003	0.0000	112.7634
Total	**0.0537**	**0.6004**	**0.2561**	**1.1100e-003**		**0.0199**	**0.0199**		**0.0194**	**0.0194**	**0.0000**	**112.5906**	**112.5906**	**6.9100e-003**	**0.0000**	**112.7634**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2600e-003	0.1257	0.0347	2.6000e-004	6.5000e-003	9.2000e-004	7.4200e-003	1.8700e-003	8.8000e-004	2.7500e-003	0.0000	25.4230	25.4230	2.2800e-003	0.0000	25.4801
Worker	1.9500e-003	1.4800e-003	0.0161	5.0000e-005	4.7200e-003	3.0000e-005	4.7500e-003	1.2500e-003	3.0000e-005	1.2800e-003	0.0000	4.3358	4.3358	1.2000e-004	0.0000	4.3386
Total	**6.2100e-003**	**0.1271**	**0.0507**	**3.1000e-004**	**0.0112**	**9.5000e-004**	**0.0122**	**3.1200e-003**	**9.1000e-004**	**4.0300e-003**	**0.0000**	**29.7587**	**29.7587**	**2.4000e-003**	**0.0000**	**29.8187**

3.3 Sheet pile installation - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0133	0.0577	0.4880	1.1100e-003		1.7700e-003	1.7700e-003		1.7700e-003	1.7700e-003	0.0000	112.5905	112.5905	6.9100e-003	0.0000	112.7632
Total	**0.0133**	**0.0577**	**0.4880**	**1.1100e-003**		**1.7700e-003**	**1.7700e-003**		**1.7700e-003**	**1.7700e-003**	**0.0000**	**112.5905**	**112.5905**	**6.9100e-003**	**0.0000**	**112.7632**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2600e-003	0.1257	0.0347	2.6000e-004	6.5000e-003	9.2000e-004	7.4200e-003	1.8700e-003	8.8000e-004	2.7500e-003	0.0000	25.4230	25.4230	2.2800e-003	0.0000	25.4801
Worker	1.9500e-003	1.4800e-003	0.0161	5.0000e-005	4.7200e-003	3.0000e-005	4.7500e-003	1.2500e-003	3.0000e-005	1.2800e-003	0.0000	4.3358	4.3358	1.2000e-004	0.0000	4.3386
Total	**6.2100e-003**	**0.1271**	**0.0507**	**3.1000e-004**	**0.0112**	**9.5000e-004**	**0.0122**	**3.1200e-003**	**9.1000e-004**	**4.0300e-003**	**0.0000**	**29.7587**	**29.7587**	**2.4000e-003**	**0.0000**	**29.8187**

3.3 Sheet pile installation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1242	1.3263	0.6188	2.7500e-003		0.0439	0.0439		0.0428	0.0428	0.0000	279.7117	279.7117	0.0168	0.0000	280.1305
Total	**0.1242**	**1.3263**	**0.6188**	**2.7500e-003**		**0.0439**	**0.0439**		**0.0428**	**0.0428**	**0.0000**	**279.7117**	**279.7117**	**0.0168**	**0.0000**	**280.1305**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.8100e-003	0.2972	0.0809	6.4000e-004	0.0162	1.9800e-003	0.0182	4.6600e-003	1.9000e-003	6.5600e-003	0.0000	62.9451	62.9451	5.4900e-003	0.0000	63.0825
Worker	4.4700e-003	3.2600e-003	0.0362	1.2000e-004	0.0118	8.0000e-005	0.0118	3.1200e-003	7.0000e-005	3.1900e-003	0.0000	10.5033	10.5033	2.6000e-004	0.0000	10.5098
Total	**0.0143**	**0.3005**	**0.1171**	**7.6000e-004**	**0.0279**	**2.0600e-003**	**0.0300**	**7.7800e-003**	**1.9700e-003**	**9.7500e-003**	**0.0000**	**73.4484**	**73.4484**	**5.7500e-003**	**0.0000**	**73.5923**

3.3 Sheet pile installation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0331	0.1435	1.2144	2.7500e-003		4.4200e-003	4.4200e-003		4.4200e-003	4.4200e-003	0.0000	279.7113	279.7113	0.0168	0.0000	280.1302
Total	**0.0331**	**0.1435**	**1.2144**	**2.7500e-003**		**4.4200e-003**	**4.4200e-003**		**4.4200e-003**	**4.4200e-003**	**0.0000**	**279.7113**	**279.7113**	**0.0168**	**0.0000**	**280.1302**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.8100e-003	0.2972	0.0809	6.4000e-004	0.0162	1.9800e-003	0.0182	4.6600e-003	1.9000e-003	6.5600e-003	0.0000	62.9451	62.9451	5.4900e-003	0.0000	63.0825
Worker	4.4700e-003	3.2600e-003	0.0362	1.2000e-004	0.0118	8.0000e-005	0.0118	3.1200e-003	7.0000e-005	3.1900e-003	0.0000	10.5033	10.5033	2.6000e-004	0.0000	10.5098
Total	**0.0143**	**0.3005**	**0.1171**	**7.6000e-004**	**0.0279**	**2.0600e-003**	**0.0300**	**7.7800e-003**	**1.9700e-003**	**9.7500e-003**	**0.0000**	**73.4484**	**73.4484**	**5.7500e-003**	**0.0000**	**73.5923**

3.4 Soil cement mixing, levee work, maintenance road prep - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0723	0.0000	0.0723	0.0372	0.0000	0.0372	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2757	2.9007	1.6114	7.4700e-003		0.0926	0.0926		0.0893	0.0893	0.0000	724.1104	724.1104	0.1125	0.0000	726.9225
Total	**0.2757**	**2.9007**	**1.6114**	**7.4700e-003**	**0.0723**	**0.0926**	**0.1649**	**0.0372**	**0.0893**	**0.1264**	**0.0000**	**724.1104**	**724.1104**	**0.1125**	**0.0000**	**726.9225**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0110	8.0000e-003	0.0888	2.8000e-004	0.0288	2.0000e-004	0.0290	7.6500e-003	1.8000e-004	7.8300e-003	0.0000	25.7675	25.7675	6.3000e-004	0.0000	25.7834
Total	**0.0110**	**8.0000e-003**	**0.0888**	**2.8000e-004**	**0.0288**	**2.0000e-004**	**0.0290**	**7.6500e-003**	**1.8000e-004**	**7.8300e-003**	**0.0000**	**25.7675**	**25.7675**	**6.3000e-004**	**0.0000**	**25.7834**

3.4 Soil cement mixing, levee work, maintenance road prep - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0282	0.0000	0.0282	0.0145	0.0000	0.0145	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0912	0.3952	3.3540	7.4700e-003		0.0122	0.0122		0.0122	0.0122	0.0000	724.1095	724.1095	0.1125	0.0000	726.9217
Total	**0.0912**	**0.3952**	**3.3540**	**7.4700e-003**	**0.0282**	**0.0122**	**0.0404**	**0.0145**	**0.0122**	**0.0267**	**0.0000**	**724.1095**	**724.1095**	**0.1125**	**0.0000**	**726.9217**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0110	8.0000e-003	0.0888	2.8000e-004	0.0288	2.0000e-004	0.0290	7.6500e-003	1.8000e-004	7.8300e-003	0.0000	25.7675	25.7675	6.3000e-004	0.0000	25.7834
Total	**0.0110**	**8.0000e-003**	**0.0888**	**2.8000e-004**	**0.0288**	**2.0000e-004**	**0.0290**	**7.6500e-003**	**1.8000e-004**	**7.8300e-003**	**0.0000**	**25.7675**	**25.7675**	**6.3000e-004**	**0.0000**	**25.7834**

3.4 Soil cement mixing, levee work, maintenance road prep - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0158	0.0000	0.0158	6.1200e-003	0.0000	6.1200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0376	0.3711	0.2266	1.0700e-003		0.0120	0.0120		0.0116	0.0116	0.0000	102.4889	102.4889	0.0160	0.0000	102.8882
Total	**0.0376**	**0.3711**	**0.2266**	**1.0700e-003**	**0.0158**	**0.0120**	**0.0279**	**6.1200e-003**	**0.0116**	**0.0177**	**0.0000**	**102.4889**	**102.4889**	**0.0160**	**0.0000**	**102.8882**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4600e-003	1.0200e-003	0.0116	4.0000e-005	4.1200e-003	3.0000e-005	4.1400e-003	1.0900e-003	3.0000e-005	1.1200e-003	0.0000	3.5631	3.5631	8.0000e-005	0.0000	3.5651
Total	**1.4600e-003**	**1.0200e-003**	**0.0116**	**4.0000e-005**	**4.1200e-003**	**3.0000e-005**	**4.1400e-003**	**1.0900e-003**	**3.0000e-005**	**1.1200e-003**	**0.0000**	**3.5631**	**3.5631**	**8.0000e-005**	**0.0000**	**3.5651**

3.4 Soil cement mixing, levee work, maintenance road prep - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.1800e-003	0.0000	6.1800e-003	2.3900e-003	0.0000	2.3900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0130	0.0565	0.4792	1.0700e-003		1.7400e-003	1.7400e-003		1.7400e-003	1.7400e-003	0.0000	102.4888	102.4888	0.0160	0.0000	102.8881
Total	**0.0130**	**0.0565**	**0.4792**	**1.0700e-003**	**6.1800e-003**	**1.7400e-003**	**7.9200e-003**	**2.3900e-003**	**1.7400e-003**	**4.1300e-003**	**0.0000**	**102.4888**	**102.4888**	**0.0160**	**0.0000**	**102.8881**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4600e-003	1.0200e-003	0.0116	4.0000e-005	4.1200e-003	3.0000e-005	4.1400e-003	1.0900e-003	3.0000e-005	1.1200e-003	0.0000	3.5631	3.5631	8.0000e-005	0.0000	3.5651
Total	**1.4600e-003**	**1.0200e-003**	**0.0116**	**4.0000e-005**	**4.1200e-003**	**3.0000e-005**	**4.1400e-003**	**1.0900e-003**	**3.0000e-005**	**1.1200e-003**	**0.0000**	**3.5631**	**3.5631**	**8.0000e-005**	**0.0000**	**3.5651**

3.5 Pile caps and retaining walls - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0105	0.1053	0.1140	1.6000e-004		6.6600e-003	6.6600e-003		6.1200e-003	6.1200e-003	0.0000	13.6426	13.6426	4.4100e-003	0.0000	13.7529
Total	**0.0105**	**0.1053**	**0.1140**	**1.6000e-004**		**6.6600e-003**	**6.6600e-003**		**6.1200e-003**	**6.1200e-003**	**0.0000**	**13.6426**	**13.6426**	**4.4100e-003**	**0.0000**	**13.7529**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-003	2.7300e-003	0.0310	1.1000e-004	0.0110	7.0000e-005	0.0111	2.9200e-003	7.0000e-005	2.9800e-003	0.0000	9.5016	9.5016	2.2000e-004	0.0000	9.5070
Total	**3.9000e-003**	**2.7300e-003**	**0.0310**	**1.1000e-004**	**0.0110**	**7.0000e-005**	**0.0111**	**2.9200e-003**	**7.0000e-005**	**2.9800e-003**	**0.0000**	**9.5016**	**9.5016**	**2.2000e-004**	**0.0000**	**9.5070**

3.5 Pile caps and retaining walls - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.9000e-003	8.2300e-003	0.1171	1.6000e-004		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004	0.0000	13.6426	13.6426	4.4100e-003	0.0000	13.7529
Total	**1.9000e-003**	**8.2300e-003**	**0.1171**	**1.6000e-004**		**2.5000e-004**	**2.5000e-004**		**2.5000e-004**	**2.5000e-004**	**0.0000**	**13.6426**	**13.6426**	**4.4100e-003**	**0.0000**	**13.7529**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-003	2.7300e-003	0.0310	1.1000e-004	0.0110	7.0000e-005	0.0111	2.9200e-003	7.0000e-005	2.9800e-003	0.0000	9.5016	9.5016	2.2000e-004	0.0000	9.5070
Total	**3.9000e-003**	**2.7300e-003**	**0.0310**	**1.1000e-004**	**0.0110**	**7.0000e-005**	**0.0111**	**2.9200e-003**	**7.0000e-005**	**2.9800e-003**	**0.0000**	**9.5016**	**9.5016**	**2.2000e-004**	**0.0000**	**9.5070**

3.6 Grading/excavation inside channel - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.8226	0.0000	0.8226	0.4483	0.0000	0.4483	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0728	0.7680	0.5834	9.2000e-004		0.0336	0.0336		0.0309	0.0309	0.0000	80.9360	80.9360	0.0262	0.0000	81.5904
Total	**0.0728**	**0.7680**	**0.5834**	**9.2000e-004**	**0.8226**	**0.0336**	**0.8562**	**0.4483**	**0.0309**	**0.4792**	**0.0000**	**80.9360**	**80.9360**	**0.0262**	**0.0000**	**81.5904**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.3000e-004	8.5100e-003	2.1300e-003	2.0000e-005	1.2900e-003	3.0000e-005	1.3200e-003	3.3000e-004	3.0000e-005	3.6000e-004	0.0000	2.3069	2.3069	2.4000e-004	0.0000	2.3130
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.2600e-003	3.6900e-003	0.0419	1.4000e-004	0.0405	1.0000e-004	0.0406	0.0102	9.0000e-005	0.0103	0.0000	12.8272	12.8272	2.9000e-004	0.0000	12.8345
Total	**5.4900e-003**	**0.0122**	**0.0440**	**1.6000e-004**	**0.0418**	**1.3000e-004**	**0.0419**	**0.0106**	**1.2000e-004**	**0.0107**	**0.0000**	**15.1341**	**15.1341**	**5.3000e-004**	**0.0000**	**15.1475**

3.6 Grading/excavation inside channel - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3208	0.0000	0.3208	0.1748	0.0000	0.1748	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0113	0.0488	0.4130	9.2000e-004		1.5000e-003	1.5000e-003		1.5000e-003	1.5000e-003	0.0000	80.9359	80.9359	0.0262	0.0000	81.5903
Total	**0.0113**	**0.0488**	**0.4130**	**9.2000e-004**	**0.3208**	**1.5000e-003**	**0.3223**	**0.1748**	**1.5000e-003**	**0.1763**	**0.0000**	**80.9359**	**80.9359**	**0.0262**	**0.0000**	**81.5903**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.3000e-004	8.5100e-003	2.1300e-003	2.0000e-005	1.2900e-003	3.0000e-005	1.3200e-003	3.3000e-004	3.0000e-005	3.6000e-004	0.0000	2.3069	2.3069	2.4000e-004	0.0000	2.3130
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.2600e-003	3.6900e-003	0.0419	1.4000e-004	0.0405	1.0000e-004	0.0406	0.0102	9.0000e-005	0.0103	0.0000	12.8272	12.8272	2.9000e-004	0.0000	12.8345
Total	**5.4900e-003**	**0.0122**	**0.0440**	**1.6000e-004**	**0.0418**	**1.3000e-004**	**0.0419**	**0.0106**	**1.2000e-004**	**0.0107**	**0.0000**	**15.1341**	**15.1341**	**5.3000e-004**	**0.0000**	**15.1475**

3.7 Asphalt paving of maintenance roads - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.6400e-003	0.0615	0.0451	9.0000e-005		2.8400e-003	2.8400e-003		2.6200e-003	2.6200e-003	0.0000	7.9143	7.9143	2.5600e-003	0.0000	7.9783
Paving	4.4800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0101**	**0.0615**	**0.0451**	**9.0000e-005**		**2.8400e-003**	**2.8400e-003**		**2.6200e-003**	**2.6200e-003**	**0.0000**	**7.9143**	**7.9143**	**2.5600e-003**	**0.0000**	**7.9783**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8000e-004	4.1000e-004	4.6500e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4252	1.4252	3.0000e-005	0.0000	1.4261
Total	**5.8000e-004**	**4.1000e-004**	**4.6500e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.4252**	**1.4252**	**3.0000e-005**	**0.0000**	**1.4261**

3.7 Asphalt paving of maintenance roads - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.1100e-003	4.8100e-003	0.0576	9.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	7.9143	7.9143	2.5600e-003	0.0000	7.9783
Paving	4.4800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.5900e-003**	**4.8100e-003**	**0.0576**	**9.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**7.9143**	**7.9143**	**2.5600e-003**	**0.0000**	**7.9783**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8000e-004	4.1000e-004	4.6500e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4252	1.4252	3.0000e-005	0.0000	1.4261
Total	**5.8000e-004**	**4.1000e-004**	**4.6500e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.4252**	**1.4252**	**3.0000e-005**	**0.0000**	**1.4261**

3.8 Landscaping - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0253	0.2623	0.1467	2.5000e-004		0.0139	0.0139		0.0128	0.0128	0.0000	21.8744	21.8744	7.0700e-003	0.0000	22.0512
Total	**0.0253**	**0.2623**	**0.1467**	**2.5000e-004**		**0.0139**	**0.0139**		**0.0128**	**0.0128**	**0.0000**	**21.8744**	**21.8744**	**7.0700e-003**	**0.0000**	**22.0512**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5100e-003	2.4600e-003	0.0279	9.0000e-005	0.0185	7.0000e-005	0.0185	4.7300e-003	6.0000e-005	4.7900e-003	0.0000	8.5514	8.5514	2.0000e-004	0.0000	8.5563
Total	**3.5100e-003**	**2.4600e-003**	**0.0279**	**9.0000e-005**	**0.0185**	**7.0000e-005**	**0.0185**	**4.7300e-003**	**6.0000e-005**	**4.7900e-003**	**0.0000**	**8.5514**	**8.5514**	**2.0000e-004**	**0.0000**	**8.5563**

3.8 Landscaping - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.0500e-003	0.0132	0.1437	2.5000e-004		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004	0.0000	21.8743	21.8743	7.0700e-003	0.0000	22.0512
Total	**3.0500e-003**	**0.0132**	**0.1437**	**2.5000e-004**		**4.1000e-004**	**4.1000e-004**		**4.1000e-004**	**4.1000e-004**	**0.0000**	**21.8743**	**21.8743**	**7.0700e-003**	**0.0000**	**22.0512**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5100e-003	2.4600e-003	0.0279	9.0000e-005	0.0185	7.0000e-005	0.0185	4.7300e-003	6.0000e-005	4.7900e-003	0.0000	8.5514	8.5514	2.0000e-004	0.0000	8.5563
Total	**3.5100e-003**	**2.4600e-003**	**0.0279**	**9.0000e-005**	**0.0185**	**7.0000e-005**	**0.0185**	**4.7300e-003**	**6.0000e-005**	**4.7900e-003**	**0.0000**	**8.5514**	**8.5514**	**2.0000e-004**	**0.0000**	**8.5563**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.2500e-003	5.5300e-003	0.0168	6.0000e-005	5.2400e-003	6.0000e-005	5.3000e-003	1.4000e-003	6.0000e-005	1.4600e-003	0.0000	5.5354	5.5354	2.4000e-004	0.0000	5.5414
Unmitigated	1.2500e-003	5.5300e-003	0.0168	6.0000e-005	5.2400e-003	6.0000e-005	5.3000e-003	1.4000e-003	6.0000e-005	1.4600e-003	0.0000	5.5354	5.5354	2.4000e-004	0.0000	5.5414

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
User Defined Industrial	0.00	0.00	0.00		
General Office Building	6.00	0.00	0.00	13,806	13,806
Total	6.00	0.00	0.00	13,806	13,806

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002
User Defined Industrial	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002
General Office Building	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	4.4575	4.4575	1.8000e-004	4.0000e-005	4.4735
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	4.4575	4.4575	1.8000e-004	4.0000e-005	4.4735
NaturalGas Mitigated	5.0000e-005	4.5000e-004	3.8000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4878	0.4878	1.0000e-005	1.0000e-005	0.4906
NaturalGas Unmitigated	5.0000e-005	4.5000e-004	3.8000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4878	0.4878	1.0000e-005	1.0000e-005	0.4906

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	9140	5.0000e-005	4.5000e-004	3.8000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4878	0.4878	1.0000e-005	1.0000e-005	0.4906
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**5.0000e-005**	**4.5000e-004**	**3.8000e-004**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.4878**	**0.4878**	**1.0000e-005**	**1.0000e-005**	**0.4906**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	9140	5.0000e-005	4.5000e-004	3.8000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4878	0.4878	1.0000e-005	1.0000e-005	0.4906
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**5.0000e-005**	**4.5000e-004**	**3.8000e-004**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.4878**	**0.4878**	**1.0000e-005**	**1.0000e-005**	**0.4906**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	13990	4.4575	1.8000e-004	4.0000e-005	4.4735
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**4.4575**	**1.8000e-004**	**4.0000e-005**	**4.4735**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	13990	4.4575	1.8000e-004	4.0000e-005	4.4735
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**4.4575**	**1.8000e-004**	**4.0000e-005**	**4.4735**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0186	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004
Unmitigated	0.0186	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0186					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004
Total	**0.0186**	**0.0000**	**2.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.6000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0186					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004
Total	**0.0186**	**0.0000**	**2.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.6000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.1794	5.8400e-003	1.5000e-004	1.3689
Unmitigated	1.1794	5.8400e-003	1.5000e-004	1.3689

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	0.177734 / 0.108934	1.1794	5.8400e-003	1.5000e-004	1.3689
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**1.1794**	**5.8400e-003**	**1.5000e-004**	**1.3689**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	0.177734 / 0.108934	1.1794	5.8400e-003	1.5000e-004	1.3689
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**1.1794**	**5.8400e-003**	**1.5000e-004**	**1.3689**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.1888	0.0112	0.0000	0.4677
Unmitigated	0.1888	0.0112	0.0000	0.4677

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	0.93	0.1888	0.0112	0.0000	0.4677
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.1888**	**0.0112**	**0.0000**	**0.4677**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	0.93	0.1888	0.0112	0.0000	0.4677
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.1888**	**0.0112**	**0.0000**	**0.4677**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

OCPW EGGW Channel Improvement Project

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	3.42	Acre	3.42	148,975.20	0
General Office Building	1.00	1000sqft	0.02	1,000.00	0
City Park	13.11	Acre	13.11	571,071.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

OCPW EGGW Channel Improvement Project - Orange County, Summer

Project Characteristics - Start of construction assumed to be late 2018. In the event that construction occurs later, emissions would be lower due to the retirement of older, higher-emitting pieces of equipment.

Land Use - Other asphlt surfaces land use type used to represent 3.42 acres of maintenance roads on top of soil cement columns, city park land use type used to represent sheet piling/soil cement column installation (13.11-acre site); two office buildings (approximately 500 sf each) are assumed and operational emissions will be added to the construction emissions.

Construction Phase - Phases and durations provided by project manager; phase type has been approximated to capture the types of activities that would be performed under during each phase. Approximately one-month overlaps would occur between the first through third phases.

Off-road Equipment - Equipment list provided by OCPW; horsepower and load factors are default

Off-road Equipment - Equipment list provided by OCPW; horsepower and load factors for the crane is default, and horsepower for the piling equipment power units (generators) was provided by OCPW

Off-road Equipment - Equipment list provided by OCPW; horsepower and load factors are default for dozers and backhoe; horsepower for drill rigs, cement mixers, and pumps were provided by OCPW.

Off-road Equipment - Equipment list provided by OCPW; horsepower and load factors are default

Off-road Equipment - Equipment list and horsepower provided by OCPW; load factors are default

Off-road Equipment - Equipment list provided by OCPW; horsepower and load factors are default

Off-road Equipment - Equipment list provided by OCPW; horsepower and load factors are default

Grading - Approximately 104,000 cy of soil cement would be used to do the columns; excavation within the channel would require approximately 142,000 cy of export

Trips and VMT - Worker trip estimates provided by OCPW. Deliveries of cement and piles assumed to be equally divided for the pile installation phase. Export to occur during grading/excavation in channel phase. All trip lengths are defaults.

Vehicle Trips - County inspector trips captured in the operational mobile emissions; contractor trips are captured in the construction mobile emissions. After construction, maintenance would be minimal, and would not increase relative to existing condtions.

Area Coating - No architectural coatings would be applied.

Energy Use -

Construction Off-road Equipment Mitigation - Rule 403 and Tier 4 Equipment

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	286036	0
tblAreaCoating	Area_Nonresidential_Interior	858108	0
tblAreaCoating	Area_Parking	8939	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	30.00	200.00
tblConstructionPhase	NumDays	30.00	100.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	30.00	45.00
tblConstructionPhase	NumDays	10.00	45.00
tblConstructionPhase	NumDays	10.00	45.00
tblConstructionPhase	NumDays	300.00	150.00

tblConstructionPhase	PhaseEndDate	12/7/2018	2/4/2020
tblConstructionPhase	PhaseEndDate	1/18/2019	6/23/2020
tblConstructionPhase	PhaseEndDate	4/24/2020	9/15/2020
tblConstructionPhase	PhaseEndDate	3/1/2019	8/25/2020
tblConstructionPhase	PhaseEndDate	10/12/2018	11/30/2018
tblConstructionPhase	PhaseEndDate	5/22/2020	11/17/2020
tblConstructionPhase	PhaseEndDate	10/26/2018	5/29/2019
tblConstructionPhase	PhaseStartDate	10/27/2018	5/1/2019
tblConstructionPhase	PhaseStartDate	12/8/2018	2/5/2020
tblConstructionPhase	PhaseStartDate	3/2/2019	8/26/2020
tblConstructionPhase	PhaseStartDate	1/19/2019	6/24/2020
tblConstructionPhase	PhaseStartDate	4/25/2020	9/16/2020
tblConstructionPhase	PhaseStartDate	10/13/2018	11/1/2018
tblGrading	AcresOfGrading	0.00	1.00
tblGrading	AcresOfGrading	0.00	1.00
tblGrading	AcresOfGrading	0.00	1.00
tblGrading	AcresOfGrading	0.00	1.00
tblGrading	MaterialExported	0.00	141,694.00
tblGrading	MaterialImported	0.00	104,271.00
tblOffRoadEquipment	HorsePower	158.00	350.00
tblOffRoadEquipment	HorsePower	247.00	350.00
tblOffRoadEquipment	HorsePower	221.00	450.00
tblOffRoadEquipment	HorsePower	9.00	350.00
tblOffRoadEquipment	HorsePower	84.00	350.00
tblOffRoadEquipment	HorsePower	97.00	350.00
tblOffRoadEquipment	HorsePower	84.00	350.00
tblOffRoadEquipment	LoadFactor	0.38	0.38

tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	PhaseName		Asphalt paving of maintenance roads
tblOffRoadEquipment	PhaseName		Landscaping

tblOffRoadEquipment	PhaseName		Soil cement mixing, levee work, maintenance road prep
tblOffRoadEquipment	PhaseName		Soil cement mixing, levee work, maintenance road prep
tblOffRoadEquipment	PhaseName		Landscaping
tblOffRoadEquipment	PhaseName		Soil cement mixing, levee work, maintenance road prep
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblTripsAndVMT	HaulingTripNumber	0.00	60.00
tblTripsAndVMT	VendorTripNumber	0.00	12.00
tblTripsAndVMT	VendorTripNumber	118.00	48.00
tblTripsAndVMT	WorkerTripNumber	15.00	20.00
tblTripsAndVMT	WorkerTripNumber	8.00	20.00
tblTripsAndVMT	WorkerTripNumber	10.00	20.00
tblTripsAndVMT	WorkerTripNumber	10.00	20.00
tblTripsAndVMT	WorkerTripNumber	10.00	20.00
tblTripsAndVMT	WorkerTripNumber	8.00	20.00
tblTripsAndVMT	WorkerTripNumber	303.00	20.00
tblTripsAndVMT	WorkerTripNumber	20.00	30.00
tblTripsAndVMT	WorkerTripNumber	5.00	20.00
tblTripsAndVMT	WorkerTripNumber	8.00	20.00
tblVehicleTrips	ST_TR	2.46	0.00
tblVehicleTrips	SU_TR	1.05	0.00
tblVehicleTrips	WD_TR	11.03	6.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	6.3172	70.8431	33.5051	0.1008	12.8747	2.9479	15.8225	6.8494	2.7644	9.6138	0.0000	10,852.6435	10,852.6435	1.4345	0.0000	10,888.5053
2019	5.8594	63.5231	33.2060	0.1546	1.6826	1.9195	3.6021	0.6598	1.8594	2.5192	0.0000	16,758.7155	16,758.7155	1.8867	0.0000	16,805.8831
2020	3.4745	34.6444	27.9859	0.0887	38.4545	1.4980	39.9526	20.4020	1.3782	21.7802	0.0000	9,364.9891	9,364.9891	1.4158	0.0000	9,400.3836
Maximum	**6.3172**	**70.8431**	**33.5051**	**0.1546**	**38.4545**	**2.9479**	**39.9526**	**20.4020**	**2.7644**	**21.7802**	**0.0000**	**16,758.7155**	**16,758.7155**	**1.8867**	**0.0000**	**16,805.8831**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	1.4022	11.5264	43.2254	0.1008	5.5277	0.1866	5.7143	2.8109	0.1841	2.9950	0.0000	10,852.6435	10,852.6435	1.4345	0.0000	10,888.5053
2019	2.0472	12.7808	64.2537	0.1546	1.1842	0.2620	1.4463	0.4016	0.2601	0.6617	0.0000	16,758.7155	16,758.7155	1.8867	0.0000	16,805.8831
2020	1.1575	4.5887	39.3137	0.0887	16.1534	0.1412	16.2257	8.2490	0.1410	8.3210	0.0000	9,364.9891	9,364.9891	1.4158	0.0000	9,400.3836
Maximum	**2.0472**	**12.7808**	**64.2537**	**0.1546**	**16.1534**	**0.2620**	**16.2257**	**8.2490**	**0.2601**	**8.3210**	**0.0000**	**16,758.7155**	**16,758.7155**	**1.8867**	**0.0000**	**16,805.8831**

OCPW EGGW Channel Improvement Project - Orange County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**70.56**	**82.90**	**-55.01**	**0.00**	**56.87**	**90.73**	**60.61**	**58.94**	**90.25**	**64.68**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1022	2.0000e-005	1.8000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8400e-003	3.8400e-003	1.0000e-005		4.0900e-003
Energy	2.7000e-004	2.4600e-003	2.0600e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		2.9460	2.9460	6.0000e-005	5.0000e-005	2.9635
Mobile	0.0100	0.0406	0.1333	4.8000e-004	0.0410	4.7000e-004	0.0415	0.0110	4.4000e-004	0.0114		48.5371	48.5371	2.0300e-003		48.5879
Total	**0.1125**	**0.0431**	**0.1372**	**4.9000e-004**	**0.0410**	**6.7000e-004**	**0.0417**	**0.0110**	**6.4000e-004**	**0.0116**		**51.4869**	**51.4869**	**2.1000e-003**	**5.0000e-005**	**51.5555**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1022	2.0000e-005	1.8000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8400e-003	3.8400e-003	1.0000e-005		4.0900e-003
Energy	2.7000e-004	2.4600e-003	2.0600e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		2.9460	2.9460	6.0000e-005	5.0000e-005	2.9635
Mobile	0.0100	0.0406	0.1333	4.8000e-004	0.0410	4.7000e-004	0.0415	0.0110	4.4000e-004	0.0114		48.5371	48.5371	2.0300e-003		48.5879
Total	**0.1125**	**0.0431**	**0.1372**	**4.9000e-004**	**0.0410**	**6.7000e-004**	**0.0417**	**0.0110**	**6.4000e-004**	**0.0116**		**51.4869**	**51.4869**	**2.1000e-003**	**5.0000e-005**	**51.5555**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site preparation of levees, infiltration cistern	Site Preparation	10/1/2018	11/30/2018	5	45	
2	Sheet pile installation	Building Construction	11/1/2018	5/29/2019	5	150	
3	Soil cement mixing, levee work, maintenance road prep	Grading	5/1/2019	2/4/2020	5	200	
4	Pile caps and retaining walls	Grading	2/5/2020	6/23/2020	5	100	
5	Grading/excavation inside channel	Grading	6/24/2020	8/25/2020	5	45	
6	Asphalt paving of maintenance roads	Paving	8/26/2020	9/15/2020	5	15	
7	Landscaping	Site Preparation	9/16/2020	11/17/2020	5	45	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 3.42

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

OCPW EGGW Channel Improvement Project - Orange County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Soil cement mixing, levee work, maintenance road prep	Tractors/Loaders/Backhoes	1	1.00	97	0.37
Grading/excavation inside channel	Excavators	1	4.00	350	0.38
Grading/excavation inside channel	Rubber Tired Dozers	2	8.00	350	0.40
Asphalt paving of maintenance roads	Rubber Tired Loaders	1	6.00	203	0.36
Landscaping	Rubber Tired Dozers	1	6.00	247	0.40
Sheet pile installation	Cranes	1	8.00	231	0.29
Soil cement mixing, levee work, maintenance road prep	Bore/Drill Rigs	2	8.00	450	0.50
Soil cement mixing, levee work, maintenance road prep	Cement and Mortar Mixers	2	8.00	350	0.56
Asphalt paving of maintenance roads	Pavers	1	8.00	130	0.42
Landscaping	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Asphalt paving of maintenance roads	Rollers	1	8.00	80	0.38
Site preparation of levees, infiltration cistern	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site preparation of levees, infiltration cistern	Rubber Tired Dozers	2	8.00	247	0.40
Soil cement mixing, levee work, maintenance road prep	Pumps	2	8.00	350	0.74
Grading/excavation inside channel	Tractors/Loaders/Backhoes	1	8.00	350	0.37
Soil cement mixing, levee work, maintenance road prep	Rubber Tired Dozers	1	1.00	247	0.40
Pile caps and retaining walls	Tractors/Loaders/Backhoes	2	4.00	97	0.37
Sheet pile installation	Generator Sets	2	8.00	350	0.74

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Landscaping	3	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site preparation of levees, infiltration cist	6	20.00	12.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Landscaping	3	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading/excavation inside channel	4	20.00	0.00	60.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading/excavation inside channel	4	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading/excavation inside channel	4	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Sheet pile installation	3	20.00	48.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Soil cement mixing, levee work, maintenan	8	30.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pile caps and retaining walls	2	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Asphalt paving of maintenance roads	3	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Site preparation of levees, infiltration cistern - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.0442	0.0000	12.0442	6.6205	0.0000	6.6205			0.0000			0.0000
Off-Road	3.3966	35.6388	18.0998	0.0295		1.9663	1.9663		1.8090	1.8090		2,971.4505	2,971.4505	0.9251		2,994.5768
Total	**3.3966**	**35.6388**	**18.0998**	**0.0295**	**12.0442**	**1.9663**	**14.0105**	**6.6205**	**1.8090**	**8.4295**		**2,971.4505**	**2,971.4505**	**0.9251**		**2,994.5768**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0486	1.4315	0.3841	3.0300e-003	0.0767	0.0106	0.0873	0.0221	0.0101	0.0322		329.1940	329.1940	0.0286		329.9082
Worker	0.0896	0.0609	0.7856	2.3200e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		231.3351	231.3351	6.1300e-003		231.4883
Total	**0.1382**	**1.4924**	**1.1697**	**5.3500e-003**	**0.3002**	**0.0121**	**0.3123**	**0.0814**	**0.0115**	**0.0929**		**560.5291**	**560.5291**	**0.0347**		**561.3965**

3.2 Site preparation of levees, infiltration cistern - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.6972	0.0000	4.6972	2.5820	0.0000	2.5820			0.0000			0.0000
Off-Road	0.3610	1.5644	17.0354	0.0295		0.0481	0.0481		0.0481	0.0481	0.0000	2,971.4505	2,971.4505	0.9251		2,994.5768
Total	**0.3610**	**1.5644**	**17.0354**	**0.0295**	**4.6972**	**0.0481**	**4.7454**	**2.5820**	**0.0481**	**2.6301**	**0.0000**	**2,971.4505**	**2,971.4505**	**0.9251**		**2,994.5768**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0486	1.4315	0.3841	3.0300e-003	0.0767	0.0106	0.0873	0.0221	0.0101	0.0322		329.1940	329.1940	0.0286		329.9082
Worker	0.0896	0.0609	0.7856	2.3200e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		231.3351	231.3351	6.1300e-003		231.4883
Total	**0.1382**	**1.4924**	**1.1697**	**5.3500e-003**	**0.3002**	**0.0121**	**0.3123**	**0.0814**	**0.0115**	**0.0929**		**560.5291**	**560.5291**	**0.0347**		**561.3965**

3.3 Sheet pile installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4984	27.9248	11.9136	0.0515		0.9256	0.9256		0.9020	0.9020		5,772.5527	5,772.5527	0.3543		5,781.4109
Total	**2.4984**	**27.9248**	**11.9136**	**0.0515**		**0.9256**	**0.9256**		**0.9020**	**0.9020**		**5,772.5527**	**5,772.5527**	**0.3543**		**5,781.4109**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1944	5.7261	1.5363	0.0121	0.3067	0.0424	0.3491	0.0883	0.0405	0.1288		1,316.7760	1,316.7760	0.1143		1,319.6328
Worker	0.0896	0.0609	0.7856	2.3200e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		231.3351	231.3351	6.1300e-003		231.4883
Total	**0.2840**	**5.7870**	**2.3219**	**0.0145**	**0.5303**	**0.0439**	**0.5741**	**0.1476**	**0.0419**	**0.1894**		**1,548.1112**	**1,548.1112**	**0.1204**		**1,551.1210**

3.3 Sheet pile installation - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6191	2.6825	22.6984	0.0515		0.0825	0.0825		0.0825	0.0825	0.0000	5,772.5527	5,772.5527	0.3543		5,781.4109
Total	**0.6191**	**2.6825**	**22.6984**	**0.0515**		**0.0825**	**0.0825**		**0.0825**	**0.0825**	**0.0000**	**5,772.5527**	**5,772.5527**	**0.3543**		**5,781.4109**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1944	5.7261	1.5363	0.0121	0.3067	0.0424	0.3491	0.0883	0.0405	0.1288		1,316.7760	1,316.7760	0.1143		1,319.6328
Worker	0.0896	0.0609	0.7856	2.3200e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		231.3351	231.3351	6.1300e-003		231.4883
Total	**0.2840**	**5.7870**	**2.3219**	**0.0145**	**0.5303**	**0.0439**	**0.5741**	**0.1476**	**0.0419**	**0.1894**		**1,548.1112**	**1,548.1112**	**0.1204**		**1,551.1210**

3.3 Sheet pile installation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3221	24.7905	11.5660	0.0515		0.8211	0.8211		0.8007	0.8007		5,763.1653	5,763.1653	0.3452		5,771.7946
Total	**2.3221**	**24.7905**	**11.5660**	**0.0515**		**0.8211**	**0.8211**		**0.8007**	**0.8007**		**5,763.1653**	**5,763.1653**	**0.3452**		**5,771.7946**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1800	5.4470	1.4399	0.0121	0.3067	0.0368	0.3435	0.0883	0.0352	0.1235		1,310.2506	1,310.2506	0.1106		1,313.0158
Worker	0.0824	0.0541	0.7135	2.2600e-003	0.2236	1.4900e-003	0.2251	0.0593	1.3800e-003	0.0607		225.2281	225.2281	5.5400e-003		225.3665
Total	**0.2624**	**5.5011**	**2.1534**	**0.0143**	**0.5303**	**0.0383**	**0.5686**	**0.1476**	**0.0366**	**0.1841**		**1,535.4786**	**1,535.4786**	**0.1162**		**1,538.3823**

3.3 Sheet pile installation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6191	2.6825	22.6984	0.0515		0.0825	0.0825		0.0825	0.0825	0.0000	5,763.1653	5,763.1653	0.3452		5,771.7946
Total	**0.6191**	**2.6825**	**22.6984**	**0.0515**		**0.0825**	**0.0825**		**0.0825**	**0.0825**	**0.0000**	**5,763.1653**	**5,763.1653**	**0.3452**		**5,771.7946**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1800	5.4470	1.4399	0.0121	0.3067	0.0368	0.3435	0.0883	0.0352	0.1235		1,310.2506	1,310.2506	0.1106		1,313.0158
Worker	0.0824	0.0541	0.7135	2.2600e-003	0.2236	1.4900e-003	0.2251	0.0593	1.3800e-003	0.0607		225.2281	225.2281	5.5400e-003		225.3665
Total	**0.2624**	**5.5011**	**2.1534**	**0.0143**	**0.5303**	**0.0383**	**0.5686**	**0.1476**	**0.0366**	**0.1841**		**1,535.4786**	**1,535.4786**	**0.1162**		**1,538.3823**

3.4 Soil cement mixing, levee work, maintenance road prep - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.8170	0.0000	0.8170	0.4233	0.0000	0.4233			0.0000			0.0000
Off-Road	3.1513	33.1504	18.4164	0.0854		1.0579	1.0579		1.0201	1.0201		9,122.2294	9,122.2294	1.4171		9,157.6564
Total	**3.1513**	**33.1504**	**18.4164**	**0.0854**	**0.8170**	**1.0579**	**1.8750**	**0.4233**	**1.0201**	**1.4434**		**9,122.2294**	**9,122.2294**	**1.4171**		**9,157.6564**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1236	0.0811	1.0702	3.3900e-003	0.3353	2.2400e-003	0.3376	0.0889	2.0600e-003	0.0910		337.8421	337.8421	8.3100e-003		338.0497
Total	**0.1236**	**0.0811**	**1.0702**	**3.3900e-003**	**0.3353**	**2.2400e-003**	**0.3376**	**0.0889**	**2.0600e-003**	**0.0910**		**337.8421**	**337.8421**	**8.3100e-003**		**338.0497**

3.4 Soil cement mixing, levee work, maintenance road prep - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3186	0.0000	0.3186	0.1651	0.0000	0.1651			0.0000			0.0000
Off-Road	1.0422	4.5161	38.3317	0.0854		0.1390	0.1390		0.1390	0.1390	0.0000	9,122.2294	9,122.2294	1.4171		9,157.6564
Total	**1.0422**	**4.5161**	**38.3317**	**0.0854**	**0.3186**	**0.1390**	**0.4576**	**0.1651**	**0.1390**	**0.3040**	**0.0000**	**9,122.2294**	**9,122.2294**	**1.4171**		**9,157.6564**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1236	0.0811	1.0702	3.3900e-003	0.3353	2.2400e-003	0.3376	0.0889	2.0600e-003	0.0910		337.8421	337.8421	8.3100e-003		338.0497
Total	**0.1236**	**0.0811**	**1.0702**	**3.3900e-003**	**0.3353**	**2.2400e-003**	**0.3376**	**0.0889**	**2.0600e-003**	**0.0910**		**337.8421**	**337.8421**	**8.3100e-003**		**338.0497**

3.4 Soil cement mixing, levee work, maintenance road prep - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.8170	0.0000	0.8170	0.4233	0.0000	0.4233			0.0000			0.0000
Off-Road	3.0040	29.6847	18.1296	0.0854		0.9605	0.9605		0.9253	0.9253		9,037.9760	9,037.9760	1.4083		9,073.1841
Total	**3.0040**	**29.6847**	**18.1296**	**0.0854**	**0.8170**	**0.9605**	**1.7775**	**0.4233**	**0.9253**	**1.3486**		**9,037.9760**	**9,037.9760**	**1.4083**		**9,073.1841**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1153	0.0726	0.9820	3.2800e-003	0.3353	2.2200e-003	0.3376	0.0889	2.0400e-003	0.0910		327.0131	327.0131	7.4500e-003		327.1995
Total	**0.1153**	**0.0726**	**0.9820**	**3.2800e-003**	**0.3353**	**2.2200e-003**	**0.3376**	**0.0889**	**2.0400e-003**	**0.0910**		**327.0131**	**327.0131**	**7.4500e-003**		**327.1995**

3.4 Soil cement mixing, levee work, maintenance road prep - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3186	0.0000	0.3186	0.1651	0.0000	0.1651			0.0000			0.0000
Off-Road	1.0422	4.5161	38.3317	0.0854		0.1390	0.1390		0.1390	0.1390	0.0000	9,037.9760	9,037.9760	1.4083		9,073.1841
Total	**1.0422**	**4.5161**	**38.3317**	**0.0854**	**0.3186**	**0.1390**	**0.4576**	**0.1651**	**0.1390**	**0.3040**	**0.0000**	**9,037.9760**	**9,037.9760**	**1.4083**		**9,073.1841**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1153	0.0726	0.9820	3.2800e-003	0.3353	2.2200e-003	0.3376	0.0889	2.0400e-003	0.0910		327.0131	327.0131	7.4500e-003		327.1995
Total	**0.1153**	**0.0726**	**0.9820**	**3.2800e-003**	**0.3353**	**2.2200e-003**	**0.3376**	**0.0889**	**2.0400e-003**	**0.0910**		**327.0131**	**327.0131**	**7.4500e-003**		**327.1995**

3.5 Pile caps and retaining walls - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2095	2.1052	2.2797	3.1100e-003		0.1331	0.1331		0.1225	0.1225		300.7685	300.7685	0.0973		303.2004
Total	**0.2095**	**2.1052**	**2.2797**	**3.1100e-003**		**0.1331**	**0.1331**		**0.1225**	**0.1225**		**300.7685**	**300.7685**	**0.0973**		**303.2004**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0769	0.0484	0.6547	2.1900e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		218.0087	218.0087	4.9700e-003		218.1330
Total	**0.0769**	**0.0484**	**0.6547**	**2.1900e-003**	**0.2236**	**1.4800e-003**	**0.2250**	**0.0593**	**1.3600e-003**	**0.0607**		**218.0087**	**218.0087**	**4.9700e-003**		**218.1330**

3.5 Pile caps and retaining walls - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0380	0.1646	2.3421	3.1100e-003		5.0600e-003	5.0600e-003		5.0600e-003	5.0600e-003	0.0000	300.7685	300.7685	0.0973		303.2004
Total	**0.0380**	**0.1646**	**2.3421**	**3.1100e-003**		**5.0600e-003**	**5.0600e-003**		**5.0600e-003**	**5.0600e-003**	**0.0000**	**300.7685**	**300.7685**	**0.0973**		**303.2004**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0769	0.0484	0.6547	2.1900e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		218.0087	218.0087	4.9700e-003		218.1330
Total	**0.0769**	**0.0484**	**0.6547**	**2.1900e-003**	**0.2236**	**1.4800e-003**	**0.2250**	**0.0593**	**1.3600e-003**	**0.0607**		**218.0087**	**218.0087**	**4.9700e-003**		**218.1330**

3.6 Grading/excavation inside channel - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					36.5593	0.0000	36.5593	19.9229	0.0000	19.9229			0.0000			0.0000
Off-Road	3.2339	34.1325	25.9293	0.0409		1.4924	1.4924		1.3730	1.3730		3,965.1856	3,965.1856	1.2824		3,997.2461
Total	**3.2339**	**34.1325**	**25.9293**	**0.0409**	**36.5593**	**1.4924**	**38.0517**	**19.9229**	**1.3730**	**21.2959**		**3,965.1856**	**3,965.1856**	**1.2824**		**3,997.2461**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0101	0.3666	0.0926	1.0200e-003	0.0585	1.1900e-003	0.0597	0.0150	1.1400e-003	0.0161		113.7411	113.7411	0.0118		114.0358
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2306	0.1453	1.9640	6.5600e-003	1.8368	4.4300e-003	1.8412	0.4641	4.0800e-003	0.4682		654.0262	654.0262	0.0149		654.3989
Total	**0.2407**	**0.5119**	**2.0566**	**7.5800e-003**	**1.8952**	**5.6200e-003**	**1.9009**	**0.4791**	**5.2200e-003**	**0.4843**		**767.7672**	**767.7672**	**0.0267**		**768.4347**

3.6 Grading/excavation inside channel - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.2581	0.0000	14.2581	7.7699	0.0000	7.7699			0.0000			0.0000
Off-Road	0.5006	2.1692	18.3547	0.0409		0.0667	0.0667		0.0667	0.0667	0.0000	3,965.1856	3,965.1856	1.2824		3,997.2461
Total	**0.5006**	**2.1692**	**18.3547**	**0.0409**	**14.2581**	**0.0667**	**14.3249**	**7.7699**	**0.0667**	**7.8367**	**0.0000**	**3,965.1856**	**3,965.1856**	**1.2824**		**3,997.2461**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0101	0.3666	0.0926	1.0200e-003	0.0585	1.1900e-003	0.0597	0.0150	1.1400e-003	0.0161		113.7411	113.7411	0.0118		114.0358
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2306	0.1453	1.9640	6.5600e-003	1.8368	4.4300e-003	1.8412	0.4641	4.0800e-003	0.4682		654.0262	654.0262	0.0149		654.3989
Total	**0.2407**	**0.5119**	**2.0566**	**7.5800e-003**	**1.8952**	**5.6200e-003**	**1.9009**	**0.4791**	**5.2200e-003**	**0.4843**		**767.7672**	**767.7672**	**0.0267**		**768.4347**

3.7 Asphalt paving of maintenance roads - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7514	8.1986	6.0182	0.0120		0.3791	0.3791		0.3488	0.3488		1,163.2085	1,163.2085	0.3762		1,172.6136
Paving	0.5974					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3487**	**8.1986**	**6.0182**	**0.0120**		**0.3791**	**0.3791**		**0.3488**	**0.3488**		**1,163.2085**	**1,163.2085**	**0.3762**		**1,172.6136**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0769	0.0484	0.6547	2.1900e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		218.0087	218.0087	4.9700e-003		218.1330
Total	**0.0769**	**0.0484**	**0.6547**	**2.1900e-003**	**0.2236**	**1.4800e-003**	**0.2250**	**0.0593**	**1.3600e-003**	**0.0607**		**218.0087**	**218.0087**	**4.9700e-003**		**218.1330**

3.7 Asphalt paving of maintenance roads - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1480	0.6411	7.6735	0.0120		0.0197	0.0197		0.0197	0.0197	0.0000	1,163.2085	1,163.2085	0.3762		1,172.6136
Paving	0.5974					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7453**	**0.6411**	**7.6735**	**0.0120**		**0.0197**	**0.0197**		**0.0197**	**0.0197**	**0.0000**	**1,163.2085**	**1,163.2085**	**0.3762**		**1,172.6136**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0769	0.0484	0.6547	2.1900e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		218.0087	218.0087	4.9700e-003		218.1330
Total	**0.0769**	**0.0484**	**0.6547**	**2.1900e-003**	**0.2236**	**1.4800e-003**	**0.2250**	**0.0593**	**1.3600e-003**	**0.0607**		**218.0087**	**218.0087**	**4.9700e-003**		**218.1330**

3.8 Landscaping - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1239	11.6569	6.5183	0.0111		0.6159	0.6159		0.5666	0.5666		1,071.6596	1,071.6596	0.3466		1,080.3246
Total	**1.1239**	**11.6569**	**6.5183**	**0.0111**		**0.6159**	**0.6159**		**0.5666**	**0.5666**		**1,071.6596**	**1,071.6596**	**0.3466**		**1,080.3246**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1537	0.0968	1.3093	4.3700e-003	0.8358	2.9600e-003	0.8388	0.2140	2.7200e-003	0.2167		436.0174	436.0174	9.9400e-003		436.2659
Total	**0.1537**	**0.0968**	**1.3093**	**4.3700e-003**	**0.8358**	**2.9600e-003**	**0.8388**	**0.2140**	**2.7200e-003**	**0.2167**		**436.0174**	**436.0174**	**9.9400e-003**		**436.2659**

3.8 Landscaping - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1354	0.5867	6.3883	0.0111		0.0181	0.0181		0.0181	0.0181	0.0000	1,071.6596	1,071.6596	0.3466		1,080.3246
Total	**0.1354**	**0.5867**	**6.3883**	**0.0111**		**0.0181**	**0.0181**		**0.0181**	**0.0181**	**0.0000**	**1,071.6596**	**1,071.6596**	**0.3466**		**1,080.3246**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1537	0.0968	1.3093	4.3700e-003	0.8358	2.9600e-003	0.8388	0.2140	2.7200e-003	0.2167		436.0174	436.0174	9.9400e-003		436.2659
Total	**0.1537**	**0.0968**	**1.3093**	**4.3700e-003**	**0.8358**	**2.9600e-003**	**0.8388**	**0.2140**	**2.7200e-003**	**0.2167**		**436.0174**	**436.0174**	**9.9400e-003**		**436.2659**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0100	0.0406	0.1333	4.8000e-004	0.0410	4.7000e-004	0.0415	0.0110	4.4000e-004	0.0114		48.5371	48.5371	2.0300e-003		48.5879
Unmitigated	0.0100	0.0406	0.1333	4.8000e-004	0.0410	4.7000e-004	0.0415	0.0110	4.4000e-004	0.0114		48.5371	48.5371	2.0300e-003		48.5879

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
User Defined Industrial	0.00	0.00	0.00		
General Office Building	6.00	0.00	0.00	13,806	13,806
Total	6.00	0.00	0.00	13,806	13,806

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002
User Defined Industrial	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002
General Office Building	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.7000e-004	2.4600e-003	2.0600e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		2.9460	2.9460	6.0000e-005	5.0000e-005	2.9635
NaturalGas Unmitigated	2.7000e-004	2.4600e-003	2.0600e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		2.9460	2.9460	6.0000e-005	5.0000e-005	2.9635

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	25.0411	2.7000e-004	2.4600e-003	2.0600e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		2.9460	2.9460	6.0000e-005	5.0000e-005	2.9635
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.7000e-004**	**2.4600e-003**	**2.0600e-003**	**1.0000e-005**		**1.9000e-004**	**1.9000e-004**		**1.9000e-004**	**1.9000e-004**		**2.9460**	**2.9460**	**6.0000e-005**	**5.0000e-005**	**2.9635**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	0.0250411	2.7000e-004	2.4600e-003	2.0600e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		2.9460	2.9460	6.0000e-005	5.0000e-005	2.9635
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.7000e-004**	**2.4600e-003**	**2.0600e-003**	**1.0000e-005**		**1.9000e-004**	**1.9000e-004**		**1.9000e-004**	**1.9000e-004**		**2.9460**	**2.9460**	**6.0000e-005**	**5.0000e-005**	**2.9635**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1022	2.0000e-005	1.8000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8400e-003	3.8400e-003	1.0000e-005		4.0900e-003
Unmitigated	0.1022	2.0000e-005	1.8000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8400e-003	3.8400e-003	1.0000e-005		4.0900e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1020					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.7000e-004	2.0000e-005	1.8000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8400e-003	3.8400e-003	1.0000e-005		4.0900e-003
Total	**0.1022**	**2.0000e-005**	**1.8000e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**3.8400e-003**	**3.8400e-003**	**1.0000e-005**		**4.0900e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1020					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.7000e-004	2.0000e-005	1.8000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.8400e-003	3.8400e-003	1.0000e-005		4.0900e-003
Total	**0.1022**	**2.0000e-005**	**1.8000e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**3.8400e-003**	**3.8400e-003**	**1.0000e-005**		**4.0900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B
Biological Habitat Assessment

September 14, 2017

Mr. Jim Volz
Projects and Regulatory Permits Unit
Orange County Public Works
300 North Flower Street
Santa Ana, CA 92703

Subject: C05 East Garden Grove Wintersburg Channel Project, Biological Resources Survey Report

Dear Mr. Volz,

This report contains the results of a biological literature search, vegetation mapping, and special-status species habitat assessment conducted by ICF for the C05 East Garden Grove Wintersburg Channel Project (project). It includes current site conditions and habitat assessments for special-status species with the potential to occur in the project and surrounding area that are protected under the Federal Endangered Species Act (FESA), Migratory Bird Treaty Act (MBTA), California Endangered Species Act (CESA), and the California Fish and Game Code (e.g., protected species).

Project Location

The project is located in the East Garden Grove Wintersburg Channel (channel), approximately 1.8 miles upstream of where the channel enters Bolsa Bay at the Bolsa Chica Ecological Reserve. The project spans from Warner Avenue (downstream end) to approximately 1,250 feet downstream of Goldenwest Street (upstream end) within the city of Huntington Beach, Orange County, California (Figures 1 and 2). The project is mapped in an unsectioned part of Township 5 South, Range 11 West on the U.S. Geological Survey (USGS) 7.5-minute Seal Beach topographic map (USGS 1965 [photorevised 1981]).

Methods

Literature Search

A literature review was conducted to evaluate the environmental setting of the project and identify special-status biological resources that may be found on or near the project. The literature review included the U.S. Fish and Wildlife Service (USFWS) mapping of designated critical habitat (USFWS 2017a) and generation of a species list (USFWS 2017b). The California Natural Diversity Database (CNDDB) (CDFW 2017) and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2017) were reviewed for the USGS Seal Beach 7.5-minute quadrangle (USGS 1965 [photorevised 1981]; Appendix A). Finally, a review of the National Marine Fisheries

Service (NMFS) Essential Fish Habitat (EFH) Mapper identified the presence or absence of EFH (NMFS 2017a), and a search of the NMFS West Coast Region Species List (NMFS 2017b) provided an informal list of NMFS-protected aquatic species could be present within the general vicinity of the project.

For this report, "special-status" species are (1) listed, proposed for listing, or candidates for listing under FESA as threatened or endangered; (2) listed or candidates for listing under the CESA as threatened or endangered; (3) a California Department of Fish and Wildlife (CDFW) fully protected species; (4) a CDFW species of special concern; or (5) species that have a California Rare Plant Rank of 1A, 1B, 2A, or 2B.

Field Survey

A site survey was conducted by ICF biologists Ryan Winkleman and Phillip Richards on September 5, 2017. Temperatures during the survey were between 77 and 78 degrees Fahrenheit, winds ranged from 0 to 7 miles per hour, and skies were sunny, providing good visibility.

The survey area (SA), inclusive of the project limits and a 250-foot buffer, was evaluated for the presence, absence, or likelihood of occurrence of special-status species and sensitive vegetation types as well as general biological resource issues that could pose a constraint to the project through applicable laws and regulations. All plant and wildlife species observed during the site visit were recorded in field notes, although only plants located within the channel right-of-way were identified and recorded. Plant species observed were identified by visual characteristics and morphology in the field (Appendix B). Taxonomic nomenclature for plants follows *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin et al. 2012). Vegetation community mapping generally followed series nomenclature in *A Manual of California Vegetation, Second Edition* (Sawyer et al. 2009). Wildlife species were detected by sight, calls, tracks, scat, or other signs (Appendix C). Field guides were used to assist with identification of species during surveys and included *Complete Birds of North America, Second Edition* (Alderfer 2014); *Western Reptiles and Amphibians* (Stebbins 2003); and *A Field Guide to the Mammals of North America, Fourth Edition* (Reid 2006).

Results and Discussion

Existing Conditions

The SA, which occurs within a densely populated urban area of Huntington Beach, is bordered along its entire length by residential and commercial development. The channel has an earthen bottom and banks, except for the northern (south-facing) slope between Warner Avenue and Springdale Street, which is covered with riprap. Based on a review of USFWS critical habitat documentation and maps (USFWS 2017a, 2017b), the SA does not occur within designated critical habitat. However, based on the EFH Mapper (NMFS 2017a), the SA falls within designated EFH for Groundfish.

Vegetation Communities/Land Uses

Three vegetation communities/land uses were mapped within the SA, as discussed below and depicted in Figure 3. Representative photos of the vegetation communities within the SA are presented in Appendix D. A summary of the approximate acreage for each vegetation community or land use within the SA is provided in Table 1.

Developed

Developed areas, which are highly disturbed and/or paved, within the SA consist of residential structures, roadways, parking lots, commercial buildings, and private/public infrastructure outside the East Garden Grove Wintersburg Channel. This land use type represents the greatest overall acreage. Vegetation within the developed area consists primarily of non-native ornamental plantings and non-native grass lawns.

Disturbed

Disturbed areas within the SA generally consist of the upland area outside of the flood control channel (i.e., the dirt access road and dirt shoulder that separates the road from adjacent commercial/residential development). Disturbed areas still retain a soil surface and are unpaved. Vegetation within the disturbed area generally consists of sparse non-native ornamental plantings.

Flood Control Channel

This land use type within the SA consists of the East Garden Grove Wintersburg Channel. Vegetation is very sparse because of apparent vegetation management. Much of the earthen channel is barren; where vegetation does occur, it consists generally of low-growing weeds. Because the channel is mostly inundated, receiving varying amounts of flow from stormwater sources, there is little opportunity for substantive vegetation to grow within the bed of the channel.

Table 1. Summary of Vegetation Community/Land Use Acreages within the SA

Vegetation/Land Use	Acres
Developed	64.82
Disturbed	8.97
Flood Control Channel	14.19
Total	87.98

Special-Status Communities

None of the three sensitive vegetation communities—Southern Coastal Salt Marsh, Southern Dune Scrub, and Southern Foredunes—identified from the CNDDB for the USGS Seal Beach quadrangle are present in the SA (CDFW 2017). Eelgrass (*Zostera marina*), a unique underwater plant which creates its own multi-use habitat type for fish and which is protected by NMFS as a Habitat of Particular Concern (a subset of EFH), was not present within the SA, which is too shallow for eelgrass to grow in.

Plants and Wildlife

Plant and wildlife species observed within the SA were generally commonly occurring. The plant species are typical of disturbed and developed habitats, and the wildlife species are typical for mudflat/aquatic habitat for this time of year in Orange County. All plant and wildlife species observed within the SA are listed in Appendices B and C, respectively.

Special-Status Plants

Of the 12 plant species that were reported in the literature search results for the USGS Seal Beach 7.5-minute quadrangle, which includes the SA (CDFW 2017; CNPS 2017; USFWS 2017b), all 12 meet the aforementioned definition of a "special-status" species used by this report (refer to the Methods section, above). These species are listed in Appendix A. Three of these species are listed as both federally and state threatened and/or endangered: Ventura Marsh milk-vetch (*Astragalus pycnostachyus* var. *lanosissimus*), salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*), and Gambel's water cress (*Nasturtium gambelii*). Because of the heavily managed state of the channel and the heavily developed state of the 250-foot SA buffer, all 12 species were determined to be absent within the SA. Therefore, no further survey work is necessary to determine the presence or absence of these species.

Special-Status Wildlife

A total of 52 wildlife species were reported in the CDFW and USFWS literature search results for the USGS Seal Beach 7.5-minute quadrangle, which includes the SA (CDFW 2017; USFWS 2017b). Although the full CDFW and USFWS literature search results with all 52 species are included in Appendix A, only 24 of the 52 species meet the definition of a "special-status" species used by this report (refer to the Methods section, above) and are included in this analysis. These 24 special-status species include tricolored blackbird (*Agelaius tricolor*), short-eared owl (*Asio flammeus*), burrowing owl (*Athene cunicularia*), coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*), western snowy plover (*Charadrius alexandrinus nivosus*), mountain plover (*Charadrius montanus*), green sea turtle (*Chelonia mydas*), olive-sided flycatcher (*Contopus cooperi*), western mastiff bat (*Eumops perotis californicus*), peregrine falcon (*Falco peregrinus*), bald eagle (*Haliaeetus leucocephalus*), least bittern (*Ixobrychus exilis*), south coast marsh vole (*Microtus californicus stephensi*), Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), Pacific pocket mouse (*Perognathus longimembris pacificus*), coast horned lizard (*Phrynosoma blainvillii*), coastal California gnatcatcher (*Polioptila californica californica*), light-footed Ridgway's rail (*Rallus obsoletus levipes*), bank swallow (*Riparia riparia*), black skimmer (*Rhynchops niger*), yellow warbler (*Setophaga petechia*), Southern California saltmarsh shrew (*Sorex ornatus salicornicus*), California least tern (*Sternula antillarum browni*), and least Bell's vireo (*Vireo bellii pusillus*). Ten of these species are listed as federally and/or state threatened and/or endangered: western snowy plover, green sea turtle, bald eagle, Belding's savannah sparrow, Pacific pocket mouse, coastal California gnatcatcher, light-footed Ridgway's rail, bank swallow, California least tern, and least Bell's vireo. One species is a candidate for state endangered status: tricolored blackbird.

Of the aforementioned 24 special-status wildlife species, 20 were determined to be absent within the SA because of a lack of suitable habitat and high level of natural and human disturbance within the

channel and surrounding SA. Two species—black skimmer and California least tern—may occur in the channel in small numbers strictly for foraging purposes; peregrine falcon may forage throughout the entire SA, including the channel. There is no nesting habitat for any of these species within the SA, and if present, these species would be only transients, flying overhead while foraging. Yellow warbler may forage in larger trees in the SA but would not be expected to occur within the channel itself where there is no nesting or foraging habitat for it. Yellow warbler would not be likely to nest anywhere within the SA. No additional surveys are necessary to determine the presence or absence of any of these 24 species.

An additional and separate 4 species of sea turtles and 12 species of fish, invertebrates, whales, and pinnipeds were also identified by the informal NMFS record search (NMFS 2017b). These species are all listed as threatened or endangered. However, all of these species are considered to be absent from the SA due to being out of range (for strictly marine species) or due to the presence of tide gates in the Bolsa Chica Bay, which restrict the influx of marine water upstream into the channel and therefore restrict these species, most of which are large (sea turtles, whales, and pinnipeds). Because the NMFS literature search does not generate a printable species list and all species are excluded from the SA anyway, the NMFS search results are not included in Appendix A.

No special-status wildlife species were observed within the SA during the biological survey. No bats or bat sign was observed during the habitat assessment. The bridges over the channel within the SA do not provide suitable habitat for roosting bats.

Nesting habitat occurs in trees, shrubs, and buildings throughout the SA. However, the channel itself had, at the time of ICF's biological survey, no vegetative nesting habitat because the vegetation had been recently maintained. There was no longer any substantive vegetative cover in the channel. Killdeer (*Charadrius vociferus*) could still nest on open mudflats within the channel or on the unpaved access road that runs along both sides of the channel.

Summary

The SA falls within the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board, and CDFW. Prior to any work within the channel, a Rivers and Harbors Act Section 10 permit, Clean Water Act Section 401 Water Quality Certification, and California Fish and Game Code Section 1600 Lake and Streambed Alteration Agreement, respectively, would need to be obtained. Additionally, any impacts under the level of the Ordinary High Water Mark could also result in impacts to designated EFH, thus requiring consultation with NMFS through the USACE as the lead agency.

No special-status plants or animals were observed within the SA during ICF's biological survey. Of the 39 special-status plants, animals, and vegetation communities from the literature search results (CDFW 2017; CNPS 2017; USFWS 2017b) that may occur within the SA, only four of these species—peregrine falcon, black skimmer, yellow warbler, and California least tern—are expected to possibly occur within the SA, strictly for foraging purposes. There is no nesting habitat for any of these species within the SA.

At the time of ICF's habitat assessment, the channel holds no nesting habitat for any species other than killdeer. Nesting habitat for common bird species occurs throughout the SA within trees, shrubs, and buildings. If the project occurs during nesting season, then a preconstruction nesting bird survey should be conducted within seven days prior to work in any area to ensure compliance with the MBTA and relevant sections of the California Fish and Game Code (e.g., 3503, 3503.4, 3504, 3505, et seq.).

Should you have any questions please contact me at (949) 333-6690 or Ryan.Winkleman@icf.com.

Sincerely,

Ryan Winkleman
Senior Biologist

Figures

Figure 1: Regional Vicinity
Figure 2: Project Vicinity
Figure 3: Vegetation

Appendices

Appendix A: Literature Review Search Results
Appendix B: Plant Species Observed
Appendix C: Wildlife Species Observed
Appendix D: Photo Log

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Figures

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Figure 1
Regional Vicinity
C05 East Garden Grove Wintersburg Channel Project

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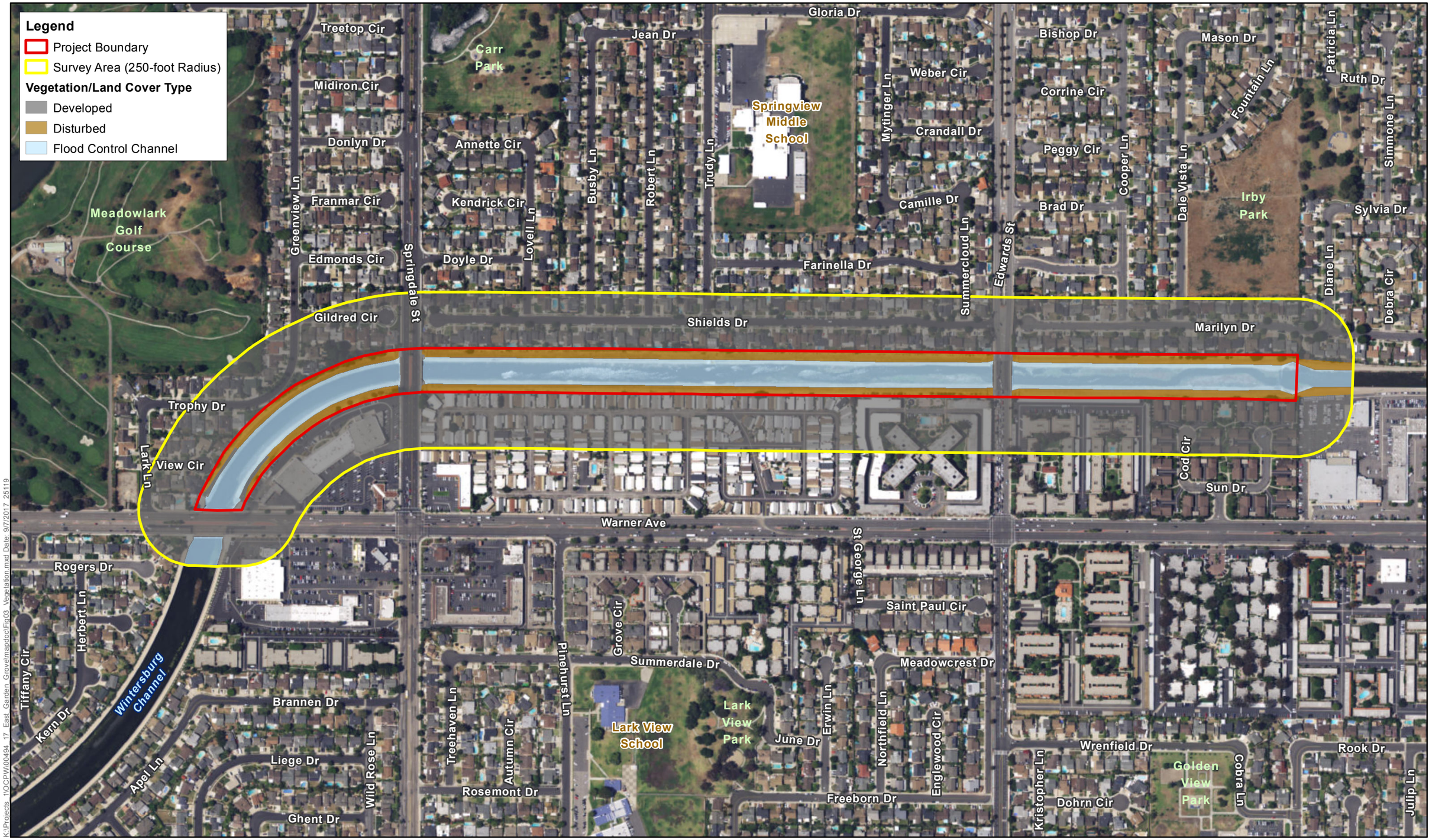
Figure 2
Project Vicinity
C05 East Garden Grove Wintersburg Channel Project



K:\Projects\1OCPW00494 17 East Garden Grove\mapdoc\Fig03_Vegetation.mxd Date: 9/7/2017 25119

ICF

N

0 400 800 Feet

Figure 3
Vegetation
C05 East Garden Grove Wintersburg Channel Project

Appendix A
Literature Review Search Results

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Seal Beach (3311861))
 AND Taxonomic Group IS (Dune OR Scrub OR Herbaceous OR Marsh OR Riparian OR Woodland OR Forest OR Alpine OR Inland Waters OR Marine OR Estuarine OR Riverine OR Palustrine OR Fish OR Amphibians OR Reptiles OR Birds OR Mammals OR Mollusks OR Arachnids OR Crustaceans OR Insects OR Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes)

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Candidate Endangered	G2G3	S1S2	SSC
Astragalus pycnostachyus var. lanosissimus Ventura Marsh milk-vetch	PDFAB0F7B1	Endangered	Endangered	G2T1	S1	1B.1
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Atriplex serenana var. davidsonii Davidson's saltscale	PDCHE041T1	None	None	G5T1	S1	1B.2
Centromadia parryi ssp. australis southern tarplant	PDAST4R0P4	None	None	G3T2	S2	1B.1
Charadrius alexandrinus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
Chelonia mydas green sea turtle	ARAAA02010	Threatened	None	G3	S1	
Chloropyron maritimum ssp. maritimum salt marsh bird's-beak	PDSCR0J0C2	Endangered	Endangered	G4?T1	S1	1B.2
Cicindela gabbii western tidal-flat tiger beetle	IICOL02080	None	None	G2G4	S1	
Cicindela hirticollis gravida sandy beach tiger beetle	IICOL02101	None	None	G5T2	S2	
Cicindela latesignata latesignata western beach tiger beetle	IICOL02113	None	None	G2G4T1T2	S1	
Cicindela senilis frosti senile tiger beetle	IICOL02121	None	None	G2G3T1T3	S1	
Danaus plexippus pop. 1 monarch - California overwintering population	IILEPP2012	None	None	G4T2T3	S2S3	
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G5T4	S3S4	SSC
Helianthus nuttallii ssp. parishii Los Angeles sunflower	PDAST4N102	None	None	G5TH	SH	1A
Lasthenia glabrata ssp. coulteri Coulter's goldfields	PDAST5L0A1	None	None	G4T2	S2	1B.1
Microtus californicus stephensi south coast marsh vole	AMAFF11035	None	None	G5T1T2	S1S2	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Nama stenocarpa mud nama	PDHYD0A0H0	None	None	G4G5	S1S2	2B.2
Nasturtium gambelii Gambel's water cress	PDBRA270V0	Endangered	Threatened	G1	S1	1B.1
Nemacaulis denudata var. denudata coast woolly-heads	PDPGN0G011	None	None	G3G4T2	S2	1B.2
Panoquina errans wandering (=saltmarsh) skipper	IILEP84030	None	None	G4G5	S2	
Passerculus sandwichensis beldingi Belding's savannah sparrow	ABPBX99015	None	Endangered	G5T3	S3	
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC
Polioptila californica californica coastal California gnatcatcher	ABPBJ08081	Threatened	None	G4G5T2Q	S2	SSC
Rallus obsoletus levipes light-footed Ridgway's rail	ABNME05014	Endangered	Endangered	G5T1T2	S1	FP
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Rynchops niger black skimmer	ABNNM14010	None	None	G5	S2	SSC
Sorex ornatus salicornicus southern California saltmarsh shrew	AMABA01104	None	None	G5T1?	S1	SSC
Southern Coastal Salt Marsh Southern Coastal Salt Marsh	CTT52120CA	None	None	G2	S2.1	
Southern Dune Scrub Southern Dune Scrub	CTT21330CA	None	None	G1	S1.1	
Southern Foredunes Southern Foredunes	CTT21230CA	None	None	G2	S2.1	
Sternula antillarum browni California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2	FP
Suaeda esteroa estuary seablite	PDCHE0P0D0	None	None	G3	S2	1B.2
Symphyotrichum defoliatum San Bernardino aster	PDASTE80C0	None	None	G2	S2	1B.2
Trigonoscuta dorothea dorothea Dorothy's El Segundo Dune weevil	IICOL51021	None	None	G1T1	S1	
Tryonia imitator mimic tryonia (=California brackishwater snail)	IMGASJ7040	None	None	G2	S2	

Record Count: 36

CNPS California Native Plant Society

Plant List

Inventory of Rare and Endangered Plants

10 matches found. *Click on scientific name for details*

Search Criteria

Found in Quad 3311861

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Astragalus pycnostachyus var. lanosissimus	Ventura marsh milk-vetch	Fabaceae	perennial herb	(Jun)Aug-Oct	1B.1	S1	G2T1
Atriplex parishii	Parish's brittlescale	Chenopodiaceae	annual herb	Jun-Oct	1B.1	S1	G1G2
Atriplex serenana var. davidsonii	Davidson's saltscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S1	G5T1
Centromadia parryi ssp. australis	southern tarplant	Asteraceae	annual herb	May-Nov	1B.1	S2	G3T2
Chloropyron maritimum ssp. maritimum	salt marsh bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct(Nov)	1B.2	S1	G4?T1
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	Asteraceae	annual herb	Feb-Jun	1B.1	S2	G4T2
Nama stenocarpa	mud nama	Namaceae	annual / perennial herb	Jan-Jul	2B.2	S1S2	G4G5
Nemacaulis denudata var. denudata	coast woolly-heads	Polygonaceae	annual herb	Apr-Sep	1B.2	S2	G3G4T2
Suaeda esteroa	estuary seablite	Chenopodiaceae	perennial herb	(May)Jul-Oct(Jan)	1B.2	S2	G3
Symphyotrichum defoliatum	San Bernardino aster	Asteraceae	perennial rhizomatous herb	Jul-Nov	1B.2	S2	G2

Suggested Citation

California Native Plant Society, Rare Plant Program. 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 05 September 2017].

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IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Orange County, California

Not for consultation

Local office

Carlsbad Fish And Wildlife Office

(760) 431-9440
(760) 431-5901

2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385

http://www.fws.gov/carlsbad/

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service.

Not for consultation

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Pacific Pocket Mouse Perognathus longimembris pacificus No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8080	Endangered

Birds

NAME	STATUS
California Least Tern Sterna antillarum browni No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
Coastal California Gnatcatcher Polioptila californica californica There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/8178	Threatened
Light-footed Clapper Rail Rallus longirostris levipes No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6035	Endangered
Western Snowy Plover Charadrius alexandrinus nivosus There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened

Flowering Plants

NAME	STATUS

Salt Marsh Bird's-beak Cordylanthus maritimus ssp. maritimus No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6447	Endangered
Ventura Marsh Milk-vetch Astragalus pycnostachyus var. lanosissimus There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/1160	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service[3]. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

Not for consultation

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Conservation measures for birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data http://www.birdscanada.org/birdmon/default/datasummaries.jsp

The migratory birds species listed below are species of particular conservation concern (e.g. Birds of Conservation Concern) that may be potentially affected by activities in this location. It is not a list of every bird species you may find in this location, nor a guarantee that all of the bird species on this list will be found on or near this location. Although it is important to try to avoid and minimize impacts to all birds, special attention should be made to avoid and minimize impacts to birds of priority concern. To view available data on other bird species that may occur in your project area, please visit the AKN Histogram Tools and Other Bird Data Resources. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

NAME	SEASON(S)
Allen's Hummingbird Selasphorus sasin https://ecos.fws.gov/ecp/species/9637	Breeding
Bald Eagle Haliaeetus leucocephalus https://ecos.fws.gov/ecp/species/1626	Wintering
Bell's Vireo Vireo bellii https://ecos.fws.gov/ecp/species/9507	Breeding
Black Oystercatcher Haematopus bachmani https://ecos.fws.gov/ecp/species/9591	Year-round
Black Skimmer Rynchops niger https://ecos.fws.gov/ecp/species/5234	Year-round
Brewer's Sparrow Spizella breweri https://ecos.fws.gov/ecp/species/9291	Year-round

Burrowing Owl *Athene cunicularia* https://ecos.fws.gov/ecp/species/9737	Year-round
Cactus Wren *Campylorhynchus brunneicapillus* https://ecos.fws.gov/ecp/species/8834	Year-round
Calliope Hummingbird *Stellula calliope* https://ecos.fws.gov/ecp/species/9526	Migrating
Costa's Hummingbird *Calypte costae* https://ecos.fws.gov/ecp/species/9470	Year-round
Fox Sparrow *Passerella iliaca*	Wintering
Lawrence's Goldfinch *Carduelis lawrencei* https://ecos.fws.gov/ecp/species/9464	Year-round
Least Bittern *Ixobrychus exilis* https://ecos.fws.gov/ecp/species/6175	Year-round
Lesser Yellowlegs *Tringa flavipes* https://ecos.fws.gov/ecp/species/9679	Wintering
Lewis's Woodpecker *Melanerpes lewis* https://ecos.fws.gov/ecp/species/9408	Wintering
Long-billed Curlew *Numenius americanus* https://ecos.fws.gov/ecp/species/5511	Wintering
Marbled Godwit *Limosa fedoa* https://ecos.fws.gov/ecp/species/9481	Wintering
Mountain Plover *Charadrius montanus* https://ecos.fws.gov/ecp/species/3638	Wintering
Nuttall's Woodpecker *Picoides nuttallii* https://ecos.fws.gov/ecp/species/9410	Year-round
Oak Titmouse *Baeolophus inornatus* https://ecos.fws.gov/ecp/species/9656	Year-round
Olive-sided Flycatcher *Contopus cooperi* https://ecos.fws.gov/ecp/species/3914	Breeding
Peregrine Falcon *Falco peregrinus* https://ecos.fws.gov/ecp/species/8831	Wintering
Red Knot *Calidris canutus ssp. roselaari* https://ecos.fws.gov/ecp/species/8880	Wintering
Red-crowned Parrot *Amazona viridigenalis* https://ecos.fws.gov/ecp/species/9022	Year-round
Rufous Hummingbird *selasphorus rufus* https://ecos.fws.gov/ecp/species/8002	Migrating
Rufous-crowned Sparrow *Aimophila ruficeps* https://ecos.fws.gov/ecp/species/9718	Year-round
Short-billed Dowitcher *Limnodromus griseus* https://ecos.fws.gov/ecp/species/9480	Wintering

Not for consultation

Short-eared Owl Asio flammeus https://ecos.fws.gov/ecp/species/9295	Wintering
Snowy Plover Charadrius alexandrinus	Breeding
Tricolored Blackbird Agelaius tricolor https://ecos.fws.gov/ecp/species/3910	Year-round
Western Grebe aechmophorus occidentalis https://ecos.fws.gov/ecp/species/6743	Wintering
Whimbrel Numenius phaeopus https://ecos.fws.gov/ecp/species/9483	Wintering
Yellow Warbler dendroica petechia ssp. brewsteri https://ecos.fws.gov/ecp/species/3230	Breeding

What does IPaC use to generate the list of migratory bird species potentially occurring in my specified location?

Landbirds:

Migratory birds that are displayed on the IPaC species list are based on ranges in the latest edition of the National Geographic Guide, Birds of North America (6th Edition, 2011 by Jon L. Dunn, and Jonathan Alderfer). Although these ranges are coarse in nature, a number of U.S. Fish and Wildlife Service migratory bird biologists agree that these maps are some of the best range maps to date. These ranges were clipped to a specific Bird Conservation Region (BCR) or USFWS Region/Regions, if it was indicated in the 2008 list of Birds of Conservation Concern (BCC) that a species was a BCC species only in a particular Region/Regions. Additional modifications have been made to some ranges based on more local or refined range information and/or information provided by U.S. Fish and Wildlife Service biologists with species expertise. All migratory birds that show in areas on land in IPaC are those that appear in the 2008 Birds of Conservation Concern report.

Atlantic Seabirds:

Ranges in IPaC for birds off the Atlantic coast are derived from species distribution models developed by the National Oceanic and Atmospheric Association (NOAA) National Centers for Coastal Ocean Science (NCCOS) using the best available seabird survey data for the offshore Atlantic Coastal region to date. NOAANCCOS assisted USFWS in developing seasonal species ranges from their models for specific use in IPaC. Some of these birds are not BCC species but were of interest for inclusion because they may occur in high abundance off the coast at different times throughout the year, which potentially makes them more susceptible to certain types of development and activities taking place in that area. For more refined details about the abundance and richness of bird species within your project area off the Atlantic Coast, see the Northeast Ocean Data Portal. The Portal also offers data and information about other types of taxa that may be helpful in your project review.

About the NOAANCCOS models: the models were developed as part of the NOAANCCOS project: Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf. The models resulting from this project are being used in a number of decision-support/mapping products in order to help guide decision-making on activities off the Atlantic Coast with the goal of reducing impacts to migratory birds. One such product is the Northeast Ocean Data Portal, which can be used to explore details about the relative occurrence and abundance of bird species in a particular area off the Atlantic Coast.

All migratory bird range maps within IPaC are continuously being updated as new and better information becomes available.

Can I get additional information about the levels of occurrence in my project area of specific birds or groups of birds listed in IPaC?

Landbirds:

The Avian Knowledge Network (AKN) provides a tool currently called the "Histogram Tool", which draws from the data within the AKN (latest,survey, point count, citizen science datasets) to create a view of relative abundance of species within a particular location over the course of the year. The results of the tool depict the frequency of detection of a species in survey events, averaged between multiple datasets within AKN in a particular week of the year. You may access the histogram tools through the Migratory Bird Programs AKN Histogram Tools webpage.

The tool is currently available for 4 regions (California, Northeast U.S., Southeast U.S. and Midwest), which encompasses the following 32 states: Alabama, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New York, North, Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin.

In the near future, there are plans to expand this tool nationwide within the AKN, and allow the graphs produced to appear with the list of trust resources generated by IPaC, providing you with an additional level of detail about the level of occurrence of the species of particular concern potentially occurring in your project area throughout the course of the year.

Atlantic Seabirds:

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAANCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Not for consultation

Facilities

Wildlife refuges

Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGES AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

PEMCx

RIVERINE

R2UBHx

Not for consultation

A full description for each wetland code can be found at the National Wetlands Inventory website: https://ecos.fws.gov/ipac/wetlands/decoder

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Appendix B
Plant Species Observed

Plant Species Observed

Scientific Name	Common Name	Special Status
EUDICOTS		
Amaranthaceae - Amaranth family		
Amaranthus sp.	Amaranth	
Anacardiaceae - Sumac Or Cashew family		
* *Schinus terebinthifolius*	Brazilian pepper tree	
Convolvulaceae - Morning-glory family		
Calystegia sp.	Morning-glory	
Fabaceae - Legume family		
Acmispon americanus var. americanus	Spanish-Clover	
* *Melilotus albus*	White sweetclover	
Malvaceae - Mallow family		
* *Malva parviflora*	Cheeseweed	
Polygonaceae - Buckwheat family		
Rumex sp.	Dock	
MONOCOTS		
Arecaceae - Palm family		
* *Washingtonia robusta*	Mexican fan palm	
Cyperaceae - Sedge family		
Cyperus sp.	Flatsedge	
Schoenoplectus sp.	Bulrush	

Scientific Name	Common Name	Special Status

Legend

*= Non-native or invasive species

Special Status:

Federal:
FE = Endangered
FT = Threatened

State:
SE = Endangered
ST =Threatened

CRPR – California Rare Plant Rank
1A. Presumed extinct in California and elsewhere
1B. Rare or Endangered in California and elsewhere
2A. Presumed extinct in California, more common elsewhere
2B. Rare or Endangered in California, more common elsewhere
3. Plants for which we need more information - Review list
4. Plants of limited distribution - Watch list

Threat Ranks
.1 - Seriously endangered in California
.2 – Fairly endangered in California
.3 – Not very endangered in California

Appendix C
Wildlife Species Observed

Table 1. Wildlife Species Detected

Scientific Name	Common Name	Special Status
VERTEBRATES		
Reptiles		
Phrynosomatidae - Spiny Lizard Family		
Uta stansburiana elegans	Western Side-blotched Lizard	
Turtles		
Emydidae - Box and Basking Turtle Family		
**Trachemys scripta elegans*	Red-eared Slider	
Birds		
Anatidae - Swan, Goose, and Duck Family		
Anas platyrhynchos	Mallard	
Podicipedidae - Grebe Family		
Podilymbus podiceps	Pied-billed Grebe	
Ardeidae - Heron Family		
Ardea herodias	Great Blue Heron	
Ardea alba	Great Egret	
Egretta thula	Snowy Egret	
Butorides virescens	Green Heron	
Threskiornithidae - Ibis Family		
Plegadis chihi	White-faced Ibis	
Cathartidae - New World Vulture Family		
Cathartes aura	Turkey Vulture	
Pandionidae - Osprey Family		
Pandion haliaetus	Osprey	
Accipitridae - Hawk Family		
Accipiter cooperii	Cooper's Hawk	
Rallidae - Rail and Coot Family		
Fulica americana	American Coot	
Recurvirostridae - Stilt and Avocet Family		
Himantopus mexicanus	Black-necked Stilt	
Charadriidae - Plover Family		
Charadrius vociferus	Killdeer	
Scolopacidae - Sandpiper Family		
Actitis macularius	Spotted Sandpiper	
Tringa solitaria	Solitary Sandpiper	
Numenius phaeopus	Whimbrel	

Scientific Name	Common Name	Special Status
Laridae - Gull and Tern Family		
Larus occidentalis	Western Gull	
Columbidae - Pigeon and Dove Family		
**Columba livia*	Rock Pigeon	
**Streptopelia decaocto*	Eurasian Collared-Dove	
Zenaida macroura	Mourning Dove	
Trochilidae - Hummingbird Family		
Selasphorus sasin	Allen's Hummingbird	
Picidae - Woodpecker Family		
Picoides pubescens	Downy Woodpecker	
Tyrannidae - Tyrant Flycatcher Family		
Sayornis nigricans	Black Phoebe	
Tyrannus vociferans	Cassin's Kingbird	
Corvidae - Jay and Crow Family		
Corvus brachyrhynchos	American Crow	
Hirundinidae - Swallow Family		
Hirundo rustica	Barn Swallow	
Icteridae - Blackbird, Cowbird and Oriole Family		
Icterus cucullatus	Hooded Oriole	
Fringillidae - Finch Family		
Haemorhous mexicanus	House Finch	
Passeridae - Old World Sparrow Family		
**Passer domesticus*	House Sparrow	

Legend

*= Non-native or invasive species

Special Status:

Federal:
FE = Endangered
FT = Threatened

State:
SE = Endangered
ST = Threatened
CSC = California Species of Special Concern
CFP = California Fully Protected Species

Appendix D
Photo Log

	Photo Number: 1 **Photo Date:** September 5, 2017 **Description:** Facing southwest at the project's western terminus, the Warner Avenue bridge, from the upper bank of the East Garden Grove Wintersburg Channel (channel).
	Photo Number: 2 **Photo Date:** September 5, 2017 **Description:** Facing north underneath the Springdale Street bridge.

	Photo Number: 3 **Photo Date:** September 5, 2017 **Description:** Facing east along the channel, east of Springdale Street. Emergent vegetation grows along the edge of the streambed but was recently maintained.
	Photo Number: 4 **Photo Date:** September 5, 2017 **Description:** Facing east along the channel. Farther upstream, particularly east of the Edwards Street bridge, the wetted channel was narrower, exposing long sections of mudflats adjacent to the water.

	Photo Number: 5 **Photo Date:** September 5, 2017 **Description:** Facing north just downstream of the project's eastern terminus where a small drop structure is present.
	Photo Number: 6 **Photo Date:** September 5, 2017 **Description:** Facing east at the project's eastern terminus (roughly at the patch of mud in the center of the photo).

Appendix C

Jurisdictional Delineation Report

JURISDICTIONAL DELINEATION REPORT

C05 EAST GARDEN GROVE-WINTERSBURG CHANNEL, WARNER TO 1,250 FEET DOWNSTREAM OF GOLDENWEST SHEET PILE PROJECT, ORANGE COUNTY, CALIFORNIA

PREPARED FOR:

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January 2018

ICF. 2018. Jurisdictional Delineation Report, East Garden Grove-Wintersburg Channel, Warner to 1,250 Feet Downstream of Goldenwest Sheet Pile Project, Orange County, California. January. (ICF 00636.17) Irvine, CA. Prepared for OCPW.

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Acronyms and Abbreviations

Approved JD	Approved Jurisdictional Determination
Carabell	*Carabell v. United States Army Corps of Engineers*
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CWA	Clean Water Act
EPA	U.S. Environmental Protection Agency
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
GPS	global positioning systems
HUC	Hydrologic Unit Code
NI	no indicator
NO	no occurrence
NRCS	Natural Resources Conservation Service
OBL	obligate
OCPW	Orange County Public Works
OHWM	Ordinary High Water Mark
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
Preliminary JD	preliminary jurisdictional determination
Project	East Garden Grove-Wintersburg Channel Project
Rapanos	*Rapanos v. United States*
RGL	Regulatory Guidance Letter
RPW	relatively permanent water
RWQCB	Regional Water Quality Control Board
SSURGO	Soil Survey Geographic
SWANCC	*Solid Waste Agency of North Cook County*
SWRCB	State Water Resources Control Board
TNW	traditional navigable water
UPL	obligate upland
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
WoS	waters of the State
WoUS	waters of the United States

Executive Summary

ICF conducted a routine-level delineation of jurisdictional waters and wetlands for the C05 East Garden Grove-Wintersburg Channel, Warner to 1,250 Feet Downstream of Goldenwest Sheet Pile Project (Project). The purpose of this delineation was to identify the extent of jurisdictional waters within and adjacent to the Project site as part of the federal and state regulatory permitting process under Sections 401 and 404 of the Clean Water Act (CWA) and Section 1602 of the California Fish and Game Code. Relevant jurisdictions include federal jurisdiction regulated by the U.S. Army Corps of Engineers (USACE) as waters of the United States (WoUS) or USACE wetlands, state jurisdiction regulated by State Water Resources Control Board (SWRCB) and Regional Water Quality Control Board (RWQCB) as waters of the State (WoS) and RWQCB wetlands, and state jurisdiction regulated by the California Department of Fish and Wildlife (CDFW) as aquatic features and associated riparian habitat.

One feature, the East Garden Grove-Wintersburg Channel, was determined to be subject to the jurisdiction of USACE, RWQCB, and CDFW. In total, 9.97 acres of potential USACE/RWQCB jurisdiction was mapped within the study area, 0.78 acre of which is composed of USACE/RWQCB wetlands; and 12.60 acres of potential CDFW jurisdiction was mapped with the study area, 0.78 acre of which is composed of vegetated riparian habitat.

Jurisdictional Delineation Maps are attached as Appendix A and Site Photographs are attached as Appendix B.

Chapter 1
Introduction

ICF conducted a routine-level delineation of potential jurisdictional waters and wetlands within the C05 East Garden Grove-Wintersburg Channel, Warner to 1,250 Feet Downstream of Goldenwest Sheet Pile Project (Project) footprint and 50-foot buffer (study area) (Appendix A, Figures 1 and 2). The delineation was conducted as part of the federal and state regulatory permitting process for Orange County Public Works (OCPW). The purpose of this delineation was to identify the extent of potential federal and state jurisdiction within the study area to support the resource-agency permitting process under Sections 401 and 404 of the Clean Water Act (CWA) as well as Section 13260 of the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) and Section 1602 of the California Fish and Game Code.

Section 404 of the CWA covers waters of the United States (WoUS) as well as federal wetlands and is regulated by the U.S. Army Corps of Engineers (USACE). Under Section 401 of the CWA, the Regional Water Quality Control Board (RWQCB) regulates at the state level all activities that are regulated at the federal level by USACE. The RWQCB/State Water Resources Control Board (SWRCB) may also regulate activities affecting non-federal waters and wetlands (e.g., isolated features) under the Porter-Cologne Act. Section 1600 of the California Fish and Game Code is regulated by the California Department of Fish and Wildlife (CDFW) and covers aquatic features, which may include lakes or streambeds with a defined bed and bank plus any adjacent riparian vegetation. If a proposed project may affect waters or wetlands, then the project site must be evaluated to determine the presence of jurisdictional waters. Permits for the proposed activity must be sought from each applicable resource agency. Details regarding each of these resource agencies, their regulatory authority, jurisdiction, permits, and regulatory process are provided in Chapter 2, *Regulatory Background*.

The information and results presented herein document the investigation, best professional judgment, and conclusions of ICF. It is correct and complete to the best of our knowledge. However, all jurisdictional determinations should be considered preliminary until reviewed and approved by the regulatory agencies.

1.1 Project Description

The proposed project involves facilitating improvements to the C05 facility from Warner Avenue to 1,250 feet downstream of Goldenwest Street to correct erosion issues and provide additional protection from flooding. The length of the proposed construction is approximately 4,970 linear feet.

The project design is similar to the overall design used in the downstream reach between Graham Street and Warner Avenue completed in 2014. Project construction would consist of inserting two parallel sheet pile walls on both sides of the northern maintenance road and both sides of the southern maintenance road. One row of sheet piles would be inserted at the hinge point between the maintenance road and the existing top-of-channel slope and the second row would be driven 15 feet farther from the channel and parallel to the first row. The second row of sheet piles would be almost half way down the levee backslope. All four rows of sheet piles (two rows on each side of the channel) would be located outside of waters of the U.S. (WoUS) and waters of the State of California.

1.2 Project Location

The project is located in the East Garden Grove-Wintersburg Channel (channel), approximately 1.8 miles upstream of where the channel enters Bolsa Bay at the Bolsa Chica Ecological Reserve. The project extends from Warner Avenue (downstream end) to approximately 1,250 feet downstream of Goldenwest Street (upstream end) within the City of Huntington Beach, Orange County, California (Appendix A, Figures 1 and 2). The project is mapped in an unsectioned part of Township 5 South, Range 11 West on the U.S. Geological Survey (USGS) 7.5-minute Seal Beach topographic map (USGS 1965 [photorevised 1981]).

Chapter 2
Regulatory Background

The following sections summarize the regulations imposed on each type of jurisdictional feature potentially present within the Project area.

2.1 U.S. Army Corps of Engineers Regulated Activities

Pursuant to Section 404 of the CWA, USACE regulates the discharge (temporary or permanent) of dredged or fill material into WoUS, including wetlands. A discharge of fill material includes, but is not limited to, grading, placing riprap for erosion control, pouring concrete, laying sod, and stockpiling excavated material into WoUS. Activities that generally do not involve a regulated discharge (if performed specifically in a manner to avoid discharges) include driving pilings, performing certain drainage channel maintenance activities, constructing temporary mining and farm/forest roads, and excavating without stockpiling.

2.1.1 Waters of the United States

WoUS, as defined in Code of Federal Regulations (CFR) title 33, section 328.3, includes the following.

(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(2) All interstate waters including interstate wetlands;

(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

  (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or

  (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

  (iii) Which are used or could be used for industrial purpose by industries in interstate commerce;

(4) All impoundments of waters otherwise defined as waters of the United States under the definition;

(5) Tributaries of waters identified in paragraphs (1) through (4) of this section;

(6) The territorial seas;

(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (1) through (6) of this section.

(8) Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for

> the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.
>
> Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States.

The limit of USACE jurisdiction, excluding wetlands and tidal waters, is delineated using the Ordinary High Water Mark (OHWM), defined in CFR 328.3(e) as

> …that line on the shore established by the fluctuations of water and indicated by physical characteristics such as [a] clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

2.1.2 Wetlands

Normally, three criteria must be satisfied to classify an area as a jurisdictional wetland: (1) a predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation); (2) soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils); and (3) permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology) (Environmental Laboratory 1987).

2.1.3 Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers

In 1986, in an attempt to clarify the reach of its jurisdiction, USACE stated that Section 404(a) extends to intrastate waters that

> …(a) are or would be used as habitat by birds protected by migratory bird treaties, or (b) are or would be used as habitat by other migratory birds which cross state lines, or (c) are or would be used as habitat for endangered species, or (d) used to irrigate crops sold in interstate commerce." (51 Federal Register 41217).

As a result of the 2001 *Solid Waste Agency of Northern Cook County (SWANCC)* case, the U.S. Supreme Court held that USACE may not rely on the Migratory Bird Rule to establish a significant nexus to interstate or foreign commerce. Although no formal guidance was issued by USACE interpreting the extent to which the *SWANCC* decision would limit jurisdictional determinations, in practice USACE considers intrastate waters as WoUS where there is an appropriate connection to a navigable water or other clear interstate commerce connection. Therefore, WoUS, including jurisdictional wetlands, must show connectivity with (be tributary to) a navigable WoUS to be subject to USACE under Section 404 of the CWA.

2.1.4 Rapanos v. United States and Carabell v. United States Army Corps of Engineers

In 2006, the U.S. Supreme Court issued an opinion regarding the extent of USACE jurisdiction over certain waters under Section 404 of the CWA. The *Rapanos-Carabell* consolidated decisions addressed the question of jurisdiction over attenuated tributaries to WoUS, as well as wetlands adjacent to those tributaries.

On June 5, 2007, the USACE and U.S. Environmental Protection Agency (EPA) issued guidance related to the *Rapanos* decision. The guidance identifies those waters over which the agencies (USACE/EPA 2008) will assert jurisdiction categorically and on a case-by-case basis. To summarize, USACE will continue to assert jurisdiction over the following features.

- Traditional navigable waters (TNWs) and their adjacent wetlands
- Non-navigable tributaries of TNWs that are relatively permanent waters (RPWs) (e.g., tributaries that typically flow year-round or have a continuous flow at least seasonally [i.e., typically 3 months]) and wetlands that directly abut such tributaries (i.e., not separated by uplands, berm, dike, or similar feature)

For non-RPWs, the agencies will determine whether a "significant nexus" exists with a TNW using the data found in an Approved Jurisdictional Determination Form (Approved JD form). The purpose of the significant nexus evaluation is to determine whether the existing functions of a tributary affect the chemical, physical, and/or biological integrity of a downstream TNW. Tributary characteristics that are considered when evaluating whether a significant nexus exists include volume, duration, and frequency of flow; proximity to a TNW; and hydrologic and ecologic functions performed by the tributary and all of its adjacent wetlands. Based on that information, the agencies may assert jurisdiction over the following features.

- Nonnavigable tributaries that do not typically flow year-round or have continuous flow at least seasonally
- Wetlands adjacent to such tributaries
- Wetlands adjacent to but not directly abutting a relatively permanent nonnavigable tributary

The agencies will typically not assert jurisdiction over the following features.

- Swales or erosional features (e.g., gullies and small washes characterized by low volume and infrequent or short-duration flow)
- Ditches (including roadside ditches) excavated wholly in uplands and draining only uplands that do not carry a relatively permanent flow of water

2.1.4.1 Approved Jurisdictional Determinations

An Approved Jurisdictional Determination (Approved JD) is an official USACE jurisdictional determination, is valid for 5 years, can be used and relied upon in a CWA citizen's lawsuit if its legitimacy is challenged (except under extraordinary circumstances), and can be immediately appealed (33 CFR 331). Approved JDs are documented in accordance with Regulatory Guidance Letter (RGL) No. 07-01 and require the use of the Approved JD form. Approved JDs are evaluated by USACE and EPA.

Under the *Rapanos* guidance, an Approved JD is required for determinations for all "isolated" waters or wetlands, and is subject to review by USACE and EPA.

2.1.4.2 Preliminary Jurisdictional Determinations

USACE issued RGL No. 08-02 on June 26, 2008, allowing the USACE to issue preliminary jurisdictional determinations (Preliminary JDs) for a project. A Preliminary JD is a non-binding

written indication that there may be WoUS, including wetlands, on a project site and identifies the approximate location of these features. Preliminary JDs are used when a landowner, permit applicant, or other affected party elects to voluntarily waive or set aside questions regarding CWA jurisdiction over a particular site, usually in the interest of allowing the landowner to move ahead expeditiously to obtain Section 404 authorization where the party determines that it is in his or her best interest to do so. A Preliminary JD is not an official determination regarding the jurisdictional status of potentially jurisdictional features and has no bearing on Approved JDs. A Preliminary JD cannot be used to confirm the absence of jurisdictional waters or wetlands, is advisory in nature, and cannot be appealed. It is considered "preliminary" because a recipient can later request an Approved JD if one is necessary or appropriate.

A Preliminary JD is documented using the Preliminary Jurisdictional Determination Form. For purposes of impact calculations, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a Preliminary JD treats all waters and wetlands that would be affected in any way, except by the permitted activity, as if they are jurisdictional. Although a Preliminary JD may be chosen by the applicant, the district engineer reserves the right to use an Approved JD where warranted.

2.1.4.3 2011 Draft Clean Water Act Guidance

On April 27, 2011, USACE and EPA issued draft guidance for determining jurisdiction under the CWA. The guidance supersedes the previous guidance from 2003 regarding *SWANCC* (68 *Federal Register* 1991–1995) and 2007 *Rapanos* guidance. This document reiterated the guidance issued under the *Rapanos* decision, asserting that the following waters are protected by the CWA.

- Traditional navigable waters
- Interstate waters
- Wetlands adjacent to either traditional navigable waters or interstate waters
- Nonnavigable tributaries to traditional navigable waters that are relatively permanent (meaning they contain water at least seasonally)
- Wetlands that directly abut relatively permanent waters

The guidance further clarifies the criteria for defining TNWs, primarily consistent with previous guidance. In addition, a significant nexus evaluation is required for the "other waters" category of the regulations (see item 3 in Section 2.1.1 above). The guidance divides these waters into two categories—those that are physically proximate to other jurisdictional waters and those that are not, and discusses how each category should be evaluated.

Finally, the guidance reiterated that certain aquatic areas are generally not considered WoUS.

- Wet areas that are not tributaries or open waters and do not meet the agencies' regulatory definition of "wetlands"
- Waters excluded from coverage under the CWA by existing regulations
- Waters that lack a "significant nexus" where one is required for a water to be protected by the CWA
- Artificially irrigated areas that would revert to upland should irrigation cease

- Artificial lakes or ponds created by excavating and/or diking dry land and used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing
- Artificial reflecting pools or swimming pools created by excavating and/or diking dry land
- Small ornamental waters created by excavating and/or diking dry land for primarily aesthetic reasons
- Water-filled depressions created incidental to construction activity
- Groundwater drained through subsurface drainage systems
- Erosional features (gullies and rills), and swales and ditches that are not tributaries or wetlands

2.2 Activities Regulated by the State

2.2.1 Section 401 of the Clean Water Act

A federal permit or license cannot be issued that may result in a discharge to WoUS unless certification under Section 401 of the CWA is granted or waived by EPA, the state, or the tribe where the discharge would originate (EPA 2010). Within the proposed Project area, the ability to grant, grant with conditions, deny, or waive certification falls to two separate parties: RWQCB (or SWRCB) and EPA.

Pursuant to Section 401 of the CWA:

> …any applicant for a federal permit for activities that involve a discharge to waters of the United States shall provide the federal permitting agency a certification from the state in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the federal Clean Water Act.

Therefore, before USACE will issue a Section 404 permit, applicants must apply for and receive a Section 401 water quality certification or waiver, as applicable. Under Section 401 of the CWA, all activities that are regulated at the federal level by USACE are also regulated at the state level. Therefore, state jurisdiction usually includes all waters or tributaries to waters that are determined to be WoUS and, similar to WoUS, are typically delineated at the OHWM.

However, if waters are determined not to be WoUS, they may still be subject to state jurisdiction based on the Porter-Cologne Act.

2.2.2 Porter-Cologne Water Quality Control Act

The state also regulates activities that would involve "discharging waste, or proposing to discharge waste, within any region that could affect waters of the state" (California Water Code 13260(a)), pursuant to provisions of the state Porter-Cologne Act. Waters of the State (WoS) are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code 13050(e)). Such waters may include waters not subject to regulation under Section 404 (i.e., isolated features). These waters may include isolated vernal pools, isolated wetlands, or other aquatic habitats not normally subject to federal regulation under Section 404 of the CWA.

2.2.3 Regulating Agencies

2.2.3.1 State Water Resources Control Board/Regional Water Quality Control Board Regulated Activities

In California, the SWRCB and the nine RWQCBs regulate activities within state and federal waters under Section 401 of the CWA and the state Porter-Cologne Act. The SWRCB is responsible for setting statewide policy, coordinating and supporting RWQCB efforts, and reviewing petitions that contest RWQCB actions. Each semi-autonomous RWQCB sets water quality standards, issues Section 401 certifications and waste discharge requirements, and takes enforcement action for projects occurring within its boundary. However, when a project crosses multiple RWQCB jurisdictional boundaries, the SWRCB becomes the regulating agency for both of these acts and issues project permits.

2.3 California Department of Fish and Wildlife Regulated Activities

Pursuant to Sections 1600–1616 of the California Fish and Game Code, CDFW regulates any activity that will substantially divert or obstruct the natural flow—or substantially change or use any material from the bed, channel, or bank—of any river, stream, or lake. CDFW also regulates any activity that will deposit or dispose of debris, wastewater, or other material containing crumbled, flaked, or ground pavement that may pass into any river, stream, or lake. The applicant must notify CDFW prior to such activities and obtain a Lake or Streambed Alteration Agreement.

2.3.1 California Department of Fish and Wildlife Jurisdiction

CDFW jurisdiction includes ephemeral, intermittent, and perennial watercourses (including dry washes) and lakes characterized by the presence of (1) definable bed and banks, and (2) existing fish or wildlife resources. Furthermore, CDFW jurisdiction is often extended to habitats adjacent to watercourses, such as oak woodlands in canyon bottoms or willow woodlands that support hydrologic functions within the riparian system. CDFW jurisdiction typically does not include features without a discernible bed and bank, such as swales, vernal pools, or wet meadows.

2.3.2 Section 1602 of the California Fish and Game Code

The California Fish and Game Code mandates that:

> it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds, without first notifying the department of such activity.

Historical court cases have further extended CDFW jurisdiction to include watercourses that seemingly disappear but re-emerge elsewhere. Under the CDFW definition, a watercourse need not exhibit evidence of an OHWM to be claimed as jurisdictional.

Water features such as vernal pools and other seasonal swales where the defined bed and bank are absent and the feature is not contiguous or closely adjacent to other jurisdictional features are

generally not asserted to fall within state jurisdiction under Section 1602. CDFW generally does not assert jurisdiction over human-made water bodies unless they are located where such natural features were previously located or (importantly) where they are contiguous with existing or prior natural jurisdictional areas.

Chapter 3
Methodology

3.1 Project Research

Prior to the field visit, a 200-foot-scale (1 inch = 200 feet) aerial photograph of the study area was obtained and compared with the Seal Beach, California USGS 7.5-minute topographic quadrangle and Google Earth imagery (Google Earth 2017), dated October 18, 2016, to identify drainage features within and adjacent to the study area as indicated by vegetation types, topographic changes, or visible drainage patterns.

In addition, the following sources were reviewed during the preparation of this report.

- Hydrologic Unit Code (HUC) 8 and 10 Watershed Maps (Calwater 2.2.1) (Appendix A, Figure 3).
- U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO) database (USDA/NRCS 2017) (Appendix A, Figure 4).

3.2 Field Investigation

ICF biologists Ryan Winkleman and Dennis Miller conducted the jurisdictional waters and wetland delineation on November 7, 2017. The survey was conducted on foot, and jurisdictional limits were recorded using high-resolution aerial photographs and a Trimble global positioning systems (GPS) unit with sub-meter accuracy. Existing conditions were documented with field notes and site photographs.

Common plant species observed were identified by visual characteristics and morphology in the field. Taxonomic nomenclature for plants follows the *Jepson Manual: Vascular Plants of California* (Baldwin et al. 2012). When no common name for plant species was listed in the Jepson Manual, common names were taken from the *Arid West 2016 Regional Wetland Plant List* (Lichvar et al. 2016).

3.2.1 U.S. Army Corps of Engineers Jurisdiction

Potential WoUS and wetlands were delineated using methods established in the *Wetland Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008a), *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b), and *Draft Guidance on Identifying Waters Protected by the Clean Water Act* (USACE/EPA 2011). Nonwetland waters were delineated based on the presence of OHWM indicators.

Several parameters were considered to determine whether a sample point is within a wetland. Three criteria normally must be fulfilled in order to classify an area as a jurisdictional USACE wetland: (1) a predominance of hydrophytic vegetation, (2) the presence of hydric soils, and (3) the presence of wetland hydrology. Details of the application of these techniques are described below.

- **Hydrophytic Vegetation:** The hydrophytic vegetation criterion is satisfied at a location if greater than 50% of all the dominant species present within the vegetation unit have a wetland indicator status of obligate (OBL), facultative wetland (FACW), or facultative (FAC) (Environmental Laboratory 1987). An OBL indicator status refers to plants that have a 99% probability of occurring in wetlands under natural conditions. A FACW indicator status refers to plants that usually occur in wetlands (67–99% probability) but are occasionally found elsewhere. A FAC indicator status refers to plants that are equally likely to occur in wetlands or elsewhere (estimated probability 34–66% for each). A facultative upland (FACU) status refers to plants that usually do not occur in wetlands (1-33% probability). An obligate upland (UPL) status refers to plants that occur in wetlands within other regions, but occur almost always (>99% probability) under natural conditions in non-wetlands within the Arid West region. An NI (no indicator) status designates that insufficient information was available to determine an indicator status. An NO (no occurrence) status indicates that the species does not occur in the region; when a plant with an NO status is found within a region, it usually indicates that the plant is ornamental. The wetland indicator status used for this report follows the *Arid West 2016 Regional Wetland Plant List* (Lichvar et al. 2016).
- **Hydric Soils:** The definition of a hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (USDA/NRCS 1994). This determination is made based on various field indicators detailed in the *Arid West Supplement* (USACE 2008a) and the *Field Indicators of Hydric Soils in the United States (Version 7.0)* (USDA/NRCS 2010). Additional soil data was developed from the *National Hydric Soils List* (USDA/NRCS 2015).
- **Wetland Hydrology:** Wetland hydrology is determined using indicators of inundation or saturation (flooding, ponding, or tidally influenced) detailed in the *Wetland Delineation Manual* (Environmental Manual 1987) and the *Arid West Supplement* (USACE 2008a).

Soil pits to examine soil color and texture for wetland parameters were not dug during the jurisdictional delineation.

3.2.2 Regional Water Quality Control Board Jurisdiction

Evaluation of RWQCB jurisdiction followed guidance from Section 401 of the CWA and typically follows the same jurisdictional areas as USACE.

3.2.3 California Department of Fish and Wildlife Jurisdiction

CDFW jurisdiction typically includes water features with a defined bed and bank and associated riparian vegetation. Evaluation of potentially jurisdictional areas followed the guidance of standard practices by CDFW personnel. Briefly, CDFW jurisdiction was delineated by measuring outer width and length boundaries of potentially jurisdictional areas (lakes or streambeds), consisting of the greater of either the top of bank measurement or the extent of associated riparian or wetland vegetation, if present.

Chapter 4
Environmental Setting

The following section describes the topography, land use, hydrology, vegetation characteristics, and soils associated with the study area.

4.1 Land Use

The study area occurs within a densely-populated urban area surrounded by residential and commercial development and associated public infrastructure. Within and adjacent to the study area, the dominant land uses are commercial, residential, transportation, and recreation (parks and trails).

4.2 Hydrology

4.2.1 Precipitation

Average precipitation for the general area is approximately 13.69 inches per year based on data obtained between 1906 and 2016 at the nearby "Santa Ana Fire Station, California" weather station (WRCC 2017). Table 4-1 summarizes the average precipitation per month and annually between 1906 and 2016 for the general Project area based on this station.

Table 4-1. Regional Rainfall Data Summary for the Project Area (in inches)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Average	2.73	3.05	2.21	1.05	0.25	0.06	0.02	0.06	0.22	0.49	1.28	2.28	13.69

Data Source: Western Regional Climate Center: http://www.wrcc.dri.edu. Accessed October 2017.

4.3 Hydrologic Units

The Project site is within the Bolsa Chica Channel-Frontal Huntington Beach Harbor HUC 10 watershed, which is a sub-watershed of the larger Seal Beach HUC 8 watershed (Appendix A, Figure 3). The Seal Beach watershed drains approximately 89 square miles of northern Orange County. It originates in the City of Anaheim in the northeast, Cypress in the northwest, and Santa Ana in the southeast. It drains through multiple man-made/modified drainages and into Bolsa Bay and Anaheim Bay before entering the Pacific Ocean. General information on the Bolsa Chica Channel-Frontal Huntington Harbor Watershed is provided below.

4.3.1 Bolsa Chica Channel-Frontal Huntington Harbor Watershed

Bolsa Chica Channel-Frontal Huntington Harbor Watershed refers to the hydrologic watershed that is defined by drainage and only minimally by jurisdictional boundaries. It is composed of a number of channels, none of which is a dominant river for the watershed, with each draining a substantial portion of the watershed. The channels include Stanton Storm Channel, Bolsa Chica Channel, Anaheim Harbor City Channel, Westminster Channel, East Garden Grove-Wintersburg Channel, and Ocean View Channel.

Ultimately, the channels converge along the coast where they empty into Bolsa Bay, Huntington Harbor, or Anaheim Bay. The headwaters for these channels begin in the northern and eastern reaches of the watershed, which is almost completely urbanized and has a very low slope, having once been primarily swamplands or low coastal floodplains for the San Gabriel and Santa Ana Rivers. All the channel reaches within the watershed are improved (lined) for flood control. Typical flow in the Bolsa Chica Channel-Frontal Huntington Harbor Watershed is primarily dry weather runoff except during the winter months following precipitation events.

4.4 Vegetation Summary

Three distinct vegetation communities/land uses were mapped within the study area. Each of these are discussed below.

4.4.1 Developed Areas

Developed areas, which are highly disturbed and/or paved, within the study area consist of residential structures, roadways, parking lots, commercial buildings, and private/public infrastructure outside the East Garden Grove-Wintersburg Channel. This land use type represents the greatest overall acreage. Vegetation within the developed area consists primarily of non-native ornamental plantings and non-native grass lawns.

4.4.2 Disturbed Areas

Disturbed areas within the study area generally consist of the upland area outside of the flood control channel (i.e., the dirt access road and dirt shoulder that separates the road from adjacent commercial/residential development). Disturbed areas still retain a soil surface and are unpaved. Vegetation within the disturbed area generally consists of sparse non-native ornamental plantings.

4.4.3 Flood Control Channel

This land use type within the study area consists of the East Garden Grove-Wintersburg Channel. Vegetation is very sparse because of apparent vegetation management. Much of the earthen channel is barren; where vegetation does occur, it consists generally of low-growing and larger weeds with occasional patches of bulrush sprouting along the waters edge. Because the channel is mostly inundated, receiving varying amounts of flow from stormwater sources, there is little opportunity for substantive vegetation to grow within the bed of the channel.

4.5 Soils

4.5.1 Map Units

The NRCS has mapped soil series as occurring within the study area based on the SSURGO database (USDA/NRCS 2017). The following soil types or map units are identified (Appendix A, Figure 4):

- Bolsa silt loam;
- Bolsa silt loam, drained;
- Bolsa silty clay loam;
- Bolsa silty clay loam, drained; and
- Thapto-Histic Fluvaquents.

Of these, Bolsa silt loam, drained may be hydric based on the hydric soils list (USDA/NRCS 2017).

Chapter 5
Jurisdictional Delineation Results

This chapter describes the delineated features and expected jurisdictional status within the study area. This report documents existing conditions within the study area at the time of the delineation. An impacts analysis is not included as a part of this report. Project impacts are included in a standalone *Draft IS/MND for the C05 East Garden Grove-Wintersburg Channel, Warner to 1,250 Feet Downstream of Goldenwest Sheet Pile Project, Orange County, California* (ICF 2017, under preparation). The information and results included herein document the investigation, best professional judgment, and conclusions of ICF. It is correct and complete to the best of our knowledge. However, all jurisdictional determinations should be considered preliminary until reviewed and approved by the regulatory agencies.

Detailed information, including maps of jurisdictional features within the study area and site photographs are provided in Appendices A and B.

- Figures 5 and 6 of Appendix A depict the delineated features and Project study area.
- Appendix B contains photographs of the jurisdictional features.

5.1 Delineated Feature Descriptions

The study area contains one aquatic feature, East Garden Grove-Wintersburg Channel, that meets the definition of a potential non-wetland WoUS as regulated by USACE under Section 404 of the CWA. East Garden Grove-Wintersburg Channel is regulated by the RWQCB under Section 401 of the CWA. In addition, East Garden Grove-Wintersburg Channel meets the definition of an aquatic feature with definable bed and banks that is regulated by CDFW under Sections 1600–1616 of the California Fish and Game Code. East Garden Grove-Wintersburg Channel is described in more detail below. Table 5-1 contains a jurisdictional summary for East Garden Grove-Wintersburg Channel within the study area. Although soil pits were not dug and wetland forms were not filled out, portions of the channel containing emergent bulrush located on the edges if the retaining wall and areas of sediment deposition are assumed in this jurisdictional delineation report to meet the definition of a USACE wetland under Section 404 (see Figure 5).

5.1.1 East Garden Grove-Wintersburg Channel

East Garden Grove-Wintersburg Channel consists of earthen banks except for small areas of concrete banks under and surrounding overpasses and drainage entry points and a riprap slope along the western edge between Springdale Street and Warner Avenue. The channel bottom consists of mud and sand. The channel bottom fluctuates seasonally as a result of high flows during the rainy season and periodic dry season maintenance. Most vegetation within the areas of sediment buildup consisted of non-native upland weedy species that were ground level to several feet tall at the time of the survey. Some areas along the edge of the channel bottom and within low flow areas of sediment build up had seedlings of various wetland species (e.g., bulrush and sedge). The channel itself is periodically maintained to maintain flood capacity, and, combined with fast winter storm

flow, is highly dynamic. Wetland Determination Data Forms were not completed due the nature of the earthen channel bottom assumed to have hydric soils throughout.

USACE/RWQCB Jurisdiction

The OHWM indicators observed included presence of a cut bank along earthen sections of the channel, drift deposits, and sediment deposits. The width of the OHWM was approximately 90 feet with slight widening near the three road overcrossings. The USACE and RWQCB jurisdictional areas within the study area totaled approximately 9.97 acres (2,752 linear feet) of non-wetland WoUS/WoS and 0.78 acre (2,448 linear feet) of wetland WoUS/WoS (Table 5-1; Appendix A, Figure 5).

CDFW Jurisdiction

The sections of East Garden Grove-Wintersburg Channel where sediment has been deposited above the low flow channel contained recent growth primarily consisting of upland weedy plant species. Most areas were dominated by cheeseweed, *Malva parvifolia* (not listed in the *Arid West 2016 Regional Wetland Plant List* so considered UPL), and red-root, *Amaranthus retroflexus* (FACU). Some edges along the low flow channel and depressions within the areas of sediment deposition contained emerging wetland species consisting primarily of bulrush and sedge in small immature patches. However, the channel itself is likely maintained periodically to reduce vegetation growth and to help retain flow, and, combined with fast water flow from winter storms clearing the channel of vegetation each year, likely never offers enough time for wetland plant species to become established at a level to offer biological functions and value.

The width of the bed and bank defining the limits of CDFW jurisdiction was approximately 120 feet. There is approximately 12.60 acres of unvegetated streambed within the study area subject to CDFW jurisdiction and 0.78 acre of riparian stream bed (Table 5-1; Appendix A, Figure 6).

Table 5-1. Jurisdictional Delineation Summary

Drainage	U.S. and State Non-Wetland Waters (acres/linear feet)	U.S. and State Wetland Waters (acres/linear feet)	CDFW Unvegetated Streambed (acres)	CDFW Riparian (acres)
East Garden Grove-Wintersburg Channel	9.97/2,752	0.78/2,448	12.60	0.78
Total	**9.97/2,752**	**0.78/2,448**	**12.60**	**0.78**

5.2 List of Delineators and Report Preparers/Reviewer

Denis Miller, Senior Biologist—Delineator/Report Preparer

Ryan Winkleman, Senior Biologist—Delineator/Report Preparer

Greg Hoisington, Irvine Biology Manager—Report Reviewer

Brittany Buscombe, GIS Specialist—GIS Support

Chapter 6
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Appendix A

Jurisdictional Delineation Figures

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Figure 1
Regional Vicinity
C05 East Garden Grove Wintersburg Channel Project

K:\Projects_1\OCPW\00494_17_East_Garden_Grove\mapdoc\JD\Fig02_Project_Location.mxd Date: 12/12/2017 25119

ICF

N

Map Prepared: 12/12/2017 1 inch = 2,500 feet

0 2,500 5,000 Feet

Figure 2
Project Vicinity
C05 East Garden Grove Wintersburg Channel Project

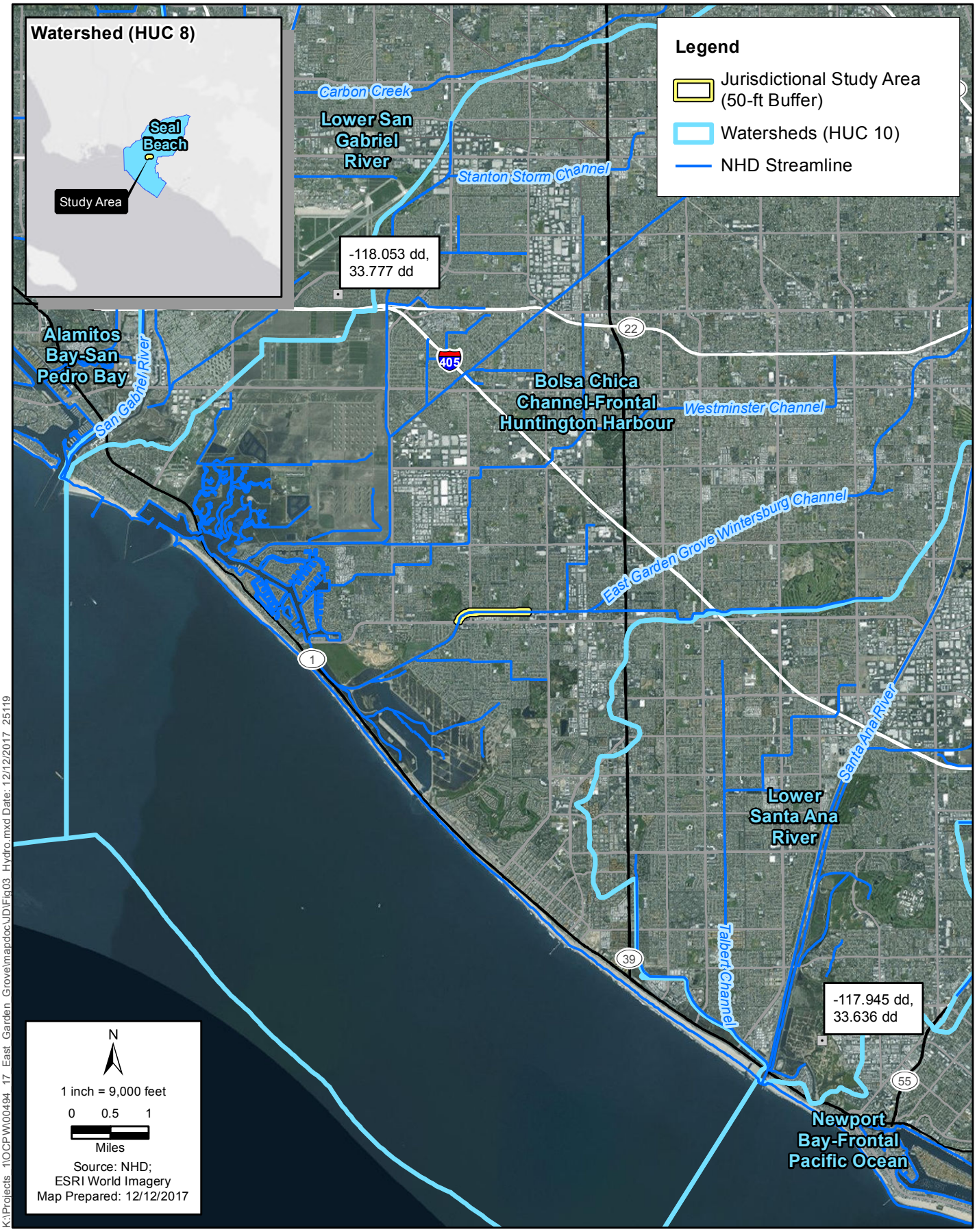
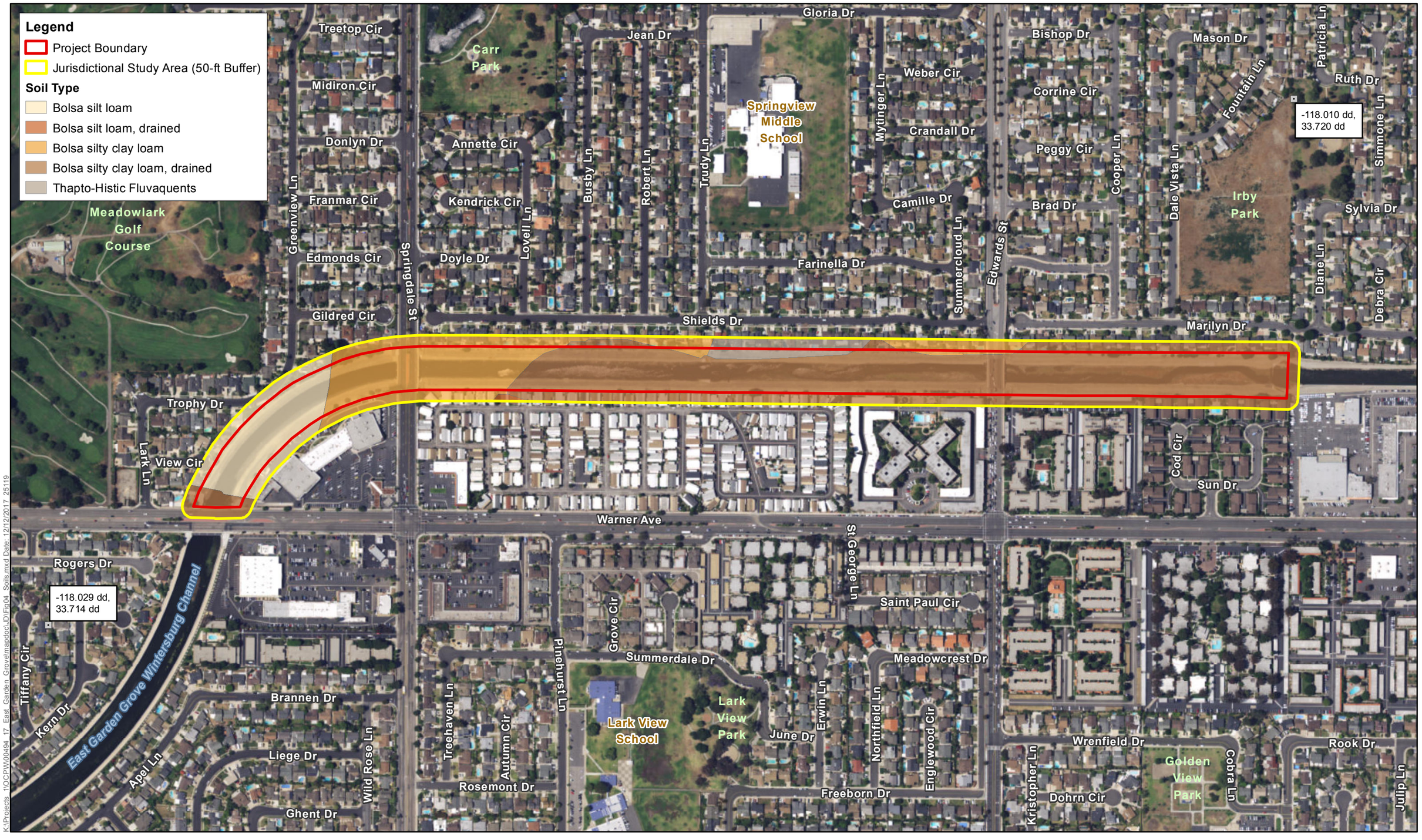


Figure 3
Hydrography Map
C05 East Garden Grove Wintersburg Channel Project



K:\Projects\OCPW00494 17 East Garden Grove\mapdocs\DI\Fig04 Soils.mxd Date: 12/12/2017 25119

Map Prepared: 12/12/2017 1 inch = 400 feet

0 400 800 Feet

N

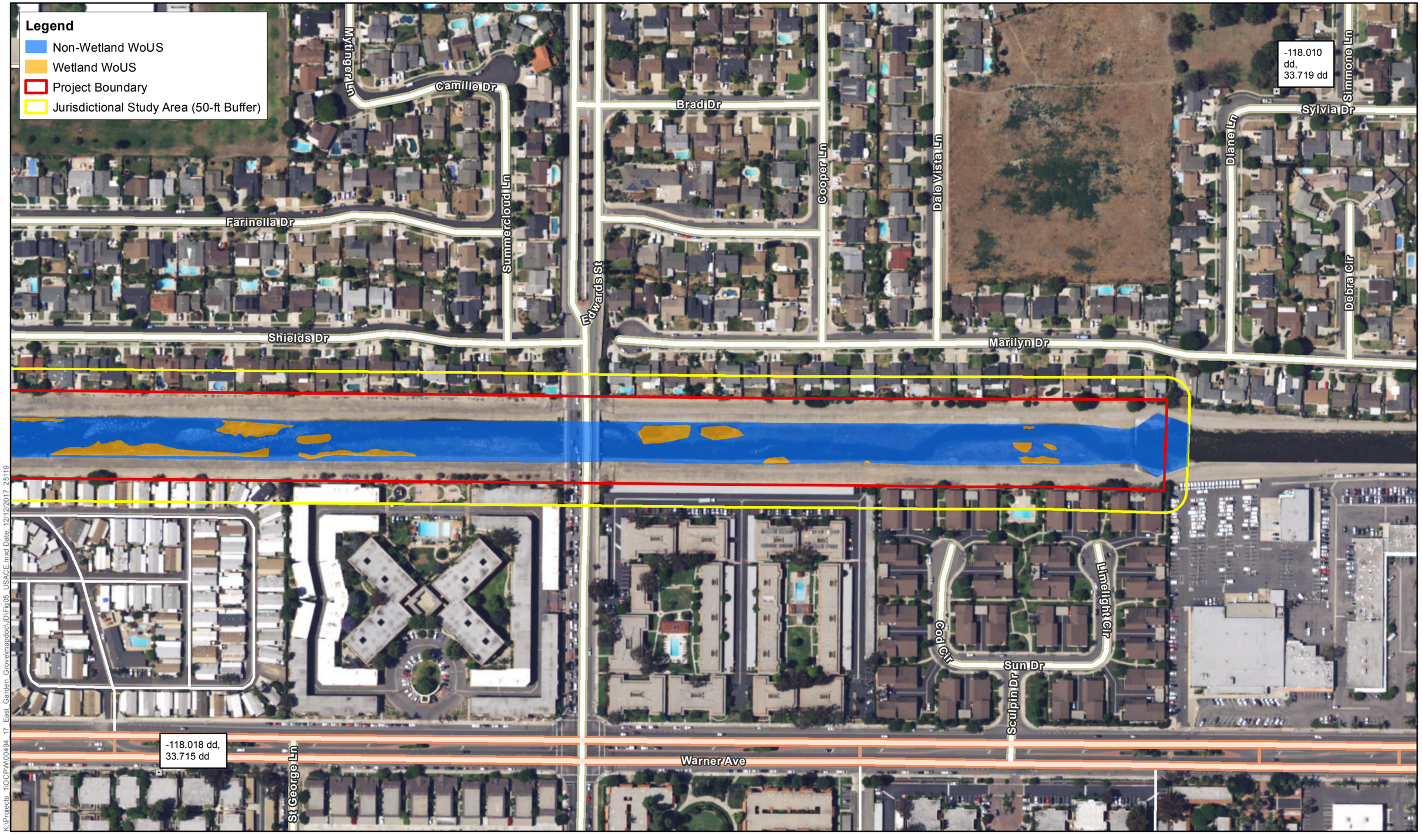
Figure 4
NRCS Soils Survey Map
C05 East Garden Grove Wintersburg Channel Project

N

Map Prepared: 12/12/2017 1 inch = 200 feet

0 200 400 Feet

Figure 5
USACE/RWQCB Jurisdictional Features
C05 East Garden Grove Wintersburg Channel Project



Map Prepared: 12/12/2017 1 inch = 200 feet

0 200 400 Feet

N

Figure 5
USACE/RWQCB Jurisdictional Features
C05 East Garden Grove Wintersburg Channel Project

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Map Prepared: 12/13/2017 1 inch = 200 feet

0 200 400 Feet

N

Figure 6
CDFW Jurisdictional Features
C05 East Garden Grove Wintersburg Channel Project

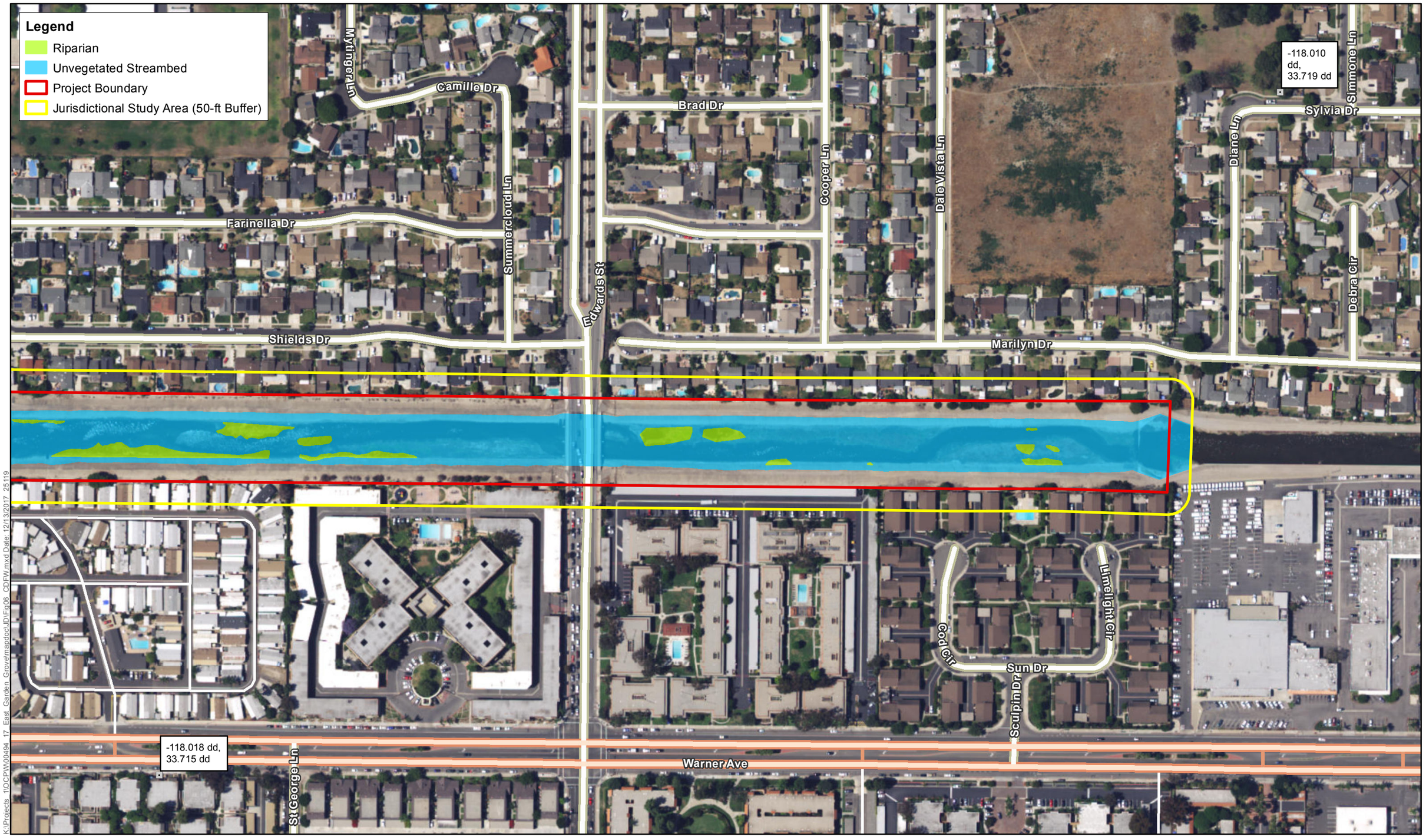

Figure 6
CDFW Jurisdictional Features
C05 East Garden Grove Wintersburg Channel Project

Appendix B

Site Photographs

Jurisdictional Delineation Report Photo Log
C05 East Garden Grove-Winterburg Channel, Warner to 1,250 Feet Downstream of Goldenwest Sheet Pile Project
Huntington Beach, California

Photo 1

Date: November 7, 2017
Direction: Northeast
Feature: East Garden Grove Wintersburg Channel
Feature description: Looking towards Springdale Street with rip rap west bank and earthen east bank.

Photo 2

Date: November 7, 2017
Direction: East
Feature: East Garden Grove Wintersburg Channel
Feature description: At Springdale Street looking east with Edwards Street in the distance. Note thin band of bulrush just starting to grow along the water's edge.

Photo 3

Date: November 7, 2017
Direction: West
Feature: East Garden Grove Wintersburg Channel
Feature description: At Edwards Street overcrossing of the channel looking west.

Photo 4

Date: November 7, 2016
Surveyor: Dennis Miller
Direction: East
Feature: East Garden Grove Wintersburg Channel
Feature description: Within the channel with the concrete section in the background marking the eastern extent of the project. Note the weeds and lack of dominant wetland plant species.

Photo 5

Date: November 7, 2017
Direction: East
Feature: East Garden Grove Wintersburg Channel
Feature description: Sediment deposit near Edwards Street with a small patch of sedge sprouting and the rest of the area surrounded by primarily upland weeds dominated by *Malva parvifolia*.

Photo 6

Date: November 7, 2017
Surveyor: Dennis Miller
Direction: East
Feature: East Garden Grove Wintersburg Channel
Feature description: Typical area within the channel bottom with sediment deposition dominated by *Malva parvifolia* and *Amaranthus retroflexus* - both upland species.

Appendix D

Geotechnical Investigation Report

FINAL GEOTECHNICAL INVESTIGATION REPORT

East Garden Grove-Wintersburg Channel Improvements
from Warner Avenue to Upstream of Edwards Street
(Station 101+00 to 151+25)
Huntington Beach, Orange County, California

EMI Project No. 08-156
Date: October 15, 2009

EARTH MECHANICS, INC.

Geotechnical and Earthquake Engineering

Earth Mechanics, Inc.
Geotechnical & Earthquake Engineering

October 15, 2009

EMI Project No. 08-156

Orange County Public Works
Materials Laboratory
1152 E. Fruit Street
Santa Ana, California 92702

Attention: Mr. Krishna Nadaraja, Senior Civil Engineer

Subject: ***Final Geotechnical Investigation Report***
East Garden Grove-Wintersburg Channel Improvements from Warner Avenue to Upstream of Edwards Street (Station 101+00 to 151+25)
Huntington Beach, Orange County, California

Dear Mr. Nadaraja:

Attached is the Final geotechnical investigation report for the East Garden Grove-Wintersburg Channel from Warner Avenue to Edwards Street in the City of Huntington Beach, California. This report contains our findings, including observations from our field investigation program, and results of laboratory tests conducted on soil samples collected from our field investigation. The purpose of this report was to document subsurface conditions along the channel alignment for future design work to be performed by Orange County Public Works (OCPW).

Please call our office if you have any questions or comments regarding the information contained in this report. We appreciate the opportunity to work with you on this project.

Sincerely,
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FINAL GEOTECHNICAL INVESTIGATION REPORT

EAST GARDEN GROVE-WINTERSBURG CHANNEL FROM WARNER AVENUE TO UPSTREAM OF EDWARDS STREET HUNTINGTON BEACH, ORANGE COUNTY, CALIFORNIA

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EMI Project Number: 08-156

October 15, 2009

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1.0 INTRODUCTION

1.1 Purpose

A geotechnical study was performed by Earth Mechanics, Inc. (EMI) for the East Garden Grove-Wintersburg Channel from Warner Avenue to Edwards Street in the City of Huntington Beach in Orange County. The purpose of the study was to characterize the existing subsurface conditions and prepare this data report to assist Orange County Public Works (OCPW) in their future design of the proposed channel improvements. This report is not intended to provide complete design information for future channel improvements.

1.2 Scope of Work

The geotechnical services provided for this project included the following tasks:

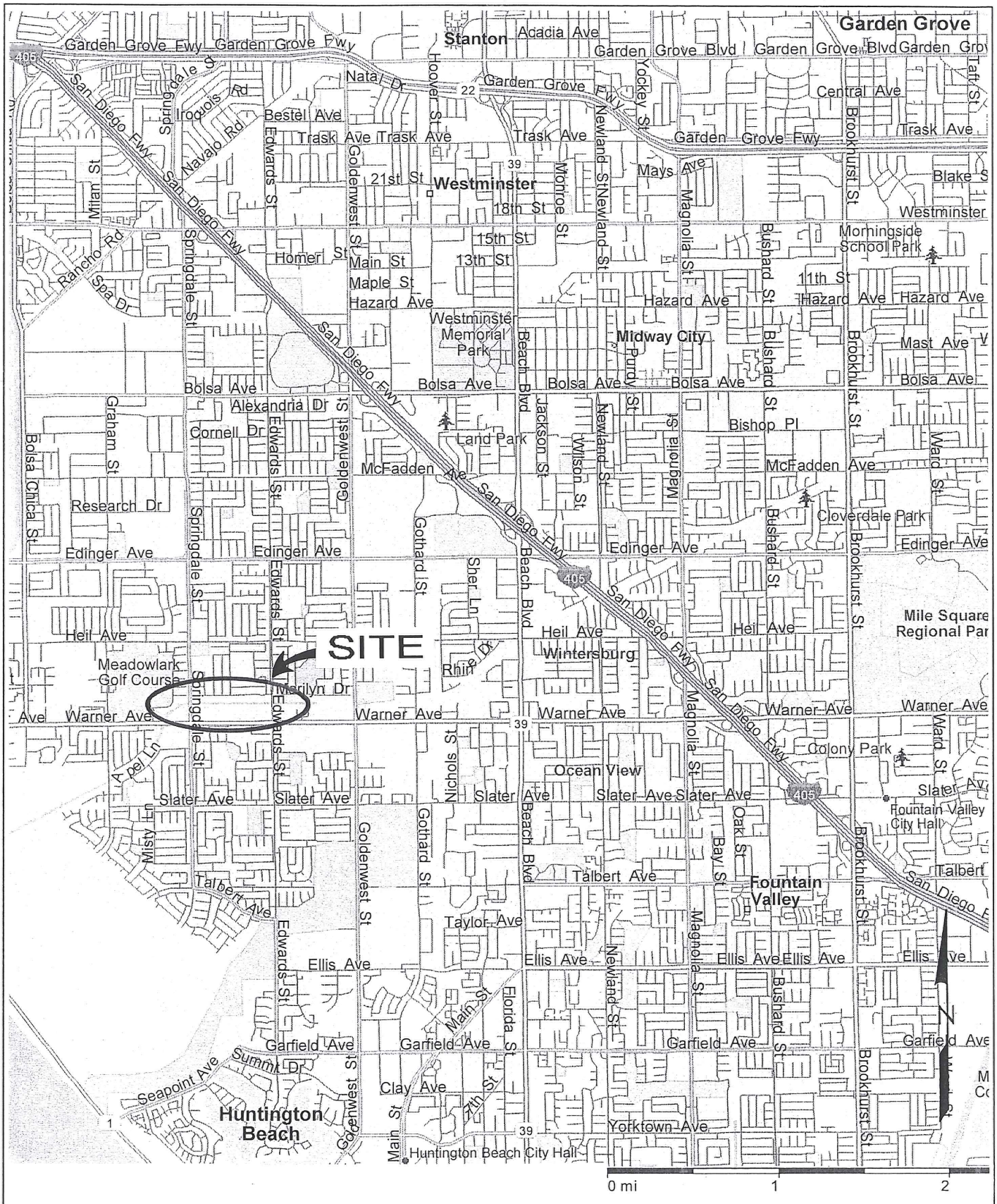
- Excavating, sampling, and logging eight exploratory boreholes.
- Completing fifty-one Cone Penetration Test (CPT) soundings.
- Laboratory testing of selected soil samples.
- Evaluation of liquefaction potential and seismically-induced settlement.
- Slope stability analysis.
- Preparation of this data report.

1.3 General Project Description and Proposed Improvements

The existing East Garden Grove (EGG)-Wintersburg Channel (Facility No. C05) is located in the northern area of the City of Huntington Beach. The EGG-Wintersburg Channel begins near the eastern boundary of the City of Garden Grove, and traverses through the cities of Garden Grove, Santa Ana, and Westminster before entering the City of Huntington Beach. Through Huntington Beach, the channel is just north of and generally runs parallel to Warner Avenue. At Springdale Street, the channel veers south and is generally aligned in a northeast to southwest direction and eventually outlets to the Pacific Ocean.

The existing EGG-Wintersburg Channel is a trapezoidal open channel formed by a pair of earthen levees. The levees are about 13.5 feet high on the channel side (i.e. height from invert to top of levee) and vary from about 7 to 10 feet high on the dry side (i.e. height from existing ground within the adjacent developments to the top of levee). The side slopes have an inclination of 2:1 (Horizontal:Vertical). The soft bottom channel invert is approximately 70 feet wide. The project limits extend from Warner Avenue (Station 101+00) to approximately 1,400 feet east of Edwards Street (Station 151+25). The length of the channel to be improved is approximately 5,025 feet. The location of the project site is shown on Figure 1.

Currently, conceptual improvements include replacing the existing trapezoidal earthen levees with a Deep Soil Mix (DSM) cellular column structure sandwiched between fiber-reinforced polymer sheetpiles to form a "reinforced" levee. The proposed improvement will transform the existing trapezoidal open channel to a rectangular channel.



Earth Mechanics, Inc. Geotechnical & Earthquake Engineering	PROJECT LOCATION MAP Figure 1	
EGG-WINTERSBURG CHANNEL, WARNER AVE TO EDWARDS ST	Project No. 08-156	Date: 3-19-09

2.0 FIELD INVESTIGATION AND LABORATORY TESTING

2.1 Field Investigation

A geotechnical field investigation was conducted between November 17 and December 10, 2008. Eight exploratory boreholes (B-08-05 thru B-08-12) were drilled and fifty-one CPT soundings (CPT-08-27 to CPT-08-77) were completed under the supervision of EMI for the project. EMI field personnel logged the subsurface soils and conditions that were observed from the borings and collected soil samples for laboratory testing.

Boreholes and CPT soundings were conducted on top of the existing levees which are located immediately adjacent to each side of the channel. The approximate locations of the boreholes and CPT soundings are shown on the attached Log-of-Test-Boring sheets in Appendix A. The boreholes were excavated to an approximate depth of 80 feet below existing grades using a truck-mounted rotary-wash drilling rig equipped with 5-inch diameter augers. Subsurface soils and conditions were logged and samples of soils were collected for laboratory testing. Soil samples were collected from borings at 5-foot vertical intervals by means of split-spoon drive samplers; the Standard Penetration Test (SPT) sampler and the Modified California Drive (MCD) sampler were used to collect small disturbed and relatively undisturbed samples, respectively. The SPT sampler (1.4-inch ID) and MCD sampler (2.4-inch ID) were driven a total depth of 18 inches or until refusal, using a 140-lb hammer falling 30 inches. The MCD is a split-barrel sampler with a tapered cutting tip and is lined with a series of 1-inch tall brass rings. Blowcounts for the last 12 inches of penetration were recorded on the boring logs. Logs of the exploratory borings are presented in Appendix A. Boring information is provided in Table 1.

The CPT soundings were performed using an electronic cone penetrometer in general accordance with current ASTM Standards (ASTM D5778 and ASTM D3441). CPT equipment consisted of a cone penetrometer assembly mounted at the end of a series of hollow sounding rods. The cone penetrometer assembly consisted of a conical tip with a 60° apex angle and a projected cross sectional area of 1.55 in^2 and a cylindrical friction sleeve with a surface area of 23.25 in^2. The interior of the cone penetrometer is instrumented with strain gauges that allow simultaneous measurements of cone tip and sleeve friction resistance during penetration. The cone penetrometer assembly is continuously pushed into the soil by a set of hydraulic rams at a standard rate of 0.79 inch per second while the cone tip resistance and sleeve friction resistance are recorded every 1.967 inches and digitally stored. A specially designed all-wheel drive 25-ton truck provides the required reaction weight for pushing the cone assembly and is also used to transport and house the testing equipment. The computer generated graphical logs include tip resistance, friction resistance, and friction ratio. Soil behavior type interpretations are based on guidelines by Robertson and Campanella (1989). Logs of CPT soundings are given in Appendix B. CPT sounding information is provided in Table 1.

TABLE 1. EXPLORATORY BOREHOLE AND CPT SOUNDING INFORMATION

Boring Number	*Date Performed*	*Probe Type* [4]	*Station* [1] *(feet)*	*Offset* [1] *(feet)*	*GSE* [2] *(feet)*	*Boring/CPT Depth (feet)*	*GWE* [3] *(feet)*
B-08-05	12/3/2008	RW	101+20	63.0 LT	+10.0	80.0	- 15
CPT-08-27	11/21/2008	CPT	101+25	67.0 LT	+9.3	66.3	NM
CPT-08-28	12/3/2008	CPT	102+00	65.5 RT	+9.7	67.4	NM
CPT-08-29	11/21/2008	CPT	103+00	65.5 LT	+10.5	69.9	NM
CPT-08-30	12/3/2008	CPT	104+00	66.5 RT	+10.4	69.7	NM
CPT-08-31	11/20/2008	CPT	105+00	66.5 LT	+10.6	66.4	NM
CPT-08-32	12/3/2008	CPT	106+00	66.5 RT	+10.0	67.4	NM
CPT-08-33	11/20/2008	CPT	107+00	66.5 LT	+9.8	71.4	NM
B-08-06	12/2/2008	RW	107+10	66.5 LT	+9.7	80.0	- 20
CPT-08-34	12/4/2008	CPT	108+00	65.0 RT	+11.0	69.4	NM
CPT-08-35	11/20/2008	CPT	109+60	65.0 LT	+11.0	76.1	NM
CPT-08-36	12/4/2008	CPT	110+00	65.0 RT	+11.6	71.7	NM
CPT-08-37	11/20/2008	CPT	111+00	65.0 LT	+11.7	73.7	NM
CPT-08-38	12/4/2008	CPT	111+61	67.5 RT	+10.0	67.4	NM
CPT-08-39	11/20/2008	CPT	113+05	73.0 LT	+10.5	68.9	NM
B-08-07	12/1/2008	RW	113+05	70.0 RT	+10.5	80.0	- 2
CPT-08-40	12/4/2008	CPT	114+00	66.5 RT	+11.7	73.7	NM
CPT-08-41	11/20/2008	CPT	115+00	65.0 LT	+11.8	74.6	NM
CPT-08-42	12/4/2008	CPT	116+00	65.0 RT	+12.0	76.8	NM
CPT-08-43	11/19/2008	CPT	117+00	65.0 LT	+11.6	78.7	NM
CPT-08-44	12/5/2008	CPT	118+00	65.0 RT	+12.0	70.2	NM
CPT-08-45	11/19/2008	CPT	119+00	65.0 LT	+11.7	72.0	NM
CPT-08-46	12/5/2008	CPT	120+00	65.0 RT	+11.2	71.5	NM
B-08-08	12/1/2008	RW	121+00	66.5 RT	+11.0	80.0	- 3
CPT-08-47	11/19/2008	CPT	121+00	65.0 LT	+12.7	70.7	NM
CPT-08-48	12/5/2008	CPT	122+00	65.0 RT	+11.2	71.4	NM
CPT-08-49	11/19/2008	CPT	123+00	67.5 LT	+12.3	74.1	NM
CPT-08-50	12/5/2008	CPT	124+00	65.0 RT	+11.4	68.6	NM
CPT-08-51	11/19/2008	CPT	125+00	67.5 LT	+12.1	74.5	NM
CPT-08-52	12/5/2008	CPT	126+00	65.0 RT	+11.4	69.4	NM

Notes: 1. Stations and offsets are measured relative to the channel centerline and are approximate.
2. GSE = Ground Surface Elevation (estimated from topographic plans provided by OCPW).
3. GWE = Groundwater Elevation (approximate); NM = Groundwater Table Not Measured.
4. RW = Rotary Wash borehole; CPT = Cone Penetration Test sounding.

TABLE 1. EXPLORATORY BOREHOLE AND CPT SOUNDING INFORMATION

Boring Number	*Date Performed*	*Probe Type* [4]	*Station* [1] *(feet)*	*Offset* [1] *(feet)*	*GSE* [2] *(feet)*	*Boring/CPT Depth (feet)*	*GWE* [3] *(feet)*
CPT-08-53	11/19/2008	CPT	127+00	66.5 LT	+12.5	80.1	NM
CPT-08-54	12/8/2008	CPT	128+00	66.5 RT	+12.8	65.3	NM
CPT-08-55	11/18/2008	CPT	129+00	66.5 LT	+12.5	72.5	NM
B-08-09	11/26/2008	RW	129+50	66.5 LT	+12.8	80.0	+1
CPT-08-56	12/8/2008	CPT	130+00	66.5 RT	+12.9	75.0	NM
CPT-08-57	11/18/2008	CPT	131+00	66.5 LT	+12.4	78.1	NM
CPT-08-58	12/8/2008	CPT	132+00	65.0 RT	+12.8	70.5	NM
CPT-08-59	11/18/2008	CPT	133+00	65.0 LT	+12.8	66.8	NM
CPT-08-60	12/8/2008	CPT	134+00	65.0 RT	+11.9	73.0	NM
CPT-08-61	11/18/2008	CPT	135+00	65.0 LT	+12.6	80.1	NM
CPT-08-62	12/9/2008	CPT	136+00	65.0 RT	+11.7	68.7	NM
CPT-08-63	11/18/2008	CPT	137+00	65.0 LT	+11.8	64.1	NM
CPT-08-64	12/9/2008	CPT	138+00	65.0 RT	+10.0	69.6	NM
B-08-10	11/25/2008	RW	138+10	65.0 LT	+11.0	80.0	- 18
CPT-08-65	11/18/2008	CPT	139+33	74.0 LT	+11.2	77.9	NM
CPT-08-66	12/9/2008	CPT	140+00	65.0 RT	+11.6	69.4	NM
CPT-08-67	11/17/2008	CPT	141+00	65.0 LT	+11.9	72.5	NM
CPT-08-68	12/10/2008	CPT	142+00	65.0 RT	+12.4	74.8	NM
CPT-08-69	11/17/2008	CPT	143+00	65.0 LT	+11.7	69.6	NM
CPT-08-70	12/10/2008	CPT	144+00	65.0 RT	+12.0	67.7	NM
CPT-08-71	11/17/2008	CPT	145+00	67.5 LT	+12.2	70.4	NM
B-08-11	11/24/2008	RW	145+50	65.0 RT	+11.9	80.0	- 4
CPT-08-72	12/10/2008	CPT	146+00	65.0 RT	+11.7	67.1	NM
CPT-08-73	11/17/2008	CPT	147+00	65.0 LT	+12.0	60.7	NM
CPT-08-74	12/10/2008	CPT	148+00	65.0 RT	+11.6	79.6	NM
CPT-08-75	11/17/2008	CPT	149+00	65.0 LT	+11.9	65.6	NM
CPT-08-76	12/10/2008	CPT	150+00	65.0 RT	+11.2	68.1	NM
CPT-08-77	11/17/2008	CPT	151+00	62.0 LT	+11.8	70.0	NM
B-08-12	11/24/2008	RW	151+20	62.0 LT	+11.9	80.0	- 3

Notes: 1. Stations and offsets are measured relative to the channel centerline and are approximate.
2. GSE = Ground Surface Elevation (estimated from topographic plans provided by OCPW).
3. GWE = Groundwater Elevation (approximate); NM = Groundwater Table Not Measured.
4. RW = Rotary Wash borehole; CPT = Cone Penetration Test sounding.

2.2 Laboratory Testing

Laboratory tests were conducted on select soil samples collected from the field investigation. Tests were conducted in general accordance with American Society for Testing and Materials (ASTM) standards. The following tests were accomplished to determine the relevant physical characteristics and engineering properties of soils:

- Visual Soil Classification (ASTM D-2488)
- In-situ density and moisture content (ASTM D-2216 and ASTM D-2937)
- Grain size distribution (ASTM D-422)
- Atterberg Limits (ASTM D-4318)
- No. 200 wash (ASTM D-1140)
- Sand Equivalent (ASTM D-2419)
- Direct shear (ASTM D-3080)
- Unconsolidated-Undrained triaxial test (ASTM D-2850)
- One-dimensional consolidation (ASTM D-2435)
- Maximum density and optimum moisture content (ASTM D-1557)
- Soil corrosivity (California Test 417, 422, and 643)

Information obtained from the first five tests, in the list above, was used to classify soils. Direct shear tests and unconsolidated-undrained triaxial tests were performed to obtain shear strength properties of in-situ soils. Consolidation tests were performed to determine the compression characteristics of fine-grained soils. And, soil corrosivity tests were conducted to assess the hazard of corrosion attack on proposed structures in contact with in-situ soils. The results of the laboratory tests are presented in Appendix C.

3.0 REGIONAL GEOLOGY AND SEISMICITY

3.1 Regional Physiography

The project site is located near the coast in the Seal Beach-Huntington Beach area within the Los Angeles Basin. The Los Angeles basin is a large low-lying coastal plain bordered by the Santa Monica Mountains on the north, the Repetto and Puente Hills on the northeast, the Santa Ana Mountains on the east, and the San Joaquin Hills on the south (Figure 2). The western margin of the basin is open to the Pacific Ocean except for one prominent hill, the Palos Verdes Hills or Peninsula. The floor of the Los Angeles Basin is a relatively flat surface rising gently from sea level along the coastline to the surrounding mountains which then rise abruptly to a few thousand feet above the plain. The flat basin floor is interrupted in a few localities by small hills such as the northwesterly alignment of hills and mesas extending from the Newport Beach area on the south to the Beverly Hills area on the north. The northwest-trending alignment of hills is due to folding and uplifting along geological faults of the Newport-Inglewood Structural Zone (NISZ). The NISZ divides the basin floor into two major plains, the Downey-Tustin Plain on the northeast and the Torrance Plain on the southwest.

The margins of the basin are generally elevated somewhat above the general level of the basin floor by an apron of uplifted sediments such as the La Brea Plain, Montebello Plain, Santa Fe Springs Plain, and the Coyote Hills.

3.2 Site Physiography

The project area is on a very flat alluvial plain just northeast of the hills and mesas of the NISZ with Bolsa Mesa just to the west and Huntington Beach Mesa to the south. These are surfaces elevated by faulting and folding associated with the NISZ. Bolsa Chica Mesa rises about 65 feet above sea level and Huntington Beach Mesa about 130 feet. This floodplain was fed by streams that flowed seaward through three gaps, Sunset Gap to the north of Bolsa Chica Mesa, Bolsa Gap, and Santa Ana Gap south of Huntington Beach Mesa. The site is near the inland side of Bolsa Gap and the channel flows through the gap to the ocean. Historically the gaps were largely freshwater swamps merging seaward with tidal marshes. These areas were cleared and drained in the early 1900s and the streams were confined within dike-lined channels. With the confinement of the freshwater streams, the tidal marsh expanded and extended more than a mile inland.

Bolsa Gap was eroded by streams draining across the Huntington Beach anticline. Bolsa Gap was fed by Freeman River, a short fresh-water stream emanating from the Westminster area and carrying water from storm runoff, peat springs, and artesian springs.

The gaps were initiated during the Pleistocene ice ages when large volumes of the global water supply was held within continental ice sheets, and sea level fell to about 300 feet lower than present. The lowered stream base level resulted in streams cutting deeper channels. Upon the beginning of global warming about 15,000 years ago, melting of the glaciers and polar ice caps resulted in sea level rise. As the water level rose, the streams retreated inland and the channels filled with sediments. The early stages of backfilling were primarily with sand and gravel, and the later stages with finer lagoonal and tidal marsh deposits. In mid-Holocene time (~5000 to 8,000 years ago), the sea level rise slowed and fine-grained sediments and organic muck accumulated behind the newly formed barrier beach.

3.3 Stratigraphy

The Los Angeles basin is a structural basin formed in a tectonically active environment. The floor of the Los Angeles Basin is covered with and underlain by unconsolidated Quaternary-age sandy sediments. These sediments generally can be subdivided into Holocene-age sediments which cover the bulk of the flat floor of the basin, and late-Pleistocene deposits that underlie the younger sediments but which are locally exposed within the folds that comprise the uplifts of the Newport-Inglewood Structural Zone and the marginal plains. Hard rocks occur only in the mountains surrounding the basin and in the Palos Verdes Hills, and at depths ranging from about 5,000 feet to as much as 30,000 feet in the deepest part of the central basin (Yerkes et al., 1965). Basement is much shallower (<10,000 feet) west of the NISZ. Crystalline basement generally consists of metamorphic rocks (schist) west of the NISZ and igneous and metamorphic rocks to the east.

The local stratigraphy in the project area comprises, in descending order, Holocene deposits, late Pleistocene Lakewood Formation, early Pleistocene San Pedro Formation, and the late Pliocene Pico Formation. The Pico formation is well below the project area of interest and will not be relevant.

3.3.1 Holocene Deposits

Holocene deposits in the Bolsa Gap area comprise primarily lagoonal, tidal marsh, and alluvium deposits that are predominantly fine silty sands, clayey silts, and silty clays with lenses of peat and irregular stringers of medium- to coarse-grained sand. The sediments grade landward from sands nearer the beach to silts and clays inland. Lenses and layers of peat are common. Similar peat in Santa Ana Gap at a depth of 35 to 40 feet has been radiocarbon dated at a little more than 8,000 years before present (Department of Water Resources, 1966). The lagoonal and alluvial sediments are from 40 to 75 feet thick and conformably overlie stream-channel deposits of the Bolsa aquifer. The Bolsa Aquifer, termed the "80 foot gravel" by Poland and Piper (1956), comprises the lower part of the Holocene channel deposits in Bolsa Gap.

3.3.2 Late Pleistocene Deposits

The Lakewood Formation of late Pleistocene-age is exposed on Bolsa Chica Mesa and Huntington Beach Mesa. The deposits of the Lakewood Formation consist of shallow marine and non marine alluvial deposits ranging in thickness from a thin erosional edge in Bolsa Gap to a maximum thickness of about 400 feet in the inland portion of Sunset Gap. The upper Lakewood Formation is exposed across the hills and mesas (e.g. Signal Hill, Bolsa Chica Mesa, and Huntington Beach Mesa), and occurs beneath Holocene deposits in the alluvial plain as well as the Bolsa and Sunset Gaps. However, in Bolsa Gap, the late Pleistocene section has been extensively eroded and has been stripped away entirely across the subsurface fold crest between the Bolsa-Fairview and Newport-Inglewood faults. Typically the Lakewood Formation is somewhat more consolidated and denser than the Holocene deposits.

The lowermost part of the Lakewood Formation is of marine origin and is difficult to differentiate from the early Pleistocene marine deposits. Fossils are the best way to differentiate the formations. However, the Lakewood deposits are commonly oxidized (brownish and yellowish colors) in contrast to the older marine formations which are generally grayish and greenish colors, and which generally have higher concentration of marine shells.

3.3.3 Early Pleistocene Deposits

Marine deposits of the early Pleistocene-age San Pedro Formation underlie upper Pleistocene Lakewood Formation and Holocene deposits throughout the area at depths ranging from 70 feet below sea level in Bolsa Gap to about 420 feet below sea level inland of Sunset Gap. Due to thinning and erosion across anticlinal folds, the formation is 550 to 650 feet thick at Landing Hill, Bolsa Gap, and Huntington Beach Mesa. The base of the formation reaches a maximum elevation of about –750 ft at Huntington Beach Mesa. The San Pedro Formation conformably overlies and apparently is gradational with the late Pliocene-age Pico Formation in most of the area. The Pliocene and Pleistocene beds can be differentiated mainly by fossils.

3.4 Geologic Structure

The Los Angeles Basin is a deep structural trough formed by latest Tertiary and Quaternary-age folding and faulting of older Tertiary-age marine rocks and Mesozoic-age crystalline basement rocks. In simple terms the basin is underlain by the northwest-southeast trending Paramount syncline (downwarp) and the Newport-Inglewood anticline (upwarp). The basin is underlain by the same rocks and formations that crop out in the surrounding hills and mountains.

The area was a deep marine basin in Miocene through Pliocene time. The basin gradually filled with sediments in Quaternary time connecting the Palos Verdes Hills to the mainland via a flat alluvial plain. As the sea retreated, rivers draining from the surrounding highlands such as the Los Angeles, San Gabriel, Rio Hondo, and Santa Ana Rivers meandered back and forth across the plain, depositing stream-channel and flood-plain sediments across the coastal plain.

As discussed previously, the Basin floor is transected by the Newport-Inglewood Structural Zone (NISZ) which comprises a series of faults and folds extending from the northern basin margin to the Newport Beach area. The site is just northeast of this structural zone with the principal geologic structures in the project area being the Huntington Beach anticline (upwarp), the Seal Beach segment of the NISZ, and the Bolsa-Fairview fault zone. The Seal Beach segment of the NISZ is designated as an active Alquist-Priolo Earthquake Fault Zone (formerly an Alquist-Priolo Special Studies Zone) by the California Geological Survey (Division of Mines and Geology, 1986). The Bolsa-Fairview fault has been active in Quaternary time but is not known to have been active in Holocene time and, therefore, commonly is not considered a ground-rupture hazard.

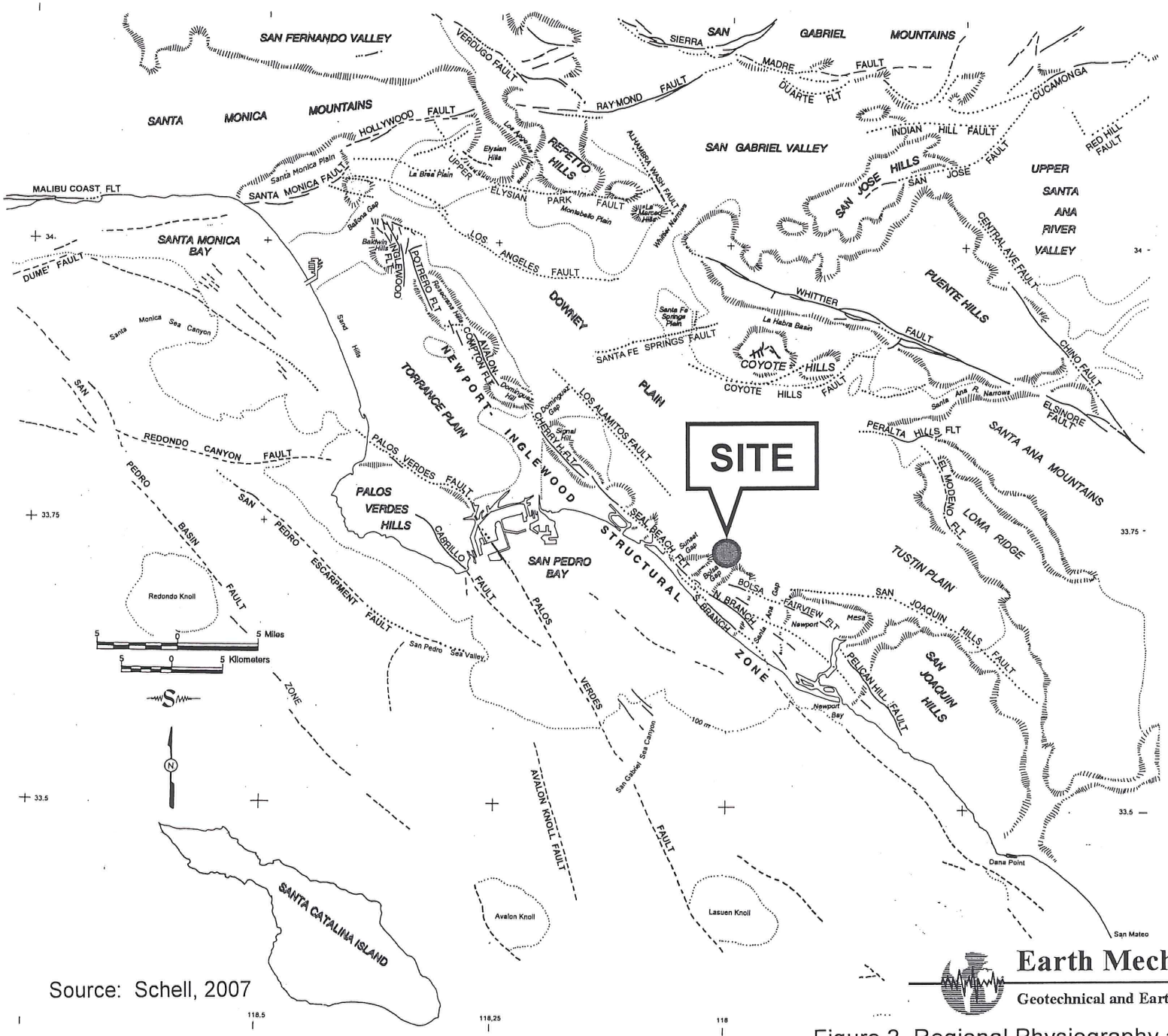
3.4.1 Newport-Inglewood Structural Zone

The NISZ extends southeasterly from Santa Monica Mountains on the north to the San Joaquin Hills in the Newport Beach area on the south. The fault zone is believed to continue offshore to at least the Dana Point area. In the Newport Beach-San Joaquin Hills area the structural zone widens to include faults such as the Bolsa, Fairview, and Pelican Hill faults. Offshore, in the San Onofre region, the fault is believed to connect with a similar zone of folding and faulting called the Offshore Zone of Deformation and together, the fault system may extend southerly to the Rose Canyon fault zone in the San Diego region. This larger trend of faults and folds is commonly referred to as the Santa Monica-Baja Zone of Deformation.

In the site area the fault coincides with a low escarpment along the southwest side of Bolsa Chica Mesa and Huntington Beach Mesa (Department of Water Resources, 1968; California Division of Mines and Geology, 1986; Bryant, 1988). The fault projects through Bolsa Gap about 4,000 feet southwest of the west end of the project. The location is poorly known in the Bolsa Gap lowlands, but based on oil-well information, the fault is a nearly vertical to slightly southwest-dipping feature with both vertical and right-lateral displacement of the San Pedro Formation. The fault acts as a hydraulic barrier within the deeper aquifers (Main Aquifer) and perhaps the Bolsa Aquifer.

3.4.2 Bolsa-Fairview Fault

The Bolsa-Fairview fault lies about 3,500 feet southwest of the project (Department of Water Resources, 1968). Deformation of late Pleistocene-age beds and the Bolsa aquifer along the Bolsa-Fairview fault is suggested by the alignment of several anomalous conditions such as geomorphology, subsurface folding and offset of the base of the Bolsa aquifer, blockage of sea-water intrusion, and hydrologic data. The fault is also identified by stratigraphic discontinuities within the Pliocene and early Pleistocene strata. The fault is aligned with a northwest-trending fault along the inland portion of Newport Mesa and the east edge of Huntington Beach Mesa. The connection of these faults is poorly known and it is possible that the fault is an extension of the Adams Avenue fault as defined by the Department of Water Resources (1966).



Source: Schell, 2007

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Figure 2. Regional Physiography and Fault Map

3.5 Geologic Hazards

Geologic literature and aerial photographs were reviewed to evaluate geologic hazards at the site. The major geologic hazards are considered to be ground shaking and liquefaction potential. The seismic hazard map of the Seal Beach Quadrangle (California Geological Survey, 1998) shows the area to be within a potential liquefaction zone.

No natural hills exist within the project area; therefore, static or seismically-induced landsliding of natural hillsides is not relevant to the project. Existing graded slopes include the channel side slopes. The graded slopes are anticipated to be grossly stable under static and seismic conditions.

The low elevation of the site and the relatively open access to the sea makes the site susceptible to extremely large tsunamis (seismic sea waves) from very large offshore earthquakes.

3.6 Seismicity

The site is located in seismically active southern California. The present-day seismotectonic stress field in the Los Angeles region is one of north-northeasterly compression. This is indicated by the geologic structures, earthquake focal-mechanism solutions, and geodetic measurements. These data suggest compression rates of between 5 and 9 mm/yr across the greater Los Angeles area.

Historical epicenter maps show widespread seismicity throughout the basin. Although historical earthquakes occur in proximity to known faults, they are difficult to directly associate with mapped faults. Part of this difficulty is due to the fact that the basin is underlain by several subsurface thrust faults (blind faults). Earthquakes in the region occur primarily as loose clusters along the Newport-Inglewood Structural Zone, along the southern margin of the Santa Monica Mountains, the southern margin of the Santa Susana and San Gabriel Mountains, and in the Coyote Hills-Puente Hills area.

The largest historical earthquake within the Los Angeles Basin was the 1933 Long Beach earthquake of M_W=6.4 (M_L=6.3) which is generally believed (e.g. Benioff, 1938) to have been associated with the Newport-Inglewood Structural Zone. The association was based on abundant ground failures along the NISZ trend but no unequivocal surface rupture was identified. Hauksson and Gross (1991) reevaluated the seismicity data and relocated the hypocenter to a depth of about 6 miles below the Huntington Beach-Newport Beach city boundary.

Other damaging earthquakes in the Los Angeles region include the 1971 San Fernando, the 1987 Whittier, and the 1994 Northridge events. The 1971 San Fernando (M_L=6.4, M_W=6.7) earthquake occurred along the northern margin of the San Fernando Valley and produced a surface rupture which coincided partly with a zone of mapped surface faults along the mountain-valley margin. The more-recent 1987 Whittier earthquake (M_L = 5.9, M_W = 5.9) and the 1994 Northridge (M_L=6.4, M_W=6.7) earthquake were not associated with surface faulting The Whittier event occurred at a depth of about 16 km (10 miles) on a thrust fault dipping northerly from the Coyote Hills area, under the Repetto and Puente Hills, to below the San Gabriel Valley. The Northridge event occurred at a depth of about 12 miles on a south-dipping reverse fault below the San Fernando Valley.

A significant historical earthquake in the Orange County region was the 1812 earthquake which caused damage at the San Juan Capistrano Mission. The location and magnitude of the 1812

earthquake are unknown but geological studies (Jacoby et al, 1988; Fumal et al, 1993) postulated that it did not occur in the Capistrano area, but rather was a large (M>7.0) distant event on the San Andreas fault in the Wrightwood area of the San Gabriel Mountains.

The earliest documented earthquake in the region was reported by the Portola expedition as they camped near the Santa Ana River in 1769. This event has been attributed by various geoscientists to just about every fault in the Orange County area but the event could be credited to a distant event that shook a wide area as did the 1812 event, the 1971 San Fernando, the 1987 Whittier, and the 1994 Northridge events, as well as many other distant events (i.e. 1992 Landers event).

3.7 Hydrology

3.7.1 Surface Water

Major rivers in the region include the Los Angeles, San Gabriel, and Santa Ana Rivers, which enter the basin through gaps in the surrounding mountains and drain southerly across the basin floor. The nearest major rivers to the site are the San Gabriel and the Santa Ana Rivers, located about 4.6 miles northwest and 6.5 miles southeast of the project site, respectively. The EGG-Wintersburg Channel is considered a significant flood control facility in the area. Adjacent to the channel, surface water sheet flows over existing paved and unpaved surfaces and enters existing inlets and catch basins. The EGG-Wintersburg Channel and associated RCB and RCP culverts provide a route for surface water to drain away from the surrounding area.

3.7.2 Groundwater

The Seismic Hazard Zone Report for the Seal Beach quadrangle by the California Geological Survey (Department of Conservation, 1998) shows the historically highest groundwater to be about 3 to 5 feet below ground surface. Using topography shown on the Seal Beach quadrangle map, the ground surface elevation ranged from about +2 ft to +5 ft throughout the project area. As a result, the historically high groundwater elevation is estimated to be +0 ft (sea level).

During the field investigation by EMI, groundwater was encountered in the exploratory borings. Generally, groundwater depth ranged between about 12.5 and 30 feet below existing grade. Based on the topography shown on the County plans and the depths at which groundwater was observed in the borings, the groundwater elevation was estimated to range between about –2 ft and about –20 ft.

The project area is underlain by several aquifers. The principal aquifers include the near-surface discontinuous perched aquifers, the Bolsa Aquifer, an upper semi-perched Aquifer, and several deeper aquifers (Alpha, Beta, Lambda, Meadowlark, and Main aquifers).

4.0 SUBSURFACE CONDITIONS

4.1 Subsurface Soil Conditions

The soils encountered in boreholes drilled for this project are representative of the regional and local stratigraphy as described above from the published literature (e.g. Department of Water Resources Bulletin 63-2, 1968).

The upper 10 to 12 feet of the subsurface (approximately El. +12 to +0) are fill soils placed to create the existing earthen levees of the EGG-Wintersburg Channel. The soils are generally moist, firm to very stiff fine-grained (clay and silt) soils with varying amounts of sand and relatively minor amounts of organic material. Generally, thin layers of medium-dense to dense coarse-grained soils (sand and silty sand) are interbedded within the fine-grained soils.

The levee fill soils overlie a sequence of native soils which are Holocene-age fine-grained flood plain, tidal flat, and tidal marsh deposits similar to those soils which occur in the Bolsa Chica wetlands area. From about El. +0 ft to –40 or –50 ft, the soils consist of randomly alternating layers of non-plastic and low plasticity silts, low to high plasticity clays, and poorly-graded sand and silty sand. The fine-grained soils commonly contain organic material and occasionally interbedded layers of peat. The silt and clay soils are generally soft to firm with occasional very soft and very stiff zones. The peat was observed to be soft or very soft. The interbedded sandy soils (silty sand and poorly-graded sand) are generally loose to medium dense. Occasional sandy gravel and gravelly sand beds were encountered.

Below about El. –40 or –50 ft, the soils become denser and coarser and consist primarily of thick beds of fine to coarse grained, poorly-graded sand and poorly-graded sand with silt with minor to significant amounts of gravel, and an occasional cobble. At the downstream end of the project (Warner Avenue) to about 300 feet upstream, this soil unit is not observed. Based on the CPT logs, this sandy soil unit appears to start at about Station 104+00. This sand unit is believed to be an ancient stream channel deposit that represents the Bolsa aquifer, a regional water-bearing unit that extends well inland.

4.2 Idealized Soil Profiles and Engineering Parameters

Based on observations from boreholes and CPT soundings, there is not significant variation in the subsurface stratigraphy along the channel alignment from a general perspective. Notable variations that do occur in the subsurface stratigraphy include the sequence of the soil types and the elevation of the major sand/gravel unit (Bolsa Aquifer) found at depth. Since various types of improvements may be analyzed and constructed along the length of the channel, there can be numerous subsurface profiles generated that consider the relatively minor variations found between exploratory locations. For the purpose of simplifying the subsurface conditions, one idealized profile was developed and is described in Table 2. The range of soil shear strengths, also shown in Table 3, was assigned using SPT blowcounts, CPT data, and results of direct shear and unconsolidated-undrained triaxial tests.

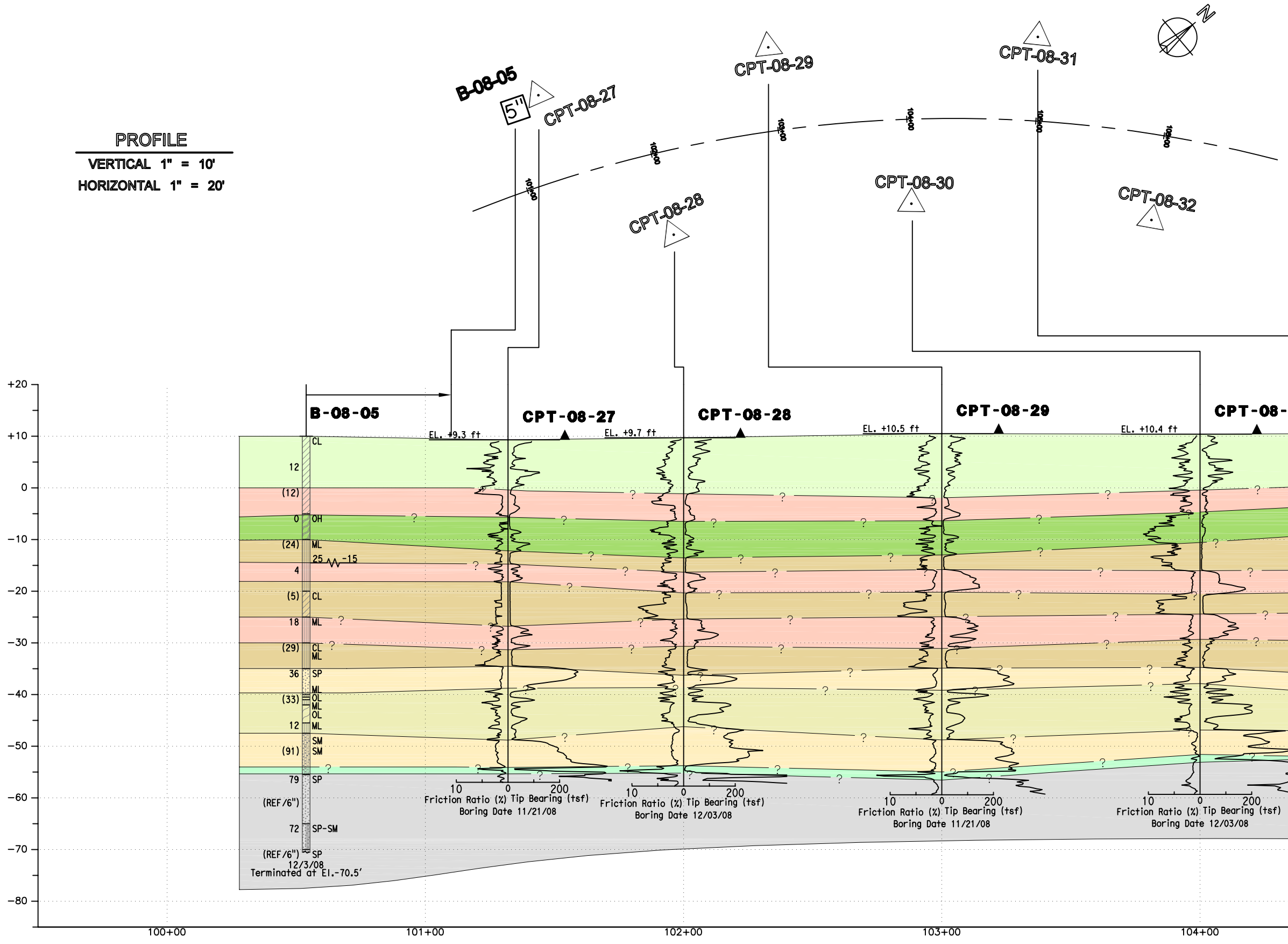
Note that the idealized soil profile is intended to describe the subsurface in very broad terms; the idealized soil profile should not be construed to mean that soil layers are continuous and homogeneous within the project area. The subsurface soils and their physical and engineering properties can vary between exploratory boreholes and CPT soundings.

TABLE 2. IDEALIZED SOIL PROFILES AND ENGINEERING PARAMETERS

Approximate Elevation (feet)	*Predominant Soil Type*	*Total Unit Weight (pcf)*	*Range of Friction Angle (degrees)*	*Range of Cohesion (psf)*
+12 to +0	Clays & Silts	110	0	1,000 – 2,000
+0 to – 50	Clays & Silts Sand, Silty Sand, & Sandy Silt	110 120	0 28 – 34	600 – 800 0
–50 to –60	Poorly-Graded Sand with Silt & Gravel	120	36 – 40	0

PROFILE
VERTICAL 1" = 10'
HORIZONTAL 1" = 20'

PLAN
1" = 40'



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EAST GARDEN GROVE - WINTERSBURG CHANNEL

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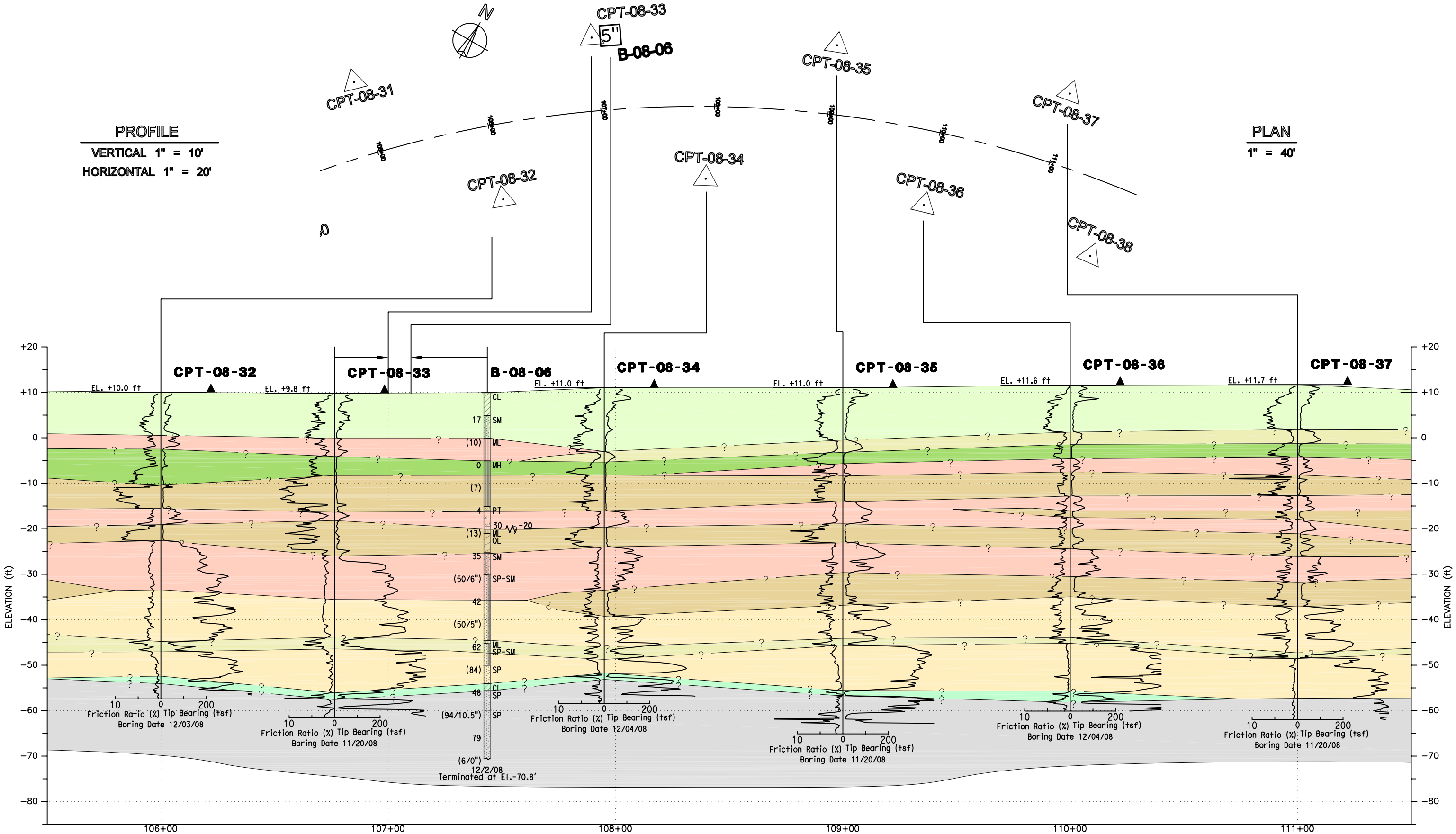

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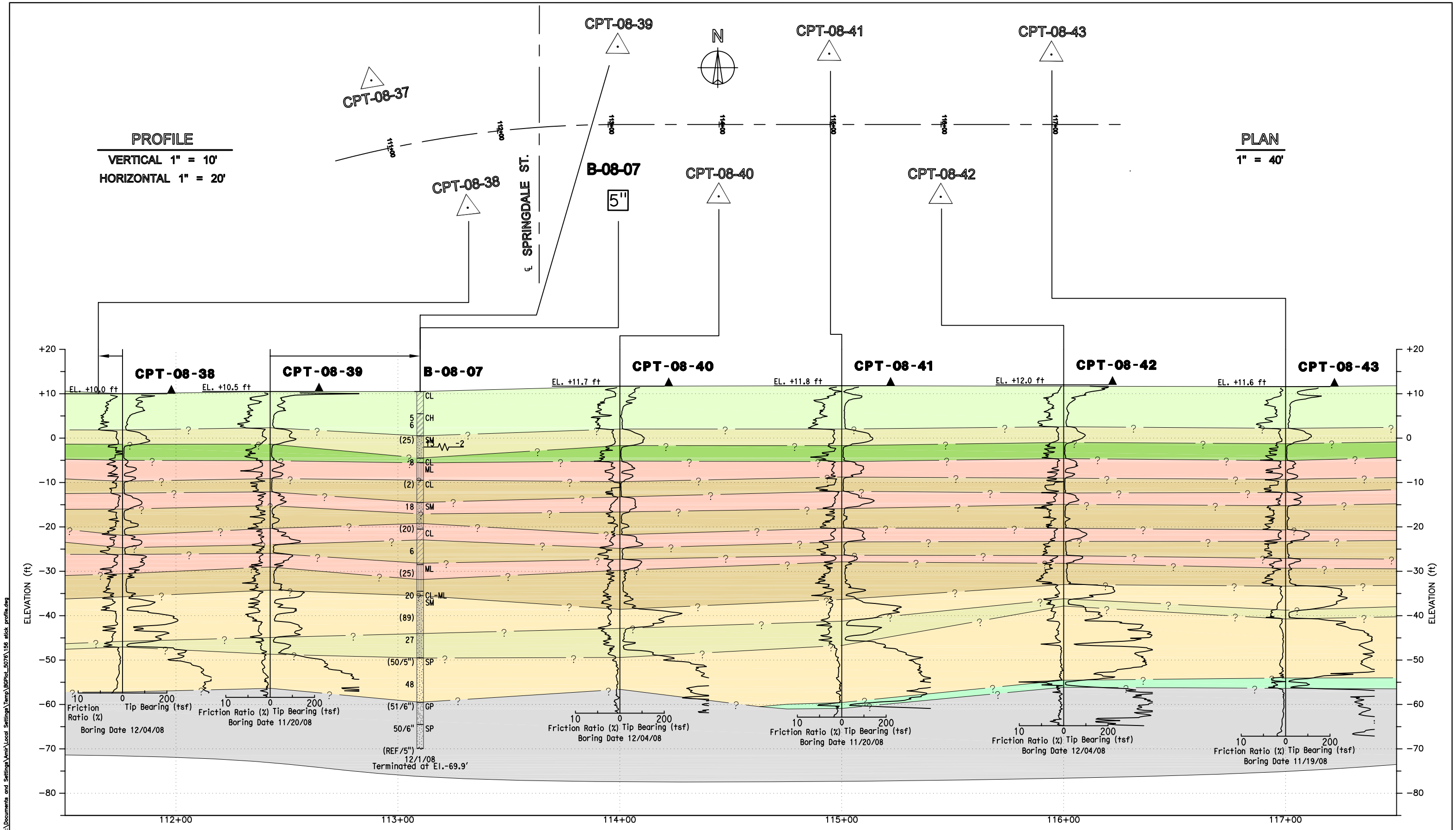

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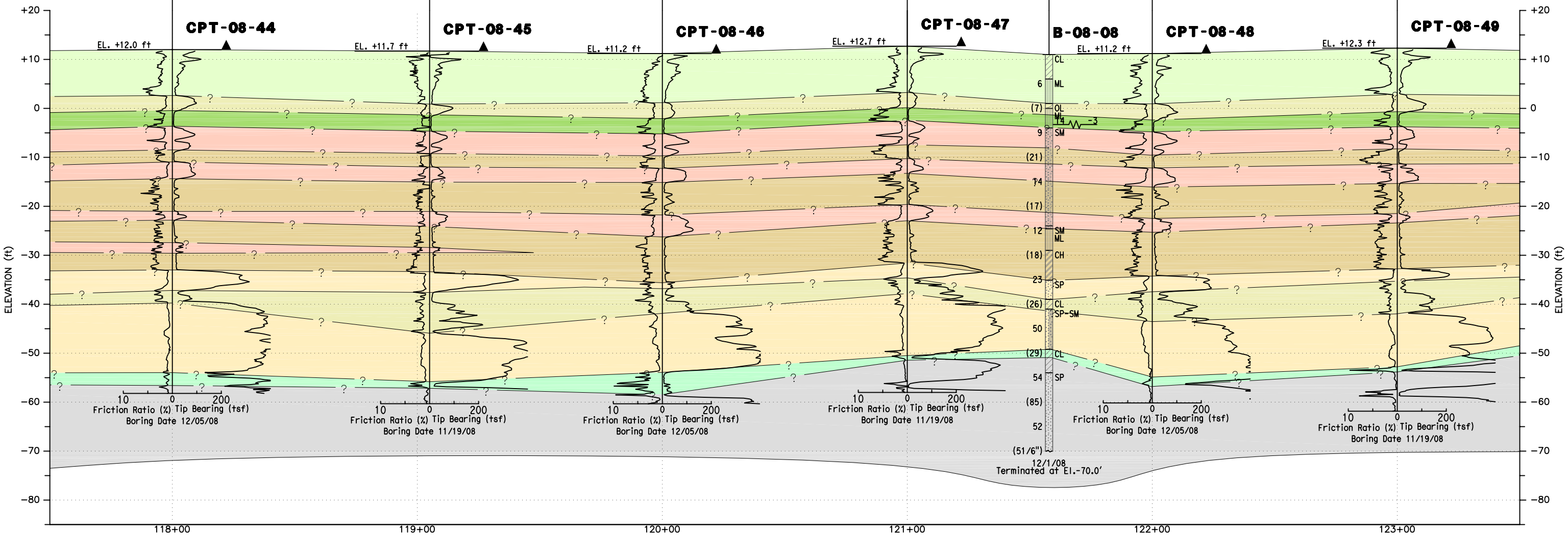

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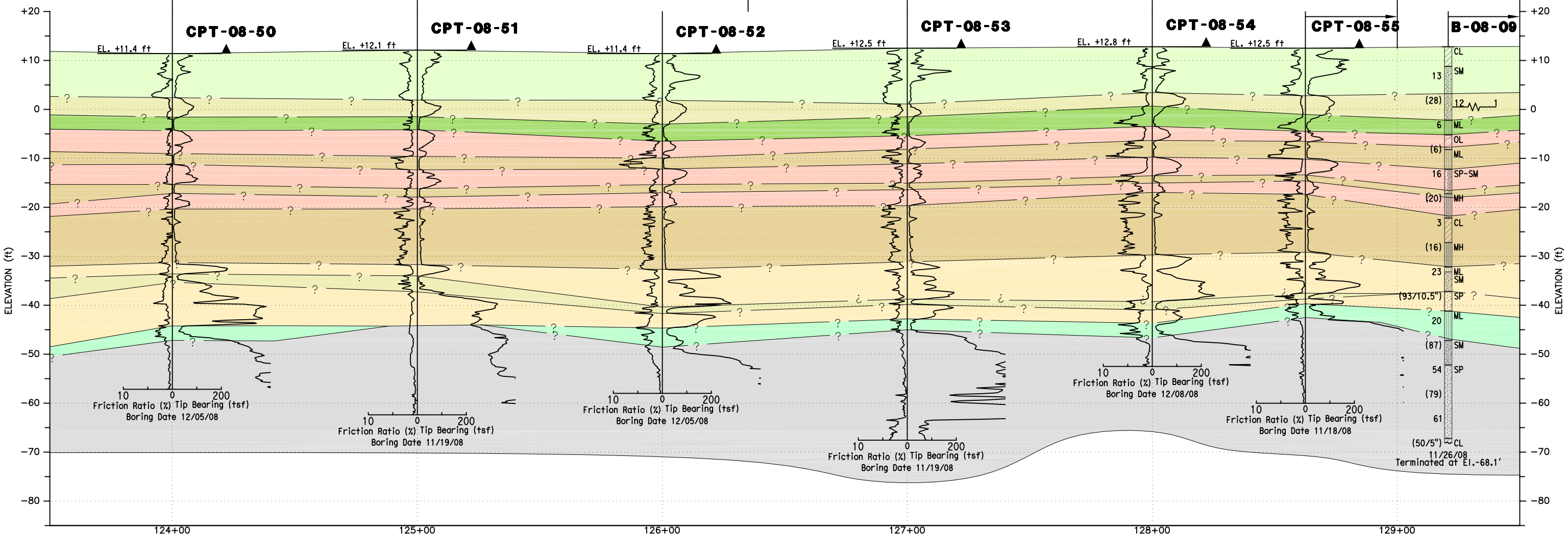

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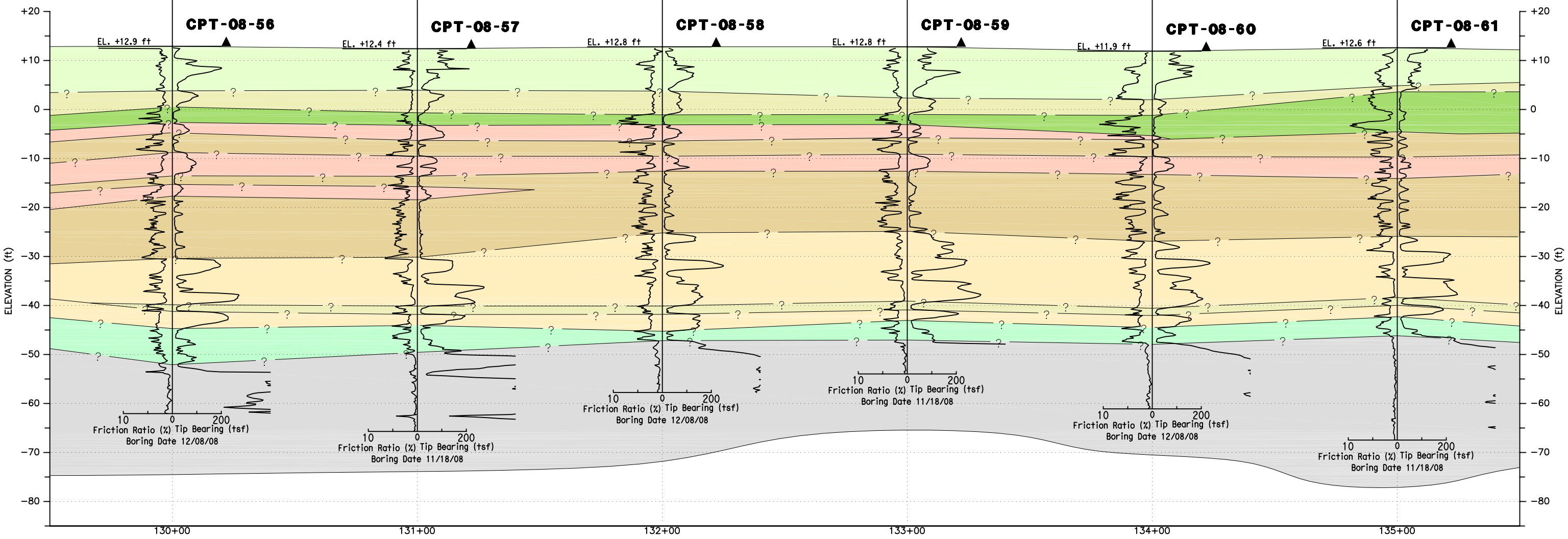

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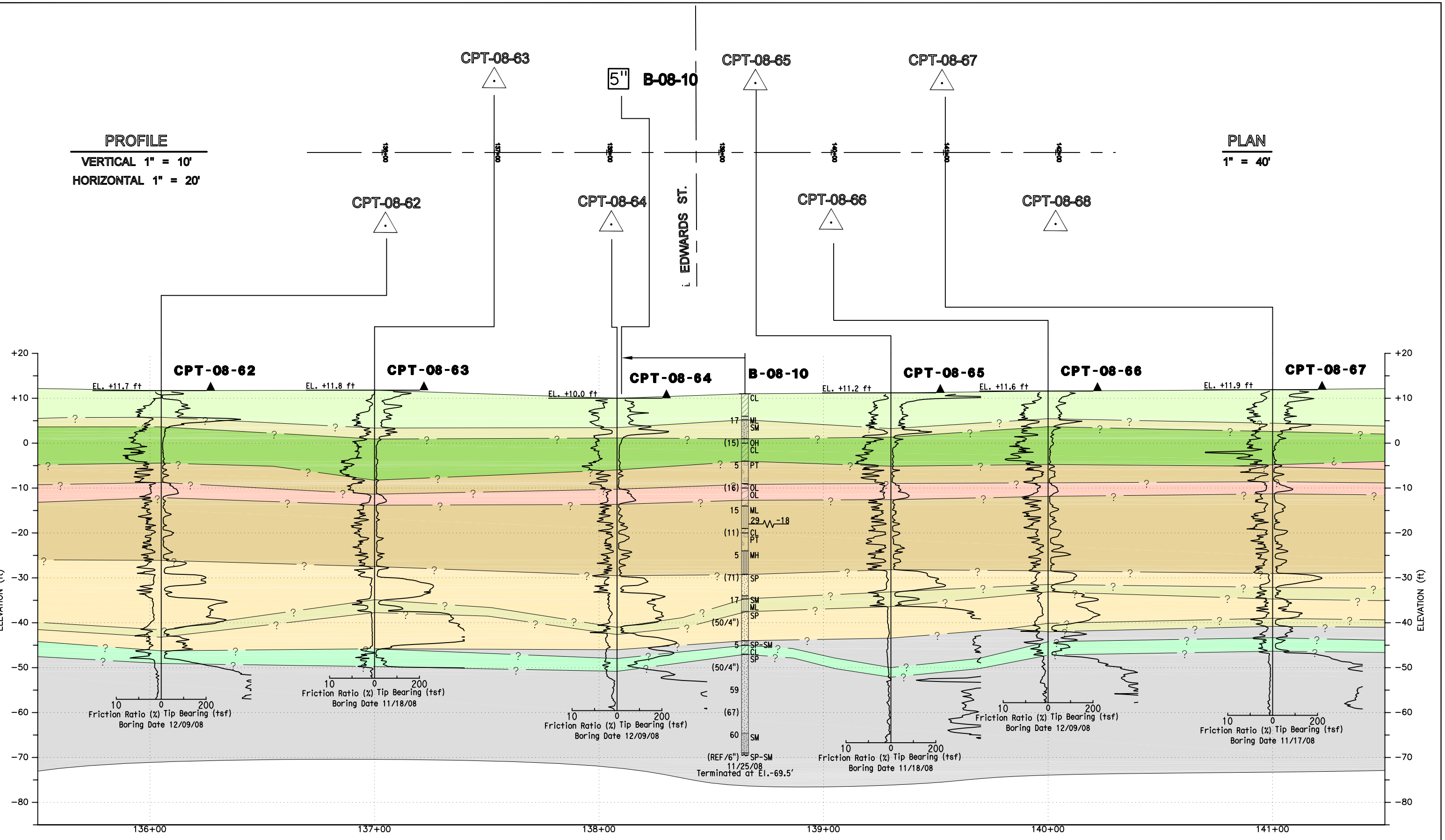

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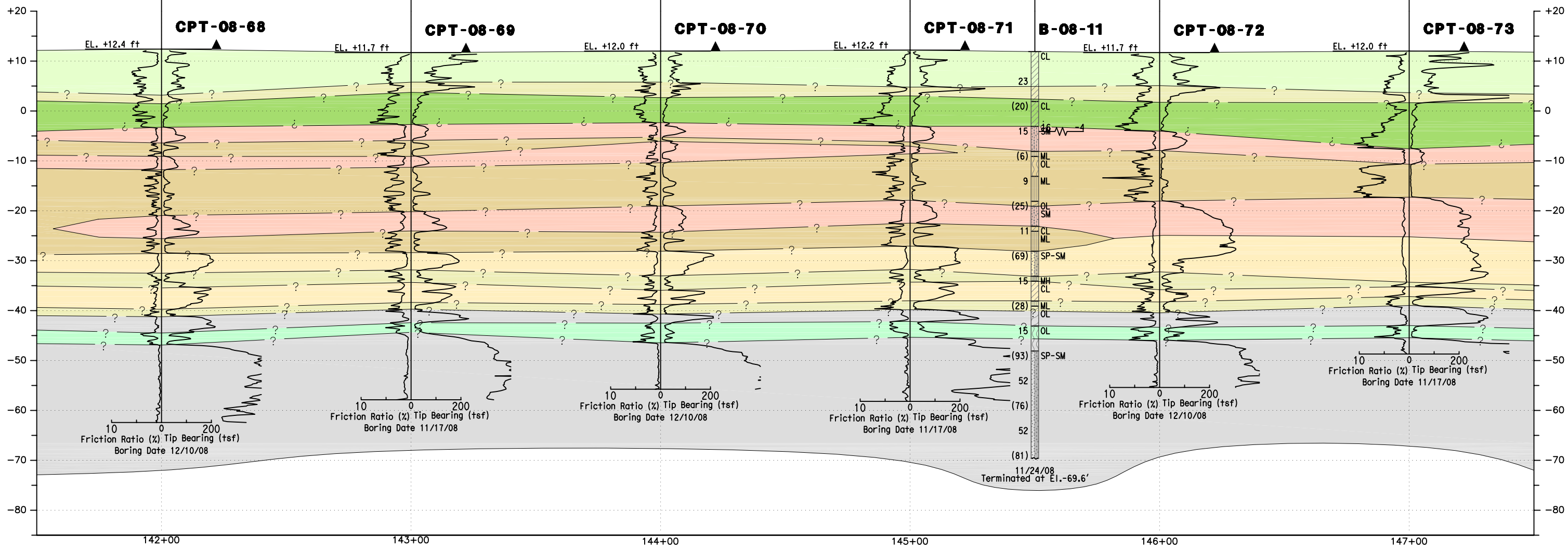

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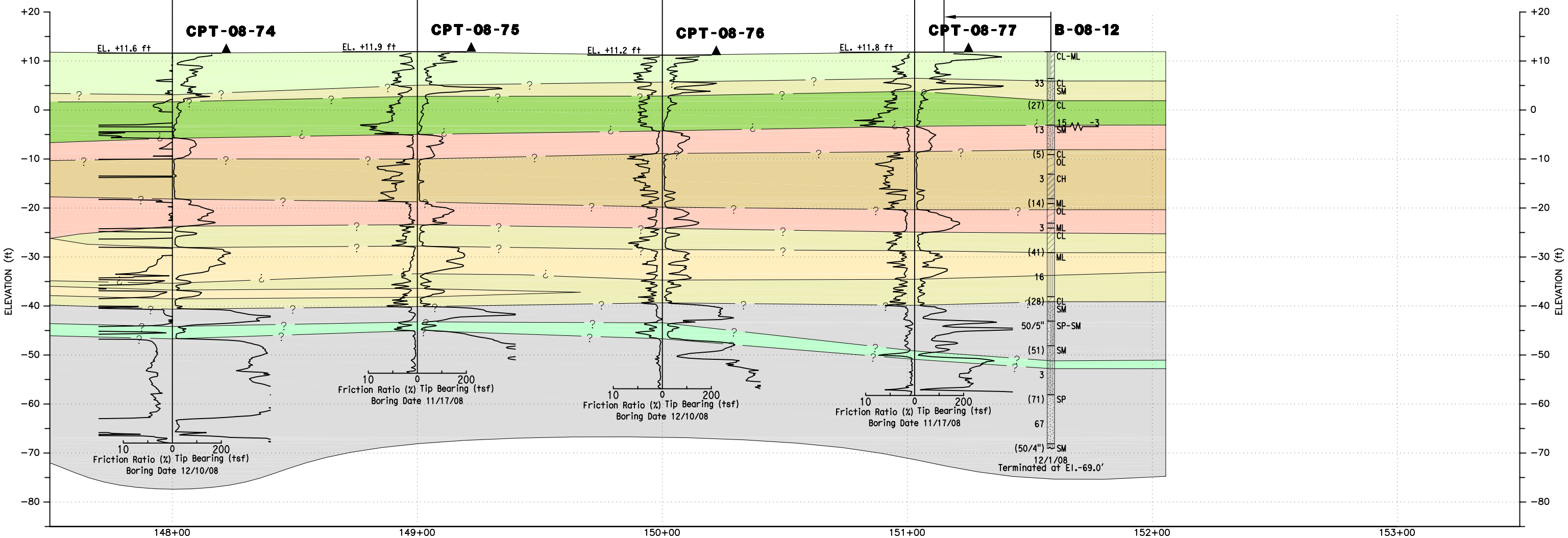

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5.0 CONCLUSIONS

5.1 Seismic Hazard Analysis

A probabilistic seismic hazard analysis was conducted for three locations along the portion of the EGG-Wintersburg Channel which is the subject of this report: one location at the west end of the project at Warner Avenue, one location at the east end of the project which is about 1,400 feet east of Edwards Street, and one location at an intermediate point which is about 1,425 feet east of Springdale Avenue. The computer program FRISKSP 4.00 (Blake, 2000) is used for the seismic hazard analysis. The FRISKSP program first solves for the annual probability of exceeding for various ground motion levels for each earthquake source. The probabilities for each fault are then integrated to obtain the total probability of exceeding. The ground motion levels for the specified return period can then be determined from the total probability. As requested by OCPW, the analysis was performed for a return period of 475 years, which corresponds to a 10% probability of exceedance in 50 years.

The earthquake source model for FRISKSP program includes 2002 updates from the California Geological Survey (Blank, 2004). The Newport-Inglewood Fault is the closest fault to the project site, followed by San Joaquin Hills Fault at a slightly further distance. The fault-to-site distances for the two nearest faults are shown in the table below.

TABLE 3. FAULT TO SITE DISTANCES

Site	*Description*	*Newport-Inglewood Fault, miles (km)*	*San Joaquin Hills Fault, miles (km)*
1	Intersection of Warner Avenue and Channel	1.2 (1.9)	5.6 (9.0)
2	Approximately 1,425 feet east of Springdale	1.6 (2.6)	5.2 (8.4)
3	Approximately 1,400 feet east of Edwards St	1.9 (3.1)	4.7 (7.6)

The probabilistic analysis was conducted using four different attenuation equations. These four attenuation equations are: (1) Abrahamson & Silva (1997), (2) Boore, Joyner, and Fumal (1997), (3) Campbell (1997), and (4) Sadigh, et al. (1997). Evaluating seismic hazard using several different attenuation relations helps show the possible spread of the probability analysis due to the different characteristics of each attenuation relationships. Deep soil conditions were used in the analysis. The results using the 4 different attenuation relations are log-averaged to obtain the final probabilistic seismic hazard spectrum. Since each of the attenuation equations is defined for a different set of spectral periods, analysis using different attenuation equations result in uniform risk spectra that do not share a common "x-axis" and therefore, the four spectra were interpolated to a common set of spectral periods before averaging.

Based on the analysis, the log-averaged peak ground accelerations (PGA) for the three locations described above, starting at the Warner Avenue/Channel intersection and proceeding east, are 0.364g, 0.360g, and 0.357g. Therefore, a PGA of 0.36g is selected for the entire project length.

5.2 Design Groundwater Level

During the field investigation by EMI, groundwater was encountered in the exploratory borings. Generally, groundwater depth ranged between about 12.3 and 30 feet below existing grade from one end of the project to the other. Based on the topography shown on the County plans and the depths at which groundwater was observed in the borings, groundwater elevation was estimated to range between about +1 ft and –18 ft, with most elevations clustered between –2 ft and –4 ft. Based on the data, a design groundwater elevation of +0 ft is selected for geotechnical analyses.

Groundwater levels can fluctuate due to variations in seasonal rainfall, irrigation, groundwater injection/extraction, construction activities, or numerous other man-made and natural influences. In addition, at this project site, groundwater levels along the channel alignment can vary due to fluctuations of the tide level in the channel.

5.3 Liquefaction Potential and Seismically-Induced Settlement

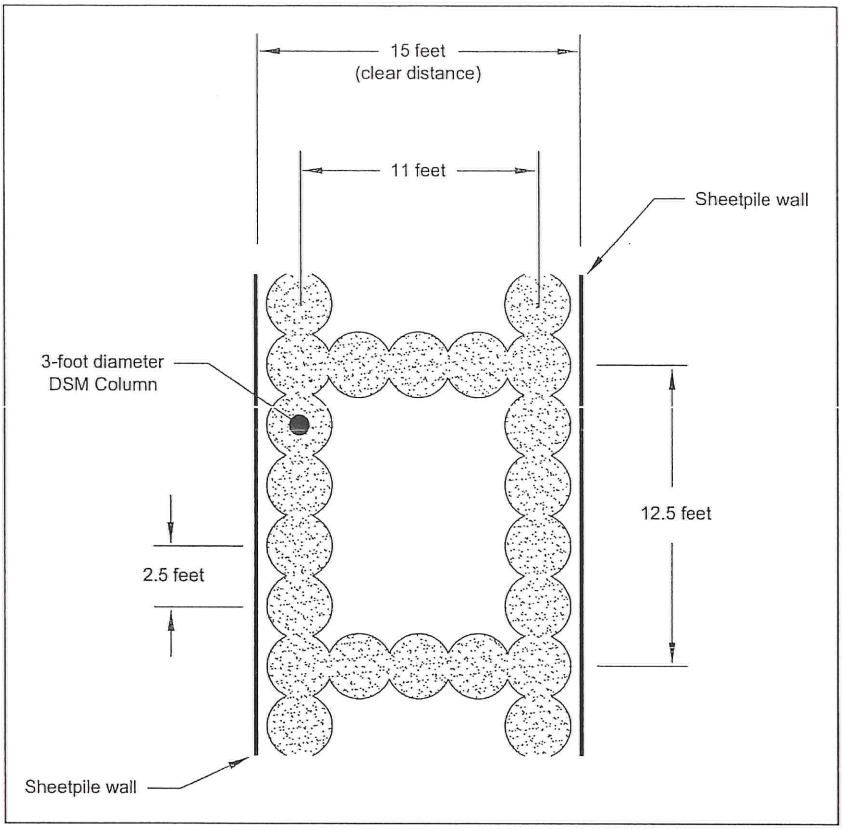
Liquefaction is the loss of shear strength in generally cohesionless, saturated soils when the pore-water pressure induced in the soil by a seismic event becomes equal to or exceeds the overburden pressure. Primary factors influencing liquefaction potential include the groundwater elevation, soil type and grain size characteristics, relative density of the soil, initial confining pressure, and intensity and duration of ground shaking. Soils most susceptible to liquefaction are low-density sands and silty sands that are usually within 50 feet of the ground surface.

Liquefaction potential of soils was evaluated using CPT data based on the procedure outlined in NCEER (1997) and Youd et al. (2001). The software program CLiq Version 1.3 (2008) was used to determine the Soil Behavior Type Index (I_c), the factor-of-safety against liquefaction, and the seismically-induced settlement. Based on the analysis, sandy and silty soils at various elevations between +0 ft and about –50 ft are potentially liquefiable. The potentially liquefiable soil layers are depicted graphically in the figures provided in Appendix D.

Seismically-induced settlement based on CPT data was calculated using the method outlined by Robertson (1990). Based on the results of the analysis, the seismically-induced settlement was estimated to range from about 0.4 to 3.5 inches, with the average value equal to about 2 inches. However, one CPT sounding (CPT-08-50) showed a seismically-induced settlement of about 8.5 inches. Graphical results of the settlement calculations are provided in Appendix D.

5.4 Slope Stability of Existing Levees

The global stability of the existing levees was evaluated under static and pseudo-static conditions using the computer program SLIDE 5.0 (Rocscience, 2006). Three cross-sections at various stations were selected for stability analysis: Station 107+00, Station 124+00, and Station 148+00. In addition, EMI conducted stability analysis for a typical DSM levee structure at Station 124+00 (similar to the DSM levee structure which was previously evaluated for the downstream reach of the channel, between Bates Circle and Graham Street). The plan view of the DSM configuration for the levees is shown on the following page. Plots of the slope stability analysis are provided in Appendix E.



Based on the results of the stability analysis, the factor-of-safety for global stability under static conditions exceeds the required minimum factor-of-safety of 1.5 for static design.

As requested by OCPW, the global stability was evaluated using the peak ground acceleration (PGA) corresponding to 10% probability of exceedance (PE) in 50 years, which was determined to be 0.36g. Based on the results of the analysis, the factor-of-safety for global stability under the pseudo-static condition was determined to range between 0.44 and 0.65, which does not meet the required minimum factor-of-safety of 1.1. Table 4 summarizes the factors-of-safety for global stability for the three cross-sections that were analyzed.

TABLE 4. SUMMARY OF LEVEE GLOBAL STABILITY

Station	Global Stability Factor-of-Safety			
	Existing Levee Configuration		Levee with DSM Improvement	
	Static	Pseudo-static	Static	Pseudo-static
107+00	2.7	0.54		
124+00	2.5	0.65		1.20
148+00	2.5	0.44		

Note: Pseudo-static analysis was performed using a Peak Ground Acceleration of 0.36g.

A PFRD geotechnical report (2001) gives a range of PGA values that vary with return period, which include values larger than that used for this analysis. Section 6 of the U.S. Army Corps of Engineers (USACOE) EM 1110-2-1806 gives definitions for Maximum Credible Earthquake, Maximum Design earthquake, and Operating Basis Earthquake. The U.S. Army Corps of Engineers may currently use two-level design, i.e. a higher and lower level event, for example, the Maximum Credible Earthquake for the higher event, and a 10% PE in 50 years or 50% PE in 100 years earthquake for the lower level event. OCPW should verify the required earthquake level for seismic design of the levees.

EMI evaluated a near-square configuration for a DSM column structure at Station 124+00. This column configuration has a center-to-center spacing between the two longitudinal rows (parallel to channel) of 11 feet, and center-to-center spacing of transverse rows (perpendicular to channel) of 12.5 feet. Overlap between columns is about 20% of the column diameter. A shear strength of 50 psi was used for the soil-cement of the DSM columns. The soil-cement columns are 3-foot diameter and 40 feet long. By extending the columns through potentially liquefiable soils, the soils between the columns will be encapsulated by the cell structure. Using this DSM column configuration, the factor-of-safety is about 1.2 for the pseudo-static case (using 0.36g ground acceleration). This single cross-section for a DSM structure should not be construed to mean that this configuration is applicable to the entire channel; this analysis was performed in order to provide a preliminary comparison of non-improved soil versus improved soil. A comprehensive analysis which focuses on the DSM cellular structure should be conducted to address a full DSM design. The presence of thick layers of organic materials including peat can significantly reduce the strength of the DSM columns and should be evaluated in the future through a comprehensive study.

Stability calculations were conducted assuming no scour of the channel invert and no resisting shear contribution from the Fiber Reinforced Polymer sheetpiles.

5.5 Vertical and Horizontal Subgrade Reactions

5.5.1 Vertical Subgrade Reaction

Based on the exploratory boreholes and CPT soundings performed for the project, the upper 40 feet of the subsurface soils are anticipated to be soft to firm clays and silts that are either saturated or have very high moisture content. Considering the soil type and relative density, an unadjusted vertical subgrade modulus of 25 pounds per cubic inch (pci) is recommended. The estimated k_v-value given above is based on 1-foot by 1-foot square plates; therefore, the k-value should be adjusted considering the size of the loaded area.

5.5.2 Horizontal Subgrade Reaction

Similar to the vertical subgrade reaction, the horizontal subgrade reaction is dependent on soil type, soil strength, and moisture content. However, in the case of sands, the horizontal subgrade reaction differs from that in the vertical direction in that the horizontal subgrade reaction increases with depth. In the case of clays, the horizontal subgrade reaction behaves non-linearly. Selection of an appropriate horizontal subgrade reaction also depends on the context of its use (i.e. pile versus wall, etc). Again, based on the borehole and CPT sounding data, the soils in the upper 40 feet of the subsurface are anticipated to be soft to firm clays and silts that are saturated or have very high moisture content. Considering the soil type, relative density, and moisture

condition, an unadjusted horizontal subgrade modulus equal to 1 to 2 pci multiplied by the depth is recommended. The estimated kh-value is based on a 1-foot wide vertical strip. Note that for organic soils, the kh-value can be as low as 0.5 pci (times depth) and for stiffer soils can be 4 pci (times depth) or higher. The values given above should be verified based on the actual structural element being modeled and use of the subgrade value in design.

5.6 Soil Bearing Capacity for Spread Footings

Detailed analysis of retaining wall foundations was not included in the scope of work; therefore, no specific soil bearing capacity values are being recommended in this report. EMI recommends that detailed foundation analysis be performed for any retaining walls within the channel. The use of spread footings, and the associated static and seismic settlements, may not be suitable for proposed retaining walls; therefore, use of deep foundations or ground improvement beneath footings of settlement-sensitive retaining walls is recommended.

5.7 Soil Corrosivity

Six soil samples were tested to determind minimum resistivity, pH, soluble sulfate content, and soluble chloride content. Results are summarized in Table 5.

Caltrans Corrosion Guidelines (2003) classify soil as corrosive if pH is 5.5 or less, or chloride concentration is 500 parts per million (ppm) or greater, or sulfate concentration is 2,000 ppm or greater. Based on Caltrans guidelines and laboratory test results, the on-site soils are considered to be moderately to highly corrosive to bare metals. Only one of seven samples possessed sulfate content greater than 2,000 ppm, and therefore, soils can be assumed non-corrosive to concrete.

TABLE 5. SOIL CORROSION TEST RESULTS

Boring No.	*Sample No.*	*Depth (feet)*	*Predominant Soil Type*	*pH*	*Sulfate Content (ppm)*	*Chloride Content (ppm)*	*Minimum Resistivity (ohm-cm)*
B-08-05	S-1	5	CL	7.7	2,050	1,064	400
B-08-07	S-3	15	CL	8.2	350	3,462	290
B-08-07	S-13	65	SP-SM	8.5	150	218	2,600
B-08-09	D-6	30	MH	7.7	150	670	1,100
B-08-11	D-2	10	CL	7.5	1,300	570	800
B-08-12	S-5	25	CH	7.7	250	807	650

5.8 Suitability of On-Site Soils for Bedding or Backfill

According to the Greenbook (2006), bedding material must be sand, gravel, crushed aggregate or native free-draining granular material having a Sand Equivalent (SE) of at least 30. Based on soil classification, most on-site soils are not suitable for use as bedding. Two soil samples, tested for SE, were found to have SE's of 20 and 5. Based on the above information, on-site soils cannot be used for bedding. If bedding is required, select materials will have to be imported to the site. Bedding materials must be inspected and tested by qualified personnel during construction to

verify that the material meets the SE requirement. Bedding placement should conform to the requirements specified in the Greenbook (2006). Flooding or jetting to compact bedding is not recommended. Bedding should be compacted using mechanical equipment.

On-site soils are can be used trench backfill. However, because of the fine-grained nature of most on-site soils, compaction of these soils inside trenches may be difficult.

6.0 LIMITATIONS

This report is intended for use by Orange County Public Works for proposed improvements to the East Garden Grove-Wintersburg Channel (Facility No. C05) between Warner Avenue and Edwards Street in the City of Huntington Beach. This report is based on the project as described herein and the information obtained from the exploratory boreholes and CPT soundings at the approximate locations shown on the attached plans. Findings contained in this report are based on results of the field investigation and laboratory soil tests. Soils and subsurface conditions encountered in the exploratory boreholes and CPT soundings are presumed to be representative of the soils and conditions throughout the project area; however, subsurface conditions and soil characteristics at locations between exploratory boreholes and CPT's can vary. Findings reflect an interpretation of the direct evidence obtained. EMI should be notified if subsurface conditions are found to vary from those described herein.

The data, opinions, and recommendations contained herein are applicable to the specific design elements and locations which are the subject of this report. Data, opinions, and recommendations contained herein have no applicability to any other design elements or to any other locations, and, any and all subsequent users accept any and all liability resulting from any use or reuse of the data, opinions, and recommendations without the prior written consent of EMI.

EMI has no responsibility for construction means, methods, techniques, sequences, or procedures, or for safety precautions or programs in connection with construction, for the acts or omissions of the Contractor, or any other person performing any construction, or for the failure of any worker to carry out construction in accordance with project plans and specifications.

Services performed by EMI were conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions. No other representation, expressed or implied, and no warranty or guarantee is included or intended.

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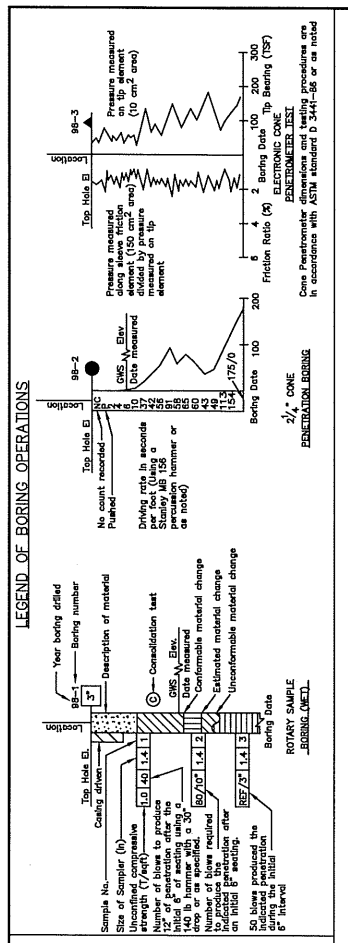
APPENDIX A. LOG-OF-TEST-BORING SHEETS (EXPLORATORY BOREHOLE AND CPT LOGS)

NOTES:

1. 1.4" DIAMETER SAMPLES WERE TAKEN USING A STANDARD SPLIT–BARREL SAMPLER (SPT) WITH AN OUTSIDE DIAMETER OF 2".
2. 2.4" DIAMETER SAMPLES WERE TAKEN USING A CALIFORNIA SPLIT–BARREL DRIVE SAMPLER WITH AN OUTSIDE DIAMETER OF 3.25".
3. AN AUTOMATIC TRIP HAMMER SYSTEM CONSISTING OF HAMMER WEIGHT OF 140 LB FREE–FALLING A DISTANCE OF 30" WAS USED TO ADVANCE THE SAMPLERS.



IN–SITU, LAB & FIELD TEST DESIGNATIONS

- (PI) ATTERBERG LIMITS
- (CA) CHEMICAL ANALYSIS
- (C) CONSOLIDATION
- (PP) POCKET PENETROMETER
- (DS) DIRECT SHEAR
- (M) MOISTURE CONTENT
- (CP) COMPACTION CURVE
- (PA) PARTICLE SIZE ANALYSIS
- (SE) SAND EQUIVALENT
- (UC) UNCONFINED COMPRESSION
- (UU) UNCONSOLIDATED UNDRAINED TRIAXIAL
- (UW) UNIT WEIGHT

TYPE OF BORINGS

- 2½" CONE PENETRATION
- ROTARY WASH
- ELECTRONIC CONE PENETROMETER
- AUGER BORING (DRY)
- TEST PIT
- DIAMOND CORE BORING
- SOIL TUBE

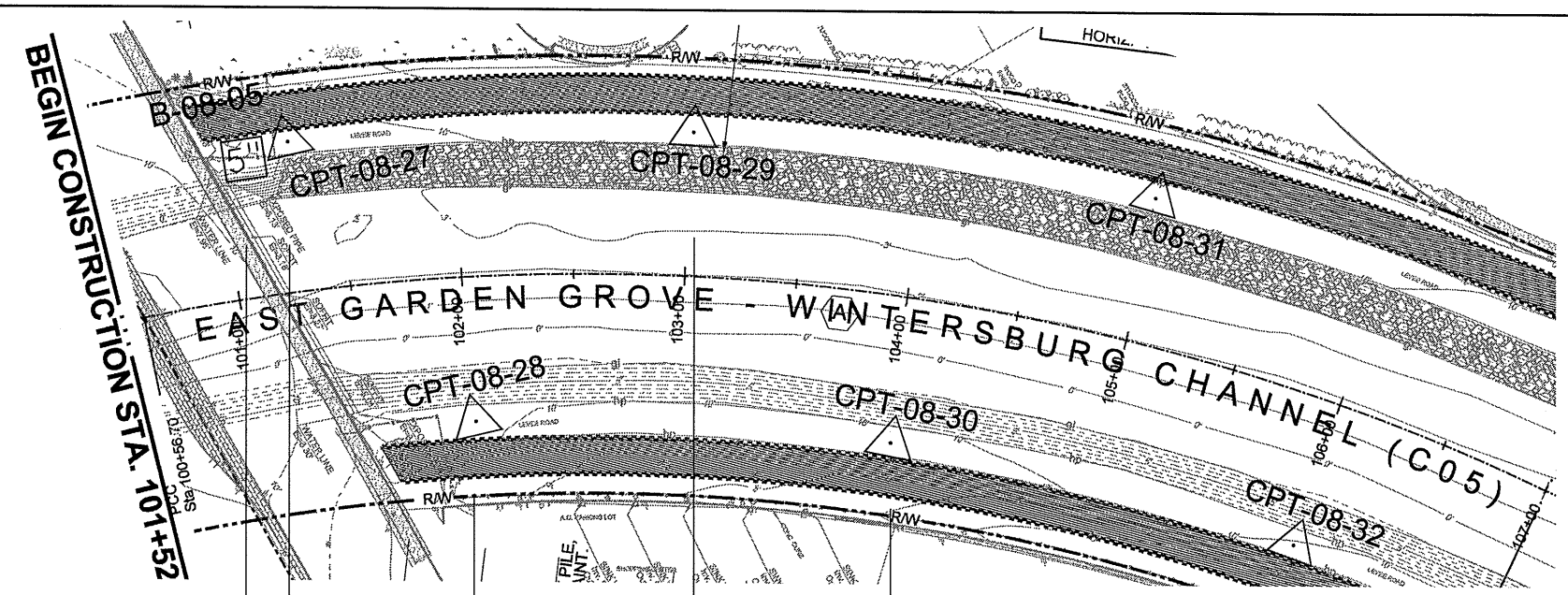
LEGEND OF EARTH MATERIALS (USCS) BASED ON ASTM D2487, D2488

FILL MATERIAL; GRAVELLY GRAVEL (GC); POORLY–GRADED GRAVEL WITH SAND (GP); WELL–GRADED SAND (SW); SILTY SAND (SM); CLAYEY SAND (SC); COBBLES/BOULDERS; LEAN CLAY (CL); WELL–GRADED GRAVEL (GW); POORLY–GRADED GRAVEL (GP); ORGANIC CLAY (OL); FAT CLAY (CH); SILTY GRAVEL (GM); PEAT; SILT (ML)

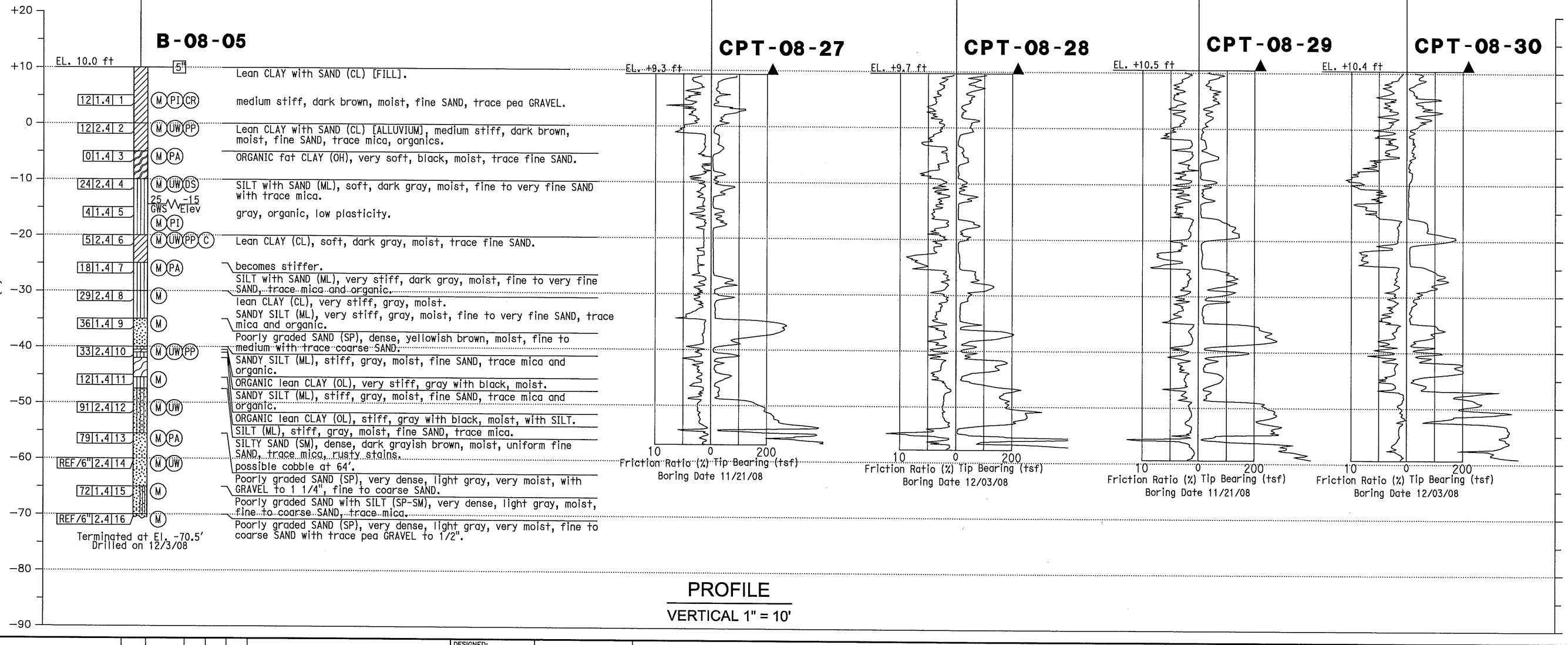
CONSISTENCY CLASSIFICATION FOR SOILS
According to the Standard Penetration Test (ASTM D–1586)

SPT N–value (blows/ft)	Granular	SPT N–value (blows/ft)	Cohesive
0 – 4	Very Loose	< 2	Very Soft
5 – 10	Loose	2 – 4	Soft
11 – 30	Medium Dense	5 – 8	Firm
31 – 50	Dense	9 – 15	Stiff
> 50	Very Dense	16 – 30	Very Stiff
		> 31	Hard

Note: Visual classification of earth materials are based on field inspection and are confirmed or revised with laboratory test results as necessary.



PLAN
1" = 40'



PROFILE
VERTICAL 1" = 10'

REV.	DATE	BY	SUB	APP.	DESCRIPTION

DESIGNED:
DRAWN: A.Z.
CHECKED: A.K.
APPROVED:
DATE: 20090320

COUNTY OF ORANGE - OC PUBLIC WORKS DEPARTMENT

EARTH MECHANICS, INC.

SUBMITTED _____ APPROVED _____

EAST GARDEN GROVE
WINTERSBURG CHANNEL
WARNER TO EDWARDS

LOG OF TEST BORINGS

SHEET 1 OF 11

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CONTRACT NO. | REV.
CONTRACT SHEET NO. | PAGE NO.

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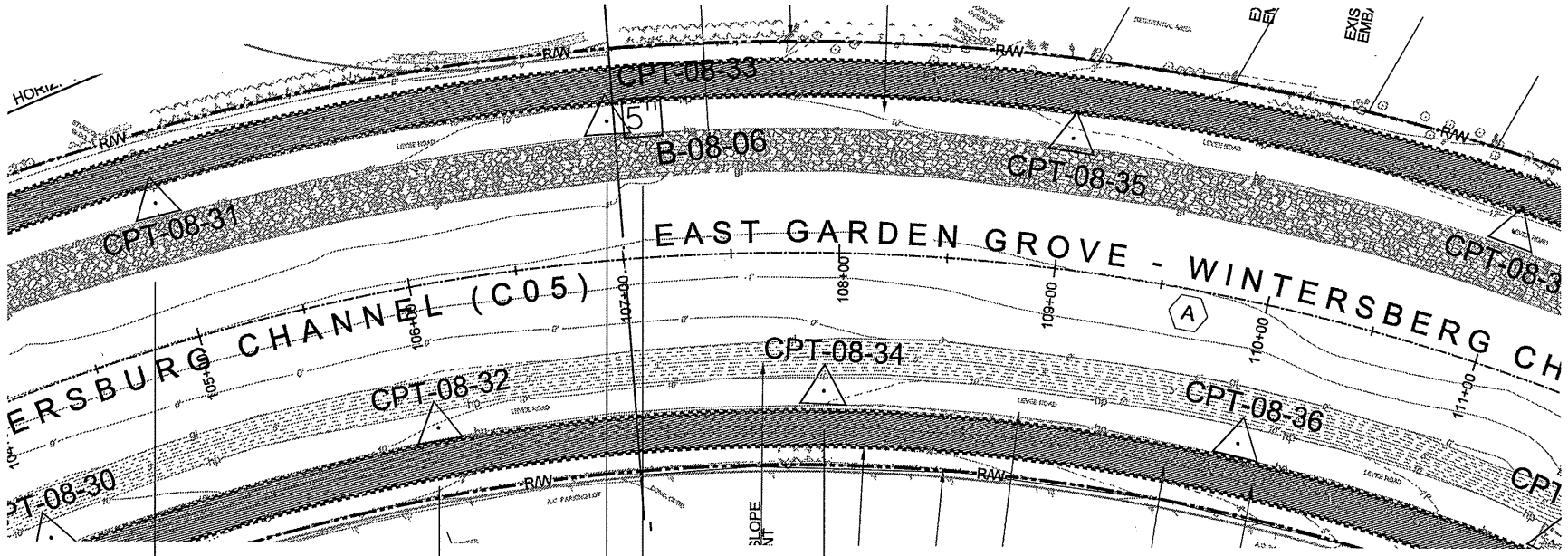
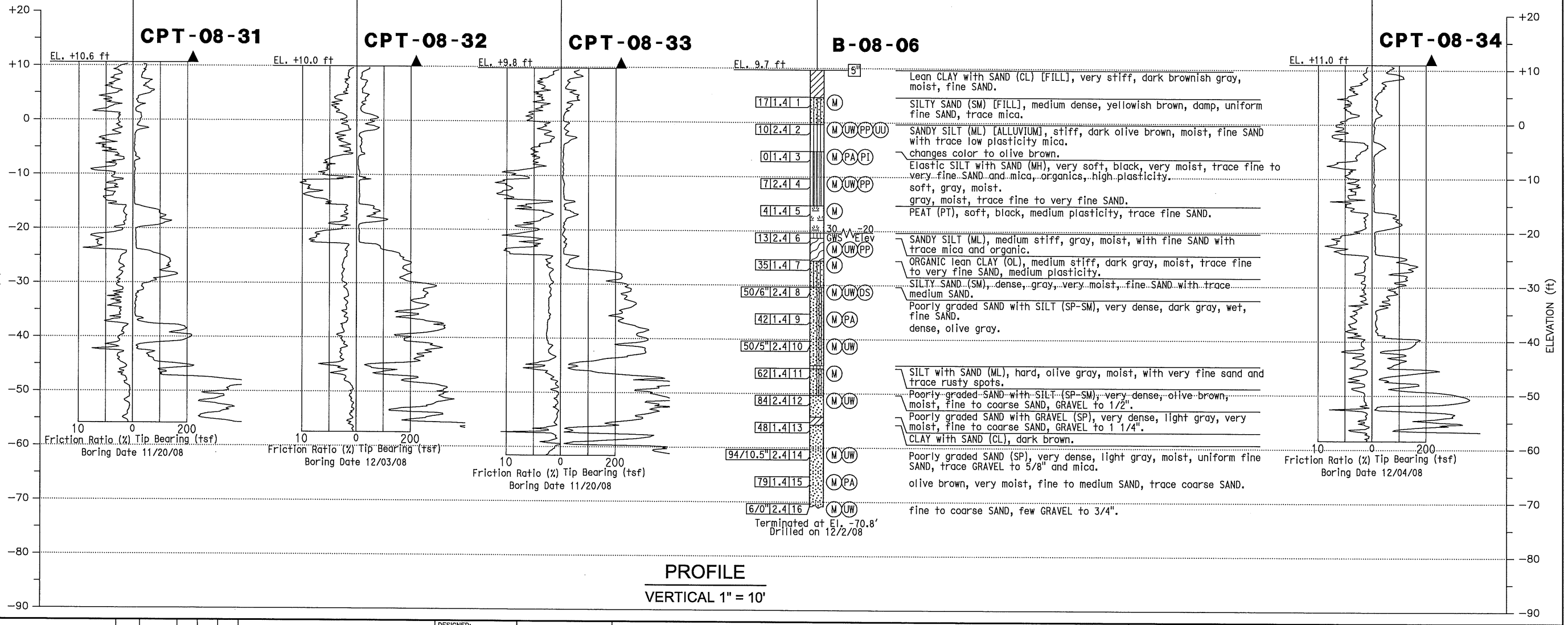
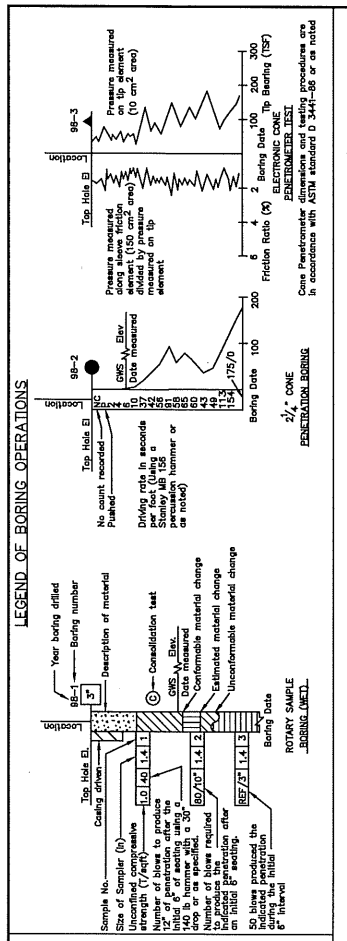


PLAN
1" = 40'



PROFILE
VERTICAL 1" = 10'

LEGEND OF BORING OPERATIONS



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- TEST PIT
- DIAMOND CORE BORING
- SOIL TUBE

LEGEND OF EARTH MATERIALS (USCS) BASED ON ASTM D2487, D2488

- FILL MATERIAL
- CLAYEY GRAVEL (GC)
- POORLY-GRADED GRAVEL (GP)
- WELL-GRADED SAND (SW)
- SILTY SAND (SM)
- CLAYEY SAND (SC)
- COBBLES/BOULDERS
- LEAN CLAY (CL)
- FAT CLAY (CH)
- SILT (ML)
- POORLY GRADED SAND WITH SILT (SP-SM)
- WELL-GRADED GRAVEL (GW)
- POORLY-GRADED GRAVEL (GP)
- ORGANIC CLAY (OL)
- PEAT (PT)

CONSISTENCY CLASSIFICATION FOR SOILS
According to the Standard Penetration Test (ASTM D-1586)

SPT N-value (blows/ft)	Granular	SPT N-value (blows/ft)	Cohesive
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31 – 50	Dense	9 – 15	Stiff
> 50	Very Dense	16 – 30	Very Stiff
		> 31	Hard

Note: Visual classification of earth materials are based on field inspection and are confirmed or revised with laboratory test results as necessary.

REV.	DATE	BY	SUB	APP.	DESCRIPTION

DESIGNED:
DRAWN: A.Z.
CHECKED: A.K.
APPROVED:
DATE: 20090320

COUNTY OF ORANGE - OC PUBLIC WORKS DEPARTMENT

EARTH MECHANICS, INC.

SUBMITTED _____ APPROVED _____

EAST GARDEN GROVE
WINTERSBURG CHANNEL
WARNER TO EDWARDS

LOG OF TEST BORINGS

SHEET 2 OF 11

CADD FILENAME
SIZE: D | SCALE: AS NOTED
CONTRACT NO. | REV.
CONTRACT SHEET NO. | PAGE NO.

Amir Oct 14, 2009 – 6:01pm C:\Documents and Settings\Amir\Local Settings\Temp\AcPlot_5076\LOTBs.dwg

NOTES:

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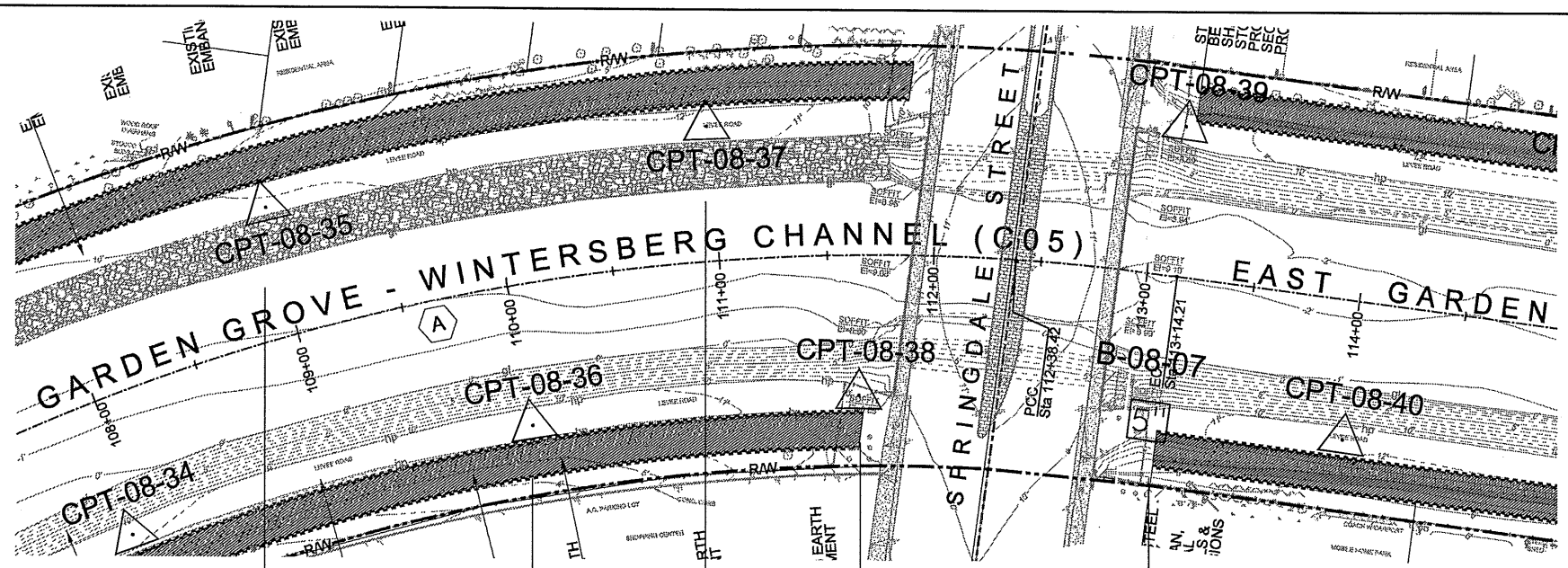
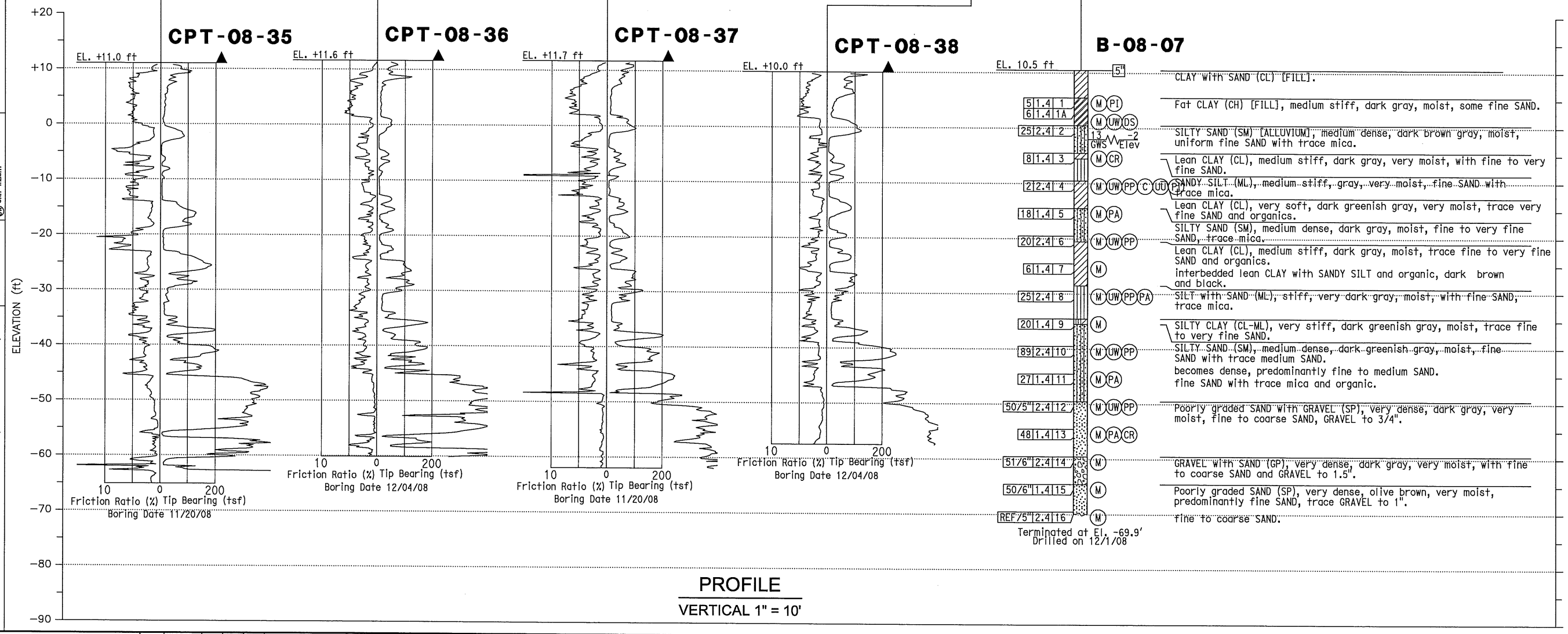
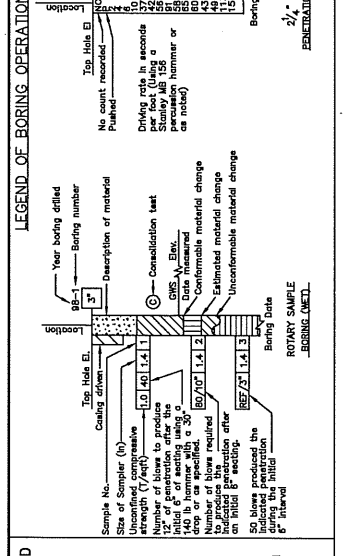


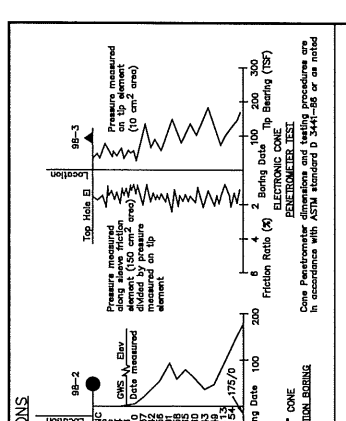
PLAN
1" = 40'



PROFILE
VERTICAL 1" = 10'

LEGEND OF BORING OPERATIONS





IN-SITU, LAB & FIELD TEST DESIGNATIONS

(A) ATTERBERG LIMITS
(CA) CHEMICAL ANALYSIS
(C) CONSOLIDATION
(PP) POCKET PENETROMETER
(DS) DIRECT SHEAR
(M) MOISTURE CONTENT
(CP) COMPACTION CURVE
(PA) PARTICLE SIZE ANALYSIS
(SE) SAND EQUIVALENT
(UC) UNCONFINED COMPRESSION
(UU) UNCONSOLIDATED UNDRAINED TRIAXIAL
(UW) UNIT WEIGHT

TYPE OF BORINGS

- 2½" CONE PENETRATION
- ROTARY WASH
- ELECTRONIC CONE PENETROMETER
- AUGER BORING (DRY)
- TEST PIT
- DIAMOND CORE BORING
- SOIL TUBE

LEGEND OF EARTH MATERIALS (USCS) BASED ON ASTM D2487, D2488

FILL MATERIAL
LEAN CLAY (CL)
FAT CLAY (CH)
SILT (ML)
CLAYEY GRAVEL (GC)
POORLY-GRADED SAND (SP)
WELL-GRADED SAND (SW)
SILTY SAND (SM)
CLAYEY SAND (SC)
POORLY-GRADED GRAVEL (GP)
WELL-GRADED GRAVEL (GW)
GRAVEL (GW)
COBBLES/BOULDERS
ORGANIC CLAY (OL)
PEAT

Note: Visual classification of earth materials are based on field inspection and are confirmed or revised with laboratory test results as necessary.

CONSISTENCY CLASSIFICATION FOR SOILS
According to the Standard Penetration Test (ASTM D-1586)

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		> 31	Hard

REV.	DATE	BY	SUB	APP.	DESCRIPTION	REV.	DATE	BY	SUB	APP.	DESCRIPTION

DESIGNED:
DRAWN: A.Z.
CHECKED: A.K.
APPROVED:
DATE: 20090320

COUNTY OF ORANGE - OC PUBLIC WORKS DEPARTMENT

EARTH MECHANICS, INC.

SUBMITTED _____ APPROVED _____

EAST GARDEN GROVE
WINTERSBURG CHANNEL
WARNER TO EDWARDS

LOG OF TEST BORINGS

SHEET 3 OF 11

CADD FILENAME
SIZE: D | SCALE: AS NOTED
CONTRACT NO. | REV.
CONTRACT SHEET NO. | PAGE NO.

Amir Oct 14, 2009 – 6:01pm G:\Documents and Settings\Amir\Local Settings\Temp\BSPlot_5076\LOTBs.dwg

NOTES:

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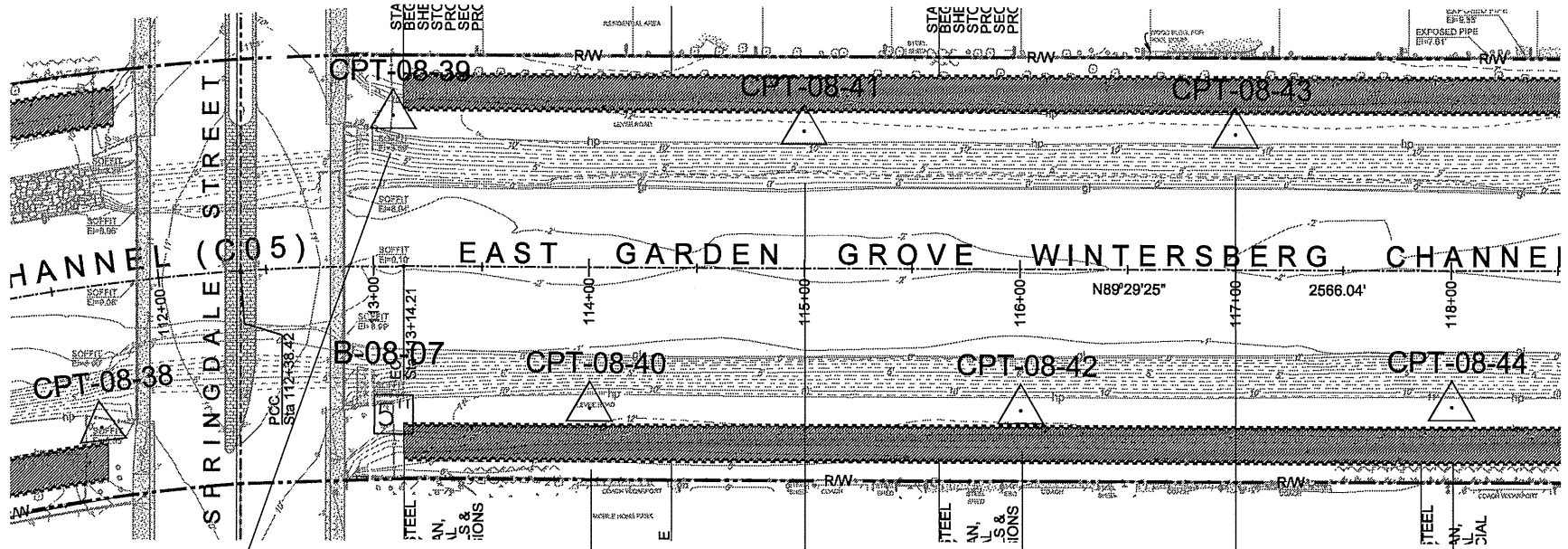
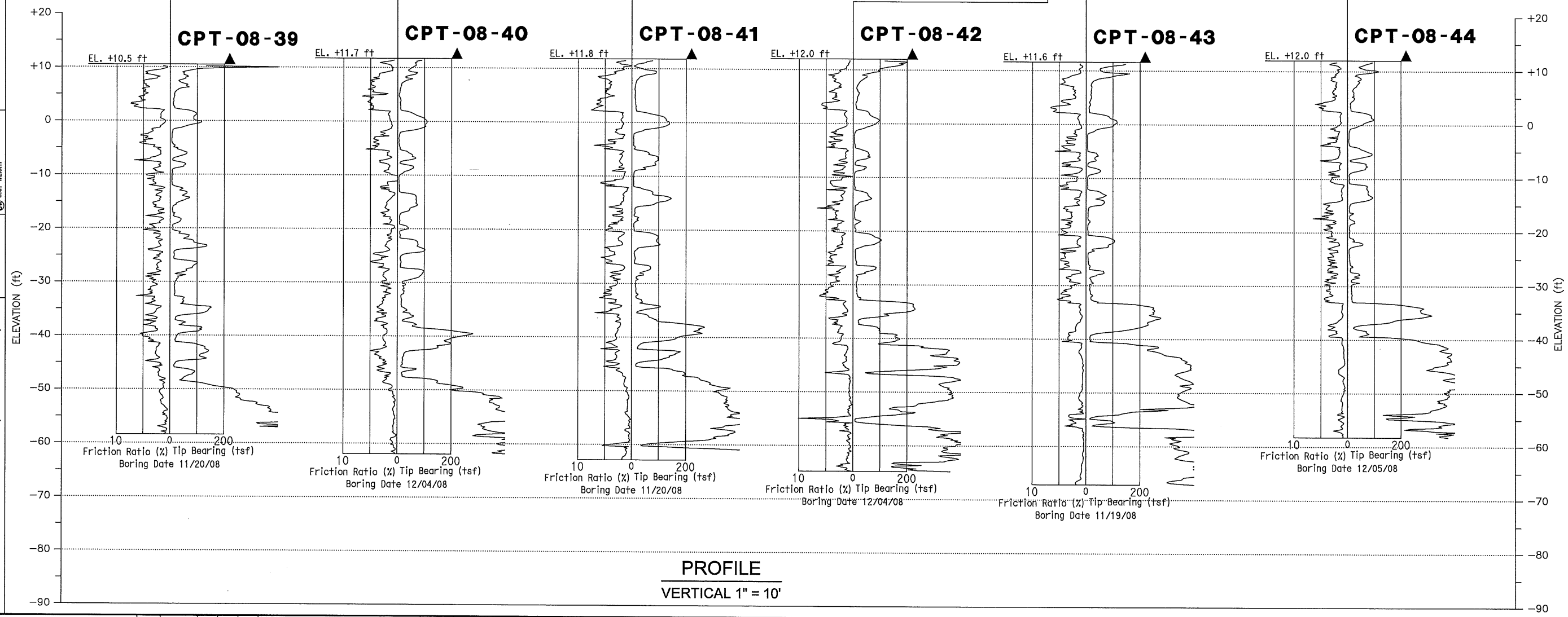


PLAN

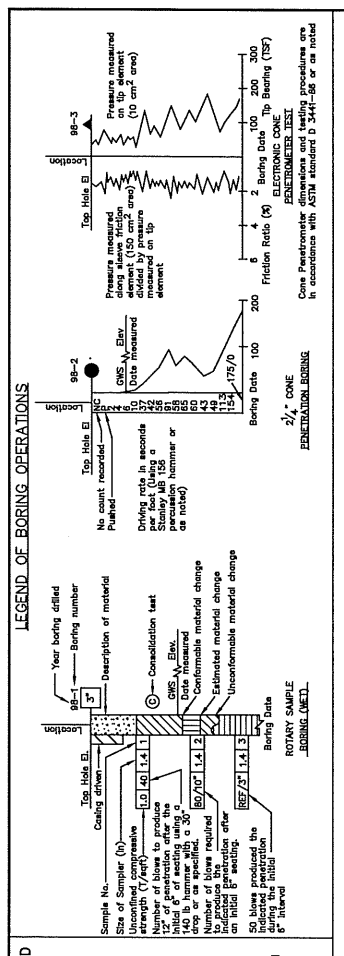
1" = 40'



PROFILE

VERTICAL 1" = 10'

LEGEND OF BORING OPERATIONS



IN–SITU, LAB & FIELD TEST DESIGNATIONS

(A)	ATTERBERG LIMITS
(CA)	CHEMICAL ANALYSIS
(C)	CONSOLIDATION
(PP)	POCKET PENETROMETER
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(M)	MOISTURE CONTENT
(D)	COMPACTION CURVE
(PA)	PARTICLE SIZE ANALYSIS
(SE)	SAND EQUIVALENT
(UC)	UNCONFINED COMPRESSION
(UU)	UNCONSOLIDATED UNDRAINED TRIAXIAL
(UW)	UNIT WEIGHT

TYPE OF BORINGS

●	2½" CONE PENETRATION
◧	ROTARY WASH
▲	ELECTRONIC CONE PENETROMETER
◧	AUGER BORING (DRY)
◧	TEST PIT
◆	DIAMOND CORE BORING
◧	SOIL TUBE

LEGEND OF EARTH MATERIALS (USCS) BASED ON ASTM D2487, D2488

	FILL MATERIAL		CLAYEY GRAVEL (GC)
	LEAN CLAY (CL)		POORLY-GRADED SAND (SP)
	FAT CLAY (CH)		SILTY, GRADED SAND (SM)
	SILT (ML)		SILTY SAND (SM)
	POORLY GRADED SAND WITH SILT (SP-SM)		CLAYEY SAND (SC)
	WELL-GRADED GRAVEL (GW)		COBBLES/BOULDERS
	POORLY-GRADED GRAVEL (GP)		ORGANIC CLAY (OL)
	SILTY GRAVEL (GM)		PEAT

Note: Visual classification of earth materials are based on field inspection and are confirmed or revised with laboratory test results as necessary.

CONSISTENCY CLASSIFICATION FOR SOILS

According to the Standard Penetration Test (ASTM D-1586)

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REV.	DATE	BY	SUB	APP.	DESCRIPTION	REV.	DATE	BY	SUB	APP.	DESCRIPTION

DESIGNED:
DRAWN: A.Z.
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APPROVED:
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COUNTY OF ORANGE - OC PUBLIC WORKS DEPARTMENT

EARTH MECHANICS, INC.

SUBMITTED _____ APPROVED _____

EAST GARDEN GROVE WINTERSBURG CHANNEL
WARNER TO EDWARDS

LOG OF TEST BORINGS

SHEET 4 OF 11

CADD FILENAME
SIZE: D | SCALE: AS NOTED
CONTRACT NO. | REV.
CONTRACT SHEET NO. | PAGE NO.

Amir Oct 14, 2009 – 8:01pm C:\Documents and Settings\Amir\Local Settings\Temp\BGPlot_50781\LOTBe.dwg

NOTES:

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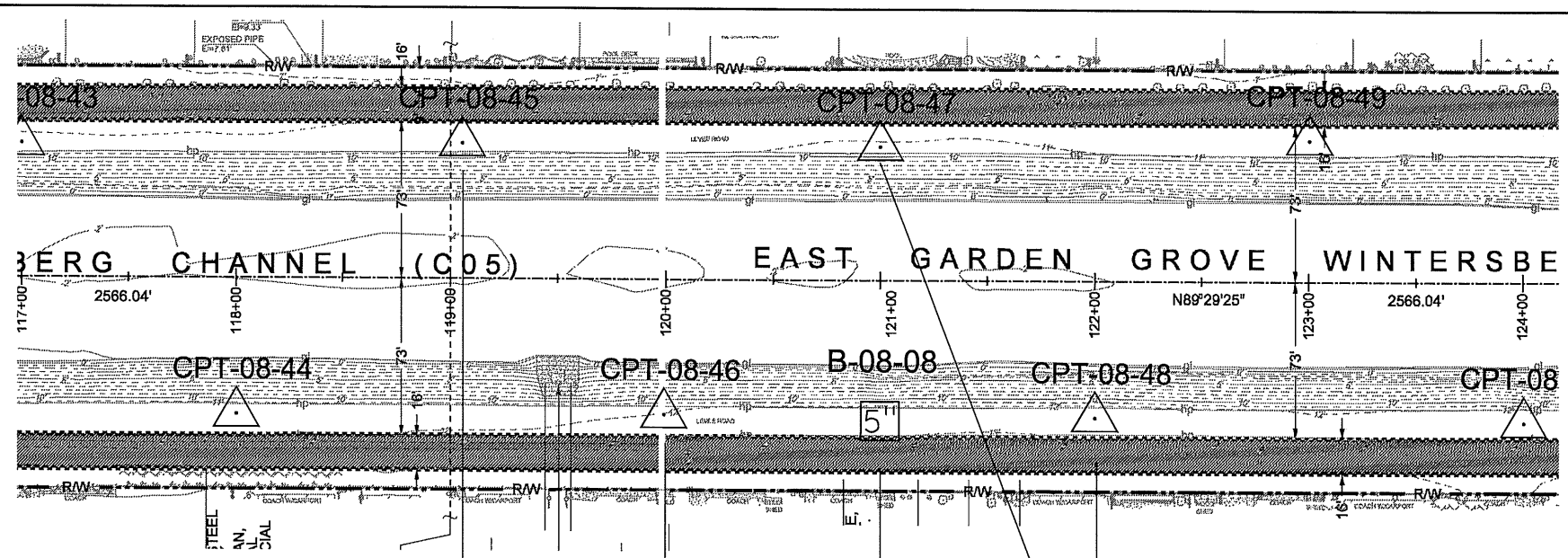
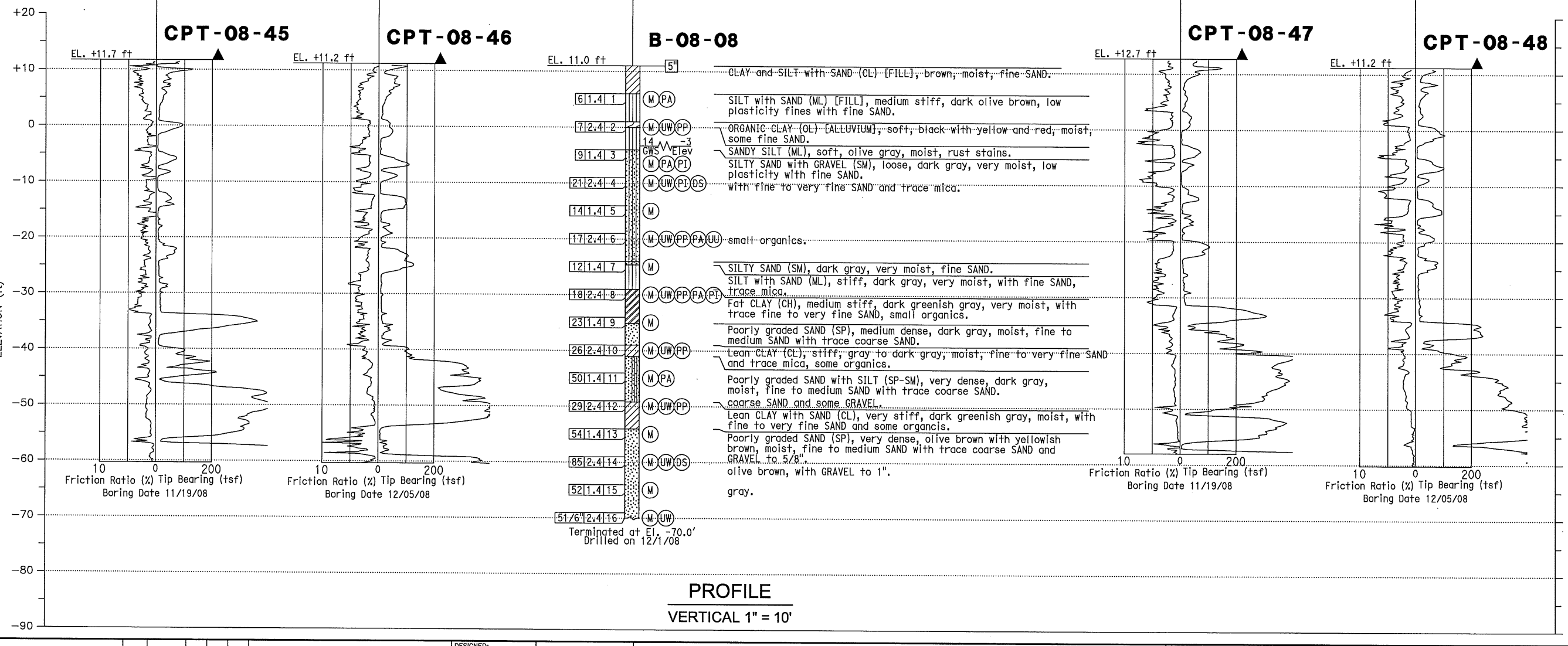
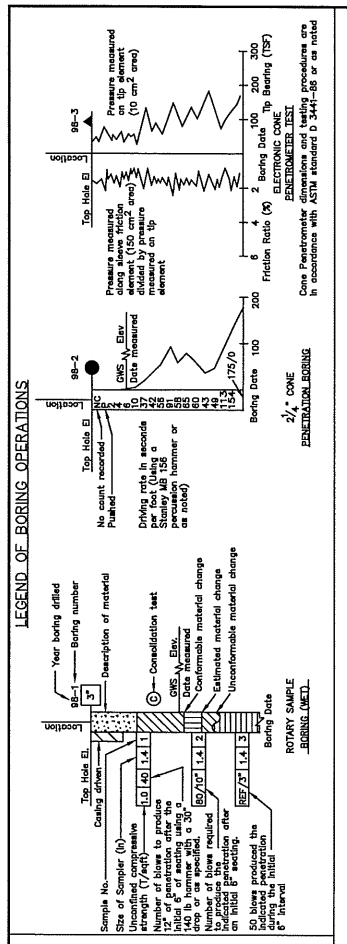


PLAN
1" = 40'



PROFILE
VERTICAL 1" = 10'

LEGEND OF BORING OPERATIONS



IN-SITU, LAB & FIELD TEST DESIGNATIONS

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- (CA) CHEMICAL ANALYSIS
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- (PP) POCKET PENETROMETER
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- (UU) UNCONSOLIDATED UNDRAINED TRIAXIAL
- (UW) UNIT WEIGHT

TYPE OF BORINGS

- 2½" CONE PENETRATION
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REV.	DATE	BY	SUB	APP.	DESCRIPTION

DESIGNED:
DRAWN: A.Z.
CHECKED: A.K.
APPROVED:
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COUNTY OF ORANGE - OC PUBLIC WORKS DEPARTMENT

EARTH MECHANICS, INC.

SUBMITTED _____ APPROVED _____

EAST GARDEN GROVE
WINTERSBURG CHANNEL
WARNER TO EDWARDS

LOG OF TEST BORINGS

SHEET 5 OF 11

CADD FILENAME
SIZE: D SCALE: AS NOTED
CONTRACT NO. REV.
CONTRACT SHEET NO. PAGE NO.

Amir Oct 14, 2009 – 8:01pm C:\Documents and Settings\Amir\Local Settings\Temp\BGPlot_8076\LOTBs.dwg

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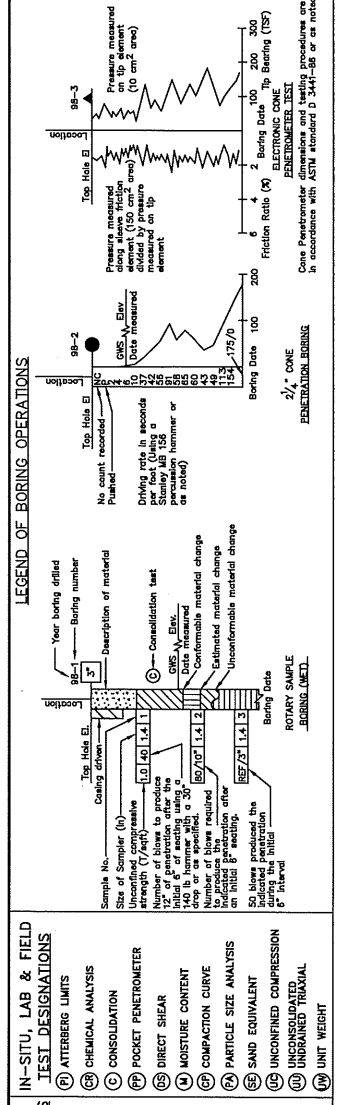

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- (CU) UNCONSOLIDATED UNDRAINED TRIAXIAL
- (UW) UNIT WEIGHT

TYPE OF BORINGS

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- ELECTRONIC CONE PENETROMETER
- AUGER BORING (DRY)
- TEST PIT
- DIAMOND CORE BORING
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LEGEND OF EARTH MATERIALS (USCS) BASED ON ASTM D2487, D2488

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- POORLY–GRADED GRAVEL (GP)
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- ORGANIC CLAY (OL)
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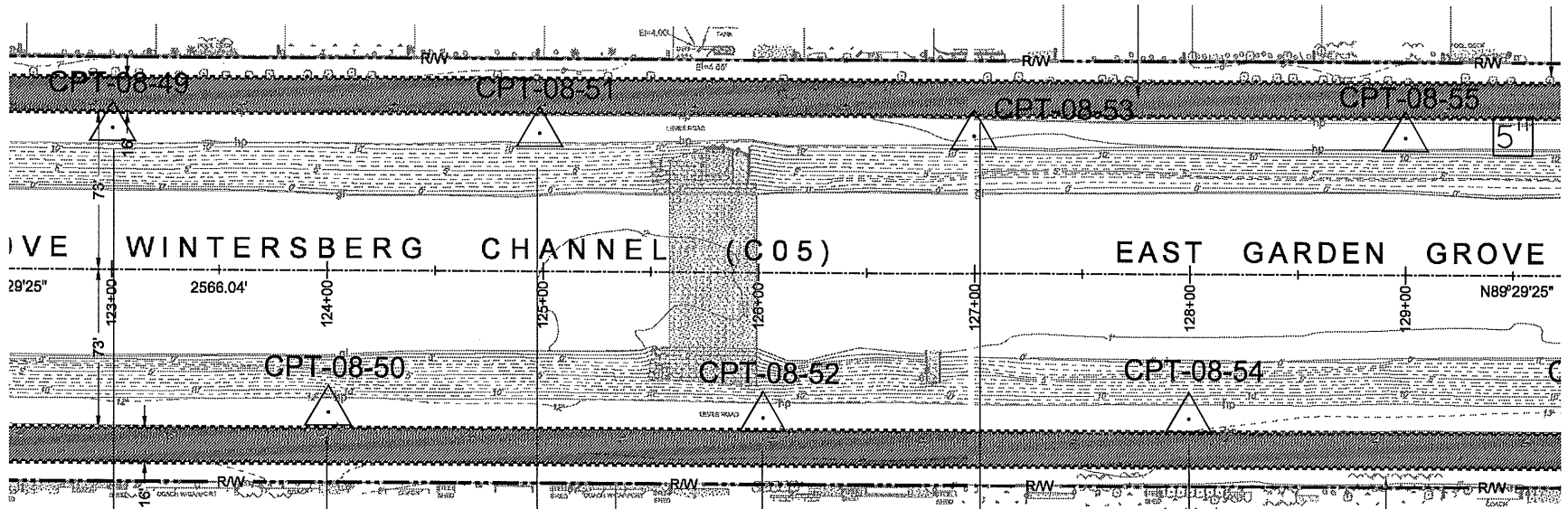
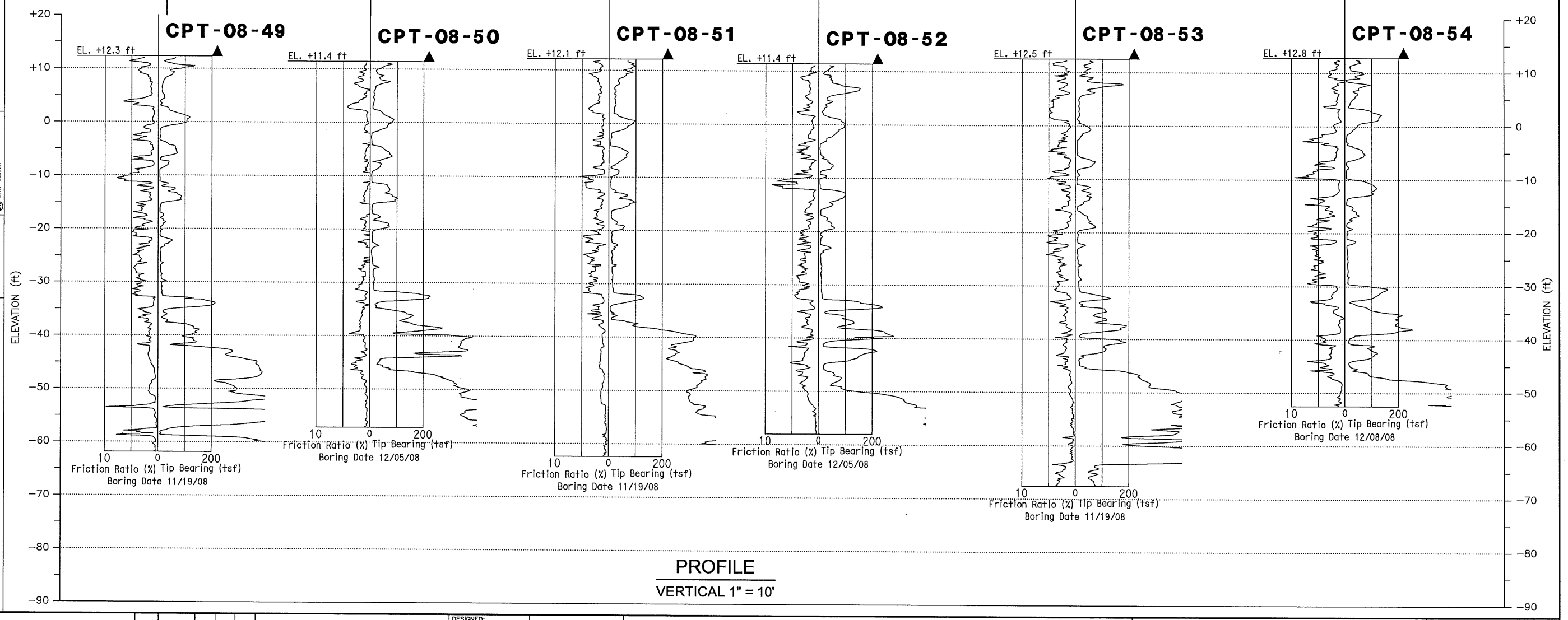


PLAN
1" = 40'



PROFILE
VERTICAL 1" = 10'

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DESIGNED:
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DATE: 20090320

COUNTY OF ORANGE - OC PUBLIC WORKS DEPARTMENT

EARTH MECHANICS, INC.

SUBMITTED _____ APPROVED _____

EAST GARDEN GROVE
WINTERSBURG CHANNEL
WARNER TO EDWARDS

LOG OF TEST BORINGS

SHEET 6 OF 11

CADD FILENAME
SIZE: D | SCALE: AS NOTED
CONTRACT NO. | REV.
CONTRACT SHEET NO. | PAGE NO.

Amir Oct. 14, 2009 – 6:02pm C:\Documents and Settings\Amir\Local Settings\Temp\BSPlot_5076\LOTBs.dwg

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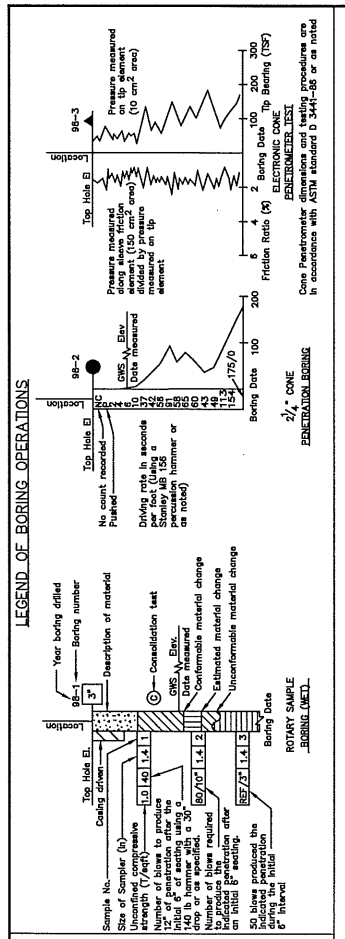

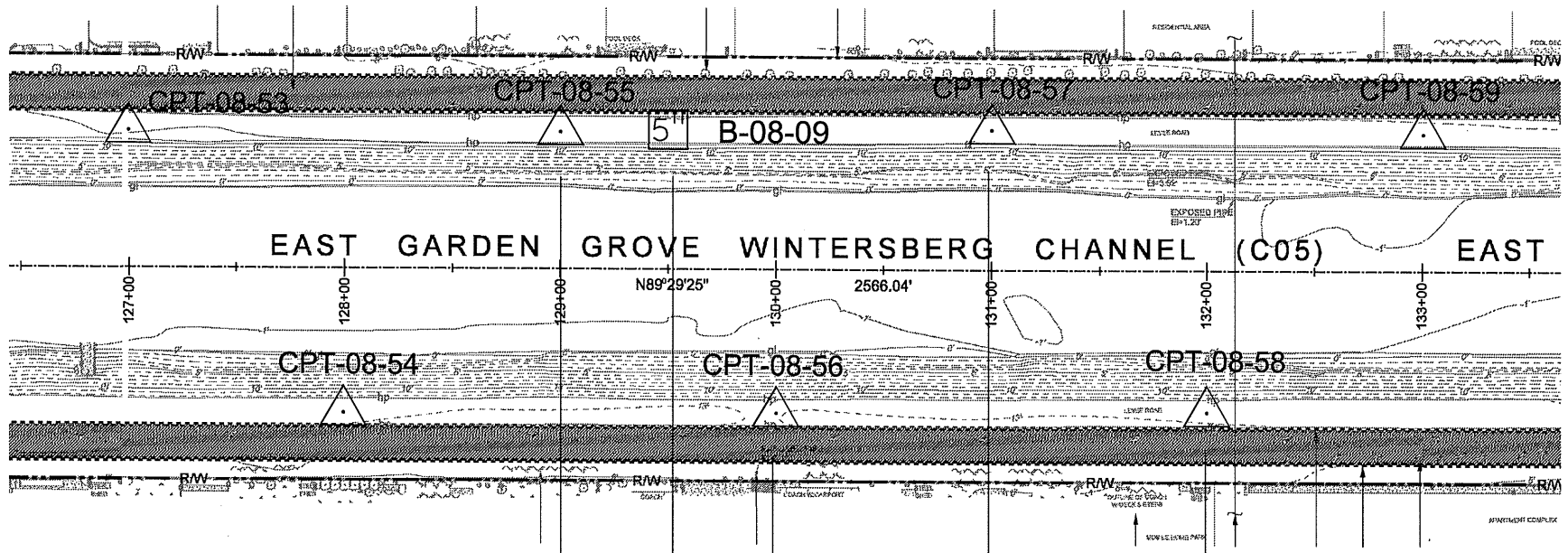

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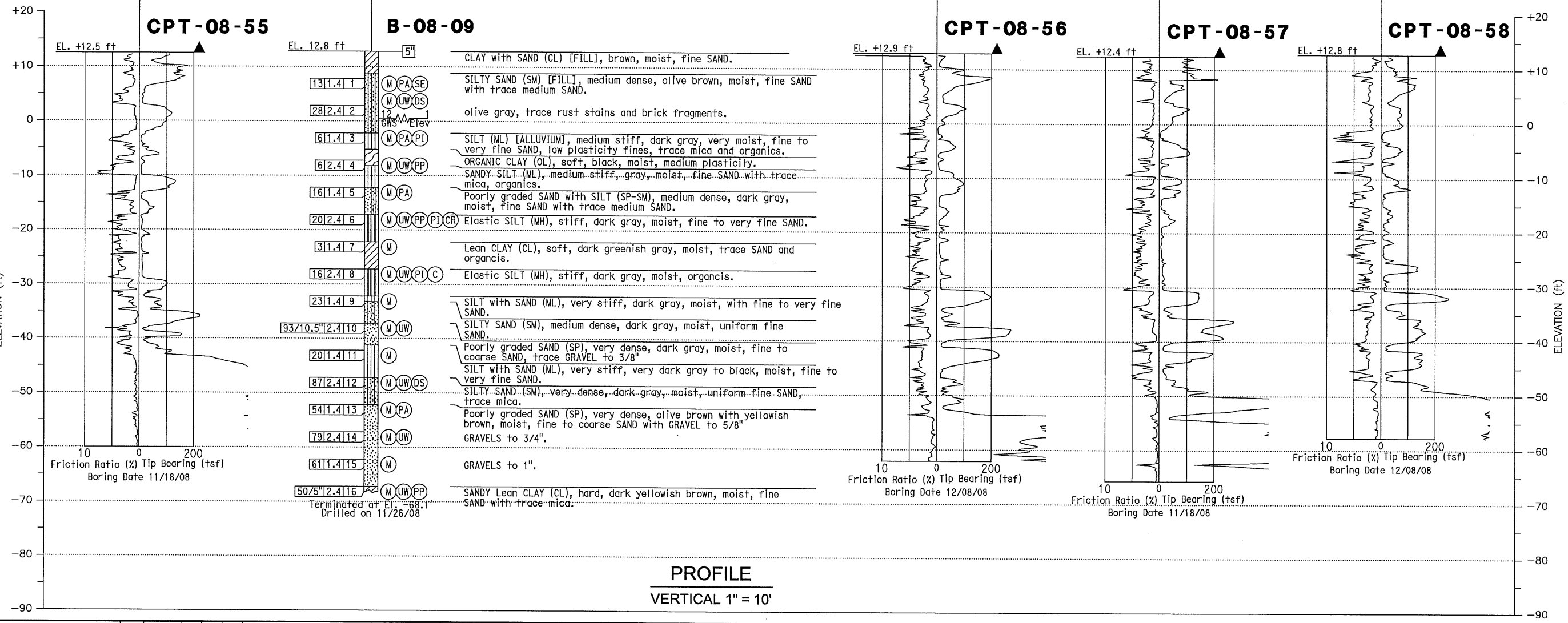

PROFILE
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EARTH MECHANICS, INC.

SUBMITTED _____ APPROVED _____

EAST GARDEN GROVE WINTERSBURG CHANNEL
WARNER TO EDWARDS
LOG OF TEST BORINGS
SHEET 7 OF 11

CADD FILENAME
SIZE: D SCALE: AS NOTED
CONTRACT NO. REV.
CONTRACT SHEET NO. PAGE NO.

Amir Oct 14, 2009 – 6:02pm C:\Documents and Settings\Amir\Local Settings\Temp\BGPlot_5076\LOTBe.dwg

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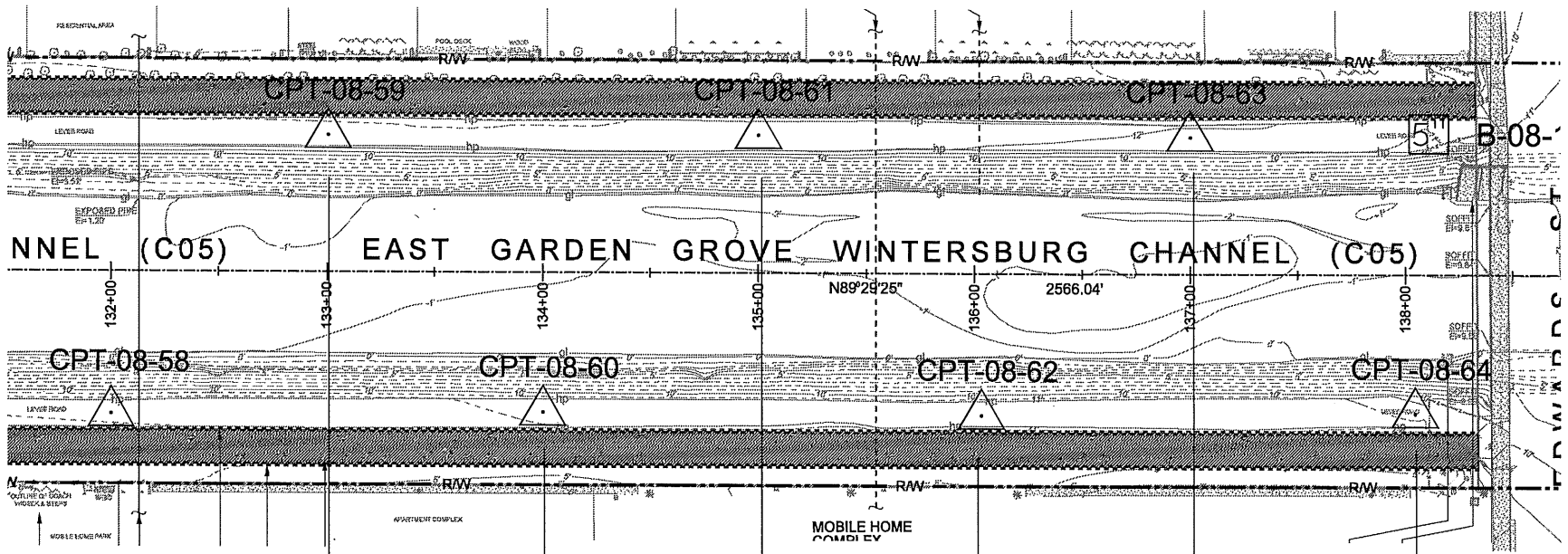

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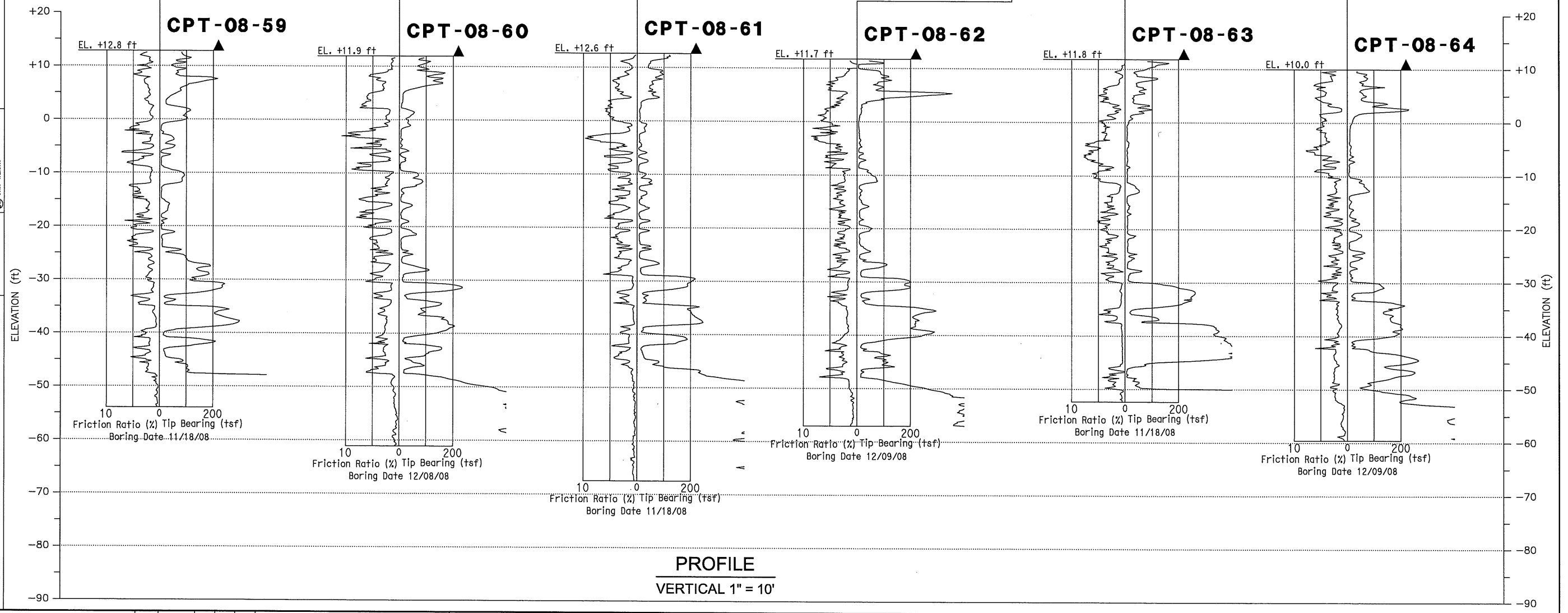

PROFILE
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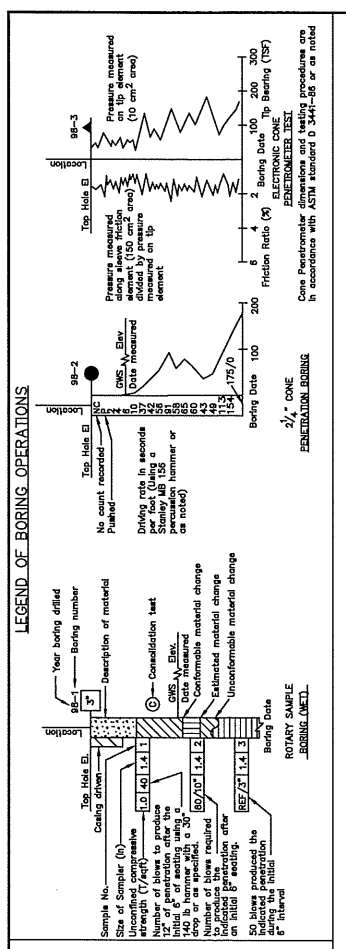
LEGEND OF BORING OPERATIONS



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- (PA) PARTICLE SIZE ANALYSIS
- (SE) SAND EQUIVALENT
- (UC) UNCONFINED COMPRESSION
- (UU) UNCONSOLIDATED UNDRAINED TRIAXIAL
- (UW) UNIT WEIGHT

TYPE OF BORINGS

- ¾" CONE PENETRATION
- ROTARY WASH
- ELECTRONIC CONE PENETROMETER
- AUGER BORING (DRY)
- TEST PIT
- DIAMOND CORE BORING
- SOIL TUBE

LEGEND OF EARTH MATERIALS (USCS) BASED ON ASTM D2487, D2488

- FILL MATERIAL
- CLAYEY GRAVEL (GC)
- POORLY-GRADED SAND (SP)
- WELL-GRADED SAND (SW)
- SILTY SAND (SM)
- CLAYEY SAND (SC)
- COBBLES/BOULDERS
- LEAN CLAY (CL)
- FAT CLAY (CH)
- SILT (ML)
- POORLY GRADED SAND WITH GRAVEL (SP)
- WELL-GRADED GRAVEL (GW)
- POORLY-GRADED GRAVEL (GP)
- SILTY GRAVEL (GM)
- ORGANIC CLAY (OL)
- PEAT

Note: Visual classification of earth materials are based on field inspection and are confirmed or revised with laboratory test results as necessary.

CONSISTENCY CLASSIFICATION FOR SOILS
According to the Standard Penetration Test (ASTM D-1586)

SPT N-value (blows/ft)	Granular	SPT N-value (blows/ft)	Cohesive
0 – 4	Very Loose	< 2	Very Soft
5 – 10	Loose	2 – 4	Soft
11 – 30	Medium Dense	5 – 8	Firm
31 – 50	Dense	9 – 15	Stiff
> 50	Very Dense	16 – 30	Very Stiff
		> 31	Hard

REV.	DATE	BY	SUB	APP.	DESCRIPTION

REV.	DATE	BY	SUB	APP.	DESCRIPTION

DESIGNED:
DRAWN: A.Z.
CHECKED: A.K.
APPROVED:
DATE: 20090320

COUNTY OF ORANGE - OC PUBLIC WORKS DEPARTMENT

EARTH MECHANICS, INC.

SUBMITTED _____ APPROVED _____

EAST GARDEN GROVE WINTERSBURG CHANNEL
WARNER TO EDWARDS

LOG OF TEST BORINGS

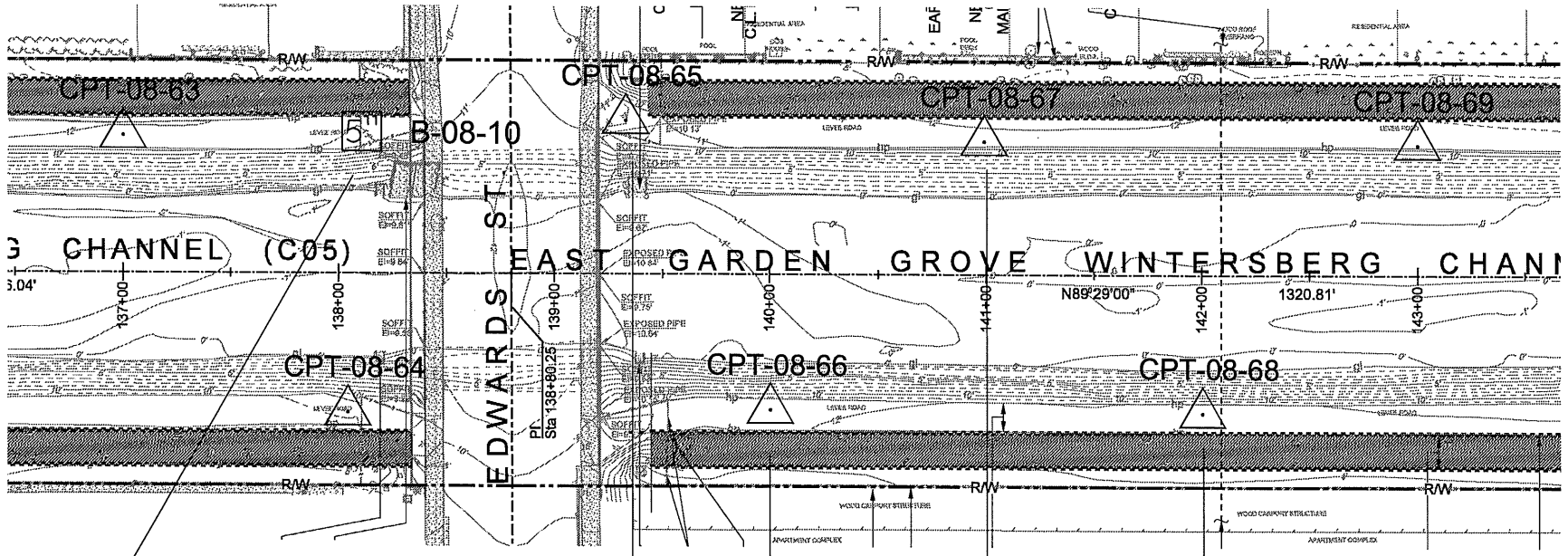
SHEET 8 OF 11

CADD FILENAME
SIZE: D | SCALE: AS NOTED
CONTRACT NO. | REV.
CONTRACT SHEET NO. | PAGE NO.

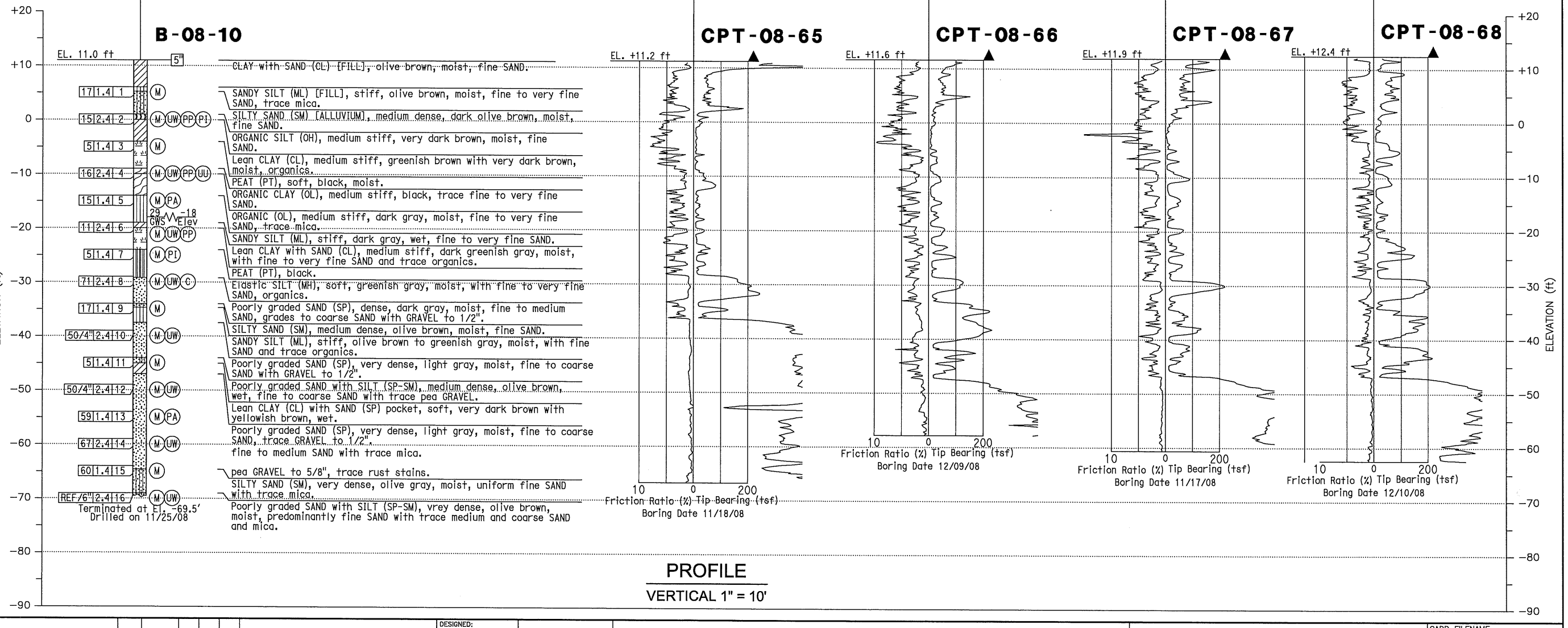
Amir Oct 14, 2009 – 6:02pm C:\Documents and Settings\Amir\Local Settings\Temp\BGPlot_5078\LOTBs.dwg

NOTES:

1. 1.4" DIAMETER SAMPLES WERE TAKEN USING A STANDARD SPLIT–BARREL SAMPLER (SPT) WITH AN OUTSIDE DIAMETER OF 2".
2. 2.4" DIAMETER SAMPLES WERE TAKEN USING A CALIFORNIA SPLIT–BARREL DRIVE SAMPLER WITH AN OUTSIDE DIAMETER OF 3.25".
3. AN AUTOMATIC TRIP HAMMER SYSTEM CONSISTING OF HAMMER WEIGHT OF 140 LB FREE–FALLING A DISTANCE OF 30" WAS USED TO ADVANCE THE SAMPLERS.

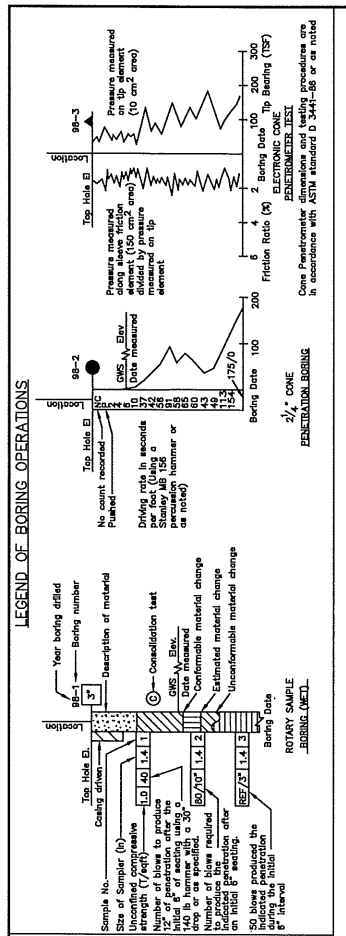


PLAN
1" = 40'



PROFILE
VERTICAL 1" = 10'

LEGEND OF BORING OPERATIONS



IN-SITU, LAB & FIELD TEST DESIGNATIONS

(A) ATTERBERG LIMITS	(CA) CHEMICAL ANALYSIS
(C) CONSOLIDATION	(PP) POCKET PENETROMETER
(DS) DIRECT SHEAR	(M) MOISTURE CONTENT
(CP) COMPACTION CURVE	(PA) PARTICLE SIZE ANALYSIS
(SE) SAND EQUIVALENT	(UC) UNCONFINED COMPRESSION
(UU) UNCONSOLIDATED UNDRAINED TRIAXIAL	(UW) UNIT WEIGHT

TYPE OF BORINGS

1/2" CONE PENETRATION	ROTARY WASH
ELECTRONIC CONE PENETROMETER	AUGER BORING (DRY)
TEST PIT	DIAMOND CORE BORING
SOIL TUBE	

LEGEND OF EARTH MATERIALS (USCS) BASED ON ASTM D2487, D2488

FILL MATERIAL; LEAN CLAY (CL); FAT CLAY (CH); SILT (ML); CLAYEY GRAVEL (GC); POORLY-GRADED SAND (SP); WELL-GRADED SAND (SW); SILTY SAND (SM); CLAYEY SAND (SC); COBBLES/BOULDERS; POORLY-GRADED GRAVEL (GP); WELL-GRADED GRAVEL (GW); ORGANIC CLAY (OL); PEAT

CONSISTENCY CLASSIFICATION FOR SOILS
According to the Standard Penetration Test (ASTM D-1586)

SPT N-value (blows/ft)	Granular	SPT N-value (blows/ft)	Cohesive
0 – 4	Very Loose	< 2	Very Soft
5 – 10	Loose	2 – 4	Soft
11 – 30	Medium Dense	5 – 8	Firm
31 – 50	Dense	9 – 15	Stiff
> 50	Very Dense	16 – 30	Very Stiff
		> 31	Hard

Note: Visual classification of earth materials are based on field inspection and are confirmed or revised with laboratory test results as necessary.

REV.	DATE	BY	SUB	APP.	DESCRIPTION

REV.	DATE	BY	SUB	APP.	DESCRIPTION

DESIGNED:
DRAWN: A.Z.
CHECKED: A.K.
APPROVED:
DATE: 20090320

COUNTY OF ORANGE - OC PUBLIC WORKS DEPARTMENT

EARTH MECHANICS, INC.

SUBMITTED _____ APPROVED _____

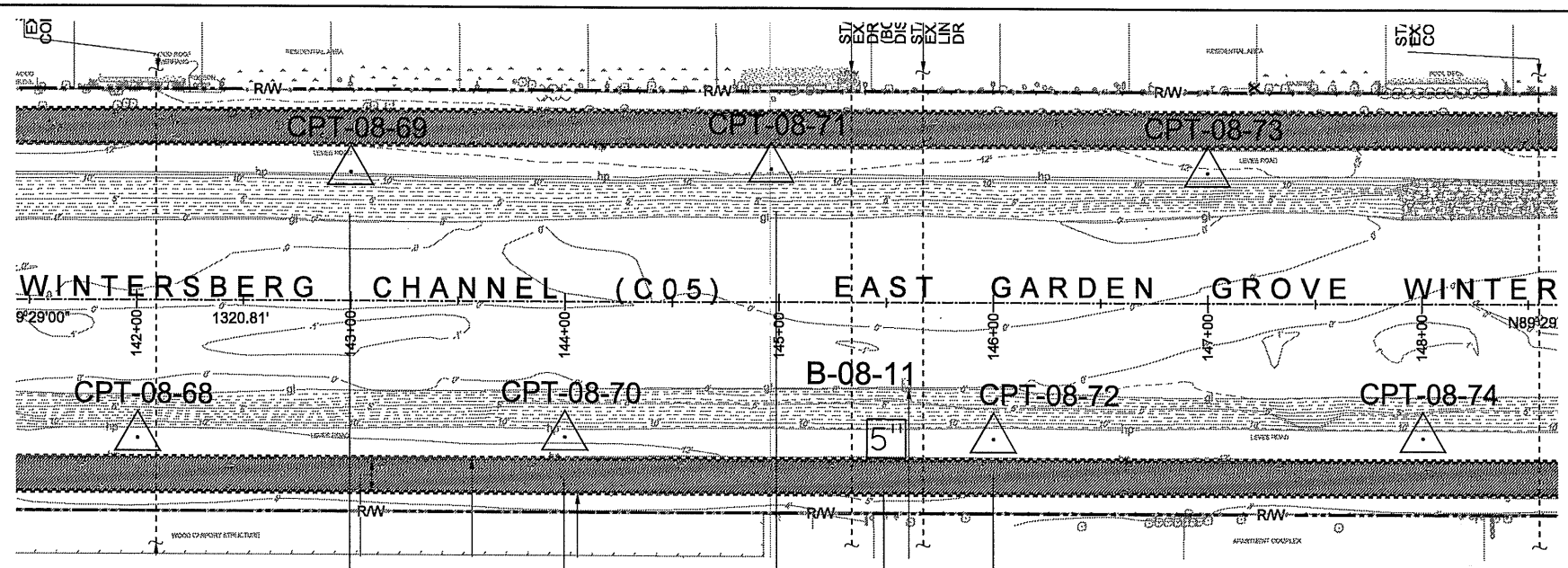
EAST GARDEN GROVE WINTERSBURG CHANNEL
WARNER TO EDWARDS
LOG OF TEST BORINGS
SHEET 9 OF 11

CADD FILENAME
SIZE: D SCALE: AS NOTED
CONTRACT NO. REV.
CONTRACT SHEET NO. PAGE NO.

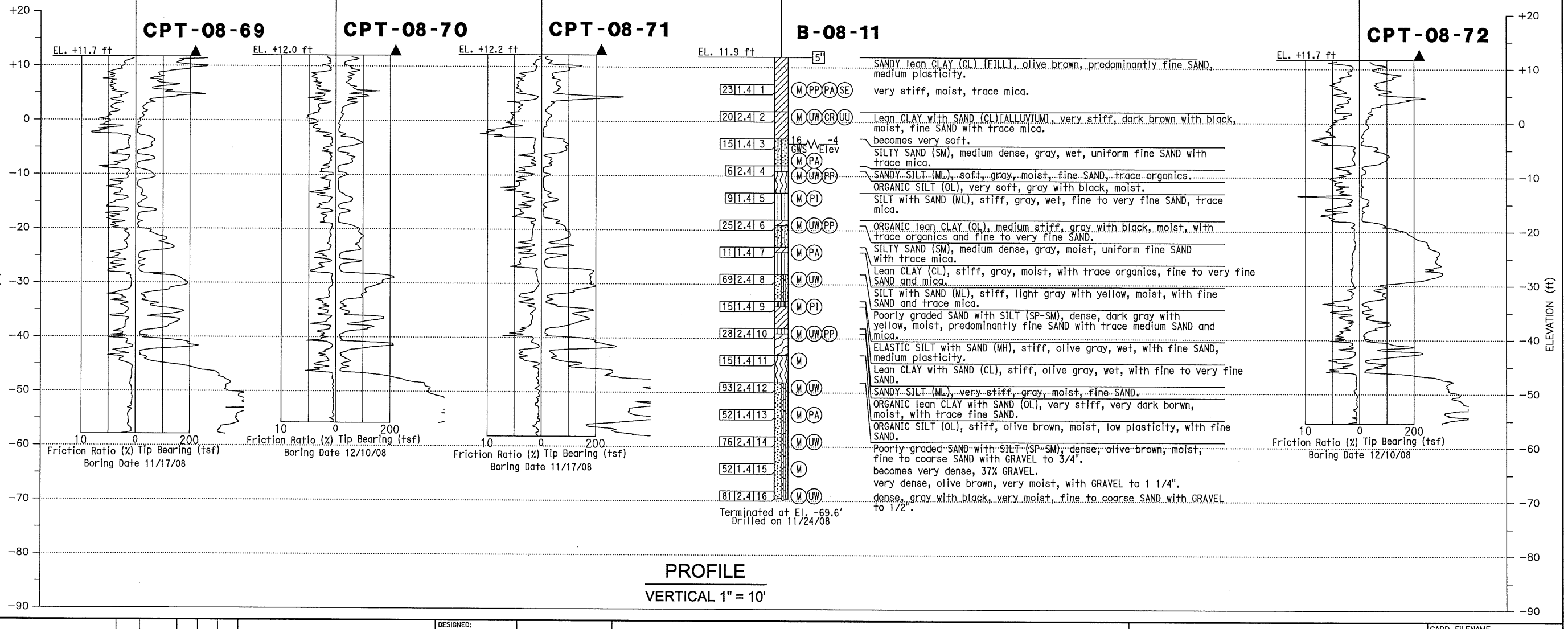
Anir Oct 14, 2009 – 6:02pm C:\Documents and Settings\Anir\Local Settings\Temp\BSPlot_5076\LOTBs.dwg

NOTES:

1. 1.4" DIAMETER SAMPLES WERE TAKEN USING A STANDARD SPLIT–BARREL SAMPLER (SPT) WITH AN OUTSIDE DIAMETER OF 2".
2. 2.4" DIAMETER SAMPLES WERE TAKEN USING A CALIFORNIA SPLIT–BARREL DRIVE SAMPLER WITH AN OUTSIDE DIAMETER OF 3.25".
3. AN AUTOMATIC TRIP HAMMER SYSTEM CONSISTING OF HAMMER WEIGHT OF 140 LB FREE–FALLING A DISTANCE OF 30" WAS USED TO ADVANCE THE SAMPLERS.

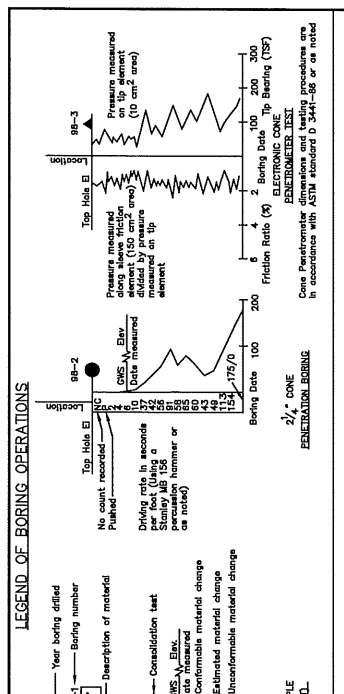


PLAN
1" = 40'



PROFILE
VERTICAL 1" = 10'

LEGEND OF BORING OPERATIONS



IN-SITU, LAB & FIELD TEST DESIGNATIONS

(A) ATTERBERG LIMITS
(CA) CHEMICAL ANALYSIS
(C) CONSOLIDATION
(P) POCKET PENETROMETER
(DS) DIRECT SHEAR
(M) MOISTURE CONTENT
(D) COMPACTION CURVE
(PA) PARTICLE SIZE ANALYSIS
(SE) SAND EQUIVALENT
(UC) UNCONFINED COMPRESSION
(UU) UNCONSOLIDATED UNDRAINED TRIAXIAL
(UW) UNIT WEIGHT

TYPE OF BORINGS

- 2½" CONE PENETRATION
- ROTARY WASH
- ELECTRONIC CONE PENETROMETER
- AUGER BORING (DRY)
- TEST PIT
- DIAMOND CORE BORING
- SOIL TUBE

LEGEND OF EARTH MATERIALS (USCS) BASED ON ASTM D2487, D2488

FILL MATERIAL
LEAN CLAY (CL)
FAT CLAY (CH)
SILT (ML)
CLAYEY GRAVEL (GC)
POORLY-GRADED SAND (SP)
WELL-GRADED SAND (SW)
SILTY SAND (SM)
CLAYEY SAND (SC)
POORLY GRADED SAND WITH SILT (SP-SM)
POORLY-GRADED GRAVEL (GP)
SILTY GRAVEL (GM)
COBBLES/BOULDERS
ORGANIC CLAY (OL)
PEAT

CONSISTENCY CLASSIFICATION FOR SOILS
According to the Standard Penetration Test (ASTM D-1586)

SPT N-value (blows/ft)	Granular	SPT N-value (blows/ft)	Cohesive
0 – 4	Very Loose	< 2	Very Soft
5 – 10	Loose	2 – 4	Soft
11 – 30	Medium Dense	5 – 8	Firm
31 – 50	Dense	9 – 15	Stiff
> 50	Very Dense	16 – 30	Very Stiff
		> 31	Hard

Note: Visual classification of earth materials are based on field inspection and are confirmed or revised with laboratory test results as necessary.

REV.	DATE	BY	SUB	APP.	DESCRIPTION	REV.	DATE	BY	SUB	APP.	DESCRIPTION

DESIGNED:
DRAWN: A.Z.
CHECKED: A.K.
APPROVED:
DATE: 20090320

COUNTY OF ORANGE - OC PUBLIC WORKS DEPARTMENT

EARTH MECHANICS, INC.

SUBMITTED _____ APPROVED _____

EAST GARDEN GROVE
WINTERSBURG CHANNEL
WARNER TO EDWARDS

LOG OF TEST BORINGS

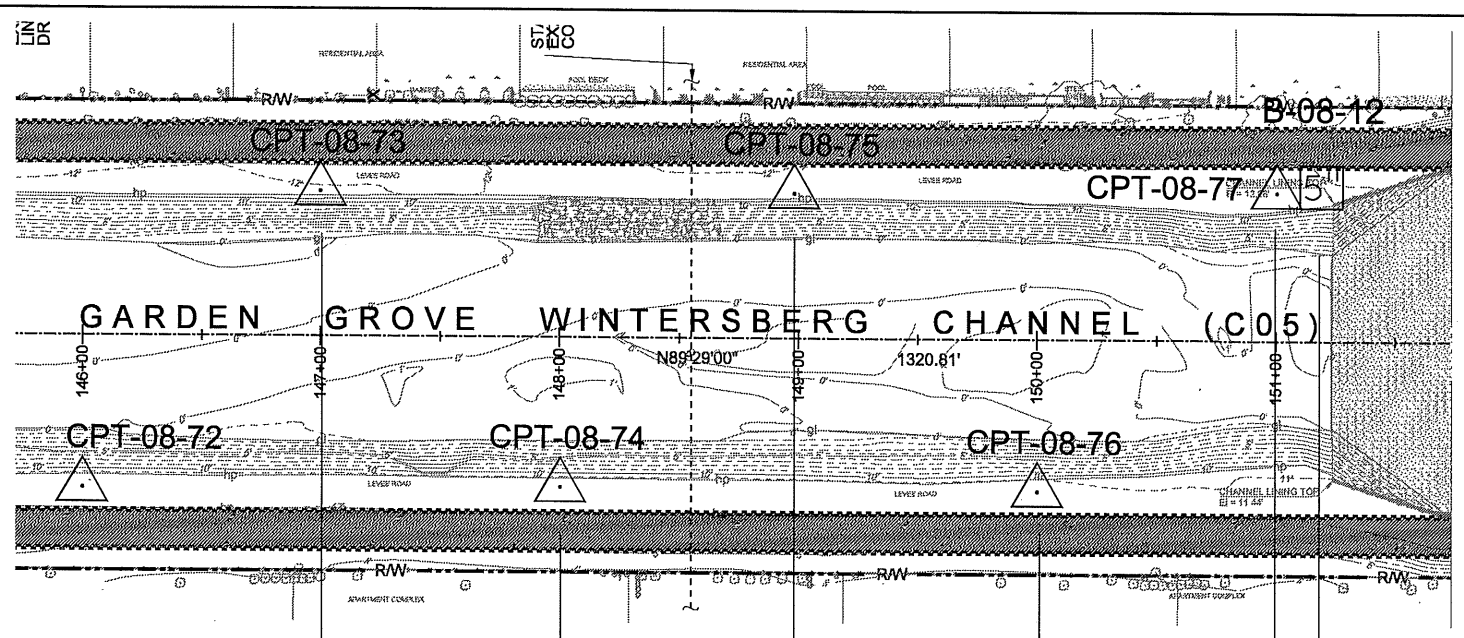
SHEET 10 OF 11

CADD FILENAME
SIZE: D SCALE: AS NOTED
CONTRACT NO. REV.
CONTRACT SHEET NO. PAGE NO.

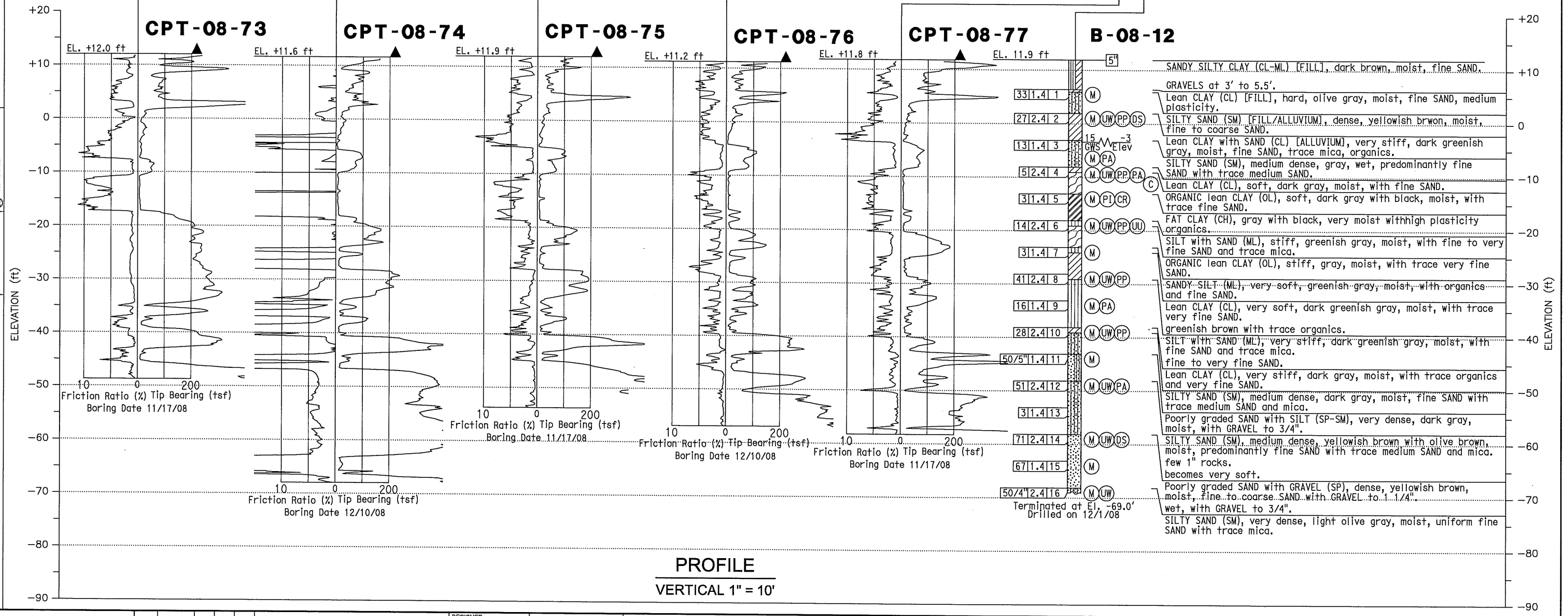
Amir Oct 14, 2009 – 8:02pm C:\Documents and Settings\Amir\Local Settings\Temp\BGPlot_50781\LOTBe.dwg

NOTES:

1. 1.4" DIAMETER SAMPLES WERE TAKEN USING A STANDARD SPLIT–BARREL SAMPLER (SPT) WITH AN OUTSIDE DIAMETER OF 2".
2. 2.4" DIAMETER SAMPLES WERE TAKEN USING A CALIFORNIA SPLIT–BARREL DRIVE SAMPLER WITH AN OUTSIDE DIAMETER OF 3.25".
3. AN AUTOMATIC TRIP HAMMER SYSTEM CONSISTING OF HAMMER WEIGHT OF 140 LB FREE–FALLING A DISTANCE OF 30" WAS USED TO ADVANCE THE SAMPLERS.

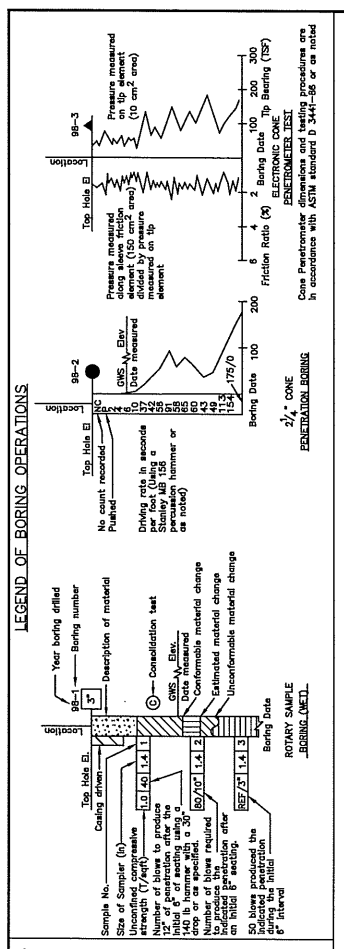


PLAN
1" = 40'



PROFILE
VERTICAL 1" = 10'

LEGEND OF BORING OPERATIONS



IN–SITU, LAB & FIELD TEST DESIGNATIONS

(A)	ATTERBERG LIMITS	(CA)	CHEMICAL ANALYSIS
(C)	CONSOLIDATION	(P)	POCKET PENETROMETER
(DS)	DIRECT SHEAR	(M)	MOISTURE CONTENT
(CV)	COMPACTION CURVE	(PA)	PARTICLE SIZE ANALYSIS
(SE)	SAND EQUIVALENT	(UC)	UNCONFINED COMPRESSION
(UU)	UNCONSOLIDATED UNDRAINED TRIAXIAL	(UW)	UNIT WEIGHT

TYPE OF BORINGS

●	2½" CONE PENETRATION	ROTARY WASH	
▲	ELECTRONIC CONE PENETROMETER	AUGER BORING (ORY)	
TP	TEST PIT	DIAMOND CORE BORING	
ST	SOIL TUBE		

LEGEND OF EARTH MATERIALS (USCS) BASED ON ASTM D2487, D2488

	FILL MATERIAL	CLAYEY GRAVEL (GC)	
	LEAN CLAY (CL)	POORLY-GRADED GRAVEL (GP)	
	FAT CLAY (CH)	WELL-GRADED SAND (SW)	
	SILT (ML)	SILTY SAND (SM)	
	POORLY GRADED SAND WITH SILT (SP-SM)	CLAYEY SAND (SC)	
	WELL-GRADED GRAVEL (GW)	COBBLES/BOULDERS	
	POORLY-GRADED GRAVEL (GP)	ORGANIC CLAY (OA)	
	SILTY GRAVEL (GM)	PEAT	

CONSISTENCY CLASSIFICATION FOR SOILS
According to the Standard Penetration Test (ASTM D-1586)

SPT N-value (blows/ft)	Granular	SPT N-value (blows/ft)	Cohesive
0 – 4	Very Loose	< 2	Very Soft
5 – 10	Loose	2 – 4	Soft
11 – 30	Medium Dense	5 – 8	Firm
31 – 50	Dense	9 – 15	Stiff
> 50	Very Dense	16 – 30	Very Stiff
		> 31	Hard

Note: Visual classification of earth materials are based on field inspection and are confirmed or revised with laboratory test results as necessary.

REV.	DATE	BY	SUB	APP.	DESCRIPTION	REV.	DATE	BY	SUB	APP.	DESCRIPTION

DESIGNED:
DRAWN: A.Z.
CHECKED: A.K.
APPROVED:
DATE: 20090320

COUNTY OF ORANGE - OC PUBLIC WORKS DEPARTMENT

EARTH MECHANICS, INC.

SUBMITTED _____ APPROVED _____

EAST GARDEN GROVE WINTERSBURG CHANNEL
WARNER TO EDWARDS

LOG OF TEST BORINGS

SHEET 11 OF 11

CADD FILENAME
SIZE: D | SCALE: AS NOTED
CONTRACT NO. | REV.
CONTRACT SHEET NO. | PAGE NO.

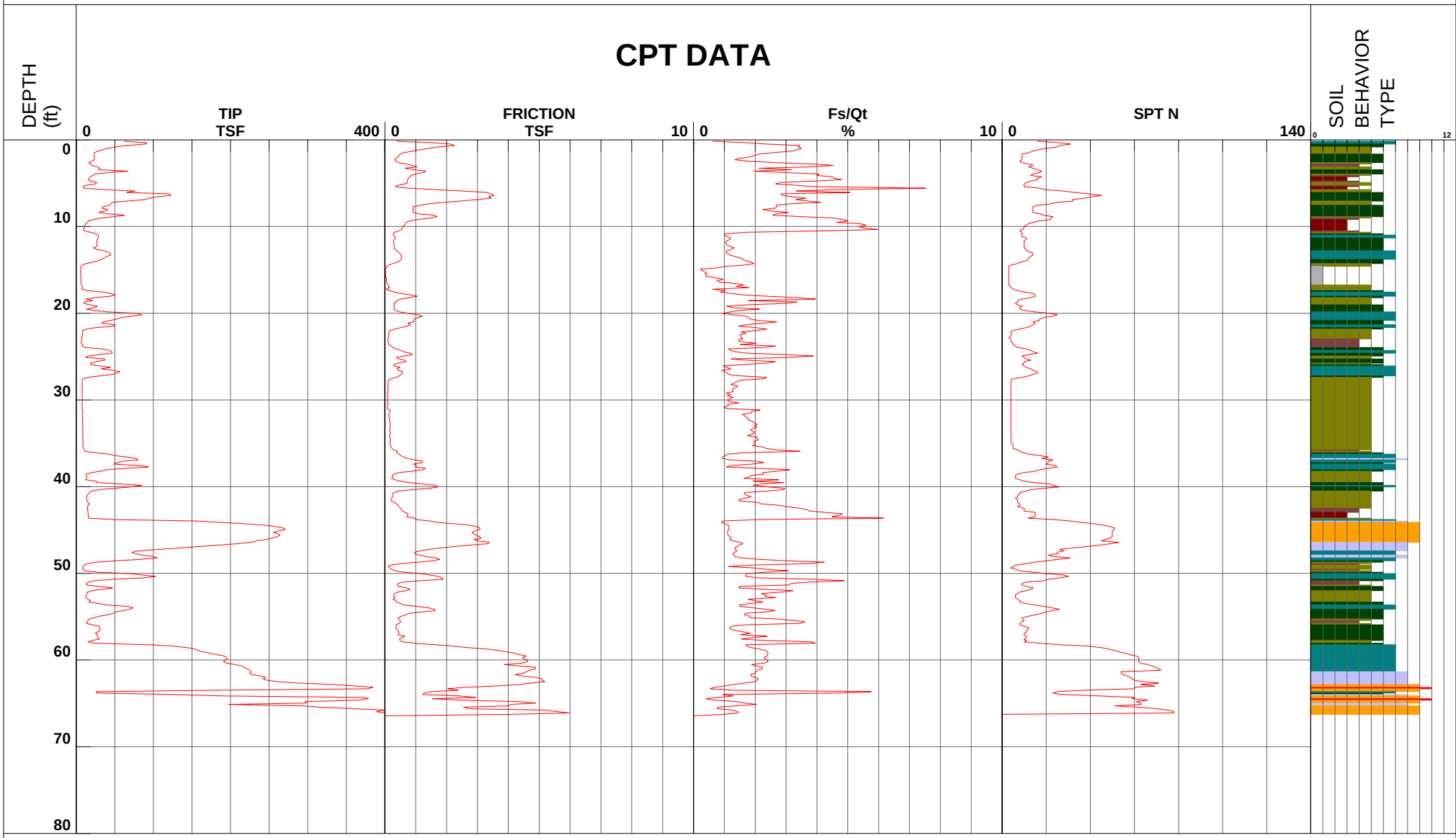
Amir Oct 14, 2009 – 6:02pm C:\Documents and Settings\Amir\Local Settings\Temp\BGPlot_5076\LOTBs.dwg

APPENDIX B. CPT SOUNDING LOGS AND DETAILED DATA

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(431).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-27	Date and Time	11/21/2008 8:24:05 AM	Maximum Depth	66.60 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

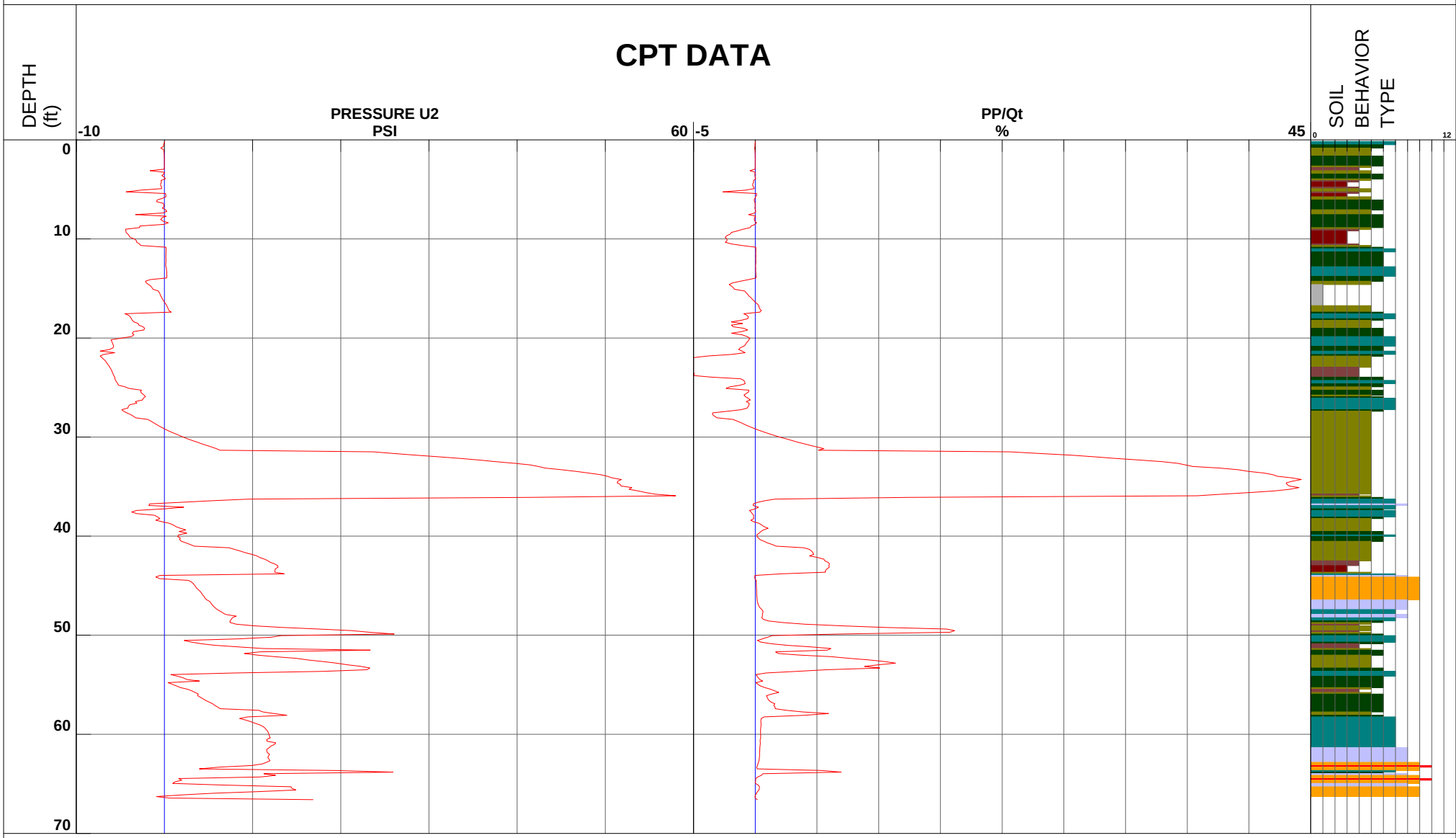
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(431).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-27	Date and Time	11/21/2008 8:24:05 AM	Maximum Depth	66.60 ft
Water Table Depth		0.00 ft			

CPT DATA



1 - sensitive fine grained
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3 - clay
4 - silty clay to clay
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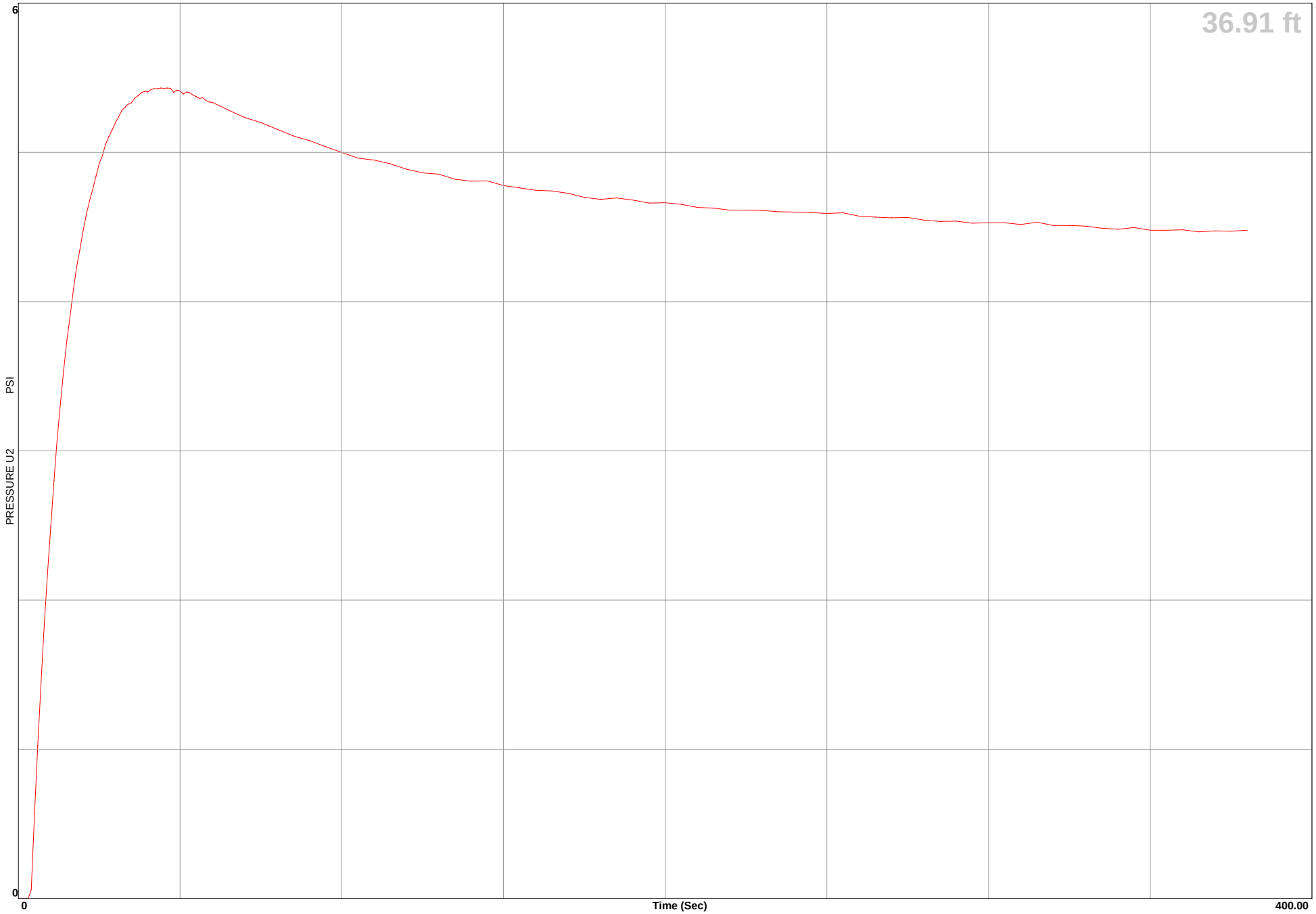
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

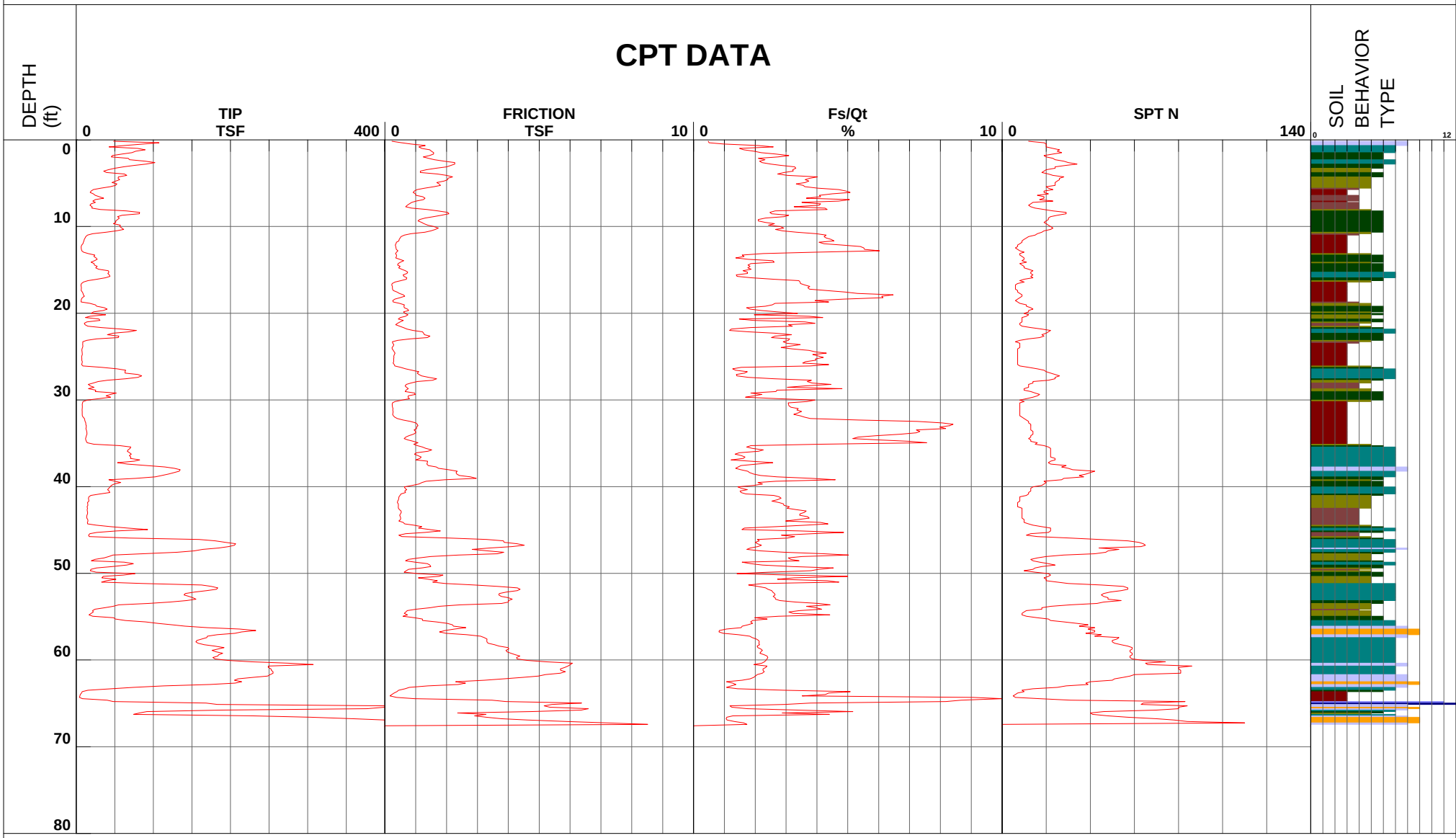
Location	EGG-WC Warner/Edwards	Operator	ML/VO	
Job Number	08-156	Cone Number	DSG0906	GPS
Hole Number	CPT-08-27	Date and Time	11/21/2008 8:24:05 AM	
Equilized Pressure	4.46	Ground Water Depth	26.60	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(458).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-28	Date and Time	12/3/2008 10:32:46 AM	Maximum Depth	67.75 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
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3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

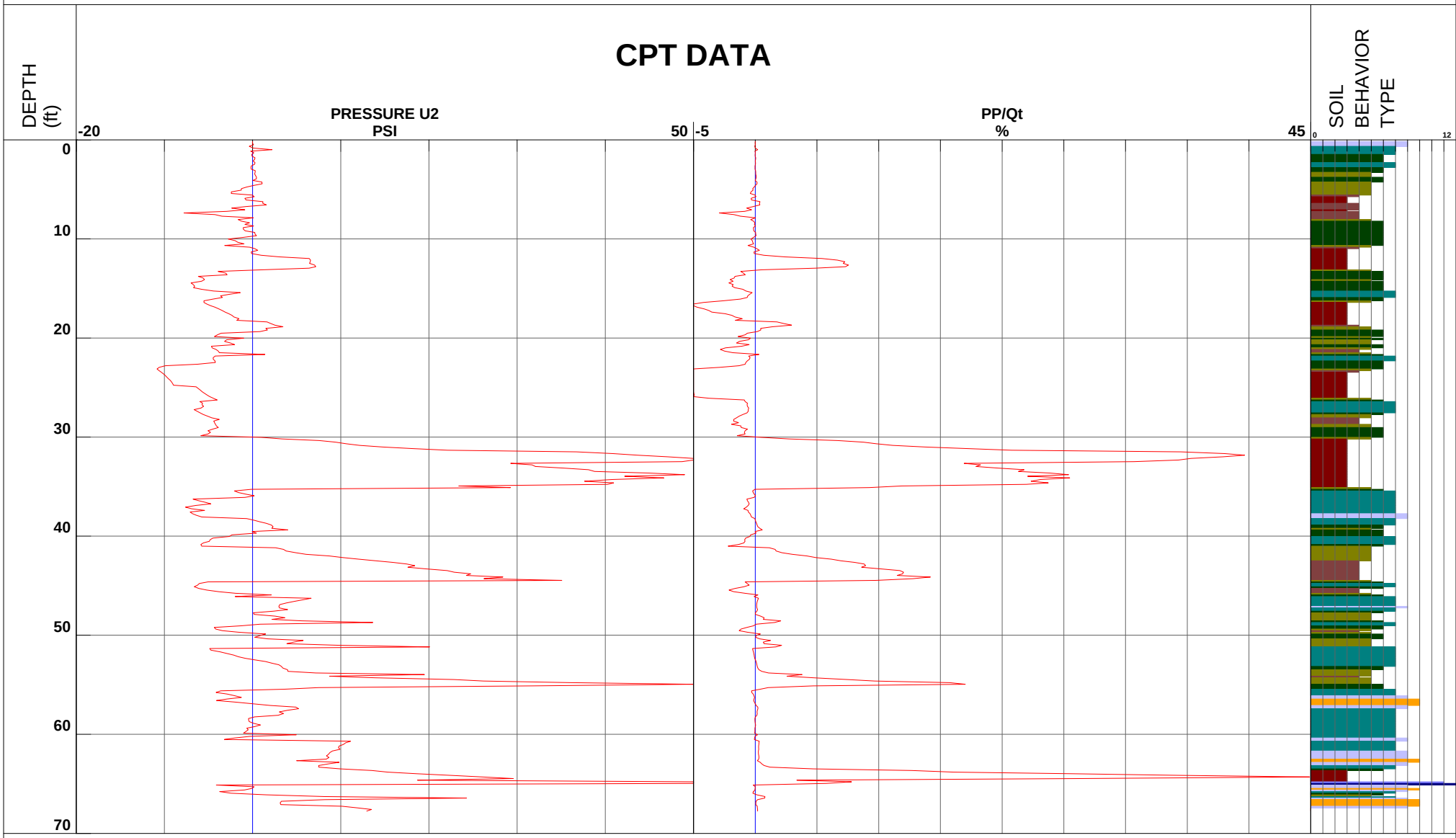
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(458).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-28	Date and Time	12/3/2008 10:32:46 AM	Maximum Depth	67.75 ft
Water Table Depth		0.00 ft			

CPT DATA



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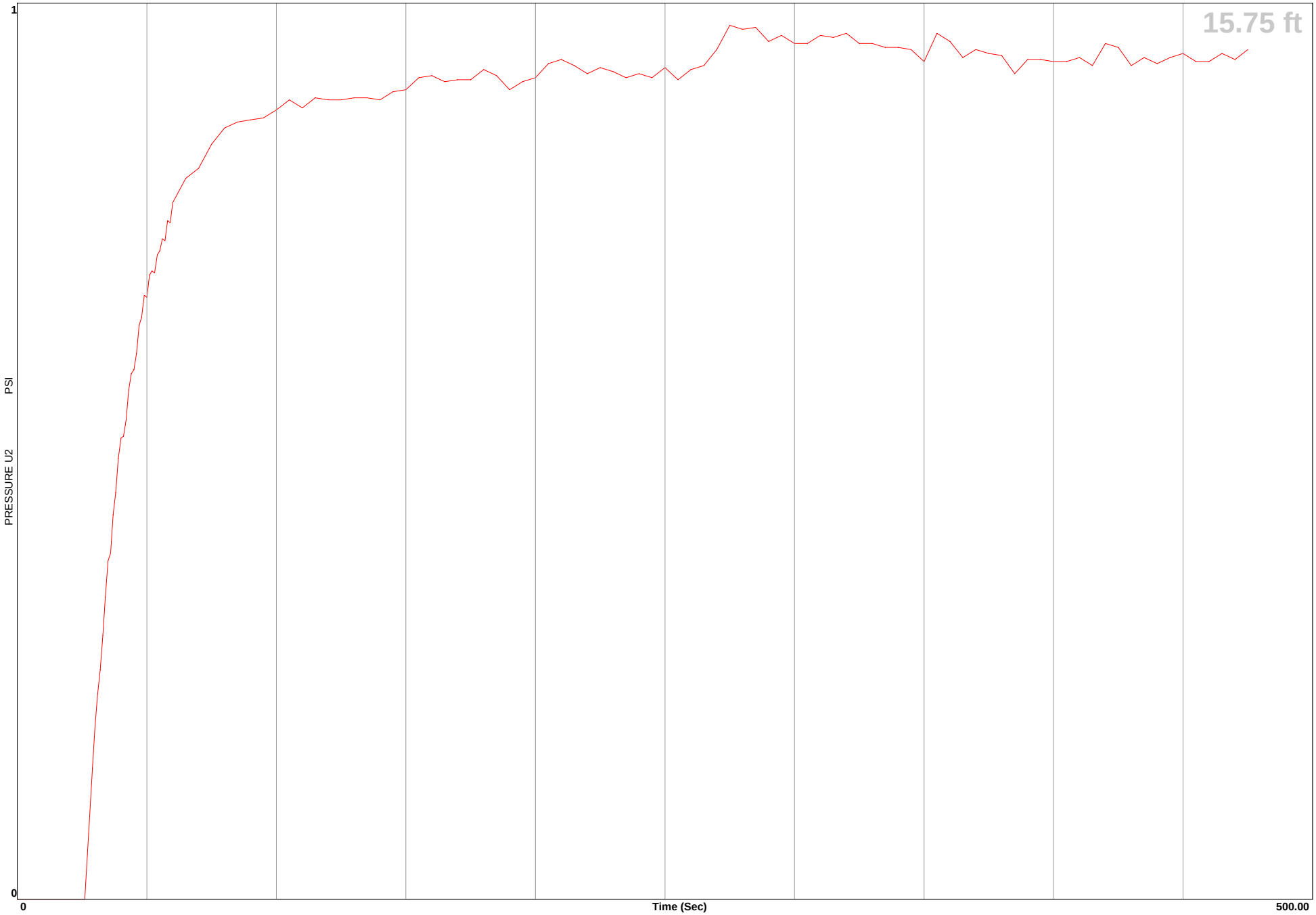
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

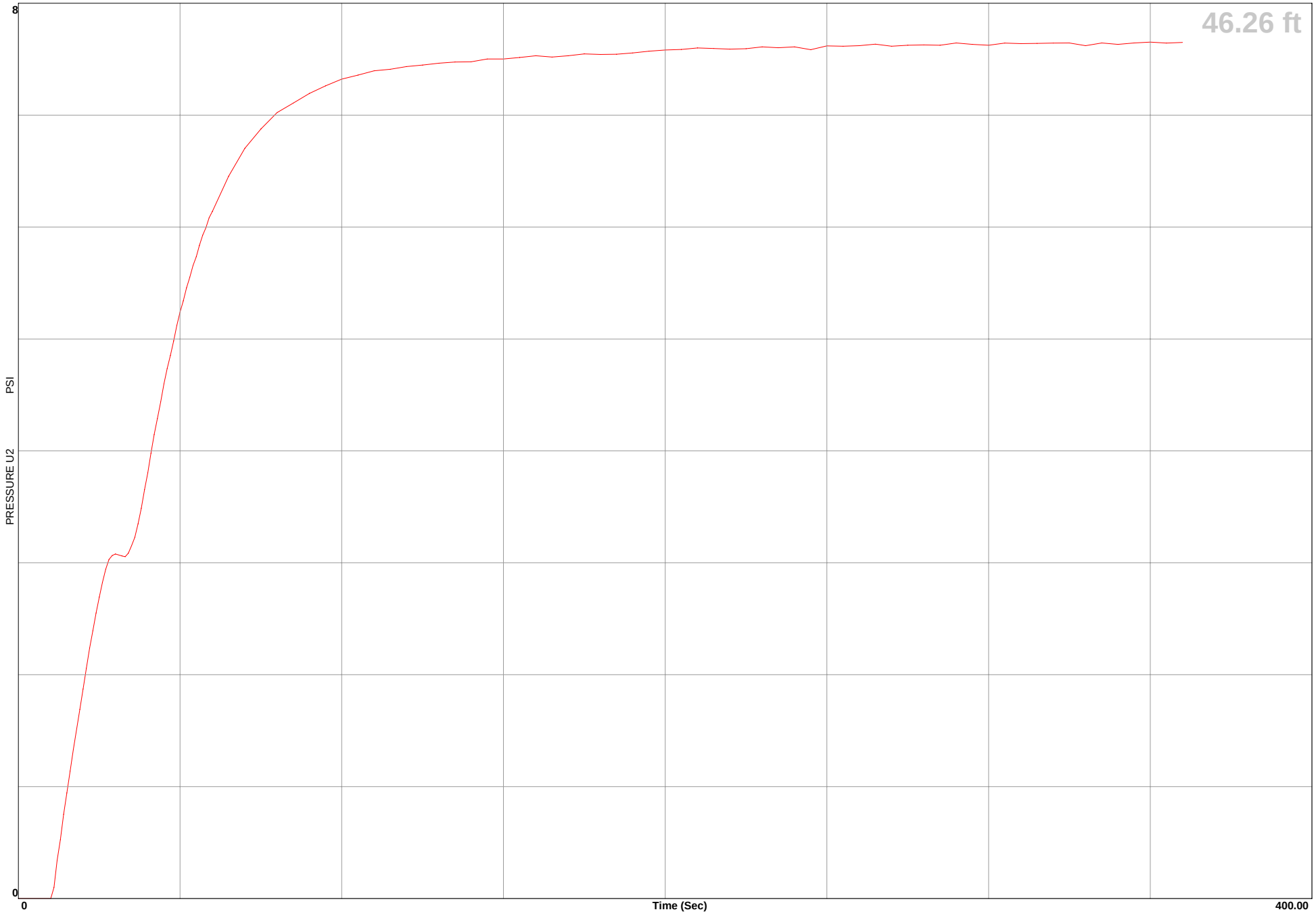
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-28**	**Date and Time**	**12/3/2008 10:32:46 AM**	
Equilized Pressure	**.95**	**Ground Water Depth**	**13.55**	



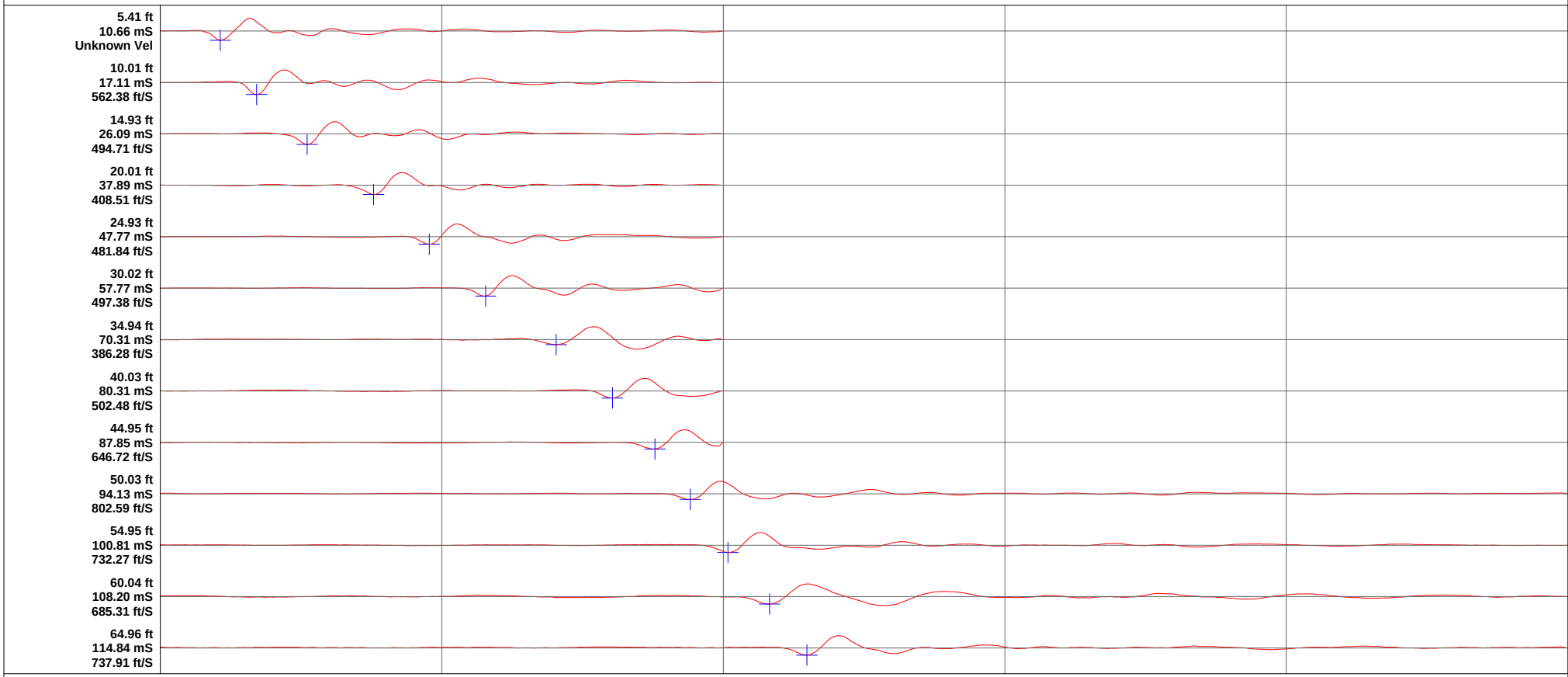
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-28**	**Date and Time**	**12/3/2008 10:32:46 AM**	
Equilized Pressure	**7.64**	**Ground Water Depth**	**28.61**	



Earth Mechanics

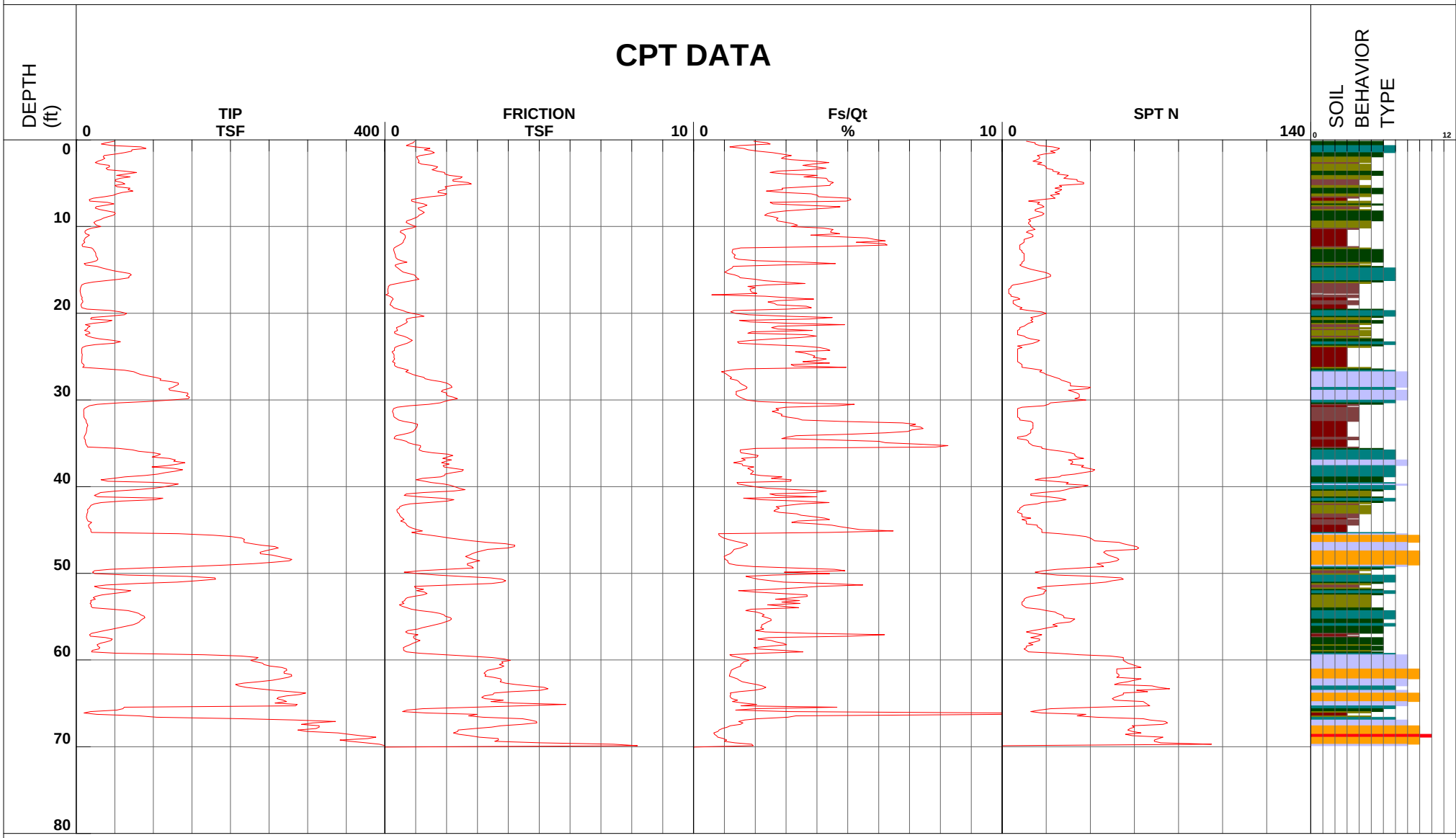
Location	EGG-WC Warner/Edwards	Operator	ML/BH	
Job Number	08-156	Cone Number	DSG0906	GPS
Hole Number	CPT-08-28	Date and Time	12/3/2008 10:32:46 AM	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(430).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-29	Date and Time	11/21/2008 7:23:20 AM	Maximum Depth	70.21 ft
Water Table Depth	12.00 ft				

CPT DATA



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7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

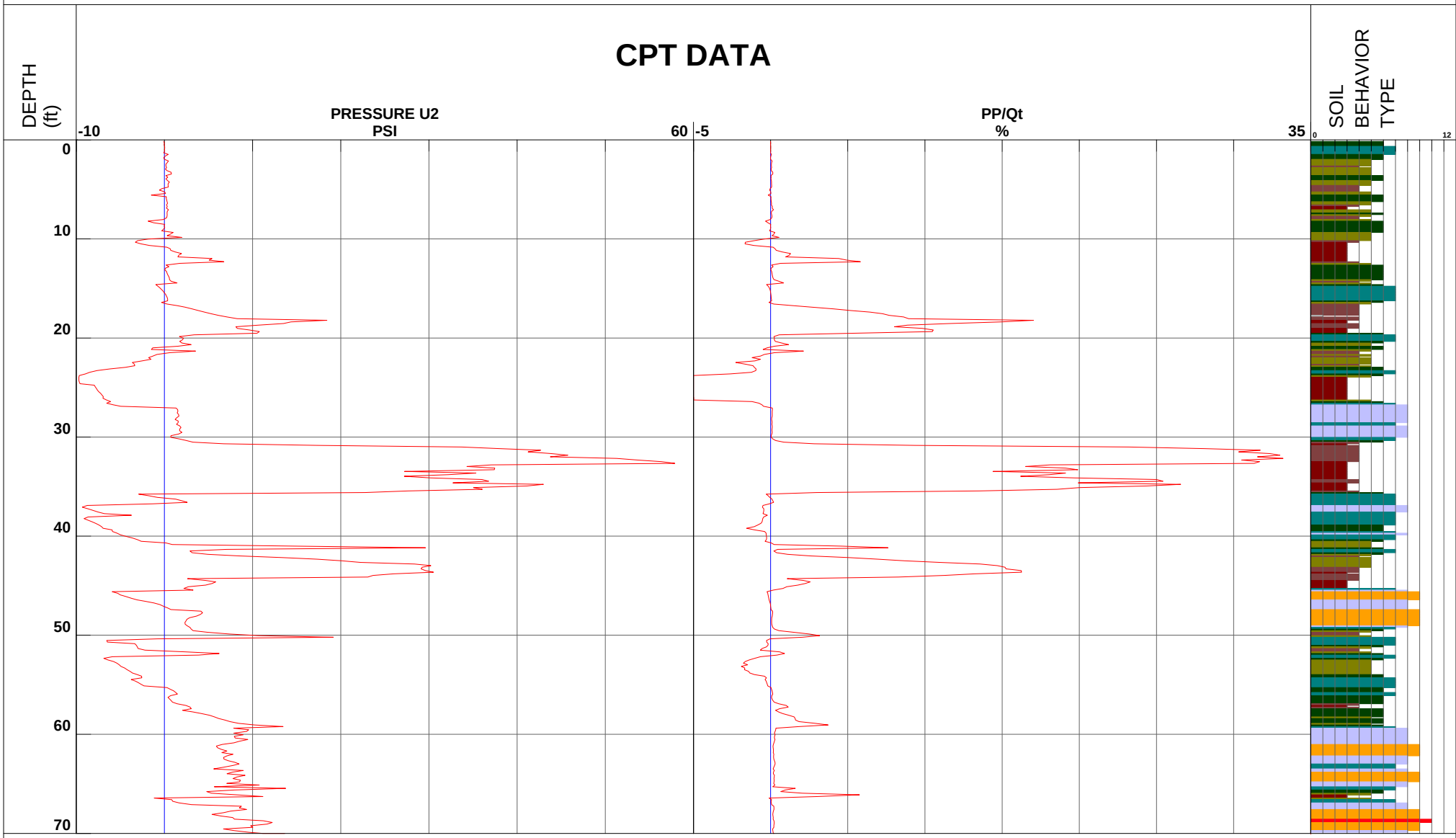
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(430).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-29	Date and Time	11/21/2008 7:23:20 AM	Maximum Depth	70.21 ft
Water Table Depth		0.00 ft			

CPT DATA



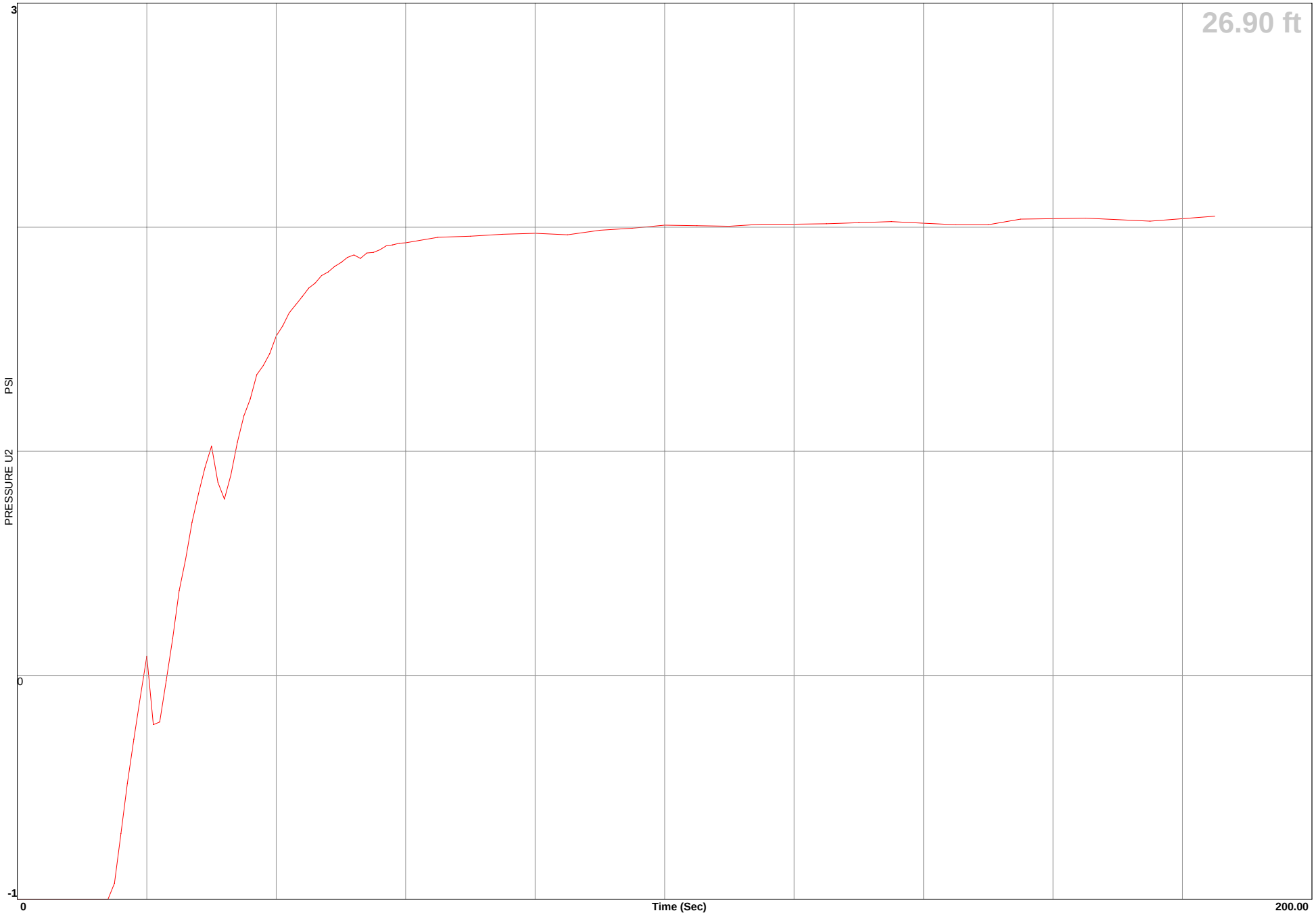
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

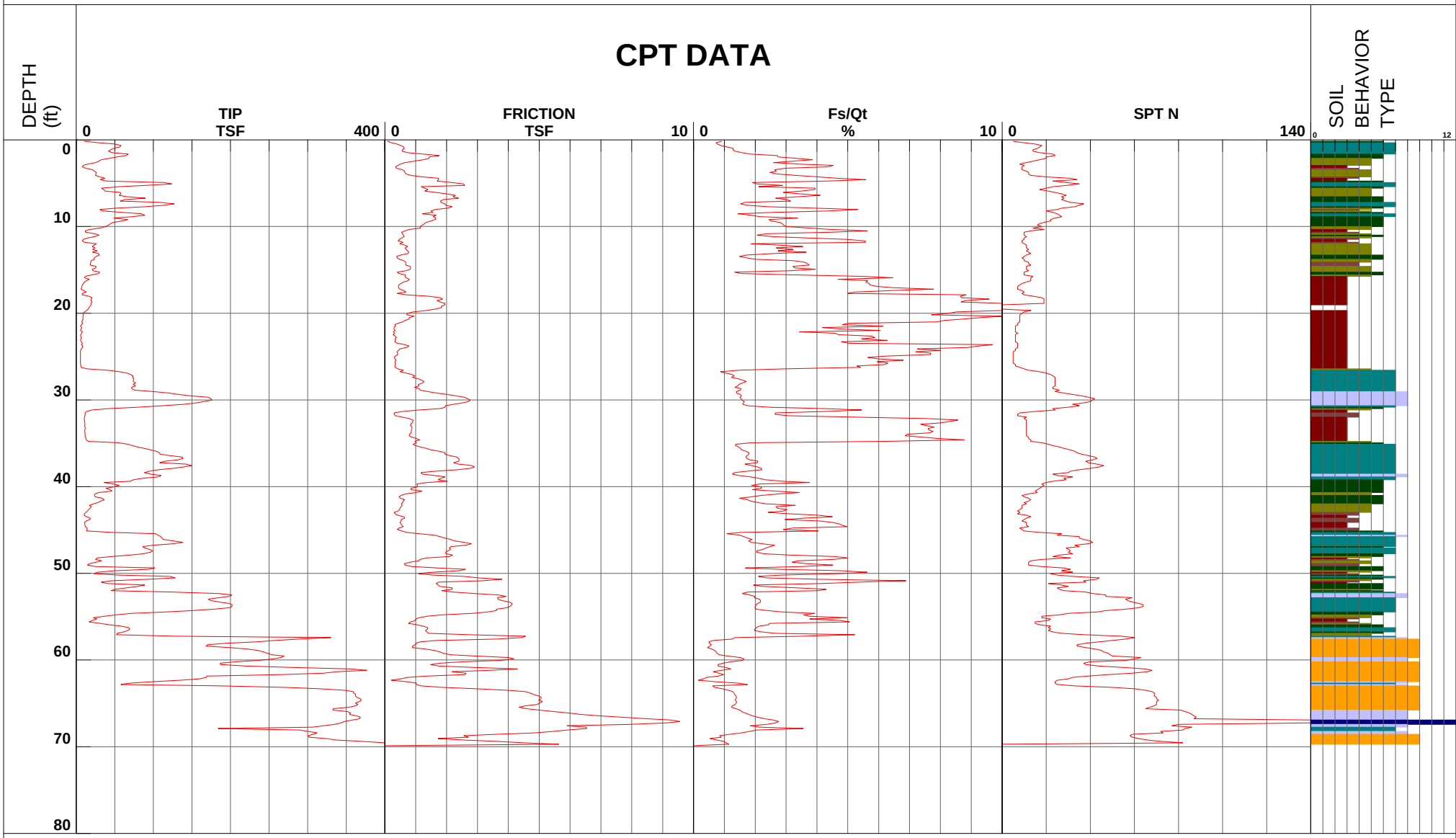
Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/VO**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-29**	**Date and Time**	**11/21/2008 7:23:20 AM**	
Equilized Pressure	**2.05**	**Ground Water Depth**	**25.16**	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(459).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-30	Date and Time	12/3/2008 12:27:03 PM	Maximum Depth	70.05 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

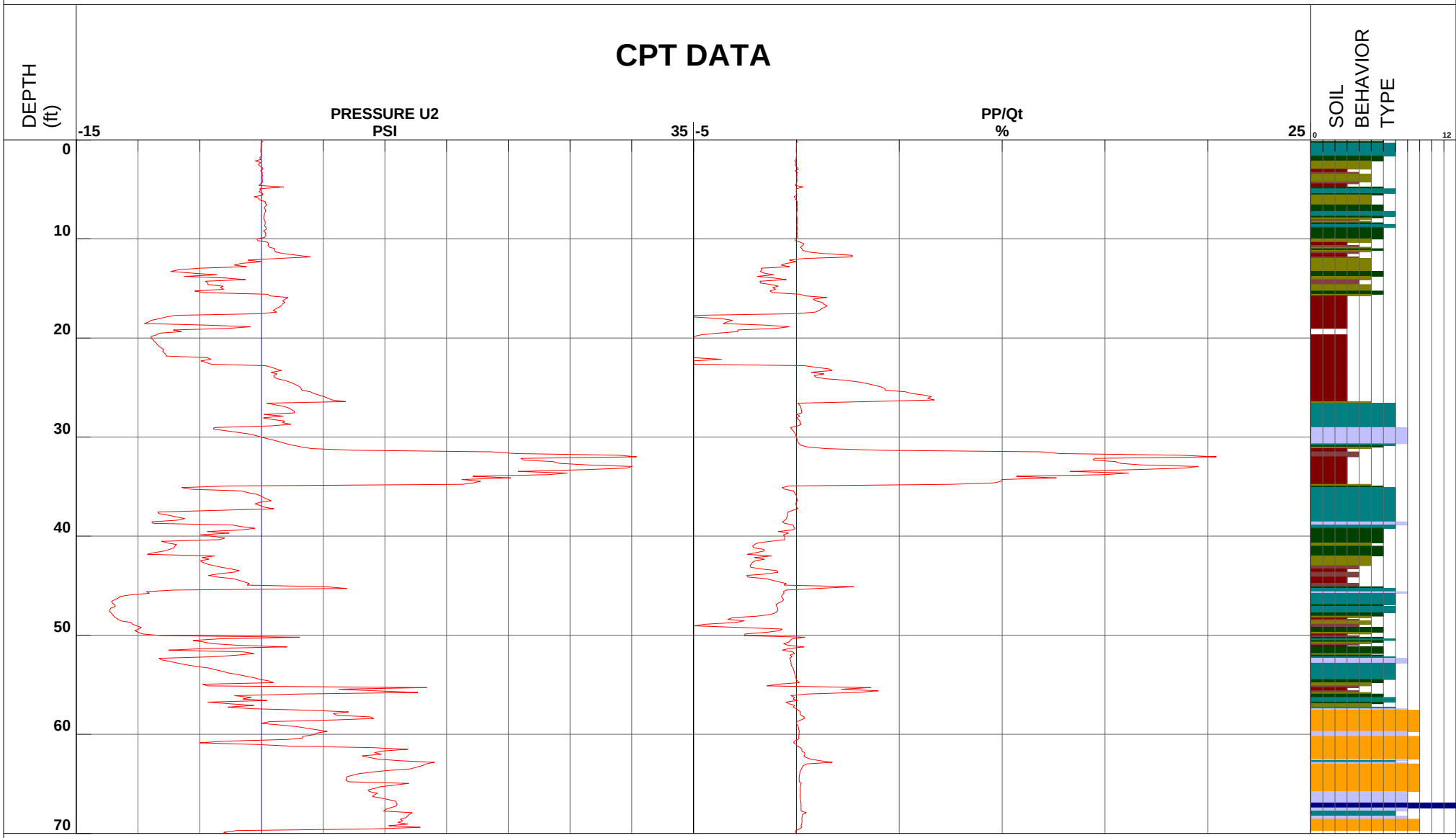
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(459).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-30	Date and Time	12/3/2008 12:27:03 PM	Maximum Depth	70.05 ft
Water Table Depth		0.00 ft			

CPT DATA



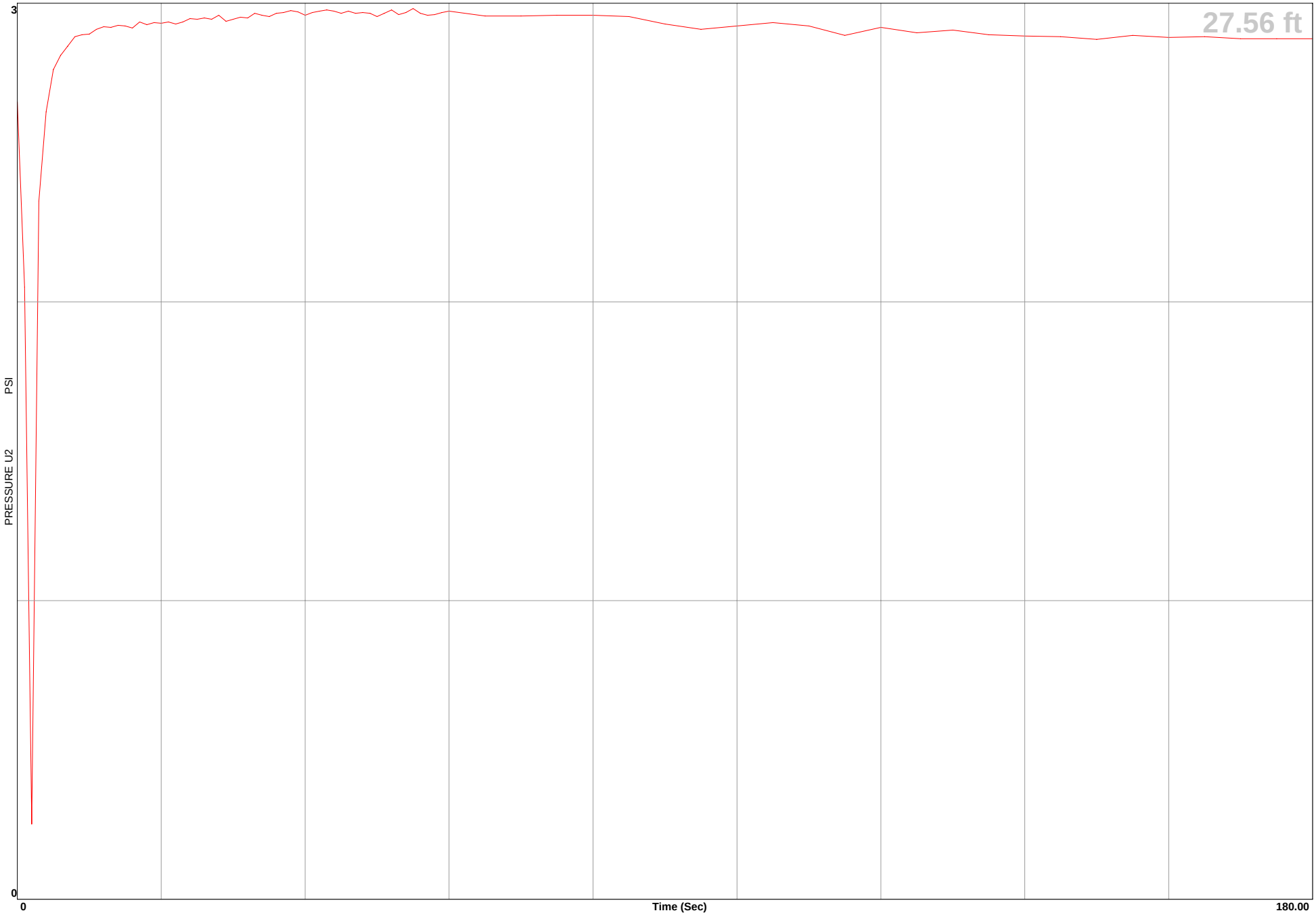
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

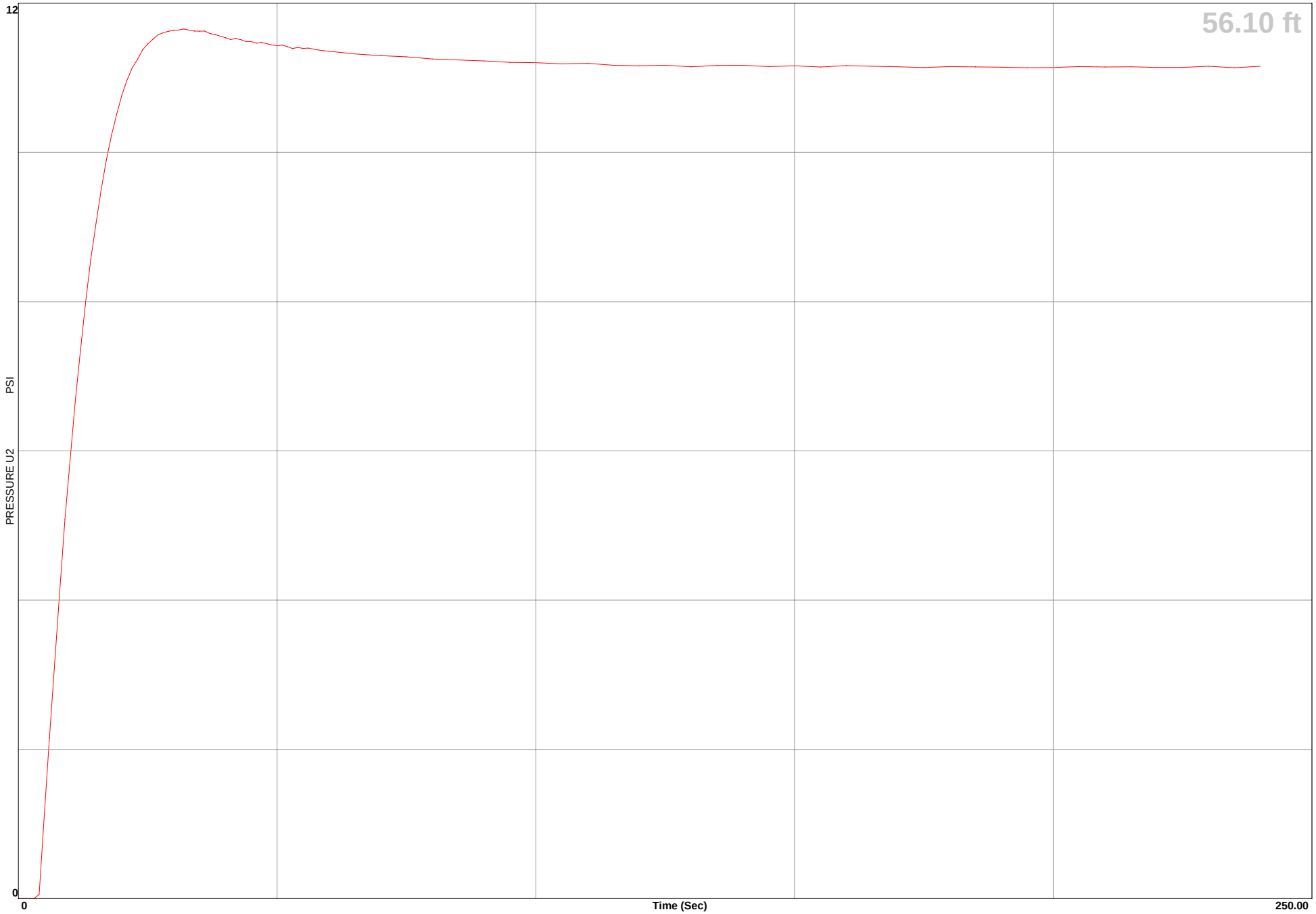
Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	
Job Number	08-156	Cone Number	DSG0906	GPS
Hole Number	CPT-08-30	Date and Time	12/3/2008 12:27:03 PM	
Equilized Pressure	2.88	Ground Water Depth	20.90	



Earth Mechanics

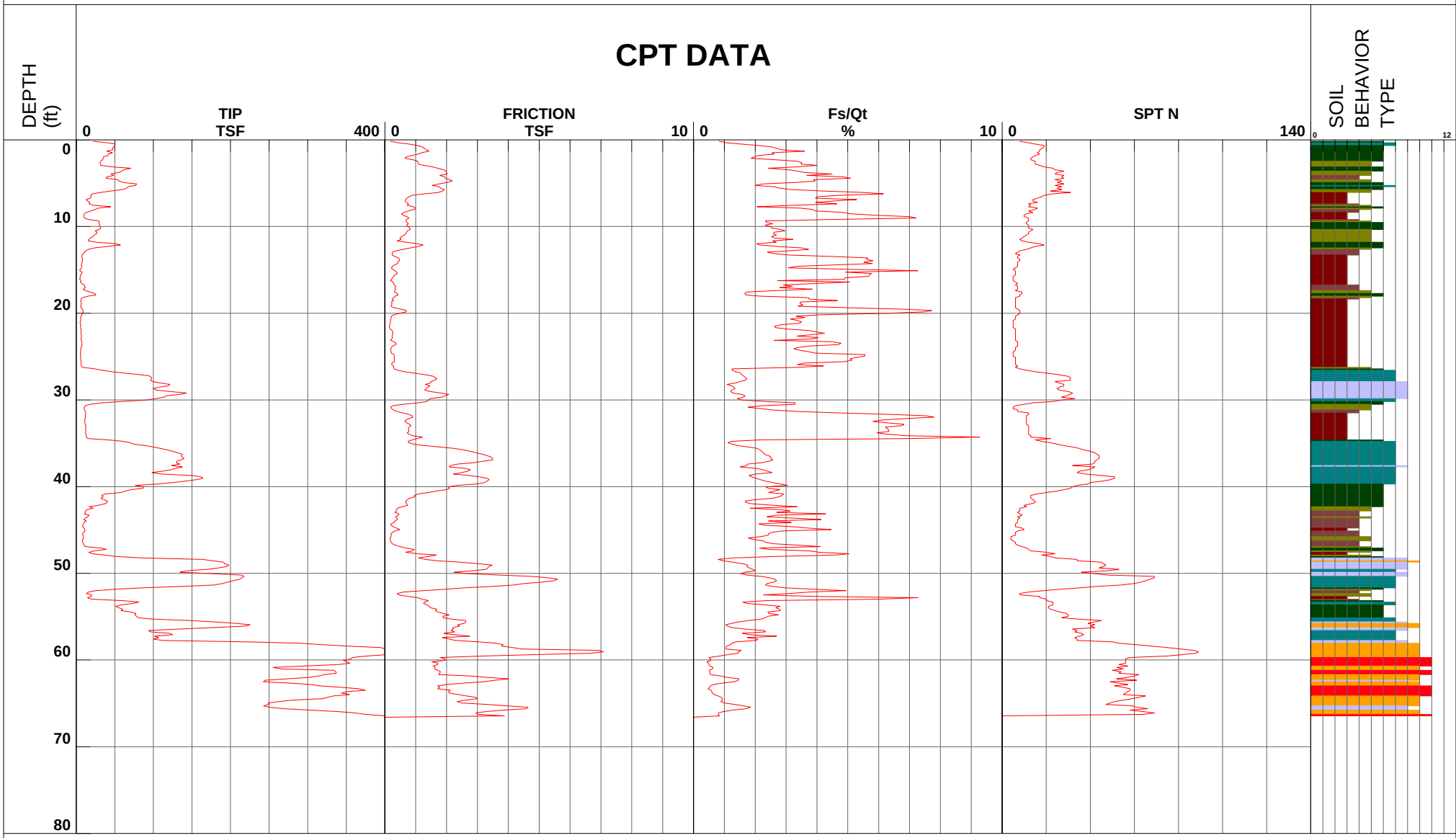
Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-30**	**Date and Time**	**12/3/2008 12:27:03 PM**	
Equilized Pressure	**11.13**	**Ground Water Depth**	**30.38**	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(429).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-31	Date and Time	11/20/2008 2:09:53 PM	Maximum Depth	66.76 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

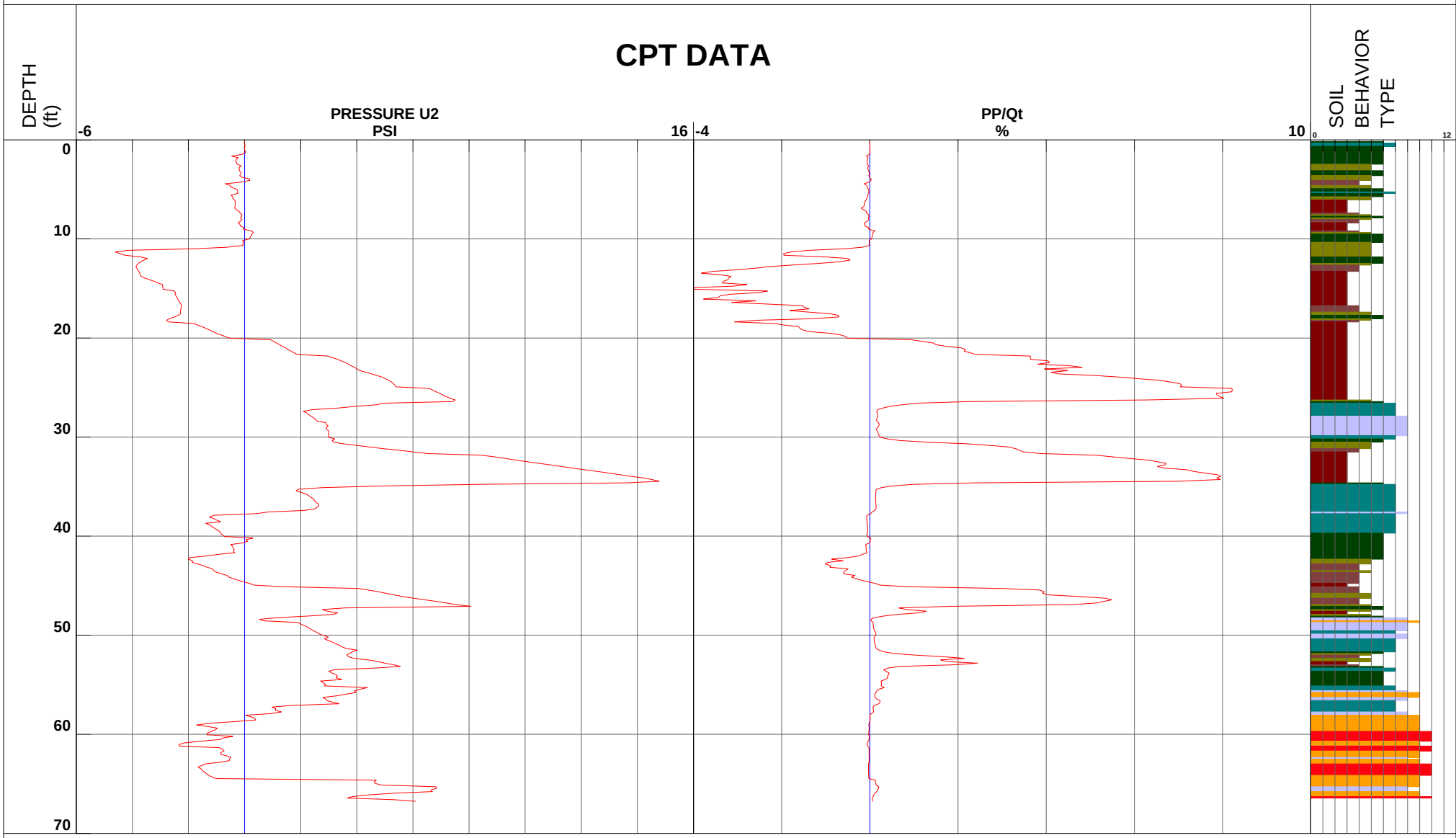
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(429).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-31	Date and Time	11/20/2008 2:09:53 PM	Maximum Depth	66.76 ft
Water Table Depth		0.00 ft			

CPT DATA



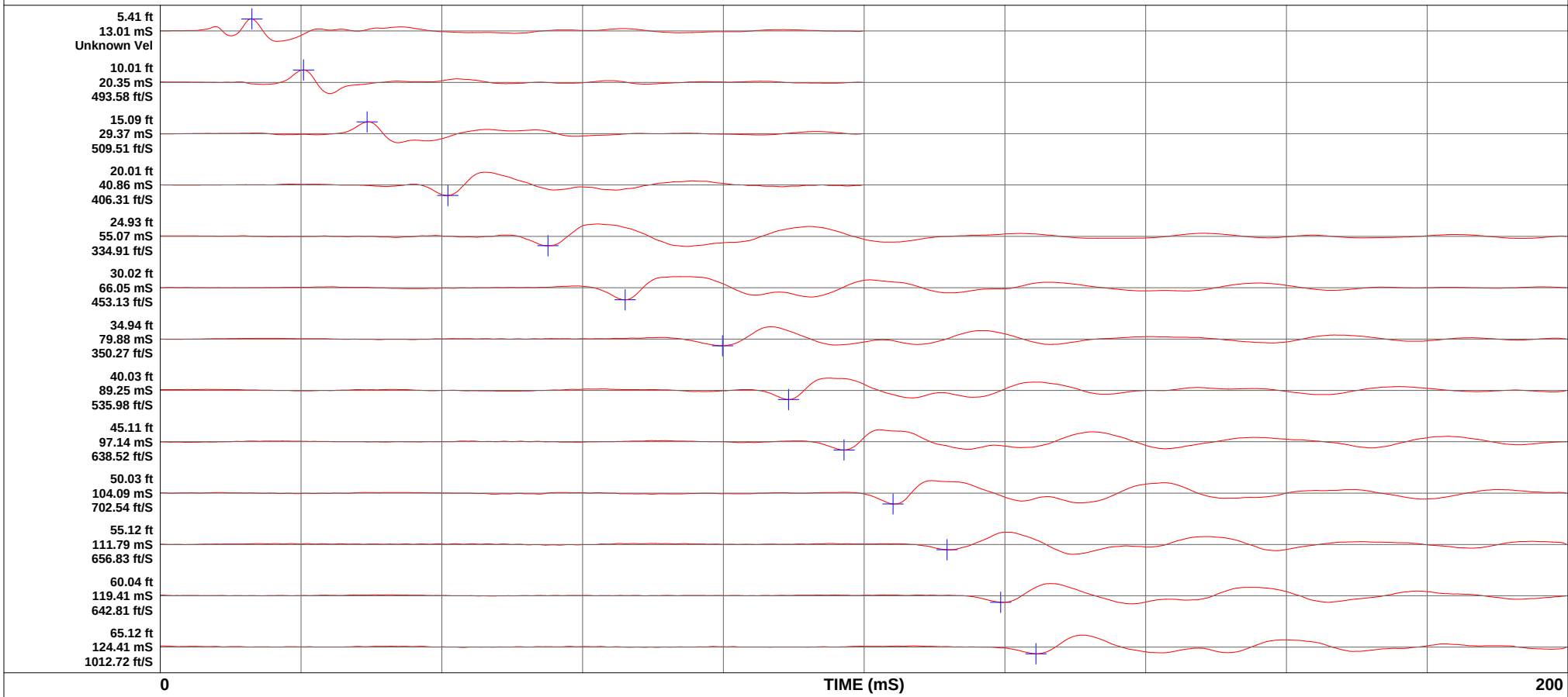
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

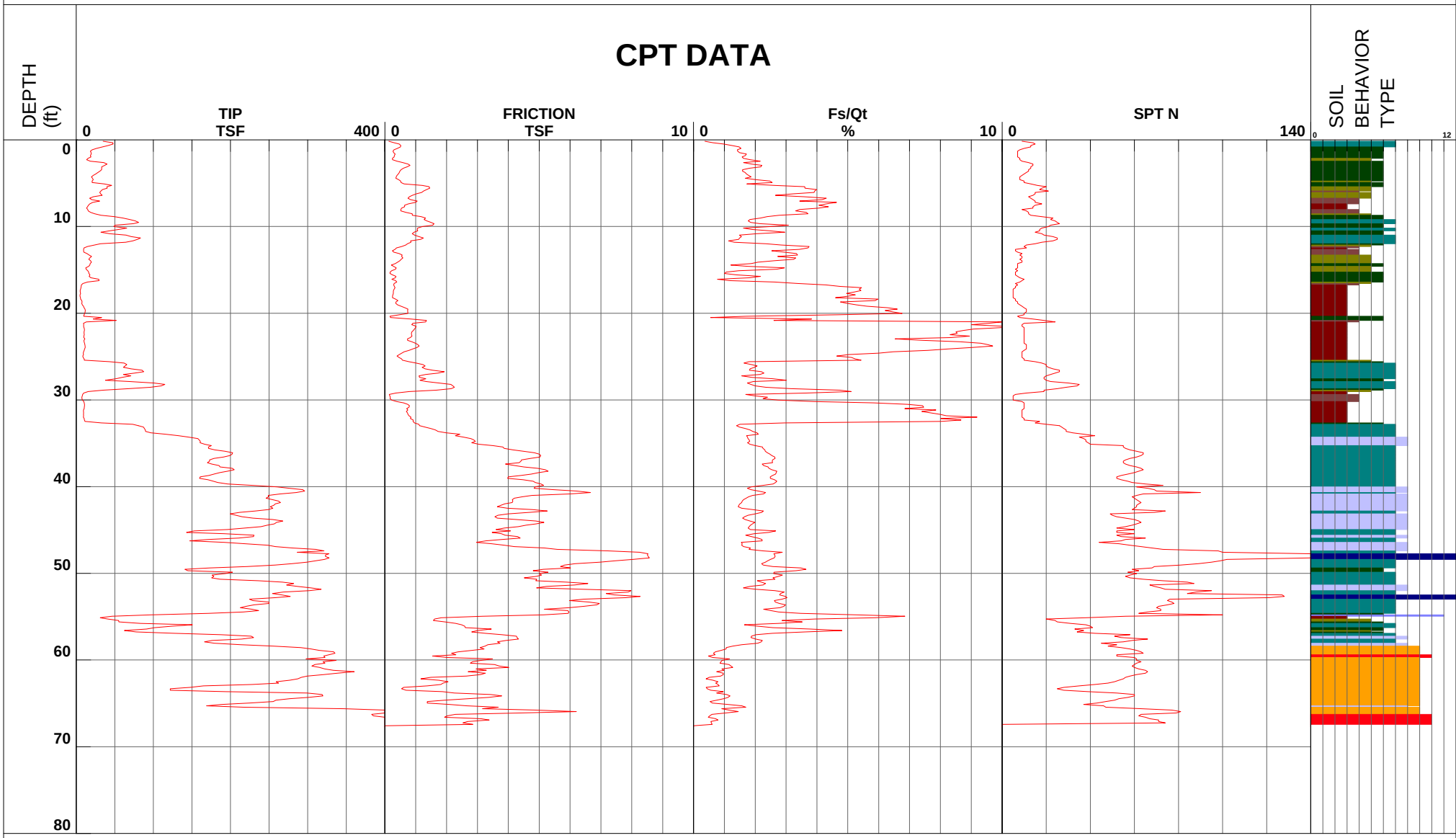
Location	EGG-WC Warner/Edwards	Operator	ML/VO	GPS
Job Number	08-156	Cone Number	DSG0906	
Hole Number	CPT-08-31	Date and Time	11/20/2008 2:09:53 PM	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(460).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-32	Date and Time	12/3/2008 1:30:16 PM	Maximum Depth	67.75 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

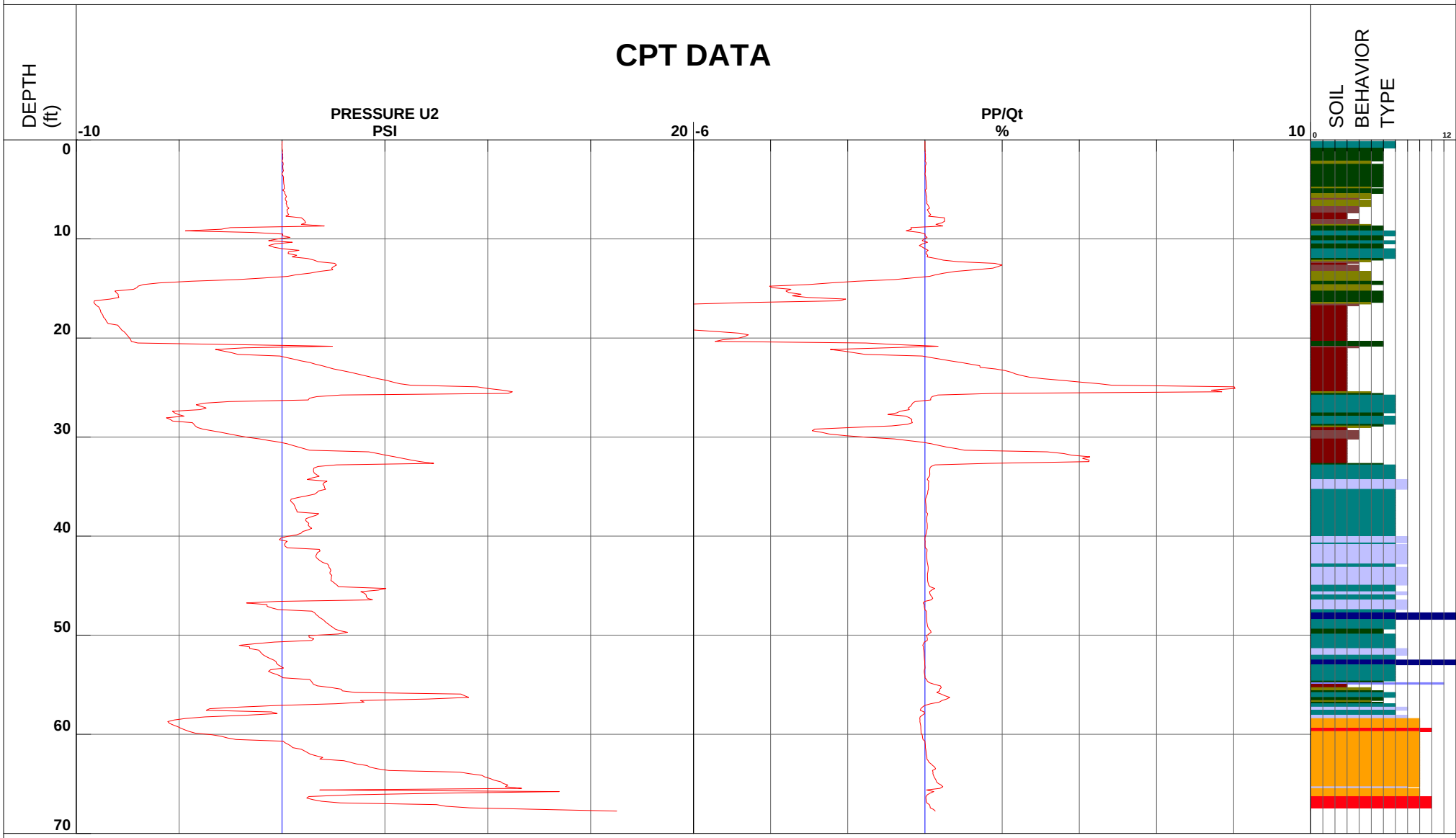
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(460).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-32	Date and Time	12/3/2008 1:30:16 PM	Maximum Depth	67.75 ft
Water Table Depth		0.00 ft			

CPT DATA



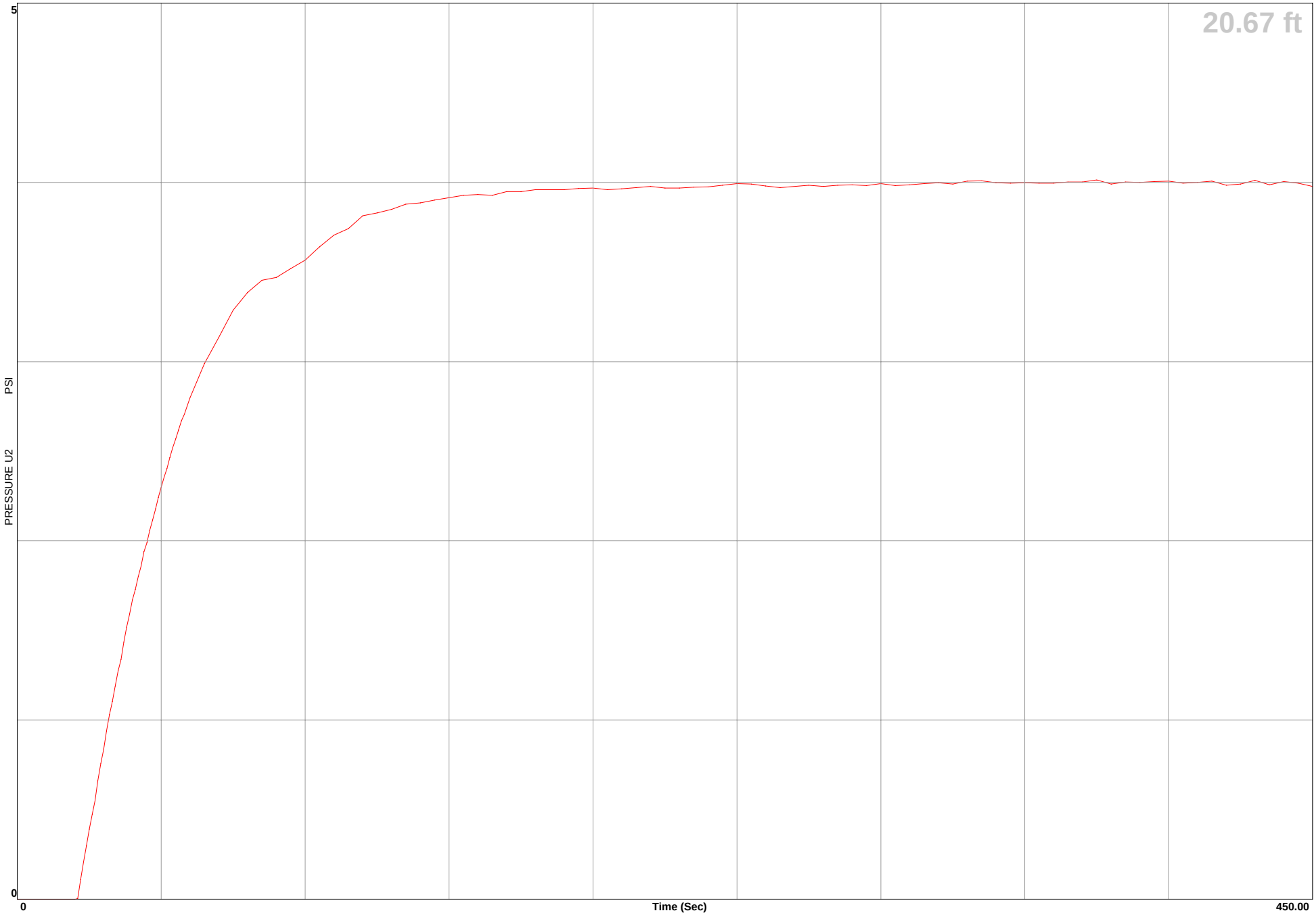
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

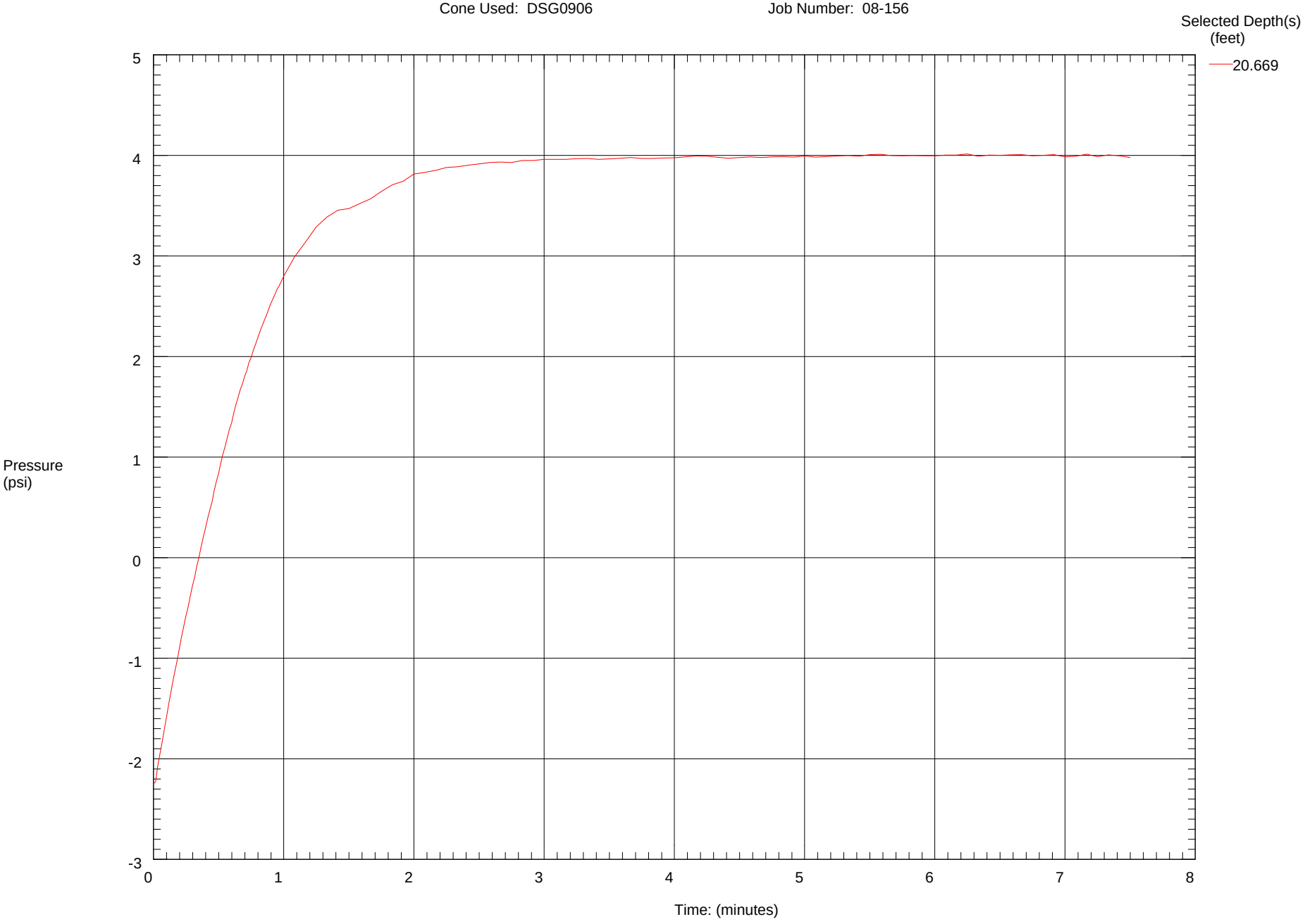
Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-32**	**Date and Time**	**12/3/2008 1:30:16 PM**	
Equilized Pressure	**3.98**	**Ground Water Depth**	**11.47**	



Earth Mechanics

Operator ML/BH
Sounding: CPT-08-32
Cone Used: DSG0906

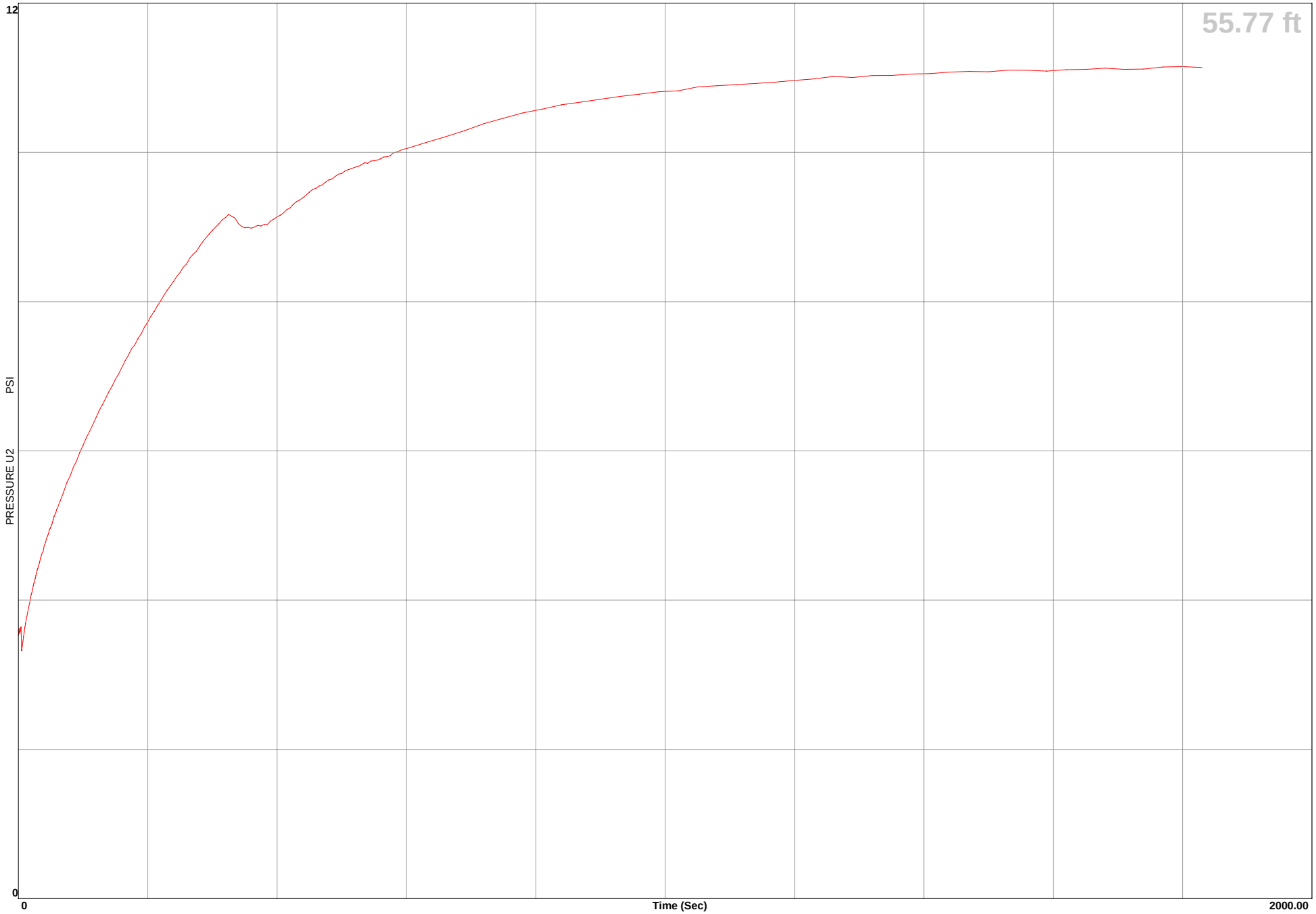
CPT Date/Time: 12/3/2008 1:30:16 PM
Location: EGG-WC Warner/Edwards
Job Number: 08-156



Maximum Pressure = 4.014 psi
Hydrostatic Pressure = 11.39 ft

Earth Mechanics

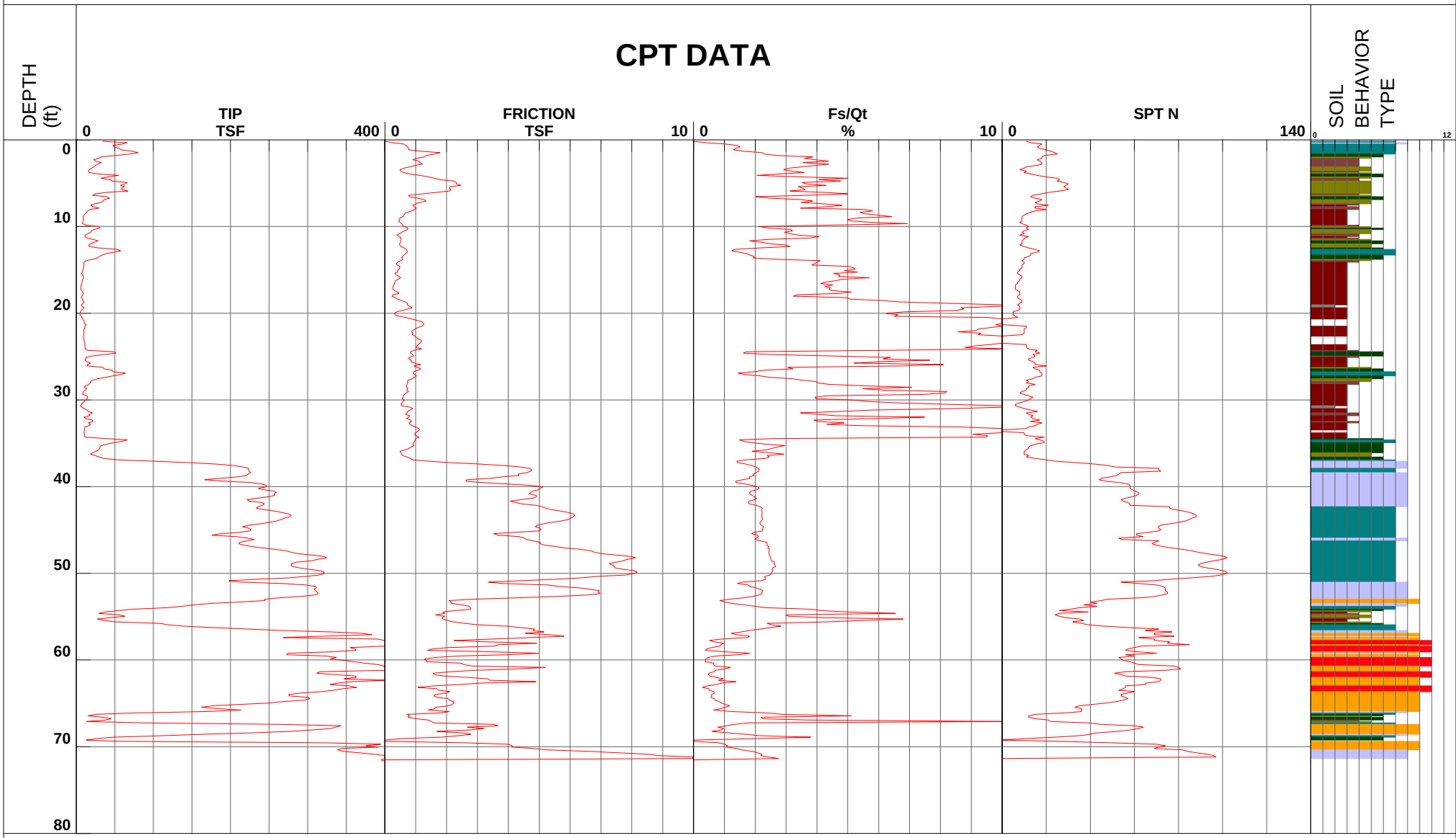
Location	EGG-WC Warner/Edwards	Operator	ML/BH	GPS
Job Number	08-156	Cone Number	DSG0906	
Hole Number	CPT-08-32	Date and Time	12/3/2008 1:30:16 PM	
Equilized Pressure	11.11	Ground Water Depth	30.10	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(428).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-33	Date and Time	11/20/2008 1:04:27 PM	Maximum Depth	71.69 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

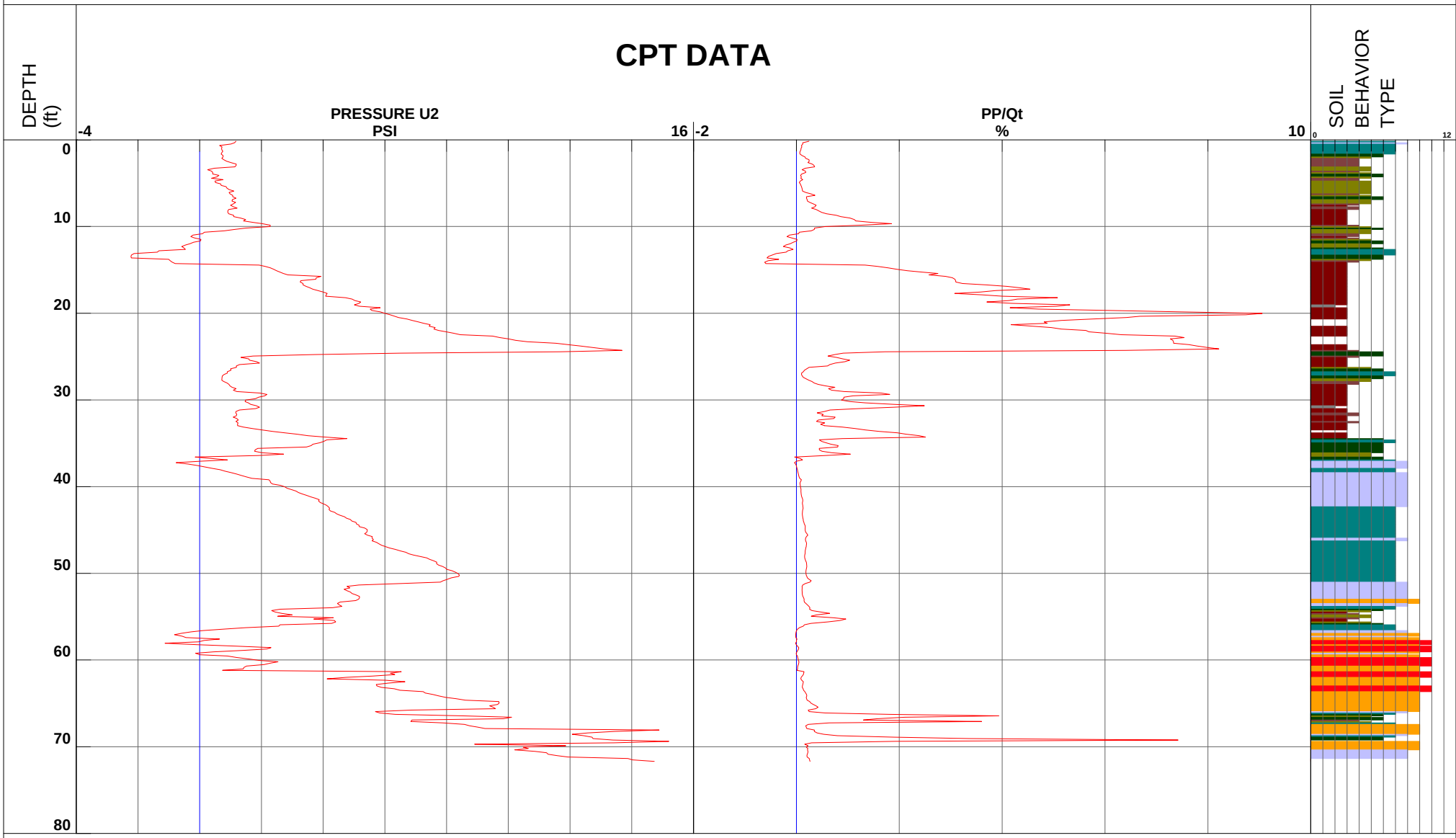
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(428).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-33	Date and Time	11/20/2008 1:04:27 PM	Maximum Depth	71.69 ft
Water Table Depth		0.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

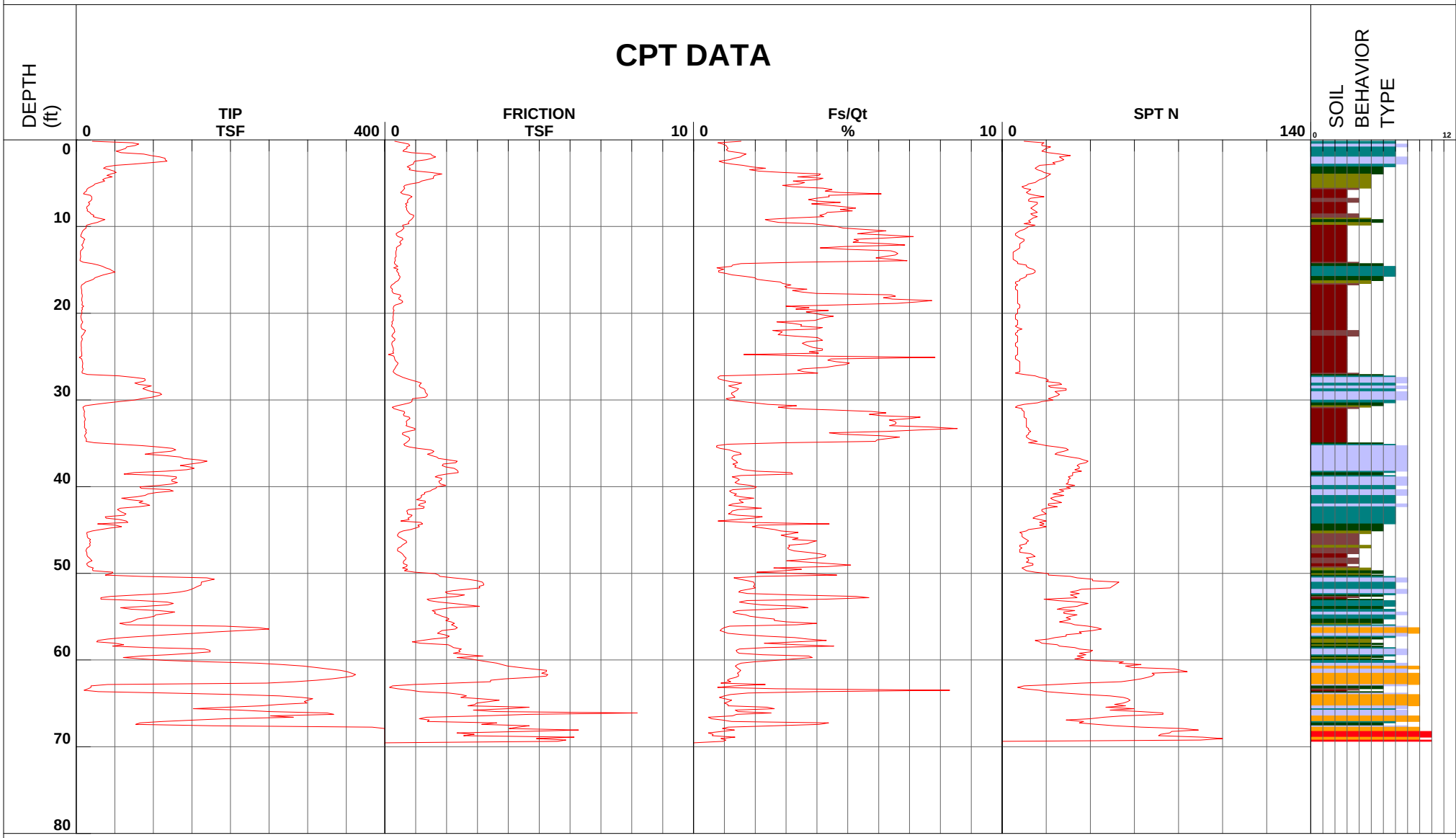
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(461).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-34	Date and Time	12/4/2008 7:09:44 AM	Maximum Depth	69.72 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

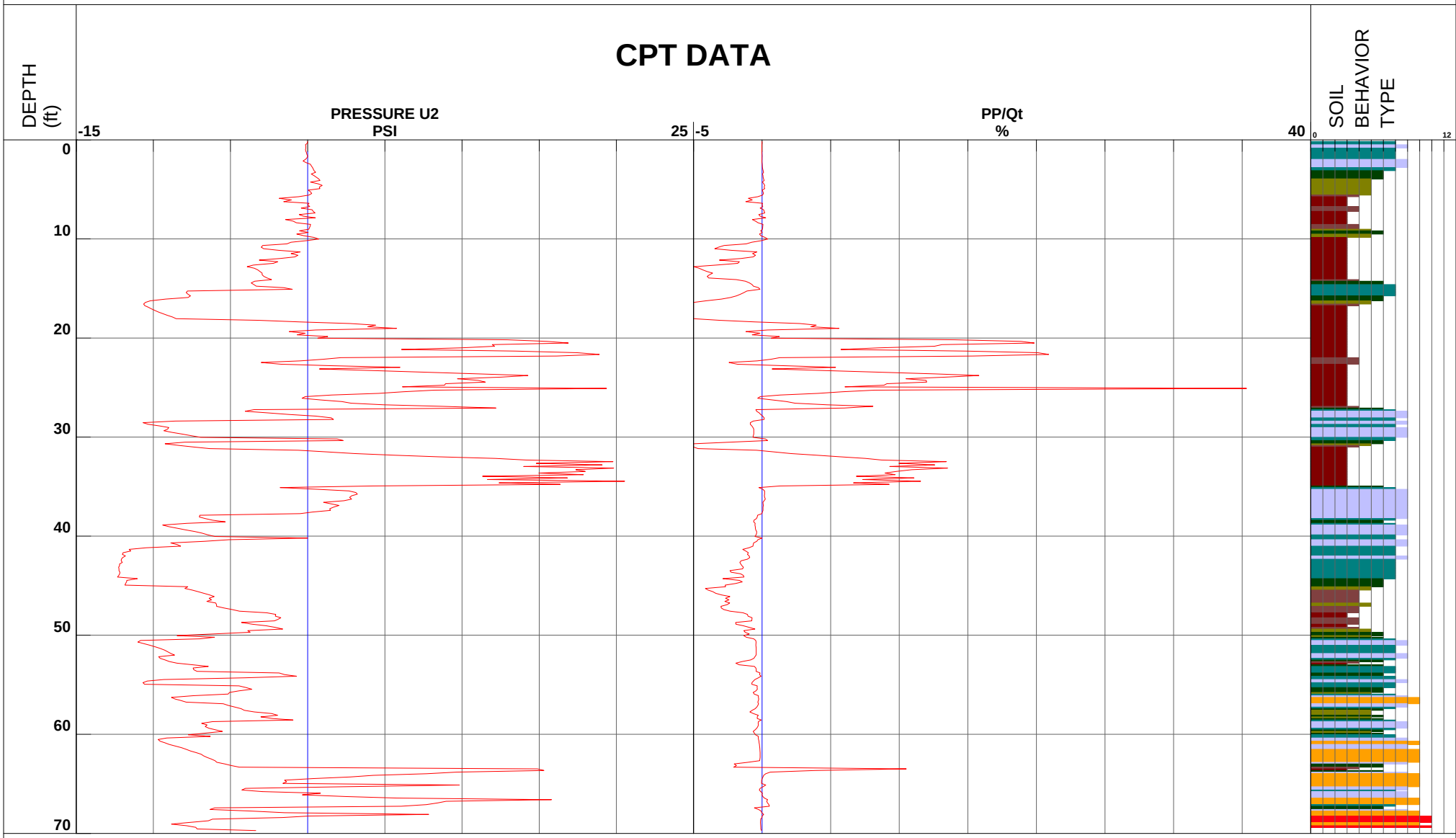
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(461).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-34	Date and Time	12/4/2008 7:09:44 AM	Maximum Depth	69.72 ft
Water Table Depth		0.00 ft			

CPT DATA



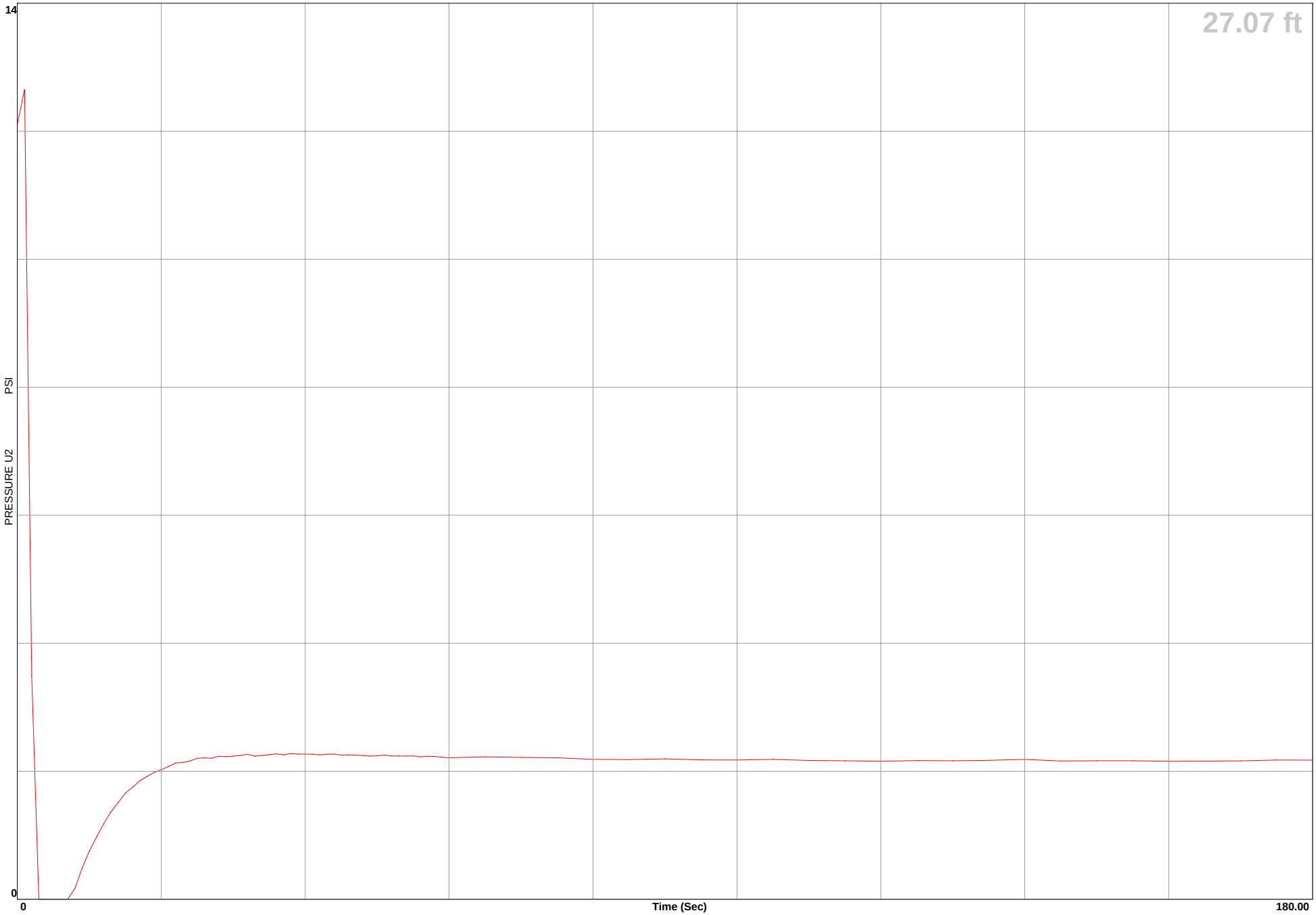
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

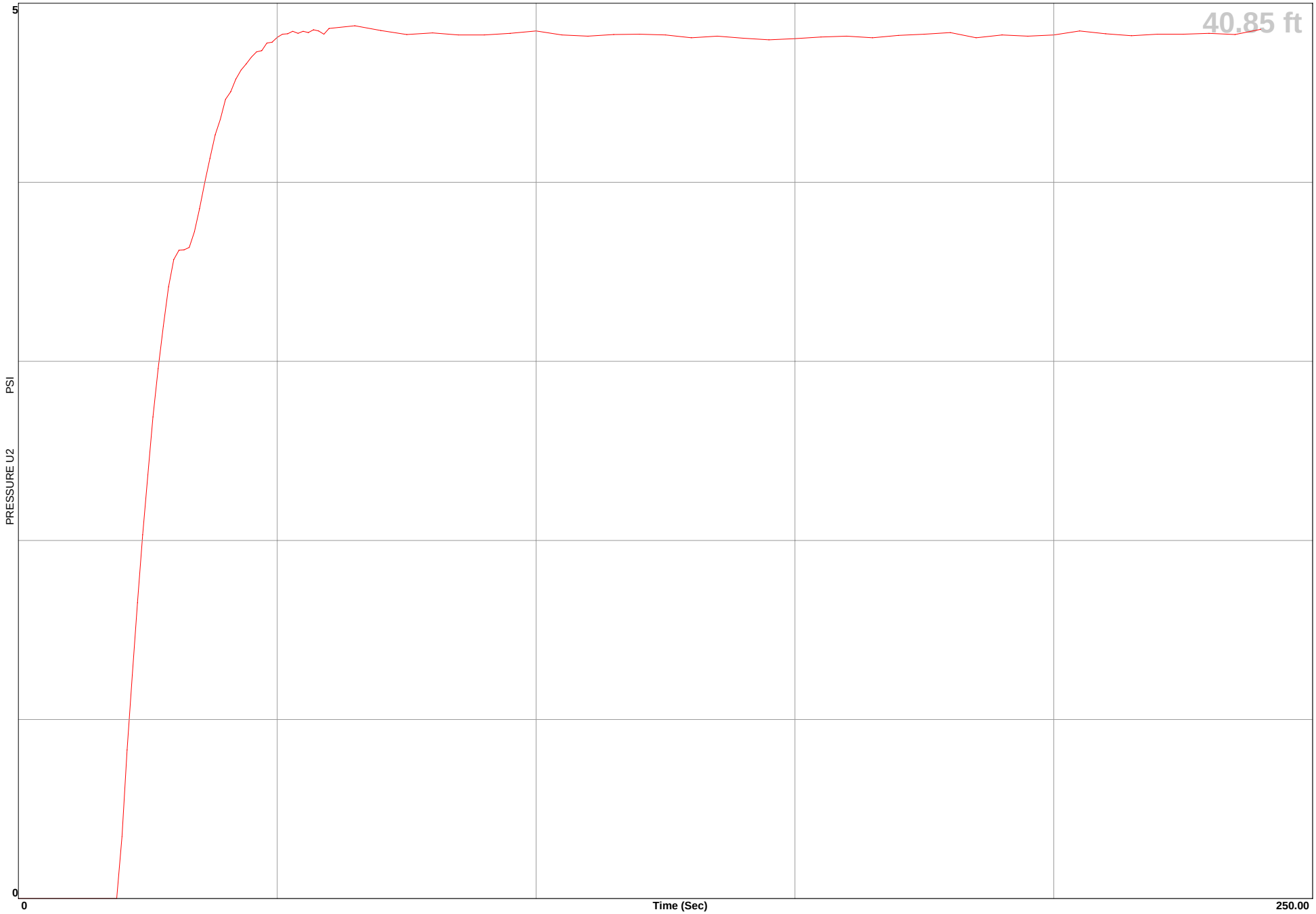
Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	GPS
Job Number	08-156	Cone Number	DSG0906	
Hole Number	CPT-08-34	Date and Time	12/4/2008 7:09:44 AM	
Equilized Pressure	2.16	Ground Water Depth	22.08	



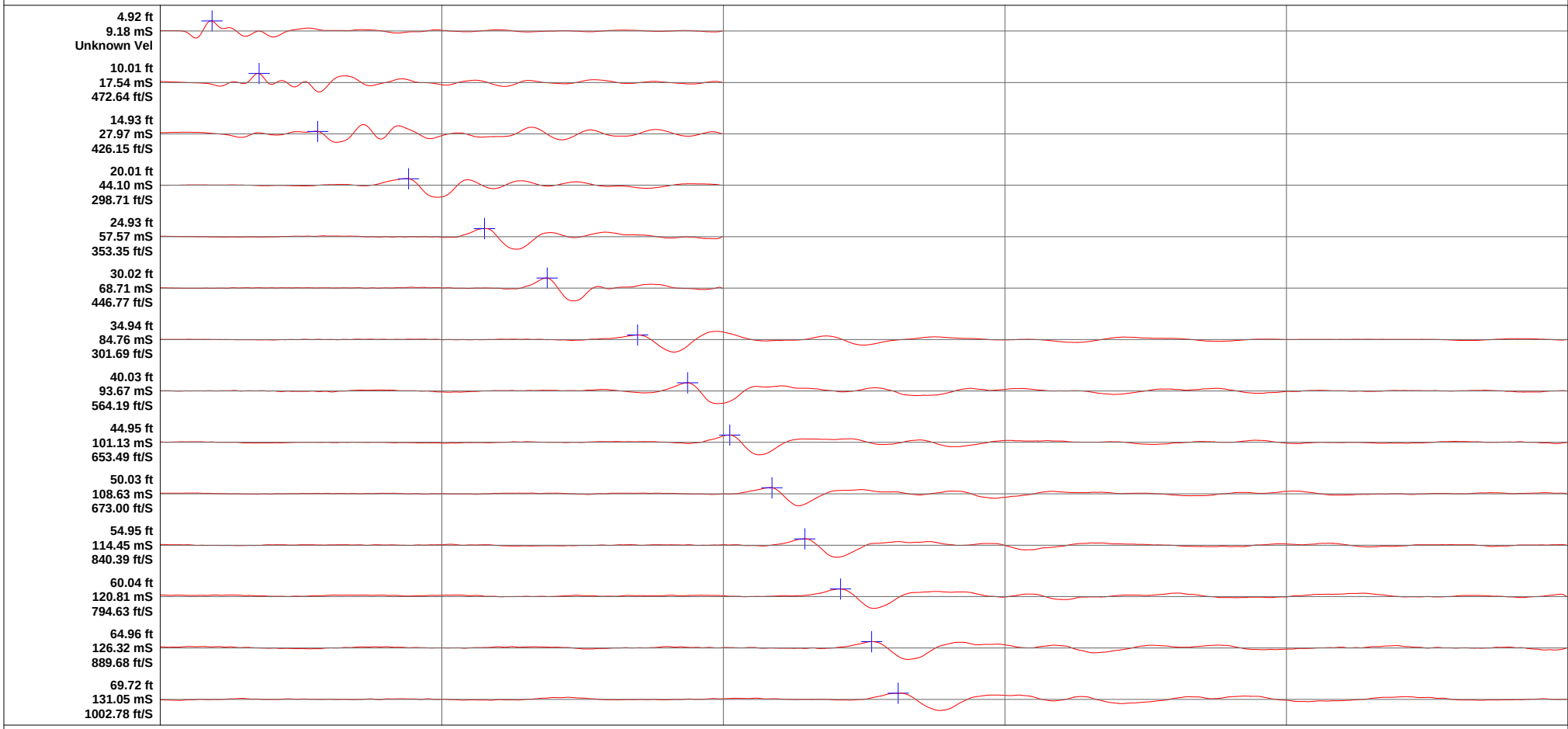
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-34**	**Date and Time**	**12/4/2008 7:09:44 AM**	
Equilized Pressure	**4.85**	**Ground Water Depth**	**29.64**	



Earth Mechanics

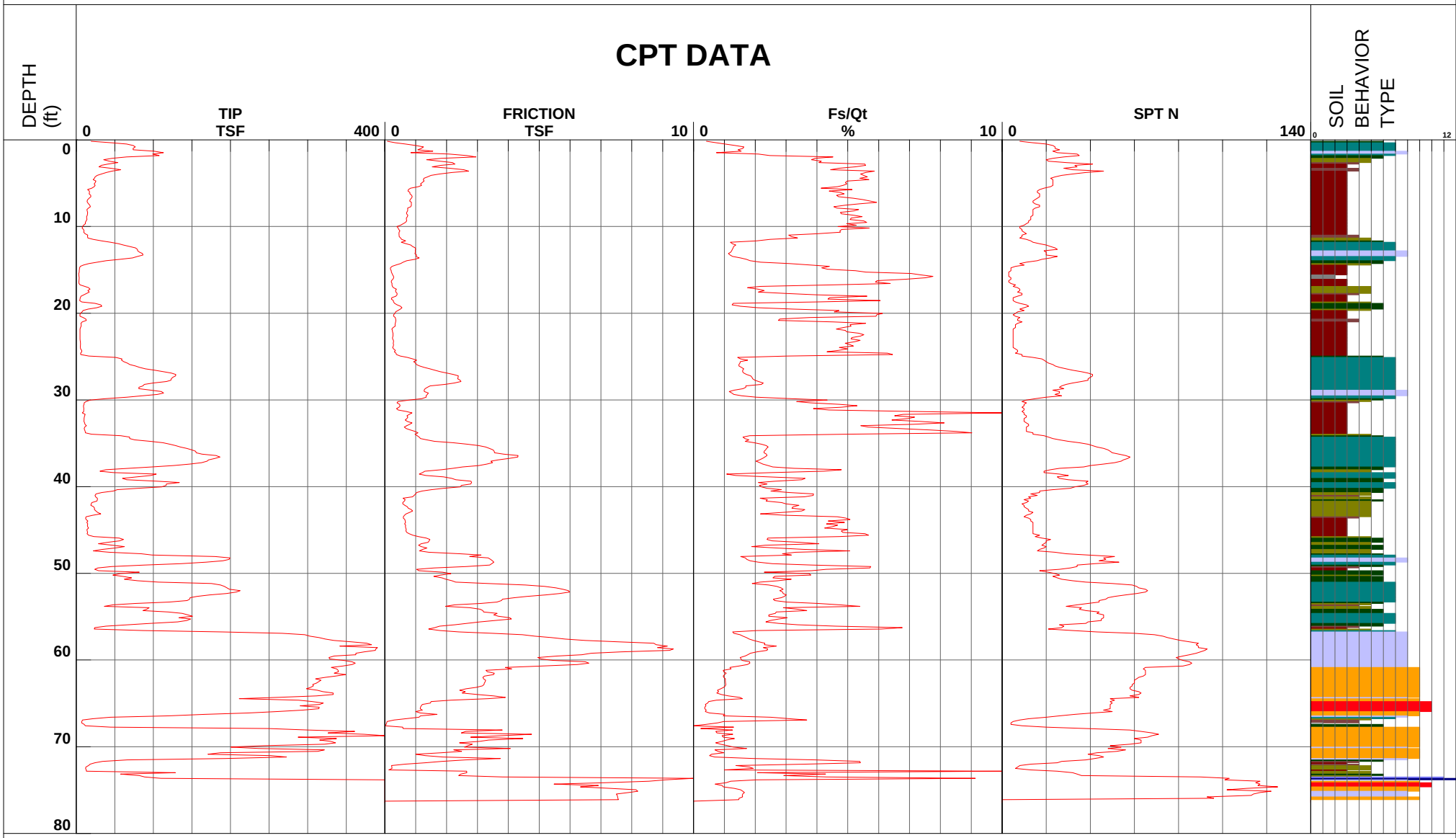
Location	EGG-WC Warner/Edwards	Operator	ML/BH	
Job Number	08-156	Cone Number	DSG0906	GPS
Hole Number	CPT-08-34	Date and Time	12/4/2008 7:09:44 AM	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(427).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-35	Date and Time	11/20/2008 12:05:03 PM	Maximum Depth	76.44 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

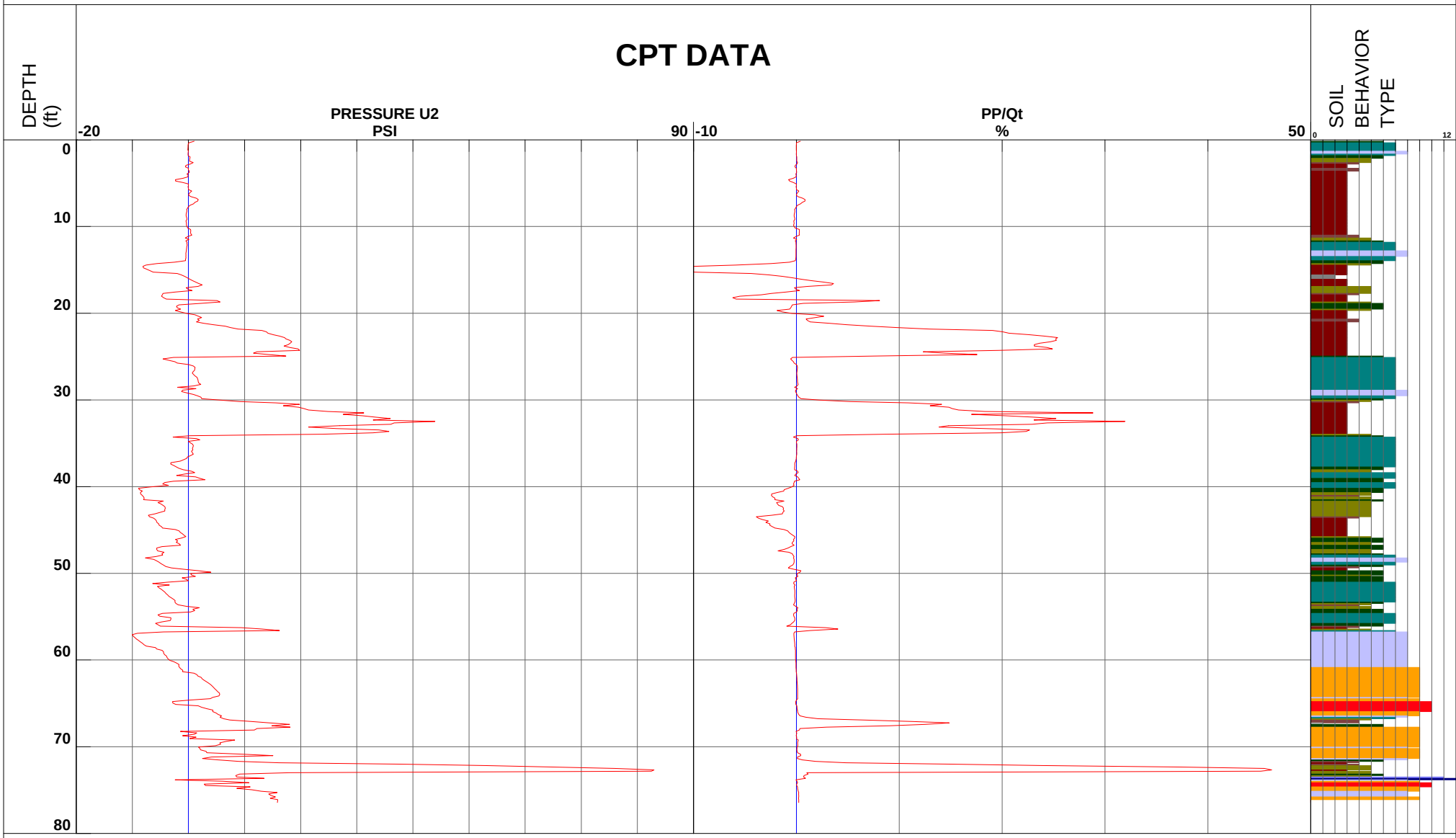
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(427).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-35	Date and Time	11/20/2008 12:05:03 PM	Maximum Depth	76.44 ft
Water Table Depth		0.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

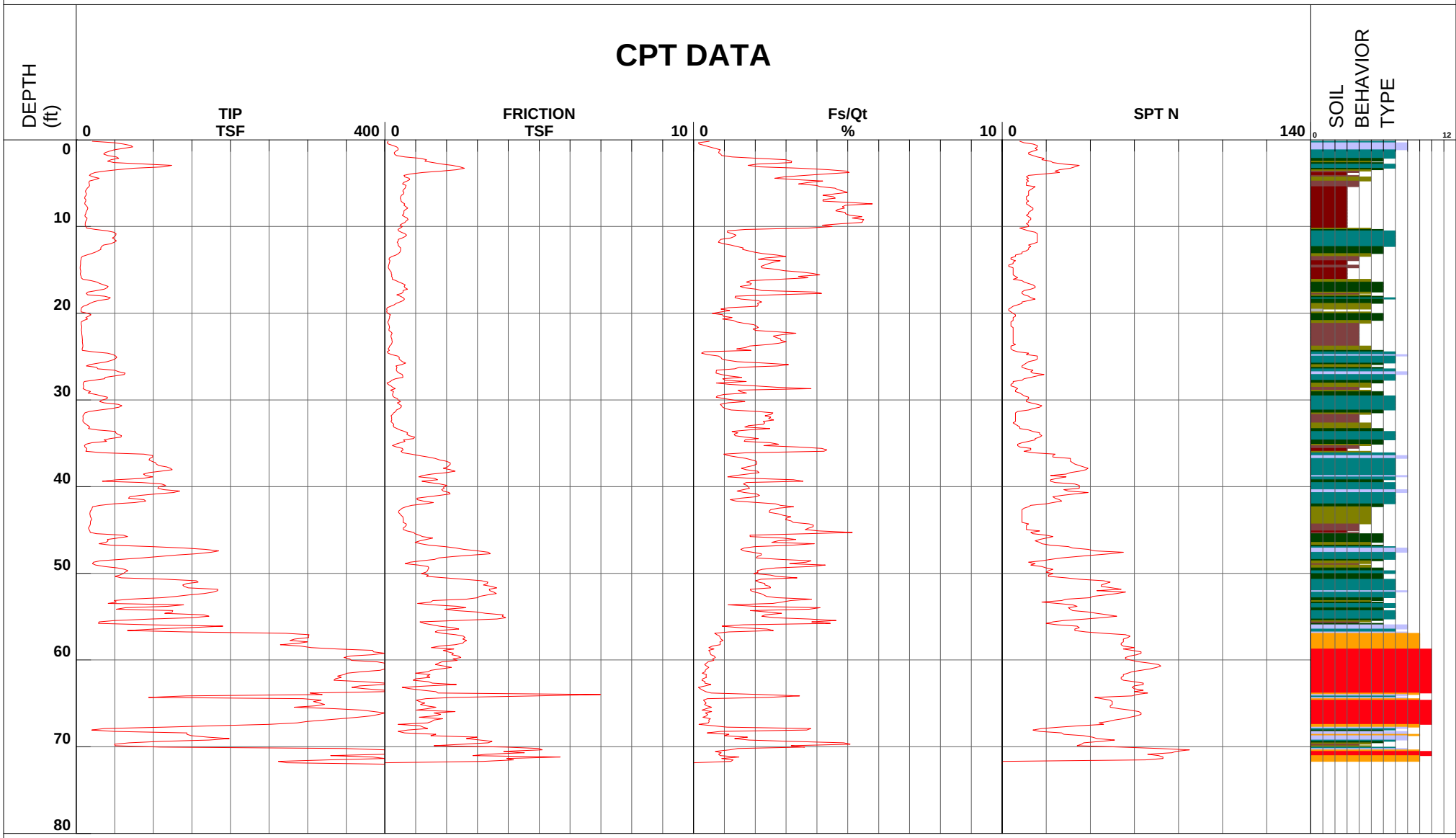
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(462).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-36	Date and Time	12/4/2008 8:30:10 AM	Maximum Depth	72.01 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

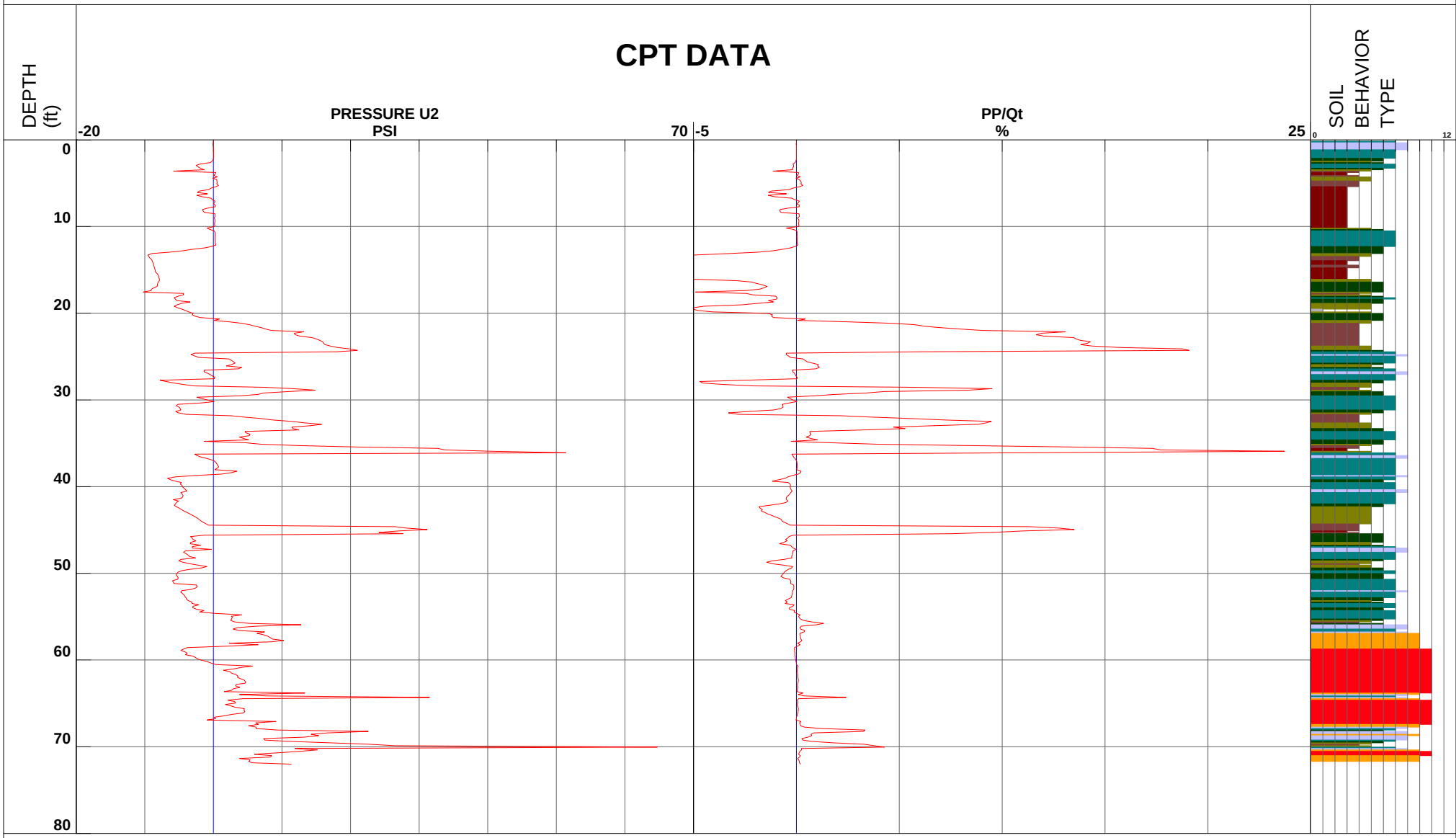
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(462).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-36	Date and Time	12/4/2008 8:30:10 AM	Maximum Depth	72.01 ft
Water Table Depth		0.00 ft			

CPT DATA



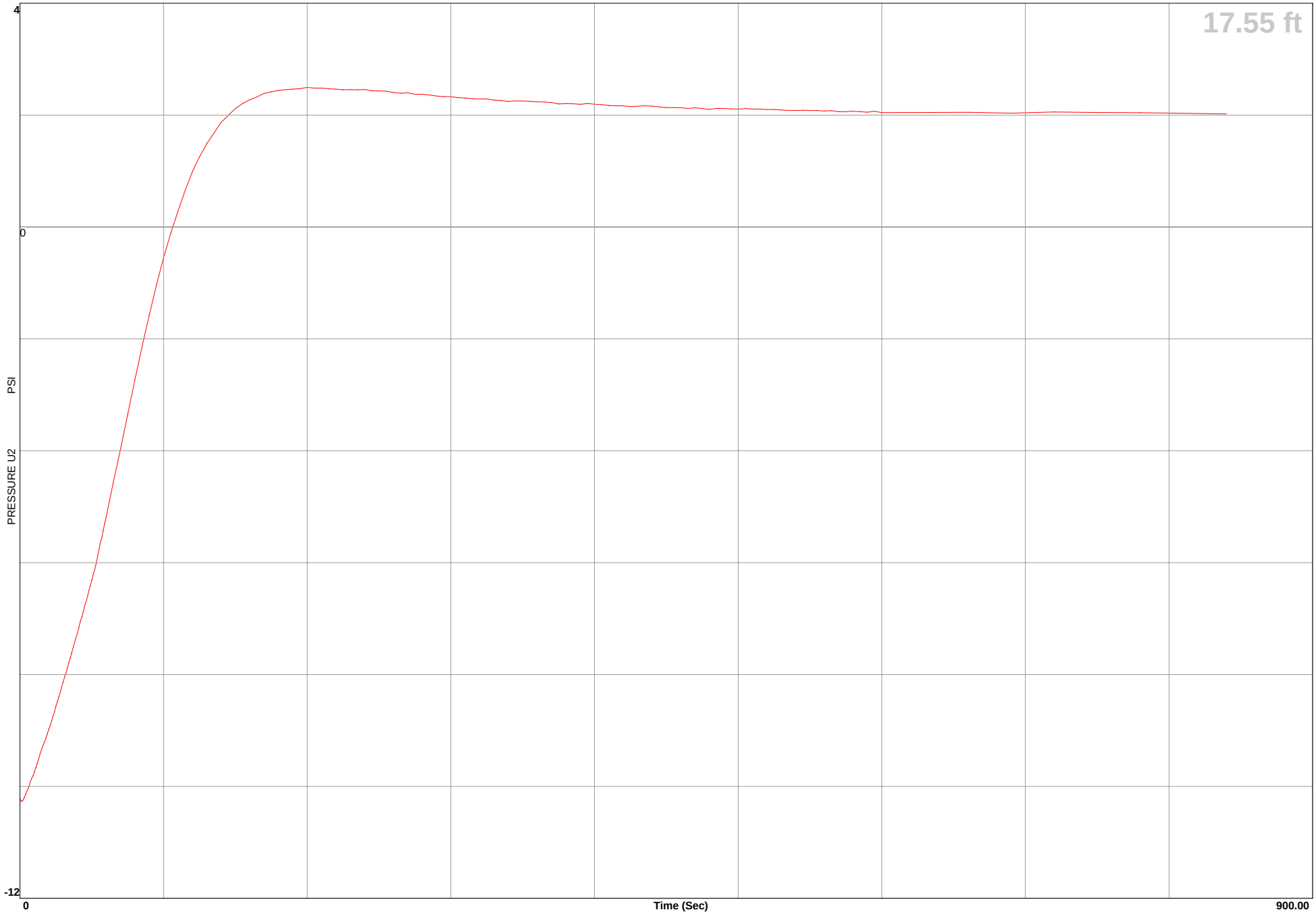
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

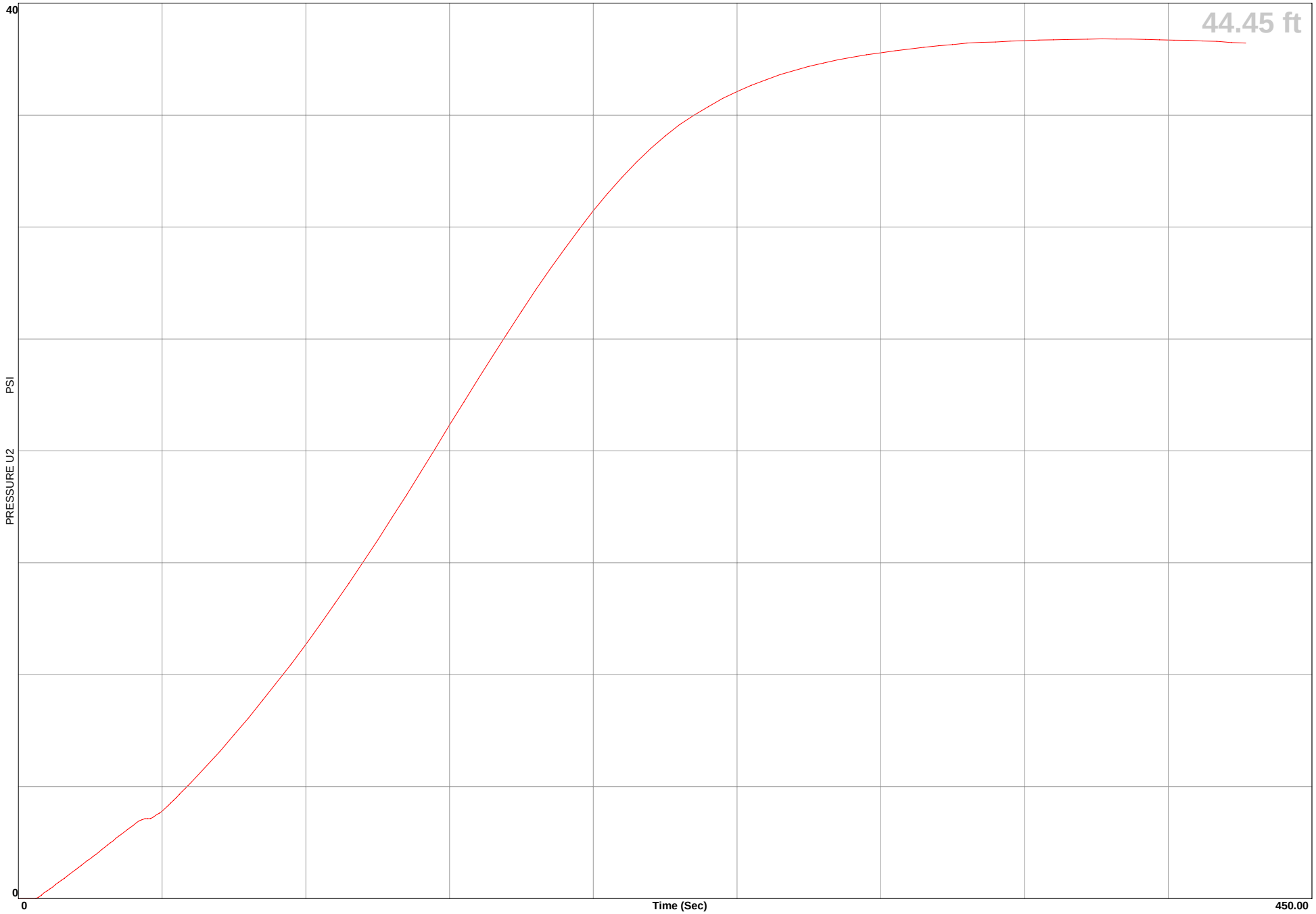
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-36**	**Date and Time**	**12/4/2008 8:30:10 AM**	
Equilized Pressure	**2.00**	**Ground Water Depth**	**12.93**	



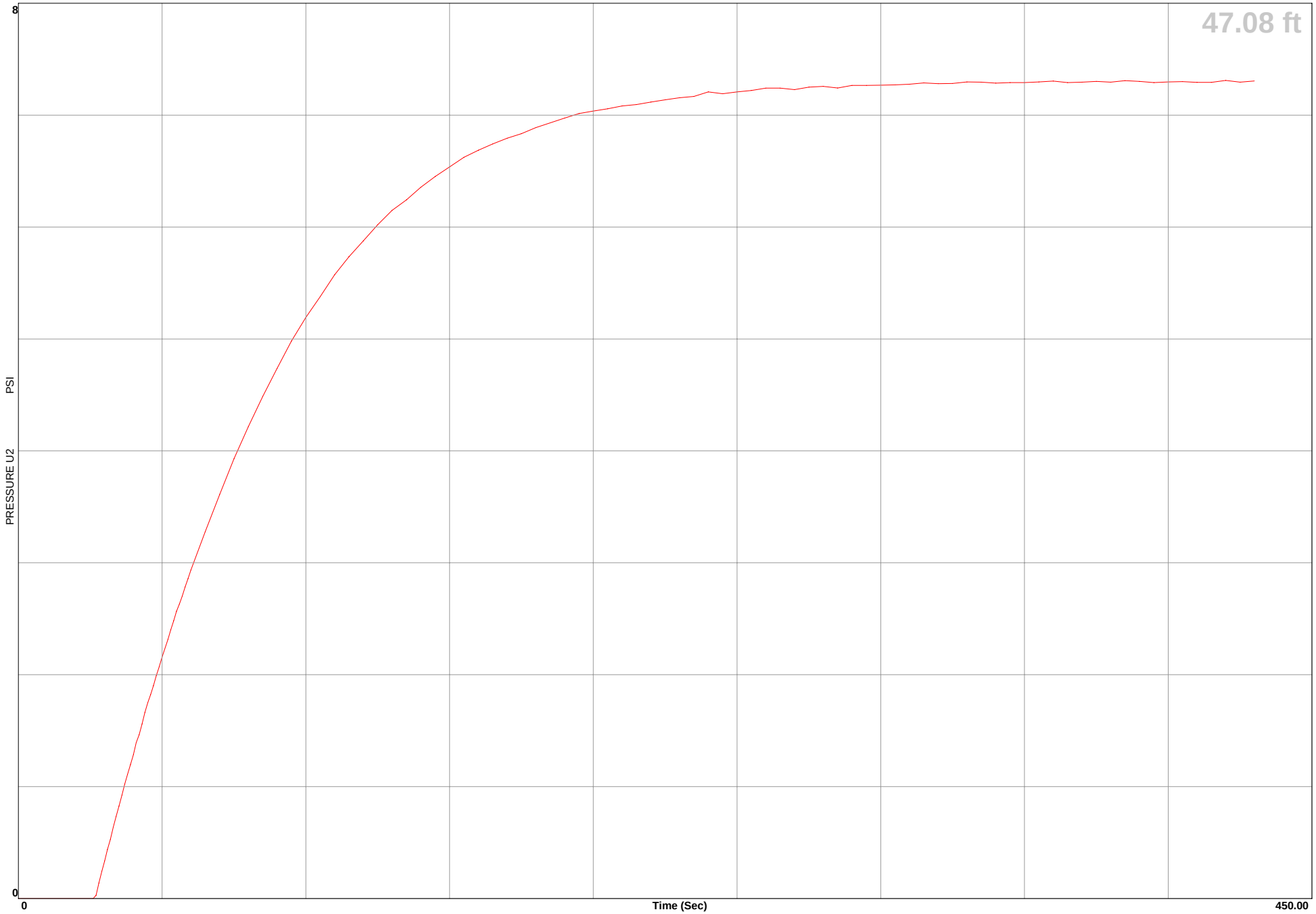
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-36**	**Date and Time**	**12/4/2008 8:30:10 AM**	
Equilized Pressure	**38.12**	**Ground Water Depth**	**43.60**	



Earth Mechanics

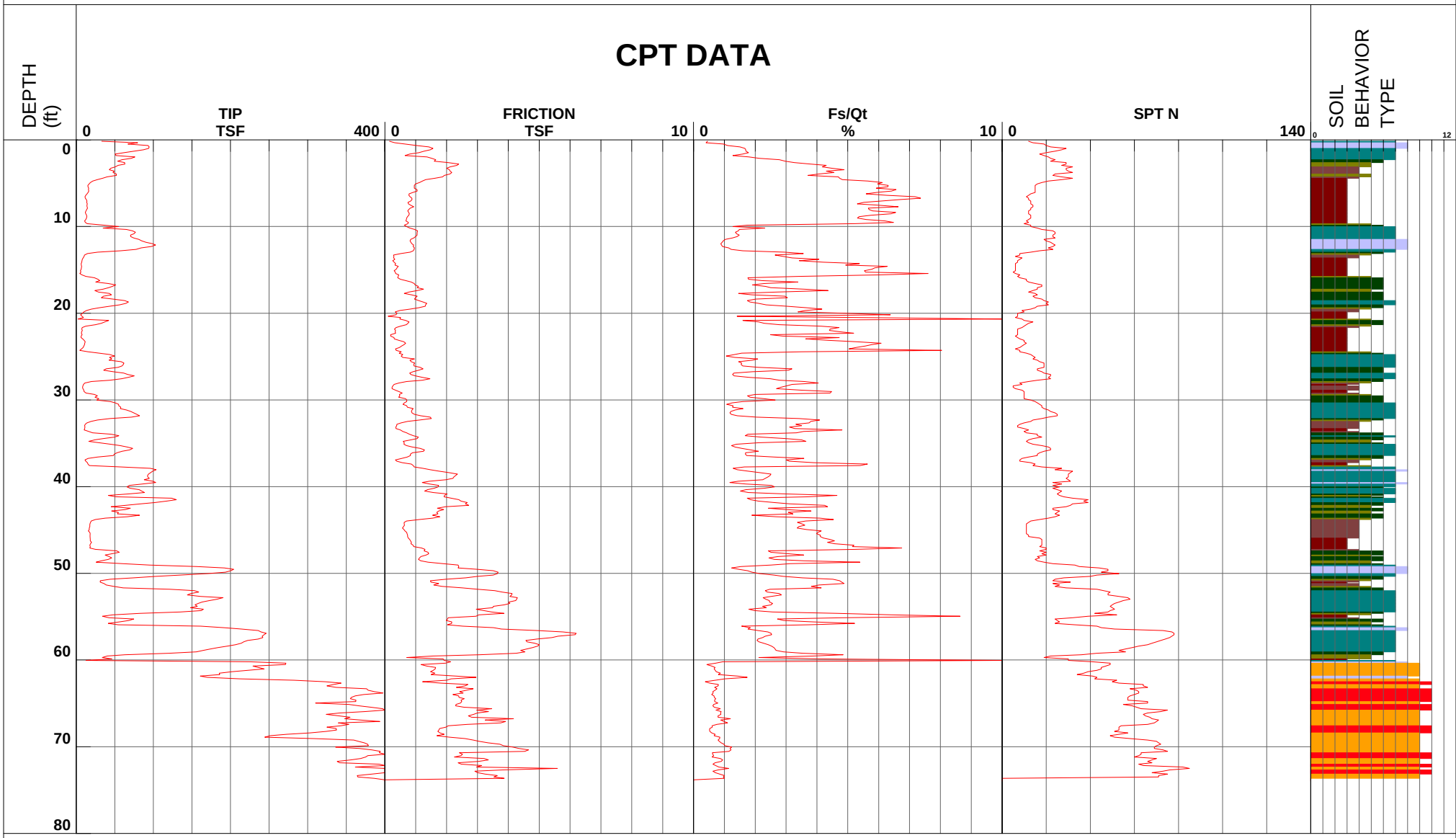
Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-36**	**Date and Time**	**12/4/2008 8:30:10 AM**	
Equilized Pressure	**7.31**	**Ground Water Depth**	**30.19**	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(426).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-37	Date and Time	11/20/2008 9:41:52 AM	Maximum Depth	73.98 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

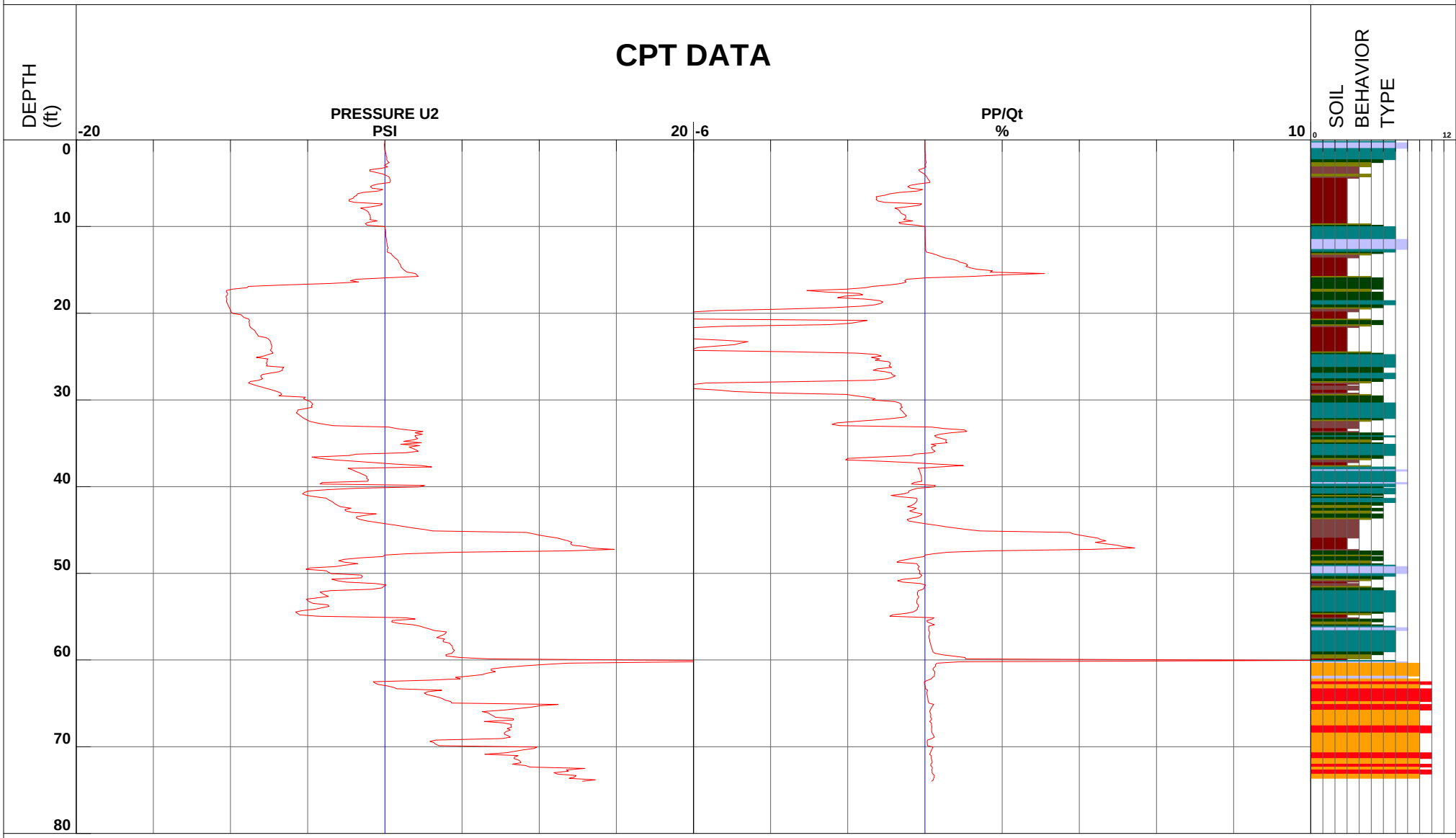
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(426).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-37	Date and Time	11/20/2008 9:41:52 AM	Maximum Depth	73.98 ft
Water Table Depth	12.00 ft				

CPT DATA



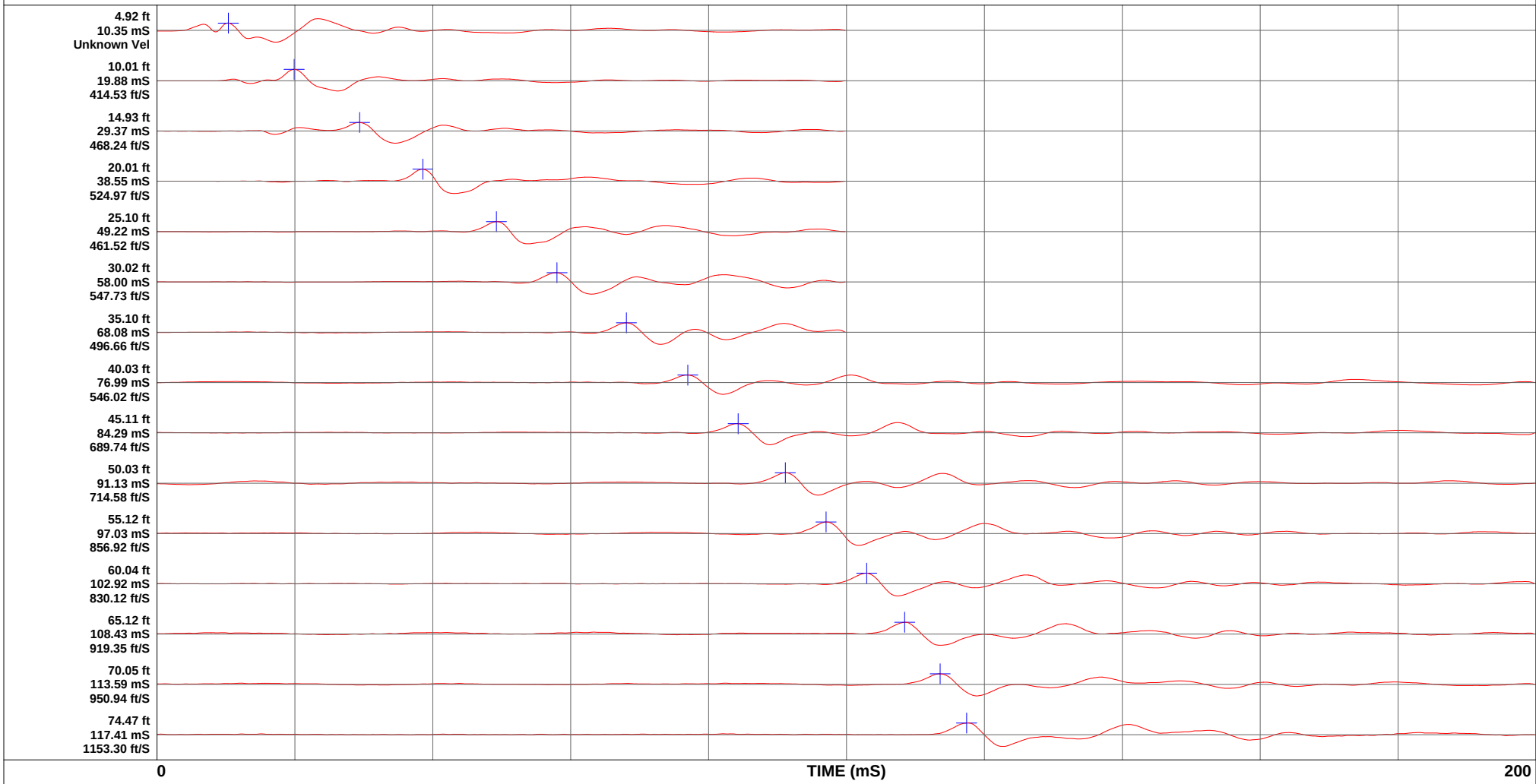
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

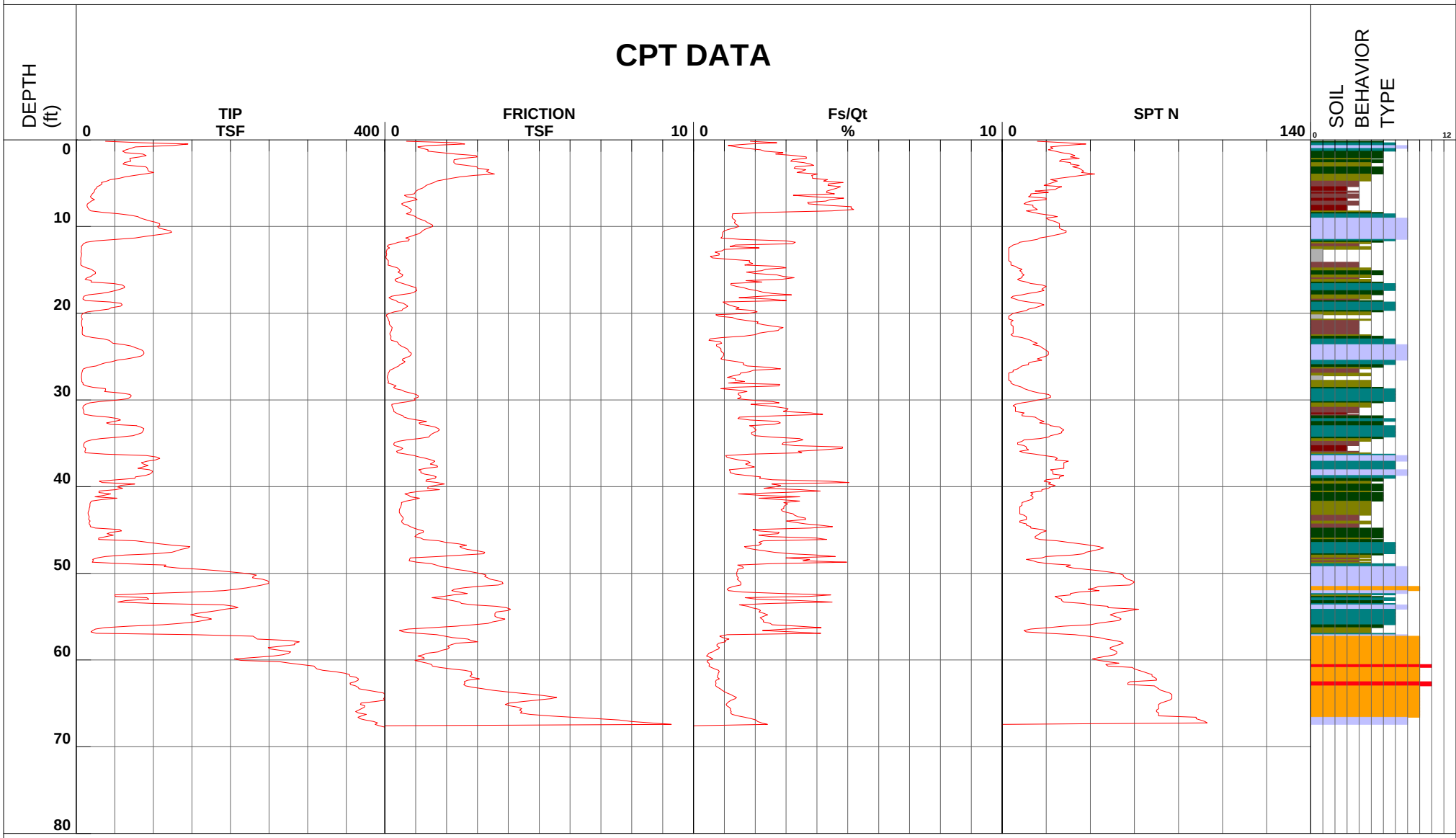
Location	EGG-WC Warner/Edwards	Operator	ML/VO	
Job Number	08-156	Cone Number	DSG0906	GPS
Hole Number	CPT-08-37	Date and Time	11/20/2008 9:41:52 AM	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(463).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-38	Date and Time	12/4/2008 10:07:22 AM	Maximum Depth	67.75 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

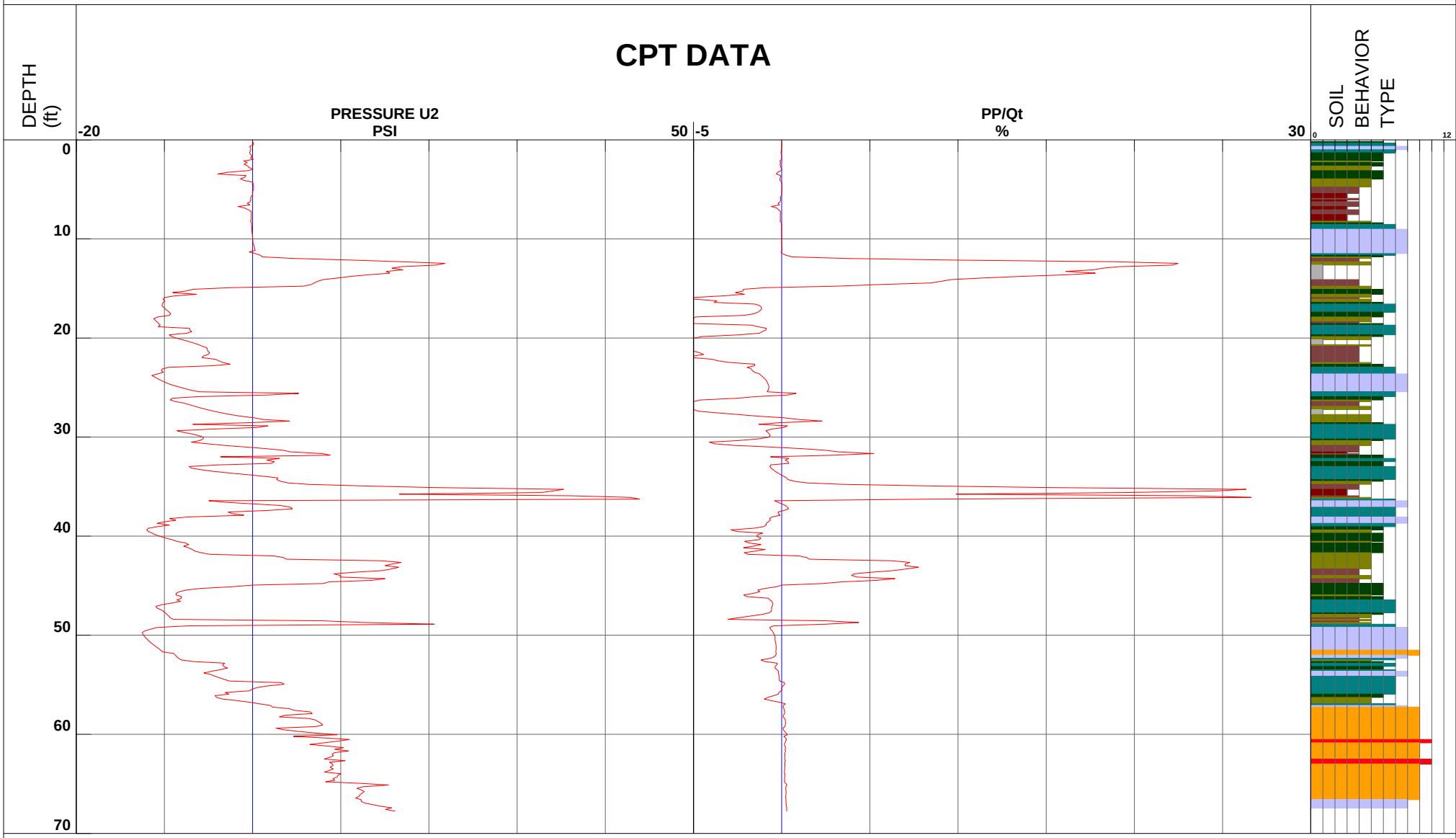
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(463).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-38	Date and Time	12/4/2008 10:07:22 AM	Maximum Depth	67.75 ft
Water Table Depth		0.00 ft			

CPT DATA



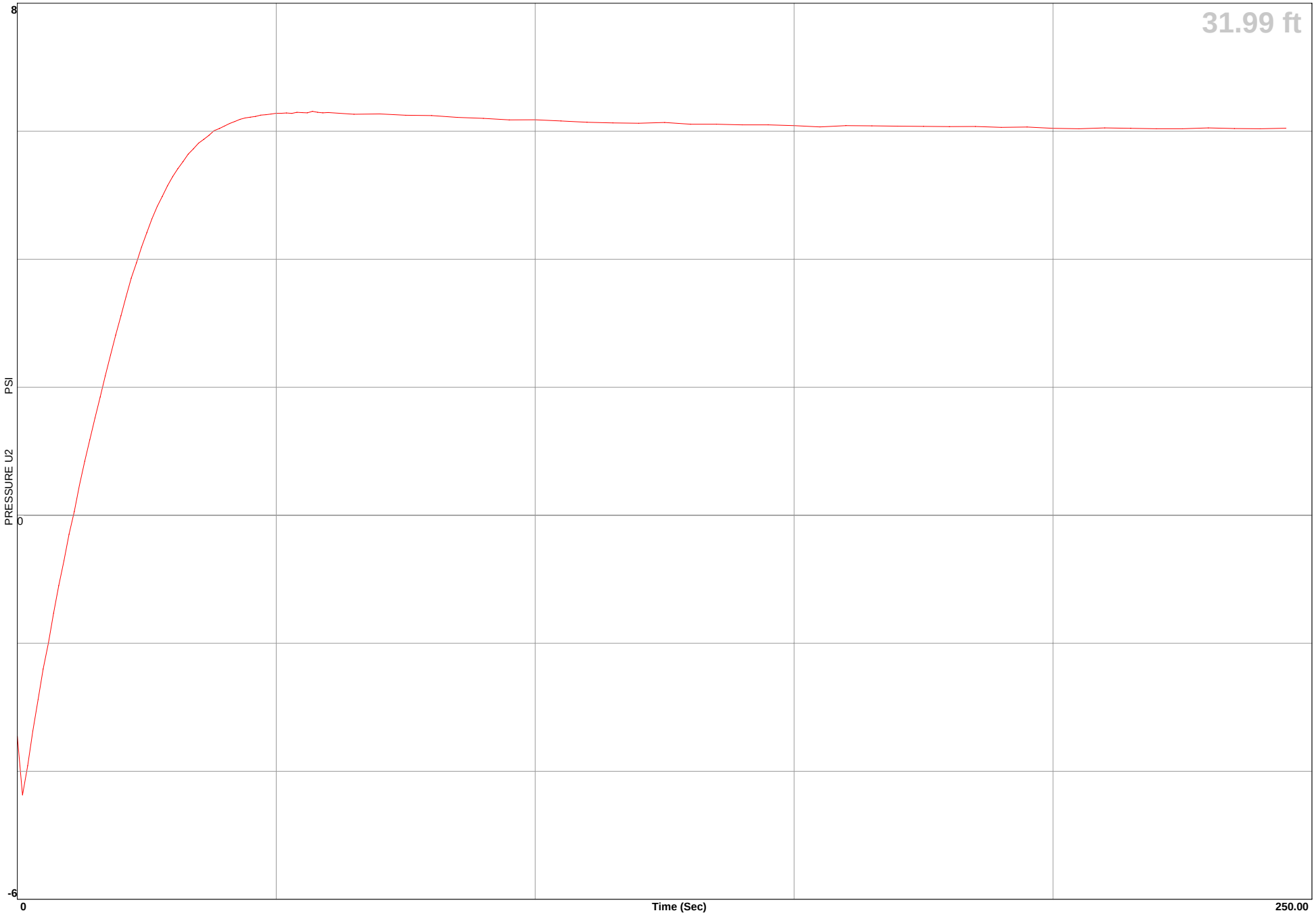
- 1 - sensitive fine grained
- 2 - organic material
- 3 - clay
- 4 - silty clay to clay
- 5 - clayey silt to silty clay
- 6 - sandy silt to clayey silt
- 7 - silty sand to sandy silt
- 8 - sand to silty sand
- 9 - sand
- 10 - gravelly sand to sand
- 11 - very stiff fine grained (*)
- 12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

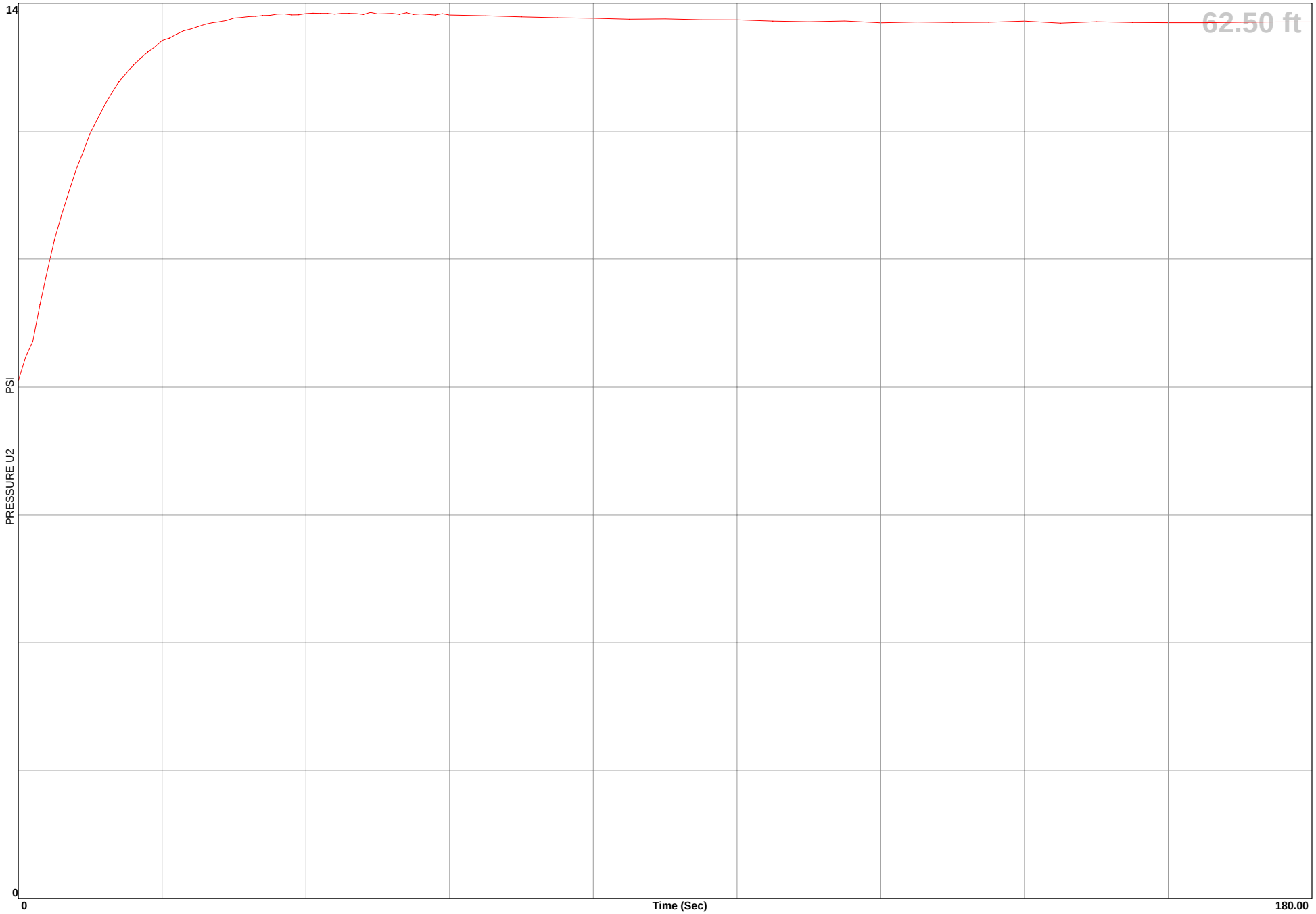
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-38**	**Date and Time**	**12/4/2008 10:07:22 AM**	
Equilized Pressure	**6.05**	**Ground Water Depth**	**18.01**	



Earth Mechanics

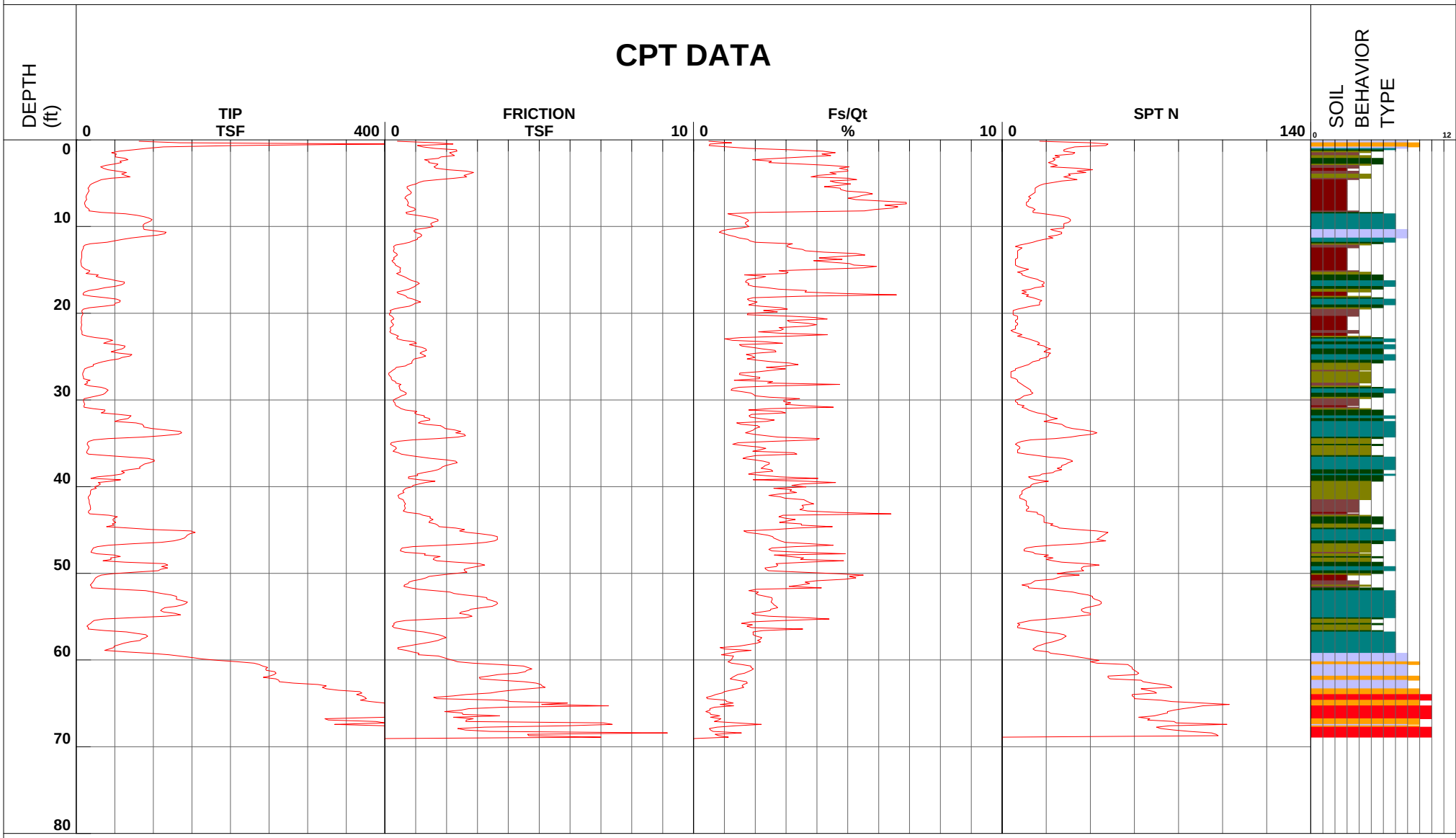
Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-38**	**Date and Time**	**12/4/2008 10:07:22 AM**	
Equilized Pressure	**13.70**	**Ground Water Depth**	**30.85**	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(425).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-39	Date and Time	11/20/2008 8:25:19 AM	Maximum Depth	69.22 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

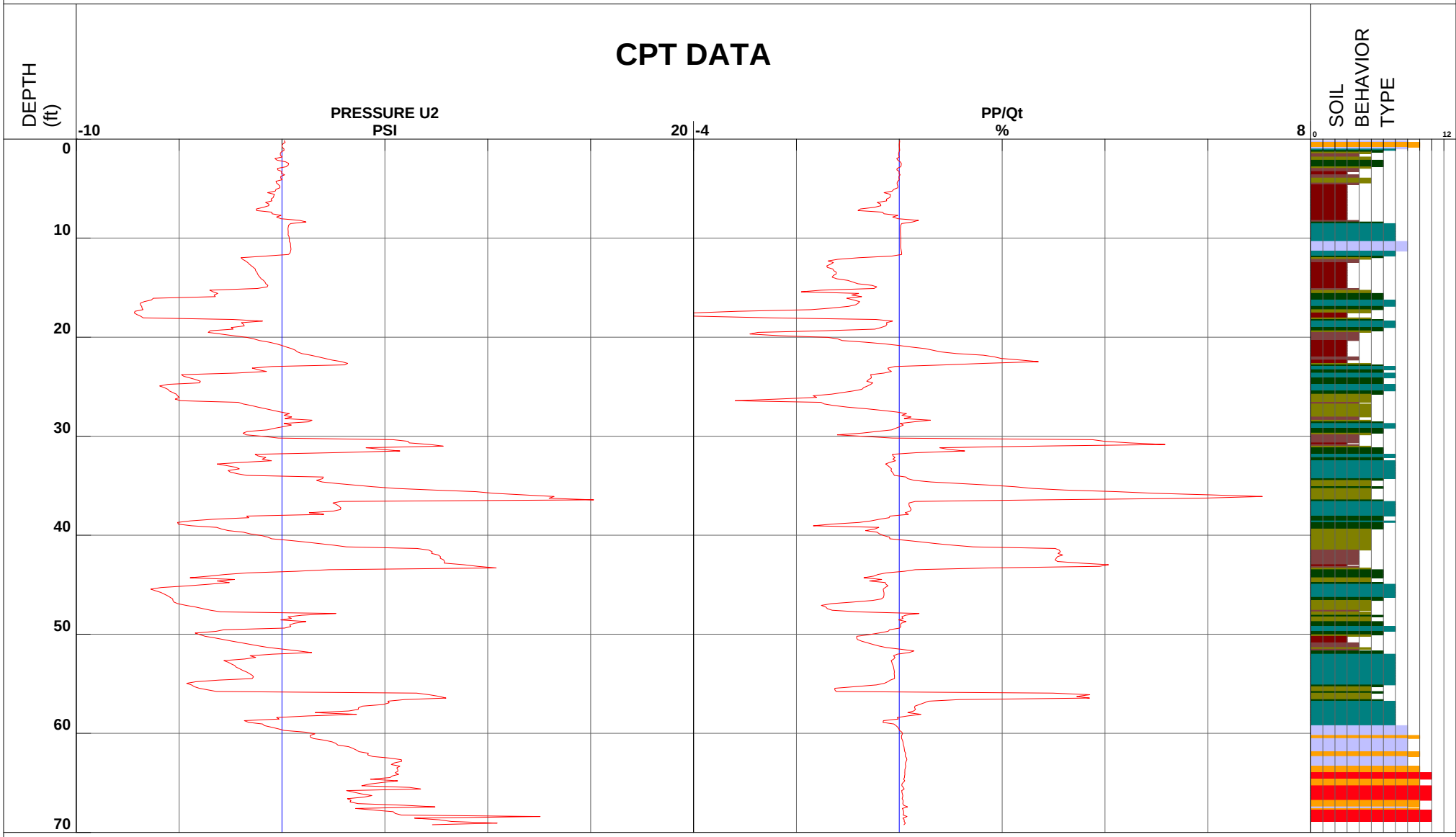
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(425).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-39	Date and Time	11/20/2008 8:25:19 AM	Maximum Depth	69.22 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

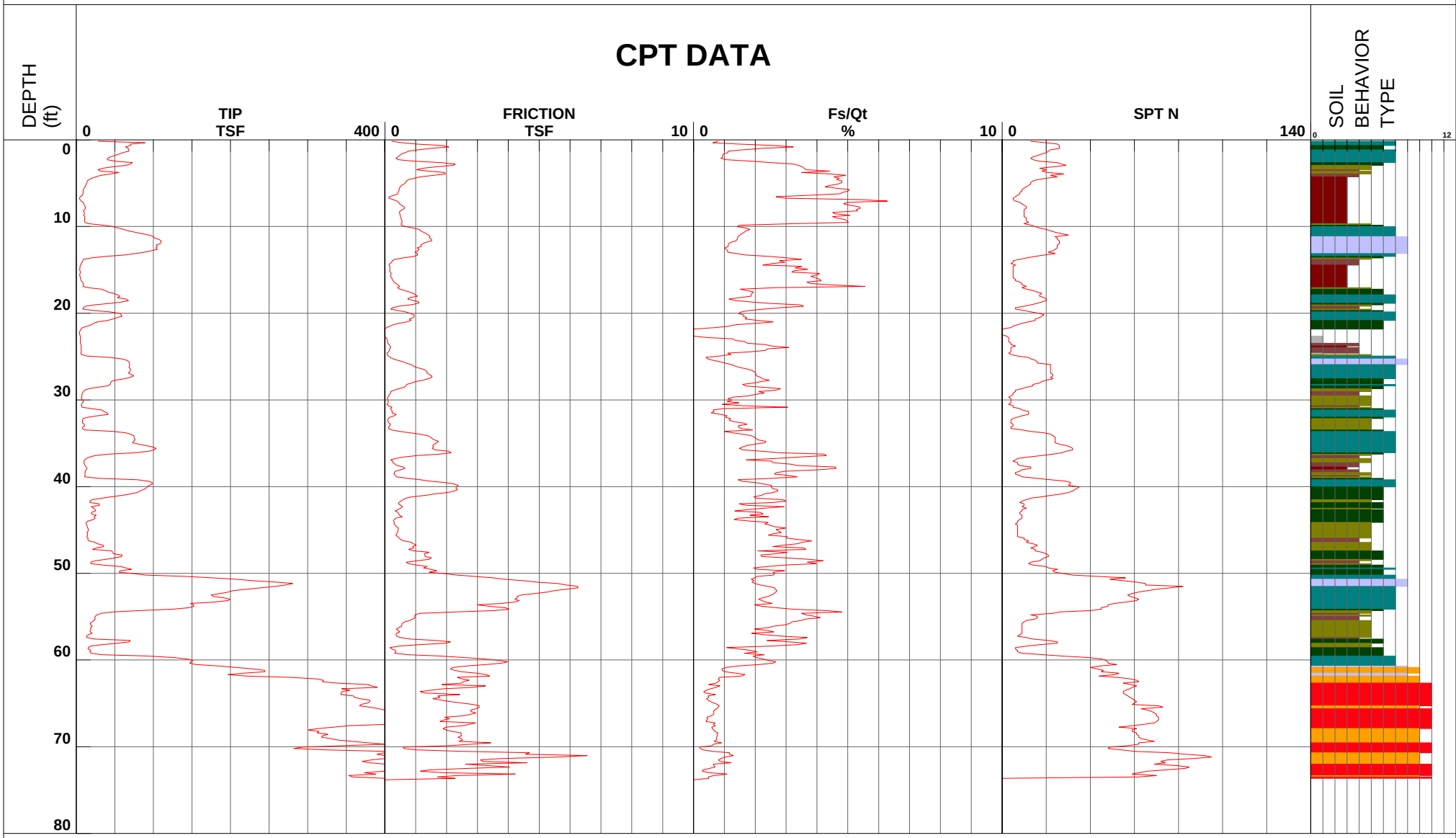
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(464).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-40	Date and Time	12/4/2008 11:58:14 AM	Maximum Depth	73.98 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

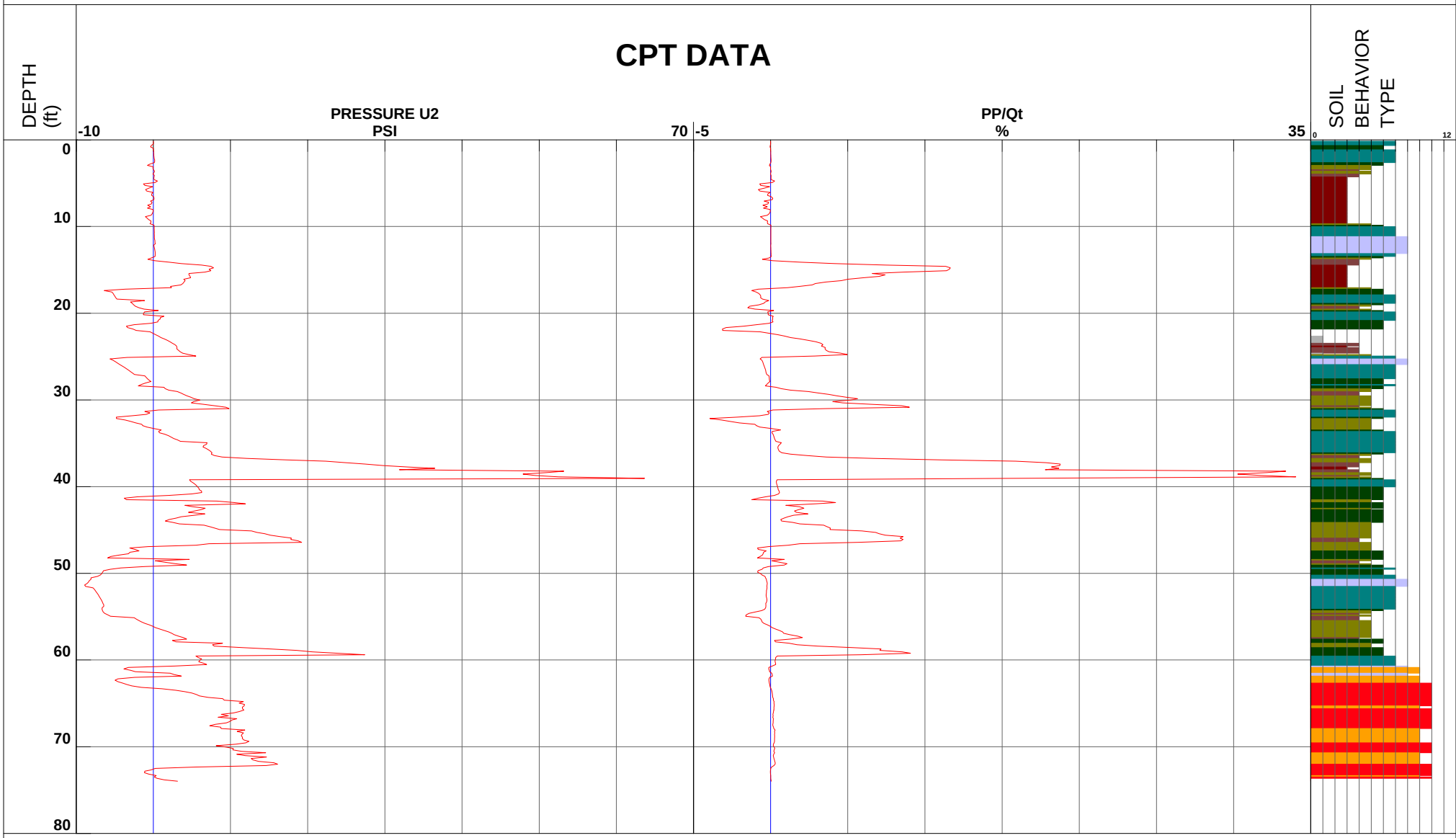
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(464).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-40	Date and Time	12/4/2008 11:58:14 AM	Maximum Depth	73.98 ft
Water Table Depth		0.00 ft			

CPT DATA



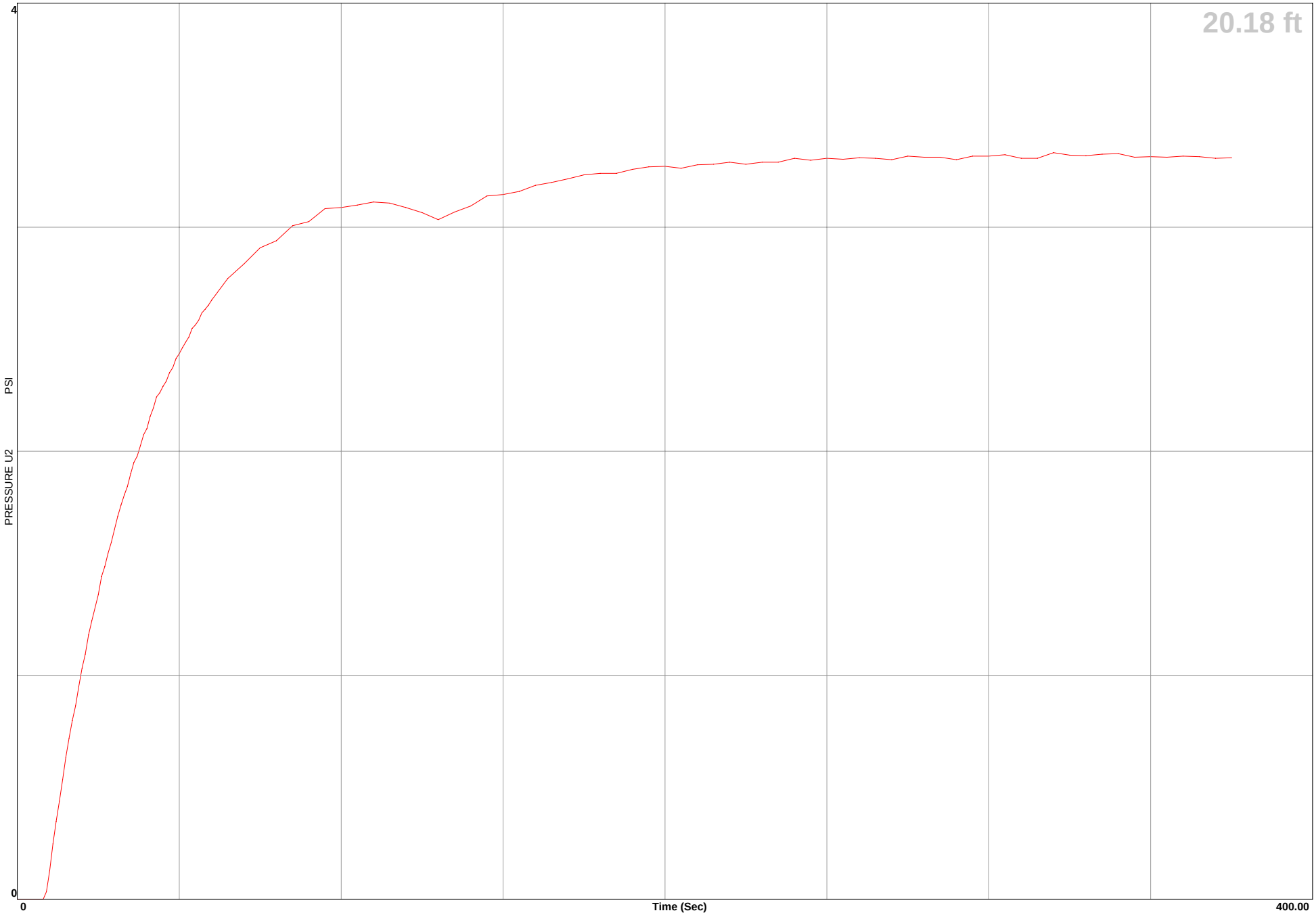
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

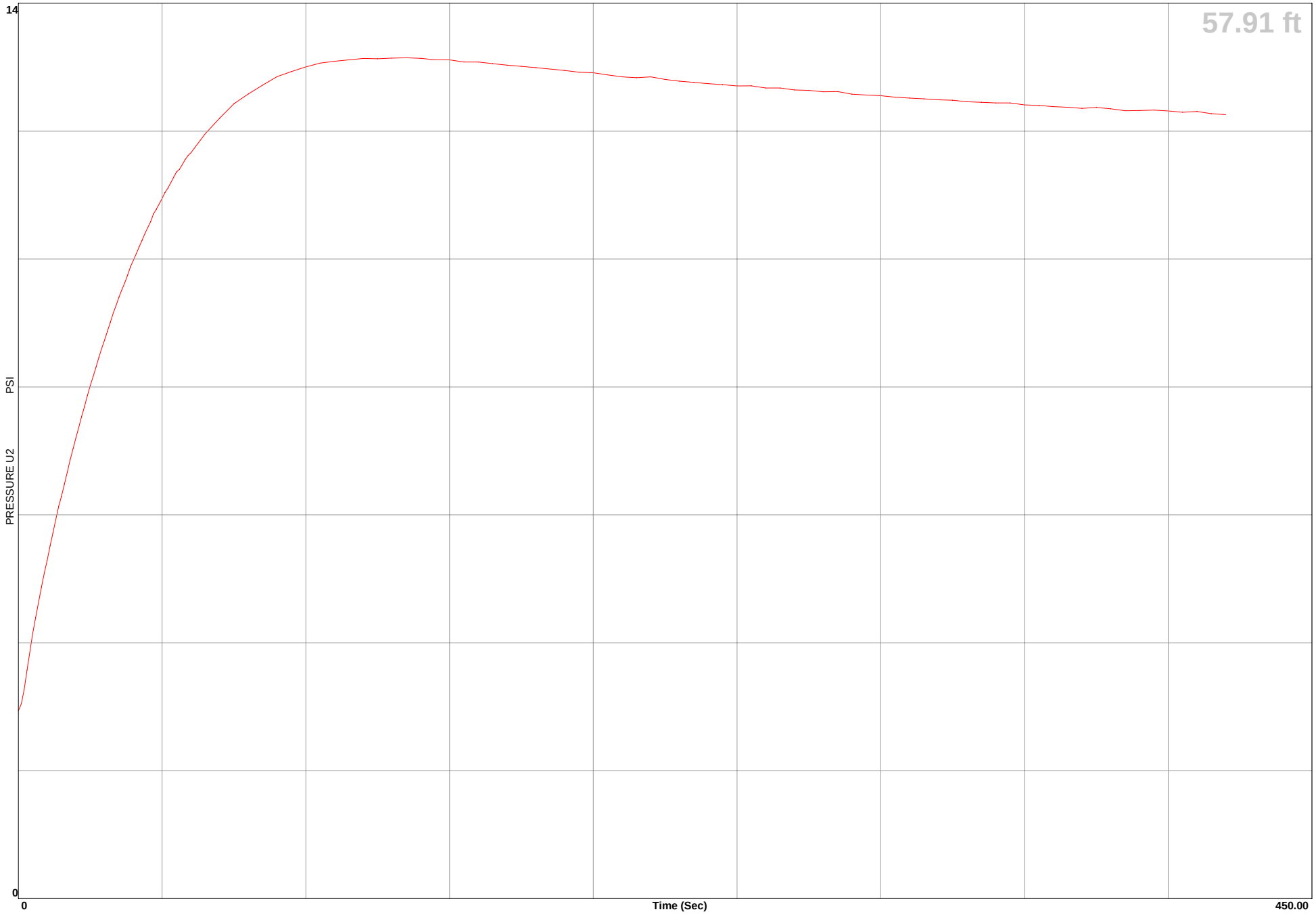
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-40**	**Date and Time**	**12/4/2008 11:58:14 AM**	
Equilized Pressure	**3.31**	**Ground Water Depth**	**12.53**	



Earth Mechanics

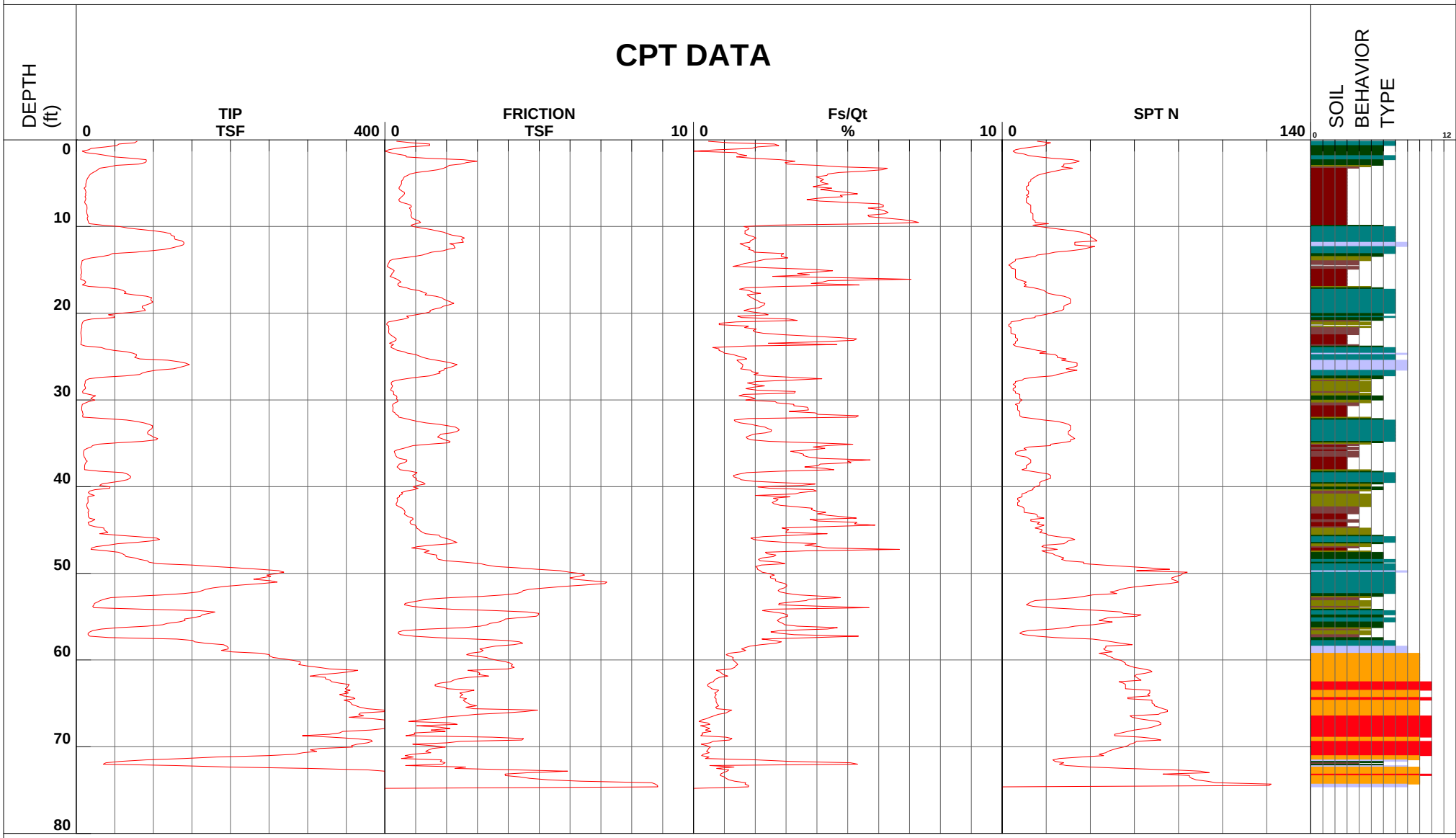
Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-40**	**Date and Time**	**12/4/2008 11:58:14 AM**	
Equilized Pressure	**12.22**	**Ground Water Depth**	**29.68**	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(424).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-41	Date and Time	11/20/2008 7:21:28 AM	Maximum Depth	74.97 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

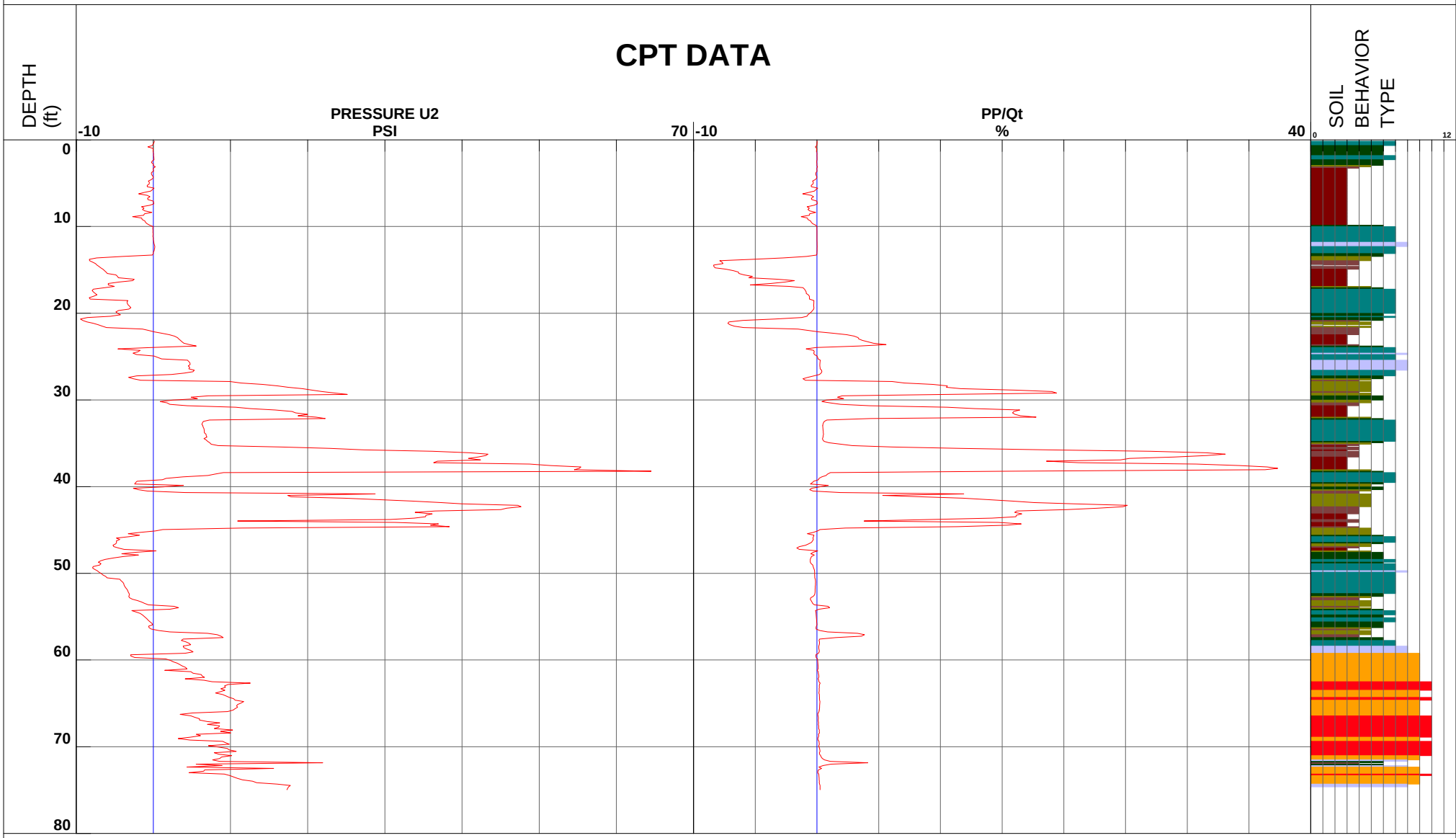
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(424).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-41	Date and Time	11/20/2008 7:21:28 AM	Maximum Depth	74.97 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

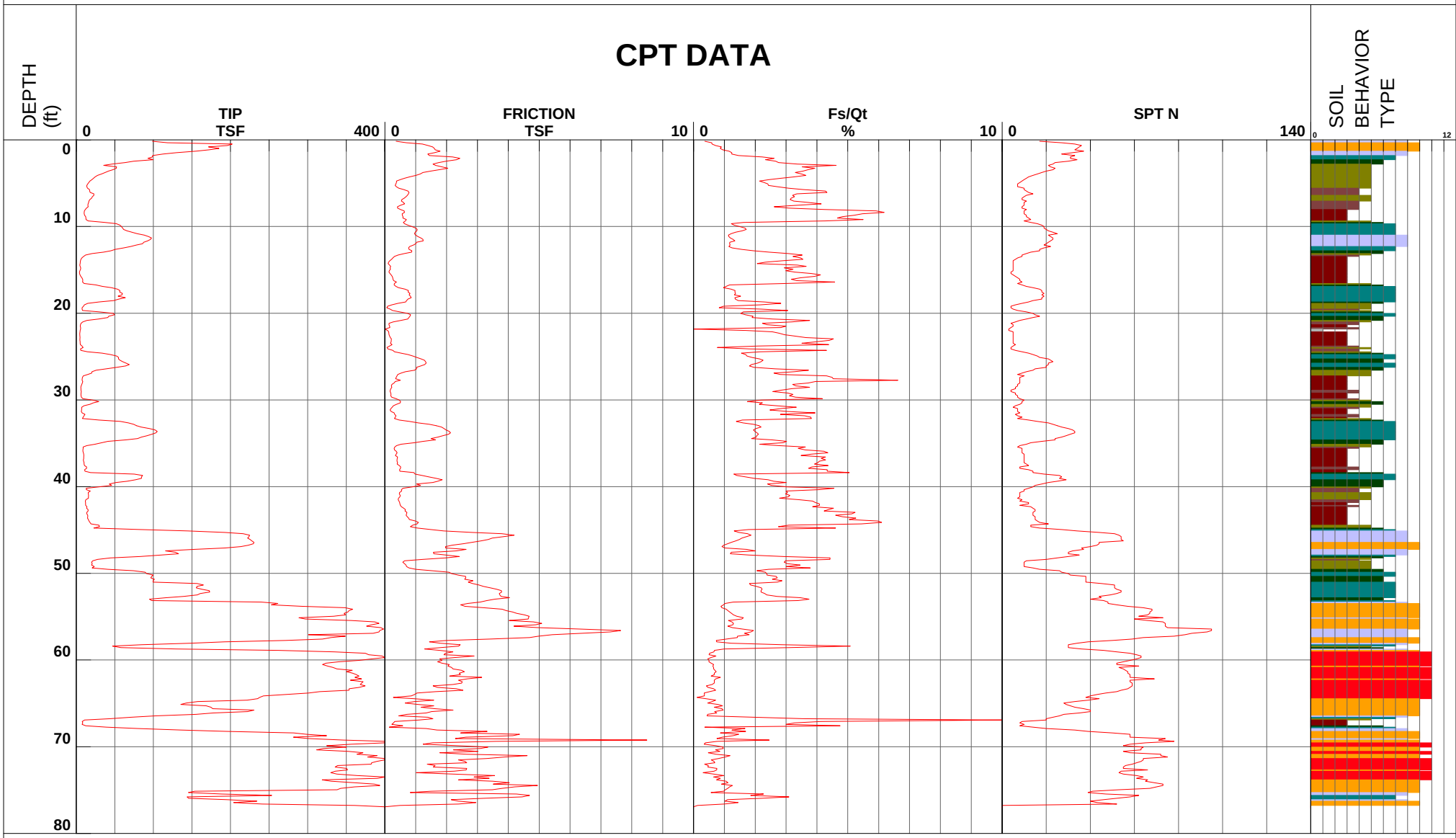
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(465).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-42	Date and Time	12/4/2008 1:10:41 PM	Maximum Depth	77.10 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

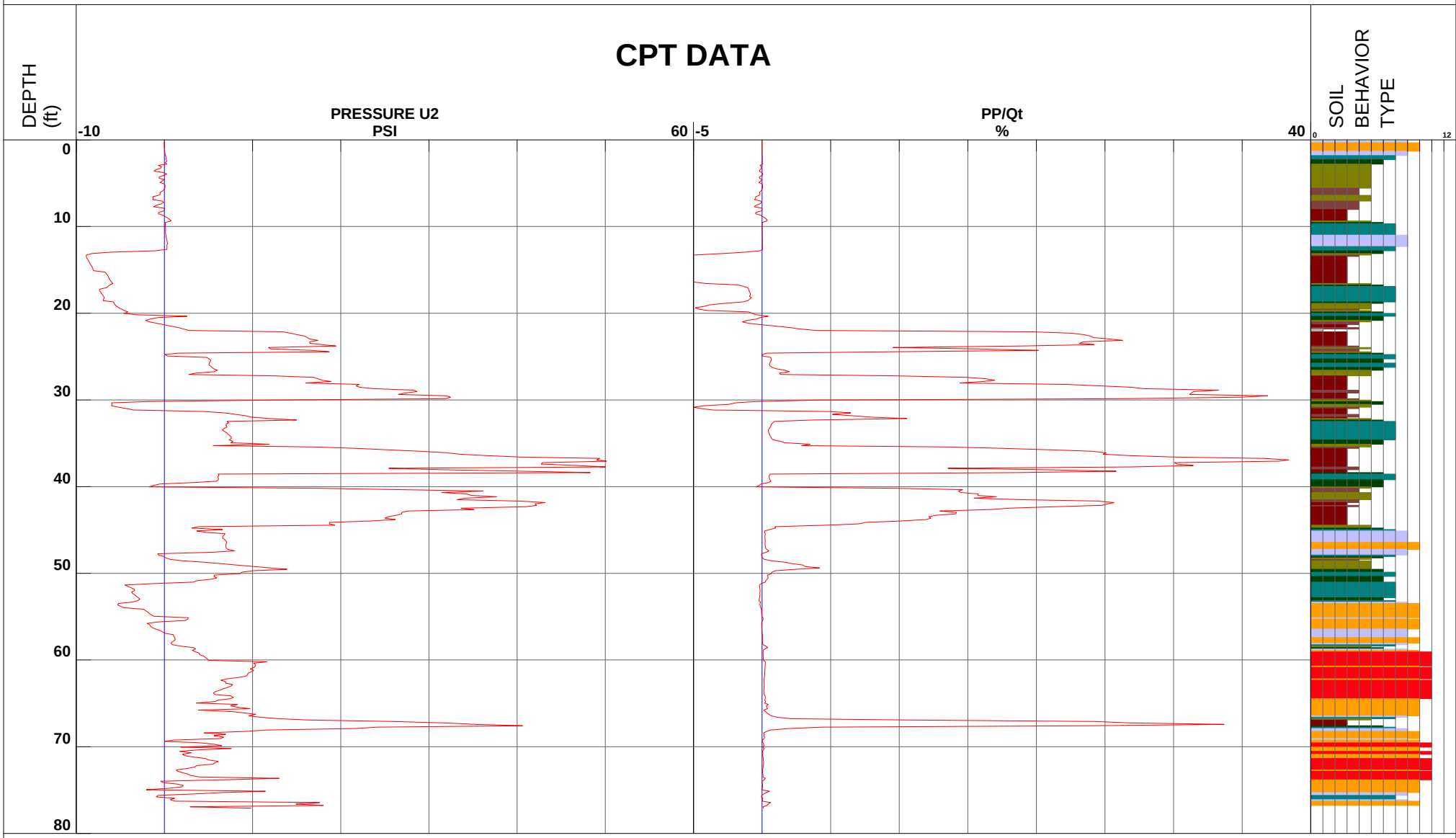
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(465).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-42	Date and Time	12/4/2008 1:10:41 PM	Maximum Depth	77.10 ft
Water Table Depth		0.00 ft			

CPT DATA



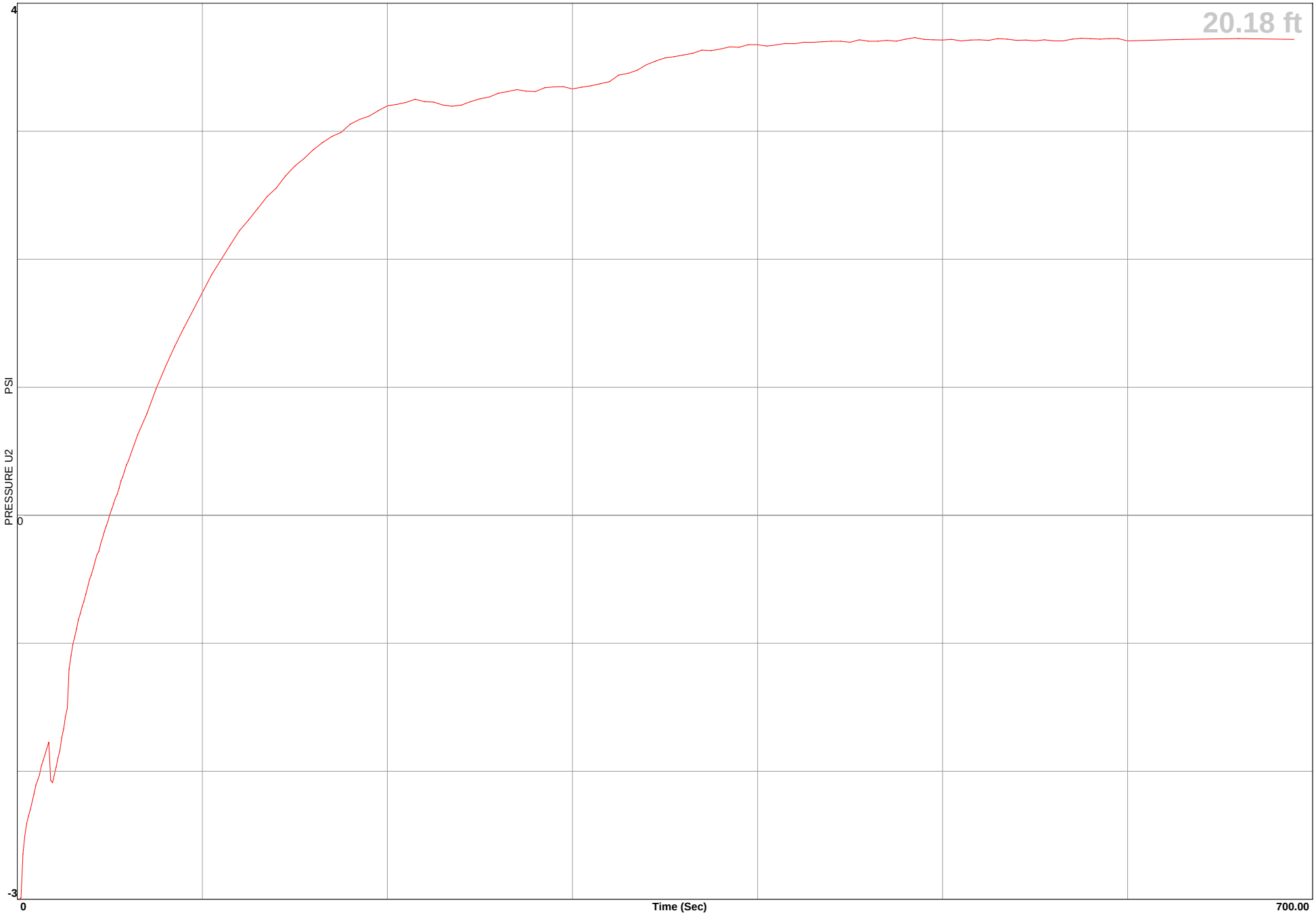
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

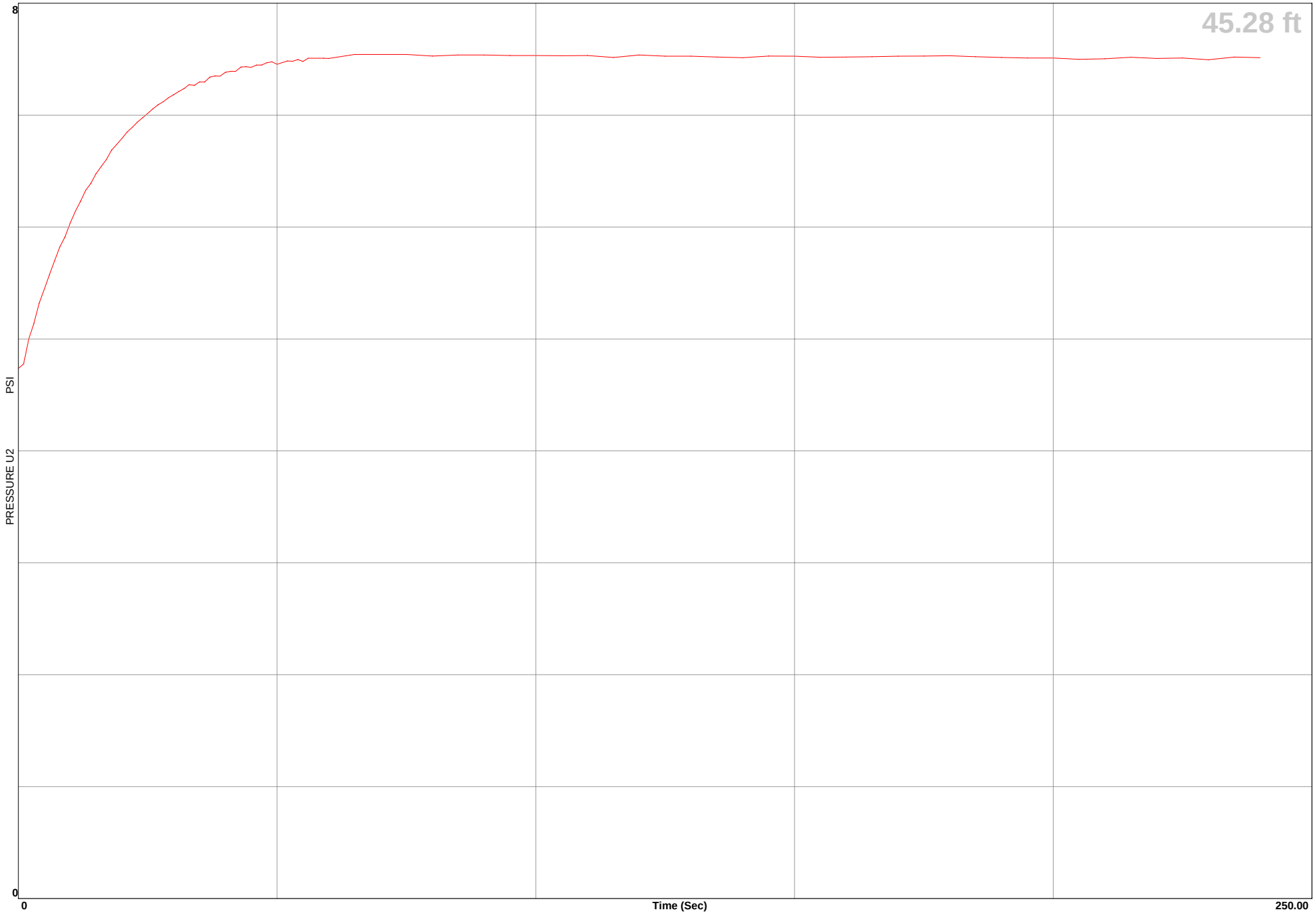
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-42**	**Date and Time**	**12/4/2008 1:10:41 PM**	
Equilized Pressure	**3.71**	**Ground Water Depth**	**11.60**	



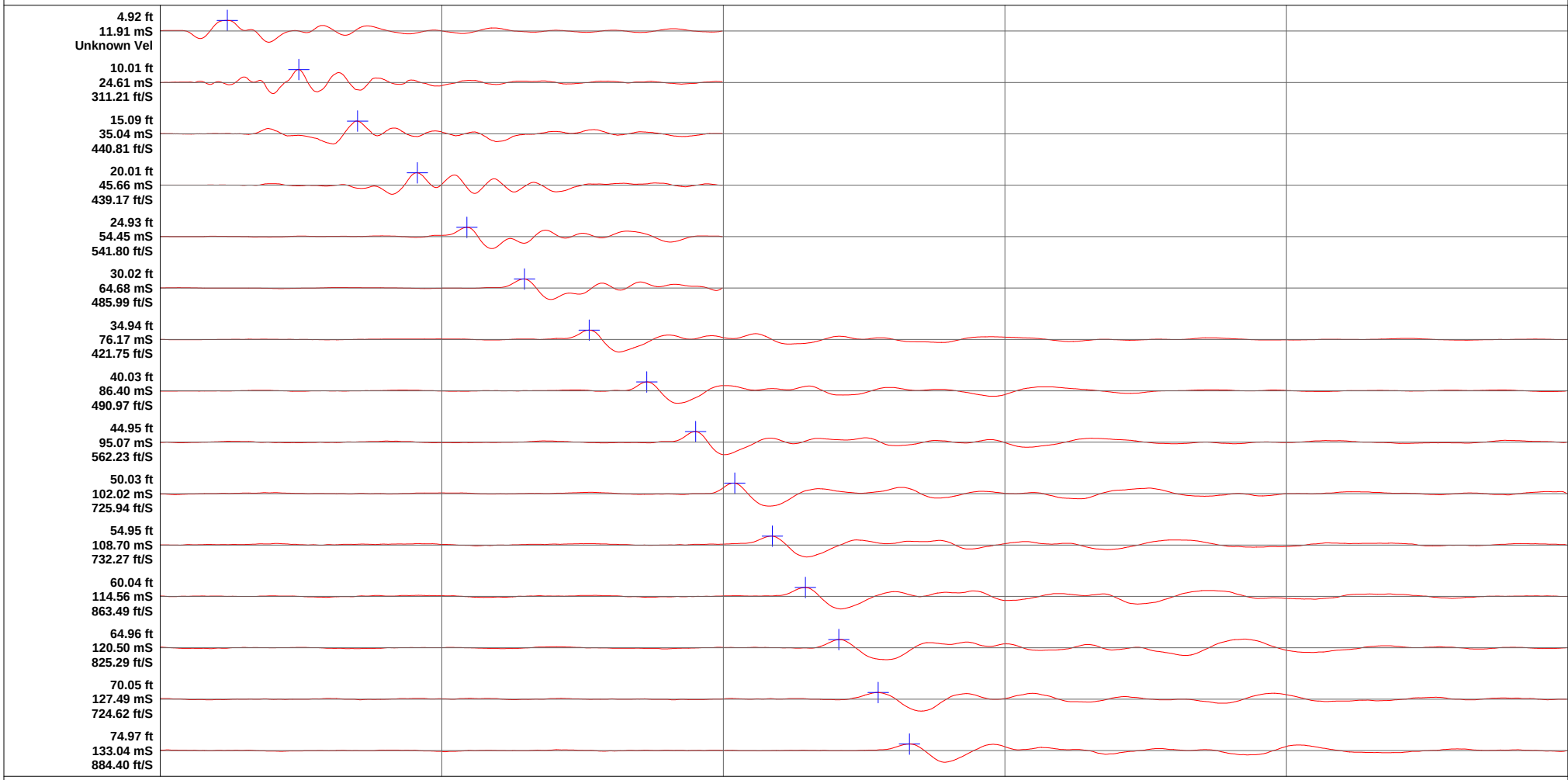
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**	
Job Number	**08-156**	**Cone Number**	**DSG0906**		
Hole Number	**CPT-08-42**	**Date and Time**	**12/4/2008 1:10:41 PM**		
Equilized Pressure	**7.50**	**Ground Water Depth**	**27.95**		



Earth Mechanics

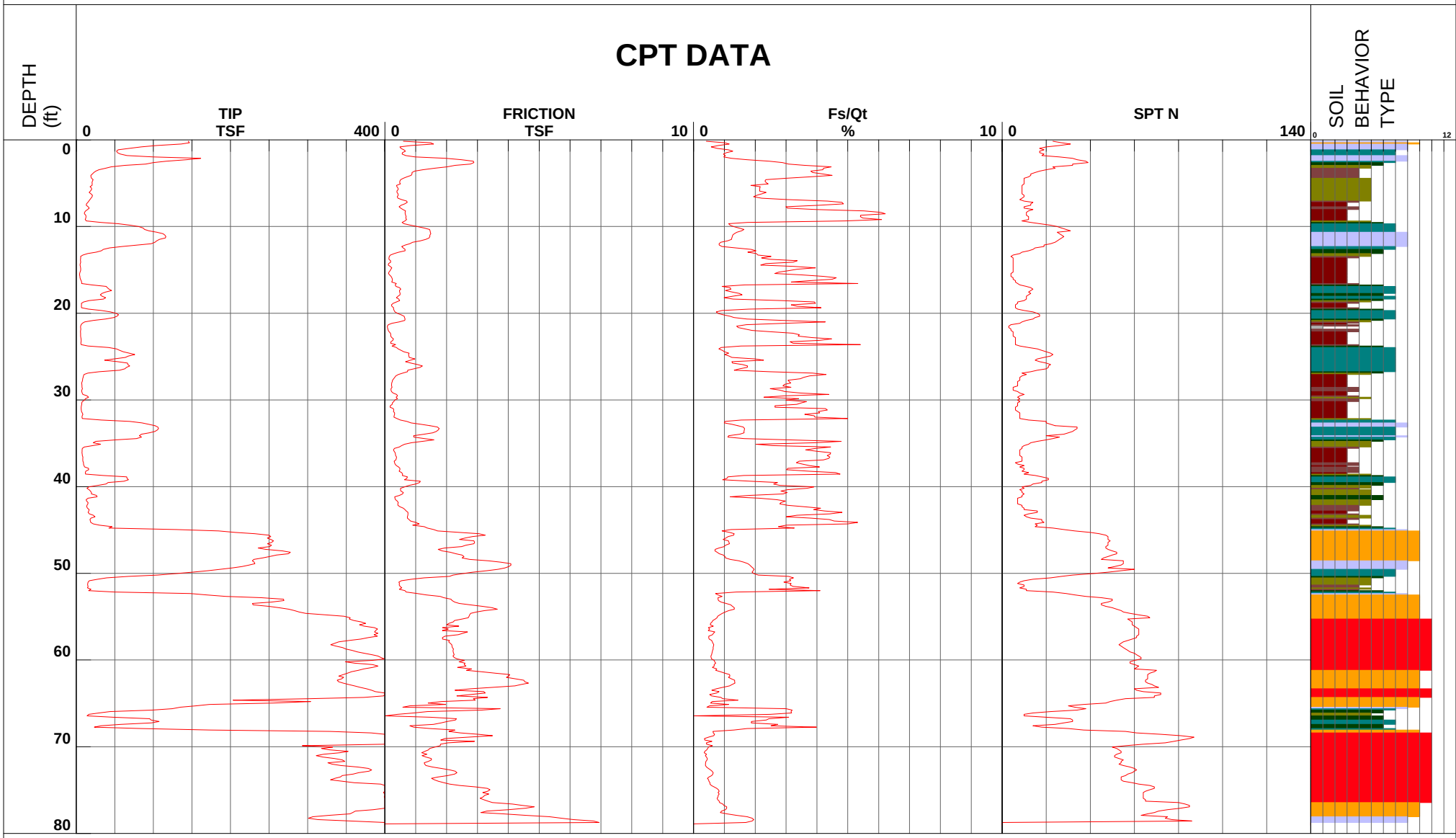
Location	EGG-WC Warner/Edwards	Operator	ML/BH	
Job Number	08-156	Cone Number	DSG0906	GPS
Hole Number	CPT-08-42	Date and Time	12/4/2008 1:10:41 PM	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(421).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-43	Date and Time	11/19/2008 1:56:55 PM	Maximum Depth	79.07 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

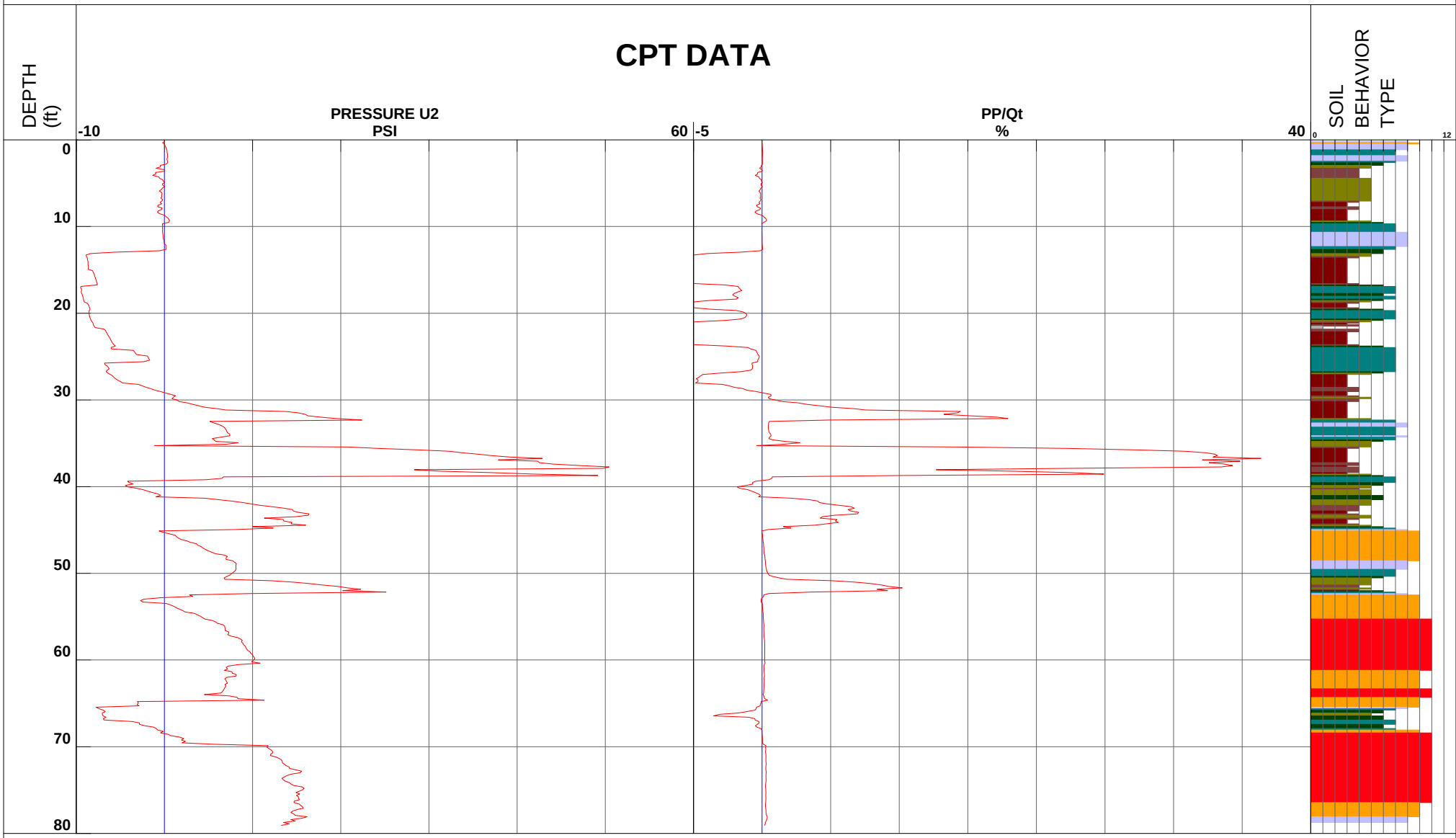
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(421).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-43	Date and Time	11/19/2008 1:56:55 PM	Maximum Depth	79.07 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

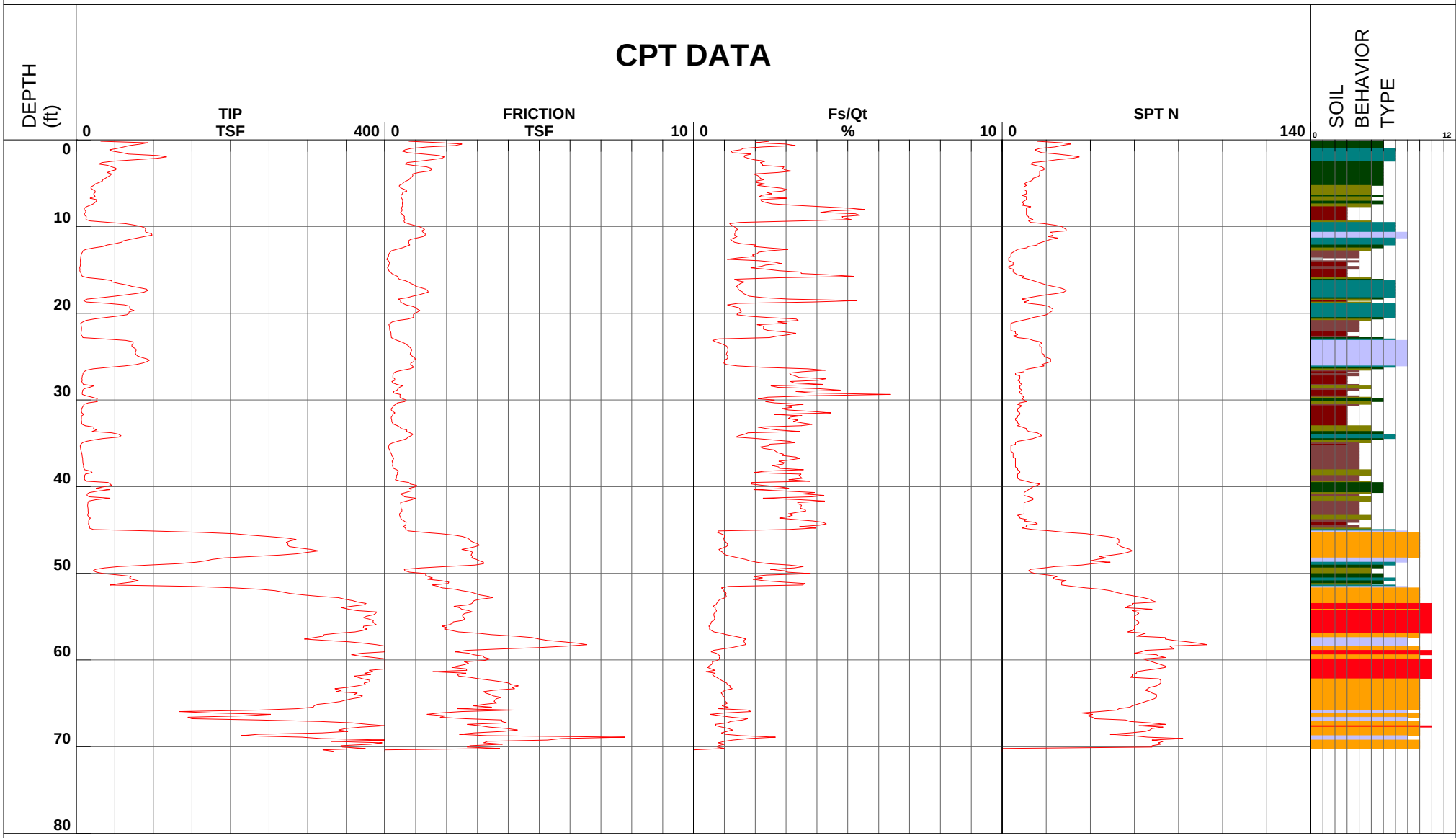
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(466).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-44	Date and Time	12/5/2008 7:04:30 AM	Maximum Depth	70.54 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

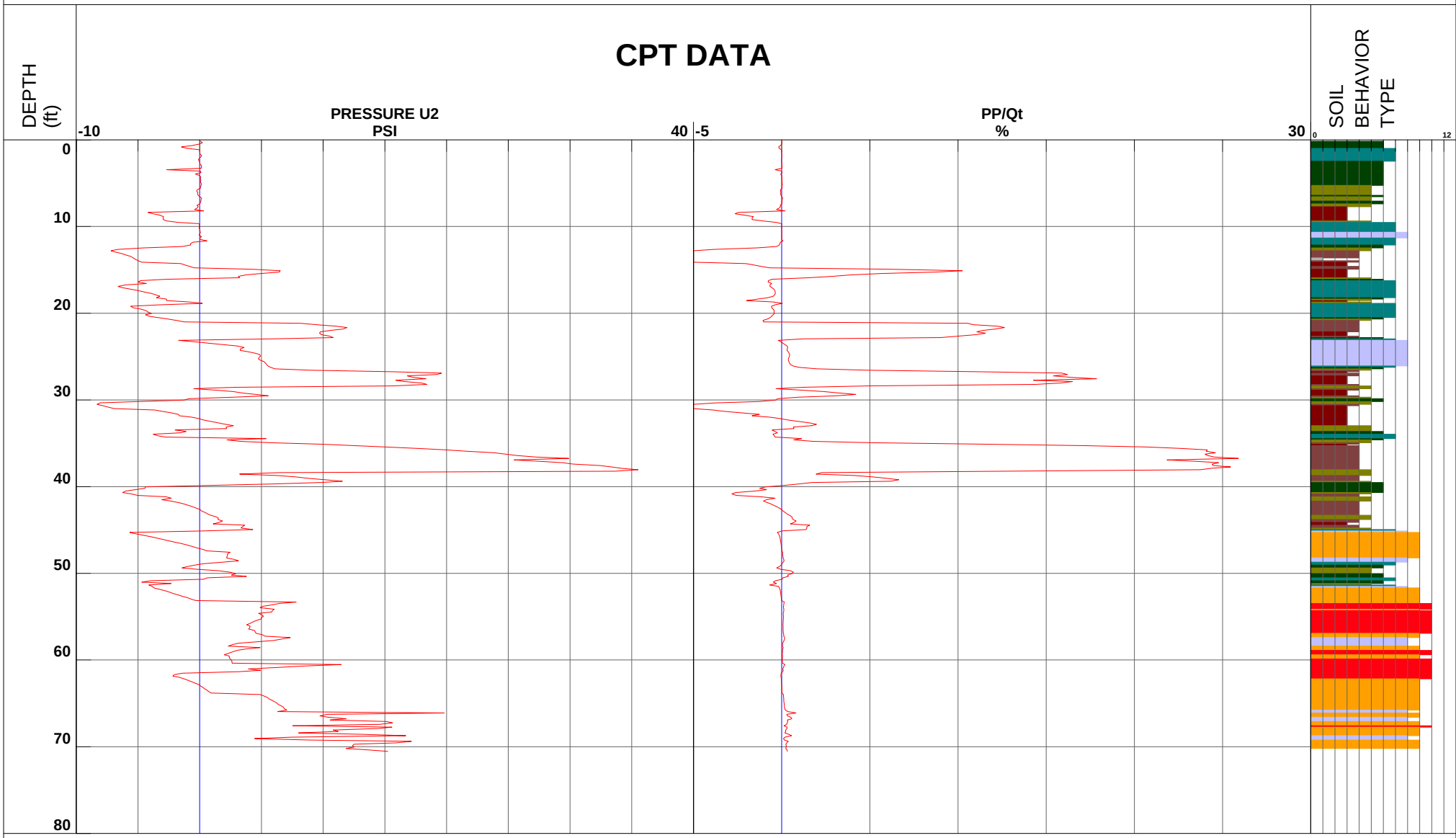
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(466).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-44	Date and Time	12/5/2008 7:04:30 AM	Maximum Depth	70.54 ft
Water Table Depth		0.00 ft			

CPT DATA



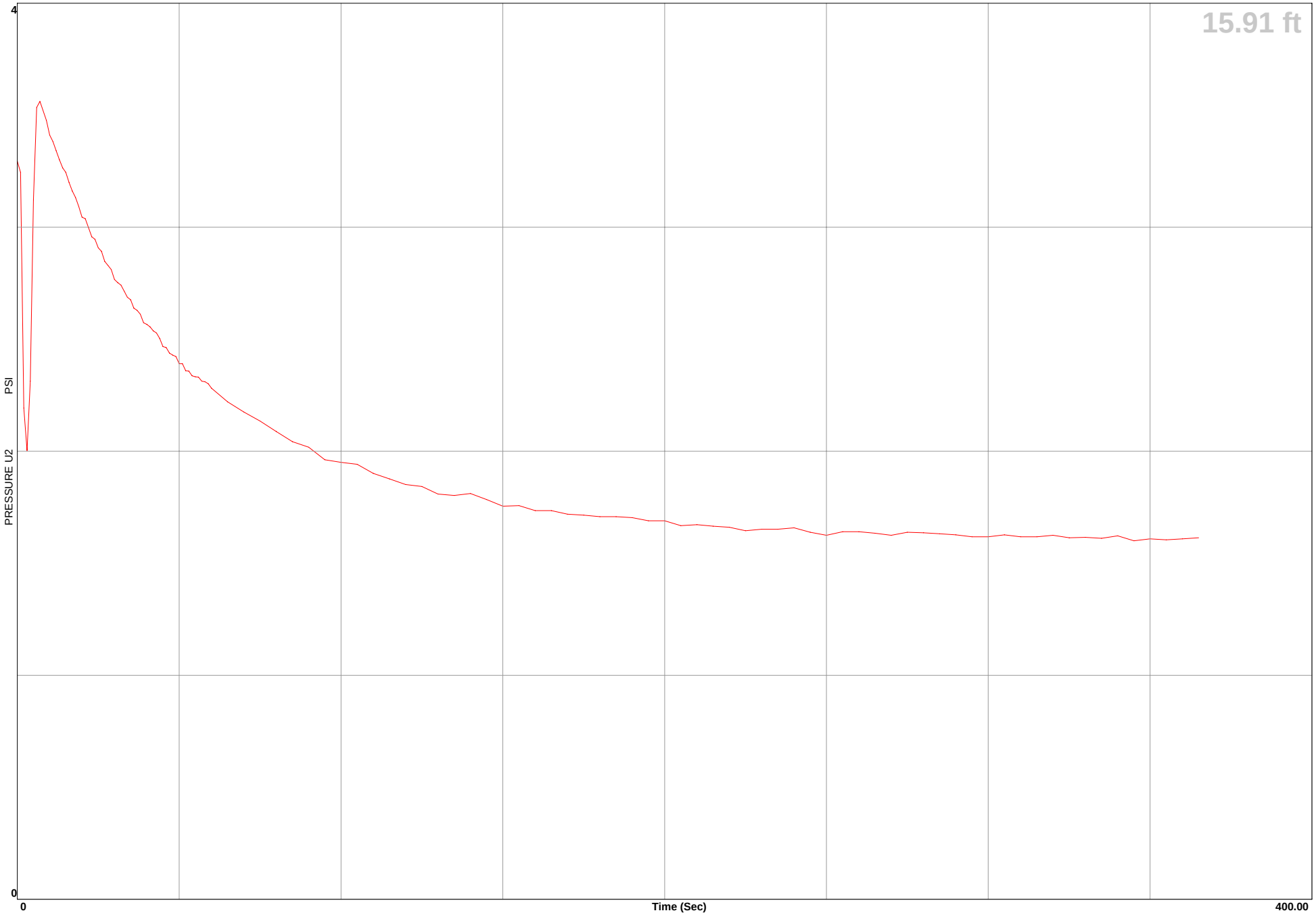
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

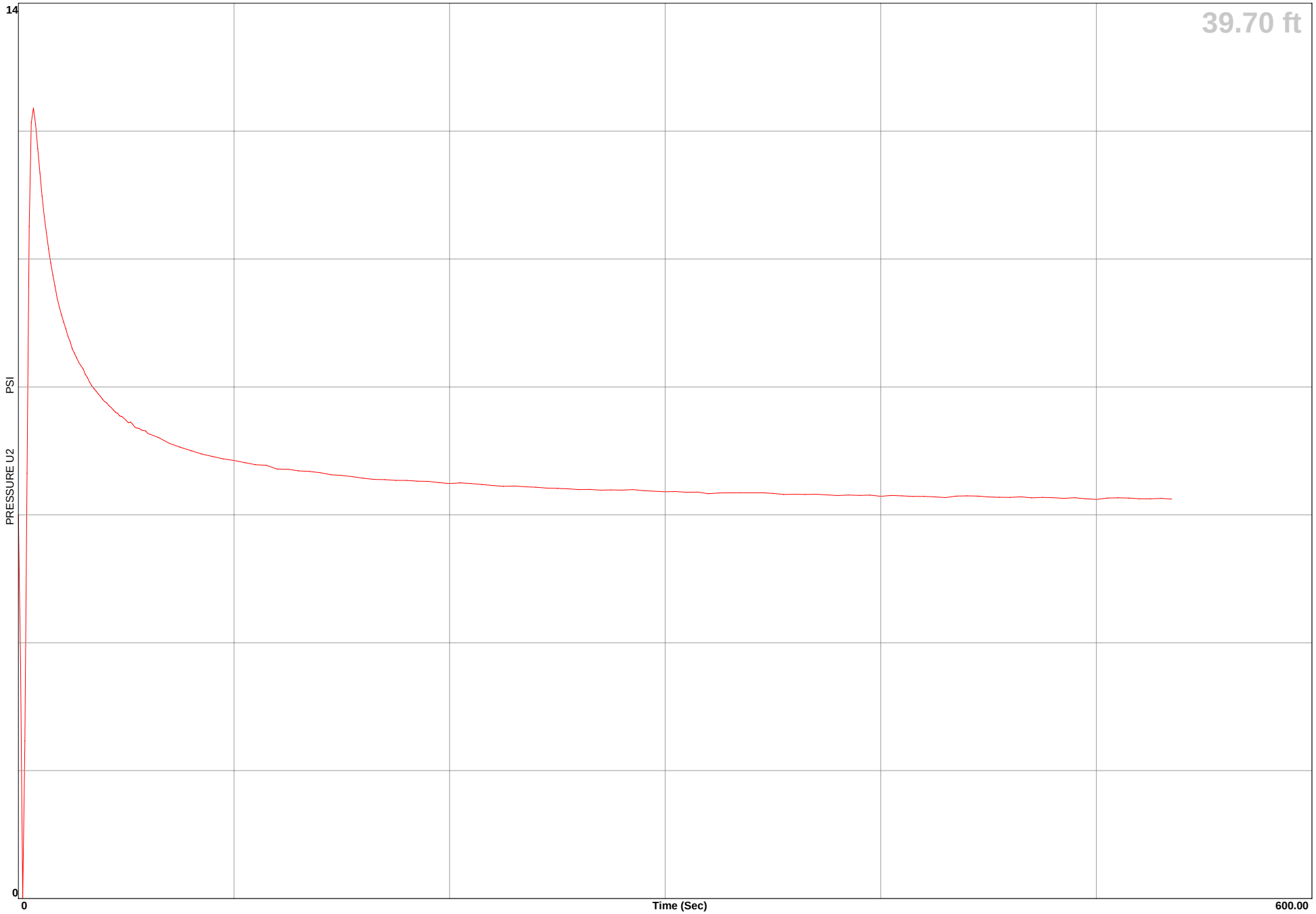
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-44**	**Date and Time**	**12/5/2008 7:04:30 AM**	
Equilized Pressure	**1.60**	**Ground Water Depth**	**12.21**	



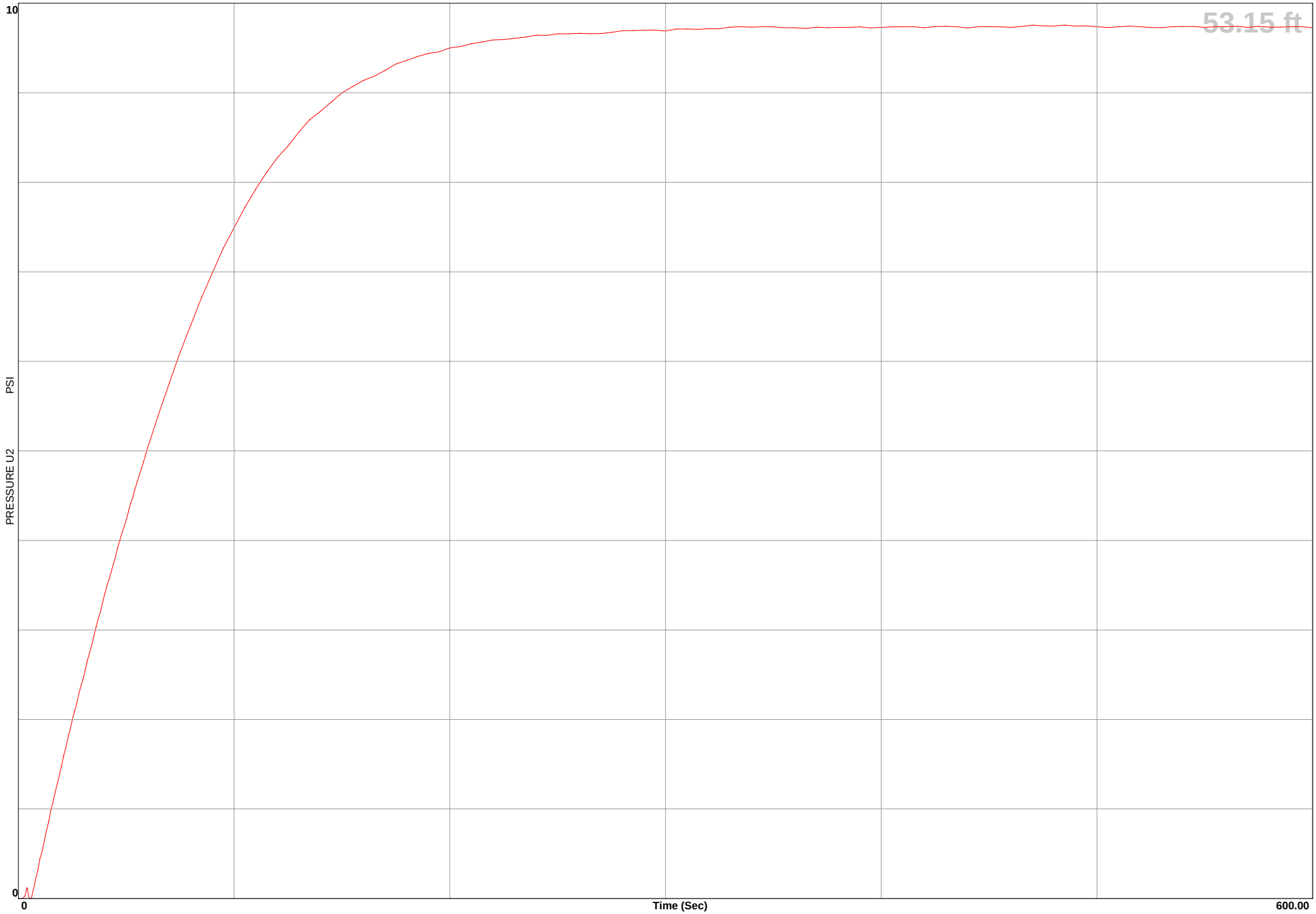
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-44**	**Date and Time**	**12/5/2008 7:04:30 AM**	
Equilized Pressure	**6.25**	**Ground Water Depth**	**25.26**	



Earth Mechanics

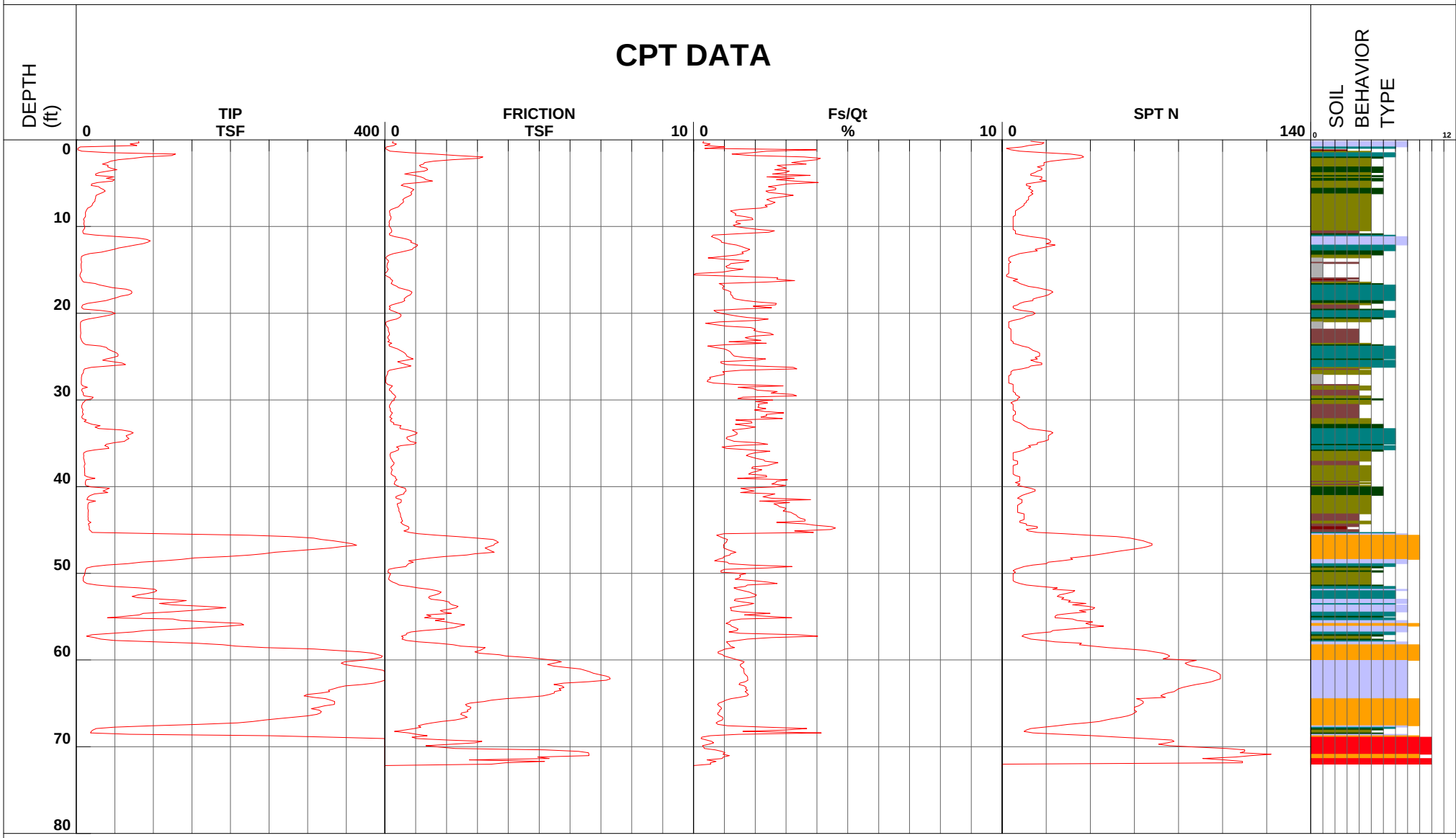
Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-44**	**Date and Time**	**12/5/2008 7:04:30 AM**	
Equilized Pressure	**9.71**	**Ground Water Depth**	**30.71**	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(420).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-45	Date and Time	11/19/2008 12:45:46 PM	Maximum Depth	72.34 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

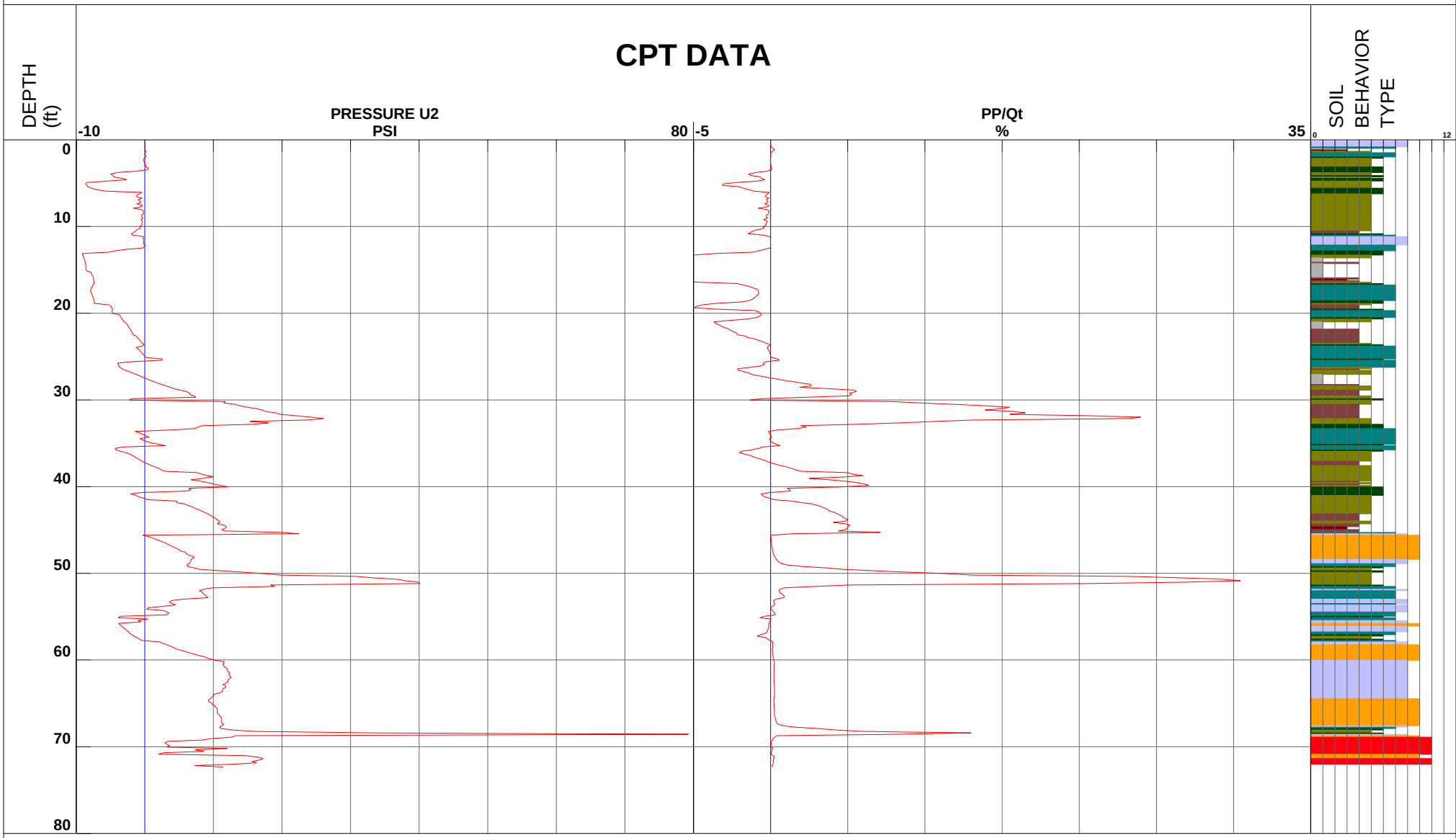
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(420).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-45	Date and Time	11/19/2008 12:45:46 PM	Maximum Depth	72.34 ft
Water Table Depth		12.00 ft			

CPT DATA



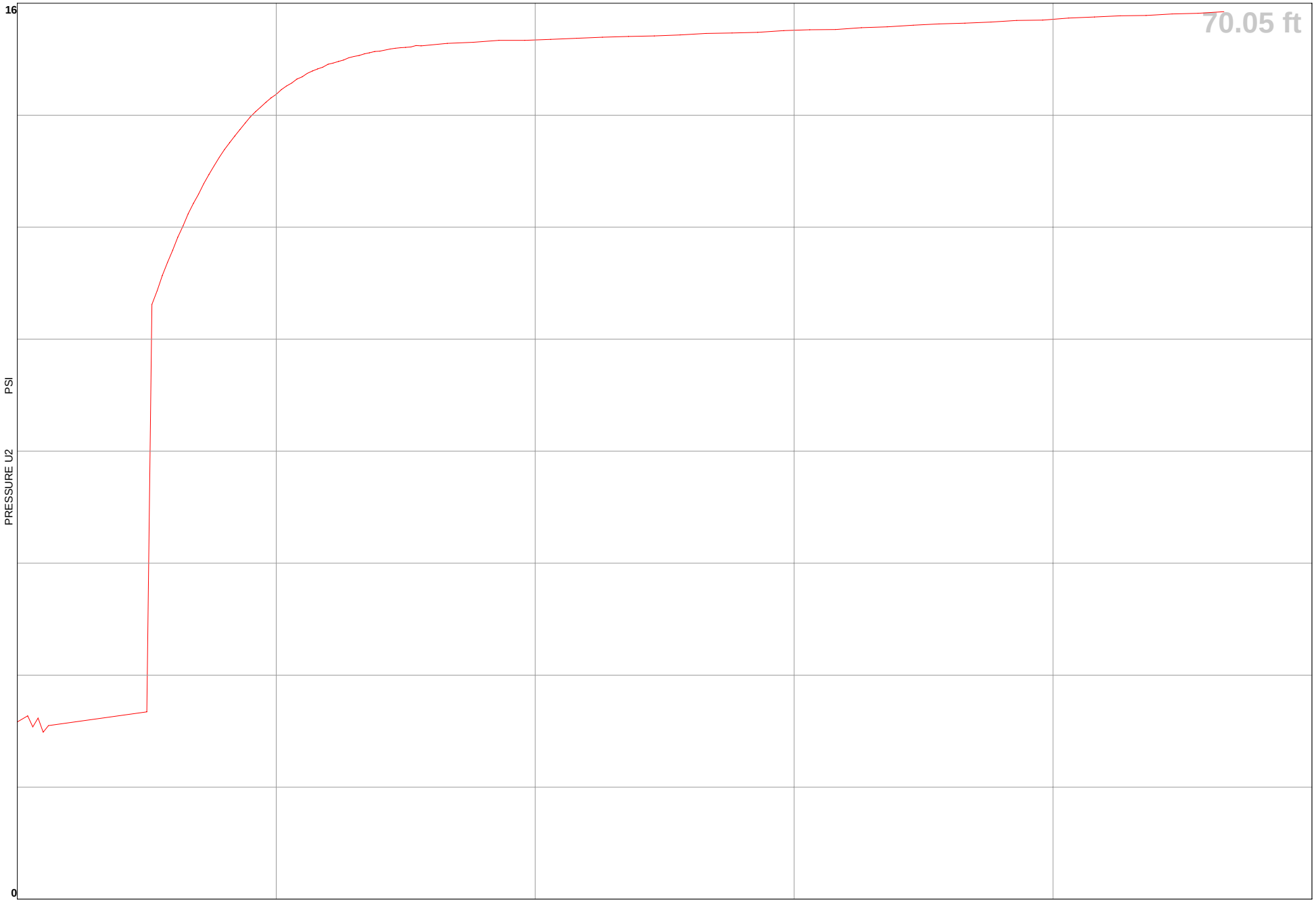
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

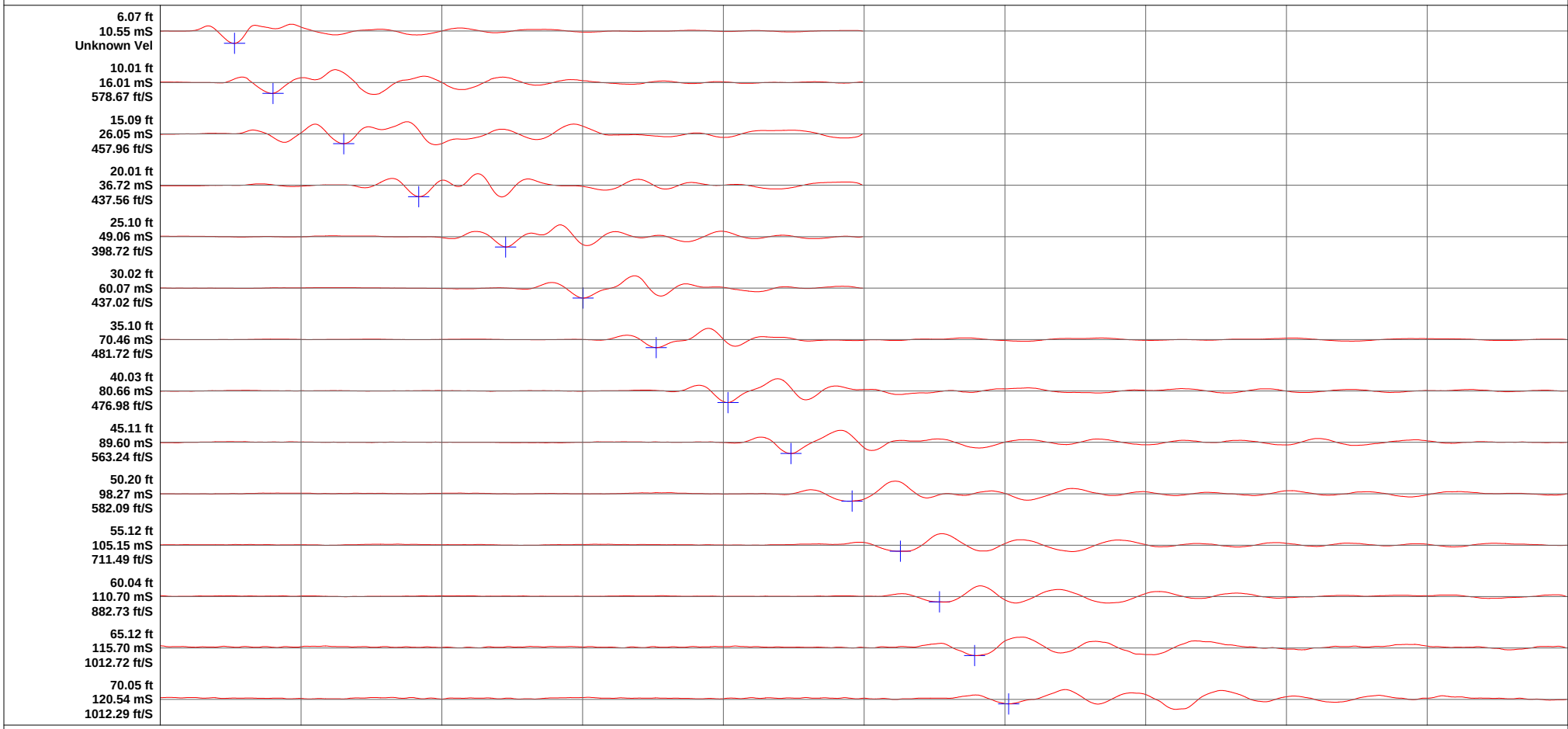
Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	
Job Number	08-156	Cone Number	DSG1047	GPS
Hole Number	CPT-08-45	Date and Time	11/19/2008 12:45:46 PM	
Equilized Pressure	15.84	Ground Water Depth	33.45	



Earth Mechanics

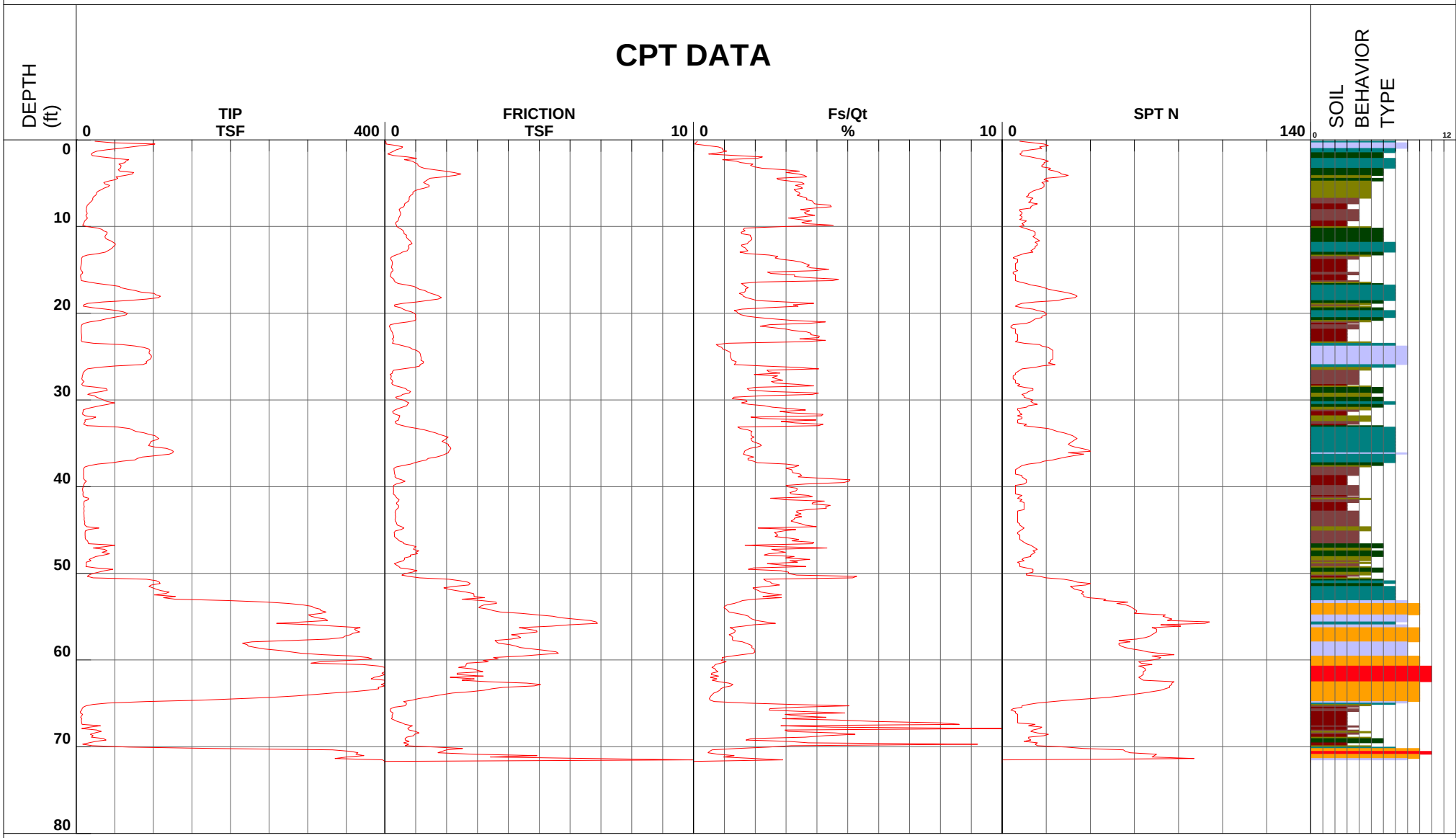
Location	EGG-WC Warner/Edwards	Operator	ML/VO	
Job Number	08-156	Cone Number	DSG1047	GPS
Hole Number	CPT-08-45	Date and Time	11/19/2008 12:45:46 PM	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(467).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-46	Date and Time	12/5/2008 8:35:39 AM	Maximum Depth	71.85 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

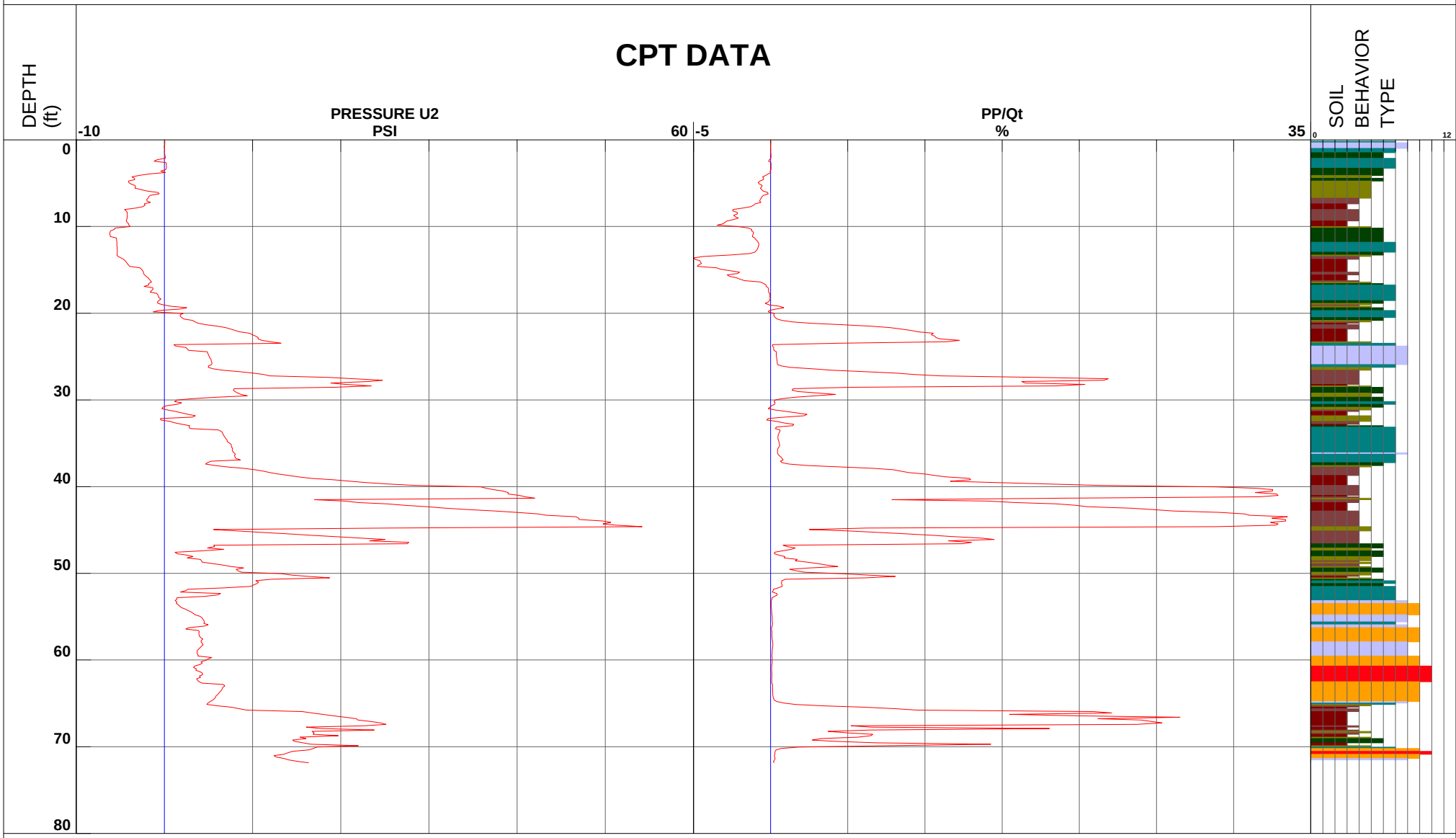
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(467).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-46	Date and Time	12/5/2008 8:35:39 AM	Maximum Depth	71.85 ft
Water Table Depth		0.00 ft			

CPT DATA



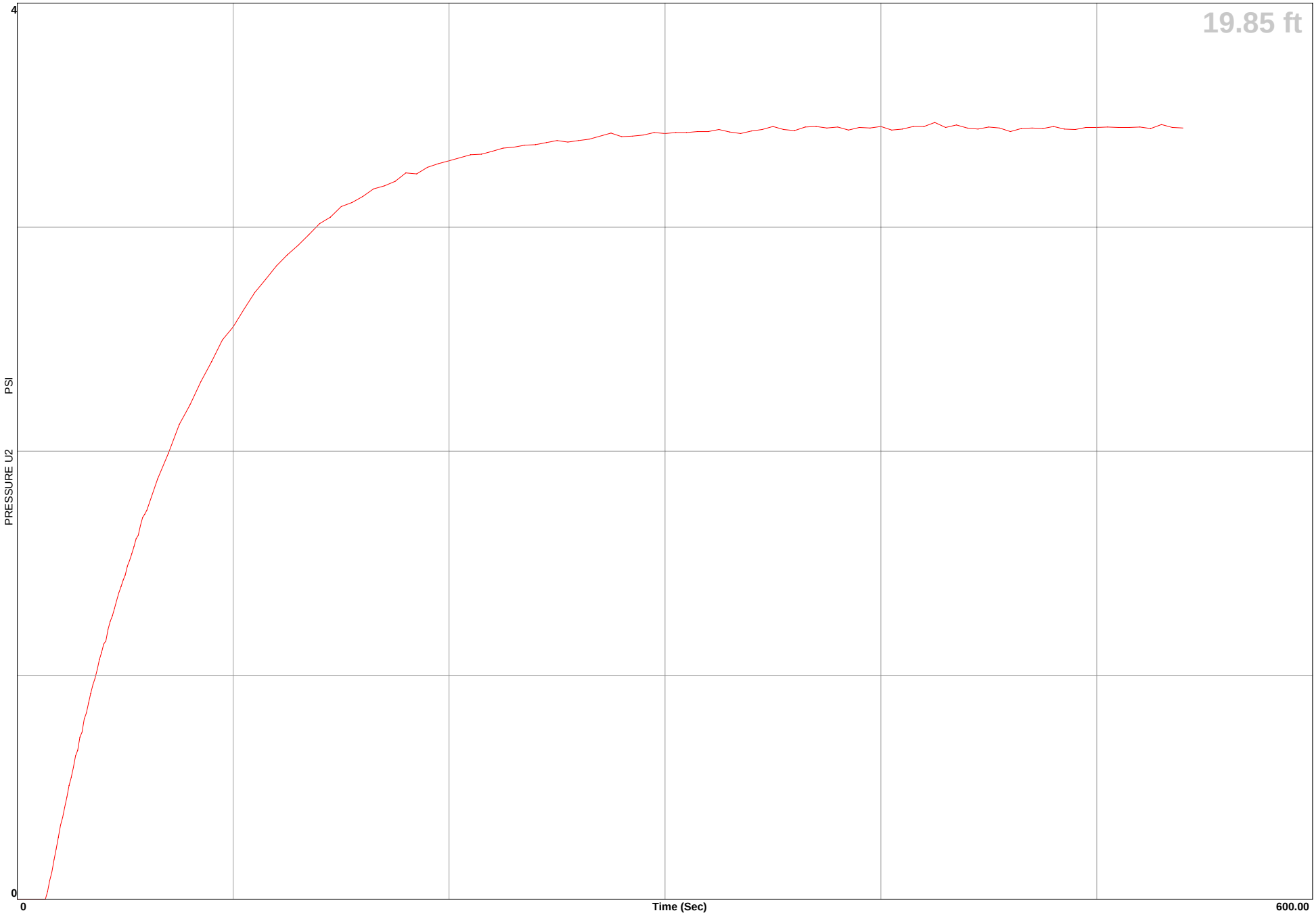
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

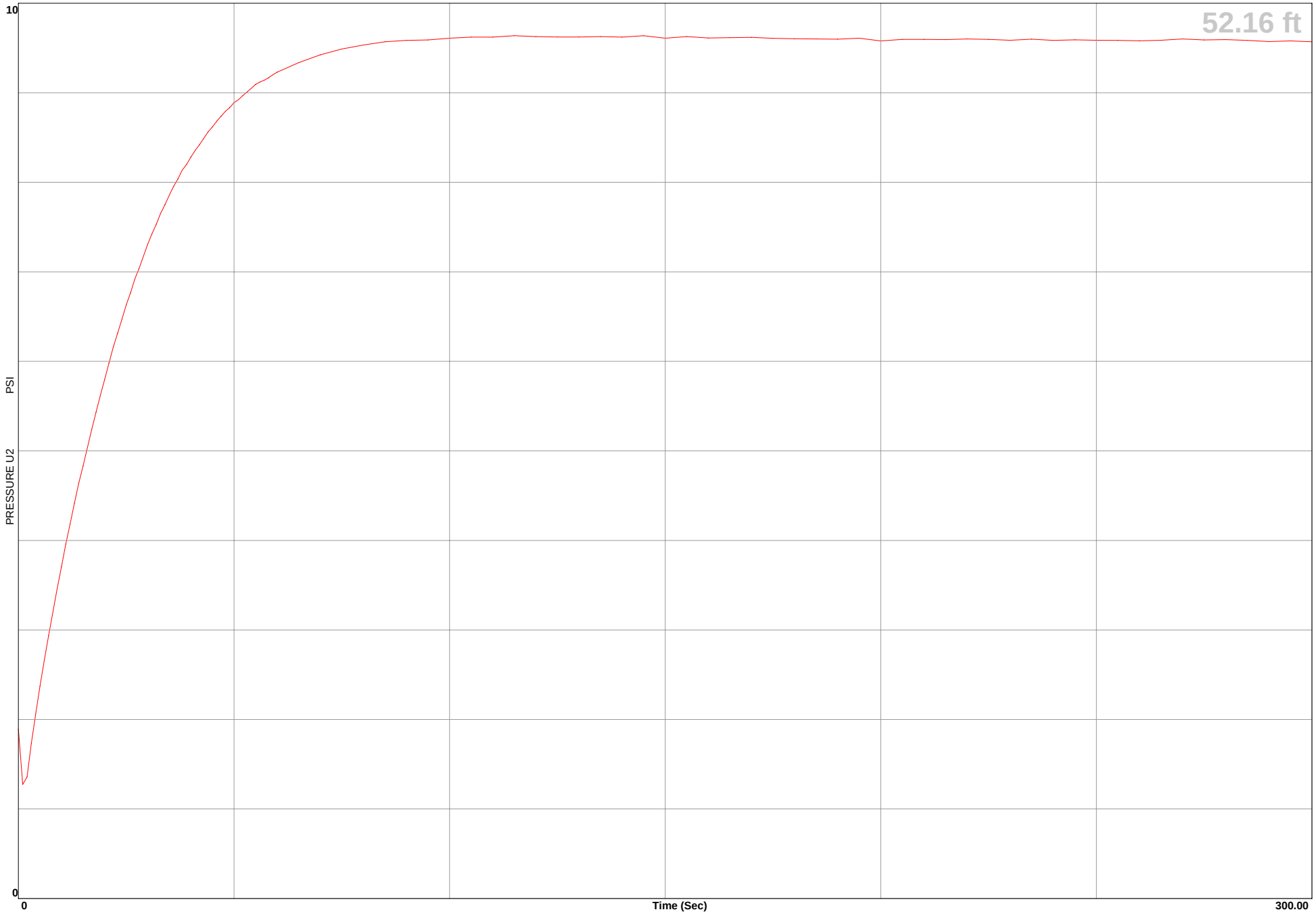
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-46**	**Date and Time**	**12/5/2008 8:35:39 AM**	
Equilized Pressure	**3.44**	**Ground Water Depth**	**11.90**	



Earth Mechanics

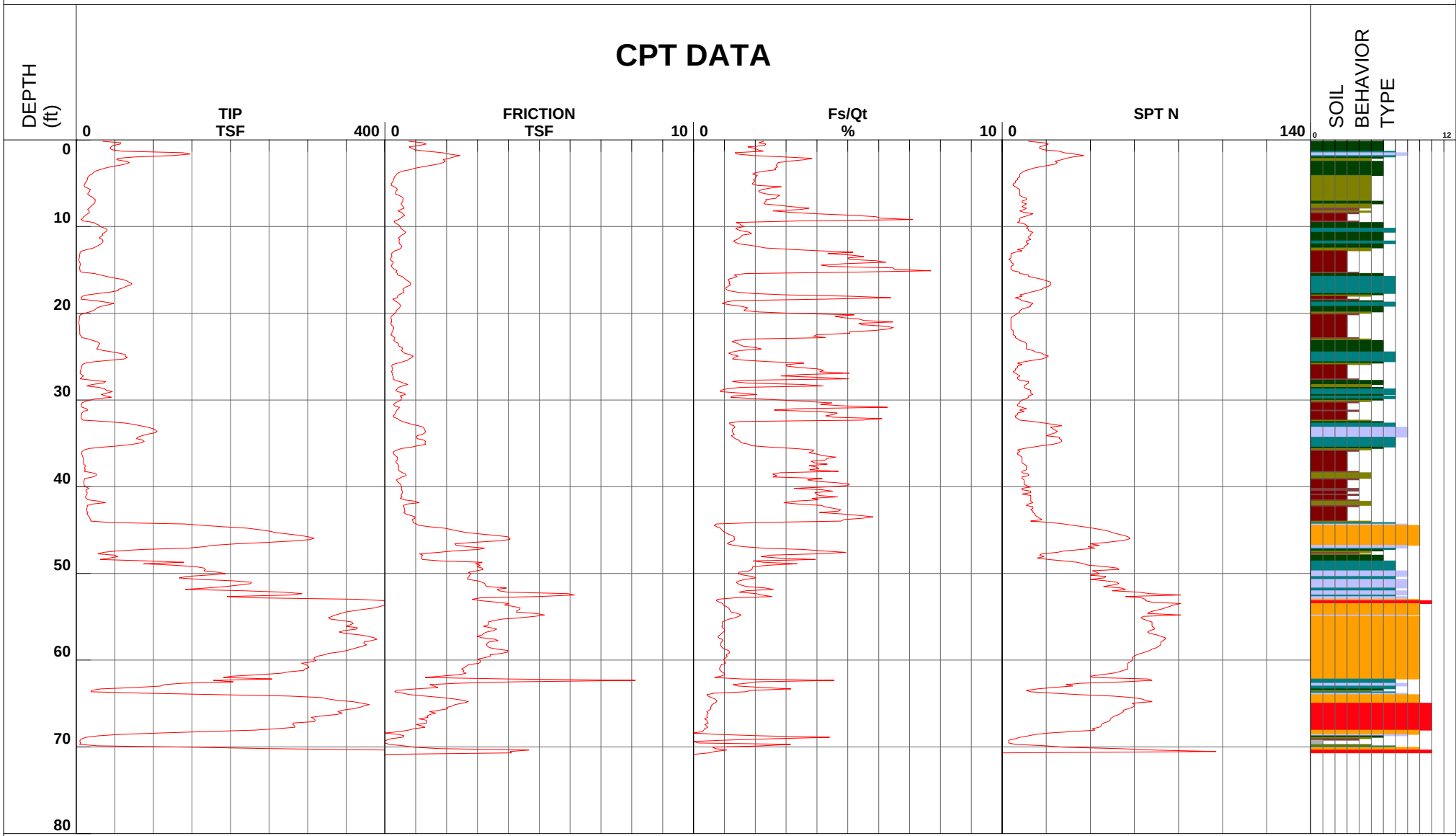
Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-46**	**Date and Time**	**12/5/2008 8:35:39 AM**	
Equilized Pressure	**9.5**	**Ground Water Depth**	**30.05**	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(419).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-47	Date and Time	11/19/2008 11:49:29 AM	Maximum Depth	71.03 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

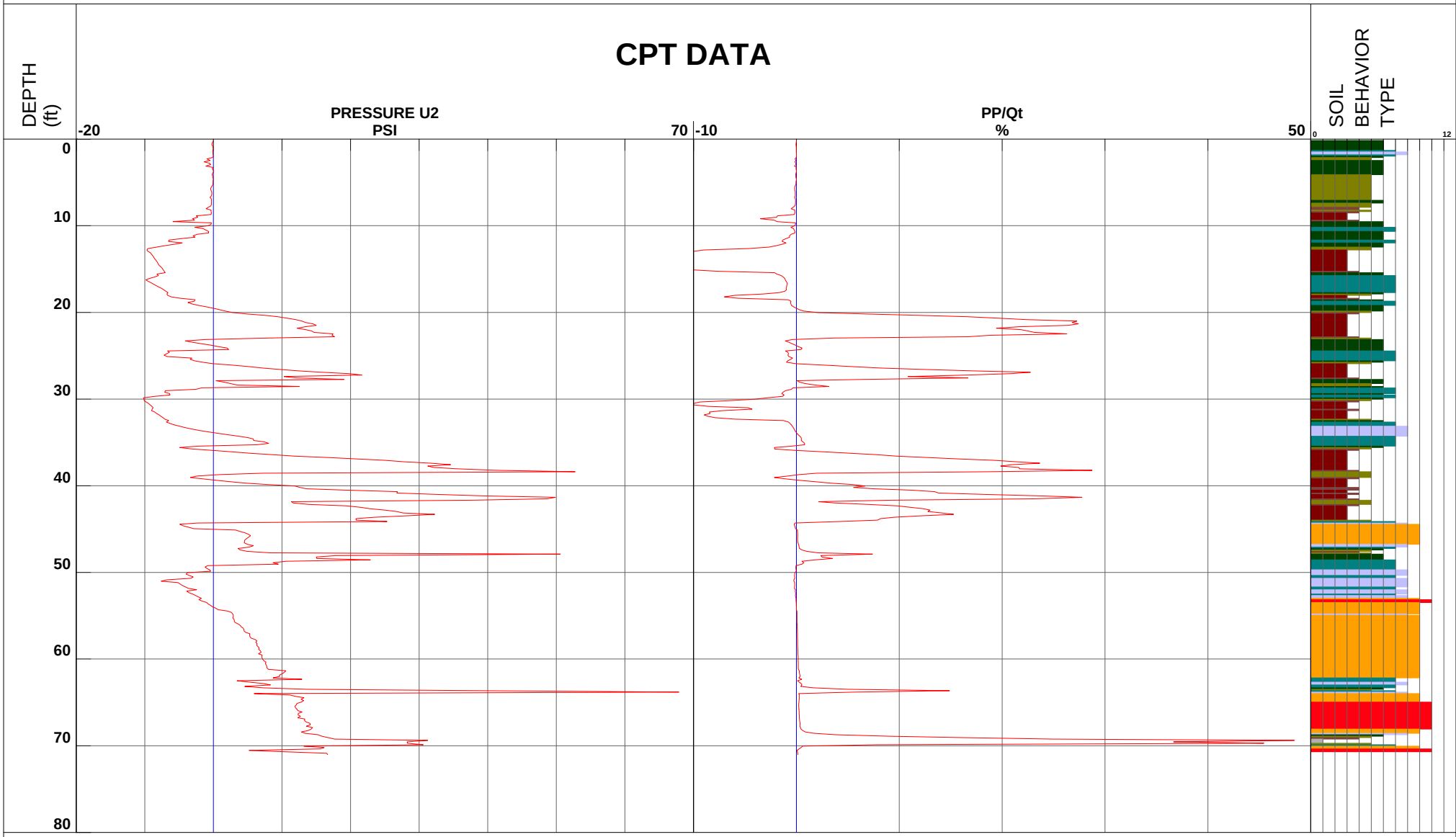
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(419).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-47	Date and Time	11/19/2008 11:49:29 AM	Maximum Depth	71.03 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

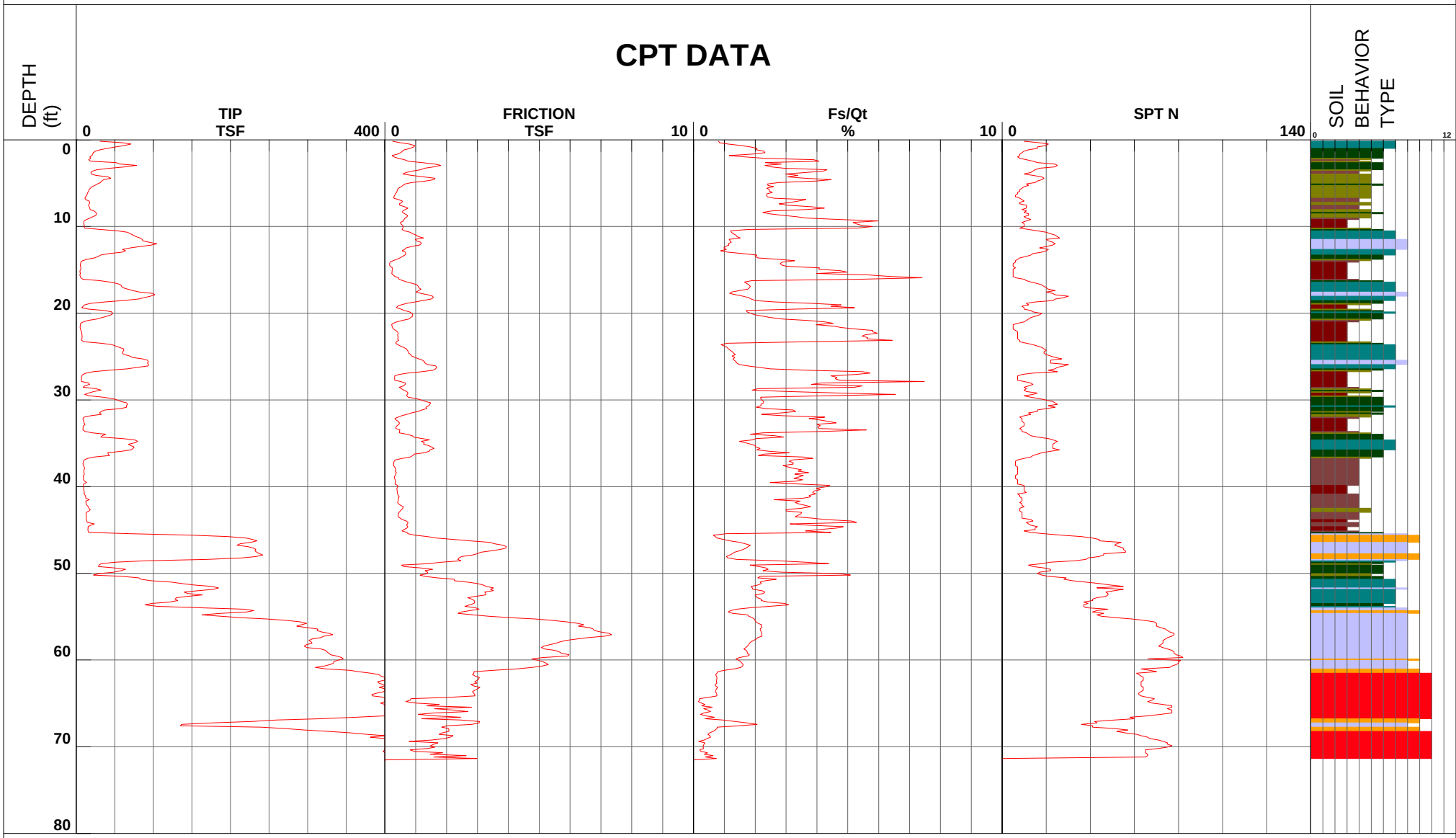
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(468).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-48	Date and Time	12/5/2008 9:56:17 AM	Maximum Depth	71.69 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained	4 - silty clay to clay	7 - silty sand to sandy silt	10 - gravelly sand to sand
2 - organic material	5 - clayey silt to silty clay	8 - sand to silty sand	11 - very stiff fine grained (*)
3 - clay	6 - sandy silt to clayey silt	9 - sand	12 - sand to clayey sand (*)

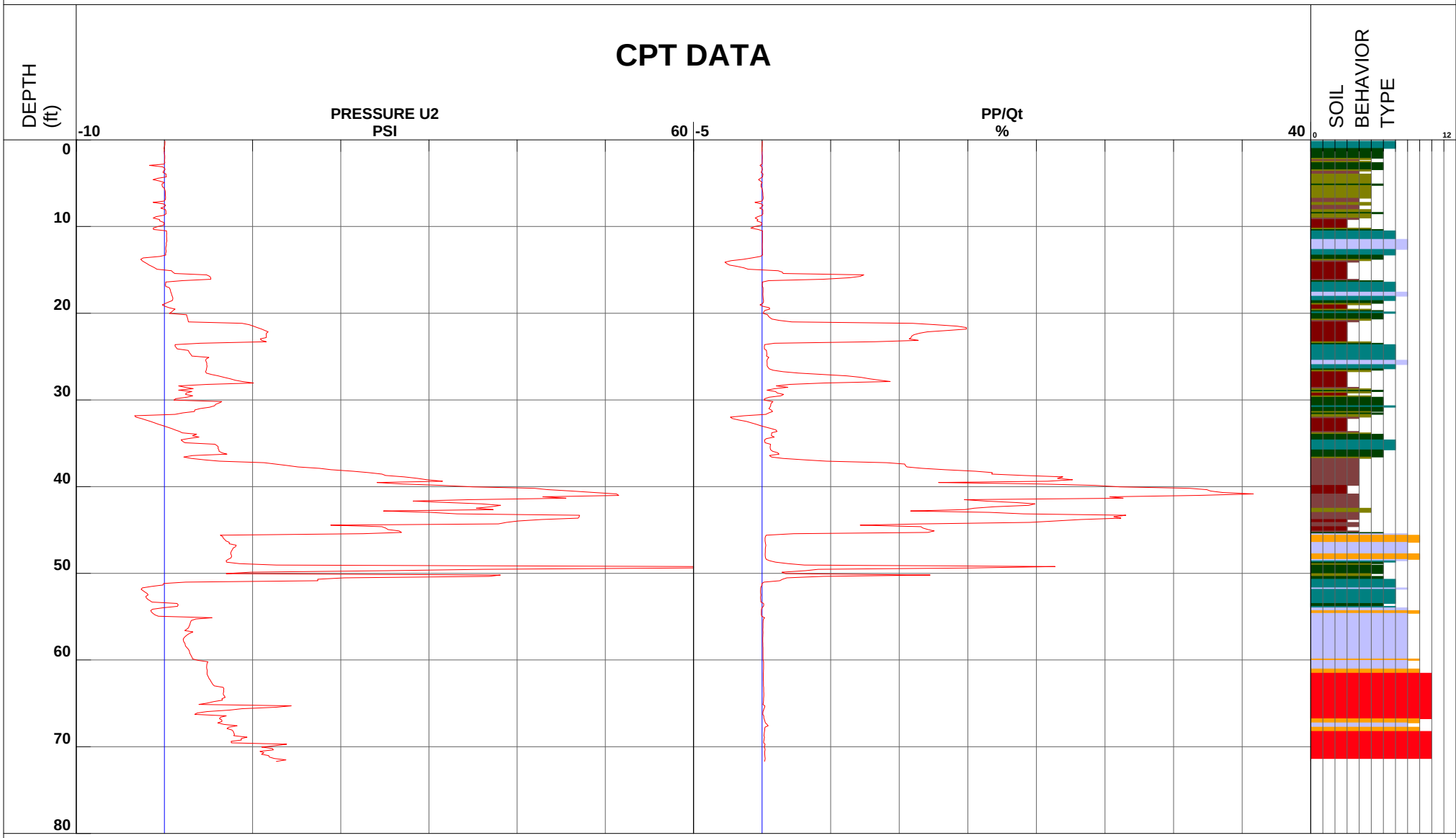
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(468).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-48	Date and Time	12/5/2008 9:56:17 AM	Maximum Depth	71.69 ft
Water Table Depth		0.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

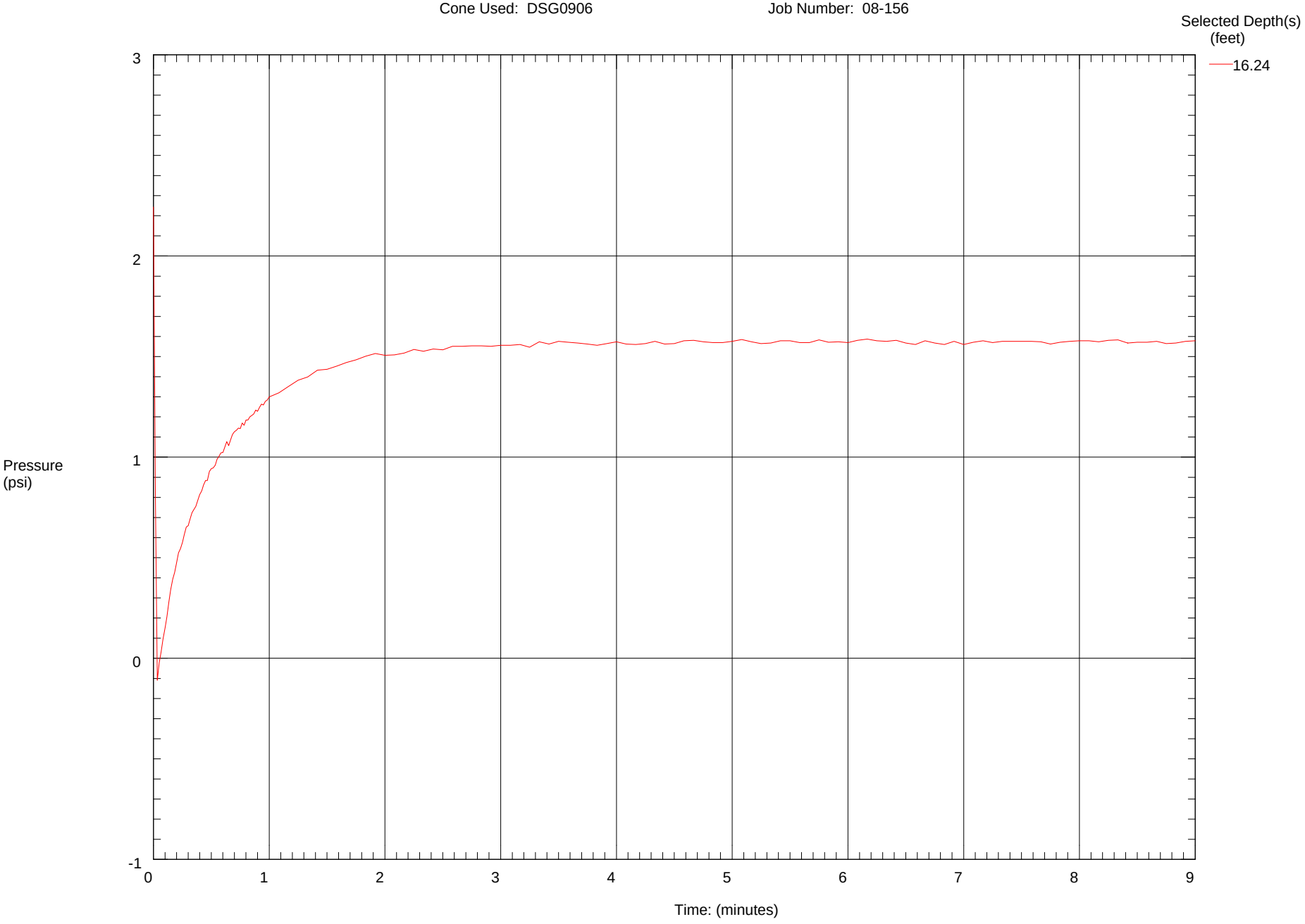
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Operator ML/BH
Sounding: CPT-08-48
Cone Used: DSG0906

CPT Date/Time: 12/5/2008 9:56:17 AM
Location: EGG-WC Warner/Edwards
Job Number: 08-156

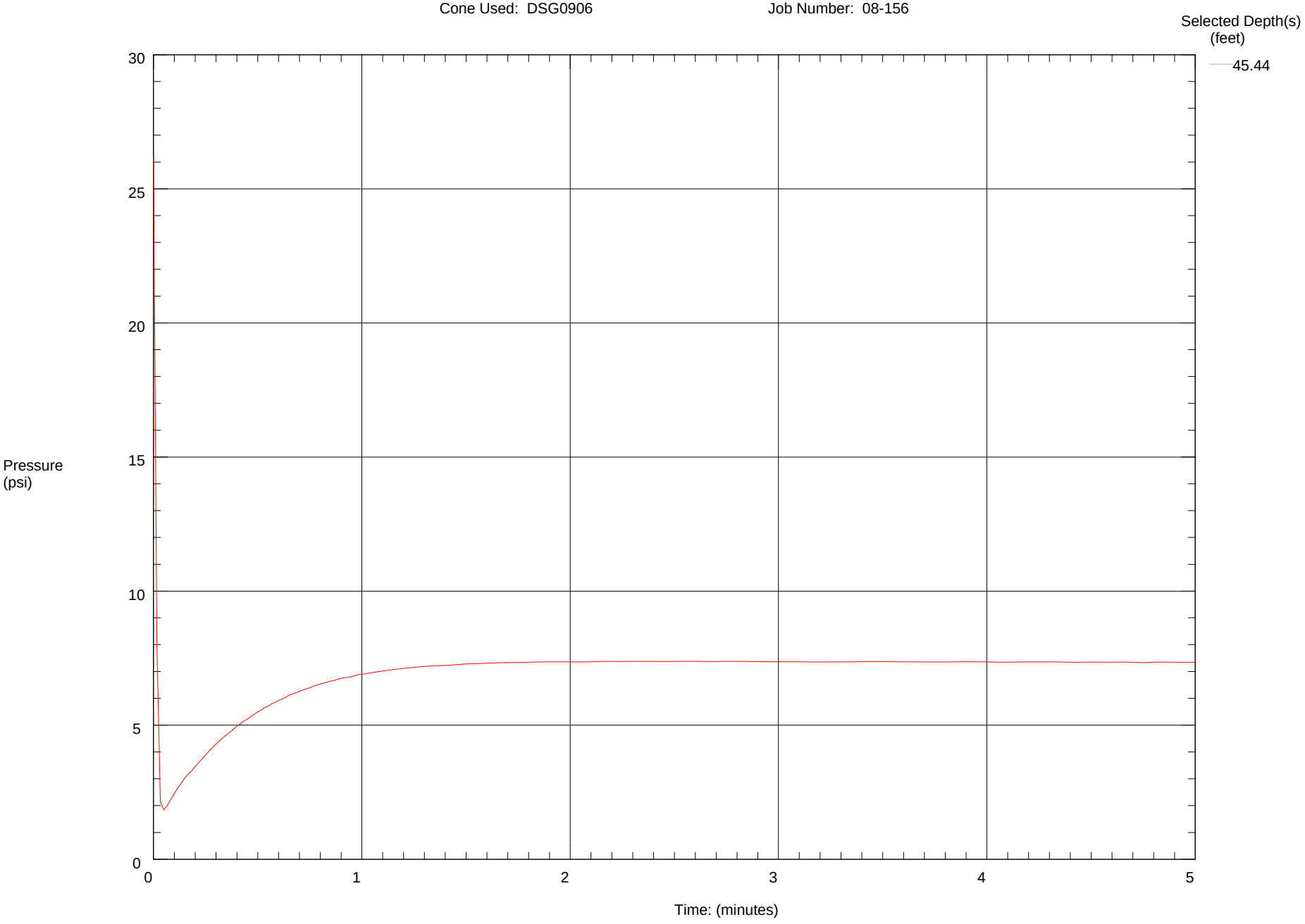


Maximum Pressure = 2.243 psi
Hydrostatic Pressure = 11.05 ft

Earth Mechanics

Operator ML/BH
Sounding: CPT-08-48
Cone Used: DSG0906

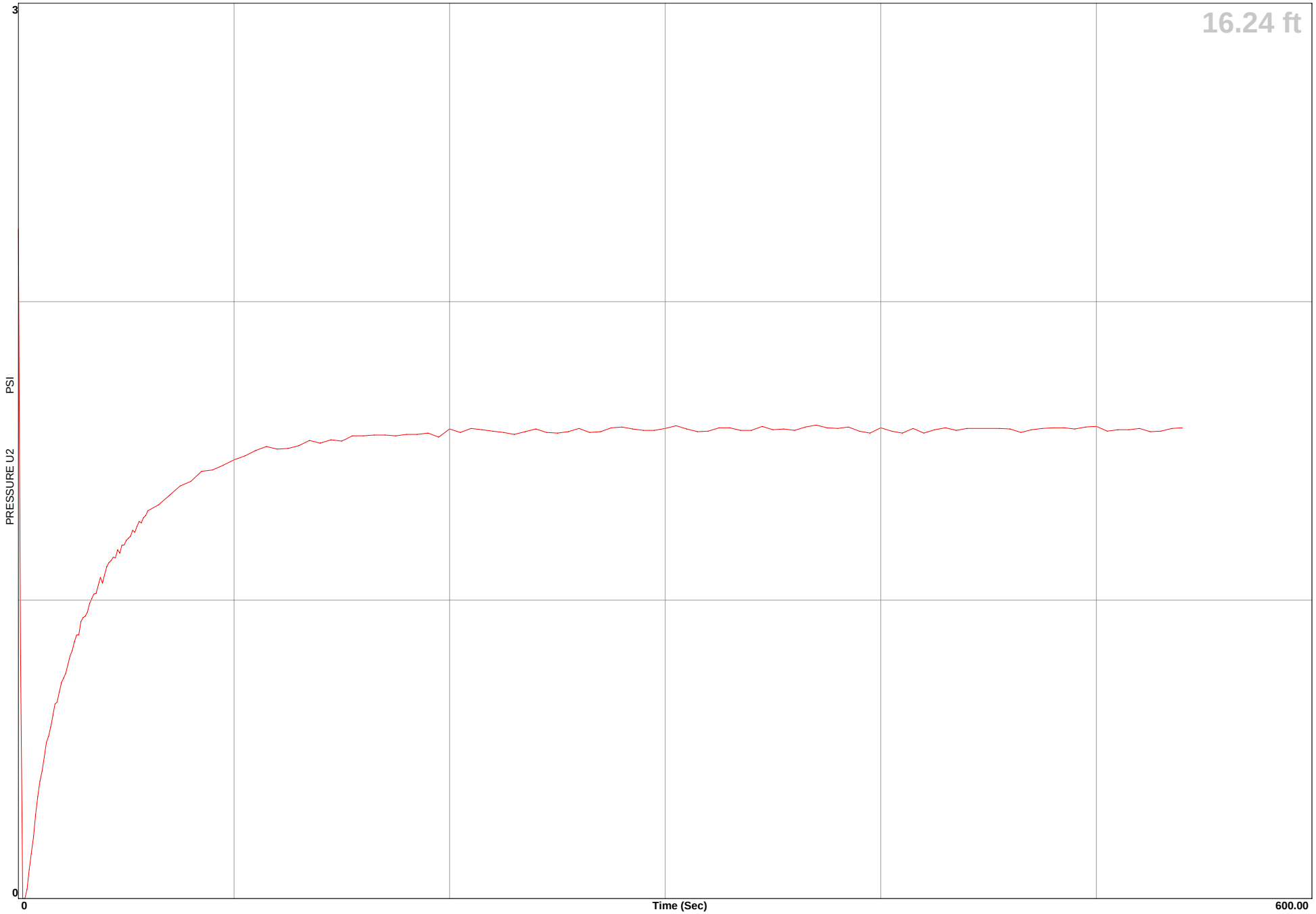
CPT Date/Time: 12/5/2008 9:56:17 AM
Location: EGG-WC Warner/Edwards
Job Number: 08-156



Maximum Pressure = 26.283 psi
Hydrostatic Pressure = 28.80 ft

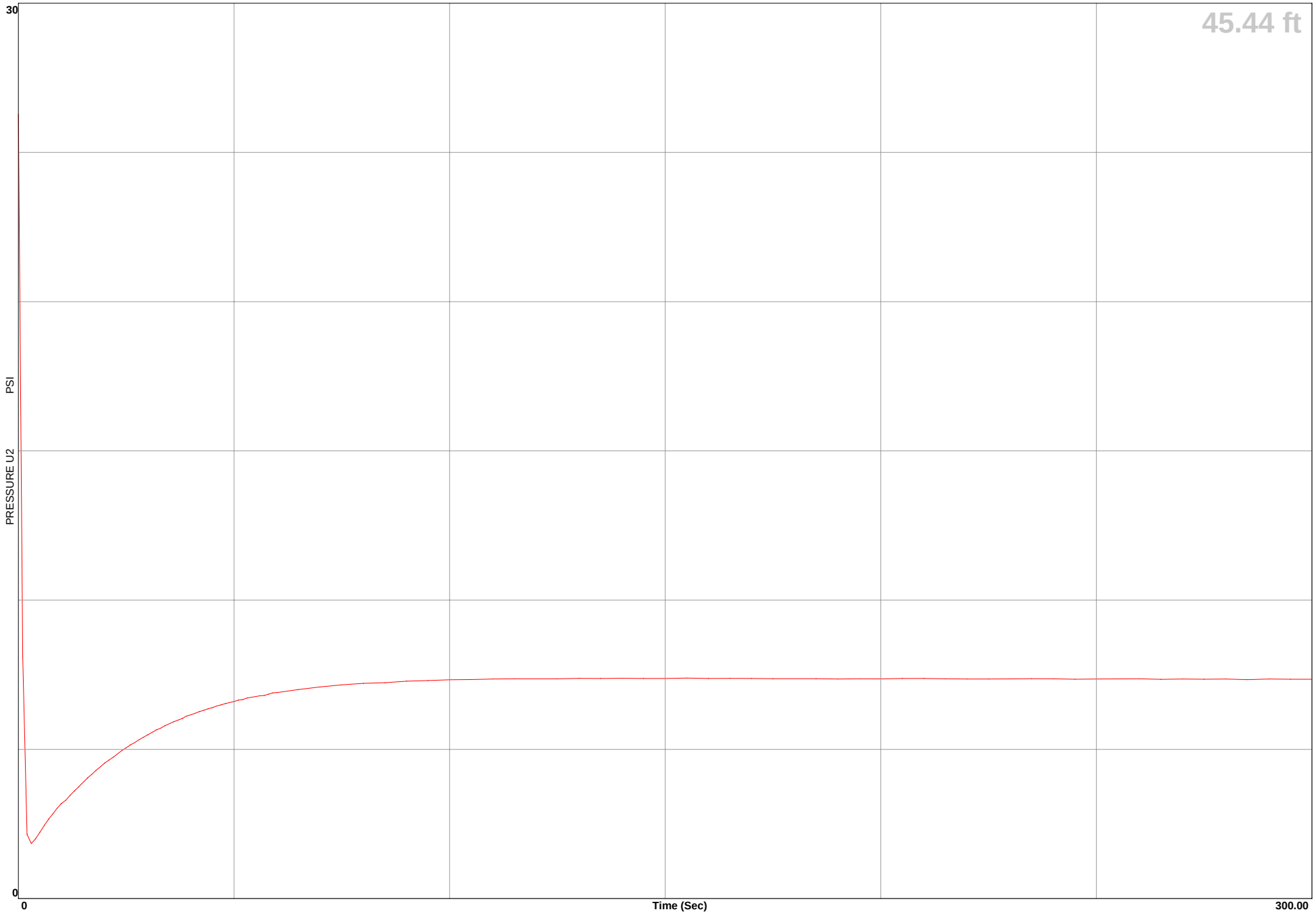
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-48**	**Date and Time**	**12/5/2008 9:56:17 AM**	
Equilized Pressure	**1.57**	**Ground Water Depth**	**12.61**	



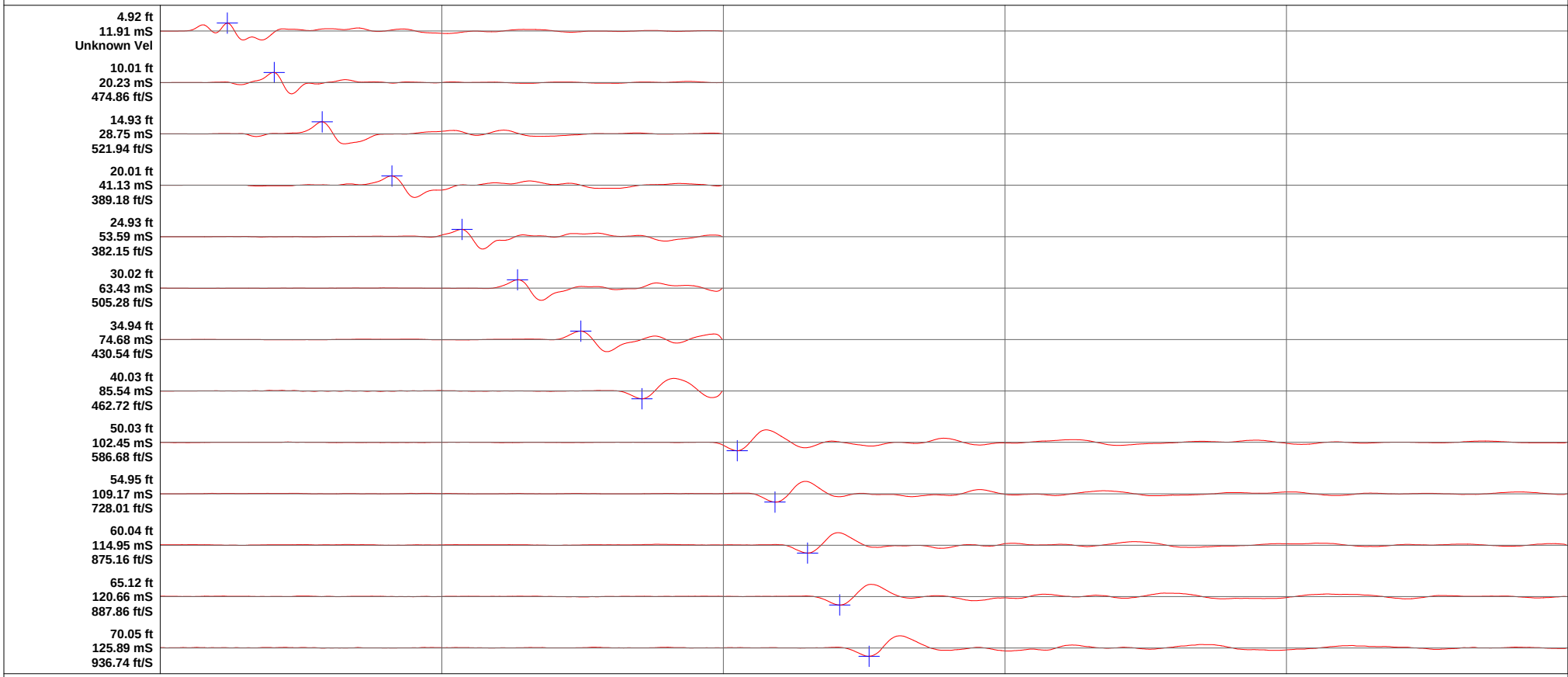
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-48**	**Date and Time**	**12/5/2008 9:56:17 AM**	
Equilized Pressure	**7.34**	**Ground Water Depth**	**28.48**	



Earth Mechanics

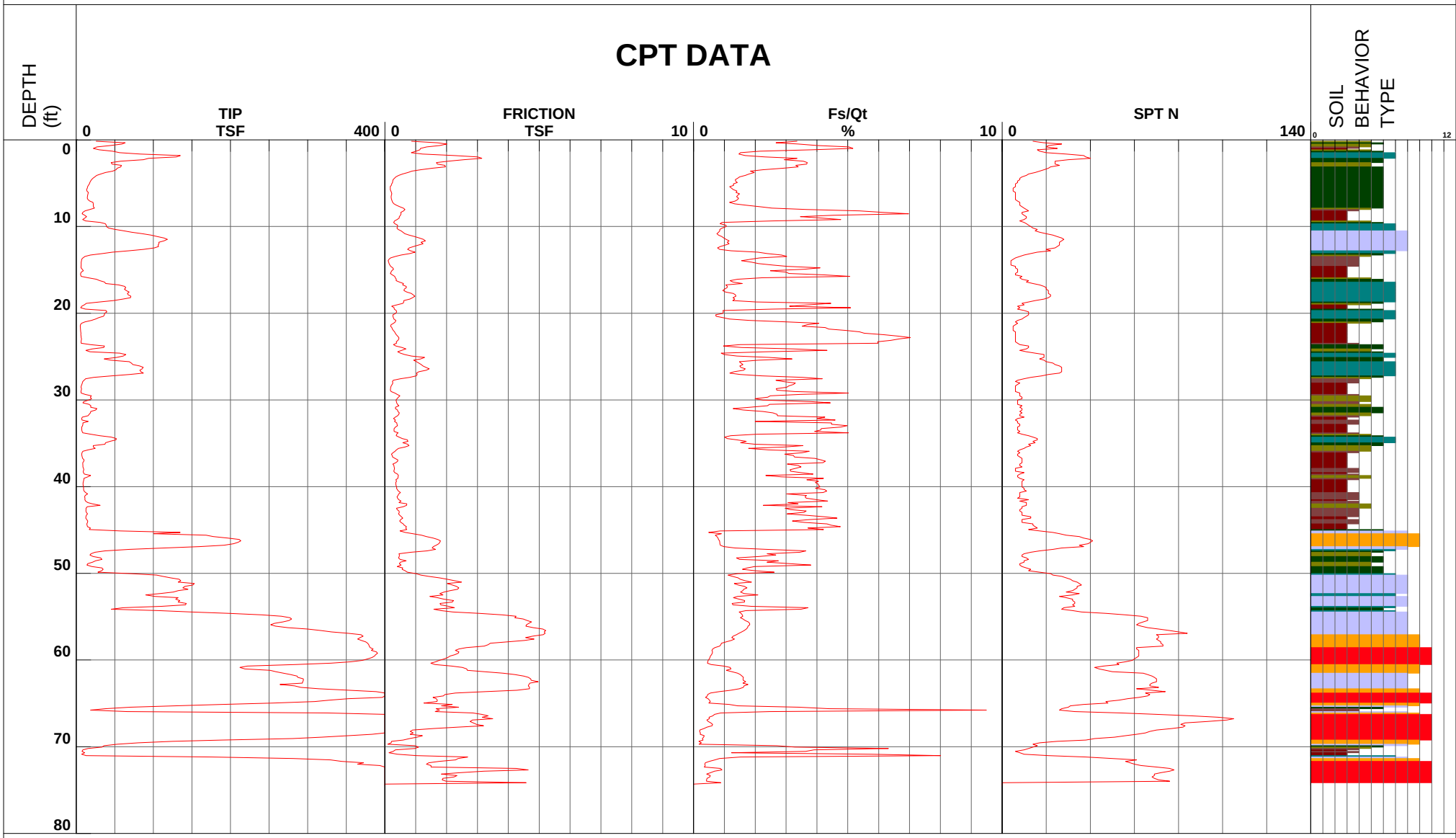
Location	EGG-WC Warner/Edwards	Operator	ML/BH	
Job Number	08-156	Cone Number	DSG0906	GPS
Hole Number	CPT-08-48	Date and Time	12/5/2008 9:56:17 AM	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(418).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-49	Date and Time	11/19/2008 10:01:06 AM	Maximum Depth	74.47 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

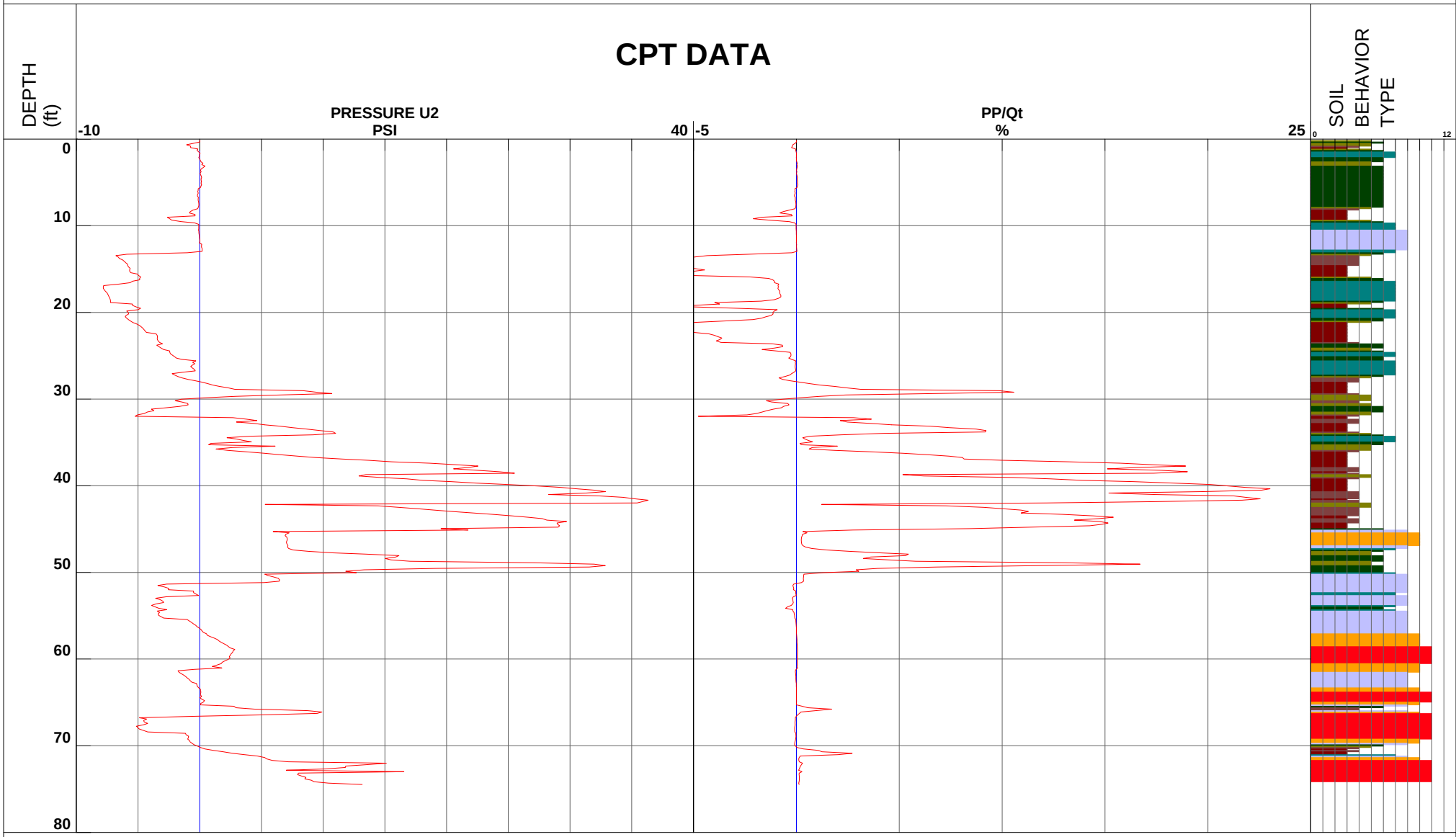
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(418).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-49	Date and Time	11/19/2008 10:01:06 AM	Maximum Depth	74.47 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

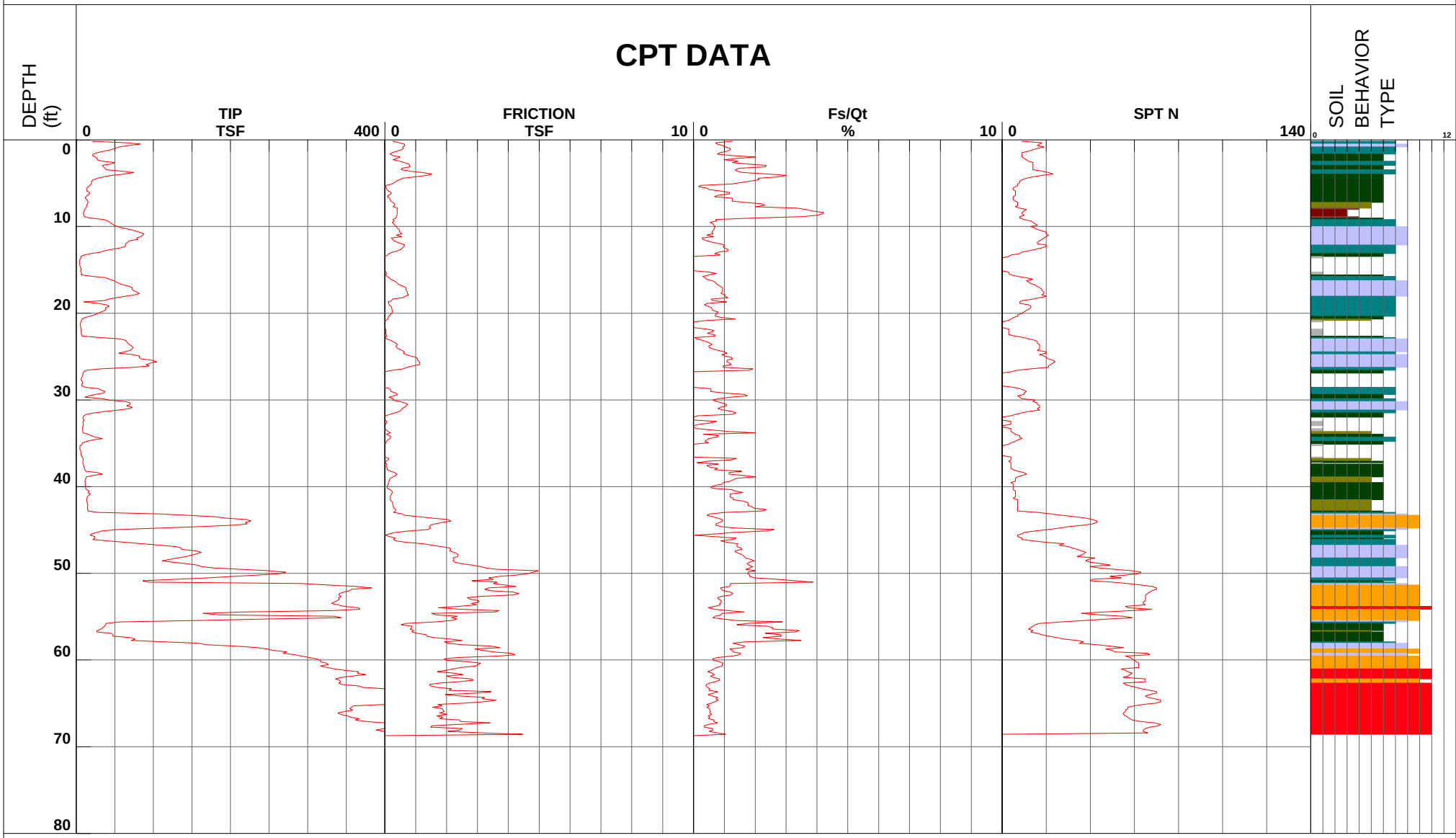
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(469).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-50	Date and Time	12/5/2008 12:31:45 PM	Maximum Depth	68.90 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

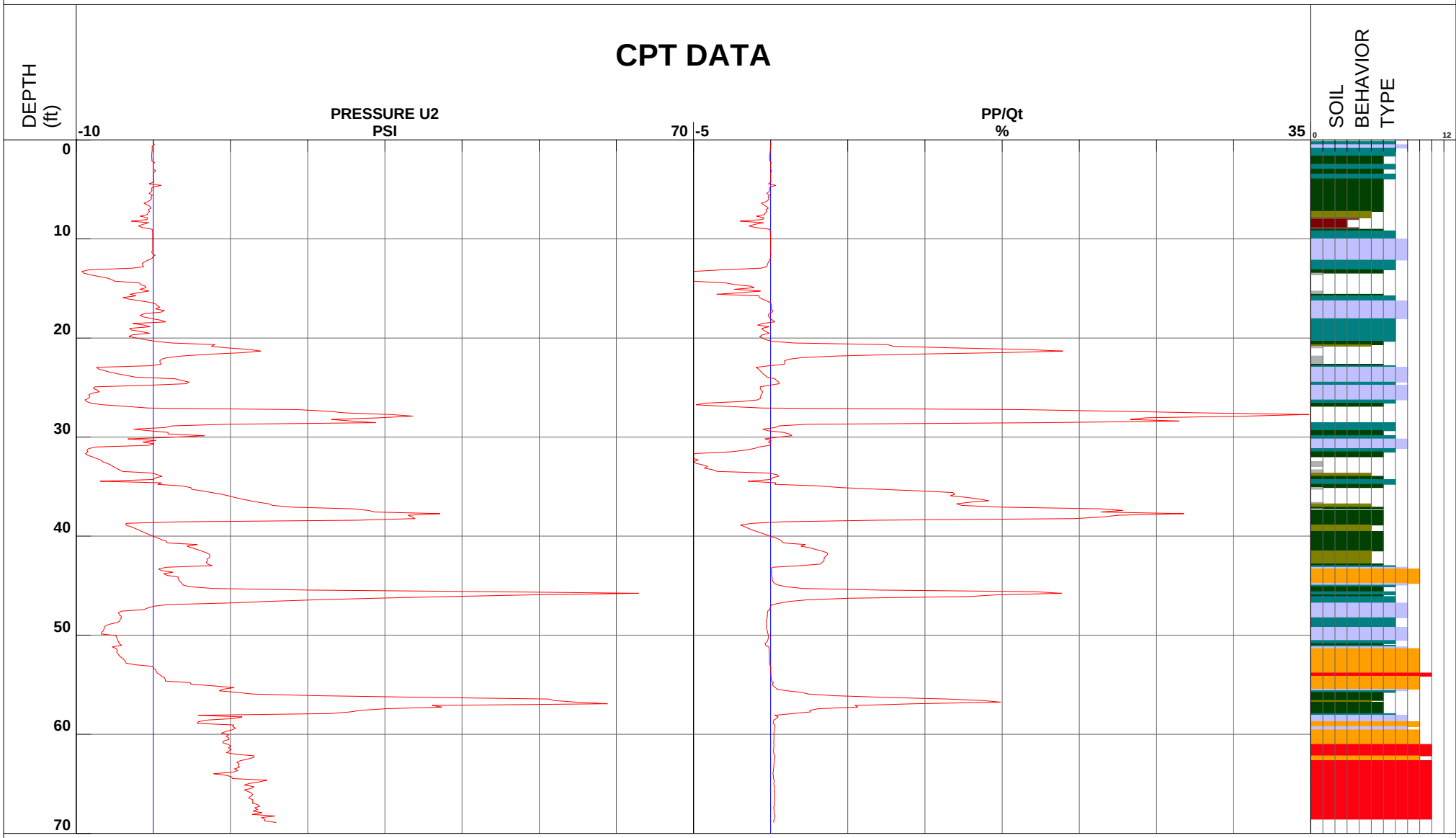
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(469).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-50	Date and Time	12/5/2008 12:31:45 PM	Maximum Depth	68.90 ft
Water Table Depth		0.00 ft			

CPT DATA



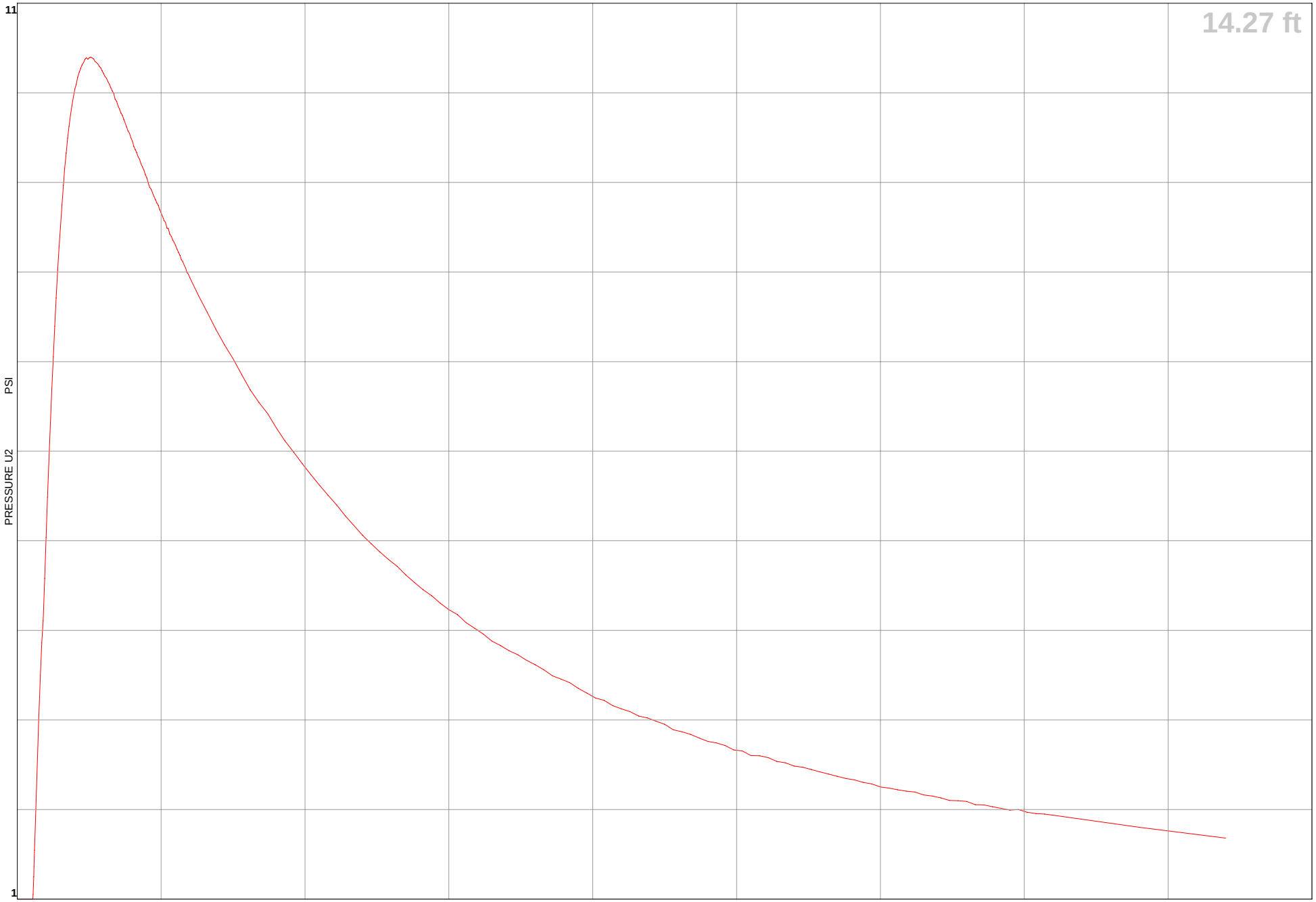
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

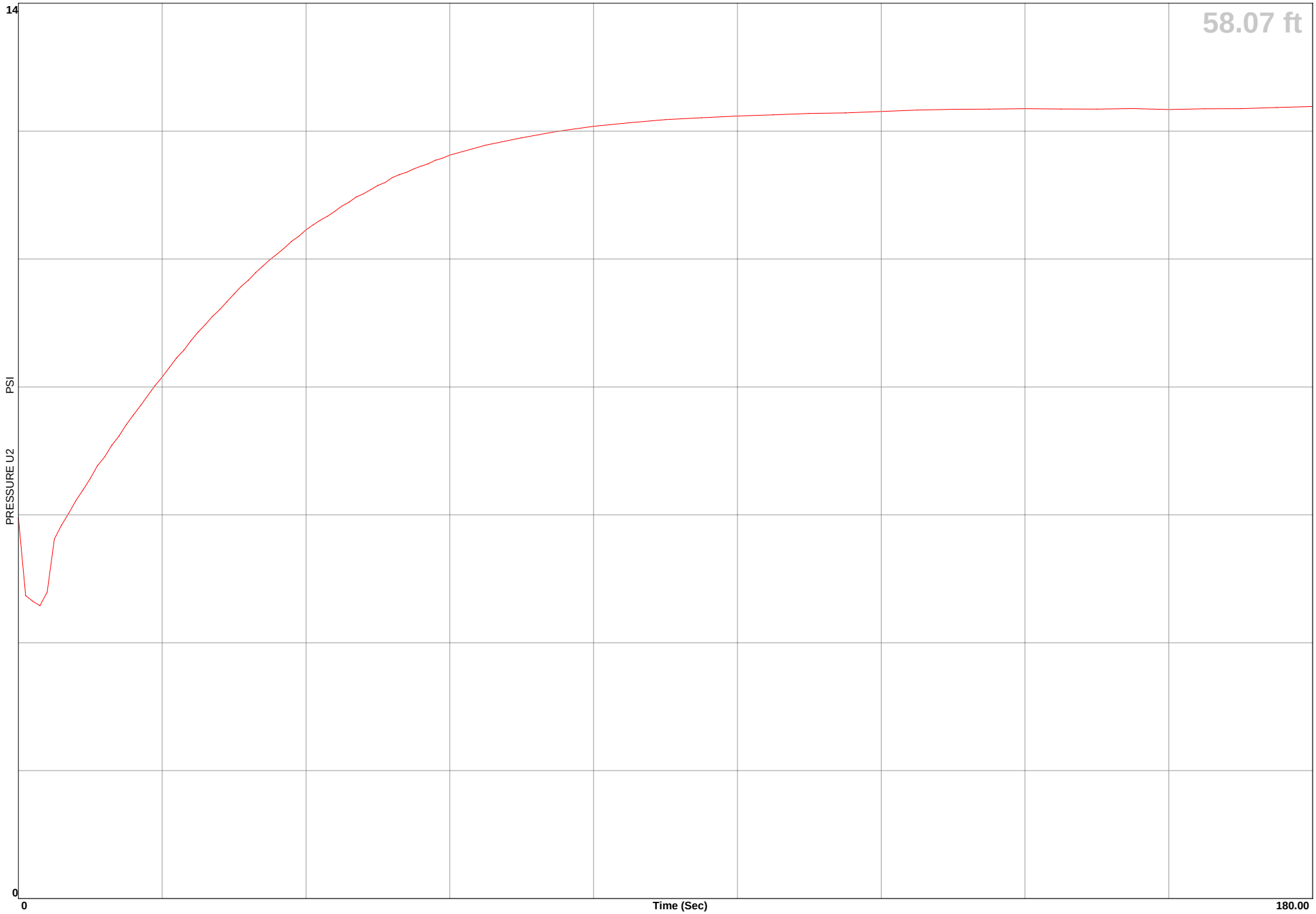
Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	GPS
Job Number	08-156	Cone Number	DSG0906	
Hole Number	CPT-08-50	Date and Time	12/5/2008 12:31:45 PM	
Equilized Pressure	1.67	Ground Water Depth	10.41	



Earth Mechanics

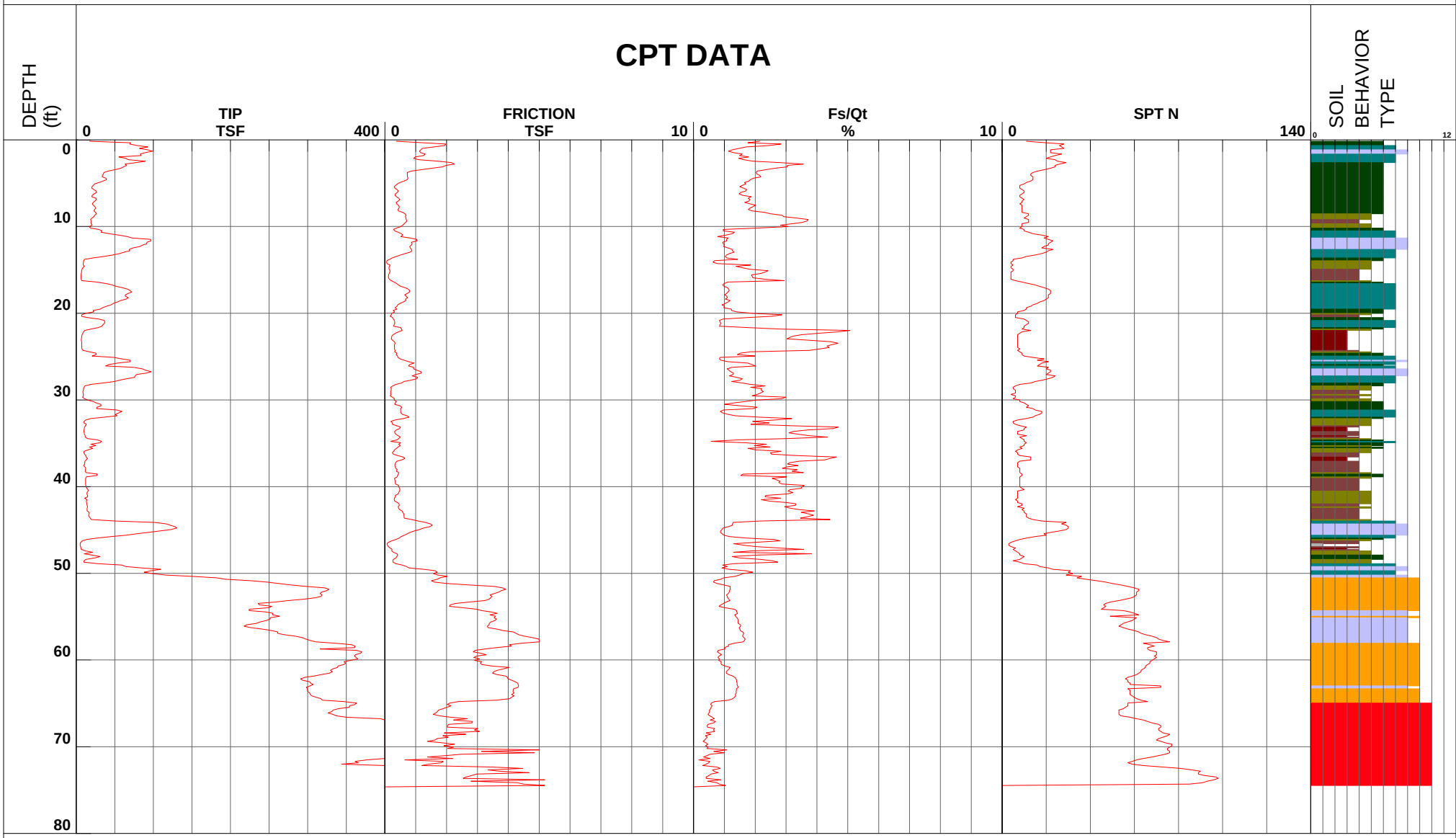
Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-50**	**Date and Time**	**12/5/2008 12:31:45 PM**	
Equilized Pressure	**12.38**	**Ground Water Depth**	**29.47**	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(417).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-51	Date and Time	11/19/2008 8:40:13 AM	Maximum Depth	74.80 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

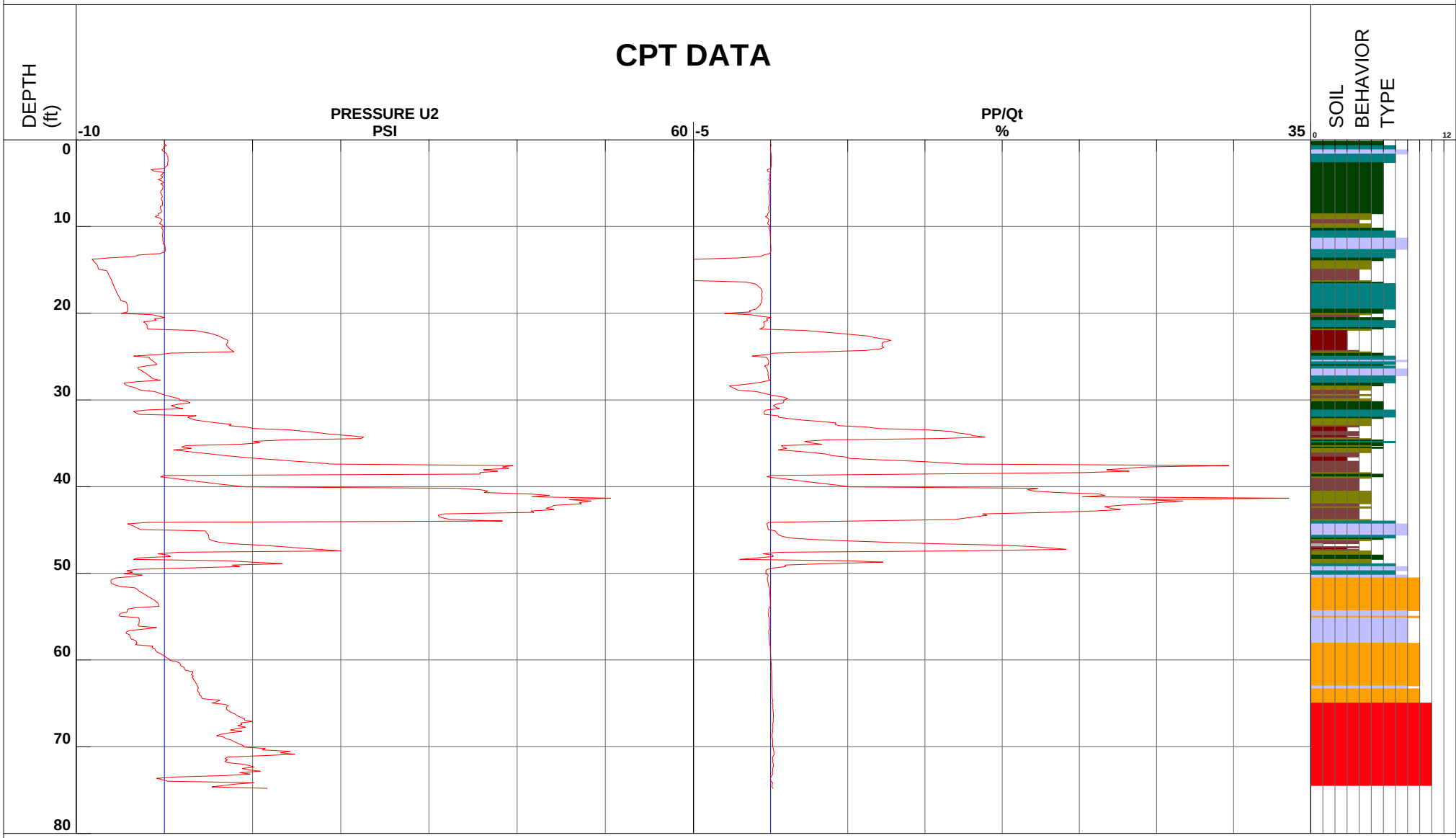
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(417).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-51	Date and Time	11/19/2008 8:40:13 AM	Maximum Depth	74.80 ft
Water Table Depth		12.00 ft			

CPT DATA



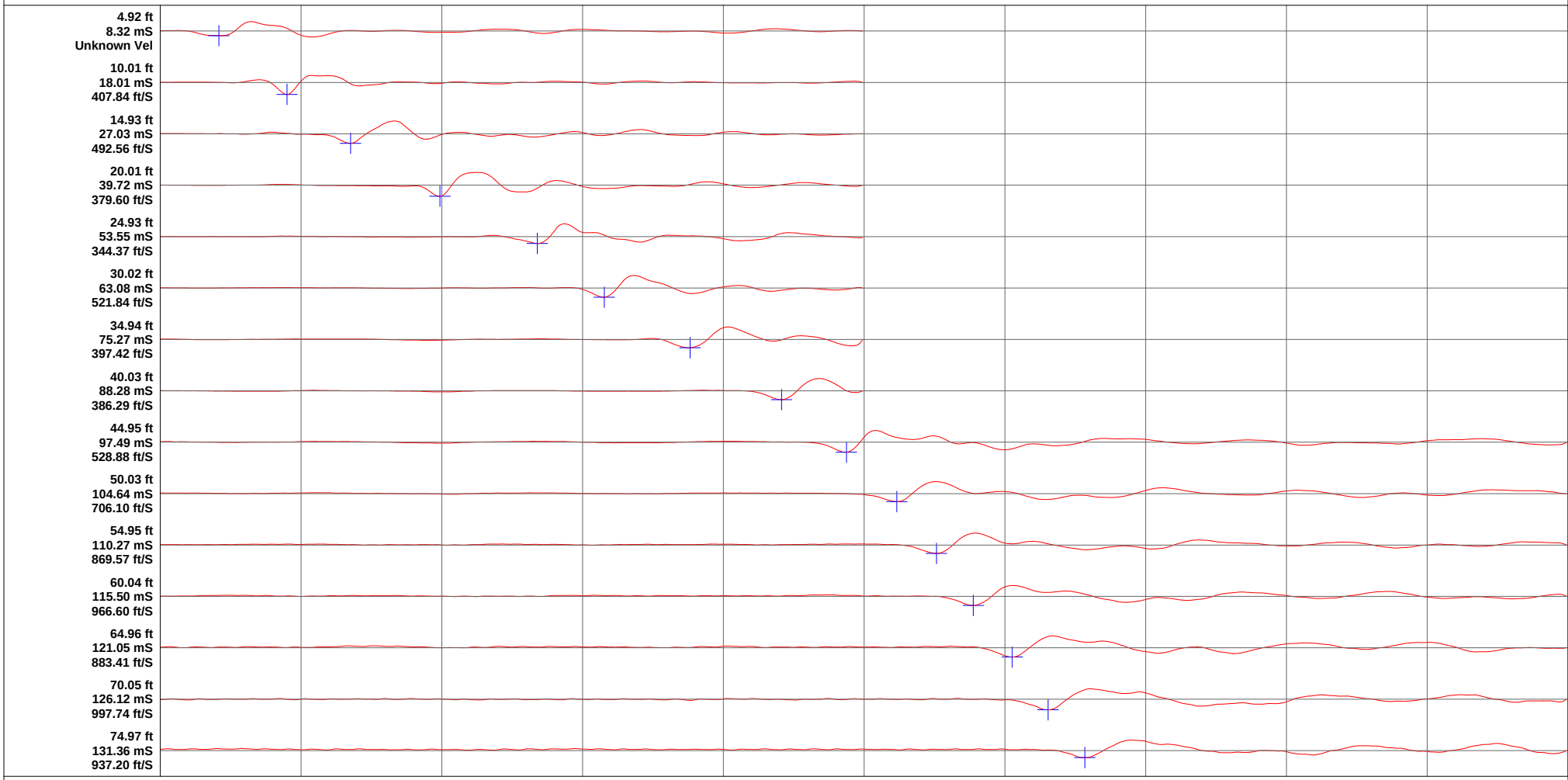
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

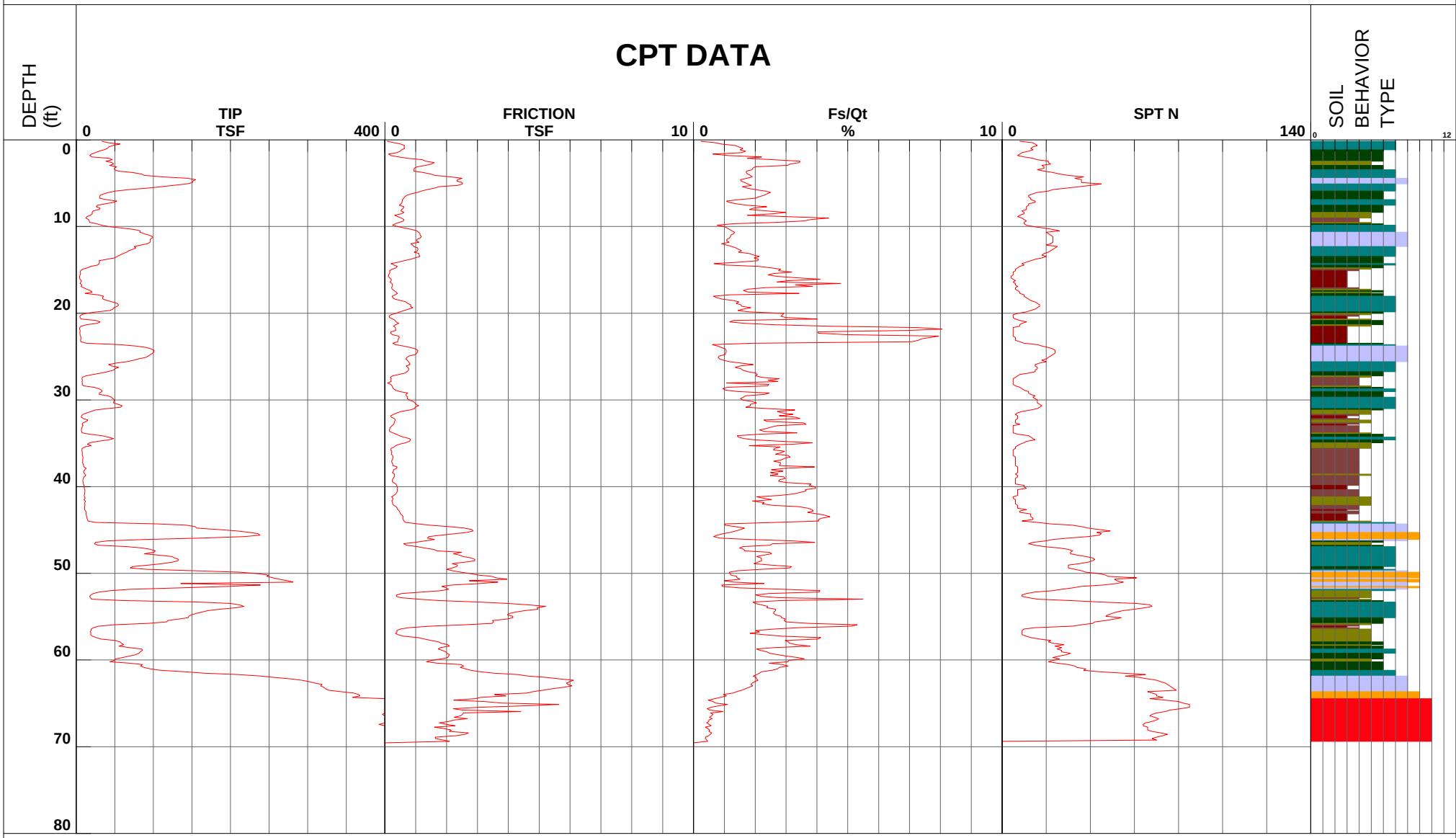
Location	EGG-WC Warner/Edwards	Operator	ML/VO	
Job Number	08-156	Cone Number	DSG1047	GPS
Hole Number	CPT-08-51	Date and Time	11/19/2008 8:40:13 AM	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(470).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-52	Date and Time	12/5/2008 2:43:25 PM	Maximum Depth	69.72 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

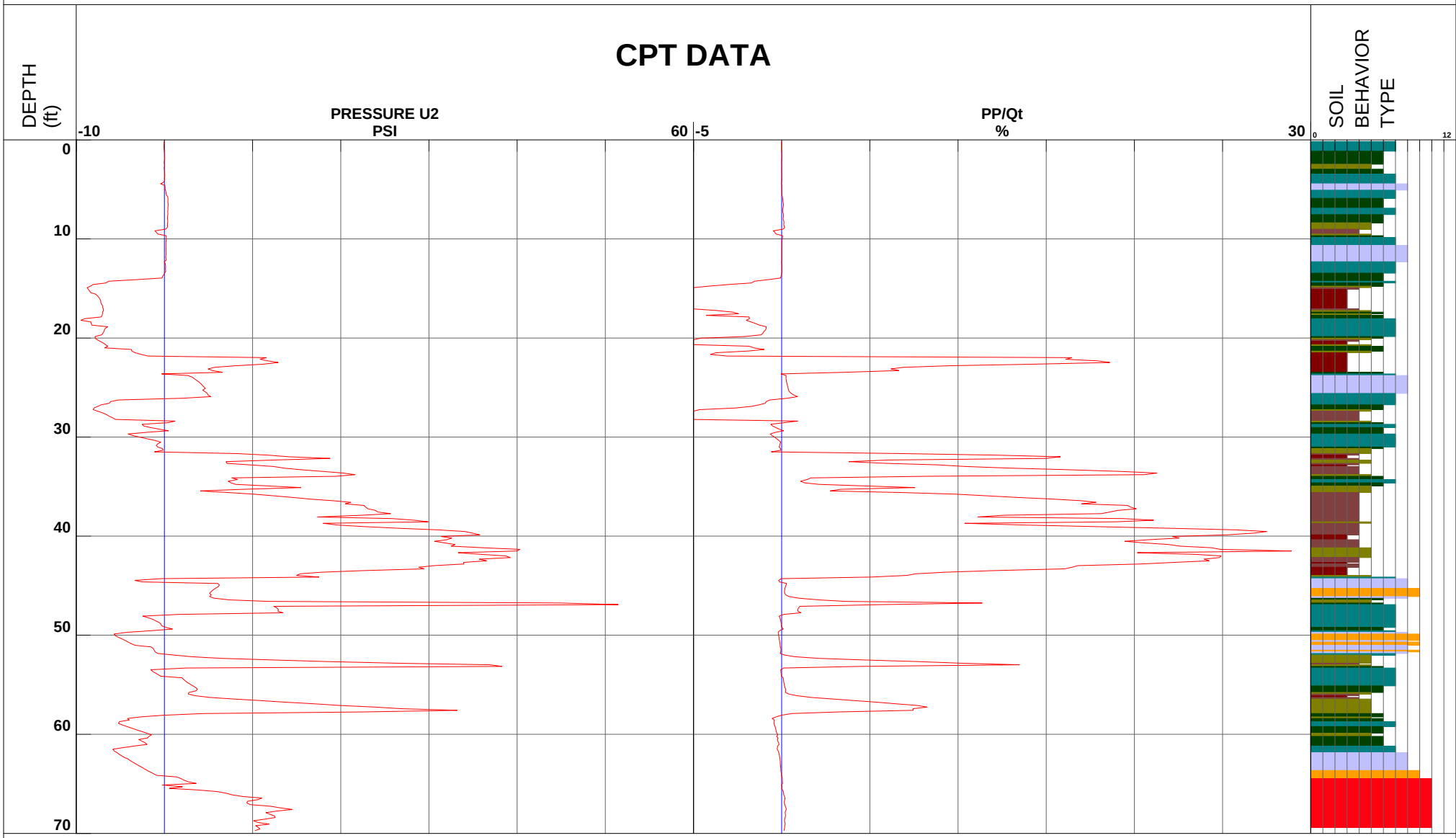
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(470).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-52	Date and Time	12/5/2008 2:43:25 PM	Maximum Depth	69.72 ft
Water Table Depth		0.00 ft			

CPT DATA



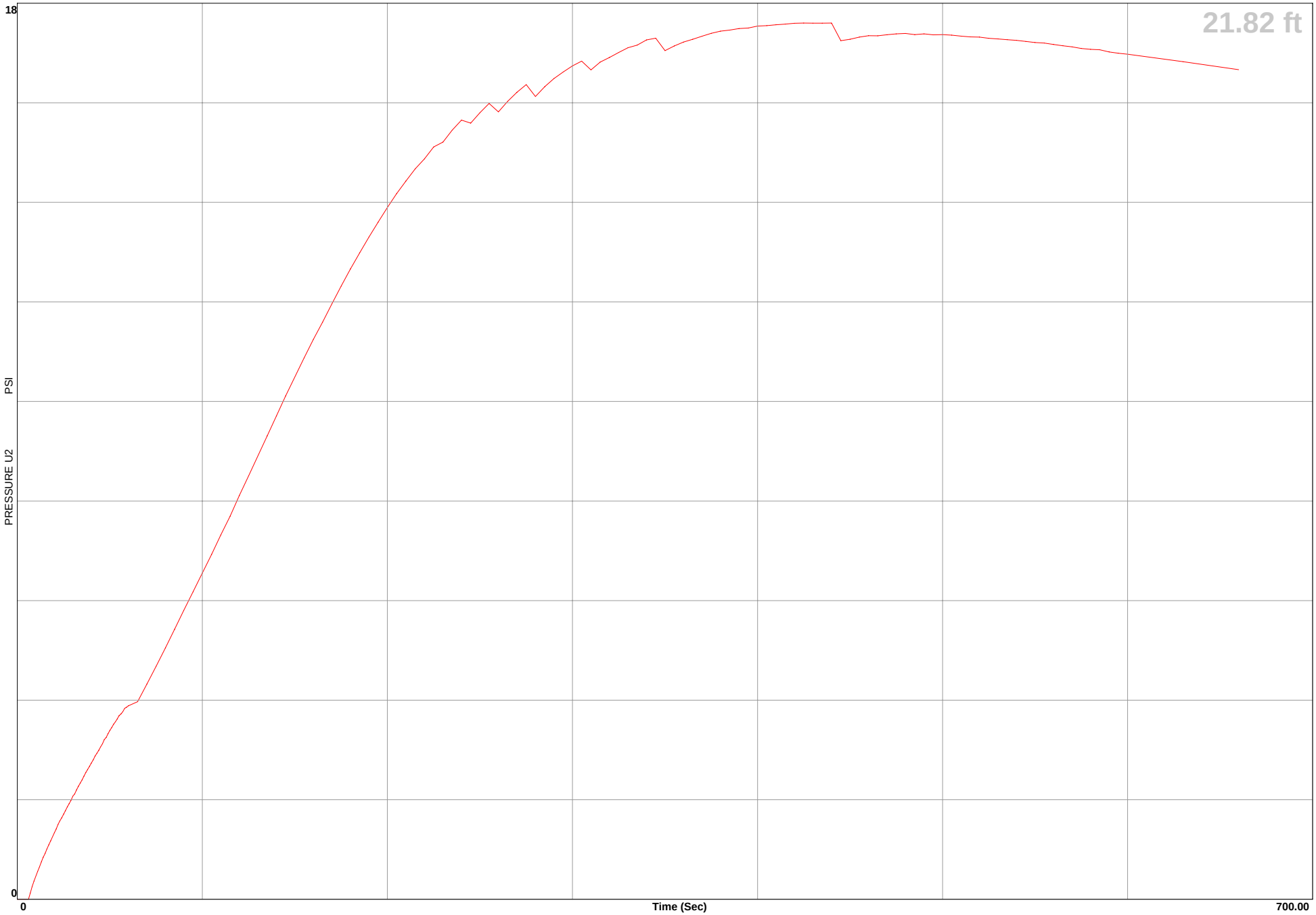
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

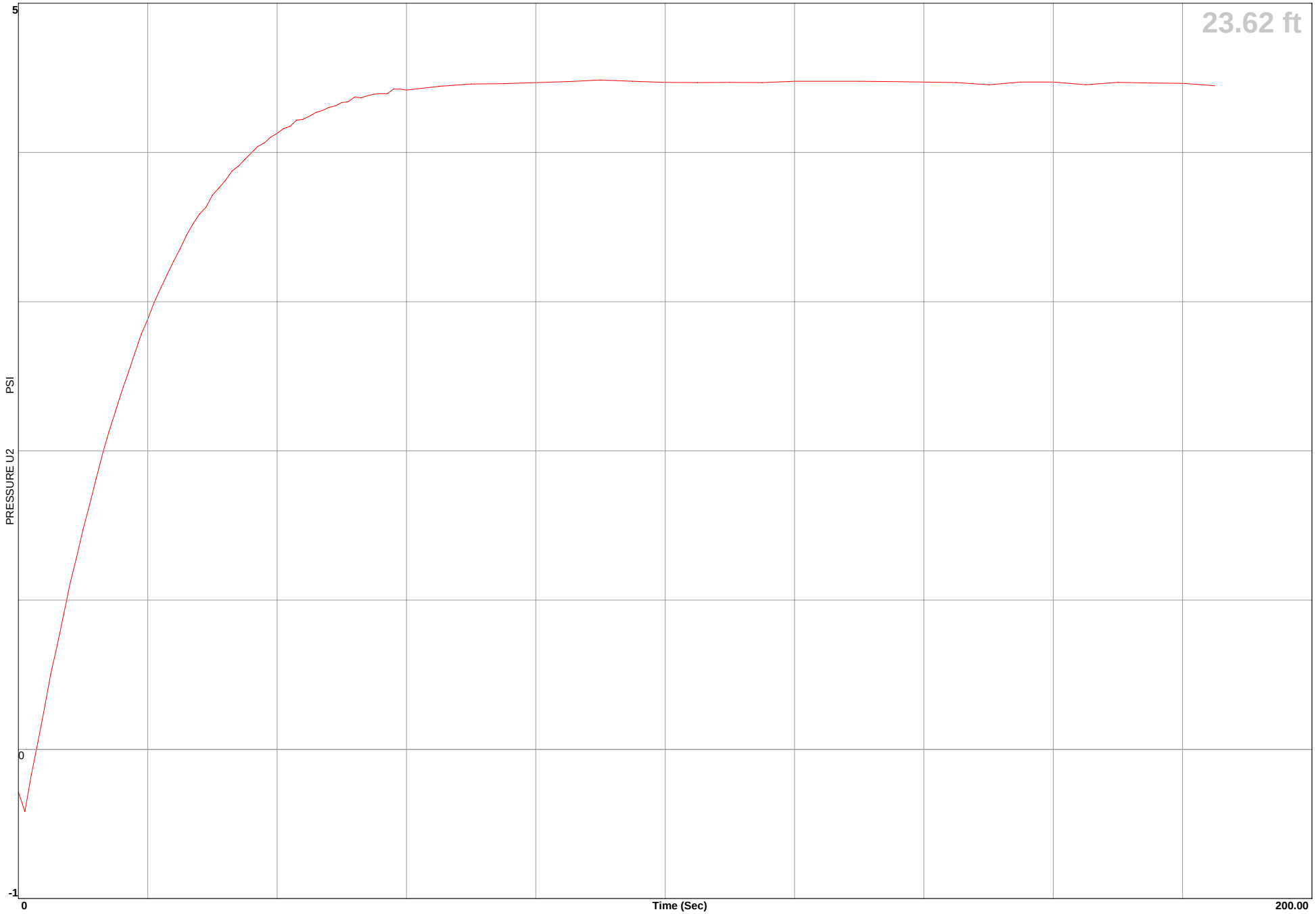
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-52**	**Date and Time**	**12/5/2008 2:43:25 PM**	
Equilized Pressure	**16.63**	**Ground Water Depth**	**16.59**	



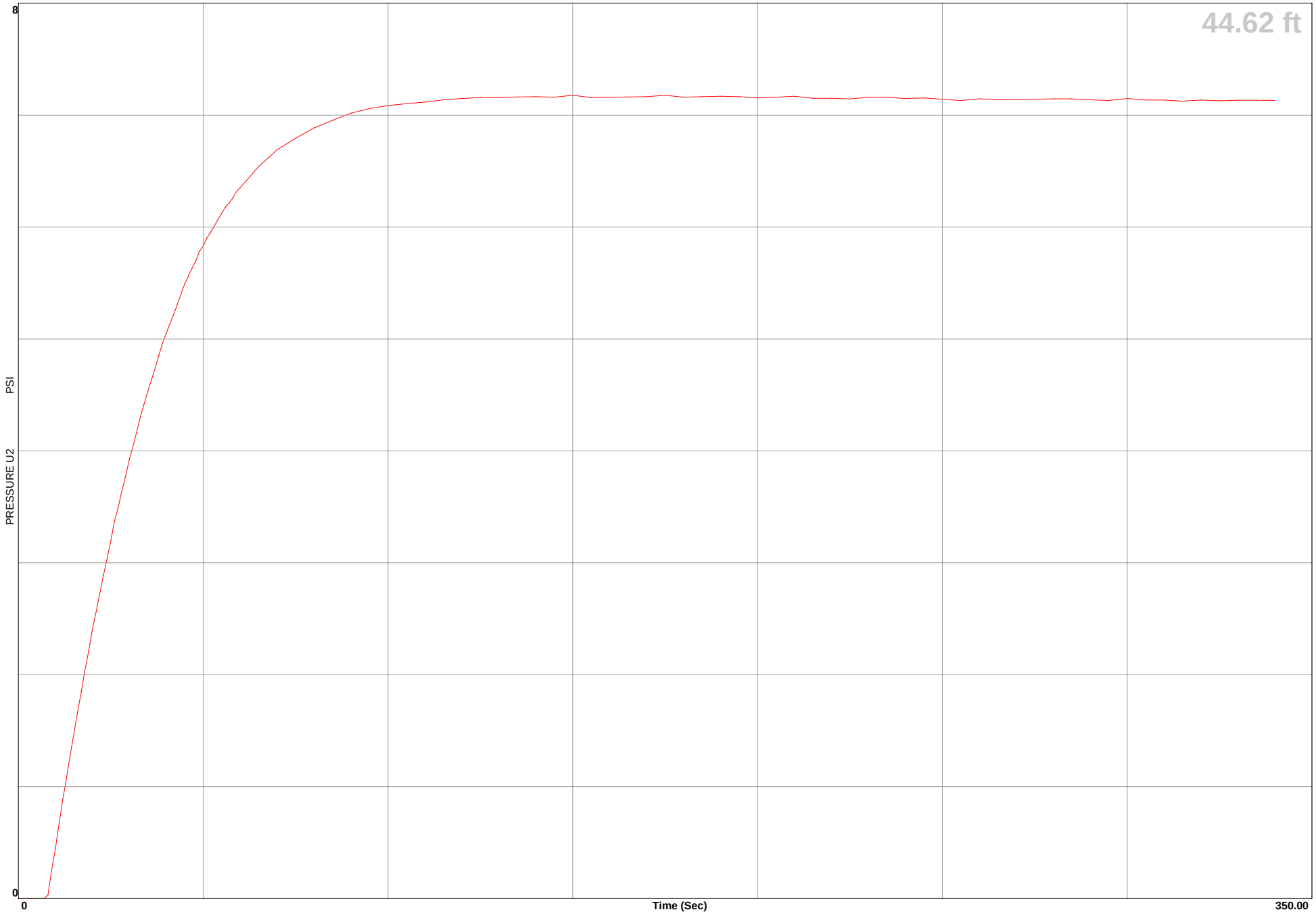
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-52**	**Date and Time**	**12/5/2008 2:43:25 PM**	
Equilized Pressure	**4.44**	**Ground Water Depth**	**13.36**	



Earth Mechanics

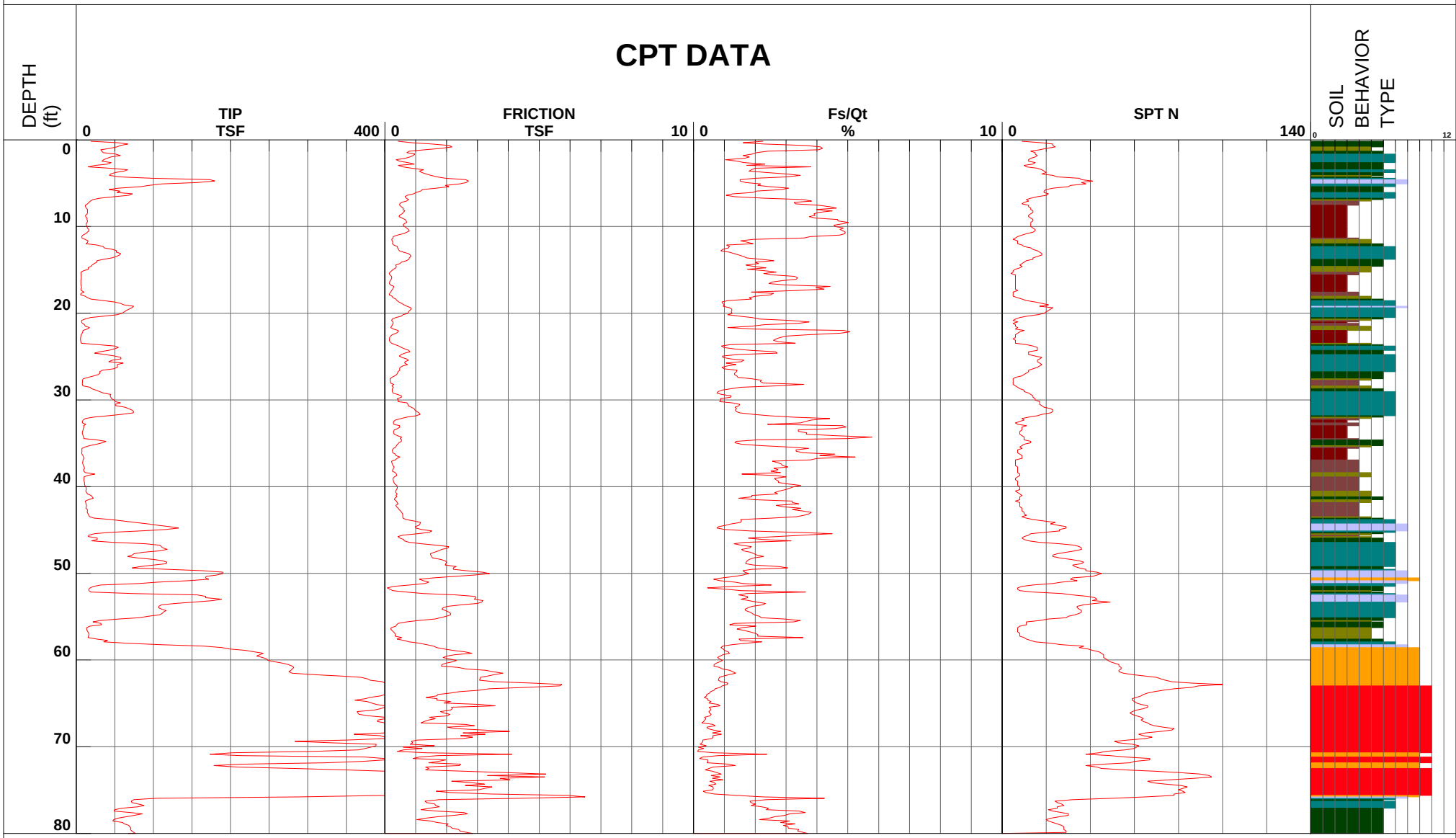
Location	EGG-WC Warner/Edwards	Operator	ML/BH	GPS
Job Number	08-156	Cone Number	DSG0906	
Hole Number	CPT-08-52	Date and Time	12/5/2008 2:43:25 PM	
Equilized Pressure	7.11	Ground Water Depth	28.19	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(416).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-53	Date and Time	11/19/2008 7:32:19 AM	Maximum Depth	80.38 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

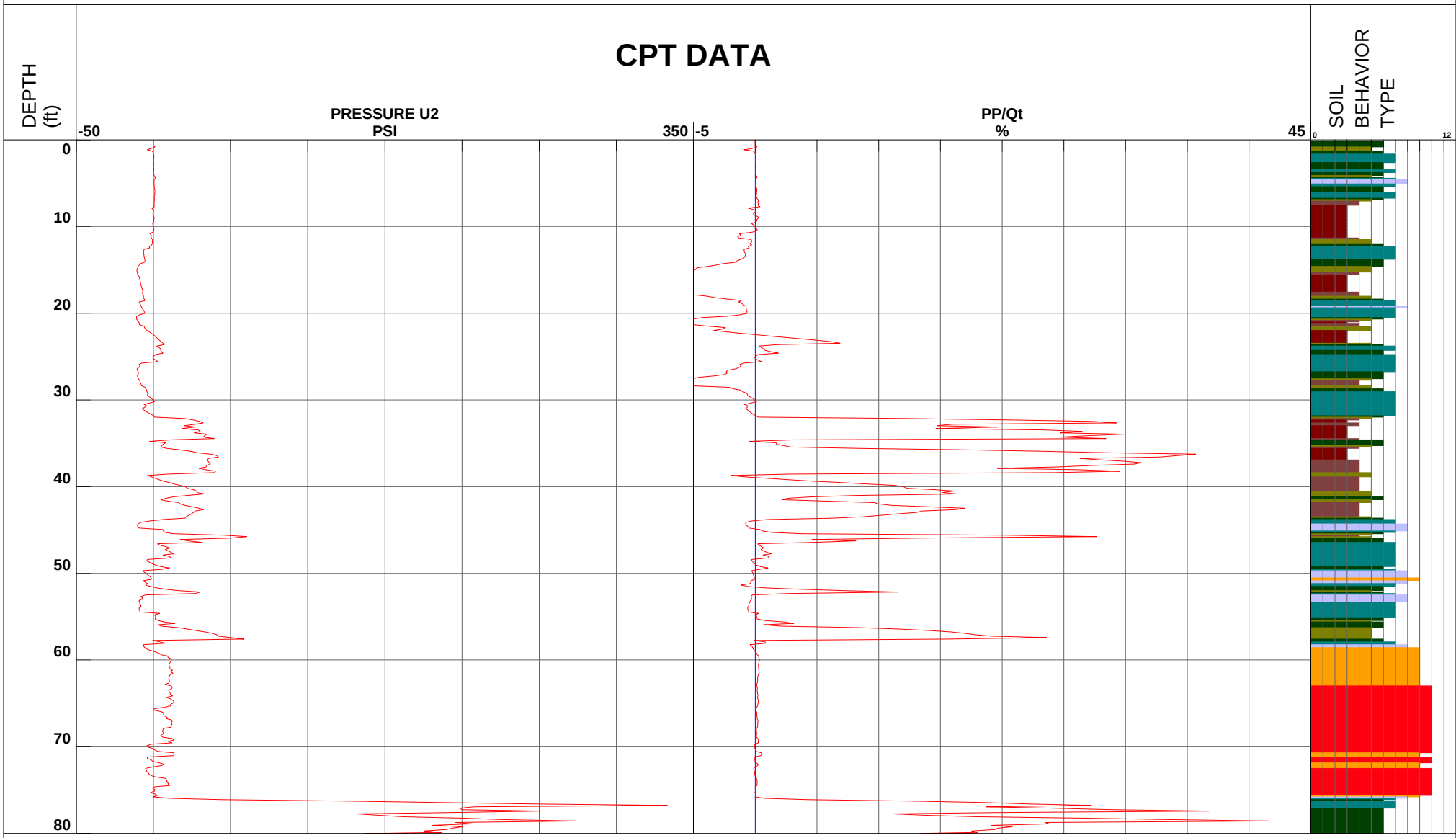
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(416).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-53	Date and Time	11/19/2008 7:32:19 AM	Maximum Depth	80.38 ft
Water Table Depth		12.00 ft			

CPT DATA



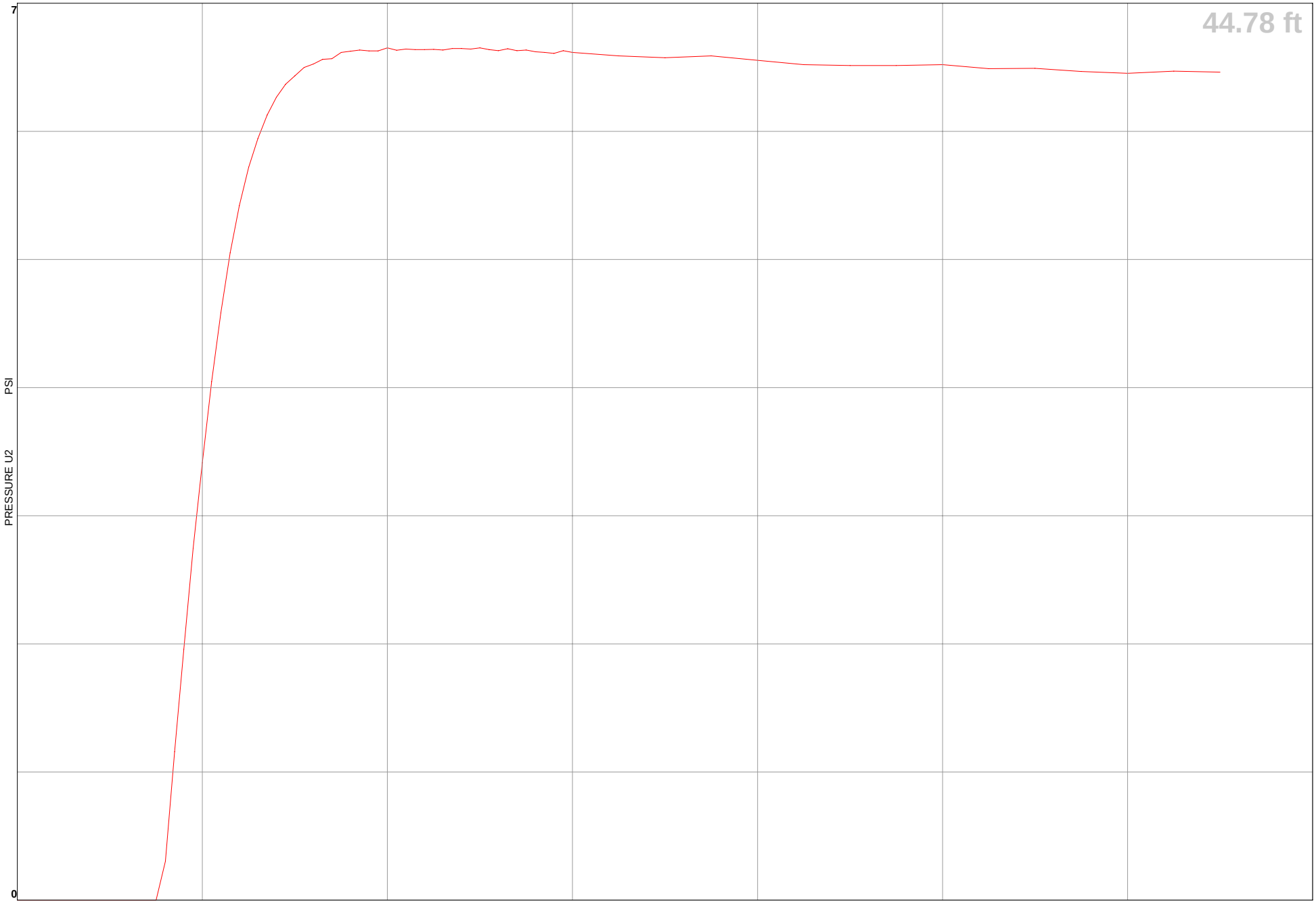
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

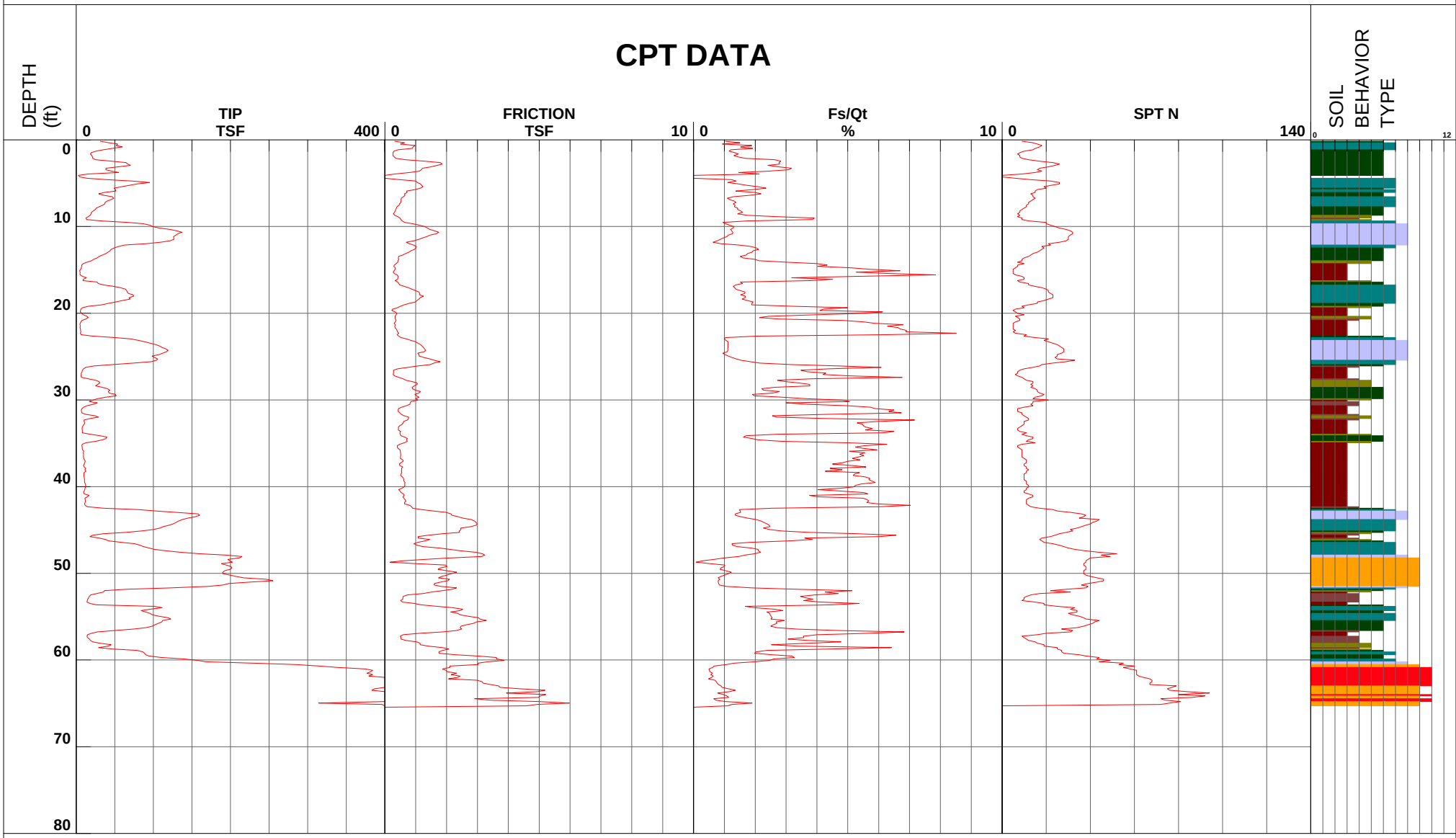
Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/VO**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG1047**	
Hole Number	**CPT-08-53**	**Date and Time**	**11/19/2008 7:32:19 AM**	
Equilized Pressure	**6.45**	**Ground Water Depth**	**29.88**	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(472).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-54	Date and Time	12/8/2008 9:12:32 AM	Maximum Depth	65.62 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

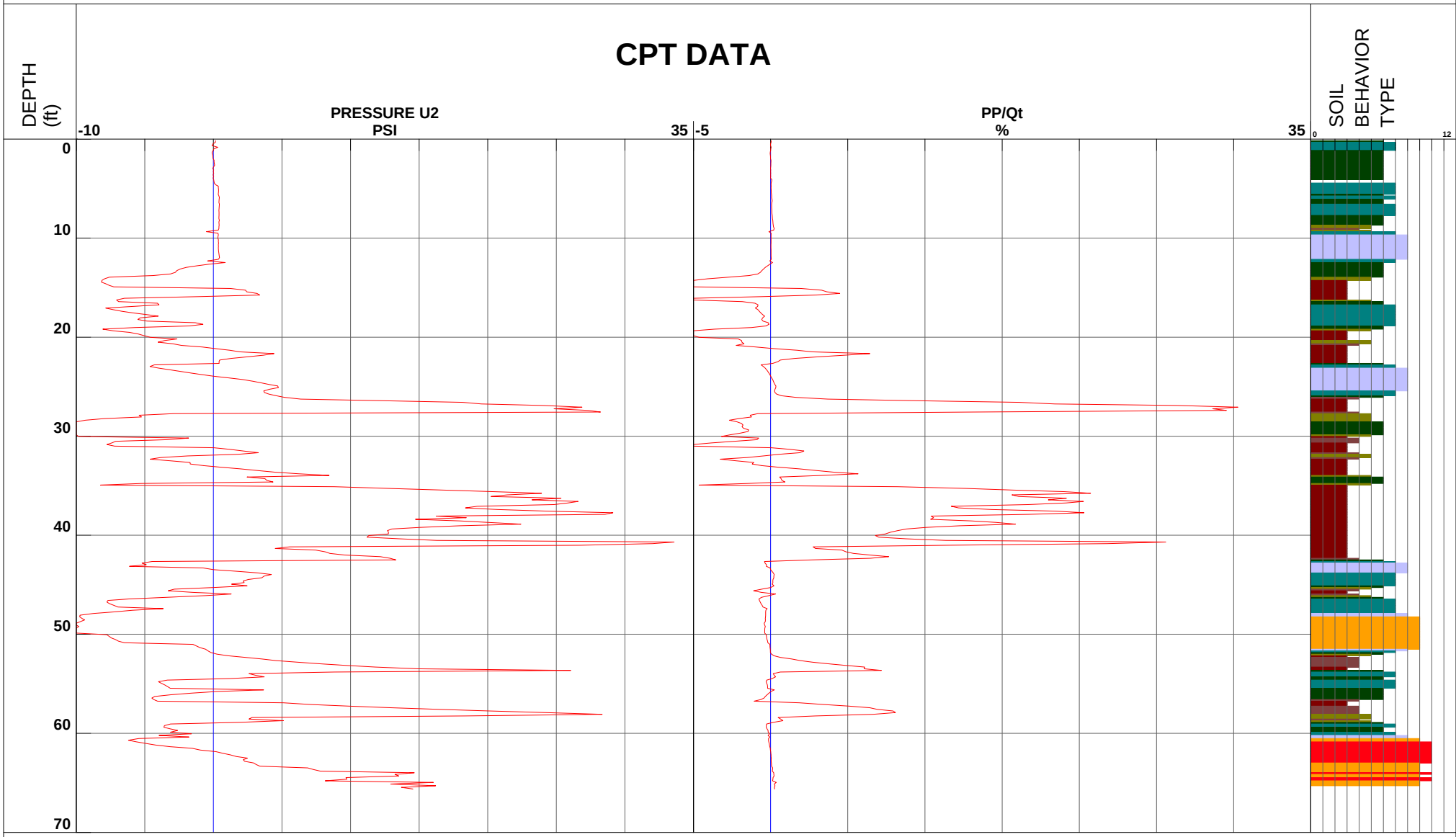
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(472).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-54	Date and Time	12/8/2008 9:12:32 AM	Maximum Depth	65.62 ft
Water Table Depth		0.00 ft			

CPT DATA



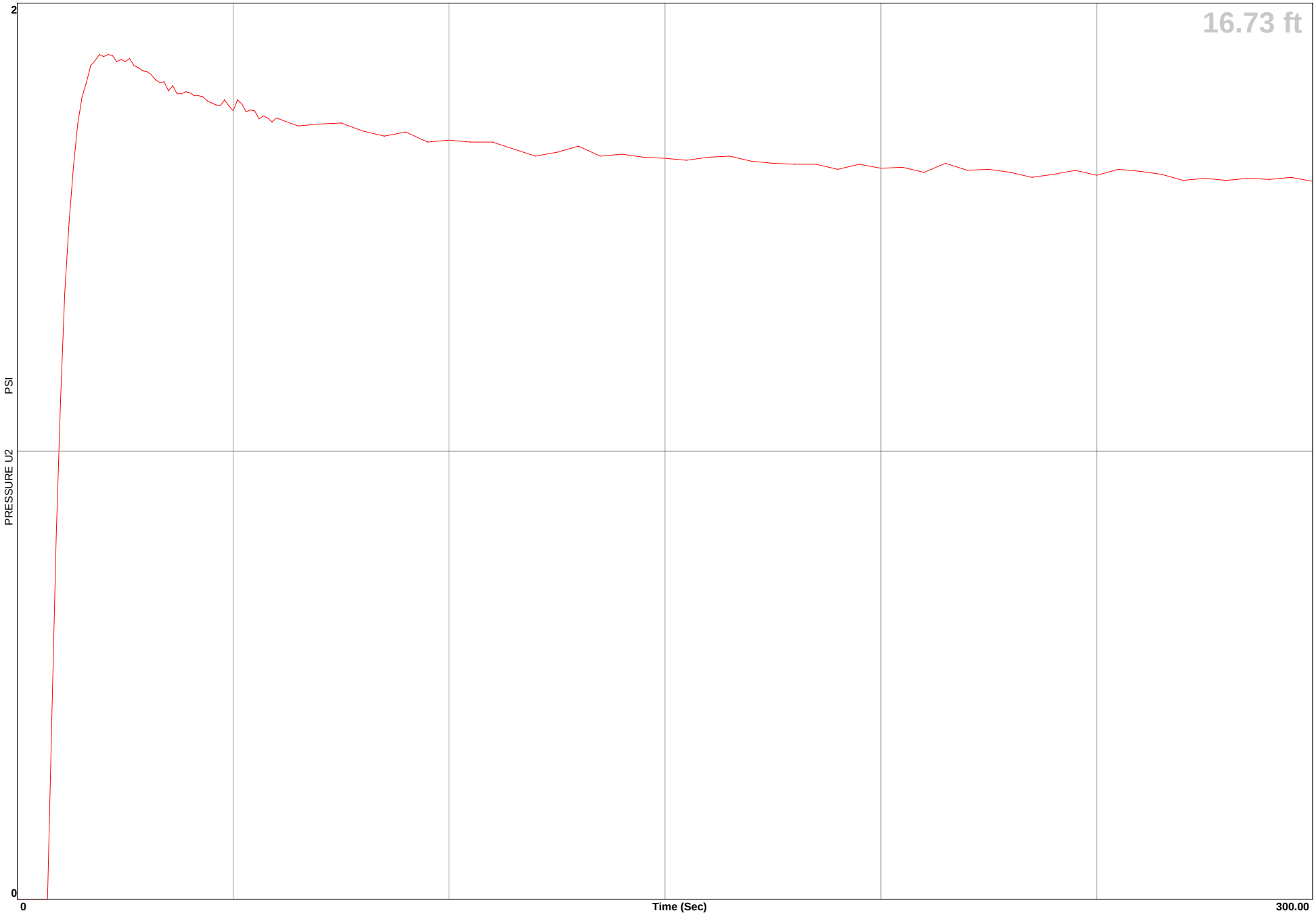
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

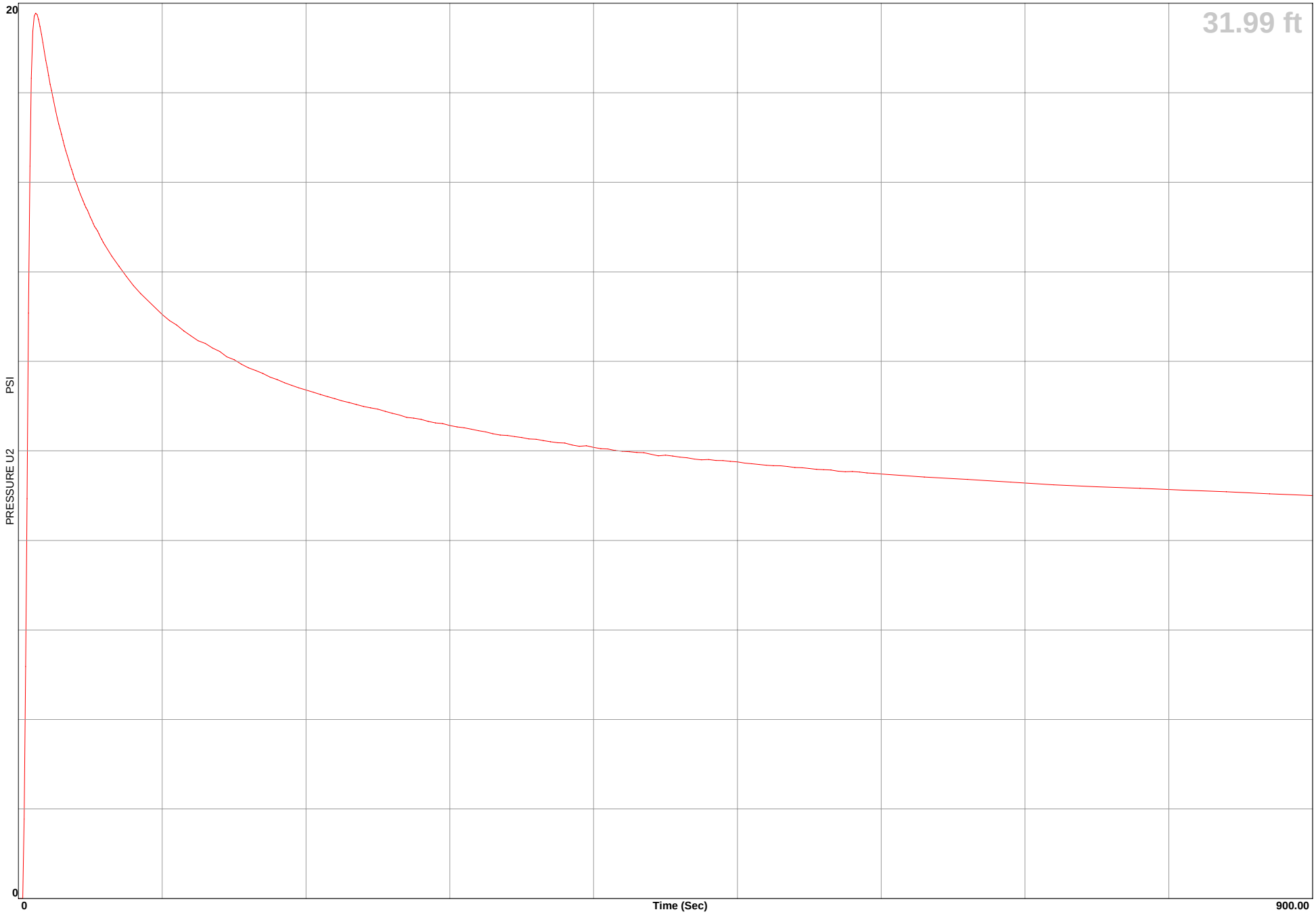
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-54**	**Date and Time**	**12/8/2008 9:12:32 AM**	
Equilized Pressure	**1.60**	**Ground Water Depth**	**13.03**	



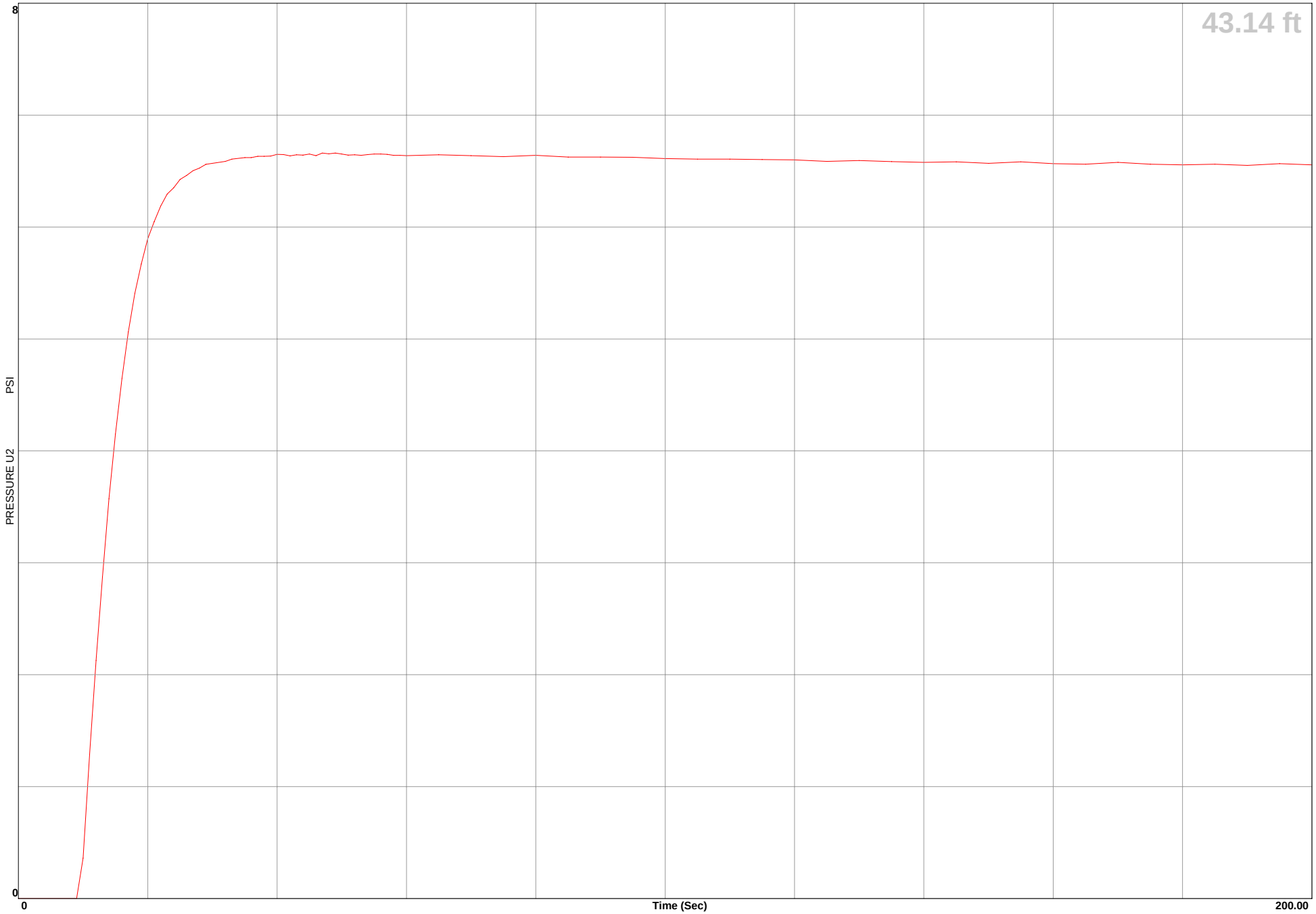
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-54**	**Date and Time**	**12/8/2008 9:12:32 AM**	
Equilized Pressure	**8.96**	**Ground Water Depth**	**11.29**	



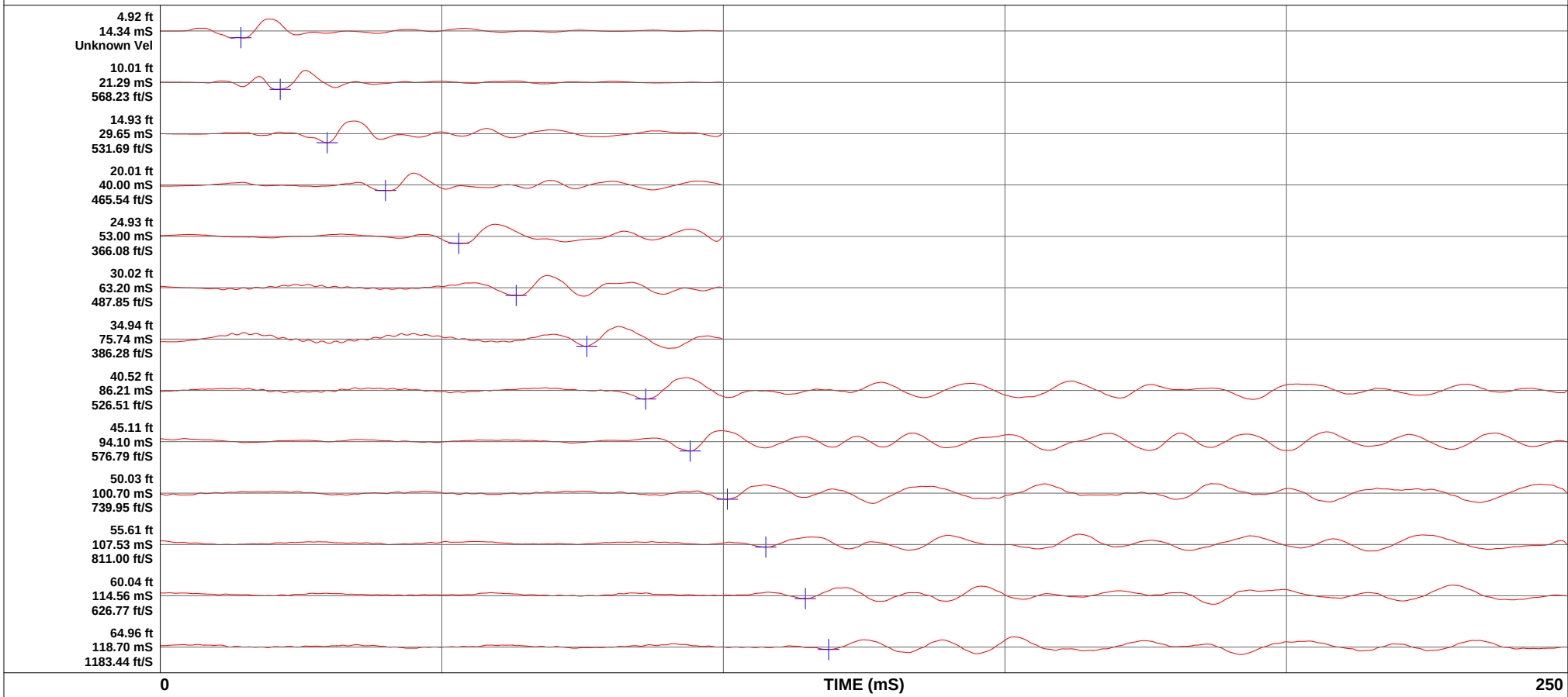
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-54**	**Date and Time**	**12/8/2008 9:12:32 AM**	
Equilized Pressure	**6.56**	**Ground Water Depth**	**27.98**	



Earth Mechanics

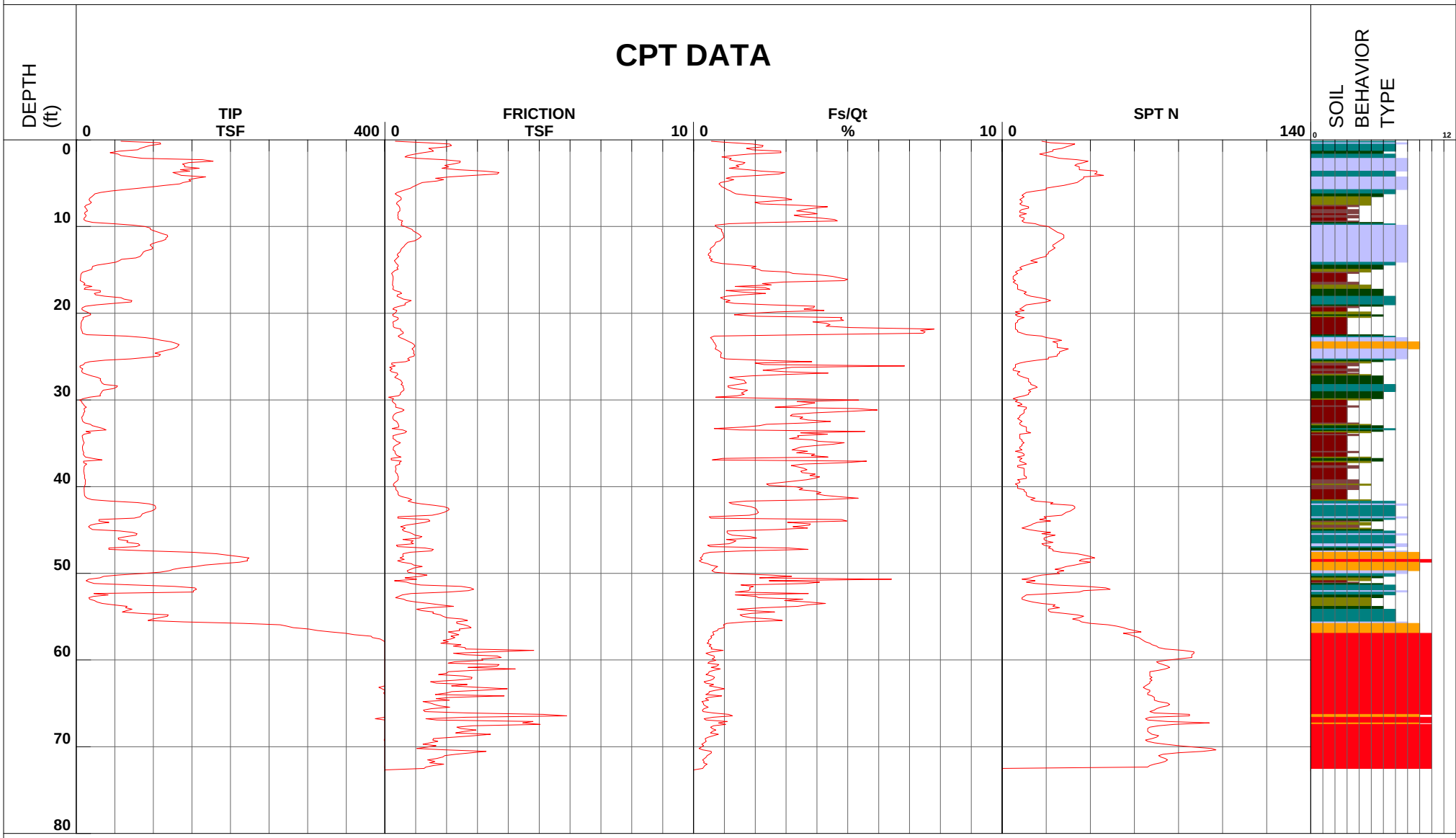
Location	EGG-WC Warner/Edwards	Operator	ML/BH	
Job Number	08-156	Cone Number	DSG0906	GPS
Hole Number	CPT-08-54	Date and Time	12/8/2008 9:12:32 AM	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(415).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-55	Date and Time	11/18/2008 2:44:52 PM	Maximum Depth	72.83 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

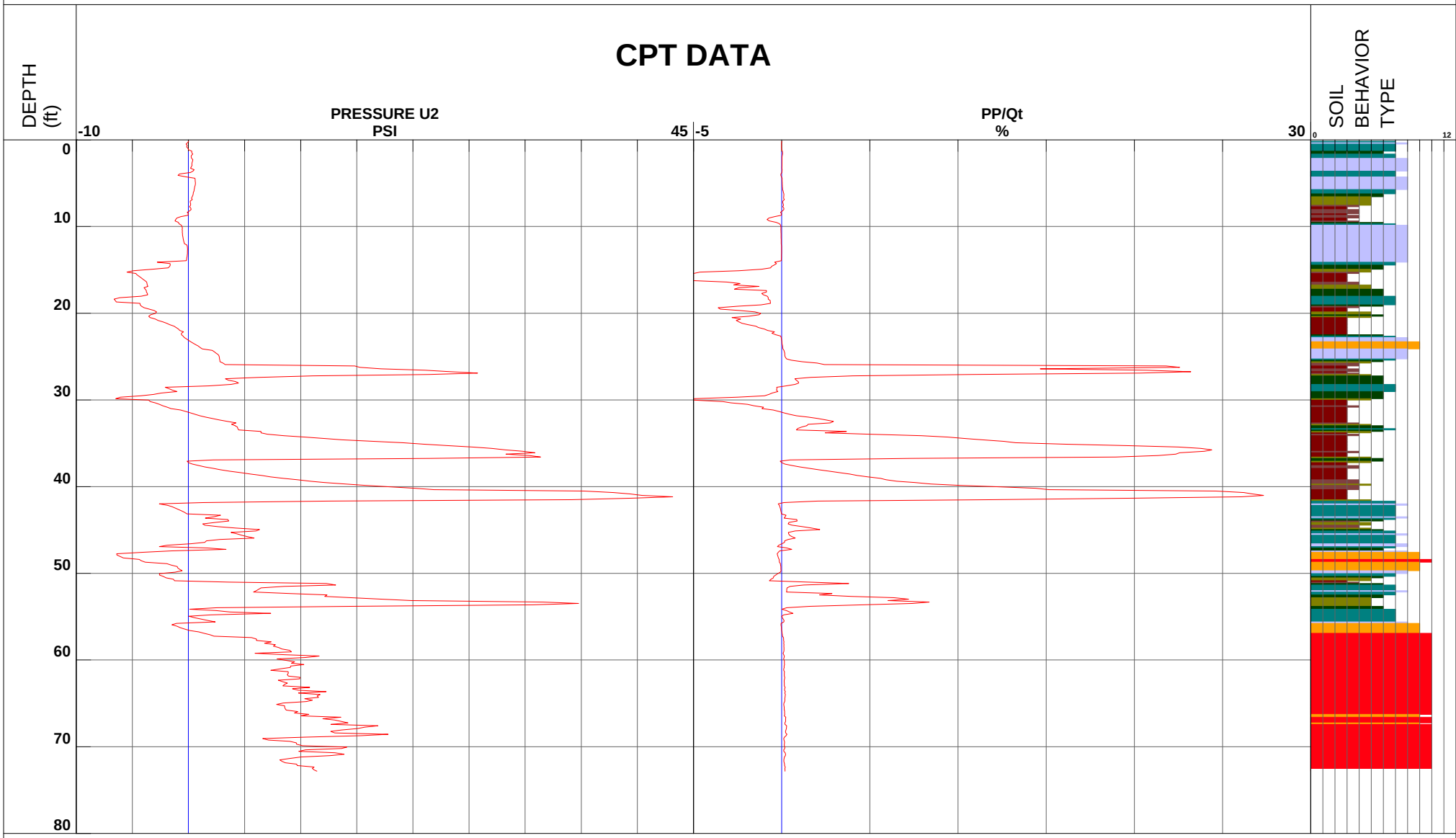
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(415).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-55	Date and Time	11/18/2008 2:44:52 PM	Maximum Depth	72.83 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

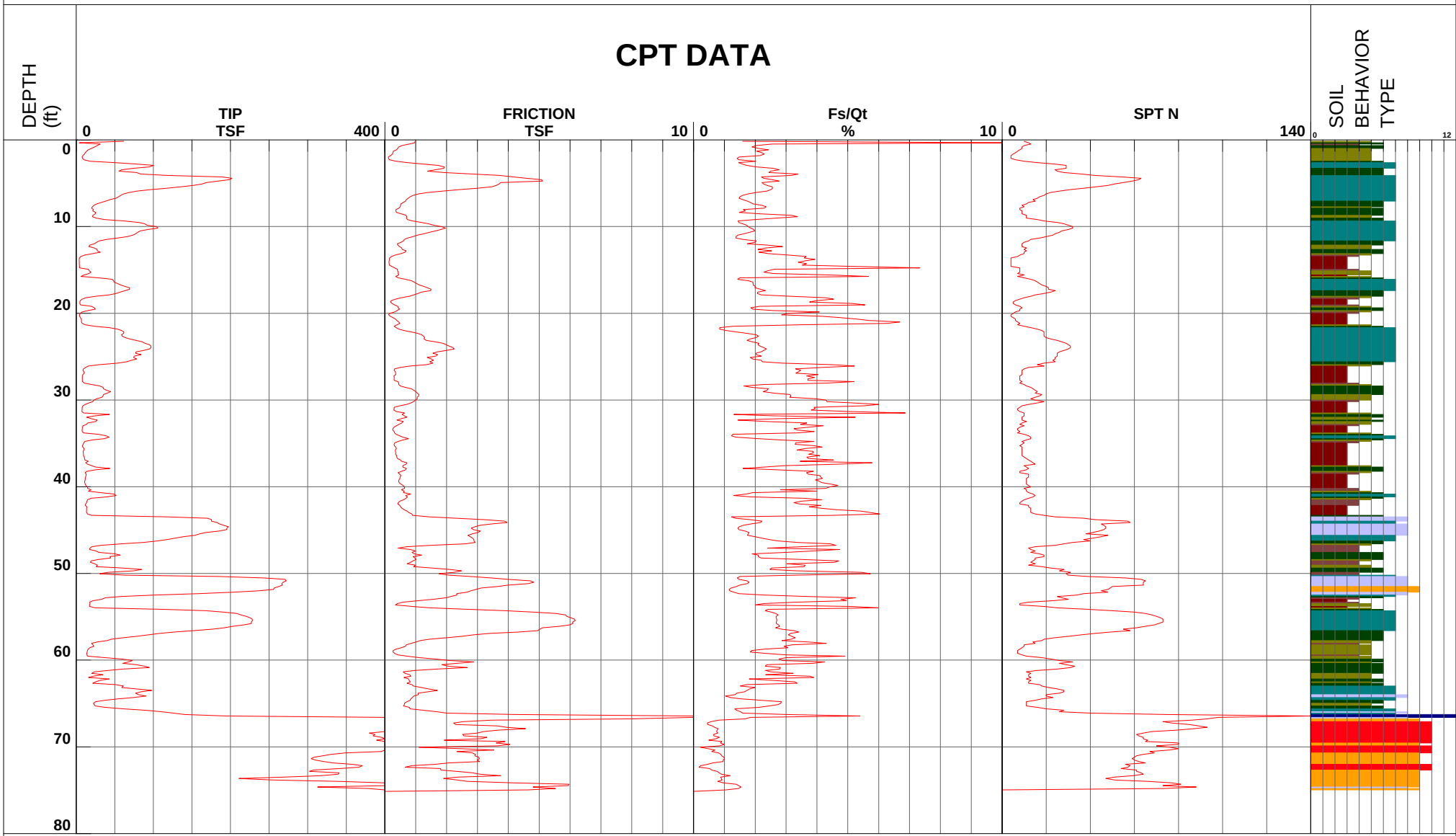
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(473).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-56	Date and Time	12/8/2008 10:58:22 AM	Maximum Depth	75.29 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

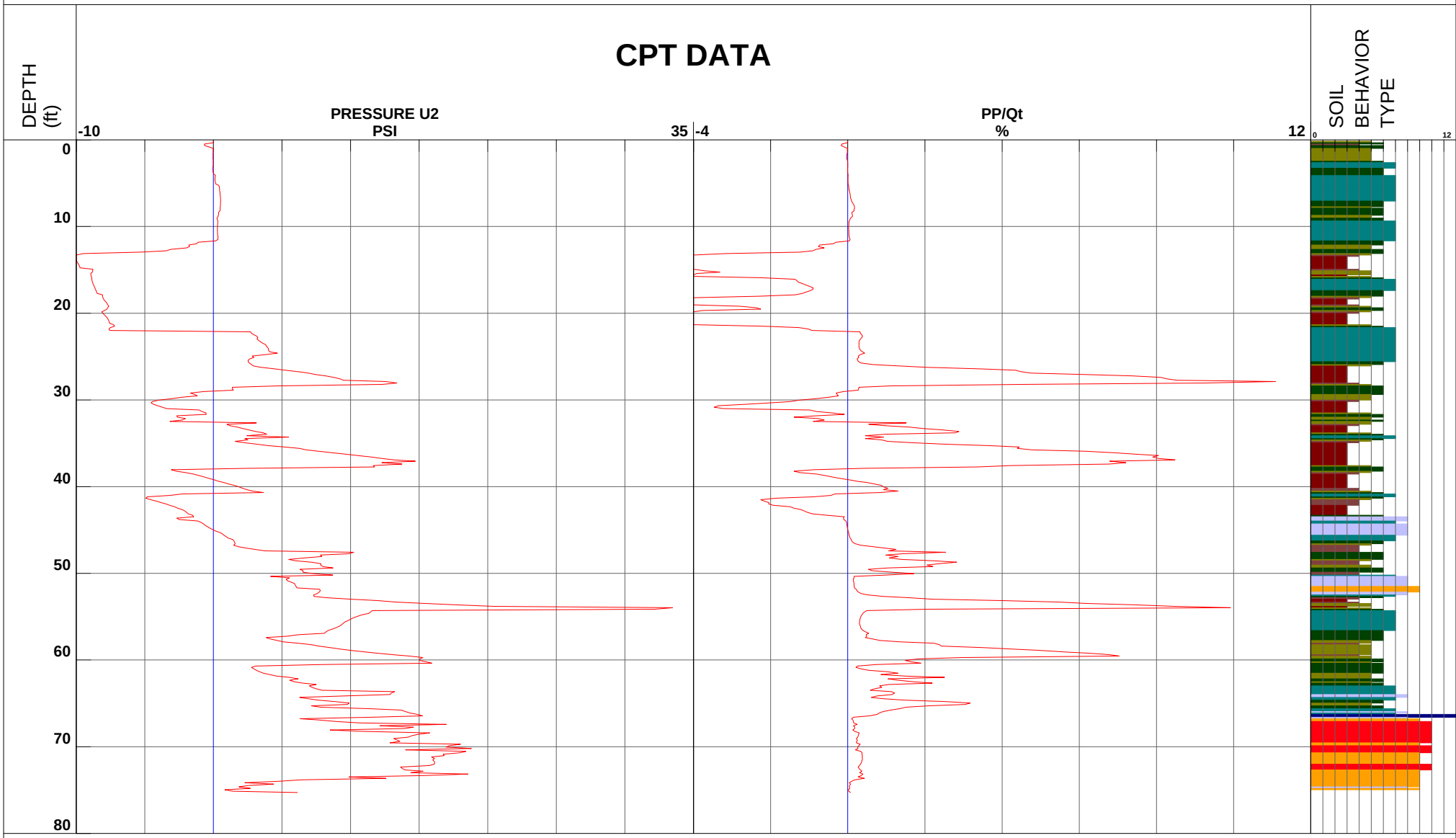
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(473).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-56	Date and Time	12/8/2008 10:58:22 AM	Maximum Depth	75.29 ft
Water Table Depth		0.00 ft			

CPT DATA



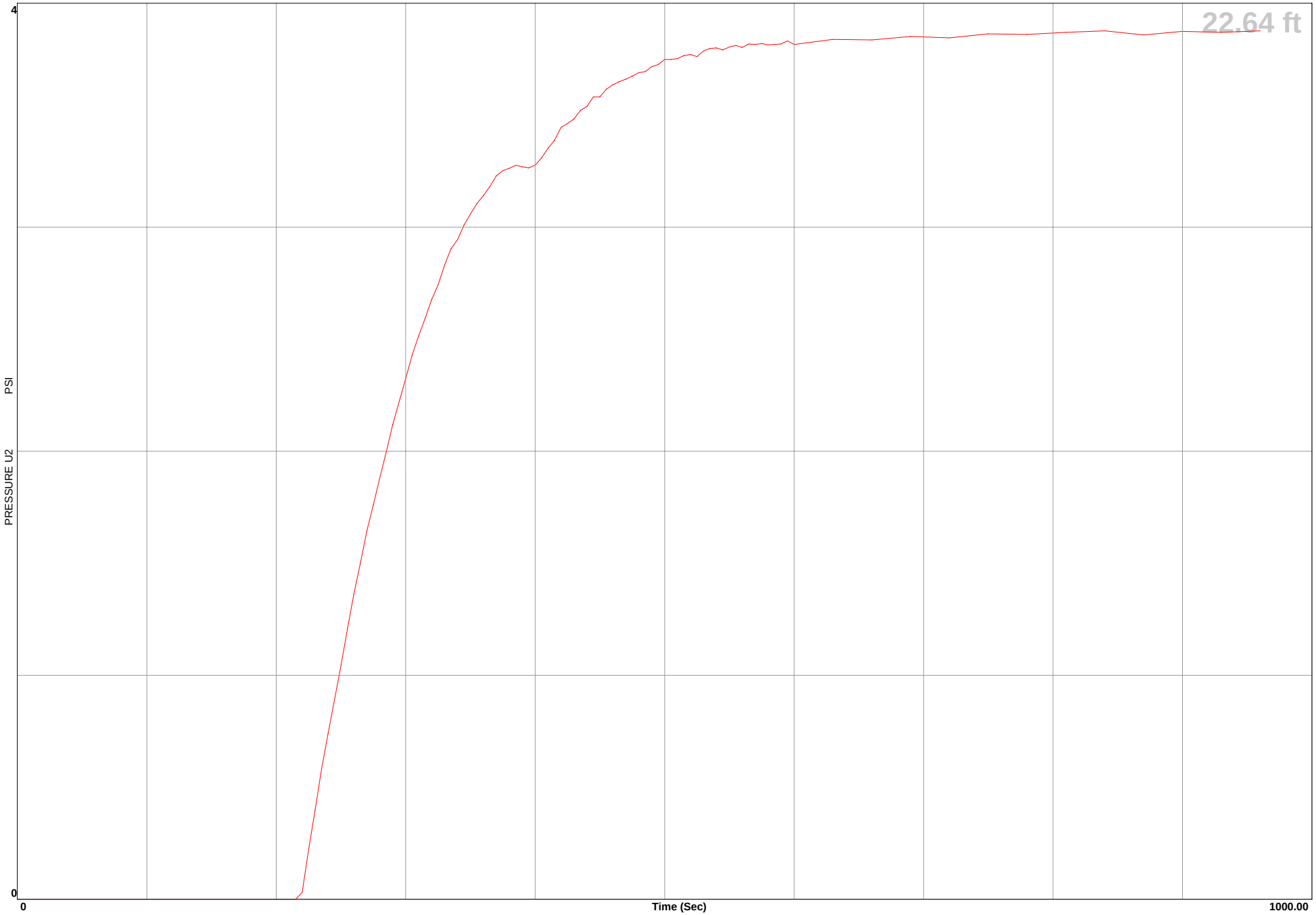
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

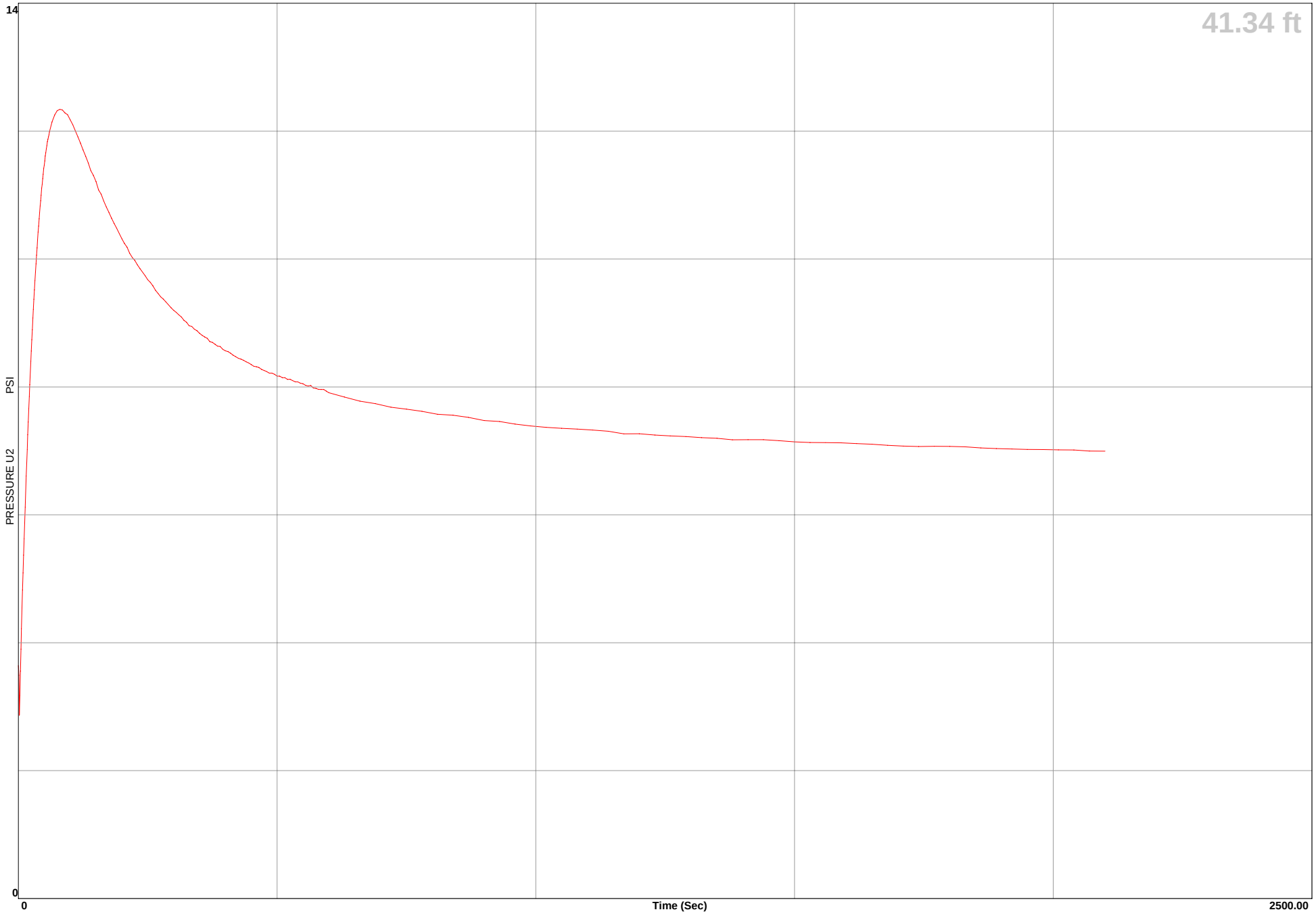
Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	GPS
Job Number	08-156	Cone Number	DSG0906	
Hole Number	CPT-08-56	Date and Time	12/8/2008 10:58:22 AM	
Equilized Pressure	3.87	Ground Water Depth	13.68	



Earth Mechanics

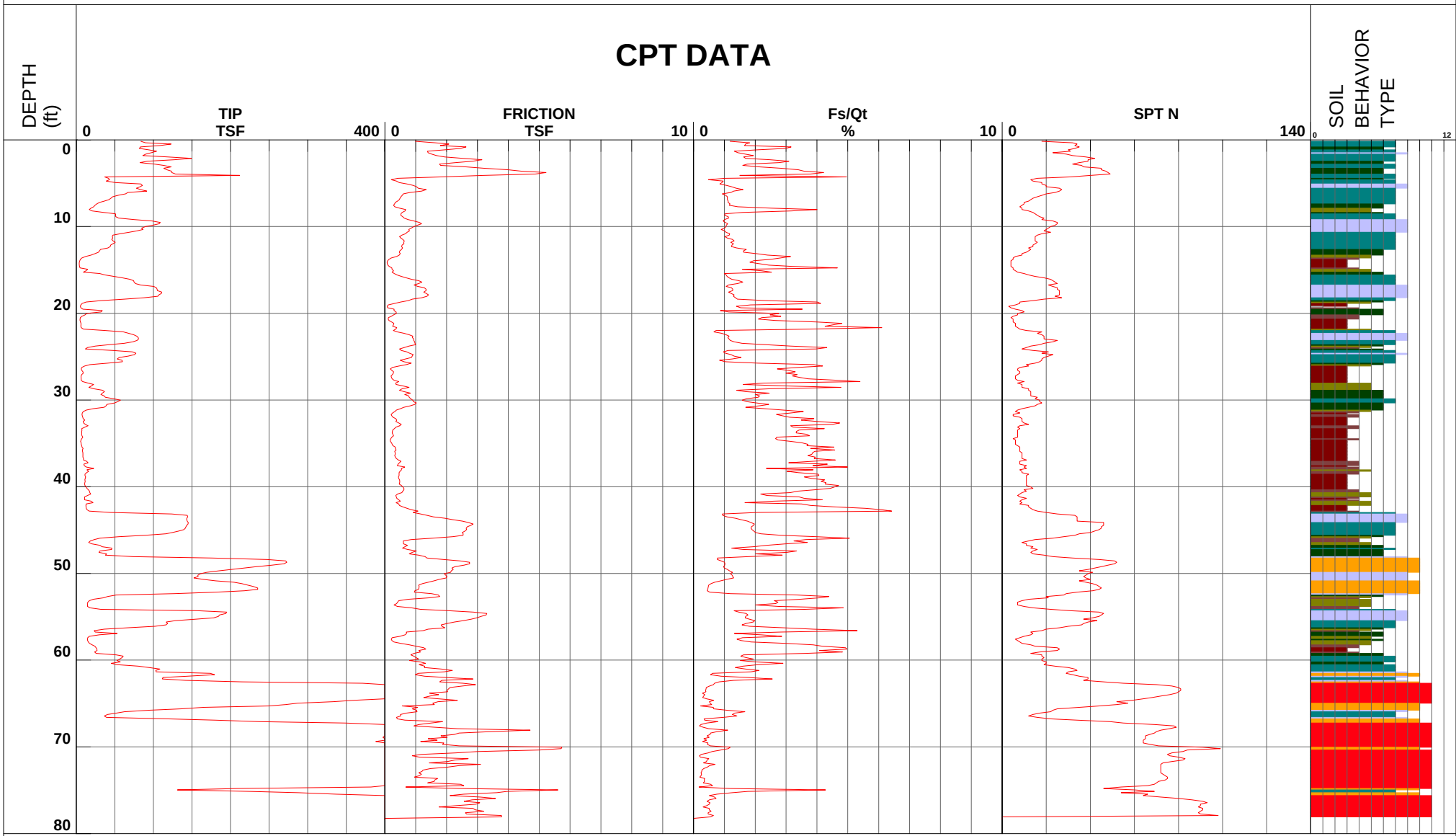
Location	EGG-WC Warner/Edwards	Operator	ML/BH	GPS
Job Number	08-156	Cone Number	DSG0906	
Hole Number	CPT-08-56	Date and Time	12/8/2008 10:58:22 AM	
Equilized Pressure	6.99	Ground Water Depth	25.19	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(414).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-57	Date and Time	11/18/2008 1:34:00 PM	Maximum Depth	78.41 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

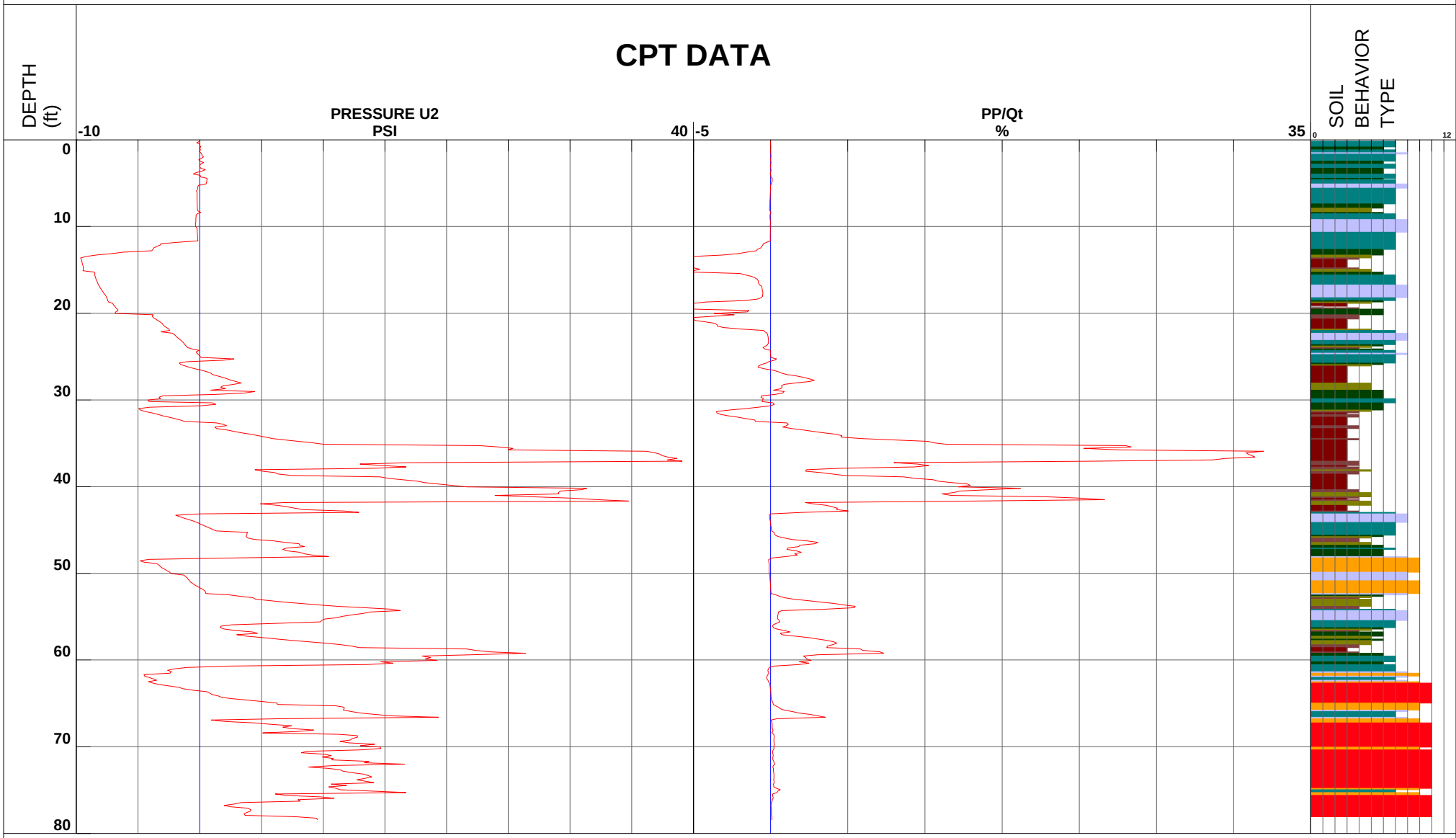
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(414).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-57	Date and Time	11/18/2008 1:34:00 PM	Maximum Depth	78.41 ft
Water Table Depth	12.00 ft				

CPT DATA



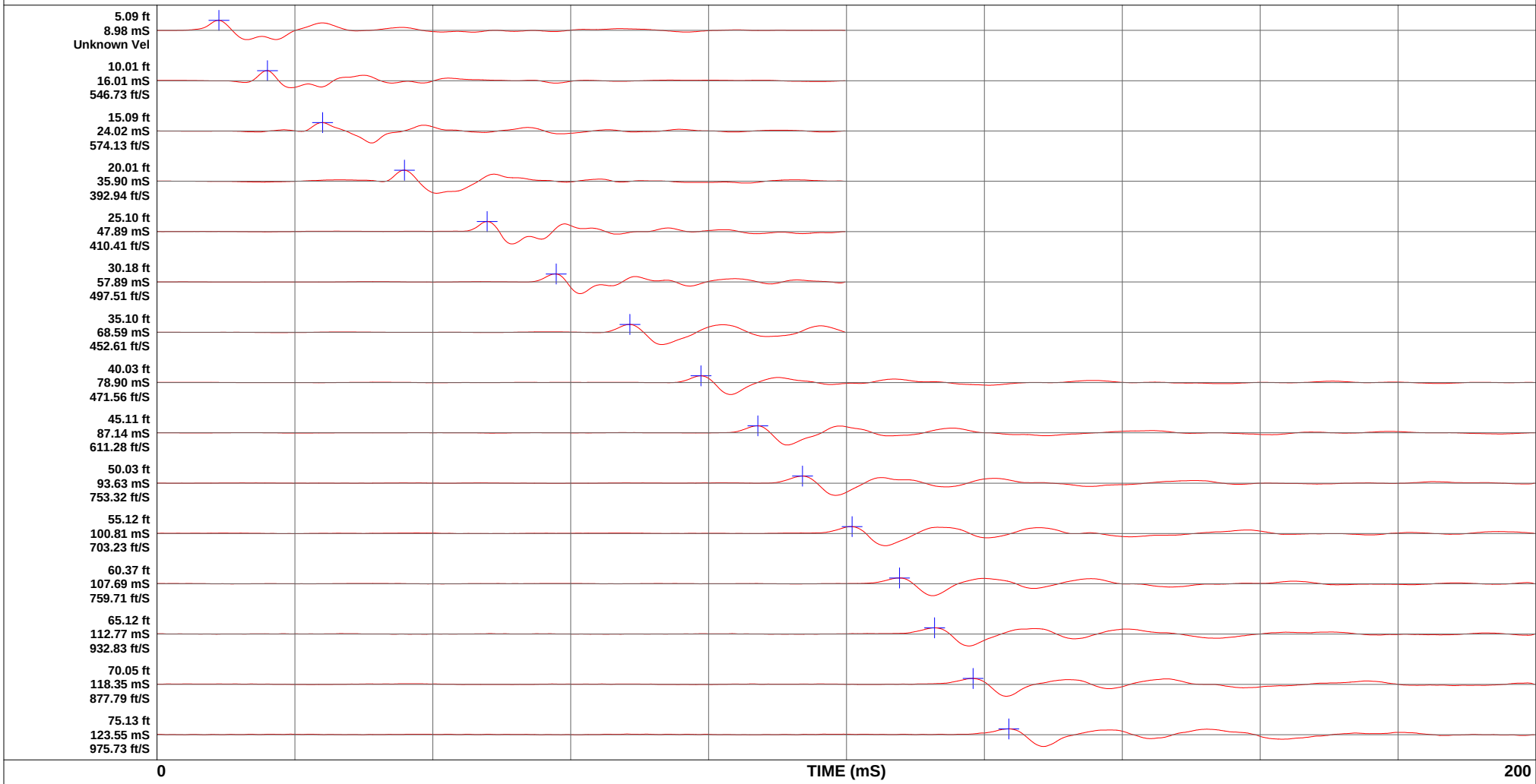
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

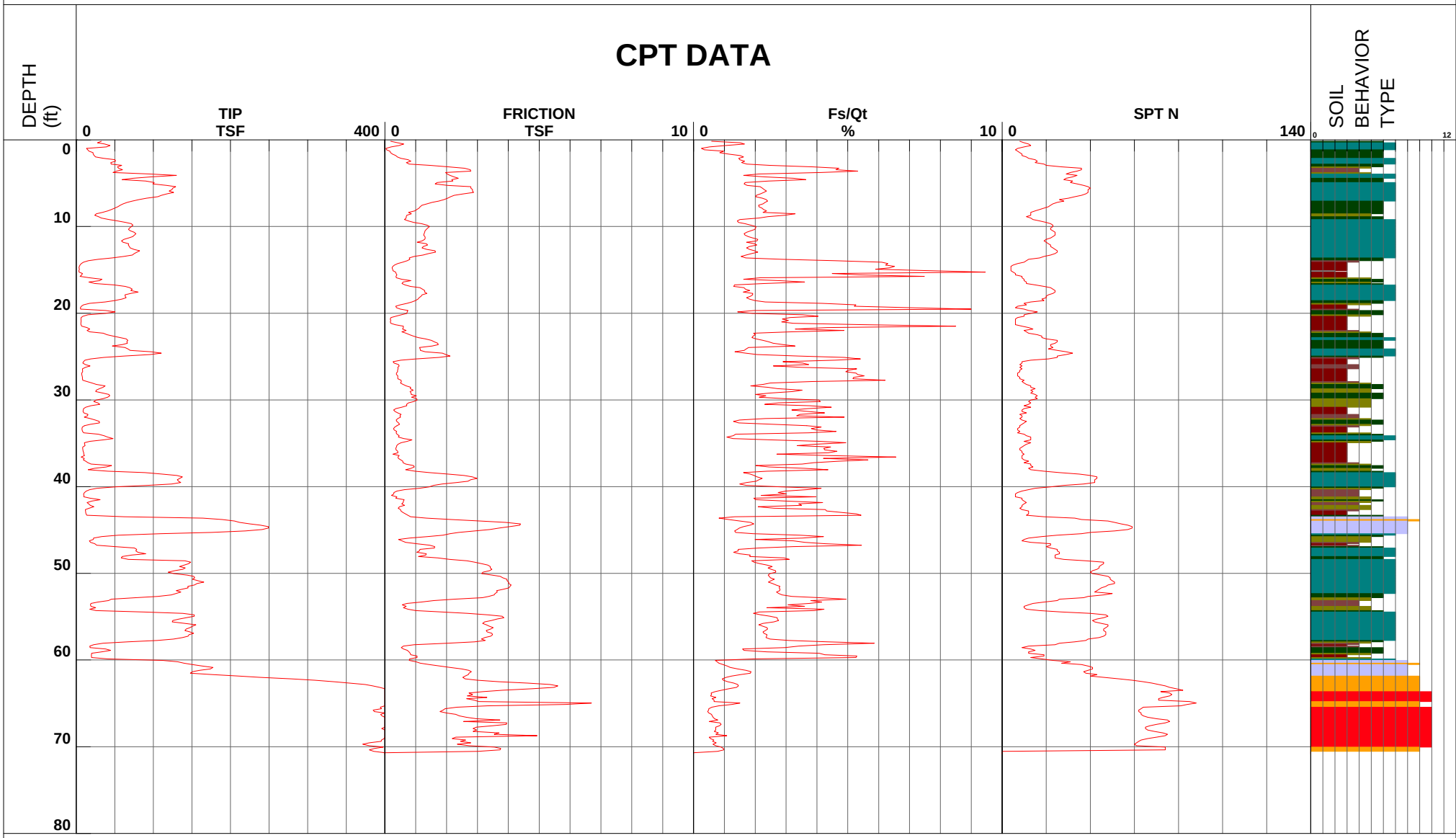
Location	EGG-WC Warner/Edwards	Operator	ML/VO	
Job Number	08-156	Cone Number	DSG1047	GPS
Hole Number	CPT-08-57	Date and Time	11/18/2008 1:34:00 PM	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(474).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-58	Date and Time	12/8/2008 12:52:04 PM	Maximum Depth	70.87 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

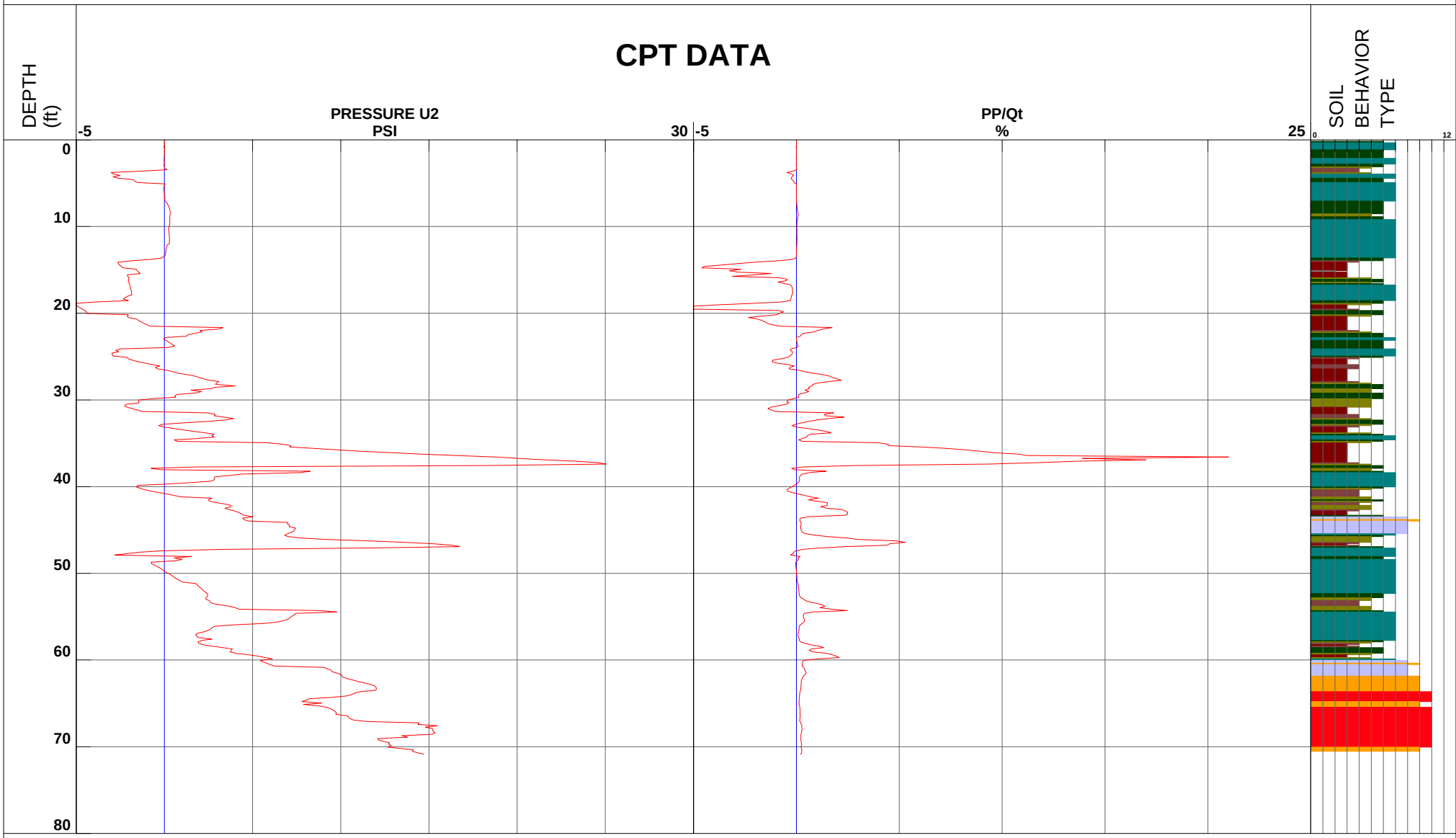
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(474).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-58	Date and Time	12/8/2008 12:52:04 PM	Maximum Depth	70.87 ft
Water Table Depth		0.00 ft			

CPT DATA



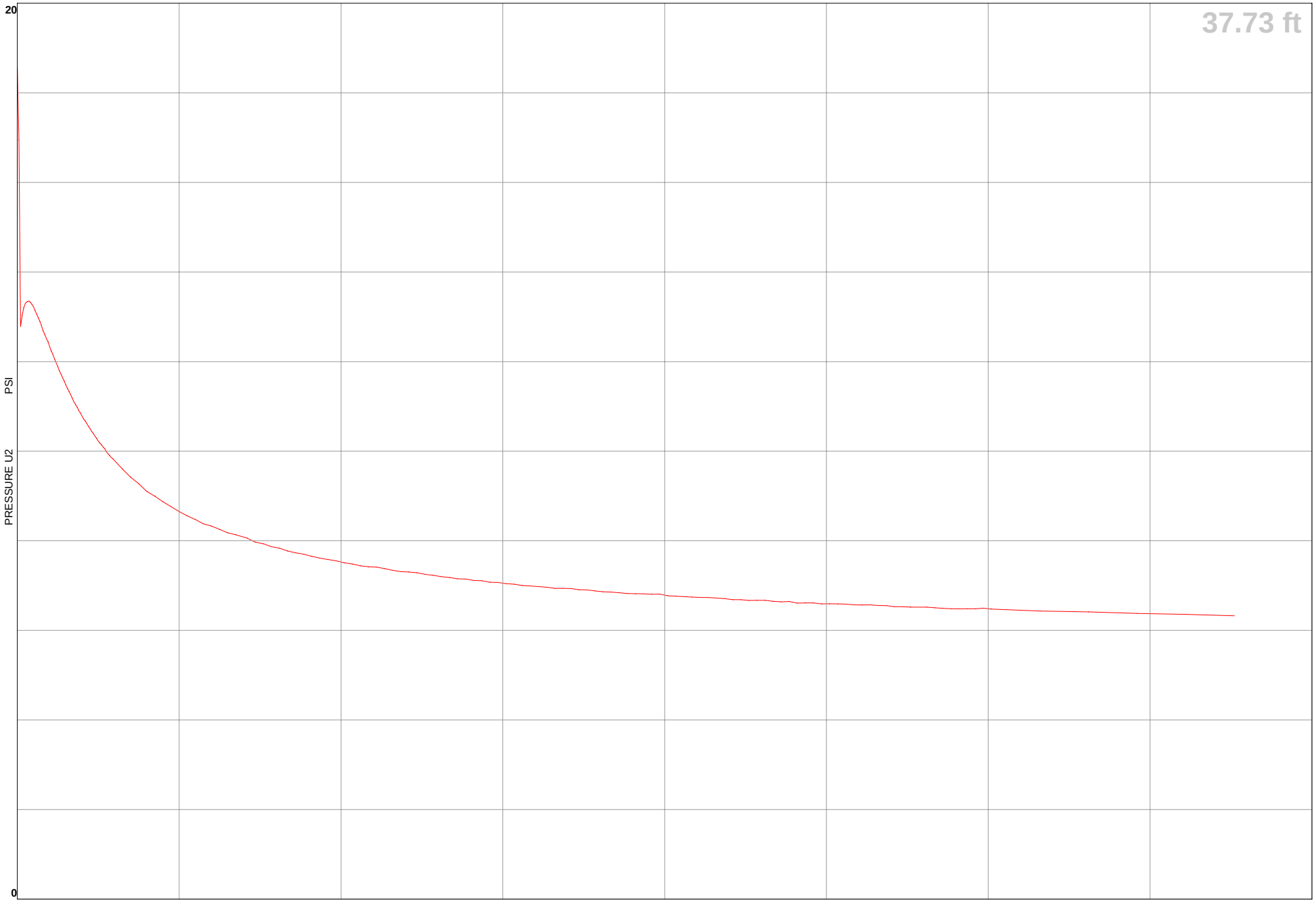
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

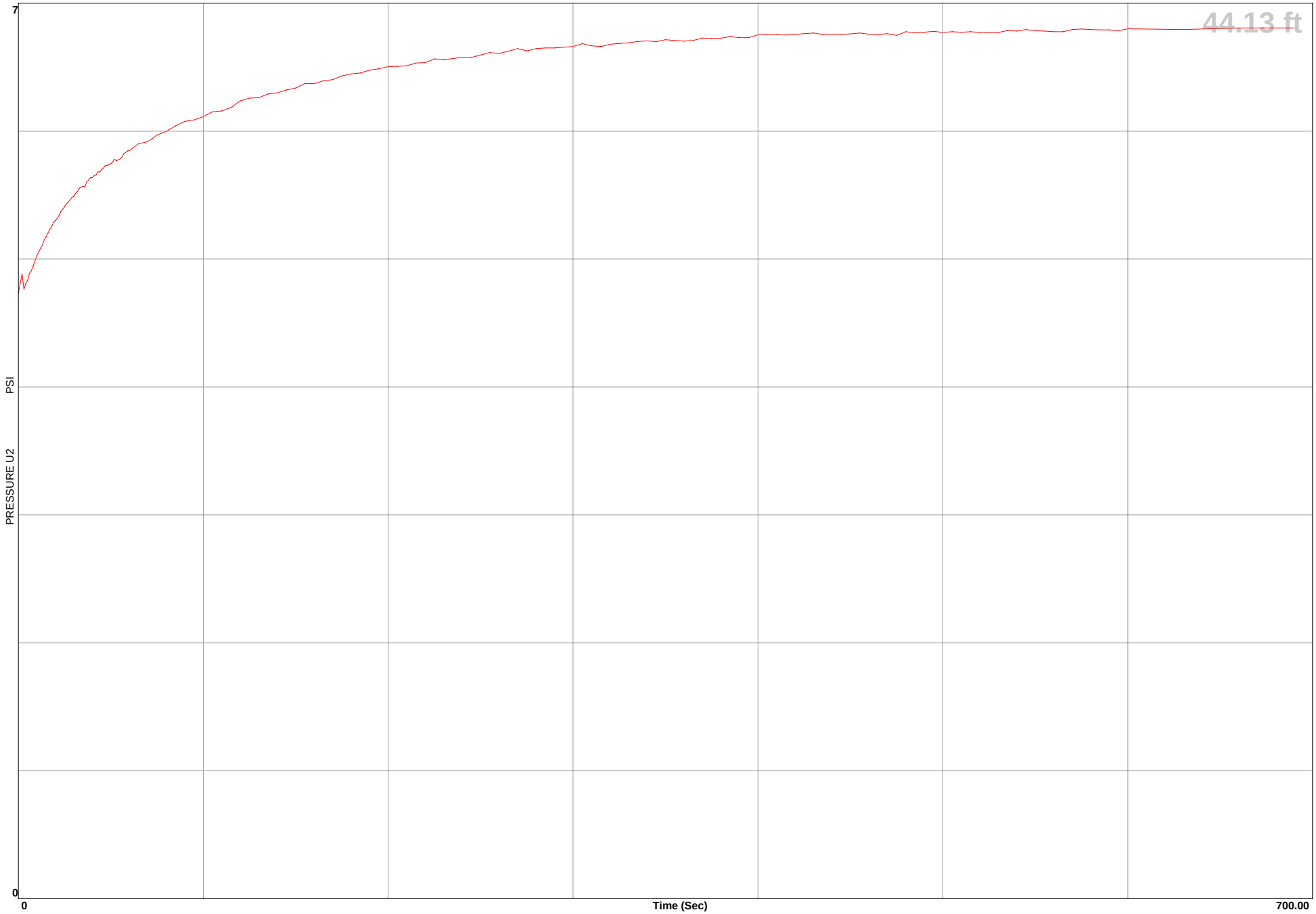
Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	
Job Number	08-156	Cone Number	DSG0906	GPS
Hole Number	CPT-08-58	Date and Time	12/8/2008 12:52:04 PM	
Equilized Pressure	6.34	Ground Water Depth	23.08	



Earth Mechanics

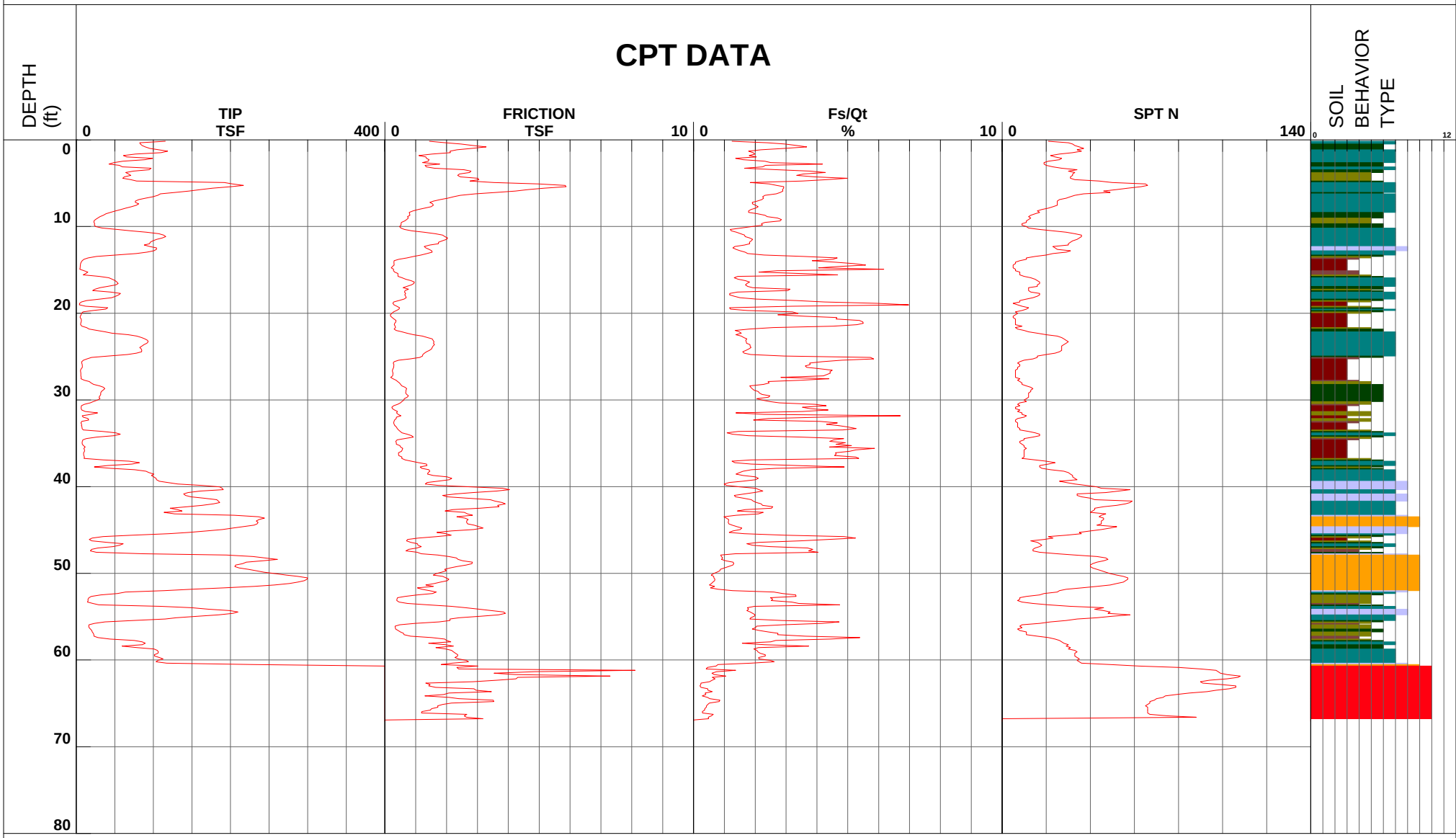
Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-58**	**Date and Time**	**12/8/2008 12:52:04 PM**	
Equilized Pressure	**6.79**	**Ground Water Depth**	**28.44**	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(413).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-59	Date and Time	11/18/2008 12:29:40 PM	Maximum Depth	67.09 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

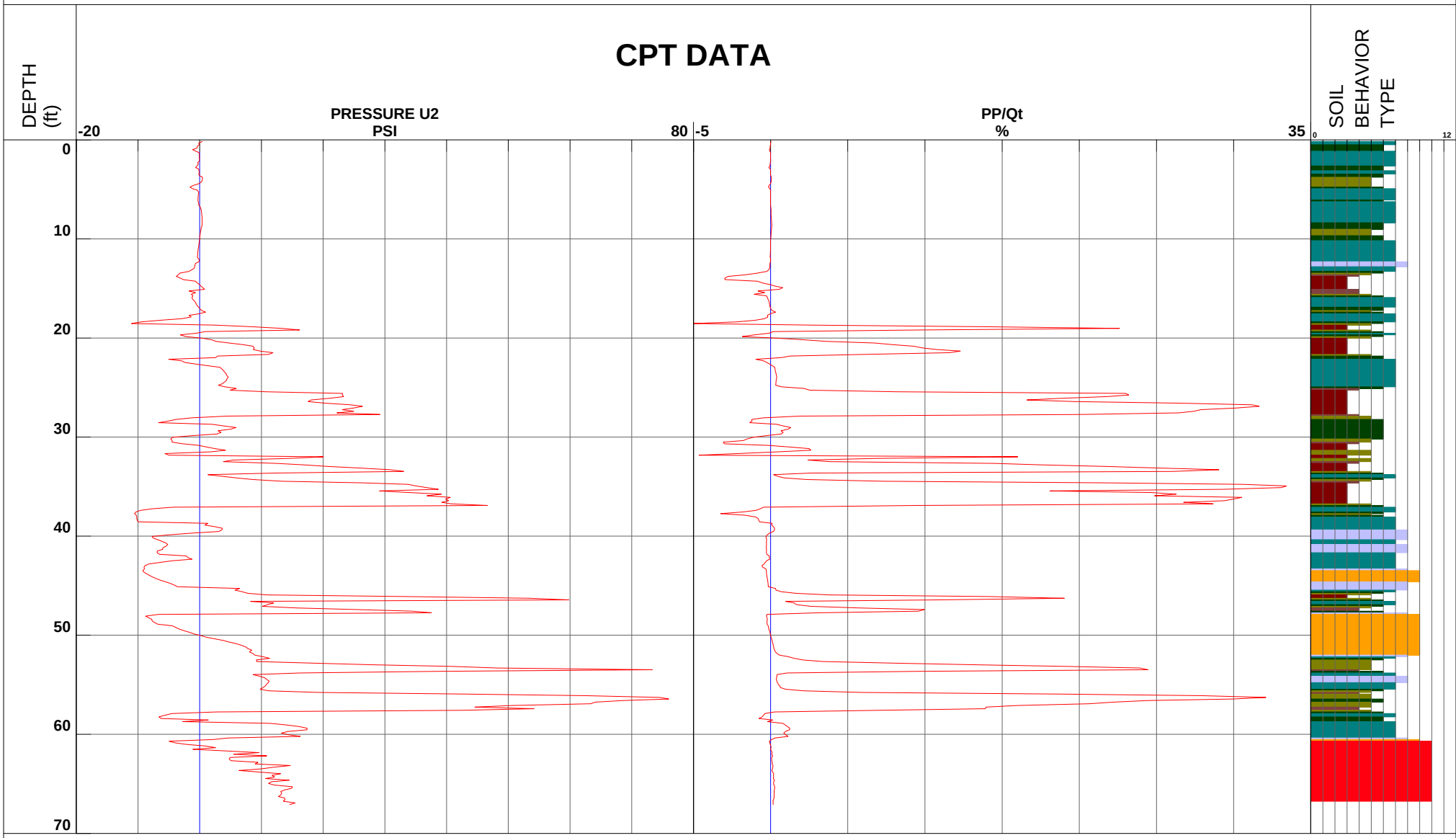
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(413).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-59	Date and Time	11/18/2008 12:29:40 PM	Maximum Depth	67.09 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

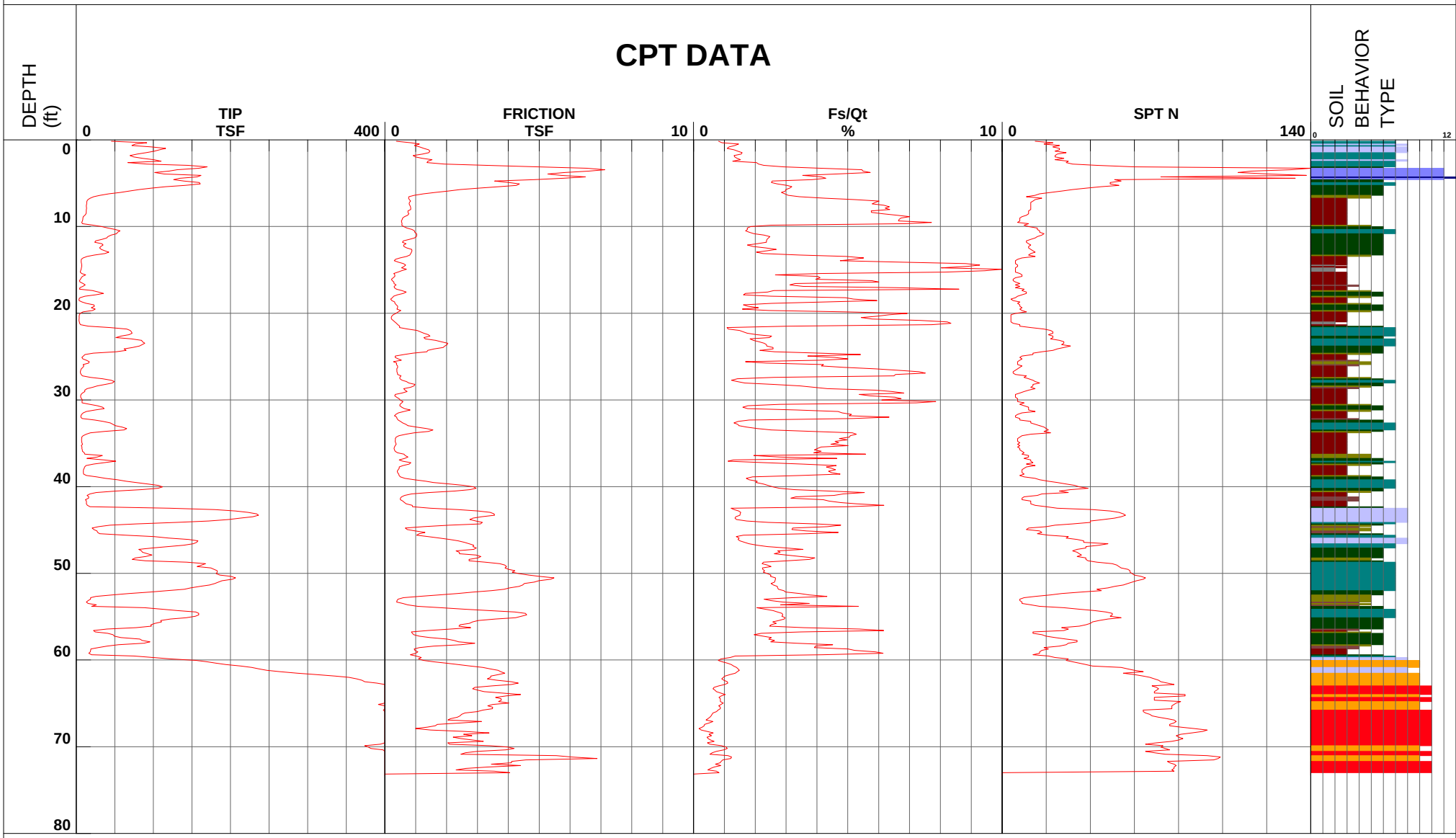
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(475).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-60	Date and Time	12/8/2008 2:33:03 PM	Maximum Depth	73.33 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

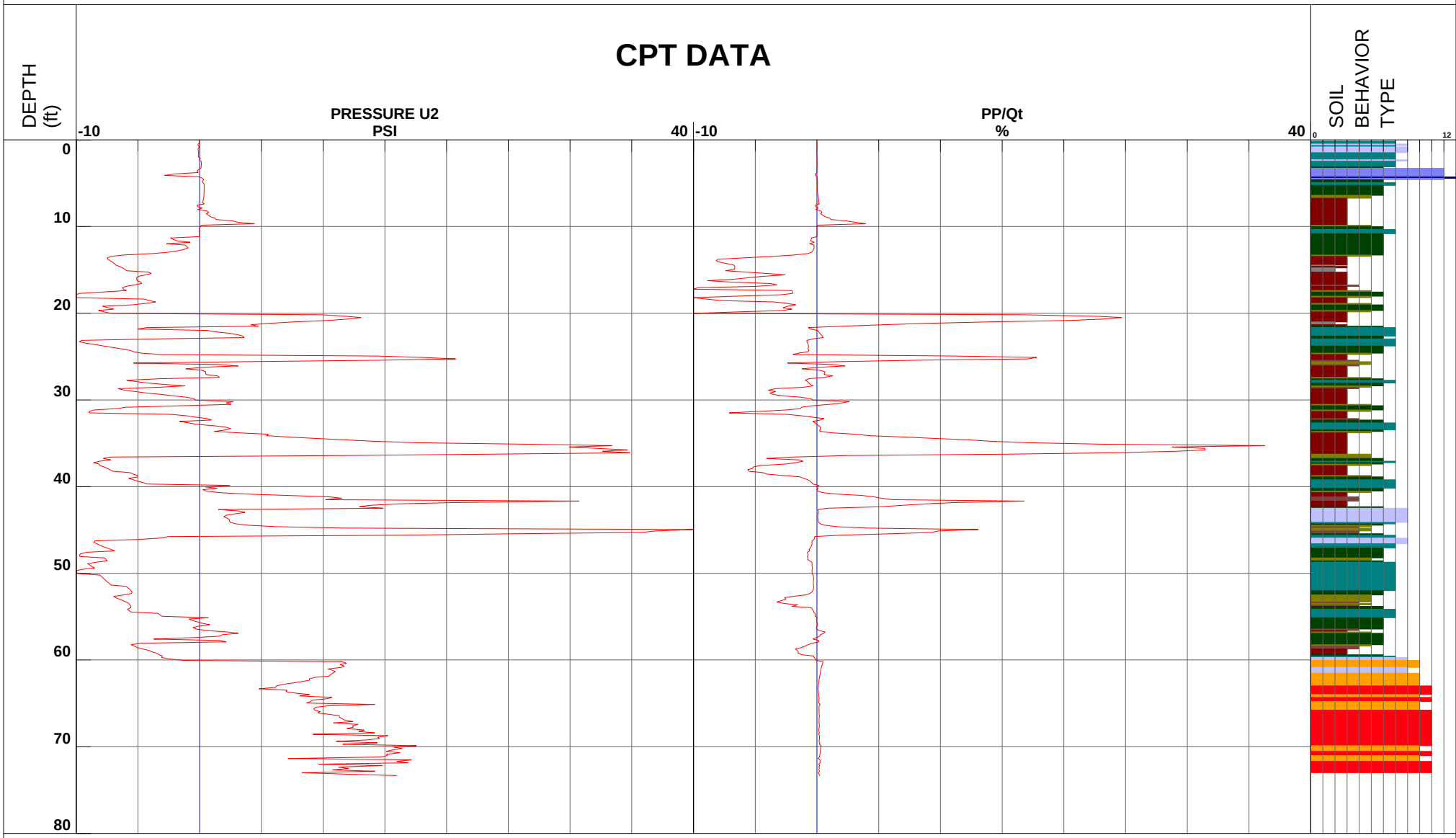
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(475).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-60	Date and Time	12/8/2008 2:33:03 PM	Maximum Depth	73.33 ft
Water Table Depth		0.00 ft			

CPT DATA



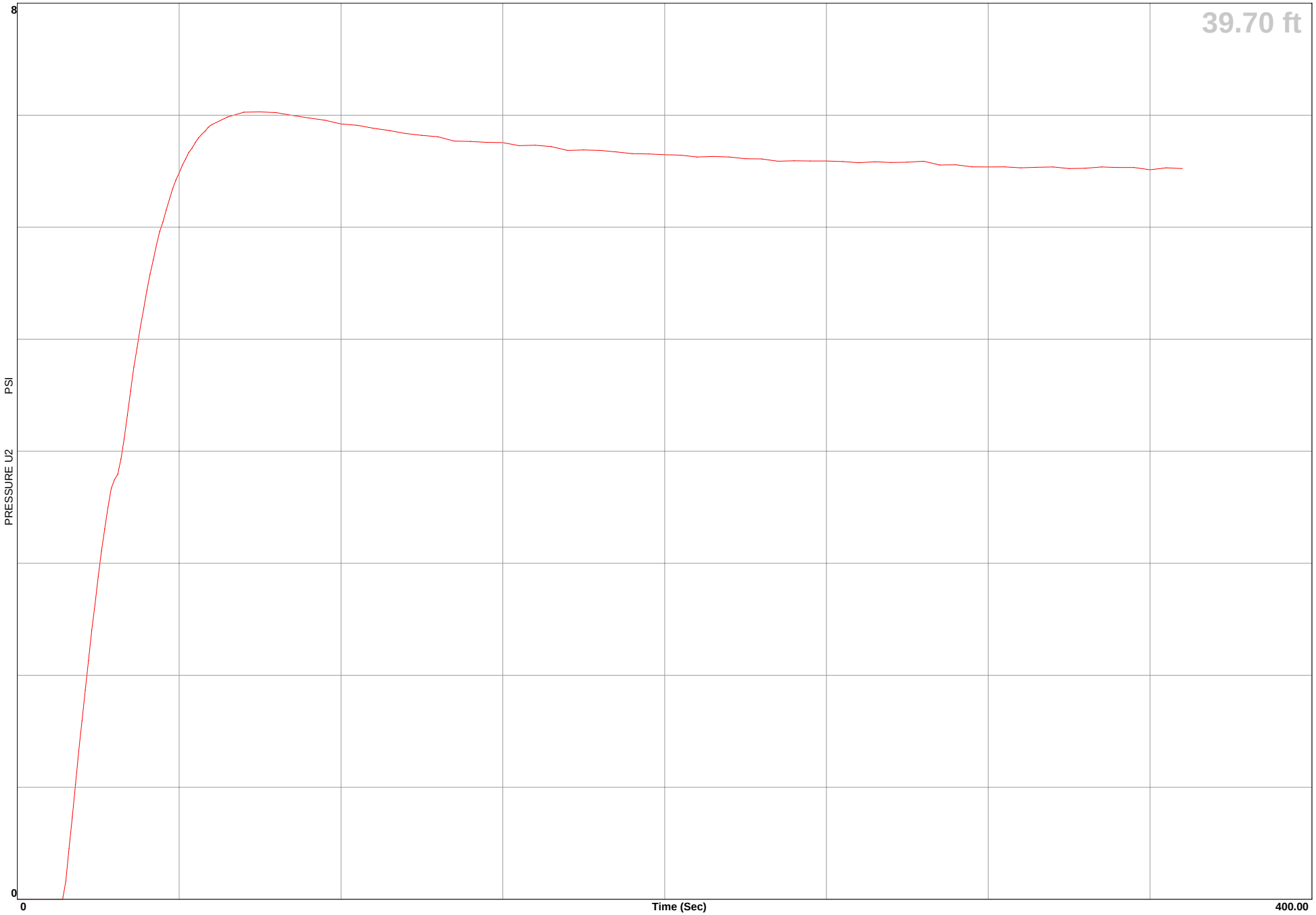
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

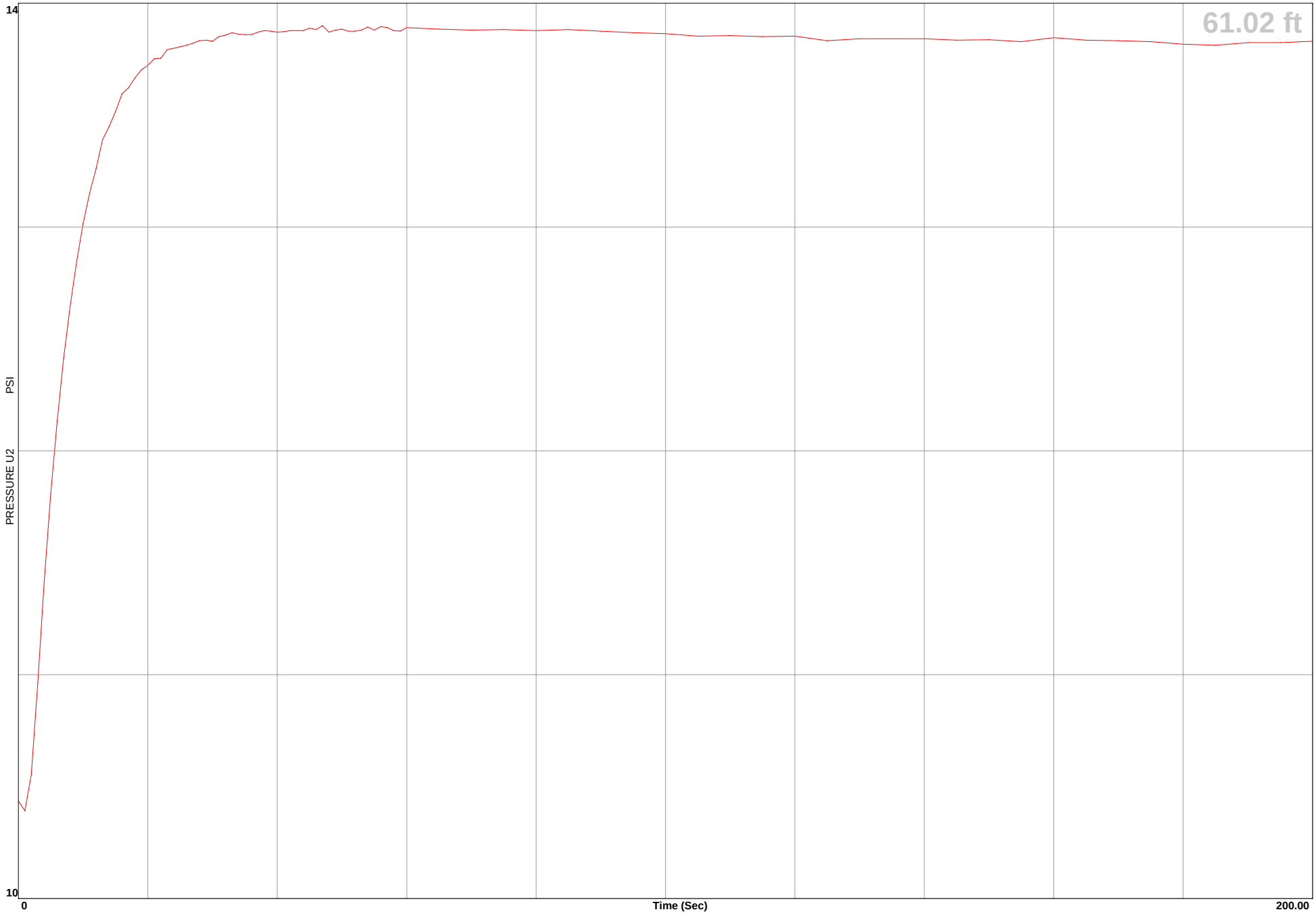
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-60**	**Date and Time**	**12/8/2008 2:33:03 PM**	
Equilized Pressure	**6.51**	**Ground Water Depth**	**24.66**	



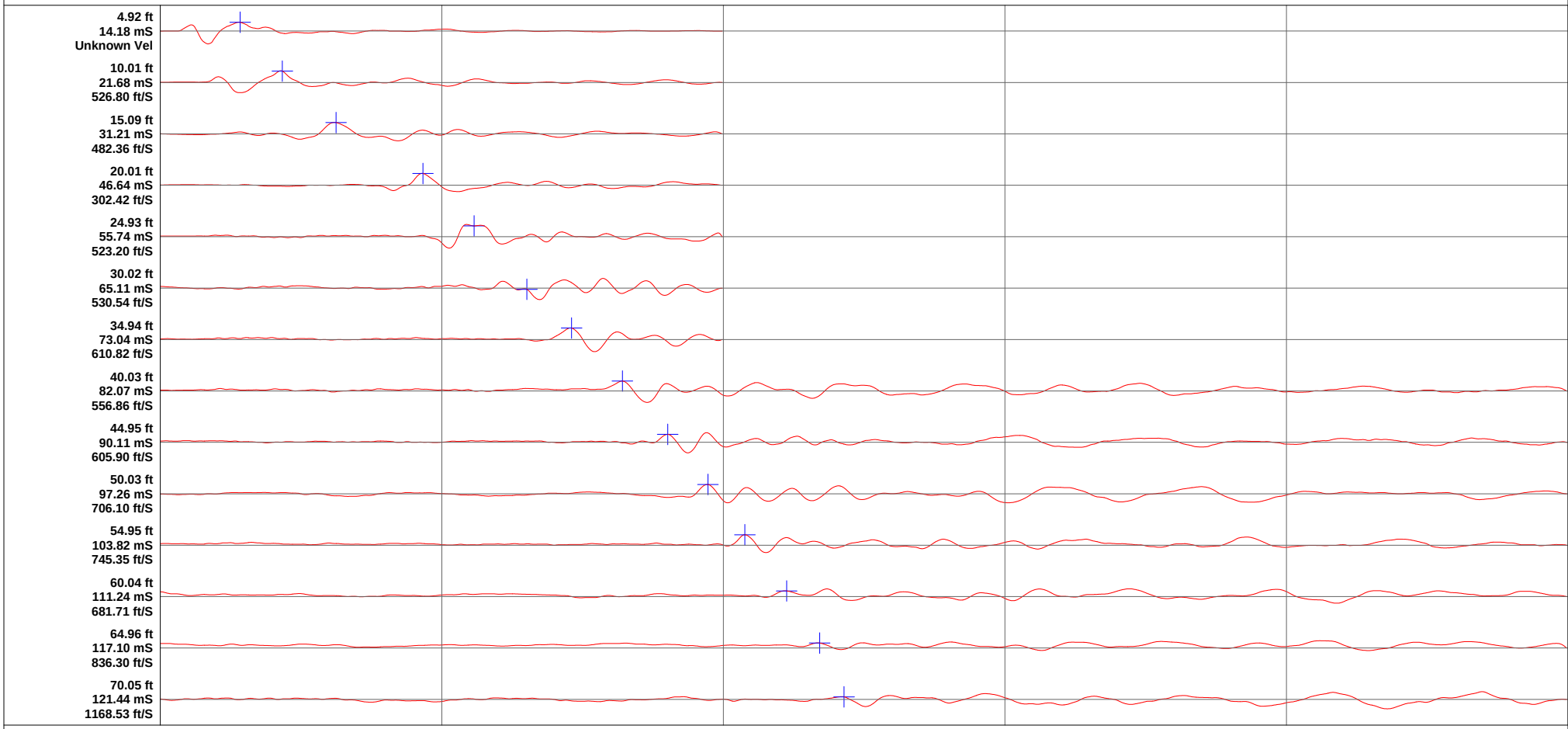
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-60**	**Date and Time**	**12/8/2008 2:33:03 PM**	
Equilized Pressure	**13.83**	**Ground Water Depth**	**29.077**	



Earth Mechanics

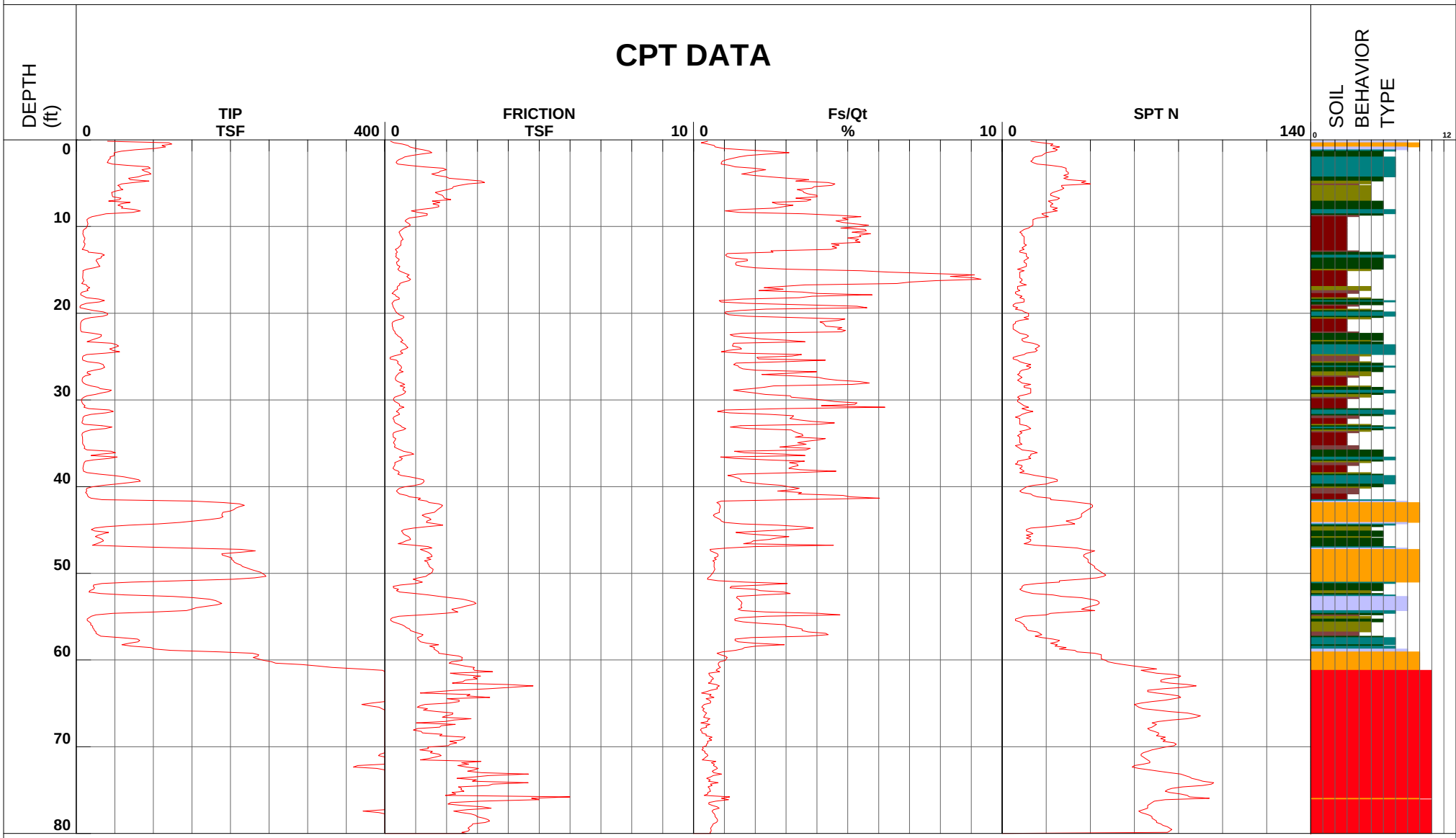
Location	EGG-WC Warner/Edwards	Operator	ML/BH	
Job Number	08-156	Cone Number	DSG0906	GPS
Hole Number	CPT-08-60	Date and Time	12/8/2008 2:33:03 PM	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(412).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-61	Date and Time	11/18/2008 10:14:03 AM	Maximum Depth	80.38 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

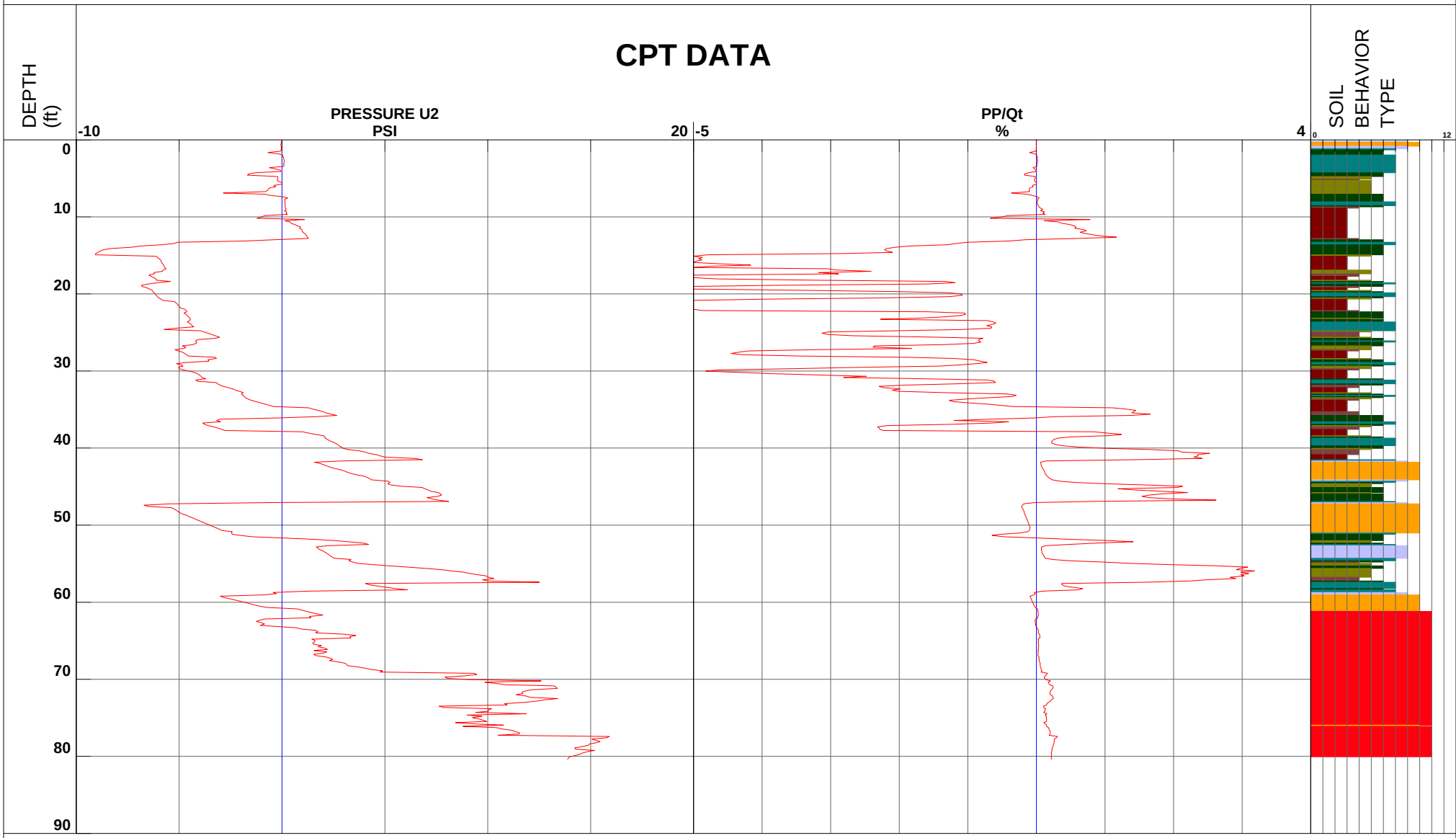
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(412).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-61	Date and Time	11/18/2008 10:14:03 AM	Maximum Depth	80.38 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

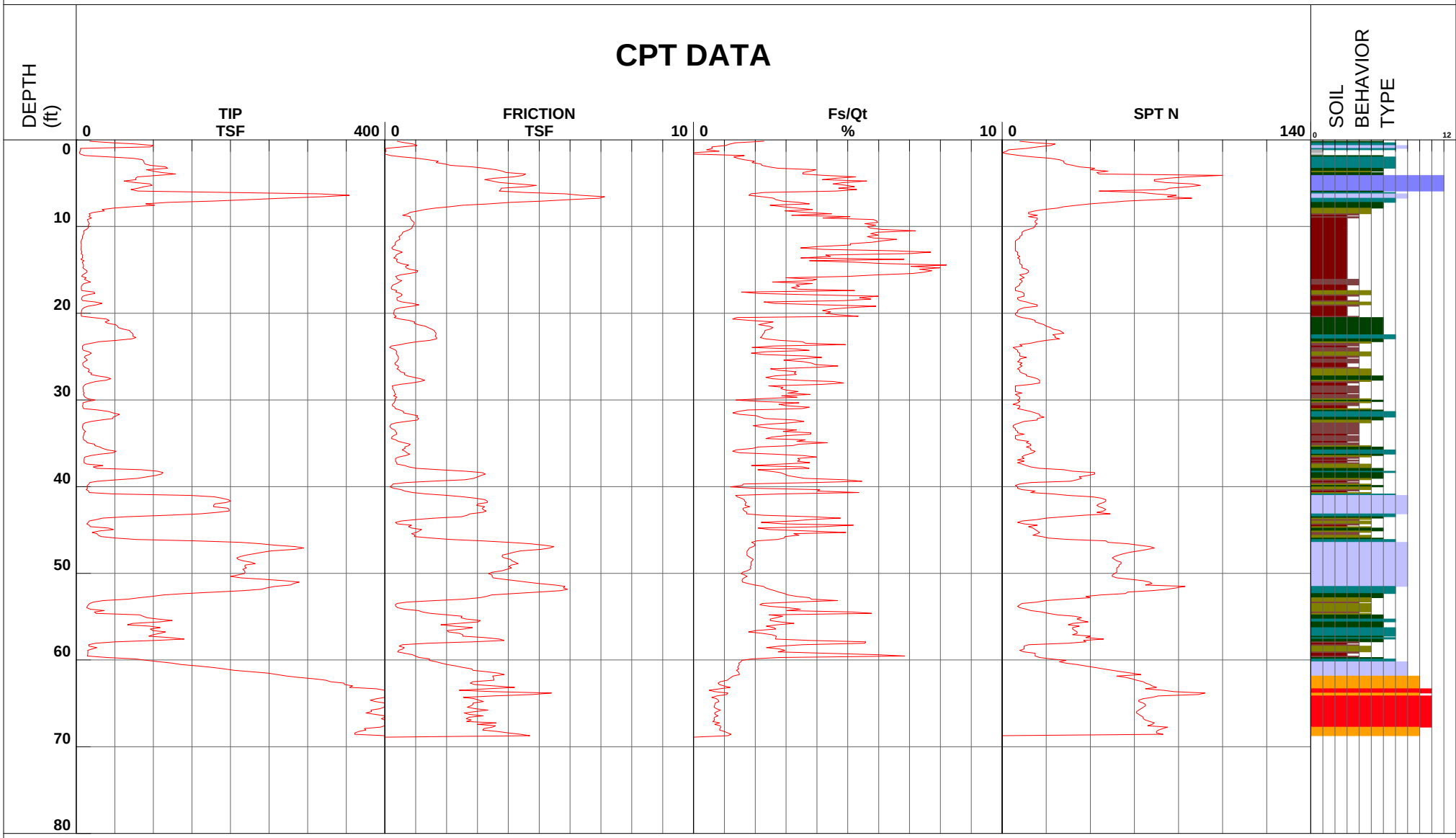
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(476).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-62	Date and Time	12/9/2008 7:20:34 AM	Maximum Depth	69.06 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

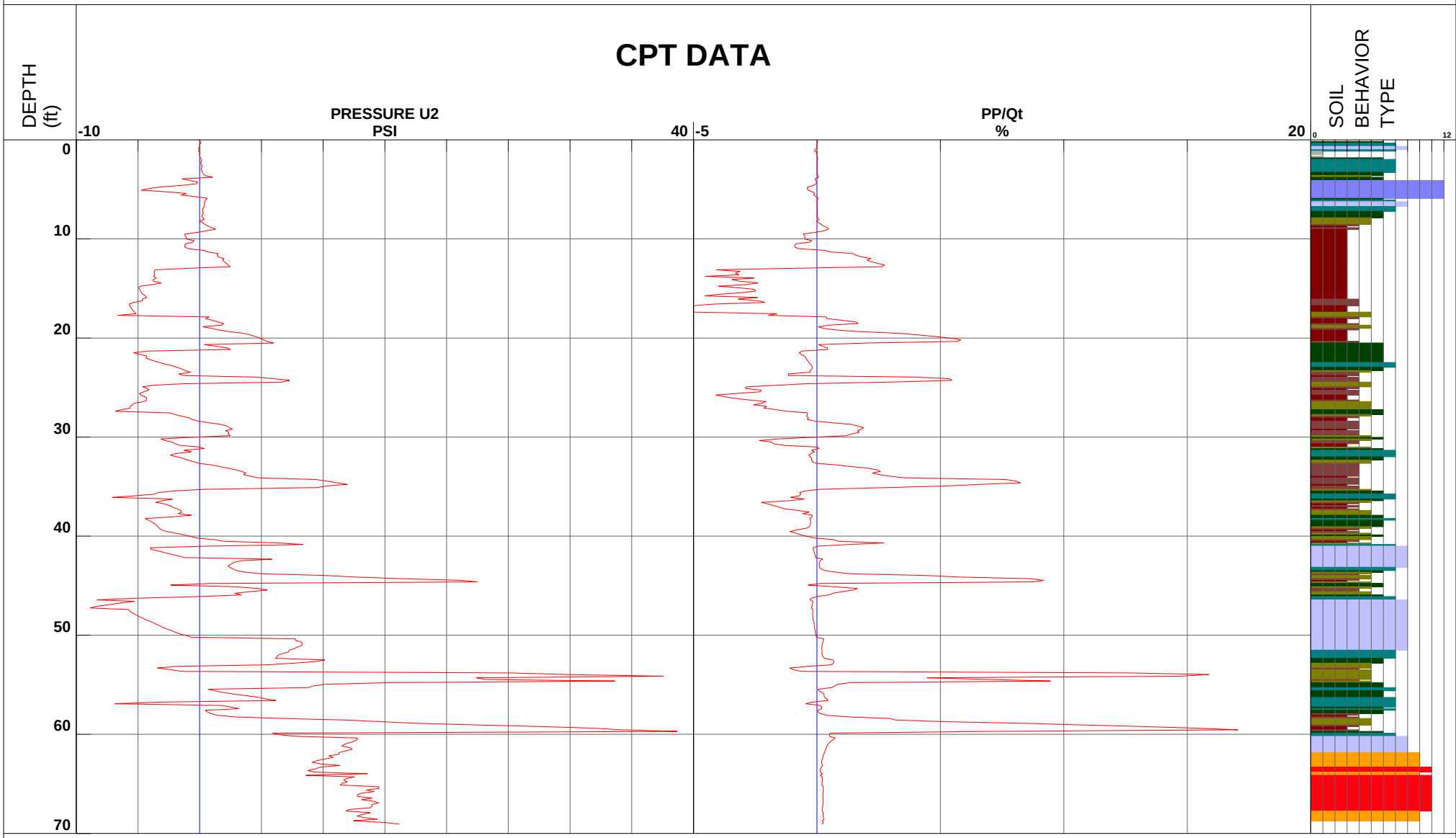
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(476).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-62	Date and Time	12/9/2008 7:20:34 AM	Maximum Depth	69.06 ft
Water Table Depth		0.00 ft			

CPT DATA



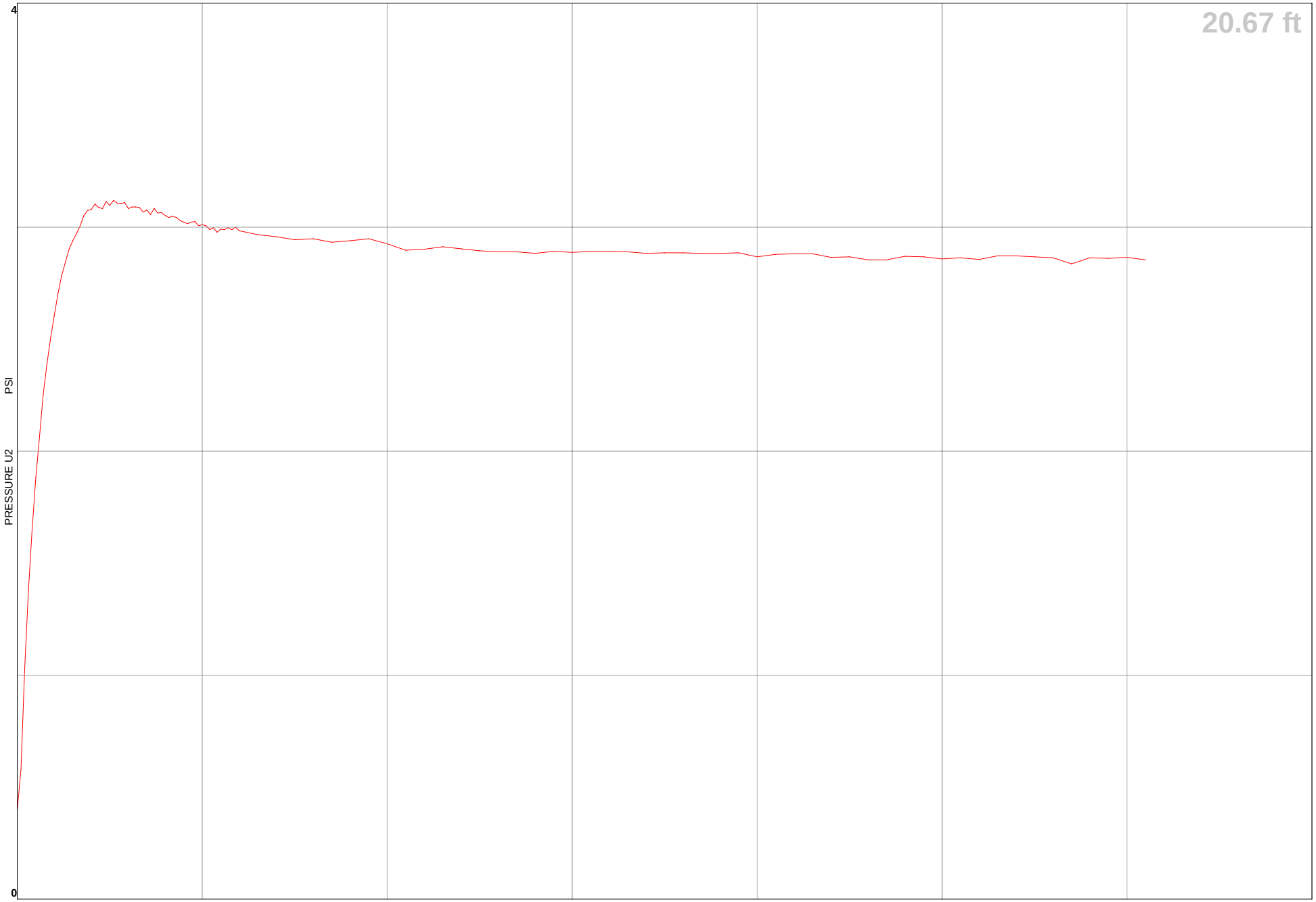
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

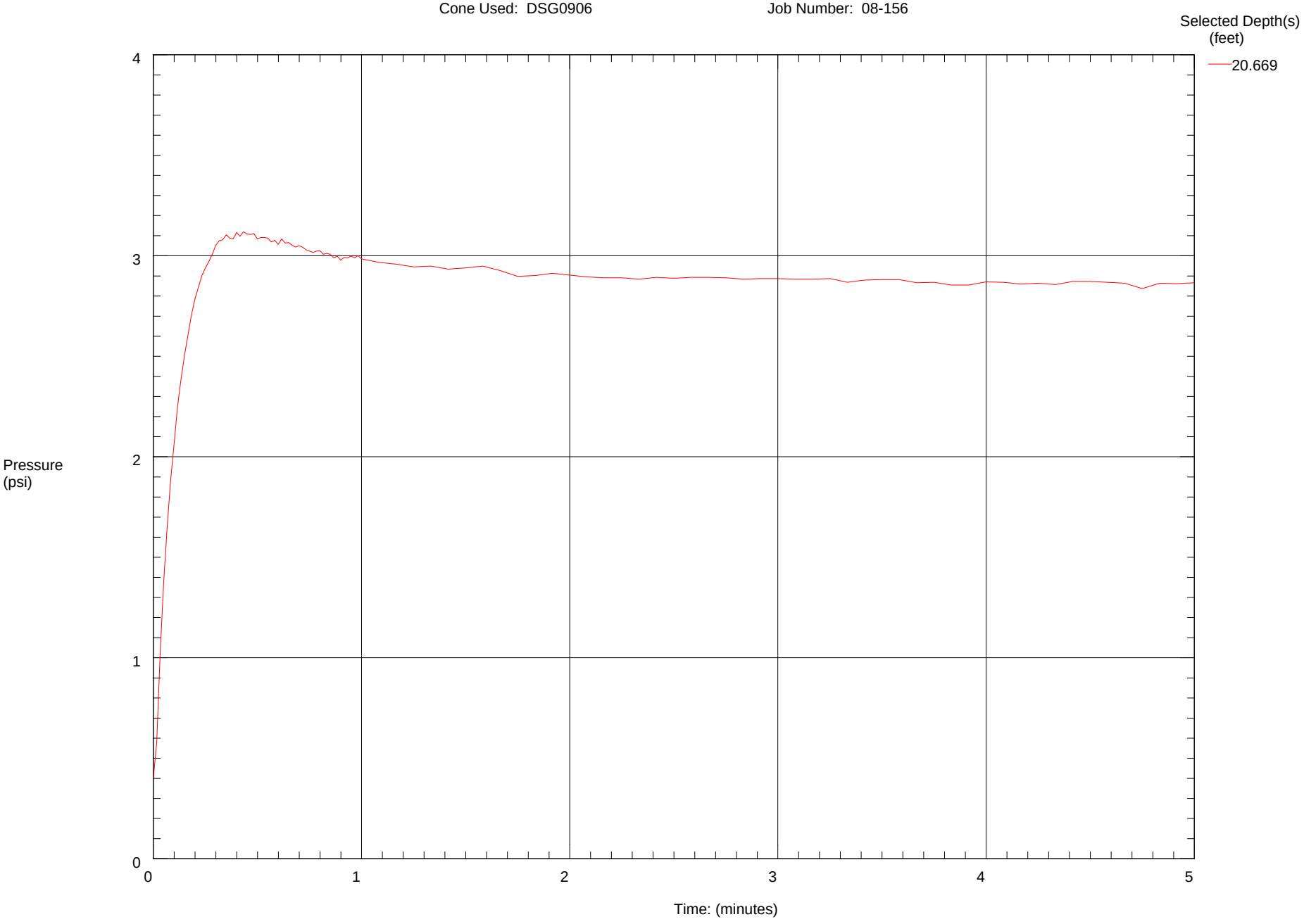
Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-62**	**Date and Time**	**12/9/2008 7:20:34 AM**	
Equilized Pressure	**2.85**	**Ground Water Depth**	**14.08**	



Earth Mechanics

Operator ML/BH
Sounding: CPT-08-62
Cone Used: DSG0906

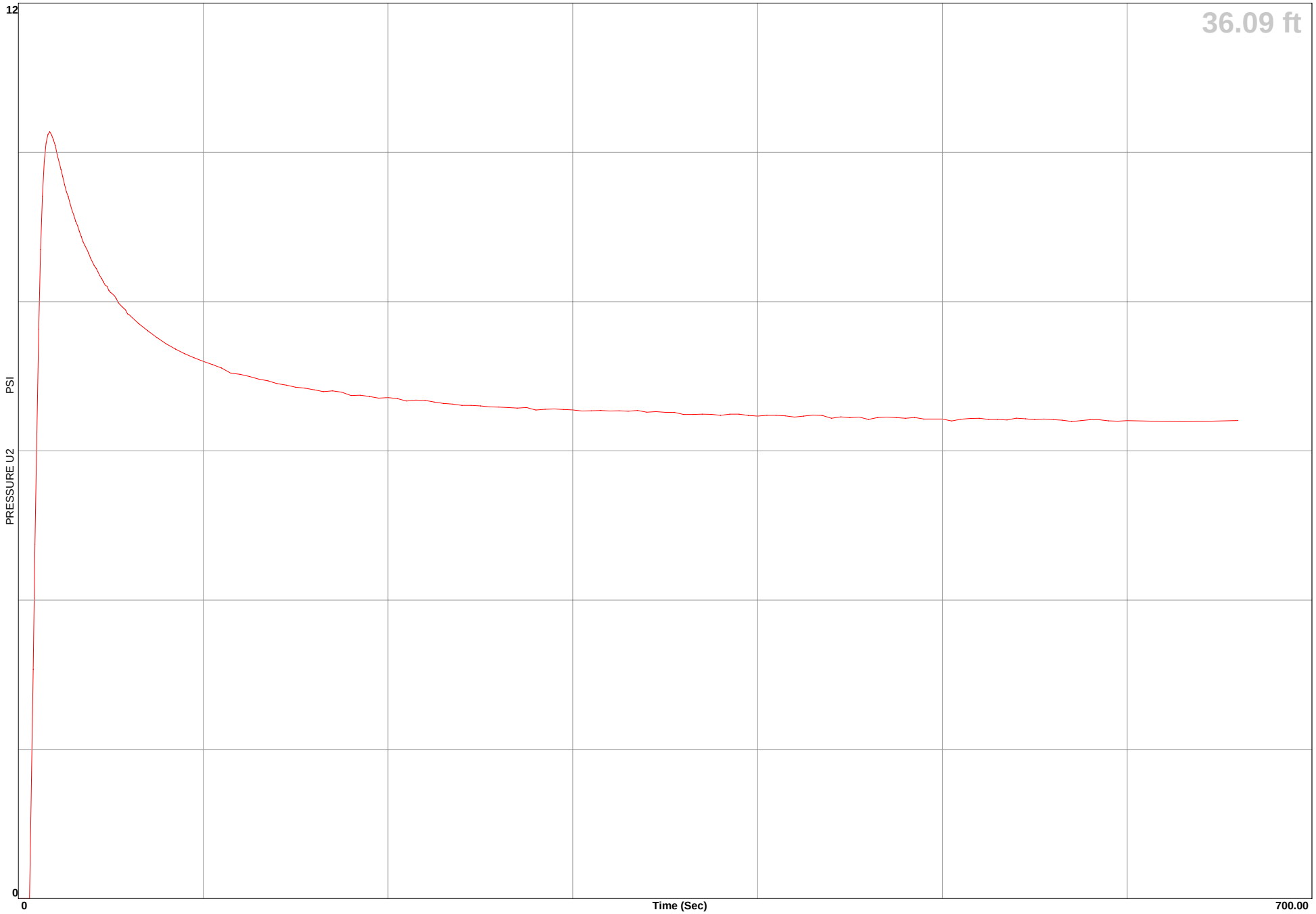
CPT Date/Time: 12/9/2008 7:20:34 AM
Location: EGG-WC Warner/Edwards
Job Number: 08-156



Maximum Pressure = 3.119 psi
Hydrostatic Pressure = 14.07 ft

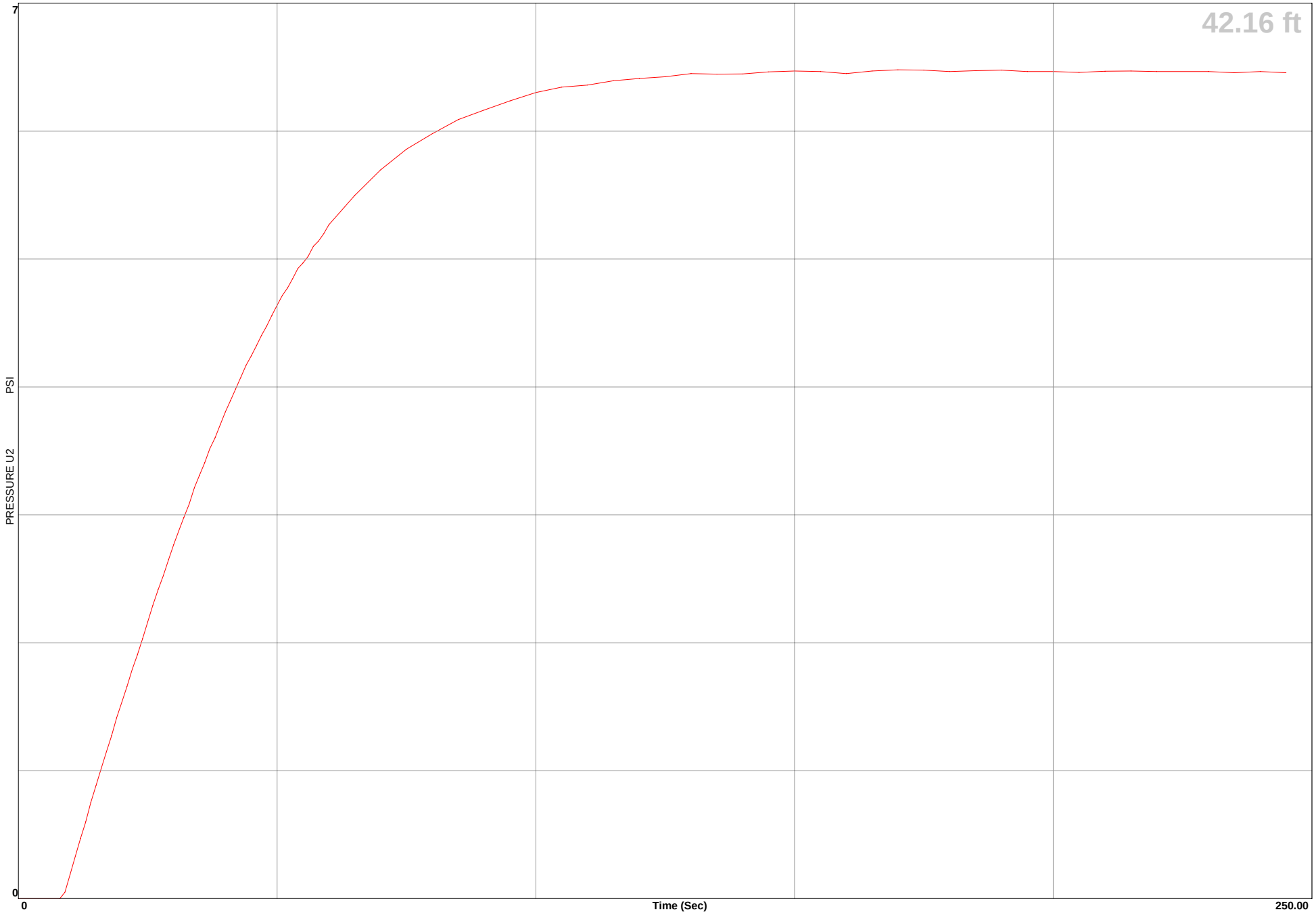
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-62**	**Date and Time**	**12/9/2008 7:20:34 AM**	
Equilized Pressure	**6.41**	**Ground Water Depth**	**21.28**	



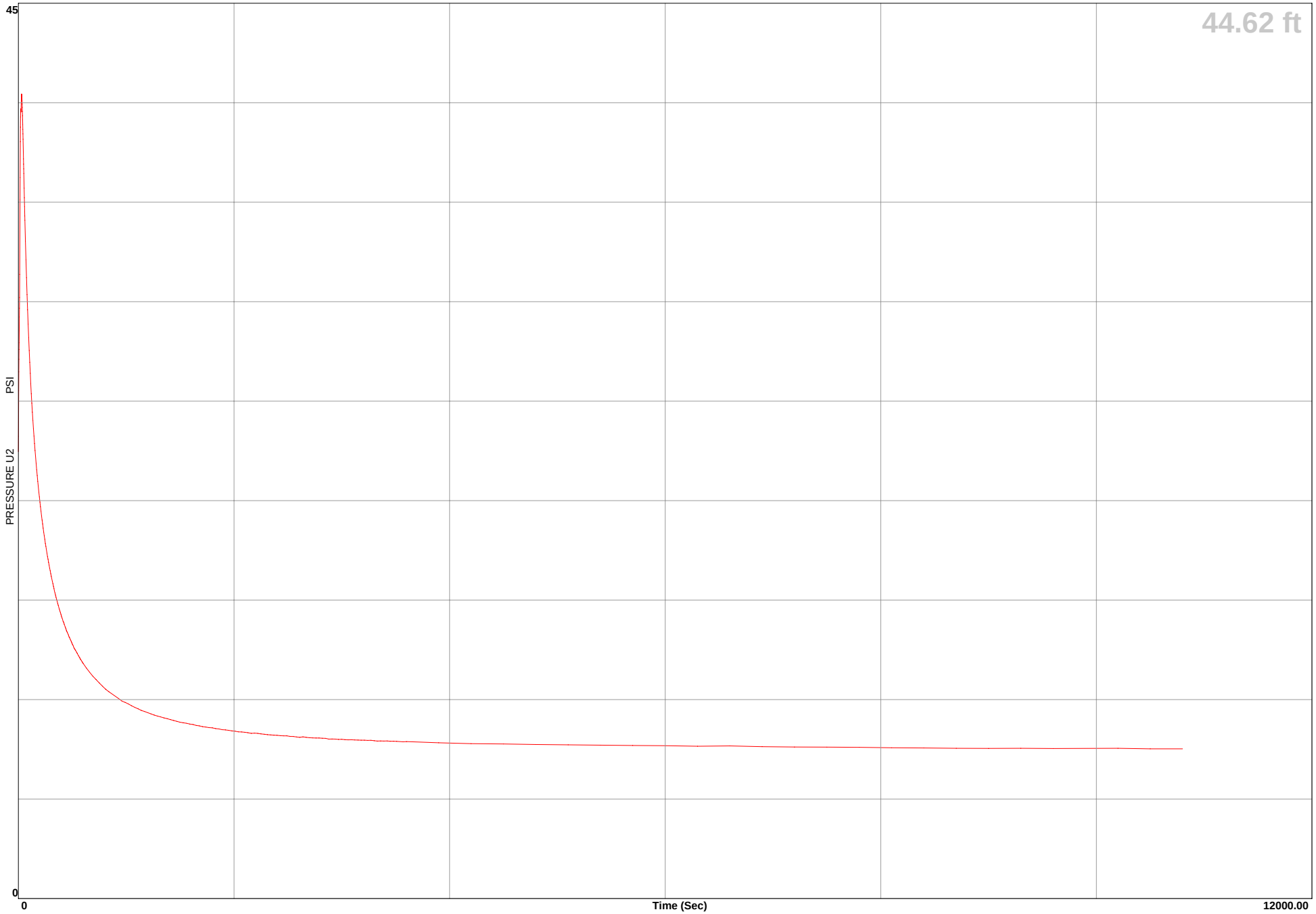
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-62**	**Date and Time**	**12/9/2008 7:20:34 AM**	
Equilized Pressure	**6.45**	**Ground Water Depth**	**27.26**	



Earth Mechanics

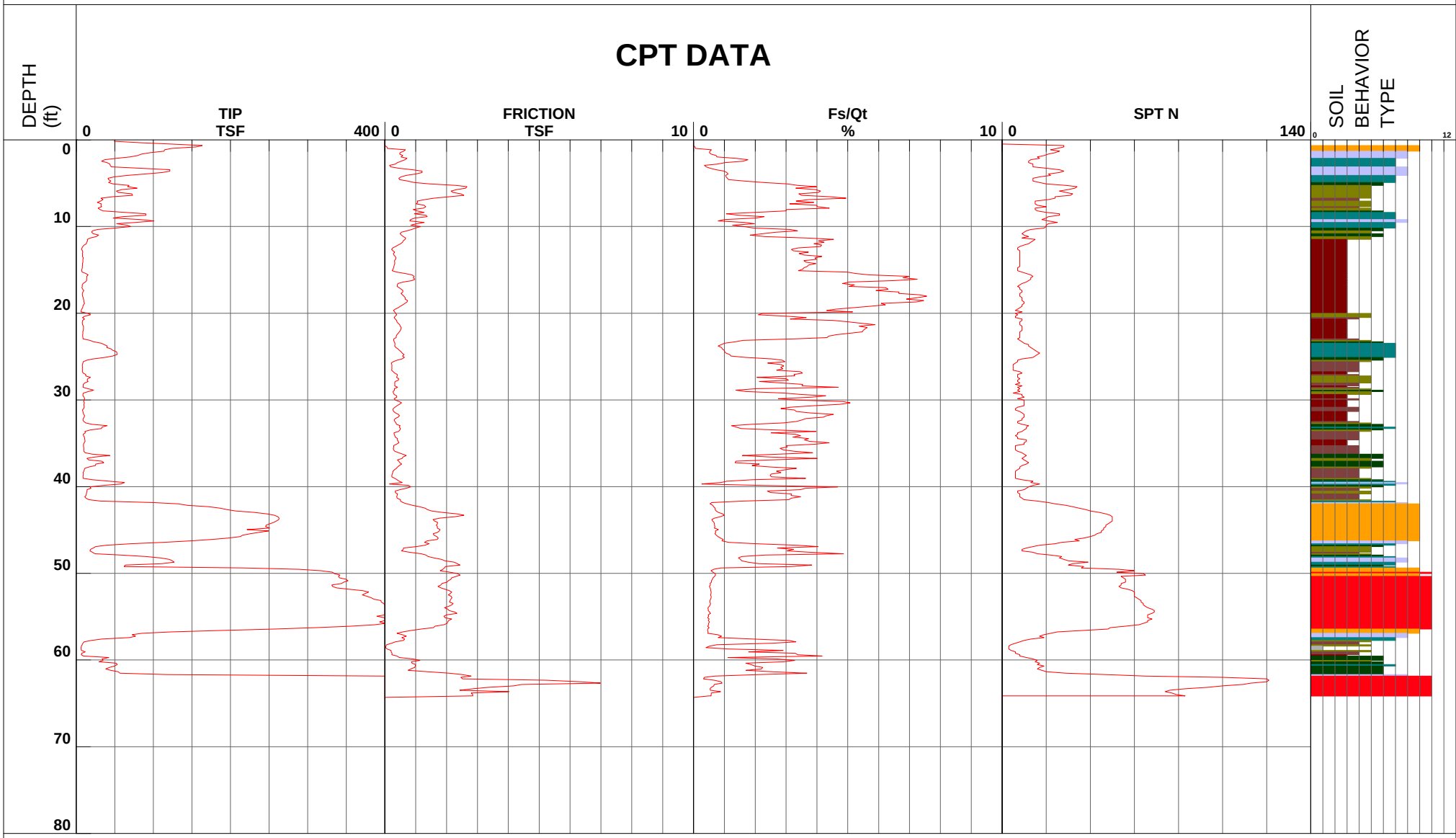
Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-62**	**Date and Time**	**12/9/2008 7:20:34 AM**	
Equilized Pressure	**7.40**	**Ground Water Depth**	**27.52**	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(411).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-63	Date and Time	11/18/2008 8:54:29 AM	Maximum Depth	64.47 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

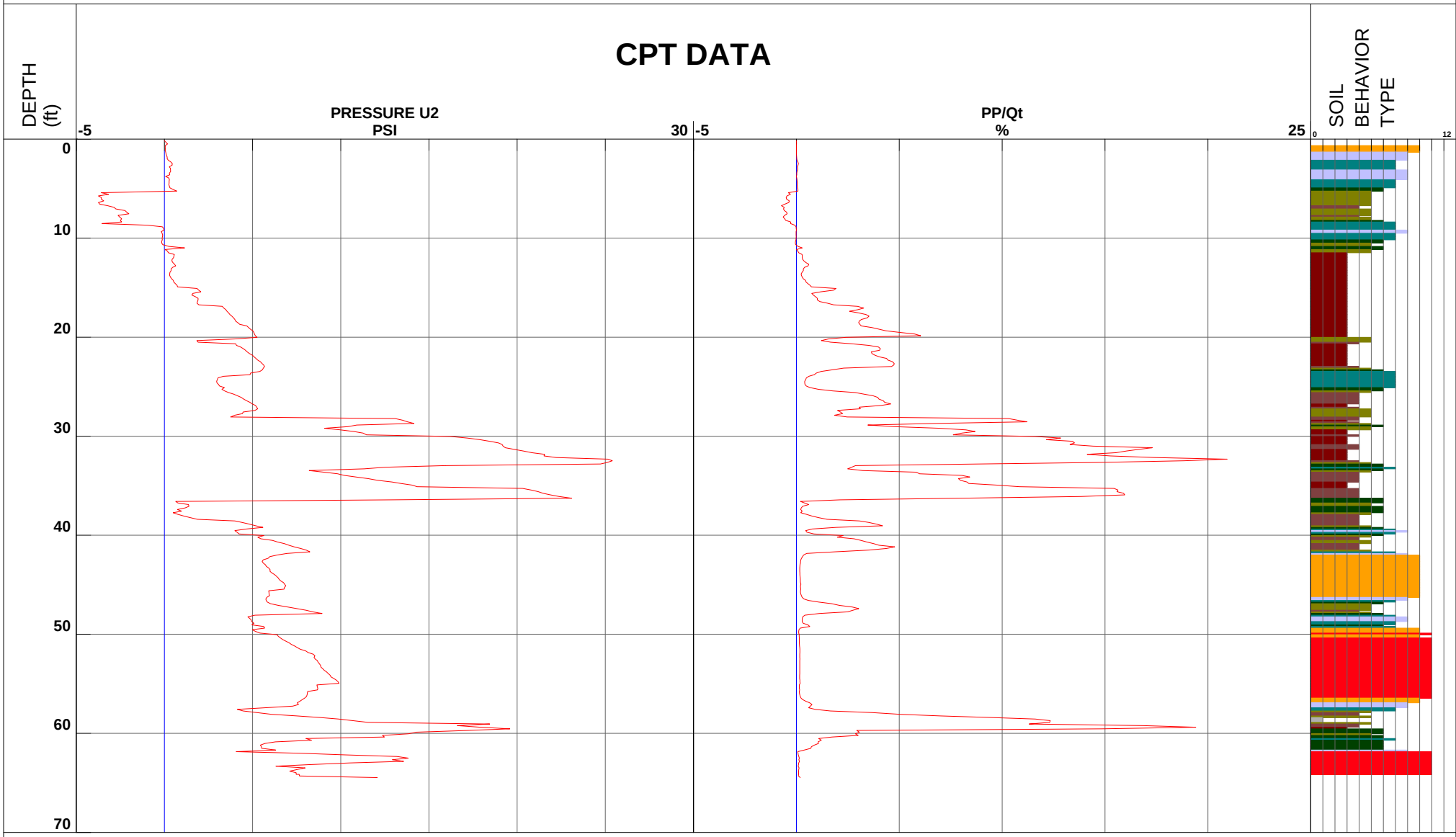
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(411).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-63	Date and Time	11/18/2008 8:54:29 AM	Maximum Depth	64.47 ft
Water Table Depth	12.00 ft				

CPT DATA



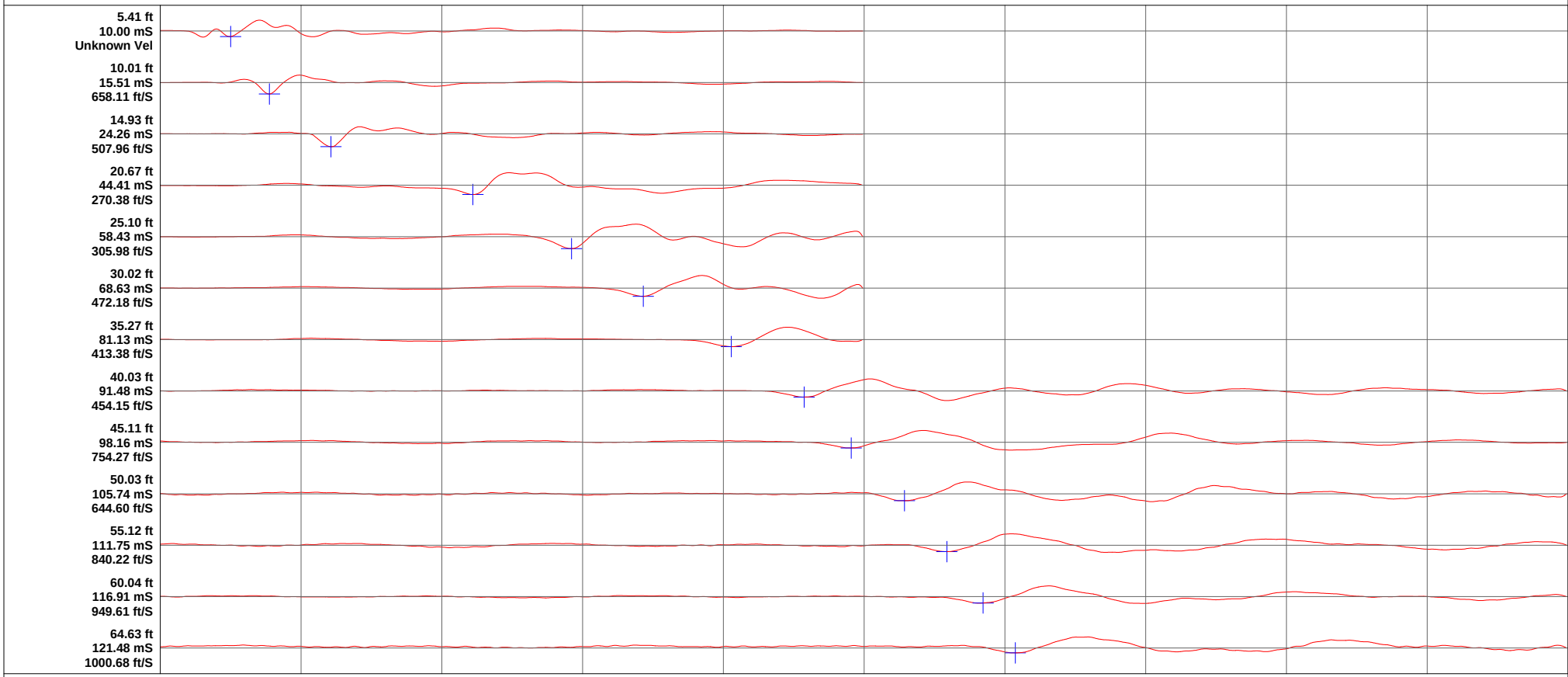
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

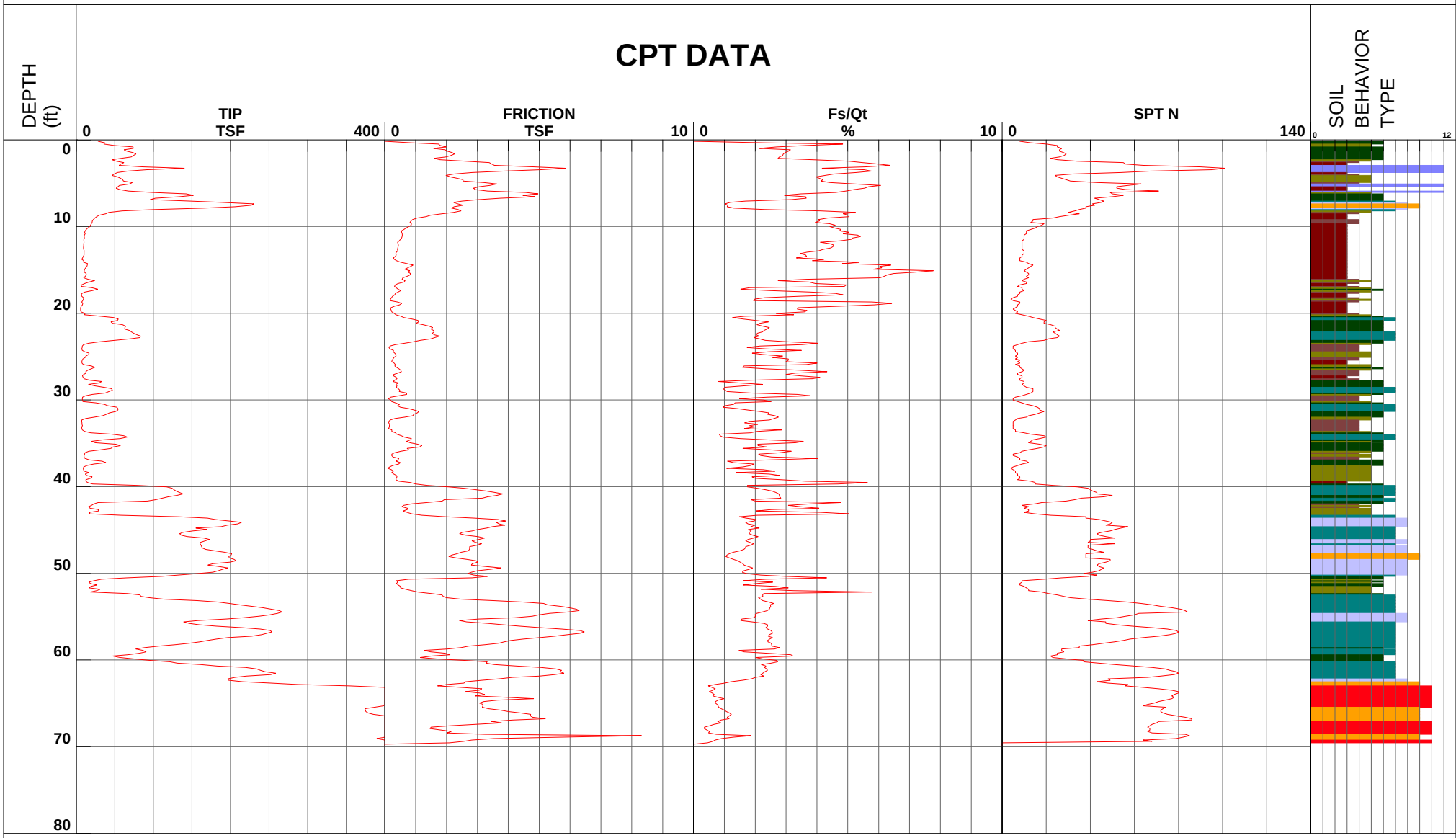
Location	EGG-WC Warner/Edwards	Operator	ML/VO	
Job Number	08-156	Cone Number	DSG1047	GPS
Hole Number	CPT-08-63	Date and Time	11/18/2008 8:54:29 AM	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(477).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-64	Date and Time	12/9/2008 12:35:22 PM	Maximum Depth	69.88 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

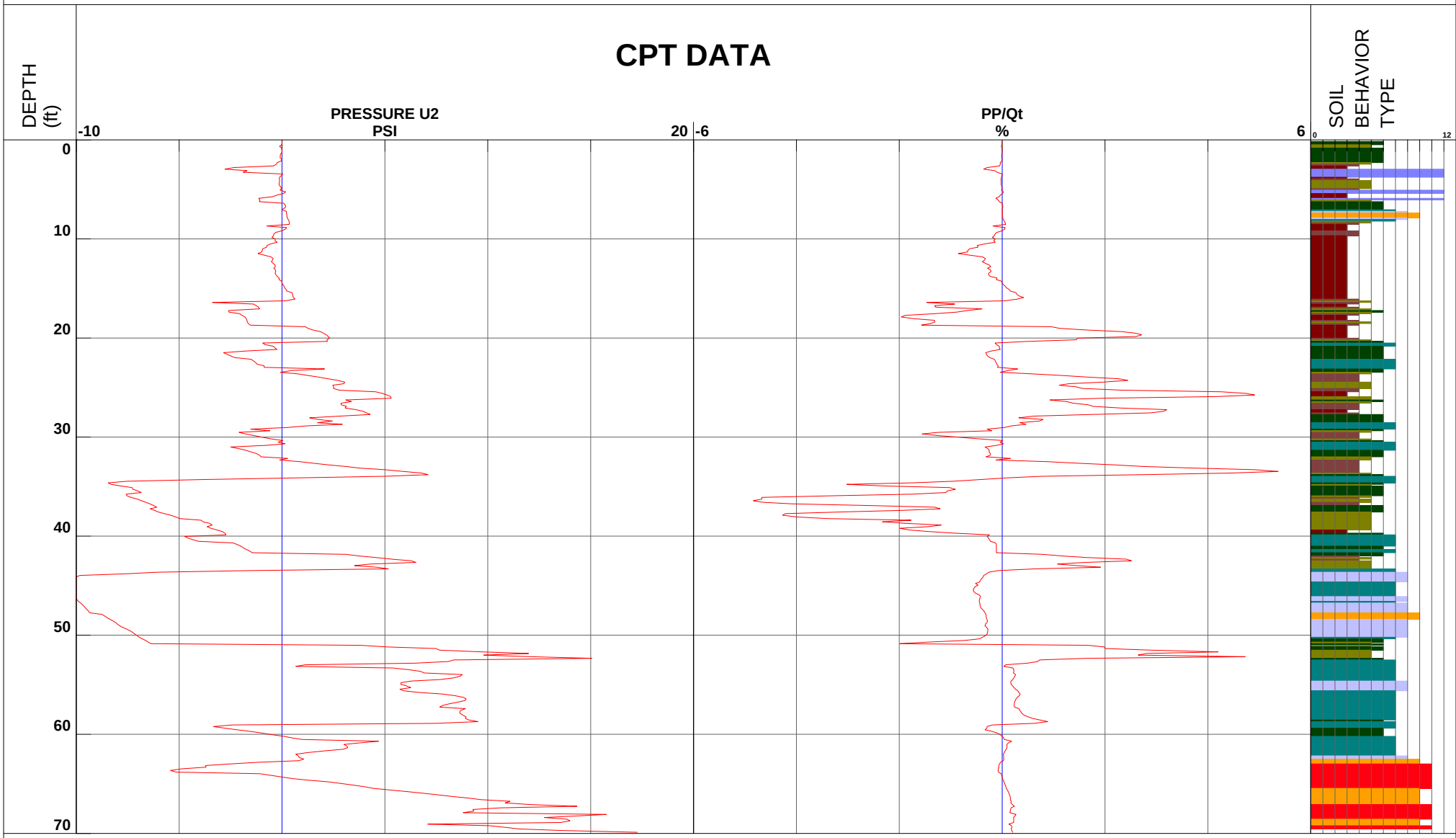
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(477).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-64	Date and Time	12/9/2008 12:35:22 PM	Maximum Depth	69.88 ft
Water Table Depth		0.00 ft			

CPT DATA



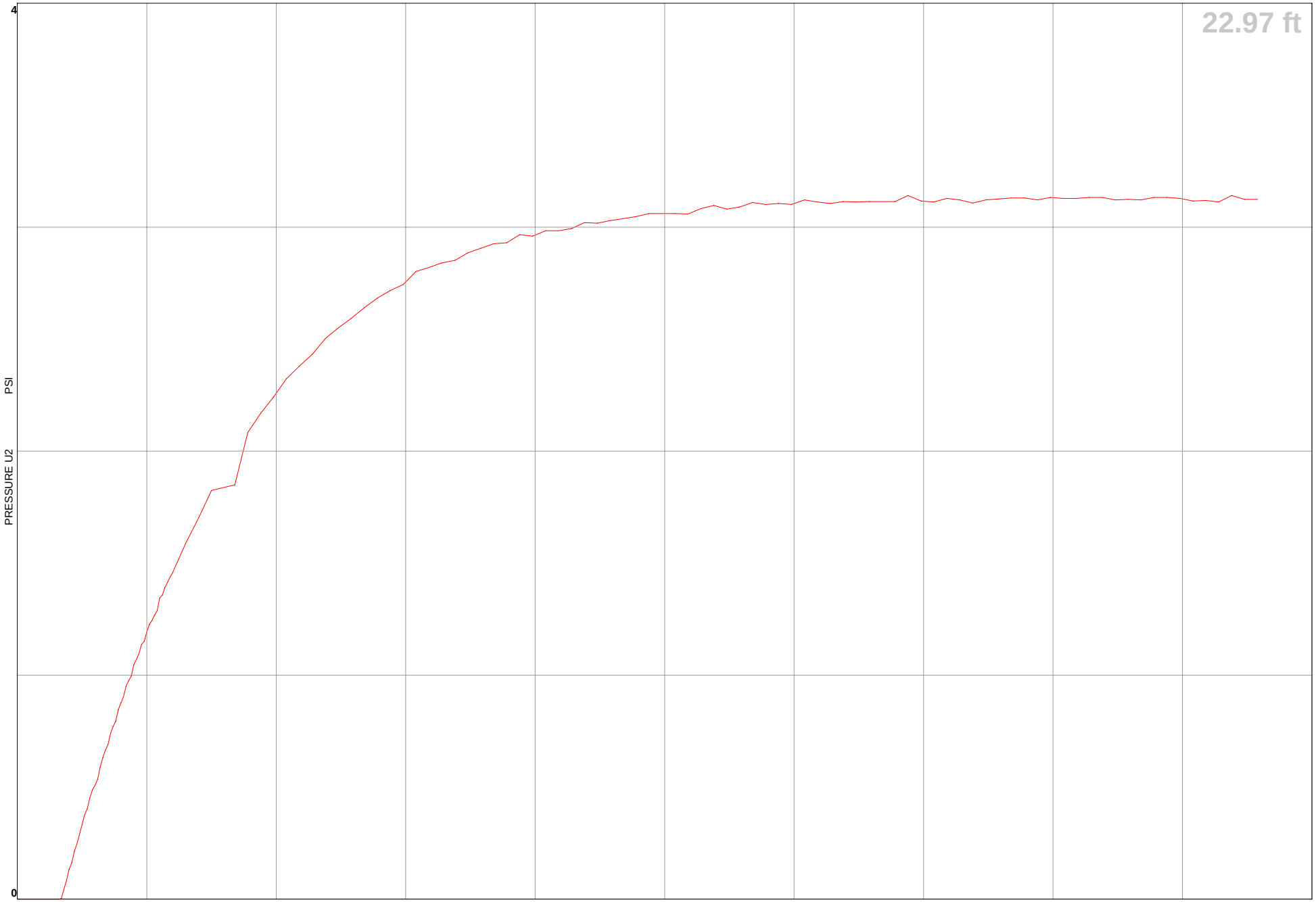
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

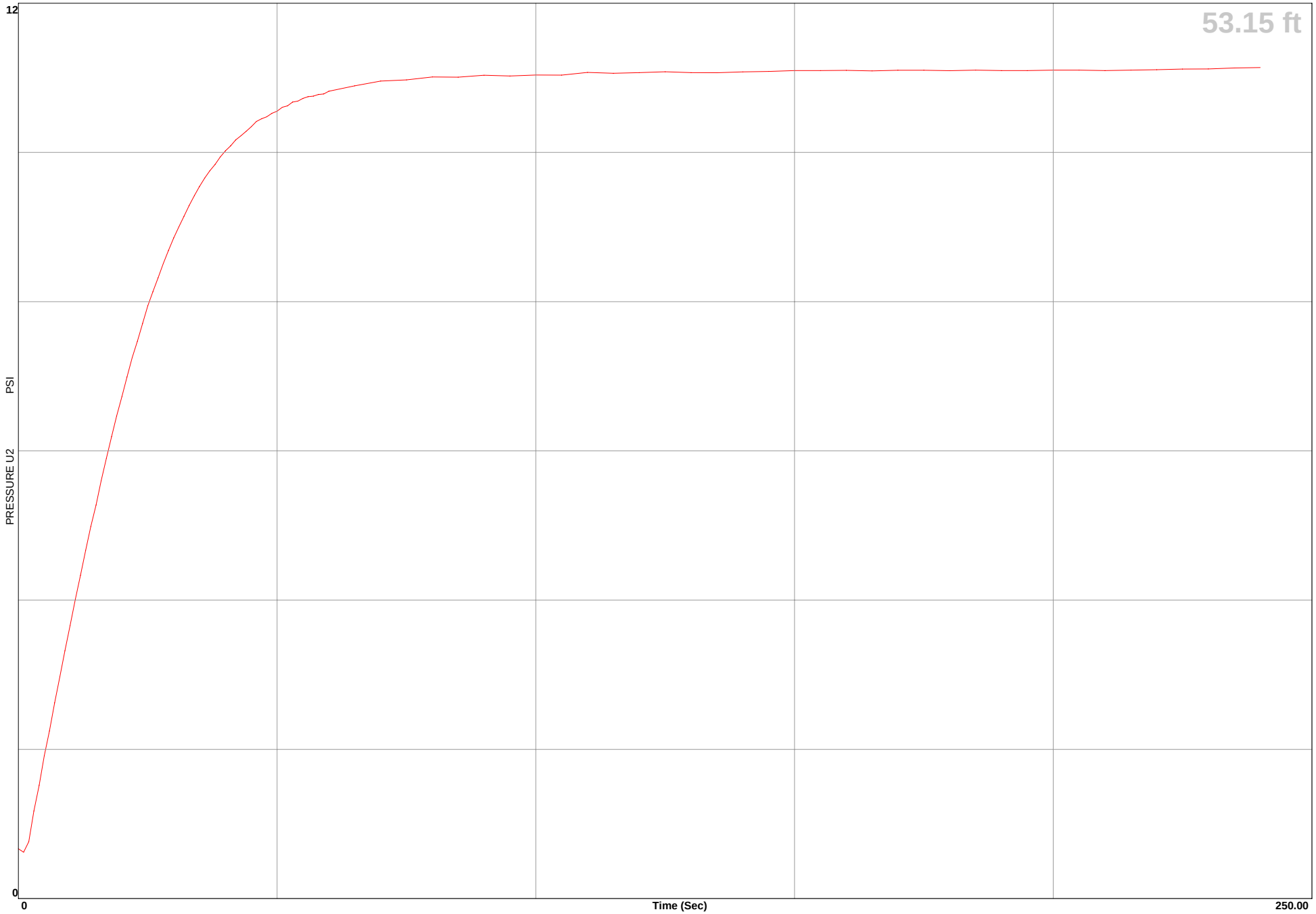
Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	GPS
Job Number	08-156	Cone Number	DSG0906	
Hole Number	CPT-08-64	Date and Time	12/9/2008 12:35:22 PM	
Equilized Pressure	3.12	Ground Water Depth	15.76	



Earth Mechanics

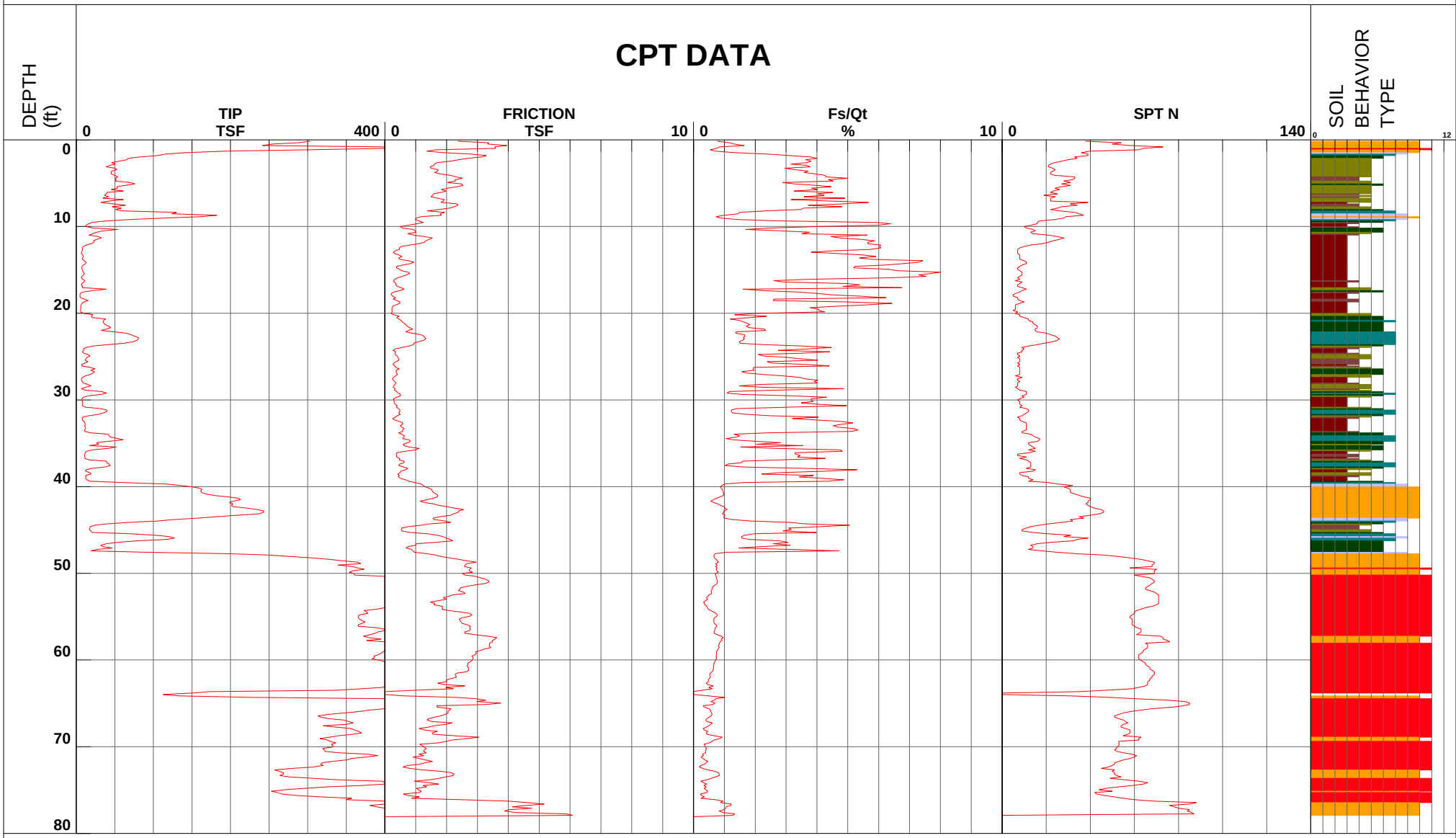
Location	EGG-WC Warner/Edwards	Operator	ML/BH	
Job Number	08-156	Cone Number	DSG0906	GPS
Hole Number	CPT-08-64	Date and Time	12/9/2008 12:35:22 PM	
Equilized Pressure	11.13	Ground Water Depth	27.43	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(410).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-65	Date and Time	11/18/2008 7:47:58 AM	Maximum Depth	78.25 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

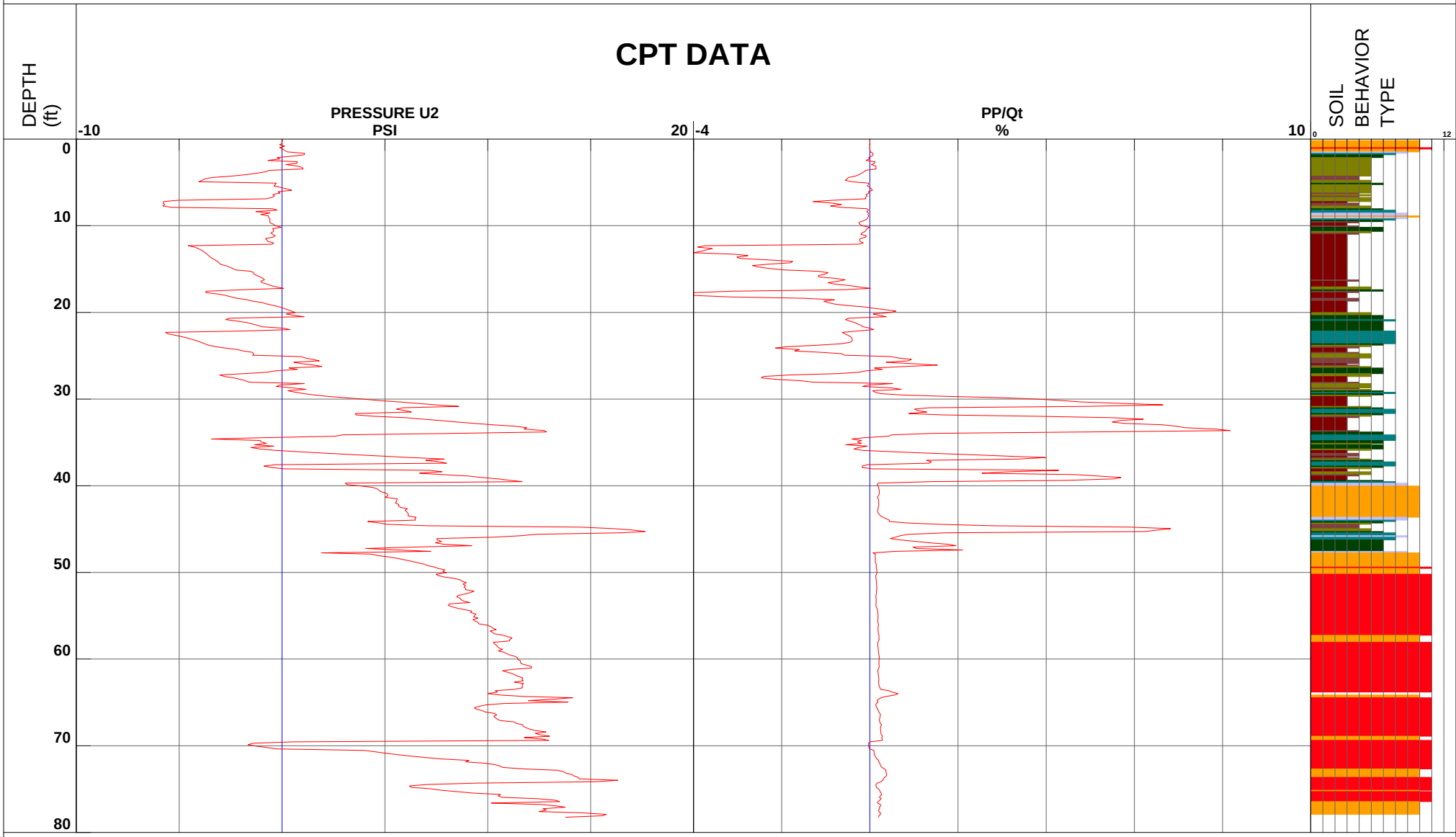
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(410).cpt
Job Number	08-156	Cone Number	DSG1047	GPS	
Hole Number	CPT-08-65	Date and Time	11/18/2008 7:47:58 AM	Maximum Depth	78.25 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

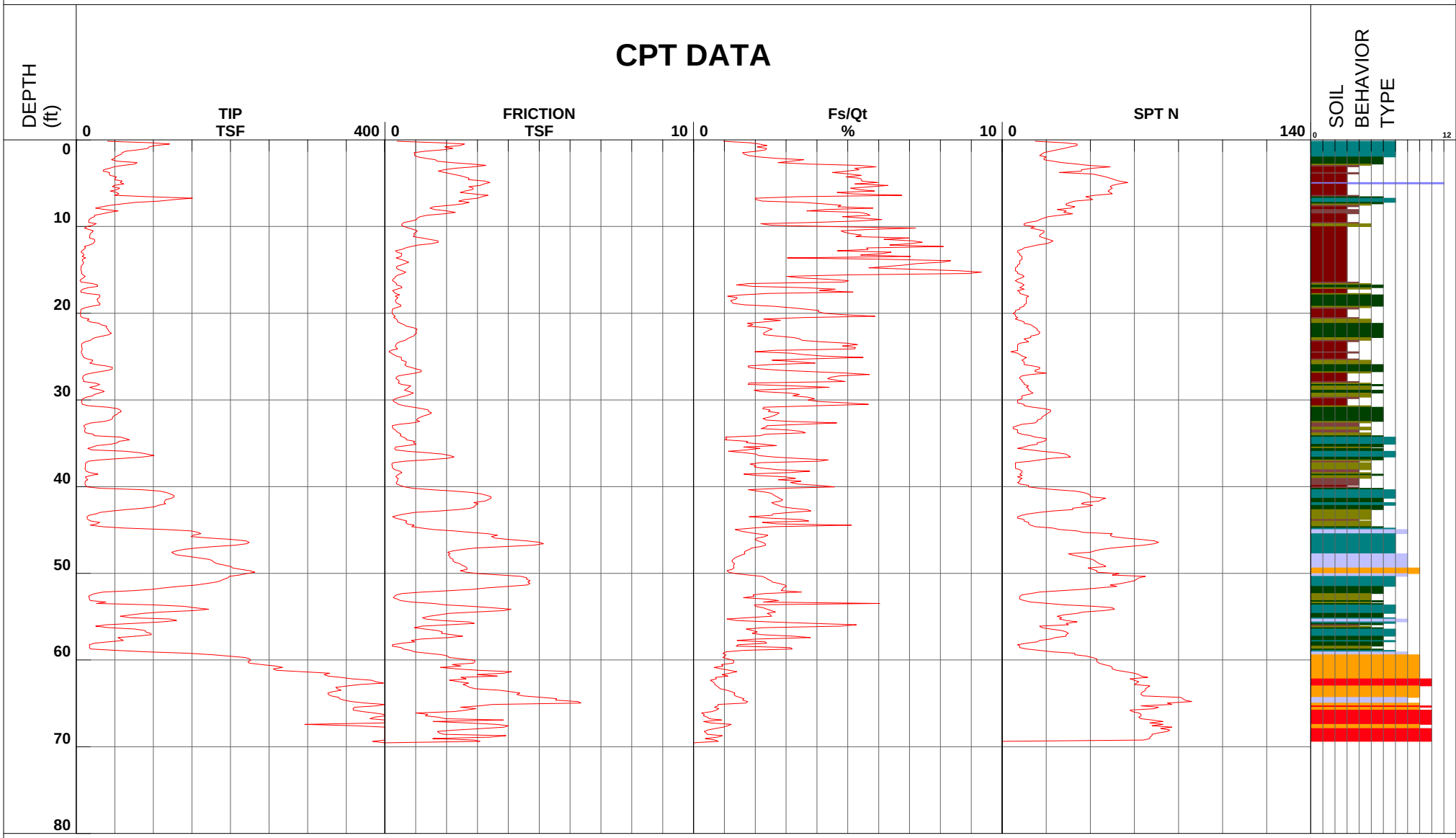
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(478).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-66	Date and Time	12/9/2008 2:10:52 PM	Maximum Depth	69.72 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

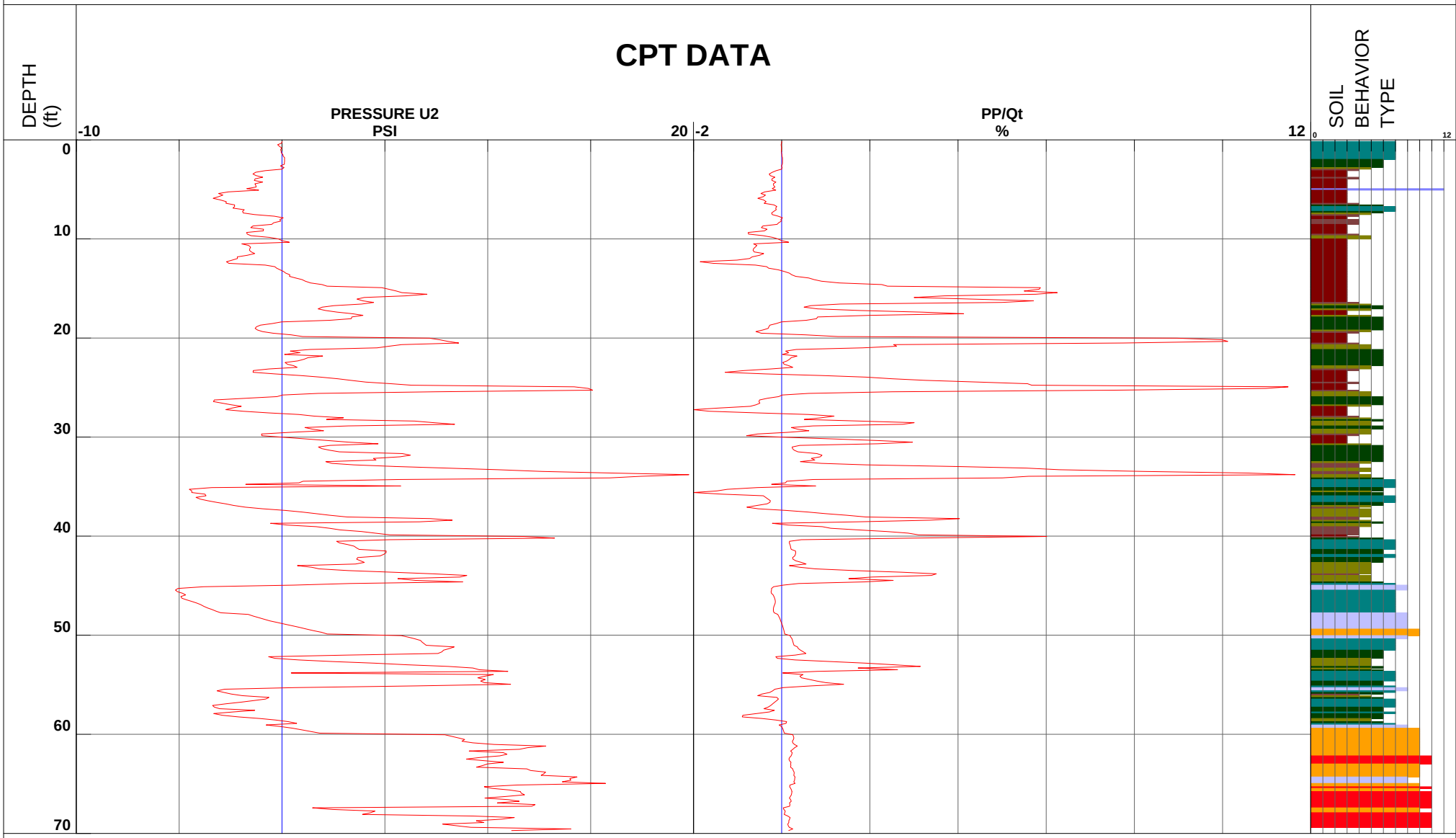
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(478).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-66	Date and Time	12/9/2008 2:10:52 PM	Maximum Depth	69.72 ft
Water Table Depth		0.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

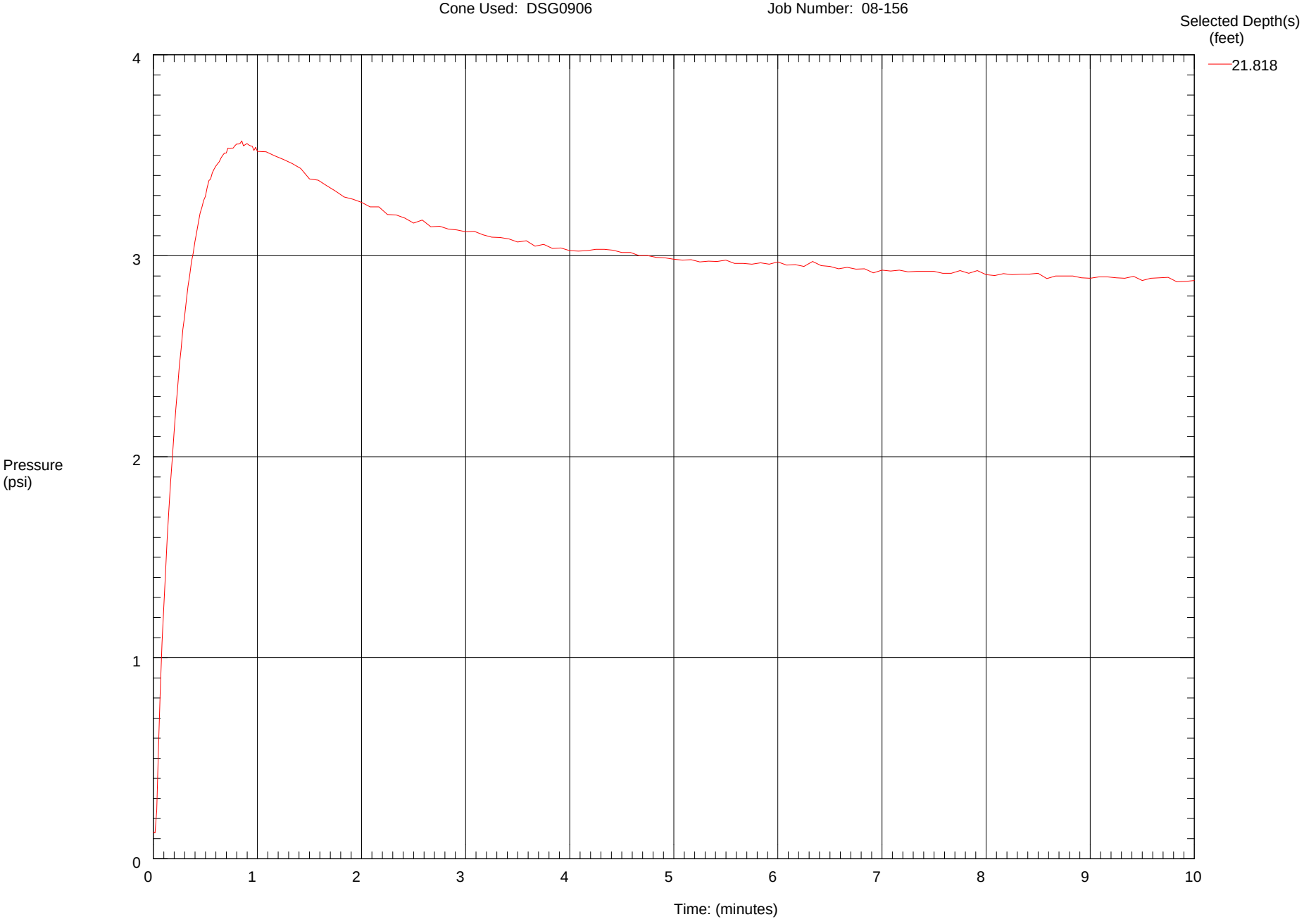
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Operator ML/BH
Sounding: CPT-08-66
Cone Used: DSG0906

CPT Date/Time: 12/9/2008 2:10:52 PM
Location: EGG-WC Warner/Edwards
Job Number: 08-156

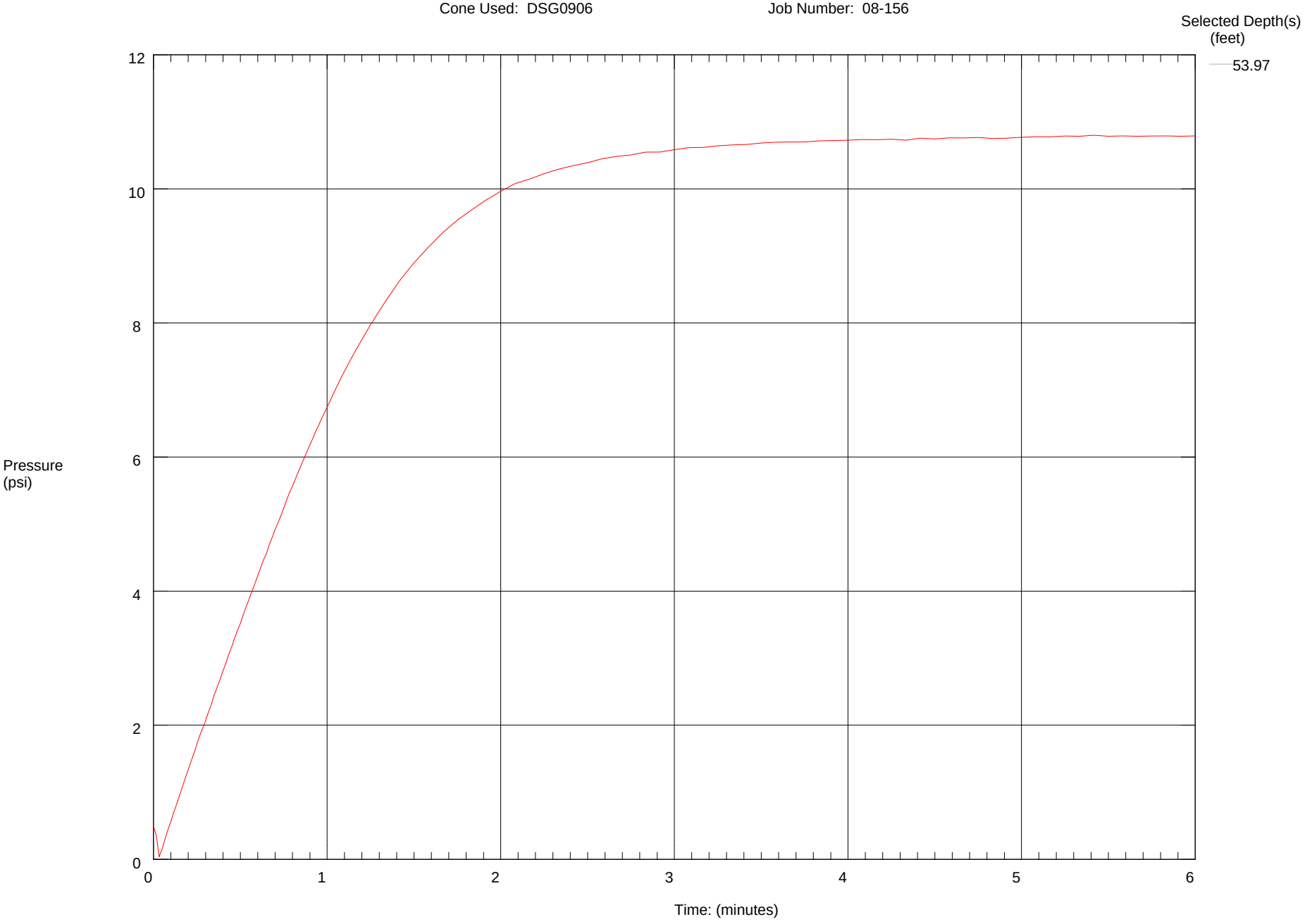


Maximum Pressure = 3.571 psi
Hydrostatic Pressure = 15.14 ft

Earth Mechanics

Operator ML/BH
Sounding: CPT-08-66
Cone Used: DSG0906

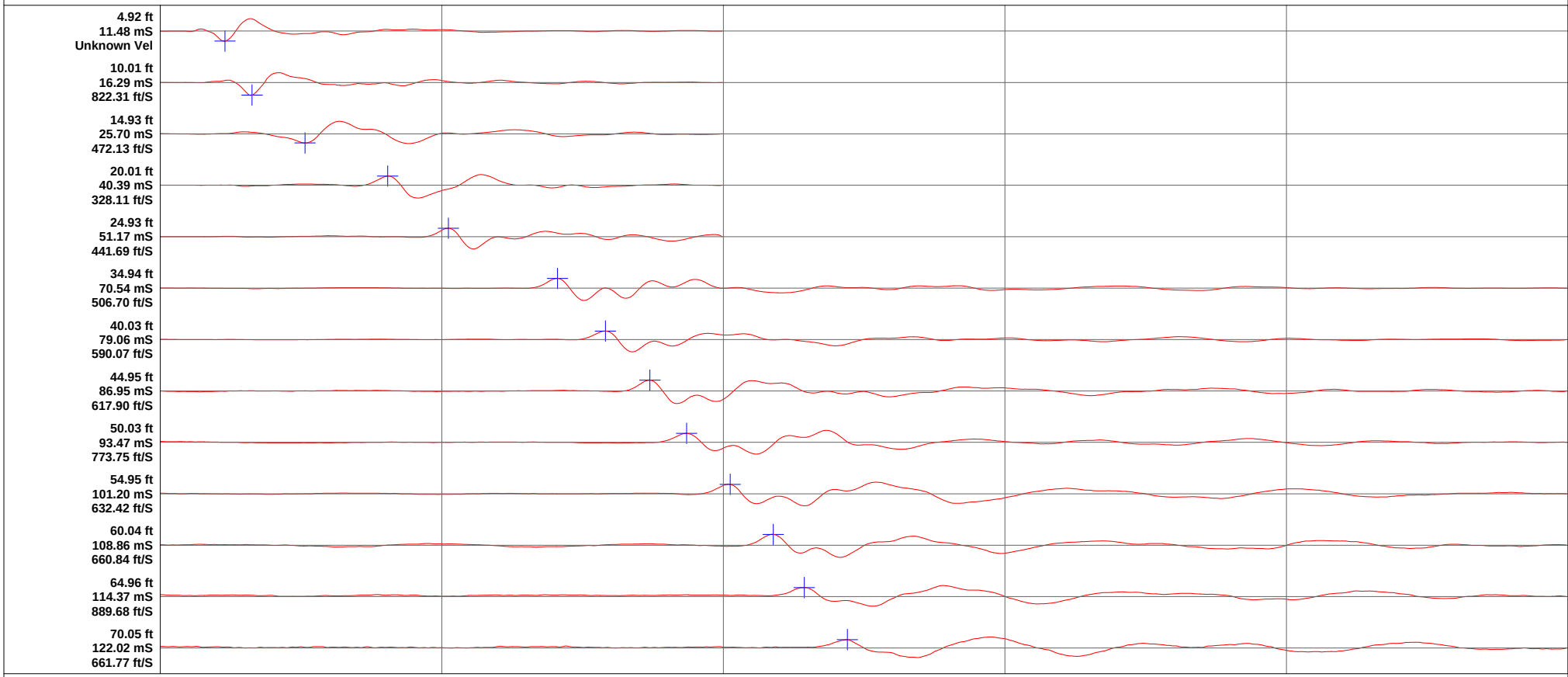
CPT Date/Time: 12/9/2008 2:10:52 PM
Location: EGG-WC Warner/Edwards
Job Number: 08-156



Maximum Pressure = 10.801 psi
Hydrostatic Pressure = 29.03 ft

Earth Mechanics

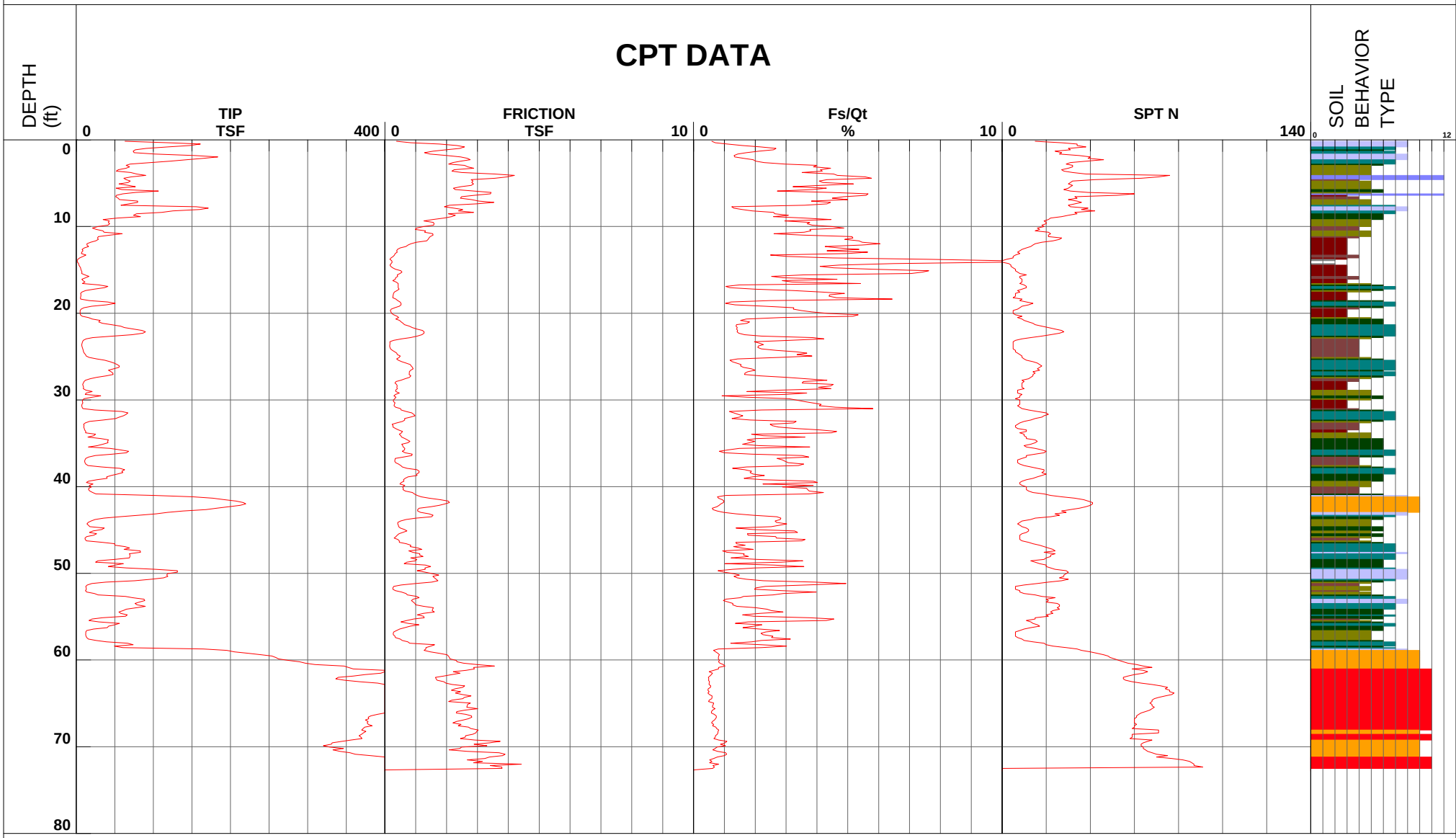
Location	EGG-WC Warner/Edwards	Operator	ML/BH	
Job Number	08-156	Cone Number	DSG0906	GPS
Hole Number	CPT-08-66	Date and Time	12/9/2008 2:10:52 PM	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(408).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-67	Date and Time	11/17/2008 2:46:35 PM	Maximum Depth	72.83 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

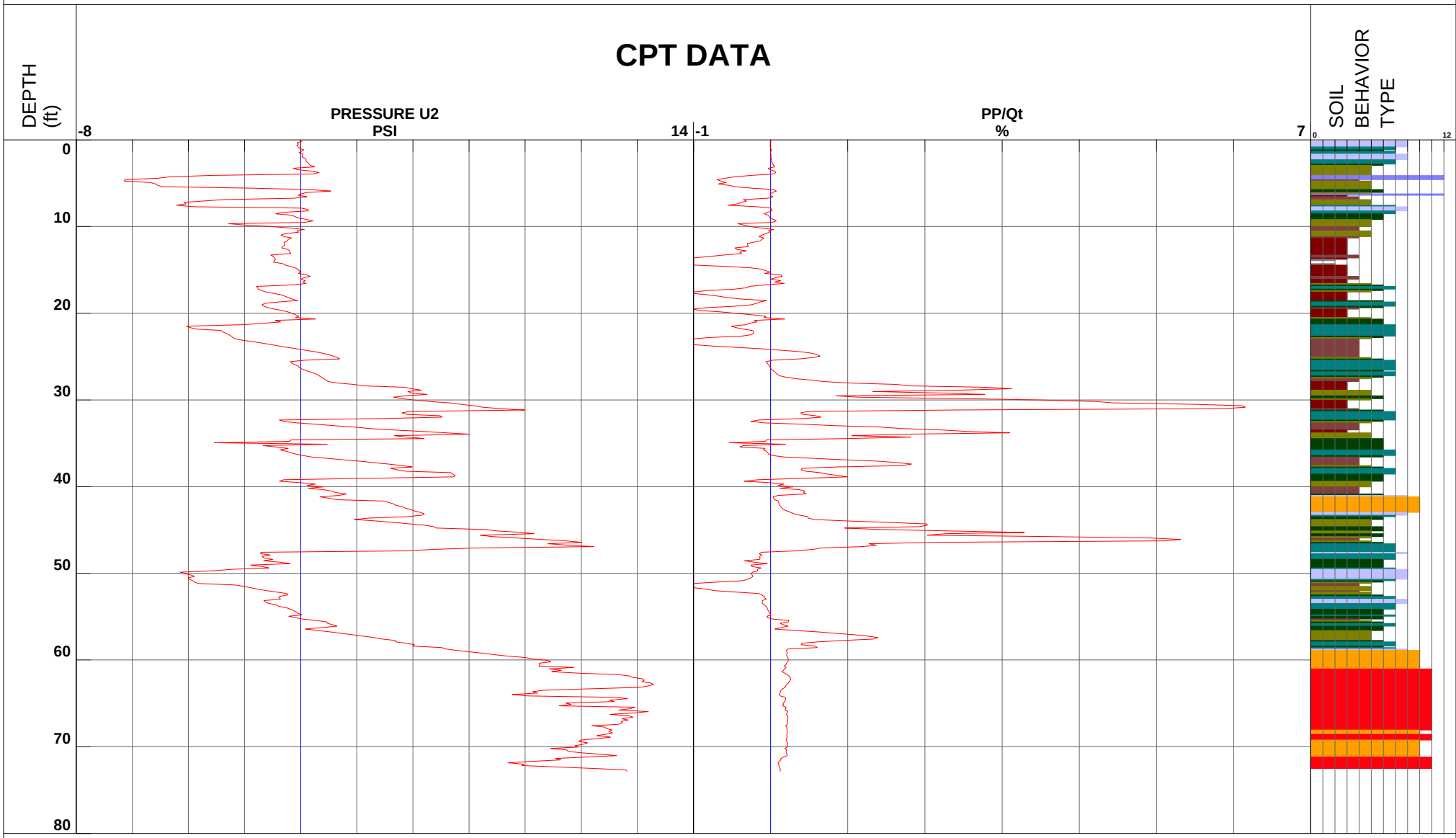
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(408).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-67	Date and Time	11/17/2008 2:46:35 PM	Maximum Depth	72.83 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

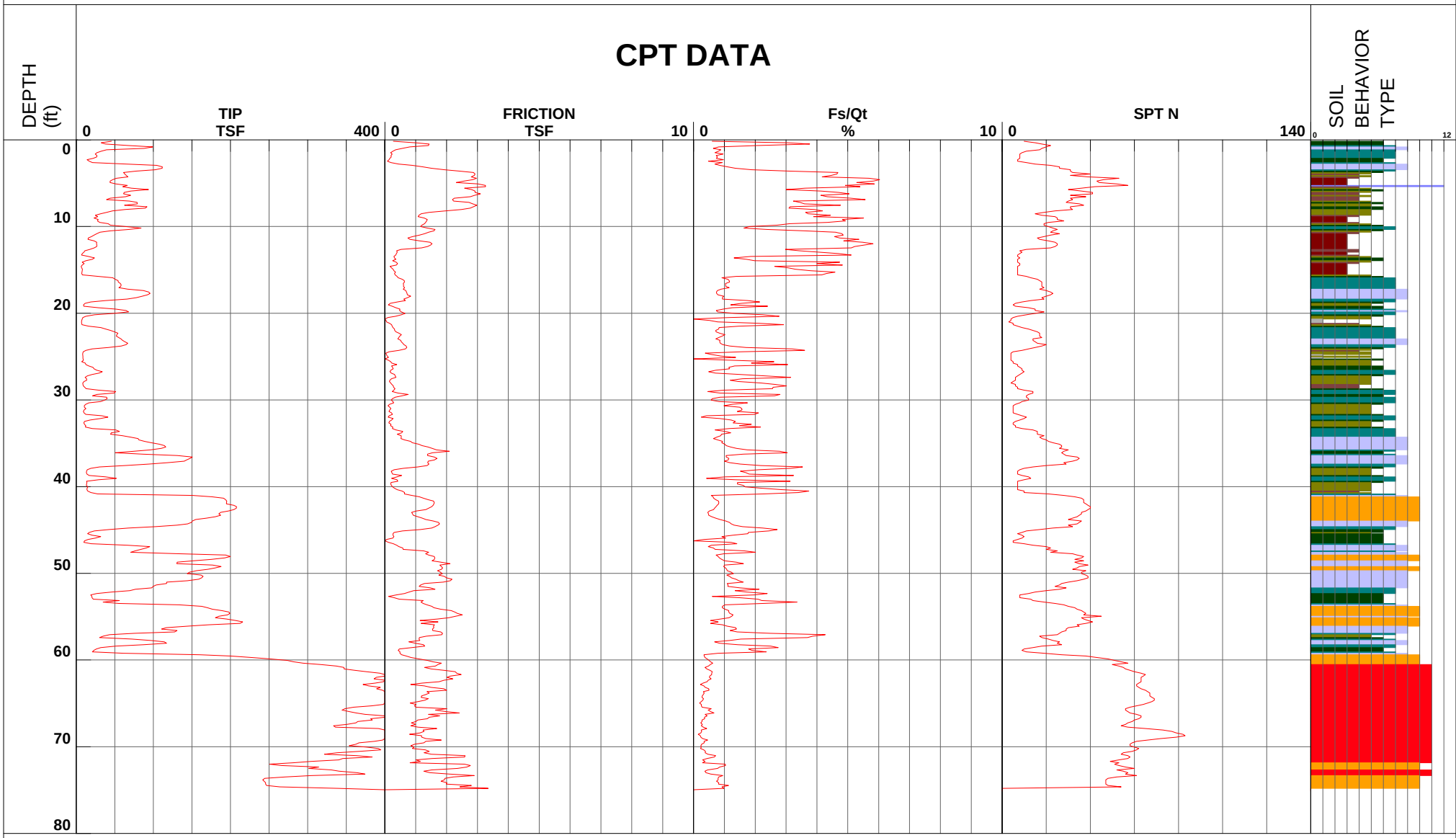
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(479).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-68	Date and Time	12/10/2008 7:19:53 AM	Maximum Depth	75.13 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

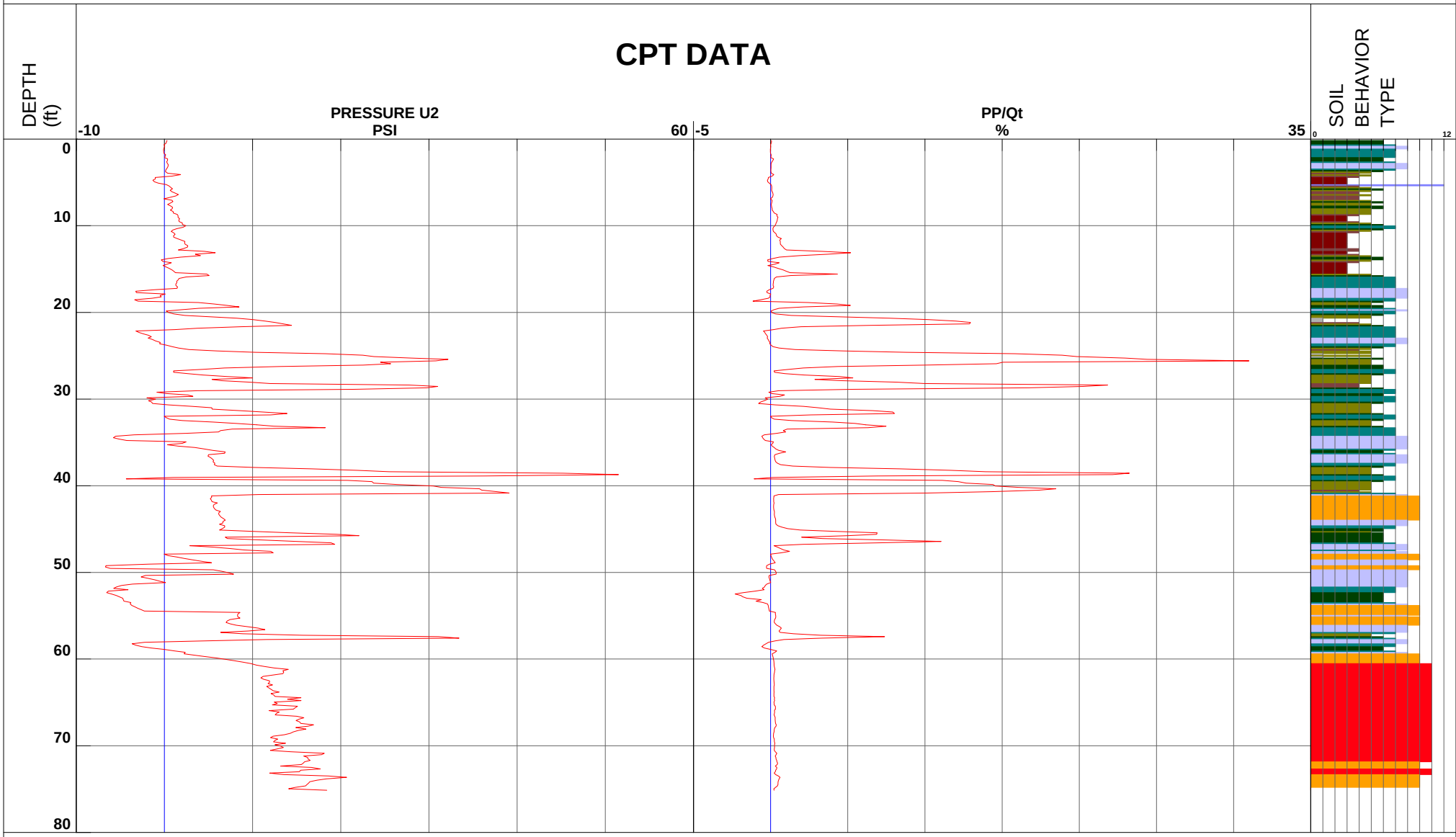
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(479).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-68	Date and Time	12/10/2008 7:19:53 AM	Maximum Depth	75.13 ft
Water Table Depth		0.00 ft			

CPT DATA



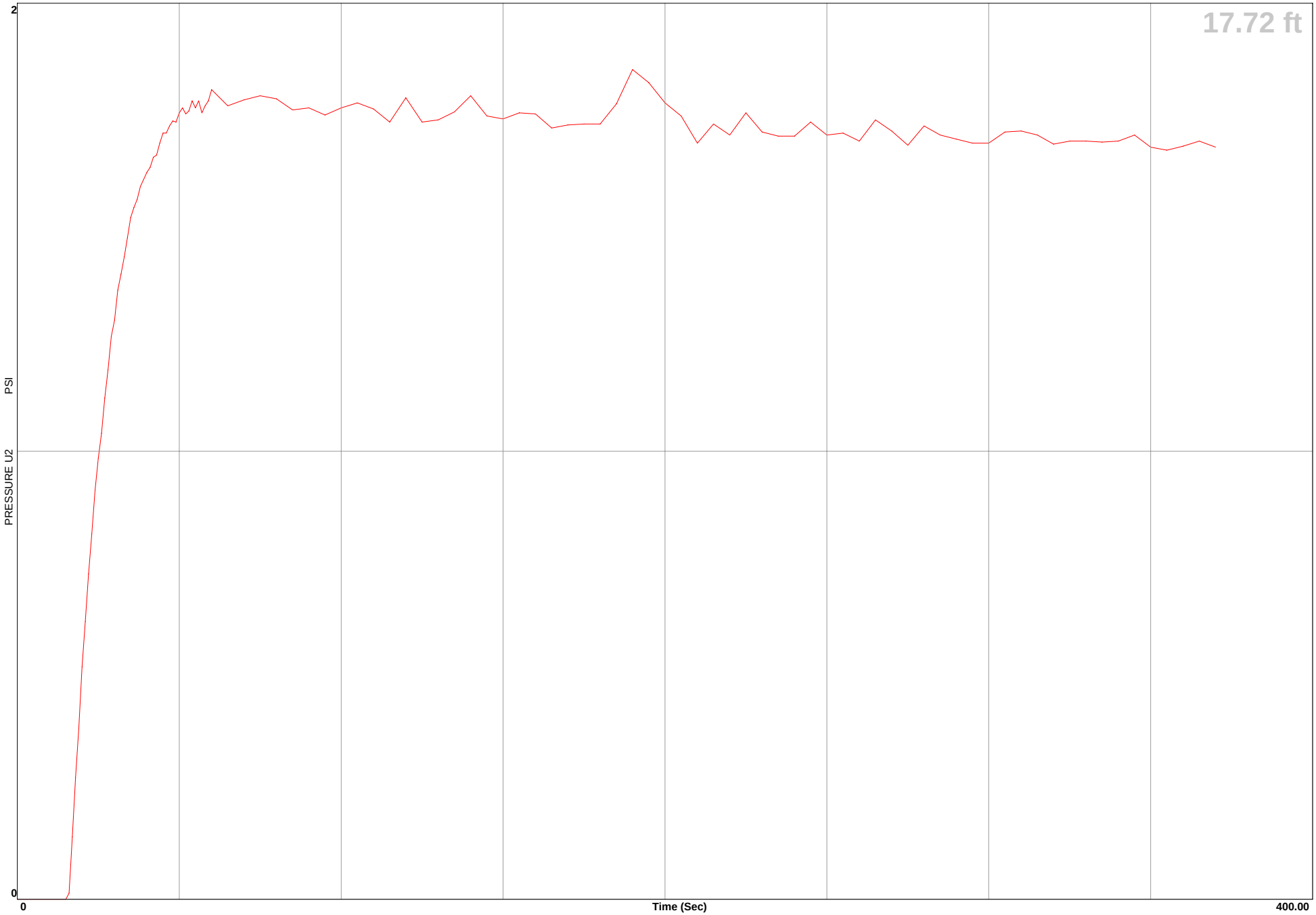
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

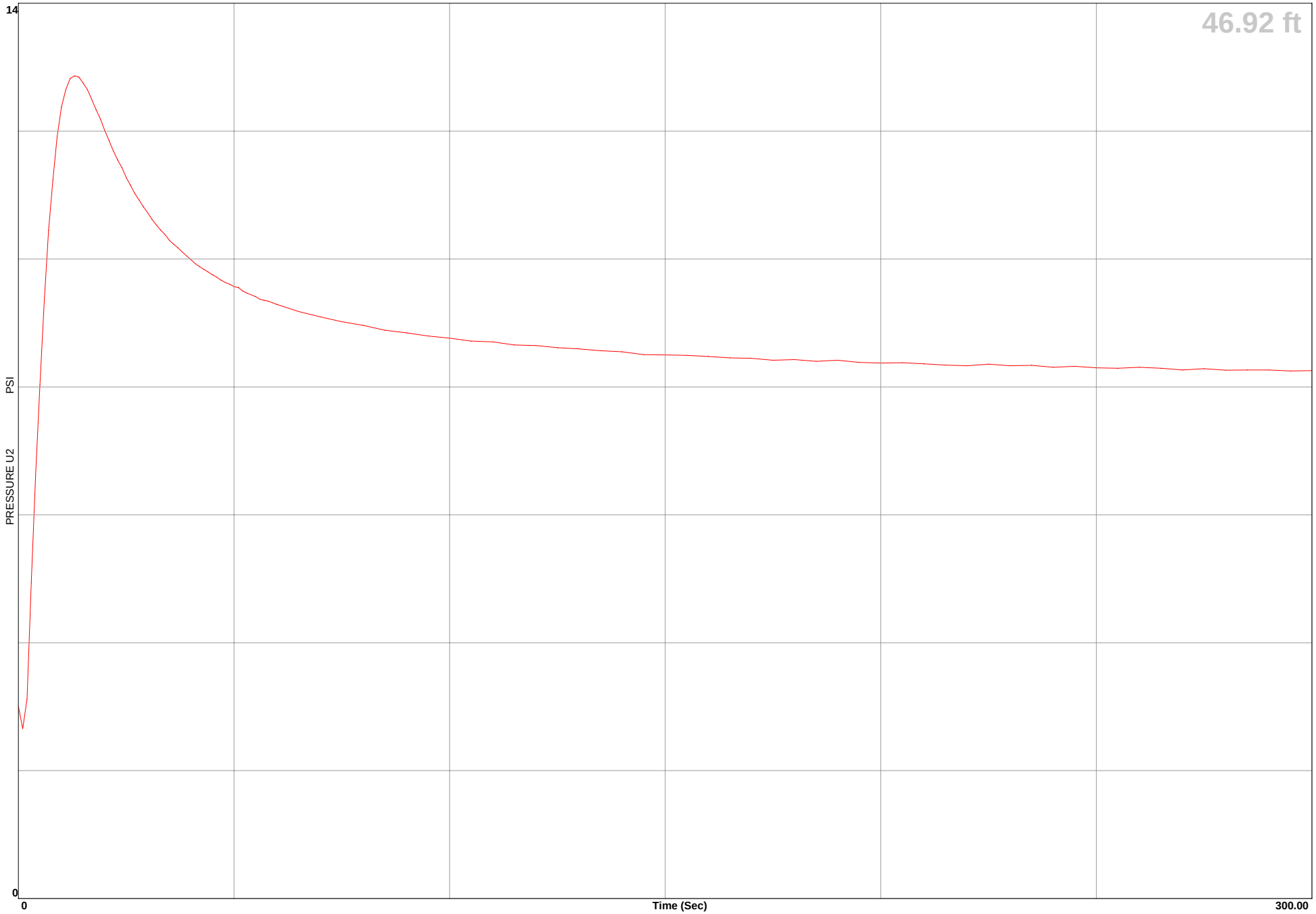
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-68**	**Date and Time**	**12/10/2008 7:19:53 AM**	
Equilized Pressure	**1.68**	**Ground Water Depth**	**13.83**	



Earth Mechanics

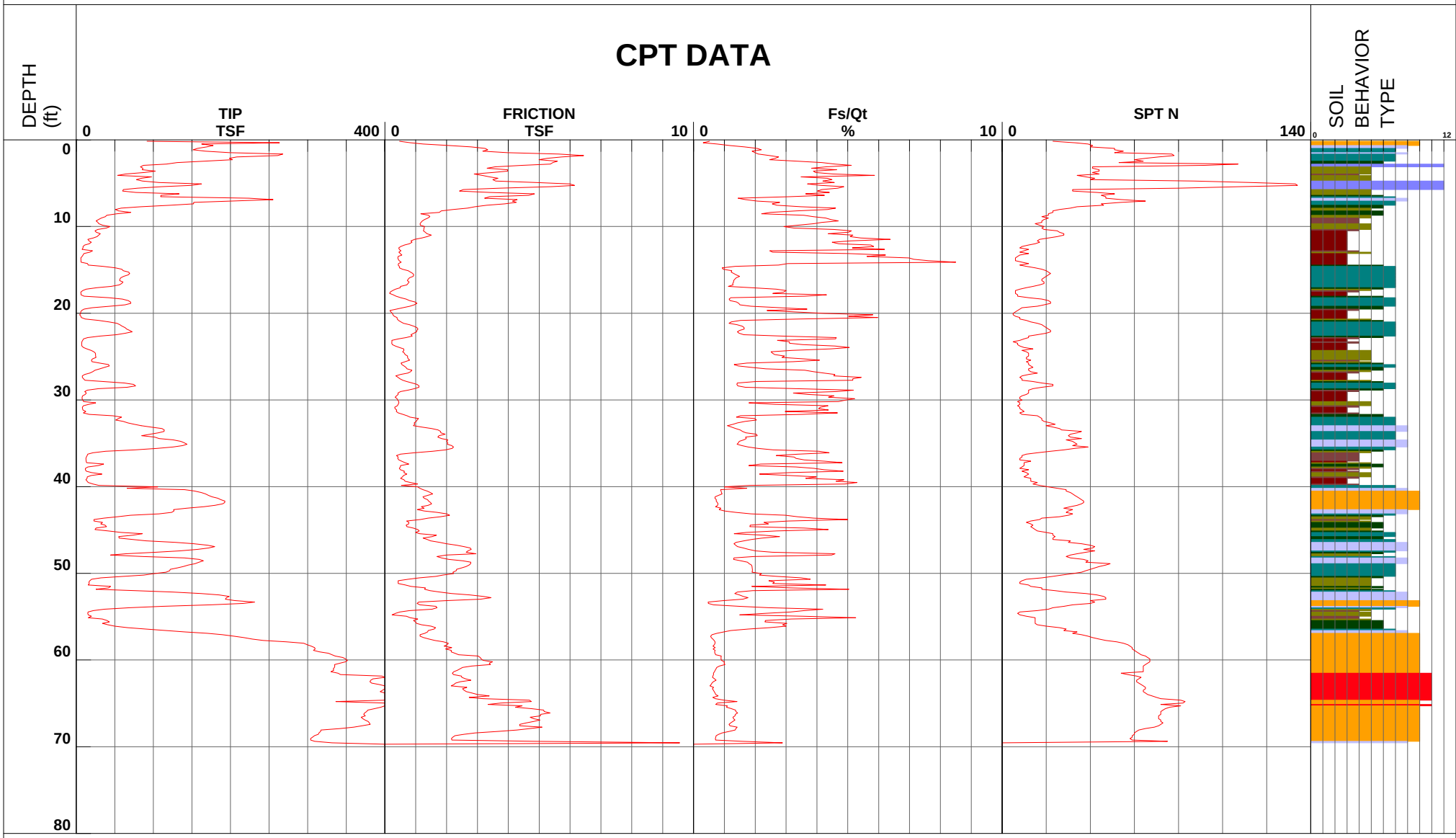
Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-68**	**Date and Time**	**12/10/2008 7:19:53 AM**	
Equilized Pressure	**8.22**	**Ground Water Depth**	**27.93**	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(407).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-69	Date and Time	11/17/2008 1:30:14 PM	Maximum Depth	69.88 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

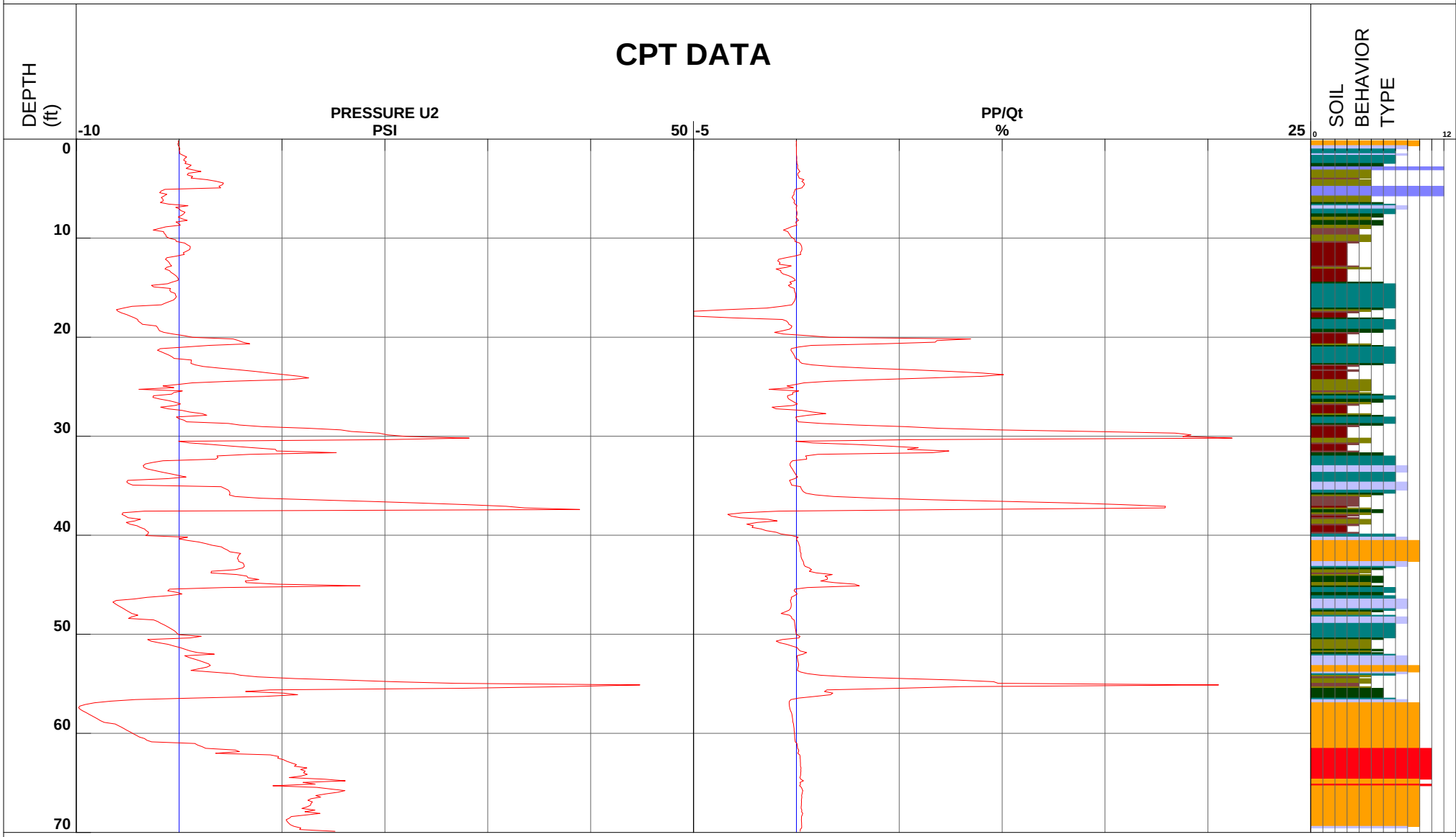
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(407).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-69	Date and Time	11/17/2008 1:30:14 PM	Maximum Depth	69.88 ft
Water Table Depth		12.00 ft			

CPT DATA



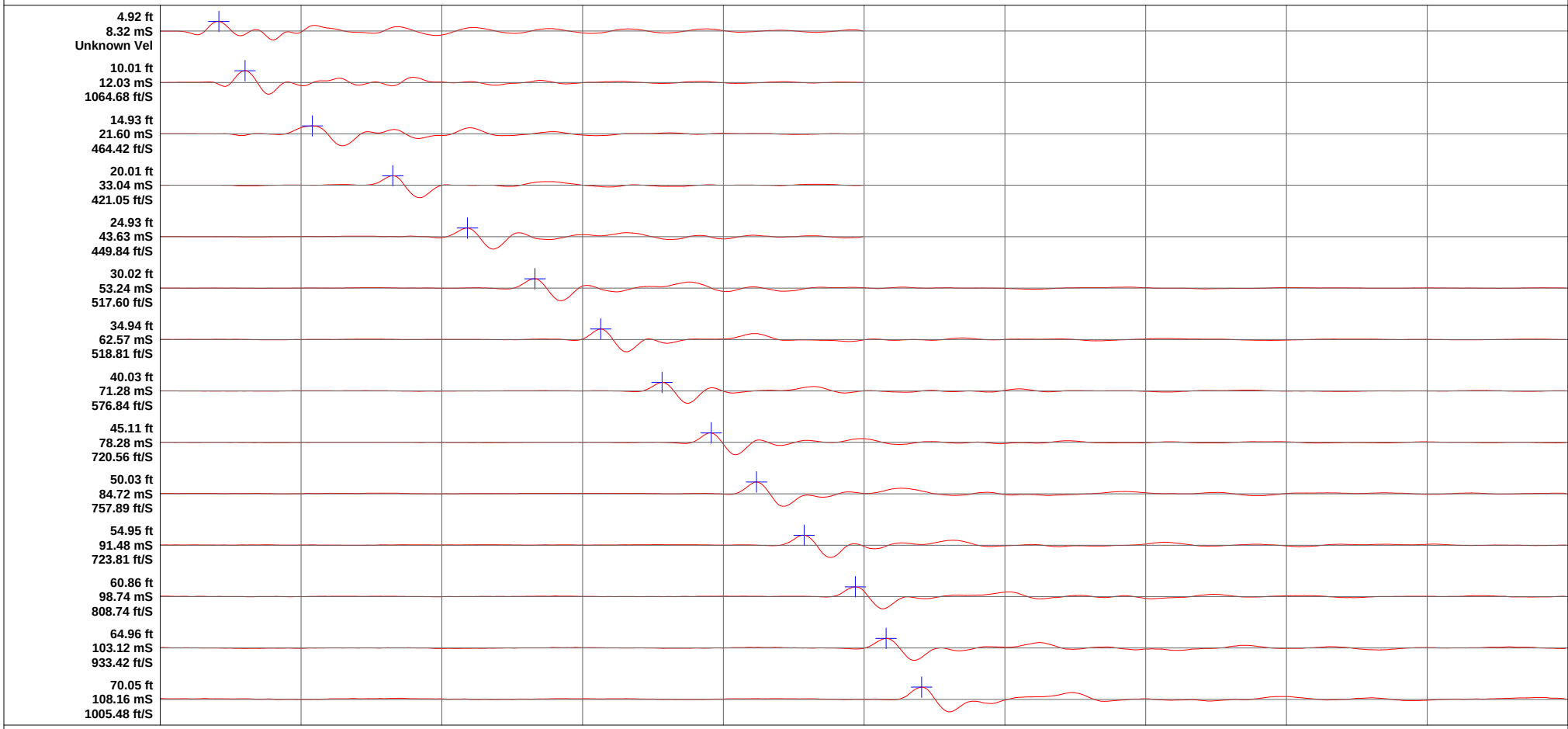
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

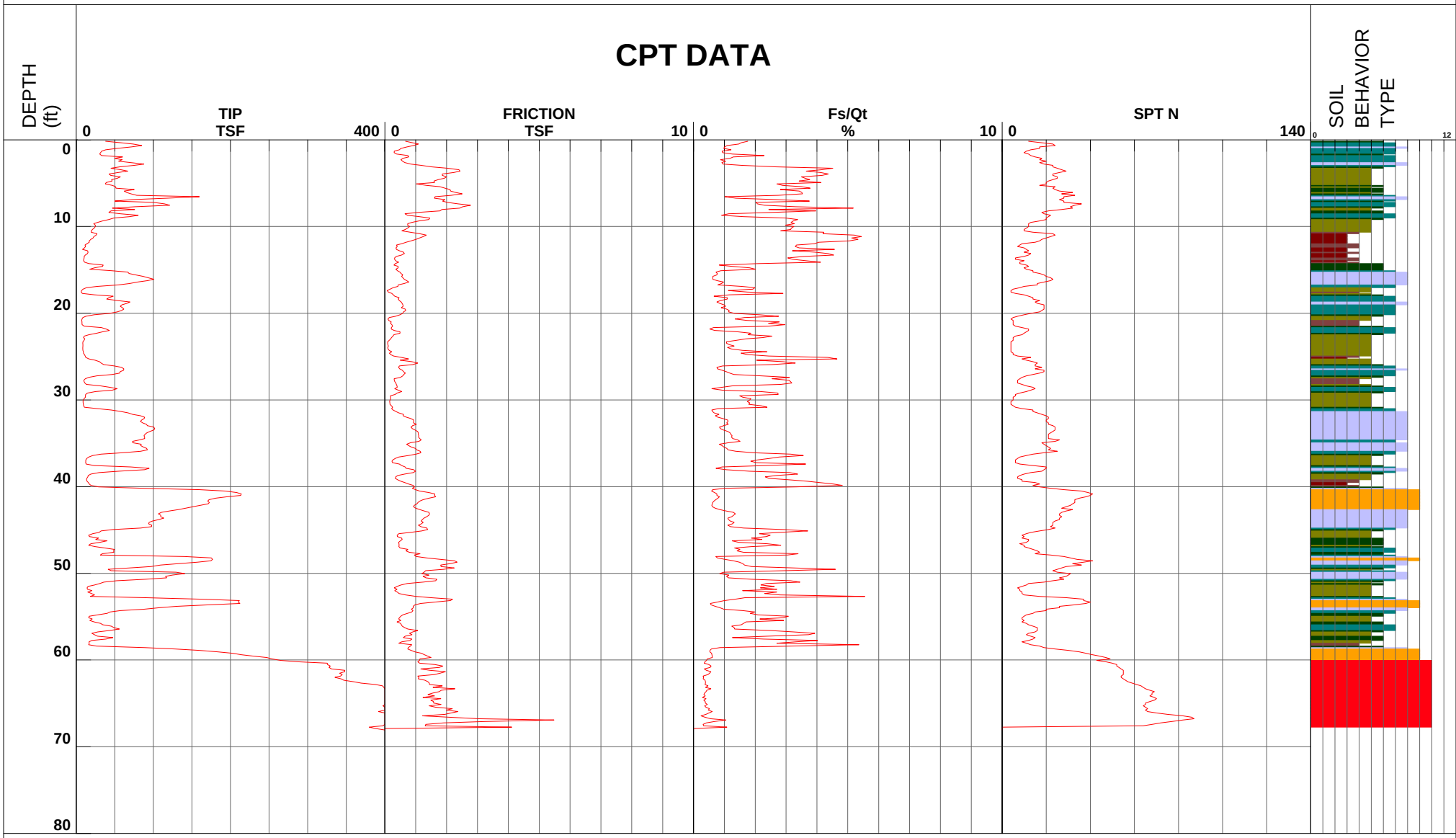
Location	EGG-WC Warner/Edwards	Operator	ML/VO	
Job Number	08-156	Cone Number	DSG0906	GPS
Hole Number	CPT-08-69	Date and Time	11/17/2008 1:30:14 PM	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(480).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-70	Date and Time	12/10/2008 8:56:37 AM	Maximum Depth	68.08 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

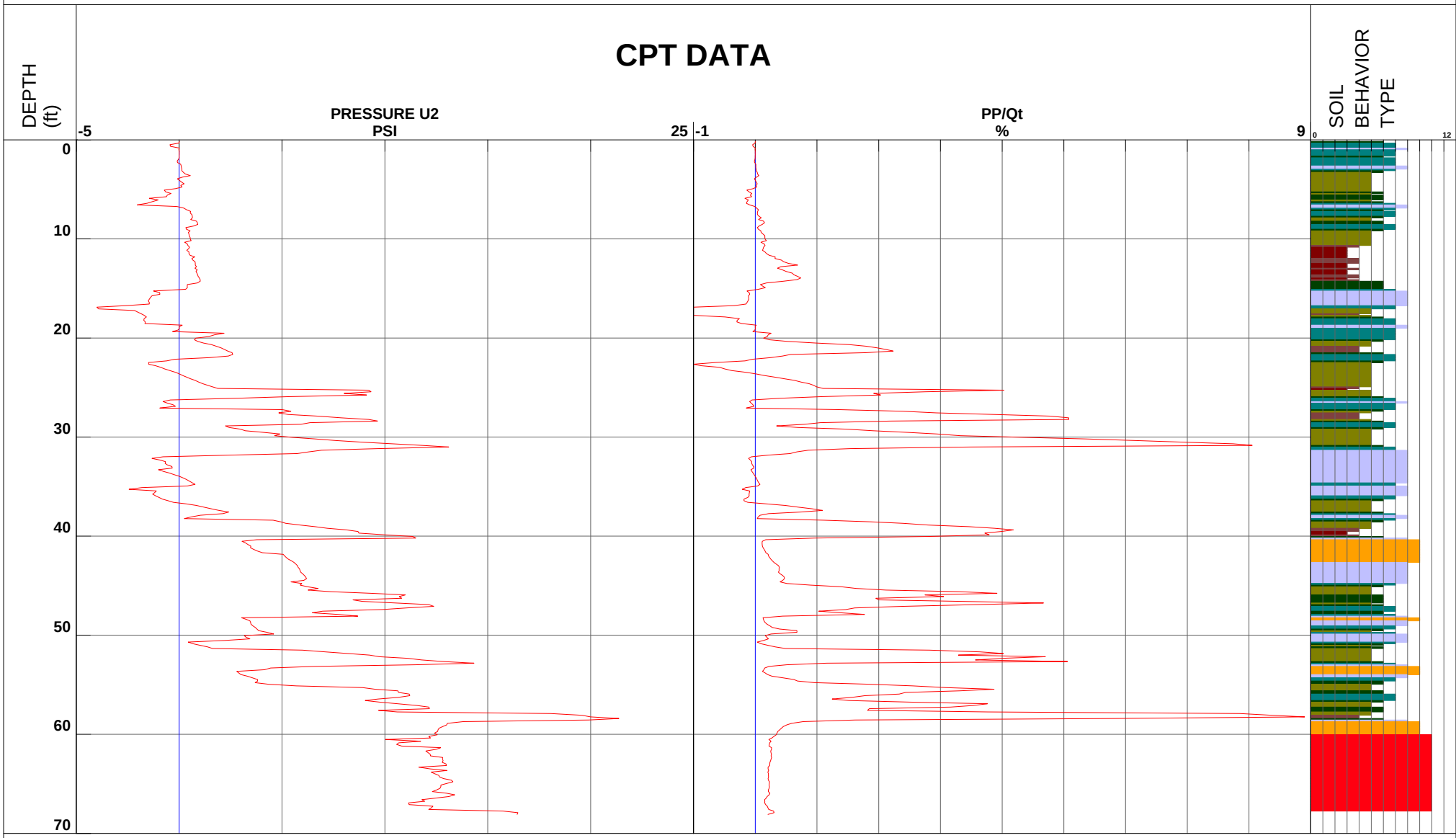
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(480).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-70	Date and Time	12/10/2008 8:56:37 AM	Maximum Depth	68.08 ft
Water Table Depth		0.00 ft			

CPT DATA



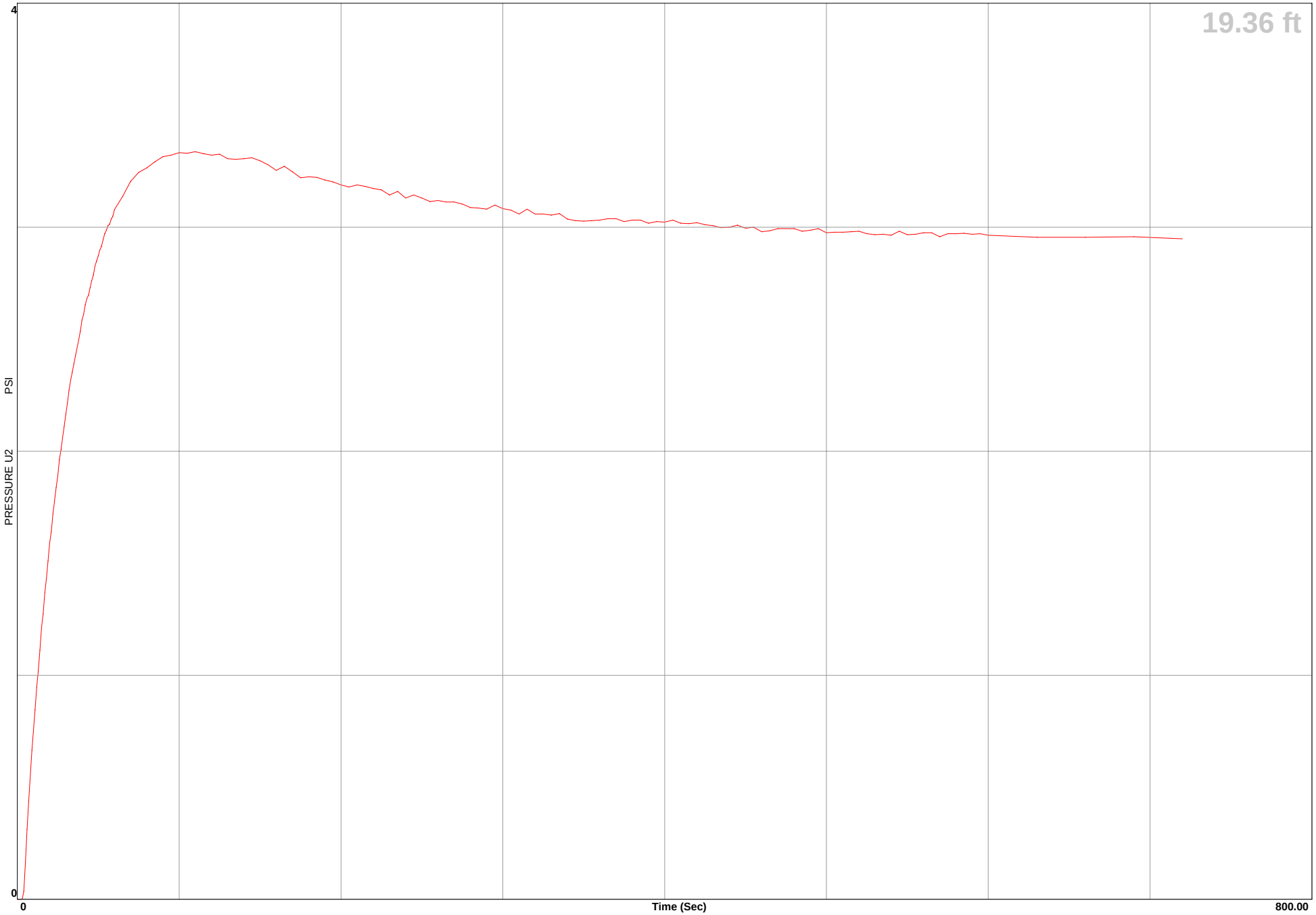
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

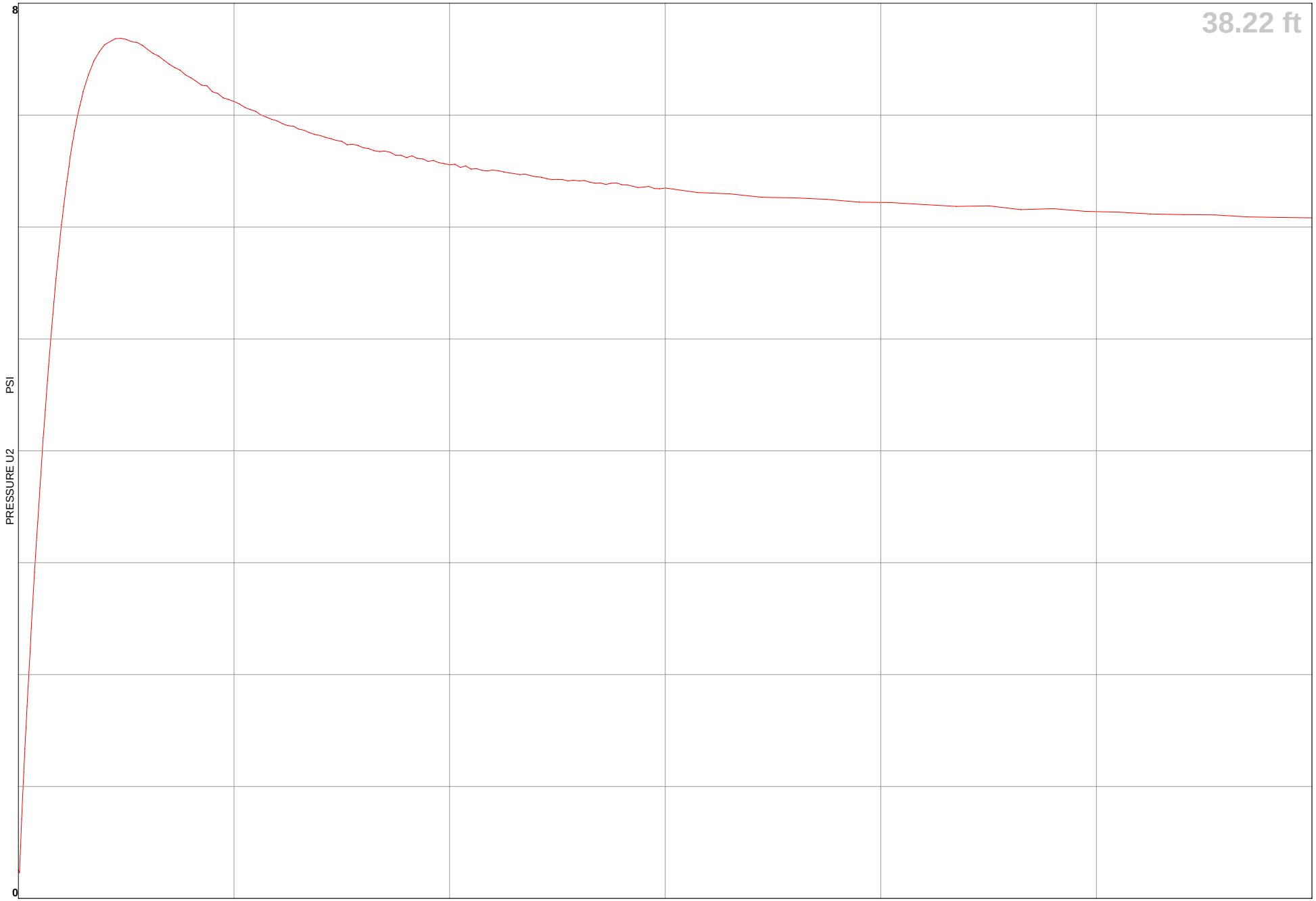
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-70**	**Date and Time**	**12/10/2008 8:56:37 AM**	
Equilized Pressure	**2.95**	**Ground Water Depth**	**12.54**	



Earth Mechanics

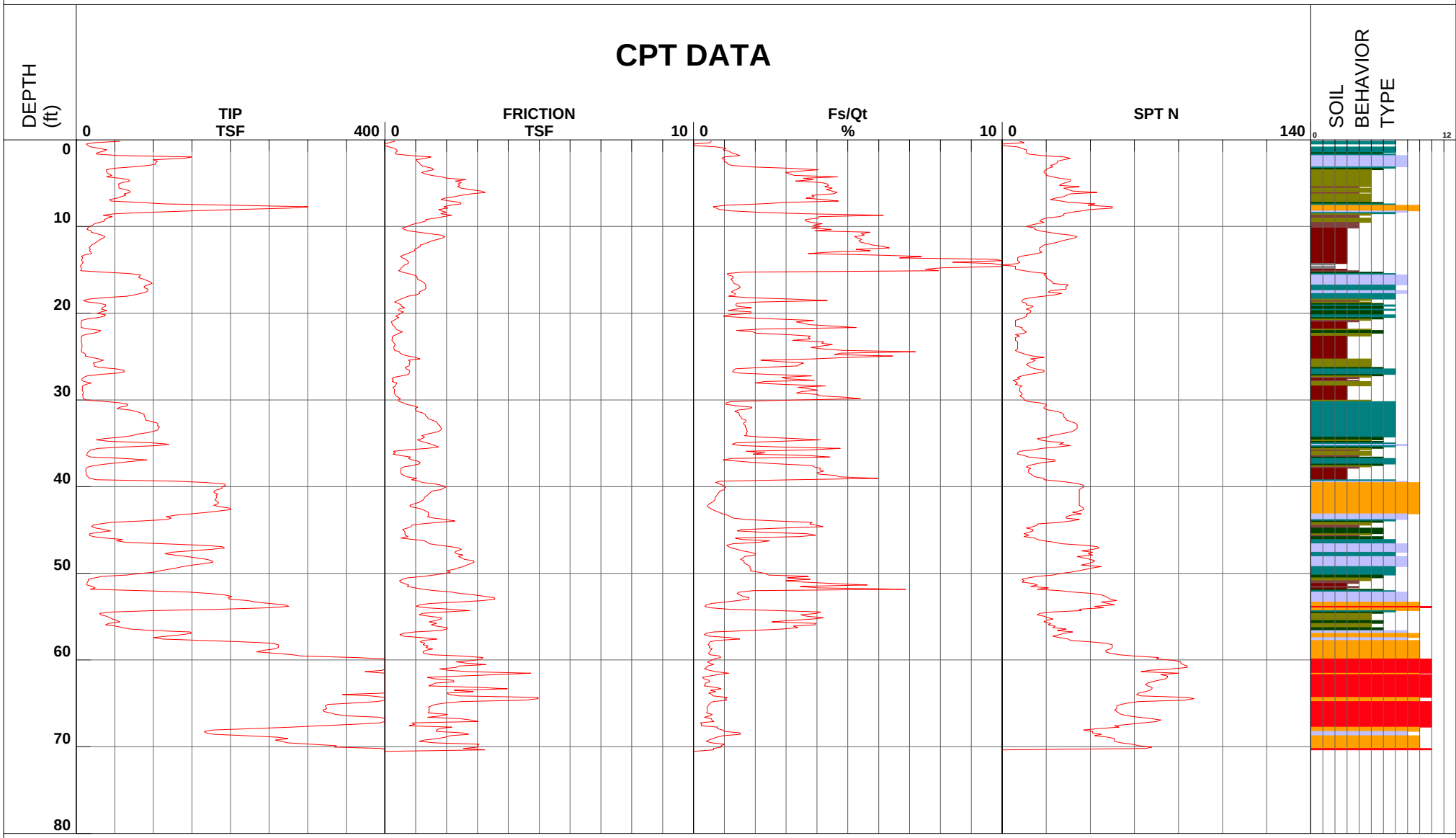
Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-70**	**Date and Time**	**12/10/2008 8:56:37 AM**	
Equilized Pressure	**6.06**	**Ground Water Depth**	**24.22**	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(406).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-71	Date and Time	11/17/2008 12:19:58 PM	Maximum Depth	70.70 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

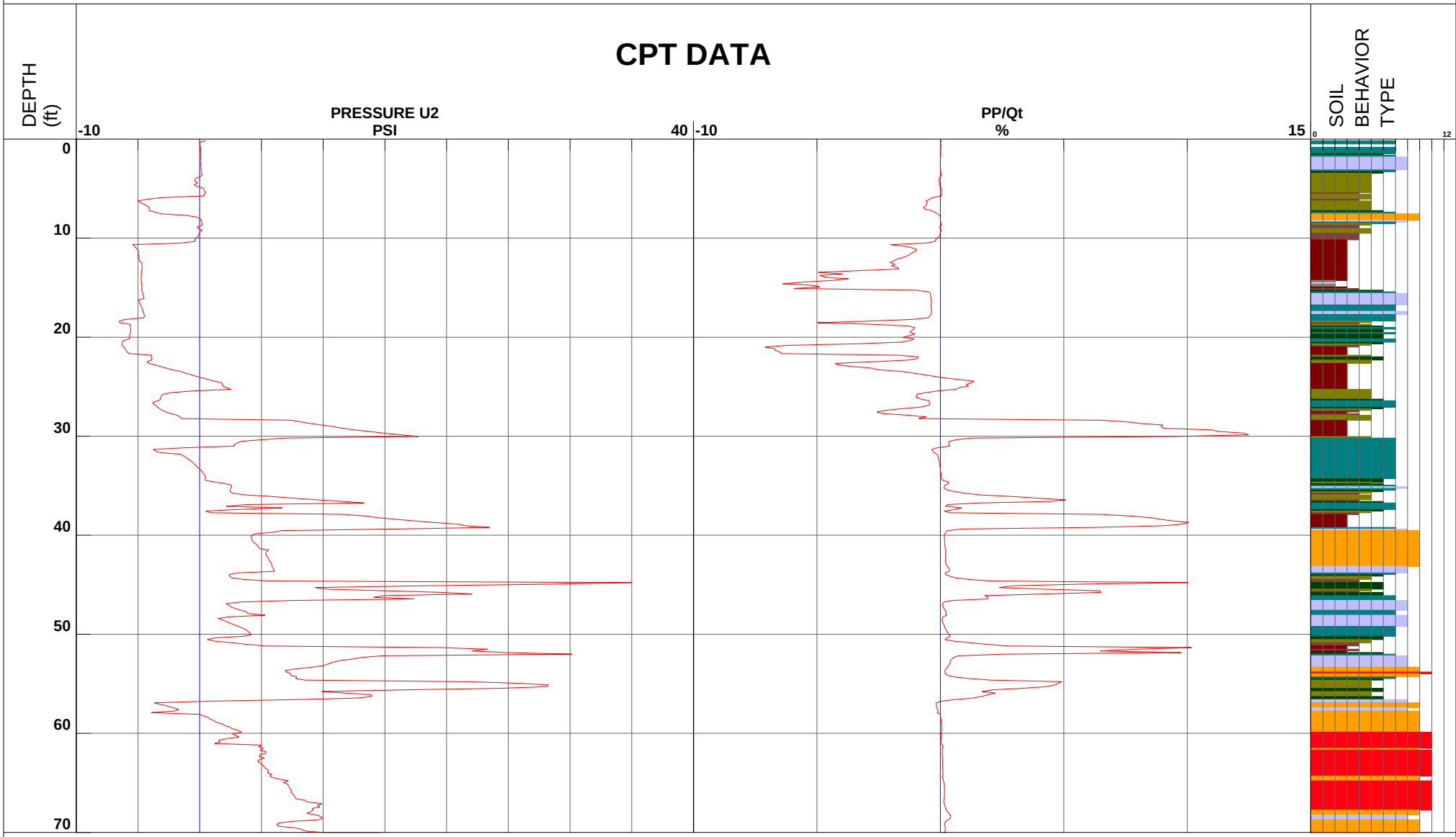
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(406).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-71	Date and Time	11/17/2008 12:19:58 PM	Maximum Depth	70.70 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

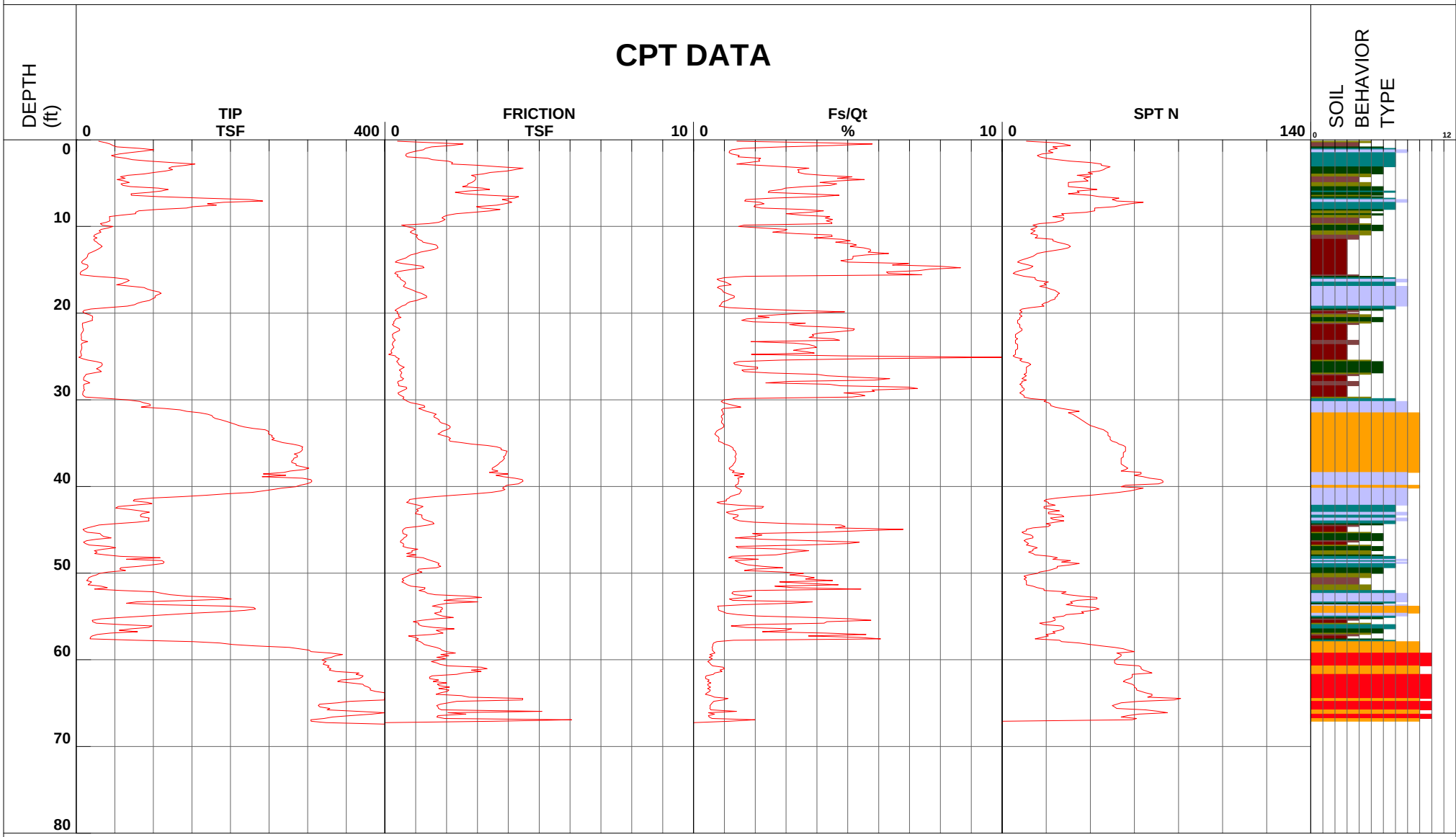
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(481).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-72	Date and Time	12/10/2008 10:38:47 AM	Maximum Depth	67.42 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

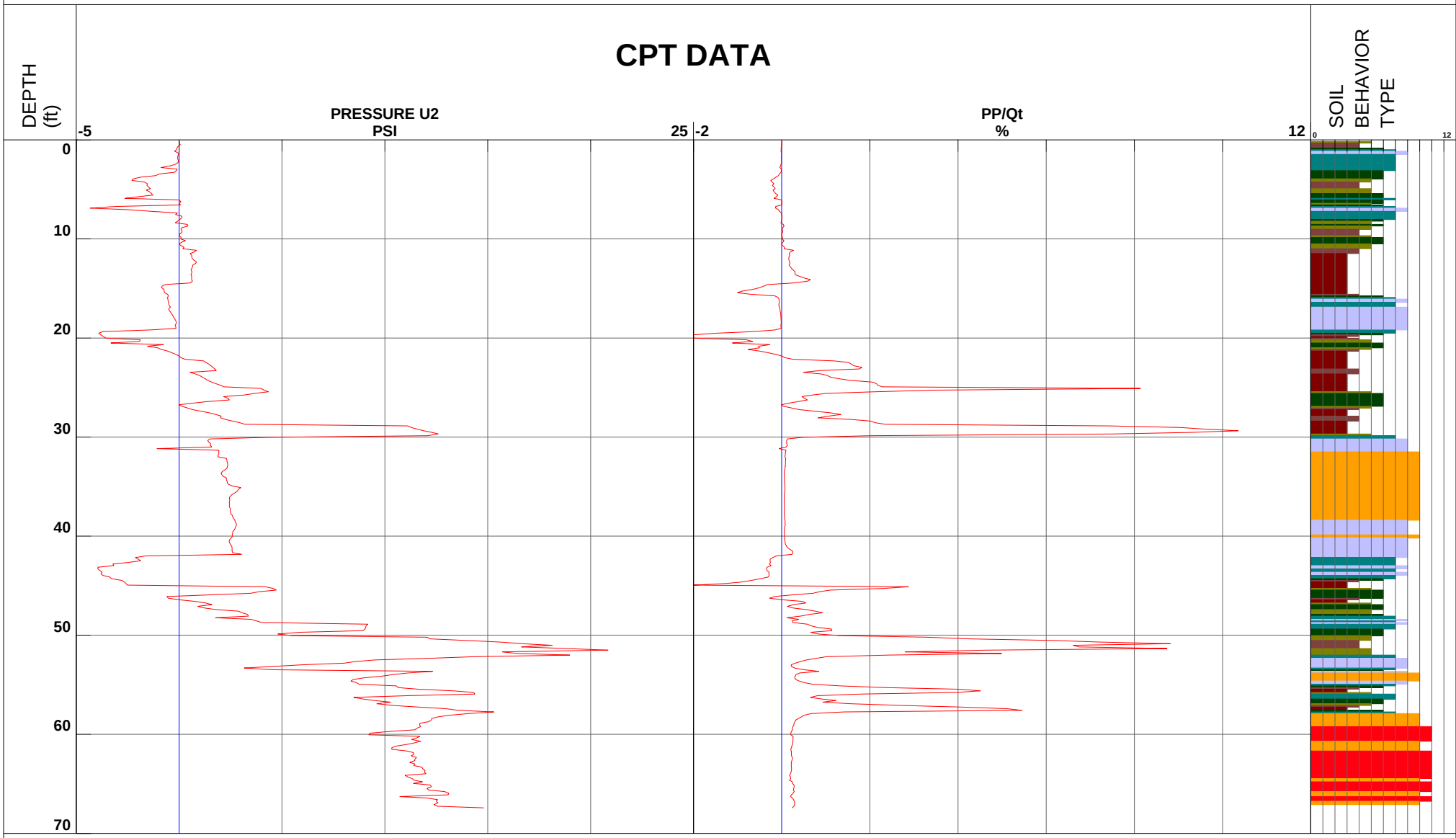
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(481).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-72	Date and Time	12/10/2008 10:38:47 AM	Maximum Depth	67.42 ft
Water Table Depth		0.00 ft			

CPT DATA



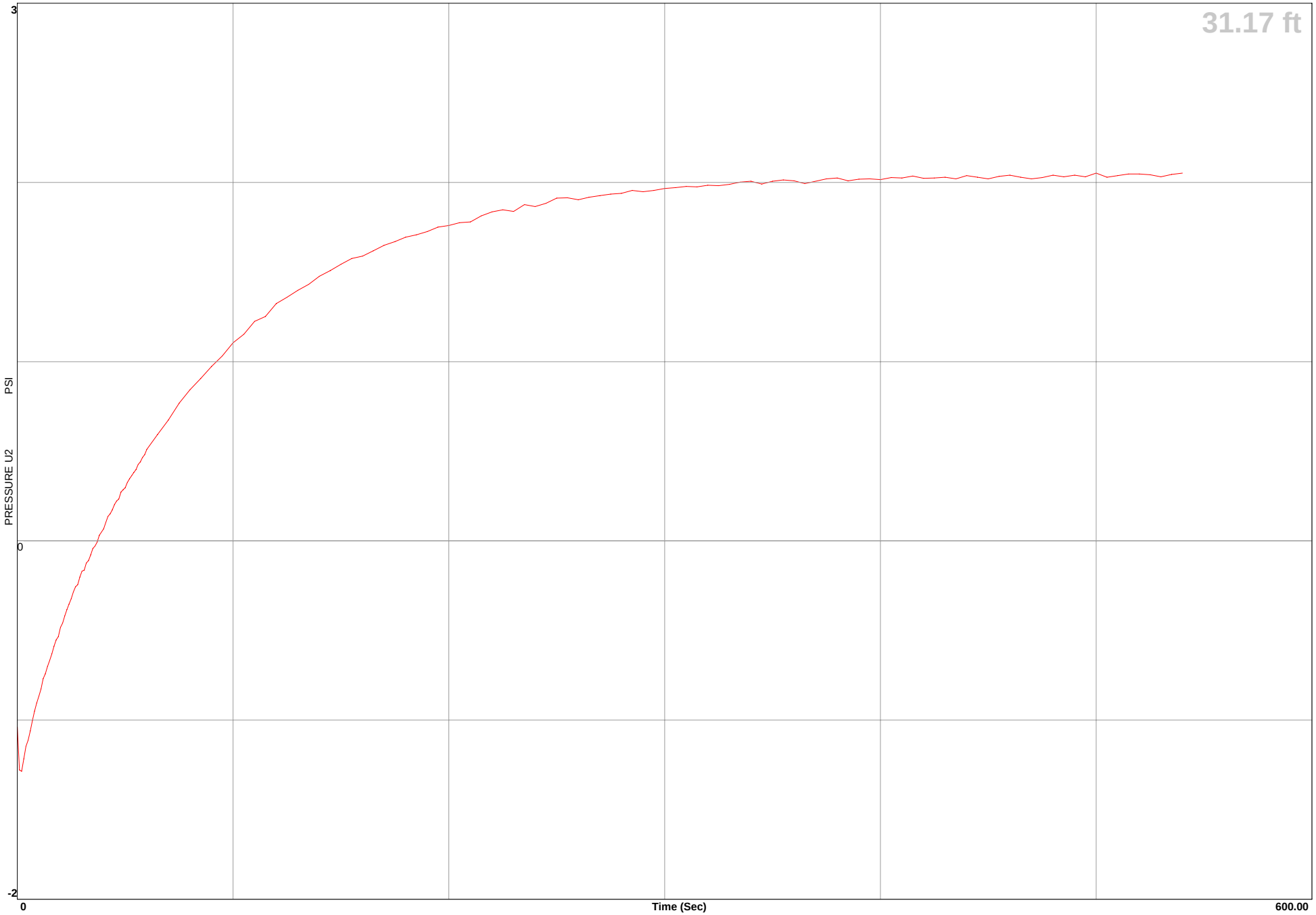
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

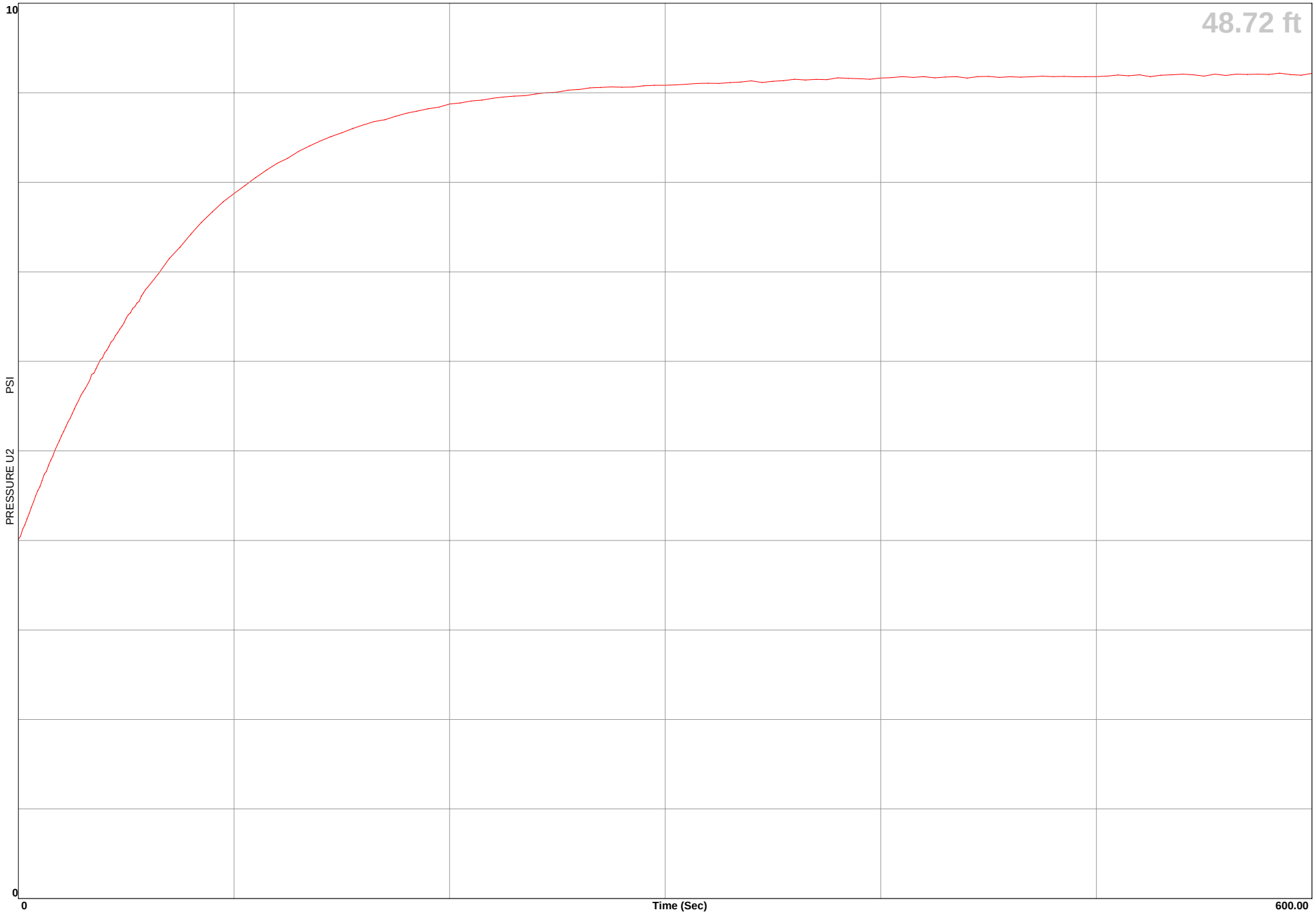
Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	GPS
Job Number	08-156	Cone Number	DSG0906	
Hole Number	CPT-08-72	Date and Time	12/10/2008 10:38:47 AM	
Equilized Pressure	2.05	Ground Water Depth	26.43	



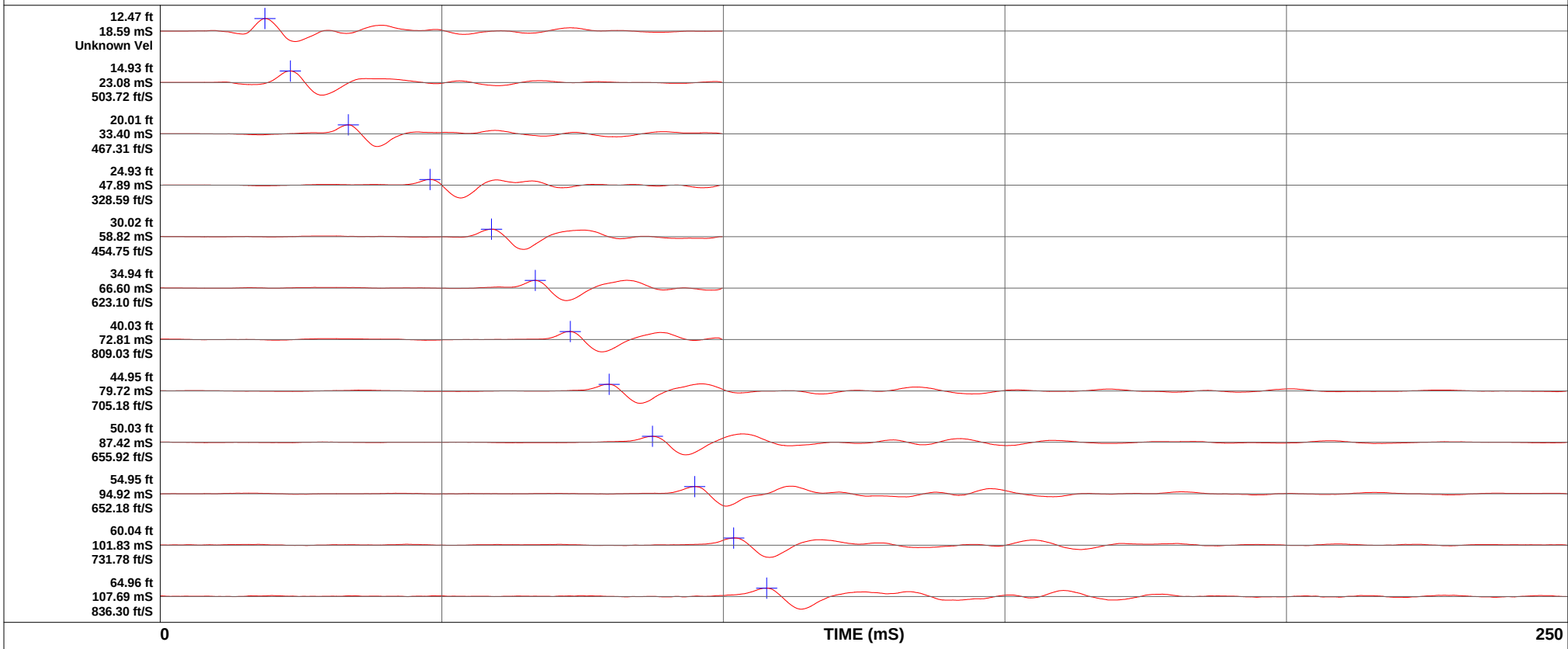
Earth Mechanics

Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-72**	**Date and Time**	**12/10/2008 10:38:47 AM**	
Equilized Pressure	**9.20**	**Ground Water Depth**	**27.46**	



Earth Mechanics

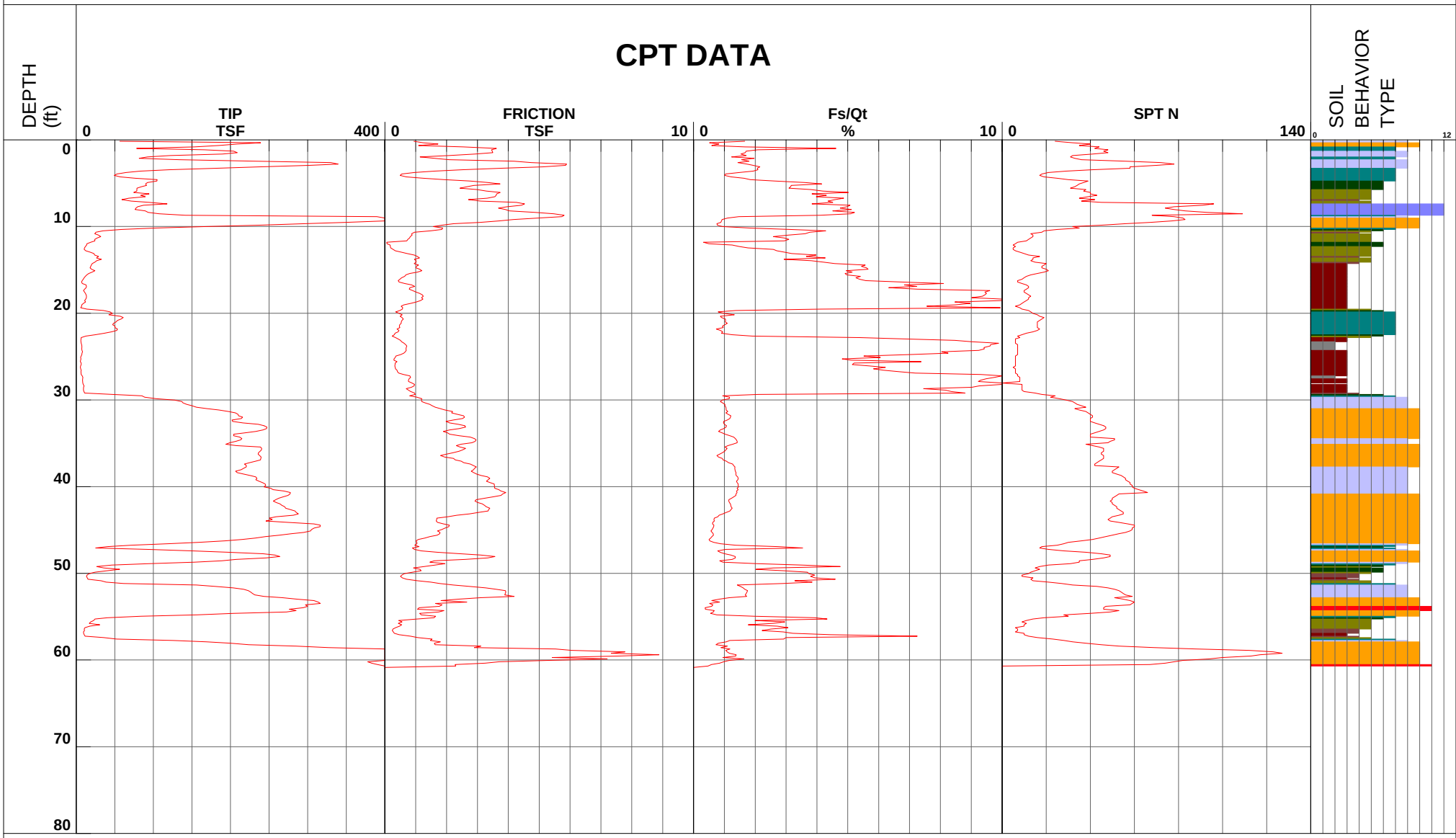
Location	EGG-WC Warner/Edwards	Operator	ML/BH	
Job Number	08-156	Cone Number	DSG0906	GPS
Hole Number	CPT-08-72	Date and Time	12/10/2008 10:38:47 AM	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(405).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-73	Date and Time	11/17/2008 10:26:59 AM	Maximum Depth	61.02 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

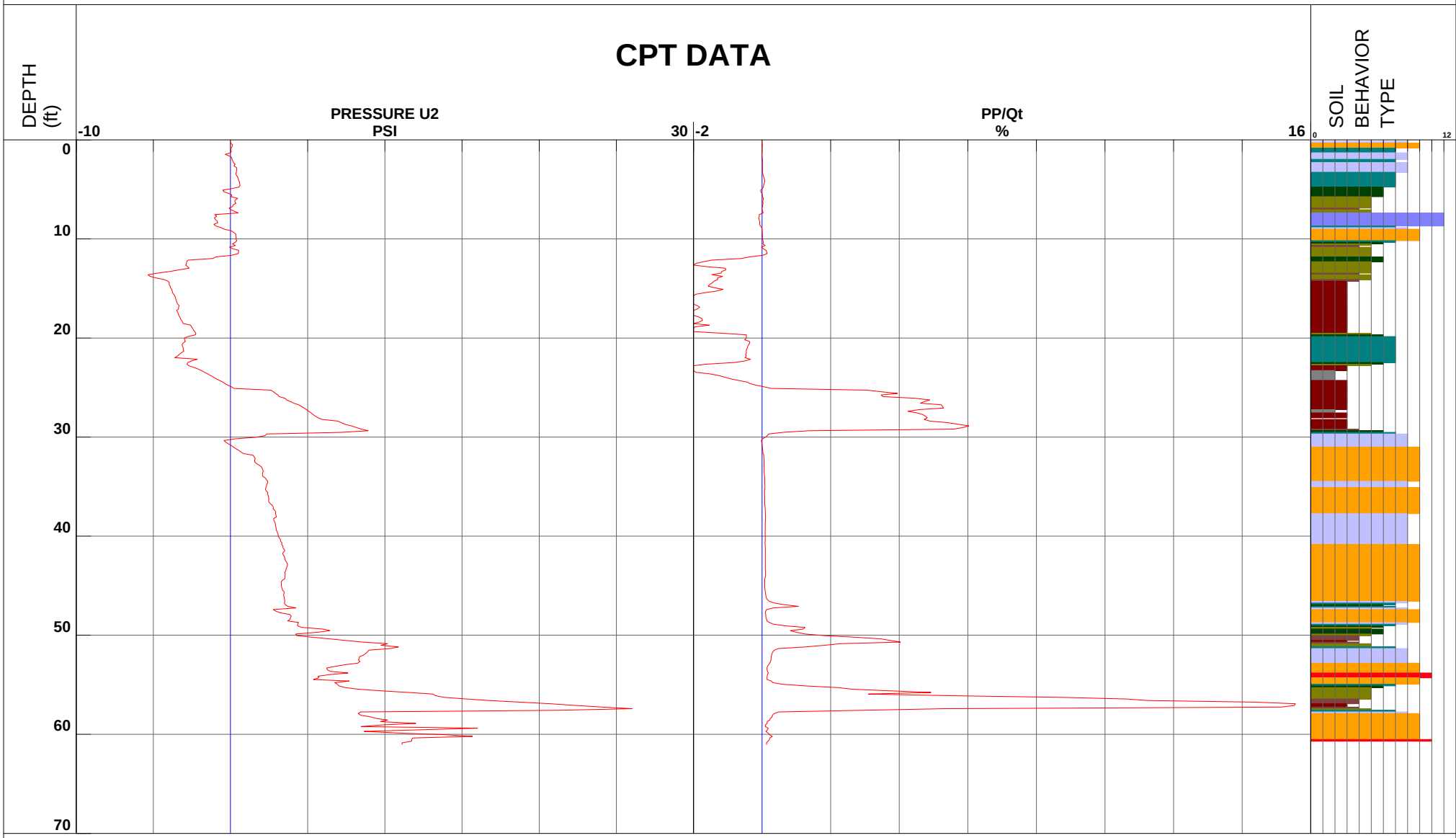
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(405).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-73	Date and Time	11/17/2008 10:26:59 AM	Maximum Depth	61.02 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

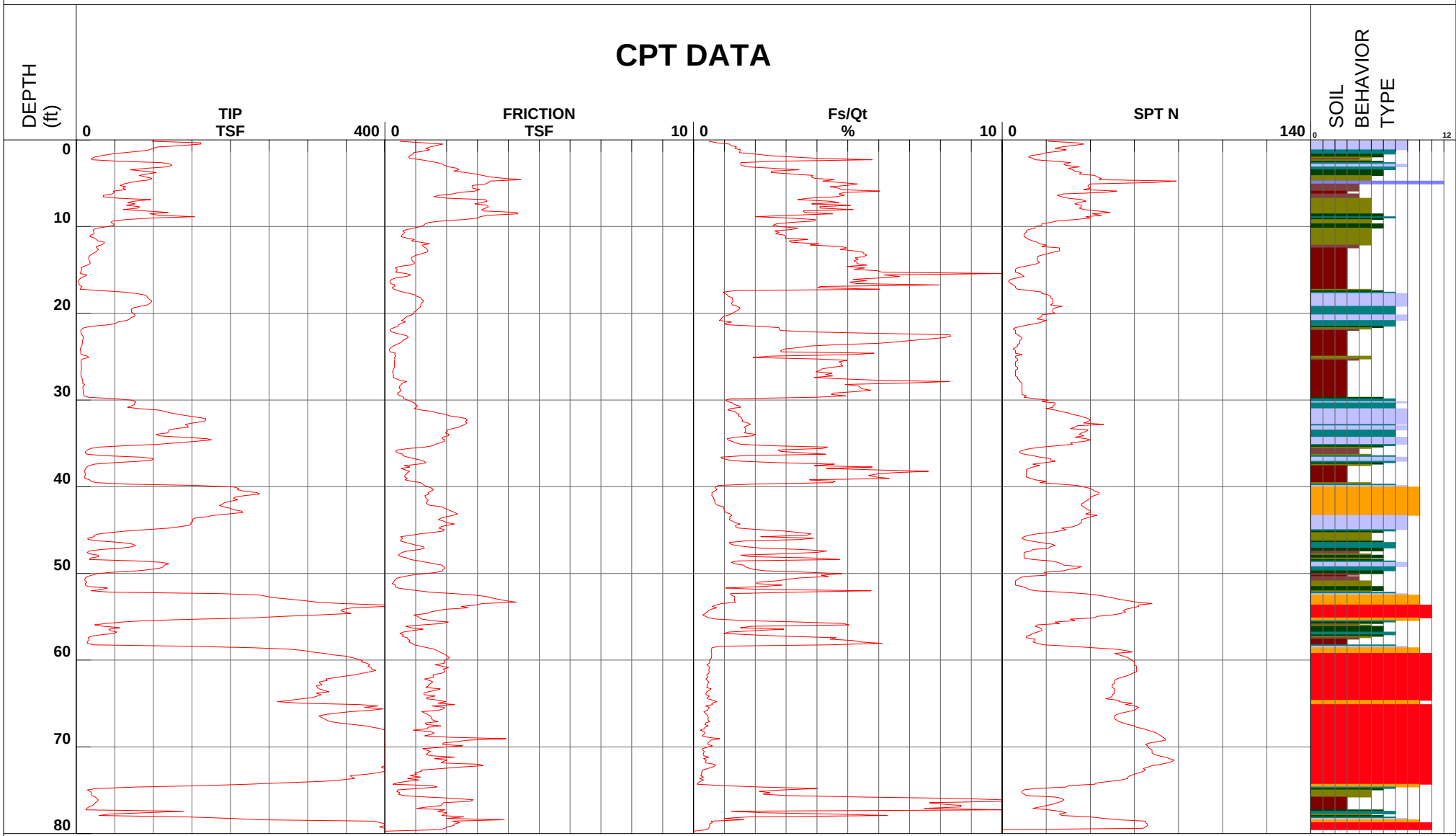
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(482).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-74	Date and Time	12/10/2008 1:01:40 PM	Maximum Depth	79.89 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

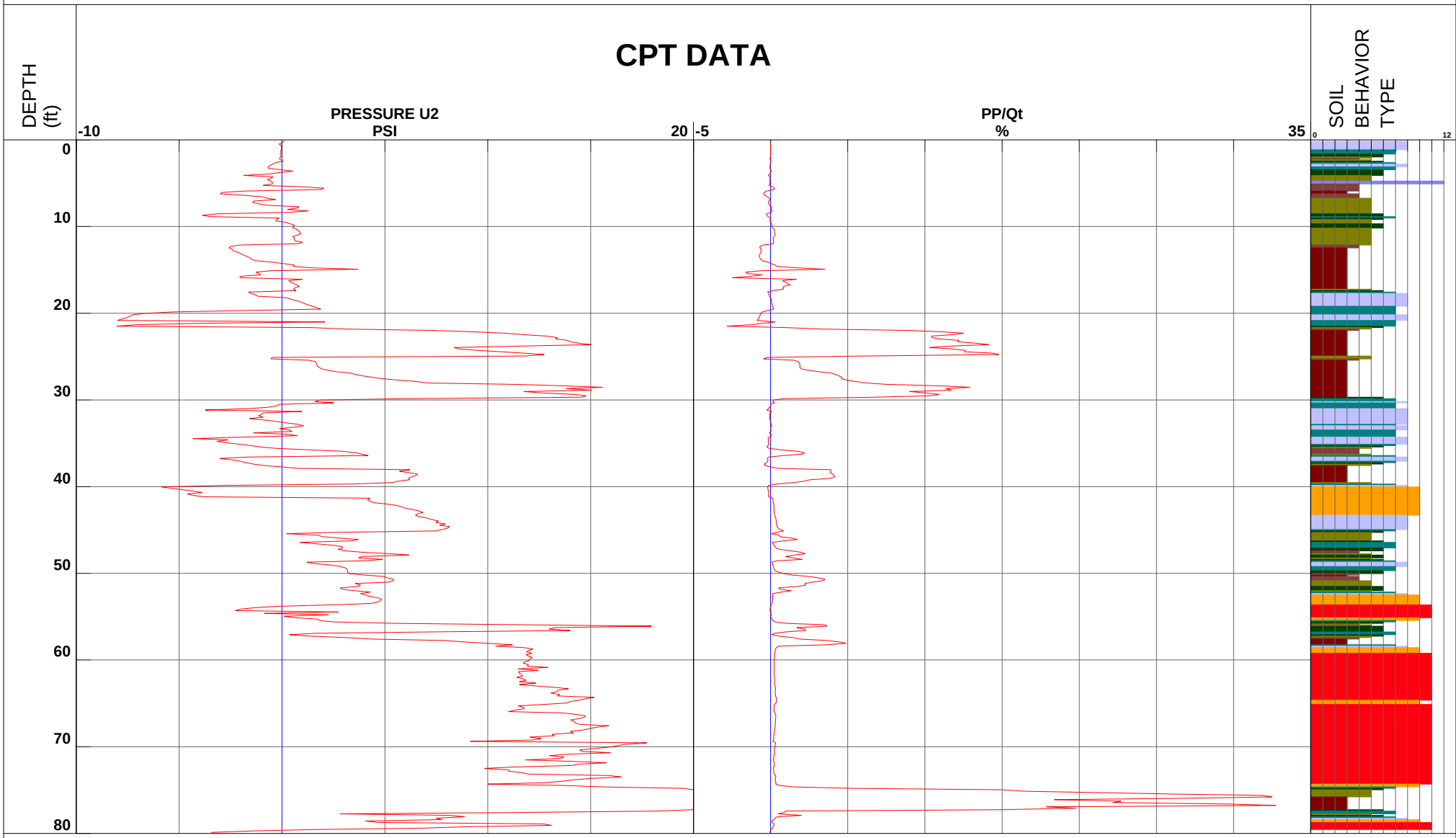
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(482).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-74	Date and Time	12/10/2008 1:01:40 PM	Maximum Depth	79.89 ft
Water Table Depth		0.00 ft			

CPT DATA



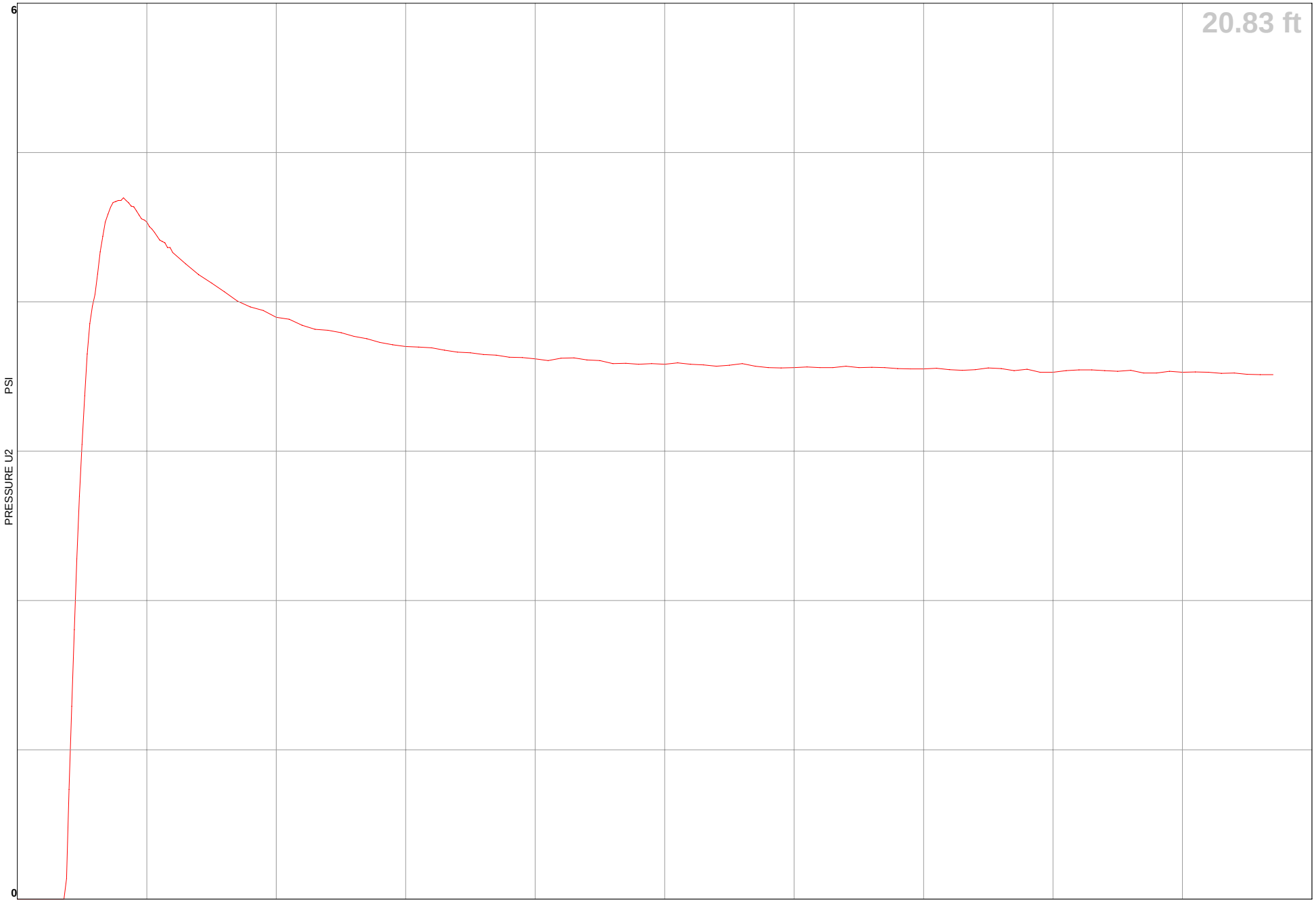
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

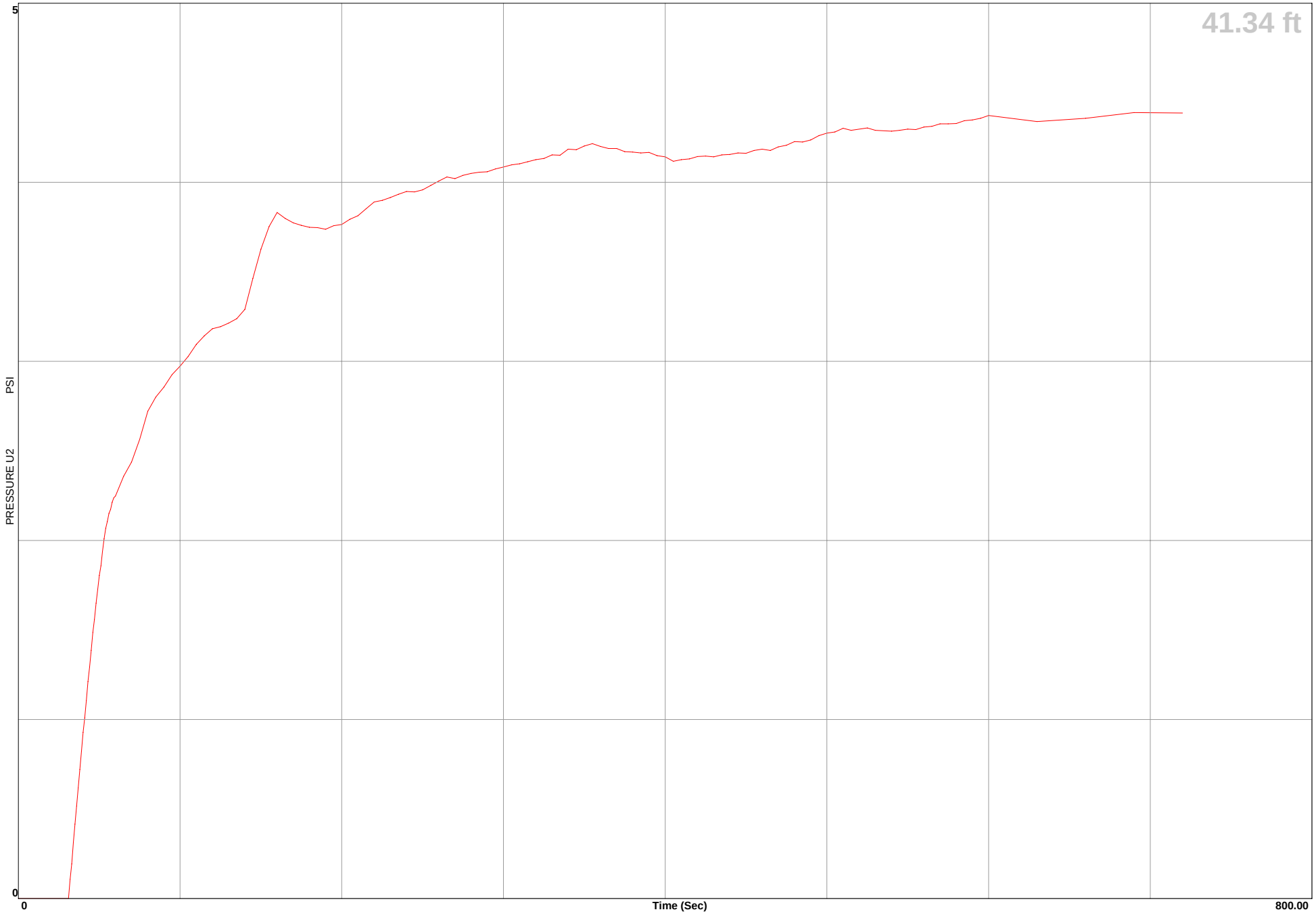
Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	
Job Number	08-156	Cone Number	DSG0906	GPS
Hole Number	CPT-08-74	Date and Time	12/10/2008 1:01:40 PM	
Equilized Pressure	3.51	Ground Water Depth	12.72	



Earth Mechanics

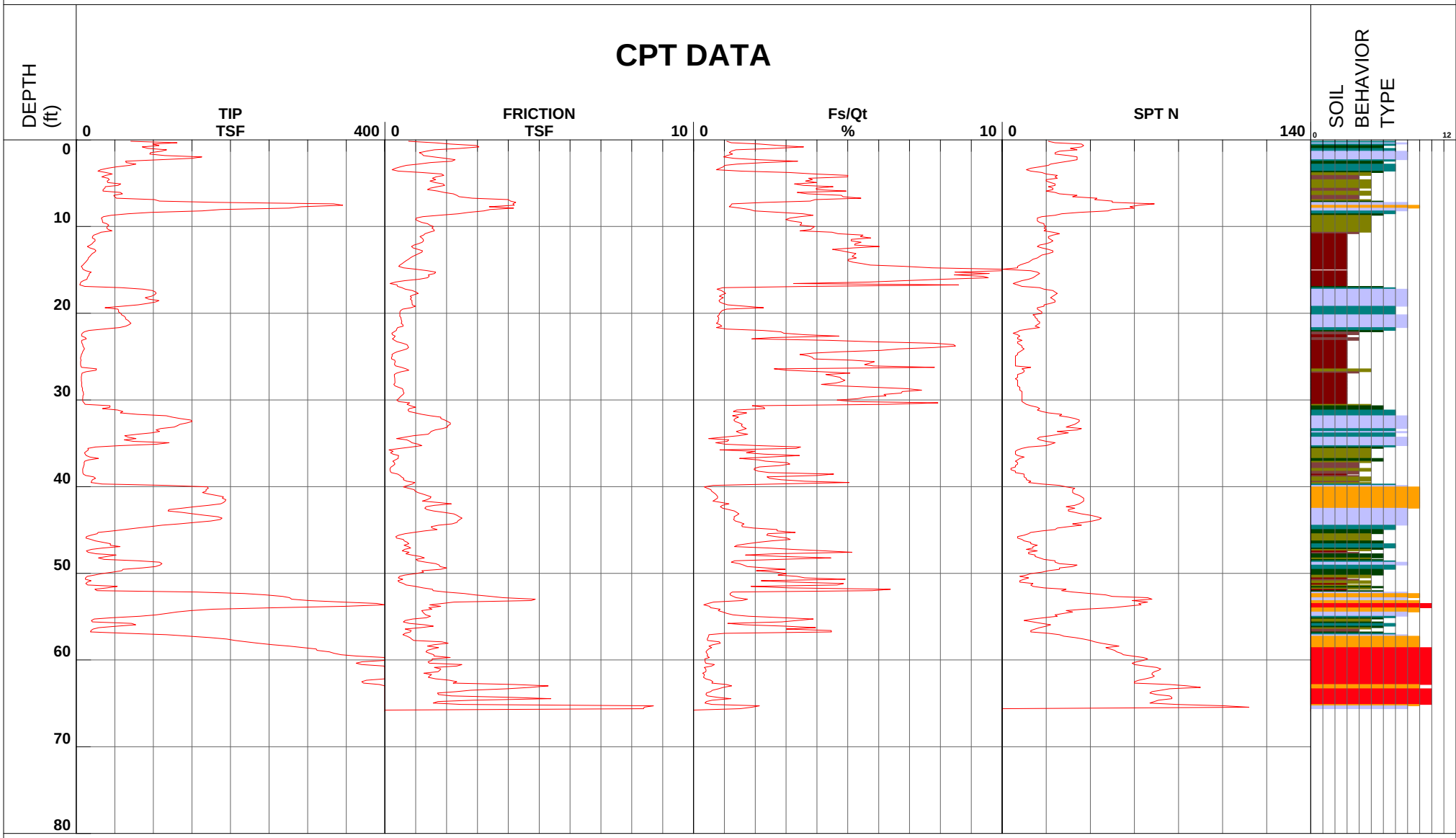
Location	EGG-WC Warner/Edwards	Operator	ML/BH	GPS
Job Number	08-156	Cone Number	DSG0906	
Hole Number	CPT-08-74	Date and Time	12/10/2008 1:01:40 PM	
Equilized Pressure	4.37	Ground Water Depth	31.24	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(404).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-75	Date and Time	11/17/2008 9:12:03 AM	Maximum Depth	65.94 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

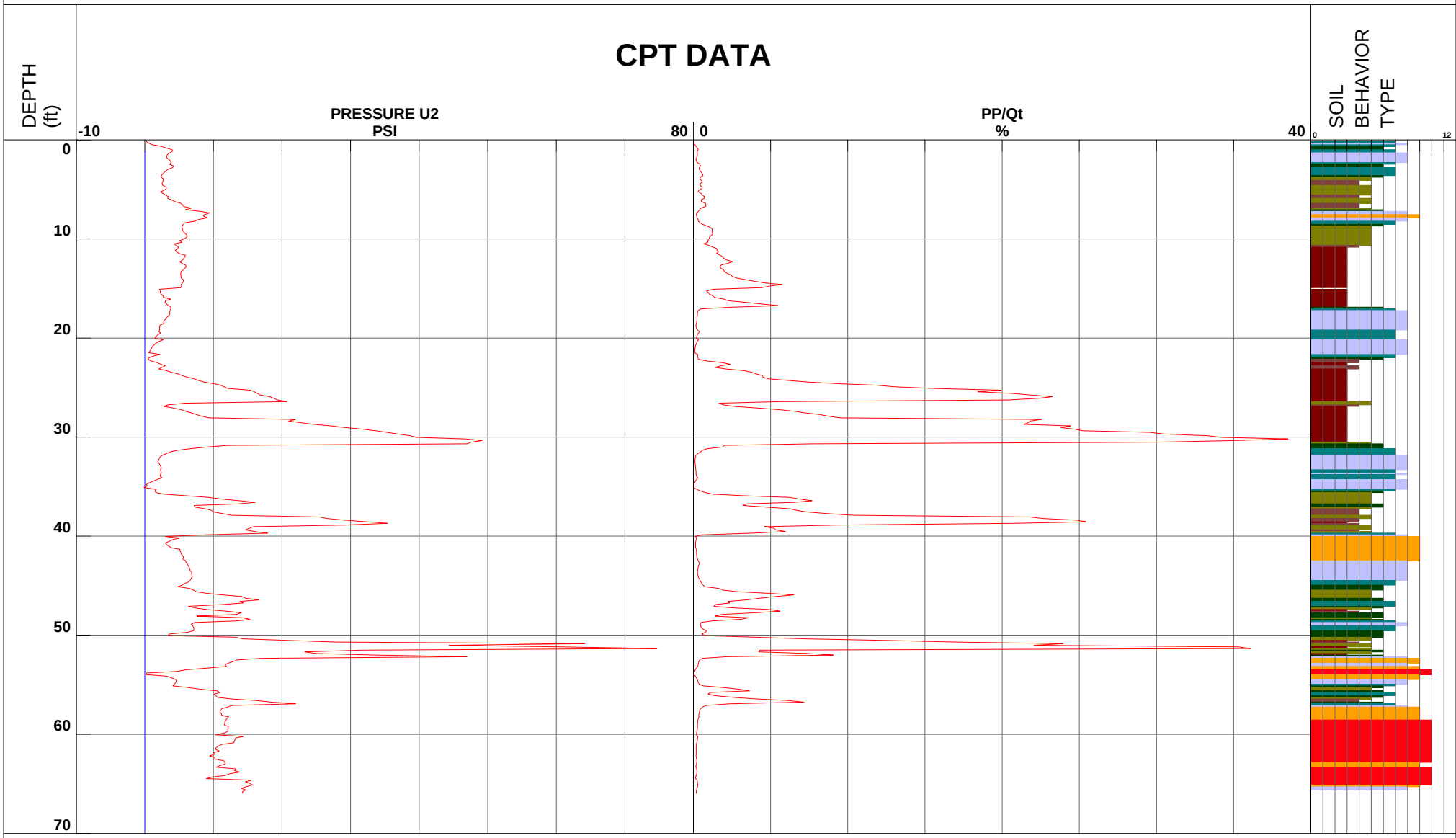
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(404).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-75	Date and Time	11/17/2008 9:12:03 AM	Maximum Depth	65.94 ft
Water Table Depth		12.00 ft			

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

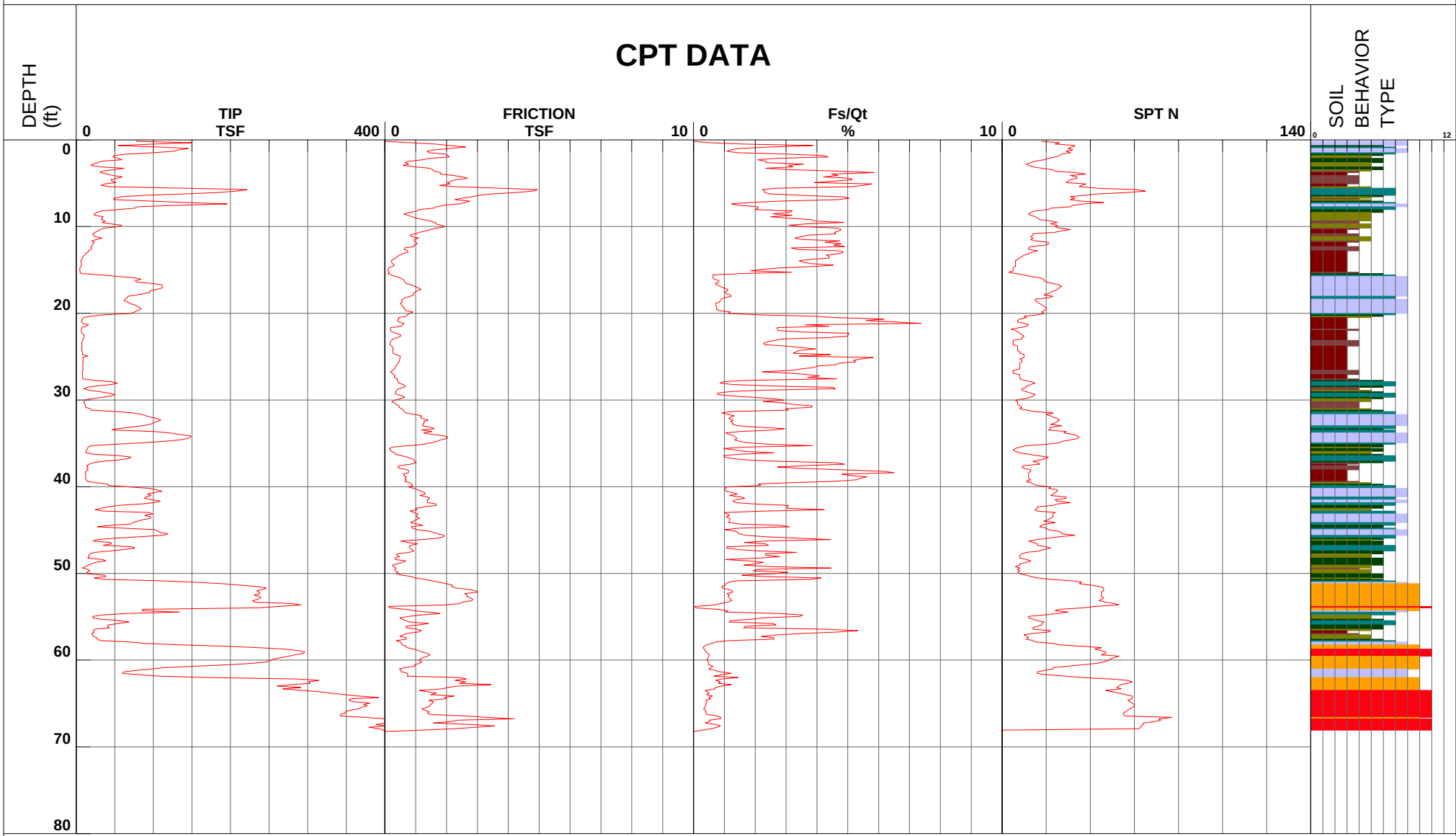
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(483).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-76	Date and Time	12/10/2008 2:21:23 PM	Maximum Depth	68.40 ft
Water Table Depth	12.00 ft				

CPT DATA



1 - sensitive fine grained
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3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

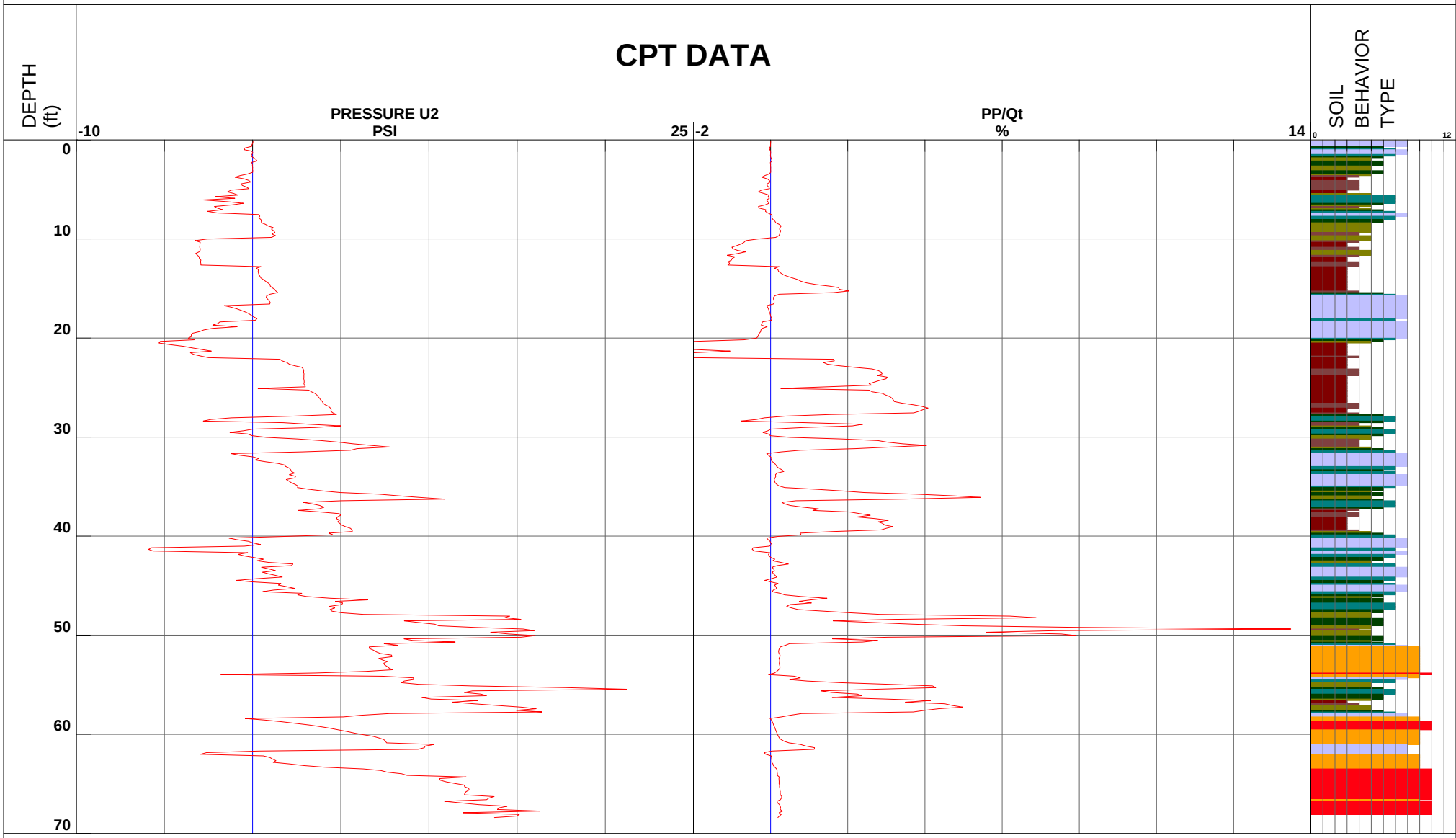
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	Filename	SDF(483).cpt
Job Number	08-156	Cone Number	DSG0906	GPS	
Hole Number	CPT-08-76	Date and Time	12/10/2008 2:21:23 PM	Maximum Depth	68.40 ft
Water Table Depth		0.00 ft			

CPT DATA



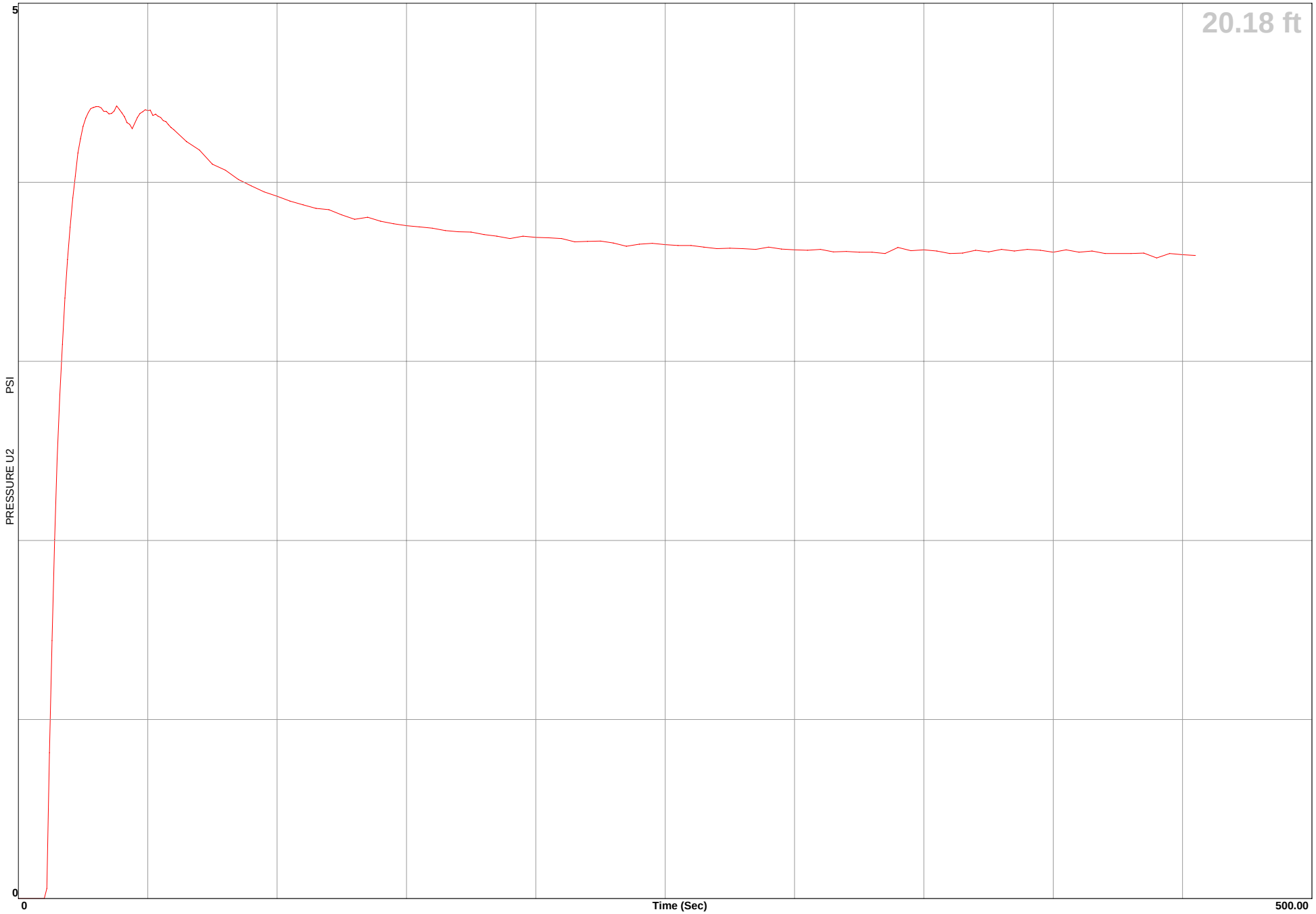
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

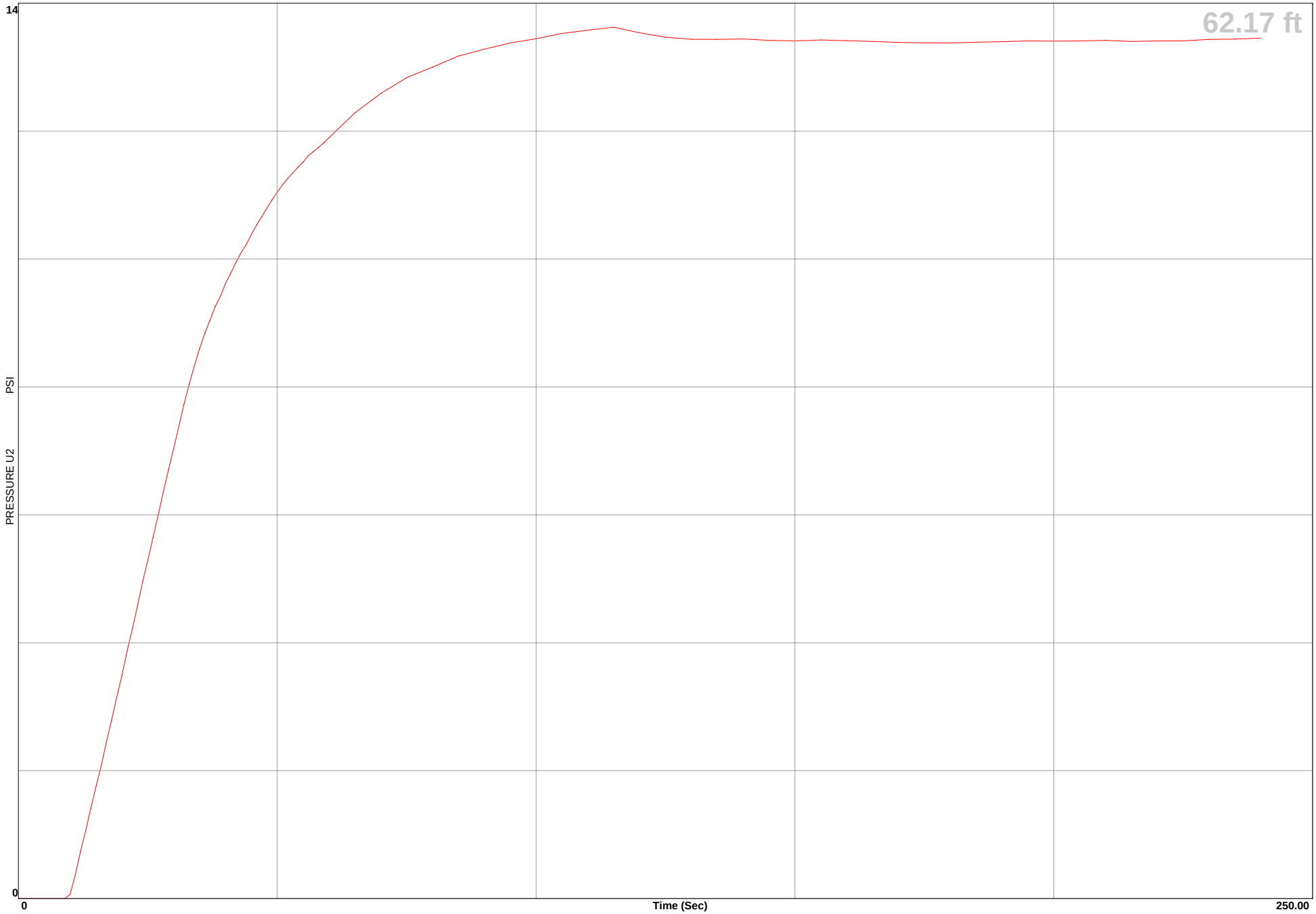
Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/BH	GPS
Job Number	08-156	Cone Number	DSG0906	
Hole Number	CPT-08-76	Date and Time	12/10/2008 2:21:23 PM	
Equilized Pressure	3.59	Ground Water Depth	11.88	



Earth Mechanics

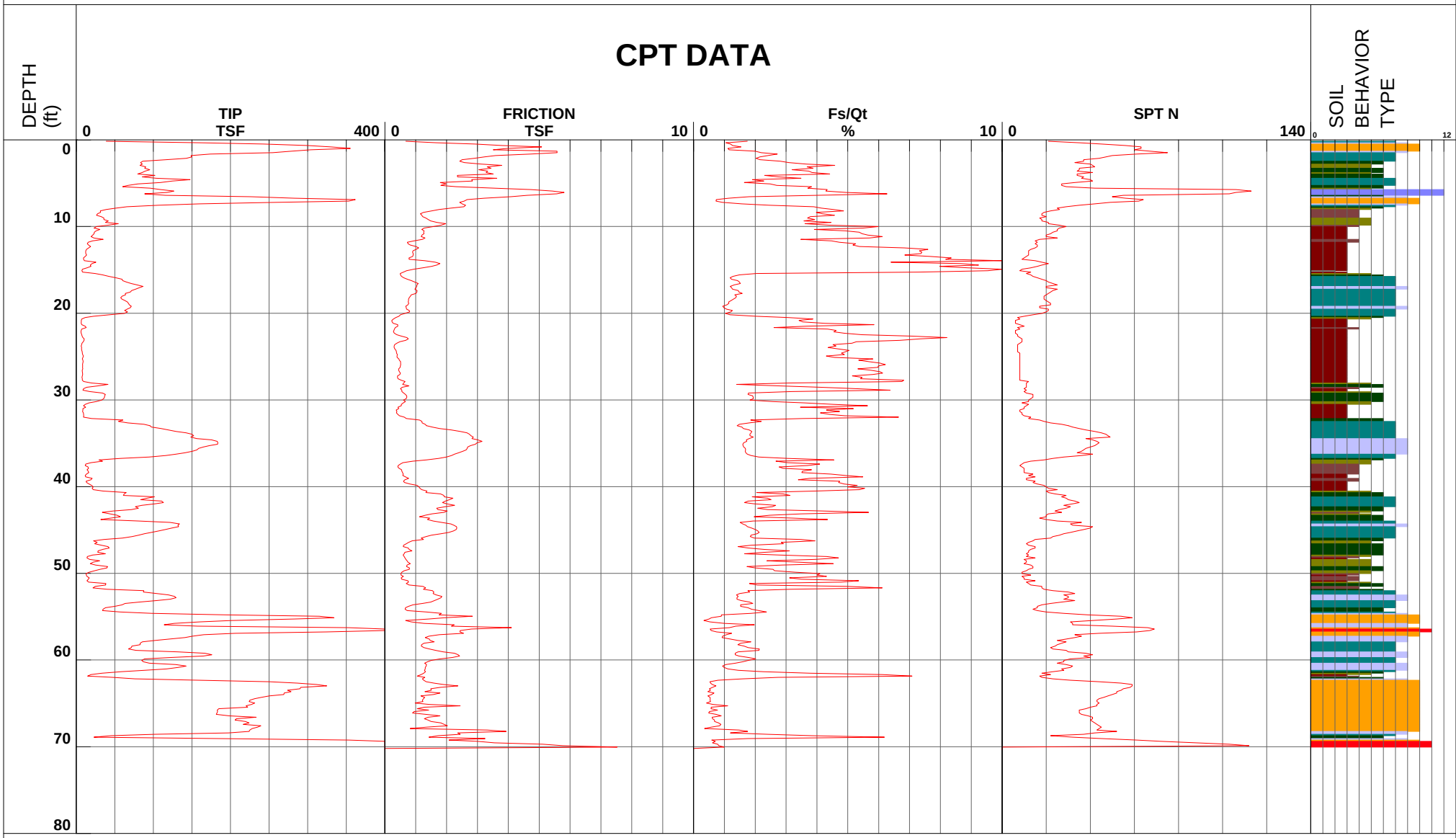
Location	**EGG-WC Warner/Edwards**	**Operator**	**ML/BH**	**GPS**
Job Number	**08-156**	**Cone Number**	**DSG0906**	
Hole Number	**CPT-08-76**	**Date and Time**	**12/10/2008 2:21:23 PM**	
Equilized Pressure	**13.42**	**Ground Water Depth**	**31.16**	



Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(402).cpt
Job Number	08-156	Cone Number	DSG1023	GPS	
Hole Number	CPT-08-77	Date and Time	11/17/2008 7:51:07 AM	Maximum Depth	70.37 ft
Water Table Depth	12.00 ft				

CPT DATA



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8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

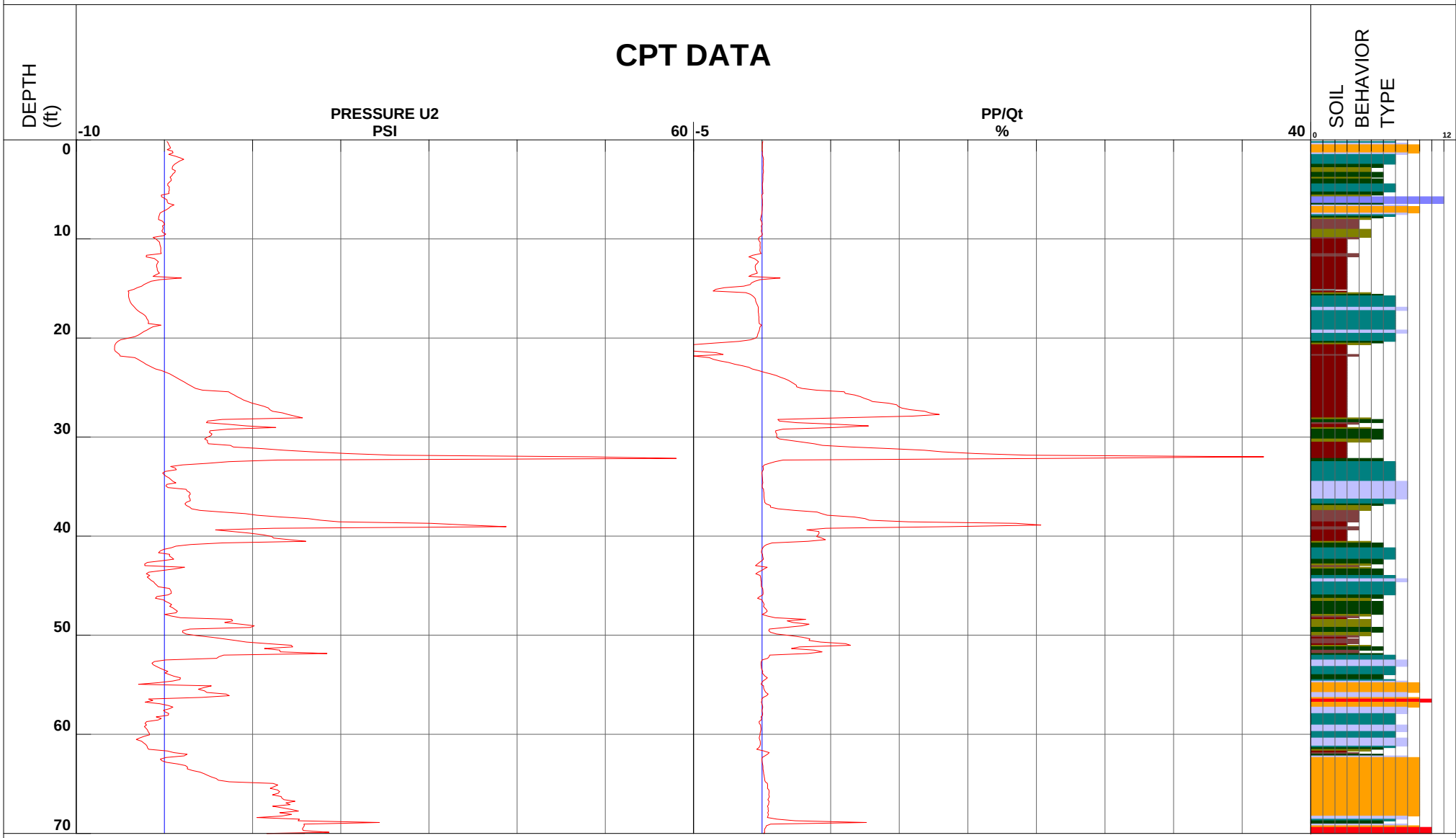
Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

Earth Mechanics

Location	EGG-WC Warner/Edwards	Operator	ML/VO	Filename	SDF(402).cpt
Job Number	08-156	Cone Number	DSG1023	GPS	
Hole Number	CPT-08-77	Date and Time	11/17/2008 7:51:07 AM	Maximum Depth	70.37 ft
Water Table Depth		12.00 ft			

CPT DATA



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4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Depth Increment

*Soil behavior type and SPT based on data from UBC-1983

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(431).cpt
CPT Date: 11/21/2008 8:24:05 AM
GW During Test: 12 ft

Sounding ID: CPT-08-27
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	91.2	146.3	182.6	1.6	0.0	1.7	6	clean SAND to silty SAND	125	5.0	29	18	80	48	-	16
0.49	89.9	144.2	200.7	2.1	-0.1	2.4	5	silty SAND to sandy SILT	120	4.0	36	22	79	48	-	16
0.66	65.2	104.6	197.1	2.2	-0.1	3.5	5	silty SAND to sandy SILT	120	4.0	26	16	68	48	-	16
0.82	51.3	82.3	171.9	1.7	-0.4	3.4	5	silty SAND to sandy SILT	120	4.0	21	13	61	48	-	16
0.98	40.1	64.3	155.1	1.4	-0.1	3.5	4	clayy SILT to silty CLAY	115	2.0	32	20	-	-	2.8	15
1.15	34.2	54.8	140.8	1.1	-0.1	3.4	4	clayy SILT to silty CLAY	115	2.0	27	17	-	-	2.4	15
1.31	28.0	45.0	125.8	0.9	0.0	3.2	4	clayy SILT to silty CLAY	115	2.0	22	14	-	-	2.0	15
1.48	23.6	37.9	104.5	0.6	0.0	2.6	4	clayy SILT to silty CLAY	115	2.0	19	12	-	-	1.7	15
1.64	23.3	37.4	94.6	0.5	0.0	2.1	5	silty SAND to sandy SILT	120	4.0	9	6	35	45	-	16
1.80	22.8	36.5	90.5	0.4	0.0	2.0	5	silty SAND to sandy SILT	120	4.0	9	6	34	44	-	16
1.97	23.8	38.2	88.9	0.4	0.0	1.8	5	silty SAND to sandy SILT	120	4.0	10	6	35	44	-	16
2.13	23.5	37.7	80.8	0.4	0.0	1.5	5	silty SAND to sandy SILT	120	4.0	9	6	35	44	-	16
2.30	23.6	37.8	77.0	0.3	0.0	1.3	5	silty SAND to sandy SILT	120	4.0	9	6	35	43	-	16
2.46	20.6	33.0	82.9	0.4	0.0	1.8	5	silty SAND to sandy SILT	120	4.0	8	5	30	42	-	16
2.62	16.3	26.2	-	0.4	0.0	2.6	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.1	15
2.79	18.6	29.9	-	0.7	0.0	3.9	4	clayy SILT to silty CLAY	115	2.0	15	9	-	-	1.3	15
2.95	19.6	31.5	-	0.9	0.0	4.6	3	silty CLAY to CLAY	115	1.5	21	13	-	-	1.4	15
3.12	27.6	44.2	138.5	1.0	-1.6	3.8	4	clayy SILT to silty CLAY	115	2.0	22	14	-	-	1.9	15
3.28	30.5	49.0	106.0	0.6	0.0	2.1	5	silty SAND to sandy SILT	120	4.0	12	8	43	43	-	16
3.45	29.6	47.5	129.2	0.9	-0.1	3.2	4	clayy SILT to silty CLAY	115	2.0	24	15	-	-	2.1	15
3.61	67.4	108.1	155.0	1.3	-0.3	2.0	5	silty SAND to sandy SILT	120	4.0	27	17	70	46	-	16
3.77	42.9	68.7	145.8	1.3	0.0	2.9	5	silty SAND to sandy SILT	120	4.0	17	11	55	44	-	16
3.94	24.2	38.8	-	1.0	0.1	4.1	4	clayy SILT to silty CLAY	115	2.0	19	12	-	-	1.7	15
4.10	21.1	33.8	-	0.8	-0.4	4.0	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.5	15
4.27	18.0	28.9	-	0.8	-0.3	4.6	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.3	15
4.43	16.8	26.9	-	0.8	-0.4	4.6	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.2	15
4.59	15.3	24.5	-	0.7	-0.4	4.9	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.1	15
4.76	18.4	29.6	-	0.7	-0.3	4.0	4	clayy SILT to silty CLAY	115	2.0	15	9	-	-	1.3	15
4.92	26.5	42.5	115.9	0.7	-0.3	2.8	4	clayy SILT to silty CLAY	115	2.0	21	13	-	-	1.9	15
5.09	24.5	39.3	109.2	0.7	-2.7	2.7	4	clayy SILT to silty CLAY	115	2.0	20	12	-	-	1.7	15
5.25	11.9	19.1	-	0.4	-4.3	3.5	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
5.41	8.8	14.1	-	0.3	0.1	4.1	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
5.58	10.0	16.1	-	0.8	0.2	7.8	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
5.74	34.5	55.3	172.7	1.6	0.2	4.7	4	clayy SILT to silty CLAY	115	2.0	28	17	-	-	2.4	15
5.91	76.2	122.2	212.4	2.5	-0.2	3.4	5	silty SAND to sandy SILT	120	4.0	31	19	74	46	-	16
6.07	65.5	105.1	248.3	3.3	-0.8	5.1	9	very stiff fine SOIL	120	2.0	53	33	69	45	-	30
6.23	120.6	193.4	265.3	3.4	-0.9	2.8	5	silty SAND to sandy SILT	120	4.0	48	30	89	48	-	16
6.40	122.5	194.1	267.9	3.5	-0.1	2.9	5	silty SAND to sandy SILT	120	4.0	49	31	89	48	-	16
6.56	105.6	165.2	250.5	3.4	-0.1	3.2	5	silty SAND to sandy SILT	120	4.0	41	26	84	47	-	16
6.73	94.9	146.6	247.7	3.4	0.0	3.6	8	stiff SAND to clayy SAND	115	1.0	100	95	-	-	6.3	16
6.89	89.2	136.1	226.2	3.0	-0.2	3.3	5	silty SAND to sandy SILT	120	4.0	34	22	77	46	-	16
7.05	65.3	98.5	200.4	2.4	0.1	3.8	5	silty SAND to sandy SILT	120	4.0	25	16	67	45	-	16
7.22	46.6	69.5	178.5	1.9	0.3	4.2	4	clayy SILT to silty CLAY	115	2.0	35	23	-	-	3.3	15
7.38	44.7	65.9	148.9	1.4	-0.1	3.2	4	clayy SILT to silty CLAY	115	2.0	33	22	-	-	3.1	15
7.55	43.5	63.5	134.5	1.2	-3.3	2.7	5	silty SAND to sandy SILT	120	4.0	16	11	52	42	-	16
7.71	34.6	49.9	121.6	0.9	0.2	2.7	5	silty SAND to sandy SILT	120	4.0	12	9	44	41	-	16
7.87	33.5	47.9	118.9	0.9	-0.3	2.7	4	clayy SILT to silty CLAY	115	2.0	24	17	-	-	2.3	15
8.04	41.0	57.9	118.3	0.9	-0.4	2.3	5	silty SAND to sandy SILT	120	4.0	14	10	49	42	-	16
8.20	36.7	51.4	118.3	0.9	-0.2	2.5	5	silty SAND to sandy SILT	120	4.0	13	9	45	41	-	16
8.37	29.6	41.0	120.5	0.9	0.4	3.1	4	clayy SILT to silty CLAY	115	2.0	21	15	-	-	2.1	15
8.53	40.7	55.9	127.2	1.1	-0.1	2.7	5	silty SAND to sandy SILT	120	4.0	14	10	48	42	-	16
8.69	62.5	84.9	152.3	1.6	-2.8	2.6	5	silty SAND to sandy SILT	120	4.0	21	16	62	44	-	16
8.86	48.2	64.8	157.7	1.7	-2.8	3.5	4	clayy SILT to silty CLAY	115	2.0	32	24	-	-	3.4	15
9.02	32.2	49.3	162.3	1.5	-4.4	4.6	4	clayy SILT to silty CLAY	115	2.0	25	16	-	-	2.3	15
9.19	22.1	35.4	-	1.1	-4.4	5.0	3	silty CLAY to CLAY	115	1.5	24	15	-	-	1.5	15
9.35	16.2	26.0	-	0.8	-4.4	5.2	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.1	15
9.51	14.7	23.6	-	0.7	-4.1	4.8	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
9.68	12.5	20.1	-	0.7	-4.0	5.6	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
9.84	11.4	18.4	-	0.6	-3.9	5.9	3	silty CLAY to CLAY	115	1.5	12	8	-	-	0.8	15
10.01	10.6	17.0	-	0.6	-3.4	5.7	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
10.17	10.0	16.1	-	0.6	-3.2	5.9	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
10.34	9.3	14.9	-	0.6	-3.1	6.4	3	silty CLAY to CLAY	115	1.5	10	6	-	-	0.6	15
10.50	10.5	16.8	-	0.5	-2.8	4.6	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Earth Mechanics
Data File: SDF(431).cpt
CPT Date: 11/21/2008 8:24:05 AM
GW During Test: 12 ft

Sounding ID: CPT-08-27
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	17.9	24.4	76.4	0.3	-2.7	1.8	4	clayy SILT to silty CLAY	115	2.0	12	9	-	-	1.2	15
10.83	25.8	31.5	65.8	0.3	0.2	1.1	5	silty SAND to sandy SILT	120	4.0	8	6	29	38	-	16
10.99	28.5	34.4	67.2	0.3	0.2	1.0	5	silty SAND to sandy SILT	120	4.0	9	7	32	39	-	16
11.16	28.8	34.6	69.3	0.3	0.2	1.1	5	silty SAND to sandy SILT	120	4.0	9	7	32	39	-	16
11.32	28.4	33.9	71.7	0.3	0.2	1.2	5	silty SAND to sandy SILT	120	4.0	8	7	31	39	-	16
11.48	27.4	32.4	70.4	0.3	0.2	1.2	5	silty SAND to sandy SILT	120	4.0	8	7	30	38	-	16
11.65	26.6	31.2	66.5	0.3	0.2	1.1	5	silty SAND to sandy SILT	120	4.0	8	7	29	38	-	16
11.81	26.7	31.1	65.5	0.3	0.2	1.1	5	silty SAND to sandy SILT	120	4.0	8	7	28	38	-	16
11.98	27.0	31.3	66.7	0.3	0.2	1.1	5	silty SAND to sandy SILT	120	4.0	8	7	29	38	-	16
12.14	27.5	31.7	67.0	0.3	0.2	1.1	5	silty SAND to sandy SILT	120	4.0	8	7	29	38	-	16
12.30	26.3	30.2	68.9	0.3	0.2	1.2	5	silty SAND to sandy SILT	120	4.0	8	7	28	38	-	16
12.47	22.3	25.6	68.1	0.3	0.2	1.4	5	silty SAND to sandy SILT	120	4.0	6	6	22	37	-	16
12.63	26.8	30.6	70.1	0.3	0.1	1.3	5	silty SAND to sandy SILT	120	4.0	8	7	28	38	-	16
12.80	35.7	40.7	74.1	0.4	0.2	1.1	5	silty SAND to sandy SILT	120	4.0	10	9	37	39	-	16
12.96	40.9	46.5	77.5	0.4	0.2	1.1	5	silty SAND to sandy SILT	120	4.0	12	10	42	40	-	16
13.12	44.6	50.5	81.8	0.5	0.2	1.1	5	silty SAND to sandy SILT	120	4.0	13	11	44	40	-	16
13.29	44.6	50.3	84.3	0.5	0.3	1.2	5	silty SAND to sandy SILT	120	4.0	13	11	44	40	-	16
13.45	39.7	44.7	83.6	0.5	0.3	1.4	5	silty SAND to sandy SILT	120	4.0	11	10	40	40	-	16
13.62	36.2	40.6	84.8	0.5	0.3	1.5	5	silty SAND to sandy SILT	120	4.0	10	9	37	39	-	16
13.78	32.6	36.5	83.7	0.5	0.3	1.6	5	silty SAND to sandy SILT	120	4.0	9	8	34	38	-	16
13.94	28.4	31.6	81.8	0.5	0.2	1.7	5	silty SAND to sandy SILT	120	4.0	8	7	29	38	-	16
14.11	21.4	23.8	78.3	0.4	-1.6	1.9	4	clayy SILT to silty CLAY	115	2.0	12	11	-	-	1.5	15
14.27	12.9	16.7	-	0.3	-2.1	2.1	4	clayy SILT to silty CLAY	115	2.0	8	6	-	-	0.9	15
14.44	7.9	10.3	-	0.1	-2.0	1.9	4	clayy SILT to silty CLAY	115	2.0	5	4	-	-	0.5	15
14.60	6.1	7.9	-	0.1	-1.8	1.2	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
14.76	5.8	7.4	-	0.0	-1.5	0.9	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
14.93	5.7	7.3	-	0.0	-1.4	0.3	1	sensitive fine SOIL	115	2.0	4	3	-	-	0.4	15
15.09	5.6	7.0	-	0.0	-1.3	0.3	1	sensitive fine SOIL	115	2.0	4	3	-	-	0.4	15
15.26	5.9	7.4	-	0.0	-0.7	0.4	1	sensitive fine SOIL	115	2.0	4	3	-	-	0.4	15
15.42	5.7	7.1	-	0.0	-0.6	0.5	1	sensitive fine SOIL	115	2.0	4	3	-	-	0.4	15
15.58	5.8	7.3	-	0.0	-0.5	0.5	1	sensitive fine SOIL	115	2.0	4	3	-	-	0.4	15
15.75	5.8	7.1	-	0.0	-0.4	0.5	1	sensitive fine SOIL	115	2.0	4	3	-	-	0.4	15
15.91	6.2	7.7	-	0.0	-0.3	0.8	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
16.08	6.3	7.7	-	0.1	-0.2	1.1	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
16.24	6.1	7.4	-	0.0	-0.1	0.9	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
16.40	6.0	7.2	-	0.1	0.0	1.0	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
16.57	6.1	7.4	-	0.1	0.2	1.6	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.73	6.8	8.1	-	0.1	0.3	1.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
16.90	8.1	9.7	-	0.1	0.3	1.6	4	clayy SILT to silty CLAY	115	2.0	5	4	-	-	0.5	15
17.06	8.3	9.8	-	0.1	0.4	2.0	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.5	15
17.23	7.3	8.6	-	0.0	0.5	0.7	4	clayy SILT to silty CLAY	115	2.0	4	4	-	-	0.5	15
17.39	14.7	16.2	-	0.2	0.8	1.1	4	clayy SILT to silty CLAY	115	2.0	8	7	-	-	1.0	15
17.55	34.6	36.3	65.4	0.3	-4.5	0.9	5	silty SAND to sandy SILT	120	4.0	9	9	34	38	-	16
17.72	43.9	46.0	81.4	0.5	-4.1	1.2	5	silty SAND to sandy SILT	120	4.0	11	11	41	39	-	16
17.88	50.8	53.0	97.6	0.8	-3.9	1.6	5	silty SAND to sandy SILT	120	4.0	13	13	46	40	-	16
18.05	44.2	46.1	110.9	1.0	-3.7	2.4	5	silty SAND to sandy SILT	120	4.0	12	11	41	39	-	16
18.21	23.3	26.6	-	0.8	-3.7	3.6	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.6	15
18.37	12.8	14.6	-	0.5	-3.4	4.3	3	silty CLAY to CLAY	115	1.5	10	9	-	-	0.9	15
18.54	20.9	22.4	-	0.4	-3.0	1.9	4	clayy SILT to silty CLAY	115	2.0	11	10	-	-	1.4	15
18.70	10.8	12.2	-	0.4	-2.9	3.7	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
18.87	9.8	11.0	-	0.3	-2.4	3.4	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
19.03	18.0	20.0	-	0.3	-2.2	1.8	4	clayy SILT to silty CLAY	115	2.0	10	9	-	-	1.2	15
19.19	27.4	28.0	65.3	0.3	-2.3	1.1	5	silty SAND to sandy SILT	120	4.0	7	7	25	36	-	16
19.36	22.9	23.4	67.4	0.3	-3.5	1.4	5	silty SAND to sandy SILT	120	4.0	6	6	19	35	-	16
19.52	13.7	15.0	-	0.3	-3.6	2.3	4	clayy SILT to silty CLAY	115	2.0	8	7	-	-	0.9	15
19.69	23.4	23.7	71.5	0.3	-3.5	1.6	4	clayy SILT to silty CLAY	115	2.0	12	12	-	-	1.6	15
19.85	41.0	41.5	78.0	0.5	-3.7	1.2	5	silty SAND to sandy SILT	120	4.0	10	10	38	38	-	16
20.01	81.0	81.9	103.4	0.8	-4.9	1.0	6	clean SAND to silty SAND	125	5.0	16	16	60	42	-	16
20.18	85.0	85.7	115.4	1.1	-6.1	1.3	5	silty SAND to sandy SILT	120	4.0	21	21	62	42	-	16
20.34	71.4	71.8	116.3	1.2	-6.0	1.7	5	silty SAND to sandy SILT	120	4.0	18	18	56	41	-	16
20.51	58.8	58.9	108.2	1.1	-5.9	1.8	5	silty SAND to sandy SILT	120	4.0	15	15	50	40	-	16
20.67	52.9	52.9	103.7	1.0	-5.8	1.9	5	silty SAND to sandy SILT	120	4.0	13	13	46	39	-	16
20.83	44.4	44.3	103.4	0.9	-5.7	2.2	5	silty SAND to sandy SILT	120	4.0	11	11	40	38	-	16
21.00	34.8	34.6	107.4	0.9	-5.8	2.8	4	clayy SILT to silty CLAY	115	2.0	17	17	-	-	2.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(431).cpt
CPT Date: 11/21/2008 8:24:05 AM
GW During Test: 12 ft

Sounding ID: CPT-08-27
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	33.3	33.1	96.1	0.7	-6.2	2.3	4	clayy SILT to silty CLAY	115	2.0	17	17	-	-	2.3	15
21.33	49.2	48.7	97.0	0.8	-7.3	1.7	5	silty SAND to sandy SILT	120	4.0	12	12	43	39	-	16
21.49	49.1	48.6	90.9	0.7	-5.6	1.5	5	silty SAND to sandy SILT	120	4.0	12	12	43	39	-	16
21.65	25.9	25.5	84.2	0.5	-6.9	2.1	4	clayy SILT to silty CLAY	115	2.0	13	13	-	-	1.8	15
21.82	13.5	13.9	-	0.3	-7.3	2.6	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
21.98	8.3	8.5	-	0.2	-7.1	2.4	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	15
22.15	8.2	8.3	-	0.1	-6.9	1.8	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
22.31	8.2	8.4	-	0.1	-6.7	2.0	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
22.47	8.5	8.5	-	0.1	-6.6	1.8	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	15
22.64	8.0	8.0	-	0.1	-6.4	1.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.80	7.1	7.1	-	0.1	-6.3	1.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.97	6.8	6.8	-	0.1	-6.2	2.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
23.13	6.8	6.7	-	0.1	-6.1	1.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
23.30	6.6	6.5	-	0.1	-6.0	1.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.46	6.6	6.5	-	0.1	-5.9	2.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.62	8.5	8.3	-	0.1	-5.8	1.8	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	15
23.79	8.1	7.9	-	0.2	-5.8	3.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.95	11.4	11.1	-	0.3	-5.6	2.6	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
24.12	33.7	32.2	70.1	0.4	-5.6	1.2	5	silty SAND to sandy SILT	120	4.0	8	8	30	36	-	16
24.28	42.8	40.8	78.0	0.5	-5.5	1.2	5	silty SAND to sandy SILT	120	4.0	10	11	37	37	-	16
24.44	46.2	43.9	84.4	0.6	-5.4	1.4	5	silty SAND to sandy SILT	120	4.0	11	12	40	38	-	16
24.61	46.7	44.3	94.9	0.8	-5.3	1.8	5	silty SAND to sandy SILT	120	4.0	11	12	40	38	-	16
24.77	30.6	29.1	-	0.9	-5.2	3.1	4	clayy SILT to silty CLAY	115	2.0	15	15	-	-	2.1	15
24.94	15.7	14.9	-	0.6	-4.5	4.3	3	silty CLAY to CLAY	115	1.5	10	10	-	-	1.1	15
25.10	12.3	11.5	-	0.4	-4.0	3.5	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
25.26	36.4	34.3	74.0	0.4	-2.6	1.3	5	silty SAND to sandy SILT	120	4.0	9	9	32	36	-	16
25.43	37.1	34.8	86.4	0.6	-2.7	1.8	5	silty SAND to sandy SILT	120	4.0	9	9	32	36	-	16
25.59	25.9	24.1	-	0.7	-2.6	2.8	4	clayy SILT to silty CLAY	115	2.0	12	13	-	-	1.8	15
25.76	18.3	16.9	-	0.4	-2.3	2.6	4	clayy SILT to silty CLAY	115	2.0	8	9	-	-	1.2	15
25.92	19.3	17.8	-	0.3	-2.1	1.7	4	clayy SILT to silty CLAY	115	2.0	9	10	-	-	1.3	15
26.08	30.2	28.1	63.0	0.3	-2.4	1.0	5	silty SAND to sandy SILT	120	4.0	7	8	25	35	-	16
26.25	44.6	41.4	75.5	0.5	-2.5	1.1	5	silty SAND to sandy SILT	120	4.0	10	11	38	37	-	16
26.41	32.6	30.2	70.8	0.4	-3.3	1.3	5	silty SAND to sandy SILT	120	4.0	8	8	28	35	-	16
26.58	46.3	42.9	72.4	0.4	-3.1	1.0	5	silty SAND to sandy SILT	120	4.0	11	12	39	37	-	16
26.74	56.2	51.9	81.5	0.6	-3.9	1.0	5	silty SAND to sandy SILT	120	4.0	13	14	45	38	-	16
26.90	51.9	47.8	80.5	0.6	-4.1	1.1	5	silty SAND to sandy SILT	120	4.0	12	13	43	38	-	16
27.07	46.2	42.5	77.7	0.5	-4.2	1.2	5	silty SAND to sandy SILT	120	4.0	11	12	39	37	-	16
27.23	31.1	28.5	76.9	0.5	-4.8	1.6	5	silty SAND to sandy SILT	120	4.0	7	8	26	35	-	16
27.40	14.9	13.2	-	0.4	-4.6	2.7	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
27.56	8.9	7.8	-	0.2	-4.3	2.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
27.72	8.0	7.0	-	0.1	-3.8	1.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.89	7.7	6.8	-	0.1	-3.5	1.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
28.05	7.6	6.6	-	0.1	-3.3	1.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
28.22	7.5	6.6	-	0.1	-1.9	1.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
28.38	7.5	6.5	-	0.1	-1.6	1.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
28.54	7.7	6.7	-	0.1	-1.2	1.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
28.71	7.7	6.7	-	0.1	-0.9	1.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
28.87	7.6	6.6	-	0.1	-0.6	1.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
29.04	7.7	6.6	-	0.1	-0.3	1.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
29.20	7.7	6.5	-	0.1	0.1	1.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
29.36	7.7	6.5	-	0.1	0.4	1.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
29.53	7.7	6.5	-	0.1	0.8	1.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
29.69	8.1	6.8	-	0.1	1.3	1.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
29.86	7.8	6.6	-	0.1	1.7	1.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.02	7.7	6.5	-	0.1	2.2	1.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.19	7.5	6.3	-	0.1	2.7	1.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.35	7.7	6.4	-	0.1	3.2	1.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.51	7.8	6.5	-	0.1	3.7	1.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.68	7.7	6.3	-	0.1	4.2	1.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.84	7.7	6.3	-	0.1	4.8	1.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.01	7.7	6.3	-	0.1	5.3	1.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.17	7.6	6.2	-	0.2	5.9	2.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.33	8.8	7.2	-	0.2	6.3	2.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.50	8.3	6.7	-	0.2	23.7	2.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(431).cpt
CPT Date: 11/21/2008 8:24:05 AM
GW During Test: 12 ft

Sounding ID: CPT-08-27
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	8.1	6.6	-	0.1	26.1	2.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.83	8.0	6.4	-	0.1	28.5	2.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.99	8.1	6.5	-	0.1	31.1	2.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.15	8.3	6.6	-	0.1	33.5	2.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
32.32	8.3	6.6	-	0.1	35.7	2.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
32.48	8.2	6.5	-	0.2	37.5	2.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.65	8.4	6.6	-	0.2	39.8	2.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
32.81	8.6	6.8	-	0.2	41.4	2.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
32.97	8.6	6.8	-	0.2	42.4	2.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
33.14	8.3	6.5	-	0.2	43.2	2.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
33.30	8.3	6.5	-	0.2	45.0	2.5	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
33.47	8.4	6.5	-	0.2	46.7	2.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
33.63	8.4	6.5	-	0.2	48.1	2.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
33.79	8.5	6.6	-	0.2	49.5	2.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
33.96	8.5	6.6	-	0.2	50.2	2.5	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
34.12	8.4	6.4	-	0.1	50.8	2.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
34.29	8.4	6.4	-	0.2	51.8	2.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
34.45	8.5	6.5	-	0.2	51.4	2.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
34.61	8.6	6.5	-	0.2	51.3	2.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
34.78	8.6	6.5	-	0.2	51.7	2.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
34.94	8.6	6.5	-	0.2	51.8	2.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
35.11	8.7	6.5	-	0.2	53.0	2.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
35.27	8.8	6.6	-	0.2	52.7	2.5	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
35.43	9.2	6.9	-	0.2	53.7	2.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
35.60	9.8	7.3	-	0.2	54.6	3.0	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
35.76	10.6	7.9	-	0.3	55.6	3.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
35.93	11.7	8.6	-	0.4	58.0	4.2	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
36.09	23.9	17.6	-	0.4	41.4	1.8	4	clayy SILT to silty CLAY	115	2.0	9	12	-	-	1.6	15
36.26	42.6	35.5	72.8	0.5	9.6	1.2	5	silty SAND to sandy SILT	120	4.0	9	11	33	35	-	16
36.42	49.5	41.1	74.8	0.5	5.4	1.1	5	silty SAND to sandy SILT	120	4.0	10	12	38	36	-	16
36.58	66.5	55.2	82.2	0.6	1.8	1.0	5	silty SAND to sandy SILT	120	4.0	14	17	47	38	-	16
36.75	77.6	64.3	89.2	0.7	-1.7	1.0	5	silty SAND to sandy SILT	120	4.0	16	19	52	39	-	16
36.91	79.9	66.1	98.5	1.0	-1.8	1.2	5	silty SAND to sandy SILT	120	4.0	17	20	53	39	-	16
37.08	60.6	50.1	108.1	1.2	2.2	2.1	5	silty SAND to sandy SILT	120	4.0	13	15	44	37	-	16
37.24	53.1	43.7	108.6	1.2	0.1	2.4	5	silty SAND to sandy SILT	120	4.0	11	13	40	36	-	16
37.40	48.8	40.2	96.6	0.9	-3.1	2.0	5	silty SAND to sandy SILT	120	4.0	10	12	37	36	-	16
37.57	81.6	67.0	100.3	1.0	-3.7	1.3	5	silty SAND to sandy SILT	120	4.0	17	20	54	39	-	16
37.73	93.5	76.7	103.2	1.0	-3.1	1.1	6	clean SAND to silty SAND	125	5.0	15	19	58	39	-	16
37.90	64.1	52.5	110.7	1.3	-1.1	2.1	5	silty SAND to sandy SILT	120	4.0	13	16	46	37	-	16
38.06	39.4	27.9	-	1.2	-0.8	3.3	4	clayy SILT to silty CLAY	115	2.0	14	20	-	-	2.7	15
38.22	32.1	22.7	-	0.9	-0.5	2.9	4	clayy SILT to silty CLAY	115	2.0	11	16	-	-	2.2	15
38.39	19.9	14.0	-	0.4	-1.0	2.5	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
38.55	13.2	9.3	-	0.3	-0.2	2.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
38.72	12.8	8.9	-	0.2	0.6	2.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
38.88	14.0	9.8	-	0.3	1.0	2.2	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
39.04	13.3	9.2	-	0.2	1.3	2.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
39.21	12.3	8.5	-	0.3	1.8	3.4	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
39.37	26.2	18.1	-	0.5	2.4	2.1	4	clayy SILT to silty CLAY	115	2.0	9	13	-	-	1.8	15
39.54	26.2	18.0	-	0.8	1.7	3.2	3	silty CLAY to CLAY	115	1.5	12	17	-	-	1.8	15
39.70	56.9	45.8	108.3	1.2	2.5	2.3	5	silty SAND to sandy SILT	120	4.0	11	14	41	36	-	16
39.86	85.3	68.5	121.3	1.7	1.6	2.0	5	silty SAND to sandy SILT	120	4.0	17	21	55	39	-	16
40.03	71.6	57.4	124.6	1.7	1.5	2.5	5	silty SAND to sandy SILT	120	4.0	14	18	49	38	-	16
40.19	49.7	33.8	-	1.5	1.8	3.1	4	clayy SILT to silty CLAY	115	2.0	17	25	-	-	3.4	15
40.36	30.4	20.6	-	0.9	1.7	3.2	4	clayy SILT to silty CLAY	115	2.0	10	15	-	-	2.1	15
40.52	19.3	13.1	-	0.5	1.9	2.7	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
40.68	17.9	12.1	-	0.3	2.5	1.9	4	clayy SILT to silty CLAY	115	2.0	6	9	-	-	1.2	15
40.85	15.3	10.3	-	0.3	2.9	2.0	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
41.01	14.4	9.7	-	0.2	3.4	2.1	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
41.18	13.4	8.9	-	0.3	7.3	2.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
41.34	13.0	8.7	-	0.2	7.9	2.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
41.50	13.5	9.0	-	0.2	8.6	1.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
41.67	14.2	9.4	-	0.2	9.2	1.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
41.83	15.1	10.0	-	0.3	9.9	2.5	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
42.00	17.2	11.3	-	0.4	10.5	2.5	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(431).cpt
CPT Date: 11/21/2008 8:24:05 AM
GW During Test: 12 ft

Sounding ID: CPT-08-27
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	15.4	10.1	-	0.4	10.8	3.3	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
42.32	14.7	9.6	-	0.4	11.4	3.6	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
42.49	15.0	9.8	-	0.5	11.7	4.1	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
42.65	14.6	9.5	-	0.5	12.0	4.4	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
42.82	15.0	9.7	-	0.6	12.5	4.5	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
42.98	15.5	10.0	-	0.7	12.8	5.1	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
43.15	15.5	10.0	-	0.7	12.9	5.8	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
43.31	15.5	10.0	-	0.7	12.6	5.6	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
43.47	15.9	10.2	-	0.7	12.5	5.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
43.64	15.8	10.2	-	1.0	12.5	7.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
43.80	45.8	35.5	99.2	1.0	13.6	2.3	4	clayy SILT to silty CLAY	115	2.0	18	23	-	-	3.1	15
43.97	156.1	121.0	137.5	1.5	-0.5	1.0	6	clean SAND to silty SAND	125	5.0	24	31	73	42	-	16
44.13	185.6	143.7	156.3	1.7	-1.0	0.9	6	clean SAND to silty SAND	125	5.0	29	37	79	42	-	16
44.29	220.9	170.7	183.8	2.3	-0.5	1.1	6	clean SAND to silty SAND	125	5.0	34	44	85	43	-	16
44.46	243.6	188.0	201.7	2.7	2.7	1.1	6	clean SAND to silty SAND	125	5.0	38	49	88	44	-	16
44.62	259.3	199.8	212.8	3.0	3.0	1.2	6	clean SAND to silty SAND	125	5.0	40	52	90	44	-	16
44.79	268.2	206.4	218.4	3.1	3.3	1.2	6	clean SAND to silty SAND	125	5.0	41	54	91	44	-	16
44.95	271.0	208.1	219.4	3.1	3.4	1.1	6	clean SAND to silty SAND	125	5.0	42	54	91	44	-	16
45.11	261.5	200.5	212.0	2.9	3.5	1.1	6	clean SAND to silty SAND	125	5.0	40	52	90	44	-	16
45.28	256.0	196.0	207.8	2.8	3.7	1.1	6	clean SAND to silty SAND	125	5.0	39	51	89	44	-	16
45.44	261.9	200.2	211.3	2.9	3.9	1.1	6	clean SAND to silty SAND	125	5.0	40	52	90	44	-	16
45.61	263.9	201.4	213.1	3.0	4.1	1.1	6	clean SAND to silty SAND	125	5.0	40	53	90	44	-	16
45.77	260.6	198.5	212.7	3.1	4.2	1.2	6	clean SAND to silty SAND	125	5.0	40	52	90	44	-	16
45.93	253.9	193.2	209.8	3.1	4.3	1.2	6	clean SAND to silty SAND	125	5.0	39	51	89	44	-	16
46.10	245.6	186.5	202.2	2.9	4.5	1.2	6	clean SAND to silty SAND	125	5.0	37	49	88	44	-	16
46.26	234.4	177.7	198.2	3.0	4.6	1.3	6	clean SAND to silty SAND	125	5.0	36	47	86	43	-	16
46.43	225.1	170.5	198.7	3.4	4.8	1.5	6	clean SAND to silty SAND	125	5.0	34	45	85	43	-	16
46.59	208.4	157.5	189.9	3.3	5.1	1.6	6	clean SAND to silty SAND	125	5.0	32	42	82	43	-	16
46.75	182.8	138.0	168.4	2.7	5.3	1.5	6	clean SAND to silty SAND	125	5.0	28	37	78	42	-	16
46.92	157.2	118.4	149.1	2.2	5.4	1.4	6	clean SAND to silty SAND	125	5.0	24	31	73	41	-	16
47.08	133.5	100.5	131.4	1.8	5.6	1.4	6	clean SAND to silty SAND	125	5.0	20	27	67	40	-	16
47.25	105.8	79.5	113.8	1.4	5.8	1.4	5	silty SAND to sandy SILT	120	4.0	20	26	59	39	-	16
47.41	81.3	61.0	100.6	1.1	6.0	1.5	5	silty SAND to sandy SILT	120	4.0	15	20	51	37	-	16
47.57	71.9	53.9	92.9	1.0	6.3	1.4	5	silty SAND to sandy SILT	120	4.0	13	18	47	37	-	16
47.74	76.8	57.5	93.9	1.0	6.6	1.3	5	silty SAND to sandy SILT	120	4.0	14	19	49	37	-	16
47.90	84.9	63.4	99.5	1.1	6.9	1.4	5	silty SAND to sandy SILT	120	4.0	16	21	52	38	-	16
48.07	100.1	74.7	109.5	1.3	8.1	1.4	5	silty SAND to sandy SILT	120	4.0	19	25	57	39	-	16
48.23	105.0	78.2	119.1	1.6	7.7	1.6	5	silty SAND to sandy SILT	120	4.0	20	26	59	39	-	16
48.39	82.0	61.0	121.8	1.8	7.6	2.2	5	silty SAND to sandy SILT	120	4.0	15	21	51	37	-	16
48.56	51.7	30.3	-	1.6	7.4	3.2	4	clayy SILT to silty CLAY	115	2.0	15	26	-	-	3.6	15
48.72	24.9	14.5	-	1.1	7.4	4.8	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
48.89	14.6	8.5	-	0.5	8.1	4.6	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
49.05	10.5	6.1	-	0.2	10.2	2.6	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
49.22	9.2	5.3	-	0.1	13.3	1.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
49.38	8.1	4.7	-	0.2	17.5	3.1	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.5	15
49.54	9.5	5.5	-	0.2	21.3	3.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
49.71	10.6	6.1	-	0.3	23.3	4.2	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
49.87	26.8	15.4	-	0.6	26.0	2.6	4	clayy SILT to silty CLAY	115	2.0	8	13	-	-	1.8	15
50.04	69.8	51.3	101.4	1.2	13.2	1.8	5	silty SAND to sandy SILT	120	4.0	13	17	45	36	-	16
50.20	87.2	64.0	111.0	1.5	12.1	1.8	5	silty SAND to sandy SILT	120	4.0	16	22	52	38	-	16
50.36	102.8	75.3	120.4	1.7	8.5	1.7	5	silty SAND to sandy SILT	120	4.0	19	26	58	38	-	16
50.53	87.8	64.3	122.5	1.8	2.2	2.2	5	silty SAND to sandy SILT	120	4.0	16	22	52	38	-	16
50.69	49.3	27.9	-	1.9	3.1	4.1	3	silty CLAY to CLAY	115	1.5	19	33	-	-	3.4	15
50.86	23.7	13.4	-	1.2	4.1	5.6	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
51.02	16.0	9.0	-	0.6	5.7	4.5	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
51.18	13.4	7.5	-	0.4	8.4	4.1	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
51.35	13.2	7.4	-	0.4	11.2	4.0	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
51.51	28.8	16.1	-	0.4	23.3	1.7	4	clayy SILT to silty CLAY	115	2.0	8	14	-	-	1.9	15
51.68	47.1	34.1	81.9	0.7	10.8	1.6	5	silty SAND to sandy SILT	120	4.0	9	12	32	34	-	16
51.84	35.2	19.6	-	0.8	9.1	2.5	4	clayy SILT to silty CLAY	115	2.0	10	18	-	-	2.4	15
52.00	21.0	11.7	-	0.7	10.5	3.8	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
52.17	14.6	8.1	-	0.4	12.5	3.7	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
52.33	14.1	7.8	-	0.3	14.9	2.8	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
52.50	12.7	7.0	-	0.3	16.3	3.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(431).cpt
CPT Date: 11/21/2008 8:24:05 AM
GW During Test: 12 ft

Sounding ID: CPT-08-27
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	12.3	6.8	-	0.3	18.0	3.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
52.82	12.4	6.8	-	0.3	19.5	3.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
52.99	15.0	8.2	-	0.3	20.7	2.2	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
53.15	18.1	9.9	-	0.4	22.3	2.4	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
53.32	16.6	9.0	-	0.4	23.3	2.8	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
53.48	28.6	15.5	-	0.5	23.0	2.1	4	clayy SILT to silty CLAY	115	2.0	8	14	-	-	1.9	15
53.64	38.4	20.8	-	0.6	18.0	1.6	4	clayy SILT to silty CLAY	115	2.0	10	19	-	-	2.6	15
53.81	65.3	46.6	93.0	1.0	8.1	1.6	5	silty SAND to sandy SILT	120	4.0	12	16	42	35	-	16
53.97	74.0	52.8	107.6	1.4	0.7	2.0	5	silty SAND to sandy SILT	120	4.0	13	19	46	36	-	16
54.14	69.2	49.3	116.2	1.6	1.5	2.4	5	silty SAND to sandy SILT	120	4.0	12	17	44	36	-	16
54.30	61.6	43.8	119.3	1.6	2.1	2.8	4	clayy SILT to silty CLAY	115	2.0	22	31	-	-	4.2	15
54.46	50.4	27.0	-	1.2	2.6	2.5	4	clayy SILT to silty CLAY	115	2.0	13	25	-	-	3.4	15
54.63	47.5	33.7	87.1	0.8	4.0	1.8	5	silty SAND to sandy SILT	120	4.0	8	12	31	33	-	16
54.79	40.1	21.4	-	0.7	0.4	1.8	4	clayy SILT to silty CLAY	115	2.0	11	20	-	-	2.7	15
54.96	29.9	15.9	-	0.5	0.9	2.0	4	clayy SILT to silty CLAY	115	2.0	8	15	-	-	2.0	15
55.12	23.7	12.6	-	0.4	1.3	2.1	4	clayy SILT to silty CLAY	115	2.0	6	12	-	-	1.6	15
55.28	16.6	8.8	-	0.5	1.8	3.4	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
55.45	15.2	8.0	-	0.5	2.6	4.2	3	silty CLAY to CLAY	115	1.5	5	10	-	-	1.0	15
55.61	14.2	7.5	-	0.5	3.1	4.7	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
55.78	13.2	6.9	-	0.5	3.5	4.6	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
55.94	20.9	10.9	-	0.4	3.8	2.1	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.4	15
56.11	29.9	15.6	-	0.4	3.8	1.4	4	clayy SILT to silty CLAY	115	2.0	8	15	-	-	2.0	15
56.27	30.2	15.8	-	0.4	4.1	1.3	4	clayy SILT to silty CLAY	115	2.0	8	15	-	-	2.0	15
56.43	31.0	16.2	-	0.4	4.4	1.4	4	clayy SILT to silty CLAY	115	2.0	8	16	-	-	2.1	15
56.60	30.3	15.7	-	0.4	4.7	1.5	4	clayy SILT to silty CLAY	115	2.0	8	15	-	-	2.0	15
56.76	28.2	14.6	-	0.5	5.1	1.8	4	clayy SILT to silty CLAY	115	2.0	7	14	-	-	1.9	15
56.93	24.7	12.8	-	0.5	5.5	2.1	4	clayy SILT to silty CLAY	115	2.0	6	12	-	-	1.6	15
57.09	27.5	14.2	-	0.4	5.7	1.7	4	clayy SILT to silty CLAY	115	2.0	7	14	-	-	1.8	15
57.25	27.2	14.0	-	0.6	6.1	2.7	3	silty CLAY to CLAY	115	1.5	9	18	-	-	1.8	15
57.42	28.0	14.4	-	0.5	6.3	2.2	4	clayy SILT to silty CLAY	115	2.0	7	14	-	-	1.9	15
57.58	30.4	15.6	-	0.5	10.7	1.8	4	clayy SILT to silty CLAY	115	2.0	8	15	-	-	2.0	15
57.75	20.9	10.7	-	0.5	11.2	2.8	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.4	15
57.91	15.1	7.7	-	0.6	12.4	4.9	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
58.07	24.7	12.6	-	1.0	13.9	4.6	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.6	15
58.24	94.5	65.5	112.7	1.6	9.5	1.8	5	silty SAND to sandy SILT	120	4.0	16	24	53	37	-	16
58.40	125.4	86.7	131.4	2.2	8.5	1.8	5	silty SAND to sandy SILT	120	4.0	22	31	62	39	-	16
58.57	143.2	99.0	146.4	2.7	9.2	1.9	5	silty SAND to sandy SILT	120	4.0	25	36	67	40	-	16
58.73	153.5	105.9	160.4	3.3	9.8	2.2	5	silty SAND to sandy SILT	120	4.0	26	38	69	40	-	16
58.89	157.5	108.5	169.3	3.7	10.3	2.4	5	silty SAND to sandy SILT	120	4.0	27	39	70	40	-	16
59.06	164.8	113.5	175.7	3.9	10.8	2.4	5	silty SAND to sandy SILT	120	4.0	28	41	71	40	-	16
59.22	174.0	119.7	182.4	4.2	11.2	2.5	5	silty SAND to sandy SILT	120	4.0	30	44	73	41	-	16
59.39	183.2	125.8	187.0	4.4	11.4	2.4	5	silty SAND to sandy SILT	120	4.0	31	46	75	41	-	16
59.55	191.6	131.4	192.3	4.6	11.6	2.4	5	silty SAND to sandy SILT	120	4.0	33	48	76	41	-	16
59.71	195.1	133.7	190.9	4.5	11.7	2.3	5	silty SAND to sandy SILT	120	4.0	33	49	77	41	-	16
59.88	195.5	133.8	191.6	4.5	11.8	2.3	5	silty SAND to sandy SILT	120	4.0	33	49	77	41	-	16
60.04	193.2	132.0	193.3	4.6	11.9	2.4	5	silty SAND to sandy SILT	120	4.0	33	48	76	41	-	16
60.21	190.6	130.1	191.8	4.6	11.9	2.5	5	silty SAND to sandy SILT	120	4.0	33	48	76	41	-	16
60.37	195.3	133.2	190.0	4.4	12.0	2.3	5	silty SAND to sandy SILT	120	4.0	33	49	76	41	-	16
60.53	206.1	140.4	183.5	3.9	11.6	1.9	5	silty SAND to sandy SILT	120	4.0	35	52	78	41	-	16
60.70	215.4	146.6	194.5	4.4	11.6	2.1	5	silty SAND to sandy SILT	120	4.0	37	54	80	42	-	16
60.86	217.5	147.8	202.6	4.9	12.6	2.3	5	silty SAND to sandy SILT	120	4.0	37	54	80	42	-	16
61.03	221.7	150.5	203.6	4.9	12.5	2.2	5	silty SAND to sandy SILT	120	4.0	38	55	80	42	-	16
61.19	225.2	152.7	201.5	4.7	12.1	2.1	5	silty SAND to sandy SILT	120	4.0	38	56	81	42	-	16
61.35	226.8	153.6	200.6	4.6	11.9	2.1	5	silty SAND to sandy SILT	120	4.0	38	57	81	42	-	16
61.52	224.8	152.1	198.0	4.5	11.6	2.0	5	silty SAND to sandy SILT	120	4.0	38	56	81	42	-	16
61.68	227.7	153.8	195.2	4.2	11.6	1.9	6	clean SAND to silty SAND	125	5.0	31	46	81	42	-	16
61.85	239.7	161.7	202.9	4.5	11.7	1.9	6	clean SAND to silty SAND	125	5.0	32	48	83	42	-	16
62.01	244.9	165.1	210.1	4.9	11.9	2.0	6	clean SAND to silty SAND	125	5.0	33	49	84	42	-	16
62.17	242.5	163.2	212.0	5.1	11.8	2.1	5	silty SAND to sandy SILT	120	4.0	41	61	83	42	-	16
62.34	246.9	166.0	213.1	5.1	11.7	2.1	5	silty SAND to sandy SILT	120	4.0	42	62	84	42	-	16
62.50	261.9	175.9	219.6	5.2	11.9	2.0	6	clean SAND to silty SAND	125	5.0	35	52	86	42	-	16
62.67	289.5	194.2	225.0	4.7	12.0	1.7	6	clean SAND to silty SAND	125	5.0	39	58	89	43	-	16
62.83	331.6	222.2	239.0	4.4	11.6	1.3	6	clean SAND to silty SAND	125	5.0	44	66	93	44	-	16
63.00	361.5	241.9	241.9	3.7	11.1	1.0	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(431).cpt
CPT Date: 11/21/2008 8:24:05 AM
GW During Test: 12 ft

Sounding ID: CPT-08-27
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	384.5	257.0	257.0	2.6	9.9	0.7	6	clean SAND to silty SAND	125	5.0	51	77	95	44	-	16
63.32	378.5	252.7	252.7	2.0	6.2	0.5	6	clean SAND to silty SAND	125	5.0	51	76	95	44	-	16
63.49	180.7	120.5	148.4	2.4	4.0	1.3	6	clean SAND to silty SAND	125	5.0	24	36	73	40	-	16
63.65	25.6	12.0	-	1.5	19.2	6.7	3	silty CLAY to CLAY	115	1.5	8	17	-	-	1.7	15
63.82	26.8	12.6	-	1.3	25.9	5.6	3	silty CLAY to CLAY	115	1.5	8	18	-	-	1.8	15
63.98	127.6	84.8	107.4	1.2	11.3	1.0	6	clean SAND to silty SAND	125	5.0	17	26	62	38	-	16
64.14	188.1	124.8	151.1	2.4	12.6	1.3	6	clean SAND to silty SAND	125	5.0	25	38	74	41	-	16
64.31	373.5	247.6	247.6	2.9	10.9	0.8	6	clean SAND to silty SAND	125	5.0	50	75	95	44	-	16
64.47	378.7	250.8	250.8	1.5	1.6	0.4	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
64.64	365.6	241.8	241.8	2.5	2.0	0.7	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
64.80	297.1	196.3	220.4	4.3	1.2	1.5	6	clean SAND to silty SAND	125	5.0	39	59	89	43	-	16
64.96	298.3	196.9	227.5	4.9	0.9	1.7	6	clean SAND to silty SAND	125	5.0	39	60	89	43	-	16
65.13	197.6	130.2	180.0	4.0	6.5	2.1	5	silty SAND to sandy SILT	120	4.0	33	49	76	41	-	16
65.29	292.1	192.3	214.3	4.0	14.4	1.4	6	clean SAND to silty SAND	125	5.0	38	58	89	43	-	16
65.46	315.7	207.6	207.6	2.5	14.5	0.8	6	clean SAND to silty SAND	125	5.0	42	63	91	43	-	16
65.62	361.5	237.5	237.5	2.7	14.9	0.8	6	clean SAND to silty SAND	125	5.0	47	72	95	44	-	16
65.78	418.5	274.5	280.7	5.2	10.7	1.3	6	clean SAND to silty SAND	125	5.0	55	84	95	44	-	16
65.95	389.0	254.9	272.3	5.6	5.6	1.4	6	clean SAND to silty SAND	125	5.0	51	78	95	44	-	16
66.11	411.3	269.2	285.8	6.0	2.2	1.5	6	clean SAND to silty SAND	125	5.0	54	82	95	44	-	16
66.28	420.3	274.8	274.8	4.1	-0.9	1.0	6	clean SAND to silty SAND	125	5.0	55	84	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(458).cpt
CPT Date: 12/3/2008 10:32:46 AM
GW During Test: 12 ft

Sounding ID: CPT-08-28
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	107.3	172.2	172.2	0.5	0.0	0.5	6	clean SAND to silty SAND	125	5.0	34	21	85	48	-	16
0.49	87.0	139.5	153.8	0.8	0.1	1.0	6	clean SAND to silty SAND	125	5.0	28	17	78	48	-	16
0.66	62.3	100.0	151.3	1.3	-0.4	2.1	5	silty SAND to sandy SILT	120	4.0	25	16	67	48	-	16
0.82	42.6	68.4	135.7	1.1	0.1	2.6	5	silty SAND to sandy SILT	120	4.0	17	11	54	48	-	16
0.98	79.8	128.0	158.8	1.2	2.2	1.5	6	clean SAND to silty SAND	125	5.0	26	16	75	48	-	16
1.15	89.3	143.2	176.6	1.5	-0.2	1.6	6	clean SAND to silty SAND	125	5.0	29	18	79	48	-	16
1.31	77.2	123.8	168.7	1.5	0.1	2.0	5	silty SAND to sandy SILT	120	4.0	31	19	74	48	-	16
1.48	72.3	115.9	168.8	1.6	-0.1	2.2	5	silty SAND to sandy SILT	120	4.0	29	18	72	48	-	16
1.64	59.1	94.8	163.7	1.6	-0.1	2.7	5	silty SAND to sandy SILT	120	4.0	24	15	65	48	-	16
1.80	46.9	75.1	156.3	1.4	0.3	3.1	5	silty SAND to sandy SILT	120	4.0	19	12	58	47	-	16
1.97	45.5	73.0	144.6	1.2	0.2	2.7	5	silty SAND to sandy SILT	120	4.0	18	11	57	47	-	16
2.13	67.3	108.0	158.9	1.4	0.1	2.1	5	silty SAND to sandy SILT	120	4.0	27	17	70	48	-	16
2.30	69.1	110.9	168.3	1.6	0.3	2.3	5	silty SAND to sandy SILT	120	4.0	28	17	70	48	-	16
2.46	89.7	143.8	193.5	1.9	0.2	2.1	5	silty SAND to sandy SILT	120	4.0	36	22	79	48	-	16
2.62	102.1	163.7	214.6	2.3	-0.1	2.2	5	silty SAND to sandy SILT	120	4.0	41	26	83	48	-	16
2.79	90.5	145.2	206.7	2.3	-0.2	2.5	5	silty SAND to sandy SILT	120	4.0	36	23	79	48	-	16
2.95	75.8	121.6	194.7	2.1	-0.2	2.8	5	silty SAND to sandy SILT	120	4.0	30	19	73	47	-	16
3.12	61.1	98.0	185.5	2.0	0.3	3.3	5	silty SAND to sandy SILT	120	4.0	25	15	66	46	-	16
3.28	50.1	80.4	168.3	1.7	0.3	3.3	5	silty SAND to sandy SILT	120	4.0	20	13	60	45	-	16
3.45	41.7	66.9	151.5	1.3	0.2	3.2	4	clayy SILT to silty CLAY	115	2.0	33	21	-	-	2.9	15
3.61	35.6	57.2	141.4	1.2	0.3	3.2	4	clayy SILT to silty CLAY	115	2.0	29	18	-	-	2.5	15
3.77	39.2	62.8	140.1	1.1	0.4	3.0	5	silty SAND to sandy SILT	120	4.0	16	10	52	44	-	16
3.94	62.4	100.1	170.9	1.7	0.4	2.7	5	silty SAND to sandy SILT	120	4.0	25	16	67	46	-	16
4.10	65.6	105.2	185.8	2.0	0.0	3.1	5	silty SAND to sandy SILT	120	4.0	26	16	69	46	-	16
4.27	54.6	87.6	196.3	2.2	1.1	4.0	4	clayy SILT to silty CLAY	115	2.0	44	27	-	-	3.8	15
4.43	54.2	86.9	188.4	2.0	1.1	3.8	4	clayy SILT to silty CLAY	115	2.0	43	27	-	-	3.8	15
4.59	56.3	90.3	187.8	2.0	0.1	3.6	5	silty SAND to sandy SILT	120	4.0	23	14	64	45	-	16
4.76	51.4	82.5	182.7	1.9	-0.7	3.8	4	clayy SILT to silty CLAY	115	2.0	41	26	-	-	3.6	15
4.92	46.4	74.4	170.7	1.7	-1.3	3.6	4	clayy SILT to silty CLAY	115	2.0	37	23	-	-	3.3	15
5.09	52.8	84.7	173.5	1.8	-1.3	3.3	5	silty SAND to sandy SILT	120	4.0	21	13	62	44	-	16
5.25	50.7	81.4	176.5	1.8	-2.4	3.6	4	clayy SILT to silty CLAY	115	2.0	41	25	-	-	3.6	15
5.41	44.2	70.9	166.5	1.6	-2.4	3.6	4	clayy SILT to silty CLAY	115	2.0	35	22	-	-	3.1	15
5.58	32.1	51.4	153.5	1.3	0.0	4.1	4	clayy SILT to silty CLAY	115	2.0	26	16	-	-	2.2	15
5.74	22.3	35.7	-	1.0	0.2	4.8	3	silty CLAY to CLAY	115	1.5	24	15	-	-	1.6	15
5.91	19.3	30.9	-	1.0	-0.9	5.0	3	silty CLAY to CLAY	115	1.5	21	13	-	-	1.3	15
6.07	18.0	28.9	-	0.9	-0.7	5.2	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.3	15
6.23	22.0	35.3	-	1.0	1.2	4.6	3	silty CLAY to CLAY	115	1.5	24	15	-	-	1.5	15
6.40	24.7	39.6	-	1.0	1.2	4.1	4	clayy SILT to silty CLAY	115	2.0	20	12	-	-	1.7	15
6.56	29.8	46.3	148.8	1.2	1.6	4.2	4	clayy SILT to silty CLAY	115	2.0	23	15	-	-	2.1	15
6.73	35.6	54.7	149.4	1.3	-0.7	3.7	4	clayy SILT to silty CLAY	115	2.0	27	18	-	-	2.5	15
6.89	24.8	39.7	-	1.3	-2.4	5.1	3	silty CLAY to CLAY	115	1.5	26	17	-	-	1.7	15
7.05	21.6	34.6	-	1.0	-0.9	4.8	3	silty CLAY to CLAY	115	1.5	23	14	-	-	1.5	15
7.22	24.8	39.8	128.1	0.9	-2.9	3.6	4	clayy SILT to silty CLAY	115	2.0	20	12	-	-	1.7	15
7.38	19.3	31.0	-	0.8	-7.8	4.2	4	clayy SILT to silty CLAY	115	2.0	15	10	-	-	1.3	15
7.55	17.8	28.5	-	0.7	-4.3	4.2	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
7.71	20.7	33.2	-	0.7	-3.5	3.3	4	clayy SILT to silty CLAY	115	2.0	17	10	-	-	1.4	15
7.87	20.4	32.6	-	0.9	0.1	4.4	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
8.04	31.4	50.4	159.6	1.4	-1.6	4.4	4	clayy SILT to silty CLAY	115	2.0	25	16	-	-	2.2	15
8.20	64.6	90.2	159.5	1.7	-1.3	2.7	5	silty SAND to sandy SILT	120	4.0	23	16	64	44	-	16
8.37	82.2	113.7	176.4	2.0	-0.4	2.5	5	silty SAND to sandy SILT	120	4.0	28	21	71	45	-	16
8.53	81.9	112.2	176.7	2.1	-0.9	2.5	5	silty SAND to sandy SILT	120	4.0	28	20	71	45	-	16
8.69	59.2	80.3	162.5	1.8	0.1	3.1	5	silty SAND to sandy SILT	120	4.0	20	15	60	43	-	16
8.86	53.7	72.1	150.3	1.6	-1.1	3.0	5	silty SAND to sandy SILT	120	4.0	18	13	56	43	-	16
9.02	55.8	74.3	135.6	1.3	-1.0	2.4	5	silty SAND to sandy SILT	120	4.0	19	14	57	43	-	16
9.19	53.7	70.7	125.8	1.1	-0.8	2.1	5	silty SAND to sandy SILT	120	4.0	18	13	56	43	-	16
9.35	51.2	66.9	122.4	1.1	0.3	2.1	5	silty SAND to sandy SILT	120	4.0	17	13	54	42	-	16
9.51	51.3	66.4	128.2	1.2	0.3	2.4	5	silty SAND to sandy SILT	120	4.0	17	13	53	42	-	16
9.68	48.2	61.9	132.0	1.3	0.4	2.7	5	silty SAND to sandy SILT	120	4.0	15	12	51	42	-	16
9.84	57.2	72.8	137.0	1.4	-1.1	2.5	5	silty SAND to sandy SILT	120	4.0	18	14	57	43	-	16
10.01	56.5	71.3	146.1	1.6	-2.8	2.8	5	silty SAND to sandy SILT	120	4.0	18	14	56	43	-	16
10.17	59.2	74.0	152.0	1.7	-2.0	3.0	5	silty SAND to sandy SILT	120	4.0	19	15	57	43	-	16
10.34	61.5	76.3	146.7	1.6	-1.7	2.7	5	silty SAND to sandy SILT	120	4.0	19	15	58	43	-	16
10.50	51.9	63.9	140.7	1.5	-1.0	2.9	5	silty SAND to sandy SILT	120	4.0	16	13	52	42	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Earth Mechanics
Data File: SDF(458).cpt
CPT Date: 12/3/2008 10:32:46 AM
GW During Test: 12 ft

Sounding ID: CPT-08-28
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	38.8	47.4	134.2	1.3	-3.2	3.4	4	clayy SILT to silty CLAY	115	2.0	24	19	-	-	2.7	15
10.83	21.2	33.1	-	0.8	-0.3	4.1	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.5	15
10.99	14.7	22.6	-	0.6	0.3	4.5	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.0	15
11.16	12.5	18.9	-	0.5	0.6	4.5	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
11.32	11.5	17.2	-	0.5	-0.2	4.6	3	silty CLAY to CLAY	115	1.5	11	8	-	-	0.8	15
11.48	10.4	15.4	-	0.5	-0.1	4.8	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.7	15
11.65	10.0	14.5	-	0.5	1.0	4.9	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.7	15
11.81	9.2	13.2	-	0.4	3.1	4.4	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
11.98	8.5	12.1	-	0.4	6.4	4.6	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
12.14	7.1	10.0	-	0.3	6.6	5.3	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
12.30	6.5	9.1	-	0.4	6.5	6.1	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
12.47	6.5	9.1	-	0.4	6.5	6.2	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
12.63	6.7	9.3	-	0.4	7.0	6.2	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
12.80	7.1	9.7	-	0.4	7.2	6.7	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
12.96	9.5	13.0	-	0.4	6.4	4.3	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
13.12	15.3	20.8	-	0.3	1.1	2.4	4	clayy SILT to silty CLAY	115	2.0	10	8	-	-	1.1	15
13.29	24.1	27.2	75.3	0.4	-3.9	1.6	5	silty SAND to sandy SILT	120	4.0	7	6	24	37	-	16
13.45	22.9	25.8	75.5	0.4	-3.1	1.7	4	clayy SILT to silty CLAY	115	2.0	13	11	-	-	1.6	15
13.62	25.7	28.8	72.0	0.4	-2.9	1.4	5	silty SAND to sandy SILT	120	4.0	7	6	26	37	-	16
13.78	27.1	30.3	82.4	0.5	-6.2	1.8	5	silty SAND to sandy SILT	120	4.0	8	7	28	37	-	16
13.94	23.7	28.3	-	0.6	-5.6	2.7	4	clayy SILT to silty CLAY	115	2.0	14	12	-	-	1.6	15
14.11	19.4	25.3	-	0.5	-5.5	2.7	4	clayy SILT to silty CLAY	115	2.0	13	10	-	-	1.3	15
14.27	23.1	25.6	80.0	0.4	-5.8	1.9	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.6	15
14.44	23.5	26.0	78.4	0.4	-7.0	1.8	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.6	15
14.60	27.1	29.8	83.4	0.5	-6.7	1.9	5	silty SAND to sandy SILT	120	4.0	7	7	27	37	-	16
14.76	25.2	27.7	80.0	0.4	-6.6	1.8	4	clayy SILT to silty CLAY	115	2.0	14	13	-	-	1.7	15
14.93	29.0	31.8	86.1	0.5	-6.7	1.9	5	silty SAND to sandy SILT	120	4.0	8	7	29	37	-	16
15.09	41.6	45.4	91.4	0.7	-5.8	1.6	5	silty SAND to sandy SILT	120	4.0	11	10	41	39	-	16
15.26	42.5	46.3	95.7	0.7	-4.4	1.8	5	silty SAND to sandy SILT	120	4.0	12	11	42	39	-	16
15.42	40.9	44.4	94.2	0.7	-1.4	1.8	5	silty SAND to sandy SILT	120	4.0	11	10	40	39	-	16
15.58	42.8	46.3	86.4	0.6	-2.6	1.4	5	silty SAND to sandy SILT	120	4.0	12	11	42	39	-	16
15.75	43.7	47.1	87.8	0.6	-3.6	1.4	5	silty SAND to sandy SILT	120	4.0	12	11	42	39	-	16
15.91	38.0	40.9	94.3	0.7	-3.4	1.9	5	silty SAND to sandy SILT	120	4.0	10	10	38	39	-	16
16.08	26.8	30.3	100.1	0.7	-4.5	2.7	4	clayy SILT to silty CLAY	115	2.0	15	13	-	-	1.9	15
16.24	15.2	18.4	-	0.5	-5.5	3.6	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.0	15
16.40	9.5	11.5	-	0.3	-5.5	3.8	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
16.57	6.8	8.2	-	0.2	-5.2	4.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
16.73	6.2	7.4	-	0.2	-4.8	4.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.90	6.5	7.8	-	0.2	-4.3	4.4	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.06	6.7	7.9	-	0.2	-3.8	4.4	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.23	6.6	7.8	-	0.2	-3.4	4.4	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.39	6.4	7.5	-	0.3	-3.1	5.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.55	8.0	9.3	-	0.4	-2.7	5.6	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
17.72	8.9	10.3	-	0.5	-2.3	6.0	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
17.88	9.3	10.7	-	0.6	-2.1	7.3	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
18.05	10.6	12.2	-	0.6	-1.5	6.8	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
18.21	8.0	9.1	-	0.5	-1.8	7.1	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
18.37	6.7	7.6	-	0.3	1.6	5.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
18.54	6.5	7.3	-	0.3	2.1	4.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
18.70	6.2	6.9	-	0.3	2.5	5.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
18.87	17.8	20.0	-	0.5	3.5	2.8	4	clayy SILT to silty CLAY	115	2.0	10	9	-	-	1.2	15
19.03	24.8	27.6	-	0.6	1.5	2.7	4	clayy SILT to silty CLAY	115	2.0	14	12	-	-	1.7	15
19.19	26.6	28.1	92.8	0.6	1.7	2.4	4	clayy SILT to silty CLAY	115	2.0	14	13	-	-	1.8	15
19.36	36.5	37.3	88.0	0.6	0.8	1.8	5	silty SAND to sandy SILT	120	4.0	9	9	34	37	-	16
19.52	40.1	40.8	93.8	0.7	-3.6	1.9	5	silty SAND to sandy SILT	120	4.0	10	10	37	38	-	16
19.69	35.2	35.7	97.5	0.8	-4.0	2.3	4	clayy SILT to silty CLAY	115	2.0	18	18	-	-	2.4	15
19.85	22.4	24.3	-	0.6	-4.3	2.9	4	clayy SILT to silty CLAY	115	2.0	12	11	-	-	1.5	15
20.01	19.3	20.8	-	0.6	-1.0	3.6	3	silty CLAY to CLAY	115	1.5	14	13	-	-	1.3	15
20.18	38.1	38.4	94.9	0.7	-2.9	2.0	5	silty SAND to sandy SILT	120	4.0	10	10	35	38	-	16
20.34	17.8	19.1	-	0.7	-3.2	4.0	3	silty CLAY to CLAY	115	1.5	13	12	-	-	1.2	15
20.51	12.0	12.8	-	0.5	-2.5	4.7	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
20.67	29.5	29.5	76.2	0.4	-2.0	1.5	5	silty SAND to sandy SILT	120	4.0	7	7	27	36	-	16
20.83	30.7	30.7	87.6	0.6	-4.7	2.0	4	clayy SILT to silty CLAY	115	2.0	15	15	-	-	2.1	15
21.00	13.7	14.4	-	0.5	-4.6	4.0	3	silty CLAY to CLAY	115	1.5	10	9	-	-	0.9	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(458).cpt
CPT Date: 12/3/2008 10:32:46 AM
GW During Test: 12 ft

Sounding ID: CPT-08-28
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	10.5	11.0	-	0.4	-4.1	4.5	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
21.33	11.3	11.8	-	0.3	-3.9	3.5	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.7	15
21.49	14.9	15.5	-	0.5	-3.8	3.5	3	silty CLAY to CLAY	115	1.5	10	10	-	-	1.0	15
21.65	32.3	31.9	86.6	0.6	1.4	1.9	5	silty SAND to sandy SILT	120	4.0	8	8	29	36	-	16
21.82	58.3	57.4	91.3	0.7	-4.2	1.3	5	silty SAND to sandy SILT	120	4.0	14	15	49	40	-	16
21.98	77.9	76.6	105.3	0.9	-4.5	1.2	5	silty SAND to sandy SILT	120	4.0	19	19	58	41	-	16
22.15	68.2	66.8	114.8	1.2	-4.5	1.8	5	silty SAND to sandy SILT	120	4.0	17	17	54	40	-	16
22.31	47.5	46.4	118.9	1.3	-4.3	2.7	4	clayy SILT to silty CLAY	115	2.0	23	24	-	-	3.3	15
22.47	40.3	39.3	123.0	1.3	-4.2	3.3	4	clayy SILT to silty CLAY	115	2.0	20	20	-	-	2.8	15
22.64	55.3	53.8	126.0	1.5	-6.2	2.7	5	silty SAND to sandy SILT	120	4.0	13	14	47	39	-	16
22.80	54.5	53.0	122.1	1.4	-9.9	2.6	5	silty SAND to sandy SILT	120	4.0	13	14	46	39	-	16
22.97	26.6	26.5	-	0.8	-10.6	3.3	4	clayy SILT to silty CLAY	115	2.0	13	13	-	-	1.8	15
23.13	13.6	13.5	-	0.4	-10.8	3.4	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
23.30	8.5	8.3	-	0.2	-10.6	3.5	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	15
23.46	8.4	8.3	-	0.3	-10.3	3.6	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	15
23.62	8.3	8.2	-	0.3	-10.1	4.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
23.79	8.7	8.5	-	0.3	-9.9	3.8	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
23.95	8.3	8.0	-	0.2	-9.7	3.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
24.12	7.4	7.2	-	0.2	-9.5	3.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.28	7.3	7.0	-	0.3	-9.3	4.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.44	7.6	7.3	-	0.3	-9.2	4.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.61	7.7	7.3	-	0.3	-9.1	5.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.77	7.9	7.6	-	0.3	-9.0	4.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.94	7.2	6.8	-	0.3	-6.4	5.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
25.10	6.9	6.5	-	0.3	-6.2	5.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
25.26	7.3	6.8	-	0.3	-5.9	5.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
25.43	7.2	6.8	-	0.3	-5.7	5.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
25.59	7.9	7.3	-	0.3	-5.4	4.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
25.76	7.6	7.0	-	0.3	-5.2	4.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
25.92	7.0	6.4	-	0.3	-4.9	5.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
26.08	8.5	7.9	-	0.3	-4.5	4.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
26.25	32.9	30.6	79.2	0.5	-4.0	1.6	5	silty SAND to sandy SILT	120	4.0	8	8	28	35	-	16
26.41	52.9	49.1	86.3	0.7	-6.0	1.3	5	silty SAND to sandy SILT	120	4.0	12	13	43	38	-	16
26.58	64.2	59.4	97.0	0.9	-5.7	1.4	5	silty SAND to sandy SILT	120	4.0	15	16	50	39	-	16
26.74	63.1	58.3	106.5	1.1	-5.7	1.8	5	silty SAND to sandy SILT	120	4.0	15	16	49	39	-	16
26.90	63.4	58.5	104.3	1.0	-5.6	1.7	5	silty SAND to sandy SILT	120	4.0	15	16	49	39	-	16
27.07	79.8	73.4	109.1	1.1	-5.8	1.4	5	silty SAND to sandy SILT	120	4.0	18	20	57	40	-	16
27.23	84.8	77.8	113.3	1.2	-6.6	1.4	5	silty SAND to sandy SILT	120	4.0	19	21	59	41	-	16
27.40	79.9	73.2	120.2	1.4	-6.3	1.8	5	silty SAND to sandy SILT	120	4.0	18	20	57	40	-	16
27.56	64.3	58.8	130.3	1.7	-5.9	2.7	5	silty SAND to sandy SILT	120	4.0	15	16	49	39	-	16
27.72	40.4	35.7	-	1.5	-5.6	4.0	4	clayy SILT to silty CLAY	115	2.0	18	20	-	-	2.8	15
27.89	28.6	25.1	-	1.1	-5.1	3.9	4	clayy SILT to silty CLAY	115	2.0	13	14	-	-	2.0	15
28.05	22.0	19.3	-	0.8	-4.6	4.1	3	silty CLAY to CLAY	115	1.5	13	15	-	-	1.5	15
28.22	15.6	13.6	-	0.7	-3.8	5.0	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
28.38	18.1	15.8	-	0.7	-4.4	4.0	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.2	15
28.54	23.0	19.9	-	0.7	-4.3	3.3	4	clayy SILT to silty CLAY	115	2.0	10	11	-	-	1.6	15
28.71	15.8	13.6	-	0.8	-4.2	5.4	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
28.87	25.4	21.8	-	0.7	-4.1	2.9	4	clayy SILT to silty CLAY	115	2.0	11	13	-	-	1.7	15
29.04	24.6	21.1	-	0.7	-3.9	2.9	4	clayy SILT to silty CLAY	115	2.0	11	12	-	-	1.7	15
29.20	51.8	46.5	100.0	1.0	-4.5	1.9	5	silty SAND to sandy SILT	120	4.0	12	13	42	37	-	16
29.36	44.6	39.9	103.0	1.0	-5.1	2.3	5	silty SAND to sandy SILT	120	4.0	10	11	37	37	-	16
29.53	38.7	34.6	92.4	0.8	-4.8	2.0	5	silty SAND to sandy SILT	120	4.0	9	10	32	36	-	16
29.69	44.4	39.6	90.0	0.7	-5.1	1.8	5	silty SAND to sandy SILT	120	4.0	10	11	36	36	-	16
29.86	29.0	24.4	-	0.8	-5.9	2.9	4	clayy SILT to silty CLAY	115	2.0	12	15	-	-	2.0	15
30.02	14.4	12.0	-	0.6	1.0	4.5	3	silty CLAY to CLAY	115	1.5	8	10	-	-	0.9	15
30.19	8.9	7.4	-	0.3	3.4	4.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.35	8.2	6.8	-	0.3	7.6	3.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
30.51	7.7	6.4	-	0.2	9.4	4.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.68	7.8	6.4	-	0.2	10.6	4.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.84	7.8	6.4	-	0.2	12.1	4.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.01	7.7	6.3	-	0.3	14.7	4.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.17	7.6	6.2	-	0.3	18.2	4.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.33	7.7	6.2	-	0.3	22.1	4.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.50	7.7	6.2	-	0.3	36.7	4.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(458).cpt
CPT Date: 12/3/2008 10:32:46 AM
GW During Test: 12 ft

Sounding ID: CPT-08-28
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	7.7	6.2	-	0.3	40.8	4.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.83	7.9	6.4	-	0.3	43.7	4.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.99	8.9	7.2	-	0.3	47.1	4.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
32.15	10.6	8.5	-	0.4	52.0	4.6	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.32	11.1	8.8	-	0.6	52.7	6.5	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.48	11.4	9.1	-	0.8	48.7	8.7	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
32.65	12.5	9.8	-	1.0	29.3	9.5	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
32.81	12.5	9.9	-	1.1	31.7	9.9	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
32.97	12.9	10.1	-	1.1	32.1	9.8	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.8	15
33.14	12.9	10.1	-	1.0	35.3	9.4	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.8	15
33.30	12.6	9.8	-	1.0	38.1	9.7	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
33.47	13.1	10.2	-	0.9	38.8	8.5	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
33.63	13.6	10.5	-	1.0	45.0	8.6	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
33.79	13.9	10.7	-	1.0	49.0	8.4	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
33.96	13.8	10.6	-	0.9	42.2	7.8	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
34.12	13.2	10.1	-	0.8	46.6	7.0	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
34.29	12.7	9.7	-	0.7	40.8	6.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
34.45	12.1	9.2	-	0.6	37.6	6.2	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
34.61	12.4	9.4	-	0.7	40.9	7.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
34.78	13.2	10.0	-	0.9	40.2	8.3	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
34.94	14.2	10.7	-	1.1	23.4	8.8	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
35.11	22.8	17.2	-	0.9	29.2	4.5	3	silty CLAY to CLAY	115	1.5	11	15	-	-	1.5	15
35.27	56.5	47.5	101.5	1.1	-0.1	1.9	5	silty SAND to sandy SILT	120	4.0	12	14	42	37	-	16
35.43	70.6	59.3	107.4	1.2	-2.1	1.8	5	silty SAND to sandy SILT	120	4.0	15	18	50	38	-	16
35.60	69.8	58.5	111.7	1.3	-1.6	2.0	5	silty SAND to sandy SILT	120	4.0	15	17	49	38	-	16
35.76	67.3	56.3	119.4	1.5	-0.8	2.3	5	silty SAND to sandy SILT	120	4.0	14	17	48	38	-	16
35.93	66.2	55.3	114.5	1.4	0.2	2.2	5	silty SAND to sandy SILT	120	4.0	14	17	47	38	-	16
36.09	69.2	57.7	99.4	1.0	-0.9	1.5	5	silty SAND to sandy SILT	120	4.0	14	17	49	38	-	16
36.26	71.5	59.5	97.0	1.0	-6.8	1.4	5	silty SAND to sandy SILT	120	4.0	15	18	50	38	-	16
36.42	68.8	57.2	100.8	1.1	-6.1	1.6	5	silty SAND to sandy SILT	120	4.0	14	17	49	38	-	16
36.58	70.8	58.7	105.4	1.2	-5.3	1.7	5	silty SAND to sandy SILT	120	4.0	15	18	49	38	-	16
36.75	70.2	58.1	103.4	1.1	-4.7	1.7	5	silty SAND to sandy SILT	120	4.0	15	18	49	38	-	16
36.91	82.3	68.0	100.3	1.0	-6.4	1.3	5	silty SAND to sandy SILT	120	4.0	17	21	54	39	-	16
37.08	75.1	62.0	113.0	1.4	-7.6	1.9	5	silty SAND to sandy SILT	120	4.0	15	19	51	38	-	16
37.24	53.5	44.1	116.1	1.4	-6.9	2.7	4	clayy SILT to silty CLAY	115	2.0	22	27	-	-	3.7	15
37.40	66.3	54.5	112.5	1.4	-5.4	2.1	5	silty SAND to sandy SILT	120	4.0	14	17	47	38	-	16
37.57	91.6	75.2	115.3	1.4	-7.1	1.6	5	silty SAND to sandy SILT	120	4.0	19	23	58	39	-	16
37.73	114.8	94.1	128.7	1.7	-6.8	1.5	5	silty SAND to sandy SILT	120	4.0	24	29	65	41	-	16
37.90	127.2	104.1	135.0	1.7	-6.4	1.4	6	clean SAND to silty SAND	125	5.0	21	25	68	41	-	16
38.06	134.7	110.1	145.1	2.1	-5.8	1.6	6	clean SAND to silty SAND	125	5.0	22	27	70	41	-	16
38.22	133.4	108.8	150.8	2.3	-0.7	1.8	5	silty SAND to sandy SILT	120	4.0	27	33	70	41	-	16
38.39	126.9	103.3	147.8	2.3	0.2	1.8	5	silty SAND to sandy SILT	120	4.0	26	32	68	41	-	16
38.55	119.4	97.0	146.4	2.3	0.8	2.0	5	silty SAND to sandy SILT	120	4.0	24	30	66	41	-	16
38.72	111.1	90.1	146.9	2.4	1.6	2.2	5	silty SAND to sandy SILT	120	4.0	23	28	64	40	-	16
38.88	102.4	82.9	156.6	2.8	2.1	2.8	5	silty SAND to sandy SILT	120	4.0	21	26	61	40	-	16
39.04	77.4	62.6	166.6	3.0	2.3	3.9	4	clayy SILT to silty CLAY	115	2.0	31	39	-	-	5.4	15
39.21	42.3	29.2	-	1.9	2.2	4.9	3	silty CLAY to CLAY	115	1.5	19	28	-	-	2.9	15
39.37	50.1	40.4	115.2	1.3	4.0	2.8	4	clayy SILT to silty CLAY	115	2.0	20	25	-	-	3.5	15
39.54	57.6	46.4	106.7	1.2	-0.1	2.2	5	silty SAND to sandy SILT	120	4.0	12	14	42	36	-	16
39.70	49.3	39.6	104.3	1.1	0.4	2.3	5	silty SAND to sandy SILT	120	4.0	10	12	36	35	-	16
39.86	45.5	36.5	95.2	0.9	-2.3	2.1	5	silty SAND to sandy SILT	120	4.0	9	11	34	35	-	16
40.03	43.9	35.2	81.3	0.6	-2.6	1.5	5	silty SAND to sandy SILT	120	4.0	9	11	33	35	-	16
40.19	42.2	33.7	82.9	0.7	-4.5	1.6	5	silty SAND to sandy SILT	120	4.0	8	11	31	34	-	16
40.36	40.5	32.4	86.6	0.7	-4.8	1.8	5	silty SAND to sandy SILT	120	4.0	8	10	30	34	-	16
40.52	42.7	34.1	82.3	0.6	-4.9	1.6	5	silty SAND to sandy SILT	120	4.0	9	11	31	34	-	16
40.68	43.5	34.6	83.5	0.7	-5.6	1.6	5	silty SAND to sandy SILT	120	4.0	9	11	32	35	-	16
40.85	31.1	20.9	-	0.5	-5.9	1.8	4	clayy SILT to silty CLAY	115	2.0	10	16	-	-	2.1	15
41.01	18.9	12.6	-	0.5	-5.8	3.0	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.2	15
41.18	16.5	11.0	-	0.5	2.6	3.2	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
41.34	15.8	10.5	-	0.4	3.5	3.4	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
41.50	16.2	10.7	-	0.4	3.8	3.2	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
41.67	16.4	10.8	-	0.4	4.9	3.0	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
41.83	14.5	9.6	-	0.4	6.1	3.3	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
42.00	14.9	9.8	-	0.4	8.7	3.5	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(458).cpt
CPT Date: 12/3/2008 10:32:46 AM
GW During Test: 12 ft

Sounding ID: CPT-08-28
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	15.0	9.8	-	0.4	10.2	3.5	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
42.32	14.1	9.2	-	0.4	12.0	3.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.49	14.5	9.4	-	0.4	14.0	3.7	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
42.65	14.2	9.2	-	0.5	15.9	4.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.82	14.3	9.2	-	0.5	17.5	4.4	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
42.98	14.8	9.6	-	0.5	18.4	4.3	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
43.15	14.7	9.5	-	0.5	17.6	4.2	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
43.31	13.9	9.0	-	0.5	19.6	4.2	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
43.47	13.5	8.7	-	0.5	22.1	4.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
43.64	13.7	8.7	-	0.5	22.9	4.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
43.80	14.9	9.5	-	0.5	24.7	4.1	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
43.97	15.2	9.6	-	0.5	24.2	3.6	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
44.13	14.4	9.1	-	0.6	28.4	5.0	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
44.29	14.8	9.3	-	0.6	26.2	5.3	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
44.46	25.9	16.3	-	0.9	35.1	4.0	3	silty CLAY to CLAY	115	1.5	11	17	-	-	1.7	15
44.62	44.8	28.1	-	1.2	-5.1	2.8	4	clayy SILT to silty CLAY	115	2.0	14	22	-	-	3.1	15
44.79	66.2	50.9	99.0	1.1	-6.0	1.7	5	silty SAND to sandy SILT	120	4.0	13	17	45	37	-	16
44.95	92.6	71.1	113.1	1.5	-6.2	1.6	5	silty SAND to sandy SILT	120	4.0	18	23	56	39	-	16
45.11	52.4	32.6	-	1.8	-6.6	3.6	4	clayy SILT to silty CLAY	115	2.0	16	26	-	-	3.6	15
45.28	26.7	16.6	-	1.3	-6.1	5.4	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.8	15
45.44	17.6	10.9	-	0.7	-5.2	4.5	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.1	15
45.61	15.9	9.8	-	0.5	-3.8	3.4	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
45.77	16.8	10.4	-	0.6	-1.9	3.9	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
45.93	69.5	52.9	137.1	2.1	2.1	3.2	4	clayy SILT to silty CLAY	115	2.0	26	35	-	-	4.8	15
46.10	159.2	121.0	171.9	3.3	-2.0	2.1	5	silty SAND to sandy SILT	120	4.0	30	40	73	41	-	16
46.26	180.1	136.7	188.2	3.8	6.6	2.2	5	silty SAND to sandy SILT	120	4.0	34	45	77	42	-	16
46.43	193.3	146.5	192.9	3.9	5.7	2.0	5	silty SAND to sandy SILT	120	4.0	37	48	80	42	-	16
46.59	206.5	156.3	204.4	4.3	4.7	2.1	5	silty SAND to sandy SILT	120	4.0	39	52	82	43	-	16
46.75	205.0	155.0	207.5	4.5	3.8	2.2	5	silty SAND to sandy SILT	120	4.0	39	51	81	43	-	16
46.92	197.4	149.0	198.0	4.1	3.1	2.1	5	silty SAND to sandy SILT	120	4.0	37	49	80	42	-	16
47.08	184.8	139.3	181.1	3.4	3.0	1.9	5	silty SAND to sandy SILT	120	4.0	35	46	78	42	-	16
47.25	163.9	123.4	163.1	2.8	3.0	1.8	5	silty SAND to sandy SILT	120	4.0	31	41	74	41	-	16
47.41	152.9	114.9	169.8	3.3	4.0	2.2	5	silty SAND to sandy SILT	120	4.0	29	38	72	41	-	16
47.57	130.7	98.1	178.7	3.9	2.4	3.0	5	silty SAND to sandy SILT	120	4.0	25	33	66	40	-	16
47.74	86.4	64.7	179.9	3.7	0.1	4.4	4	clayy SILT to silty CLAY	115	2.0	32	43	-	-	6.0	15
47.90	47.8	28.4	-	2.4	0.2	5.3	3	silty CLAY to CLAY	115	1.5	19	32	-	-	3.3	15
48.07	42.2	25.0	-	1.5	2.5	3.8	4	clayy SILT to silty CLAY	115	2.0	12	21	-	-	2.9	15
48.23	36.1	21.3	-	1.1	3.7	3.3	4	clayy SILT to silty CLAY	115	2.0	11	18	-	-	2.5	15
48.39	24.1	14.2	-	0.8	2.2	3.6	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
48.56	19.6	11.5	-	0.7	5.6	4.0	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
48.72	62.2	46.2	93.7	1.0	13.6	1.7	5	silty SAND to sandy SILT	120	4.0	12	16	42	36	-	16
48.89	74.0	55.0	108.4	1.4	0.8	1.9	5	silty SAND to sandy SILT	120	4.0	14	19	47	37	-	16
49.05	65.2	48.4	112.8	1.5	-1.3	2.3	5	silty SAND to sandy SILT	120	4.0	12	16	43	36	-	16
49.22	46.6	27.1	-	1.5	-4.4	3.4	4	clayy SILT to silty CLAY	115	2.0	14	23	-	-	3.2	15
49.38	26.3	15.3	-	1.2	-4.2	5.1	3	silty CLAY to CLAY	115	1.5	10	18	-	-	1.8	15
49.54	19.1	11.0	-	0.8	-3.4	4.8	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.2	15
49.71	18.2	10.5	-	0.7	-1.5	4.5	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
49.87	25.7	14.8	-	0.6	1.5	2.8	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
50.04	76.2	56.1	96.7	1.1	0.8	1.5	5	silty SAND to sandy SILT	120	4.0	14	19	48	37	-	16
50.20	60.9	34.9	-	1.9	0.3	3.3	4	clayy SILT to silty CLAY	115	2.0	17	30	-	-	4.2	15
50.36	34.9	20.0	-	1.7	1.7	5.5	3	silty CLAY to CLAY	115	1.5	13	23	-	-	2.4	15
50.53	33.3	19.0	-	1.1	5.7	3.6	3	silty CLAY to CLAY	115	1.5	13	22	-	-	2.3	15
50.69	51.6	29.3	-	1.4	4.7	2.9	4	clayy SILT to silty CLAY	115	2.0	15	26	-	-	3.5	15
50.86	39.2	22.2	-	1.7	3.9	4.7	3	silty CLAY to CLAY	115	1.5	15	26	-	-	2.7	15
51.02	32.9	18.6	-	1.5	9.8	5.2	3	silty CLAY to CLAY	115	1.5	12	22	-	-	2.2	15
51.18	86.5	63.1	126.3	2.0	20.1	2.3	5	silty SAND to sandy SILT	120	4.0	16	22	52	37	-	16
51.35	162.6	118.5	160.7	2.9	-4.9	1.8	5	silty SAND to sandy SILT	120	4.0	30	41	73	41	-	16
51.51	175.1	127.4	178.3	3.7	-4.7	2.1	5	silty SAND to sandy SILT	120	4.0	32	44	75	41	-	16
51.68	183.6	133.4	192.1	4.3	-3.7	2.4	5	silty SAND to sandy SILT	120	4.0	33	46	77	42	-	16
51.84	181.8	131.9	193.2	4.4	-2.9	2.5	5	silty SAND to sandy SILT	120	4.0	33	45	76	41	-	16
52.00	169.0	122.5	188.6	4.3	-2.1	2.6	5	silty SAND to sandy SILT	120	4.0	31	42	74	41	-	16
52.17	153.8	111.3	179.1	3.9	-1.6	2.6	5	silty SAND to sandy SILT	120	4.0	28	38	71	41	-	16
52.33	141.2	102.1	172.5	3.7	-0.8	2.7	5	silty SAND to sandy SILT	120	4.0	26	35	68	40	-	16
52.50	139.7	100.8	171.9	3.7	0.3	2.7	5	silty SAND to sandy SILT	120	4.0	25	35	67	40	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(458).cpt
CPT Date: 12/3/2008 10:32:46 AM
GW During Test: 12 ft

Sounding ID: CPT-08-28
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	146.0	105.3	174.1	3.8	1.5	2.6	5	silty SAND to sandy SILT	120	4.0	26	36	69	40	-	16
52.82	151.0	108.8	179.4	4.0	2.2	2.7	5	silty SAND to sandy SILT	120	4.0	27	38	70	40	-	16
52.99	155.3	111.7	182.6	4.1	3.0	2.7	5	silty SAND to sandy SILT	120	4.0	28	39	71	41	-	16
53.15	143.1	102.8	178.7	4.0	3.3	2.9	5	silty SAND to sandy SILT	120	4.0	26	36	68	40	-	16
53.32	121.1	86.9	179.0	4.0	3.4	3.4	5	silty SAND to sandy SILT	120	4.0	22	30	62	39	-	16
53.48	93.3	66.9	178.4	3.8	4.0	4.2	4	clayy SILT to silty CLAY	115	2.0	33	47	-	-	6.5	15
53.64	55.2	30.0	-	2.4	4.0	4.7	3	silty CLAY to CLAY	115	1.5	20	37	-	-	3.8	15
53.81	47.8	25.9	-	1.8	7.2	3.9	4	clayy SILT to silty CLAY	115	2.0	13	24	-	-	3.3	15
53.97	37.0	20.0	-	1.5	19.5	4.3	3	silty CLAY to CLAY	115	1.5	13	25	-	-	2.5	15
54.14	24.4	13.2	-	1.0	8.7	4.8	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
54.30	21.1	11.4	-	0.7	13.9	4.0	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
54.46	22.1	11.8	-	0.7	22.8	3.6	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.4	15
54.63	19.5	10.4	-	0.6	26.2	3.9	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
54.79	16.5	8.8	-	0.7	36.1	5.5	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
54.96	21.3	11.3	-	0.6	50.3	3.3	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
55.12	48.5	34.4	95.2	1.0	31.7	2.1	4	clayy SILT to silty CLAY	115	2.0	17	24	-	-	3.3	15
55.28	50.8	26.9	-	1.2	7.5	2.6	4	clayy SILT to silty CLAY	115	2.0	13	25	-	-	3.5	15
55.45	63.7	45.0	102.2	1.2	3.6	2.0	5	silty SAND to sandy SILT	120	4.0	11	16	41	35	-	16
55.61	89.7	63.3	115.3	1.7	-3.6	1.9	5	silty SAND to sandy SILT	120	4.0	16	22	52	37	-	16
55.78	106.0	74.7	126.5	2.0	-4.1	2.0	5	silty SAND to sandy SILT	120	4.0	19	26	57	38	-	16
55.94	124.0	87.3	132.9	2.2	-2.9	1.8	5	silty SAND to sandy SILT	120	4.0	22	31	63	39	-	16
56.11	141.1	99.2	137.4	2.2	-2.0	1.6	5	silty SAND to sandy SILT	120	4.0	25	35	67	40	-	16
56.27	170.1	119.4	154.1	2.6	-1.3	1.6	6	clean SAND to silty SAND	125	5.0	24	34	73	41	-	16
56.43	211.5	148.3	165.4	2.3	-2.9	1.1	6	clean SAND to silty SAND	125	5.0	30	42	80	42	-	16
56.60	232.6	162.9	170.0	1.9	-4.1	0.8	6	clean SAND to silty SAND	125	5.0	33	47	83	42	-	16
56.76	214.4	150.0	158.9	1.8	-1.9	0.8	6	clean SAND to silty SAND	125	5.0	30	43	80	42	-	16
56.93	205.7	143.7	158.0	2.0	0.0	1.0	6	clean SAND to silty SAND	125	5.0	29	41	79	42	-	16
57.09	182.7	127.4	158.5	2.7	2.0	1.5	6	clean SAND to silty SAND	125	5.0	25	37	75	41	-	16
57.25	170.1	118.5	162.1	3.1	4.9	1.9	5	silty SAND to sandy SILT	120	4.0	30	43	73	41	-	16
57.42	169.3	117.8	163.8	3.2	5.2	1.9	5	silty SAND to sandy SILT	120	4.0	29	42	72	41	-	16
57.58	162.4	112.9	163.8	3.3	3.9	2.1	5	silty SAND to sandy SILT	120	4.0	28	41	71	40	-	16
57.75	156.3	108.5	162.2	3.3	3.0	2.2	5	silty SAND to sandy SILT	120	4.0	27	39	70	40	-	16
57.91	155.1	107.5	161.9	3.3	3.5	2.2	5	silty SAND to sandy SILT	120	4.0	27	39	69	40	-	16
58.07	157.9	109.3	163.1	3.3	2.9	2.2	5	silty SAND to sandy SILT	120	4.0	27	39	70	40	-	16
58.24	166.0	114.8	168.8	3.6	0.2	2.2	5	silty SAND to sandy SILT	120	4.0	29	41	72	40	-	16
58.40	179.4	123.9	174.6	3.7	-0.5	2.1	5	silty SAND to sandy SILT	120	4.0	31	45	74	41	-	16
58.57	191.7	132.3	182.8	4.0	-0.4	2.1	5	silty SAND to sandy SILT	120	4.0	33	48	76	41	-	16
58.73	183.9	126.8	181.0	4.0	-0.4	2.2	5	silty SAND to sandy SILT	120	4.0	32	46	75	41	-	16
58.89	176.1	121.2	177.5	3.9	0.1	2.3	5	silty SAND to sandy SILT	120	4.0	30	44	73	41	-	16
59.06	181.5	124.7	179.2	4.0	0.9	2.2	5	silty SAND to sandy SILT	120	4.0	31	45	74	41	-	16
59.22	189.8	130.3	183.3	4.1	0.2	2.2	5	silty SAND to sandy SILT	120	4.0	33	47	76	41	-	16
59.39	184.6	126.6	184.5	4.2	-0.7	2.3	5	silty SAND to sandy SILT	120	4.0	32	46	75	41	-	16
59.55	183.5	125.7	186.7	4.4	-0.5	2.4	5	silty SAND to sandy SILT	120	4.0	31	46	75	41	-	16
59.71	177.2	121.2	183.4	4.3	-0.8	2.5	5	silty SAND to sandy SILT	120	4.0	30	44	73	41	-	16
59.88	179.7	122.8	184.1	4.3	-1.0	2.4	5	silty SAND to sandy SILT	120	4.0	31	45	74	41	-	16
60.04	196.9	134.4	193.5	4.6	5.0	2.4	5	silty SAND to sandy SILT	120	4.0	34	49	77	41	-	16
60.21	226.6	154.5	210.6	5.2	-0.3	2.3	5	silty SAND to sandy SILT	120	4.0	39	57	81	42	-	16
60.37	274.4	186.9	238.1	6.1	-2.0	2.2	5	silty SAND to sandy SILT	120	4.0	47	69	88	43	-	16
60.53	307.2	209.0	249.7	6.0	-3.2	2.0	6	clean SAND to silty SAND	125	5.0	42	61	91	43	-	16
60.70	248.9	169.1	227.3	5.9	11.1	2.4	5	silty SAND to sandy SILT	120	4.0	42	62	84	42	-	16
60.86	248.8	168.8	225.6	5.8	10.5	2.4	5	silty SAND to sandy SILT	120	4.0	42	62	84	42	-	16
61.03	252.5	171.2	224.6	5.7	10.3	2.3	5	silty SAND to sandy SILT	120	4.0	43	63	85	42	-	16
61.19	253.0	171.3	224.7	5.7	9.8	2.3	5	silty SAND to sandy SILT	120	4.0	43	63	85	42	-	16
61.35	254.9	172.4	227.2	5.8	9.7	2.3	5	silty SAND to sandy SILT	120	4.0	43	64	85	42	-	16
61.52	255.2	172.4	225.0	5.7	9.9	2.3	5	silty SAND to sandy SILT	120	4.0	43	64	85	42	-	16
61.68	251.6	169.8	217.0	5.2	9.0	2.1	5	silty SAND to sandy SILT	120	4.0	42	63	84	42	-	16
61.85	248.0	167.1	212.4	5.0	8.8	2.0	6	clean SAND to silty SAND	125	5.0	33	50	84	42	-	16
62.01	229.5	154.5	199.0	4.5	8.6	2.0	5	silty SAND to sandy SILT	120	4.0	39	57	81	42	-	16
62.17	209.5	140.9	182.6	3.8	8.4	1.9	5	silty SAND to sandy SILT	120	4.0	35	52	78	41	-	16
62.34	205.1	137.8	171.6	3.2	8.7	1.6	6	clean SAND to silty SAND	125	5.0	28	41	78	41	-	16
62.50	214.4	143.8	161.5	2.3	8.4	1.1	6	clean SAND to silty SAND	125	5.0	29	43	79	41	-	16
62.67	205.8	137.9	162.3	2.6	5.0	1.3	6	clean SAND to silty SAND	125	5.0	28	41	78	41	-	16
62.83	173.2	115.9	146.0	2.4	9.8	1.4	6	clean SAND to silty SAND	125	5.0	23	35	72	40	-	16
63.00	113.7	76.0	107.7	1.4	8.6	1.3	5	silty SAND to sandy SILT	120	4.0	19	28	58	38	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(458).cpt
CPT Date: 12/3/2008 10:32:46 AM
GW During Test: 12 ft

Sounding ID: CPT-08-28
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	74.1	49.5	82.8	0.8	7.5	1.1	5	silty SAND to sandy SILT	120	4.0	12	19	44	35	-	16
63.32	45.7	30.5	79.5	0.7	7.5	1.6	5	silty SAND to sandy SILT	120	4.0	8	11	28	32	-	16
63.49	15.1	7.1	-	0.4	10.0	3.9	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
63.65	7.7	3.6	-	0.4	13.5	9.9	2	Organic SOILS - Peats	100	1.0	4	8	-	-	0.6	10
63.82	6.9	3.2	-	0.3	15.3	9.7	2	Organic SOILS - Peats	100	1.0	3	7	-	-	0.5	10
63.98	5.2	2.4	-	0.2	18.6	9.9	2	Organic SOILS - Peats	100	1.0	2	5	-	-	0.4	10
64.14	4.7	2.2	-	0.2	22.4	9.9	2	Organic SOILS - Peats	100	1.0	2	5	-	-	0.3	10
64.31	4.2	2.0	-	0.4	26.1	9.9	2	Organic SOILS - Peats	100	1.0	2	4	-	-	0.2	10
64.47	8.1	3.8	-	1.0	29.6	9.9	2	Organic SOILS - Peats	100	1.0	4	8	-	-	0.7	10
64.64	40.0	18.6	-	3.5	18.7	9.6	3	silty CLAY to CLAY	115	1.5	12	27	-	-	2.7	15
64.80	48.0	22.3	-	3.9	52.0	8.9	3	silty CLAY to CLAY	115	1.5	15	32	-	-	3.3	15
64.96	168.2	111.2	219.6	6.4	134.5	3.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.0	16
65.13	182.8	120.8	201.7	5.4	-4.1	3.0	5	silty SAND to sandy SILT	120	4.0	30	46	73	40	-	16
65.29	438.0	289.0	288.8	5.2	0.2	1.2	6	clean SAND to silty SAND	125	5.0	58	88	95	45	-	16
65.46	430.9	284.0	288.2	5.3	-0.1	1.3	6	clean SAND to silty SAND	125	5.0	57	86	95	45	-	16
65.62	376.5	247.9	278.4	6.6	-0.9	1.8	6	clean SAND to silty SAND	125	5.0	50	75	95	44	-	16
65.78	188.8	124.2	218.7	6.4	-3.7	3.4	5	silty SAND to sandy SILT	120	4.0	31	47	74	40	-	16
65.95	91.5	41.9	-	4.7	-2.4	5.4	3	silty CLAY to CLAY	115	1.5	28	61	-	-	6.3	15
66.11	81.8	53.7	135.2	2.4	1.6	3.0	4	clayy SILT to silty CLAY	115	2.0	27	41	-	-	5.6	15
66.28	74.4	33.9	-	3.3	8.2	4.6	3	silty CLAY to CLAY	115	1.5	23	50	-	-	5.1	15
66.44	228.3	149.5	172.9	2.9	24.3	1.3	6	clean SAND to silty SAND	125	5.0	30	46	80	41	-	16
66.60	304.3	199.0	209.7	3.3	8.2	1.1	6	clean SAND to silty SAND	125	5.0	40	61	90	43	-	16
66.77	358.9	234.5	238.0	3.8	3.3	1.1	6	clean SAND to silty SAND	125	5.0	47	72	95	44	-	16
66.93	425.5	277.7	277.7	4.6	3.1	1.1	6	clean SAND to silty SAND	125	5.0	56	85	95	44	-	16
67.10	444.3	289.6	297.5	5.9	3.2	1.3	6	clean SAND to silty SAND	125	5.0	58	89	95	45	-	16
67.26	442.9	288.4	310.4	7.2	10.1	1.6	6	clean SAND to silty SAND	125	5.0	58	89	95	45	-	16
67.42	491.0	319.3	343.2	8.5	11.9	1.7	6	clean SAND to silty SAND	125	5.0	64	98	95	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(430).cpt
CPT Date: 11/21/2008 7:23:20 AM
GW During Test: 12 ft

Sounding ID: CPT-08-29
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	38.5	61.8	124.0	0.9	0.0	2.4	5	silty SAND to sandy SILT	120	4.0	15	10	51	48	-	16
0.49	32.7	52.4	117.5	0.8	0.0	2.5	5	silty SAND to sandy SILT	120	4.0	13	8	46	48	-	16
0.66	46.5	74.5	111.6	0.7	0.0	1.5	5	silty SAND to sandy SILT	120	4.0	19	12	57	48	-	16
0.82	83.8	134.3	155.2	1.0	0.0	1.2	6	clean SAND to silty SAND	125	5.0	27	17	77	48	-	16
0.98	90.4	144.9	177.8	1.5	0.0	1.6	6	clean SAND to silty SAND	125	5.0	29	18	79	48	-	16
1.15	72.3	115.9	156.0	1.3	0.0	1.8	5	silty SAND to sandy SILT	120	4.0	29	18	72	48	-	16
1.31	71.9	115.3	165.2	1.5	-0.1	2.1	5	silty SAND to sandy SILT	120	4.0	29	18	72	48	-	16
1.48	62.3	99.9	165.7	1.6	0.4	2.6	5	silty SAND to sandy SILT	120	4.0	25	16	67	48	-	16
1.64	51.0	81.7	156.6	1.5	0.1	2.9	5	silty SAND to sandy SILT	120	4.0	20	13	60	48	-	16
1.80	36.1	58.0	140.4	1.1	-0.1	3.2	4	clayy SILT to silty CLAY	115	2.0	29	18	-	-	2.5	15
1.97	35.0	56.1	132.9	1.0	0.0	3.0	4	clayy SILT to silty CLAY	115	2.0	28	18	-	-	2.5	15
2.13	37.1	59.6	134.2	1.1	0.5	2.9	5	silty SAND to sandy SILT	120	4.0	15	9	50	46	-	16
2.30	34.0	54.5	136.6	1.1	0.3	3.2	4	clayy SILT to silty CLAY	115	2.0	27	17	-	-	2.4	15
2.46	28.1	45.1	142.3	1.1	0.2	4.0	4	clayy SILT to silty CLAY	115	2.0	23	14	-	-	2.0	15
2.62	24.6	39.5	-	1.1	0.2	4.4	4	clayy SILT to silty CLAY	115	2.0	20	12	-	-	1.7	15
2.79	30.7	49.3	146.1	1.2	0.2	3.9	4	clayy SILT to silty CLAY	115	2.0	25	15	-	-	2.2	15
2.95	42.8	68.7	161.8	1.5	0.1	3.6	4	clayy SILT to silty CLAY	115	2.0	34	21	-	-	3.0	15
3.12	43.2	69.3	173.1	1.7	0.3	4.0	4	clayy SILT to silty CLAY	115	2.0	35	22	-	-	3.0	15
3.28	38.7	62.0	172.4	1.7	0.8	4.3	4	clayy SILT to silty CLAY	115	2.0	31	19	-	-	2.7	15
3.45	40.9	65.6	163.3	1.5	0.8	3.8	4	clayy SILT to silty CLAY	115	2.0	33	20	-	-	2.9	15
3.61	62.4	100.1	170.5	1.7	0.2	2.7	5	silty SAND to sandy SILT	120	4.0	25	16	67	46	-	16
3.77	78.0	125.1	187.0	1.9	0.4	2.5	5	silty SAND to sandy SILT	120	4.0	31	20	74	47	-	16
3.94	64.8	103.9	183.1	1.9	0.2	3.0	5	silty SAND to sandy SILT	120	4.0	26	16	68	46	-	16
4.10	52.3	83.9	191.7	2.1	0.3	4.0	4	clayy SILT to silty CLAY	115	2.0	42	26	-	-	3.7	15
4.27	70.0	112.3	209.8	2.5	0.6	3.6	5	silty SAND to sandy SILT	120	4.0	28	18	71	46	-	16
4.43	57.0	91.4	208.7	2.5	0.4	4.3	4	clayy SILT to silty CLAY	115	2.0	46	29	-	-	4.0	15
4.59	50.9	81.6	198.3	2.2	0.4	4.4	4	clayy SILT to silty CLAY	115	2.0	41	25	-	-	3.6	15
4.76	50.5	81.1	198.3	2.2	0.5	4.4	4	clayy SILT to silty CLAY	115	2.0	41	25	-	-	3.6	15
4.92	59.5	95.4	220.3	2.7	-0.3	4.6	9	very stiff fine SOIL	120	2.0	48	30	65	45	-	30
5.09	63.0	101.1	224.4	2.8	-0.6	4.5	9	very stiff fine SOIL	120	2.0	51	32	67	45	-	30
5.25	50.1	80.3	199.0	2.2	0.0	4.4	4	clayy SILT to silty CLAY	115	2.0	40	25	-	-	3.5	15
5.41	52.6	84.4	184.2	2.0	0.1	3.7	4	clayy SILT to silty CLAY	115	2.0	42	26	-	-	3.7	15
5.58	69.5	111.5	186.8	2.0	-1.5	2.9	5	silty SAND to sandy SILT	120	4.0	28	17	71	46	-	16
5.74	67.3	107.9	183.7	1.9	0.2	2.9	5	silty SAND to sandy SILT	120	4.0	27	17	70	45	-	16
5.91	73.5	117.9	176.5	1.7	0.2	2.4	5	silty SAND to sandy SILT	120	4.0	29	18	72	46	-	16
6.07	59.7	95.8	171.8	1.7	0.3	2.9	5	silty SAND to sandy SILT	120	4.0	24	15	66	45	-	16
6.23	52.6	84.2	187.1	2.0	0.3	3.8	4	clayy SILT to silty CLAY	115	2.0	42	26	-	-	3.7	15
6.40	47.8	75.5	182.9	1.9	0.4	4.1	4	clayy SILT to silty CLAY	115	2.0	38	24	-	-	3.4	15
6.56	36.7	57.4	161.6	1.5	0.2	4.1	4	clayy SILT to silty CLAY	115	2.0	29	18	-	-	2.6	15
6.73	22.0	35.2	-	1.1	0.3	5.1	3	silty CLAY to CLAY	115	1.5	23	15	-	-	1.5	15
6.89	16.9	27.2	-	0.9	0.2	5.2	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.2	15
7.05	17.6	28.2	-	0.9	0.5	5.1	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.2	15
7.22	40.4	60.2	126.5	1.0	0.3	2.5	5	silty SAND to sandy SILT	120	4.0	15	10	50	42	-	16
7.38	48.8	71.9	140.1	1.3	0.3	2.6	5	silty SAND to sandy SILT	120	4.0	18	12	56	43	-	16
7.55	37.9	55.2	148.9	1.4	0.3	3.6	4	clayy SILT to silty CLAY	115	2.0	28	19	-	-	2.7	15
7.71	25.9	41.6	-	1.2	0.3	4.8	4	clayy SILT to silty CLAY	115	2.0	21	13	-	-	1.8	15
7.87	24.7	39.6	-	1.1	0.2	4.4	4	clayy SILT to silty CLAY	115	2.0	20	12	-	-	1.7	15
8.04	30.3	42.7	134.7	1.1	-0.1	3.7	4	clayy SILT to silty CLAY	115	2.0	21	15	-	-	2.1	15
8.20	39.7	55.5	134.9	1.2	-1.8	3.0	4	clayy SILT to silty CLAY	115	2.0	28	20	-	-	2.8	15
8.37	50.0	69.3	137.2	1.3	-1.2	2.6	5	silty SAND to sandy SILT	120	4.0	17	13	55	43	-	16
8.53	50.7	69.6	132.8	1.2	0.0	2.4	5	silty SAND to sandy SILT	120	4.0	17	13	55	43	-	16
8.69	48.0	65.2	126.5	1.1	0.0	2.3	5	silty SAND to sandy SILT	120	4.0	16	12	53	42	-	16
8.86	41.6	56.0	124.8	1.1	0.0	2.6	5	silty SAND to sandy SILT	120	4.0	14	10	48	42	-	16
9.02	35.5	47.4	120.3	1.0	-0.1	2.8	4	clayy SILT to silty CLAY	115	2.0	24	18	-	-	2.5	15
9.19	31.6	41.8	113.2	0.8	-0.3	2.7	4	clayy SILT to silty CLAY	115	2.0	21	16	-	-	2.2	15
9.35	26.2	34.3	105.8	0.7	1.0	2.8	4	clayy SILT to silty CLAY	115	2.0	17	13	-	-	1.8	15
9.51	22.8	33.6	111.2	0.7	0.7	3.1	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.6	15
9.68	24.0	35.0	-	0.8	0.3	3.3	4	clayy SILT to silty CLAY	115	2.0	17	12	-	-	1.7	15
9.84	26.3	37.9	123.6	0.9	2.0	3.5	4	clayy SILT to silty CLAY	115	2.0	19	13	-	-	1.8	15
10.01	32.0	40.5	122.4	1.0	-1.8	3.2	4	clayy SILT to silty CLAY	115	2.0	20	16	-	-	2.2	15
10.17	20.7	33.2	-	0.9	-3.0	4.3	4	clayy SILT to silty CLAY	115	2.0	17	10	-	-	1.4	15
10.34	14.5	23.3	-	0.7	-3.3	4.7	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
10.50	11.5	18.5	-	0.5	-2.7	4.7	3	silty CLAY to CLAY	115	1.5	12	8	-	-	0.8	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(430).cpt
CPT Date: 11/21/2008 7:23:20 AM
GW During Test: 12 ft

Sounding ID: CPT-08-29
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	11.2	17.9	-	0.5	-1.7	4.7	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.8	15
10.83	12.5	19.7	-	0.6	0.3	5.0	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
10.99	17.1	26.6	-	0.7	0.7	3.9	4	clayy SILT to silty CLAY	115	2.0	13	9	-	-	1.2	15
11.16	14.3	21.9	-	0.7	0.7	4.8	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.0	15
11.32	11.7	17.7	-	0.7	1.2	6.0	3	silty CLAY to CLAY	115	1.5	12	8	-	-	0.8	15
11.48	10.8	16.0	-	0.6	1.9	6.3	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
11.65	9.7	14.2	-	0.6	1.6	6.7	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.7	15
11.81	11.3	16.3	-	0.6	1.5	5.6	3	silty CLAY to CLAY	115	1.5	11	8	-	-	0.8	15
11.98	8.8	12.6	-	0.5	5.4	6.7	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
12.14	7.4	10.5	-	0.5	5.1	6.9	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
12.30	8.3	11.8	-	0.4	6.7	5.0	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
12.47	19.8	22.8	70.4	0.3	1.8	1.6	4	clayy SILT to silty CLAY	115	2.0	11	10	-	-	1.4	15
12.63	22.3	25.6	67.1	0.3	0.2	1.3	5	silty SAND to sandy SILT	120	4.0	6	6	22	37	-	16
12.80	23.1	26.4	67.6	0.3	0.5	1.3	5	silty SAND to sandy SILT	120	4.0	7	6	23	37	-	16
12.96	24.7	28.1	68.7	0.3	0.1	1.3	5	silty SAND to sandy SILT	120	4.0	7	6	25	37	-	16
13.12	25.3	28.8	70.0	0.3	0.0	1.3	5	silty SAND to sandy SILT	120	4.0	7	6	26	37	-	16
13.29	25.3	28.7	71.7	0.3	0.2	1.4	5	silty SAND to sandy SILT	120	4.0	7	6	26	37	-	16
13.45	26.0	29.4	71.4	0.3	0.3	1.4	5	silty SAND to sandy SILT	120	4.0	7	7	27	37	-	16
13.62	27.5	31.0	72.7	0.4	0.4	1.4	5	silty SAND to sandy SILT	120	4.0	8	7	28	38	-	16
13.78	28.2	31.6	76.5	0.4	0.5	1.5	5	silty SAND to sandy SILT	120	4.0	8	7	29	38	-	16
13.94	26.4	29.5	87.2	0.5	0.6	2.1	4	clayy SILT to silty CLAY	115	2.0	15	13	-	-	1.8	15
14.11	19.9	26.1	-	0.7	0.6	3.8	4	clayy SILT to silty CLAY	115	2.0	13	10	-	-	1.4	15
14.27	10.4	13.6	-	0.5	0.8	5.0	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
14.44	12.3	16.0	-	0.3	1.4	2.9	3	silty CLAY to CLAY	115	1.5	11	8	-	-	0.8	15
14.60	26.8	29.6	70.9	0.3	-1.0	1.3	5	silty SAND to sandy SILT	120	4.0	7	7	27	37	-	16
14.76	33.0	36.4	75.3	0.4	-0.8	1.3	5	silty SAND to sandy SILT	120	4.0	9	8	34	38	-	16
14.93	40.0	43.9	79.0	0.5	-0.5	1.2	5	silty SAND to sandy SILT	120	4.0	11	10	40	39	-	16
15.09	48.3	52.9	83.8	0.5	-0.4	1.1	5	silty SAND to sandy SILT	120	4.0	13	12	46	40	-	16
15.26	58.7	64.1	90.4	0.6	-0.2	1.0	5	silty SAND to sandy SILT	120	4.0	16	15	52	41	-	16
15.42	69.2	75.3	102.7	0.8	0.0	1.1	5	silty SAND to sandy SILT	120	4.0	19	17	58	42	-	16
15.58	71.4	77.5	110.3	0.9	0.1	1.3	5	silty SAND to sandy SILT	120	4.0	19	18	59	42	-	16
15.75	68.2	73.8	111.2	1.0	0.2	1.5	5	silty SAND to sandy SILT	120	4.0	18	17	57	42	-	16
15.91	68.3	73.7	112.4	1.0	0.3	1.5	5	silty SAND to sandy SILT	120	4.0	18	17	57	42	-	16
16.08	55.6	59.8	113.7	1.1	0.4	2.0	5	silty SAND to sandy SILT	120	4.0	15	14	50	41	-	16
16.24	38.8	41.7	104.9	0.9	0.4	2.3	5	silty SAND to sandy SILT	120	4.0	10	10	38	39	-	16
16.40	22.1	26.8	-	0.6	-0.3	3.0	4	clayy SILT to silty CLAY	115	2.0	13	11	-	-	1.5	15
16.57	11.1	13.3	-	0.4	0.3	4.0	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
16.73	7.2	8.6	-	0.2	1.5	2.8	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.90	6.3	7.5	-	0.1	2.3	2.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.06	5.5	6.6	-	0.1	3.1	2.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
17.23	5.4	6.3	-	0.1	3.8	2.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
17.39	5.1	6.0	-	0.1	4.5	2.3	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
17.55	5.3	6.1	-	0.1	5.3	2.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
17.72	5.7	6.7	-	0.1	6.1	2.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
17.88	5.9	6.9	-	0.0	7.1	0.7	4	clayy SILT to silty CLAY	115	2.0	3	3	-	-	0.4	15
18.05	6.7	7.7	-	0.2	8.3	2.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
18.21	7.8	8.9	-	0.2	18.4	3.5	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
18.37	6.9	7.9	-	0.3	14.4	4.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
18.54	8.4	9.5	-	0.2	13.5	3.2	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	15
18.70	8.7	9.8	-	0.2	10.7	2.8	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
18.87	7.3	8.2	-	0.2	8.1	3.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
19.03	6.0	6.8	-	0.2	8.3	3.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
19.19	6.6	7.3	-	0.2	9.6	4.4	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
19.36	7.4	8.2	-	0.3	10.8	4.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
19.52	13.8	15.3	-	0.4	10.5	3.3	3	silty CLAY to CLAY	115	1.5	10	9	-	-	0.9	15
19.69	44.4	45.2	84.0	0.6	3.4	1.3	5	silty SAND to sandy SILT	120	4.0	11	11	41	39	-	16
19.85	57.3	58.2	91.2	0.7	1.7	1.2	5	silty SAND to sandy SILT	120	4.0	15	14	49	40	-	16
20.01	65.2	66.0	102.2	0.9	2.2	1.4	5	silty SAND to sandy SILT	120	4.0	17	16	53	41	-	16
20.18	62.6	63.2	111.5	1.1	2.0	1.8	5	silty SAND to sandy SILT	120	4.0	16	16	52	40	-	16
20.34	41.4	41.7	122.9	1.3	1.7	3.2	4	clayy SILT to silty CLAY	115	2.0	21	21	-	-	2.9	15
20.51	20.0	21.4	-	0.9	2.0	4.8	3	silty CLAY to CLAY	115	1.5	14	13	-	-	1.4	15
20.67	18.7	20.0	-	0.7	3.0	4.0	3	silty CLAY to CLAY	115	1.5	13	12	-	-	1.3	15
20.83	46.3	46.3	89.6	0.7	1.5	1.5	5	silty SAND to sandy SILT	120	4.0	12	12	42	38	-	16
21.00	39.7	39.6	92.8	0.7	-1.3	1.9	5	silty SAND to sandy SILT	120	4.0	10	10	36	38	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(430).cpt
CPT Date: 11/21/2008 7:23:20 AM
GW During Test: 12 ft

Sounding ID: CPT-08-29
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	22.0	23.1	-	0.7	-1.5	3.3	4	clayy SILT to silty CLAY	115	2.0	12	11	-	-	1.5	15
21.33	11.9	12.5	-	0.6	3.5	5.5	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
21.49	18.0	18.7	-	0.5	0.6	2.9	4	clayy SILT to silty CLAY	115	2.0	9	9	-	-	1.2	15
21.65	15.0	15.5	-	0.4	-0.8	2.8	3	silty CLAY to CLAY	115	1.5	10	10	-	-	1.0	15
21.82	14.2	14.7	-	0.4	-1.3	3.0	3	silty CLAY to CLAY	115	1.5	10	9	-	-	1.0	15
21.98	10.7	10.9	-	0.4	-1.8	4.4	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
22.15	16.5	16.9	-	0.3	-1.5	2.1	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.1	15
22.31	18.0	18.3	-	0.3	-2.5	1.9	4	clayy SILT to silty CLAY	115	2.0	9	9	-	-	1.2	15
22.47	11.6	11.8	-	0.4	-3.6	4.1	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
22.64	15.1	15.2	-	0.6	-3.4	4.4	3	silty CLAY to CLAY	115	1.5	10	10	-	-	1.0	15
22.80	21.2	21.3	-	0.7	-3.4	3.7	3	silty CLAY to CLAY	115	1.5	14	14	-	-	1.4	15
22.97	30.2	30.2	-	0.8	-4.4	2.7	4	clayy SILT to silty CLAY	115	2.0	15	15	-	-	2.1	15
23.13	47.5	46.0	99.5	0.9	-6.2	1.9	5	silty SAND to sandy SILT	120	4.0	12	12	41	38	-	16
23.30	57.4	55.5	95.3	0.8	-7.6	1.5	5	silty SAND to sandy SILT	120	4.0	14	14	48	39	-	16
23.46	49.0	47.3	90.2	0.7	-8.5	1.5	5	silty SAND to sandy SILT	120	4.0	12	12	42	38	-	16
23.62	24.6	24.2	-	0.6	-9.0	2.5	4	clayy SILT to silty CLAY	115	2.0	12	12	-	-	1.7	15
23.79	12.3	12.0	-	0.4	-9.7	4.0	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
23.95	7.9	7.7	-	0.3	-9.7	5.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.12	7.3	7.0	-	0.3	-9.7	5.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.28	7.1	6.8	-	0.3	-9.7	5.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
24.44	7.1	6.8	-	0.2	-9.6	4.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
24.61	7.2	6.9	-	0.3	-9.6	4.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.77	7.8	7.4	-	0.3	-8.0	4.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.94	7.6	7.2	-	0.3	-7.8	4.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
25.10	7.5	7.1	-	0.3	-7.7	4.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
25.26	7.4	7.0	-	0.3	-7.6	5.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
25.43	7.0	6.6	-	0.3	-7.4	5.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
25.59	7.0	6.6	-	0.2	-7.2	4.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
25.76	7.5	6.9	-	0.3	-7.1	5.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
25.92	9.8	9.1	-	0.3	-6.9	3.7	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
26.08	10.1	9.3	-	0.3	-7.0	3.8	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
26.25	8.3	7.6	-	0.4	-6.6	6.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
26.41	36.6	34.0	84.8	0.6	-6.1	1.7	5	silty SAND to sandy SILT	120	4.0	8	9	31	36	-	16
26.58	62.6	58.1	91.8	0.8	-6.5	1.2	5	silty SAND to sandy SILT	120	4.0	15	16	49	39	-	16
26.74	74.6	69.1	92.2	0.7	-5.8	0.9	6	clean SAND to silty SAND	125	5.0	14	15	55	40	-	16
26.90	78.7	72.7	98.0	0.8	-5.0	1.0	6	clean SAND to silty SAND	125	5.0	15	16	56	40	-	16
27.07	83.5	77.0	103.5	0.9	1.3	1.1	6	clean SAND to silty SAND	125	5.0	15	17	58	41	-	16
27.23	92.0	84.6	111.6	1.1	1.5	1.2	6	clean SAND to silty SAND	125	5.0	17	18	61	41	-	16
27.40	102.6	94.1	122.2	1.3	1.5	1.3	6	clean SAND to silty SAND	125	5.0	19	21	65	42	-	16
27.56	109.7	100.4	126.4	1.3	1.4	1.2	6	clean SAND to silty SAND	125	5.0	20	22	67	42	-	16
27.72	108.6	99.1	131.4	1.5	1.6	1.4	6	clean SAND to silty SAND	125	5.0	20	22	67	42	-	16
27.89	122.2	111.3	144.1	1.8	1.6	1.5	6	clean SAND to silty SAND	125	5.0	22	24	71	42	-	16
28.05	132.2	120.2	153.1	2.0	1.4	1.5	6	clean SAND to silty SAND	125	5.0	24	26	73	43	-	16
28.22	132.5	120.1	155.0	2.1	1.2	1.6	6	clean SAND to silty SAND	125	5.0	24	26	73	43	-	16
28.38	128.6	116.4	154.7	2.2	1.6	1.7	5	silty SAND to sandy SILT	120	4.0	29	32	72	43	-	16
28.54	125.3	113.2	153.8	2.2	1.6	1.8	5	silty SAND to sandy SILT	120	4.0	28	31	71	42	-	16
28.71	119.9	108.0	148.5	2.1	1.4	1.7	5	silty SAND to sandy SILT	120	4.0	27	30	70	42	-	16
28.87	121.2	109.0	144.3	1.9	1.7	1.6	6	clean SAND to silty SAND	125	5.0	22	24	70	42	-	16
29.04	132.9	119.2	148.4	1.8	1.9	1.4	6	clean SAND to silty SAND	125	5.0	24	27	73	43	-	16
29.20	144.6	129.5	157.9	2.0	1.7	1.4	6	clean SAND to silty SAND	125	5.0	26	29	76	43	-	16
29.36	144.9	129.5	157.5	2.0	1.7	1.4	6	clean SAND to silty SAND	125	5.0	26	29	76	43	-	16
29.53	142.6	127.1	157.1	2.0	2.0	1.4	6	clean SAND to silty SAND	125	5.0	25	29	75	43	-	16
29.69	146.8	130.5	162.6	2.2	1.6	1.5	6	clean SAND to silty SAND	125	5.0	26	29	76	43	-	16
29.86	145.4	129.0	164.5	2.4	0.7	1.6	6	clean SAND to silty SAND	125	5.0	26	29	75	43	-	16
30.02	121.7	107.8	148.8	2.1	0.7	1.8	5	silty SAND to sandy SILT	120	4.0	27	30	69	42	-	16
30.19	90.8	80.2	136.2	1.9	1.7	2.2	5	silty SAND to sandy SILT	120	4.0	20	23	60	40	-	16
30.35	55.7	49.1	136.1	1.8	2.5	3.3	4	clayy SILT to silty CLAY	115	2.0	25	28	-	-	3.9	15
30.51	27.2	22.3	-	1.4	3.2	5.6	3	silty CLAY to CLAY	115	1.5	15	18	-	-	1.9	15
30.68	17.2	14.1	-	0.8	6.7	5.2	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
30.84	13.4	10.9	-	0.4	17.4	3.5	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
31.01	10.4	8.5	-	0.3	33.7	3.2	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
31.17	9.7	7.9	-	0.3	38.0	3.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.33	9.7	7.8	-	0.2	42.7	3.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.50	9.8	7.9	-	0.3	41.2	3.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(430).cpt
CPT Date: 11/21/2008 7:23:20 AM
GW During Test: 12 ft

Sounding ID: CPT-08-29
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	9.8	7.8	-	0.3	43.9	3.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
31.83	10.0	8.0	-	0.3	45.8	3.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
31.99	10.0	8.0	-	0.3	43.8	3.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
32.15	11.1	8.8	-	0.4	51.3	4.1	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.32	12.6	10.0	-	0.4	53.6	4.1	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
32.48	12.8	10.1	-	0.6	56.3	5.6	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.8	15
32.65	13.3	10.5	-	0.9	57.9	7.9	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
32.81	14.8	11.6	-	1.1	37.1	8.3	3	silty CLAY to CLAY	115	1.5	8	10	-	-	1.0	15
32.97	15.0	11.7	-	1.1	34.3	8.1	3	silty CLAY to CLAY	115	1.5	8	10	-	-	1.0	15
33.14	14.1	11.0	-	1.0	37.5	8.5	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
33.30	13.5	10.5	-	1.0	37.4	8.7	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
33.47	13.6	10.5	-	1.0	27.2	8.3	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
33.63	13.3	10.2	-	0.9	35.3	8.2	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
33.79	12.8	9.9	-	0.8	32.2	7.4	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.8	15
33.96	12.1	9.2	-	0.6	27.2	6.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
34.12	11.0	8.4	-	0.4	30.2	4.1	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
34.29	10.4	7.9	-	0.3	36.0	3.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
34.45	10.4	7.9	-	0.3	36.8	3.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
34.61	11.8	8.9	-	0.5	32.7	5.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
34.78	11.6	8.8	-	0.7	43.0	7.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
34.94	12.1	9.1	-	0.8	41.1	7.5	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
35.11	12.6	9.4	-	0.9	35.0	8.8	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
35.27	14.0	10.4	-	1.2	36.0	9.7	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
35.43	14.7	11.0	-	1.2	27.7	9.1	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
35.60	55.1	46.0	104.7	1.1	22.7	2.1	5	silty SAND to sandy SILT	120	4.0	12	14	41	37	-	16
35.76	73.1	61.0	102.9	1.1	-2.9	1.6	5	silty SAND to sandy SILT	120	4.0	15	18	51	38	-	16
35.93	80.7	67.3	107.9	1.2	-1.8	1.6	5	silty SAND to sandy SILT	120	4.0	17	20	54	39	-	16
36.09	100.2	83.3	122.1	1.5	-0.8	1.6	5	silty SAND to sandy SILT	120	4.0	21	25	61	40	-	16
36.26	109.2	90.7	138.0	2.0	1.3	1.9	5	silty SAND to sandy SILT	120	4.0	23	27	64	41	-	16
36.42	105.1	87.1	141.9	2.2	2.0	2.1	5	silty SAND to sandy SILT	120	4.0	22	26	62	40	-	16
36.58	98.3	81.3	135.7	2.0	2.6	2.1	5	silty SAND to sandy SILT	120	4.0	20	25	60	40	-	16
36.75	120.2	99.3	136.6	1.9	-1.3	1.6	5	silty SAND to sandy SILT	120	4.0	25	30	67	41	-	16
36.91	128.4	105.9	145.8	2.2	-8.8	1.7	5	silty SAND to sandy SILT	120	4.0	26	32	69	41	-	16
37.08	126.4	104.0	140.7	2.0	-9.3	1.6	5	silty SAND to sandy SILT	120	4.0	26	32	68	41	-	16
37.24	140.9	115.8	143.4	1.8	-8.7	1.3	6	clean SAND to silty SAND	125	5.0	23	28	72	42	-	16
37.40	131.8	108.1	144.8	2.1	-8.1	1.6	5	silty SAND to sandy SILT	120	4.0	27	33	70	41	-	16
37.57	118.5	97.0	135.6	1.9	-7.5	1.6	5	silty SAND to sandy SILT	120	4.0	24	30	66	41	-	16
37.73	98.1	80.2	131.7	1.9	-6.8	2.0	5	silty SAND to sandy SILT	120	4.0	20	25	60	40	-	16
37.90	126.0	102.8	145.6	2.2	-3.7	1.8	5	silty SAND to sandy SILT	120	4.0	26	32	68	41	-	16
38.06	138.0	112.4	156.8	2.5	-8.7	1.9	5	silty SAND to sandy SILT	120	4.0	28	34	71	41	-	16
38.22	128.4	104.4	152.7	2.5	-9.1	2.0	5	silty SAND to sandy SILT	120	4.0	26	32	68	41	-	16
38.39	115.8	94.0	142.3	2.2	-8.7	1.9	5	silty SAND to sandy SILT	120	4.0	24	29	65	41	-	16
38.55	105.7	85.7	133.3	2.0	-8.2	1.9	5	silty SAND to sandy SILT	120	4.0	21	26	62	40	-	16
38.72	89.1	72.1	131.2	1.9	-7.8	2.2	5	silty SAND to sandy SILT	120	4.0	18	22	56	39	-	16
38.88	63.2	51.1	130.2	1.8	-7.4	3.0	4	clayy SILT to silty CLAY	115	2.0	26	32	-	-	4.4	15
39.04	48.1	38.8	110.1	1.2	-7.1	2.7	4	clayy SILT to silty CLAY	115	2.0	19	24	-	-	3.3	15
39.21	32.1	22.1	-	1.0	-6.9	3.4	4	clayy SILT to silty CLAY	115	2.0	11	16	-	-	2.2	15
39.37	41.0	28.1	-	1.3	-5.9	3.3	4	clayy SILT to silty CLAY	115	2.0	14	21	-	-	2.8	15
39.54	106.8	85.8	120.5	1.5	-5.9	1.4	5	silty SAND to sandy SILT	120	4.0	21	27	62	40	-	16
39.70	132.2	106.0	139.2	1.9	-5.4	1.5	6	clean SAND to silty SAND	125	5.0	21	26	69	41	-	16
39.86	123.7	99.0	141.5	2.1	-5.0	1.8	5	silty SAND to sandy SILT	120	4.0	25	31	67	41	-	16
40.03	113.6	90.8	142.7	2.3	-4.3	2.1	5	silty SAND to sandy SILT	120	4.0	23	28	64	40	-	16
40.19	99.7	79.6	144.8	2.4	-3.6	2.5	5	silty SAND to sandy SILT	120	4.0	20	25	59	39	-	16
40.36	78.7	62.7	153.3	2.6	-3.0	3.4	4	clayy SILT to silty CLAY	115	2.0	31	39	-	-	5.5	15
40.52	51.7	34.7	-	2.2	-2.6	4.5	3	silty CLAY to CLAY	115	1.5	23	34	-	-	3.6	15
40.68	31.6	21.1	-	1.2	0.2	4.3	3	silty CLAY to CLAY	115	1.5	14	21	-	-	2.1	15
40.85	28.1	18.8	-	0.7	0.9	2.7	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.9	15
41.01	23.4	15.6	-	0.6	15.0	3.0	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.6	15
41.18	28.0	18.6	-	1.1	29.6	4.4	3	silty CLAY to CLAY	115	1.5	12	19	-	-	1.9	15
41.34	112.3	88.7	129.4	1.8	7.0	1.7	5	silty SAND to sandy SILT	120	4.0	22	28	63	40	-	16
41.50	102.9	81.2	139.3	2.2	2.9	2.2	5	silty SAND to sandy SILT	120	4.0	20	26	60	39	-	16
41.67	58.8	38.6	-	2.0	3.1	3.6	4	clayy SILT to silty CLAY	115	2.0	19	29	-	-	4.1	15
41.83	32.3	21.2	-	1.4	4.9	4.8	3	silty CLAY to CLAY	115	1.5	14	22	-	-	2.2	15
42.00	23.6	15.4	-	0.8	8.6	3.9	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.6	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Earth Mechanics
Data File: SDF(430).cpt
CPT Date: 11/21/2008 7:23:20 AM
GW During Test: 12 ft

Sounding ID: CPT-08-29
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	19.0	12.4	-	0.6	13.3	3.5	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
42.32	18.0	11.7	-	0.5	17.3	3.1	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
42.49	16.7	10.8	-	0.5	20.1	3.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
42.65	14.6	9.4	-	0.4	22.2	3.2	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
42.82	15.0	9.7	-	0.4	28.4	3.1	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
42.98	14.8	9.5	-	0.4	30.2	3.4	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
43.15	13.9	8.9	-	0.5	29.2	4.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
43.31	13.7	8.8	-	0.5	29.1	4.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
43.47	13.1	8.4	-	0.5	29.6	4.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
43.64	13.5	8.6	-	0.6	30.5	5.2	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
43.80	14.1	9.0	-	0.6	26.0	5.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
43.97	15.2	9.6	-	0.5	23.7	4.1	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
44.13	20.0	12.6	-	0.6	23.1	3.7	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
44.29	17.5	11.0	-	0.7	2.6	4.6	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.1	15
44.46	15.8	9.9	-	0.7	4.6	5.4	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
44.62	16.4	10.2	-	0.8	5.8	5.7	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
44.79	17.4	10.8	-	0.9	5.4	6.0	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.1	15
44.95	19.1	11.9	-	1.0	4.7	6.2	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
45.11	18.7	11.6	-	1.2	2.7	7.5	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
45.28	20.0	12.4	-	0.9	2.2	5.0	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
45.44	132.5	101.1	116.9	1.1	3.3	0.8	6	clean SAND to silty SAND	125	5.0	20	26	67	40	-	16
45.61	177.3	135.0	146.2	1.5	-5.9	0.8	6	clean SAND to silty SAND	125	5.0	27	35	77	42	-	16
45.77	200.8	152.7	163.2	1.8	-5.3	0.9	6	clean SAND to silty SAND	125	5.0	31	40	81	43	-	16
45.93	214.5	162.9	175.0	2.1	-5.0	1.0	6	clean SAND to silty SAND	125	5.0	33	43	83	43	-	16
46.10	218.1	165.3	182.0	2.5	-4.4	1.1	6	clean SAND to silty SAND	125	5.0	33	44	84	43	-	16
46.26	217.3	164.5	186.8	2.8	-3.8	1.3	6	clean SAND to silty SAND	125	5.0	33	43	83	43	-	16
46.43	217.6	164.4	193.6	3.3	-3.1	1.5	6	clean SAND to silty SAND	125	5.0	33	44	83	43	-	16
46.59	227.7	171.8	206.8	3.9	-2.1	1.7	6	clean SAND to silty SAND	125	5.0	34	46	85	43	-	16
46.75	240.3	181.0	216.5	4.2	-1.2	1.8	6	clean SAND to silty SAND	125	5.0	36	48	87	43	-	16
46.92	257.5	193.7	224.1	4.2	-0.5	1.6	6	clean SAND to silty SAND	125	5.0	39	52	89	44	-	16
47.08	261.9	196.7	223.1	4.0	-0.1	1.5	6	clean SAND to silty SAND	125	5.0	39	52	89	44	-	16
47.25	253.4	190.1	210.2	3.3	0.4	1.3	6	clean SAND to silty SAND	125	5.0	38	51	88	44	-	16
47.41	245.0	183.5	203.1	3.1	0.7	1.3	6	clean SAND to silty SAND	125	5.0	37	49	87	43	-	16
47.57	238.3	178.1	197.1	3.0	4.1	1.3	6	clean SAND to silty SAND	125	5.0	36	48	86	43	-	16
47.74	238.7	178.2	195.2	2.8	4.3	1.2	6	clean SAND to silty SAND	125	5.0	36	48	86	43	-	16
47.90	253.5	189.0	201.0	2.7	4.1	1.1	6	clean SAND to silty SAND	125	5.0	38	51	88	43	-	16
48.07	262.7	195.5	203.1	2.6	3.6	1.0	6	clean SAND to silty SAND	125	5.0	39	53	89	44	-	16
48.23	270.5	201.0	208.2	2.7	2.8	1.0	6	clean SAND to silty SAND	125	5.0	40	54	90	44	-	16
48.39	279.5	207.4	214.4	2.9	2.5	1.0	6	clean SAND to silty SAND	125	5.0	41	56	91	44	-	16
48.56	276.3	204.7	215.7	3.1	2.4	1.1	6	clean SAND to silty SAND	125	5.0	41	55	91	44	-	16
48.72	256.8	190.0	203.0	2.9	2.3	1.1	6	clean SAND to silty SAND	125	5.0	38	51	88	43	-	16
48.89	229.8	169.8	187.1	2.7	2.4	1.2	6	clean SAND to silty SAND	125	5.0	34	46	84	43	-	16
49.05	193.6	142.8	170.0	2.7	2.6	1.4	6	clean SAND to silty SAND	125	5.0	29	39	79	42	-	16
49.22	145.8	107.4	155.5	2.8	2.9	2.0	5	silty SAND to sandy SILT	120	4.0	27	36	69	40	-	16
49.38	89.5	65.8	154.6	2.9	3.0	3.3	4	clayy SILT to silty CLAY	115	2.0	33	45	-	-	6.2	15
49.54	43.9	25.1	-	2.0	3.3	4.9	3	silty CLAY to CLAY	115	1.5	17	29	-	-	3.0	15
49.71	23.7	13.5	-	1.2	4.9	5.6	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
49.87	21.2	12.1	-	0.6	7.3	3.4	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
50.04	24.0	13.7	-	1.1	10.6	5.0	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
50.20	67.1	49.0	121.6	1.7	19.2	2.7	5	silty SAND to sandy SILT	120	4.0	12	17	43	36	-	16
50.36	143.4	104.7	145.8	2.4	-0.8	1.7	5	silty SAND to sandy SILT	120	4.0	26	36	69	40	-	16
50.53	179.8	131.1	175.6	3.4	-6.5	1.9	5	silty SAND to sandy SILT	120	4.0	33	45	76	41	-	16
50.69	180.7	131.5	182.5	3.8	-6.5	2.1	5	silty SAND to sandy SILT	120	4.0	33	45	76	41	-	16
50.86	156.5	113.8	179.4	3.9	-3.4	2.6	5	silty SAND to sandy SILT	120	4.0	28	39	71	41	-	16
51.02	130.6	94.9	174.9	3.8	-3.2	3.0	5	silty SAND to sandy SILT	120	4.0	24	33	65	40	-	16
51.18	78.9	44.0	-	3.5	-3.1	4.6	4	clayy SILT to silty CLAY	115	2.0	22	39	-	-	5.5	15
51.35	38.6	21.4	-	2.1	-3.0	6.0	3	silty CLAY to CLAY	115	1.5	14	26	-	-	2.6	15
51.51	23.7	13.1	-	1.0	-2.2	4.7	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
51.68	29.7	16.4	-	1.0	2.4	3.7	3	silty CLAY to CLAY	115	1.5	11	20	-	-	2.0	15
51.84	49.7	27.4	-	1.3	6.2	2.7	4	clayy SILT to silty CLAY	115	2.0	14	25	-	-	3.4	15
52.00	70.6	50.9	94.2	1.0	3.9	1.5	5	silty SAND to sandy SILT	120	4.0	13	18	45	36	-	16
52.17	64.1	46.2	104.9	1.3	-5.9	2.1	5	silty SAND to sandy SILT	120	4.0	12	16	41	35	-	16
52.33	47.8	26.2	-	1.4	-6.9	3.1	4	clayy SILT to silty CLAY	115	2.0	13	24	-	-	3.3	15
52.50	33.3	18.2	-	1.2	-6.4	4.1	3	silty CLAY to CLAY	115	1.5	12	22	-	-	2.2	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(430).cpt
CPT Date: 11/21/2008 7:23:20 AM
GW During Test: 12 ft

Sounding ID: CPT-08-29
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	25.2	13.7	-	0.9	-5.8	4.2	3	silty CLAY to CLAY	115	1.5	9	17	-	-	1.7	15
52.82	22.0	12.0	-	0.7	-5.4	3.8	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.4	15
52.99	24.8	13.5	-	0.7	-5.1	3.0	3	silty CLAY to CLAY	115	1.5	9	17	-	-	1.6	15
53.15	18.7	10.1	-	0.6	-4.9	4.1	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
53.32	19.4	10.5	-	0.6	-4.5	3.4	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
53.48	18.0	9.7	-	0.6	-4.2	4.2	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.2	15
53.64	19.6	10.6	-	0.5	-3.9	2.9	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
53.81	19.3	10.4	-	0.6	-3.6	3.5	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
53.97	21.0	11.2	-	0.7	-3.1	4.0	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.4	15
54.14	46.3	32.9	91.1	0.9	-2.6	2.0	4	clayy SILT to silty CLAY	115	2.0	16	23	-	-	3.2	15
54.30	67.0	47.5	98.1	1.1	-2.6	1.8	5	silty SAND to sandy SILT	120	4.0	12	17	42	36	-	16
54.46	74.7	52.9	111.7	1.5	-3.8	2.1	5	silty SAND to sandy SILT	120	4.0	13	19	46	36	-	16
54.63	80.9	57.2	119.6	1.8	-3.3	2.3	5	silty SAND to sandy SILT	120	4.0	14	20	49	37	-	16
54.79	83.6	59.1	124.0	1.9	-3.0	2.4	5	silty SAND to sandy SILT	120	4.0	15	21	50	37	-	16
54.96	88.1	62.2	124.8	2.0	-2.7	2.3	5	silty SAND to sandy SILT	120	4.0	16	22	51	37	-	16
55.12	89.0	62.7	129.9	2.1	-2.3	2.5	5	silty SAND to sandy SILT	120	4.0	16	22	52	37	-	16
55.28	86.1	60.6	131.2	2.2	0.3	2.6	5	silty SAND to sandy SILT	120	4.0	15	22	50	37	-	16
55.45	83.3	58.6	129.7	2.1	0.7	2.6	5	silty SAND to sandy SILT	120	4.0	15	21	49	37	-	16
55.61	81.7	57.4	125.5	2.0	1.0	2.5	5	silty SAND to sandy SILT	120	4.0	14	20	49	37	-	16
55.78	78.5	55.0	121.2	1.8	1.3	2.4	5	silty SAND to sandy SILT	120	4.0	14	20	47	36	-	16
55.94	73.4	51.4	115.2	1.6	1.5	2.3	5	silty SAND to sandy SILT	120	4.0	13	18	45	36	-	16
56.11	65.0	45.5	110.2	1.4	0.7	2.3	5	silty SAND to sandy SILT	120	4.0	11	16	41	35	-	16
56.27	55.7	38.9	103.7	1.2	0.4	2.3	5	silty SAND to sandy SILT	120	4.0	10	14	36	34	-	16
56.43	47.3	24.4	-	1.1	0.6	2.4	4	clayy SILT to silty CLAY	115	2.0	12	24	-	-	3.2	15
56.60	37.0	19.0	-	0.7	0.8	2.2	4	clayy SILT to silty CLAY	115	2.0	10	18	-	-	2.5	15
56.76	28.9	14.9	-	0.7	0.9	2.6	3	silty CLAY to CLAY	115	1.5	10	19	-	-	1.9	15
56.93	20.0	10.3	-	0.7	1.4	4.5	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
57.09	17.3	8.9	-	1.1	2.4	7.7	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
57.25	18.4	9.4	-	0.9	2.9	6.2	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.2	15
57.42	38.1	19.4	-	0.9	3.0	2.7	4	clayy SILT to silty CLAY	115	2.0	10	19	-	-	2.6	15
57.58	46.9	23.8	-	1.0	2.1	2.3	4	clayy SILT to silty CLAY	115	2.0	12	23	-	-	3.2	15
57.75	45.3	23.0	-	1.1	3.2	2.7	4	clayy SILT to silty CLAY	115	2.0	11	23	-	-	3.1	15
57.91	39.1	19.8	-	1.0	4.2	2.9	4	clayy SILT to silty CLAY	115	2.0	10	20	-	-	2.6	15
58.07	31.4	15.9	-	0.9	5.1	3.3	3	silty CLAY to CLAY	115	1.5	11	21	-	-	2.1	15
58.24	27.0	13.6	-	0.8	5.7	3.5	3	silty CLAY to CLAY	115	1.5	9	18	-	-	1.8	15
58.40	28.0	14.1	-	0.7	6.2	2.9	3	silty CLAY to CLAY	115	1.5	9	19	-	-	1.9	15
58.57	30.6	15.4	-	0.6	6.8	2.2	4	clayy SILT to silty CLAY	115	2.0	8	15	-	-	2.0	15
58.73	29.2	14.6	-	0.6	7.4	2.4	4	clayy SILT to silty CLAY	115	2.0	7	15	-	-	1.9	15
58.89	21.0	10.5	-	0.6	8.4	3.5	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.4	15
59.06	19.8	9.9	-	0.7	10.2	4.3	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
59.22	52.7	26.2	-	1.1	13.5	2.3	4	clayy SILT to silty CLAY	115	2.0	13	26	-	-	3.6	15
59.39	165.5	113.3	137.9	1.9	7.9	1.2	6	clean SAND to silty SAND	125	5.0	23	33	71	40	-	16
59.55	214.2	146.3	169.2	2.7	9.6	1.3	6	clean SAND to silty SAND	125	5.0	29	43	80	42	-	16
59.71	235.8	160.9	189.2	3.5	9.3	1.5	6	clean SAND to silty SAND	125	5.0	32	47	83	42	-	16
59.88	232.7	158.6	193.0	3.9	7.9	1.7	6	clean SAND to silty SAND	125	5.0	32	47	82	42	-	16
60.04	226.2	154.0	193.4	4.1	8.9	1.8	6	clean SAND to silty SAND	125	5.0	31	45	81	42	-	16
60.21	232.6	158.1	191.7	3.8	7.9	1.7	6	clean SAND to silty SAND	125	5.0	32	47	82	42	-	16
60.37	241.5	164.0	195.7	3.8	8.0	1.6	6	clean SAND to silty SAND	125	5.0	33	48	83	42	-	16
60.53	243.4	165.1	194.7	3.7	9.5	1.5	6	clean SAND to silty SAND	125	5.0	33	49	84	42	-	16
60.70	251.1	170.0	199.5	3.9	8.5	1.6	6	clean SAND to silty SAND	125	5.0	34	50	85	42	-	16
60.86	266.4	180.2	204.7	3.8	7.9	1.4	6	clean SAND to silty SAND	125	5.0	36	53	86	43	-	16
61.03	272.5	184.1	204.6	3.5	6.6	1.3	6	clean SAND to silty SAND	125	5.0	37	54	87	43	-	16
61.19	272.8	184.1	201.8	3.3	5.9	1.2	6	clean SAND to silty SAND	125	5.0	37	55	87	43	-	16
61.35	269.4	181.6	199.4	3.3	6.0	1.2	6	clean SAND to silty SAND	125	5.0	36	54	87	43	-	16
61.52	269.3	181.3	198.4	3.2	6.4	1.2	6	clean SAND to silty SAND	125	5.0	36	54	87	43	-	16
61.68	278.8	187.5	203.2	3.3	7.1	1.2	6	clean SAND to silty SAND	125	5.0	37	56	88	43	-	16
61.85	279.4	187.6	202.8	3.2	6.5	1.2	6	clean SAND to silty SAND	125	5.0	38	56	88	43	-	16
62.01	274.6	184.2	204.0	3.5	7.8	1.3	6	clean SAND to silty SAND	125	5.0	37	55	87	43	-	16
62.17	264.5	177.2	202.2	3.8	7.1	1.4	6	clean SAND to silty SAND	125	5.0	35	53	86	42	-	16
62.34	254.5	170.2	198.0	3.8	6.7	1.5	6	clean SAND to silty SAND	125	5.0	34	51	85	42	-	16
62.50	236.7	158.2	190.1	3.7	6.8	1.6	6	clean SAND to silty SAND	125	5.0	32	47	82	42	-	16
62.67	216.9	144.7	184.9	3.9	7.2	1.8	6	clean SAND to silty SAND	125	5.0	29	43	79	41	-	16
62.83	206.6	137.7	186.7	4.2	8.0	2.1	5	silty SAND to sandy SILT	120	4.0	34	52	78	41	-	16
63.00	210.5	140.2	194.9	4.7	8.5	2.3	5	silty SAND to sandy SILT	120	4.0	35	53	78	41	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(430).cpt
CPT Date: 11/21/2008 7:23:20 AM
GW During Test: 12 ft

Sounding ID: CPT-08-29
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	220.3	146.5	204.8	5.2	7.7	2.4	5	silty SAND to sandy SILT	120	4.0	37	55	80	41	-	16
63.32	236.0	156.8	210.8	5.3	6.8	2.3	5	silty SAND to sandy SILT	120	4.0	39	59	82	42	-	16
63.49	256.0	169.9	213.8	5.0	5.6	2.0	6	clean SAND to silty SAND	125	5.0	34	51	84	42	-	16
63.65	277.4	183.9	210.3	4.1	8.9	1.5	6	clean SAND to silty SAND	125	5.0	37	55	87	43	-	16
63.82	297.4	196.9	212.0	3.5	7.7	1.2	6	clean SAND to silty SAND	125	5.0	39	59	89	43	-	16
63.98	289.6	191.5	208.0	3.5	7.1	1.2	6	clean SAND to silty SAND	125	5.0	38	58	88	43	-	16
64.14	272.4	179.9	196.8	3.2	9.1	1.2	6	clean SAND to silty SAND	125	5.0	36	54	86	42	-	16
64.31	262.0	172.8	191.1	3.1	8.2	1.2	6	clean SAND to silty SAND	125	5.0	35	52	85	42	-	16
64.47	260.2	171.4	191.6	3.3	7.8	1.3	6	clean SAND to silty SAND	125	5.0	34	52	85	42	-	16
64.64	268.1	176.4	202.0	3.8	8.6	1.5	6	clean SAND to silty SAND	125	5.0	35	54	86	42	-	16
64.80	272.6	179.2	199.0	3.4	8.5	1.3	6	clean SAND to silty SAND	125	5.0	36	55	86	42	-	16
64.96	257.7	169.2	201.5	4.2	7.1	1.6	6	clean SAND to silty SAND	125	5.0	34	52	84	42	-	16
65.13	286.4	187.8	233.1	5.9	10.8	2.1	6	clean SAND to silty SAND	125	5.0	38	57	88	43	-	16
65.29	284.2	186.2	214.5	4.4	5.7	1.6	6	clean SAND to silty SAND	125	5.0	37	57	88	43	-	16
65.46	62.2	28.2	-	2.9	13.7	5.0	3	silty CLAY to CLAY	115	1.5	19	41	-	-	4.3	15
65.62	60.5	39.6	101.1	1.2	8.0	2.2	5	silty SAND to sandy SILT	120	4.0	10	15	36	34	-	16
65.78	52.6	34.4	80.6	0.7	4.8	1.5	5	silty SAND to sandy SILT	120	4.0	9	13	32	33	-	16
65.95	18.6	8.4	-	0.6	5.3	3.9	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.2	15
66.11	10.3	4.6	-	1.3	8.2	9.9	2	Organic SOILS - Peats	100	1.0	5	10	-	-	0.9	10
66.28	26.8	12.1	-	3.0	11.2	9.9	3	silty CLAY to CLAY	115	1.5	8	18	-	-	1.8	15
66.44	81.5	36.6	-	2.7	-1.2	3.5	4	clayy SILT to silty CLAY	115	2.0	18	41	-	-	5.6	15
66.60	104.2	67.7	153.5	3.2	0.8	3.2	4	clayy SILT to silty CLAY	115	2.0	34	52	-	-	7.2	15
66.77	214.5	139.3	189.2	4.5	0.9	2.1	5	silty SAND to sandy SILT	120	4.0	35	54	78	41	-	16
66.93	283.5	183.9	216.3	4.7	1.7	1.7	6	clean SAND to silty SAND	125	5.0	37	57	87	42	-	16
67.10	336.1	217.7	240.3	4.9	3.1	1.5	6	clean SAND to silty SAND	125	5.0	44	67	93	43	-	16
67.26	306.8	198.5	227.9	4.9	8.7	1.6	6	clean SAND to silty SAND	125	5.0	40	61	90	43	-	16
67.42	291.9	188.7	216.0	4.4	8.5	1.5	6	clean SAND to silty SAND	125	5.0	38	58	88	43	-	16
67.59	315.0	203.4	217.8	3.8	9.3	1.2	6	clean SAND to silty SAND	125	5.0	41	63	90	43	-	16
67.75	315.0	203.2	213.9	3.5	7.5	1.1	6	clean SAND to silty SAND	125	5.0	41	63	90	43	-	16
67.92	310.8	200.2	204.6	2.9	6.7	0.9	6	clean SAND to silty SAND	125	5.0	40	62	90	43	-	16
68.08	287.2	184.8	187.3	2.4	5.4	0.8	6	clean SAND to silty SAND	125	5.0	37	57	87	42	-	16
68.24	298.8	192.0	192.0	2.4	6.4	0.8	6	clean SAND to silty SAND	125	5.0	38	60	89	43	-	16
68.41	339.3	217.8	217.8	2.2	7.7	0.7	6	clean SAND to silty SAND	125	5.0	44	68	93	43	-	16
68.57	353.3	226.6	226.6	2.4	7.9	0.7	6	clean SAND to silty SAND	125	5.0	45	71	94	43	-	16
68.74	368.5	236.0	236.0	2.7	11.2	0.8	6	clean SAND to silty SAND	125	5.0	47	74	95	44	-	16
68.90	388.4	248.5	248.5	3.1	12.2	0.8	6	clean SAND to silty SAND	125	5.0	50	78	95	44	-	16
69.07	378.1	241.7	241.7	3.7	11.6	1.0	6	clean SAND to silty SAND	125	5.0	48	76	95	44	-	16
69.23	341.9	218.3	225.7	3.7	9.8	1.1	6	clean SAND to silty SAND	125	5.0	44	68	93	43	-	16
69.39	355.5	226.7	229.1	3.6	10.0	1.0	6	clean SAND to silty SAND	125	5.0	45	71	94	43	-	16
69.56	375.4	239.1	254.9	5.0	6.7	1.4	6	clean SAND to silty SAND	125	5.0	48	75	95	44	-	16
69.72	393.0	250.1	285.6	7.4	7.9	1.9	6	clean SAND to silty SAND	125	5.0	50	79	95	44	-	16
69.89	423.8	269.3	305.4	8.2	9.6	2.0	6	clean SAND to silty SAND	125	5.0	54	85	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(459).cpt
CPT Date: 12/3/2008 12:27:03 PM
GW During Test: 12 ft

Sounding ID: CPT-08-30
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	29.2	46.8	68.2	0.2	0.0	0.7	5	silty SAND to sandy SILT	120	4.0	12	7	42	48	-	16
0.49	50.1	80.4	97.1	0.4	0.0	0.8	6	clean SAND to silty SAND	125	5.0	16	10	60	48	-	16
0.66	58.2	93.3	111.0	0.5	0.0	0.9	6	clean SAND to silty SAND	125	5.0	19	12	65	48	-	16
0.82	56.4	90.5	113.6	0.6	0.0	1.1	6	clean SAND to silty SAND	125	5.0	18	11	64	48	-	16
0.98	48.6	77.9	108.7	0.6	-0.1	1.3	5	silty SAND to sandy SILT	120	4.0	19	12	59	48	-	16
1.15	44.2	70.9	102.5	0.6	-0.1	1.3	5	silty SAND to sandy SILT	120	4.0	18	11	56	48	-	16
1.31	41.9	67.2	101.1	0.6	0.0	1.3	5	silty SAND to sandy SILT	120	4.0	17	10	54	48	-	16
1.48	46.3	74.2	113.6	0.7	0.0	1.6	5	silty SAND to sandy SILT	120	4.0	19	12	57	48	-	16
1.64	67.4	108.0	150.6	1.2	0.0	1.8	5	silty SAND to sandy SILT	120	4.0	27	17	70	48	-	16
1.80	64.8	103.9	174.0	1.8	-0.1	2.7	5	silty SAND to sandy SILT	120	4.0	26	16	68	48	-	16
1.97	52.7	84.5	155.9	1.4	0.0	2.7	5	silty SAND to sandy SILT	120	4.0	21	13	61	48	-	16
2.13	42.9	68.8	156.3	1.4	-0.5	3.3	4	clayy SILT to silty CLAY	115	2.0	34	21	-	-	3.0	15
2.30	32.5	52.1	149.7	1.3	0.0	3.9	4	clayy SILT to silty CLAY	115	2.0	26	16	-	-	2.3	15
2.46	29.4	47.1	129.2	0.9	-0.2	3.2	4	clayy SILT to silty CLAY	115	2.0	24	15	-	-	2.1	15
2.62	25.2	40.4	108.3	0.7	-0.1	2.6	4	clayy SILT to silty CLAY	115	2.0	20	13	-	-	1.8	15
2.79	14.8	23.7	-	0.5	0.1	3.4	4	clayy SILT to silty CLAY	115	2.0	12	7	-	-	1.0	15
2.95	9.3	14.9	-	0.4	0.1	4.6	3	silty CLAY to CLAY	115	1.5	10	6	-	-	0.6	15
3.12	8.0	12.8	-	0.3	-0.1	4.4	3	silty CLAY to CLAY	115	1.5	9	5	-	-	0.6	15
3.28	12.4	20.0	-	0.4	0.1	3.0	4	clayy SILT to silty CLAY	115	2.0	10	6	-	-	0.9	15
3.45	21.3	34.2	102.5	0.6	0.1	2.7	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.5	15
3.61	23.7	38.1	108.0	0.6	0.1	2.7	4	clayy SILT to silty CLAY	115	2.0	19	12	-	-	1.7	15
3.77	26.2	42.0	107.6	0.6	0.0	2.5	5	silty SAND to sandy SILT	120	4.0	11	7	38	42	-	16
3.94	25.5	40.8	112.0	0.7	0.1	2.7	4	clayy SILT to silty CLAY	115	2.0	20	13	-	-	1.8	15
4.10	25.2	40.4	124.0	0.8	0.1	3.3	4	clayy SILT to silty CLAY	115	2.0	20	13	-	-	1.8	15
4.27	30.2	48.5	149.3	1.2	0.1	4.1	4	clayy SILT to silty CLAY	115	2.0	24	15	-	-	2.1	15
4.43	37.3	59.8	178.3	1.7	-0.1	4.7	4	clayy SILT to silty CLAY	115	2.0	30	19	-	-	2.6	15
4.59	31.0	49.8	-	1.7	-0.2	5.6	3	silty CLAY to CLAY	115	1.5	33	21	-	-	2.2	15
4.76	38.8	62.2	174.8	1.7	1.8	4.4	4	clayy SILT to silty CLAY	115	2.0	31	19	-	-	2.7	15
4.92	113.7	182.4	221.9	2.2	-0.1	1.9	6	clean SAND to silty SAND	125	5.0	36	23	87	48	-	16
5.09	123.7	198.3	242.1	2.5	-0.1	2.1	6	clean SAND to silty SAND	125	5.0	40	25	90	48	-	16
5.25	89.4	143.4	218.3	2.6	-0.2	2.9	5	silty SAND to sandy SILT	120	4.0	36	22	79	47	-	16
5.41	55.8	89.4	142.6	1.2	0.1	2.1	5	silty SAND to sandy SILT	120	4.0	22	14	63	45	-	16
5.58	32.8	52.6	153.2	1.3	0.1	4.0	4	clayy SILT to silty CLAY	115	2.0	26	16	-	-	2.3	15
5.74	35.5	57.0	158.3	1.4	-0.6	4.0	4	clayy SILT to silty CLAY	115	2.0	29	18	-	-	2.5	15
5.91	37.3	59.8	151.1	1.3	-0.2	3.5	4	clayy SILT to silty CLAY	115	2.0	30	19	-	-	2.6	15
6.07	57.0	91.4	168.3	1.7	-0.2	2.9	5	silty SAND to sandy SILT	120	4.0	23	14	64	44	-	16
6.23	57.9	92.7	185.6	2.0	0.3	3.5	5	silty SAND to sandy SILT	120	4.0	23	14	65	44	-	16
6.40	55.7	88.0	199.6	2.3	0.3	4.1	4	clayy SILT to silty CLAY	115	2.0	44	28	-	-	3.9	15
6.56	65.4	102.2	193.5	2.2	0.4	3.4	5	silty SAND to sandy SILT	120	4.0	26	16	68	45	-	16
6.73	89.6	138.1	205.6	2.4	0.3	2.7	5	silty SAND to sandy SILT	120	4.0	35	22	78	46	-	16
6.89	62.9	95.8	175.8	1.9	0.2	3.0	5	silty SAND to sandy SILT	120	4.0	24	16	66	44	-	16
7.05	57.2	86.1	170.1	1.8	0.3	3.2	5	silty SAND to sandy SILT	120	4.0	22	14	62	44	-	16
7.22	109.0	162.0	195.3	1.8	0.3	1.7	6	clean SAND to silty SAND	125	5.0	32	22	83	47	-	16
7.38	126.9	186.5	213.5	1.9	0.3	1.5	6	clean SAND to silty SAND	125	5.0	37	25	88	47	-	16
7.55	113.7	165.1	200.7	2.0	0.2	1.8	6	clean SAND to silty SAND	125	5.0	33	23	84	47	-	16
7.71	89.1	128.0	188.7	2.2	0.2	2.5	5	silty SAND to sandy SILT	120	4.0	32	22	75	46	-	16
7.87	52.2	74.1	178.2	2.0	0.2	3.9	4	clayy SILT to silty CLAY	115	2.0	37	26	-	-	3.7	15
8.04	30.7	49.3	-	1.6	0.2	5.4	3	silty CLAY to CLAY	115	1.5	33	20	-	-	2.1	15
8.20	33.6	53.9	166.7	1.5	0.3	4.5	4	clayy SILT to silty CLAY	115	2.0	27	17	-	-	2.4	15
8.37	59.7	82.4	150.4	1.5	0.3	2.6	5	silty SAND to sandy SILT	120	4.0	21	15	61	44	-	16
8.53	84.3	115.2	146.2	1.2	0.3	1.5	6	clean SAND to silty SAND	125	5.0	23	17	72	45	-	16
8.69	88.5	119.7	163.0	1.7	0.3	1.9	5	silty SAND to sandy SILT	120	4.0	30	22	73	45	-	16
8.86	73.0	97.8	151.7	1.6	0.4	2.2	5	silty SAND to sandy SILT	120	4.0	24	18	66	44	-	16
9.02	48.8	64.8	154.2	1.6	0.4	3.4	4	clayy SILT to silty CLAY	115	2.0	32	24	-	-	3.4	15
9.19	66.7	87.8	151.5	1.6	0.2	2.5	5	silty SAND to sandy SILT	120	4.0	22	17	63	44	-	16
9.35	59.8	78.0	144.0	1.5	0.3	2.5	5	silty SAND to sandy SILT	120	4.0	20	15	59	43	-	16
9.51	47.9	62.0	136.3	1.3	0.4	2.8	5	silty SAND to sandy SILT	120	4.0	15	12	51	42	-	16
9.68	44.4	56.9	133.5	1.3	0.3	2.9	4	clayy SILT to silty CLAY	115	2.0	28	22	-	-	3.1	15
9.84	41.4	52.6	130.1	1.2	0.3	3.0	4	clayy SILT to silty CLAY	115	2.0	26	21	-	-	2.9	15
10.01	38.1	48.0	127.6	1.2	-0.4	3.1	4	clayy SILT to silty CLAY	115	2.0	24	19	-	-	2.7	15
10.17	30.9	43.2	137.9	1.2	-0.3	3.8	4	clayy SILT to silty CLAY	115	2.0	22	15	-	-	2.2	15
10.34	17.8	28.5	-	0.8	0.5	4.6	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.2	15
10.50	11.7	18.7	-	0.7	0.6	6.0	3	silty CLAY to CLAY	115	1.5	12	8	-	-	0.8	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(459).cpt
CPT Date: 12/3/2008 12:27:03 PM
GW During Test: 12 ft

Sounding ID: CPT-08-30
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	12.3	19.4	-	0.5	0.5	4.7	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
10.83	24.0	29.1	93.0	0.6	0.7	2.4	4	clayy SILT to silty CLAY	115	2.0	15	12	-	-	1.7	15
10.99	29.4	35.5	93.2	0.6	1.1	2.1	5	silty SAND to sandy SILT	120	4.0	9	7	33	39	-	16
11.16	24.1	31.7	99.8	0.6	1.0	2.6	4	clayy SILT to silty CLAY	115	2.0	16	12	-	-	1.7	15
11.32	14.8	22.2	-	0.5	1.2	3.9	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.0	15
11.48	9.5	14.0	-	0.5	1.8	5.3	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
11.65	7.8	11.3	-	0.4	2.9	6.1	3	silty CLAY to CLAY	115	1.5	8	5	-	-	0.5	15
11.81	10.5	15.1	-	0.6	4.0	6.0	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.7	15
11.98	25.8	29.9	83.9	0.5	1.3	1.9	4	clayy SILT to silty CLAY	115	2.0	15	13	-	-	1.8	15
12.14	23.3	29.1	-	0.6	-1.1	2.8	4	clayy SILT to silty CLAY	115	2.0	15	12	-	-	1.6	15
12.30	20.8	29.1	-	0.7	0.0	3.7	4	clayy SILT to silty CLAY	115	2.0	15	10	-	-	1.4	15
12.47	24.4	30.2	-	0.7	-1.6	2.8	4	clayy SILT to silty CLAY	115	2.0	15	12	-	-	1.7	15
12.63	21.4	29.6	-	0.7	-2.2	3.3	4	clayy SILT to silty CLAY	115	2.0	15	11	-	-	1.5	15
12.80	26.9	33.0	105.3	0.7	-1.2	2.8	4	clayy SILT to silty CLAY	115	2.0	16	13	-	-	1.9	15
12.96	21.2	29.0	-	0.8	-5.0	3.8	4	clayy SILT to silty CLAY	115	2.0	14	11	-	-	1.5	15
13.12	29.1	32.9	101.7	0.7	-6.7	2.6	4	clayy SILT to silty CLAY	115	2.0	16	15	-	-	2.0	15
13.29	30.0	33.9	84.3	0.5	-7.3	1.8	5	silty SAND to sandy SILT	120	4.0	8	8	31	38	-	16
13.45	25.7	28.9	75.0	0.4	-5.6	1.5	5	silty SAND to sandy SILT	120	4.0	7	6	26	37	-	16
13.62	23.2	26.0	77.8	0.4	-3.6	1.8	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.6	15
13.78	23.6	26.4	83.7	0.5	-6.2	2.1	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.6	15
13.94	19.1	25.1	-	0.6	-2.9	3.4	4	clayy SILT to silty CLAY	115	2.0	13	10	-	-	1.3	15
14.11	18.8	24.6	-	0.7	-1.3	3.8	4	clayy SILT to silty CLAY	115	2.0	12	9	-	-	1.3	15
14.27	18.4	24.0	-	0.7	-4.5	3.9	4	clayy SILT to silty CLAY	115	2.0	12	9	-	-	1.3	15
14.44	17.9	23.2	-	0.7	-4.4	3.9	3	silty CLAY to CLAY	115	1.5	15	12	-	-	1.2	15
14.60	25.6	33.0	-	0.8	-4.4	3.3	4	clayy SILT to silty CLAY	115	2.0	16	13	-	-	1.8	15
14.76	25.5	32.6	-	0.8	-3.1	3.4	4	clayy SILT to silty CLAY	115	2.0	16	13	-	-	1.8	15
14.93	20.8	26.5	-	0.8	-3.3	4.1	3	silty CLAY to CLAY	115	1.5	18	14	-	-	1.4	15
15.09	21.7	27.5	-	0.7	-3.0	3.3	4	clayy SILT to silty CLAY	115	2.0	14	11	-	-	1.5	15
15.26	30.3	33.1	74.9	0.4	-5.4	1.4	5	silty SAND to sandy SILT	120	4.0	8	8	30	38	-	16
15.42	29.0	31.5	78.7	0.4	-4.6	1.6	5	silty SAND to sandy SILT	120	4.0	8	7	29	37	-	16
15.58	20.5	25.5	-	0.7	0.5	3.4	4	clayy SILT to silty CLAY	115	2.0	13	10	-	-	1.4	15
15.75	11.8	14.6	-	0.6	0.7	6.0	3	silty CLAY to CLAY	115	1.5	10	8	-	-	0.8	15
15.91	10.6	13.0	-	0.7	2.2	7.1	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
16.08	17.0	20.8	-	0.8	1.9	5.0	3	silty CLAY to CLAY	115	1.5	14	11	-	-	1.2	15
16.24	13.5	16.4	-	0.8	1.7	6.1	3	silty CLAY to CLAY	115	1.5	11	9	-	-	0.9	15
16.40	10.8	13.1	-	0.6	1.9	6.1	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
16.57	9.2	11.1	-	0.5	1.7	6.4	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
16.73	7.9	9.5	-	0.5	1.7	6.5	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.90	7.4	8.9	-	0.4	1.4	6.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
17.06	6.9	8.1	-	0.4	1.2	7.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
17.23	6.3	7.4	-	0.5	1.0	9.3	2	Organic SOILS - Peats	100	1.0	7	6	-	-	0.6	10
17.39	9.6	11.2	-	0.6	1.2	7.2	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
17.55	13.0	15.3	-	0.7	-0.1	5.7	3	silty CLAY to CLAY	115	1.5	10	9	-	-	0.9	15
17.72	8.0	9.3	-	0.4	-7.0	5.7	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
17.88	7.9	9.2	-	0.7	-7.7	9.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
18.05	16.3	18.8	-	1.4	-8.3	9.2	3	silty CLAY to CLAY	115	1.5	13	11	-	-	1.1	15
18.21	20.6	23.7	-	1.8	-8.9	9.2	3	silty CLAY to CLAY	115	1.5	16	14	-	-	1.4	15
18.37	19.5	22.3	-	1.9	-9.1	9.9	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.3	15
18.54	19.2	21.8	-	1.7	-9.5	9.3	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.3	15
18.70	20.6	23.3	-	1.8	-4.3	9.2	3	silty CLAY to CLAY	115	1.5	16	14	-	-	1.4	15
18.87	18.9	21.3	-	1.9	-0.9	9.9	3	silty CLAY to CLAY	115	1.5	14	13	-	-	1.3	15
19.03	19.3	21.7	-	1.9	-2.6	9.9	3	silty CLAY to CLAY	115	1.5	14	13	-	-	1.3	15
19.19	18.0	20.0	-	1.8	-7.1	9.9	3	silty CLAY to CLAY	115	1.5	13	12	-	-	1.2	15
19.36	16.4	18.2	-	1.8	-6.5	9.9	3	silty CLAY to CLAY	115	1.5	12	11	-	-	1.1	15
19.52	15.5	17.1	-	1.6	-8.3	9.9	3	silty CLAY to CLAY	115	1.5	11	10	-	-	1.1	15
19.69	13.3	14.6	-	1.4	-8.5	9.9	3	silty CLAY to CLAY	115	1.5	10	9	-	-	0.9	15
19.85	10.8	11.8	-	0.9	-9.0	9.5	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
20.01	8.7	9.5	-	0.7	-8.9	9.5	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
20.18	9.2	10.0	-	0.7	-8.8	8.8	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
20.34	9.0	9.7	-	0.9	-8.7	9.9	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
20.51	8.5	9.1	-	0.8	-8.5	9.9	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
20.67	9.0	9.6	-	0.8	-8.4	9.9	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
20.83	8.1	8.6	-	0.7	-8.3	9.6	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
21.00	7.3	7.7	-	0.6	-8.1	9.5	2	Organic SOILS - Peats	100	1.0	8	7	-	-	0.7	10

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(459).cpt
CPT Date: 12/3/2008 12:27:03 PM
GW During Test: 12 ft

Sounding ID: CPT-08-30
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	8.5	8.9	-	0.4	-7.9	5.9	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
21.33	6.8	7.1	-	0.3	-8.0	5.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
21.49	5.5	5.7	-	0.3	-7.9	7.9	2	Organic SOILS - Peats	100	1.0	6	5	-	-	0.5	10
21.65	7.1	7.4	-	0.3	-7.7	5.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.82	6.2	6.4	-	0.3	-7.7	6.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.98	5.5	5.7	-	0.3	-4.4	7.9	2	Organic SOILS - Peats	100	1.0	6	5	-	-	0.5	10
22.15	8.1	8.3	-	0.3	-4.1	4.1	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
22.31	6.9	7.1	-	0.3	-4.9	5.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
22.47	5.7	5.8	-	0.3	-4.5	6.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.64	5.9	6.0	-	0.3	-4.1	7.4	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
22.80	6.3	6.4	-	0.4	0.4	7.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.97	6.1	6.2	-	0.3	0.8	7.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.13	5.4	5.5	-	0.3	1.2	8.3	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
23.30	6.8	6.8	-	0.3	1.6	6.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
23.46	8.0	7.9	-	0.4	0.8	6.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.62	6.7	6.6	-	0.6	1.2	9.9	2	Organic SOILS - Peats	100	1.0	7	7	-	-	0.6	10
23.79	8.4	8.3	-	0.8	1.0	9.9	2	Organic SOILS - Peats	100	1.0	8	8	-	-	0.8	10
23.95	7.8	7.7	-	0.7	1.0	9.9	2	Organic SOILS - Peats	100	1.0	8	8	-	-	0.8	10
24.12	6.6	6.5	-	0.5	1.3	9.2	2	Organic SOILS - Peats	100	1.0	7	7	-	-	0.6	10
24.28	5.6	5.5	-	0.4	1.9	9.9	2	Organic SOILS - Peats	100	1.0	5	6	-	-	0.5	10
24.44	5.4	5.3	-	0.4	2.3	9.8	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
24.61	5.4	5.3	-	0.4	2.6	9.9	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
24.77	5.5	5.3	-	0.4	2.9	9.9	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
24.94	5.5	5.3	-	0.3	3.1	8.5	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
25.10	5.4	5.2	-	0.3	3.2	7.7	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
25.26	5.5	5.3	-	0.3	3.3	8.2	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
25.43	5.4	5.2	-	0.4	4.0	9.3	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
25.59	5.5	5.2	-	0.3	4.2	8.1	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
25.76	5.4	5.2	-	0.3	4.6	8.7	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
25.92	5.6	5.3	-	0.3	5.1	8.4	2	Organic SOILS - Peats	100	1.0	5	6	-	-	0.5	10
26.08	6.1	5.8	-	0.3	5.4	7.0	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
26.25	6.1	5.8	-	0.3	5.7	7.2	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
26.41	14.1	13.3	-	0.4	6.8	3.3	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
26.58	40.3	37.9	83.1	0.6	0.4	1.5	5	silty SAND to sandy SILT	120	4.0	9	10	35	37	-	16
26.74	56.3	52.9	78.5	0.5	1.1	0.9	5	silty SAND to sandy SILT	120	4.0	13	14	46	39	-	16
26.90	65.8	61.7	90.2	0.7	1.8	1.1	5	silty SAND to sandy SILT	120	4.0	15	16	51	39	-	16
27.07	70.3	65.7	98.7	0.9	2.2	1.3	5	silty SAND to sandy SILT	120	4.0	16	18	53	40	-	16
27.23	73.6	68.7	103.4	1.0	2.4	1.4	5	silty SAND to sandy SILT	120	4.0	17	18	55	40	-	16
27.40	73.1	68.1	100.3	0.9	2.7	1.3	5	silty SAND to sandy SILT	120	4.0	17	18	54	40	-	16
27.56	74.6	69.3	107.4	1.1	2.7	1.5	5	silty SAND to sandy SILT	120	4.0	17	19	55	40	-	16
27.72	74.0	68.6	111.2	1.2	0.2	1.6	5	silty SAND to sandy SILT	120	4.0	17	18	55	40	-	16
27.89	74.1	68.6	114.4	1.3	1.8	1.8	5	silty SAND to sandy SILT	120	4.0	17	19	55	40	-	16
28.05	76.9	71.0	112.8	1.2	0.2	1.6	5	silty SAND to sandy SILT	120	4.0	18	19	56	40	-	16
28.22	73.8	68.0	107.0	1.1	0.8	1.5	5	silty SAND to sandy SILT	120	4.0	17	18	54	40	-	16
28.38	76.8	70.6	108.1	1.1	1.9	1.5	5	silty SAND to sandy SILT	120	4.0	18	19	56	40	-	16
28.54	71.9	66.0	101.7	1.0	1.7	1.4	5	silty SAND to sandy SILT	120	4.0	16	18	53	40	-	16
28.71	71.8	65.8	107.2	1.1	2.4	1.6	5	silty SAND to sandy SILT	120	4.0	16	18	53	40	-	16
28.87	75.7	69.1	109.4	1.1	0.8	1.6	5	silty SAND to sandy SILT	120	4.0	17	19	55	40	-	16
29.04	99.7	90.9	124.2	1.4	-3.8	1.4	5	silty SAND to sandy SILT	120	4.0	23	25	64	41	-	16
29.20	120.4	109.6	140.3	1.7	-3.9	1.4	6	clean SAND to silty SAND	125	5.0	22	24	70	42	-	16
29.36	132.7	120.5	153.6	2.0	-2.9	1.5	6	clean SAND to silty SAND	125	5.0	24	27	73	43	-	16
29.53	147.6	133.7	166.6	2.3	-1.9	1.6	6	clean SAND to silty SAND	125	5.0	27	30	77	43	-	16
29.69	171.1	154.6	184.1	2.6	-1.0	1.5	6	clean SAND to silty SAND	125	5.0	31	34	81	44	-	16
29.86	174.4	157.3	187.5	2.7	-0.4	1.6	6	clean SAND to silty SAND	125	5.0	31	35	82	44	-	16
30.02	175.7	158.1	189.3	2.8	0.1	1.6	6	clean SAND to silty SAND	125	5.0	32	35	82	44	-	16
30.19	165.2	148.3	182.7	2.7	0.6	1.7	6	clean SAND to silty SAND	125	5.0	30	33	80	44	-	16
30.35	155.9	139.7	174.0	2.5	1.1	1.6	6	clean SAND to silty SAND	125	5.0	28	31	78	43	-	16
30.51	138.6	123.9	159.3	2.2	1.6	1.6	6	clean SAND to silty SAND	125	5.0	25	28	74	43	-	16
30.68	111.8	99.7	142.6	2.0	2.0	1.8	5	silty SAND to sandy SILT	120	4.0	25	28	67	42	-	16
30.84	79.5	70.8	137.5	2.0	2.6	2.5	5	silty SAND to sandy SILT	120	4.0	18	20	56	40	-	16
31.01	42.3	35.4	-	1.8	3.2	4.4	4	clayy SILT to silty CLAY	115	2.0	18	21	-	-	2.9	15
31.17	20.3	16.9	-	1.1	4.1	6.0	3	silty CLAY to CLAY	115	1.5	11	14	-	-	1.4	15
31.33	13.4	11.1	-	0.6	7.4	4.9	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
31.50	11.3	9.3	-	0.3	18.7	3.2	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(459).cpt
CPT Date: 12/3/2008 12:27:03 PM
GW During Test: 12 ft

Sounding ID: CPT-08-30
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	11.6	9.5	-	0.3	20.6	3.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
31.83	11.2	9.2	-	0.3	28.9	3.7	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
31.99	10.7	8.8	-	0.6	30.4	6.4	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.15	10.4	8.5	-	0.8	21.0	9.2	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.32	10.6	8.6	-	0.9	21.2	9.9	2	Organic SOILS - Peats	100	1.0	9	11	-	-	1.0	10
32.48	11.0	8.9	-	0.9	23.6	9.9	2	Organic SOILS - Peats	100	1.0	9	11	-	-	1.1	10
32.65	11.0	8.9	-	0.9	24.1	9.6	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.81	11.3	9.1	-	0.8	26.4	8.8	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
32.97	11.1	8.9	-	0.8	30.0	9.1	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
33.14	11.3	9.0	-	0.9	29.6	9.4	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
33.30	11.5	9.2	-	0.9	26.1	9.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
33.47	11.3	8.9	-	0.9	20.8	9.2	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
33.63	11.0	8.8	-	0.9	24.8	9.4	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
33.79	11.2	8.8	-	0.9	23.2	9.3	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
33.96	11.5	9.1	-	0.8	17.1	8.4	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
34.12	11.5	9.0	-	0.8	20.2	8.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
34.29	11.7	9.1	-	0.9	16.2	8.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
34.45	12.8	10.0	-	1.0	17.7	9.4	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.8	15
34.61	12.8	10.0	-	1.1	17.2	9.9	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.8	15
34.78	15.6	12.1	-	1.0	16.3	7.1	3	silty CLAY to CLAY	115	1.5	8	10	-	-	1.0	15
34.94	54.5	46.5	100.8	1.0	-2.7	1.9	5	silty SAND to sandy SILT	120	4.0	12	14	42	37	-	16
35.11	66.8	56.9	95.5	0.9	-6.4	1.4	5	silty SAND to sandy SILT	120	4.0	14	17	48	38	-	16
35.27	72.7	61.8	99.2	1.0	-5.6	1.4	5	silty SAND to sandy SILT	120	4.0	15	18	51	39	-	16
35.43	79.6	67.6	106.8	1.2	-1.6	1.5	5	silty SAND to sandy SILT	120	4.0	17	20	54	39	-	16
35.60	88.2	74.7	114.3	1.3	-1.2	1.6	5	silty SAND to sandy SILT	120	4.0	19	22	57	40	-	16
35.76	96.6	81.7	121.3	1.5	-0.4	1.6	5	silty SAND to sandy SILT	120	4.0	20	24	60	40	-	16
35.93	103.7	87.5	130.4	1.8	-0.1	1.7	5	silty SAND to sandy SILT	120	4.0	22	26	63	40	-	16
36.09	108.1	91.1	136.6	2.0	0.2	1.8	5	silty SAND to sandy SILT	120	4.0	23	27	64	41	-	16
36.26	108.5	91.2	136.5	1.9	0.5	1.8	5	silty SAND to sandy SILT	120	4.0	23	27	64	41	-	16
36.42	121.0	101.5	143.6	2.1	0.8	1.8	5	silty SAND to sandy SILT	120	4.0	25	30	68	41	-	16
36.58	137.2	114.9	154.4	2.3	-0.2	1.7	5	silty SAND to sandy SILT	120	4.0	29	34	72	42	-	16
36.75	138.5	115.8	156.2	2.4	-0.5	1.8	5	silty SAND to sandy SILT	120	4.0	29	35	72	42	-	16
36.91	131.5	109.8	154.1	2.4	-0.1	1.9	5	silty SAND to sandy SILT	120	4.0	27	33	70	42	-	16
37.08	114.7	95.6	149.3	2.4	0.3	2.1	5	silty SAND to sandy SILT	120	4.0	24	29	66	41	-	16
37.24	108.1	90.0	143.5	2.2	1.0	2.1	5	silty SAND to sandy SILT	120	4.0	22	27	64	40	-	16
37.40	142.1	118.1	156.3	2.4	-3.7	1.7	5	silty SAND to sandy SILT	120	4.0	30	36	72	42	-	16
37.57	149.4	123.9	168.4	2.8	-8.4	1.9	5	silty SAND to sandy SILT	120	4.0	31	37	74	42	-	16
37.73	139.5	115.5	166.8	2.9	-8.3	2.1	5	silty SAND to sandy SILT	120	4.0	29	35	72	42	-	16
37.90	125.9	104.1	160.2	2.8	-7.5	2.2	5	silty SAND to sandy SILT	120	4.0	26	31	68	41	-	16
38.06	106.6	88.0	146.4	2.4	-6.8	2.3	5	silty SAND to sandy SILT	120	4.0	22	27	63	40	-	16
38.22	94.6	77.9	123.2	1.6	-6.2	1.8	5	silty SAND to sandy SILT	120	4.0	19	24	59	40	-	16
38.39	88.4	72.7	107.2	1.2	-6.8	1.4	5	silty SAND to sandy SILT	120	4.0	18	22	56	39	-	16
38.55	96.1	78.9	110.5	1.2	-8.9	1.3	5	silty SAND to sandy SILT	120	4.0	20	24	59	40	-	16
38.72	109.9	90.1	125.8	1.6	-8.8	1.5	5	silty SAND to sandy SILT	120	4.0	23	27	64	40	-	16
38.88	106.1	86.8	134.0	1.9	-2.3	1.9	5	silty SAND to sandy SILT	120	4.0	22	27	62	40	-	16
39.04	85.2	69.6	127.6	1.8	-1.6	2.2	5	silty SAND to sandy SILT	120	4.0	17	21	55	39	-	16
39.21	74.2	60.5	125.1	1.7	-0.5	2.4	5	silty SAND to sandy SILT	120	4.0	15	19	50	38	-	16
39.37	70.2	57.1	136.8	2.0	-1.5	3.0	4	clayy SILT to silty CLAY	115	2.0	29	35	-	-	4.9	15
39.54	36.0	25.2	-	1.4	-4.4	4.0	3	silty CLAY to CLAY	115	1.5	17	24	-	-	2.5	15
39.70	48.4	39.2	101.7	1.0	-2.6	2.2	5	silty SAND to sandy SILT	120	4.0	10	12	36	35	-	16
39.86	56.0	45.4	100.5	1.1	-4.9	2.0	5	silty SAND to sandy SILT	120	4.0	11	14	41	36	-	16
40.03	48.4	39.2	102.8	1.1	-3.8	2.3	5	silty SAND to sandy SILT	120	4.0	10	12	36	35	-	16
40.19	38.7	26.7	-	0.8	-3.0	2.3	4	clayy SILT to silty CLAY	115	2.0	13	19	-	-	2.6	15
40.36	43.9	35.4	93.1	0.8	-3.4	2.0	5	silty SAND to sandy SILT	120	4.0	9	11	33	35	-	16
40.52	46.3	37.2	110.7	1.2	-8.1	2.8	4	clayy SILT to silty CLAY	115	2.0	19	23	-	-	3.2	15
40.68	29.3	20.1	-	1.0	-7.6	3.7	3	silty CLAY to CLAY	115	1.5	13	20	-	-	2.0	15
40.85	24.2	16.5	-	0.7	-6.9	3.1	3	silty CLAY to CLAY	115	1.5	11	16	-	-	1.6	15
41.01	23.7	16.1	-	0.5	-7.0	2.4	4	clayy SILT to silty CLAY	115	2.0	8	12	-	-	1.6	15
41.18	24.5	16.6	-	0.5	-7.1	2.1	4	clayy SILT to silty CLAY	115	2.0	8	12	-	-	1.6	15
41.34	33.7	27.0	76.6	0.5	-7.4	1.6	5	silty SAND to sandy SILT	120	4.0	7	8	24	33	-	16
41.50	36.3	29.0	84.2	0.6	-7.9	1.9	4	clayy SILT to silty CLAY	115	2.0	14	18	-	-	2.5	15
41.67	31.7	21.4	-	0.6	-8.7	2.0	4	clayy SILT to silty CLAY	115	2.0	11	16	-	-	2.2	15
41.83	27.9	18.7	-	0.6	-9.2	2.3	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.9	15
42.00	22.7	15.2	-	0.5	-3.8	2.6	4	clayy SILT to silty CLAY	115	2.0	8	11	-	-	1.5	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(459).cpt
CPT Date: 12/3/2008 12:27:03 PM
GW During Test: 12 ft

Sounding ID: CPT-08-30
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	17.0	11.4	-	0.6	-4.8	3.9	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
42.32	19.6	13.0	-	0.5	-4.3	3.1	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
42.49	17.9	11.9	-	0.5	-4.9	3.2	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
42.65	15.9	10.5	-	0.5	-4.7	3.6	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
42.82	14.5	9.6	-	0.4	-4.4	3.5	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
42.98	12.4	8.1	-	0.3	-3.9	3.0	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
43.15	10.6	6.9	-	0.3	-3.2	4.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
43.31	10.2	6.7	-	0.4	-2.5	5.4	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
43.47	13.6	8.9	-	0.6	-1.8	5.5	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
43.64	18.1	11.8	-	0.6	-2.2	4.2	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
43.80	17.8	11.6	-	0.5	-3.4	3.5	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
43.97	12.9	8.3	-	0.5	-4.3	5.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
44.13	10.9	7.0	-	0.5	-3.6	5.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
44.29	11.1	7.1	-	0.5	-2.3	6.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
44.46	11.4	7.3	-	0.5	-1.8	6.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
44.62	12.0	7.6	-	0.6	-1.4	6.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
44.79	14.2	9.0	-	0.5	-1.0	3.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
44.95	13.8	8.8	-	0.4	-1.2	3.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
45.11	13.5	8.6	-	0.5	5.2	5.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
45.28	47.1	36.3	84.6	0.7	6.9	1.6	5	silty SAND to sandy SILT	120	4.0	9	12	34	35	-	16
45.44	102.7	79.2	105.8	1.1	-7.1	1.1	6	clean SAND to silty SAND	125	5.0	16	21	59	39	-	16
45.61	106.4	81.9	120.4	1.6	-9.3	1.5	5	silty SAND to sandy SILT	120	4.0	20	27	60	39	-	16
45.77	109.5	84.2	125.8	1.8	-9.1	1.7	5	silty SAND to sandy SILT	120	4.0	21	27	61	39	-	16
45.93	111.2	85.4	130.3	1.9	-10.6	1.8	5	silty SAND to sandy SILT	120	4.0	21	28	62	40	-	16
46.10	113.0	86.6	135.9	2.1	-11.5	1.9	5	silty SAND to sandy SILT	120	4.0	22	28	62	40	-	16
46.26	125.5	96.1	140.8	2.2	-11.6	1.8	5	silty SAND to sandy SILT	120	4.0	24	31	66	40	-	16
46.43	138.1	105.5	151.6	2.6	-11.9	1.9	5	silty SAND to sandy SILT	120	4.0	26	35	69	41	-	16
46.59	126.0	96.2	154.3	2.8	-12.1	2.3	5	silty SAND to sandy SILT	120	4.0	24	32	66	40	-	16
46.75	99.6	75.9	148.2	2.6	-12.1	2.7	5	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
46.92	86.2	65.6	134.7	2.1	-11.9	2.6	5	silty SAND to sandy SILT	120	4.0	16	22	53	38	-	16
47.08	89.0	67.7	132.5	2.1	-11.8	2.4	5	silty SAND to sandy SILT	120	4.0	17	22	54	38	-	16
47.25	95.0	72.1	133.8	2.1	-12.2	2.3	5	silty SAND to sandy SILT	120	4.0	18	24	56	39	-	16
47.41	99.2	75.2	130.7	2.0	-12.3	2.1	5	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
47.57	96.2	72.8	128.5	2.0	-12.3	2.1	5	silty SAND to sandy SILT	120	4.0	18	24	57	39	-	16
47.74	86.6	65.4	128.9	2.0	-12.2	2.4	5	silty SAND to sandy SILT	120	4.0	16	22	53	38	-	16
47.90	70.7	53.3	139.2	2.2	-12.1	3.2	4	clayy SILT to silty CLAY	115	2.0	27	35	-	-	4.9	15
48.07	45.7	27.5	-	2.1	-11.9	4.9	3	silty CLAY to CLAY	115	1.5	18	30	-	-	3.1	15
48.23	27.3	16.4	-	1.4	-11.8	5.6	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.8	15
48.39	25.1	15.0	-	1.1	-11.6	5.1	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
48.56	32.3	19.3	-	1.1	-11.4	3.7	3	silty CLAY to CLAY	115	1.5	13	22	-	-	2.2	15
48.72	25.9	15.4	-	0.8	-10.6	3.6	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
48.89	17.1	10.2	-	0.6	-10.4	4.4	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
49.05	14.6	8.7	-	0.7	-10.1	5.6	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
49.22	25.1	14.8	-	0.9	-9.7	3.9	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
49.38	101.9	76.0	120.6	1.7	-9.9	1.7	5	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
49.54	93.0	69.3	147.2	2.6	-10.3	2.9	5	silty SAND to sandy SILT	120	4.0	17	23	55	38	-	16
49.71	50.1	29.4	-	2.4	-10.0	5.1	3	silty CLAY to CLAY	115	1.5	20	33	-	-	3.4	15
49.87	27.7	16.2	-	1.6	-9.6	6.3	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.9	15
50.04	23.1	13.5	-	1.1	-8.1	5.4	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.5	15
50.20	55.0	32.0	-	1.6	3.1	3.0	4	clayy SILT to silty CLAY	115	2.0	16	28	-	-	3.8	15
50.36	121.5	89.9	145.3	2.6	-3.4	2.2	5	silty SAND to sandy SILT	120	4.0	22	30	63	40	-	16
50.53	128.1	94.7	157.3	3.0	-5.5	2.4	5	silty SAND to sandy SILT	120	4.0	24	32	65	40	-	16
50.69	94.1	69.5	180.5	3.8	-4.7	4.2	4	clayy SILT to silty CLAY	115	2.0	35	47	-	-	6.5	15
50.86	46.0	26.5	-	3.2	-4.0	7.4	3	silty CLAY to CLAY	115	1.5	18	31	-	-	3.1	15
51.02	32.5	18.7	-	1.7	-1.9	5.9	3	silty CLAY to CLAY	115	1.5	12	22	-	-	2.2	15
51.18	40.1	23.0	-	1.7	2.1	4.5	3	silty CLAY to CLAY	115	1.5	15	27	-	-	2.7	15
51.35	88.7	65.2	119.3	1.7	-4.5	2.0	5	silty SAND to sandy SILT	120	4.0	16	22	53	38	-	16
51.51	80.0	58.7	121.7	1.8	-7.5	2.3	5	silty SAND to sandy SILT	120	4.0	15	20	49	37	-	16
51.68	64.7	36.8	-	2.2	-1.5	3.5	4	clayy SILT to silty CLAY	115	2.0	18	32	-	-	4.5	15
51.84	50.7	28.8	-	2.2	-0.6	4.6	3	silty CLAY to CLAY	115	1.5	19	34	-	-	3.5	15
52.00	45.4	25.7	-	1.8	-1.9	4.3	3	silty CLAY to CLAY	115	1.5	17	30	-	-	3.1	15
52.17	124.1	90.5	135.6	2.2	-3.8	1.8	5	silty SAND to sandy SILT	120	4.0	23	31	64	39	-	16
52.33	184.8	134.7	168.7	2.9	-8.3	1.6	6	clean SAND to silty SAND	125	5.0	27	37	77	42	-	16
52.50	201.6	146.7	187.4	3.7	-8.1	1.9	6	clean SAND to silty SAND	125	5.0	29	40	80	42	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(459).cpt
CPT Date: 12/3/2008 12:27:03 PM
GW During Test: 12 ft

Sounding ID: CPT-08-30
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	198.0	143.9	190.0	3.9	-7.4	2.0	5	silty SAND to sandy SILT	120	4.0	36	49	79	42	-	16
52.82	185.1	134.3	180.9	3.7	-6.8	2.0	5	silty SAND to sandy SILT	120	4.0	34	46	77	42	-	16
52.99	171.1	124.0	176.9	3.7	-6.1	2.2	5	silty SAND to sandy SILT	120	4.0	31	43	74	41	-	16
53.15	174.6	126.4	180.1	3.8	-5.3	2.2	5	silty SAND to sandy SILT	120	4.0	32	44	75	41	-	16
53.32	186.0	134.5	187.5	4.0	-4.3	2.2	5	silty SAND to sandy SILT	120	4.0	34	47	77	42	-	16
53.48	198.4	143.2	192.5	4.1	-3.7	2.1	5	silty SAND to sandy SILT	120	4.0	36	50	79	42	-	16
53.64	202.1	145.7	193.4	4.1	-3.2	2.1	5	silty SAND to sandy SILT	120	4.0	36	51	79	42	-	16
53.81	201.7	145.2	192.2	4.1	-2.7	2.0	5	silty SAND to sandy SILT	120	4.0	36	50	79	42	-	16
53.97	198.7	142.8	189.4	4.0	-1.9	2.0	5	silty SAND to sandy SILT	120	4.0	36	50	79	42	-	16
54.14	177.6	127.6	176.8	3.6	-1.3	2.1	5	silty SAND to sandy SILT	120	4.0	32	44	75	41	-	16
54.30	150.6	108.0	170.9	3.6	-0.6	2.5	5	silty SAND to sandy SILT	120	4.0	27	38	70	40	-	16
54.46	114.8	82.3	162.0	3.3	0.0	3.0	5	silty SAND to sandy SILT	120	4.0	21	29	61	39	-	16
54.63	72.2	39.2	-	2.8	0.7	4.1	4	clayy SILT to silty CLAY	115	2.0	20	36	-	-	5.0	15
54.79	51.6	27.9	-	1.8	1.0	3.8	4	clayy SILT to silty CLAY	115	2.0	14	26	-	-	3.5	15
54.96	36.7	19.8	-	1.4	-4.7	4.1	3	silty CLAY to CLAY	115	1.5	13	24	-	-	2.5	15
55.12	22.2	12.0	-	1.1	-4.4	5.8	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
55.28	26.7	14.3	-	1.0	13.4	4.3	3	silty CLAY to CLAY	115	1.5	10	18	-	-	1.8	15
55.45	20.6	11.1	-	1.0	6.3	5.7	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.3	15
55.61	16.7	8.9	-	0.8	9.2	6.3	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
55.78	31.3	16.7	-	0.8	12.7	2.7	4	clayy SILT to silty CLAY	115	2.0	8	16	-	-	2.1	15
55.94	42.8	22.8	-	1.0	2.9	2.6	4	clayy SILT to silty CLAY	115	2.0	11	21	-	-	2.9	15
56.11	58.4	41.3	104.5	1.2	-2.2	2.3	5	silty SAND to sandy SILT	120	4.0	10	15	38	35	-	16
56.27	68.2	48.2	107.9	1.4	-0.8	2.1	5	silty SAND to sandy SILT	120	4.0	12	17	43	36	-	16
56.43	69.5	49.1	107.6	1.4	-1.5	2.1	5	silty SAND to sandy SILT	120	4.0	12	17	44	36	-	16
56.60	66.7	47.0	105.4	1.3	0.4	2.1	5	silty SAND to sandy SILT	120	4.0	12	17	42	35	-	16
56.76	61.4	43.2	108.3	1.4	-4.3	2.3	5	silty SAND to sandy SILT	120	4.0	11	15	39	35	-	16
56.93	53.2	27.9	-	1.4	-2.6	2.8	4	clayy SILT to silty CLAY	115	2.0	14	27	-	-	3.6	15
57.09	52.3	27.4	-	2.7	-0.6	5.6	3	silty CLAY to CLAY	115	1.5	18	35	-	-	3.6	15
57.25	128.4	90.1	189.8	4.6	-2.7	3.6	4	clayy SILT to silty CLAY	115	2.0	45	64	-	-	9.0	15
57.42	330.2	231.5	248.0	4.4	-0.8	1.4	6	clean SAND to silty SAND	125	5.0	46	66	95	44	-	16
57.58	288.8	202.2	218.8	3.6	4.0	1.3	6	clean SAND to silty SAND	125	5.0	40	58	90	43	-	16
57.75	257.7	180.2	180.2	1.7	7.0	0.7	6	clean SAND to silty SAND	125	5.0	36	52	86	43	-	16
57.91	234.1	163.5	163.5	1.2	5.8	0.5	6	clean SAND to silty SAND	125	5.0	33	47	83	42	-	16
58.07	194.7	135.8	135.3	1.0	6.1	0.5	6	clean SAND to silty SAND	125	5.0	27	39	77	41	-	16
58.24	170.4	118.7	124.6	1.0	8.8	0.6	6	clean SAND to silty SAND	125	5.0	24	34	73	41	-	16
58.40	168.1	117.0	121.7	0.9	9.1	0.5	6	clean SAND to silty SAND	125	5.0	23	34	72	41	-	16
58.57	198.7	138.0	138.0	0.9	5.8	0.5	6	clean SAND to silty SAND	125	5.0	28	40	78	41	-	16
58.73	221.2	153.5	153.5	1.3	0.7	0.6	6	clean SAND to silty SAND	125	5.0	31	44	81	42	-	16
58.89	235.2	163.0	163.3	1.6	0.0	0.7	6	clean SAND to silty SAND	125	5.0	33	47	83	42	-	16
59.06	242.5	167.8	169.7	1.8	1.5	0.7	6	clean SAND to silty SAND	125	5.0	34	49	84	42	-	16
59.22	247.8	171.2	173.5	1.9	2.8	0.8	6	clean SAND to silty SAND	125	5.0	34	50	85	42	-	16
59.39	253.5	175.0	180.0	2.1	3.7	0.9	6	clean SAND to silty SAND	125	5.0	35	51	85	43	-	16
59.55	269.4	185.7	198.6	2.9	4.5	1.1	6	clean SAND to silty SAND	125	5.0	37	54	87	43	-	16
59.71	265.3	182.6	210.2	4.0	5.3	1.5	6	clean SAND to silty SAND	125	5.0	37	53	87	43	-	16
59.88	255.5	175.7	207.9	4.2	4.4	1.7	6	clean SAND to silty SAND	125	5.0	35	51	86	43	-	16
60.04	235.3	161.6	193.6	3.7	4.2	1.6	6	clean SAND to silty SAND	125	5.0	32	47	83	42	-	16
60.21	207.6	142.4	164.6	2.5	3.4	1.2	6	clean SAND to silty SAND	125	5.0	28	42	79	41	-	16
60.37	186.6	127.8	144.2	1.8	3.3	1.0	6	clean SAND to silty SAND	125	5.0	26	37	75	41	-	16
60.53	187.0	127.9	139.3	1.5	2.1	0.8	6	clean SAND to silty SAND	125	5.0	26	37	75	41	-	16
60.70	220.2	150.4	158.4	1.8	-3.0	0.8	6	clean SAND to silty SAND	125	5.0	30	44	80	42	-	16
60.86	278.7	190.1	200.6	2.9	-5.0	1.1	6	clean SAND to silty SAND	125	5.0	38	56	88	43	-	16
61.03	356.5	242.9	252.0	4.3	-0.5	1.2	6	clean SAND to silty SAND	125	5.0	49	71	95	44	-	16
61.19	376.6	256.3	256.3	3.4	2.2	0.9	6	clean SAND to silty SAND	125	5.0	51	75	95	44	-	16
61.35	338.5	230.1	230.1	2.2	9.0	0.6	6	clean SAND to silty SAND	125	5.0	46	68	94	44	-	16
61.52	320.1	217.3	217.3	2.6	11.9	0.8	6	clean SAND to silty SAND	125	5.0	43	64	93	44	-	16
61.68	266.7	180.8	190.0	2.6	9.8	1.0	6	clean SAND to silty SAND	125	5.0	36	53	87	43	-	16
61.85	169.2	114.6	128.5	1.4	9.2	0.8	6	clean SAND to silty SAND	125	5.0	23	34	71	40	-	16
62.01	168.5	114.0	115.9	0.7	9.7	0.5	6	clean SAND to silty SAND	125	5.0	23	34	71	40	-	16
62.17	160.2	108.2	108.2	0.5	8.2	0.3	6	clean SAND to silty SAND	125	5.0	22	32	70	40	-	16
62.34	134.8	90.9	90.9	0.2	8.7	0.2	6	clean SAND to silty SAND	125	5.0	18	27	64	39	-	16
62.50	98.3	66.2	85.3	0.7	9.4	0.7	6	clean SAND to silty SAND	125	5.0	13	20	53	37	-	16
62.67	70.8	47.6	91.9	1.0	11.2	1.5	5	silty SAND to sandy SILT	120	4.0	12	18	43	35	-	16
62.83	57.9	38.9	93.5	1.0	14.0	1.9	5	silty SAND to sandy SILT	120	4.0	10	14	36	34	-	16
63.00	187.8	126.1	132.3	1.2	13.3	0.6	6	clean SAND to silty SAND	125	5.0	25	38	75	41	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(459).cpt
CPT Date: 12/3/2008 12:27:03 PM
GW During Test: 12 ft

Sounding ID: CPT-08-30
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	271.3	182.0	182.0	1.9	13.1	0.7	6	clean SAND to silty SAND	125	5.0	36	54	87	43	-	16
63.32	315.7	211.5	213.4	2.9	12.6	0.9	6	clean SAND to silty SAND	125	5.0	42	63	92	43	-	16
63.49	347.4	232.4	240.3	4.0	12.1	1.2	6	clean SAND to silty SAND	125	5.0	46	69	95	44	-	16
63.65	359.0	239.9	252.4	4.6	10.2	1.3	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
63.82	359.6	240.0	254.1	4.7	8.9	1.3	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
63.98	362.2	241.4	256.3	4.8	7.9	1.3	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
64.14	361.7	240.8	257.6	5.0	7.3	1.4	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
64.31	363.8	241.9	259.2	5.1	6.9	1.4	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
64.47	368.3	244.6	260.8	5.1	6.9	1.4	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
64.64	369.3	244.9	260.1	5.0	6.8	1.4	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
64.80	367.0	243.2	260.3	5.1	7.1	1.4	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
64.96	362.0	239.6	256.8	5.0	11.9	1.4	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
65.13	365.0	241.3	257.0	4.9	10.9	1.4	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
65.29	362.1	239.0	251.1	4.6	9.6	1.3	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
65.46	353.6	233.1	244.9	4.3	9.2	1.2	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
65.62	332.9	219.3	238.6	4.6	8.6	1.4	6	clean SAND to silty SAND	125	5.0	44	67	93	43	-	16
65.78	332.8	218.9	243.0	5.0	8.7	1.5	6	clean SAND to silty SAND	125	5.0	44	67	93	43	-	16
65.95	351.7	231.1	255.9	5.5	9.4	1.6	6	clean SAND to silty SAND	125	5.0	46	70	95	44	-	16
66.11	355.5	233.3	262.2	6.0	9.2	1.7	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
66.28	354.1	232.1	265.1	6.3	9.0	1.8	6	clean SAND to silty SAND	125	5.0	46	71	95	44	-	16
66.44	363.2	237.8	275.3	7.0	9.7	1.9	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
66.60	368.3	240.9	284.6	7.7	10.3	2.1	6	clean SAND to silty SAND	125	5.0	48	74	95	44	-	16
66.77	367.3	240.0	292.1	8.5	10.9	2.3	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
66.93	358.3	233.8	296.8	9.3	10.9	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	23.6	16
67.10	347.4	226.5	296.3	9.6	11.0	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	22.9	16
67.26	343.2	223.5	289.9	9.1	10.9	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	22.6	16
67.42	334.7	217.7	273.0	7.9	10.4	2.4	6	clean SAND to silty SAND	125	5.0	44	67	93	43	-	16
67.59	320.5	208.3	245.1	5.9	10.1	1.9	6	clean SAND to silty SAND	125	5.0	42	64	91	43	-	16
67.75	306.5	199.0	246.4	6.5	9.9	2.2	6	clean SAND to silty SAND	125	5.0	40	61	90	43	-	16
67.92	183.9	119.2	220.1	6.5	12.2	3.6	5	silty SAND to sandy SILT	120	4.0	30	46	73	40	-	16
68.08	289.5	187.5	232.7	5.9	12.0	2.1	6	clean SAND to silty SAND	125	5.0	37	58	88	43	-	16
68.24	300.6	194.5	231.4	5.5	11.8	1.8	6	clean SAND to silty SAND	125	5.0	39	60	89	43	-	16
68.41	312.3	201.8	229.0	4.8	11.7	1.6	6	clean SAND to silty SAND	125	5.0	40	62	90	43	-	16
68.57	307.1	198.2	212.7	3.6	11.3	1.2	6	clean SAND to silty SAND	125	5.0	40	61	90	43	-	16
68.74	300.4	193.7	195.5	2.6	11.4	0.9	6	clean SAND to silty SAND	125	5.0	39	60	89	43	-	16
68.90	301.6	194.2	198.0	2.7	11.1	0.9	6	clean SAND to silty SAND	125	5.0	39	60	89	43	-	16
69.07	323.9	208.4	208.4	1.7	11.8	0.5	6	clean SAND to silty SAND	125	5.0	42	65	91	43	-	16
69.23	337.4	216.8	216.8	2.6	10.3	0.8	6	clean SAND to silty SAND	125	5.0	43	67	93	43	-	16
69.39	369.4	237.1	237.1	3.6	12.9	1.0	6	clean SAND to silty SAND	125	5.0	47	74	95	44	-	16
69.56	424.5	272.2	272.2	4.5	9.0	1.1	6	clean SAND to silty SAND	125	5.0	54	85	95	44	-	16
69.72	493.0	315.7	315.7	5.6	-2.0	1.2	6	clean SAND to silty SAND	125	5.0	63	99	95	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(429).cpt
CPT Date: 11/20/2008 2:09:53 PM
GW During Test: 12 ft

Sounding ID: CPT-08-31
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	40.0	64.1	90.7	0.4	0.0	1.1	5	silty SAND to sandy SILT	120	4.0	16	10	52	48	-	16
0.49	50.5	81.0	118.2	0.8	0.0	1.5	5	silty SAND to sandy SILT	120	4.0	20	13	60	48	-	16
0.66	50.3	80.6	133.8	1.1	0.0	2.1	5	silty SAND to sandy SILT	120	4.0	20	13	60	48	-	16
0.82	48.2	77.3	142.6	1.2	0.0	2.5	5	silty SAND to sandy SILT	120	4.0	19	12	58	48	-	16
0.98	47.2	75.7	146.1	1.3	0.0	2.7	5	silty SAND to sandy SILT	120	4.0	19	12	58	48	-	16
1.15	47.5	76.1	150.7	1.4	0.0	2.9	5	silty SAND to sandy SILT	120	4.0	19	12	58	48	-	16
1.31	39.7	63.7	157.1	1.4	0.0	3.6	4	clayy SILT to silty CLAY	115	2.0	32	20	-	-	2.8	15
1.48	46.9	75.3	141.4	1.2	-0.1	2.5	5	silty SAND to sandy SILT	120	4.0	19	12	58	48	-	16
1.64	41.6	66.8	135.2	1.1	-0.5	2.6	5	silty SAND to sandy SILT	120	4.0	17	10	54	47	-	16
1.80	41.2	66.0	120.3	0.9	-0.2	2.1	5	silty SAND to sandy SILT	120	4.0	17	10	53	47	-	16
1.97	35.2	56.4	108.6	0.7	-0.3	2.0	5	silty SAND to sandy SILT	120	4.0	14	9	48	46	-	16
2.13	34.9	56.0	105.7	0.7	-0.3	1.9	5	silty SAND to sandy SILT	120	4.0	14	9	48	46	-	16
2.30	34.3	55.1	124.1	0.9	-0.3	2.6	5	silty SAND to sandy SILT	120	4.0	14	9	47	45	-	16
2.46	31.9	51.1	137.0	1.1	-0.3	3.4	4	clayy SILT to silty CLAY	115	2.0	26	16	-	-	2.2	15
2.62	30.7	49.2	138.3	1.1	-0.1	3.5	4	clayy SILT to silty CLAY	115	2.0	25	15	-	-	2.2	15
2.79	31.3	50.1	139.0	1.1	-0.2	3.5	4	clayy SILT to silty CLAY	115	2.0	25	16	-	-	2.2	15
2.95	31.6	50.6	151.0	1.3	-0.2	4.0	4	clayy SILT to silty CLAY	115	2.0	25	16	-	-	2.2	15
3.12	46.2	74.1	162.6	1.5	-0.2	3.4	4	clayy SILT to silty CLAY	115	2.0	37	23	-	-	3.3	15
3.28	70.9	113.6	173.9	1.7	-0.1	2.4	5	silty SAND to sandy SILT	120	4.0	28	18	71	47	-	16
3.45	62.0	99.4	180.9	1.9	-0.1	3.1	5	silty SAND to sandy SILT	120	4.0	25	15	67	46	-	16
3.61	58.7	94.1	184.5	2.0	-0.2	3.4	5	silty SAND to sandy SILT	120	4.0	24	15	65	46	-	16
3.77	55.4	88.8	185.3	2.0	-0.1	3.6	5	silty SAND to sandy SILT	120	4.0	22	14	63	45	-	16
3.94	45.0	72.1	190.4	2.0	0.2	4.5	4	clayy SILT to silty CLAY	115	2.0	36	22	-	-	3.2	15
4.10	48.6	77.9	175.7	1.8	0.2	3.7	4	clayy SILT to silty CLAY	115	2.0	39	24	-	-	3.4	15
4.27	39.8	63.9	188.4	1.9	-0.1	4.9	4	clayy SILT to silty CLAY	115	2.0	32	20	-	-	2.8	15
4.43	38.7	62.0	191.1	2.0	-0.7	5.1	4	clayy SILT to silty CLAY	115	2.0	31	19	-	-	2.7	15
4.59	54.0	86.6	191.7	2.1	-0.5	3.9	4	clayy SILT to silty CLAY	115	2.0	43	27	-	-	3.8	15
4.76	55.4	88.8	195.5	2.2	-0.5	4.0	4	clayy SILT to silty CLAY	115	2.0	44	28	-	-	3.9	15
4.92	61.1	98.1	185.7	2.0	-0.3	3.3	5	silty SAND to sandy SILT	120	4.0	25	15	66	45	-	16
5.09	78.3	125.6	180.0	1.8	-0.3	2.3	5	silty SAND to sandy SILT	120	4.0	31	20	75	46	-	16
5.25	77.1	123.6	170.2	1.5	-0.2	2.0	5	silty SAND to sandy SILT	120	4.0	31	19	74	46	-	16
5.41	67.5	108.2	175.2	1.8	-0.2	2.6	5	silty SAND to sandy SILT	120	4.0	27	17	70	45	-	16
5.58	65.0	104.3	177.0	1.8	-0.5	2.8	5	silty SAND to sandy SILT	120	4.0	26	16	68	45	-	16
5.74	60.3	96.7	181.9	1.9	-0.4	3.2	5	silty SAND to sandy SILT	120	4.0	24	15	66	45	-	16
5.91	44.4	71.1	182.6	1.9	-0.4	4.2	4	clayy SILT to silty CLAY	115	2.0	36	22	-	-	3.1	15
6.07	31.7	50.8	-	1.7	-0.4	5.6	3	silty CLAY to CLAY	115	1.5	34	21	-	-	2.2	15
6.23	20.8	33.4	-	1.3	-0.3	6.3	3	silty CLAY to CLAY	115	1.5	22	14	-	-	1.5	15
6.40	18.6	29.8	-	0.9	-0.3	4.9	3	silty CLAY to CLAY	115	1.5	20	12	-	-	1.3	15
6.56	19.4	31.2	-	0.8	-0.3	4.1	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
6.73	18.0	28.9	-	0.7	-0.3	4.0	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.3	15
6.89	12.8	20.6	-	0.7	-0.3	5.5	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
7.05	14.5	23.3	-	0.7	-0.3	4.6	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
7.22	17.5	28.1	-	0.7	-0.2	4.1	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
7.38	16.6	26.7	-	0.8	-0.2	4.8	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.2	15
7.55	22.2	35.6	117.9	0.7	-0.1	3.3	4	clayy SILT to silty CLAY	115	2.0	18	11	-	-	1.5	15
7.71	44.9	64.8	119.3	0.9	-0.1	2.1	5	silty SAND to sandy SILT	120	4.0	16	11	53	42	-	16
7.87	28.7	41.0	128.7	1.0	-0.1	3.5	4	clayy SILT to silty CLAY	115	2.0	20	14	-	-	2.0	15
8.04	24.5	39.3	-	0.9	-0.1	3.9	4	clayy SILT to silty CLAY	115	2.0	20	12	-	-	1.7	15
8.20	19.3	31.0	-	0.8	-0.1	4.0	4	clayy SILT to silty CLAY	115	2.0	15	10	-	-	1.3	15
8.37	13.2	21.2	-	0.6	-0.2	5.0	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
8.53	10.6	17.1	-	0.5	-0.2	5.3	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
8.69	10.0	16.0	-	0.6	-0.2	6.2	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
8.86	10.2	16.4	-	0.7	0.0	7.4	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
9.02	10.8	17.3	-	0.8	0.0	7.6	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.7	15
9.19	16.0	25.7	-	0.7	0.2	4.5	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.1	15
9.35	29.3	38.5	102.0	0.7	0.3	2.4	5	silty SAND to sandy SILT	120	4.0	10	7	35	39	-	16
9.51	29.9	38.9	103.3	0.7	0.3	2.4	4	clayy SILT to silty CLAY	115	2.0	19	15	-	-	2.1	15
9.68	29.7	38.3	106.9	0.8	0.2	2.6	4	clayy SILT to silty CLAY	115	2.0	19	15	-	-	2.1	15
9.84	30.4	38.9	102.0	0.7	0.2	2.4	5	silty SAND to sandy SILT	120	4.0	10	8	36	39	-	16
10.01	30.8	39.1	106.2	0.8	0.1	2.5	4	clayy SILT to silty CLAY	115	2.0	20	15	-	-	2.2	15
10.17	31.6	39.8	108.1	0.8	-0.1	2.6	4	clayy SILT to silty CLAY	115	2.0	20	16	-	-	2.2	15
10.34	29.4	36.7	110.7	0.8	0.0	2.9	4	clayy SILT to silty CLAY	115	2.0	18	15	-	-	2.0	15
10.50	24.7	34.1	110.8	0.7	-0.1	3.0	4	clayy SILT to silty CLAY	115	2.0	17	12	-	-	1.7	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(429).cpt
CPT Date: 11/20/2008 2:09:53 PM
GW During Test: 12 ft

Sounding ID: CPT-08-31
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	26.9	33.1	102.5	0.7	0.0	2.7	4	clayy SILT to silty CLAY	115	2.0	17	13	-	-	1.9	15
10.83	26.3	32.1	100.8	0.7	-0.6	2.6	4	clayy SILT to silty CLAY	115	2.0	16	13	-	-	1.8	15
10.99	23.4	31.4	102.2	0.6	-1.7	2.8	4	clayy SILT to silty CLAY	115	2.0	16	12	-	-	1.6	15
11.16	21.6	28.6	-	0.5	-4.2	2.6	4	clayy SILT to silty CLAY	115	2.0	14	11	-	-	1.5	15
11.32	18.7	28.3	-	0.5	-4.6	2.7	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.3	15
11.48	16.4	24.4	-	0.5	-4.4	3.4	4	clayy SILT to silty CLAY	115	2.0	12	8	-	-	1.1	15
11.65	15.7	23.1	-	0.4	-4.3	2.7	4	clayy SILT to silty CLAY	115	2.0	12	8	-	-	1.1	15
11.81	26.3	30.8	101.3	0.7	-3.7	2.8	4	clayy SILT to silty CLAY	115	2.0	15	13	-	-	1.8	15
11.98	51.2	59.4	114.5	1.0	-3.5	2.1	5	silty SAND to sandy SILT	120	4.0	15	13	50	42	-	16
12.14	57.3	66.4	123.5	1.2	-3.6	2.2	5	silty SAND to sandy SILT	120	4.0	17	14	53	42	-	16
12.30	39.4	45.5	119.3	1.1	-3.7	2.8	4	clayy SILT to silty CLAY	115	2.0	23	20	-	-	2.8	15
12.47	23.9	33.4	-	0.8	-3.8	3.6	4	clayy SILT to silty CLAY	115	2.0	17	12	-	-	1.7	15
12.63	15.6	21.8	-	0.6	-3.8	3.9	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.1	15
12.80	12.1	16.8	-	0.4	-3.9	3.3	3	silty CLAY to CLAY	115	1.5	11	8	-	-	0.8	15
12.96	10.7	14.7	-	0.3	-3.8	2.6	4	clayy SILT to silty CLAY	115	2.0	7	5	-	-	0.7	15
13.12	9.0	12.4	-	0.2	-3.8	2.8	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
13.29	7.6	10.4	-	0.2	-3.8	3.5	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
13.45	7.0	9.5	-	0.3	-3.7	5.0	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
13.62	7.9	10.6	-	0.4	-3.7	6.3	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
13.78	8.4	11.3	-	0.5	-3.7	6.2	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
13.94	8.0	10.7	-	0.5	-3.6	6.5	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
14.11	7.6	10.1	-	0.4	-3.4	6.2	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
14.27	7.0	9.3	-	0.4	-3.2	6.6	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
14.44	6.7	8.7	-	0.3	-3.1	5.1	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
14.60	7.5	9.8	-	0.3	-2.9	3.8	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
14.76	6.8	8.8	-	0.2	-2.9	3.5	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.4	15
14.93	5.3	6.8	-	0.3	-2.9	5.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.3	15
15.09	4.4	5.7	-	0.3	-2.9	9.1	2	Organic SOILS - Peats	100	1.0	6	4	-	-	0.4	10
15.26	7.8	9.9	-	0.4	-2.5	5.6	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
15.42	7.0	8.9	-	0.4	-2.5	6.6	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.58	5.6	7.1	-	0.3	-2.5	6.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.75	5.2	6.5	-	0.3	-2.4	6.9	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.91	5.0	6.3	-	0.2	-2.4	6.0	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
16.08	4.5	5.6	-	0.2	-2.4	6.1	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
16.24	6.5	8.0	-	0.2	-2.3	3.2	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.40	5.3	6.5	-	0.3	-2.3	6.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
16.57	7.0	8.5	-	0.3	-2.3	4.6	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.73	10.6	12.9	-	0.3	-2.2	3.2	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
16.90	10.9	13.1	-	0.3	-2.3	3.5	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
17.06	11.9	14.2	-	0.3	-2.3	3.0	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
17.23	9.1	10.9	-	0.3	-2.3	4.3	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
17.39	11.8	14.1	-	0.3	-2.3	3.0	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
17.55	18.2	21.5	-	0.3	-2.3	1.8	4	clayy SILT to silty CLAY	115	2.0	11	9	-	-	1.2	15
17.72	23.8	25.0	75.9	0.4	-2.4	1.7	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.6	15
17.88	25.5	26.8	78.1	0.4	-2.5	1.8	4	clayy SILT to silty CLAY	115	2.0	13	13	-	-	1.8	15
18.05	15.1	17.6	-	0.3	-2.7	2.3	4	clayy SILT to silty CLAY	115	2.0	9	8	-	-	1.0	15
18.21	7.7	8.9	-	0.3	-2.8	4.3	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
18.37	6.3	7.3	-	0.2	-2.7	4.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
18.54	6.0	6.9	-	0.3	-1.8	5.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
18.70	6.2	7.1	-	0.2	-1.7	4.2	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
18.87	6.7	7.7	-	0.2	-1.5	4.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
19.03	6.2	7.1	-	0.2	-1.4	4.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
19.19	5.9	6.7	-	0.2	-1.2	4.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
19.36	6.0	6.7	-	0.3	-1.1	6.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
19.52	7.8	8.7	-	0.5	-1.0	7.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
19.69	9.0	10.0	-	0.7	-0.8	8.8	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
19.85	9.2	10.2	-	0.7	-0.7	8.5	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
20.01	7.3	8.0	-	0.5	-0.5	7.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
20.18	7.1	7.7	-	0.3	0.9	5.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
20.34	6.2	6.8	-	0.2	1.0	4.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
20.51	5.7	6.2	-	0.2	1.1	4.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
20.67	6.0	6.4	-	0.2	1.2	3.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
20.83	5.7	6.1	-	0.2	1.4	4.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.00	5.1	5.4	-	0.2	1.5	4.6	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(429).cpt
CPT Date: 11/20/2008 2:09:53 PM
GW During Test: 12 ft

Sounding ID: CPT-08-31
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	5.1	5.4	-	0.2	1.5	4.5	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
21.33	5.6	5.9	-	0.2	1.7	3.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
21.49	5.6	5.9	-	0.1	1.8	3.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
21.65	5.6	5.9	-	0.1	1.9	3.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.82	5.9	6.1	-	0.2	3.0	3.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.98	6.2	6.4	-	0.2	3.1	4.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.15	6.5	6.8	-	0.3	3.3	4.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
22.31	6.1	6.3	-	0.3	3.4	5.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.47	6.3	6.5	-	0.2	3.6	4.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.64	7.0	7.2	-	0.2	3.7	4.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
22.80	6.0	6.1	-	0.2	3.8	5.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.97	5.9	5.9	-	0.2	3.9	5.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.13	7.3	7.3	-	0.2	4.0	3.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.30	6.6	6.6	-	0.3	4.1	5.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.46	7.6	7.6	-	0.4	4.3	5.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.62	7.6	7.6	-	0.4	4.5	5.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.79	6.7	6.6	-	0.3	4.7	4.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.95	6.2	6.1	-	0.2	4.9	4.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
24.12	5.9	5.8	-	0.2	5.0	4.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
24.28	5.6	5.5	-	0.2	5.1	4.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
24.44	5.5	5.4	-	0.2	5.2	5.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
24.61	5.4	5.3	-	0.2	5.3	5.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
24.77	5.5	5.3	-	0.3	5.4	7.5	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
24.94	5.5	5.3	-	0.3	5.4	7.5	2	Organic SOILS - Peats	100	1.0	5	6	-	-	0.5	10
25.10	5.8	5.5	-	0.3	6.6	7.0	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.5	10
25.26	5.9	5.6	-	0.3	6.7	6.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
25.43	6.0	5.7	-	0.3	6.8	6.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
25.59	6.4	6.1	-	0.3	7.0	6.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
25.76	6.5	6.1	-	0.2	7.1	4.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
25.92	6.5	6.1	-	0.2	7.2	4.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
26.08	6.6	6.2	-	0.3	7.3	5.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
26.25	8.6	8.1	-	0.3	7.5	4.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
26.41	23.8	22.3	66.2	0.3	7.4	1.3	5	silty SAND to sandy SILT	120	4.0	6	6	17	33	-	16
26.58	33.2	31.0	72.4	0.4	4.9	1.3	5	silty SAND to sandy SILT	120	4.0	8	8	28	35	-	16
26.74	46.2	43.1	84.2	0.6	4.7	1.4	5	silty SAND to sandy SILT	120	4.0	11	12	39	37	-	16
26.90	62.2	57.9	100.3	0.9	4.0	1.6	5	silty SAND to sandy SILT	120	4.0	14	16	49	39	-	16
27.07	80.6	74.9	115.3	1.3	3.3	1.6	5	silty SAND to sandy SILT	120	4.0	19	20	57	40	-	16
27.23	94.5	87.5	127.7	1.5	2.4	1.6	5	silty SAND to sandy SILT	120	4.0	22	24	63	41	-	16
27.40	97.6	90.2	131.6	1.6	2.1	1.7	5	silty SAND to sandy SILT	120	4.0	23	24	64	41	-	16
27.56	97.6	90.0	133.1	1.7	2.2	1.8	5	silty SAND to sandy SILT	120	4.0	23	24	64	41	-	16
27.72	96.2	88.6	130.4	1.6	2.3	1.7	5	silty SAND to sandy SILT	120	4.0	22	24	63	41	-	16
27.89	98.6	90.6	127.2	1.5	2.4	1.5	5	silty SAND to sandy SILT	120	4.0	23	25	64	41	-	16
28.05	108.9	99.8	131.0	1.5	2.5	1.4	6	clean SAND to silty SAND	125	5.0	20	22	67	42	-	16
28.22	121.4	111.0	132.7	1.3	2.5	1.1	6	clean SAND to silty SAND	125	5.0	22	24	70	42	-	16
28.38	118.6	108.3	134.5	1.5	2.6	1.2	6	clean SAND to silty SAND	125	5.0	22	24	70	42	-	16
28.54	106.0	96.5	126.6	1.4	2.9	1.3	6	clean SAND to silty SAND	125	5.0	19	21	66	42	-	16
28.71	99.4	90.3	122.3	1.3	2.9	1.4	5	silty SAND to sandy SILT	120	4.0	23	25	64	41	-	16
28.87	104.9	95.1	123.2	1.3	3.0	1.3	6	clean SAND to silty SAND	125	5.0	19	21	65	41	-	16
29.04	122.1	110.5	135.7	1.5	2.9	1.2	6	clean SAND to silty SAND	125	5.0	22	24	70	42	-	16
29.20	142.9	129.0	154.1	1.8	2.9	1.3	6	clean SAND to silty SAND	125	5.0	26	29	75	43	-	16
29.36	133.8	120.5	154.8	2.1	3.0	1.6	6	clean SAND to silty SAND	125	5.0	24	27	73	43	-	16
29.53	117.1	105.2	144.9	2.0	3.0	1.7	5	silty SAND to sandy SILT	120	4.0	26	29	69	42	-	16
29.69	113.4	101.7	140.0	1.8	3.0	1.6	5	silty SAND to sandy SILT	120	4.0	25	28	68	42	-	16
29.86	102.6	91.8	125.7	1.5	3.0	1.4	5	silty SAND to sandy SILT	120	4.0	23	26	64	41	-	16
30.02	89.9	80.3	120.4	1.4	3.0	1.6	5	silty SAND to sandy SILT	120	4.0	20	22	60	40	-	16
30.19	57.2	51.0	116.9	1.4	3.2	2.4	5	silty SAND to sandy SILT	120	4.0	13	14	45	38	-	16
30.35	32.7	27.5	-	1.1	3.1	3.5	4	clayy SILT to silty CLAY	115	2.0	14	16	-	-	2.2	15
30.51	17.8	14.9	-	0.6	3.2	3.6	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.2	15
30.68	11.5	9.5	-	0.2	3.5	2.6	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
30.84	10.6	8.8	-	0.2	4.0	2.1	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
31.01	10.2	8.4	-	0.2	4.5	2.6	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
31.17	10.7	8.9	-	0.3	4.9	3.1	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
31.33	11.7	9.6	-	0.4	5.5	4.0	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
31.50	12.4	10.2	-	0.6	6.0	5.5	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(429).cpt
CPT Date: 11/20/2008 2:09:53 PM
GW During Test: 12 ft

Sounding ID: CPT-08-31
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	12.1	9.9	-	0.8	6.5	7.5	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
31.83	11.8	9.6	-	0.9	8.4	8.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
31.99	11.6	9.4	-	0.9	8.9	9.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
32.15	11.4	9.2	-	0.8	9.3	8.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
32.32	11.0	8.9	-	0.7	9.6	7.4	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.48	11.1	8.9	-	0.6	10.1	7.0	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.65	11.3	9.0	-	0.7	10.5	7.6	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
32.81	11.7	9.3	-	0.8	10.9	8.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
32.97	12.5	9.9	-	0.8	11.3	8.0	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
33.14	12.6	10.0	-	0.8	11.7	7.3	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
33.30	12.1	9.6	-	0.8	12.1	7.5	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
33.47	12.3	9.7	-	0.8	12.6	7.5	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
33.63	12.3	9.6	-	0.8	13.0	7.5	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
33.79	12.2	9.5	-	0.7	13.4	7.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
33.96	12.5	9.7	-	0.8	13.8	7.5	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
34.12	13.0	10.1	-	0.9	14.2	8.1	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.8	15
34.29	13.1	10.1	-	1.2	14.5	9.9	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
34.45	15.2	11.7	-	1.0	14.8	8.0	3	silty CLAY to CLAY	115	1.5	8	10	-	-	1.0	15
34.61	40.8	34.7	98.2	0.9	13.6	2.3	4	clayy SILT to silty CLAY	115	2.0	17	20	-	-	2.8	15
34.78	61.3	52.1	87.7	0.7	8.3	1.3	5	silty SAND to sandy SILT	120	4.0	13	15	45	38	-	16
34.94	69.7	59.1	90.3	0.8	5.0	1.2	5	silty SAND to sandy SILT	120	4.0	15	17	50	38	-	16
35.11	74.9	63.4	97.8	0.9	2.8	1.3	5	silty SAND to sandy SILT	120	4.0	16	19	52	39	-	16
35.27	89.9	76.0	113.4	1.3	1.9	1.5	5	silty SAND to sandy SILT	120	4.0	19	22	58	40	-	16
35.43	99.9	84.2	129.8	1.8	1.8	1.8	5	silty SAND to sandy SILT	120	4.0	21	25	61	40	-	16
35.60	108.9	91.7	144.7	2.2	2.0	2.1	5	silty SAND to sandy SILT	120	4.0	23	27	64	41	-	16
35.76	118.1	99.2	154.7	2.6	2.2	2.2	5	silty SAND to sandy SILT	120	4.0	25	30	67	41	-	16
35.93	124.9	104.8	161.2	2.8	2.3	2.2	5	silty SAND to sandy SILT	120	4.0	26	31	69	41	-	16
36.09	131.0	109.7	167.2	3.0	2.4	2.3	5	silty SAND to sandy SILT	120	4.0	27	33	70	42	-	16
36.26	137.0	114.5	172.8	3.1	2.5	2.3	5	silty SAND to sandy SILT	120	4.0	29	34	71	42	-	16
36.42	136.2	113.7	176.2	3.3	2.5	2.5	5	silty SAND to sandy SILT	120	4.0	28	34	71	42	-	16
36.58	137.1	114.2	179.3	3.4	2.5	2.5	5	silty SAND to sandy SILT	120	4.0	29	34	71	42	-	16
36.75	139.6	116.1	180.9	3.5	2.6	2.5	5	silty SAND to sandy SILT	120	4.0	29	35	72	42	-	16
36.91	135.6	112.5	179.8	3.5	2.6	2.6	5	silty SAND to sandy SILT	120	4.0	28	34	71	42	-	16
37.08	130.5	108.2	171.8	3.2	2.6	2.5	5	silty SAND to sandy SILT	120	4.0	27	33	70	41	-	16
37.24	129.6	107.2	163.9	2.9	2.5	2.3	5	silty SAND to sandy SILT	120	4.0	27	32	69	41	-	16
37.40	134.2	110.8	152.7	2.4	2.1	1.8	5	silty SAND to sandy SILT	120	4.0	28	34	70	42	-	16
37.57	123.8	102.1	143.7	2.1	0.8	1.8	5	silty SAND to sandy SILT	120	4.0	26	31	68	41	-	16
37.73	137.4	113.1	147.4	2.1	0.4	1.5	6	clean SAND to silty SAND	125	5.0	23	27	71	42	-	16
37.90	129.2	106.1	156.4	2.6	-1.1	2.0	5	silty SAND to sandy SILT	120	4.0	27	32	69	41	-	16
38.06	122.7	100.6	158.9	2.8	-1.3	2.3	5	silty SAND to sandy SILT	120	4.0	25	31	67	41	-	16
38.22	111.3	91.1	155.1	2.7	-1.1	2.5	5	silty SAND to sandy SILT	120	4.0	23	28	64	40	-	16
38.39	98.1	80.2	149.0	2.5	-1.0	2.6	5	silty SAND to sandy SILT	120	4.0	20	25	60	40	-	16
38.55	111.3	90.8	142.4	2.2	-0.9	2.0	5	silty SAND to sandy SILT	120	4.0	23	28	64	40	-	16
38.72	150.1	122.2	164.3	2.7	-1.4	1.8	5	silty SAND to sandy SILT	120	4.0	31	38	74	42	-	16
38.88	161.7	131.5	175.7	3.1	-1.2	1.9	5	silty SAND to sandy SILT	120	4.0	33	40	76	42	-	16
39.04	164.0	133.2	181.3	3.3	-1.2	2.1	5	silty SAND to sandy SILT	120	4.0	33	41	76	42	-	16
39.21	155.0	125.7	179.4	3.4	-1.1	2.2	5	silty SAND to sandy SILT	120	4.0	31	39	75	42	-	16
39.37	140.1	113.4	173.6	3.3	-1.0	2.4	5	silty SAND to sandy SILT	120	4.0	28	35	71	41	-	16
39.54	126.3	102.0	169.9	3.2	-0.9	2.6	5	silty SAND to sandy SILT	120	4.0	26	32	68	41	-	16
39.70	105.6	85.2	161.7	3.0	-0.9	2.9	5	silty SAND to sandy SILT	120	4.0	21	26	62	40	-	16
39.86	76.4	61.5	145.5	2.3	-0.8	3.1	4	clayy SILT to silty CLAY	115	2.0	31	38	-	-	5.3	15
40.03	87.2	70.1	134.4	2.0	-0.7	2.4	5	silty SAND to sandy SILT	120	4.0	18	22	55	39	-	16
40.19	86.6	69.5	136.1	2.1	0.3	2.5	5	silty SAND to sandy SILT	120	4.0	17	22	55	39	-	16
40.36	71.3	57.2	134.8	2.0	0.1	2.9	4	clayy SILT to silty CLAY	115	2.0	29	36	-	-	5.0	15
40.52	63.8	51.1	123.9	1.7	0.1	2.7	5	silty SAND to sandy SILT	120	4.0	13	16	45	37	-	16
40.68	58.1	46.4	115.4	1.4	-0.1	2.5	5	silty SAND to sandy SILT	120	4.0	12	15	42	36	-	16
40.85	37.3	25.2	-	1.1	-0.5	3.1	4	clayy SILT to silty CLAY	115	2.0	13	19	-	-	2.6	15
41.01	33.4	22.4	-	1.0	-0.4	3.1	4	clayy SILT to silty CLAY	115	2.0	11	17	-	-	2.3	15
41.18	35.0	23.5	-	1.0	-0.4	3.0	4	clayy SILT to silty CLAY	115	2.0	12	17	-	-	2.4	15
41.34	31.8	21.2	-	0.8	-0.4	2.8	4	clayy SILT to silty CLAY	115	2.0	11	16	-	-	2.2	15
41.50	36.2	24.1	-	0.7	-0.4	2.1	4	clayy SILT to silty CLAY	115	2.0	12	18	-	-	2.5	15
41.67	40.5	32.1	84.8	0.7	-0.4	1.8	5	silty SAND to sandy SILT	120	4.0	8	10	29	34	-	16
41.83	40.1	31.7	85.2	0.7	-0.9	1.8	5	silty SAND to sandy SILT	120	4.0	8	10	29	34	-	16
42.00	37.0	24.5	-	0.7	-1.3	2.0	4	clayy SILT to silty CLAY	115	2.0	12	19	-	-	2.5	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(429).cpt
CPT Date: 11/20/2008 2:09:53 PM
GW During Test: 12 ft

Sounding ID: CPT-08-31
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	27.9	18.4	-	0.7	-1.9	2.9	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.9	15
42.32	16.7	10.9	-	0.6	-2.0	3.9	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
42.49	21.9	14.4	-	0.4	-1.8	2.1	4	clayy SILT to silty CLAY	115	2.0	7	11	-	-	1.5	15
42.65	14.1	9.2	-	0.4	-1.9	3.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.82	11.8	7.7	-	0.4	-1.7	4.0	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
42.98	12.0	7.8	-	0.3	-1.5	3.4	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
43.15	10.6	6.9	-	0.5	-1.3	5.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
43.31	16.5	10.7	-	0.4	-1.1	3.1	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
43.47	14.6	9.4	-	0.3	-1.1	2.9	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
43.64	12.0	7.7	-	0.4	-1.0	4.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
43.80	9.9	6.3	-	0.4	-0.8	5.6	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
43.97	13.2	8.4	-	0.3	-0.6	3.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
44.13	9.8	6.3	-	0.3	-0.6	4.3	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
44.29	9.4	6.0	-	0.2	-0.4	2.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
44.46	8.7	5.5	-	0.2	-0.2	3.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
44.62	8.2	5.2	-	0.3	0.0	4.7	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.5	15
44.79	10.2	6.4	-	0.4	0.2	5.0	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
44.95	10.8	6.8	-	0.5	0.3	5.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
45.11	11.3	7.1	-	0.3	1.4	3.8	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
45.28	9.8	6.1	-	0.2	4.1	3.5	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
45.44	8.2	5.1	-	0.2	4.4	3.6	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.5	15
45.61	8.7	5.4	-	0.2	4.8	3.5	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
45.77	9.3	5.7	-	0.2	5.0	3.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
45.93	9.5	5.9	-	0.2	5.3	2.5	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
46.10	8.5	5.3	-	0.2	5.6	2.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
46.26	8.1	5.0	-	0.2	6.0	3.4	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.5	15
46.43	8.5	5.2	-	0.2	6.4	3.4	3	silty CLAY to CLAY	115	1.5	3	6	-	-	0.5	15
46.59	9.2	5.7	-	0.2	6.8	3.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
46.75	10.1	6.1	-	0.3	7.2	4.7	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
46.92	11.9	7.2	-	0.5	7.5	5.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
47.08	31.7	19.2	-	0.7	8.1	2.3	4	clayy SILT to silty CLAY	115	2.0	10	16	-	-	2.1	15
47.25	38.9	23.6	-	0.9	3.6	2.6	4	clayy SILT to silty CLAY	115	2.0	12	19	-	-	2.7	15
47.41	23.9	14.4	-	0.9	2.8	4.2	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.6	15
47.57	16.6	10.0	-	0.7	3.0	4.9	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
47.74	21.1	12.7	-	1.1	3.3	5.8	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
47.90	36.4	21.8	-	1.7	3.2	5.0	3	silty CLAY to CLAY	115	1.5	15	24	-	-	2.5	15
48.07	53.0	39.8	114.5	1.4	2.2	2.8	4	clayy SILT to silty CLAY	115	2.0	20	27	-	-	3.6	15
48.23	84.3	63.2	98.9	1.1	1.1	1.3	5	silty SAND to sandy SILT	120	4.0	16	21	52	38	-	16
48.39	163.8	122.7	134.9	1.3	0.5	0.8	6	clean SAND to silty SAND	125	5.0	25	33	74	41	-	16
48.56	176.9	132.3	148.1	1.7	0.7	1.0	6	clean SAND to silty SAND	125	5.0	26	35	76	42	-	16
48.72	191.1	142.7	166.2	2.4	1.9	1.3	6	clean SAND to silty SAND	125	5.0	29	38	79	42	-	16
48.89	192.1	143.2	176.4	3.0	2.0	1.6	6	clean SAND to silty SAND	125	5.0	29	38	79	42	-	16
49.05	197.7	147.2	185.7	3.5	2.2	1.8	6	clean SAND to silty SAND	125	5.0	29	40	80	42	-	16
49.22	194.8	144.8	182.4	3.4	2.3	1.8	6	clean SAND to silty SAND	125	5.0	29	39	79	42	-	16
49.38	184.3	136.8	177.9	3.3	2.4	1.8	5	silty SAND to sandy SILT	120	4.0	34	46	77	42	-	16
49.54	170.5	126.4	172.2	3.3	2.5	2.0	5	silty SAND to sandy SILT	120	4.0	32	43	75	41	-	16
49.71	143.9	106.5	156.8	2.9	2.6	2.0	5	silty SAND to sandy SILT	120	4.0	27	36	69	40	-	16
49.87	134.6	99.5	140.3	2.2	2.7	1.7	5	silty SAND to sandy SILT	120	4.0	25	34	67	40	-	16
50.04	175.4	129.4	162.4	2.7	2.8	1.6	6	clean SAND to silty SAND	125	5.0	26	35	76	41	-	16
50.20	214.2	157.9	194.6	3.7	3.0	1.8	6	clean SAND to silty SAND	125	5.0	32	43	82	43	-	16
50.36	217.4	160.0	211.7	4.8	2.8	2.2	5	silty SAND to sandy SILT	120	4.0	40	54	83	43	-	16
50.53	214.7	157.8	219.4	5.3	3.0	2.5	5	silty SAND to sandy SILT	120	4.0	39	54	82	42	-	16
50.69	211.6	155.3	223.1	5.6	3.1	2.7	5	silty SAND to sandy SILT	120	4.0	39	53	82	42	-	16
50.86	203.6	149.2	219.0	5.5	3.2	2.7	5	silty SAND to sandy SILT	120	4.0	37	51	80	42	-	16
51.02	196.0	143.5	210.4	5.1	3.4	2.6	5	silty SAND to sandy SILT	120	4.0	36	49	79	42	-	16
51.18	189.8	138.7	198.5	4.5	3.5	2.4	5	silty SAND to sandy SILT	120	4.0	35	47	78	42	-	16
51.35	179.0	130.7	189.6	4.2	3.6	2.4	5	silty SAND to sandy SILT	120	4.0	33	45	76	41	-	16
51.51	137.9	100.5	168.4	3.5	4.0	2.6	5	silty SAND to sandy SILT	120	4.0	25	34	67	40	-	16
51.68	84.9	61.8	145.1	2.5	3.9	3.1	4	clayy SILT to silty CLAY	115	2.0	31	42	-	-	5.9	15
51.84	49.8	27.9	-	2.0	3.7	4.2	3	silty CLAY to CLAY	115	1.5	19	33	-	-	3.4	15
52.00	25.5	14.2	-	1.3	3.6	5.6	3	silty CLAY to CLAY	115	1.5	9	17	-	-	1.7	15
52.17	16.0	8.9	-	0.6	3.7	4.6	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
52.33	13.1	7.3	-	0.4	3.9	4.0	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
52.50	19.8	11.0	-	0.5	4.4	2.7	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(429).cpt
CPT Date: 11/20/2008 2:09:53 PM
GW During Test: 12 ft

Sounding ID: CPT-08-31
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n * PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	19.5	10.8	-	0.8	4.8	4.6	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
52.82	14.7	8.1	-	1.1	5.0	9.2	2	Organic SOILS - Peats	100	1.0	8	15	-	-	1.4	10
52.99	20.0	11.1	-	1.2	5.3	7.1	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
53.15	58.9	42.4	111.9	1.4	5.5	2.5	4	clayy SILT to silty CLAY	115	2.0	21	29	-	-	4.1	15
53.32	81.3	58.5	104.0	1.3	4.7	1.7	5	silty SAND to sandy SILT	120	4.0	15	20	49	37	-	16
53.48	72.5	52.1	102.7	1.3	3.2	1.8	5	silty SAND to sandy SILT	120	4.0	13	18	46	36	-	16
53.64	59.0	42.4	109.9	1.4	3.0	2.4	5	silty SAND to sandy SILT	120	4.0	11	15	39	35	-	16
53.81	51.3	27.9	-	1.4	3.1	3.0	4	clayy SILT to silty CLAY	115	2.0	14	26	-	-	3.5	15
53.97	55.1	30.0	-	1.5	3.2	2.8	4	clayy SILT to silty CLAY	115	2.0	15	28	-	-	3.8	15
54.14	60.2	32.6	-	1.7	3.3	2.9	4	clayy SILT to silty CLAY	115	2.0	16	30	-	-	4.1	15
54.30	58.1	31.4	-	1.6	3.3	3.0	4	clayy SILT to silty CLAY	115	2.0	16	29	-	-	4.0	15
54.46	70.9	50.6	119.5	1.7	3.5	2.5	5	silty SAND to sandy SILT	120	4.0	13	18	44	36	-	16
54.63	77.0	54.9	124.2	1.9	2.7	2.5	5	silty SAND to sandy SILT	120	4.0	14	19	47	36	-	16
54.79	76.0	54.1	131.5	2.1	2.8	2.9	4	clayy SILT to silty CLAY	115	2.0	27	38	-	-	5.3	15
54.96	78.4	55.7	124.1	1.9	2.9	2.5	5	silty SAND to sandy SILT	120	4.0	14	20	48	36	-	16
55.12	80.6	57.2	123.7	1.9	2.8	2.4	5	silty SAND to sandy SILT	120	4.0	14	20	49	37	-	16
55.28	96.7	68.6	129.7	2.1	4.4	2.3	5	silty SAND to sandy SILT	120	4.0	17	24	55	38	-	16
55.45	145.8	103.2	147.6	2.6	4.1	1.8	5	silty SAND to sandy SILT	120	4.0	26	36	68	40	-	16
55.61	179.1	126.7	158.2	2.6	3.9	1.5	6	clean SAND to silty SAND	125	5.0	25	36	75	41	-	16
55.78	207.3	146.4	168.9	2.6	4.0	1.3	6	clean SAND to silty SAND	125	5.0	29	41	80	42	-	16
55.94	225.2	158.9	173.9	2.4	3.6	1.1	6	clean SAND to silty SAND	125	5.0	32	45	82	42	-	16
56.11	218.5	153.9	171.5	2.4	3.3	1.1	6	clean SAND to silty SAND	125	5.0	31	44	81	42	-	16
56.27	175.7	123.6	149.1	2.2	2.8	1.3	6	clean SAND to silty SAND	125	5.0	25	35	74	41	-	16
56.43	133.4	93.7	135.5	2.2	2.9	1.7	5	silty SAND to sandy SILT	120	4.0	23	33	65	39	-	16
56.60	93.6	65.6	130.0	2.2	2.9	2.4	5	silty SAND to sandy SILT	120	4.0	16	23	53	37	-	16
56.76	96.7	67.7	132.7	2.3	3.1	2.4	5	silty SAND to sandy SILT	120	4.0	17	24	54	38	-	16
56.93	121.3	84.9	125.5	1.9	3.4	1.6	5	silty SAND to sandy SILT	120	4.0	21	30	62	39	-	16
57.09	124.9	87.3	134.0	2.2	1.7	1.8	5	silty SAND to sandy SILT	120	4.0	22	31	63	39	-	16
57.25	101.8	71.0	146.1	2.7	1.0	2.8	5	silty SAND to sandy SILT	120	4.0	18	25	56	38	-	16
57.42	106.8	74.4	121.5	1.9	1.1	1.8	5	silty SAND to sandy SILT	120	4.0	19	27	57	38	-	16
57.58	100.3	69.8	127.3	2.1	1.1	2.1	5	silty SAND to sandy SILT	120	4.0	17	25	55	38	-	16
57.75	112.0	77.9	133.1	2.3	1.3	2.1	5	silty SAND to sandy SILT	120	4.0	19	28	59	38	-	16
57.91	219.4	152.5	178.7	3.0	0.9	1.4	6	clean SAND to silty SAND	125	5.0	30	44	81	42	-	16
58.07	289.6	200.9	217.4	3.6	0.0	1.3	6	clean SAND to silty SAND	125	5.0	40	58	90	43	-	16
58.24	319.7	221.6	233.6	3.8	0.2	1.2	6	clean SAND to silty SAND	125	5.0	44	64	93	44	-	16
58.40	352.2	243.8	246.5	3.8	0.4	1.1	6	clean SAND to silty SAND	125	5.0	49	70	95	44	-	16
58.57	395.1	273.1	273.1	4.1	0.4	1.1	6	clean SAND to silty SAND	125	5.0	55	79	95	45	-	16
58.73	421.4	290.9	290.9	4.4	-0.4	1.1	6	clean SAND to silty SAND	125	5.0	58	84	95	45	-	16
58.89	449.4	309.8	325.6	6.9	-1.3	1.6	6	clean SAND to silty SAND	125	5.0	62	90	95	45	-	16
59.06	490.0	337.4	344.4	7.1	-1.7	1.5	6	clean SAND to silty SAND	125	5.0	67	98	95	46	-	16
59.22	457.8	314.8	325.4	6.6	-1.3	1.5	6	clean SAND to silty SAND	125	5.0	63	92	95	45	-	16
59.39	432.9	297.3	297.3	4.7	-1.0	1.1	6	clean SAND to silty SAND	125	5.0	59	87	95	45	-	16
59.55	376.7	258.3	258.3	3.2	-1.0	0.9	6	clean SAND to silty SAND	125	5.0	52	75	95	44	-	16
59.71	357.7	245.1	245.1	1.8	-1.2	0.5	6	clean SAND to silty SAND	125	5.0	49	72	95	44	-	16
59.88	355.8	243.4	243.4	2.0	-1.3	0.6	6	clean SAND to silty SAND	125	5.0	49	71	95	44	-	16
60.04	345.9	236.4	236.4	1.9	-1.3	0.6	6	clean SAND to silty SAND	125	5.0	47	69	95	44	-	16
60.21	351.0	239.5	239.5	1.5	-0.4	0.4	6	clean SAND to silty SAND	125	5.0	48	70	95	44	-	16
60.37	354.5	241.6	241.6	1.7	-0.8	0.5	6	clean SAND to silty SAND	125	5.0	48	71	95	44	-	16
60.53	340.3	231.6	231.6	1.7	-0.9	0.5	6	clean SAND to silty SAND	125	5.0	46	68	95	44	-	16
60.70	294.4	200.2	200.2	1.6	-1.6	0.5	6	clean SAND to silty SAND	125	5.0	40	59	90	43	-	16
60.86	255.4	173.4	173.4	1.6	-2.1	0.6	6	clean SAND to silty SAND	125	5.0	35	51	85	42	-	16
61.03	265.7	180.1	180.1	1.6	-2.3	0.6	6	clean SAND to silty SAND	125	5.0	36	53	86	43	-	16
61.19	334.2	226.3	226.3	1.7	-2.3	0.5	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
61.35	336.6	227.7	227.7	1.8	-0.9	0.5	6	clean SAND to silty SAND	125	5.0	46	67	94	44	-	16
61.52	337.0	227.7	227.7	1.8	-0.8	0.5	6	clean SAND to silty SAND	125	5.0	46	67	94	44	-	16
61.68	322.1	217.3	217.3	1.7	-0.7	0.5	6	clean SAND to silty SAND	125	5.0	43	64	93	44	-	16
61.85	313.2	211.0	211.3	2.8	-0.9	0.9	6	clean SAND to silty SAND	125	5.0	42	63	92	43	-	16
62.01	302.3	203.5	213.8	3.3	-0.9	1.1	6	clean SAND to silty SAND	125	5.0	41	60	90	43	-	16
62.17	273.1	183.6	209.7	4.0	-0.6	1.5	6	clean SAND to silty SAND	125	5.0	37	55	87	43	-	16
62.34	245.5	164.9	192.3	3.6	-0.5	1.5	6	clean SAND to silty SAND	125	5.0	33	49	84	42	-	16
62.50	242.6	162.7	186.1	3.2	-0.5	1.3	6	clean SAND to silty SAND	125	5.0	33	49	83	42	-	16
62.67	276.3	185.1	191.8	2.6	-0.5	0.9	6	clean SAND to silty SAND	125	5.0	37	55	87	43	-	16
62.83	303.7	203.2	203.2	2.0	-0.9	0.7	6	clean SAND to silty SAND	125	5.0	41	61	90	43	-	16
63.00	315.3	210.7	210.7	1.7	-1.4	0.6	6	clean SAND to silty SAND	125	5.0	42	63	92	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Depth ft	qc PS tsf	qc1n PS - *	q1ncs PS - *	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60% *	SPT R-N 60% *	Rel Den % *	Ftn Ang deg *	Und Shr tsf	Nk -
63.16	344.2	229.7	229.7	1.8	-1.5	0.5	6	clean SAND to silty SAND	125	5.0	46	69	94	44	-	16
63.32	366.1	244.0	244.0	1.7	-1.7	0.5	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
63.49	374.5	249.3	249.3	2.1	-1.5	0.6	6	clean SAND to silty SAND	125	5.0	50	75	95	44	-	16
63.65	351.3	233.6	233.6	2.1	-1.5	0.6	6	clean SAND to silty SAND	125	5.0	47	70	95	44	-	16
63.82	344.1	228.5	228.5	2.1	-1.4	0.6	6	clean SAND to silty SAND	125	5.0	46	69	94	44	-	16
63.98	354.1	234.9	234.9	2.4	-1.3	0.7	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
64.14	333.7	221.1	221.1	2.6	-1.3	0.8	6	clean SAND to silty SAND	125	5.0	44	67	93	43	-	16
64.31	325.4	215.3	215.1	2.9	-1.2	0.9	6	clean SAND to silty SAND	125	5.0	43	65	92	43	-	16
64.47	319.6	211.3	213.5	3.0	-1.0	0.9	6	clean SAND to silty SAND	125	5.0	42	64	92	43	-	16
64.64	279.3	184.4	191.5	2.6	4.7	0.9	6	clean SAND to silty SAND	125	5.0	37	56	87	43	-	16
64.80	262.8	173.3	180.7	2.3	4.6	0.9	6	clean SAND to silty SAND	125	5.0	35	53	85	42	-	16
64.96	248.9	163.9	177.0	2.5	4.7	1.0	6	clean SAND to silty SAND	125	5.0	33	50	83	42	-	16
65.13	249.2	163.9	187.7	3.3	4.9	1.4	6	clean SAND to silty SAND	125	5.0	33	50	83	42	-	16
65.29	242.7	159.5	192.6	3.9	6.8	1.6	6	clean SAND to silty SAND	125	5.0	32	49	82	42	-	16
65.46	250.2	164.2	204.7	4.6	6.8	1.9	6	clean SAND to silty SAND	125	5.0	33	50	83	42	-	16
65.62	268.8	176.2	210.8	4.6	6.6	1.7	6	clean SAND to silty SAND	125	5.0	35	54	86	42	-	16
65.78	302.6	198.1	216.2	3.9	6.7	1.3	6	clean SAND to silty SAND	125	5.0	40	61	90	43	-	16
65.95	339.1	221.8	223.2	3.3	5.3	1.0	6	clean SAND to silty SAND	125	5.0	44	68	93	43	-	16
66.11	361.8	236.3	236.3	3.0	4.5	0.8	6	clean SAND to silty SAND	125	5.0	47	72	95	44	-	16
66.28	374.8	244.6	244.6	3.0	3.9	0.8	6	clean SAND to silty SAND	125	5.0	49	75	95	44	-	16
66.44	458.6	298.9	298.9	3.9	3.7	0.9	6	clean SAND to silty SAND	125	5.0	60	92	95	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(460).cpt
CPT Date: 12/3/2008 1:30:16 PM
GW During Test: 12 ft

Sounding ID: CPT-08-32
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	47.4	76.1	89.7	0.3	0.0	0.6	6	clean SAND to silty SAND	125	5.0	15	9	58	48	-	16
0.49	47.8	76.6	99.0	0.5	0.0	1.0	6	clean SAND to silty SAND	125	5.0	15	10	58	48	-	16
0.66	41.3	66.2	97.6	0.5	0.0	1.3	5	silty SAND to sandy SILT	120	4.0	17	10	53	48	-	16
0.82	34.1	54.7	94.1	0.5	0.0	1.5	5	silty SAND to sandy SILT	120	4.0	14	9	47	48	-	16
0.98	26.3	42.2	85.2	0.4	0.0	1.5	5	silty SAND to sandy SILT	120	4.0	11	7	39	48	-	16
1.15	20.8	33.4	75.1	0.3	0.0	1.4	5	silty SAND to sandy SILT	120	4.0	8	5	31	46	-	16
1.31	18.5	29.6	72.0	0.3	0.0	1.4	5	silty SAND to sandy SILT	120	4.0	7	5	27	45	-	16
1.48	19.2	30.9	74.6	0.3	0.0	1.5	5	silty SAND to sandy SILT	120	4.0	8	5	28	44	-	16
1.64	19.4	31.2	79.8	0.3	0.0	1.7	5	silty SAND to sandy SILT	120	4.0	8	5	29	44	-	16
1.80	18.4	29.5	77.5	0.3	0.0	1.7	5	silty SAND to sandy SILT	120	4.0	7	5	27	43	-	16
1.97	19.0	30.5	76.2	0.3	0.0	1.6	5	silty SAND to sandy SILT	120	4.0	8	5	28	43	-	16
2.13	15.3	24.5	71.6	0.2	0.0	1.6	5	silty SAND to sandy SILT	120	4.0	6	4	21	41	-	16
2.30	13.5	21.7	-	0.2	0.0	1.9	4	clayy SILT to silty CLAY	115	2.0	11	7	-	-	0.9	15
2.46	18.2	29.1	87.3	0.4	0.1	2.2	4	clayy SILT to silty CLAY	115	2.0	15	9	-	-	1.3	15
2.62	35.8	57.4	100.4	0.6	0.0	1.6	5	silty SAND to sandy SILT	120	4.0	14	9	49	45	-	16
2.79	39.9	63.9	113.2	0.8	0.0	1.9	5	silty SAND to sandy SILT	120	4.0	16	10	52	45	-	16
2.95	36.8	59.0	117.5	0.8	0.1	2.2	5	silty SAND to sandy SILT	120	4.0	15	9	50	44	-	16
3.12	32.9	52.8	111.0	0.7	0.1	2.2	5	silty SAND to sandy SILT	120	4.0	13	8	46	43	-	16
3.28	33.0	52.9	101.8	0.6	0.0	1.8	5	silty SAND to sandy SILT	120	4.0	13	8	46	43	-	16
3.45	32.8	52.6	95.7	0.5	0.0	1.6	5	silty SAND to sandy SILT	120	4.0	13	8	46	43	-	16
3.61	30.7	49.3	92.9	0.5	0.0	1.6	5	silty SAND to sandy SILT	120	4.0	12	8	44	43	-	16
3.77	28.1	45.0	91.6	0.5	0.1	1.7	5	silty SAND to sandy SILT	120	4.0	11	7	41	42	-	16
3.94	25.3	40.6	88.9	0.4	0.1	1.7	5	silty SAND to sandy SILT	120	4.0	10	6	37	41	-	16
4.10	22.0	35.3	85.7	0.4	0.1	1.8	5	silty SAND to sandy SILT	120	4.0	9	5	33	41	-	16
4.27	19.7	31.6	84.2	0.4	0.1	1.9	5	silty SAND to sandy SILT	120	4.0	8	5	29	40	-	16
4.43	21.0	33.7	82.1	0.4	0.1	1.7	5	silty SAND to sandy SILT	120	4.0	8	5	31	40	-	16
4.59	22.1	35.4	91.2	0.4	0.1	2.0	5	silty SAND to sandy SILT	120	4.0	9	6	33	40	-	16
4.76	20.6	33.0	98.4	0.5	0.1	2.5	4	clayy SILT to silty CLAY	115	2.0	17	10	-	-	1.4	15
4.92	20.5	32.9	99.9	0.5	0.1	2.6	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
5.09	36.1	57.8	104.1	0.6	0.0	1.7	5	silty SAND to sandy SILT	120	4.0	14	9	49	43	-	16
5.25	46.1	74.0	143.1	1.2	0.1	2.6	5	silty SAND to sandy SILT	120	4.0	18	12	57	44	-	16
5.41	39.7	63.6	158.3	1.4	0.1	3.6	4	clayy SILT to silty CLAY	115	2.0	32	20	-	-	2.8	15
5.58	40.3	64.6	159.5	1.5	0.2	3.6	4	clayy SILT to silty CLAY	115	2.0	32	20	-	-	2.8	15
5.74	34.0	54.5	156.6	1.4	0.2	4.0	4	clayy SILT to silty CLAY	115	2.0	27	17	-	-	2.4	15
5.91	32.0	51.3	151.2	1.3	0.2	4.0	4	clayy SILT to silty CLAY	115	2.0	26	16	-	-	2.2	15
6.07	30.5	48.9	147.8	1.2	0.2	4.0	4	clayy SILT to silty CLAY	115	2.0	24	15	-	-	2.1	15
6.23	31.6	50.4	134.6	1.0	0.2	3.3	4	clayy SILT to silty CLAY	115	2.0	25	16	-	-	2.2	15
6.40	33.6	52.9	123.5	0.9	0.2	2.7	5	silty SAND to sandy SILT	120	4.0	13	8	46	41	-	16
6.56	22.4	35.8	-	0.8	0.2	3.6	4	clayy SILT to silty CLAY	115	2.0	18	11	-	-	1.6	15
6.73	17.4	28.0	-	0.8	0.2	4.4	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.2	15
6.89	19.9	31.9	-	0.8	0.3	4.3	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
7.05	30.4	45.6	133.7	1.0	0.2	3.5	4	clayy SILT to silty CLAY	115	2.0	23	15	-	-	2.1	15
7.22	21.5	34.5	-	1.0	0.3	4.7	3	silty CLAY to CLAY	115	1.5	23	14	-	-	1.5	15
7.38	17.7	28.4	-	0.8	0.3	4.4	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.2	15
7.55	15.8	25.3	-	0.6	0.3	4.2	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.1	15
7.71	14.7	23.5	-	0.6	0.2	4.5	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
7.87	13.5	21.6	-	0.5	0.9	4.2	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
8.04	15.0	24.0	-	0.5	1.1	3.6	4	clayy SILT to silty CLAY	115	2.0	12	7	-	-	1.0	15
8.20	15.6	25.0	-	0.5	1.1	3.4	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.1	15
8.37	18.7	30.0	-	0.7	1.1	3.8	4	clayy SILT to silty CLAY	115	2.0	15	9	-	-	1.3	15
8.53	23.9	38.3	-	0.9	0.9	3.8	4	clayy SILT to silty CLAY	115	2.0	19	12	-	-	1.7	15
8.69	32.1	43.5	117.0	0.9	2.1	2.8	4	clayy SILT to silty CLAY	115	2.0	22	16	-	-	2.2	15
8.86	49.4	66.4	129.6	1.2	-2.5	2.4	5	silty SAND to sandy SILT	120	4.0	17	12	53	42	-	16
9.02	60.5	80.6	136.8	1.3	-2.9	2.2	5	silty SAND to sandy SILT	120	4.0	20	15	60	43	-	16
9.19	69.5	91.6	136.5	1.3	-4.7	1.8	5	silty SAND to sandy SILT	120	4.0	23	17	64	44	-	16
9.35	76.7	100.2	142.6	1.4	-1.4	1.8	5	silty SAND to sandy SILT	120	4.0	25	19	67	44	-	16
9.51	80.8	104.7	149.0	1.5	0.0	1.9	5	silty SAND to sandy SILT	120	4.0	26	20	69	45	-	16
9.68	73.9	95.0	149.3	1.6	0.0	2.2	5	silty SAND to sandy SILT	120	4.0	24	18	65	44	-	16
9.84	50.4	64.2	146.0	1.5	0.4	3.1	4	clayy SILT to silty CLAY	115	2.0	32	25	-	-	3.5	15
10.01	48.6	61.4	128.1	1.2	-0.2	2.5	5	silty SAND to sandy SILT	120	4.0	15	12	51	42	-	16
10.17	65.6	82.2	122.3	1.1	-0.6	1.6	5	silty SAND to sandy SILT	120	4.0	21	16	61	43	-	16
10.34	55.2	68.6	118.4	1.0	0.5	1.9	5	silty SAND to sandy SILT	120	4.0	17	14	55	42	-	16
10.50	43.2	53.2	119.8	1.1	-0.4	2.5	5	silty SAND to sandy SILT	120	4.0	13	11	46	41	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(460).cpt
CPT Date: 12/3/2008 1:30:16 PM
GW During Test: 12 ft

Sounding ID: CPT-08-32
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	32.0	39.1	116.3	0.9	-0.6	3.0	4	clayy SILT to silty CLAY	115	2.0	20	16	-	-	2.2	15
10.83	43.4	52.7	108.4	0.9	-0.4	2.1	5	silty SAND to sandy SILT	120	4.0	13	11	46	41	-	16
10.99	64.5	77.8	114.9	1.0	0.0	1.5	5	silty SAND to sandy SILT	120	4.0	19	16	59	43	-	16
11.16	71.2	85.1	123.0	1.1	0.8	1.6	5	silty SAND to sandy SILT	120	4.0	21	18	62	43	-	16
11.32	83.4	99.0	133.3	1.2	0.3	1.5	5	silty SAND to sandy SILT	120	4.0	25	21	67	44	-	16
11.48	79.4	93.5	127.7	1.2	0.3	1.5	5	silty SAND to sandy SILT	120	4.0	23	20	65	44	-	16
11.65	73.3	85.8	111.9	0.8	0.7	1.1	6	clean SAND to silty SAND	125	5.0	17	15	62	43	-	16
11.81	64.1	74.4	107.4	0.8	0.5	1.3	5	silty SAND to sandy SILT	120	4.0	19	16	57	43	-	16
11.98	31.3	36.1	100.2	0.7	1.2	2.4	4	clayy SILT to silty CLAY	115	2.0	18	16	-	-	2.2	15
12.14	23.8	29.7	-	0.7	1.6	2.9	4	clayy SILT to silty CLAY	115	2.0	15	12	-	-	1.7	15
12.30	14.6	20.4	-	0.5	1.8	3.9	3	silty CLAY to CLAY	115	1.5	14	10	-	-	1.0	15
12.47	10.2	14.1	-	0.4	2.6	4.0	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
12.63	9.5	13.1	-	0.3	2.6	3.7	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
12.80	9.6	13.1	-	0.2	2.5	2.8	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
12.96	9.9	13.5	-	0.3	2.4	3.2	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
13.12	13.8	18.7	-	0.5	2.5	3.5	3	silty CLAY to CLAY	115	1.5	12	9	-	-	0.9	15
13.29	16.7	22.4	-	0.6	1.8	3.5	4	clayy SILT to silty CLAY	115	2.0	11	8	-	-	1.1	15
13.45	19.9	26.6	-	0.5	1.4	2.8	4	clayy SILT to silty CLAY	115	2.0	13	10	-	-	1.4	15
13.62	17.7	23.5	-	0.6	0.7	3.5	4	clayy SILT to silty CLAY	115	2.0	12	9	-	-	1.2	15
13.78	16.3	21.6	-	0.5	0.3	3.4	4	clayy SILT to silty CLAY	115	2.0	11	8	-	-	1.1	15
13.94	18.5	24.3	-	0.5	-0.9	2.7	4	clayy SILT to silty CLAY	115	2.0	12	9	-	-	1.3	15
14.11	19.7	23.4	-	0.4	-2.2	2.2	4	clayy SILT to silty CLAY	115	2.0	12	10	-	-	1.4	15
14.27	18.0	23.4	-	0.3	-4.4	2.0	4	clayy SILT to silty CLAY	115	2.0	12	9	-	-	1.2	15
14.44	17.6	19.4	61.2	0.2	-6.0	1.3	4	clayy SILT to silty CLAY	115	2.0	10	9	-	-	1.2	15
14.60	16.1	20.6	-	0.3	-6.7	1.9	4	clayy SILT to silty CLAY	115	2.0	10	8	-	-	1.1	15
14.76	12.5	16.0	-	0.4	-7.0	3.2	3	silty CLAY to CLAY	115	1.5	11	8	-	-	0.8	15
14.93	12.8	16.3	-	0.3	-7.1	2.9	3	silty CLAY to CLAY	115	1.5	11	9	-	-	0.9	15
15.09	15.0	18.9	-	0.2	-7.2	1.6	4	clayy SILT to silty CLAY	115	2.0	9	7	-	-	1.0	15
15.26	16.2	17.7	56.7	0.2	-8.1	1.1	4	clayy SILT to silty CLAY	115	2.0	9	8	-	-	1.1	15
15.42	16.4	17.9	55.8	0.2	-8.1	1.1	5	silty SAND to sandy SILT	120	4.0	4	4	10	34	-	16
15.58	17.9	20.4	66.3	0.2	-8.0	1.5	4	clayy SILT to silty CLAY	115	2.0	10	9	-	-	1.2	15
15.75	16.7	20.6	-	0.4	-8.0	2.3	4	clayy SILT to silty CLAY	115	2.0	10	8	-	-	1.1	15
15.91	18.9	23.2	-	0.3	-7.9	1.9	4	clayy SILT to silty CLAY	115	2.0	12	9	-	-	1.3	15
16.08	29.3	31.4	59.5	0.2	-8.4	0.8	5	silty SAND to sandy SILT	120	4.0	8	7	29	37	-	16
16.24	29.7	31.8	70.2	0.3	-9.1	1.2	5	silty SAND to sandy SILT	120	4.0	8	7	29	37	-	16
16.40	14.7	17.7	-	0.4	-9.1	2.8	4	clayy SILT to silty CLAY	115	2.0	9	7	-	-	1.0	15
16.57	8.8	10.6	-	0.3	-9.1	3.8	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
16.73	6.7	8.0	-	0.3	-9.0	5.0	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.90	6.5	7.7	-	0.3	-8.9	5.6	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.06	6.0	7.2	-	0.3	-8.9	6.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.23	5.5	6.5	-	0.3	-8.8	6.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
17.39	5.1	6.0	-	0.3	-8.8	6.8	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
17.55	5.2	6.1	-	0.3	-8.7	6.5	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
17.72	5.5	6.4	-	0.3	-8.7	6.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
17.88	4.9	5.7	-	0.3	-8.7	6.7	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
18.05	5.0	5.7	-	0.2	-8.6	6.4	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
18.21	5.4	6.2	-	0.3	-8.6	5.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
18.37	5.8	6.6	-	0.3	-8.5	7.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
18.54	7.2	8.1	-	0.4	-8.4	6.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
18.70	7.6	8.5	-	0.4	-8.0	5.6	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
18.87	7.1	7.9	-	0.4	-7.9	5.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
19.03	7.8	8.7	-	0.4	-7.8	6.2	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
19.19	9.3	10.4	-	0.5	-7.8	6.4	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
19.36	10.3	11.4	-	0.6	-7.7	7.1	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
19.52	11.4	12.5	-	0.8	-7.6	7.3	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
19.69	11.9	13.0	-	0.7	-7.5	6.9	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
19.85	11.5	12.5	-	0.7	-7.5	7.2	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
20.01	11.0	12.0	-	0.7	-7.4	7.6	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
20.18	10.1	10.9	-	0.5	-7.4	5.3	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
20.34	9.7	10.4	-	0.2	-7.3	1.9	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
20.51	32.9	33.1	54.9	0.2	-7.0	0.6	5	silty SAND to sandy SILT	120	4.0	8	8	30	37	-	16
20.67	22.1	23.5	-	0.8	-2.3	4.0	3	silty CLAY to CLAY	115	1.5	16	15	-	-	1.5	15
20.83	51.8	51.8	122.8	1.3	2.4	2.7	5	silty SAND to sandy SILT	120	4.0	13	13	45	39	-	16
21.00	13.2	13.9	-	1.3	-1.8	9.9	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(460).cpt
CPT Date: 12/3/2008 1:30:16 PM
GW During Test: 12 ft

Sounding ID: CPT-08-32
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	9.5	10.0	-	0.9	-3.2	9.9	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
21.33	9.7	10.1	-	0.9	-2.8	9.9	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
21.49	9.6	10.0	-	1.0	-2.5	9.9	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
21.65	9.9	10.3	-	1.0	-2.1	9.9	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
21.82	10.6	10.9	-	1.0	-0.1	9.9	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
21.98	10.6	10.9	-	0.9	0.2	10.0	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
22.15	10.3	10.5	-	0.9	0.6	9.7	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
22.31	10.1	10.3	-	0.9	0.9	9.8	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
22.47	10.4	10.5	-	0.9	1.4	9.5	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
22.64	9.9	9.9	-	0.9	1.6	9.9	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.6	15
22.80	9.9	9.9	-	0.8	2.0	9.6	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.6	15
22.97	11.2	11.2	-	0.7	2.2	7.4	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
23.13	9.9	9.9	-	0.7	2.5	8.6	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.6	15
23.30	10.1	10.0	-	0.9	2.9	10.0	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
23.46	10.7	10.5	-	1.0	3.3	9.9	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
23.62	11.2	11.0	-	1.1	3.7	9.9	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
23.79	11.5	11.2	-	1.1	4.0	9.9	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
23.95	11.5	11.2	-	1.0	4.3	9.9	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
24.12	11.0	10.6	-	0.9	4.7	9.5	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
24.28	10.3	10.0	-	0.8	5.1	8.8	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
24.44	9.6	9.3	-	0.6	5.4	7.6	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
24.61	9.1	8.7	-	0.5	5.7	7.1	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
24.77	9.3	8.9	-	0.5	6.3	6.0	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
24.94	8.5	8.1	-	0.4	9.5	5.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
25.10	8.9	8.5	-	0.5	10.0	6.1	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
25.26	10.4	9.8	-	0.5	10.7	6.1	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
25.43	10.5	9.8	-	0.6	11.2	6.3	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
25.59	43.2	40.6	93.2	0.8	11.0	1.9	5	silty SAND to sandy SILT	120	4.0	10	11	37	37	-	16
25.76	62.1	58.2	103.4	1.0	2.9	1.7	5	silty SAND to sandy SILT	120	4.0	15	16	49	39	-	16
25.92	65.6	61.4	112.8	1.2	1.7	1.9	5	silty SAND to sandy SILT	120	4.0	15	16	51	39	-	16
26.08	63.3	59.1	115.9	1.3	1.3	2.1	5	silty SAND to sandy SILT	120	4.0	15	16	50	39	-	16
26.25	61.2	57.0	111.7	1.2	1.3	2.0	5	silty SAND to sandy SILT	120	4.0	14	15	48	39	-	16
26.41	71.1	66.1	115.6	1.3	-2.6	1.9	5	silty SAND to sandy SILT	120	4.0	17	18	53	40	-	16
26.58	85.3	79.0	126.0	1.5	-3.8	1.8	5	silty SAND to sandy SILT	120	4.0	20	21	59	41	-	16
26.74	87.4	80.9	139.0	1.9	-4.2	2.2	5	silty SAND to sandy SILT	120	4.0	20	22	60	41	-	16
26.90	75.6	69.8	131.4	1.7	-3.9	2.3	5	silty SAND to sandy SILT	120	4.0	17	19	55	40	-	16
27.07	61.2	56.4	116.1	1.3	-3.7	2.2	5	silty SAND to sandy SILT	120	4.0	14	15	48	39	-	16
27.23	70.7	65.0	107.2	1.1	-4.0	1.6	5	silty SAND to sandy SILT	120	4.0	16	18	53	40	-	16
27.40	59.4	54.5	107.3	1.1	-5.3	1.9	5	silty SAND to sandy SILT	120	4.0	14	15	47	39	-	16
27.56	51.6	47.2	118.3	1.3	-5.2	2.7	5	silty SAND to sandy SILT	120	4.0	12	13	42	38	-	16
27.72	37.8	33.4	-	1.1	-5.0	3.1	4	clayy SILT to silty CLAY	115	2.0	17	19	-	-	2.6	15
27.89	68.7	62.6	115.8	1.3	-4.8	2.0	5	silty SAND to sandy SILT	120	4.0	16	17	52	39	-	16
28.05	100.7	91.6	134.9	1.8	-5.6	1.8	5	silty SAND to sandy SILT	120	4.0	23	25	64	41	-	16
28.22	115.0	104.4	149.7	2.1	-5.4	1.9	5	silty SAND to sandy SILT	120	4.0	26	29	68	42	-	16
28.38	110.0	99.7	150.0	2.2	-5.3	2.0	5	silty SAND to sandy SILT	120	4.0	25	28	67	42	-	16
28.54	96.1	86.9	148.8	2.3	-4.4	2.4	5	silty SAND to sandy SILT	120	4.0	22	24	62	41	-	16
28.71	67.9	61.2	147.2	2.1	-4.3	3.2	4	clayy SILT to silty CLAY	115	2.0	31	34	-	-	4.7	15
28.87	35.1	30.2	-	1.7	-4.2	5.0	3	silty CLAY to CLAY	115	1.5	20	23	-	-	2.4	15
29.04	15.5	13.3	-	0.8	-4.1	5.7	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
29.20	9.7	8.3	-	0.4	-3.8	4.4	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
29.36	8.4	7.1	-	0.1	-3.4	2.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
29.53	8.0	6.8	-	0.2	-3.0	2.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
29.69	7.4	6.2	-	0.2	-2.6	3.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
29.86	7.4	6.3	-	0.2	-2.1	2.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.02	8.1	6.8	-	0.2	-1.7	3.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
30.19	9.9	8.2	-	0.4	-1.1	4.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
30.35	10.3	8.6	-	0.6	-0.6	7.0	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
30.51	10.7	8.9	-	0.7	-0.1	8.3	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
30.68	10.7	8.9	-	0.8	0.3	8.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
30.84	10.5	8.6	-	0.8	0.5	9.0	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
31.01	10.3	8.5	-	0.7	0.8	8.3	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
31.17	9.5	7.7	-	0.7	1.1	9.7	2	Organic SOILS - Peats	100	1.0	8	9	-	-	0.9	10
31.33	9.4	7.7	-	0.7	1.3	9.2	2	Organic SOILS - Peats	100	1.0	8	9	-	-	0.9	10
31.50	9.6	7.8	-	0.7	4.2	9.5	2	Organic SOILS - Peats	100	1.0	8	10	-	-	0.9	10

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(460).cpt
CPT Date: 12/3/2008 1:30:16 PM
GW During Test: 12 ft

Sounding ID: CPT-08-32
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	9.3	7.6	-	0.7	4.7	10.0	2	Organic SOILS - Peats	100	1.0	8	9	-	-	0.9	10
31.83	9.5	7.7	-	0.8	5.0	9.9	2	Organic SOILS - Peats	100	1.0	8	10	-	-	0.9	10
31.99	9.2	7.4	-	0.8	5.5	9.9	2	Organic SOILS - Peats	100	1.0	7	9	-	-	0.9	10
32.15	10.3	8.3	-	0.8	5.9	9.8	2	Organic SOILS - Peats	100	1.0	8	10	-	-	1.0	10
32.32	10.6	8.5	-	0.9	6.3	9.9	2	Organic SOILS - Peats	100	1.0	9	11	-	-	1.0	10
32.48	11.4	9.1	-	0.9	6.7	9.6	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
32.65	32.3	25.8	-	1.0	7.4	3.1	4	clayy SILT to silty CLAY	115	2.0	13	16	-	-	2.2	15
32.81	73.2	63.4	104.4	1.1	2.6	1.5	5	silty SAND to sandy SILT	120	4.0	16	18	52	39	-	16
32.97	80.6	69.7	106.6	1.1	1.8	1.4	5	silty SAND to sandy SILT	120	4.0	17	20	55	39	-	16
33.14	87.1	75.2	113.7	1.3	1.6	1.5	5	silty SAND to sandy SILT	120	4.0	19	22	58	40	-	16
33.30	88.4	76.2	120.2	1.5	1.5	1.7	5	silty SAND to sandy SILT	120	4.0	19	22	58	40	-	16
33.47	89.5	77.0	125.1	1.6	1.5	1.9	5	silty SAND to sandy SILT	120	4.0	19	22	58	40	-	16
33.63	89.9	77.2	127.9	1.7	1.6	2.0	5	silty SAND to sandy SILT	120	4.0	19	22	58	40	-	16
33.79	96.7	82.8	136.9	2.0	1.7	2.1	5	silty SAND to sandy SILT	120	4.0	21	24	61	40	-	16
33.96	115.4	98.7	152.3	2.4	1.8	2.1	5	silty SAND to sandy SILT	120	4.0	25	29	67	41	-	16
34.12	132.7	113.3	153.6	2.3	1.5	1.7	5	silty SAND to sandy SILT	120	4.0	28	33	71	42	-	16
34.29	145.3	123.8	163.9	2.5	1.2	1.8	5	silty SAND to sandy SILT	120	4.0	31	36	74	42	-	16
34.45	157.6	134.1	173.6	2.8	2.2	1.8	6	clean SAND to silty SAND	125	5.0	27	32	77	43	-	16
34.61	159.2	135.2	176.0	2.9	2.0	1.8	5	silty SAND to sandy SILT	120	4.0	34	40	77	43	-	16
34.78	160.8	136.3	177.6	2.9	2.0	1.8	5	silty SAND to sandy SILT	120	4.0	34	40	77	43	-	16
34.94	160.5	135.8	174.8	2.8	2.1	1.8	6	clean SAND to silty SAND	125	5.0	27	32	77	43	-	16
35.11	166.5	140.5	181.5	3.0	2.1	1.9	6	clean SAND to silty SAND	125	5.0	28	33	78	43	-	16
35.27	175.0	147.5	193.5	3.5	2.1	2.0	5	silty SAND to sandy SILT	120	4.0	37	44	80	43	-	16
35.43	171.3	144.0	198.0	3.8	1.8	2.3	5	silty SAND to sandy SILT	120	4.0	36	43	79	43	-	16
35.60	171.5	144.0	198.6	3.9	1.7	2.3	5	silty SAND to sandy SILT	120	4.0	36	43	79	43	-	16
35.76	179.6	150.5	206.7	4.2	1.6	2.3	5	silty SAND to sandy SILT	120	4.0	38	45	80	43	-	16
35.93	192.9	161.4	217.5	4.5	1.2	2.4	5	silty SAND to sandy SILT	120	4.0	40	48	83	44	-	16
36.09	202.6	169.2	227.1	4.8	0.8	2.4	5	silty SAND to sandy SILT	120	4.0	42	51	84	44	-	16
36.26	202.0	168.4	229.3	5.0	0.4	2.5	5	silty SAND to sandy SILT	120	4.0	42	50	84	44	-	16
36.42	199.3	165.8	229.0	5.1	0.4	2.6	5	silty SAND to sandy SILT	120	4.0	41	50	84	44	-	16
36.58	191.0	158.7	225.6	5.0	0.5	2.7	5	silty SAND to sandy SILT	120	4.0	40	48	82	43	-	16
36.75	178.5	148.1	215.8	4.7	0.6	2.7	5	silty SAND to sandy SILT	120	4.0	37	45	80	43	-	16
36.91	172.8	143.1	208.3	4.4	0.6	2.6	5	silty SAND to sandy SILT	120	4.0	36	43	79	43	-	16
37.08	172.8	142.8	207.7	4.4	0.6	2.6	5	silty SAND to sandy SILT	120	4.0	36	43	79	43	-	16
37.24	170.0	140.3	205.6	4.4	0.7	2.6	5	silty SAND to sandy SILT	120	4.0	35	43	78	43	-	16
37.40	175.6	144.7	198.4	3.9	0.7	2.3	5	silty SAND to sandy SILT	120	4.0	36	44	79	43	-	16
37.57	185.1	152.2	207.1	4.2	0.7	2.3	5	silty SAND to sandy SILT	120	4.0	38	46	81	43	-	16
37.73	186.4	153.1	212.7	4.5	1.8	2.4	5	silty SAND to sandy SILT	120	4.0	38	47	81	43	-	16
37.90	202.3	165.8	225.8	4.9	1.7	2.5	5	silty SAND to sandy SILT	120	4.0	41	51	84	44	-	16
38.06	204.9	167.6	230.7	5.2	1.4	2.6	5	silty SAND to sandy SILT	120	4.0	42	51	84	44	-	16
38.22	196.0	160.1	229.3	5.3	1.2	2.7	5	silty SAND to sandy SILT	120	4.0	40	49	83	43	-	16
38.39	186.1	151.8	220.7	5.0	1.1	2.7	5	silty SAND to sandy SILT	120	4.0	38	47	81	43	-	16
38.55	178.5	145.4	213.8	4.7	1.2	2.7	5	silty SAND to sandy SILT	120	4.0	36	45	79	43	-	16
38.72	172.0	139.8	205.2	4.4	1.3	2.6	5	silty SAND to sandy SILT	120	4.0	35	43	78	43	-	16
38.88	160.7	130.4	193.9	4.0	1.3	2.5	5	silty SAND to sandy SILT	120	4.0	33	40	76	42	-	16
39.04	159.8	129.5	193.1	4.0	1.3	2.5	5	silty SAND to sandy SILT	120	4.0	32	40	76	42	-	16
39.21	170.6	138.0	205.7	4.5	1.4	2.7	5	silty SAND to sandy SILT	120	4.0	35	43	78	42	-	16
39.37	177.8	143.6	213.7	4.8	1.3	2.7	5	silty SAND to sandy SILT	120	4.0	36	44	79	43	-	16
39.54	183.4	147.9	216.3	4.9	1.0	2.7	5	silty SAND to sandy SILT	120	4.0	37	46	80	43	-	16
39.70	196.5	158.2	223.2	5.1	0.9	2.6	5	silty SAND to sandy SILT	120	4.0	40	49	82	43	-	16
39.86	228.8	183.8	236.0	5.1	0.7	2.3	5	silty SAND to sandy SILT	120	4.0	46	57	87	44	-	16
40.03	260.0	208.6	246.1	4.9	0.2	1.9	6	clean SAND to silty SAND	125	5.0	42	52	91	44	-	16
40.19	276.1	221.1	253.4	4.8	0.0	1.8	6	clean SAND to silty SAND	125	5.0	44	55	93	45	-	16
40.36	293.5	234.7	269.9	5.5	-0.1	1.9	6	clean SAND to silty SAND	125	5.0	47	59	95	45	-	16
40.52	296.1	236.3	280.2	6.2	0.3	2.1	6	clean SAND to silty SAND	125	5.0	47	59	95	45	-	16
40.68	285.2	227.2	280.4	6.7	0.2	2.4	6	clean SAND to silty SAND	125	5.0	45	57	94	45	-	16
40.85	264.6	210.4	261.9	6.0	0.1	2.3	6	clean SAND to silty SAND	125	5.0	42	53	92	44	-	16
41.01	248.9	197.6	237.3	4.8	0.1	1.9	6	clean SAND to silty SAND	125	5.0	40	50	89	44	-	16
41.18	249.1	197.4	232.7	4.5	0.3	1.8	6	clean SAND to silty SAND	125	5.0	39	50	89	44	-	16
41.34	246.0	194.6	227.4	4.2	1.8	1.7	6	clean SAND to silty SAND	125	5.0	39	49	89	44	-	16
41.50	254.5	201.1	230.4	4.1	1.9	1.6	6	clean SAND to silty SAND	125	5.0	40	51	90	44	-	16
41.67	262.1	206.7	234.3	4.1	1.7	1.6	6	clean SAND to silty SAND	125	5.0	41	52	91	44	-	16
41.83	264.7	208.4	235.0	4.1	1.7	1.6	6	clean SAND to silty SAND	125	5.0	42	53	91	44	-	16
42.00	258.2	202.9	228.2	3.9	1.6	1.5	6	clean SAND to silty SAND	125	5.0	41	52	90	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(460).cpt
CPT Date: 12/3/2008 1:30:16 PM
GW During Test: 12 ft

Sounding ID: CPT-08-32
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	255.8	200.7	224.9	3.8	1.7	1.5	6	clean SAND to silty SAND	125	5.0	40	51	90	44	-	16
42.32	251.5	197.0	220.9	3.6	1.8	1.5	6	clean SAND to silty SAND	125	5.0	39	50	89	44	-	16
42.49	254.8	199.2	226.6	4.0	1.9	1.6	6	clean SAND to silty SAND	125	5.0	40	51	90	44	-	16
42.65	248.9	194.3	234.4	4.8	2.0	1.9	6	clean SAND to silty SAND	125	5.0	39	50	89	44	-	16
42.82	232.3	181.0	233.9	5.3	2.2	2.3	5	silty SAND to sandy SILT	120	4.0	45	58	87	44	-	16
42.98	211.8	164.8	216.9	4.7	2.3	2.2	5	silty SAND to sandy SILT	120	4.0	41	53	83	43	-	16
43.15	199.5	155.1	200.7	4.0	2.3	2.0	5	silty SAND to sandy SILT	120	4.0	39	50	81	43	-	16
43.31	206.9	160.5	198.2	3.7	2.3	1.8	6	clean SAND to silty SAND	125	5.0	32	41	83	43	-	16
43.47	215.1	166.6	200.1	3.6	2.4	1.7	6	clean SAND to silty SAND	125	5.0	33	43	84	43	-	16
43.64	229.1	177.1	207.6	3.6	2.3	1.6	6	clean SAND to silty SAND	125	5.0	35	46	86	43	-	16
43.80	254.6	196.6	228.1	4.3	2.3	1.7	6	clean SAND to silty SAND	125	5.0	39	51	89	44	-	16
43.97	267.7	206.3	242.5	4.9	2.4	1.8	6	clean SAND to silty SAND	125	5.0	41	54	91	44	-	16
44.13	259.7	199.9	241.9	5.2	2.4	2.0	6	clean SAND to silty SAND	125	5.0	40	52	90	44	-	16
44.29	256.7	197.3	236.8	4.9	2.4	1.9	6	clean SAND to silty SAND	125	5.0	39	51	89	44	-	16
44.46	247.6	190.0	227.9	4.6	2.4	1.9	6	clean SAND to silty SAND	125	5.0	38	50	88	44	-	16
44.62	239.4	183.4	220.4	4.3	2.5	1.8	6	clean SAND to silty SAND	125	5.0	37	48	87	44	-	16
44.79	218.7	167.2	204.3	3.9	2.6	1.8	6	clean SAND to silty SAND	125	5.0	33	44	84	43	-	16
44.95	195.8	149.5	190.3	3.6	2.7	1.9	6	clean SAND to silty SAND	125	5.0	30	39	80	42	-	16
45.11	152.7	116.4	186.9	4.1	2.8	2.7	5	silty SAND to sandy SILT	120	4.0	29	38	72	41	-	16
45.28	142.9	108.8	172.3	3.5	5.1	2.5	5	silty SAND to sandy SILT	120	4.0	27	36	70	41	-	16
45.44	191.5	145.5	191.0	3.8	4.7	2.0	5	silty SAND to sandy SILT	120	4.0	36	48	79	42	-	16
45.61	230.4	174.8	208.8	3.9	3.8	1.7	6	clean SAND to silty SAND	125	5.0	35	46	85	43	-	16
45.77	229.7	174.0	214.1	4.3	4.0	1.9	6	clean SAND to silty SAND	125	5.0	35	46	85	43	-	16
45.93	210.2	159.0	207.3	4.4	4.1	2.1	5	silty SAND to sandy SILT	120	4.0	40	53	82	43	-	16
46.10	171.3	129.4	184.3	3.8	4.1	2.3	5	silty SAND to sandy SILT	120	4.0	32	43	76	42	-	16
46.26	147.2	111.0	167.7	3.3	4.2	2.3	5	silty SAND to sandy SILT	120	4.0	28	37	70	41	-	16
46.43	191.6	144.3	176.5	3.0	4.4	1.6	6	clean SAND to silty SAND	125	5.0	29	38	79	42	-	16
46.59	218.4	164.3	195.5	3.5	-0.2	1.6	6	clean SAND to silty SAND	125	5.0	33	44	83	43	-	16
46.75	248.3	186.5	215.1	3.9	-1.7	1.6	6	clean SAND to silty SAND	125	5.0	37	50	88	43	-	16
46.92	258.1	193.5	223.8	4.2	-0.7	1.6	6	clean SAND to silty SAND	125	5.0	39	52	89	44	-	16
47.08	280.1	209.7	246.3	5.2	-0.7	1.9	6	clean SAND to silty SAND	125	5.0	42	56	91	44	-	16
47.25	310.6	232.2	265.5	5.6	-0.5	1.8	6	clean SAND to silty SAND	125	5.0	46	62	95	44	-	16
47.41	321.2	239.8	289.3	7.2	-0.2	2.3	6	clean SAND to silty SAND	125	5.0	48	64	95	45	-	16
47.57	286.5	213.6	288.3	8.3	1.5	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	18.9	16
47.74	327.6	243.9	307.0	8.5	1.6	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	21.6	16
47.90	322.9	240.1	304.5	8.5	1.7	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	21.3	16
48.07	323.1	239.9	304.7	8.5	1.8	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	21.3	16
48.23	327.7	243.0	306.6	8.6	1.8	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	21.6	16
48.39	321.9	238.4	297.5	8.0	2.0	2.5	6	clean SAND to silty SAND	125	5.0	48	64	95	45	-	16
48.56	310.2	229.4	285.4	7.5	2.1	2.4	6	clean SAND to silty SAND	125	5.0	46	62	94	44	-	16
48.72	298.9	220.8	274.3	7.0	2.1	2.4	6	clean SAND to silty SAND	125	5.0	44	60	93	44	-	16
48.89	279.5	206.1	255.7	6.2	2.3	2.2	6	clean SAND to silty SAND	125	5.0	41	56	91	44	-	16
49.05	257.8	189.8	242.2	5.8	2.4	2.3	5	silty SAND to sandy SILT	120	4.0	47	64	88	43	-	16
49.22	221.4	162.8	227.6	5.7	2.5	2.6	5	silty SAND to sandy SILT	120	4.0	41	55	83	43	-	16
49.38	173.0	127.0	224.7	6.0	2.6	3.5	5	silty SAND to sandy SILT	120	4.0	32	43	75	41	-	16
49.54	140.8	103.3	205.9	5.1	2.8	3.7	5	silty SAND to sandy SILT	120	4.0	26	35	68	40	-	16
49.71	144.5	105.8	198.3	4.8	3.2	3.4	5	silty SAND to sandy SILT	120	4.0	26	36	69	40	-	16
49.87	202.4	148.0	215.0	5.3	2.7	2.6	5	silty SAND to sandy SILT	120	4.0	37	51	80	42	-	16
50.04	192.7	140.7	207.7	5.0	1.3	2.6	5	silty SAND to sandy SILT	120	4.0	35	48	78	42	-	16
50.20	176.2	128.5	205.7	5.1	1.3	2.9	5	silty SAND to sandy SILT	120	4.0	32	44	75	41	-	16
50.36	178.4	130.0	202.8	4.9	1.5	2.8	5	silty SAND to sandy SILT	120	4.0	32	45	76	41	-	16
50.53	175.6	127.7	194.6	4.5	1.4	2.6	5	silty SAND to sandy SILT	120	4.0	32	44	75	41	-	16
50.69	186.5	135.5	204.1	4.9	-0.4	2.7	5	silty SAND to sandy SILT	120	4.0	34	47	77	42	-	16
50.86	236.2	171.4	218.3	4.9	-1.3	2.1	5	silty SAND to sandy SILT	120	4.0	43	59	85	43	-	16
51.02	267.1	193.5	243.7	5.9	-2.1	2.2	6	clean SAND to silty SAND	125	5.0	39	53	89	43	-	16
51.18	281.7	203.8	258.3	6.6	-1.6	2.4	5	silty SAND to sandy SILT	120	4.0	51	70	91	44	-	16
51.35	272.6	197.0	248.8	6.1	-1.6	2.3	5	silty SAND to sandy SILT	120	4.0	49	68	89	43	-	16
51.51	286.4	206.6	242.9	5.2	-1.1	1.8	6	clean SAND to silty SAND	125	5.0	41	57	91	44	-	16
51.68	304.1	219.1	247.0	4.9	-1.1	1.6	6	clean SAND to silty SAND	125	5.0	44	61	93	44	-	16
51.84	317.4	228.4	270.0	6.4	-1.0	2.0	6	clean SAND to silty SAND	125	5.0	46	63	94	44	-	16
52.00	302.4	217.3	282.6	8.0	-0.9	2.7	5	silty SAND to sandy SILT	120	4.0	54	76	93	44	-	16
52.17	268.3	192.5	270.0	7.9	-0.8	3.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	17.7	16
52.33	254.4	182.4	255.6	7.2	-0.6	2.9	5	silty SAND to sandy SILT	120	4.0	46	64	87	43	-	16
52.50	266.4	190.7	262.6	7.4	-0.4	2.8	5	silty SAND to sandy SILT	120	4.0	48	67	88	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(460).cpt
CPT Date: 12/3/2008 1:30:16 PM
GW During Test: 12 ft

Sounding ID: CPT-08-32
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	277.3	198.3	277.4	8.3	-0.3	3.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	18.3	16
52.82	257.7	184.0	265.2	7.8	-0.3	3.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	17.0	16
52.99	224.6	160.2	235.9	6.4	-0.2	2.9	5	silty SAND to sandy SILT	120	4.0	40	56	83	42	-	16
53.15	228.5	162.8	229.5	6.0	-0.1	2.7	5	silty SAND to sandy SILT	120	4.0	41	57	83	42	-	16
53.32	249.6	177.6	244.8	6.6	0.1	2.7	5	silty SAND to sandy SILT	120	4.0	44	62	86	43	-	16
53.48	249.9	177.6	249.7	7.0	-0.6	2.8	5	silty SAND to sandy SILT	120	4.0	44	62	86	43	-	16
53.64	230.6	163.6	243.3	6.9	-0.7	3.0	5	silty SAND to sandy SILT	120	4.0	41	58	83	42	-	16
53.81	220.0	155.9	234.0	6.4	-0.5	3.0	5	silty SAND to sandy SILT	120	4.0	39	55	82	42	-	16
53.97	212.8	150.6	224.4	6.0	-0.2	2.8	5	silty SAND to sandy SILT	120	4.0	38	53	81	42	-	16
54.14	227.5	160.9	215.5	5.2	-0.1	2.3	5	silty SAND to sandy SILT	120	4.0	40	57	83	42	-	16
54.30	236.4	166.9	229.4	5.9	0.1	2.5	5	silty SAND to sandy SILT	120	4.0	42	59	84	42	-	16
54.46	216.6	152.8	224.7	6.0	1.3	2.8	5	silty SAND to sandy SILT	120	4.0	38	54	81	42	-	16
54.63	171.2	120.6	218.2	5.9	1.4	3.5	5	silty SAND to sandy SILT	120	4.0	30	43	73	41	-	16
54.79	97.0	50.9	-	5.1	1.5	5.5	3	silty CLAY to CLAY	115	1.5	34	65	-	-	6.7	15
54.96	46.3	24.2	-	3.2	1.5	7.4	3	silty CLAY to CLAY	115	1.5	16	31	-	-	3.2	15
55.12	31.1	16.2	-	1.8	1.7	6.6	3	silty CLAY to CLAY	115	1.5	11	21	-	-	2.1	15
55.28	40.9	21.3	-	1.6	2.4	4.3	3	silty CLAY to CLAY	115	1.5	14	27	-	-	2.8	15
55.45	55.0	28.6	-	1.6	2.9	3.0	4	clayy SILT to silty CLAY	115	2.0	14	27	-	-	3.8	15
55.61	55.3	28.7	-	1.9	2.9	3.7	4	clayy SILT to silty CLAY	115	2.0	14	28	-	-	3.8	15
55.78	83.0	58.0	135.7	2.3	3.5	2.9	5	silty SAND to sandy SILT	120	4.0	14	21	49	37	-	16
55.94	150.6	105.1	144.8	2.5	8.7	1.7	5	silty SAND to sandy SILT	120	4.0	26	38	69	40	-	16
56.11	124.5	86.8	141.9	2.6	8.9	2.1	5	silty SAND to sandy SILT	120	4.0	22	31	62	39	-	16
56.27	101.6	70.7	142.1	2.6	9.1	2.7	5	silty SAND to sandy SILT	120	4.0	18	25	56	38	-	16
56.43	91.2	63.4	167.8	3.4	7.1	3.9	4	clayy SILT to silty CLAY	115	2.0	32	46	-	-	6.3	15
56.60	62.4	31.9	-	3.0	3.8	5.1	3	silty CLAY to CLAY	115	1.5	21	42	-	-	4.3	15
56.76	77.8	39.7	-	2.8	4.0	3.8	4	clayy SILT to silty CLAY	115	2.0	20	39	-	-	5.4	15
56.93	127.2	88.1	157.7	3.2	2.6	2.6	5	silty SAND to sandy SILT	120	4.0	22	32	63	39	-	16
57.09	187.4	129.8	178.6	3.8	-0.2	2.1	5	silty SAND to sandy SILT	120	4.0	32	47	76	41	-	16
57.25	226.8	156.8	198.6	4.3	-2.1	1.9	6	clean SAND to silty SAND	125	5.0	31	45	82	42	-	16
57.42	229.9	158.7	199.9	4.3	-3.5	1.9	6	clean SAND to silty SAND	125	5.0	32	46	82	42	-	16
57.58	214.4	147.9	194.9	4.3	-3.7	2.0	5	silty SAND to sandy SILT	120	4.0	37	54	80	42	-	16
57.75	176.2	121.4	177.6	3.9	-0.5	2.3	5	silty SAND to sandy SILT	120	4.0	30	44	73	41	-	16
57.91	166.3	114.4	170.2	3.7	-0.2	2.2	5	silty SAND to sandy SILT	120	4.0	29	42	71	40	-	16
58.07	179.0	123.0	174.4	3.7	-1.8	2.1	5	silty SAND to sandy SILT	120	4.0	31	45	74	41	-	16
58.24	213.5	146.6	179.1	3.3	-3.7	1.6	6	clean SAND to silty SAND	125	5.0	29	43	80	42	-	16
58.40	255.0	174.8	195.3	3.2	-4.7	1.3	6	clean SAND to silty SAND	125	5.0	35	51	85	43	-	16
58.57	291.1	199.3	209.1	3.1	-5.2	1.1	6	clean SAND to silty SAND	125	5.0	40	58	90	43	-	16
58.73	304.4	208.2	216.4	3.2	-5.5	1.1	6	clean SAND to silty SAND	125	5.0	42	61	91	43	-	16
58.89	314.8	215.0	214.3	2.8	-5.5	0.9	6	clean SAND to silty SAND	125	5.0	43	63	92	44	-	16
59.06	333.8	227.6	227.6	2.4	-5.3	0.7	6	clean SAND to silty SAND	125	5.0	46	67	94	44	-	16
59.22	335.4	228.4	228.4	2.2	-5.1	0.7	6	clean SAND to silty SAND	125	5.0	46	67	94	44	-	16
59.39	327.7	222.9	222.9	2.3	-4.9	0.7	6	clean SAND to silty SAND	125	5.0	45	66	93	44	-	16
59.55	320.9	218.1	218.1	1.5	-4.7	0.5	6	clean SAND to silty SAND	125	5.0	44	64	93	44	-	16
59.71	322.3	218.7	218.7	2.0	-4.5	0.6	6	clean SAND to silty SAND	125	5.0	44	64	93	44	-	16
59.88	297.9	201.9	215.6	3.5	-4.2	1.2	6	clean SAND to silty SAND	125	5.0	40	60	90	43	-	16
60.04	336.8	228.0	228.0	3.1	-3.4	0.9	6	clean SAND to silty SAND	125	5.0	46	67	94	44	-	16
60.21	319.9	216.3	216.3	2.8	-2.9	0.9	6	clean SAND to silty SAND	125	5.0	43	64	92	43	-	16
60.37	322.4	217.7	217.7	2.8	-2.6	0.9	6	clean SAND to silty SAND	125	5.0	44	64	93	44	-	16
60.53	309.3	208.6	220.5	3.6	-2.2	1.2	6	clean SAND to silty SAND	125	5.0	42	62	91	43	-	16
60.70	305.4	205.7	220.5	3.7	0.1	1.2	6	clean SAND to silty SAND	125	5.0	41	61	91	43	-	16
60.86	315.3	212.1	228.4	4.0	0.2	1.3	6	clean SAND to silty SAND	125	5.0	42	63	92	43	-	16
61.03	322.1	216.4	216.5	3.0	0.3	0.9	6	clean SAND to silty SAND	125	5.0	43	64	92	43	-	16
61.19	333.2	223.6	225.8	3.3	0.4	1.0	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
61.35	360.3	241.5	241.5	2.7	0.5	0.8	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
61.52	338.4	226.5	226.8	3.3	0.9	1.0	6	clean SAND to silty SAND	125	5.0	45	68	94	44	-	16
61.68	321.0	214.7	217.6	3.1	1.1	1.0	6	clean SAND to silty SAND	125	5.0	43	64	92	43	-	16
61.85	299.4	199.9	201.8	2.6	1.2	0.9	6	clean SAND to silty SAND	125	5.0	40	60	90	43	-	16
62.01	291.7	194.6	194.6	1.5	1.4	0.5	6	clean SAND to silty SAND	125	5.0	39	58	89	43	-	16
62.17	287.1	191.3	191.3	1.2	1.7	0.4	6	clean SAND to silty SAND	125	5.0	38	57	88	43	-	16
62.34	276.7	184.1	184.1	1.7	2.0	0.6	6	clean SAND to silty SAND	125	5.0	37	55	87	43	-	16
62.50	259.2	172.3	175.7	2.0	1.8	0.8	6	clean SAND to silty SAND	125	5.0	34	52	85	42	-	16
62.67	262.2	174.0	173.8	1.9	3.0	0.7	6	clean SAND to silty SAND	125	5.0	35	52	85	42	-	16
62.83	227.7	150.9	158.7	1.8	3.3	0.8	6	clean SAND to silty SAND	125	5.0	30	46	81	42	-	16
63.00	165.0	109.2	124.6	1.4	3.6	0.9	6	clean SAND to silty SAND	125	5.0	22	33	70	40	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(460).cpt
CPT Date: 12/3/2008 1:30:16 PM
GW During Test: 12 ft

Sounding ID: CPT-08-32
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	147.7	97.7	102.3	0.6	4.1	0.4	6	clean SAND to silty SAND	125	5.0	20	30	66	39	-	16
63.32	121.8	80.5	89.5	0.5	4.3	0.5	6	clean SAND to silty SAND	125	5.0	16	24	60	38	-	16
63.49	121.9	80.5	92.8	0.7	4.7	0.6	6	clean SAND to silty SAND	125	5.0	16	24	60	38	-	16
63.65	193.1	127.3	144.1	1.9	5.2	1.0	6	clean SAND to silty SAND	125	5.0	25	39	75	41	-	16
63.82	299.3	197.0	197.0	2.2	8.6	0.8	6	clean SAND to silty SAND	125	5.0	39	60	89	43	-	16
63.98	318.6	209.5	218.4	3.4	9.1	1.1	6	clean SAND to silty SAND	125	5.0	42	64	91	43	-	16
64.14	319.8	210.0	223.1	3.8	9.7	1.2	6	clean SAND to silty SAND	125	5.0	42	64	91	43	-	16
64.31	300.8	197.3	209.6	3.4	9.9	1.1	6	clean SAND to silty SAND	125	5.0	39	60	89	43	-	16
64.47	277.0	181.5	191.0	2.7	10.1	1.0	6	clean SAND to silty SAND	125	5.0	36	55	87	42	-	16
64.64	258.9	169.5	171.8	1.9	10.3	0.8	6	clean SAND to silty SAND	125	5.0	34	52	84	42	-	16
64.80	255.3	166.9	166.9	1.4	10.6	0.5	6	clean SAND to silty SAND	125	5.0	33	51	84	42	-	16
64.96	224.0	146.3	147.7	1.4	10.7	0.6	6	clean SAND to silty SAND	125	5.0	29	45	80	41	-	16
65.13	188.9	123.2	144.7	2.1	11.0	1.1	6	clean SAND to silty SAND	125	5.0	25	38	74	40	-	16
65.29	168.9	110.0	146.9	2.7	10.9	1.6	5	silty SAND to sandy SILT	120	4.0	28	42	70	40	-	16
65.46	216.7	141.0	178.4	3.7	11.6	1.7	6	clean SAND to silty SAND	125	5.0	28	43	78	41	-	16
65.62	346.1	225.0	225.0	3.2	1.8	0.9	6	clean SAND to silty SAND	125	5.0	45	69	94	43	-	16
65.78	424.9	275.8	276.6	4.9	13.5	1.2	6	clean SAND to silty SAND	125	5.0	55	85	95	44	-	16
65.95	426.8	276.7	292.5	6.2	7.6	1.5	6	clean SAND to silty SAND	125	5.0	55	85	95	44	-	16
66.11	422.9	273.9	273.9	4.4	3.4	1.1	6	clean SAND to silty SAND	125	5.0	55	85	95	44	-	16
66.28	383.0	247.8	247.8	2.3	1.3	0.6	6	clean SAND to silty SAND	125	5.0	50	77	95	44	-	16
66.44	385.0	248.8	248.8	2.0	1.2	0.5	6	clean SAND to silty SAND	125	5.0	50	77	95	44	-	16
66.60	404.8	261.3	261.3	1.9	1.5	0.5	6	clean SAND to silty SAND	125	5.0	52	81	95	44	-	16
66.77	433.2	279.3	279.3	3.1	1.9	0.7	6	clean SAND to silty SAND	125	5.0	56	87	95	44	-	16
66.93	424.5	273.4	273.4	3.4	2.8	0.8	6	clean SAND to silty SAND	125	5.0	55	85	95	44	-	16
67.10	476.4	306.5	306.5	2.7	7.5	0.6	6	clean SAND to silty SAND	125	5.0	61	95	95	45	-	16
67.26	437.1	280.9	280.9	2.5	8.0	0.6	6	clean SAND to silty SAND	125	5.0	56	87	95	44	-	16
67.42	473.0	303.6	303.6	2.9	9.1	0.6	6	clean SAND to silty SAND	125	5.0	61	95	95	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(428).cpt
CPT Date: 11/20/2008 1:04:27 PM
GW During Test: 12 ft

Sounding ID: CPT-08-33
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	65.7	105.4	107.2	0.3	1.1	0.4	6	clean SAND to silty SAND	125	5.0	21	13	69	48	-	16
0.49	59.3	95.1	116.6	0.6	1.0	1.0	6	clean SAND to silty SAND	125	5.0	19	12	65	48	-	16
0.66	47.4	76.0	110.9	0.7	0.6	1.4	5	silty SAND to sandy SILT	120	4.0	19	12	58	48	-	16
0.82	49.3	79.1	115.5	0.7	0.7	1.5	5	silty SAND to sandy SILT	120	4.0	20	12	59	48	-	16
0.98	55.8	89.5	120.8	0.8	0.7	1.4	5	silty SAND to sandy SILT	120	4.0	22	14	63	48	-	16
1.15	58.4	93.6	122.8	0.8	0.7	1.3	6	clean SAND to silty SAND	125	5.0	19	12	65	48	-	16
1.31	72.4	116.1	150.9	1.2	0.7	1.6	6	clean SAND to silty SAND	125	5.0	23	14	72	48	-	16
1.48	80.1	128.4	181.7	1.8	0.7	2.2	5	silty SAND to sandy SILT	120	4.0	32	20	75	48	-	16
1.64	69.5	111.4	168.1	1.6	0.7	2.3	5	silty SAND to sandy SILT	120	4.0	28	17	71	48	-	16
1.80	49.3	79.1	150.2	1.3	0.8	2.7	5	silty SAND to sandy SILT	120	4.0	20	12	59	48	-	16
1.97	33.0	53.0	150.7	1.3	0.8	3.9	4	clayy SILT to silty CLAY	115	2.0	27	17	-	-	2.3	15
2.13	28.8	46.1	136.3	1.0	0.7	3.6	4	clayy SILT to silty CLAY	115	2.0	23	14	-	-	2.0	15
2.30	23.0	36.9	-	0.9	0.8	4.0	4	clayy SILT to silty CLAY	115	2.0	18	12	-	-	1.6	15
2.46	25.1	40.3	-	1.1	0.9	4.4	4	clayy SILT to silty CLAY	115	2.0	20	13	-	-	1.8	15
2.62	32.5	52.1	142.5	1.1	1.0	3.6	4	clayy SILT to silty CLAY	115	2.0	26	16	-	-	2.3	15
2.79	27.8	44.6	-	1.2	1.2	4.4	4	clayy SILT to silty CLAY	115	2.0	22	14	-	-	2.0	15
2.95	25.0	40.2	-	1.0	1.2	4.0	4	clayy SILT to silty CLAY	115	2.0	20	13	-	-	1.8	15
3.12	23.1	37.0	122.7	0.8	1.1	3.5	4	clayy SILT to silty CLAY	115	2.0	19	12	-	-	1.6	15
3.28	19.8	31.8	-	0.6	0.5	3.1	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
3.45	16.9	27.1	-	0.5	0.3	3.0	4	clayy SILT to silty CLAY	115	2.0	14	8	-	-	1.2	15
3.61	15.9	25.4	-	0.5	0.4	3.2	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.1	15
3.77	16.6	26.6	-	0.6	0.4	3.6	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.2	15
3.94	28.9	46.3	119.2	0.8	0.4	2.8	4	clayy SILT to silty CLAY	115	2.0	23	14	-	-	2.0	15
4.10	54.9	88.1	139.8	1.1	0.6	2.1	5	silty SAND to sandy SILT	120	4.0	22	14	63	45	-	16
4.27	41.2	66.1	156.2	1.4	0.6	3.4	4	clayy SILT to silty CLAY	115	2.0	33	21	-	-	2.9	15
4.43	31.9	51.2	-	1.6	0.4	5.0	4	clayy SILT to silty CLAY	115	2.0	26	16	-	-	2.2	15
4.59	43.6	70.0	176.9	1.8	0.8	4.1	4	clayy SILT to silty CLAY	115	2.0	35	22	-	-	3.1	15
4.76	46.8	75.0	201.3	2.2	0.5	4.8	4	clayy SILT to silty CLAY	115	2.0	37	23	-	-	3.3	15
4.92	65.8	105.6	200.8	2.3	0.5	3.5	5	silty SAND to sandy SILT	120	4.0	26	16	69	46	-	16
5.09	63.3	101.5	201.2	2.3	0.7	3.7	5	silty SAND to sandy SILT	120	4.0	25	16	67	45	-	16
5.25	57.2	91.7	209.2	2.5	0.7	4.3	4	clayy SILT to silty CLAY	115	2.0	46	29	-	-	4.0	15
5.41	62.3	99.9	191.3	2.1	0.9	3.4	5	silty SAND to sandy SILT	120	4.0	25	16	67	45	-	16
5.58	58.8	94.3	190.2	2.1	0.9	3.6	5	silty SAND to sandy SILT	120	4.0	24	15	65	45	-	16
5.74	59.3	95.0	193.1	2.1	1.0	3.6	5	silty SAND to sandy SILT	120	4.0	24	15	65	45	-	16
5.91	67.0	107.4	190.8	2.1	1.1	3.1	5	silty SAND to sandy SILT	120	4.0	27	17	69	45	-	16
6.07	38.3	61.4	172.5	1.6	1.0	4.3	4	clayy SILT to silty CLAY	115	2.0	31	19	-	-	2.7	15
6.23	25.2	40.3	-	1.3	1.0	5.1	3	silty CLAY to CLAY	115	1.5	27	17	-	-	1.8	15
6.40	21.2	34.0	-	0.8	1.1	3.7	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.5	15
6.56	39.1	61.0	115.0	0.8	1.1	2.0	5	silty SAND to sandy SILT	120	4.0	15	10	51	42	-	16
6.73	43.0	66.3	132.4	1.1	1.2	2.5	5	silty SAND to sandy SILT	120	4.0	17	11	53	43	-	16
6.89	36.6	55.8	146.7	1.3	1.1	3.5	4	clayy SILT to silty CLAY	115	2.0	28	18	-	-	2.6	15
7.05	34.7	52.2	150.9	1.3	1.0	3.9	4	clayy SILT to silty CLAY	115	2.0	26	17	-	-	2.4	15
7.22	32.4	48.2	138.2	1.1	1.2	3.5	4	clayy SILT to silty CLAY	115	2.0	24	16	-	-	2.3	15
7.38	23.9	38.3	-	1.0	1.1	4.3	4	clayy SILT to silty CLAY	115	2.0	19	12	-	-	1.7	15
7.55	18.7	30.1	-	0.9	1.0	4.9	3	silty CLAY to CLAY	115	1.5	20	12	-	-	1.3	15
7.71	21.7	34.7	-	0.9	1.1	4.4	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.5	15
7.87	29.4	41.9	130.0	1.0	1.2	3.5	4	clayy SILT to silty CLAY	115	2.0	21	15	-	-	2.1	15
8.04	17.6	28.3	-	1.0	0.9	5.7	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.2	15
8.20	15.1	24.2	-	0.9	0.9	6.0	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
8.37	13.3	21.4	-	0.7	0.9	5.6	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
8.53	11.6	18.6	-	0.6	0.9	5.8	3	silty CLAY to CLAY	115	1.5	12	8	-	-	0.8	15
8.69	10.2	16.4	-	0.6	1.1	6.3	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
8.86	9.2	14.7	-	0.6	1.1	6.8	3	silty CLAY to CLAY	115	1.5	10	6	-	-	0.6	15
9.02	9.1	14.7	-	0.5	1.3	5.6	3	silty CLAY to CLAY	115	1.5	10	6	-	-	0.6	15
9.19	9.5	15.3	-	0.5	1.5	5.3	3	silty CLAY to CLAY	115	1.5	10	6	-	-	0.6	15
9.35	8.8	14.2	-	0.5	1.4	5.5	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
9.51	8.5	13.6	-	0.5	1.7	6.2	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
9.68	7.9	12.7	-	0.5	2.0	7.5	3	silty CLAY to CLAY	115	1.5	8	5	-	-	0.5	15
9.84	13.1	21.1	-	0.6	2.3	4.6	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
10.01	29.4	37.4	96.3	0.6	2.3	2.2	5	silty SAND to sandy SILT	120	4.0	9	7	35	39	-	16
10.17	30.5	38.3	104.5	0.7	1.5	2.5	4	clayy SILT to silty CLAY	115	2.0	19	15	-	-	2.1	15
10.34	23.2	32.4	-	0.7	1.1	3.2	4	clayy SILT to silty CLAY	115	2.0	16	12	-	-	1.6	15
10.50	19.9	31.8	-	0.6	0.8	3.3	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(428).cpt
CPT Date: 11/20/2008 1:04:27 PM
GW During Test: 12 ft

Sounding ID: CPT-08-33
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	18.6	29.9	-	0.5	0.2	3.0	4	clayy SILT to silty CLAY	115	2.0	15	9	-	-	1.3	15
10.83	15.2	24.0	-	0.5	0.1	3.3	4	clayy SILT to silty CLAY	115	2.0	12	8	-	-	1.0	15
10.99	11.5	17.9	-	0.4	-0.2	3.6	3	silty CLAY to CLAY	115	1.5	12	8	-	-	0.8	15
11.16	11.3	17.4	-	0.5	-0.3	4.3	3	silty CLAY to CLAY	115	1.5	12	8	-	-	0.8	15
11.32	13.8	20.8	-	0.5	-0.2	4.0	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
11.48	21.4	27.8	-	0.5	0.0	2.5	4	clayy SILT to silty CLAY	115	2.0	14	11	-	-	1.5	15
11.65	28.0	33.0	85.7	0.5	0.0	1.9	5	silty SAND to sandy SILT	120	4.0	8	7	30	38	-	16
11.81	23.3	27.3	87.9	0.5	-0.2	2.3	4	clayy SILT to silty CLAY	115	2.0	14	12	-	-	1.6	15
11.98	19.2	27.4	-	0.5	-0.3	2.6	4	clayy SILT to silty CLAY	115	2.0	14	10	-	-	1.3	15
12.14	16.2	22.9	-	0.5	-0.5	3.1	4	clayy SILT to silty CLAY	115	2.0	11	8	-	-	1.1	15
12.30	16.6	23.5	-	0.5	-0.6	3.3	4	clayy SILT to silty CLAY	115	2.0	12	8	-	-	1.1	15
12.47	28.5	32.8	93.4	0.6	-0.5	2.2	4	clayy SILT to silty CLAY	115	2.0	16	14	-	-	2.0	15
12.63	52.8	60.5	96.0	0.7	-0.5	1.3	5	silty SAND to sandy SILT	120	4.0	15	13	50	41	-	16
12.80	57.5	65.8	98.2	0.7	-1.3	1.3	5	silty SAND to sandy SILT	120	4.0	16	14	53	42	-	16
12.96	49.6	56.5	96.7	0.7	-1.4	1.5	5	silty SAND to sandy SILT	120	4.0	14	12	48	41	-	16
13.12	39.2	44.5	93.2	0.7	-2.1	1.7	5	silty SAND to sandy SILT	120	4.0	11	10	40	40	-	16
13.29	33.8	38.3	90.6	0.6	-2.2	1.9	5	silty SAND to sandy SILT	120	4.0	10	8	35	39	-	16
13.45	29.5	33.2	89.3	0.6	-2.2	2.0	5	silty SAND to sandy SILT	120	4.0	8	7	31	38	-	16
13.62	28.0	31.4	86.9	0.5	-2.2	2.0	4	clayy SILT to silty CLAY	115	2.0	16	14	-	-	1.9	15
13.78	21.2	28.3	-	0.6	-1.0	2.8	4	clayy SILT to silty CLAY	115	2.0	14	11	-	-	1.5	15
13.94	12.6	16.7	-	0.5	-1.0	4.4	3	silty CLAY to CLAY	115	1.5	11	8	-	-	0.9	15
14.11	10.4	13.7	-	0.4	-0.9	4.4	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
14.27	9.6	12.6	-	0.4	-0.8	4.3	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
14.44	10.4	13.5	-	0.4	1.9	4.2	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
14.60	9.7	12.6	-	0.5	2.1	5.5	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
14.76	9.2	11.9	-	0.5	2.3	5.7	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
14.93	8.9	11.4	-	0.5	2.4	5.8	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
15.09	8.3	10.6	-	0.4	2.5	5.5	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
15.26	7.7	9.7	-	0.4	2.6	6.0	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.42	7.1	8.9	-	0.3	2.7	5.2	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.58	8.0	10.0	-	0.4	2.9	5.3	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
15.75	9.8	12.2	-	0.5	3.9	5.2	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
15.91	9.0	11.1	-	0.5	3.8	6.4	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
16.08	8.8	10.9	-	0.4	3.8	5.4	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
16.24	7.6	9.4	-	0.4	3.3	5.3	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.40	7.6	9.2	-	0.3	3.3	4.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.57	7.5	9.1	-	0.3	3.4	4.7	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.73	6.5	7.9	-	0.3	3.4	5.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.90	6.1	7.3	-	0.3	3.5	5.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.06	5.9	7.1	-	0.3	3.6	5.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.23	5.8	6.9	-	0.3	3.7	5.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.39	7.1	8.4	-	0.3	3.8	5.2	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
17.55	8.1	9.5	-	0.4	4.0	5.8	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
17.72	9.7	11.3	-	0.5	4.1	5.3	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
17.88	8.2	9.6	-	0.3	4.1	3.8	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
18.05	7.3	8.5	-	0.2	4.1	3.8	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
18.21	6.7	7.7	-	0.3	4.7	5.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
18.37	8.3	9.5	-	0.4	4.9	5.8	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	15
18.54	8.8	10.0	-	0.5	5.0	7.0	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
18.70	10.1	11.5	-	0.7	5.2	7.5	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
18.87	8.9	10.0	-	0.7	5.2	9.5	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
19.03	6.8	7.6	-	0.7	5.0	9.9	2	Organic SOILS - Peats	100	1.0	8	7	-	-	0.7	10
19.19	7.4	8.3	-	0.8	5.2	9.9	2	Organic SOILS - Peats	100	1.0	8	7	-	-	0.7	10
19.36	10.1	11.3	-	0.9	5.8	9.8	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
19.52	8.4	9.4	-	0.7	5.5	9.9	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
19.69	6.6	7.3	-	0.6	5.6	9.9	2	Organic SOILS - Peats	100	1.0	7	7	-	-	0.6	10
19.85	5.6	6.2	-	0.4	5.9	8.6	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.5	10
20.01	4.8	5.3	-	0.3	6.0	8.2	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.4	10
20.18	5.1	5.6	-	0.3	6.2	8.6	2	Organic SOILS - Peats	100	1.0	6	5	-	-	0.5	10
20.34	6.8	7.4	-	0.4	6.3	7.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
20.51	7.2	7.9	-	0.7	6.4	9.9	2	Organic SOILS - Peats	100	1.0	8	7	-	-	0.7	10
20.67	8.4	9.1	-	0.9	6.7	9.9	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	15
20.83	9.6	10.4	-	1.0	6.9	9.9	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
21.00	10.6	11.4	-	1.2	7.1	9.9	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(428).cpt
CPT Date: 11/20/2008 1:04:27 PM
GW During Test: 12 ft

Sounding ID: CPT-08-33
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	10.7	11.5	-	1.3	7.3	9.9	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
21.33	12.9	13.7	-	1.3	7.5	9.9	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
21.49	11.7	12.4	-	1.2	7.4	9.9	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
21.65	11.1	11.7	-	1.1	7.6	9.9	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
21.82	10.6	11.1	-	1.0	7.6	9.9	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
21.98	9.9	10.3	-	0.9	7.7	9.9	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
22.15	10.1	10.5	-	0.9	8.0	9.8	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
22.31	9.8	10.2	-	0.9	8.2	9.9	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.6	15
22.47	9.6	9.9	-	0.9	8.4	9.9	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
22.64	9.3	9.5	-	1.0	9.5	9.9	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
22.80	9.3	9.5	-	1.0	9.7	9.9	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
22.97	9.9	10.1	-	1.1	10.0	9.9	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.6	15
23.13	10.1	10.2	-	1.2	10.2	9.9	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
23.30	10.4	10.5	-	1.2	10.6	9.9	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
23.46	11.3	11.4	-	1.1	11.5	9.9	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.7	15
23.62	11.3	11.3	-	1.1	11.9	9.9	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.7	15
23.79	11.4	11.4	-	1.0	12.3	9.9	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
23.95	11.5	11.4	-	1.0	12.7	9.9	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
24.12	11.5	11.3	-	1.2	13.1	9.9	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
24.28	15.4	15.1	-	0.9	13.7	6.7	3	silty CLAY to CLAY	115	1.5	10	10	-	-	1.0	15
24.44	48.8	46.9	95.9	0.8	11.7	1.8	5	silty SAND to sandy SILT	120	4.0	12	12	42	38	-	16
24.61	51.3	49.2	95.5	0.8	6.5	1.7	5	silty SAND to sandy SILT	120	4.0	12	13	44	38	-	16
24.77	36.2	34.6	103.8	0.9	3.8	2.6	4	clayy SILT to silty CLAY	115	2.0	17	18	-	-	2.5	15
24.94	20.3	19.6	-	0.9	1.7	4.9	3	silty CLAY to CLAY	115	1.5	13	14	-	-	1.4	15
25.10	12.3	11.9	-	0.8	1.3	7.2	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
25.26	12.7	12.1	-	0.8	1.6	6.9	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
25.43	11.2	10.7	-	0.9	1.6	8.8	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
25.59	14.0	13.3	-	0.8	1.8	6.8	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
25.76	18.4	17.4	-	1.0	1.9	5.7	3	silty CLAY to CLAY	115	1.5	12	12	-	-	1.2	15
25.92	14.3	13.4	-	1.2	1.3	9.0	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
26.08	14.2	13.3	-	0.9	1.2	7.5	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
26.25	34.9	32.6	-	1.1	1.2	3.2	4	clayy SILT to silty CLAY	115	2.0	16	17	-	-	2.4	15
26.41	36.0	33.5	-	1.2	1.0	3.4	4	clayy SILT to silty CLAY	115	2.0	17	18	-	-	2.5	15
26.58	46.4	43.4	108.7	1.1	1.0	2.4	5	silty SAND to sandy SILT	120	4.0	11	12	39	37	-	16
26.74	47.8	44.6	100.9	0.9	0.9	2.0	5	silty SAND to sandy SILT	120	4.0	11	12	40	38	-	16
26.90	63.7	59.3	99.3	0.9	0.9	1.5	5	silty SAND to sandy SILT	120	4.0	15	16	50	39	-	16
27.07	58.0	53.9	100.9	1.0	0.8	1.7	5	silty SAND to sandy SILT	120	4.0	13	15	47	39	-	16
27.23	47.7	44.2	105.2	1.0	0.7	2.2	5	silty SAND to sandy SILT	120	4.0	11	12	40	37	-	16
27.40	38.1	35.2	104.3	0.9	0.7	2.6	4	clayy SILT to silty CLAY	115	2.0	18	19	-	-	2.6	15
27.56	27.8	25.1	-	0.9	0.7	3.4	4	clayy SILT to silty CLAY	115	2.0	13	14	-	-	1.9	15
27.72	21.2	19.1	-	0.7	0.7	3.8	3	silty CLAY to CLAY	115	1.5	13	14	-	-	1.4	15
27.89	18.5	16.6	-	0.7	0.8	4.3	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.2	15
28.05	18.6	16.6	-	0.7	0.9	4.4	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.3	15
28.22	16.1	14.3	-	0.7	0.9	4.9	3	silty CLAY to CLAY	115	1.5	10	11	-	-	1.1	15
28.38	12.5	11.1	-	0.7	1.0	6.5	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
28.54	10.1	8.9	-	0.7	1.0	8.5	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
28.71	13.6	11.9	-	0.7	1.2	6.2	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
28.87	11.5	10.1	-	0.7	1.1	7.2	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
29.04	9.4	8.2	-	0.8	1.2	9.9	2	Organic SOILS - Peats	100	1.0	8	9	-	-	0.9	10
29.20	8.5	7.4	-	0.7	1.9	9.9	2	Organic SOILS - Peats	100	1.0	7	9	-	-	0.8	10
29.36	8.6	7.5	-	0.6	2.2	9.3	2	Organic SOILS - Peats	100	1.0	7	9	-	-	0.8	10
29.53	13.8	11.9	-	0.6	2.1	4.9	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
29.69	14.9	12.9	-	0.6	1.9	4.4	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
29.86	14.1	12.1	-	0.6	1.8	4.5	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
30.02	12.2	10.5	-	0.6	1.5	6.0	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
30.19	10.1	8.6	-	0.6	1.5	6.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
30.35	8.5	7.2	-	0.6	1.6	8.3	2	Organic SOILS - Peats	100	1.0	7	8	-	-	0.8	10
30.51	6.3	5.3	-	0.5	1.7	9.9	2	Organic SOILS - Peats	100	1.0	5	6	-	-	0.6	10
30.68	5.3	4.5	-	0.5	1.8	9.9	2	Organic SOILS - Peats	100	1.0	4	5	-	-	0.5	10
30.84	7.4	6.2	-	0.8	1.9	9.9	2	Organic SOILS - Peats	100	1.0	6	7	-	-	0.7	10
31.01	10.8	9.1	-	0.9	1.8	9.9	2	Organic SOILS - Peats	100	1.0	9	11	-	-	1.0	10
31.17	14.2	11.9	-	0.8	1.3	6.7	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
31.33	15.5	13.0	-	0.7	1.2	5.4	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
31.50	20.9	17.4	-	0.7	1.2	3.8	3	silty CLAY to CLAY	115	1.5	12	14	-	-	1.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(428).cpt
CPT Date: 11/20/2008 1:04:27 PM
GW During Test: 12 ft

Sounding ID: CPT-08-33
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	16.6	13.8	-	0.7	1.2	4.6	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
31.83	17.3	14.3	-	0.8	1.2	5.2	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.2	15
31.99	10.4	8.5	-	0.8	1.1	9.1	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.15	11.9	9.8	-	0.7	1.2	7.0	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
32.32	21.2	17.3	-	0.8	1.3	4.3	3	silty CLAY to CLAY	115	1.5	12	14	-	-	1.4	15
32.48	21.5	17.6	-	0.9	1.2	4.4	3	silty CLAY to CLAY	115	1.5	12	14	-	-	1.5	15
32.65	16.2	13.2	-	0.8	1.2	5.5	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
32.81	18.7	15.2	-	0.8	1.2	4.8	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.3	15
32.97	16.3	13.1	-	0.9	1.2	6.1	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
33.14	11.4	9.2	-	1.0	1.4	9.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
33.30	10.7	8.6	-	1.1	1.7	9.9	2	Organic SOILS - Peats	100	1.0	9	11	-	-	1.0	10
33.47	10.8	8.7	-	1.1	2.0	9.9	2	Organic SOILS - Peats	100	1.0	9	11	-	-	1.0	10
33.63	10.5	8.4	-	1.1	2.4	9.9	2	Organic SOILS - Peats	100	1.0	8	11	-	-	1.0	10
33.79	10.1	8.0	-	1.0	2.8	9.9	2	Organic SOILS - Peats	100	1.0	8	10	-	-	1.0	10
33.96	10.6	8.5	-	1.0	3.2	9.9	2	Organic SOILS - Peats	100	1.0	8	11	-	-	1.0	10
34.12	10.6	8.4	-	1.0	3.5	9.9	2	Organic SOILS - Peats	100	1.0	8	11	-	-	1.0	10
34.29	11.7	9.2	-	1.1	4.1	9.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
34.45	38.5	30.3	-	1.0	4.8	2.7	4	clayy SILT to silty CLAY	115	2.0	15	19	-	-	2.7	15
34.61	66.4	57.2	98.9	1.0	4.1	1.5	5	silty SAND to sandy SILT	120	4.0	14	17	49	38	-	16
34.78	59.0	50.7	97.8	1.0	4.0	1.7	5	silty SAND to sandy SILT	120	4.0	13	15	45	38	-	16
34.94	48.7	41.8	97.9	0.9	3.9	2.0	5	silty SAND to sandy SILT	120	4.0	10	12	38	36	-	16
35.11	39.2	33.5	101.0	0.9	3.7	2.5	4	clayy SILT to silty CLAY	115	2.0	17	20	-	-	2.7	15
35.27	32.0	24.8	-	0.9	3.6	3.2	4	clayy SILT to silty CLAY	115	2.0	12	16	-	-	2.2	15
35.43	31.1	23.9	-	0.8	3.5	2.9	4	clayy SILT to silty CLAY	115	2.0	12	16	-	-	2.1	15
35.60	30.5	23.4	-	0.8	1.9	2.7	4	clayy SILT to silty CLAY	115	2.0	12	15	-	-	2.1	15
35.76	28.9	22.2	-	0.7	1.8	2.5	4	clayy SILT to silty CLAY	115	2.0	11	14	-	-	2.0	15
35.93	25.7	19.6	-	0.5	1.8	2.1	4	clayy SILT to silty CLAY	115	2.0	10	13	-	-	1.7	15
36.09	21.1	16.0	-	0.5	2.0	2.7	4	clayy SILT to silty CLAY	115	2.0	8	11	-	-	1.4	15
36.26	18.6	14.1	-	0.5	2.7	3.3	3	silty CLAY to CLAY	115	1.5	9	12	-	-	1.2	15
36.42	24.3	18.4	-	0.6	1.9	2.6	4	clayy SILT to silty CLAY	115	2.0	9	12	-	-	1.6	15
36.58	29.5	22.2	-	0.7	-0.1	2.6	4	clayy SILT to silty CLAY	115	2.0	11	15	-	-	2.0	15
36.75	35.2	26.5	-	0.8	0.4	2.5	4	clayy SILT to silty CLAY	115	2.0	13	18	-	-	2.4	15
36.91	54.1	45.5	95.0	0.9	0.9	1.7	5	silty SAND to sandy SILT	120	4.0	11	14	41	37	-	16
37.08	99.9	83.8	118.7	1.4	0.0	1.4	5	silty SAND to sandy SILT	120	4.0	21	25	61	40	-	16
37.24	147.7	123.7	154.4	2.1	-0.8	1.5	6	clean SAND to silty SAND	125	5.0	25	30	74	42	-	16
37.40	181.1	151.4	187.3	3.1	-0.4	1.7	6	clean SAND to silty SAND	125	5.0	30	36	81	43	-	16
37.57	203.5	169.7	210.3	3.8	-0.1	1.9	6	clean SAND to silty SAND	125	5.0	34	41	84	44	-	16
37.73	215.8	179.6	224.4	4.4	0.2	2.1	6	clean SAND to silty SAND	125	5.0	36	43	86	44	-	16
37.90	223.0	185.3	232.2	4.7	0.4	2.1	6	clean SAND to silty SAND	125	5.0	37	45	87	44	-	16
38.06	223.9	185.7	233.3	4.8	0.7	2.1	6	clean SAND to silty SAND	125	5.0	37	45	87	44	-	16
38.22	224.0	185.4	232.7	4.7	0.8	2.1	6	clean SAND to silty SAND	125	5.0	37	45	87	44	-	16
38.39	226.2	186.9	231.2	4.6	1.0	2.1	6	clean SAND to silty SAND	125	5.0	37	45	88	44	-	16
38.55	222.4	183.4	225.0	4.3	1.2	2.0	6	clean SAND to silty SAND	125	5.0	37	44	87	44	-	16
38.72	221.2	182.1	224.5	4.3	1.4	2.0	6	clean SAND to silty SAND	125	5.0	36	44	87	44	-	16
38.88	209.7	172.3	210.4	3.8	1.5	1.8	6	clean SAND to silty SAND	125	5.0	34	42	85	44	-	16
39.04	186.2	152.7	192.8	3.4	1.7	1.9	6	clean SAND to silty SAND	125	5.0	31	37	81	43	-	16
39.21	166.5	136.3	170.5	2.7	2.2	1.6	6	clean SAND to silty SAND	125	5.0	27	33	77	43	-	16
39.37	192.4	157.2	182.2	2.6	2.3	1.4	6	clean SAND to silty SAND	125	5.0	31	38	82	43	-	16
39.54	226.2	184.5	207.2	3.1	2.3	1.4	6	clean SAND to silty SAND	125	5.0	37	45	87	44	-	16
39.70	240.3	195.6	226.7	4.0	2.4	1.7	6	clean SAND to silty SAND	125	5.0	39	48	89	44	-	16
39.86	246.4	200.3	239.6	4.7	2.6	1.9	6	clean SAND to silty SAND	125	5.0	40	49	90	44	-	16
40.03	246.0	199.6	244.9	5.1	2.8	2.1	6	clean SAND to silty SAND	125	5.0	40	49	90	44	-	16
40.19	236.1	191.2	238.7	5.0	2.8	2.2	6	clean SAND to silty SAND	125	5.0	38	47	88	44	-	16
40.36	242.0	195.6	240.6	5.0	3.0	2.1	6	clean SAND to silty SAND	125	5.0	39	48	89	44	-	16
40.52	255.6	206.3	244.3	4.8	3.1	1.9	6	clean SAND to silty SAND	125	5.0	41	51	91	44	-	16
40.68	259.3	208.9	244.4	4.7	3.2	1.8	6	clean SAND to silty SAND	125	5.0	42	52	91	44	-	16
40.85	256.4	206.2	242.3	4.7	3.3	1.8	6	clean SAND to silty SAND	125	5.0	41	51	91	44	-	16
41.01	257.4	206.6	245.3	4.9	3.5	1.9	6	clean SAND to silty SAND	125	5.0	41	51	91	44	-	16
41.18	248.7	199.3	241.0	4.9	3.6	2.0	6	clean SAND to silty SAND	125	5.0	40	50	90	44	-	16
41.34	234.4	187.5	232.3	4.8	3.7	2.1	6	clean SAND to silty SAND	125	5.0	37	47	88	44	-	16
41.50	221.3	176.7	220.4	4.4	3.9	2.0	6	clean SAND to silty SAND	125	5.0	35	44	86	44	-	16
41.67	224.2	178.7	216.4	4.1	3.9	1.8	6	clean SAND to silty SAND	125	5.0	36	45	86	44	-	16
41.83	239.9	190.9	226.2	4.2	3.9	1.8	6	clean SAND to silty SAND	125	5.0	38	48	88	44	-	16
42.00	244.1	193.9	230.3	4.4	4.0	1.8	6	clean SAND to silty SAND	125	5.0	39	49	89	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(428).cpt
CPT Date: 11/20/2008 1:04:27 PM
GW During Test: 12 ft

Sounding ID: CPT-08-33
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	241.0	191.2	235.2	4.9	4.1	2.0	6	clean SAND to silty SAND	125	5.0	38	48	88	44	-	16
42.32	235.5	186.5	235.5	5.1	4.2	2.2	6	clean SAND to silty SAND	125	5.0	37	47	88	44	-	16
42.49	233.3	184.4	236.1	5.2	4.2	2.3	5	silty SAND to sandy SILT	120	4.0	46	58	87	44	-	16
42.65	243.3	192.0	242.7	5.4	4.2	2.2	5	silty SAND to sandy SILT	120	4.0	48	61	89	44	-	16
42.82	256.5	202.1	252.2	5.7	4.2	2.2	6	clean SAND to silty SAND	125	5.0	40	51	90	44	-	16
42.98	265.8	209.1	259.3	5.9	4.4	2.2	6	clean SAND to silty SAND	125	5.0	42	53	91	44	-	16
43.15	274.5	215.5	265.1	6.1	4.4	2.2	6	clean SAND to silty SAND	125	5.0	43	55	92	44	-	16
43.31	278.2	218.1	267.2	6.1	4.5	2.2	6	clean SAND to silty SAND	125	5.0	44	56	93	45	-	16
43.47	276.7	216.6	265.6	6.1	4.7	2.2	6	clean SAND to silty SAND	125	5.0	43	55	93	44	-	16
43.64	269.9	210.9	261.2	6.0	4.8	2.3	6	clean SAND to silty SAND	125	5.0	42	54	92	44	-	16
43.80	265.6	207.2	257.8	5.9	4.9	2.3	6	clean SAND to silty SAND	125	5.0	41	53	91	44	-	16
43.97	259.4	202.0	251.6	5.7	4.9	2.2	6	clean SAND to silty SAND	125	5.0	40	52	90	44	-	16
44.13	250.4	194.7	243.0	5.4	5.1	2.2	6	clean SAND to silty SAND	125	5.0	39	50	89	44	-	16
44.29	238.0	184.7	233.6	5.1	5.1	2.2	6	clean SAND to silty SAND	125	5.0	37	48	87	44	-	16
44.46	224.2	173.7	224.9	4.9	5.2	2.2	5	silty SAND to sandy SILT	120	4.0	43	56	85	43	-	16
44.62	215.4	166.7	220.5	4.9	5.2	2.3	5	silty SAND to sandy SILT	120	4.0	42	54	84	43	-	16
44.79	222.9	172.2	225.3	5.0	5.3	2.3	5	silty SAND to sandy SILT	120	4.0	43	56	85	43	-	16
44.95	226.4	174.7	226.9	5.1	5.4	2.3	5	silty SAND to sandy SILT	120	4.0	44	57	85	43	-	16
45.11	224.7	173.1	225.3	5.0	5.4	2.3	5	silty SAND to sandy SILT	120	4.0	43	56	85	43	-	16
45.28	211.1	162.4	206.3	4.1	5.4	2.0	6	clean SAND to silty SAND	125	5.0	32	42	83	43	-	16
45.44	187.5	144.0	186.6	3.5	5.3	1.9	5	silty SAND to sandy SILT	120	4.0	36	47	79	42	-	16
45.61	176.1	135.0	185.0	3.7	5.4	2.1	5	silty SAND to sandy SILT	120	4.0	34	44	77	42	-	16
45.77	206.3	158.0	206.9	4.3	5.6	2.1	5	silty SAND to sandy SILT	120	4.0	39	52	82	43	-	16
45.93	221.8	169.6	215.3	4.5	5.6	2.1	6	clean SAND to silty SAND	125	5.0	34	44	84	43	-	16
46.10	230.6	176.0	219.8	4.6	5.6	2.0	6	clean SAND to silty SAND	125	5.0	35	46	86	43	-	16
46.26	222.0	169.2	219.4	4.8	5.6	2.2	5	silty SAND to sandy SILT	120	4.0	42	55	84	43	-	16
46.43	212.0	161.4	219.4	5.0	5.7	2.4	5	silty SAND to sandy SILT	120	4.0	40	53	83	43	-	16
46.59	210.8	160.2	218.7	5.0	5.8	2.4	5	silty SAND to sandy SILT	120	4.0	40	53	83	43	-	16
46.75	217.8	165.3	223.3	5.2	5.9	2.4	5	silty SAND to sandy SILT	120	4.0	41	54	84	43	-	16
46.92	227.8	172.6	232.2	5.6	6.0	2.5	5	silty SAND to sandy SILT	120	4.0	43	57	85	43	-	16
47.08	241.6	182.8	240.8	5.8	6.2	2.4	5	silty SAND to sandy SILT	120	4.0	46	60	87	43	-	16
47.25	258.4	195.2	254.7	6.4	6.3	2.5	5	silty SAND to sandy SILT	120	4.0	49	65	89	44	-	16
47.41	272.8	205.9	264.3	6.7	6.5	2.5	5	silty SAND to sandy SILT	120	4.0	51	68	91	44	-	16
47.57	278.6	210.0	267.9	6.8	6.7	2.5	5	silty SAND to sandy SILT	120	4.0	52	70	91	44	-	16
47.74	287.8	216.6	274.5	7.0	6.8	2.5	5	silty SAND to sandy SILT	120	4.0	54	72	93	44	-	16
47.90	305.7	229.6	287.7	7.5	6.9	2.5	6	clean SAND to silty SAND	125	5.0	46	61	94	44	-	16
48.07	321.5	241.2	299.7	8.0	7.2	2.5	6	clean SAND to silty SAND	125	5.0	48	64	95	45	-	16
48.23	324.2	242.8	302.1	8.1	7.4	2.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	21.4	16
48.39	312.5	233.8	293.5	7.8	7.5	2.5	6	clean SAND to silty SAND	125	5.0	47	62	95	45	-	16
48.56	305.3	228.1	288.9	7.7	7.6	2.6	5	silty SAND to sandy SILT	120	4.0	57	76	94	44	-	16
48.72	285.9	213.3	278.2	7.5	7.7	2.7	5	silty SAND to sandy SILT	120	4.0	53	71	92	44	-	16
48.89	279.5	208.2	272.4	7.3	7.7	2.6	5	silty SAND to sandy SILT	120	4.0	52	70	91	44	-	16
49.05	278.4	207.1	273.1	7.4	7.7	2.7	5	silty SAND to sandy SILT	120	4.0	52	70	91	44	-	16
49.22	280.4	208.3	274.4	7.4	7.9	2.7	5	silty SAND to sandy SILT	120	4.0	52	70	91	44	-	16
49.38	290.0	215.1	278.0	7.5	8.0	2.6	5	silty SAND to sandy SILT	120	4.0	54	72	92	44	-	16
49.54	302.2	223.9	285.7	7.7	8.0	2.6	5	silty SAND to sandy SILT	120	4.0	56	76	94	44	-	16
49.71	315.6	233.5	295.2	8.1	8.2	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	20.8	16
49.87	321.1	237.2	298.3	8.2	8.3	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	21.2	16
50.04	321.3	237.1	296.9	8.1	8.4	2.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	21.2	16
50.20	314.1	231.5	290.1	7.8	8.4	2.5	6	clean SAND to silty SAND	125	5.0	46	63	95	44	-	16
50.36	298.5	219.7	272.3	6.9	8.4	2.3	6	clean SAND to silty SAND	125	5.0	44	60	93	44	-	16
50.53	276.0	202.8	256.6	6.4	8.2	2.3	5	silty SAND to sandy SILT	120	4.0	51	69	90	44	-	16
50.69	235.8	173.1	229.4	5.5	8.0	2.4	5	silty SAND to sandy SILT	120	4.0	43	59	85	43	-	16
50.86	198.1	145.1	198.7	4.4	7.9	2.2	5	silty SAND to sandy SILT	120	4.0	36	50	79	42	-	16
51.02	213.0	155.9	187.9	3.4	7.8	1.6	6	clean SAND to silty SAND	125	5.0	31	43	82	42	-	16
51.18	267.1	195.2	218.8	3.8	6.5	1.4	6	clean SAND to silty SAND	125	5.0	39	53	89	43	-	16
51.35	297.6	217.1	250.8	5.3	5.2	1.8	6	clean SAND to silty SAND	125	5.0	43	60	93	44	-	16
51.51	310.2	226.1	260.5	5.6	4.8	1.8	6	clean SAND to silty SAND	125	5.0	45	62	94	44	-	16
51.68	311.3	226.5	268.4	6.3	4.9	2.0	6	clean SAND to silty SAND	125	5.0	45	62	94	44	-	16
51.84	308.2	223.9	270.9	6.7	4.7	2.2	6	clean SAND to silty SAND	125	5.0	45	62	94	44	-	16
52.00	310.3	225.1	275.1	7.0	4.8	2.3	6	clean SAND to silty SAND	125	5.0	45	62	94	44	-	16
52.17	312.0	226.0	275.0	6.9	4.9	2.2	6	clean SAND to silty SAND	125	5.0	45	62	94	44	-	16
52.33	314.0	227.2	276.3	7.0	4.9	2.2	6	clean SAND to silty SAND	125	5.0	45	63	94	44	-	16
52.50	309.7	223.7	269.7	6.6	5.1	2.2	6	clean SAND to silty SAND	125	5.0	45	62	94	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(428).cpt
CPT Date: 11/20/2008 1:04:27 PM
GW During Test: 12 ft

Sounding ID: CPT-08-33
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	292.2	210.8	249.9	5.6	5.2	1.9	6	clean SAND to silty SAND	125	5.0	42	58	92	44	-	16
52.82	265.4	191.2	223.1	4.4	5.2	1.7	6	clean SAND to silty SAND	125	5.0	38	53	88	43	-	16
52.99	244.4	175.8	192.9	2.9	5.2	1.2	6	clean SAND to silty SAND	125	5.0	35	49	86	43	-	16
53.15	244.6	175.7	181.0	2.1	5.1	0.9	6	clean SAND to silty SAND	125	5.0	35	49	86	43	-	16
53.32	210.8	151.2	166.2	2.1	4.6	1.0	6	clean SAND to silty SAND	125	5.0	30	42	81	42	-	16
53.48	173.9	124.6	149.8	2.2	4.5	1.3	6	clean SAND to silty SAND	125	5.0	25	35	74	41	-	16
53.64	152.7	109.3	147.8	2.5	4.5	1.7	5	silty SAND to sandy SILT	120	4.0	27	38	70	40	-	16
53.81	136.9	97.8	149.1	2.7	4.6	2.0	5	silty SAND to sandy SILT	120	4.0	24	34	66	40	-	16
53.97	117.9	84.1	147.7	2.8	4.3	2.4	5	silty SAND to sandy SILT	120	4.0	21	29	61	39	-	16
54.14	73.4	39.5	-	2.8	2.6	4.0	4	clayy SILT to silty CLAY	115	2.0	20	37	-	-	5.1	15
54.30	55.1	29.6	-	2.3	2.3	4.4	3	silty CLAY to CLAY	115	1.5	20	37	-	-	3.8	15
54.46	37.3	20.0	-	1.9	2.4	5.5	3	silty CLAY to CLAY	115	1.5	13	25	-	-	2.5	15
54.63	29.6	15.8	-	1.9	2.7	7.3	3	silty CLAY to CLAY	115	1.5	11	20	-	-	2.0	15
54.79	55.1	29.4	-	1.6	3.0	3.2	4	clayy SILT to silty CLAY	115	2.0	15	28	-	-	3.8	15
54.96	63.2	33.6	-	1.9	2.5	3.2	4	clayy SILT to silty CLAY	115	2.0	17	32	-	-	4.3	15
55.12	43.6	23.1	-	1.8	4.3	4.6	3	silty CLAY to CLAY	115	1.5	15	29	-	-	3.0	15
55.28	27.6	14.6	-	1.9	3.7	7.7	3	silty CLAY to CLAY	115	1.5	10	18	-	-	1.8	15
55.45	37.2	19.7	-	2.0	4.4	6.0	3	silty CLAY to CLAY	115	1.5	13	25	-	-	2.5	15
55.61	51.7	27.3	-	2.2	4.4	4.6	3	silty CLAY to CLAY	115	1.5	18	34	-	-	3.5	15
55.78	108.8	76.6	142.1	2.6	4.3	2.5	5	silty SAND to sandy SILT	120	4.0	19	27	58	38	-	16
55.94	118.7	83.5	152.6	3.0	2.6	2.6	5	silty SAND to sandy SILT	120	4.0	21	30	61	39	-	16
56.11	139.2	97.8	175.2	3.9	2.6	2.9	5	silty SAND to sandy SILT	120	4.0	24	35	66	40	-	16
56.27	178.9	125.5	189.3	4.4	1.5	2.5	5	silty SAND to sandy SILT	120	4.0	31	45	75	41	-	16
56.43	222.5	156.0	207.8	4.8	0.8	2.2	5	silty SAND to sandy SILT	120	4.0	39	56	82	42	-	16
56.60	266.8	186.8	223.5	4.8	0.1	1.8	6	clean SAND to silty SAND	125	5.0	37	53	88	43	-	16
56.76	330.0	230.8	255.7	5.2	-0.3	1.6	6	clean SAND to silty SAND	125	5.0	46	66	95	44	-	16
56.93	370.3	258.6	266.4	4.6	-0.6	1.2	6	clean SAND to silty SAND	125	5.0	52	74	95	45	-	16
57.09	383.1	267.2	281.1	5.3	-0.8	1.4	6	clean SAND to silty SAND	125	5.0	53	77	95	45	-	16
57.25	320.6	223.2	257.8	5.8	-0.6	1.8	6	clean SAND to silty SAND	125	5.0	45	64	94	44	-	16
57.42	268.5	186.8	222.3	4.7	-0.4	1.8	6	clean SAND to silty SAND	125	5.0	37	54	88	43	-	16
57.58	389.5	270.5	270.5	3.5	0.6	0.9	6	clean SAND to silty SAND	125	5.0	54	78	95	45	-	16
57.75	426.7	296.0	296.0	2.2	0.1	0.5	6	clean SAND to silty SAND	125	5.0	59	85	95	45	-	16
57.91	488.2	338.3	338.3	3.3	0.0	0.7	6	clean SAND to silty SAND	125	5.0	68	98	95	46	-	16
58.07	504.7	349.2	349.2	4.9	-1.1	1.0	6	clean SAND to silty SAND	125	5.0	70	100	95	46	-	16
58.24	418.7	289.3	289.3	3.7	-0.1	0.9	6	clean SAND to silty SAND	125	5.0	58	84	95	45	-	16
58.40	406.2	280.3	280.3	3.5	1.2	0.9	6	clean SAND to silty SAND	125	5.0	56	81	95	45	-	16
58.57	355.4	244.9	244.9	2.0	2.3	0.6	6	clean SAND to silty SAND	125	5.0	49	71	95	44	-	16
58.73	362.1	249.2	249.2	1.5	2.2	0.4	6	clean SAND to silty SAND	125	5.0	50	72	95	44	-	16
58.89	362.1	248.9	248.9	1.4	1.4	0.4	6	clean SAND to silty SAND	125	5.0	50	72	95	44	-	16
59.06	330.2	226.7	232.3	3.5	0.4	1.1	6	clean SAND to silty SAND	125	5.0	45	66	94	44	-	16
59.22	274.1	187.9	225.2	5.0	-0.1	1.8	6	clean SAND to silty SAND	125	5.0	38	55	88	43	-	16
59.39	272.6	186.7	211.9	4.0	0.0	1.5	6	clean SAND to silty SAND	125	5.0	37	55	88	43	-	16
59.55	324.2	221.7	221.7	2.4	0.9	0.7	6	clean SAND to silty SAND	125	5.0	44	65	93	44	-	16
59.71	337.0	230.2	230.2	1.6	1.2	0.5	6	clean SAND to silty SAND	125	5.0	46	67	95	44	-	16
59.88	329.4	224.7	224.7	1.3	1.6	0.4	6	clean SAND to silty SAND	125	5.0	45	66	94	44	-	16
60.04	346.3	236.0	236.0	1.3	1.9	0.4	6	clean SAND to silty SAND	125	5.0	47	69	95	44	-	16
60.21	360.6	245.4	245.4	1.4	2.5	0.4	6	clean SAND to silty SAND	125	5.0	49	72	95	44	-	16
60.37	374.2	254.3	254.3	2.5	2.3	0.7	6	clean SAND to silty SAND	125	5.0	51	75	95	44	-	16
60.53	390.9	265.3	265.3	2.6	2.1	0.7	6	clean SAND to silty SAND	125	5.0	53	78	95	44	-	16
60.70	398.7	270.3	270.3	2.8	1.5	0.7	6	clean SAND to silty SAND	125	5.0	54	80	95	45	-	16
60.86	432.8	293.0	293.3	5.2	1.4	1.2	6	clean SAND to silty SAND	125	5.0	59	87	95	45	-	16
61.03	420.2	284.1	284.1	4.3	1.4	1.0	6	clean SAND to silty SAND	125	5.0	57	84	95	45	-	16
61.19	415.7	280.8	280.8	2.9	0.7	0.7	6	clean SAND to silty SAND	125	5.0	56	83	95	45	-	16
61.35	316.0	213.1	213.1	2.2	6.5	0.7	6	clean SAND to silty SAND	125	5.0	43	63	92	43	-	16
61.52	311.7	210.0	210.0	1.6	6.2	0.5	6	clean SAND to silty SAND	125	5.0	42	62	91	43	-	16
61.68	335.3	225.6	225.6	1.6	6.3	0.5	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
61.85	361.8	243.2	243.2	1.9	5.6	0.5	6	clean SAND to silty SAND	125	5.0	49	72	95	44	-	16
62.01	362.9	243.6	243.6	2.6	4.7	0.7	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
62.17	347.3	232.8	232.8	3.3	4.1	1.0	6	clean SAND to silty SAND	125	5.0	47	69	95	44	-	16
62.34	417.9	279.8	279.8	3.4	6.0	0.8	6	clean SAND to silty SAND	125	5.0	56	84	95	45	-	16
62.50	356.7	238.6	255.5	4.9	6.7	1.4	6	clean SAND to silty SAND	125	5.0	48	71	95	44	-	16
62.67	338.8	226.3	226.3	3.1	6.1	0.9	6	clean SAND to silty SAND	125	5.0	45	68	94	44	-	16
62.83	329.2	219.6	219.6	2.5	5.7	0.8	6	clean SAND to silty SAND	125	5.0	44	66	93	43	-	16
63.00	353.3	235.4	235.4	1.6	5.7	0.5	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(428).cpt
CPT Date: 11/20/2008 1:04:27 PM
GW During Test: 12 ft

Sounding ID: CPT-08-33
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	363.2	241.7	241.7	1.1	5.9	0.3	7	grvly SAND to dense SAND	130	6.0	40	61	95	44	-	16
63.32	344.9	229.3	229.3	1.7	6.3	0.5	6	clean SAND to silty SAND	125	5.0	46	69	94	44	-	16
63.49	334.0	221.7	221.7	1.7	6.5	0.5	6	clean SAND to silty SAND	125	5.0	44	67	93	43	-	16
63.65	317.8	210.7	210.7	2.1	7.2	0.7	6	clean SAND to silty SAND	125	5.0	42	64	92	43	-	16
63.82	291.8	193.2	193.2	2.0	7.3	0.7	6	clean SAND to silty SAND	125	5.0	39	58	89	43	-	16
63.98	275.1	182.0	182.0	1.6	7.6	0.6	6	clean SAND to silty SAND	125	5.0	36	55	87	42	-	16
64.14	276.5	182.7	182.7	1.6	7.7	0.6	6	clean SAND to silty SAND	125	5.0	37	55	87	43	-	16
64.31	301.0	198.6	198.6	1.7	8.0	0.6	6	clean SAND to silty SAND	125	5.0	40	60	90	43	-	16
64.47	302.7	199.6	199.6	2.1	8.3	0.7	6	clean SAND to silty SAND	125	5.0	40	61	90	43	-	16
64.64	296.0	194.9	194.9	2.1	8.6	0.7	6	clean SAND to silty SAND	125	5.0	39	59	89	43	-	16
64.80	269.0	176.9	180.8	2.2	9.7	0.8	6	clean SAND to silty SAND	125	5.0	35	54	86	42	-	16
64.96	248.6	163.3	172.9	2.2	9.7	0.9	6	clean SAND to silty SAND	125	5.0	33	50	83	42	-	16
65.13	211.8	138.9	155.9	2.2	9.7	1.0	6	clean SAND to silty SAND	125	5.0	28	42	78	41	-	16
65.29	177.3	116.2	140.5	2.1	9.4	1.2	6	clean SAND to silty SAND	125	5.0	23	35	72	40	-	16
65.46	162.3	106.2	127.5	1.7	9.5	1.1	6	clean SAND to silty SAND	125	5.0	21	32	69	40	-	16
65.62	184.4	120.5	135.5	1.6	9.6	0.9	6	clean SAND to silty SAND	125	5.0	24	37	73	40	-	16
65.78	213.7	139.5	144.3	1.4	6.9	0.7	6	clean SAND to silty SAND	125	5.0	28	43	78	41	-	16
65.95	164.5	107.3	135.5	2.1	5.7	1.3	6	clean SAND to silty SAND	125	5.0	21	33	69	40	-	16
66.11	75.2	49.0	118.0	1.8	5.8	2.5	5	silty SAND to sandy SILT	120	4.0	12	19	43	35	-	16
66.28	25.2	11.3	-	0.7	6.3	3.4	3	silty CLAY to CLAY	115	1.5	8	17	-	-	1.6	15
66.44	15.6	7.0	-	0.8	8.5	6.8	3	silty CLAY to CLAY	115	1.5	5	10	-	-	1.0	15
66.60	34.5	15.4	-	0.8	10.1	2.5	4	clayy SILT to silty CLAY	115	2.0	8	17	-	-	2.3	15
66.77	45.2	20.2	-	1.0	9.8	2.4	4	clayy SILT to silty CLAY	115	2.0	10	23	-	-	3.1	15
66.93	38.0	16.9	-	1.4	6.9	4.1	3	silty CLAY to CLAY	115	1.5	11	25	-	-	2.5	15
67.10	13.7	6.1	-	1.5	6.8	9.9	2	Organic SOILS - Peats	100	1.0	6	14	-	-	1.2	10
67.26	88.6	57.3	108.8	1.6	7.9	1.9	5	silty SAND to sandy SILT	120	4.0	14	22	49	36	-	16
67.42	266.3	172.2	194.9	3.5	8.6	1.3	6	clean SAND to silty SAND	125	5.0	34	53	85	42	-	16
67.59	343.1	221.6	228.0	3.7	8.7	1.1	6	clean SAND to silty SAND	125	5.0	44	69	93	43	-	16
67.75	336.2	216.9	216.9	2.7	9.0	0.8	6	clean SAND to silty SAND	125	5.0	43	67	93	43	-	16
67.92	329.9	212.6	216.2	3.2	9.2	1.0	6	clean SAND to silty SAND	125	5.0	43	66	92	43	-	16
68.08	304.9	196.3	199.3	2.7	14.9	0.9	6	clean SAND to silty SAND	125	5.0	39	61	89	43	-	16
68.24	276.7	177.9	177.9	1.7	13.5	0.6	6	clean SAND to silty SAND	125	5.0	36	55	86	42	-	16
68.41	225.8	145.0	164.2	2.5	12.6	1.1	6	clean SAND to silty SAND	125	5.0	29	45	79	41	-	16
68.57	163.0	104.6	146.4	2.8	12.1	1.8	5	silty SAND to sandy SILT	120	4.0	26	41	68	39	-	16
68.74	112.7	72.2	131.2	2.4	12.4	2.2	5	silty SAND to sandy SILT	120	4.0	18	28	56	37	-	16
68.90	48.1	20.9	-	1.8	12.7	4.1	3	silty CLAY to CLAY	115	1.5	14	32	-	-	3.3	15
69.07	27.3	11.8	-	0.6	12.7	2.5	3	silty CLAY to CLAY	115	1.5	8	18	-	-	1.8	15
69.23	13.0	5.6	-	0.0	13.4	0.1	1	sensitive fine SOIL	115	2.0	3	6	-	-	0.8	15
69.39	56.9	36.3	45.4	0.0	15.2	0.1	6	clean SAND to silty SAND	125	5.0	7	11	34	33	-	16
69.56	324.6	207.0	207.0	2.6	13.4	0.8	6	clean SAND to silty SAND	125	5.0	41	65	91	43	-	16
69.72	394.5	251.3	251.3	4.0	8.9	1.0	6	clean SAND to silty SAND	125	5.0	50	79	95	44	-	16
69.89	375.4	238.8	243.8	4.1	11.9	1.1	6	clean SAND to silty SAND	125	5.0	48	75	95	44	-	16
70.05	391.2	248.6	249.2	4.1	10.5	1.1	6	clean SAND to silty SAND	125	5.0	50	78	95	44	-	16
70.21	344.6	218.8	239.0	4.8	10.6	1.4	6	clean SAND to silty SAND	125	5.0	44	69	93	43	-	16
70.38	338.9	214.9	240.7	5.2	10.2	1.6	6	clean SAND to silty SAND	125	5.0	43	68	92	43	-	16
70.54	346.3	219.4	257.8	6.6	10.9	1.9	6	clean SAND to silty SAND	125	5.0	44	69	93	43	-	16
70.71	365.5	231.3	274.4	7.5	11.2	2.1	6	clean SAND to silty SAND	125	5.0	46	73	95	43	-	16
70.87	385.9	243.9	292.3	8.5	11.3	2.2	6	clean SAND to silty SAND	125	5.0	49	77	95	44	-	16
71.03	407.3	257.2	303.6	8.9	11.6	2.2	6	clean SAND to silty SAND	125	5.0	51	81	95	44	-	16
71.20	410.1	258.6	314.8	10.0	11.9	2.5	6	clean SAND to silty SAND	125	5.0	52	82	95	44	-	16
71.36	400.3	252.2	322.0	11.1	13.9	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	26.4	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(461).cpt
CPT Date: 12/4/2008 7:09:44 AM
GW During Test: 12 ft

Sounding ID: CPT-08-34
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	72.5	116.2	128.2	0.6	0.0	0.8	6	clean SAND to silty SAND	125	5.0	23	14	72	48	-	16
0.49	80.9	129.8	144.6	0.8	-0.1	1.0	6	clean SAND to silty SAND	125	5.0	26	16	76	48	-	16
0.66	76.4	122.5	141.3	0.8	-0.1	1.1	6	clean SAND to silty SAND	125	5.0	24	15	74	48	-	16
0.82	65.5	105.1	126.7	0.7	-0.1	1.1	6	clean SAND to silty SAND	125	5.0	21	13	69	48	-	16
0.98	64.1	102.8	125.7	0.7	-0.1	1.1	6	clean SAND to silty SAND	125	5.0	21	13	68	48	-	16
1.15	58.8	94.3	116.7	0.6	-0.1	1.1	6	clean SAND to silty SAND	125	5.0	19	12	65	48	-	16
1.31	51.8	83.0	108.8	0.6	-0.1	1.1	6	clean SAND to silty SAND	125	5.0	17	10	61	48	-	16
1.48	58.3	93.5	127.6	0.9	-0.1	1.5	5	silty SAND to sandy SILT	120	4.0	23	15	65	48	-	16
1.64	87.4	140.2	176.1	1.5	0.0	1.7	6	clean SAND to silty SAND	125	5.0	28	17	78	48	-	16
1.80	96.8	155.2	186.3	1.5	0.0	1.6	6	clean SAND to silty SAND	125	5.0	31	19	82	48	-	16
1.97	108.5	174.0	201.4	1.6	-0.1	1.5	6	clean SAND to silty SAND	125	5.0	35	22	85	48	-	16
2.13	115.1	184.6	204.5	1.5	-0.3	1.3	6	clean SAND to silty SAND	125	5.0	37	23	87	48	-	16
2.30	115.2	184.8	199.7	1.3	-0.1	1.2	6	clean SAND to silty SAND	125	5.0	37	23	87	48	-	16
2.46	117.7	188.8	189.4	1.0	0.2	0.8	6	clean SAND to silty SAND	125	5.0	38	24	88	48	-	16
2.62	98.0	157.1	168.5	0.9	0.2	1.0	6	clean SAND to silty SAND	125	5.0	31	20	82	48	-	16
2.79	74.4	119.3	143.8	0.9	0.3	1.2	6	clean SAND to silty SAND	125	5.0	24	15	73	47	-	16
2.95	50.7	81.3	120.5	0.8	0.4	1.6	5	silty SAND to sandy SILT	120	4.0	20	13	60	46	-	16
3.12	38.5	61.8	111.1	0.7	0.4	1.9	5	silty SAND to sandy SILT	120	4.0	15	10	51	44	-	16
3.28	35.4	56.7	118.5	0.8	0.5	2.3	5	silty SAND to sandy SILT	120	4.0	14	9	48	43	-	16
3.45	43.1	69.2	116.0	0.8	0.2	1.8	5	silty SAND to sandy SILT	120	4.0	17	11	55	44	-	16
3.61	48.9	78.5	132.9	1.0	0.4	2.1	5	silty SAND to sandy SILT	120	4.0	20	12	59	45	-	16
3.77	51.8	83.0	159.7	1.5	0.6	2.9	5	silty SAND to sandy SILT	120	4.0	21	13	61	45	-	16
3.94	44.9	72.0	180.6	1.8	0.7	4.1	4	clayy SILT to silty CLAY	115	2.0	36	22	-	-	3.2	15
4.10	39.8	63.8	169.4	1.6	0.8	4.1	4	clayy SILT to silty CLAY	115	2.0	32	20	-	-	2.8	15
4.27	46.7	74.8	164.3	1.6	0.2	3.4	4	clayy SILT to silty CLAY	115	2.0	37	23	-	-	3.3	15
4.43	37.6	60.3	168.3	1.6	0.7	4.2	4	clayy SILT to silty CLAY	115	2.0	30	19	-	-	2.6	15
4.59	34.3	55.1	158.1	1.4	0.9	4.1	4	clayy SILT to silty CLAY	115	2.0	28	17	-	-	2.4	15
4.76	36.9	59.2	143.9	1.2	0.8	3.3	4	clayy SILT to silty CLAY	115	2.0	30	18	-	-	2.6	15
4.92	30.7	49.2	141.1	1.1	0.8	3.6	4	clayy SILT to silty CLAY	115	2.0	25	15	-	-	2.1	15
5.09	24.3	39.0	124.8	0.8	0.0	3.5	4	clayy SILT to silty CLAY	115	2.0	19	12	-	-	1.7	15
5.25	22.4	35.9	110.2	0.6	0.2	2.9	4	clayy SILT to silty CLAY	115	2.0	18	11	-	-	1.6	15
5.41	19.2	30.7	-	0.6	0.3	3.2	4	clayy SILT to silty CLAY	115	2.0	15	10	-	-	1.3	15
5.58	15.3	24.6	-	0.6	0.1	4.3	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.1	15
5.74	13.6	21.8	-	0.6	-0.6	4.6	3	silty CLAY to CLAY	115	1.5	15	9	-	-	0.9	15
5.91	13.3	21.3	-	0.6	-1.8	4.4	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
6.07	10.8	17.3	-	0.5	-1.1	4.9	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.7	15
6.23	9.4	15.1	-	0.6	-1.6	6.3	3	silty CLAY to CLAY	115	1.5	10	6	-	-	0.6	15
6.40	18.1	29.1	-	0.8	0.1	4.5	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.3	15
6.56	20.0	32.1	-	0.9	0.0	4.5	3	silty CLAY to CLAY	115	1.5	21	13	-	-	1.4	15
6.73	20.2	32.4	-	0.8	0.1	4.1	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
6.89	20.2	32.4	-	0.8	-0.4	3.8	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
7.05	18.3	29.4	-	0.7	0.3	4.1	4	clayy SILT to silty CLAY	115	2.0	15	9	-	-	1.3	15
7.22	15.8	25.3	-	0.8	0.4	4.9	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.1	15
7.38	17.4	27.9	-	0.7	0.5	3.9	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
7.55	16.4	26.2	-	0.7	-0.5	4.5	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.1	15
7.71	13.8	22.2	-	0.7	-0.3	5.0	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
7.87	13.4	21.5	-	0.7	0.5	5.4	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
8.04	14.8	23.7	-	0.7	-1.4	4.9	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
8.20	14.2	22.8	-	0.7	-0.9	5.3	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
8.37	17.8	28.6	-	0.8	-0.7	4.5	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.2	15
8.53	18.8	30.1	-	0.8	0.2	4.4	3	silty CLAY to CLAY	115	1.5	20	13	-	-	1.3	15
8.69	22.9	36.7	-	0.9	0.2	4.2	4	clayy SILT to silty CLAY	115	2.0	18	11	-	-	1.6	15
8.86	22.1	35.4	-	0.9	0.1	4.3	4	clayy SILT to silty CLAY	115	2.0	18	11	-	-	1.5	15
9.02	28.6	37.9	118.9	0.9	0.1	3.2	4	clayy SILT to silty CLAY	115	2.0	19	14	-	-	2.0	15
9.19	37.2	49.0	111.9	0.9	-0.5	2.4	5	silty SAND to sandy SILT	120	4.0	12	9	43	41	-	16
9.35	32.2	42.0	108.7	0.8	0.0	2.5	5	silty SAND to sandy SILT	120	4.0	10	8	38	40	-	16
9.51	27.4	35.5	108.0	0.8	-0.7	2.8	4	clayy SILT to silty CLAY	115	2.0	18	14	-	-	1.9	15
9.68	20.2	32.4	-	0.8	-0.3	4.0	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
9.84	13.5	21.7	-	0.6	0.4	4.4	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
10.01	12.6	20.1	-	0.6	0.7	4.9	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
10.17	12.8	20.6	-	0.6	-0.1	5.1	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
10.34	10.4	16.6	-	0.6	-1.1	5.9	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
10.50	8.5	13.6	-	0.5	-1.4	6.7	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(461).cpt
CPT Date: 12/4/2008 7:09:44 AM
GW During Test: 12 ft

Sounding ID: CPT-08-34
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	7.6	12.0	-	0.4	-2.9	6.2	3	silty CLAY to CLAY	115	1.5	8	5	-	-	0.5	15
10.83	6.8	10.7	-	0.4	-3.0	5.9	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
10.99	6.0	9.2	-	0.4	-2.9	7.1	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
11.16	6.0	9.1	-	0.4	-1.9	8.0	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
11.32	9.1	13.7	-	0.6	-0.5	6.7	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
11.48	11.2	16.6	-	0.6	-1.1	5.5	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.8	15
11.65	9.6	14.0	-	0.5	-0.6	5.8	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.7	15
11.81	9.3	13.3	-	0.5	-0.8	5.6	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
11.98	8.4	11.9	-	0.5	-1.8	6.9	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
12.14	7.3	10.2	-	0.5	-3.1	7.6	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
12.30	8.4	11.8	-	0.4	-1.9	5.4	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
12.47	9.0	12.6	-	0.4	-2.2	4.5	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
12.63	7.6	10.5	-	0.4	-3.5	5.6	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
12.80	5.7	7.8	-	0.4	-3.9	7.4	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
12.96	5.4	7.4	-	0.4	-3.5	7.6	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
13.12	5.4	7.3	-	0.4	-3.2	7.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.3	15
13.29	5.5	7.5	-	0.4	-3.1	7.6	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
13.45	5.9	7.9	-	0.4	-3.0	7.2	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
13.62	5.5	7.4	-	0.3	-2.9	6.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
13.78	5.1	6.8	-	0.3	-2.8	7.6	3	silty CLAY to CLAY	115	1.5	5	3	-	-	0.3	15
13.94	4.9	6.4	-	0.3	-2.6	8.3	2	Organic SOILS - Peats	100	1.0	6	5	-	-	0.5	10
14.11	8.9	11.8	-	0.3	-2.3	3.8	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
14.27	20.4	22.7	70.8	0.3	-3.4	1.6	4	clayy SILT to silty CLAY	115	2.0	11	10	-	-	1.4	15
14.44	28.7	31.8	72.1	0.4	-3.7	1.3	5	silty SAND to sandy SILT	120	4.0	8	7	29	37	-	16
14.60	34.1	37.6	75.8	0.4	-3.5	1.3	5	silty SAND to sandy SILT	120	4.0	9	9	35	38	-	16
14.76	38.1	41.9	66.4	0.3	-3.3	0.8	5	silty SAND to sandy SILT	120	4.0	10	10	38	39	-	16
14.93	43.5	47.8	76.6	0.4	-1.6	1.0	5	silty SAND to sandy SILT	120	4.0	12	11	43	40	-	16
15.09	46.5	50.9	74.7	0.4	-1.0	0.8	5	silty SAND to sandy SILT	120	4.0	13	12	45	40	-	16
15.26	50.5	55.1	78.0	0.4	-7.8	0.8	5	silty SAND to sandy SILT	120	4.0	14	13	47	40	-	16
15.42	42.6	46.4	77.9	0.5	-7.9	1.1	5	silty SAND to sandy SILT	120	4.0	12	11	42	39	-	16
15.58	35.2	38.2	76.7	0.4	-7.8	1.3	5	silty SAND to sandy SILT	120	4.0	10	9	35	38	-	16
15.75	29.4	31.8	81.8	0.5	-7.6	1.7	5	silty SAND to sandy SILT	120	4.0	8	7	29	37	-	16
15.91	24.3	26.2	83.5	0.5	-7.8	2.1	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.7	15
16.08	22.3	25.3	84.0	0.5	-9.2	2.1	4	clayy SILT to silty CLAY	115	2.0	13	11	-	-	1.5	15
16.24	17.9	21.9	-	0.4	-10.2	2.5	4	clayy SILT to silty CLAY	115	2.0	11	9	-	-	1.2	15
16.40	12.2	14.8	-	0.3	-10.5	3.1	3	silty CLAY to CLAY	115	1.5	10	8	-	-	0.8	15
16.57	10.2	12.3	-	0.3	-10.6	3.2	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
16.73	7.1	8.6	-	0.2	-10.6	3.7	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.90	6.5	7.8	-	0.2	-10.3	3.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.06	6.4	7.6	-	0.2	-10.1	3.6	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.23	6.8	8.0	-	0.2	-9.9	4.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
17.39	7.2	8.5	-	0.2	-9.7	3.7	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
17.55	7.0	8.2	-	0.2	-9.4	4.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
17.72	7.2	8.4	-	0.3	-9.1	4.6	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
17.88	7.7	8.9	-	0.5	-8.8	7.4	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
18.05	7.9	9.1	-	0.5	-8.5	7.6	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
18.21	7.4	8.5	-	0.5	-3.2	7.2	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
18.37	7.0	8.0	-	0.5	-0.5	7.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
18.54	7.2	8.1	-	0.6	2.7	9.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
18.70	8.0	9.1	-	0.6	4.4	8.4	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
18.87	7.9	8.8	-	0.5	3.9	7.7	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
19.03	7.4	8.3	-	0.4	5.8	5.6	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
19.19	9.7	10.8	-	0.3	0.5	3.4	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
19.36	7.3	8.1	-	0.3	-1.2	4.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
19.52	8.2	9.0	-	0.3	-0.2	3.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
19.69	6.9	7.5	-	0.3	-0.7	5.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
19.85	7.4	8.1	-	0.3	1.3	4.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
20.01	7.1	7.7	-	0.3	0.6	4.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
20.18	6.6	7.2	-	0.3	12.9	5.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
20.34	5.9	6.4	-	0.3	15.5	5.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
20.51	6.1	6.6	-	0.3	16.9	5.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
20.67	6.6	7.0	-	0.3	12.0	5.0	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
20.83	6.9	7.4	-	0.3	12.1	4.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
21.00	8.4	8.9	-	0.2	9.9	3.2	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(461).cpt
CPT Date: 12/4/2008 7:09:44 AM
GW During Test: 12 ft

Sounding ID: CPT-08-34
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	7.6	8.0	-	0.2	6.1	3.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.33	6.5	6.8	-	0.2	13.4	4.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
21.49	6.3	6.5	-	0.2	17.5	4.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.65	6.5	6.8	-	0.3	18.9	5.2	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
21.82	7.6	7.8	-	0.3	16.1	4.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.98	12.1	12.4	-	0.3	2.2	2.9	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
22.15	11.2	11.5	-	0.3	1.0	3.3	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
22.31	10.0	10.2	-	0.3	-0.5	3.2	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
22.47	9.0	9.2	-	0.2	-3.0	3.2	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
22.64	6.9	7.0	-	0.2	-1.7	4.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
22.80	6.9	7.0	-	0.3	1.6	5.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
22.97	8.0	8.1	-	0.3	6.0	4.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.13	7.5	7.5	-	0.3	0.8	5.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.30	6.6	6.6	-	0.2	4.2	4.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.46	6.4	6.3	-	0.2	7.8	4.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.62	6.3	6.2	-	0.2	11.1	4.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.79	6.5	6.4	-	0.2	14.3	4.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.95	6.7	6.6	-	0.3	12.5	4.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
24.12	6.7	6.5	-	0.3	9.7	5.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
24.28	6.7	6.5	-	0.3	11.1	5.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
24.44	6.9	6.7	-	0.3	11.5	4.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
24.61	7.1	6.8	-	0.3	8.9	5.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
24.77	7.2	6.9	-	0.1	8.9	2.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.94	7.3	7.0	-	0.3	6.1	5.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
25.10	3.9	3.7	-	0.3	19.4	9.9	2	Organic SOILS - Peats	100	1.0	4	4	-	-	0.3	10
25.26	7.2	6.8	-	0.3	8.2	5.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
25.43	7.6	7.2	-	0.3	6.2	5.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
25.59	8.1	7.6	-	0.4	4.6	5.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
25.76	8.4	7.9	-	0.4	1.6	6.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
25.92	8.3	7.7	-	0.4	-0.2	6.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
26.08	8.1	7.5	-	0.4	-0.4	5.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.25	8.0	7.4	-	0.3	0.8	5.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.41	9.0	8.3	-	0.3	2.2	4.3	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
26.58	8.4	7.7	-	0.3	2.8	4.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
26.74	7.5	6.8	-	0.3	4.9	4.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.90	7.7	7.0	-	0.3	8.6	5.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.07	14.6	13.3	-	0.4	12.2	2.9	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
27.23	55.5	51.2	76.7	0.5	-3.5	0.9	5	silty SAND to sandy SILT	120	4.0	13	14	45	38	-	16
27.40	74.2	68.3	88.2	0.6	-4.1	0.8	6	clean SAND to silty SAND	125	5.0	14	15	54	40	-	16
27.56	88.8	81.5	99.8	0.7	-2.6	0.8	6	clean SAND to silty SAND	125	5.0	16	18	60	41	-	16
27.72	89.7	82.2	105.0	0.9	-1.2	1.0	6	clean SAND to silty SAND	125	5.0	16	18	61	41	-	16
27.89	86.6	79.2	108.1	1.0	0.5	1.2	5	silty SAND to sandy SILT	120	4.0	20	22	59	41	-	16
28.05	75.9	69.3	110.6	1.2	1.5	1.6	5	silty SAND to sandy SILT	120	4.0	17	19	55	40	-	16
28.22	81.2	74.0	110.1	1.1	1.7	1.4	5	silty SAND to sandy SILT	120	4.0	18	20	57	40	-	16
28.38	97.4	88.5	114.8	1.1	-8.6	1.2	6	clean SAND to silty SAND	125	5.0	18	19	63	41	-	16
28.54	90.0	81.6	112.9	1.1	-10.7	1.3	5	silty SAND to sandy SILT	120	4.0	20	22	60	41	-	16
28.71	86.2	78.0	115.1	1.3	-10.3	1.5	5	silty SAND to sandy SILT	120	4.0	20	22	59	40	-	16
28.87	92.0	83.1	118.1	1.3	-9.6	1.4	5	silty SAND to sandy SILT	120	4.0	21	23	61	41	-	16
29.04	97.5	87.9	119.9	1.3	-9.0	1.4	5	silty SAND to sandy SILT	120	4.0	22	24	63	41	-	16
29.20	108.4	97.5	125.1	1.3	-9.1	1.2	6	clean SAND to silty SAND	125	5.0	19	22	66	42	-	16
29.36	110.7	99.4	127.2	1.4	-9.3	1.3	6	clean SAND to silty SAND	125	5.0	20	22	67	42	-	16
29.53	105.7	94.6	124.6	1.4	-8.8	1.3	6	clean SAND to silty SAND	125	5.0	19	21	65	41	-	16
29.69	97.9	87.5	119.8	1.3	-8.2	1.4	5	silty SAND to sandy SILT	120	4.0	22	24	63	41	-	16
29.86	84.9	75.7	101.7	0.9	-7.5	1.1	6	clean SAND to silty SAND	125	5.0	15	17	58	40	-	16
30.02	75.3	67.0	97.8	0.9	-6.9	1.2	5	silty SAND to sandy SILT	120	4.0	17	19	54	39	-	16
30.19	55.9	49.6	95.0	0.9	1.9	1.6	5	silty SAND to sandy SILT	120	4.0	12	14	44	38	-	16
30.35	40.7	36.1	94.0	0.8	2.3	2.1	5	silty SAND to sandy SILT	120	4.0	9	10	33	36	-	16
30.51	24.9	20.6	-	0.6	-8.0	2.6	4	clayy SILT to silty CLAY	115	2.0	10	12	-	-	1.7	15
30.68	11.9	9.8	-	0.4	-9.2	3.9	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
30.84	8.7	7.2	-	0.2	-8.4	3.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.01	9.3	7.6	-	0.3	-7.4	3.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.17	9.8	8.0	-	0.4	-6.3	5.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
31.33	10.8	8.8	-	0.6	-0.6	6.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
31.50	10.3	8.4	-	0.6	1.2	7.6	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(461).cpt
CPT Date: 12/4/2008 7:09:44 AM
GW During Test: 12 ft

Sounding ID: CPT-08-34
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	10.5	8.5	-	0.6	3.1	6.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
31.83	10.1	8.2	-	0.6	5.6	7.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
31.99	10.7	8.6	-	0.8	8.5	8.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.15	11.6	9.3	-	0.8	12.2	8.4	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
32.32	11.7	9.3	-	0.7	14.1	7.6	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
32.48	10.6	8.4	-	0.7	19.8	7.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.65	10.7	8.5	-	0.7	14.8	8.0	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.81	10.9	8.6	-	0.7	19.1	7.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.97	10.8	8.5	-	0.7	14.0	7.7	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
33.14	10.6	8.3	-	0.8	19.8	9.5	2	Organic SOILS - Peats	100	1.0	8	11	-	-	1.0	10
33.30	11.5	9.0	-	1.0	17.4	9.9	2	Organic SOILS - Peats	100	1.0	9	11	-	-	1.1	10
33.47	13.2	10.3	-	1.0	18.0	8.6	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
33.63	12.0	9.4	-	0.8	15.0	7.5	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
33.79	13.3	10.3	-	0.6	17.9	5.2	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
33.96	11.9	9.2	-	0.6	11.3	5.7	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
34.12	10.9	8.4	-	0.7	16.8	7.4	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
34.29	11.4	8.8	-	0.8	11.6	8.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
34.45	12.8	9.8	-	0.8	20.5	7.5	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.8	15
34.61	13.4	10.2	-	0.8	12.4	7.0	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
34.78	12.7	9.7	-	0.7	16.4	7.0	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
34.94	23.4	17.7	-	0.7	4.2	3.3	3	silty CLAY to CLAY	115	1.5	12	16	-	-	1.6	15
35.11	55.1	46.5	80.5	0.6	-1.8	1.2	5	silty SAND to sandy SILT	120	4.0	12	14	42	37	-	16
35.27	84.9	71.6	90.2	0.6	0.7	0.8	6	clean SAND to silty SAND	125	5.0	14	17	56	39	-	16
35.43	106.9	89.9	105.3	0.8	2.7	0.8	6	clean SAND to silty SAND	125	5.0	18	21	63	41	-	16
35.60	124.7	104.7	121.1	1.1	3.1	0.9	6	clean SAND to silty SAND	125	5.0	21	25	69	41	-	16
35.76	129.1	108.1	132.3	1.5	3.2	1.2	6	clean SAND to silty SAND	125	5.0	22	26	70	42	-	16
35.93	122.6	102.5	131.5	1.6	2.8	1.3	6	clean SAND to silty SAND	125	5.0	21	25	68	41	-	16
36.09	101.9	85.1	122.7	1.5	2.7	1.5	5	silty SAND to sandy SILT	120	4.0	21	25	62	40	-	16
36.26	89.4	74.5	114.9	1.4	2.8	1.6	5	silty SAND to sandy SILT	120	4.0	19	22	57	39	-	16
36.42	115.1	95.8	126.1	1.5	2.4	1.3	6	clean SAND to silty SAND	125	5.0	19	23	66	41	-	16
36.58	134.7	111.8	138.4	1.7	1.0	1.3	6	clean SAND to silty SAND	125	5.0	22	27	71	42	-	16
36.75	139.5	115.6	141.5	1.7	1.5	1.3	6	clean SAND to silty SAND	125	5.0	23	28	72	42	-	16
36.91	158.6	131.2	157.2	2.1	2.0	1.3	6	clean SAND to silty SAND	125	5.0	26	32	76	42	-	16
37.08	169.5	140.0	167.2	2.3	1.7	1.4	6	clean SAND to silty SAND	125	5.0	28	34	78	43	-	16
37.24	161.3	132.9	162.2	2.3	1.4	1.4	6	clean SAND to silty SAND	125	5.0	27	32	76	42	-	16
37.40	147.8	121.6	147.7	1.9	1.5	1.3	6	clean SAND to silty SAND	125	5.0	24	30	73	42	-	16
37.57	134.9	110.8	141.2	1.9	0.3	1.4	6	clean SAND to silty SAND	125	5.0	22	27	70	41	-	16
37.73	147.3	120.7	148.7	2.0	-0.5	1.4	6	clean SAND to silty SAND	125	5.0	24	29	73	42	-	16
37.90	152.7	124.9	156.4	2.2	-7.0	1.5	6	clean SAND to silty SAND	125	5.0	25	31	74	42	-	16
38.06	143.3	117.0	153.9	2.3	-7.0	1.6	6	clean SAND to silty SAND	125	5.0	23	29	72	42	-	16
38.22	115.5	94.2	146.9	2.4	-6.6	2.1	5	silty SAND to sandy SILT	120	4.0	24	29	65	41	-	16
38.39	75.1	61.1	148.0	2.4	-6.2	3.3	4	clayy SILT to silty CLAY	115	2.0	31	38	-	-	5.2	15
38.55	62.0	50.4	137.9	2.0	-5.3	3.3	4	clayy SILT to silty CLAY	115	2.0	25	31	-	-	4.3	15
38.72	112.3	91.1	129.0	1.7	-7.8	1.6	5	silty SAND to sandy SILT	120	4.0	23	28	64	40	-	16
38.88	129.9	105.2	132.7	1.6	-9.4	1.3	6	clean SAND to silty SAND	125	5.0	21	26	69	41	-	16
39.04	129.7	104.9	137.3	1.8	-9.0	1.4	6	clean SAND to silty SAND	125	5.0	21	26	69	41	-	16
39.21	123.8	99.9	134.9	1.8	-8.4	1.5	5	silty SAND to sandy SILT	120	4.0	25	31	67	41	-	16
39.37	124.1	100.0	132.7	1.7	-7.9	1.4	6	clean SAND to silty SAND	125	5.0	20	25	67	41	-	16
39.54	131.1	105.4	135.6	1.8	-7.3	1.4	6	clean SAND to silty SAND	125	5.0	21	26	69	41	-	16
39.70	123.7	99.3	133.6	1.8	-6.9	1.5	5	silty SAND to sandy SILT	120	4.0	25	31	67	41	-	16
39.86	107.7	86.3	133.5	2.0	-6.5	1.9	5	silty SAND to sandy SILT	120	4.0	22	27	62	40	-	16
40.03	82.4	66.0	122.1	1.7	-6.0	2.1	5	silty SAND to sandy SILT	120	4.0	16	21	53	38	-	16
40.19	84.2	67.3	121.1	1.7	0.0	2.0	5	silty SAND to sandy SILT	120	4.0	17	21	54	39	-	16
40.36	121.0	96.5	125.7	1.5	-5.1	1.3	6	clean SAND to silty SAND	125	5.0	19	24	66	41	-	16
40.52	125.6	100.1	125.8	1.5	-6.7	1.2	6	clean SAND to silty SAND	125	5.0	20	25	67	41	-	16
40.68	103.8	82.6	112.8	1.3	-8.9	1.3	5	silty SAND to sandy SILT	120	4.0	21	26	61	40	-	16
40.85	93.1	73.9	110.1	1.3	-8.5	1.4	5	silty SAND to sandy SILT	120	4.0	18	23	57	39	-	16
41.01	89.1	70.6	105.3	1.2	-8.2	1.4	5	silty SAND to sandy SILT	120	4.0	18	22	56	39	-	16
41.18	78.3	61.9	104.1	1.2	-10.5	1.6	5	silty SAND to sandy SILT	120	4.0	15	20	51	38	-	16
41.34	58.8	46.5	103.4	1.1	-11.6	2.0	5	silty SAND to sandy SILT	120	4.0	12	15	42	36	-	16
41.50	69.4	54.7	97.2	1.0	-11.5	1.5	5	silty SAND to sandy SILT	120	4.0	14	17	47	37	-	16
41.67	86.3	67.9	109.0	1.3	-12.0	1.6	5	silty SAND to sandy SILT	120	4.0	17	22	54	38	-	16
41.83	81.4	64.0	108.5	1.3	-12.0	1.7	5	silty SAND to sandy SILT	120	4.0	16	20	52	38	-	16
42.00	89.8	70.5	104.1	1.1	-11.8	1.3	5	silty SAND to sandy SILT	120	4.0	18	22	55	39	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(461).cpt
CPT Date: 12/4/2008 7:09:44 AM
GW During Test: 12 ft

Sounding ID: CPT-08-34
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	95.3	74.7	103.7	1.1	-12.0	1.2	5	silty SAND to sandy SILT	120	4.0	19	24	57	39	-	16
42.32	81.3	63.6	107.0	1.3	-12.1	1.6	5	silty SAND to sandy SILT	120	4.0	16	20	52	38	-	16
42.49	57.0	44.5	108.1	1.3	-12.1	2.3	5	silty SAND to sandy SILT	120	4.0	11	14	40	36	-	16
42.65	53.3	41.6	86.3	0.8	-12.0	1.5	5	silty SAND to sandy SILT	120	4.0	10	13	38	36	-	16
42.82	56.5	44.0	83.0	0.7	-12.2	1.3	5	silty SAND to sandy SILT	120	4.0	11	14	40	36	-	16
42.98	59.7	46.4	84.0	0.7	-12.2	1.3	5	silty SAND to sandy SILT	120	4.0	12	15	42	36	-	16
43.15	64.5	50.1	84.2	0.7	-12.2	1.2	5	silty SAND to sandy SILT	120	4.0	13	16	44	37	-	16
43.31	62.1	48.1	90.7	0.9	-12.2	1.5	5	silty SAND to sandy SILT	120	4.0	12	16	43	36	-	16
43.47	37.6	23.9	-	0.8	-12.2	2.4	4	clayy SILT to silty CLAY	115	2.0	12	19	-	-	2.6	15
43.64	38.7	24.6	-	0.7	-12.2	2.1	4	clayy SILT to silty CLAY	115	2.0	12	19	-	-	2.6	15
43.80	56.2	43.4	86.4	0.8	-12.2	1.5	5	silty SAND to sandy SILT	120	4.0	11	14	39	36	-	16
43.97	64.9	50.0	74.7	0.5	-12.2	0.8	5	silty SAND to sandy SILT	120	4.0	13	16	44	37	-	16
44.13	66.8	51.5	102.2	1.2	-12.3	1.8	5	silty SAND to sandy SILT	120	4.0	13	17	45	37	-	16
44.29	27.8	17.4	-	1.2	-11.0	4.9	3	silty CLAY to CLAY	115	1.5	12	19	-	-	1.9	15
44.46	51.0	39.1	101.2	1.1	-11.7	2.2	5	silty SAND to sandy SILT	120	4.0	10	13	36	35	-	16
44.62	58.6	44.9	101.2	1.1	-11.7	2.0	5	silty SAND to sandy SILT	120	4.0	11	15	41	36	-	16
44.79	44.1	27.4	-	1.0	-11.8	2.4	4	clayy SILT to silty CLAY	115	2.0	14	22	-	-	3.0	15
44.95	31.7	19.6	-	0.8	-11.8	2.9	4	clayy SILT to silty CLAY	115	2.0	10	16	-	-	2.1	15
45.11	21.0	13.0	-	0.6	-7.8	3.2	3	silty CLAY to CLAY	115	1.5	9	14	-	-	1.4	15
45.28	13.9	8.5	-	0.5	-8.0	4.2	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
45.44	13.7	8.4	-	0.4	-7.5	3.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
45.61	14.3	8.7	-	0.4	-7.1	3.5	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
45.77	14.3	8.8	-	0.4	-6.7	3.7	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
45.93	15.5	9.4	-	0.5	-6.4	4.1	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
46.10	18.6	11.3	-	0.6	-6.1	3.8	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
46.26	17.2	10.5	-	0.7	-6.4	4.7	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
46.43	18.6	11.2	-	0.7	-6.2	4.5	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
46.59	17.3	10.4	-	0.6	-6.5	4.4	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.1	15
46.75	18.2	10.9	-	0.6	-6.0	3.6	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
46.92	16.8	10.1	-	0.5	-5.9	3.7	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
47.08	14.2	8.5	-	0.4	-5.9	3.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
47.25	13.2	7.9	-	0.4	-5.4	3.9	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
47.41	12.6	7.5	-	0.4	-4.9	4.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
47.57	13.6	8.1	-	0.5	-4.4	4.6	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
47.74	13.8	8.2	-	0.6	-2.7	5.1	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
47.90	14.0	8.3	-	0.6	-2.1	5.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
48.07	14.8	8.7	-	0.6	-2.1	5.3	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
48.23	17.1	10.0	-	0.7	-1.7	4.8	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
48.39	18.7	11.0	-	0.7	-1.9	4.3	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
48.56	20.4	12.0	-	0.6	-2.2	3.5	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.3	15
48.72	16.0	9.4	-	0.6	-4.3	4.5	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
48.89	13.6	7.9	-	0.6	-3.6	5.7	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
49.05	14.2	8.3	-	0.7	-2.7	6.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
49.22	16.2	9.4	-	0.7	-2.1	5.3	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
49.38	22.1	12.8	-	0.6	-1.6	3.0	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.5	15
49.54	21.0	12.1	-	0.7	-3.9	4.1	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
49.71	21.6	12.4	-	0.6	-3.7	3.4	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
49.87	47.6	35.0	96.7	1.0	-6.2	2.2	4	clayy SILT to silty CLAY	115	2.0	17	24	-	-	3.3	15
50.04	45.8	26.2	-	1.6	-8.5	3.8	4	clayy SILT to silty CLAY	115	2.0	13	23	-	-	3.1	15
50.20	37.6	21.5	-	1.7	-6.0	5.0	3	silty CLAY to CLAY	115	1.5	14	25	-	-	2.6	15
50.36	83.3	61.1	121.1	1.8	-7.0	2.2	5	silty SAND to sandy SILT	120	4.0	15	21	51	37	-	16
50.53	169.1	123.8	150.9	2.2	-10.8	1.3	6	clean SAND to silty SAND	125	5.0	25	34	74	41	-	16
50.69	179.0	130.8	162.7	2.7	-11.0	1.5	6	clean SAND to silty SAND	125	5.0	26	36	76	41	-	16
50.86	169.9	124.0	164.9	3.0	-10.6	1.8	5	silty SAND to sandy SILT	120	4.0	31	42	74	41	-	16
51.02	162.2	118.2	165.6	3.2	-10.2	2.0	5	silty SAND to sandy SILT	120	4.0	30	41	73	41	-	16
51.18	162.0	117.9	166.0	3.2	-9.9	2.0	5	silty SAND to sandy SILT	120	4.0	29	40	72	41	-	16
51.35	161.9	117.7	166.1	3.2	-9.5	2.0	5	silty SAND to sandy SILT	120	4.0	29	40	72	41	-	16
51.51	157.4	114.2	161.8	3.1	-9.3	2.0	5	silty SAND to sandy SILT	120	4.0	29	39	71	41	-	16
51.68	153.3	111.2	161.1	3.1	-9.1	2.0	5	silty SAND to sandy SILT	120	4.0	28	38	70	41	-	16
51.84	149.4	108.2	151.4	2.7	-8.9	1.8	5	silty SAND to sandy SILT	120	4.0	27	37	70	40	-	16
52.00	144.0	104.1	140.2	2.2	-8.6	1.6	5	silty SAND to sandy SILT	120	4.0	26	36	68	40	-	16
52.17	134.2	96.9	132.0	2.0	-9.7	1.5	5	silty SAND to sandy SILT	120	4.0	24	34	66	40	-	16
52.33	115.7	83.5	129.2	2.0	-9.6	1.8	5	silty SAND to sandy SILT	120	4.0	21	29	61	39	-	16
52.50	79.7	57.4	147.1	2.6	-9.2	3.4	4	clayy SILT to silty CLAY	115	2.0	29	40	-	-	5.5	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(461).cpt
CPT Date: 12/4/2008 7:09:44 AM
GW During Test: 12 ft

Sounding ID: CPT-08-34
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	44.3	24.3	-	2.3	-9.0	5.7	3	silty CLAY to CLAY	115	1.5	16	30	-	-	3.0	15
52.82	32.0	17.5	-	1.8	-8.5	6.3	3	silty CLAY to CLAY	115	1.5	12	21	-	-	2.1	15
52.99	32.0	17.5	-	1.4	-7.5	4.7	3	silty CLAY to CLAY	115	1.5	12	21	-	-	2.2	15
53.15	82.6	59.2	108.6	1.4	-6.4	1.8	5	silty SAND to sandy SILT	120	4.0	15	21	50	37	-	16
53.32	118.0	84.5	122.0	1.8	-7.4	1.5	5	silty SAND to sandy SILT	120	4.0	21	29	61	39	-	16
53.48	126.0	90.1	135.0	2.2	-7.4	1.8	5	silty SAND to sandy SILT	120	4.0	23	31	64	39	-	16
53.64	118.8	84.8	144.1	2.6	-7.2	2.3	5	silty SAND to sandy SILT	120	4.0	21	30	62	39	-	16
53.81	90.0	64.2	158.7	3.1	-1.9	3.5	4	clayy SILT to silty CLAY	115	2.0	32	45	-	-	6.2	15
53.97	57.6	31.0	-	2.1	-1.5	3.9	4	clayy SILT to silty CLAY	115	2.0	15	29	-	-	4.0	15
54.14	71.5	50.9	121.8	1.8	-0.7	2.6	5	silty SAND to sandy SILT	120	4.0	13	18	45	36	-	16
54.30	106.6	75.8	113.5	1.5	-4.1	1.5	5	silty SAND to sandy SILT	120	4.0	19	27	58	38	-	16
54.46	127.6	90.6	121.3	1.6	-9.3	1.3	6	clean SAND to silty SAND	125	5.0	18	26	64	39	-	16
54.63	118.4	83.9	117.9	1.6	-10.4	1.4	5	silty SAND to sandy SILT	120	4.0	21	30	61	39	-	16
54.79	103.1	73.0	118.6	1.7	-10.7	1.7	5	silty SAND to sandy SILT	120	4.0	18	26	57	38	-	16
54.96	101.1	71.5	121.3	1.8	-10.6	1.9	5	silty SAND to sandy SILT	120	4.0	18	25	56	38	-	16
55.12	91.4	64.6	126.3	2.0	-4.5	2.3	5	silty SAND to sandy SILT	120	4.0	16	23	53	37	-	16
55.28	79.3	55.9	130.0	2.1	-4.0	2.7	5	silty SAND to sandy SILT	120	4.0	14	20	48	36	-	16
55.45	75.4	53.1	127.3	2.0	-3.6	2.7	5	silty SAND to sandy SILT	120	4.0	13	19	46	36	-	16
55.61	71.0	49.9	134.6	2.2	-4.4	3.2	4	clayy SILT to silty CLAY	115	2.0	25	36	-	-	4.9	15
55.78	56.5	29.5	-	2.3	-5.1	4.2	3	silty CLAY to CLAY	115	1.5	20	38	-	-	3.9	15
55.94	64.6	33.8	-	2.2	-5.2	3.5	4	clayy SILT to silty CLAY	115	2.0	17	32	-	-	4.5	15
56.11	192.9	135.3	157.1	2.3	-7.4	1.2	6	clean SAND to silty SAND	125	5.0	27	39	77	41	-	16
56.27	236.1	165.3	177.7	2.3	-8.8	1.0	6	clean SAND to silty SAND	125	5.0	33	47	84	42	-	16
56.43	249.9	174.8	182.7	2.3	-8.6	0.9	6	clean SAND to silty SAND	125	5.0	35	50	85	43	-	16
56.60	214.6	149.9	160.1	1.9	-8.2	0.9	6	clean SAND to silty SAND	125	5.0	30	43	80	42	-	16
56.76	180.5	125.9	143.4	1.8	-7.9	1.0	6	clean SAND to silty SAND	125	5.0	25	36	75	41	-	16
56.93	152.8	106.4	130.2	1.7	-5.5	1.1	6	clean SAND to silty SAND	125	5.0	21	31	69	40	-	16
57.09	120.9	84.1	125.2	1.9	-5.1	1.6	5	silty SAND to sandy SILT	120	4.0	21	30	61	39	-	16
57.25	88.8	61.7	128.0	2.1	-4.7	2.4	5	silty SAND to sandy SILT	120	4.0	15	22	51	37	-	16
57.42	61.3	31.3	-	2.0	-4.3	3.5	4	clayy SILT to silty CLAY	115	2.0	16	31	-	-	4.2	15
57.58	40.8	20.8	-	1.5	-4.1	4.0	3	silty CLAY to CLAY	115	1.5	14	27	-	-	2.8	15
57.75	28.0	14.2	-	1.2	-3.5	4.9	3	silty CLAY to CLAY	115	1.5	9	19	-	-	1.9	15
57.91	26.4	13.4	-	0.9	-2.3	3.9	3	silty CLAY to CLAY	115	1.5	9	18	-	-	1.7	15
58.07	50.3	25.5	-	1.2	-2.0	2.5	4	clayy SILT to silty CLAY	115	2.0	13	25	-	-	3.4	15
58.24	61.5	31.0	-	2.0	-3.0	3.5	4	clayy SILT to silty CLAY	115	2.0	16	31	-	-	4.2	15
58.40	47.2	23.8	-	2.1	-2.3	4.9	3	silty CLAY to CLAY	115	1.5	16	31	-	-	3.2	15
58.57	94.9	65.4	131.2	2.2	-1.0	2.4	5	silty SAND to sandy SILT	120	4.0	16	24	53	37	-	16
58.73	166.4	114.5	148.1	2.5	-6.2	1.5	6	clean SAND to silty SAND	125	5.0	23	33	71	40	-	16
58.89	173.3	119.0	149.0	2.4	-6.9	1.4	6	clean SAND to silty SAND	125	5.0	24	35	73	41	-	16
59.06	173.5	119.0	149.7	2.4	-6.5	1.4	6	clean SAND to silty SAND	125	5.0	24	35	73	41	-	16
59.22	150.4	103.0	137.8	2.2	-6.6	1.5	5	silty SAND to sandy SILT	120	4.0	26	38	68	40	-	16
59.39	119.4	81.7	142.6	2.7	-6.4	2.3	5	silty SAND to sandy SILT	120	4.0	20	30	60	38	-	16
59.55	84.9	58.0	160.9	3.2	-6.0	3.9	4	clayy SILT to silty CLAY	115	2.0	29	42	-	-	5.9	15
59.71	60.8	30.1	-	2.3	-5.5	4.1	4	clayy SILT to silty CLAY	115	2.0	15	30	-	-	4.2	15
59.88	85.3	58.2	148.9	2.8	-6.6	3.4	4	clayy SILT to silty CLAY	115	2.0	29	43	-	-	5.9	15
60.04	115.7	78.9	151.6	3.0	-7.7	2.7	5	silty SAND to sandy SILT	120	4.0	20	29	59	38	-	16
60.21	168.2	114.5	163.5	3.3	-6.3	2.0	5	silty SAND to sandy SILT	120	4.0	29	42	71	40	-	16
60.37	235.0	159.8	190.5	3.6	-9.1	1.6	6	clean SAND to silty SAND	125	5.0	32	47	82	42	-	16
60.53	266.1	180.6	205.6	3.8	-9.7	1.4	6	clean SAND to silty SAND	125	5.0	36	53	87	43	-	16
60.70	294.3	199.5	220.1	4.0	-9.6	1.4	6	clean SAND to silty SAND	125	5.0	40	59	90	43	-	16
60.86	309.9	209.8	231.0	4.3	-9.2	1.4	6	clean SAND to silty SAND	125	5.0	42	62	91	43	-	16
61.03	326.1	220.6	242.7	4.8	-9.0	1.5	6	clean SAND to silty SAND	125	5.0	44	65	93	44	-	16
61.19	342.2	231.2	254.9	5.2	-8.6	1.5	6	clean SAND to silty SAND	125	5.0	46	68	95	44	-	16
61.35	351.2	237.0	258.6	5.2	-8.2	1.5	6	clean SAND to silty SAND	125	5.0	47	70	95	44	-	16
61.52	357.1	240.6	259.3	5.1	-7.9	1.4	6	clean SAND to silty SAND	125	5.0	48	71	95	44	-	16
61.68	361.9	243.6	263.3	5.3	-7.6	1.5	6	clean SAND to silty SAND	125	5.0	49	72	95	44	-	16
61.85	358.1	240.7	260.8	5.2	-7.2	1.5	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
62.01	347.5	233.3	250.7	4.8	-6.9	1.4	6	clean SAND to silty SAND	125	5.0	47	70	95	44	-	16
62.17	331.2	222.1	233.1	3.9	-6.7	1.2	6	clean SAND to silty SAND	125	5.0	44	66	93	44	-	16
62.34	311.9	208.9	218.7	3.4	-6.5	1.1	6	clean SAND to silty SAND	125	5.0	42	62	91	43	-	16
62.50	283.3	189.5	206.2	3.4	-6.2	1.2	6	clean SAND to silty SAND	125	5.0	38	57	88	43	-	16
62.67	246.7	164.8	173.5	2.2	-6.0	0.9	6	clean SAND to silty SAND	125	5.0	33	49	83	42	-	16
62.83	40.7	19.2	-	0.9	-5.9	2.6	4	clayy SILT to silty CLAY	115	2.0	10	20	-	-	2.7	15
63.00	19.0	8.9	-	0.3	-5.4	1.7	3	silty CLAY to CLAY	115	1.5	6	13	-	-	1.2	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(461).cpt
CPT Date: 12/4/2008 7:09:44 AM
GW During Test: 12 ft

Sounding ID: CPT-08-34
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	19.0	9.0	-	0.1	-5.0	1.0	4	clayy SILT to silty CLAY	115	2.0	4	10	-	-	1.2	15
63.32	15.5	7.3	-	0.4	-4.4	3.5	3	silty CLAY to CLAY	115	1.5	5	10	-	-	1.0	15
63.49	10.2	4.8	-	0.8	14.9	9.9	2	Organic SOILS - Peats	100	1.0	5	10	-	-	0.9	10
63.65	28.6	13.4	-	1.1	15.3	4.6	3	silty CLAY to CLAY	115	1.5	9	19	-	-	1.9	15
63.82	117.1	77.7	125.1	2.1	9.6	1.8	5	silty SAND to sandy SILT	120	4.0	19	29	59	38	-	16
63.98	206.3	136.7	159.2	2.5	7.7	1.2	6	clean SAND to silty SAND	125	5.0	27	41	77	41	-	16
64.14	263.6	174.5	185.9	2.6	4.3	1.0	6	clean SAND to silty SAND	125	5.0	35	53	85	42	-	16
64.31	292.4	193.3	194.6	2.5	2.8	0.9	6	clean SAND to silty SAND	125	5.0	39	58	89	43	-	16
64.47	306.5	202.4	209.2	3.1	0.4	1.0	6	clean SAND to silty SAND	125	5.0	40	61	90	43	-	16
64.64	300.1	198.0	214.6	3.7	-1.5	1.3	6	clean SAND to silty SAND	125	5.0	40	60	90	43	-	16
64.80	295.6	194.8	208.5	3.4	-1.4	1.2	6	clean SAND to silty SAND	125	5.0	39	59	89	43	-	16
64.96	299.2	196.9	204.4	3.0	-1.6	1.0	6	clean SAND to silty SAND	125	5.0	39	60	89	43	-	16
65.13	262.8	172.7	188.2	2.9	9.8	1.1	6	clean SAND to silty SAND	125	5.0	35	53	85	42	-	16
65.29	240.1	157.6	175.3	2.7	2.3	1.1	6	clean SAND to silty SAND	125	5.0	32	48	82	42	-	16
65.46	196.1	128.6	189.6	4.7	-4.0	2.4	5	silty SAND to sandy SILT	120	4.0	32	49	75	41	-	16
65.62	151.6	99.3	170.3	4.0	-4.3	2.7	5	silty SAND to sandy SILT	120	4.0	25	38	67	39	-	16
65.78	211.5	138.4	165.5	2.9	-2.9	1.4	6	clean SAND to silty SAND	125	5.0	28	42	78	41	-	16
65.95	250.3	163.6	190.7	3.6	0.8	1.5	6	clean SAND to silty SAND	125	5.0	33	50	83	42	-	16
66.11	325.3	212.3	273.4	8.2	-0.3	2.5	5	silty SAND to sandy SILT	120	4.0	53	81	92	43	-	16
66.28	333.8	217.6	237.9	4.7	2.5	1.4	6	clean SAND to silty SAND	125	5.0	44	67	93	43	-	16
66.44	251.6	163.9	185.5	3.2	5.8	1.3	6	clean SAND to silty SAND	125	5.0	33	50	83	42	-	16
66.60	281.5	183.2	183.2	1.4	15.8	0.5	6	clean SAND to silty SAND	125	5.0	37	56	87	42	-	16
66.77	192.8	125.3	130.0	1.1	9.0	0.6	6	clean SAND to silty SAND	125	5.0	25	39	74	40	-	16
66.93	154.6	100.4	119.8	1.4	8.4	1.0	6	clean SAND to silty SAND	125	5.0	20	31	67	39	-	16
67.10	111.5	72.3	105.1	1.4	7.7	1.3	5	silty SAND to sandy SILT	120	4.0	18	28	56	37	-	16
67.26	82.8	36.8	-	3.6	6.1	4.6	3	silty CLAY to CLAY	115	1.5	25	55	-	-	5.7	15
67.42	77.0	34.2	-	3.1	-6.0	4.3	4	clayy SILT to silty CLAY	115	2.0	17	39	-	-	5.3	15
67.59	176.8	114.3	185.0	4.7	-6.3	2.7	5	silty SAND to sandy SILT	120	4.0	29	44	71	40	-	16
67.75	383.3	247.5	252.2	4.3	-3.6	1.1	6	clean SAND to silty SAND	125	5.0	50	77	95	44	-	16
67.92	430.1	277.4	277.4	4.0	-1.5	0.9	6	clean SAND to silty SAND	125	5.0	55	86	95	44	-	16
68.08	473.0	304.7	310.3	6.3	7.8	1.3	6	clean SAND to silty SAND	125	5.0	61	95	95	45	-	16
68.24	491.8	316.5	316.5	4.5	0.1	0.9	6	clean SAND to silty SAND	125	5.0	63	98	95	45	-	16
68.41	484.8	311.6	311.6	2.3	-1.6	0.5	7	grvly SAND to dense SAND	130	6.0	52	81	95	45	-	16
68.57	456.4	293.0	293.0	2.9	-6.2	0.6	6	clean SAND to silty SAND	125	5.0	59	91	95	45	-	16
68.74	420.2	269.5	269.5	2.6	-6.4	0.6	6	clean SAND to silty SAND	125	5.0	54	84	95	44	-	16
68.90	456.2	292.2	300.7	6.1	-7.7	1.4	6	clean SAND to silty SAND	125	5.0	58	91	95	45	-	16
69.07	553.2	354.0	354.0	4.9	-8.8	0.9	6	clean SAND to silty SAND	125	5.0	71	100	95	45	-	16
69.23	559.4	357.5	357.5	5.9	-7.8	1.1	6	clean SAND to silty SAND	125	5.0	72	100	95	46	-	16
69.39	581.9	371.5	371.5	5.6	-7.3	1.0	6	clean SAND to silty SAND	125	5.0	74	100	95	46	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(427).cpt
CPT Date: 11/20/2008 12:05:03 PM
GW During Test: 12 ft

Sounding ID: CPT-08-35
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	45.7	73.2	90.0	0.3	0.1	0.7	6	clean SAND to silty SAND	125	5.0	15	9	57	48	-	16
0.49	65.2	104.6	124.5	0.7	0.0	1.0	6	clean SAND to silty SAND	125	5.0	21	13	68	48	-	16
0.66	74.0	118.7	146.4	1.0	-0.1	1.4	6	clean SAND to silty SAND	125	5.0	24	15	73	48	-	16
0.82	76.5	122.7	157.9	1.2	-0.1	1.6	6	clean SAND to silty SAND	125	5.0	25	15	74	48	-	16
0.98	73.6	118.0	152.7	1.2	-0.1	1.6	6	clean SAND to silty SAND	125	5.0	24	15	72	48	-	16
1.15	73.9	118.5	148.7	1.1	-0.1	1.4	6	clean SAND to silty SAND	125	5.0	24	15	73	48	-	16
1.31	100.7	161.6	190.9	1.6	0.0	1.5	6	clean SAND to silty SAND	125	5.0	32	20	83	48	-	16
1.48	112.9	181.1	181.1	0.8	-0.1	0.7	6	clean SAND to silty SAND	125	5.0	36	23	87	48	-	16
1.64	99.0	158.8	206.1	2.1	-0.1	2.1	5	silty SAND to sandy SILT	120	4.0	40	25	82	48	-	16
1.80	107.5	172.4	231.5	2.7	-0.1	2.5	5	silty SAND to sandy SILT	120	4.0	43	27	85	48	-	16
1.97	65.2	104.6	230.2	2.9	0.3	4.5	9	very stiff fine SOIL	120	2.0	52	33	68	48	-	30
2.13	46.5	74.6	178.9	1.8	0.3	4.0	4	clayy SILT to silty CLAY	115	2.0	37	23	-	-	3.3	15
2.30	35.4	56.8	154.7	1.4	0.2	3.8	4	clayy SILT to silty CLAY	115	2.0	28	18	-	-	2.5	15
2.46	43.1	69.1	177.4	1.8	0.2	4.2	4	clayy SILT to silty CLAY	115	2.0	35	22	-	-	3.0	15
2.62	53.9	86.5	195.9	2.2	0.9	4.1	4	clayy SILT to silty CLAY	115	2.0	43	27	-	-	3.8	15
2.79	40.9	65.6	206.5	2.3	0.3	5.6	4	clayy SILT to silty CLAY	115	2.0	33	20	-	-	2.9	15
2.95	32.5	52.1	-	1.8	-0.5	5.6	3	silty CLAY to CLAY	115	1.5	35	22	-	-	2.3	15
3.12	29.4	47.1	-	1.5	-0.6	5.3	3	silty CLAY to CLAY	115	1.5	31	20	-	-	2.1	15
3.28	44.4	71.2	194.6	2.1	0.0	4.7	4	clayy SILT to silty CLAY	115	2.0	36	22	-	-	3.1	15
3.45	57.6	92.5	213.8	2.6	0.0	4.5	9	very stiff fine SOIL	120	2.0	46	29	64	46	-	30
3.61	46.3	74.2	227.1	2.7	0.1	5.9	9	very stiff fine SOIL	120	2.0	37	23	57	45	-	30
3.77	39.0	62.5	202.7	2.2	0.1	5.6	4	clayy SILT to silty CLAY	115	2.0	31	19	-	-	2.7	15
3.94	32.7	52.4	-	1.8	-0.3	5.5	4	clayy SILT to silty CLAY	115	2.0	26	16	-	-	2.3	15
4.10	27.2	43.5	-	1.5	-0.1	5.6	3	silty CLAY to CLAY	115	1.5	29	18	-	-	1.9	15
4.27	24.5	39.3	-	1.4	-0.1	5.7	3	silty CLAY to CLAY	115	1.5	26	16	-	-	1.7	15
4.43	23.5	37.7	-	1.3	-1.0	5.5	3	silty CLAY to CLAY	115	1.5	25	16	-	-	1.6	15
4.59	21.9	35.1	-	1.2	-2.3	5.8	3	silty CLAY to CLAY	115	1.5	23	15	-	-	1.5	15
4.76	25.5	41.0	-	1.3	-2.3	5.0	3	silty CLAY to CLAY	115	1.5	27	17	-	-	1.8	15
4.92	24.6	39.5	-	1.2	-1.0	5.0	3	silty CLAY to CLAY	115	1.5	26	16	-	-	1.7	15
5.09	23.2	37.2	-	1.2	0.0	5.0	3	silty CLAY to CLAY	115	1.5	25	15	-	-	1.6	15
5.25	24.5	39.3	-	1.2	0.0	4.9	3	silty CLAY to CLAY	115	1.5	26	16	-	-	1.7	15
5.41	23.3	37.3	-	1.1	-0.1	4.7	3	silty CLAY to CLAY	115	1.5	25	16	-	-	1.6	15
5.58	20.2	32.3	-	0.8	0.0	4.2	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
5.74	14.9	23.8	-	0.8	0.0	5.3	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
5.91	17.1	27.4	-	0.8	0.6	4.5	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.2	15
6.07	17.1	27.5	-	0.8	0.3	4.8	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.2	15
6.23	16.6	26.7	-	0.8	0.1	5.0	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.2	15
6.40	18.8	30.1	-	0.9	0.0	4.7	3	silty CLAY to CLAY	115	1.5	20	13	-	-	1.3	15
6.56	18.9	30.3	-	0.9	0.5	4.8	3	silty CLAY to CLAY	115	1.5	20	13	-	-	1.3	15
6.73	16.7	26.8	-	0.9	1.4	5.3	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.2	15
6.89	14.9	23.9	-	0.8	1.8	5.6	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
7.05	14.1	22.6	-	0.8	1.6	5.9	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
7.22	14.5	23.3	-	0.9	1.2	6.1	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
7.38	16.0	25.6	-	0.9	0.9	5.5	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.1	15
7.55	17.6	28.2	-	0.9	0.3	5.0	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.2	15
7.71	18.4	29.6	-	0.8	0.0	4.7	3	silty CLAY to CLAY	115	1.5	20	12	-	-	1.3	15
7.87	15.8	25.4	-	0.7	-0.2	4.8	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.1	15
8.04	13.8	22.2	-	0.7	-0.3	5.5	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
8.20	14.2	22.8	-	0.7	-0.3	5.4	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
8.37	14.8	23.7	-	0.7	-0.3	4.9	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
8.53	14.7	23.6	-	0.7	-0.4	5.0	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
8.69	14.3	22.9	-	0.7	-0.4	5.4	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.0	15
8.86	13.4	21.5	-	0.7	-0.4	5.7	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
9.02	13.6	21.8	-	0.7	-0.3	5.3	3	silty CLAY to CLAY	115	1.5	15	9	-	-	0.9	15
9.19	13.8	22.2	-	0.7	-0.3	5.3	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
9.35	12.8	20.5	-	0.7	-0.5	5.8	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
9.51	11.9	19.0	-	0.7	-0.4	5.9	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
9.68	12.0	19.2	-	0.6	-0.4	5.2	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
9.84	9.6	15.5	-	0.5	-0.4	5.6	3	silty CLAY to CLAY	115	1.5	10	6	-	-	0.7	15
10.01	8.3	13.3	-	0.4	-0.3	5.0	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
10.17	7.6	12.1	-	0.4	-0.1	6.2	3	silty CLAY to CLAY	115	1.5	8	5	-	-	0.5	15
10.34	9.3	14.9	-	0.4	0.4	5.1	3	silty CLAY to CLAY	115	1.5	10	6	-	-	0.6	15
10.50	10.2	16.4	-	0.5	0.4	5.0	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(427).cpt
CPT Date: 11/20/2008 12:05:03 PM
GW During Test: 12 ft

Sounding ID: CPT-08-35
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	9.7	15.5	-	0.5	0.4	5.1	3	silty CLAY to CLAY	115	1.5	10	6	-	-	0.7	15
10.83	11.4	18.0	-	0.5	0.4	4.3	3	silty CLAY to CLAY	115	1.5	12	8	-	-	0.8	15
10.99	14.9	23.2	-	0.5	0.6	3.2	4	clayy SILT to silty CLAY	115	2.0	12	7	-	-	1.0	15
11.16	14.6	22.4	-	0.5	-0.1	3.3	4	clayy SILT to silty CLAY	115	2.0	11	7	-	-	1.0	15
11.32	15.1	22.8	-	0.5	-0.6	3.5	4	clayy SILT to silty CLAY	115	2.0	11	8	-	-	1.0	15
11.48	22.0	28.6	-	0.5	0.1	2.6	4	clayy SILT to silty CLAY	115	2.0	14	11	-	-	1.5	15
11.65	32.9	38.7	96.0	0.7	-0.5	2.1	5	silty SAND to sandy SILT	120	4.0	10	8	36	39	-	16
11.81	44.5	52.1	85.6	0.5	-0.3	1.2	5	silty SAND to sandy SILT	120	4.0	13	11	45	41	-	16
11.98	54.8	63.7	96.9	0.7	-0.3	1.3	5	silty SAND to sandy SILT	120	4.0	16	14	52	42	-	16
12.14	61.1	70.8	105.6	0.8	-0.2	1.4	5	silty SAND to sandy SILT	120	4.0	18	15	56	42	-	16
12.30	69.3	80.0	111.5	0.9	-0.3	1.3	5	silty SAND to sandy SILT	120	4.0	20	17	60	43	-	16
12.47	76.8	88.3	118.2	1.0	-0.3	1.3	6	clean SAND to silty SAND	125	5.0	18	15	63	43	-	16
12.63	79.3	90.8	119.6	1.0	-0.4	1.3	6	clean SAND to silty SAND	125	5.0	18	16	64	43	-	16
12.80	79.7	91.1	119.2	1.0	-0.4	1.2	6	clean SAND to silty SAND	125	5.0	18	16	64	43	-	16
12.96	82.1	93.4	120.4	1.0	-0.4	1.2	6	clean SAND to silty SAND	125	5.0	19	16	65	44	-	16
13.12	85.9	97.4	121.9	1.0	-0.5	1.1	6	clean SAND to silty SAND	125	5.0	19	17	66	44	-	16
13.29	86.5	97.8	123.7	1.0	-0.5	1.2	6	clean SAND to silty SAND	125	5.0	20	17	66	44	-	16
13.45	79.4	89.4	118.7	1.0	-0.5	1.3	6	clean SAND to silty SAND	125	5.0	18	16	63	43	-	16
13.62	73.0	81.9	119.5	1.1	-0.4	1.5	5	silty SAND to sandy SILT	120	4.0	20	18	60	43	-	16
13.78	56.9	63.7	109.4	1.0	-0.5	1.7	5	silty SAND to sandy SILT	120	4.0	16	14	52	41	-	16
13.94	38.8	43.3	95.2	0.7	-0.5	1.9	5	silty SAND to sandy SILT	120	4.0	11	10	39	39	-	16
14.11	27.1	30.1	90.9	0.6	-2.5	2.2	4	clayy SILT to silty CLAY	115	2.0	15	14	-	-	1.9	15
14.27	16.4	21.4	-	0.5	-5.6	3.3	4	clayy SILT to silty CLAY	115	2.0	11	8	-	-	1.1	15
14.44	9.2	12.0	-	0.4	-7.6	4.2	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
14.60	5.3	6.8	-	0.2	-8.1	5.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.3	15
14.76	4.4	5.6	-	0.2	-8.0	5.2	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
14.93	4.2	5.3	-	0.2	-7.4	5.5	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.09	3.9	4.9	-	0.2	-6.8	6.8	2	Organic SOILS - Peats	100	1.0	5	4	-	-	0.4	10
15.26	3.8	4.8	-	0.2	-6.3	7.3	2	Organic SOILS - Peats	100	1.0	5	4	-	-	0.3	10
15.42	3.3	4.1	-	0.2	-2.0	9.7	2	Organic SOILS - Peats	100	1.0	4	3	-	-	0.3	10
15.58	3.4	4.3	-	0.3	-1.3	9.9	2	Organic SOILS - Peats	100	1.0	4	3	-	-	0.3	10
15.75	3.6	4.5	-	0.3	-0.7	9.9	2	Organic SOILS - Peats	100	1.0	5	4	-	-	0.3	10
15.91	3.8	4.8	-	0.3	-0.2	9.9	2	Organic SOILS - Peats	100	1.0	5	4	-	-	0.3	10
16.08	3.8	4.7	-	0.3	0.3	9.1	2	Organic SOILS - Peats	100	1.0	5	4	-	-	0.3	10
16.24	3.6	4.5	-	0.2	0.7	8.1	2	Organic SOILS - Peats	100	1.0	4	4	-	-	0.3	10
16.40	3.5	4.3	-	0.2	1.3	8.1	2	Organic SOILS - Peats	100	1.0	4	3	-	-	0.3	10
16.57	3.6	4.5	-	0.2	1.8	8.7	2	Organic SOILS - Peats	100	1.0	4	4	-	-	0.3	10
16.73	5.2	6.3	-	0.2	2.5	5.5	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
16.90	11.2	13.6	-	0.2	1.7	2.4	4	clayy SILT to silty CLAY	115	2.0	7	6	-	-	0.8	15
17.06	15.9	19.2	-	0.3	-0.4	1.9	4	clayy SILT to silty CLAY	115	2.0	10	8	-	-	1.1	15
17.23	17.9	21.5	-	0.4	-0.1	2.2	4	clayy SILT to silty CLAY	115	2.0	11	9	-	-	1.2	15
17.39	15.1	18.0	-	0.3	0.6	2.5	4	clayy SILT to silty CLAY	115	2.0	9	8	-	-	1.0	15
17.55	16.9	20.1	-	0.4	-2.4	2.2	4	clayy SILT to silty CLAY	115	2.0	10	8	-	-	1.2	15
17.72	13.4	15.9	-	0.4	-4.5	3.2	3	silty CLAY to CLAY	115	1.5	11	9	-	-	0.9	15
17.88	9.8	11.5	-	0.4	-4.7	4.5	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
18.05	6.3	7.4	-	0.4	-4.8	6.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
18.21	5.2	6.0	-	0.2	-4.4	5.5	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
18.37	4.8	5.6	-	0.2	-3.9	5.6	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
18.54	4.5	5.2	-	0.3	5.1	7.9	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.4	10
18.70	7.2	8.3	-	0.3	5.6	4.6	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
18.87	24.4	25.4	68.3	0.3	2.2	1.3	5	silty SAND to sandy SILT	120	4.0	6	6	22	35	-	16
19.03	31.7	32.8	73.0	0.4	-1.7	1.3	5	silty SAND to sandy SILT	120	4.0	8	8	30	37	-	16
19.19	33.2	34.3	80.7	0.5	-2.1	1.6	5	silty SAND to sandy SILT	120	4.0	9	8	32	37	-	16
19.36	26.6	27.4	87.1	0.6	-2.0	2.2	4	clayy SILT to silty CLAY	115	2.0	14	13	-	-	1.8	15
19.52	15.5	17.3	-	0.5	-1.4	3.5	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.1	15
19.69	9.0	10.0	-	0.4	-2.3	5.4	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
19.85	7.7	8.5	-	0.3	-1.5	5.4	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
20.01	5.3	5.9	-	0.3	-0.3	7.8	2	Organic SOILS - Peats	100	1.0	6	5	-	-	0.5	10
20.18	4.7	5.2	-	0.3	1.2	7.9	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.4	10
20.34	4.8	5.3	-	0.3	1.8	7.8	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.4	10
20.51	9.0	9.8	-	0.3	2.3	4.3	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
20.67	12.5	13.5	-	0.3	1.6	3.1	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
20.83	13.1	14.2	-	0.4	1.9	3.0	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
21.00	7.7	8.3	-	0.3	1.4	5.4	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(427).cpt
CPT Date: 11/20/2008 12:05:03 PM
GW During Test: 12 ft

Sounding ID: CPT-08-35
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	6.1	6.5	-	0.3	2.7	7.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.33	6.5	7.0	-	0.3	4.4	6.2	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
21.49	6.5	6.9	-	0.3	6.6	6.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
21.65	5.5	5.8	-	0.3	7.5	6.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
21.82	4.9	5.2	-	0.2	8.8	6.2	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
21.98	4.9	5.2	-	0.2	13.1	6.6	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
22.15	5.0	5.2	-	0.2	13.9	6.7	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
22.31	4.9	5.1	-	0.3	14.2	7.2	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
22.47	4.8	5.0	-	0.3	15.1	7.5	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.4	10
22.64	4.9	5.0	-	0.3	16.2	7.4	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.4	10
22.80	4.9	5.0	-	0.2	17.1	7.0	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.4	10
22.97	5.0	5.1	-	0.3	17.4	6.9	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
23.13	5.1	5.3	-	0.3	18.1	7.3	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
23.30	5.4	5.5	-	0.3	18.4	6.9	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
23.46	5.5	5.6	-	0.3	18.1	6.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
23.62	5.5	5.6	-	0.3	17.8	6.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
23.79	5.3	5.4	-	0.3	17.0	7.0	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
23.95	5.3	5.4	-	0.3	18.1	6.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
24.12	5.6	5.7	-	0.3	19.5	6.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
24.28	7.3	7.2	-	0.3	19.8	5.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.44	7.1	7.1	-	0.3	12.2	5.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.61	5.8	5.7	-	0.4	11.6	8.3	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.5	10
24.77	5.9	5.8	-	0.4	14.3	8.5	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.5	10
24.94	16.3	16.0	-	0.5	17.4	3.3	3	silty CLAY to CLAY	115	1.5	11	11	-	-	1.1	15
25.10	51.2	49.2	90.6	0.7	-2.7	1.5	5	silty SAND to sandy SILT	120	4.0	12	13	44	38	-	16
25.26	59.2	56.8	99.4	0.9	-4.5	1.6	5	silty SAND to sandy SILT	120	4.0	14	15	48	39	-	16
25.43	58.7	56.2	105.1	1.0	-3.6	1.8	5	silty SAND to sandy SILT	120	4.0	14	15	48	39	-	16
25.59	61.7	58.9	100.7	0.9	-2.4	1.6	5	silty SAND to sandy SILT	120	4.0	15	15	50	39	-	16
25.76	66.2	63.0	103.7	1.0	-2.0	1.5	5	silty SAND to sandy SILT	120	4.0	16	17	52	40	-	16
25.92	69.5	66.0	105.3	1.0	0.0	1.5	5	silty SAND to sandy SILT	120	4.0	17	17	53	40	-	16
26.08	76.5	72.5	110.7	1.1	0.8	1.5	5	silty SAND to sandy SILT	120	4.0	18	19	56	40	-	16
26.25	81.8	77.4	117.0	1.3	1.2	1.6	5	silty SAND to sandy SILT	120	4.0	19	20	59	41	-	16
26.41	89.7	84.6	125.4	1.5	1.1	1.7	5	silty SAND to sandy SILT	120	4.0	21	22	61	41	-	16
26.58	101.7	95.7	134.0	1.6	1.1	1.6	5	silty SAND to sandy SILT	120	4.0	24	25	66	42	-	16
26.74	113.2	106.4	143.2	1.8	0.8	1.6	5	silty SAND to sandy SILT	120	4.0	27	28	69	42	-	16
26.90	123.4	115.7	152.8	2.0	0.7	1.7	6	clean SAND to silty SAND	125	5.0	23	25	72	43	-	16
27.07	129.1	120.8	160.1	2.2	0.9	1.7	5	silty SAND to sandy SILT	120	4.0	30	32	73	43	-	16
27.23	128.7	120.1	163.5	2.4	1.2	1.9	5	silty SAND to sandy SILT	120	4.0	30	32	73	43	-	16
27.40	125.0	116.4	161.6	2.4	1.5	1.9	5	silty SAND to sandy SILT	120	4.0	29	31	72	43	-	16
27.56	123.2	114.5	160.5	2.4	1.6	1.9	5	silty SAND to sandy SILT	120	4.0	29	31	71	43	-	16
27.72	122.6	113.7	162.0	2.4	1.7	2.0	5	silty SAND to sandy SILT	120	4.0	28	31	71	43	-	16
27.89	116.9	108.2	160.8	2.5	1.7	2.1	5	silty SAND to sandy SILT	120	4.0	27	29	70	42	-	16
28.05	99.6	92.0	150.8	2.3	1.8	2.3	5	silty SAND to sandy SILT	120	4.0	23	25	64	41	-	16
28.22	88.2	81.3	139.4	1.9	2.2	2.2	5	silty SAND to sandy SILT	120	4.0	20	22	60	41	-	16
28.38	86.4	79.4	123.1	1.5	1.0	1.7	5	silty SAND to sandy SILT	120	4.0	20	22	59	41	-	16
28.54	81.3	74.5	118.9	1.4	-2.0	1.7	5	silty SAND to sandy SILT	120	4.0	19	20	57	40	-	16
28.71	81.2	74.4	116.2	1.3	1.3	1.6	5	silty SAND to sandy SILT	120	4.0	19	20	57	40	-	16
28.87	96.6	88.2	119.6	1.3	-1.0	1.3	5	silty SAND to sandy SILT	120	4.0	22	24	63	41	-	16
29.04	110.5	100.7	125.9	1.3	-1.2	1.2	6	clean SAND to silty SAND	125	5.0	20	22	67	42	-	16
29.20	113.3	103.0	130.4	1.4	-0.2	1.3	6	clean SAND to silty SAND	125	5.0	21	23	68	42	-	16
29.36	105.2	95.5	125.6	1.4	0.9	1.3	6	clean SAND to silty SAND	125	5.0	19	21	65	42	-	16
29.53	85.2	77.2	117.5	1.3	1.6	1.6	5	silty SAND to sandy SILT	120	4.0	19	21	58	40	-	16
29.69	65.6	59.3	115.7	1.3	2.2	2.1	5	silty SAND to sandy SILT	120	4.0	15	16	50	39	-	16
29.86	37.4	32.2	-	1.2	2.4	3.3	4	clayy SILT to silty CLAY	115	2.0	16	19	-	-	2.6	15
30.02	17.9	15.4	-	0.8	5.7	4.8	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.2	15
30.19	12.7	10.8	-	0.4	9.2	3.9	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
30.35	10.3	8.8	-	0.4	15.5	4.6	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
30.51	10.1	8.6	-	0.5	19.8	5.7	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
30.68	9.4	7.9	-	0.5	16.9	6.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.84	9.5	8.0	-	0.5	19.6	5.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.01	9.8	8.2	-	0.4	20.6	4.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
31.17	9.8	8.2	-	0.4	21.4	5.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
31.33	9.8	8.1	-	0.7	24.8	8.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
31.50	7.8	6.5	-	0.9	31.2	9.9	2	Organic SOILS - Peats	100	1.0	6	8	-	-	0.7	10

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(427).cpt
CPT Date: 11/20/2008 12:05:03 PM
GW During Test: 12 ft

Sounding ID: CPT-08-35
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	11.7	9.7	-	0.8	27.6	8.0	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
31.83	11.0	9.1	-	0.7	31.0	7.8	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
31.99	10.4	8.6	-	0.7	33.3	8.7	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.15	10.3	8.4	-	0.7	36.0	8.5	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.32	10.3	8.4	-	0.7	32.9	7.8	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.48	9.9	8.1	-	0.7	43.9	9.0	2	Organic SOILS - Peats	100	1.0	8	10	-	-	0.9	10
32.65	10.8	8.8	-	0.9	36.6	9.8	2	Organic SOILS - Peats	100	1.0	9	11	-	-	1.0	10
32.81	11.3	9.2	-	0.8	36.1	8.5	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
32.97	13.1	10.6	-	0.7	26.9	6.3	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
33.14	11.1	8.9	-	0.6	21.4	6.8	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
33.30	10.3	8.3	-	0.7	26.3	8.2	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
33.47	10.8	8.6	-	0.8	33.9	9.3	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
33.63	11.5	9.2	-	1.0	35.7	9.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
33.79	11.9	9.5	-	1.1	32.9	9.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
33.96	19.6	15.5	-	1.0	24.0	5.5	3	silty CLAY to CLAY	115	1.5	10	13	-	-	1.3	15
34.12	57.6	49.7	102.0	1.0	0.3	1.9	5	silty SAND to sandy SILT	120	4.0	12	14	44	37	-	16
34.29	69.2	59.6	104.2	1.1	-2.7	1.7	5	silty SAND to sandy SILT	120	4.0	15	17	50	38	-	16
34.45	69.3	59.5	105.9	1.2	1.4	1.7	5	silty SAND to sandy SILT	120	4.0	15	17	50	38	-	16
34.61	75.7	65.0	114.0	1.4	2.0	1.8	5	silty SAND to sandy SILT	120	4.0	16	19	53	39	-	16
34.78	96.2	82.3	125.3	1.6	0.0	1.7	5	silty SAND to sandy SILT	120	4.0	21	24	61	40	-	16
34.94	112.6	96.2	145.9	2.2	0.3	2.0	5	silty SAND to sandy SILT	120	4.0	24	28	66	41	-	16
35.11	121.5	103.6	160.0	2.7	0.8	2.2	5	silty SAND to sandy SILT	120	4.0	26	30	68	41	-	16
35.27	128.9	109.8	170.4	3.0	0.9	2.4	5	silty SAND to sandy SILT	120	4.0	27	32	70	42	-	16
35.43	134.9	114.6	176.9	3.3	0.8	2.5	5	silty SAND to sandy SILT	120	4.0	29	34	71	42	-	16
35.60	143.0	121.3	181.4	3.4	0.7	2.4	5	silty SAND to sandy SILT	120	4.0	30	36	73	42	-	16
35.76	149.9	126.9	185.6	3.5	0.8	2.4	5	silty SAND to sandy SILT	120	4.0	32	37	75	42	-	16
35.93	154.7	130.7	187.5	3.5	0.5	2.3	5	silty SAND to sandy SILT	120	4.0	33	39	76	43	-	16
36.09	155.5	131.2	187.8	3.6	0.7	2.3	5	silty SAND to sandy SILT	120	4.0	33	39	76	43	-	16
36.26	163.0	137.3	196.0	3.9	0.9	2.4	5	silty SAND to sandy SILT	120	4.0	34	41	77	43	-	16
36.42	181.3	152.4	210.8	4.3	0.4	2.4	5	silty SAND to sandy SILT	120	4.0	38	45	81	43	-	16
36.58	186.2	156.3	212.2	4.3	-0.2	2.3	5	silty SAND to sandy SILT	120	4.0	39	47	82	43	-	16
36.75	179.9	150.7	204.5	4.0	-0.3	2.3	5	silty SAND to sandy SILT	120	4.0	38	45	81	43	-	16
36.91	171.6	143.5	194.3	3.7	-0.9	2.2	5	silty SAND to sandy SILT	120	4.0	36	43	79	43	-	16
37.08	169.5	141.5	189.0	3.4	-1.5	2.1	5	silty SAND to sandy SILT	120	4.0	35	42	78	43	-	16
37.24	162.4	135.3	187.1	3.5	-3.1	2.2	5	silty SAND to sandy SILT	120	4.0	34	41	77	43	-	16
37.40	147.4	122.6	178.6	3.3	-3.2	2.3	5	silty SAND to sandy SILT	120	4.0	31	37	74	42	-	16
37.57	126.0	104.6	167.6	3.0	-2.6	2.5	5	silty SAND to sandy SILT	120	4.0	26	32	68	41	-	16
37.73	98.0	81.2	150.8	2.5	-2.2	2.6	5	silty SAND to sandy SILT	120	4.0	20	24	60	40	-	16
37.90	67.8	56.1	144.9	2.2	-1.7	3.4	4	clayy SILT to silty CLAY	115	2.0	28	34	-	-	4.7	15
38.06	38.4	27.8	-	1.8	-0.9	5.1	3	silty CLAY to CLAY	115	1.5	19	26	-	-	2.6	15
38.22	30.7	22.2	-	1.3	0.5	4.5	3	silty CLAY to CLAY	115	1.5	15	20	-	-	2.1	15
38.39	48.2	39.7	111.1	1.2	1.1	2.7	4	clayy SILT to silty CLAY	115	2.0	20	24	-	-	3.3	15
38.55	103.7	85.3	110.5	1.1	-0.8	1.1	6	clean SAND to silty SAND	125	5.0	17	21	62	40	-	16
38.72	96.8	79.5	114.1	1.3	-2.1	1.4	5	silty SAND to sandy SILT	120	4.0	20	24	59	40	-	16
38.88	78.7	64.5	131.1	1.9	1.3	2.5	5	silty SAND to sandy SILT	120	4.0	16	20	53	39	-	16
39.04	60.0	49.1	146.0	2.2	2.0	3.8	4	clayy SILT to silty CLAY	115	2.0	25	30	-	-	4.2	15
39.21	65.5	53.5	148.5	2.3	2.9	3.6	4	clayy SILT to silty CLAY	115	2.0	27	33	-	-	4.5	15
39.37	105.9	86.4	157.6	2.8	-2.7	2.7	5	silty SAND to sandy SILT	120	4.0	22	26	62	40	-	16
39.54	133.7	108.9	161.7	2.8	-4.2	2.1	5	silty SAND to sandy SILT	120	4.0	27	33	70	41	-	16
39.70	116.7	94.9	157.8	2.8	-4.6	2.4	5	silty SAND to sandy SILT	120	4.0	24	29	65	41	-	16
39.86	116.5	94.5	149.7	2.5	-3.6	2.2	5	silty SAND to sandy SILT	120	4.0	24	29	65	41	-	16
40.03	110.8	89.8	147.7	2.4	-6.7	2.3	5	silty SAND to sandy SILT	120	4.0	22	28	63	40	-	16
40.19	80.6	65.2	130.8	1.9	-8.9	2.4	5	silty SAND to sandy SILT	120	4.0	16	20	53	38	-	16
40.36	53.2	43.0	121.8	1.5	-8.7	3.0	4	clayy SILT to silty CLAY	115	2.0	21	27	-	-	3.7	15
40.52	48.1	38.8	109.9	1.2	-8.2	2.6	4	clayy SILT to silty CLAY	115	2.0	19	24	-	-	3.3	15
40.68	33.0	22.7	-	1.0	-8.6	3.3	4	clayy SILT to silty CLAY	115	2.0	11	17	-	-	2.3	15
40.85	25.7	17.6	-	1.0	-8.5	4.3	3	silty CLAY to CLAY	115	1.5	12	17	-	-	1.7	15
41.01	24.4	16.7	-	0.9	-8.2	4.3	3	silty CLAY to CLAY	115	1.5	11	16	-	-	1.6	15
41.18	25.0	17.1	-	0.9	-8.0	4.0	3	silty CLAY to CLAY	115	1.5	11	17	-	-	1.7	15
41.34	27.2	18.5	-	0.6	-7.9	2.4	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.8	15
41.50	27.6	18.7	-	0.7	-8.0	2.6	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.9	15
41.67	26.8	18.1	-	0.6	-4.5	2.6	4	clayy SILT to silty CLAY	115	2.0	9	13	-	-	1.8	15
41.83	20.3	13.7	-	0.6	-5.4	3.2	3	silty CLAY to CLAY	115	1.5	9	14	-	-	1.4	15
42.00	19.4	13.0	-	0.6	-4.9	3.4	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(427).cpt
CPT Date: 11/20/2008 12:05:03 PM
GW During Test: 12 ft

Sounding ID: CPT-08-35
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	18.9	12.7	-	0.6	-4.5	3.9	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
42.32	22.4	15.0	-	0.7	-4.2	3.6	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.5	15
42.49	23.8	15.9	-	0.8	-4.1	3.6	3	silty CLAY to CLAY	115	1.5	11	16	-	-	1.6	15
42.65	23.7	15.7	-	0.9	-4.2	4.0	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.6	15
42.82	25.6	16.9	-	0.9	-4.2	3.9	3	silty CLAY to CLAY	115	1.5	11	17	-	-	1.7	15
42.98	27.6	18.2	-	0.8	-5.0	3.2	3	silty CLAY to CLAY	115	1.5	12	18	-	-	1.9	15
43.15	31.7	20.9	-	0.7	-6.0	2.4	4	clayy SILT to silty CLAY	115	2.0	10	16	-	-	2.2	15
43.31	21.5	14.1	-	0.6	-7.1	3.3	3	silty CLAY to CLAY	115	1.5	9	14	-	-	1.4	15
43.47	12.8	8.4	-	0.6	-6.9	5.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
43.64	12.1	7.9	-	0.6	-6.2	6.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
43.80	12.8	8.3	-	0.6	-5.9	6.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
43.97	15.1	9.8	-	0.7	-5.7	5.3	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
44.13	13.7	8.9	-	0.7	-5.6	6.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
44.29	14.9	9.6	-	0.6	-5.3	5.2	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
44.46	14.5	9.3	-	0.7	-5.2	5.7	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
44.62	14.8	9.5	-	0.7	-4.8	5.5	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
44.79	16.0	10.2	-	0.7	-4.6	5.1	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
44.95	13.9	8.9	-	0.7	-2.3	6.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
45.11	14.2	9.1	-	0.7	-1.7	5.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
45.28	14.8	9.4	-	0.7	-1.4	5.9	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
45.44	14.1	8.9	-	0.8	-1.1	6.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
45.61	16.0	10.1	-	0.9	-0.8	6.8	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
45.77	22.9	14.4	-	1.1	-0.5	5.3	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.5	15
45.93	55.7	42.9	111.9	1.3	-1.3	2.5	5	silty SAND to sandy SILT	120	4.0	11	14	39	36	-	16
46.10	61.3	47.1	115.1	1.5	-2.3	2.5	5	silty SAND to sandy SILT	120	4.0	12	15	42	36	-	16
46.26	56.2	43.1	115.6	1.4	-1.9	2.7	4	clayy SILT to silty CLAY	115	2.0	22	28	-	-	3.9	15
46.43	40.4	25.2	-	1.4	-2.2	3.7	4	clayy SILT to silty CLAY	115	2.0	13	20	-	-	2.8	15
46.59	28.9	18.0	-	1.2	-1.7	4.5	3	silty CLAY to CLAY	115	1.5	12	19	-	-	2.0	15
46.75	47.1	36.0	103.6	1.1	-1.4	2.5	4	clayy SILT to silty CLAY	115	2.0	18	24	-	-	3.2	15
46.92	62.4	47.6	103.0	1.2	-4.7	2.0	5	silty SAND to sandy SILT	120	4.0	12	16	43	36	-	16
47.08	50.4	31.0	-	1.4	-5.6	2.8	4	clayy SILT to silty CLAY	115	2.0	16	25	-	-	3.5	15
47.25	34.4	21.1	-	1.2	-5.7	3.9	3	silty CLAY to CLAY	115	1.5	14	23	-	-	2.3	15
47.41	22.1	13.5	-	1.1	-5.5	5.8	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.5	15
47.57	43.1	26.3	-	1.4	-4.4	3.5	4	clayy SILT to silty CLAY	115	2.0	13	22	-	-	2.9	15
47.74	84.3	63.9	143.9	2.4	-4.7	3.0	5	silty SAND to sandy SILT	120	4.0	16	21	52	38	-	16
47.90	98.2	74.3	162.2	3.1	-4.6	3.3	4	clayy SILT to silty CLAY	115	2.0	37	49	-	-	6.8	15
48.07	179.8	136.0	168.3	2.7	-5.8	1.6	6	clean SAND to silty SAND	125	5.0	27	36	77	42	-	16
48.23	199.3	150.5	186.2	3.4	-7.7	1.7	6	clean SAND to silty SAND	125	5.0	30	40	80	42	-	16
48.39	198.0	149.3	186.7	3.4	-6.2	1.8	6	clean SAND to silty SAND	125	5.0	30	40	80	42	-	16
48.56	190.0	143.0	184.3	3.5	-5.7	1.9	6	clean SAND to silty SAND	125	5.0	29	38	79	42	-	16
48.72	168.2	126.4	177.8	3.5	-5.2	2.1	5	silty SAND to sandy SILT	120	4.0	32	42	75	42	-	16
48.89	135.8	101.9	169.8	3.5	-4.9	2.6	5	silty SAND to sandy SILT	120	4.0	25	34	68	40	-	16
49.05	88.4	66.2	171.9	3.4	-4.5	4.0	4	clayy SILT to silty CLAY	115	2.0	33	44	-	-	6.1	15
49.22	45.8	27.2	-	2.6	-4.0	6.1	3	silty CLAY to CLAY	115	1.5	18	31	-	-	3.1	15
49.38	28.0	16.6	-	1.6	-3.0	6.4	3	silty CLAY to CLAY	115	1.5	11	19	-	-	1.9	15
49.54	24.0	14.2	-	1.0	-0.7	4.9	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
49.71	29.0	17.1	-	1.1	1.8	4.2	3	silty CLAY to CLAY	115	1.5	11	19	-	-	1.9	15
49.87	81.6	60.8	125.2	1.9	4.0	2.4	5	silty SAND to sandy SILT	120	4.0	15	20	51	37	-	16
50.04	57.1	33.4	-	2.1	0.4	3.9	4	clayy SILT to silty CLAY	115	2.0	17	29	-	-	3.9	15
50.20	47.6	27.8	-	1.8	0.5	4.0	4	clayy SILT to silty CLAY	115	2.0	14	24	-	-	3.3	15
50.36	60.1	44.6	119.3	1.6	1.2	2.8	4	clayy SILT to silty CLAY	115	2.0	22	30	-	-	4.1	15
50.53	71.7	53.1	125.8	1.8	-1.1	2.7	5	silty SAND to sandy SILT	120	4.0	13	18	46	37	-	16
50.69	62.5	36.2	-	2.0	-0.4	3.3	4	clayy SILT to silty CLAY	115	2.0	18	31	-	-	4.3	15
50.86	79.5	58.7	135.3	2.2	0.0	2.8	5	silty SAND to sandy SILT	120	4.0	15	20	49	37	-	16
51.02	106.5	78.6	136.8	2.3	-3.6	2.2	5	silty SAND to sandy SILT	120	4.0	20	27	59	39	-	16
51.18	175.3	129.1	173.9	3.3	-6.4	1.9	5	silty SAND to sandy SILT	120	4.0	32	44	75	41	-	16
51.35	187.0	137.6	199.3	4.6	-3.4	2.5	5	silty SAND to sandy SILT	120	4.0	34	47	78	42	-	16
51.51	192.0	141.0	211.4	5.2	-5.5	2.7	5	silty SAND to sandy SILT	120	4.0	35	48	78	42	-	16
51.68	195.3	143.3	218.5	5.5	-5.2	2.9	5	silty SAND to sandy SILT	120	4.0	36	49	79	42	-	16
51.84	198.5	145.5	223.0	5.8	-4.9	2.9	5	silty SAND to sandy SILT	120	4.0	36	50	79	42	-	16
52.00	212.4	155.4	228.8	5.9	-4.5	2.8	5	silty SAND to sandy SILT	120	4.0	39	53	82	42	-	16
52.17	207.6	151.7	228.3	6.0	-4.2	2.9	5	silty SAND to sandy SILT	120	4.0	38	52	81	42	-	16
52.33	194.6	142.0	219.7	5.7	-4.0	3.0	5	silty SAND to sandy SILT	120	4.0	36	49	79	42	-	16
52.50	173.1	126.2	207.9	5.2	-3.7	3.1	5	silty SAND to sandy SILT	120	4.0	32	43	75	41	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(427).cpt
CPT Date: 11/20/2008 12:05:03 PM
GW During Test: 12 ft

Sounding ID: CPT-08-35
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	156.4	113.8	193.8	4.6	-3.5	3.0	5	silty SAND to sandy SILT	120	4.0	28	39	71	41	-	16
52.82	147.7	107.3	184.5	4.2	-3.1	2.9	5	silty SAND to sandy SILT	120	4.0	27	37	69	40	-	16
52.99	147.0	106.7	175.7	3.8	-2.7	2.6	5	silty SAND to sandy SILT	120	4.0	27	37	69	40	-	16
53.15	143.7	104.1	174.6	3.8	-2.4	2.7	5	silty SAND to sandy SILT	120	4.0	26	36	68	40	-	16
53.32	120.5	87.2	170.6	3.6	-2.4	3.1	5	silty SAND to sandy SILT	120	4.0	22	30	62	39	-	16
53.48	77.0	42.7	-	3.1	-2.2	4.2	4	clayy SILT to silty CLAY	115	2.0	21	38	-	-	5.3	15
53.64	47.6	26.3	-	2.3	-1.8	5.1	3	silty CLAY to CLAY	115	1.5	18	32	-	-	3.3	15
53.81	36.4	20.1	-	2.0	-0.4	5.9	3	silty CLAY to CLAY	115	1.5	13	24	-	-	2.5	15
53.97	94.6	68.2	149.3	2.8	1.9	3.0	5	silty SAND to sandy SILT	120	4.0	17	24	54	38	-	16
54.14	91.4	65.8	159.5	3.1	0.8	3.5	4	clayy SILT to silty CLAY	115	2.0	33	46	-	-	6.4	15
54.30	86.5	62.1	163.4	3.2	1.1	3.8	4	clayy SILT to silty CLAY	115	2.0	31	43	-	-	6.0	15
54.46	119.4	85.7	159.1	3.2	0.4	2.8	5	silty SAND to sandy SILT	120	4.0	21	30	62	39	-	16
54.63	137.3	98.4	170.0	3.6	-4.6	2.7	5	silty SAND to sandy SILT	120	4.0	25	34	66	40	-	16
54.79	144.4	103.4	168.0	3.5	-5.4	2.5	5	silty SAND to sandy SILT	120	4.0	26	36	68	40	-	16
54.96	150.8	107.8	171.9	3.7	-5.1	2.5	5	silty SAND to sandy SILT	120	4.0	27	38	69	40	-	16
55.12	133.1	95.1	179.0	4.0	-3.1	3.1	5	silty SAND to sandy SILT	120	4.0	24	33	65	40	-	16
55.28	148.2	105.7	180.5	4.1	-3.1	2.8	5	silty SAND to sandy SILT	120	4.0	26	37	69	40	-	16
55.45	143.3	102.1	168.2	3.6	-3.2	2.5	5	silty SAND to sandy SILT	120	4.0	26	36	68	40	-	16
55.61	131.4	93.5	156.0	3.1	-4.7	2.4	5	silty SAND to sandy SILT	120	4.0	23	33	65	39	-	16
55.78	96.1	68.3	145.2	2.7	-5.9	2.9	5	silty SAND to sandy SILT	120	4.0	17	24	54	38	-	16
55.94	67.1	35.8	-	2.3	-5.4	3.6	4	clayy SILT to silty CLAY	115	2.0	18	34	-	-	4.6	15
56.11	38.5	20.5	-	1.8	-5.0	5.0	3	silty CLAY to CLAY	115	1.5	14	26	-	-	2.6	15
56.27	23.9	12.7	-	1.6	9.4	7.8	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.6	15
56.43	23.4	12.4	-	1.4	13.1	7.1	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.5	15
56.60	86.6	61.2	119.5	1.8	16.2	2.1	5	silty SAND to sandy SILT	120	4.0	15	22	51	37	-	16
56.76	189.3	133.6	158.5	2.4	-4.4	1.3	6	clean SAND to silty SAND	125	5.0	27	38	77	41	-	16
56.93	266.8	188.0	208.1	3.5	-9.1	1.3	6	clean SAND to silty SAND	125	5.0	38	53	88	43	-	16
57.09	296.0	208.3	233.2	4.5	-10.0	1.5	6	clean SAND to silty SAND	125	5.0	42	59	91	44	-	16
57.25	302.9	212.9	240.9	4.9	-9.8	1.6	6	clean SAND to silty SAND	125	5.0	43	61	92	44	-	16
57.42	314.6	220.8	252.0	5.4	-9.5	1.7	6	clean SAND to silty SAND	125	5.0	44	63	93	44	-	16
57.58	323.0	226.3	260.5	5.8	-9.2	1.8	6	clean SAND to silty SAND	125	5.0	45	65	94	44	-	16
57.75	334.0	233.8	272.4	6.5	-8.9	2.0	6	clean SAND to silty SAND	125	5.0	47	67	95	44	-	16
57.91	356.7	249.3	293.8	7.6	-8.6	2.1	6	clean SAND to silty SAND	125	5.0	50	71	95	44	-	16
58.07	376.6	262.8	314.0	8.7	-8.2	2.3	6	clean SAND to silty SAND	125	5.0	53	75	95	45	-	16
58.24	382.6	266.7	317.2	8.8	-7.9	2.3	6	clean SAND to silty SAND	125	5.0	53	77	95	45	-	16
58.40	341.6	237.8	304.3	9.2	-7.5	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	22.5	16
58.57	390.4	271.5	320.3	8.8	-5.9	2.3	6	clean SAND to silty SAND	125	5.0	54	78	95	45	-	16
58.73	388.3	269.7	324.4	9.3	-5.6	2.4	6	clean SAND to silty SAND	125	5.0	54	78	95	45	-	16
58.89	387.7	268.9	322.5	9.2	-4.7	2.4	6	clean SAND to silty SAND	125	5.0	54	78	95	45	-	16
59.06	373.0	258.4	299.6	7.7	-4.4	2.1	6	clean SAND to silty SAND	125	5.0	52	75	95	45	-	16
59.22	362.4	250.7	284.5	6.7	-4.4	1.9	6	clean SAND to silty SAND	125	5.0	50	72	95	44	-	16
59.39	362.4	250.4	281.1	6.4	-4.2	1.8	6	clean SAND to silty SAND	125	5.0	50	72	95	44	-	16
59.55	334.4	230.7	259.6	5.6	-3.9	1.7	6	clean SAND to silty SAND	125	5.0	46	67	95	44	-	16
59.71	327.6	225.8	249.4	5.0	-3.8	1.5	6	clean SAND to silty SAND	125	5.0	45	66	94	44	-	16
59.88	328.5	226.1	250.5	5.1	-3.6	1.6	6	clean SAND to silty SAND	125	5.0	45	66	94	44	-	16
60.04	346.4	238.1	262.7	5.4	-3.3	1.6	6	clean SAND to silty SAND	125	5.0	48	69	95	44	-	16
60.21	357.5	245.4	278.6	6.5	-2.6	1.8	6	clean SAND to silty SAND	125	5.0	49	71	95	44	-	16
60.37	361.6	247.9	281.3	6.6	-2.1	1.8	6	clean SAND to silty SAND	125	5.0	50	72	95	44	-	16
60.53	357.5	244.8	275.3	6.2	-1.7	1.8	6	clean SAND to silty SAND	125	5.0	49	72	95	44	-	16
60.70	345.2	236.1	256.9	5.1	-1.7	1.5	6	clean SAND to silty SAND	125	5.0	47	69	95	44	-	16
60.86	330.6	225.8	236.5	3.9	-1.6	1.2	6	clean SAND to silty SAND	125	5.0	45	66	94	44	-	16
61.03	337.6	230.3	241.9	4.1	-1.4	1.2	6	clean SAND to silty SAND	125	5.0	46	68	95	44	-	16
61.19	339.3	231.2	230.6	3.3	-1.0	1.0	6	clean SAND to silty SAND	125	5.0	46	68	95	44	-	16
61.35	339.9	231.2	231.3	3.3	-1.1	1.0	6	clean SAND to silty SAND	125	5.0	46	68	95	44	-	16
61.52	334.4	227.3	232.3	3.5	1.0	1.1	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
61.68	349.1	236.9	237.5	3.5	1.5	1.0	6	clean SAND to silty SAND	125	5.0	47	70	95	44	-	16
61.85	336.0	227.8	227.7	3.2	1.7	1.0	6	clean SAND to silty SAND	125	5.0	46	67	94	44	-	16
62.01	322.8	218.5	221.6	3.2	2.3	1.0	6	clean SAND to silty SAND	125	5.0	44	65	93	44	-	16
62.17	310.3	209.8	216.6	3.2	2.5	1.0	6	clean SAND to silty SAND	125	5.0	42	62	91	43	-	16
62.34	317.1	214.1	220.2	3.3	2.8	1.0	6	clean SAND to silty SAND	125	5.0	43	63	92	43	-	16
62.50	314.2	211.9	218.5	3.3	3.2	1.0	6	clean SAND to silty SAND	125	5.0	42	63	92	43	-	16
62.67	311.3	209.7	216.7	3.2	3.6	1.0	6	clean SAND to silty SAND	125	5.0	42	62	91	43	-	16
62.83	306.5	206.2	214.4	3.2	3.9	1.1	6	clean SAND to silty SAND	125	5.0	41	61	91	43	-	16
63.00	307.4	206.6	213.9	3.2	4.2	1.0	6	clean SAND to silty SAND	125	5.0	41	61	91	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(427).cpt
CPT Date: 11/20/2008 12:05:03 PM
GW During Test: 12 ft

Sounding ID: CPT-08-35
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	303.6	203.7	209.2	3.0	4.5	1.0	6	clean SAND to silty SAND	125	5.0	41	61	90	43	-	16
63.32	298.6	200.1	202.0	2.6	4.7	0.9	6	clean SAND to silty SAND	125	5.0	40	60	90	43	-	16
63.49	312.7	209.3	209.3	2.4	5.0	0.8	6	clean SAND to silty SAND	125	5.0	42	63	91	43	-	16
63.65	319.6	213.7	213.7	2.6	5.2	0.8	6	clean SAND to silty SAND	125	5.0	43	64	92	43	-	16
63.82	333.0	222.4	222.4	2.5	5.5	0.8	6	clean SAND to silty SAND	125	5.0	44	67	93	44	-	16
63.98	333.0	222.1	222.1	3.0	5.6	0.9	6	clean SAND to silty SAND	125	5.0	44	67	93	44	-	16
64.14	311.1	207.2	218.7	3.5	5.4	1.1	6	clean SAND to silty SAND	125	5.0	41	62	91	43	-	16
64.31	260.2	173.1	201.3	3.9	4.3	1.5	6	clean SAND to silty SAND	125	5.0	35	52	85	42	-	16
64.47	211.3	140.4	174.4	3.4	3.9	1.6	6	clean SAND to silty SAND	125	5.0	28	42	78	41	-	16
64.64	288.2	191.3	191.3	2.1	0.0	0.8	6	clean SAND to silty SAND	125	5.0	38	58	88	43	-	16
64.80	305.7	202.7	202.7	1.5	-2.8	0.5	6	clean SAND to silty SAND	125	5.0	41	61	90	43	-	16
64.96	320.1	212.0	212.0	1.5	-2.8	0.5	6	clean SAND to silty SAND	125	5.0	42	64	92	43	-	16
65.13	315.4	208.6	208.6	1.2	-2.3	0.4	6	clean SAND to silty SAND	125	5.0	42	63	91	43	-	16
65.29	290.2	191.7	191.7	1.2	1.8	0.4	6	clean SAND to silty SAND	125	5.0	38	58	88	43	-	16
65.46	315.0	207.8	207.8	1.2	2.3	0.4	6	clean SAND to silty SAND	125	5.0	42	63	91	43	-	16
65.62	314.5	207.3	207.3	1.1	3.3	0.4	6	clean SAND to silty SAND	125	5.0	41	63	91	43	-	16
65.78	294.0	193.5	193.5	1.2	4.4	0.4	6	clean SAND to silty SAND	125	5.0	39	59	89	43	-	16
65.95	259.7	170.8	170.8	1.0	4.3	0.4	6	clean SAND to silty SAND	125	5.0	34	52	85	42	-	16
66.11	223.3	146.7	146.7	1.1	4.9	0.5	6	clean SAND to silty SAND	125	5.0	29	45	80	41	-	16
66.28	166.6	109.3	129.9	1.7	5.3	1.0	6	clean SAND to silty SAND	125	5.0	22	33	70	40	-	16
66.44	119.7	78.4	102.3	1.2	5.9	1.0	6	clean SAND to silty SAND	125	5.0	16	24	59	38	-	16
66.60	44.1	20.0	-	1.1	5.6	2.7	4	clayy SILT to silty CLAY	115	2.0	10	22	-	-	3.0	15
66.77	21.5	9.7	-	0.7	6.3	3.8	3	silty CLAY to CLAY	115	1.5	6	14	-	-	1.4	15
66.93	8.2	3.7	-	0.3	7.4	7.1	2	Organic SOILS - Peats	100	1.0	4	8	-	-	0.7	10
67.10	7.2	3.2	-	0.1	11.2	2.2	3	silty CLAY to CLAY	115	1.5	2	5	-	-	0.4	15
67.26	7.0	3.2	-	0.1	14.5	1.8	3	silty CLAY to CLAY	115	1.5	2	5	-	-	0.4	15
67.42	10.4	4.7	-	0.0	18.0	0.7	1	sensitive fine SOIL	115	2.0	2	5	-	-	0.6	15
67.59	11.8	5.3	-	0.0	14.9	0.1	1	sensitive fine SOIL	115	2.0	3	6	-	-	0.7	15
67.75	44.5	20.0	-	0.6	18.1	1.4	4	clayy SILT to silty CLAY	115	2.0	10	22	-	-	3.0	15
67.92	249.1	161.8	161.8	0.6	12.2	0.2	6	clean SAND to silty SAND	125	5.0	32	50	83	42	-	16
68.08	301.0	195.3	213.2	3.8	11.7	1.3	6	clean SAND to silty SAND	125	5.0	39	60	89	43	-	16
68.24	360.9	233.9	233.9	2.6	-1.4	0.7	6	clean SAND to silty SAND	125	5.0	47	72	95	44	-	16
68.41	326.4	211.3	211.3	2.5	1.5	0.8	6	clean SAND to silty SAND	125	5.0	42	65	92	43	-	16
68.57	373.2	241.3	253.8	4.8	1.0	1.3	6	clean SAND to silty SAND	125	5.0	48	75	95	44	-	16
68.74	409.2	264.3	264.3	3.8	-1.0	0.9	6	clean SAND to silty SAND	125	5.0	53	82	95	44	-	16
68.90	287.6	185.5	193.9	2.8	1.4	1.0	6	clean SAND to silty SAND	125	5.0	37	58	87	42	-	16
69.07	337.4	217.4	235.0	4.5	0.2	1.3	6	clean SAND to silty SAND	125	5.0	43	67	93	43	-	16
69.23	315.5	203.1	212.6	3.4	8.2	1.1	6	clean SAND to silty SAND	125	5.0	41	63	90	43	-	16
69.39	329.9	212.1	214.0	3.1	6.8	0.9	6	clean SAND to silty SAND	125	5.0	42	66	92	43	-	16
69.56	336.1	215.8	215.8	2.4	5.6	0.7	6	clean SAND to silty SAND	125	5.0	43	67	92	43	-	16
69.72	322.0	206.6	206.9	2.8	5.7	0.9	6	clean SAND to silty SAND	125	5.0	41	64	91	43	-	16
69.89	242.5	155.4	173.1	2.7	4.8	1.1	6	clean SAND to silty SAND	125	5.0	31	49	82	41	-	16
70.05	200.4	128.3	154.5	2.6	1.8	1.3	6	clean SAND to silty SAND	125	5.0	26	40	75	40	-	16
70.21	236.2	151.1	188.4	4.1	2.1	1.8	6	clean SAND to silty SAND	125	5.0	30	47	81	41	-	16
70.38	321.5	205.4	205.4	2.2	2.2	0.7	6	clean SAND to silty SAND	125	5.0	41	64	91	43	-	16
70.54	313.0	199.7	199.7	2.5	3.2	0.8	6	clean SAND to silty SAND	125	5.0	40	63	90	43	-	16
70.71	186.9	119.1	137.6	1.8	3.3	1.0	6	clean SAND to silty SAND	125	5.0	24	37	73	40	-	16
70.87	170.7	108.6	116.9	1.0	9.8	0.6	6	clean SAND to silty SAND	125	5.0	22	34	70	40	-	16
71.03	252.0	160.2	160.2	1.3	15.1	0.5	6	clean SAND to silty SAND	125	5.0	32	50	83	42	-	16
71.20	272.3	173.0	173.0	1.9	4.1	0.7	6	clean SAND to silty SAND	125	5.0	35	54	85	42	-	16
71.36	193.6	122.8	169.7	3.7	2.5	2.0	5	silty SAND to sandy SILT	120	4.0	31	48	74	40	-	16
71.53	66.3	28.2	-	2.6	5.3	4.2	3	silty CLAY to CLAY	115	1.5	19	44	-	-	4.5	15
71.69	34.3	14.6	-	1.8	9.0	6.1	3	silty CLAY to CLAY	115	1.5	10	23	-	-	2.3	15
71.85	24.1	10.2	-	1.3	16.2	6.6	3	silty CLAY to CLAY	115	1.5	7	16	-	-	1.6	15
72.02	18.1	7.7	-	0.7	37.9	4.7	3	silty CLAY to CLAY	115	1.5	5	12	-	-	1.1	15
72.18	15.9	6.7	-	0.2	52.8	1.9	3	silty CLAY to CLAY	115	1.5	4	11	-	-	1.0	15
72.35	12.5	5.3	-	0.2	65.0	2.7	3	silty CLAY to CLAY	115	1.5	4	8	-	-	0.7	15
72.51	12.0	5.1	-	0.2	76.0	3.0	3	silty CLAY to CLAY	115	1.5	3	8	-	-	0.7	15
72.67	12.9	5.4	-	0.1	83.0	1.5	3	silty CLAY to CLAY	115	1.5	4	9	-	-	0.8	15
72.84	13.2	5.5	-	2.6	82.5	9.9	2	Organic SOILS - Peats	100	1.0	6	13	-	-	1.2	10
73.00	128.4	80.8	137.0	2.7	18.2	2.1	5	silty SAND to sandy SILT	120	4.0	20	32	60	38	-	16
73.17	57.6	24.1	-	2.5	9.1	4.6	3	silty CLAY to CLAY	115	1.5	16	38	-	-	3.9	15
73.33	81.8	34.2	-	2.4	8.4	3.1	4	clayy SILT to silty CLAY	115	2.0	17	41	-	-	5.6	15
73.49	88.5	36.9	-	3.8	8.6	4.5	4	clayy SILT to silty CLAY	115	2.0	18	44	-	-	6.1	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(427).cpt
CPT Date: 11/20/2008 12:05:03 PM
GW During Test: 12 ft

Sounding ID: CPT-08-35
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
73.66	109.8	45.7	-	10.0	13.5	9.5	3	silty CLAY to CLAY	115	1.5	30	73	-	-	7.6	15
73.82	445.9	279.1	318.8	9.1	-2.4	2.1	6	clean SAND to silty SAND	125	5.0	56	89	95	44	-	16
73.99	711.2	444.7	444.7	8.6	6.0	1.2	6	clean SAND to silty SAND	125	5.0	89	100	95	46	-	16
74.15	674.7	421.4	421.4	7.1	10.8	1.1	6	clean SAND to silty SAND	125	5.0	84	100	95	46	-	16
74.31	781.0	487.3	487.3	5.5	2.8	0.7	7	grvly SAND to dense SAND	130	6.0	81	100	95	47	-	16
74.48	745.7	464.7	464.7	6.9	3.0	0.9	6	clean SAND to silty SAND	125	5.0	93	100	95	47	-	16
74.64	654.3	407.4	407.4	6.3	11.0	1.0	6	clean SAND to silty SAND	125	5.0	81	100	95	46	-	16
74.81	554.6	344.9	344.9	7.3	8.6	1.3	6	clean SAND to silty SAND	125	5.0	69	100	95	45	-	16
74.97	534.0	331.8	344.1	8.1	11.3	1.5	6	clean SAND to silty SAND	125	5.0	66	100	95	45	-	16
75.13	512.5	318.1	335.8	8.2	13.0	1.6	6	clean SAND to silty SAND	125	5.0	64	100	95	45	-	16
75.30	478.9	296.9	319.2	7.9	15.8	1.7	6	clean SAND to silty SAND	125	5.0	59	96	95	44	-	16
75.46	470.7	291.5	311.9	7.5	14.3	1.6	6	clean SAND to silty SAND	125	5.0	58	94	95	44	-	16
75.63	476.4	294.8	314.2	7.5	14.7	1.6	6	clean SAND to silty SAND	125	5.0	59	95	95	44	-	16
75.79	474.1	293.0	313.1	7.5	15.5	1.6	6	clean SAND to silty SAND	125	5.0	59	95	95	44	-	16
75.96	511.8	316.0	327.8	7.5	14.6	1.5	6	clean SAND to silty SAND	125	5.0	63	100	95	45	-	16
76.12	516.2	318.4	329.5	7.6	15.9	1.5	6	clean SAND to silty SAND	125	5.0	64	100	95	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(462).cpt
CPT Date: 12/4/2008 8:30:10 AM
GW During Test: 12 ft

Sounding ID: CPT-08-36
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	49.7	79.8	79.8	0.1	0.0	0.2	6	clean SAND to silty SAND	125	5.0	16	10	60	48	-	16
0.49	60.9	97.7	97.7	0.1	-0.1	0.2	6	clean SAND to silty SAND	125	5.0	20	12	66	48	-	16
0.66	70.9	113.7	113.7	0.3	0.0	0.4	6	clean SAND to silty SAND	125	5.0	23	14	71	48	-	16
0.82	73.2	117.4	120.8	0.4	0.0	0.5	6	clean SAND to silty SAND	125	5.0	23	15	72	48	-	16
0.98	61.0	97.8	110.1	0.4	0.0	0.7	6	clean SAND to silty SAND	125	5.0	20	12	66	48	-	16
1.15	49.3	79.1	98.4	0.4	0.0	0.9	6	clean SAND to silty SAND	125	5.0	16	10	59	48	-	16
1.31	43.2	69.3	89.1	0.4	0.0	0.8	6	clean SAND to silty SAND	125	5.0	14	9	55	48	-	16
1.48	37.5	60.1	81.1	0.3	0.0	0.8	6	clean SAND to silty SAND	125	5.0	12	7	50	47	-	16
1.64	35.5	56.9	80.2	0.3	0.0	0.9	5	silty SAND to sandy SILT	120	4.0	14	9	48	47	-	16
1.80	40.9	65.6	88.4	0.4	0.0	0.9	6	clean SAND to silty SAND	125	5.0	13	8	53	47	-	16
1.97	52.0	83.4	112.4	0.7	0.0	1.3	5	silty SAND to sandy SILT	120	4.0	21	13	61	47	-	16
2.13	55.1	88.4	140.4	1.1	0.0	2.1	5	silty SAND to sandy SILT	120	4.0	22	14	63	47	-	16
2.30	45.3	72.6	150.9	1.3	0.0	3.0	5	silty SAND to sandy SILT	120	4.0	18	11	56	46	-	16
2.46	40.8	65.5	148.9	1.3	-0.2	3.2	4	clayy SILT to silty CLAY	115	2.0	33	20	-	-	2.9	15
2.62	49.2	78.9	162.7	1.6	-0.5	3.2	5	silty SAND to sandy SILT	120	4.0	20	12	59	46	-	16
2.79	89.8	144.0	191.0	1.9	-2.0	2.1	5	silty SAND to sandy SILT	120	4.0	36	22	79	48	-	16
2.95	123.7	198.4	232.0	2.2	-2.5	1.8	6	clean SAND to silty SAND	125	5.0	40	25	90	48	-	16
3.12	113.2	181.6	229.1	2.4	-2.2	2.1	6	clean SAND to silty SAND	125	5.0	36	23	87	48	-	16
3.28	74.3	119.1	213.2	2.6	-1.9	3.5	5	silty SAND to sandy SILT	120	4.0	30	19	73	47	-	16
3.45	53.0	84.9	203.2	2.3	-1.3	4.4	4	clayy SILT to silty CLAY	115	2.0	42	26	-	-	3.7	15
3.61	36.8	59.1	183.9	1.8	-5.8	5.0	4	clayy SILT to silty CLAY	115	2.0	30	18	-	-	2.6	15
3.77	24.3	39.0	-	1.2	0.4	5.1	3	silty CLAY to CLAY	115	1.5	26	16	-	-	1.7	15
3.94	19.2	30.7	-	0.8	0.3	4.3	3	silty CLAY to CLAY	115	1.5	20	13	-	-	1.3	15
4.10	17.1	27.5	-	0.6	0.0	3.7	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
4.27	22.0	35.2	110.1	0.6	0.6	3.0	4	clayy SILT to silty CLAY	115	2.0	18	11	-	-	1.5	15
4.43	29.8	47.7	117.3	0.8	-0.1	2.7	5	silty SAND to sandy SILT	120	4.0	12	7	43	42	-	16
4.59	24.1	38.7	122.2	0.8	0.5	3.4	4	clayy SILT to silty CLAY	115	2.0	19	12	-	-	1.7	15
4.76	17.1	27.5	-	0.7	0.5	4.3	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.2	15
4.92	16.4	26.3	-	0.6	0.5	3.8	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.1	15
5.09	16.8	26.9	-	0.6	0.5	3.5	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.2	15
5.25	17.3	27.7	-	0.7	0.7	4.1	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
5.41	16.4	26.3	-	0.7	0.4	4.2	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.1	15
5.58	14.3	23.0	-	0.7	-0.4	4.7	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.0	15
5.74	13.0	20.9	-	0.6	-0.6	4.8	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
5.91	12.0	19.3	-	0.6	-2.0	5.0	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
6.07	12.4	19.9	-	0.6	-2.3	5.1	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
6.23	13.2	21.2	-	0.6	-0.9	4.7	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
6.40	12.7	20.4	-	0.5	-2.4	4.3	3	silty CLAY to CLAY	115	1.5	14	8	-	-	0.9	15
6.56	11.3	18.2	-	0.5	-1.7	4.7	3	silty CLAY to CLAY	115	1.5	12	8	-	-	0.8	15
6.73	10.9	17.4	-	0.5	-0.3	4.8	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.7	15
6.89	12.4	19.9	-	0.5	-0.2	4.3	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
7.05	12.5	20.0	-	0.5	0.2	4.3	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
7.22	11.4	18.2	-	0.6	0.2	5.2	3	silty CLAY to CLAY	115	1.5	12	8	-	-	0.8	15
7.38	11.1	17.9	-	0.6	0.0	6.0	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.8	15
7.55	12.6	20.2	-	0.6	0.3	5.1	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
7.71	14.2	22.7	-	0.7	0.3	5.0	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
7.87	15.1	24.2	-	0.7	-0.8	5.0	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
8.04	14.5	23.2	-	0.7	-1.6	4.8	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.0	15
8.20	13.4	21.5	-	0.6	-1.5	4.8	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
8.37	12.6	20.2	-	0.6	-1.3	5.1	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
8.53	12.5	20.0	-	0.6	0.2	5.1	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
8.69	11.2	18.0	-	0.6	0.2	5.3	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.8	15
8.86	11.6	18.6	-	0.6	0.2	5.7	3	silty CLAY to CLAY	115	1.5	12	8	-	-	0.8	15
9.02	14.1	22.5	-	0.7	0.1	5.3	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
9.19	13.7	21.9	-	0.8	0.2	5.7	3	silty CLAY to CLAY	115	1.5	15	9	-	-	0.9	15
9.35	12.6	20.2	-	0.7	0.2	5.7	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
9.51	11.9	19.1	-	0.7	0.2	5.7	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
9.68	11.7	18.8	-	0.6	0.2	5.1	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
9.84	11.7	18.8	-	0.5	0.2	4.4	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
10.01	12.7	20.4	-	0.6	0.2	4.7	3	silty CLAY to CLAY	115	1.5	14	8	-	-	0.9	15
10.17	13.4	21.6	-	0.5	-0.9	3.9	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
10.34	25.0	31.2	80.9	0.4	-0.5	1.7	5	silty SAND to sandy SILT	120	4.0	8	6	29	38	-	16
10.50	40.0	49.5	81.1	0.4	0.1	1.1	5	silty SAND to sandy SILT	120	4.0	12	10	44	41	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	48.5	59.5	88.9	0.5	0.2	1.1	5	silty SAND to sandy SILT	120	4.0	15	12	50	42	-	16
10.83	51.7	62.9	96.1	0.7	0.3	1.3	5	silty SAND to sandy SILT	120	4.0	16	13	52	42	-	16
10.99	51.1	61.8	98.3	0.7	0.3	1.4	5	silty SAND to sandy SILT	120	4.0	15	13	51	42	-	16
11.16	49.7	59.6	94.9	0.7	0.2	1.3	5	silty SAND to sandy SILT	120	4.0	15	12	50	42	-	16
11.32	46.9	55.8	88.8	0.6	0.2	1.2	5	silty SAND to sandy SILT	120	4.0	14	12	48	41	-	16
11.48	49.7	58.7	82.4	0.4	0.2	0.9	5	silty SAND to sandy SILT	120	4.0	15	12	49	41	-	16
11.65	51.9	60.9	83.0	0.4	0.3	0.8	6	clean SAND to silty SAND	125	5.0	12	10	51	42	-	16
11.81	49.3	57.4	79.3	0.4	0.3	0.8	6	clean SAND to silty SAND	125	5.0	11	10	49	41	-	16
11.98	44.7	51.6	79.3	0.4	0.3	1.0	5	silty SAND to sandy SILT	120	4.0	13	11	45	41	-	16
12.14	35.5	40.8	77.2	0.4	0.4	1.2	5	silty SAND to sandy SILT	120	4.0	10	9	37	39	-	16
12.30	32.8	37.7	79.8	0.5	-0.3	1.4	5	silty SAND to sandy SILT	120	4.0	9	8	35	39	-	16
12.47	31.7	36.3	83.7	0.5	-1.3	1.6	5	silty SAND to sandy SILT	120	4.0	9	8	34	39	-	16
12.63	32.1	36.6	83.5	0.5	-3.2	1.6	5	silty SAND to sandy SILT	120	4.0	9	8	34	39	-	16
12.80	28.4	32.2	84.1	0.5	-4.5	1.8	5	silty SAND to sandy SILT	120	4.0	8	7	30	38	-	16
12.96	24.8	28.1	84.5	0.5	-6.4	2.0	4	clayy SILT to silty CLAY	115	2.0	14	12	-	-	1.7	15
13.12	19.8	24.0	-	0.4	-9.0	2.3	4	clayy SILT to silty CLAY	115	2.0	12	10	-	-	1.4	15
13.29	13.4	18.0	-	0.4	-9.5	2.9	4	clayy SILT to silty CLAY	115	2.0	9	7	-	-	0.9	15
13.45	7.8	10.4	-	0.2	-9.4	3.3	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
13.62	6.3	8.4	-	0.1	-9.3	2.7	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
13.78	6.2	8.2	-	0.1	-9.1	2.4	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
13.94	5.9	7.8	-	0.2	-8.9	3.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.11	5.8	7.5	-	0.1	-8.8	3.0	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.27	5.7	7.4	-	0.1	-8.8	2.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.44	5.4	7.0	-	0.1	-8.7	2.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.3	15
14.60	5.3	6.8	-	0.1	-8.7	2.6	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.3	15
14.76	5.1	6.5	-	0.1	-8.6	2.7	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
14.93	5.2	6.7	-	0.1	-8.5	3.2	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.09	5.8	7.3	-	0.2	-8.5	3.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.26	5.9	7.4	-	0.2	-8.4	4.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.42	5.4	6.8	-	0.2	-8.2	4.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.3	15
15.58	5.5	6.8	-	0.2	-8.1	4.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.3	15
15.75	6.4	7.9	-	0.2	-8.0	4.0	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.91	6.5	8.0	-	0.2	-7.9	4.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.08	8.6	10.5	-	0.2	-7.9	3.1	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
16.24	19.3	23.6	-	0.4	-7.9	2.0	4	clayy SILT to silty CLAY	115	2.0	12	10	-	-	1.3	15
16.40	26.6	28.4	79.9	0.5	-8.0	1.8	5	silty SAND to sandy SILT	120	4.0	7	7	25	36	-	16
16.57	30.6	32.6	87.2	0.6	-8.1	1.9	5	silty SAND to sandy SILT	120	4.0	8	8	30	37	-	16
16.73	35.9	38.1	91.3	0.7	-8.2	1.9	5	silty SAND to sandy SILT	120	4.0	10	9	35	38	-	16
16.90	41.3	43.8	87.9	0.6	-8.2	1.6	5	silty SAND to sandy SILT	120	4.0	11	10	40	39	-	16
17.06	40.2	42.5	89.4	0.6	-8.7	1.7	5	silty SAND to sandy SILT	120	4.0	11	10	39	39	-	16
17.23	36.2	38.2	95.8	0.7	-9.0	2.1	5	silty SAND to sandy SILT	120	4.0	10	9	35	38	-	16
17.39	26.6	27.9	90.0	0.6	-9.1	2.3	4	clayy SILT to silty CLAY	115	2.0	14	13	-	-	1.8	15
17.55	15.0	17.5	-	0.6	-10.2	4.2	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.0	15
17.72	13.0	15.0	-	0.5	-4.4	4.5	3	silty CLAY to CLAY	115	1.5	10	9	-	-	0.9	15
17.88	14.8	17.1	-	0.4	-4.4	2.8	4	clayy SILT to silty CLAY	115	2.0	9	7	-	-	1.0	15
18.05	36.7	38.2	79.7	0.5	-5.1	1.4	5	silty SAND to sandy SILT	120	4.0	10	9	35	38	-	16
18.21	44.1	45.8	85.2	0.6	-5.7	1.4	5	silty SAND to sandy SILT	120	4.0	11	11	41	39	-	16
18.37	41.5	42.9	88.0	0.6	-5.6	1.6	5	silty SAND to sandy SILT	120	4.0	11	10	39	38	-	16
18.54	28.4	29.4	89.1	0.6	-5.3	2.2	4	clayy SILT to silty CLAY	115	2.0	15	14	-	-	2.0	15
18.70	22.0	24.7	-	0.5	-3.4	2.3	4	clayy SILT to silty CLAY	115	2.0	12	11	-	-	1.5	15
18.87	17.9	20.0	-	0.4	-4.7	2.2	4	clayy SILT to silty CLAY	115	2.0	10	9	-	-	1.2	15
19.03	14.3	15.9	-	0.3	-5.3	2.3	4	clayy SILT to silty CLAY	115	2.0	8	7	-	-	1.0	15
19.19	9.2	10.1	-	0.2	-5.7	2.4	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
19.36	6.8	7.5	-	0.1	-5.2	1.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
19.52	6.4	7.0	-	0.1	-4.6	1.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
19.69	6.1	6.7	-	0.1	-4.1	1.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
19.85	6.4	6.9	-	0.1	-3.6	1.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
20.01	15.4	15.5	45.9	0.1	-2.9	0.7	5	silty SAND to sandy SILT	120	4.0	4	4	6	32	-	16
20.18	19.1	19.2	56.3	0.2	-3.1	1.0	5	silty SAND to sandy SILT	120	4.0	5	5	13	33	-	16
20.34	15.8	16.3	-	0.2	-2.6	1.0	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.1	15
20.51	12.4	13.2	-	0.2	-1.9	1.4	4	clayy SILT to silty CLAY	115	2.0	7	6	-	-	0.8	15
20.67	14.6	15.5	-	0.1	0.9	1.0	4	clayy SILT to silty CLAY	115	2.0	8	7	-	-	1.0	15
20.83	9.7	10.3	-	0.1	0.1	1.5	4	clayy SILT to silty CLAY	115	2.0	5	5	-	-	0.6	15
21.00	6.6	7.0	-	0.1	2.4	1.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(462).cpt
CPT Date: 12/4/2008 8:30:10 AM
GW During Test: 12 ft

Sounding ID: CPT-08-36
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	6.4	6.7	-	0.1	4.1	2.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.33	6.6	6.8	-	0.1	5.2	2.4	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
21.49	7.0	7.3	-	0.1	6.1	2.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
21.65	7.2	7.4	-	0.2	6.9	2.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.82	6.9	7.1	-	0.1	7.6	2.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
21.98	6.7	6.9	-	0.1	8.4	2.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
22.15	7.2	7.4	-	0.2	13.2	3.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.31	7.1	7.2	-	0.2	11.8	4.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.47	7.4	7.4	-	0.2	11.9	3.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.64	7.5	7.6	-	0.2	12.6	3.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.80	7.7	7.7	-	0.2	14.4	3.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.97	7.9	7.9	-	0.2	15.0	3.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.13	8.1	8.0	-	0.2	15.5	3.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.30	8.0	7.9	-	0.2	15.9	3.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.46	8.2	8.0	-	0.2	16.1	3.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.62	8.5	8.3	-	0.2	16.3	2.9	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	15
23.79	8.5	8.3	-	0.2	17.0	2.2	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
23.95	8.3	8.1	-	0.1	18.1	2.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
24.12	7.6	7.4	-	0.1	19.9	1.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.28	7.9	7.6	-	0.1	21.0	2.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.44	21.3	20.3	41.6	0.1	18.0	0.4	5	silty SAND to sandy SILT	120	4.0	5	5	14	33	-	16
24.61	40.4	38.4	50.5	0.1	-2.7	0.3	6	clean SAND to silty SAND	125	5.0	8	8	35	37	-	16
24.77	47.5	45.0	60.5	0.2	-3.3	0.5	6	clean SAND to silty SAND	125	5.0	9	10	41	38	-	16
24.94	51.3	48.5	73.1	0.4	-2.7	0.8	5	silty SAND to sandy SILT	120	4.0	12	13	43	38	-	16
25.10	52.5	49.5	76.1	0.5	-2.2	0.9	5	silty SAND to sandy SILT	120	4.0	12	13	44	38	-	16
25.26	50.2	47.2	75.2	0.5	2.3	0.9	5	silty SAND to sandy SILT	120	4.0	12	13	42	38	-	16
25.43	46.5	43.6	77.2	0.5	2.6	1.1	5	silty SAND to sandy SILT	120	4.0	11	12	40	38	-	16
25.59	40.0	37.5	81.4	0.6	2.9	1.5	5	silty SAND to sandy SILT	120	4.0	9	10	35	37	-	16
25.76	29.2	27.1	-	0.7	3.2	2.4	4	clayy SILT to silty CLAY	115	2.0	14	15	-	-	2.0	15
25.92	17.8	16.4	-	0.5	2.7	3.4	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.2	15
26.08	13.2	12.1	-	0.4	1.9	3.1	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
26.25	26.5	24.6	73.0	0.4	4.1	1.6	4	clayy SILT to silty CLAY	115	2.0	12	13	-	-	1.8	15
26.41	27.9	25.9	70.6	0.4	3.7	1.4	5	silty SAND to sandy SILT	120	4.0	6	7	22	34	-	16
26.58	49.8	46.1	69.6	0.4	-1.3	0.8	5	silty SAND to sandy SILT	120	4.0	12	12	41	38	-	16
26.74	54.9	50.7	72.8	0.4	-1.4	0.8	5	silty SAND to sandy SILT	120	4.0	13	14	45	38	-	16
26.90	63.4	58.4	78.6	0.5	-0.9	0.7	6	clean SAND to silty SAND	125	5.0	12	13	49	39	-	16
27.07	62.2	57.2	82.4	0.6	-0.5	0.9	5	silty SAND to sandy SILT	120	4.0	14	16	49	39	-	16
27.23	50.8	46.6	80.9	0.6	-0.2	1.2	5	silty SAND to sandy SILT	120	4.0	12	13	42	38	-	16
27.40	37.4	34.2	82.6	0.6	0.2	1.6	5	silty SAND to sandy SILT	120	4.0	9	9	32	36	-	16
27.56	36.8	33.6	66.4	0.3	0.1	1.0	5	silty SAND to sandy SILT	120	4.0	8	9	31	36	-	16
27.72	22.0	20.1	59.8	0.2	-7.8	1.1	5	silty SAND to sandy SILT	120	4.0	5	6	14	32	-	16
27.89	10.6	9.3	-	0.2	-6.9	2.0	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
28.05	9.1	7.9	-	0.1	-5.8	0.9	4	clayy SILT to silty CLAY	115	2.0	4	5	-	-	0.6	15
28.22	8.9	7.8	-	0.1	-4.5	1.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.38	9.7	8.5	-	0.2	-2.8	2.4	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
28.54	9.3	8.1	-	0.3	7.4	3.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.71	8.8	7.6	-	0.3	11.7	4.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.87	12.8	11.0	-	0.2	14.9	1.7	4	clayy SILT to silty CLAY	115	2.0	5	6	-	-	0.8	15
29.04	18.5	15.8	-	0.3	11.0	1.7	4	clayy SILT to silty CLAY	115	2.0	8	9	-	-	1.2	15
29.20	15.5	13.2	-	0.3	7.3	1.9	4	clayy SILT to silty CLAY	115	2.0	7	8	-	-	1.0	15
29.36	25.0	22.4	60.6	0.2	6.5	1.1	5	silty SAND to sandy SILT	120	4.0	6	6	18	33	-	16
29.53	32.6	29.1	59.3	0.3	3.9	0.8	5	silty SAND to sandy SILT	120	4.0	7	8	26	35	-	16
29.69	40.4	36.0	62.4	0.3	-2.4	0.8	5	silty SAND to sandy SILT	120	4.0	9	10	33	36	-	16
29.86	40.0	35.6	70.0	0.4	-1.6	1.1	5	silty SAND to sandy SILT	120	4.0	9	10	33	36	-	16
30.02	33.5	29.8	72.9	0.4	-0.8	1.4	5	silty SAND to sandy SILT	120	4.0	7	8	27	35	-	16
30.19	30.5	27.0	79.4	0.5	0.1	1.8	4	clayy SILT to silty CLAY	115	2.0	14	15	-	-	2.1	15
30.35	36.4	32.2	70.0	0.4	-1.6	1.2	5	silty SAND to sandy SILT	120	4.0	8	9	30	35	-	16
30.51	54.4	48.0	74.7	0.5	-5.2	0.9	5	silty SAND to sandy SILT	120	4.0	12	14	43	37	-	16
30.68	59.2	52.1	78.9	0.5	-5.4	0.9	5	silty SAND to sandy SILT	120	4.0	13	15	45	38	-	16
30.84	55.3	48.6	77.4	0.5	-5.0	1.0	5	silty SAND to sandy SILT	120	4.0	12	14	43	38	-	16
31.01	45.4	39.8	73.5	0.5	-4.8	1.1	5	silty SAND to sandy SILT	120	4.0	10	11	37	36	-	16
31.17	30.8	27.0	69.4	0.4	-4.7	1.3	5	silty SAND to sandy SILT	120	4.0	7	8	24	34	-	16
31.33	16.9	13.7	-	0.4	-5.5	2.3	4	clayy SILT to silty CLAY	115	2.0	7	8	-	-	1.1	15
31.50	11.2	9.0	-	0.3	-5.1	3.1	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(462).cpt
CPT Date: 12/4/2008 8:30:10 AM
GW During Test: 12 ft

Sounding ID: CPT-08-36
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	10.1	8.1	-	0.3	-3.9	3.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
31.83	8.6	6.9	-	0.2	2.6	3.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
31.99	8.9	7.1	-	0.2	4.6	3.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
32.15	9.0	7.1	-	0.2	6.9	3.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
32.32	8.6	6.8	-	0.2	8.7	3.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
32.48	8.7	6.9	-	0.2	11.5	2.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
32.65	10.4	8.2	-	0.2	13.3	2.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
32.81	12.8	10.1	-	0.3	15.8	2.7	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.8	15
32.97	15.3	12.0	-	0.3	14.2	2.0	4	clayy SILT to silty CLAY	115	2.0	6	8	-	-	1.0	15
33.14	17.5	13.6	-	0.3	11.5	1.9	4	clayy SILT to silty CLAY	115	2.0	7	9	-	-	1.2	15
33.30	15.8	12.3	-	0.4	11.6	2.8	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.0	15
33.47	27.3	21.1	-	0.5	12.4	1.9	4	clayy SILT to silty CLAY	115	2.0	11	14	-	-	1.9	15
33.63	50.8	43.3	81.8	0.6	4.6	1.3	5	silty SAND to sandy SILT	120	4.0	11	13	39	37	-	16
33.79	51.2	43.6	87.1	0.7	4.7	1.5	5	silty SAND to sandy SILT	120	4.0	11	13	40	37	-	16
33.96	53.8	45.7	85.6	0.7	5.3	1.4	5	silty SAND to sandy SILT	120	4.0	11	13	41	37	-	16
34.12	58.6	49.7	89.4	0.8	5.2	1.4	5	silty SAND to sandy SILT	120	4.0	12	15	44	37	-	16
34.29	57.8	49.0	97.4	1.0	3.8	1.7	5	silty SAND to sandy SILT	120	4.0	12	14	43	37	-	16
34.45	44.2	37.4	98.7	0.9	4.5	2.2	5	silty SAND to sandy SILT	120	4.0	9	11	35	36	-	16
34.61	36.0	30.4	82.8	0.6	5.1	1.8	5	silty SAND to sandy SILT	120	4.0	8	9	28	34	-	16
34.78	39.5	33.3	84.5	0.6	-1.3	1.7	5	silty SAND to sandy SILT	120	4.0	8	10	31	35	-	16
34.94	20.3	15.2	-	0.5	4.6	2.8	3	silty CLAY to CLAY	115	1.5	10	14	-	-	1.4	15
35.11	12.6	9.4	-	0.3	7.0	3.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
35.27	10.6	7.9	-	0.2	12.6	2.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
35.43	11.3	8.4	-	0.4	21.0	4.2	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
35.60	13.6	10.1	-	0.6	32.7	4.9	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
35.76	13.7	10.1	-	0.6	33.7	5.1	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
35.93	12.3	9.1	-	0.5	40.7	5.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
36.09	33.9	28.2	82.2	0.6	51.4	1.8	4	clayy SILT to silty CLAY	115	2.0	14	17	-	-	2.3	15
36.26	87.7	72.8	97.5	0.9	-2.7	1.0	6	clean SAND to silty SAND	125	5.0	15	18	57	39	-	16
36.42	99.2	82.2	108.9	1.1	-2.4	1.1	6	clean SAND to silty SAND	125	5.0	16	20	61	40	-	16
36.58	99.1	82.0	117.2	1.4	-1.8	1.4	5	silty SAND to sandy SILT	120	4.0	21	25	60	40	-	16
36.75	95.5	78.9	123.1	1.6	-1.0	1.7	5	silty SAND to sandy SILT	120	4.0	20	24	59	40	-	16
36.91	94.2	77.7	127.6	1.8	-0.2	1.9	5	silty SAND to sandy SILT	120	4.0	19	24	59	40	-	16
37.08	97.8	80.5	134.2	2.0	0.2	2.1	5	silty SAND to sandy SILT	120	4.0	20	24	60	40	-	16
37.24	102.8	84.5	138.4	2.1	0.4	2.1	5	silty SAND to sandy SILT	120	4.0	21	26	61	40	-	16
37.40	103.9	85.2	138.7	2.1	0.5	2.1	5	silty SAND to sandy SILT	120	4.0	21	26	62	40	-	16
37.57	107.1	87.7	137.9	2.1	0.6	2.0	5	silty SAND to sandy SILT	120	4.0	22	27	63	40	-	16
37.73	117.4	96.0	138.7	2.0	0.8	1.8	5	silty SAND to sandy SILT	120	4.0	24	29	66	41	-	16
37.90	122.1	99.6	136.7	1.9	0.5	1.6	5	silty SAND to sandy SILT	120	4.0	25	31	67	41	-	16
38.06	124.5	101.4	142.7	2.1	0.2	1.7	5	silty SAND to sandy SILT	120	4.0	25	31	67	41	-	16
38.22	109.5	89.1	143.2	2.3	3.4	2.1	5	silty SAND to sandy SILT	120	4.0	22	27	63	40	-	16
38.39	94.6	76.8	133.8	2.0	2.7	2.2	5	silty SAND to sandy SILT	120	4.0	19	24	58	39	-	16
38.55	87.3	70.8	117.5	1.5	1.2	1.8	5	silty SAND to sandy SILT	120	4.0	18	22	56	39	-	16
38.72	89.8	72.7	108.4	1.2	-2.5	1.4	5	silty SAND to sandy SILT	120	4.0	18	22	56	39	-	16
38.88	99.0	80.0	107.0	1.1	-5.5	1.1	6	clean SAND to silty SAND	125	5.0	16	20	60	40	-	16
39.04	86.2	69.5	120.0	1.6	-6.7	1.9	5	silty SAND to sandy SILT	120	4.0	17	22	55	39	-	16
39.21	52.8	36.3	-	1.7	-6.3	3.4	4	clayy SILT to silty CLAY	115	2.0	18	26	-	-	3.6	15
39.37	33.9	23.2	-	1.2	-5.5	3.8	3	silty CLAY to CLAY	115	1.5	15	23	-	-	2.3	15
39.54	84.8	68.1	114.3	1.4	-4.7	1.8	5	silty SAND to sandy SILT	120	4.0	17	21	54	39	-	16
39.70	110.8	88.8	129.3	1.8	-4.8	1.7	5	silty SAND to sandy SILT	120	4.0	22	28	63	40	-	16
39.86	116.1	92.9	136.2	2.0	-4.6	1.8	5	silty SAND to sandy SILT	120	4.0	23	29	65	40	-	16
40.03	106.8	85.4	131.0	1.9	-4.5	1.8	5	silty SAND to sandy SILT	120	4.0	21	27	62	40	-	16
40.19	105.7	84.3	131.3	1.9	-4.3	1.9	5	silty SAND to sandy SILT	120	4.0	21	26	61	40	-	16
40.36	113.6	90.5	130.7	1.8	-4.1	1.7	5	silty SAND to sandy SILT	120	4.0	23	28	64	40	-	16
40.52	134.2	106.7	138.6	1.9	-3.9	1.4	6	clean SAND to silty SAND	125	5.0	21	27	69	41	-	16
40.68	125.9	99.9	140.0	2.1	-4.8	1.7	5	silty SAND to sandy SILT	120	4.0	25	31	67	41	-	16
40.85	103.6	82.1	136.2	2.1	-4.6	2.1	5	silty SAND to sandy SILT	120	4.0	21	26	60	40	-	16
41.01	82.6	65.4	124.4	1.8	-4.4	2.2	5	silty SAND to sandy SILT	120	4.0	16	21	53	38	-	16
41.18	69.3	54.8	111.8	1.4	-4.5	2.1	5	silty SAND to sandy SILT	120	4.0	14	17	47	37	-	16
41.34	67.8	53.5	97.8	1.0	-4.7	1.6	5	silty SAND to sandy SILT	120	4.0	13	17	46	37	-	16
41.50	87.8	69.2	100.6	1.0	-5.8	1.2	5	silty SAND to sandy SILT	120	4.0	17	22	55	39	-	16
41.67	90.2	70.9	107.4	1.2	-5.1	1.4	5	silty SAND to sandy SILT	120	4.0	18	23	56	39	-	16
41.83	75.5	59.3	117.5	1.6	-5.4	2.1	5	silty SAND to sandy SILT	120	4.0	15	19	50	38	-	16
42.00	49.0	38.4	113.1	1.3	-5.5	2.8	4	clayy SILT to silty CLAY	115	2.0	19	24	-	-	3.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(462).cpt
CPT Date: 12/4/2008 8:30:10 AM
GW During Test: 12 ft

Sounding ID: CPT-08-36
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	31.0	20.1	-	0.9	-5.7	3.1	4	clayy SILT to silty CLAY	115	2.0	10	15	-	-	2.1	15
42.32	21.4	13.9	-	0.7	-5.4	3.7	3	silty CLAY to CLAY	115	1.5	9	14	-	-	1.4	15
42.49	20.4	13.2	-	0.6	-5.0	3.1	3	silty CLAY to CLAY	115	1.5	9	14	-	-	1.4	15
42.65	20.2	13.0	-	0.5	-4.6	2.9	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
42.82	18.3	11.8	-	0.4	-4.3	2.8	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
42.98	18.0	11.5	-	0.4	-3.8	2.9	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
43.15	17.6	11.3	-	0.5	-3.4	3.2	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
43.31	18.1	11.5	-	0.5	-3.1	3.4	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
43.47	18.4	11.7	-	0.6	-2.7	3.7	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
43.64	19.6	12.4	-	0.6	-2.3	3.5	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
43.80	20.2	12.7	-	0.6	-2.0	3.4	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
43.97	18.7	11.8	-	0.6	-1.8	3.7	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
44.13	18.3	11.5	-	0.6	-1.5	3.8	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
44.29	18.4	11.5	-	0.7	-1.0	4.4	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
44.46	17.9	11.2	-	0.7	-0.7	4.5	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
44.62	16.8	10.5	-	0.7	26.5	4.6	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
44.79	15.9	9.9	-	0.6	28.1	4.5	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
44.95	16.6	10.3	-	0.6	31.2	4.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
45.11	17.6	10.9	-	0.7	27.0	4.8	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
45.28	18.2	11.2	-	0.9	24.1	6.0	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
45.44	26.4	16.3	-	1.0	27.7	4.1	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.8	15
45.61	61.0	46.4	100.5	1.1	-1.4	1.9	5	silty SAND to sandy SILT	120	4.0	12	15	42	36	-	16
45.77	66.6	50.6	103.9	1.2	-3.3	1.9	5	silty SAND to sandy SILT	120	4.0	13	17	45	36	-	16
45.93	53.1	32.4	-	1.5	-3.1	3.1	4	clayy SILT to silty CLAY	115	2.0	16	27	-	-	3.7	15
46.10	40.4	24.6	-	1.3	-2.9	3.6	4	clayy SILT to silty CLAY	115	2.0	12	20	-	-	2.8	15
46.26	41.4	25.1	-	1.1	-2.5	2.9	4	clayy SILT to silty CLAY	115	2.0	13	21	-	-	2.8	15
46.43	38.7	23.4	-	1.0	-3.3	2.7	4	clayy SILT to silty CLAY	115	2.0	12	19	-	-	2.6	15
46.59	29.6	17.9	-	1.2	-3.4	4.3	3	silty CLAY to CLAY	115	1.5	12	20	-	-	2.0	15
46.75	45.6	27.5	-	1.4	-1.9	3.4	4	clayy SILT to silty CLAY	115	2.0	14	23	-	-	3.1	15
46.92	97.3	73.3	127.5	1.9	-3.1	2.1	5	silty SAND to sandy SILT	120	4.0	18	24	57	39	-	16
47.08	139.5	104.8	144.3	2.3	-3.1	1.7	5	silty SAND to sandy SILT	120	4.0	26	35	69	41	-	16
47.25	167.4	125.7	159.1	2.6	-0.3	1.6	6	clean SAND to silty SAND	125	5.0	25	33	75	41	-	16
47.41	184.7	138.4	173.7	3.0	-4.1	1.7	6	clean SAND to silty SAND	125	5.0	28	37	78	42	-	16
47.57	174.9	130.9	176.0	3.4	-4.4	1.9	5	silty SAND to sandy SILT	120	4.0	33	44	76	42	-	16
47.74	155.9	116.5	171.8	3.4	-4.0	2.2	5	silty SAND to sandy SILT	120	4.0	29	39	72	41	-	16
47.90	130.5	97.4	154.5	2.9	-3.7	2.2	5	silty SAND to sandy SILT	120	4.0	24	33	66	40	-	16
48.07	107.4	80.0	135.3	2.2	-3.4	2.1	5	silty SAND to sandy SILT	120	4.0	20	27	60	39	-	16
48.23	85.6	63.7	120.6	1.7	-2.6	2.1	5	silty SAND to sandy SILT	120	4.0	16	21	52	38	-	16
48.39	57.0	42.4	121.5	1.6	-4.7	3.0	4	clayy SILT to silty CLAY	115	2.0	21	29	-	-	3.9	15
48.56	31.2	18.2	-	1.2	-5.0	4.2	3	silty CLAY to CLAY	115	1.5	12	21	-	-	2.1	15
48.72	22.5	13.1	-	0.8	-4.5	4.2	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.5	15
48.89	21.1	12.3	-	0.7	-3.5	3.6	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
49.05	25.3	14.6	-	1.1	-2.3	4.8	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
49.22	37.1	21.4	-	1.4	-0.9	4.1	3	silty CLAY to CLAY	115	1.5	14	25	-	-	2.5	15
49.38	53.4	30.8	-	1.4	-1.7	2.8	4	clayy SILT to silty CLAY	115	2.0	15	27	-	-	3.7	15
49.54	62.7	46.2	110.8	1.4	-3.4	2.3	5	silty SAND to sandy SILT	120	4.0	12	16	42	36	-	16
49.71	67.0	49.3	109.3	1.4	-4.6	2.2	5	silty SAND to sandy SILT	120	4.0	12	17	44	36	-	16
49.87	63.3	46.5	107.7	1.3	-5.2	2.2	5	silty SAND to sandy SILT	120	4.0	12	16	42	36	-	16
50.04	60.8	44.6	102.6	1.2	-5.4	2.1	5	silty SAND to sandy SILT	120	4.0	11	15	40	35	-	16
50.20	56.4	41.3	112.9	1.4	-5.4	2.6	4	clayy SILT to silty CLAY	115	2.0	21	28	-	-	3.9	15
50.36	50.3	28.5	-	1.3	-5.3	2.8	4	clayy SILT to silty CLAY	115	2.0	14	25	-	-	3.4	15
50.53	58.5	33.1	-	2.0	-5.1	3.5	4	clayy SILT to silty CLAY	115	2.0	17	29	-	-	4.0	15
50.69	116.0	84.7	143.1	2.5	-5.2	2.2	5	silty SAND to sandy SILT	120	4.0	21	29	62	39	-	16
50.86	155.4	113.3	163.3	3.1	-6.0	2.1	5	silty SAND to sandy SILT	120	4.0	28	39	71	41	-	16
51.02	158.0	115.1	167.9	3.3	-5.9	2.2	5	silty SAND to sandy SILT	120	4.0	29	40	72	41	-	16
51.18	143.5	104.4	164.6	3.3	-5.7	2.4	5	silty SAND to sandy SILT	120	4.0	26	36	68	40	-	16
51.35	138.1	100.3	161.0	3.2	-2.5	2.4	5	silty SAND to sandy SILT	120	4.0	25	35	67	40	-	16
51.51	139.6	101.3	166.9	3.5	-2.3	2.5	5	silty SAND to sandy SILT	120	4.0	25	35	67	40	-	16
51.68	145.5	105.4	171.3	3.6	-2.6	2.5	5	silty SAND to sandy SILT	120	4.0	26	36	69	40	-	16
51.84	183.4	132.7	175.3	3.4	-3.2	1.9	5	silty SAND to sandy SILT	120	4.0	33	46	76	41	-	16
52.00	183.3	132.4	175.4	3.4	-4.6	1.9	5	silty SAND to sandy SILT	120	4.0	33	46	76	41	-	16
52.17	177.7	128.2	175.7	3.5	-4.8	2.0	5	silty SAND to sandy SILT	120	4.0	32	44	75	41	-	16
52.33	165.9	119.5	174.1	3.6	-4.5	2.2	5	silty SAND to sandy SILT	120	4.0	30	41	73	41	-	16
52.50	146.3	105.3	164.3	3.3	-4.3	2.3	5	silty SAND to sandy SILT	120	4.0	26	37	69	40	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(462).cpt
CPT Date: 12/4/2008 8:30:10 AM
GW During Test: 12 ft

Sounding ID: CPT-08-36
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	129.3	92.9	156.1	3.1	-4.2	2.4	5	silty SAND to sandy SILT	120	4.0	23	32	65	40	-	16
52.82	111.6	80.1	154.3	3.0	-4.0	2.8	5	silty SAND to sandy SILT	120	4.0	20	28	60	39	-	16
52.99	69.0	37.6	-	2.6	-3.9	4.0	4	clayy SILT to silty CLAY	115	2.0	19	34	-	-	4.8	15
53.15	49.3	26.8	-	1.6	-3.7	3.4	4	clayy SILT to silty CLAY	115	2.0	13	25	-	-	3.4	15
53.32	51.8	28.1	-	1.5	-3.2	3.1	4	clayy SILT to silty CLAY	115	2.0	14	26	-	-	3.5	15
53.48	41.3	22.4	-	1.1	-3.1	2.8	4	clayy SILT to silty CLAY	115	2.0	11	21	-	-	2.8	15
53.64	139.2	99.3	124.2	1.6	-2.1	1.2	6	clean SAND to silty SAND	125	5.0	20	28	67	40	-	16
53.81	118.4	84.4	137.1	2.4	-3.0	2.0	5	silty SAND to sandy SILT	120	4.0	21	30	61	39	-	16
53.97	64.0	34.4	-	2.6	-3.0	4.3	4	clayy SILT to silty CLAY	115	2.0	17	32	-	-	4.4	15
54.14	52.0	27.8	-	1.9	-2.4	4.0	4	clayy SILT to silty CLAY	115	2.0	14	26	-	-	3.6	15
54.30	125.1	88.8	136.5	2.3	-1.4	1.9	5	silty SAND to sandy SILT	120	4.0	22	31	63	39	-	16
54.46	124.5	88.3	152.6	3.0	-2.0	2.5	5	silty SAND to sandy SILT	120	4.0	22	31	63	39	-	16
54.63	114.7	81.2	160.1	3.3	0.2	2.9	5	silty SAND to sandy SILT	120	4.0	20	29	60	39	-	16
54.79	165.5	117.0	176.6	3.8	4.1	2.4	5	silty SAND to sandy SILT	120	4.0	29	41	72	41	-	16
54.96	172.0	121.5	177.1	3.8	2.7	2.3	5	silty SAND to sandy SILT	120	4.0	30	43	73	41	-	16
55.12	149.3	105.3	175.5	3.9	2.8	2.7	5	silty SAND to sandy SILT	120	4.0	26	37	69	40	-	16
55.28	97.2	68.5	172.1	3.6	2.6	3.9	4	clayy SILT to silty CLAY	115	2.0	34	49	-	-	6.8	15
55.45	50.7	26.6	-	2.3	2.5	4.9	3	silty CLAY to CLAY	115	1.5	18	34	-	-	3.5	15
55.61	29.6	15.5	-	1.1	3.1	4.3	3	silty CLAY to CLAY	115	1.5	10	20	-	-	2.0	15
55.78	28.7	15.0	-	1.3	5.3	5.0	3	silty CLAY to CLAY	115	1.5	10	19	-	-	1.9	15
55.94	94.1	66.0	110.8	1.5	12.8	1.7	5	silty SAND to sandy SILT	120	4.0	17	24	53	37	-	16
56.11	190.0	133.1	147.9	1.8	6.4	0.9	6	clean SAND to silty SAND	125	5.0	27	38	76	41	-	16
56.27	147.1	102.9	138.1	2.2	3.5	1.5	5	silty SAND to sandy SILT	120	4.0	26	37	68	40	-	16
56.43	100.7	70.4	136.4	2.4	2.9	2.5	5	silty SAND to sandy SILT	120	4.0	18	25	55	38	-	16
56.60	66.3	46.3	120.3	1.7	3.7	2.7	4	clayy SILT to silty CLAY	115	2.0	23	33	-	-	4.6	15
56.76	143.0	99.7	125.1	1.6	7.5	1.2	6	clean SAND to silty SAND	125	5.0	20	29	67	40	-	16
56.93	271.6	189.1	189.1	1.9	6.3	0.7	6	clean SAND to silty SAND	125	5.0	38	54	88	43	-	16
57.09	301.8	209.8	209.8	2.3	7.3	0.8	6	clean SAND to silty SAND	125	5.0	42	60	91	44	-	16
57.25	301.0	209.0	209.0	2.5	7.9	0.9	6	clean SAND to silty SAND	125	5.0	42	60	91	43	-	16
57.42	301.3	208.9	208.9	2.6	8.3	0.9	6	clean SAND to silty SAND	125	5.0	42	60	91	43	-	16
57.58	283.1	196.1	199.2	2.5	8.6	0.9	6	clean SAND to silty SAND	125	5.0	39	57	89	43	-	16
57.75	277.1	191.7	198.4	2.6	10.2	1.0	6	clean SAND to silty SAND	125	5.0	38	55	88	43	-	16
57.91	299.6	207.0	207.0	2.6	8.4	0.9	6	clean SAND to silty SAND	125	5.0	41	60	91	43	-	16
58.07	288.8	199.3	200.8	2.5	2.3	0.9	6	clean SAND to silty SAND	125	5.0	40	58	90	43	-	16
58.24	264.6	182.3	186.8	2.3	6.5	0.9	6	clean SAND to silty SAND	125	5.0	36	53	87	43	-	16
58.40	291.2	200.4	200.4	1.8	2.2	0.6	6	clean SAND to silty SAND	125	5.0	40	58	90	43	-	16
58.57	304.5	209.3	209.3	1.5	-3.8	0.5	6	clean SAND to silty SAND	125	5.0	42	61	91	43	-	16
58.73	337.8	231.8	231.8	2.2	-4.3	0.7	6	clean SAND to silty SAND	125	5.0	46	68	95	44	-	16
58.89	384.2	263.3	263.3	1.9	-4.7	0.5	6	clean SAND to silty SAND	125	5.0	53	77	95	45	-	16
59.06	385.3	263.8	263.8	2.0	-4.1	0.5	6	clean SAND to silty SAND	125	5.0	53	77	95	45	-	16
59.22	410.3	280.5	280.5	2.2	-3.8	0.5	6	clean SAND to silty SAND	125	5.0	56	82	95	45	-	16
59.39	383.3	261.7	261.7	2.2	-4.1	0.6	6	clean SAND to silty SAND	125	5.0	52	77	95	44	-	16
59.55	355.4	242.3	242.3	2.4	-3.0	0.7	6	clean SAND to silty SAND	125	5.0	48	71	95	44	-	16
59.71	346.9	236.3	236.3	2.5	-2.6	0.7	6	clean SAND to silty SAND	125	5.0	47	69	95	44	-	16
59.88	354.6	241.2	241.2	2.2	-2.3	0.6	6	clean SAND to silty SAND	125	5.0	48	71	95	44	-	16
60.04	356.7	242.3	242.3	2.3	-1.6	0.7	6	clean SAND to silty SAND	125	5.0	48	71	95	44	-	16
60.21	389.6	264.4	264.4	1.8	-0.8	0.5	6	clean SAND to silty SAND	125	5.0	53	78	95	44	-	16
60.37	416.3	282.1	282.1	1.7	-0.3	0.4	7	grvly SAND to dense SAND	130	6.0	47	69	95	45	-	16
60.53	454.2	307.4	307.4	1.6	0.4	0.4	7	grvly SAND to dense SAND	130	6.0	51	76	95	45	-	16
60.70	455.1	307.6	307.6	1.9	5.7	0.4	7	grvly SAND to dense SAND	130	6.0	51	76	95	45	-	16
60.86	436.5	294.6	294.6	2.2	4.1	0.5	6	clean SAND to silty SAND	125	5.0	59	87	95	45	-	16
61.03	422.9	285.1	285.1	1.8	2.9	0.4	7	grvly SAND to dense SAND	130	6.0	48	70	95	45	-	16
61.19	393.7	265.1	265.1	1.5	1.5	0.4	7	grvly SAND to dense SAND	130	6.0	44	66	95	44	-	16
61.35	370.4	249.0	249.0	1.4	2.4	0.4	6	clean SAND to silty SAND	125	5.0	50	74	95	44	-	16
61.52	351.2	235.9	235.9	1.0	2.6	0.3	7	grvly SAND to dense SAND	130	6.0	39	59	95	44	-	16
61.68	346.8	232.6	232.6	1.5	3.3	0.4	6	clean SAND to silty SAND	125	5.0	47	69	95	44	-	16
61.85	338.9	227.0	227.0	1.4	3.6	0.4	6	clean SAND to silty SAND	125	5.0	45	68	94	44	-	16
62.01	343.5	229.8	229.8	1.5	3.5	0.4	6	clean SAND to silty SAND	125	5.0	46	69	94	44	-	16
62.17	335.7	224.3	224.3	1.0	4.0	0.3	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
62.34	334.0	222.9	222.9	0.9	4.5	0.3	7	grvly SAND to dense SAND	130	6.0	37	56	93	44	-	16
62.50	372.9	248.5	248.5	1.4	4.7	0.4	6	clean SAND to silty SAND	125	5.0	50	75	95	44	-	16
62.67	421.9	280.9	280.9	1.5	4.7	0.4	7	grvly SAND to dense SAND	130	6.0	47	70	95	45	-	16
62.83	411.3	273.4	273.4	2.3	3.3	0.6	6	clean SAND to silty SAND	125	5.0	55	82	95	45	-	16
63.00	367.8	244.2	244.2	1.4	3.2	0.4	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(462).cpt
CPT Date: 12/4/2008 8:30:10 AM
GW During Test: 12 ft

Sounding ID: CPT-08-36
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	357.2	236.9	236.9	0.6	3.8	0.2	7	grvly SAND to dense SAND	130	6.0	39	60	95	44	-	16
63.32	374.7	248.2	248.2	0.8	2.9	0.2	7	grvly SAND to dense SAND	130	6.0	41	62	95	44	-	16
63.49	402.1	266.0	266.0	1.2	2.6	0.3	7	grvly SAND to dense SAND	130	6.0	44	67	95	44	-	16
63.65	419.0	276.8	276.8	1.7	1.6	0.4	7	grvly SAND to dense SAND	130	6.0	46	70	95	45	-	16
63.82	302.9	199.9	199.9	1.7	13.3	0.6	6	clean SAND to silty SAND	125	5.0	40	61	90	43	-	16
63.98	318.9	210.1	259.3	7.0	3.8	2.2	6	clean SAND to silty SAND	125	5.0	42	64	92	43	-	16
64.14	142.2	93.6	190.2	4.9	7.7	3.5	5	silty SAND to sandy SILT	120	4.0	23	36	65	39	-	16
64.31	93.7	61.6	129.9	2.3	31.5	2.5	5	silty SAND to sandy SILT	120	4.0	15	23	51	36	-	16
64.47	293.8	193.0	193.0	1.3	4.3	0.5	6	clean SAND to silty SAND	125	5.0	39	59	89	43	-	16
64.64	317.5	208.3	208.3	1.0	2.1	0.3	6	clean SAND to silty SAND	125	5.0	42	63	91	43	-	16
64.80	307.6	201.6	201.6	1.1	3.1	0.4	6	clean SAND to silty SAND	125	5.0	40	62	90	43	-	16
64.96	315.4	206.4	206.4	1.3	3.2	0.4	6	clean SAND to silty SAND	125	5.0	41	63	91	43	-	16
65.13	321.8	210.4	210.4	1.2	1.7	0.4	6	clean SAND to silty SAND	125	5.0	42	64	92	43	-	16
65.29	310.3	202.6	202.6	1.3	2.5	0.4	6	clean SAND to silty SAND	125	5.0	41	62	90	43	-	16
65.46	282.5	184.3	184.3	1.7	3.1	0.6	6	clean SAND to silty SAND	125	5.0	37	56	87	42	-	16
65.62	335.2	218.4	218.4	1.4	4.5	0.4	6	clean SAND to silty SAND	125	5.0	44	67	93	43	-	16
65.78	369.9	240.7	240.7	1.0	4.5	0.3	7	grvly SAND to dense SAND	130	6.0	40	62	95	44	-	16
65.95	386.0	250.9	250.9	2.3	4.6	0.6	6	clean SAND to silty SAND	125	5.0	50	77	95	44	-	16
66.11	414.3	269.0	269.0	1.6	4.4	0.4	7	grvly SAND to dense SAND	130	6.0	45	69	95	44	-	16
66.28	392.7	254.6	254.6	1.8	2.7	0.5	6	clean SAND to silty SAND	125	5.0	51	79	95	44	-	16
66.44	382.7	247.8	247.8	1.6	1.5	0.4	6	clean SAND to silty SAND	125	5.0	50	77	95	44	-	16
66.60	364.9	236.1	236.1	1.1	0.1	0.3	7	grvly SAND to dense SAND	130	6.0	39	61	95	44	-	16
66.77	342.4	221.3	221.3	1.9	0.3	0.6	6	clean SAND to silty SAND	125	5.0	44	68	93	43	-	16
66.93	322.6	208.2	208.2	1.6	-0.9	0.5	6	clean SAND to silty SAND	125	5.0	42	65	91	43	-	16
67.10	298.9	192.7	192.7	1.5	9.1	0.5	6	clean SAND to silty SAND	125	5.0	39	60	89	43	-	16
67.26	286.3	184.4	184.4	1.4	6.2	0.5	6	clean SAND to silty SAND	125	5.0	37	57	87	42	-	16
67.42	249.0	160.2	160.2	0.4	6.6	0.2	6	clean SAND to silty SAND	125	5.0	32	50	83	42	-	16
67.59	178.6	114.8	123.6	1.1	5.1	0.7	6	clean SAND to silty SAND	125	5.0	23	36	72	40	-	16
67.75	114.4	73.4	101.7	1.2	6.2	1.1	5	silty SAND to sandy SILT	120	4.0	18	29	57	37	-	16
67.92	36.5	15.9	-	1.4	6.2	4.3	3	silty CLAY to CLAY	115	1.5	11	24	-	-	2.4	15
68.08	20.2	8.8	-	0.7	9.3	4.6	3	silty CLAY to CLAY	115	1.5	6	13	-	-	1.3	15
68.24	49.8	31.9	65.6	0.4	22.6	0.9	5	silty SAND to sandy SILT	120	4.0	8	12	29	32	-	16
68.41	143.5	91.7	98.8	0.6	16.6	0.5	6	clean SAND to silty SAND	125	5.0	18	29	64	39	-	16
68.57	143.4	91.6	118.7	1.7	14.2	1.2	6	clean SAND to silty SAND	125	5.0	18	29	64	39	-	16
68.74	149.0	95.1	117.2	1.5	15.3	1.0	6	clean SAND to silty SAND	125	5.0	19	30	65	39	-	16
68.90	170.9	108.9	151.4	3.0	13.2	1.8	5	silty SAND to sandy SILT	120	4.0	27	43	70	40	-	16
69.07	198.5	126.3	154.1	2.6	7.3	1.4	6	clean SAND to silty SAND	125	5.0	25	40	75	40	-	16
69.23	171.9	109.3	153.3	3.1	7.5	1.8	5	silty SAND to sandy SILT	120	4.0	27	43	70	40	-	16
69.39	111.3	70.7	158.5	3.5	10.8	3.2	4	clayy SILT to silty CLAY	115	2.0	35	56	-	-	7.7	15
69.56	68.6	29.3	-	3.3	17.0	5.2	3	silty CLAY to CLAY	115	1.5	20	46	-	-	4.7	15
69.72	49.7	21.2	-	2.5	22.6	5.5	3	silty CLAY to CLAY	115	1.5	14	33	-	-	3.4	15
69.89	50.4	21.4	-	1.6	26.5	3.4	4	clayy SILT to silty CLAY	115	2.0	11	25	-	-	3.4	15
70.05	108.7	68.8	169.8	3.9	64.7	3.7	4	clayy SILT to silty CLAY	115	2.0	34	54	-	-	7.5	15
70.21	346.7	219.2	240.7	5.0	11.9	1.5	6	clean SAND to silty SAND	125	5.0	44	69	93	43	-	16
70.38	436.6	275.7	277.5	5.1	15.1	1.2	6	clean SAND to silty SAND	125	5.0	55	87	95	44	-	16
70.54	544.7	343.6	343.6	3.9	12.6	0.7	6	clean SAND to silty SAND	125	5.0	69	100	95	45	-	16
70.71	502.1	316.4	316.4	4.5	9.5	0.9	6	clean SAND to silty SAND	125	5.0	63	100	95	45	-	16
70.87	402.7	253.5	253.5	3.3	6.0	0.8	6	clean SAND to silty SAND	125	5.0	51	81	95	44	-	16
71.03	329.6	207.3	206.7	2.9	8.5	0.9	6	clean SAND to silty SAND	125	5.0	41	66	91	43	-	16
71.20	384.6	241.6	262.3	5.7	8.4	1.5	6	clean SAND to silty SAND	125	5.0	48	77	95	44	-	16
71.36	431.3	270.7	270.7	4.0	3.8	0.9	6	clean SAND to silty SAND	125	5.0	54	86	95	44	-	16
71.53	326.3	204.5	222.0	4.2	5.4	1.3	6	clean SAND to silty SAND	125	5.0	41	65	91	43	-	16
71.69	262.0	164.1	184.0	3.2	5.2	1.2	6	clean SAND to silty SAND	125	5.0	33	52	83	42	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(426).cpt
CPT Date: 11/20/2008 9:41:52 AM
GW During Test: 12 ft

Sounding ID: CPT-08-37
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	79.5	127.5	127.5	0.3	0.0	0.4	6	clean SAND to silty SAND	125	5.0	25	16	75	48	-	16
0.49	67.1	107.6	125.7	0.6	0.0	1.0	6	clean SAND to silty SAND	125	5.0	22	13	69	48	-	16
0.66	93.1	149.3	166.3	1.0	0.0	1.1	6	clean SAND to silty SAND	125	5.0	30	19	80	48	-	16
0.82	94.6	151.7	180.7	1.4	0.0	1.5	6	clean SAND to silty SAND	125	5.0	30	19	81	48	-	16
0.98	93.7	150.3	184.2	1.6	0.0	1.7	6	clean SAND to silty SAND	125	5.0	30	19	80	48	-	16
1.15	87.1	139.7	175.3	1.5	0.0	1.7	6	clean SAND to silty SAND	125	5.0	28	17	78	48	-	16
1.31	75.0	120.3	157.8	1.3	0.0	1.7	6	clean SAND to silty SAND	125	5.0	24	15	73	48	-	16
1.48	62.0	99.4	141.5	1.1	0.1	1.8	5	silty SAND to sandy SILT	120	4.0	25	15	67	48	-	16
1.64	50.5	81.0	119.8	0.8	0.1	1.6	5	silty SAND to sandy SILT	120	4.0	20	13	60	48	-	16
1.80	51.5	82.6	112.4	0.7	0.1	1.3	5	silty SAND to sandy SILT	120	4.0	21	13	61	48	-	16
1.97	76.0	121.9	162.3	1.4	0.1	1.8	5	silty SAND to sandy SILT	120	4.0	30	19	74	48	-	16
2.13	71.3	114.4	165.6	1.5	0.1	2.1	5	silty SAND to sandy SILT	120	4.0	29	18	71	48	-	16
2.30	59.3	95.0	167.5	1.6	0.1	2.8	5	silty SAND to sandy SILT	120	4.0	24	15	65	47	-	16
2.46	53.8	86.3	164.5	1.6	0.2	3.0	5	silty SAND to sandy SILT	120	4.0	22	13	62	47	-	16
2.62	62.8	100.7	187.7	2.0	0.3	3.3	5	silty SAND to sandy SILT	120	4.0	25	16	67	47	-	16
2.79	63.0	101.0	204.3	2.4	0.1	3.8	5	silty SAND to sandy SILT	120	4.0	25	16	67	47	-	16
2.95	54.3	87.0	203.3	2.3	0.0	4.3	4	clayy SILT to silty CLAY	115	2.0	44	27	-	-	3.8	15
3.12	50.8	81.5	193.1	2.1	0.2	4.2	4	clayy SILT to silty CLAY	115	2.0	41	25	-	-	3.6	15
3.28	44.8	71.8	189.5	2.0	-0.2	4.5	4	clayy SILT to silty CLAY	115	2.0	36	22	-	-	3.2	15
3.45	42.8	68.6	195.3	2.1	-1.0	4.9	4	clayy SILT to silty CLAY	115	2.0	34	21	-	-	3.0	15
3.61	49.2	78.9	193.8	2.1	-1.0	4.3	4	clayy SILT to silty CLAY	115	2.0	39	25	-	-	3.5	15
3.77	47.6	76.4	197.2	2.2	-0.6	4.6	4	clayy SILT to silty CLAY	115	2.0	38	24	-	-	3.4	15
3.94	51.9	83.3	192.3	2.1	-0.1	4.1	4	clayy SILT to silty CLAY	115	2.0	42	26	-	-	3.7	15
4.10	52.1	83.6	182.9	1.9	0.1	3.7	4	clayy SILT to silty CLAY	115	2.0	42	26	-	-	3.7	15
4.27	39.8	63.8	184.6	1.9	0.3	4.7	4	clayy SILT to silty CLAY	115	2.0	32	20	-	-	2.8	15
4.43	34.2	54.9	173.1	1.6	0.3	4.8	4	clayy SILT to silty CLAY	115	2.0	27	17	-	-	2.4	15
4.59	27.4	43.9	-	1.3	0.3	4.9	4	clayy SILT to silty CLAY	115	2.0	22	14	-	-	1.9	15
4.76	21.6	34.6	-	1.2	0.4	5.7	3	silty CLAY to CLAY	115	1.5	23	14	-	-	1.5	15
4.92	18.3	29.4	-	1.1	0.3	6.2	3	silty CLAY to CLAY	115	1.5	20	12	-	-	1.3	15
5.09	16.7	26.8	-	1.0	-0.4	6.1	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.2	15
5.25	15.1	24.2	-	1.0	-0.8	6.4	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
5.41	15.2	24.4	-	1.0	-0.9	6.4	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.1	15
5.58	16.1	25.8	-	1.0	-0.8	6.0	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.1	15
5.74	15.9	25.4	-	1.0	-0.1	6.7	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.1	15
5.91	16.4	26.2	-	1.1	-0.4	6.6	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.1	15
6.07	15.3	24.5	-	0.9	-1.4	6.1	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.1	15
6.23	14.1	22.6	-	0.8	-1.8	5.7	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
6.40	12.4	19.9	-	0.8	-1.8	6.5	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
6.56	11.4	18.2	-	0.8	-2.0	7.4	3	silty CLAY to CLAY	115	1.5	12	8	-	-	0.8	15
6.73	11.9	19.0	-	0.9	-2.1	7.6	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
6.89	13.1	21.1	-	0.9	-2.3	6.9	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
7.05	13.8	22.1	-	0.8	-2.3	6.2	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
7.22	13.6	21.8	-	0.8	-2.0	5.7	3	silty CLAY to CLAY	115	1.5	15	9	-	-	0.9	15
7.38	14.4	23.1	-	0.8	-0.2	5.5	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.0	15
7.55	14.0	22.4	-	0.8	-0.3	6.2	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
7.71	14.1	22.6	-	0.9	-0.9	6.9	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
7.87	14.5	23.3	-	0.8	-1.6	5.9	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
8.04	13.6	21.8	-	0.8	-1.3	5.9	3	silty CLAY to CLAY	115	1.5	15	9	-	-	0.9	15
8.20	12.8	20.5	-	0.7	-1.2	6.0	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
8.37	11.8	18.9	-	0.8	-1.0	6.8	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
8.53	12.4	19.9	-	0.8	-1.0	6.7	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
8.69	13.5	21.6	-	0.8	-0.9	6.0	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
8.86	13.7	22.0	-	0.7	-1.0	5.6	3	silty CLAY to CLAY	115	1.5	15	9	-	-	0.9	15
9.02	13.3	21.3	-	0.7	-0.9	5.5	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
9.19	12.4	19.9	-	0.7	-1.0	5.9	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
9.35	11.0	17.6	-	0.7	-0.5	6.5	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.8	15
9.51	11.8	18.9	-	0.8	-1.1	6.8	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
9.68	14.3	22.9	-	0.7	-1.3	5.4	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.0	15
9.84	36.1	46.2	94.9	0.6	-1.1	1.8	5	silty SAND to sandy SILT	120	4.0	12	9	42	40	-	16
10.01	55.1	69.9	102.3	0.7	0.0	1.3	5	silty SAND to sandy SILT	120	4.0	17	14	55	43	-	16
10.17	34.9	43.9	107.0	0.8	0.0	2.4	5	silty SAND to sandy SILT	120	4.0	11	9	40	40	-	16
10.34	65.0	81.1	117.5	1.0	0.0	1.5	5	silty SAND to sandy SILT	120	4.0	20	16	60	43	-	16
10.50	72.8	90.2	124.5	1.1	0.0	1.5	5	silty SAND to sandy SILT	120	4.0	23	18	64	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Earth Mechanics
Data File: SDF(426).cpt
CPT Date: 11/20/2008 9:41:52 AM
GW During Test: 12 ft

Sounding ID: CPT-08-37
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	76.8	94.3	125.5	1.0	0.1	1.4	6	clean SAND to silty SAND	125	5.0	19	15	65	44	-	16
10.83	74.8	91.1	123.6	1.0	0.1	1.4	5	silty SAND to sandy SILT	120	4.0	23	19	64	44	-	16
10.99	70.4	85.0	120.9	1.0	0.1	1.5	5	silty SAND to sandy SILT	120	4.0	21	18	62	43	-	16
11.16	70.7	84.9	118.7	1.0	0.1	1.4	5	silty SAND to sandy SILT	120	4.0	21	18	62	43	-	16
11.32	74.6	88.8	117.8	0.9	0.1	1.3	6	clean SAND to silty SAND	125	5.0	18	15	63	44	-	16
11.48	81.0	95.8	117.6	0.8	0.1	1.0	6	clean SAND to silty SAND	125	5.0	19	16	66	44	-	16
11.65	84.8	99.4	118.8	0.8	0.1	1.0	6	clean SAND to silty SAND	125	5.0	20	17	67	44	-	16
11.81	90.3	105.1	122.9	0.8	0.1	0.9	6	clean SAND to silty SAND	125	5.0	21	18	69	44	-	16
11.98	99.0	114.4	129.6	0.9	0.1	0.9	6	clean SAND to silty SAND	125	5.0	23	20	71	45	-	16
12.14	102.9	118.5	133.8	0.9	0.1	0.9	6	clean SAND to silty SAND	125	5.0	24	21	73	45	-	16
12.30	97.3	111.6	128.8	0.9	0.2	0.9	6	clean SAND to silty SAND	125	5.0	22	19	71	44	-	16
12.47	84.1	96.1	120.8	1.0	0.2	1.1	6	clean SAND to silty SAND	125	5.0	19	17	66	44	-	16
12.63	77.6	88.4	116.5	0.9	0.2	1.2	6	clean SAND to silty SAND	125	5.0	18	16	63	43	-	16
12.80	57.5	65.3	107.5	0.9	0.2	1.6	5	silty SAND to sandy SILT	120	4.0	16	14	53	42	-	16
12.96	27.7	33.7	110.6	0.8	0.2	3.0	4	clayy SILT to silty CLAY	115	2.0	17	14	-	-	1.9	15
13.12	14.6	19.8	-	0.5	0.4	3.8	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.0	15
13.29	10.7	14.3	-	0.3	0.5	2.9	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.7	15
13.45	10.1	13.4	-	0.3	0.6	3.2	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
13.62	9.0	11.9	-	0.3	0.7	3.5	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
13.78	8.0	10.5	-	0.3	0.8	4.5	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
13.94	7.4	9.7	-	0.3	0.9	3.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
14.11	7.1	9.3	-	0.3	0.9	4.8	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
14.27	6.5	8.4	-	0.3	1.0	6.2	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
14.44	6.7	8.6	-	0.3	1.0	5.7	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
14.60	6.9	8.9	-	0.4	1.0	7.2	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
14.76	6.7	8.6	-	0.4	1.1	6.8	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
14.93	6.3	8.0	-	0.4	1.2	6.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.09	5.4	6.8	-	0.3	1.3	6.6	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.3	15
15.26	6.1	7.6	-	0.3	1.4	6.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.42	4.6	5.7	-	0.3	2.0	9.5	2	Organic SOILS - Peats	100	1.0	6	5	-	-	0.4	10
15.58	7.4	9.2	-	0.4	2.1	6.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.75	12.5	15.4	-	0.4	2.2	3.7	3	silty CLAY to CLAY	115	1.5	10	8	-	-	0.8	15
15.91	23.7	25.5	78.2	0.4	0.2	1.8	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.6	15
16.08	28.1	30.2	83.0	0.5	-1.8	1.8	5	silty SAND to sandy SILT	120	4.0	8	7	28	37	-	16
16.24	30.6	32.7	95.1	0.7	-2.2	2.3	4	clayy SILT to silty CLAY	115	2.0	16	15	-	-	2.1	15
16.40	25.2	30.5	-	0.9	-1.7	3.5	4	clayy SILT to silty CLAY	115	2.0	15	13	-	-	1.7	15
16.57	41.4	44.1	107.4	0.9	-3.6	2.3	5	silty SAND to sandy SILT	120	4.0	11	10	40	39	-	16
16.73	51.3	54.5	107.2	1.0	-6.4	1.9	5	silty SAND to sandy SILT	120	4.0	14	13	47	40	-	16
16.90	46.6	49.4	113.4	1.1	-8.8	2.4	5	silty SAND to sandy SILT	120	4.0	12	12	44	39	-	16
17.06	42.0	44.3	112.7	1.1	-8.9	2.6	5	silty SAND to sandy SILT	120	4.0	11	10	40	39	-	16
17.23	34.9	38.4	-	1.3	-9.9	3.7	4	clayy SILT to silty CLAY	115	2.0	19	17	-	-	2.4	15
17.39	24.1	28.3	-	1.1	-10.3	4.6	3	silty CLAY to CLAY	115	1.5	19	16	-	-	1.7	15
17.55	28.9	31.6	103.7	0.8	-10.3	2.8	4	clayy SILT to silty CLAY	115	2.0	16	14	-	-	2.0	15
17.72	43.1	45.1	87.6	0.6	-10.2	1.5	5	silty SAND to sandy SILT	120	4.0	11	11	41	39	-	16
17.88	45.5	47.5	100.8	0.9	-10.2	1.9	5	silty SAND to sandy SILT	120	4.0	12	11	42	39	-	16
18.05	35.4	36.8	114.9	1.0	-10.3	3.1	4	clayy SILT to silty CLAY	115	2.0	18	18	-	-	2.5	15
18.21	32.6	35.2	114.8	1.0	-10.3	3.1	4	clayy SILT to silty CLAY	115	2.0	18	16	-	-	2.3	15
18.37	47.6	49.3	105.5	1.0	-10.2	2.1	5	silty SAND to sandy SILT	120	4.0	12	12	44	39	-	16
18.54	62.7	64.7	111.5	1.1	-10.3	1.8	5	silty SAND to sandy SILT	120	4.0	16	16	53	41	-	16
18.70	67.5	69.5	117.8	1.2	-10.3	1.9	5	silty SAND to sandy SILT	120	4.0	17	17	55	41	-	16
18.87	64.3	66.1	122.7	1.4	-10.2	2.1	5	silty SAND to sandy SILT	120	4.0	17	16	53	41	-	16
19.03	56.1	57.5	121.6	1.3	-10.2	2.4	5	silty SAND to sandy SILT	120	4.0	14	14	49	40	-	16
19.19	43.5	44.4	124.7	1.3	-10.1	3.1	4	clayy SILT to silty CLAY	115	2.0	22	22	-	-	3.0	15
19.36	30.0	33.0	-	1.1	-10.1	3.8	4	clayy SILT to silty CLAY	115	2.0	16	15	-	-	2.1	15
19.52	19.6	21.5	-	0.8	-10.0	4.4	3	silty CLAY to CLAY	115	1.5	14	13	-	-	1.3	15
19.69	13.4	14.6	-	0.5	-10.0	4.0	3	silty CLAY to CLAY	115	1.5	10	9	-	-	0.9	15
19.85	10.0	10.8	-	0.3	-10.0	3.8	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
20.01	7.8	8.4	-	0.4	-9.9	5.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
20.18	5.7	6.1	-	0.4	-9.3	8.1	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.5	10
20.34	7.4	7.9	-	0.1	-9.2	1.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
20.51	9.5	10.1	-	0.5	-9.1	6.1	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
20.67	2.4	2.6	-	0.5	-8.8	9.9	2	Organic SOILS - Peats	100	1.0	3	2	-	-	0.2	10
20.83	42.0	42.0	89.0	0.7	-8.8	1.6	5	silty SAND to sandy SILT	120	4.0	10	11	38	38	-	16
21.00	37.0	36.9	97.0	0.8	-8.8	2.2	5	silty SAND to sandy SILT	120	4.0	9	9	34	37	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(426).cpt
CPT Date: 11/20/2008 9:41:52 AM
GW During Test: 12 ft

Sounding ID: CPT-08-37
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	32.6	32.4	96.7	0.7	-8.8	2.4	4	clayy SILT to silty CLAY	115	2.0	16	16	-	-	2.3	15
21.33	25.1	26.2	-	0.7	-8.8	2.9	4	clayy SILT to silty CLAY	115	2.0	13	13	-	-	1.7	15
21.49	12.2	12.7	-	0.5	-8.7	4.6	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
21.65	7.7	8.0	-	0.4	-8.7	5.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.82	7.1	7.3	-	0.3	-8.6	5.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
21.98	7.8	8.0	-	0.3	-8.4	5.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.15	7.0	7.1	-	0.3	-8.4	5.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
22.31	6.7	6.8	-	0.3	-8.3	6.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
22.47	7.6	7.7	-	0.2	-8.2	3.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.64	6.5	6.5	-	0.2	-8.2	3.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.80	6.2	6.2	-	0.3	-7.7	6.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.97	8.4	8.4	-	0.3	-7.6	4.3	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	15
23.13	10.4	10.3	-	0.5	-7.5	5.0	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
23.30	11.6	11.5	-	0.6	-7.4	6.0	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
23.46	11.1	10.9	-	0.7	-7.4	6.9	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
23.62	10.8	10.6	-	0.6	-7.4	6.6	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
23.79	9.8	9.6	-	0.5	-7.3	6.5	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
23.95	9.0	8.7	-	0.5	-7.3	6.2	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
24.12	6.8	6.6	-	0.3	-7.4	6.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
24.28	4.6	4.4	-	0.4	-7.4	9.9	2	Organic SOILS - Peats	100	1.0	4	5	-	-	0.4	10
24.44	15.2	14.6	-	0.5	-7.3	3.9	3	silty CLAY to CLAY	115	1.5	10	10	-	-	1.0	15
24.61	29.8	28.3	77.4	0.5	-7.3	1.6	5	silty SAND to sandy SILT	120	4.0	7	7	25	35	-	16
24.77	43.5	41.3	81.8	0.6	-7.6	1.4	5	silty SAND to sandy SILT	120	4.0	10	11	38	37	-	16
24.94	49.7	47.1	79.0	0.5	-7.8	1.1	5	silty SAND to sandy SILT	120	4.0	12	12	42	38	-	16
25.10	43.2	40.8	81.8	0.6	-8.3	1.4	5	silty SAND to sandy SILT	120	4.0	10	11	37	37	-	16
25.26	46.1	43.5	102.7	1.0	-7.6	2.1	5	silty SAND to sandy SILT	120	4.0	11	12	40	38	-	16
25.43	42.6	40.1	95.5	0.8	-7.6	2.0	5	silty SAND to sandy SILT	120	4.0	10	11	37	37	-	16
25.59	58.2	54.6	95.9	0.9	-7.6	1.5	5	silty SAND to sandy SILT	120	4.0	14	15	47	39	-	16
25.76	61.8	57.9	101.1	1.0	-7.7	1.6	5	silty SAND to sandy SILT	120	4.0	14	15	49	39	-	16
25.92	60.9	56.9	99.8	0.9	-7.6	1.6	5	silty SAND to sandy SILT	120	4.0	14	15	48	39	-	16
26.08	59.2	55.2	100.0	0.9	-7.7	1.6	5	silty SAND to sandy SILT	120	4.0	14	15	47	39	-	16
26.25	54.2	50.4	109.3	1.1	-6.5	2.2	5	silty SAND to sandy SILT	120	4.0	13	14	44	38	-	16
26.41	38.9	35.5	-	1.2	-6.6	3.3	4	clayy SILT to silty CLAY	115	2.0	18	19	-	-	2.7	15
26.58	35.6	32.4	-	1.1	-6.6	3.2	4	clayy SILT to silty CLAY	115	2.0	16	18	-	-	2.5	15
26.74	47.9	44.3	99.1	0.9	-6.9	2.0	5	silty SAND to sandy SILT	120	4.0	11	12	40	37	-	16
26.90	61.6	56.8	93.4	0.8	-7.4	1.3	5	silty SAND to sandy SILT	120	4.0	14	15	48	39	-	16
27.07	66.7	61.4	95.9	0.8	-7.9	1.3	5	silty SAND to sandy SILT	120	4.0	15	17	51	39	-	16
27.23	75.1	69.0	103.5	1.0	-8.0	1.3	5	silty SAND to sandy SILT	120	4.0	17	19	55	40	-	16
27.40	67.4	61.7	111.1	1.2	-8.0	1.8	5	silty SAND to sandy SILT	120	4.0	15	17	51	39	-	16
27.56	58.7	53.7	122.5	1.5	-7.9	2.6	5	silty SAND to sandy SILT	120	4.0	13	15	46	38	-	16
27.72	43.4	39.7	115.7	1.2	-8.2	2.9	4	clayy SILT to silty CLAY	115	2.0	20	22	-	-	3.0	15
27.89	19.7	17.3	-	0.7	-8.7	3.9	3	silty CLAY to CLAY	115	1.5	12	13	-	-	1.3	15
28.05	11.2	9.8	-	0.5	-8.8	4.7	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
28.22	9.4	8.2	-	0.3	-8.6	3.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.38	8.5	7.4	-	0.3	-8.3	3.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
28.54	8.2	7.1	-	0.2	-7.9	3.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
28.71	8.7	7.5	-	0.2	-7.6	3.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.87	9.8	8.5	-	0.3	-7.3	4.2	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
29.04	10.2	8.7	-	0.5	-7.0	5.4	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
29.20	12.7	10.8	-	0.6	-6.7	5.1	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
29.36	23.6	20.1	-	0.5	-6.7	2.2	4	clayy SILT to silty CLAY	115	2.0	10	12	-	-	1.6	15
29.53	27.5	23.3	-	0.5	-6.9	1.9	4	clayy SILT to silty CLAY	115	2.0	12	14	-	-	1.9	15
29.69	24.4	20.6	-	0.4	-5.2	2.0	4	clayy SILT to silty CLAY	115	2.0	10	12	-	-	1.7	15
29.86	29.3	24.7	-	0.7	-5.3	2.4	4	clayy SILT to silty CLAY	115	2.0	12	15	-	-	2.0	15
30.02	26.8	22.4	-	0.7	-5.1	2.8	4	clayy SILT to silty CLAY	115	2.0	11	13	-	-	1.8	15
30.19	44.4	39.4	87.6	0.7	-4.8	1.7	5	silty SAND to sandy SILT	120	4.0	10	11	36	36	-	16
30.35	50.4	44.7	82.8	0.6	-4.7	1.3	5	silty SAND to sandy SILT	120	4.0	11	13	40	37	-	16
30.51	54.9	48.6	80.7	0.6	-4.7	1.1	5	silty SAND to sandy SILT	120	4.0	12	14	43	38	-	16
30.68	55.1	48.6	86.6	0.7	-4.8	1.3	5	silty SAND to sandy SILT	120	4.0	12	14	43	38	-	16
30.84	57.8	50.9	87.9	0.7	-4.7	1.3	5	silty SAND to sandy SILT	120	4.0	13	14	45	38	-	16
31.01	57.1	50.2	96.5	0.9	-5.1	1.7	5	silty SAND to sandy SILT	120	4.0	13	14	44	38	-	16
31.17	65.1	57.1	95.0	0.9	-5.6	1.4	5	silty SAND to sandy SILT	120	4.0	14	16	49	38	-	16
31.33	70.9	62.0	95.0	0.9	-5.7	1.2	5	silty SAND to sandy SILT	120	4.0	16	18	51	39	-	16
31.50	74.6	65.2	96.7	0.9	-5.7	1.2	5	silty SAND to sandy SILT	120	4.0	16	19	53	39	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(426).cpt
CPT Date: 11/20/2008 9:41:52 AM
GW During Test: 12 ft

Sounding ID: CPT-08-37
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	78.6	68.6	100.7	1.0	-5.6	1.3	5	silty SAND to sandy SILT	120	4.0	17	20	55	39	-	16
31.83	82.0	71.4	108.5	1.2	-5.5	1.5	5	silty SAND to sandy SILT	120	4.0	18	21	56	40	-	16
31.99	71.6	62.2	118.7	1.5	-5.4	2.1	5	silty SAND to sandy SILT	120	4.0	16	18	51	39	-	16
32.15	44.1	35.1	-	1.5	-5.2	3.6	4	clayy SILT to silty CLAY	115	2.0	18	22	-	-	3.0	15
32.32	27.5	21.9	-	1.1	-5.0	4.4	3	silty CLAY to CLAY	115	1.5	15	18	-	-	1.9	15
32.48	19.3	15.3	-	0.7	-4.8	4.2	3	silty CLAY to CLAY	115	1.5	10	13	-	-	1.3	15
32.65	14.0	11.0	-	0.5	-4.4	4.3	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
32.81	11.7	9.2	-	0.4	-3.9	4.0	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
32.97	10.9	8.6	-	0.4	-3.4	4.3	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
33.14	11.4	8.9	-	0.4	0.3	3.8	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
33.30	11.0	8.6	-	0.4	0.8	4.0	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
33.47	10.4	8.1	-	0.5	1.5	5.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
33.63	16.2	12.5	-	0.6	2.4	4.1	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
33.79	21.1	16.3	-	0.7	2.0	3.7	3	silty CLAY to CLAY	115	1.5	11	14	-	-	1.4	15
33.96	45.1	38.4	91.4	0.8	2.4	1.8	5	silty SAND to sandy SILT	120	4.0	10	11	35	36	-	16
34.12	55.2	46.9	96.0	0.9	1.9	1.7	5	silty SAND to sandy SILT	120	4.0	12	14	42	37	-	16
34.29	49.9	42.3	104.9	1.1	2.0	2.3	5	silty SAND to sandy SILT	120	4.0	11	12	39	36	-	16
34.45	35.0	26.6	-	1.0	2.1	3.2	4	clayy SILT to silty CLAY	115	2.0	13	18	-	-	2.4	15
34.61	24.0	18.2	-	0.8	1.8	3.8	3	silty CLAY to CLAY	115	1.5	12	16	-	-	1.6	15
34.78	16.3	12.3	-	0.6	1.2	4.2	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
34.94	29.7	22.3	-	0.6	2.4	2.3	4	clayy SILT to silty CLAY	115	2.0	11	15	-	-	2.0	15
35.11	44.4	37.4	81.3	0.6	1.0	1.5	5	silty SAND to sandy SILT	120	4.0	9	11	34	36	-	16
35.27	57.0	47.9	84.9	0.7	2.2	1.3	5	silty SAND to sandy SILT	120	4.0	12	14	43	37	-	16
35.43	65.9	55.2	93.6	0.9	1.6	1.4	5	silty SAND to sandy SILT	120	4.0	14	16	47	38	-	16
35.60	73.2	61.3	104.6	1.1	1.8	1.6	5	silty SAND to sandy SILT	120	4.0	15	18	51	38	-	16
35.76	69.4	57.9	109.8	1.3	2.0	1.9	5	silty SAND to sandy SILT	120	4.0	14	17	49	38	-	16
35.93	59.5	49.7	109.7	1.3	2.2	2.2	5	silty SAND to sandy SILT	120	4.0	12	15	44	37	-	16
36.09	52.9	44.0	94.1	0.9	1.3	1.8	5	silty SAND to sandy SILT	120	4.0	11	13	40	36	-	16
36.26	49.3	41.0	91.5	0.8	-1.8	1.8	5	silty SAND to sandy SILT	120	4.0	10	12	38	36	-	16
36.42	48.2	40.0	91.9	0.8	-2.3	1.8	5	silty SAND to sandy SILT	120	4.0	10	12	37	36	-	16
36.58	27.7	20.1	-	0.7	-4.7	2.8	4	clayy SILT to silty CLAY	115	2.0	10	14	-	-	1.9	15
36.75	15.3	11.1	-	0.5	-4.3	4.2	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
36.91	11.4	8.2	-	0.3	-3.3	3.7	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
37.08	12.4	8.9	-	0.4	-2.0	3.8	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
37.24	14.4	10.3	-	0.6	-0.6	4.6	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.9	15
37.40	15.2	10.9	-	0.9	0.6	6.6	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
37.57	17.0	12.2	-	0.9	2.4	6.2	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
37.73	57.8	47.3	95.8	1.0	3.0	1.7	5	silty SAND to sandy SILT	120	4.0	12	14	42	37	-	16
37.90	96.3	78.7	111.0	1.2	-2.4	1.3	5	silty SAND to sandy SILT	120	4.0	20	24	59	40	-	16
38.06	103.6	84.6	119.7	1.5	-2.1	1.4	5	silty SAND to sandy SILT	120	4.0	21	26	61	40	-	16
38.22	99.2	80.8	127.1	1.8	-1.9	1.8	5	silty SAND to sandy SILT	120	4.0	20	25	60	40	-	16
38.39	96.5	78.6	135.9	2.1	-1.7	2.2	5	silty SAND to sandy SILT	120	4.0	20	24	59	40	-	16
38.55	93.6	76.1	144.4	2.4	-1.5	2.6	5	silty SAND to sandy SILT	120	4.0	19	23	58	39	-	16
38.72	92.6	75.1	142.6	2.3	-1.3	2.5	5	silty SAND to sandy SILT	120	4.0	19	23	58	39	-	16
38.88	92.7	75.0	140.7	2.2	-1.2	2.5	5	silty SAND to sandy SILT	120	4.0	19	23	58	39	-	16
39.04	94.7	76.6	139.6	2.2	-1.2	2.4	5	silty SAND to sandy SILT	120	4.0	19	24	58	39	-	16
39.21	88.1	71.1	132.3	2.0	-1.1	2.3	5	silty SAND to sandy SILT	120	4.0	18	22	56	39	-	16
39.37	99.4	80.1	116.9	1.4	-1.1	1.5	5	silty SAND to sandy SILT	120	4.0	20	25	60	40	-	16
39.54	103.1	82.9	111.4	1.2	-4.1	1.2	6	clean SAND to silty SAND	125	5.0	17	21	61	40	-	16
39.70	85.8	68.9	114.6	1.5	-4.2	1.7	5	silty SAND to sandy SILT	120	4.0	17	21	55	39	-	16
39.86	69.0	55.3	125.9	1.7	2.6	2.6	5	silty SAND to sandy SILT	120	4.0	14	17	47	37	-	16
40.03	65.8	52.6	125.9	1.7	2.2	2.7	5	silty SAND to sandy SILT	120	4.0	13	16	46	37	-	16
40.19	69.9	55.9	120.0	1.6	-1.9	2.4	5	silty SAND to sandy SILT	120	4.0	14	17	48	37	-	16
40.36	81.5	65.0	111.7	1.4	-3.7	1.7	5	silty SAND to sandy SILT	120	4.0	16	20	53	38	-	16
40.52	84.9	67.7	108.6	1.3	-5.0	1.6	5	silty SAND to sandy SILT	120	4.0	17	21	54	39	-	16
40.68	88.4	70.3	118.3	1.6	-5.2	1.8	5	silty SAND to sandy SILT	120	4.0	18	22	55	39	-	16
40.85	67.9	53.9	136.0	2.0	-5.3	3.1	4	clayy SILT to silty CLAY	115	2.0	27	34	-	-	4.7	15
41.01	41.6	27.7	-	1.9	-5.1	4.9	3	silty CLAY to CLAY	115	1.5	18	28	-	-	2.9	15
41.18	51.7	34.4	-	1.9	-4.5	3.9	4	clayy SILT to silty CLAY	115	2.0	17	26	-	-	3.6	15
41.34	123.7	97.8	140.7	2.2	-3.8	1.8	5	silty SAND to sandy SILT	120	4.0	24	31	66	41	-	16
41.50	129.8	102.5	148.1	2.4	-3.7	1.9	5	silty SAND to sandy SILT	120	4.0	26	32	68	41	-	16
41.67	117.4	92.5	147.0	2.5	-3.5	2.1	5	silty SAND to sandy SILT	120	4.0	23	29	64	40	-	16
41.83	101.7	80.0	151.5	2.7	-3.3	2.7	5	silty SAND to sandy SILT	120	4.0	20	25	60	39	-	16
42.00	83.7	65.8	151.7	2.6	-3.2	3.2	4	clayy SILT to silty CLAY	115	2.0	33	42	-	-	5.8	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(426).cpt
CPT Date: 11/20/2008 9:41:52 AM
GW During Test: 12 ft

Sounding ID: CPT-08-37
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	64.0	41.7	-	2.7	-3.1	4.4	4	clayy SILT to silty CLAY	115	2.0	21	32	-	-	4.4	15
42.32	45.3	29.5	-	2.0	-2.9	4.6	3	silty CLAY to CLAY	115	1.5	20	30	-	-	3.1	15
42.49	70.2	54.9	123.1	1.7	-2.2	2.5	5	silty SAND to sandy SILT	120	4.0	14	18	47	37	-	16
42.65	63.4	49.5	132.5	1.9	-2.6	3.1	4	clayy SILT to silty CLAY	115	2.0	25	32	-	-	4.4	15
42.82	45.8	29.6	-	1.7	-2.5	4.0	4	clayy SILT to silty CLAY	115	2.0	15	23	-	-	3.1	15
42.98	54.7	35.2	-	1.7	-2.1	3.2	4	clayy SILT to silty CLAY	115	2.0	18	27	-	-	3.8	15
43.15	53.4	34.3	-	1.7	-0.6	3.4	4	clayy SILT to silty CLAY	115	2.0	17	27	-	-	3.7	15
43.31	82.0	63.7	116.0	1.5	-1.3	1.9	5	silty SAND to sandy SILT	120	4.0	16	20	52	38	-	16
43.47	66.2	51.4	126.5	1.8	-1.8	2.8	4	clayy SILT to silty CLAY	115	2.0	26	33	-	-	4.6	15
43.64	37.9	24.1	-	1.5	-1.8	4.4	3	silty CLAY to CLAY	115	1.5	16	25	-	-	2.6	15
43.80	24.8	15.7	-	1.1	-1.6	5.1	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
43.97	19.4	12.3	-	0.7	-1.1	4.2	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
44.13	18.5	11.7	-	0.6	-0.5	3.9	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
44.29	17.8	11.2	-	0.6	0.1	4.1	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
44.46	17.6	11.1	-	0.6	0.7	4.2	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
44.62	17.7	11.1	-	0.6	1.3	4.0	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
44.79	16.9	10.6	-	0.6	1.9	4.0	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
44.95	16.9	10.5	-	0.6	2.6	4.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
45.11	15.7	9.8	-	0.7	3.1	5.0	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
45.28	17.6	10.9	-	0.7	9.2	4.7	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.1	15
45.44	18.0	11.1	-	0.7	9.6	4.7	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
45.61	18.0	11.1	-	0.7	10.0	4.8	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
45.77	18.0	11.0	-	0.7	10.6	4.8	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
45.93	18.0	11.0	-	0.8	11.2	5.0	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
46.10	18.2	11.1	-	0.8	11.5	5.2	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
46.26	18.2	11.1	-	0.8	11.9	5.4	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
46.43	19.8	12.0	-	0.9	12.1	5.0	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
46.59	18.5	11.2	-	0.8	12.0	5.4	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
46.75	17.6	10.6	-	0.9	12.2	6.2	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.1	15
46.92	18.2	11.0	-	0.9	13.0	6.1	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
47.08	17.6	10.6	-	1.2	13.3	8.0	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.1	15
47.25	24.9	14.9	-	1.3	14.9	5.9	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
47.41	52.5	39.5	109.3	1.3	11.9	2.6	4	clayy SILT to silty CLAY	115	2.0	20	26	-	-	3.6	15
47.57	55.8	41.9	113.4	1.4	4.5	2.6	4	clayy SILT to silty CLAY	115	2.0	21	28	-	-	3.8	15
47.74	46.2	27.5	-	1.4	1.5	3.3	4	clayy SILT to silty CLAY	115	2.0	14	23	-	-	3.2	15
47.90	37.5	22.3	-	1.3	0.0	3.9	3	silty CLAY to CLAY	115	1.5	15	25	-	-	2.5	15
48.07	42.6	25.2	-	1.2	-0.1	2.9	4	clayy SILT to silty CLAY	115	2.0	13	21	-	-	2.9	15
48.23	46.0	27.2	-	1.1	-1.6	2.6	4	clayy SILT to silty CLAY	115	2.0	14	23	-	-	3.1	15
48.39	41.5	24.5	-	1.1	-2.7	2.8	4	clayy SILT to silty CLAY	115	2.0	12	21	-	-	2.8	15
48.56	32.6	19.2	-	1.2	-3.0	3.9	3	silty CLAY to CLAY	115	1.5	13	22	-	-	2.2	15
48.72	25.9	15.2	-	1.4	-2.6	6.1	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
48.89	60.5	35.4	-	1.9	-1.8	3.3	4	clayy SILT to silty CLAY	115	2.0	18	30	-	-	4.2	15
49.05	94.7	70.3	139.6	2.4	-2.5	2.6	5	silty SAND to sandy SILT	120	4.0	18	24	55	38	-	16
49.22	156.2	115.7	150.5	2.4	-3.2	1.6	6	clean SAND to silty SAND	125	5.0	23	31	72	41	-	16
49.38	192.0	142.0	164.8	2.4	-4.8	1.3	6	clean SAND to silty SAND	125	5.0	28	38	79	42	-	16
49.54	204.0	150.7	179.8	3.0	-5.1	1.5	6	clean SAND to silty SAND	125	5.0	30	41	81	42	-	16
49.71	200.3	147.7	186.0	3.5	-3.8	1.8	6	clean SAND to silty SAND	125	5.0	30	40	80	42	-	16
49.87	193.4	142.4	185.8	3.7	-3.7	1.9	5	silty SAND to sandy SILT	120	4.0	36	48	79	42	-	16
50.04	169.9	125.0	178.0	3.6	-3.5	2.2	5	silty SAND to sandy SILT	120	4.0	31	42	74	41	-	16
50.20	134.7	99.0	168.8	3.5	-1.5	2.7	5	silty SAND to sandy SILT	120	4.0	25	34	67	40	-	16
50.36	103.4	75.8	156.2	3.0	-1.5	3.0	5	silty SAND to sandy SILT	120	4.0	19	26	58	39	-	16
50.53	74.1	54.3	151.0	2.6	-1.5	3.7	4	clayy SILT to silty CLAY	115	2.0	27	37	-	-	5.1	15
50.69	43.9	24.9	-	2.0	-3.4	4.8	3	silty CLAY to CLAY	115	1.5	17	29	-	-	3.0	15
50.86	31.2	17.7	-	1.5	-3.1	5.2	3	silty CLAY to CLAY	115	1.5	12	21	-	-	2.1	15
51.02	31.0	17.5	-	1.5	-2.5	5.3	3	silty CLAY to CLAY	115	1.5	12	21	-	-	2.1	15
51.18	35.8	20.2	-	1.7	-0.6	5.3	3	silty CLAY to CLAY	115	1.5	13	24	-	-	2.4	15
51.35	39.0	21.9	-	1.6	0.1	4.4	3	silty CLAY to CLAY	115	1.5	15	26	-	-	2.6	15
51.51	48.6	27.2	-	1.9	-0.1	4.1	3	silty CLAY to CLAY	115	1.5	18	32	-	-	3.3	15
51.68	60.7	33.9	-	2.5	-0.2	4.4	4	clayy SILT to silty CLAY	115	2.0	17	30	-	-	4.2	15
51.84	121.6	88.2	155.0	3.0	-0.9	2.5	5	silty SAND to sandy SILT	120	4.0	22	30	63	39	-	16
52.00	153.1	110.9	171.0	3.6	-3.5	2.4	5	silty SAND to sandy SILT	120	4.0	28	38	70	41	-	16
52.17	158.9	114.9	176.7	3.8	-4.2	2.4	5	silty SAND to sandy SILT	120	4.0	29	40	72	41	-	16
52.33	148.7	107.4	182.2	4.1	-4.0	2.8	5	silty SAND to sandy SILT	120	4.0	27	37	69	40	-	16
52.50	144.0	103.9	181.4	4.1	-3.9	2.9	5	silty SAND to sandy SILT	120	4.0	26	36	68	40	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(426).cpt
CPT Date: 11/20/2008 9:41:52 AM
GW During Test: 12 ft

Sounding ID: CPT-08-37
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	160.9	115.9	181.9	4.0	-3.7	2.6	5	silty SAND to sandy SILT	120	4.0	29	40	72	41	-	16
52.82	190.1	136.8	192.6	4.3	-4.3	2.3	5	silty SAND to sandy SILT	120	4.0	34	48	77	42	-	16
52.99	182.6	131.3	190.2	4.3	-5.1	2.4	5	silty SAND to sandy SILT	120	4.0	33	46	76	41	-	16
53.15	172.7	124.0	187.3	4.2	-5.0	2.5	5	silty SAND to sandy SILT	120	4.0	31	43	74	41	-	16
53.32	162.9	116.8	180.9	4.0	-4.8	2.5	5	silty SAND to sandy SILT	120	4.0	29	41	72	41	-	16
53.48	158.0	113.1	180.8	4.0	-4.6	2.6	5	silty SAND to sandy SILT	120	4.0	28	39	71	41	-	16
53.64	154.0	110.1	176.3	3.9	-3.7	2.6	5	silty SAND to sandy SILT	120	4.0	28	39	70	40	-	16
53.81	156.9	112.1	169.4	3.5	-3.6	2.3	5	silty SAND to sandy SILT	120	4.0	28	39	71	40	-	16
53.97	148.0	105.6	167.4	3.5	-4.1	2.4	5	silty SAND to sandy SILT	120	4.0	26	37	69	40	-	16
54.14	164.8	117.4	160.1	3.0	-4.5	1.8	5	silty SAND to sandy SILT	120	4.0	29	41	72	41	-	16
54.30	162.1	115.3	163.9	3.2	-5.4	2.0	5	silty SAND to sandy SILT	120	4.0	29	41	72	41	-	16
54.46	134.9	95.8	165.0	3.5	-5.8	2.6	5	silty SAND to sandy SILT	120	4.0	24	34	66	40	-	16
54.63	82.8	44.2	-	3.9	-5.7	4.8	4	clayy SILT to silty CLAY	115	2.0	22	41	-	-	5.7	15
54.79	47.2	25.2	-	3.0	-5.5	6.9	3	silty CLAY to CLAY	115	1.5	17	31	-	-	3.2	15
54.96	34.2	18.2	-	3.0	-4.3	9.5	3	silty CLAY to CLAY	115	1.5	12	23	-	-	2.3	15
55.12	42.4	22.5	-	2.0	1.4	5.2	3	silty CLAY to CLAY	115	1.5	15	28	-	-	2.9	15
55.28	74.5	52.7	129.6	2.0	2.0	2.8	4	clayy SILT to silty CLAY	115	2.0	26	37	-	-	5.2	15
55.45	68.0	48.0	130.2	2.0	0.5	3.1	4	clayy SILT to silty CLAY	115	2.0	24	34	-	-	4.7	15
55.61	56.0	29.5	-	2.2	0.4	4.1	4	clayy SILT to silty CLAY	115	2.0	15	28	-	-	3.8	15
55.78	41.4	21.8	-	2.2	0.9	5.7	3	silty CLAY to CLAY	115	1.5	15	28	-	-	2.8	15
55.94	54.4	28.5	-	2.0	1.8	4.0	4	clayy SILT to silty CLAY	115	2.0	14	27	-	-	3.7	15
56.11	161.3	113.3	149.4	2.5	2.3	1.6	6	clean SAND to silty SAND	125	5.0	23	32	71	40	-	16
56.27	190.9	133.9	176.5	3.5	2.6	1.9	5	silty SAND to sandy SILT	120	4.0	33	48	77	41	-	16
56.43	214.0	150.0	188.5	3.8	2.9	1.8	6	clean SAND to silty SAND	125	5.0	30	43	80	42	-	16
56.60	235.9	165.0	213.3	4.9	3.2	2.1	5	silty SAND to sandy SILT	120	4.0	41	59	84	42	-	16
56.76	239.4	167.3	226.4	5.8	4.0	2.4	5	silty SAND to sandy SILT	120	4.0	42	60	84	42	-	16
56.93	246.3	171.9	234.6	6.2	3.9	2.6	5	silty SAND to sandy SILT	120	4.0	43	62	85	43	-	16
57.09	243.5	169.8	233.1	6.2	3.8	2.6	5	silty SAND to sandy SILT	120	4.0	42	61	84	42	-	16
57.25	241.0	167.8	224.0	5.6	3.6	2.4	5	silty SAND to sandy SILT	120	4.0	42	60	84	42	-	16
57.42	241.9	168.2	221.3	5.4	3.4	2.3	5	silty SAND to sandy SILT	120	4.0	42	60	84	42	-	16
57.58	235.7	163.7	211.9	4.9	3.9	2.1	5	silty SAND to sandy SILT	120	4.0	41	59	83	42	-	16
57.75	222.1	154.1	201.9	4.6	3.8	2.1	5	silty SAND to sandy SILT	120	4.0	39	56	81	42	-	16
57.91	217.0	150.4	200.7	4.6	3.8	2.2	5	silty SAND to sandy SILT	120	4.0	38	54	80	42	-	16
58.07	213.9	148.1	203.5	4.9	4.2	2.3	5	silty SAND to sandy SILT	120	4.0	37	53	80	42	-	16
58.24	206.4	142.7	203.9	5.0	4.3	2.5	5	silty SAND to sandy SILT	120	4.0	36	52	79	42	-	16
58.40	195.9	135.3	200.4	4.9	4.4	2.6	5	silty SAND to sandy SILT	120	4.0	34	49	77	41	-	16
58.57	183.7	126.7	195.0	4.8	4.4	2.7	5	silty SAND to sandy SILT	120	4.0	32	46	75	41	-	16
58.73	173.9	119.8	189.8	4.6	4.4	2.7	5	silty SAND to sandy SILT	120	4.0	30	43	73	41	-	16
58.89	164.7	113.3	184.7	4.4	4.5	2.7	5	silty SAND to sandy SILT	120	4.0	28	41	71	40	-	16
59.06	155.6	107.0	186.7	4.5	4.4	3.0	5	silty SAND to sandy SILT	120	4.0	27	39	69	40	-	16
59.22	120.5	82.7	181.8	4.3	4.3	3.6	4	clayy SILT to silty CLAY	115	2.0	41	60	-	-	8.4	15
59.39	63.1	31.5	-	3.1	3.9	5.1	3	silty CLAY to CLAY	115	1.5	21	42	-	-	4.3	15
59.55	40.2	20.0	-	1.6	4.0	4.3	3	silty CLAY to CLAY	115	1.5	13	27	-	-	2.7	15
59.71	33.8	16.8	-	0.7	4.9	2.4	4	clayy SILT to silty CLAY	115	2.0	8	17	-	-	2.3	15
59.88	46.2	22.9	-	1.9	6.8	4.4	3	silty CLAY to CLAY	115	1.5	15	31	-	-	3.1	15
60.04	12.6	6.2	-	1.9	55.4	9.9	2	Organic SOILS - Peats	100	1.0	6	13	-	-	1.1	10
60.21	225.1	153.5	166.0	2.1	28.6	1.0	6	clean SAND to silty SAND	125	5.0	31	45	81	42	-	16
60.37	271.8	185.2	185.2	2.0	11.8	0.7	6	clean SAND to silty SAND	125	5.0	37	54	87	43	-	16
60.53	271.1	184.5	184.5	1.2	10.3	0.4	6	clean SAND to silty SAND	125	5.0	37	54	87	43	-	16
60.70	229.0	155.6	155.6	1.4	8.8	0.6	6	clean SAND to silty SAND	125	5.0	31	46	82	42	-	16
60.86	236.1	160.2	162.1	1.6	7.7	0.7	6	clean SAND to silty SAND	125	5.0	32	47	83	42	-	16
61.03	243.5	165.0	164.5	1.6	6.9	0.7	6	clean SAND to silty SAND	125	5.0	33	49	84	42	-	16
61.19	222.5	150.6	155.0	1.6	6.9	0.7	6	clean SAND to silty SAND	125	5.0	30	44	81	42	-	16
61.35	201.9	136.5	144.6	1.5	7.2	0.7	6	clean SAND to silty SAND	125	5.0	27	40	77	41	-	16
61.52	185.3	125.2	139.4	1.6	6.6	0.9	6	clean SAND to silty SAND	125	5.0	25	37	74	41	-	16
61.68	186.0	125.4	137.6	1.5	6.3	0.8	6	clean SAND to silty SAND	125	5.0	25	37	74	41	-	16
61.85	160.7	108.3	141.2	2.3	5.5	1.5	6	clean SAND to silty SAND	125	5.0	22	32	70	40	-	16
62.01	170.0	114.4	155.9	3.0	4.6	1.8	5	silty SAND to sandy SILT	120	4.0	29	42	71	40	-	16
62.17	212.1	142.6	158.7	2.2	4.9	1.0	6	clean SAND to silty SAND	125	5.0	29	42	79	41	-	16
62.34	282.1	189.4	189.4	2.0	2.8	0.7	6	clean SAND to silty SAND	125	5.0	38	56	88	43	-	16
62.50	322.5	216.3	216.3	1.2	-0.8	0.4	6	clean SAND to silty SAND	125	5.0	43	65	92	43	-	16
62.67	343.4	230.0	230.0	1.8	-0.6	0.5	6	clean SAND to silty SAND	125	5.0	46	69	94	44	-	16
62.83	333.6	223.1	223.1	2.7	-0.4	0.8	6	clean SAND to silty SAND	125	5.0	45	67	93	44	-	16
63.00	324.9	217.0	217.0	2.6	0.1	0.8	6	clean SAND to silty SAND	125	5.0	43	65	93	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(426).cpt
CPT Date: 11/20/2008 9:41:52 AM
GW During Test: 12 ft

Sounding ID: CPT-08-37
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	336.8	224.7	224.7	2.3	0.6	0.7	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
63.32	376.3	250.8	250.8	2.9	0.8	0.8	6	clean SAND to silty SAND	125	5.0	50	75	95	44	-	16
63.49	378.4	251.9	251.9	2.6	3.7	0.7	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
63.65	386.2	256.8	256.8	2.4	2.8	0.6	6	clean SAND to silty SAND	125	5.0	51	77	95	44	-	16
63.82	397.4	263.9	263.9	2.5	2.6	0.6	6	clean SAND to silty SAND	125	5.0	53	79	95	44	-	16
63.98	372.6	247.1	247.1	2.2	2.7	0.6	6	clean SAND to silty SAND	125	5.0	49	75	95	44	-	16
64.14	361.5	239.5	239.5	2.4	3.1	0.7	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
64.31	356.5	235.9	235.9	2.4	3.5	0.7	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
64.47	355.3	234.8	234.8	2.6	3.7	0.7	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
64.64	362.5	239.3	239.3	2.5	3.9	0.7	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
64.80	362.2	238.8	238.8	2.5	4.3	0.7	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
64.96	310.1	204.2	204.2	2.4	4.3	0.8	6	clean SAND to silty SAND	125	5.0	41	62	91	43	-	16
65.13	353.5	232.5	232.5	2.3	11.2	0.7	6	clean SAND to silty SAND	125	5.0	46	71	95	44	-	16
65.29	366.5	240.7	240.7	2.3	10.0	0.6	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
65.46	381.7	250.4	250.4	2.6	9.5	0.7	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
65.62	397.2	260.3	260.3	3.5	8.5	0.9	6	clean SAND to silty SAND	125	5.0	52	79	95	44	-	16
65.78	407.7	266.9	266.9	3.0	7.7	0.7	6	clean SAND to silty SAND	125	5.0	53	82	95	44	-	16
65.95	374.0	244.6	244.6	3.4	6.3	0.9	6	clean SAND to silty SAND	125	5.0	49	75	95	44	-	16
66.11	341.8	223.3	223.3	3.0	6.7	0.9	6	clean SAND to silty SAND	125	5.0	45	68	94	43	-	16
66.28	324.1	211.4	211.0	2.9	6.8	0.9	6	clean SAND to silty SAND	125	5.0	42	65	92	43	-	16
66.44	340.4	221.8	221.8	2.7	7.0	0.8	6	clean SAND to silty SAND	125	5.0	44	68	93	43	-	16
66.60	354.9	231.0	231.0	2.8	7.2	0.8	6	clean SAND to silty SAND	125	5.0	46	71	95	44	-	16
66.77	348.0	226.3	237.7	4.2	8.3	1.2	6	clean SAND to silty SAND	125	5.0	45	70	94	43	-	16
66.93	368.1	239.0	239.0	3.3	8.3	0.9	6	clean SAND to silty SAND	125	5.0	48	74	95	44	-	16
67.10	393.6	255.3	255.3	3.9	6.4	1.0	6	clean SAND to silty SAND	125	5.0	51	79	95	44	-	16
67.26	339.8	220.1	228.5	3.8	7.7	1.1	6	clean SAND to silty SAND	125	5.0	44	68	93	43	-	16
67.42	353.3	228.6	228.6	2.7	8.2	0.8	6	clean SAND to silty SAND	125	5.0	46	71	94	43	-	16
67.59	342.9	221.7	221.7	2.1	8.2	0.6	6	clean SAND to silty SAND	125	5.0	44	69	93	43	-	16
67.75	324.9	209.8	209.8	2.0	8.2	0.6	6	clean SAND to silty SAND	125	5.0	42	65	91	43	-	16
67.92	336.9	217.3	217.3	1.8	7.9	0.5	6	clean SAND to silty SAND	125	5.0	43	67	93	43	-	16
68.08	337.2	217.2	217.2	1.7	8.1	0.5	6	clean SAND to silty SAND	125	5.0	43	67	93	43	-	16
68.24	323.9	208.4	208.4	1.7	7.9	0.5	6	clean SAND to silty SAND	125	5.0	42	65	91	43	-	16
68.41	302.7	194.6	194.6	1.8	7.7	0.6	6	clean SAND to silty SAND	125	5.0	39	61	89	43	-	16
68.57	272.7	175.1	175.1	1.9	7.8	0.7	6	clean SAND to silty SAND	125	5.0	35	55	85	42	-	16
68.74	251.5	161.3	161.8	1.7	8.0	0.7	6	clean SAND to silty SAND	125	5.0	32	50	83	42	-	16
68.90	244.4	156.6	165.6	2.1	8.1	0.9	6	clean SAND to silty SAND	125	5.0	31	49	82	42	-	16
69.07	307.1	196.5	197.4	2.6	7.6	0.9	6	clean SAND to silty SAND	125	5.0	39	61	89	43	-	16
69.23	359.8	229.9	229.9	2.9	3.3	0.8	6	clean SAND to silty SAND	125	5.0	46	72	94	43	-	16
69.39	365.6	233.4	233.4	3.1	2.9	0.8	6	clean SAND to silty SAND	125	5.0	47	73	95	44	-	16
69.56	373.3	238.1	238.1	3.3	3.2	0.9	6	clean SAND to silty SAND	125	5.0	48	75	95	44	-	16
69.72	377.7	240.6	240.6	3.7	3.3	1.0	6	clean SAND to silty SAND	125	5.0	48	76	95	44	-	16
69.89	378.7	241.0	241.1	3.8	3.5	1.0	6	clean SAND to silty SAND	125	5.0	48	76	95	44	-	16
70.05	336.1	213.6	228.3	4.1	9.8	1.2	6	clean SAND to silty SAND	125	5.0	43	67	92	43	-	16
70.21	367.2	233.2	243.0	4.3	9.7	1.2	6	clean SAND to silty SAND	125	5.0	47	73	95	43	-	16
70.38	383.0	242.9	252.7	4.7	9.0	1.2	6	clean SAND to silty SAND	125	5.0	49	77	95	44	-	16
70.54	394.1	249.7	255.3	4.5	8.4	1.2	6	clean SAND to silty SAND	125	5.0	50	79	95	44	-	16
70.71	392.8	248.6	248.6	2.4	7.9	0.6	6	clean SAND to silty SAND	125	5.0	50	79	95	44	-	16
70.87	404.2	255.5	255.5	2.5	6.5	0.6	6	clean SAND to silty SAND	125	5.0	51	81	95	44	-	16
71.03	378.0	238.7	238.7	2.5	8.6	0.7	6	clean SAND to silty SAND	125	5.0	48	76	95	44	-	16
71.20	375.1	236.6	236.6	2.3	8.4	0.6	6	clean SAND to silty SAND	125	5.0	47	75	95	43	-	16
71.36	368.6	232.3	232.3	3.2	8.4	0.9	6	clean SAND to silty SAND	125	5.0	46	74	95	43	-	16
71.53	356.0	224.1	223.9	3.4	8.6	1.0	6	clean SAND to silty SAND	125	5.0	45	71	94	43	-	16
71.69	338.3	212.7	212.7	3.0	8.8	0.9	6	clean SAND to silty SAND	125	5.0	43	68	92	43	-	16
71.85	341.3	214.4	214.4	2.4	8.8	0.7	6	clean SAND to silty SAND	125	5.0	43	68	92	43	-	16
72.02	392.6	246.4	246.4	2.5	8.3	0.6	6	clean SAND to silty SAND	125	5.0	49	79	95	44	-	16
72.18	438.7	275.0	275.0	3.1	9.1	0.7	6	clean SAND to silty SAND	125	5.0	55	88	95	44	-	16
72.35	361.6	226.4	226.4	3.0	9.4	0.8	6	clean SAND to silty SAND	125	5.0	45	72	94	43	-	16
72.51	490.9	307.0	307.0	5.6	13.0	1.1	6	clean SAND to silty SAND	125	5.0	61	98	95	45	-	16
72.67	476.8	297.9	297.9	3.8	11.8	0.8	6	clean SAND to silty SAND	125	5.0	60	95	95	45	-	16
72.84	461.3	287.9	287.9	2.9	11.9	0.6	6	clean SAND to silty SAND	125	5.0	58	92	95	44	-	16
73.00	424.6	264.7	264.7	3.0	11.0	0.7	6	clean SAND to silty SAND	125	5.0	53	85	95	44	-	16
73.17	383.3	238.7	238.7	3.2	11.2	0.9	6	clean SAND to silty SAND	125	5.0	48	77	95	43	-	16
73.33	364.2	226.6	229.0	3.6	12.4	1.0	6	clean SAND to silty SAND	125	5.0	45	73	94	43	-	16
73.49	365.0	226.8	227.5	3.5	12.3	1.0	6	clean SAND to silty SAND	125	5.0	45	73	94	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(426).cpt
CPT Date: 11/20/2008 9:41:52 AM
GW During Test: 12 ft

Sounding ID: CPT-08-37
Project No: 08-156
Cone/Rig: DSG0906

. Depth ft	. qc PS tsf	* qc1n PS -	. q1ncs PS -	. Slv Stss tsf	. pore prss (psi)	. Frct Rato %	* Mat Typ Zon	* Material Behavior Description	. Unit Wght pcf	. Qc to N	* SPT R-N1 60%	. SPT R-N 60%	* Rel Den %	* Ftn Ang deg	. Und Shr tsf	* Nk -
73.66	386.2	239.8	239.5	3.9	11.9	1.0	6	clean SAND to silty SAND	125	5.0	48	77	95	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(463).cpt
CPT Date: 12/4/2008 10:07:22 AM
GW During Test: 12 ft

Sounding ID: CPT-08-38
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	85.4	137.0	205.1	2.3	0.1	2.7	5	silty SAND to sandy SILT	120	4.0	34	21	77	48	-	16
0.49	144.9	232.4	264.2	2.6	0.1	1.8	6	clean SAND to silty SAND	125	5.0	46	29	95	48	-	16
0.66	125.1	200.7	211.8	1.4	-0.3	1.1	6	clean SAND to silty SAND	125	5.0	40	25	90	48	-	16
0.82	76.7	123.1	151.2	1.1	-0.2	1.4	6	clean SAND to silty SAND	125	5.0	25	15	74	48	-	16
0.98	70.5	113.1	152.1	1.2	-0.2	1.7	5	silty SAND to sandy SILT	120	4.0	28	18	71	48	-	16
1.15	64.7	103.7	156.9	1.4	-0.3	2.2	5	silty SAND to sandy SILT	120	4.0	26	16	68	48	-	16
1.31	60.2	96.5	154.5	1.4	-0.3	2.3	5	silty SAND to sandy SILT	120	4.0	24	15	66	48	-	16
1.48	63.6	102.0	177.6	1.8	-0.2	2.9	5	silty SAND to sandy SILT	120	4.0	26	16	68	48	-	16
1.64	86.3	138.3	205.4	2.3	-0.1	2.7	5	silty SAND to sandy SILT	120	4.0	35	22	78	48	-	16
1.80	90.6	145.3	232.6	3.0	-0.2	3.3	5	silty SAND to sandy SILT	120	4.0	36	23	79	48	-	16
1.97	82.1	131.7	232.1	3.0	0.1	3.7	8	stiff SAND to clayy SAND	115	1.0	100	82	-	-	5.4	16
2.13	69.5	111.4	211.1	2.5	-1.0	3.7	5	silty SAND to sandy SILT	120	4.0	28	17	71	48	-	16
2.30	70.0	112.3	197.5	2.2	-0.6	3.2	5	silty SAND to sandy SILT	120	4.0	28	18	71	48	-	16
2.46	70.9	113.7	197.3	2.2	-1.0	3.2	5	silty SAND to sandy SILT	120	4.0	28	18	71	48	-	16
2.62	62.6	100.4	196.7	2.2	-0.6	3.6	5	silty SAND to sandy SILT	120	4.0	25	16	67	47	-	16
2.79	60.6	97.2	200.0	2.3	-0.4	3.8	5	silty SAND to sandy SILT	120	4.0	24	15	66	47	-	16
2.95	67.9	108.9	216.0	2.6	0.1	3.9	8	stiff SAND to clayy SAND	115	1.0	100	68	-	-	4.5	16
3.12	90.3	144.8	233.6	3.0	-0.5	3.3	5	silty SAND to sandy SILT	120	4.0	36	23	79	48	-	16
3.28	92.2	147.9	235.4	3.0	-2.8	3.3	5	silty SAND to sandy SILT	120	4.0	37	23	80	48	-	16
3.45	92.7	148.7	249.7	3.4	-3.9	3.6	8	stiff SAND to clayy SAND	115	1.0	100	93	-	-	6.1	16
3.61	93.7	150.2	246.7	3.3	-0.8	3.5	8	stiff SAND to clayy SAND	115	1.0	100	94	-	-	6.2	16
3.77	100.3	160.9	251.8	3.4	-0.9	3.4	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	6.6	16
3.94	88.4	141.9	255.6	3.5	-1.4	4.0	8	stiff SAND to clayy SAND	115	1.0	100	88	-	-	5.8	16
4.10	75.5	121.2	227.2	2.9	-1.0	3.8	8	stiff SAND to clayy SAND	115	1.0	100	76	-	-	5.0	16
4.27	63.1	101.3	206.6	2.4	0.0	3.9	5	silty SAND to sandy SILT	120	4.0	25	16	67	46	-	16
4.43	56.1	90.0	194.3	2.2	0.1	3.9	4	clayy SILT to silty CLAY	115	2.0	45	28	-	-	3.9	15
4.59	44.2	70.9	185.2	1.9	0.1	4.4	4	clayy SILT to silty CLAY	115	2.0	35	22	-	-	3.1	15
4.76	39.9	64.0	173.5	1.7	0.1	4.2	4	clayy SILT to silty CLAY	115	2.0	32	20	-	-	2.8	15
4.92	32.8	52.6	172.4	1.6	0.1	4.9	4	clayy SILT to silty CLAY	115	2.0	26	16	-	-	2.3	15
5.09	33.4	53.6	163.8	1.5	0.1	4.4	4	clayy SILT to silty CLAY	115	2.0	27	17	-	-	2.3	15
5.25	30.7	49.3	157.5	1.3	-0.1	4.4	4	clayy SILT to silty CLAY	115	2.0	25	15	-	-	2.2	15
5.41	27.1	43.5	-	1.3	0.0	4.8	4	clayy SILT to silty CLAY	115	2.0	22	14	-	-	1.9	15
5.58	26.1	41.9	-	1.2	0.0	4.7	4	clayy SILT to silty CLAY	115	2.0	21	13	-	-	1.8	15
5.74	24.2	38.8	-	1.1	-0.2	4.5	4	clayy SILT to silty CLAY	115	2.0	19	12	-	-	1.7	15
5.91	23.5	37.7	-	1.0	-0.2	4.4	4	clayy SILT to silty CLAY	115	2.0	19	12	-	-	1.6	15
6.07	22.8	36.5	-	1.0	-0.2	4.4	4	clayy SILT to silty CLAY	115	2.0	18	11	-	-	1.6	15
6.23	20.9	33.6	-	1.0	-0.3	4.7	3	silty CLAY to CLAY	115	1.5	22	14	-	-	1.5	15
6.40	19.6	31.4	-	0.6	-0.6	3.3	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
6.56	18.3	29.4	-	0.7	-0.3	3.9	4	clayy SILT to silty CLAY	115	2.0	15	9	-	-	1.3	15
6.73	20.0	32.2	-	1.0	-1.6	5.0	3	silty CLAY to CLAY	115	1.5	21	13	-	-	1.4	15
6.89	23.6	37.9	-	1.0	-0.9	4.5	4	clayy SILT to silty CLAY	115	2.0	19	12	-	-	1.7	15
7.05	19.5	31.3	-	0.8	-0.5	4.4	3	silty CLAY to CLAY	115	1.5	21	13	-	-	1.4	15
7.22	17.4	27.9	-	0.6	-0.2	3.8	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
7.38	14.5	23.3	-	0.5	-0.1	3.8	4	clayy SILT to silty CLAY	115	2.0	12	7	-	-	1.0	15
7.55	13.8	22.1	-	0.6	-0.1	4.4	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
7.71	14.3	23.0	-	0.7	-0.2	5.3	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.0	15
7.87	15.3	24.6	-	0.8	-0.2	5.3	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.1	15
8.04	16.6	26.6	-	0.9	-0.2	5.3	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.1	15
8.20	19.0	30.4	-	0.9	-0.2	4.6	3	silty CLAY to CLAY	115	1.5	20	13	-	-	1.3	15
8.37	34.8	48.3	111.6	0.8	-0.1	2.4	5	silty SAND to sandy SILT	120	4.0	12	9	43	41	-	16
8.53	55.1	75.6	106.7	0.7	-0.1	1.3	5	silty SAND to sandy SILT	120	4.0	19	14	58	43	-	16
8.69	70.6	96.1	124.2	0.9	-0.1	1.3	6	clean SAND to silty SAND	125	5.0	19	14	66	44	-	16
8.86	80.0	107.7	134.0	1.0	-0.1	1.3	6	clean SAND to silty SAND	125	5.0	22	16	69	45	-	16
9.02	83.1	110.8	136.9	1.0	-0.1	1.3	6	clean SAND to silty SAND	125	5.0	22	17	70	45	-	16
9.19	89.3	118.0	145.1	1.2	-0.1	1.3	6	clean SAND to silty SAND	125	5.0	24	18	72	45	-	16
9.35	95.5	125.0	152.7	1.3	-0.1	1.4	6	clean SAND to silty SAND	125	5.0	25	19	74	45	-	16
9.51	103.7	134.5	160.0	1.4	0.0	1.3	6	clean SAND to silty SAND	125	5.0	27	21	77	46	-	16
9.68	107.9	138.7	164.4	1.5	0.0	1.4	6	clean SAND to silty SAND	125	5.0	28	22	78	46	-	16
9.84	108.4	138.1	166.4	1.6	0.0	1.4	6	clean SAND to silty SAND	125	5.0	28	22	78	46	-	16
10.01	105.4	133.0	162.8	1.5	0.0	1.5	6	clean SAND to silty SAND	125	5.0	27	21	76	46	-	16
10.17	107.3	134.3	159.4	1.4	0.0	1.3	6	clean SAND to silty SAND	125	5.0	27	21	77	46	-	16
10.34	114.4	142.1	160.9	1.3	0.0	1.1	6	clean SAND to silty SAND	125	5.0	28	23	79	46	-	16
10.50	122.1	150.4	164.4	1.2	0.1	1.0	6	clean SAND to silty SAND	125	5.0	30	24	80	46	-	16

* Indicates the parameter was calculated using the normalized point stress.
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A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(463).cpt
CPT Date: 12/4/2008 10:07:22 AM
GW During Test: 12 ft

Sounding ID: CPT-08-38
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	123.6	150.9	163.2	1.2	0.2	1.0	6	clean SAND to silty SAND	125	5.0	30	25	81	46	-	16
10.83	116.4	140.9	154.5	1.1	0.2	1.0	6	clean SAND to silty SAND	125	5.0	28	23	78	46	-	16
10.99	102.3	122.9	138.4	1.0	0.2	0.9	6	clean SAND to silty SAND	125	5.0	25	20	74	45	-	16
11.16	87.8	104.7	122.6	0.8	0.3	0.9	6	clean SAND to silty SAND	125	5.0	21	18	69	44	-	16
11.32	76.3	90.3	108.9	0.7	-0.4	0.9	6	clean SAND to silty SAND	125	5.0	18	15	64	44	-	16
11.48	52.3	61.4	101.9	0.8	0.3	1.5	5	silty SAND to sandy SILT	120	4.0	15	13	51	42	-	16
11.65	25.4	32.3	-	0.8	0.9	3.1	4	clayy SILT to silty CLAY	115	2.0	16	13	-	-	1.8	15
11.81	13.3	19.0	-	0.4	1.1	3.5	3	silty CLAY to CLAY	115	1.5	13	9	-	-	0.9	15
11.98	9.2	12.9	-	0.3	4.9	3.5	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
12.14	8.2	11.5	-	0.1	11.4	1.5	4	clayy SILT to silty CLAY	115	2.0	6	4	-	-	0.5	15
12.30	6.5	9.0	-	0.1	16.9	1.3	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
12.47	7.0	9.6	-	0.1	21.8	2.4	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
12.63	6.7	9.2	-	0.1	20.8	1.1	4	clayy SILT to silty CLAY	115	2.0	5	3	-	-	0.4	15
12.80	6.3	8.6	-	0.1	16.8	1.0	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
12.96	6.3	8.5	-	0.0	15.8	0.8	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
13.12	6.9	9.3	-	0.1	17.1	0.9	4	clayy SILT to silty CLAY	115	2.0	5	3	-	-	0.5	15
13.29	6.8	9.1	-	0.1	15.2	0.9	4	clayy SILT to silty CLAY	115	2.0	5	3	-	-	0.4	15
13.45	6.3	8.4	-	0.0	15.6	0.6	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
13.62	5.9	7.8	-	0.0	13.2	0.7	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
13.78	5.9	7.8	-	0.1	11.1	1.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
13.94	6.1	8.0	-	0.1	9.7	2.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.11	6.0	7.8	-	0.1	8.0	2.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.27	5.9	7.6	-	0.1	7.4	2.2	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.44	6.0	7.7	-	0.1	7.0	1.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.60	8.7	11.1	-	0.2	6.7	3.1	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
14.76	13.4	17.0	-	0.4	5.8	3.2	3	silty CLAY to CLAY	115	1.5	11	9	-	-	0.9	15
14.93	19.4	24.5	-	0.5	-2.4	2.5	4	clayy SILT to silty CLAY	115	2.0	12	10	-	-	1.3	15
15.09	22.3	25.8	-	0.5	-6.7	2.3	4	clayy SILT to silty CLAY	115	2.0	13	11	-	-	1.5	15
15.26	24.9	27.0	78.5	0.4	-7.6	1.8	4	clayy SILT to silty CLAY	115	2.0	14	12	-	-	1.7	15
15.42	24.9	27.0	84.7	0.5	-9.1	2.1	4	clayy SILT to silty CLAY	115	2.0	14	12	-	-	1.7	15
15.58	21.7	26.8	-	0.6	-6.4	2.8	4	clayy SILT to silty CLAY	115	2.0	13	11	-	-	1.5	15
15.75	19.0	23.4	-	0.6	-8.8	3.1	4	clayy SILT to silty CLAY	115	2.0	12	10	-	-	1.3	15
15.91	14.2	17.4	-	0.5	-10.0	3.5	3	silty CLAY to CLAY	115	1.5	12	9	-	-	1.0	15
16.08	11.5	14.0	-	0.3	-10.1	3.1	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
16.24	19.6	22.0	-	0.3	-10.0	1.8	4	clayy SILT to silty CLAY	115	2.0	11	10	-	-	1.3	15
16.40	19.0	22.9	-	0.4	-10.1	2.3	4	clayy SILT to silty CLAY	115	2.0	11	10	-	-	1.3	15
16.57	48.1	51.1	85.7	0.6	-10.2	1.2	5	silty SAND to sandy SILT	120	4.0	13	12	45	40	-	16
16.73	59.6	63.2	95.3	0.7	-10.3	1.2	5	silty SAND to sandy SILT	120	4.0	16	15	52	41	-	16
16.90	62.4	66.0	102.6	0.9	-10.1	1.4	5	silty SAND to sandy SILT	120	4.0	17	16	53	41	-	16
17.06	62.7	66.1	109.1	1.0	-9.9	1.6	5	silty SAND to sandy SILT	120	4.0	17	16	53	41	-	16
17.23	57.0	59.9	108.3	1.0	-9.7	1.8	5	silty SAND to sandy SILT	120	4.0	15	14	50	40	-	16
17.39	50.8	53.3	109.6	1.0	-9.5	2.1	5	silty SAND to sandy SILT	120	4.0	13	13	46	40	-	16
17.55	42.6	44.6	106.5	1.0	-9.3	2.3	5	silty SAND to sandy SILT	120	4.0	11	11	40	39	-	16
17.72	32.2	33.5	102.8	0.8	-9.4	2.6	4	clayy SILT to silty CLAY	115	2.0	17	16	-	-	2.2	15
17.88	15.8	18.2	-	0.5	-10.8	3.4	3	silty CLAY to CLAY	115	1.5	12	11	-	-	1.1	15
18.05	10.1	11.6	-	0.2	-11.2	2.5	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
18.21	8.9	10.1	-	0.1	-11.0	1.7	4	clayy SILT to silty CLAY	115	2.0	5	4	-	-	0.6	15
18.37	8.6	9.7	-	0.2	-10.8	2.8	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
18.54	12.0	13.5	-	0.4	-10.6	3.3	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
18.70	44.0	45.2	74.4	0.4	-10.5	1.0	5	silty SAND to sandy SILT	120	4.0	11	11	41	39	-	16
18.87	58.0	59.5	87.4	0.6	-10.7	1.0	5	silty SAND to sandy SILT	120	4.0	15	15	50	40	-	16
19.03	59.6	61.0	91.8	0.7	-7.1	1.2	5	silty SAND to sandy SILT	120	4.0	15	15	51	40	-	16
19.19	57.4	58.5	93.8	0.7	-7.1	1.3	5	silty SAND to sandy SILT	120	4.0	15	14	49	40	-	16
19.36	45.2	46.0	88.9	0.7	-6.9	1.5	5	silty SAND to sandy SILT	120	4.0	11	11	41	39	-	16
19.52	42.2	42.9	83.8	0.6	-7.5	1.4	5	silty SAND to sandy SILT	120	4.0	11	11	39	38	-	16
19.69	28.3	28.6	85.5	0.5	-9.5	2.0	4	clayy SILT to silty CLAY	115	2.0	14	14	-	-	2.0	15
19.85	14.7	15.9	-	0.3	-9.2	2.2	4	clayy SILT to silty CLAY	115	2.0	8	7	-	-	1.0	15
20.01	8.6	9.3	-	0.2	-8.6	2.0	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
20.18	7.4	7.9	-	0.1	-7.9	0.9	4	clayy SILT to silty CLAY	115	2.0	4	4	-	-	0.5	15
20.34	6.8	7.2	-	0.1	-7.3	1.0	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
20.51	6.9	7.4	-	0.1	-6.7	1.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
20.67	7.8	8.2	-	0.1	-6.1	1.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
20.83	7.2	7.6	-	0.1	-5.7	2.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.00	7.0	7.3	-	0.1	-5.2	2.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(463).cpt
CPT Date: 12/4/2008 10:07:22 AM
GW During Test: 12 ft

Sounding ID: CPT-08-38
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	6.8	7.1	-	0.1	-5.1	2.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
21.33	6.9	7.2	-	0.2	-5.1	2.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
21.49	7.5	7.8	-	0.2	-4.9	3.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.65	8.2	8.4	-	0.2	-5.0	3.4	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
21.82	8.0	8.2	-	0.2	-5.6	3.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.98	7.8	8.0	-	0.2	-5.7	3.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.15	7.7	7.8	-	0.2	-4.2	2.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.31	7.7	7.7	-	0.2	-3.8	2.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.47	8.2	8.3	-	0.2	-3.4	2.4	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
22.64	12.0	12.0	-	0.2	-2.5	1.9	4	clayy SILT to silty CLAY	115	2.0	6	6	-	-	0.8	15
22.80	21.5	20.8	56.9	0.2	-4.6	1.0	5	silty SAND to sandy SILT	120	4.0	5	5	15	33	-	16
22.97	35.2	34.1	55.3	0.2	-9.6	0.6	5	silty SAND to sandy SILT	120	4.0	9	9	31	36	-	16
23.13	42.8	41.4	59.3	0.2	-10.2	0.5	5	silty SAND to sandy SILT	120	4.0	10	11	38	37	-	16
23.30	44.9	43.3	70.8	0.4	-10.4	0.9	5	silty SAND to sandy SILT	120	4.0	11	11	39	38	-	16
23.46	47.5	45.7	73.9	0.4	-10.1	0.9	5	silty SAND to sandy SILT	120	4.0	11	12	41	38	-	16
23.62	61.8	59.2	79.6	0.5	-10.8	0.8	6	clean SAND to silty SAND	125	5.0	12	12	50	39	-	16
23.79	71.0	67.9	86.7	0.5	-11.4	0.8	6	clean SAND to silty SAND	125	5.0	14	14	54	40	-	16
23.95	76.0	72.5	93.0	0.6	-11.1	0.9	6	clean SAND to silty SAND	125	5.0	15	15	56	41	-	16
24.12	81.1	77.1	98.3	0.7	-10.7	0.9	6	clean SAND to silty SAND	125	5.0	15	16	58	41	-	16
24.28	85.9	81.5	101.8	0.8	-10.4	0.9	6	clean SAND to silty SAND	125	5.0	16	17	60	41	-	16
24.44	87.4	82.8	103.4	0.8	-10.0	0.9	6	clean SAND to silty SAND	125	5.0	17	17	61	41	-	16
24.61	87.8	83.0	105.4	0.9	-9.6	1.0	6	clean SAND to silty SAND	125	5.0	17	18	61	41	-	16
24.77	86.9	81.9	104.7	0.9	-9.0	1.0	6	clean SAND to silty SAND	125	5.0	16	17	60	41	-	16
24.94	84.0	79.0	101.8	0.8	-8.4	1.0	6	clean SAND to silty SAND	125	5.0	16	17	59	41	-	16
25.10	76.2	71.5	94.5	0.7	-7.7	0.9	6	clean SAND to silty SAND	125	5.0	14	15	56	40	-	16
25.26	65.5	61.3	85.2	0.6	-7.0	0.9	5	silty SAND to sandy SILT	120	4.0	15	16	51	39	-	16
25.43	53.1	49.6	81.1	0.6	-6.1	1.1	5	silty SAND to sandy SILT	120	4.0	12	13	44	38	-	16
25.59	46.1	42.9	85.4	0.7	5.2	1.5	5	silty SAND to sandy SILT	120	4.0	11	12	39	37	-	16
25.76	36.6	34.0	83.7	0.6	1.7	1.7	5	silty SAND to sandy SILT	120	4.0	9	9	31	36	-	16
25.92	30.4	28.2	78.7	0.5	-6.2	1.7	5	silty SAND to sandy SILT	120	4.0	7	8	25	35	-	16
26.08	26.0	24.0	77.9	0.5	-9.1	1.8	4	clayy SILT to silty CLAY	115	2.0	12	13	-	-	1.8	15
26.25	14.7	13.3	-	0.4	-9.3	2.7	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
26.41	9.3	8.4	-	0.3	-8.7	3.4	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
26.58	8.3	7.4	-	0.2	-7.7	2.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
26.74	7.7	6.9	-	0.1	-7.1	2.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.90	7.2	6.4	-	0.1	-6.5	2.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
27.07	7.0	6.2	-	0.1	-5.9	1.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
27.23	6.8	6.0	-	0.1	-5.2	1.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
27.40	6.7	5.9	-	0.1	-4.4	1.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
27.56	7.0	6.1	-	0.1	-3.5	1.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
27.72	7.4	6.4	-	0.1	-2.6	1.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
27.89	7.3	6.3	-	0.1	-1.4	2.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
28.05	8.8	7.7	-	0.1	0.2	1.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.22	8.8	7.6	-	0.2	1.2	3.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.38	13.2	11.3	-	0.4	4.2	3.2	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
28.54	21.5	18.4	-	0.3	-0.4	1.4	4	clayy SILT to silty CLAY	115	2.0	9	11	-	-	1.5	15
28.71	38.0	34.1	65.2	0.3	-6.8	0.9	5	silty SAND to sandy SILT	120	4.0	9	9	31	36	-	16
28.87	38.1	34.1	80.3	0.6	1.7	1.5	5	silty SAND to sandy SILT	120	4.0	9	10	31	36	-	16
29.04	36.7	32.8	85.7	0.6	0.5	1.8	5	silty SAND to sandy SILT	120	4.0	8	9	30	35	-	16
29.20	57.9	51.7	93.4	0.8	-4.7	1.5	5	silty SAND to sandy SILT	120	4.0	13	14	45	38	-	16
29.36	69.5	61.9	101.5	1.0	-8.6	1.5	5	silty SAND to sandy SILT	120	4.0	15	17	51	39	-	16
29.53	71.4	63.5	104.8	1.1	-7.8	1.6	5	silty SAND to sandy SILT	120	4.0	16	18	52	39	-	16
29.69	70.1	62.2	104.2	1.1	-6.8	1.6	5	silty SAND to sandy SILT	120	4.0	16	18	51	39	-	16
29.86	66.7	59.1	98.6	1.0	-6.1	1.5	5	silty SAND to sandy SILT	120	4.0	15	17	50	39	-	16
30.02	53.0	46.8	100.3	1.0	-5.6	1.9	5	silty SAND to sandy SILT	120	4.0	12	13	42	37	-	16
30.19	30.0	24.7	-	0.8	-5.6	2.7	4	clayy SILT to silty CLAY	115	2.0	12	15	-	-	2.1	15
30.35	17.4	14.3	-	0.5	-6.0	3.1	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.2	15
30.51	12.2	10.0	-	0.2	-6.9	2.2	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
30.68	9.6	7.8	-	0.2	-5.1	2.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.84	8.7	7.1	-	0.2	-3.2	3.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
31.01	8.8	7.1	-	0.3	-0.8	3.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.17	9.5	7.7	-	0.3	1.5	3.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.33	9.9	8.0	-	0.3	3.4	3.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
31.50	9.6	7.7	-	0.4	4.3	4.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15

* Indicates the parameter was calculated using the normalized point stress.
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A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(463).cpt
CPT Date: 12/4/2008 10:07:22 AM
GW During Test: 12 ft

Sounding ID: CPT-08-38
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	10.9	8.7	-	0.5	7.9	5.1	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
31.83	21.3	16.9	-	0.6	8.8	3.0	3	silty CLAY to CLAY	115	1.5	11	14	-	-	1.4	15
31.99	41.7	36.0	82.7	0.6	-3.6	1.6	5	silty SAND to sandy SILT	120	4.0	9	10	33	36	-	16
32.15	53.3	46.1	88.9	0.8	3.1	1.5	5	silty SAND to sandy SILT	120	4.0	12	13	41	37	-	16
32.32	57.4	49.5	102.0	1.0	1.6	1.9	5	silty SAND to sandy SILT	120	4.0	12	14	44	37	-	16
32.48	49.5	42.6	118.0	1.4	2.5	2.8	4	clayy SILT to silty CLAY	115	2.0	21	25	-	-	3.4	15
32.65	39.3	30.8	-	1.1	2.1	3.0	4	clayy SILT to silty CLAY	115	2.0	15	20	-	-	2.7	15
32.81	44.1	37.8	110.5	1.2	-3.8	2.7	4	clayy SILT to silty CLAY	115	2.0	19	22	-	-	3.0	15
32.97	77.8	66.6	116.0	1.4	-7.2	1.9	5	silty SAND to sandy SILT	120	4.0	17	19	54	39	-	16
33.14	83.6	71.4	123.6	1.6	-7.0	2.0	5	silty SAND to sandy SILT	120	4.0	18	21	56	39	-	16
33.30	87.6	74.7	127.4	1.7	-5.8	2.0	5	silty SAND to sandy SILT	120	4.0	19	22	57	40	-	16
33.47	87.3	74.3	128.5	1.8	-4.4	2.1	5	silty SAND to sandy SILT	120	4.0	19	22	57	40	-	16
33.63	86.1	73.2	126.2	1.7	-2.6	2.0	5	silty SAND to sandy SILT	120	4.0	18	22	57	40	-	16
33.79	85.0	72.1	122.3	1.6	-0.6	1.9	5	silty SAND to sandy SILT	120	4.0	18	21	56	39	-	16
33.96	79.9	67.6	118.9	1.5	1.3	1.9	5	silty SAND to sandy SILT	120	4.0	17	20	54	39	-	16
34.12	73.6	62.2	117.0	1.5	2.9	2.0	5	silty SAND to sandy SILT	120	4.0	16	18	51	39	-	16
34.29	56.0	47.2	118.1	1.4	2.7	2.6	5	silty SAND to sandy SILT	120	4.0	12	14	42	37	-	16
34.45	31.9	24.0	-	1.1	3.2	3.7	4	clayy SILT to silty CLAY	115	2.0	12	16	-	-	2.2	15
34.61	20.3	15.2	-	0.7	4.0	3.9	3	silty CLAY to CLAY	115	1.5	10	14	-	-	1.4	15
34.78	13.2	9.8	-	0.4	6.3	3.9	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
34.94	10.7	8.0	-	0.3	12.8	3.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
35.11	9.8	7.2	-	0.3	20.8	3.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
35.27	9.6	7.1	-	0.3	35.2	4.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
35.43	10.0	7.3	-	0.5	34.1	6.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
35.60	12.1	8.9	-	0.6	32.7	5.8	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
35.76	12.1	8.9	-	0.5	16.6	5.0	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
35.93	11.2	8.2	-	0.4	36.1	4.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
36.09	11.6	8.4	-	0.4	42.8	4.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
36.26	37.5	31.0	87.2	0.7	43.9	1.9	4	clayy SILT to silty CLAY	115	2.0	16	19	-	-	2.6	15
36.42	90.7	74.9	100.9	0.9	-5.0	1.1	6	clean SAND to silty SAND	125	5.0	15	18	57	39	-	16
36.58	104.1	85.8	110.9	1.1	-2.9	1.1	6	clean SAND to silty SAND	125	5.0	17	21	62	40	-	16
36.75	108.3	89.1	118.1	1.3	0.0	1.3	6	clean SAND to silty SAND	125	5.0	18	22	63	40	-	16
36.91	102.7	84.4	120.9	1.5	3.1	1.5	5	silty SAND to sandy SILT	120	4.0	21	26	61	40	-	16
37.08	92.0	75.5	122.0	1.6	4.3	1.8	5	silty SAND to sandy SILT	120	4.0	19	23	58	39	-	16
37.24	84.5	69.2	118.9	1.6	4.5	1.9	5	silty SAND to sandy SILT	120	4.0	17	21	55	39	-	16
37.40	87.3	71.4	116.5	1.5	1.8	1.7	5	silty SAND to sandy SILT	120	4.0	18	22	56	39	-	16
37.57	93.0	75.9	124.0	1.7	-2.8	1.9	5	silty SAND to sandy SILT	120	4.0	19	23	58	39	-	16
37.73	86.5	70.5	124.0	1.7	-2.3	2.0	5	silty SAND to sandy SILT	120	4.0	18	22	55	39	-	16
37.90	80.0	65.0	110.6	1.3	-1.0	1.7	5	silty SAND to sandy SILT	120	4.0	16	20	53	39	-	16
38.06	94.8	76.9	106.0	1.1	-7.3	1.2	5	silty SAND to sandy SILT	120	4.0	19	24	58	39	-	16
38.22	98.9	80.2	109.3	1.2	-9.4	1.2	5	silty SAND to sandy SILT	120	4.0	20	25	60	40	-	16
38.39	98.1	79.4	108.8	1.2	-8.7	1.2	5	silty SAND to sandy SILT	120	4.0	20	25	59	40	-	16
38.55	95.3	77.0	111.3	1.3	-10.0	1.4	5	silty SAND to sandy SILT	120	4.0	19	24	58	39	-	16
38.72	89.7	72.4	118.6	1.6	-10.8	1.8	5	silty SAND to sandy SILT	120	4.0	18	22	56	39	-	16
38.88	76.8	61.8	122.0	1.7	-9.4	2.2	5	silty SAND to sandy SILT	120	4.0	15	19	51	38	-	16
39.04	76.1	61.2	120.6	1.6	-10.8	2.2	5	silty SAND to sandy SILT	120	4.0	15	19	51	38	-	16
39.21	52.8	42.4	114.6	1.4	-11.8	2.7	4	clayy SILT to silty CLAY	115	2.0	21	26	-	-	3.6	15
39.37	30.0	20.5	-	1.3	-12.0	4.8	3	silty CLAY to CLAY	115	1.5	14	20	-	-	2.0	15
39.54	33.8	22.9	-	1.7	-11.8	5.4	3	silty CLAY to CLAY	115	1.5	15	23	-	-	2.3	15
39.70	75.8	60.6	131.1	1.9	-11.4	2.6	5	silty SAND to sandy SILT	120	4.0	15	19	50	38	-	16
39.86	57.5	45.9	124.2	1.6	-11.0	2.9	4	clayy SILT to silty CLAY	115	2.0	23	29	-	-	4.0	15
40.03	53.3	42.5	116.5	1.4	-10.5	2.8	4	clayy SILT to silty CLAY	115	2.0	21	27	-	-	3.7	15
40.19	60.3	48.0	113.1	1.4	-9.8	2.4	5	silty SAND to sandy SILT	120	4.0	12	15	43	37	-	16
40.36	51.0	34.1	-	1.8	-9.1	3.6	4	clayy SILT to silty CLAY	115	2.0	17	26	-	-	3.5	15
40.52	29.6	19.7	-	1.2	-8.6	4.5	3	silty CLAY to CLAY	115	1.5	13	20	-	-	2.0	15
40.68	29.4	19.5	-	0.8	-7.6	3.1	4	clayy SILT to silty CLAY	115	2.0	10	15	-	-	2.0	15
40.85	44.5	35.2	81.8	0.6	-7.2	1.5	5	silty SAND to sandy SILT	120	4.0	9	11	33	35	-	16
41.01	35.3	23.3	-	0.8	-7.8	2.4	4	clayy SILT to silty CLAY	115	2.0	12	18	-	-	2.4	15
41.18	24.2	16.0	-	0.8	-7.3	3.8	3	silty CLAY to CLAY	115	1.5	11	16	-	-	1.6	15
41.34	52.7	41.5	103.5	1.1	-6.9	2.2	5	silty SAND to sandy SILT	120	4.0	10	13	38	36	-	16
41.50	32.3	21.2	-	0.9	-6.6	3.1	4	clayy SILT to silty CLAY	115	2.0	11	16	-	-	2.2	15
41.67	20.0	13.1	-	0.7	-5.9	3.9	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
41.83	18.3	11.9	-	0.5	-4.8	3.4	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
42.00	17.8	11.6	-	0.5	2.4	3.5	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(463).cpt
CPT Date: 12/4/2008 10:07:22 AM
GW During Test: 12 ft

Sounding ID: CPT-08-38
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	17.8	11.5	-	0.5	3.5	3.4	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
42.32	17.7	11.4	-	0.5	3.8	3.4	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
42.49	16.8	10.8	-	0.5	14.7	3.4	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
42.65	16.7	10.7	-	0.5	16.8	3.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
42.82	16.2	10.4	-	0.5	15.8	3.4	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
42.98	15.5	9.9	-	0.5	15.0	3.6	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
43.15	15.4	9.8	-	0.5	16.6	3.9	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
43.31	16.0	10.2	-	0.5	15.8	3.9	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
43.47	16.7	10.6	-	0.6	14.7	4.0	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
43.64	16.4	10.4	-	0.6	11.6	4.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
43.80	16.1	10.2	-	0.6	9.2	4.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
43.97	18.0	11.3	-	0.5	9.9	3.5	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
44.13	16.7	10.5	-	0.6	9.9	3.9	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
44.29	16.8	10.5	-	0.6	15.0	4.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
44.46	18.1	11.3	-	0.7	13.4	4.8	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
44.62	18.4	11.4	-	0.8	8.7	5.3	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
44.79	24.7	15.3	-	0.9	8.1	4.2	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.7	15
44.95	56.3	43.0	100.0	1.1	0.0	2.0	5	silty SAND to sandy SILT	120	4.0	11	14	39	36	-	16
45.11	58.7	44.8	106.6	1.2	-2.3	2.2	5	silty SAND to sandy SILT	120	4.0	11	15	40	36	-	16
45.28	44.8	27.5	-	1.2	-5.9	3.0	4	clayy SILT to silty CLAY	115	2.0	14	22	-	-	3.1	15
45.44	40.1	24.6	-	1.1	-7.5	2.9	4	clayy SILT to silty CLAY	115	2.0	12	20	-	-	2.7	15
45.61	48.0	36.5	99.2	1.0	-8.3	2.2	4	clayy SILT to silty CLAY	115	2.0	18	24	-	-	3.3	15
45.77	39.0	23.8	-	1.0	-8.7	2.7	4	clayy SILT to silty CLAY	115	2.0	12	19	-	-	2.7	15
45.93	29.1	17.7	-	1.2	-8.7	4.4	3	silty CLAY to CLAY	115	1.5	12	19	-	-	2.0	15
46.10	29.0	17.6	-	1.3	-8.1	4.8	3	silty CLAY to CLAY	115	1.5	12	19	-	-	2.0	15
46.26	77.4	58.5	122.2	1.8	-8.1	2.3	5	silty SAND to sandy SILT	120	4.0	15	19	49	37	-	16
46.43	93.0	70.2	128.2	2.0	-8.6	2.2	5	silty SAND to sandy SILT	120	4.0	18	23	55	38	-	16
46.59	107.3	80.9	140.1	2.4	-8.2	2.3	5	silty SAND to sandy SILT	120	4.0	20	27	60	39	-	16
46.75	125.4	94.4	149.2	2.6	-9.1	2.2	5	silty SAND to sandy SILT	120	4.0	24	31	65	40	-	16
46.92	147.2	110.6	149.4	2.4	-10.2	1.7	5	silty SAND to sandy SILT	120	4.0	28	37	70	41	-	16
47.08	144.9	108.7	150.0	2.5	-11.0	1.8	5	silty SAND to sandy SILT	120	4.0	27	36	70	41	-	16
47.25	135.9	101.9	151.3	2.7	-10.9	2.0	5	silty SAND to sandy SILT	120	4.0	25	34	68	40	-	16
47.41	130.1	97.4	158.2	3.0	-10.5	2.4	5	silty SAND to sandy SILT	120	4.0	24	33	66	40	-	16
47.57	123.9	92.6	163.1	3.2	-10.1	2.7	5	silty SAND to sandy SILT	120	4.0	23	31	64	40	-	16
47.74	101.7	75.9	163.2	3.2	-9.9	3.2	5	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
47.90	63.3	37.2	-	2.5	-9.7	4.2	4	clayy SILT to silty CLAY	115	2.0	19	32	-	-	4.4	15
48.07	37.6	22.1	-	1.7	-9.5	5.0	3	silty CLAY to CLAY	115	1.5	15	25	-	-	2.6	15
48.23	27.4	16.1	-	0.8	-9.3	3.3	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.8	15
48.39	21.3	12.4	-	0.8	-9.0	4.3	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
48.56	22.1	12.9	-	0.8	8.0	4.1	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.5	15
48.72	20.8	12.1	-	1.0	12.6	5.8	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
48.89	59.8	44.3	116.0	1.5	20.6	2.6	4	clayy SILT to silty CLAY	115	2.0	22	30	-	-	4.1	15
49.05	116.3	85.9	121.6	1.7	-7.2	1.5	5	silty SAND to sandy SILT	120	4.0	21	29	62	39	-	16
49.22	113.9	84.0	124.6	1.8	-10.8	1.6	5	silty SAND to sandy SILT	120	4.0	21	28	61	39	-	16
49.38	130.7	96.3	136.0	2.1	-11.5	1.7	5	silty SAND to sandy SILT	120	4.0	24	33	66	40	-	16
49.54	160.7	118.2	149.6	2.3	-12.1	1.5	6	clean SAND to silty SAND	125	5.0	24	32	73	41	-	16
49.71	184.1	135.2	164.6	2.6	-12.5	1.5	6	clean SAND to silty SAND	125	5.0	27	37	77	42	-	16
49.87	204.1	149.7	176.9	2.9	-12.5	1.4	6	clean SAND to silty SAND	125	5.0	30	41	80	42	-	16
50.04	222.7	163.1	188.8	3.1	-12.3	1.4	6	clean SAND to silty SAND	125	5.0	33	45	83	43	-	16
50.20	233.5	170.8	195.9	3.3	-12.2	1.4	6	clean SAND to silty SAND	125	5.0	34	47	85	43	-	16
50.36	229.2	167.4	193.0	3.2	-12.0	1.4	6	clean SAND to silty SAND	125	5.0	33	46	84	43	-	16
50.53	228.6	166.7	193.9	3.3	-11.8	1.5	6	clean SAND to silty SAND	125	5.0	33	46	84	43	-	16
50.69	241.4	175.8	200.8	3.4	-11.6	1.4	6	clean SAND to silty SAND	125	5.0	35	48	86	43	-	16
50.86	247.8	180.2	206.7	3.7	-11.4	1.5	6	clean SAND to silty SAND	125	5.0	36	50	86	43	-	16
51.02	250.0	181.6	209.4	3.8	-11.2	1.5	6	clean SAND to silty SAND	125	5.0	36	50	87	43	-	16
51.18	248.8	180.4	209.0	3.8	-10.9	1.6	6	clean SAND to silty SAND	125	5.0	36	50	86	43	-	16
51.35	240.9	174.4	203.2	3.7	-10.7	1.5	6	clean SAND to silty SAND	125	5.0	35	48	85	43	-	16
51.51	231.4	167.3	189.6	3.0	-10.4	1.3	6	clean SAND to silty SAND	125	5.0	33	46	84	43	-	16
51.68	220.7	159.3	177.6	2.5	-10.2	1.2	6	clean SAND to silty SAND	125	5.0	32	44	82	42	-	16
51.84	206.8	149.1	166.6	2.3	-8.9	1.1	6	clean SAND to silty SAND	125	5.0	30	41	80	42	-	16
52.00	191.1	137.6	157.9	2.2	-8.8	1.2	6	clean SAND to silty SAND	125	5.0	28	38	78	42	-	16
52.17	152.7	109.8	146.6	2.4	-8.6	1.6	5	silty SAND to sandy SILT	120	4.0	27	38	70	40	-	16
52.33	92.1	66.1	146.8	2.7	-8.4	3.0	5	silty SAND to sandy SILT	120	4.0	17	23	53	38	-	16
52.50	49.9	27.2	-	2.2	-8.1	4.7	3	silty CLAY to CLAY	115	1.5	18	33	-	-	3.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(463).cpt
CPT Date: 12/4/2008 10:07:22 AM
GW During Test: 12 ft

Sounding ID: CPT-08-38
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	50.7	27.6	-	1.9	-6.7	4.0	4	clayy SILT to silty CLAY	115	2.0	14	25	-	-	3.5	15
52.82	91.4	65.4	111.7	1.5	-3.2	1.7	5	silty SAND to sandy SILT	120	4.0	16	23	53	37	-	16
52.99	94.1	67.2	123.9	1.9	-3.4	2.1	5	silty SAND to sandy SILT	120	4.0	17	24	54	38	-	16
53.15	63.9	34.5	-	2.2	-3.3	3.6	4	clayy SILT to silty CLAY	115	2.0	17	32	-	-	4.4	15
53.32	54.1	29.1	-	2.4	-2.9	4.8	3	silty CLAY to CLAY	115	1.5	19	36	-	-	3.7	15
53.48	100.4	71.5	139.9	2.5	-3.7	2.6	5	silty SAND to sandy SILT	120	4.0	18	25	56	38	-	16
53.64	190.6	135.5	166.8	2.8	-4.7	1.5	6	clean SAND to silty SAND	125	5.0	27	38	77	41	-	16
53.81	204.8	145.4	184.5	3.6	-5.5	1.8	6	clean SAND to silty SAND	125	5.0	29	41	79	42	-	16
53.97	209.7	148.7	191.0	3.9	-4.7	1.9	6	clean SAND to silty SAND	125	5.0	30	42	80	42	-	16
54.14	192.6	136.3	187.5	4.1	-4.3	2.2	5	silty SAND to sandy SILT	120	4.0	34	48	77	41	-	16
54.30	183.2	129.5	183.1	4.0	-3.8	2.2	5	silty SAND to sandy SILT	120	4.0	32	46	76	41	-	16
54.46	170.1	120.2	173.0	3.6	-3.2	2.2	5	silty SAND to sandy SILT	120	4.0	30	43	73	41	-	16
54.63	156.3	110.3	169.1	3.6	-2.6	2.3	5	silty SAND to sandy SILT	120	4.0	28	39	70	40	-	16
54.79	148.4	104.5	167.7	3.6	3.3	2.5	5	silty SAND to sandy SILT	120	4.0	26	37	68	40	-	16
54.96	156.6	110.2	168.9	3.6	3.6	2.3	5	silty SAND to sandy SILT	120	4.0	28	39	70	40	-	16
55.12	169.6	119.2	173.3	3.7	1.7	2.2	5	silty SAND to sandy SILT	120	4.0	30	42	73	41	-	16
55.28	175.3	123.1	178.8	3.9	0.5	2.3	5	silty SAND to sandy SILT	120	4.0	31	44	74	41	-	16
55.45	164.9	115.6	173.7	3.7	0.0	2.3	5	silty SAND to sandy SILT	120	4.0	29	41	72	41	-	16
55.61	154.4	108.1	166.6	3.5	-0.4	2.3	5	silty SAND to sandy SILT	120	4.0	27	39	70	40	-	16
55.78	134.4	94.0	160.9	3.3	-3.1	2.6	5	silty SAND to sandy SILT	120	4.0	24	34	65	39	-	16
55.94	112.0	78.2	148.4	2.9	-2.7	2.6	5	silty SAND to sandy SILT	120	4.0	20	28	59	38	-	16
56.11	68.7	35.5	-	2.3	-4.3	3.6	4	clayy SILT to silty CLAY	115	2.0	18	34	-	-	4.7	15
56.27	36.9	19.0	-	1.5	-4.1	4.6	3	silty CLAY to CLAY	115	1.5	13	25	-	-	2.5	15
56.43	25.2	12.9	-	0.8	-3.4	3.5	3	silty CLAY to CLAY	115	1.5	9	17	-	-	1.7	15
56.60	21.2	10.9	-	0.5	-1.9	2.7	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.4	15
56.76	19.0	9.7	-	0.6	-0.4	3.9	3	silty CLAY to CLAY	115	1.5	6	13	-	-	1.2	15
56.93	25.9	13.2	-	1.1	0.7	4.7	3	silty CLAY to CLAY	115	1.5	9	17	-	-	1.7	15
57.09	153.5	106.4	129.5	1.7	2.0	1.1	6	clean SAND to silty SAND	125	5.0	21	31	69	40	-	16
57.25	229.2	158.6	167.0	1.9	2.3	0.9	6	clean SAND to silty SAND	125	5.0	32	46	82	42	-	16
57.42	232.1	160.5	171.8	2.2	4.2	1.0	6	clean SAND to silty SAND	125	5.0	32	46	83	42	-	16
57.58	234.6	161.9	179.9	2.7	4.7	1.2	6	clean SAND to silty SAND	125	5.0	32	47	83	42	-	16
57.75	275.6	190.0	199.3	2.8	6.5	1.0	6	clean SAND to silty SAND	125	5.0	38	55	88	43	-	16
57.91	289.1	199.1	208.1	3.0	6.8	1.1	6	clean SAND to silty SAND	125	5.0	40	58	90	43	-	16
58.07	283.0	194.6	194.5	2.3	3.7	0.8	6	clean SAND to silty SAND	125	5.0	39	57	89	43	-	16
58.24	283.1	194.4	194.4	2.1	3.0	0.8	6	clean SAND to silty SAND	125	5.0	39	57	89	43	-	16
58.40	266.7	182.9	182.6	2.0	6.4	0.8	6	clean SAND to silty SAND	125	5.0	37	53	87	43	-	16
58.57	248.8	170.4	176.3	2.1	7.1	0.9	6	clean SAND to silty SAND	125	5.0	34	50	85	42	-	16
58.73	251.7	172.2	176.4	2.0	7.4	0.8	6	clean SAND to silty SAND	125	5.0	34	50	85	42	-	16
58.89	264.8	180.9	180.9	1.8	7.8	0.7	6	clean SAND to silty SAND	125	5.0	36	53	87	43	-	16
59.06	277.9	189.6	189.6	1.7	8.0	0.6	6	clean SAND to silty SAND	125	5.0	38	56	88	43	-	16
59.22	275.3	187.7	187.7	1.4	7.2	0.5	6	clean SAND to silty SAND	125	5.0	38	55	88	43	-	16
59.39	268.0	182.4	182.4	1.2	2.7	0.5	6	clean SAND to silty SAND	125	5.0	36	54	87	43	-	16
59.55	255.6	173.7	173.7	1.1	3.5	0.4	6	clean SAND to silty SAND	125	5.0	35	51	85	42	-	16
59.71	230.0	156.2	156.2	1.3	5.2	0.6	6	clean SAND to silty SAND	125	5.0	31	46	82	42	-	16
59.88	204.9	138.9	142.4	1.3	7.3	0.6	6	clean SAND to silty SAND	125	5.0	28	41	78	41	-	16
60.04	213.8	144.8	144.8	1.0	9.6	0.5	6	clean SAND to silty SAND	125	5.0	29	43	79	41	-	16
60.21	264.0	178.6	178.6	1.2	4.6	0.4	6	clean SAND to silty SAND	125	5.0	36	53	86	43	-	16
60.37	276.6	186.9	186.9	1.4	8.2	0.5	6	clean SAND to silty SAND	125	5.0	37	55	88	43	-	16
60.53	291.4	196.6	196.6	1.5	11.0	0.5	6	clean SAND to silty SAND	125	5.0	39	58	89	43	-	16
60.70	308.0	207.6	207.6	1.5	9.6	0.5	6	clean SAND to silty SAND	125	5.0	42	62	91	43	-	16
60.86	309.7	208.5	208.5	1.8	8.1	0.6	6	clean SAND to silty SAND	125	5.0	42	62	91	43	-	16
61.03	312.1	209.8	209.8	2.2	6.5	0.7	6	clean SAND to silty SAND	125	5.0	42	62	91	43	-	16
61.19	319.6	214.6	214.6	2.6	8.5	0.8	6	clean SAND to silty SAND	125	5.0	43	64	92	43	-	16
61.35	335.5	225.0	225.0	2.8	10.3	0.8	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
61.52	348.0	233.1	233.1	2.8	9.3	0.8	6	clean SAND to silty SAND	125	5.0	47	70	95	44	-	16
61.68	354.2	236.9	236.9	2.8	10.9	0.8	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
61.85	354.5	236.9	236.9	2.8	9.3	0.8	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
62.01	362.8	242.1	242.1	2.8	9.0	0.8	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
62.17	365.6	243.7	243.7	3.1	9.2	0.8	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
62.34	365.3	243.2	243.2	2.7	8.7	0.7	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
62.50	361.4	240.3	240.3	2.6	8.1	0.7	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
62.67	354.8	235.6	235.6	2.6	10.5	0.7	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
62.83	355.4	235.7	235.7	2.6	8.7	0.7	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
63.00	362.1	239.9	239.9	2.6	9.1	0.7	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(463).cpt
CPT Date: 12/4/2008 10:07:22 AM
GW During Test: 12 ft

Sounding ID: CPT-08-38
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	365.4	241.8	241.8	2.9	9.1	0.8	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
63.32	366.3	242.2	242.2	3.2	8.8	0.9	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
63.49	377.8	249.4	249.4	3.5	9.1	0.9	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
63.65	388.4	256.1	256.1	3.9	8.7	1.0	6	clean SAND to silty SAND	125	5.0	51	78	95	44	-	16
63.82	398.2	262.3	262.0	4.3	8.2	1.1	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
63.98	403.6	265.5	271.0	4.9	10.0	1.2	6	clean SAND to silty SAND	125	5.0	53	81	95	44	-	16
64.14	404.7	265.9	275.6	5.2	9.7	1.3	6	clean SAND to silty SAND	125	5.0	53	81	95	44	-	16
64.31	399.8	262.4	277.2	5.6	9.6	1.4	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
64.47	398.2	261.1	274.2	5.4	9.1	1.4	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
64.64	399.9	261.8	269.1	4.9	9.3	1.2	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
64.80	387.4	253.4	258.3	4.5	8.3	1.2	6	clean SAND to silty SAND	125	5.0	51	77	95	44	-	16
64.96	369.2	241.2	245.4	4.0	12.4	1.1	6	clean SAND to silty SAND	125	5.0	48	74	95	44	-	16
65.13	368.3	240.4	242.9	3.9	15.4	1.1	6	clean SAND to silty SAND	125	5.0	48	74	95	44	-	16
65.29	374.1	243.8	247.0	4.0	12.5	1.1	6	clean SAND to silty SAND	125	5.0	49	75	95	44	-	16
65.46	373.4	243.1	250.0	4.3	11.8	1.2	6	clean SAND to silty SAND	125	5.0	49	75	95	44	-	16
65.62	369.6	240.4	249.8	4.4	12.3	1.2	6	clean SAND to silty SAND	125	5.0	48	74	95	44	-	16
65.78	366.0	237.7	247.2	4.4	12.7	1.2	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
65.95	362.2	235.0	246.3	4.4	12.4	1.2	6	clean SAND to silty SAND	125	5.0	47	72	95	44	-	16
66.11	365.9	237.1	247.0	4.4	12.2	1.2	6	clean SAND to silty SAND	125	5.0	47	73	95	44	-	16
66.28	376.0	243.4	254.5	4.7	12.0	1.3	6	clean SAND to silty SAND	125	5.0	49	75	95	44	-	16
66.44	370.0	239.2	258.5	5.3	11.7	1.4	6	clean SAND to silty SAND	125	5.0	48	74	95	44	-	16
66.60	365.1	235.8	264.0	6.1	12.3	1.7	6	clean SAND to silty SAND	125	5.0	47	73	95	44	-	16
66.77	368.0	237.4	273.5	6.9	12.3	1.9	6	clean SAND to silty SAND	125	5.0	47	74	95	44	-	16
66.93	374.8	241.5	282.9	7.6	12.7	2.0	6	clean SAND to silty SAND	125	5.0	48	75	95	44	-	16
67.10	385.4	248.1	290.9	8.0	13.6	2.1	6	clean SAND to silty SAND	125	5.0	50	77	95	44	-	16
67.26	390.5	251.0	298.7	8.6	14.6	2.2	6	clean SAND to silty SAND	125	5.0	50	78	95	44	-	16
67.42	387.4	248.8	303.9	9.3	15.8	2.4	6	clean SAND to silty SAND	125	5.0	50	77	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(425).cpt
CPT Date: 11/20/2008 8:25:19 AM
GW During Test: 12 ft

Sounding ID: CPT-08-39
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	134.3	215.3	228.7	1.7	0.2	1.2	6	clean SAND to silty SAND	125	5.0	43	27	92	48	-	16
0.49	414.7	665.1	665.1	2.2	0.0	0.5	7	grvly SAND to dense SAND	130	6.0	100	69	95	48	-	16
0.66	208.6	334.5	334.5	1.1	0.0	0.5	7	grvly SAND to dense SAND	130	6.0	56	35	95	48	-	16
0.82	112.9	181.1	193.8	1.2	0.0	1.1	6	clean SAND to silty SAND	125	5.0	36	23	87	48	-	16
0.98	90.8	145.6	183.9	1.6	0.1	1.8	6	clean SAND to silty SAND	125	5.0	29	18	79	48	-	16
1.15	74.3	119.2	201.5	2.3	0.1	3.1	5	silty SAND to sandy SILT	120	4.0	30	19	73	48	-	16
1.31	55.9	89.6	202.6	2.3	0.0	4.2	4	clayy SILT to silty CLAY	115	2.0	45	28	-	-	3.9	15
1.48	45.8	73.4	193.9	2.1	-0.1	4.6	4	clayy SILT to silty CLAY	115	2.0	37	23	-	-	3.2	15
1.64	52.0	83.3	194.8	2.2	-0.1	4.2	4	clayy SILT to silty CLAY	115	2.0	42	26	-	-	3.7	15
1.80	50.7	81.3	200.1	2.3	0.0	4.5	4	clayy SILT to silty CLAY	115	2.0	41	25	-	-	3.6	15
1.97	50.8	81.5	176.5	1.8	-0.3	3.6	4	clayy SILT to silty CLAY	115	2.0	41	25	-	-	3.6	15
2.13	63.2	101.4	172.7	1.7	-0.2	2.8	5	silty SAND to sandy SILT	120	4.0	25	16	67	48	-	16
2.30	67.1	107.7	153.0	1.3	0.2	1.9	5	silty SAND to sandy SILT	120	4.0	27	17	69	48	-	16
2.46	56.7	91.0	155.9	1.4	0.3	2.5	5	silty SAND to sandy SILT	120	4.0	23	14	64	47	-	16
2.62	58.3	93.5	155.8	1.4	0.3	2.4	5	silty SAND to sandy SILT	120	4.0	23	15	65	47	-	16
2.79	48.8	78.3	171.8	1.7	0.2	3.5	4	clayy SILT to silty CLAY	115	2.0	39	24	-	-	3.4	15
2.95	38.3	61.4	173.5	1.7	-0.2	4.4	4	clayy SILT to silty CLAY	115	2.0	31	19	-	-	2.7	15
3.12	31.6	50.7	-	1.6	-0.2	5.1	4	clayy SILT to silty CLAY	115	2.0	25	16	-	-	2.2	15
3.28	35.1	56.3	174.5	1.7	0.0	4.8	4	clayy SILT to silty CLAY	115	2.0	28	18	-	-	2.5	15
3.45	41.1	65.8	194.1	2.0	0.0	5.0	4	clayy SILT to silty CLAY	115	2.0	33	21	-	-	2.9	15
3.61	52.9	84.8	220.0	2.6	0.1	5.0	9	very stiff fine SOIL	120	2.0	42	26	62	45	-	30
3.77	65.0	104.2	227.1	2.9	-0.1	4.4	9	very stiff fine SOIL	120	2.0	52	32	68	46	-	30
3.94	58.8	94.3	221.5	2.7	-0.1	4.6	9	very stiff fine SOIL	120	2.0	47	29	65	46	-	30
4.10	63.5	101.8	212.8	2.6	0.0	4.1	9	very stiff fine SOIL	120	2.0	51	32	68	46	-	30
4.27	69.7	111.8	216.6	2.7	-0.3	3.8	8	stiff SAND to clayy SAND	115	1.0	100	70	-	-	4.6	16
4.43	44.5	71.4	203.2	2.2	-0.3	5.1	4	clayy SILT to silty CLAY	115	2.0	36	22	-	-	3.1	15
4.59	32.6	52.3	-	1.7	-0.2	5.3	4	clayy SILT to silty CLAY	115	2.0	26	16	-	-	2.3	15
4.76	28.4	45.5	-	1.3	-0.1	4.5	4	clayy SILT to silty CLAY	115	2.0	23	14	-	-	2.0	15
4.92	23.8	38.2	-	1.1	-0.1	4.7	4	clayy SILT to silty CLAY	115	2.0	19	12	-	-	1.7	15
5.09	19.8	31.7	-	1.0	-0.3	5.2	3	silty CLAY to CLAY	115	1.5	21	13	-	-	1.4	15
5.25	17.4	28.0	-	0.8	-0.3	4.8	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.2	15
5.41	17.0	27.2	-	0.7	-0.7	4.3	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.2	15
5.58	15.2	24.3	-	0.7	-0.4	4.9	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.1	15
5.74	16.2	26.0	-	0.8	-0.4	4.9	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.1	15
5.91	16.6	26.6	-	0.8	-0.4	5.1	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.2	15
6.07	15.3	24.6	-	0.9	-0.5	5.7	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.1	15
6.23	14.4	23.1	-	0.8	-0.5	5.9	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.0	15
6.40	13.3	21.4	-	0.7	-0.8	5.6	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
6.56	12.7	20.3	-	0.7	-0.6	5.5	3	silty CLAY to CLAY	115	1.5	14	8	-	-	0.9	15
6.73	12.9	20.8	-	0.6	-0.6	5.2	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
6.89	13.6	21.8	-	0.7	-0.9	5.4	3	silty CLAY to CLAY	115	1.5	15	9	-	-	0.9	15
7.05	11.9	19.1	-	0.7	-1.2	6.4	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
7.22	11.0	17.7	-	0.8	-1.2	7.2	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.8	15
7.38	10.9	17.5	-	0.8	-0.5	7.2	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.8	15
7.55	11.7	18.8	-	0.7	-0.5	6.4	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
7.71	12.2	19.6	-	0.8	0.0	6.9	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
7.87	14.8	23.8	-	1.0	-0.3	6.6	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
8.04	17.0	27.2	-	1.0	-0.1	6.0	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.2	15
8.20	16.6	26.6	-	0.9	0.9	5.7	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.2	15
8.37	32.5	45.1	102.8	0.7	1.2	2.1	5	silty SAND to sandy SILT	120	4.0	11	8	41	40	-	16
8.53	63.6	87.3	112.4	0.7	0.4	1.1	6	clean SAND to silty SAND	125	5.0	17	13	63	44	-	16
8.69	78.6	106.8	135.0	1.0	0.3	1.3	6	clean SAND to silty SAND	125	5.0	21	16	69	45	-	16
8.86	87.6	117.9	150.8	1.3	0.3	1.5	6	clean SAND to silty SAND	125	5.0	24	18	72	45	-	16
9.02	94.1	125.4	161.3	1.5	0.3	1.7	6	clean SAND to silty SAND	125	5.0	25	19	74	45	-	16
9.19	98.3	129.7	168.5	1.7	0.3	1.8	6	clean SAND to silty SAND	125	5.0	26	20	76	46	-	16
9.35	96.7	126.5	166.5	1.7	0.3	1.8	5	silty SAND to sandy SILT	120	4.0	32	24	75	45	-	16
9.51	92.5	119.9	157.6	1.6	0.3	1.7	6	clean SAND to silty SAND	125	5.0	24	18	73	45	-	16
9.68	88.4	113.5	151.7	1.5	0.3	1.7	5	silty SAND to sandy SILT	120	4.0	28	22	71	45	-	16
9.84	86.6	110.4	150.6	1.5	0.3	1.7	5	silty SAND to sandy SILT	120	4.0	28	22	70	45	-	16
10.01	87.2	110.1	152.1	1.6	0.4	1.8	5	silty SAND to sandy SILT	120	4.0	28	22	70	45	-	16
10.17	87.1	109.1	143.3	1.3	0.4	1.5	6	clean SAND to silty SAND	125	5.0	22	17	70	45	-	16
10.34	88.1	109.4	131.8	1.0	0.4	1.1	6	clean SAND to silty SAND	125	5.0	22	18	70	45	-	16
10.50	102.2	125.9	140.7	0.9	0.4	0.9	6	clean SAND to silty SAND	125	5.0	25	20	75	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(425).cpt
CPT Date: 11/20/2008 8:25:19 AM
GW During Test: 12 ft

Sounding ID: CPT-08-39
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	116.6	142.4	152.3	1.0	0.4	0.8	6	clean SAND to silty SAND	125	5.0	28	23	79	46	-	16
10.83	114.8	139.1	154.4	1.1	0.4	1.0	6	clean SAND to silty SAND	125	5.0	28	23	78	46	-	16
10.99	105.5	126.9	147.8	1.2	0.4	1.1	6	clean SAND to silty SAND	125	5.0	25	21	75	45	-	16
11.16	86.9	103.7	133.2	1.2	0.4	1.4	6	clean SAND to silty SAND	125	5.0	21	17	68	44	-	16
11.32	71.4	84.5	120.5	1.1	0.4	1.5	5	silty SAND to sandy SILT	120	4.0	21	18	61	43	-	16
11.48	60.0	70.5	116.3	1.1	0.4	1.8	5	silty SAND to sandy SILT	120	4.0	18	15	55	42	-	16
11.65	49.5	57.7	107.2	0.9	0.3	1.9	5	silty SAND to sandy SILT	120	4.0	14	12	49	41	-	16
11.81	39.9	46.2	101.7	0.8	-0.8	2.0	5	silty SAND to sandy SILT	120	4.0	12	10	42	40	-	16
11.98	18.4	25.8	-	0.6	-2.0	3.3	4	clayy SILT to silty CLAY	115	2.0	13	9	-	-	1.3	15
12.14	11.5	16.0	-	0.4	-1.9	3.3	3	silty CLAY to CLAY	115	1.5	11	8	-	-	0.8	15
12.30	9.2	12.8	-	0.3	-1.8	3.3	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
12.47	9.4	12.9	-	0.3	-1.7	3.4	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
12.63	8.5	11.7	-	0.3	-1.6	3.9	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
12.80	7.6	10.3	-	0.3	-1.5	4.0	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
12.96	7.2	9.7	-	0.3	-1.4	4.7	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
13.12	7.3	9.8	-	0.4	-1.3	5.9	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
13.29	7.3	9.7	-	0.4	-1.3	6.2	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
13.45	7.2	9.5	-	0.3	-1.2	5.4	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
13.62	7.0	9.2	-	0.3	-1.2	4.6	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
13.78	6.4	8.4	-	0.3	-1.1	5.5	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
13.94	6.0	7.8	-	0.2	-1.1	4.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.11	6.0	7.8	-	0.3	-1.0	5.2	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.27	6.4	8.3	-	0.3	-0.9	5.8	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
14.44	6.6	8.5	-	0.3	-0.8	6.0	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
14.60	7.0	9.0	-	0.4	-0.8	6.8	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
14.76	9.3	11.8	-	0.5	-0.7	6.1	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
14.93	11.9	15.0	-	0.5	-0.7	4.5	3	silty CLAY to CLAY	115	1.5	10	8	-	-	0.8	15
15.09	17.5	22.1	-	0.5	-1.2	2.9	4	clayy SILT to silty CLAY	115	2.0	11	9	-	-	1.2	15
15.26	16.6	20.7	-	0.5	-3.5	3.2	4	clayy SILT to silty CLAY	115	2.0	10	8	-	-	1.1	15
15.42	12.7	15.8	-	0.4	-3.4	3.2	3	silty CLAY to CLAY	115	1.5	11	8	-	-	0.9	15
15.58	28.5	30.8	80.4	0.5	-3.1	1.7	5	silty SAND to sandy SILT	120	4.0	8	7	28	37	-	16
15.75	25.8	27.8	92.0	0.6	-3.3	2.4	4	clayy SILT to silty CLAY	115	2.0	14	13	-	-	1.8	15
15.91	32.0	34.3	95.6	0.7	-3.2	2.3	4	clayy SILT to silty CLAY	115	2.0	17	16	-	-	2.2	15
16.08	44.1	47.3	97.6	0.8	-6.3	1.8	5	silty SAND to sandy SILT	120	4.0	12	11	42	39	-	16
16.24	51.5	55.0	102.1	0.9	-6.3	1.7	5	silty SAND to sandy SILT	120	4.0	14	13	47	40	-	16
16.40	62.5	66.7	111.3	1.1	-6.7	1.7	5	silty SAND to sandy SILT	120	4.0	17	16	54	41	-	16
16.57	62.1	66.0	113.8	1.1	-6.9	1.8	5	silty SAND to sandy SILT	120	4.0	17	16	53	41	-	16
16.73	58.3	61.8	109.5	1.0	-6.9	1.8	5	silty SAND to sandy SILT	120	4.0	15	15	51	41	-	16
16.90	49.9	52.7	106.5	1.0	-6.8	2.0	5	silty SAND to sandy SILT	120	4.0	13	12	46	40	-	16
17.06	37.3	39.3	104.9	0.9	-6.8	2.4	4	clayy SILT to silty CLAY	115	2.0	20	19	-	-	2.6	15
17.23	28.3	31.1	-	0.8	-6.8	2.9	4	clayy SILT to silty CLAY	115	2.0	16	14	-	-	2.0	15
17.39	16.4	19.1	-	0.6	-7.1	3.9	3	silty CLAY to CLAY	115	1.5	13	11	-	-	1.1	15
17.55	10.8	12.6	-	0.4	-7.2	4.0	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
17.72	9.0	10.3	-	0.4	-7.1	5.4	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
17.88	9.0	10.3	-	0.6	-6.9	7.5	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
18.05	19.6	22.3	-	0.7	-6.7	3.7	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.3	15
18.21	37.9	39.3	94.7	0.7	-2.4	2.0	5	silty SAND to sandy SILT	120	4.0	10	9	36	38	-	16
18.37	52.2	53.9	102.4	0.9	-0.9	1.8	5	silty SAND to sandy SILT	120	4.0	13	13	47	40	-	16
18.54	57.2	58.9	108.2	1.0	-2.0	1.8	5	silty SAND to sandy SILT	120	4.0	15	14	50	40	-	16
18.70	56.4	57.9	114.2	1.2	-1.9	2.1	5	silty SAND to sandy SILT	120	4.0	14	14	49	40	-	16
18.87	50.2	51.4	105.9	1.0	-1.8	2.0	5	silty SAND to sandy SILT	120	4.0	13	13	45	39	-	16
19.03	50.0	51.1	101.3	0.9	-2.5	1.8	5	silty SAND to sandy SILT	120	4.0	13	13	45	39	-	16
19.19	36.3	37.0	98.4	0.8	-2.4	2.3	5	silty SAND to sandy SILT	120	4.0	9	9	34	37	-	16
19.36	17.1	18.8	-	0.5	-3.5	3.0	4	clayy SILT to silty CLAY	115	2.0	9	9	-	-	1.2	15
19.52	9.4	10.3	-	0.3	-3.6	3.5	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
19.69	7.4	8.0	-	0.2	-3.0	2.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
19.85	7.3	7.9	-	0.2	-2.4	3.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
20.01	8.9	9.6	-	0.2	-1.7	2.0	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
20.18	8.2	8.7	-	0.1	-1.4	2.0	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
20.34	7.1	7.5	-	0.2	-1.1	3.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
20.51	6.8	7.2	-	0.3	-0.6	4.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
20.67	6.8	7.2	-	0.3	-0.3	5.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
20.83	6.9	7.2	-	0.2	0.0	3.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
21.00	6.6	6.9	-	0.2	0.2	3.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(425).cpt
CPT Date: 11/20/2008 8:25:19 AM
GW During Test: 12 ft

Sounding ID: CPT-08-39
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	6.7	7.0	-	0.2	0.5	4.6	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
21.33	7.1	7.4	-	0.3	0.6	4.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.49	6.7	6.9	-	0.2	0.7	4.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
21.65	6.3	6.4	-	0.2	1.0	3.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.82	6.2	6.3	-	0.2	1.4	3.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.98	6.9	7.0	-	0.2	1.8	3.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
22.15	7.6	7.7	-	0.2	2.1	2.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.31	7.4	7.5	-	0.2	2.4	3.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.47	7.7	7.8	-	0.3	2.9	5.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.64	14.0	14.0	-	0.4	3.2	3.5	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
22.80	24.7	23.9	73.4	0.4	3.1	1.6	4	clayy SILT to silty CLAY	115	2.0	12	12	-	-	1.7	15
22.97	39.8	38.5	71.4	0.4	-0.5	1.1	5	silty SAND to sandy SILT	120	4.0	10	10	36	37	-	16
23.13	47.1	45.5	83.2	0.6	-1.4	1.3	5	silty SAND to sandy SILT	120	4.0	11	12	41	38	-	16
23.30	40.9	39.4	104.1	0.9	-1.2	2.4	5	silty SAND to sandy SILT	120	4.0	10	10	36	37	-	16
23.46	35.5	34.1	111.1	1.0	-0.8	3.0	4	clayy SILT to silty CLAY	115	2.0	17	18	-	-	2.5	15
23.62	53.5	51.3	93.7	0.8	-2.2	1.5	5	silty SAND to sandy SILT	120	4.0	13	13	45	39	-	16
23.79	63.2	60.4	103.1	1.0	-4.9	1.6	5	silty SAND to sandy SILT	120	4.0	15	16	50	40	-	16
23.95	62.7	59.8	112.8	1.2	-4.8	2.0	5	silty SAND to sandy SILT	120	4.0	15	16	50	39	-	16
24.12	59.3	56.5	117.9	1.3	-4.5	2.3	5	silty SAND to sandy SILT	120	4.0	14	15	48	39	-	16
24.28	51.2	48.6	120.9	1.3	-4.2	2.7	4	clayy SILT to silty CLAY	115	2.0	24	26	-	-	3.6	15
24.44	45.2	42.9	116.1	1.2	-4.0	2.8	4	clayy SILT to silty CLAY	115	2.0	21	23	-	-	3.1	15
24.61	55.8	52.8	110.0	1.1	-4.0	2.1	5	silty SAND to sandy SILT	120	4.0	13	14	46	39	-	16
24.77	72.2	68.2	113.8	1.2	-5.5	1.7	5	silty SAND to sandy SILT	120	4.0	17	18	54	40	-	16
24.94	69.4	65.4	116.9	1.3	-5.9	1.9	5	silty SAND to sandy SILT	120	4.0	16	17	53	40	-	16
25.10	59.7	56.1	111.1	1.2	-5.7	2.0	5	silty SAND to sandy SILT	120	4.0	14	15	48	39	-	16
25.26	54.9	51.5	100.7	1.0	-5.5	1.8	5	silty SAND to sandy SILT	120	4.0	13	14	45	38	-	16
25.43	44.1	41.3	100.3	0.9	-5.5	2.1	5	silty SAND to sandy SILT	120	4.0	10	11	38	37	-	16
25.59	34.6	32.4	102.0	0.9	-5.3	2.6	4	clayy SILT to silty CLAY	115	2.0	16	17	-	-	2.4	15
25.76	28.1	25.9	-	0.9	-5.1	3.3	4	clayy SILT to silty CLAY	115	2.0	13	14	-	-	1.9	15
25.92	21.9	20.1	-	0.7	-5.1	3.6	3	silty CLAY to CLAY	115	1.5	13	15	-	-	1.5	15
26.08	22.3	20.4	-	0.7	-5.0	3.2	4	clayy SILT to silty CLAY	115	2.0	10	11	-	-	1.5	15
26.25	15.7	14.3	-	0.4	-5.2	2.6	3	silty CLAY to CLAY	115	1.5	10	10	-	-	1.0	15
26.41	11.1	10.1	-	0.3	-4.9	3.5	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
26.58	10.1	9.1	-	0.3	-2.1	3.0	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
26.74	9.3	8.4	-	0.2	-1.9	2.5	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
26.90	8.5	7.6	-	0.1	-1.5	1.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
27.07	8.3	7.4	-	0.1	-1.2	1.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
27.23	8.9	7.9	-	0.2	-0.8	2.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
27.40	9.5	8.4	-	0.2	-0.4	2.6	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
27.56	9.6	8.5	-	0.2	-0.1	2.6	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
27.72	18.1	15.9	-	0.2	0.4	1.5	4	clayy SILT to silty CLAY	115	2.0	8	9	-	-	1.2	15
27.89	13.4	11.8	-	0.3	0.1	2.9	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
28.05	14.8	12.9	-	0.4	0.5	2.7	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
28.22	11.0	9.5	-	0.5	0.1	5.6	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
28.38	17.3	15.0	-	0.5	1.5	2.9	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.2	15
28.54	32.2	29.1	76.7	0.5	1.3	1.6	5	silty SAND to sandy SILT	120	4.0	7	8	26	35	-	16
28.71	38.2	34.4	75.1	0.5	0.1	1.3	5	silty SAND to sandy SILT	120	4.0	9	10	32	36	-	16
28.87	41.3	37.1	76.2	0.5	0.5	1.3	5	silty SAND to sandy SILT	120	4.0	9	10	34	36	-	16
29.04	39.4	35.3	83.1	0.6	0.1	1.6	5	silty SAND to sandy SILT	120	4.0	9	10	33	36	-	16
29.20	37.6	33.6	89.1	0.7	-0.4	1.9	5	silty SAND to sandy SILT	120	4.0	8	9	31	35	-	16
29.36	34.9	31.2	89.1	0.7	-0.7	2.0	4	clayy SILT to silty CLAY	115	2.0	16	17	-	-	2.4	15
29.53	27.3	23.0	-	0.5	-1.7	2.1	4	clayy SILT to silty CLAY	115	2.0	12	14	-	-	1.9	15
29.69	18.7	15.7	-	0.5	-1.9	2.7	4	clayy SILT to silty CLAY	115	2.0	8	9	-	-	1.3	15
29.86	10.4	8.7	-	0.4	-1.7	4.1	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
30.02	9.3	7.8	-	0.3	-0.9	3.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.19	9.5	7.9	-	0.3	-0.2	3.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.35	10.3	8.6	-	0.3	5.4	3.8	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
30.51	11.0	9.1	-	0.3	6.1	3.6	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
30.68	9.9	8.2	-	0.4	6.2	4.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
30.84	10.0	8.2	-	0.5	7.2	5.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
31.01	21.3	17.3	-	0.5	7.8	2.7	4	clayy SILT to silty CLAY	115	2.0	9	11	-	-	1.4	15
31.17	37.3	32.7	87.0	0.7	4.1	1.9	5	silty SAND to sandy SILT	120	4.0	8	9	30	35	-	16
31.33	36.7	29.7	-	1.0	4.8	3.0	4	clayy SILT to silty CLAY	115	2.0	15	18	-	-	2.5	15
31.50	32.4	26.2	-	1.0	5.7	3.2	4	clayy SILT to silty CLAY	115	2.0	13	16	-	-	2.2	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(425).cpt
CPT Date: 11/20/2008 8:25:19 AM
GW During Test: 12 ft

Sounding ID: CPT-08-39
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	54.7	47.7	101.9	1.0	2.5	2.0	5	silty SAND to sandy SILT	120	4.0	12	14	43	37	-	16
31.83	71.1	61.8	111.3	1.3	-1.3	1.8	5	silty SAND to sandy SILT	120	4.0	15	18	51	39	-	16
31.99	69.1	59.9	111.0	1.3	-1.2	1.9	5	silty SAND to sandy SILT	120	4.0	15	17	50	39	-	16
32.15	67.2	58.2	118.0	1.4	-0.8	2.2	5	silty SAND to sandy SILT	120	4.0	15	17	49	38	-	16
32.32	55.8	48.2	120.9	1.5	-1.0	2.7	4	clayy SILT to silty CLAY	115	2.0	24	28	-	-	3.9	15
32.48	50.0	43.2	109.8	1.2	-0.5	2.5	5	silty SAND to sandy SILT	120	4.0	11	13	39	37	-	16
32.65	77.4	66.7	104.2	1.1	-2.0	1.4	5	silty SAND to sandy SILT	120	4.0	17	19	54	39	-	16
32.81	85.6	73.6	114.0	1.3	-3.1	1.6	5	silty SAND to sandy SILT	120	4.0	18	21	57	40	-	16
32.97	87.1	74.7	130.2	1.8	-2.7	2.1	5	silty SAND to sandy SILT	120	4.0	19	22	57	40	-	16
33.14	87.7	75.1	132.7	1.9	-2.3	2.2	5	silty SAND to sandy SILT	120	4.0	19	22	58	40	-	16
33.30	98.3	84.0	135.8	2.0	-2.1	2.0	5	silty SAND to sandy SILT	120	4.0	21	25	61	40	-	16
33.47	115.9	99.0	147.8	2.3	-2.6	2.0	5	silty SAND to sandy SILT	120	4.0	25	29	67	41	-	16
33.63	134.9	114.9	158.2	2.5	-2.5	1.9	5	silty SAND to sandy SILT	120	4.0	29	34	72	42	-	16
33.79	136.7	116.2	155.0	2.3	-2.2	1.7	5	silty SAND to sandy SILT	120	4.0	29	34	72	42	-	16
33.96	132.4	112.4	159.6	2.6	-1.7	2.0	5	silty SAND to sandy SILT	120	4.0	28	33	71	42	-	16
34.12	111.6	94.5	155.9	2.6	2.0	2.4	5	silty SAND to sandy SILT	120	4.0	24	28	65	41	-	16
34.29	86.3	73.0	147.8	2.4	2.0	2.8	5	silty SAND to sandy SILT	120	4.0	18	22	57	39	-	16
34.45	41.7	31.5	-	1.7	1.7	4.3	4	clayy SILT to silty CLAY	115	2.0	16	21	-	-	2.9	15
34.61	22.7	17.1	-	0.9	2.0	4.4	3	silty CLAY to CLAY	115	1.5	11	15	-	-	1.5	15
34.78	16.4	12.3	-	0.4	2.6	2.9	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
34.94	14.6	10.9	-	0.2	3.5	1.7	4	clayy SILT to silty CLAY	115	2.0	5	7	-	-	1.0	15
35.11	14.2	10.6	-	0.2	4.4	1.5	4	clayy SILT to silty CLAY	115	2.0	5	7	-	-	0.9	15
35.27	15.3	11.4	-	0.3	5.5	1.9	4	clayy SILT to silty CLAY	115	2.0	6	8	-	-	1.0	15
35.43	16.5	12.2	-	0.3	7.4	2.4	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
35.60	16.1	11.9	-	0.4	9.4	2.7	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
35.76	15.0	11.0	-	0.3	10.3	2.5	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
35.93	14.0	10.2	-	0.3	11.7	2.3	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
36.09	13.5	9.9	-	0.4	13.2	3.9	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
36.26	16.0	11.7	-	0.5	13.0	3.9	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
36.42	39.2	32.5	93.1	0.8	15.1	2.2	4	clayy SILT to silty CLAY	115	2.0	16	20	-	-	2.7	15
36.58	66.9	55.4	104.4	1.2	2.9	1.8	5	silty SAND to sandy SILT	120	4.0	14	17	47	38	-	16
36.75	93.2	76.9	118.6	1.5	2.5	1.6	5	silty SAND to sandy SILT	120	4.0	19	23	58	40	-	16
36.91	101.0	83.2	135.4	2.0	2.6	2.0	5	silty SAND to sandy SILT	120	4.0	21	25	61	40	-	16
37.08	101.3	83.4	143.7	2.3	2.8	2.3	5	silty SAND to sandy SILT	120	4.0	21	25	61	40	-	16
37.24	95.3	78.3	144.8	2.3	2.9	2.5	5	silty SAND to sandy SILT	120	4.0	20	24	59	40	-	16
37.40	88.2	72.3	139.2	2.2	2.8	2.5	5	silty SAND to sandy SILT	120	4.0	18	22	56	39	-	16
37.57	85.1	69.7	133.1	2.0	2.5	2.4	5	silty SAND to sandy SILT	120	4.0	17	21	55	39	-	16
37.73	82.2	67.2	129.4	1.9	1.3	2.3	5	silty SAND to sandy SILT	120	4.0	17	21	54	39	-	16
37.90	82.6	67.4	127.5	1.8	2.0	2.3	5	silty SAND to sandy SILT	120	4.0	17	21	54	39	-	16
38.06	68.2	55.5	125.7	1.7	-1.7	2.6	5	silty SAND to sandy SILT	120	4.0	14	17	48	38	-	16
38.22	58.7	47.7	119.8	1.5	-1.6	2.7	4	clayy SILT to silty CLAY	115	2.0	24	29	-	-	4.1	15
38.39	62.3	50.6	108.0	1.3	-3.4	2.1	5	silty SAND to sandy SILT	120	4.0	13	16	45	37	-	16
38.55	58.4	47.3	99.5	1.0	-4.5	1.9	5	silty SAND to sandy SILT	120	4.0	12	15	42	37	-	16
38.72	46.8	37.9	103.5	1.1	-5.1	2.4	4	clayy SILT to silty CLAY	115	2.0	19	23	-	-	3.2	15
38.88	27.5	19.0	-	0.8	-5.0	3.0	4	clayy SILT to silty CLAY	115	2.0	10	14	-	-	1.9	15
39.04	18.9	13.1	-	0.8	-4.4	4.6	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
39.21	57.5	46.3	102.7	1.1	-3.2	2.0	5	silty SAND to sandy SILT	120	4.0	12	14	42	36	-	16
39.37	44.4	30.5	-	1.6	-2.9	3.9	4	clayy SILT to silty CLAY	115	2.0	15	22	-	-	3.1	15
39.54	28.6	19.5	-	1.3	-2.6	5.0	3	silty CLAY to CLAY	115	1.5	13	19	-	-	1.9	15
39.70	31.4	21.4	-	1.1	-1.9	3.8	3	silty CLAY to CLAY	115	1.5	14	21	-	-	2.1	15
39.86	28.8	19.6	-	0.9	-1.5	3.5	3	silty CLAY to CLAY	115	1.5	13	19	-	-	1.9	15
40.03	23.8	16.1	-	0.9	-1.0	4.0	3	silty CLAY to CLAY	115	1.5	11	16	-	-	1.6	15
40.19	26.2	17.7	-	0.7	-0.7	2.9	4	clayy SILT to silty CLAY	115	2.0	9	13	-	-	1.8	15
40.36	19.7	13.3	-	0.6	-0.5	3.6	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
40.52	18.6	12.5	-	0.6	0.4	3.6	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
40.68	18.6	12.4	-	0.6	1.1	3.8	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
40.85	18.3	12.2	-	0.5	1.8	3.2	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
41.01	17.3	11.5	-	0.4	2.5	2.8	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.1	15
41.18	15.7	10.4	-	0.4	3.1	3.3	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
41.34	15.6	10.3	-	0.5	6.6	3.5	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
41.50	16.5	10.9	-	0.6	7.1	4.2	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
41.67	16.8	11.1	-	0.6	7.3	4.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
41.83	16.9	11.1	-	0.6	7.3	4.4	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
42.00	17.2	11.3	-	0.7	7.6	4.5	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(425).cpt
CPT Date: 11/20/2008 8:25:19 AM
GW During Test: 12 ft

Sounding ID: CPT-08-39
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	18.0	11.8	-	0.6	7.7	4.1	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
42.32	18.1	11.8	-	0.6	7.7	4.1	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
42.49	18.7	12.1	-	0.7	7.9	4.1	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
42.65	18.5	12.0	-	0.6	7.9	4.0	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
42.82	16.1	10.4	-	0.6	7.9	4.4	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
42.98	15.6	10.1	-	0.7	8.8	5.5	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
43.15	17.6	11.3	-	1.1	9.5	7.5	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
43.31	42.5	27.2	-	1.2	10.4	3.1	4	clayy SILT to silty CLAY	115	2.0	14	21	-	-	2.9	15
43.47	53.2	41.3	118.6	1.5	2.3	2.9	4	clayy SILT to silty CLAY	115	2.0	21	27	-	-	3.7	15
43.64	49.3	31.4	-	1.5	0.7	3.1	4	clayy SILT to silty CLAY	115	2.0	16	25	-	-	3.4	15
43.80	47.5	30.1	-	1.6	-1.7	3.5	4	clayy SILT to silty CLAY	115	2.0	15	24	-	-	3.3	15
43.97	48.2	30.5	-	1.5	-2.8	3.2	4	clayy SILT to silty CLAY	115	2.0	15	24	-	-	3.3	15
44.13	51.3	32.4	-	1.4	-3.5	2.9	4	clayy SILT to silty CLAY	115	2.0	16	26	-	-	3.5	15
44.29	46.8	29.5	-	1.6	-4.5	3.7	4	clayy SILT to silty CLAY	115	2.0	15	23	-	-	3.2	15
44.46	49.0	30.8	-	1.7	-2.3	3.7	4	clayy SILT to silty CLAY	115	2.0	15	24	-	-	3.4	15
44.62	39.2	24.5	-	1.8	-3.1	4.8	3	silty CLAY to CLAY	115	1.5	16	26	-	-	2.7	15
44.79	68.2	52.4	144.2	2.3	-2.6	3.5	4	clayy SILT to silty CLAY	115	2.0	26	34	-	-	4.7	15
44.95	98.4	75.5	147.4	2.6	-3.5	2.7	5	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
45.11	148.4	113.6	151.4	2.4	-4.5	1.7	5	silty SAND to sandy SILT	120	4.0	28	37	71	41	-	16
45.28	154.1	117.8	158.6	2.7	-5.9	1.8	5	silty SAND to sandy SILT	120	4.0	29	39	72	41	-	16
45.44	147.5	112.6	164.9	3.1	-6.4	2.1	5	silty SAND to sandy SILT	120	4.0	28	37	71	41	-	16
45.61	143.8	109.6	172.0	3.5	-6.1	2.4	5	silty SAND to sandy SILT	120	4.0	27	36	70	41	-	16
45.77	142.2	108.3	175.9	3.6	-5.9	2.6	5	silty SAND to sandy SILT	120	4.0	27	36	70	41	-	16
45.93	140.2	106.6	175.6	3.6	-5.7	2.7	5	silty SAND to sandy SILT	120	4.0	27	35	69	41	-	16
46.10	134.5	102.1	174.9	3.6	-5.6	2.8	5	silty SAND to sandy SILT	120	4.0	26	34	68	40	-	16
46.26	126.7	96.0	172.4	3.6	-5.4	2.9	5	silty SAND to sandy SILT	120	4.0	24	32	66	40	-	16
46.43	110.0	83.3	165.0	3.3	-5.3	3.0	5	silty SAND to sandy SILT	120	4.0	21	28	61	39	-	16
46.59	73.7	55.7	158.3	2.8	-5.3	3.9	4	clayy SILT to silty CLAY	115	2.0	28	37	-	-	5.1	15
46.75	41.8	25.3	-	1.9	-5.2	4.8	3	silty CLAY to CLAY	115	1.5	17	28	-	-	2.9	15
46.92	27.6	16.6	-	0.9	-5.1	3.7	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.9	15
47.08	22.1	13.3	-	0.6	-4.7	2.9	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.5	15
47.25	21.2	12.7	-	0.5	-4.2	2.8	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
47.41	19.8	11.8	-	0.5	-3.8	3.0	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
47.57	19.1	11.4	-	0.7	-3.5	4.0	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
47.74	26.7	15.9	-	1.3	-3.0	5.5	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.8	15
47.90	49.0	29.1	-	1.3	2.6	2.8	4	clayy SILT to silty CLAY	115	2.0	15	25	-	-	3.4	15
48.07	57.2	33.8	-	1.8	1.0	3.3	4	clayy SILT to silty CLAY	115	2.0	17	29	-	-	3.9	15
48.23	44.7	26.4	-	1.6	0.3	3.8	4	clayy SILT to silty CLAY	115	2.0	13	22	-	-	3.1	15
48.39	45.2	26.6	-	1.6	0.5	3.7	4	clayy SILT to silty CLAY	115	2.0	13	23	-	-	3.1	15
48.56	34.6	20.3	-	1.7	-0.1	5.3	3	silty CLAY to CLAY	115	1.5	14	23	-	-	2.3	15
48.72	63.2	37.0	-	2.3	1.2	3.8	4	clayy SILT to silty CLAY	115	2.0	18	32	-	-	4.4	15
48.89	114.6	85.1	158.0	3.1	0.6	2.7	5	silty SAND to sandy SILT	120	4.0	21	29	62	39	-	16
49.05	118.6	87.9	162.4	3.2	0.4	2.8	5	silty SAND to sandy SILT	120	4.0	22	30	63	39	-	16
49.22	110.8	82.0	155.4	3.0	0.4	2.8	5	silty SAND to sandy SILT	120	4.0	21	28	60	39	-	16
49.38	118.4	87.5	149.5	2.7	0.1	2.4	5	silty SAND to sandy SILT	120	4.0	22	30	63	39	-	16
49.54	109.4	80.7	144.4	2.6	-2.8	2.4	5	silty SAND to sandy SILT	120	4.0	20	27	60	39	-	16
49.71	106.2	78.3	144.7	2.6	-3.2	2.5	5	silty SAND to sandy SILT	120	4.0	20	27	59	39	-	16
49.87	75.6	55.6	152.1	2.7	-4.2	3.7	4	clayy SILT to silty CLAY	115	2.0	28	38	-	-	5.2	15
50.04	48.5	27.8	-	2.2	-4.0	4.9	3	silty CLAY to CLAY	115	1.5	19	32	-	-	3.3	15
50.20	32.5	18.6	-	1.8	-3.7	6.1	3	silty CLAY to CLAY	115	1.5	12	22	-	-	2.2	15
50.36	28.4	16.2	-	1.4	-3.3	5.6	3	silty CLAY to CLAY	115	1.5	11	19	-	-	1.9	15
50.53	25.3	14.4	-	1.3	-2.9	6.0	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
50.69	23.9	13.6	-	1.2	-2.4	5.6	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
50.86	22.9	13.0	-	0.9	-2.0	4.6	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.5	15
51.02	21.6	12.2	-	0.8	-1.5	4.2	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
51.18	20.1	11.3	-	0.8	-1.1	4.4	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
51.35	18.2	10.2	-	0.6	-0.6	4.2	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
51.51	19.9	11.2	-	0.6	0.1	3.7	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
51.68	20.1	11.2	-	0.8	0.8	4.9	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
51.84	53.8	39.0	100.2	1.1	1.4	2.2	5	silty SAND to sandy SILT	120	4.0	10	13	36	34	-	16
52.00	89.9	65.1	115.0	1.6	-0.5	1.9	5	silty SAND to sandy SILT	120	4.0	16	22	53	38	-	16
52.17	100.1	72.4	130.1	2.1	-1.6	2.2	5	silty SAND to sandy SILT	120	4.0	18	25	56	38	-	16
52.33	110.8	80.0	134.4	2.2	-1.3	2.1	5	silty SAND to sandy SILT	120	4.0	20	28	60	39	-	16
52.50	122.6	88.5	144.1	2.6	-1.8	2.2	5	silty SAND to sandy SILT	120	4.0	22	31	63	39	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(425).cpt
CPT Date: 11/20/2008 8:25:19 AM
GW During Test: 12 ft

Sounding ID: CPT-08-39
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	130.0	93.7	156.0	3.0	-2.8	2.4	5	silty SAND to sandy SILT	120	4.0	23	33	65	40	-	16
52.82	130.2	93.7	162.0	3.3	-2.6	2.6	5	silty SAND to sandy SILT	120	4.0	23	33	65	40	-	16
52.99	129.6	93.2	162.1	3.3	-2.5	2.6	5	silty SAND to sandy SILT	120	4.0	23	32	65	40	-	16
53.15	136.8	98.2	166.2	3.5	-2.3	2.6	5	silty SAND to sandy SILT	120	4.0	25	34	66	40	-	16
53.32	144.1	103.3	170.1	3.6	-2.2	2.6	5	silty SAND to sandy SILT	120	4.0	26	36	68	40	-	16
53.48	142.2	101.8	170.6	3.7	-2.1	2.6	5	silty SAND to sandy SILT	120	4.0	25	36	68	40	-	16
53.64	137.8	98.5	168.7	3.6	-1.9	2.7	5	silty SAND to sandy SILT	120	4.0	25	34	67	40	-	16
53.81	129.5	92.5	165.6	3.5	-1.7	2.8	5	silty SAND to sandy SILT	120	4.0	23	32	64	39	-	16
53.97	114.8	81.9	156.9	3.1	-1.6	2.8	5	silty SAND to sandy SILT	120	4.0	20	29	60	39	-	16
54.14	111.4	79.3	147.9	2.8	-1.5	2.6	5	silty SAND to sandy SILT	120	4.0	20	28	59	39	-	16
54.30	109.4	77.8	146.0	2.7	-1.4	2.6	5	silty SAND to sandy SILT	120	4.0	19	27	59	38	-	16
54.46	113.3	80.5	139.7	2.5	-1.5	2.3	5	silty SAND to sandy SILT	120	4.0	20	28	60	39	-	16
54.63	128.1	90.9	139.7	2.4	-3.1	1.9	5	silty SAND to sandy SILT	120	4.0	23	32	64	39	-	16
54.79	135.4	96.0	147.4	2.7	-4.2	2.0	5	silty SAND to sandy SILT	120	4.0	24	34	66	40	-	16
54.96	115.5	81.7	148.5	2.8	-4.6	2.5	5	silty SAND to sandy SILT	120	4.0	20	29	60	39	-	16
55.12	70.9	37.6	-	2.6	-4.4	3.8	4	clayy SILT to silty CLAY	115	2.0	19	35	-	-	4.9	15
55.28	35.7	18.9	-	1.6	-4.3	4.8	3	silty CLAY to CLAY	115	1.5	13	24	-	-	2.4	15
55.45	23.1	12.2	-	0.7	-4.0	3.4	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
55.61	20.7	10.9	-	0.4	-3.6	2.2	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.3	15
55.78	18.7	9.8	-	0.3	-3.2	1.9	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
55.94	15.8	8.3	-	0.3	6.5	2.4	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
56.11	13.9	7.3	-	0.2	7.2	2.3	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
56.27	16.0	8.3	-	0.3	7.7	2.4	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
56.43	15.5	8.1	-	0.5	8.0	4.5	3	silty CLAY to CLAY	115	1.5	5	10	-	-	1.0	15
56.60	36.4	18.9	-	0.8	6.0	2.5	4	clayy SILT to silty CLAY	115	2.0	9	18	-	-	2.5	15
56.76	65.1	45.5	102.9	1.3	5.1	2.0	5	silty SAND to sandy SILT	120	4.0	11	16	41	35	-	16
56.93	77.2	53.9	109.9	1.5	5.2	2.0	5	silty SAND to sandy SILT	120	4.0	13	19	47	36	-	16
57.09	90.1	62.8	117.2	1.7	4.9	2.0	5	silty SAND to sandy SILT	120	4.0	16	23	52	37	-	16
57.25	92.6	64.5	121.7	1.9	3.9	2.1	5	silty SAND to sandy SILT	120	4.0	16	23	53	37	-	16
57.42	89.8	62.5	124.8	2.0	3.7	2.3	5	silty SAND to sandy SILT	120	4.0	16	22	51	37	-	16
57.58	84.5	58.7	120.5	1.8	3.7	2.3	5	silty SAND to sandy SILT	120	4.0	15	21	49	37	-	16
57.75	82.8	57.5	116.9	1.7	3.2	2.2	5	silty SAND to sandy SILT	120	4.0	14	21	49	36	-	16
57.91	69.8	48.4	111.8	1.5	1.6	2.3	5	silty SAND to sandy SILT	120	4.0	12	17	43	35	-	16
58.07	61.8	42.8	103.9	1.3	3.6	2.2	5	silty SAND to sandy SILT	120	4.0	11	15	39	35	-	16
58.24	55.4	38.3	93.0	1.0	1.3	1.9	5	silty SAND to sandy SILT	120	4.0	10	14	35	34	-	16
58.40	49.3	34.0	83.0	0.7	-0.3	1.6	5	silty SAND to sandy SILT	120	4.0	9	12	31	33	-	16
58.57	48.5	33.5	65.9	0.4	-0.1	0.9	5	silty SAND to sandy SILT	120	4.0	8	12	31	33	-	16
58.73	42.7	29.4	67.2	0.4	-1.8	1.1	5	silty SAND to sandy SILT	120	4.0	7	11	27	32	-	16
58.89	36.9	18.5	-	0.7	-1.6	2.1	4	clayy SILT to silty CLAY	115	2.0	9	18	-	-	2.5	15
59.06	63.9	43.9	87.4	0.9	-0.9	1.5	5	silty SAND to sandy SILT	120	4.0	11	16	40	35	-	16
59.22	95.4	65.5	97.2	1.1	-0.8	1.2	5	silty SAND to sandy SILT	120	4.0	16	24	53	37	-	16
59.39	120.3	82.5	103.8	1.1	-0.5	0.9	6	clean SAND to silty SAND	125	5.0	17	24	61	39	-	16
59.55	133.9	91.7	122.7	1.7	-0.2	1.3	6	clean SAND to silty SAND	125	5.0	18	27	64	39	-	16
59.71	149.7	102.4	131.2	1.9	0.1	1.3	6	clean SAND to silty SAND	125	5.0	20	30	68	40	-	16
59.88	162.7	111.2	138.1	2.0	1.1	1.3	6	clean SAND to silty SAND	125	5.0	22	33	70	40	-	16
60.04	184.4	125.8	149.8	2.2	1.6	1.2	6	clean SAND to silty SAND	125	5.0	25	37	75	41	-	16
60.21	209.7	142.9	162.3	2.4	1.4	1.1	6	clean SAND to silty SAND	125	5.0	29	42	79	41	-	16
60.37	230.4	156.8	178.2	2.9	1.4	1.3	6	clean SAND to silty SAND	125	5.0	31	46	82	42	-	16
60.53	237.3	161.3	192.7	3.7	1.5	1.6	6	clean SAND to silty SAND	125	5.0	32	47	83	42	-	16
60.70	241.8	164.1	204.7	4.5	2.1	1.9	6	clean SAND to silty SAND	125	5.0	33	48	83	42	-	16
60.86	248.0	168.2	208.7	4.6	2.4	1.9	6	clean SAND to silty SAND	125	5.0	34	50	84	42	-	16
61.03	245.4	166.2	209.3	4.8	2.6	2.0	6	clean SAND to silty SAND	125	5.0	33	49	84	42	-	16
61.19	246.4	166.6	207.3	4.6	2.7	1.9	6	clean SAND to silty SAND	125	5.0	33	49	84	42	-	16
61.35	257.3	173.8	210.6	4.5	3.2	1.8	6	clean SAND to silty SAND	125	5.0	35	51	85	42	-	16
61.52	259.1	174.8	207.8	4.3	3.4	1.7	6	clean SAND to silty SAND	125	5.0	35	52	85	42	-	16
61.68	256.4	172.8	198.7	3.7	3.6	1.5	6	clean SAND to silty SAND	125	5.0	35	51	85	42	-	16
61.85	250.6	168.7	192.0	3.4	3.7	1.4	6	clean SAND to silty SAND	125	5.0	34	50	84	42	-	16
62.01	242.4	163.0	184.5	3.1	4.2	1.3	6	clean SAND to silty SAND	125	5.0	33	48	83	42	-	16
62.17	258.6	173.6	191.7	3.1	4.2	1.2	6	clean SAND to silty SAND	125	5.0	35	52	85	42	-	16
62.34	262.4	176.0	201.4	3.7	4.4	1.4	6	clean SAND to silty SAND	125	5.0	35	52	86	42	-	16
62.50	263.2	176.3	211.2	4.5	5.3	1.7	6	clean SAND to silty SAND	125	5.0	35	53	86	42	-	16
62.67	281.4	188.2	223.0	4.9	5.8	1.8	6	clean SAND to silty SAND	125	5.0	38	56	88	43	-	16
62.83	313.1	209.2	237.9	5.1	5.8	1.6	6	clean SAND to silty SAND	125	5.0	42	63	91	43	-	16
63.00	324.0	216.2	242.8	5.1	5.5	1.6	6	clean SAND to silty SAND	125	5.0	43	65	92	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(425).cpt
CPT Date: 11/20/2008 8:25:19 AM
GW During Test: 12 ft

Sounding ID: CPT-08-39
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	319.1	212.7	241.6	5.2	5.3	1.6	6	clean SAND to silty SAND	125	5.0	43	64	92	43	-	16
63.32	324.0	215.7	237.8	4.7	5.7	1.5	6	clean SAND to silty SAND	125	5.0	43	65	92	43	-	16
63.49	339.9	226.0	237.8	4.1	5.6	1.2	6	clean SAND to silty SAND	125	5.0	45	68	94	44	-	16
63.65	367.4	244.0	244.0	3.7	5.6	1.0	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
63.82	370.3	245.6	245.6	3.4	5.6	0.9	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
63.98	363.3	240.7	240.7	2.6	5.5	0.7	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
64.14	370.4	245.1	245.1	2.2	5.7	0.6	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
64.31	374.5	247.5	247.5	1.6	5.4	0.4	6	clean SAND to silty SAND	125	5.0	50	75	95	44	-	16
64.47	376.0	248.2	248.2	1.7	5.2	0.5	6	clean SAND to silty SAND	125	5.0	50	75	95	44	-	16
64.64	368.5	243.0	244.4	3.9	4.3	1.1	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
64.80	381.2	251.1	252.0	4.1	5.6	1.1	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
64.96	460.0	302.6	306.1	5.9	4.9	1.3	6	clean SAND to silty SAND	125	5.0	61	92	95	45	-	16
65.13	587.0	385.7	385.7	5.1	4.3	0.9	6	clean SAND to silty SAND	125	5.0	77	100	95	46	-	16
65.29	559.0	366.9	366.9	7.2	3.9	1.3	6	clean SAND to silty SAND	125	5.0	73	100	95	46	-	16
65.46	562.0	368.4	368.4	3.8	6.2	0.7	6	clean SAND to silty SAND	125	5.0	74	100	95	46	-	16
65.62	513.4	336.1	336.1	2.7	6.7	0.5	6	clean SAND to silty SAND	125	5.0	67	100	95	45	-	16
65.78	464.0	303.4	303.4	2.5	3.1	0.5	6	clean SAND to silty SAND	125	5.0	61	93	95	45	-	16
65.95	484.7	316.6	316.6	1.9	3.5	0.4	7	grvly SAND to dense SAND	130	6.0	53	81	95	45	-	16
66.11	466.5	304.3	304.3	2.5	3.9	0.5	6	clean SAND to silty SAND	125	5.0	61	93	95	45	-	16
66.28	458.3	298.7	298.7	2.5	4.4	0.6	6	clean SAND to silty SAND	125	5.0	60	92	95	45	-	16
66.44	435.0	283.1	283.1	3.7	4.0	0.9	6	clean SAND to silty SAND	125	5.0	57	87	95	45	-	16
66.60	405.6	263.7	263.7	2.2	3.2	0.6	6	clean SAND to silty SAND	125	5.0	53	81	95	44	-	16
66.77	322.1	209.2	209.5	2.9	3.4	0.9	6	clean SAND to silty SAND	125	5.0	42	64	91	43	-	16
66.93	326.7	211.9	211.9	2.6	3.3	0.8	6	clean SAND to silty SAND	125	5.0	42	65	92	43	-	16
67.10	388.5	251.7	251.7	2.6	3.7	0.7	6	clean SAND to silty SAND	125	5.0	50	78	95	44	-	16
67.26	506.8	328.0	333.8	7.1	5.9	1.4	6	clean SAND to silty SAND	125	5.0	66	100	95	45	-	16
67.42	334.9	216.5	265.7	7.4	7.4	2.2	6	clean SAND to silty SAND	125	5.0	43	67	92	43	-	16
67.59	430.2	277.8	289.6	5.9	3.6	1.4	6	clean SAND to silty SAND	125	5.0	56	86	95	44	-	16
67.75	421.8	272.0	272.0	3.2	4.5	0.8	6	clean SAND to silty SAND	125	5.0	54	84	95	44	-	16
67.92	457.5	294.8	294.8	2.4	5.4	0.5	6	clean SAND to silty SAND	125	5.0	59	92	95	45	-	16
68.08	472.9	304.3	304.3	2.6	5.5	0.6	6	clean SAND to silty SAND	125	5.0	61	95	95	45	-	16
68.24	539.3	346.7	346.7	3.4	5.8	0.6	6	clean SAND to silty SAND	125	5.0	69	100	95	45	-	16
68.41	589.7	378.6	386.1	9.2	12.5	1.6	6	clean SAND to silty SAND	125	5.0	76	100	95	46	-	16
68.57	656.0	420.7	420.7	4.6	6.4	0.7	6	clean SAND to silty SAND	125	5.0	84	100	95	46	-	16
68.74	571.2	365.9	365.9	4.7	7.6	0.8	6	clean SAND to silty SAND	125	5.0	73	100	95	46	-	16
68.90	620.0	396.8	396.8	7.0	8.2	1.1	6	clean SAND to silty SAND	125	5.0	79	100	95	46	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(464).cpt
CPT Date: 12/4/2008 11:58:14 AM
GW During Test: 12 ft

Sounding ID: CPT-08-40
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	89.2	143.0	144.8	0.6	0.0	0.6	6	clean SAND to silty SAND	125	5.0	29	18	79	48	-	16
0.49	70.6	113.2	143.7	1.0	0.0	1.4	6	clean SAND to silty SAND	125	5.0	23	14	71	48	-	16
0.66	70.5	113.1	180.2	1.9	-0.3	2.6	5	silty SAND to sandy SILT	120	4.0	28	18	71	48	-	16
0.82	64.1	102.8	188.6	2.1	-0.4	3.2	5	silty SAND to sandy SILT	120	4.0	26	16	68	48	-	16
0.98	67.4	108.1	162.4	1.5	0.0	2.2	5	silty SAND to sandy SILT	120	4.0	27	17	70	48	-	16
1.15	68.2	109.4	145.3	1.1	0.0	1.6	5	silty SAND to sandy SILT	120	4.0	27	17	70	48	-	16
1.31	68.2	109.3	131.5	0.8	0.0	1.1	6	clean SAND to silty SAND	125	5.0	22	14	70	48	-	16
1.48	59.8	96.0	119.4	0.7	0.0	1.1	6	clean SAND to silty SAND	125	5.0	19	12	66	48	-	16
1.64	55.8	89.4	109.7	0.5	0.1	1.0	6	clean SAND to silty SAND	125	5.0	18	11	63	48	-	16
1.80	49.8	79.9	101.4	0.5	0.1	1.0	6	clean SAND to silty SAND	125	5.0	16	10	60	48	-	16
1.97	44.3	71.1	93.8	0.4	0.1	1.0	6	clean SAND to silty SAND	125	5.0	14	9	56	47	-	16
2.13	40.6	65.1	87.2	0.4	0.1	0.9	6	clean SAND to silty SAND	125	5.0	13	8	53	46	-	16
2.30	40.4	64.7	91.6	0.4	0.2	1.1	5	silty SAND to sandy SILT	120	4.0	16	10	53	46	-	16
2.46	50.1	80.3	127.7	0.9	0.2	1.9	5	silty SAND to sandy SILT	120	4.0	20	13	60	46	-	16
2.62	72.9	116.9	179.7	1.8	0.1	2.5	5	silty SAND to sandy SILT	120	4.0	29	18	72	48	-	16
2.79	70.1	112.3	199.3	2.3	-0.4	3.3	5	silty SAND to sandy SILT	120	4.0	28	18	71	47	-	16
2.95	64.9	104.1	195.4	2.2	-0.8	3.4	5	silty SAND to sandy SILT	120	4.0	26	16	68	47	-	16
3.12	46.7	75.0	168.3	1.6	0.0	3.5	4	clayy SILT to silty CLAY	115	2.0	37	23	-	-	3.3	15
3.28	34.5	55.3	147.6	1.2	-0.1	3.6	4	clayy SILT to silty CLAY	115	2.0	28	17	-	-	2.4	15
3.45	28.3	45.3	136.9	1.0	0.0	3.7	4	clayy SILT to silty CLAY	115	2.0	23	14	-	-	2.0	15
3.61	31.7	50.8	160.2	1.4	0.2	4.4	4	clayy SILT to silty CLAY	115	2.0	25	16	-	-	2.2	15
3.77	55.4	88.8	182.7	1.9	0.1	3.5	5	silty SAND to sandy SILT	120	4.0	22	14	63	45	-	16
3.94	44.0	70.6	187.5	2.0	-0.1	4.5	4	clayy SILT to silty CLAY	115	2.0	35	22	-	-	3.1	15
4.10	31.7	50.9	-	1.6	0.1	5.0	4	clayy SILT to silty CLAY	115	2.0	25	16	-	-	2.2	15
4.27	25.3	40.5	-	1.1	0.1	4.6	4	clayy SILT to silty CLAY	115	2.0	20	13	-	-	1.8	15
4.43	20.1	32.3	-	1.0	0.1	4.8	3	silty CLAY to CLAY	115	1.5	22	13	-	-	1.4	15
4.59	16.5	26.5	-	0.8	0.1	4.7	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.2	15
4.76	14.4	23.0	-	0.7	0.5	4.9	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.0	15
4.92	14.1	22.6	-	0.7	0.2	4.9	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
5.09	13.3	21.3	-	0.6	-1.3	4.8	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
5.25	12.1	19.5	-	0.5	-1.1	4.5	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
5.41	11.8	19.0	-	0.5	-0.1	4.4	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
5.58	10.1	16.2	-	0.5	-0.6	4.8	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
5.74	9.2	14.7	-	0.5	-1.0	5.2	3	silty CLAY to CLAY	115	1.5	10	6	-	-	0.6	15
5.91	9.0	14.4	-	0.4	-0.9	5.2	3	silty CLAY to CLAY	115	1.5	10	6	-	-	0.6	15
6.07	8.9	14.4	-	0.4	0.0	5.0	3	silty CLAY to CLAY	115	1.5	10	6	-	-	0.6	15
6.23	8.6	13.9	-	0.4	-0.2	5.0	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
6.40	7.9	12.7	-	0.3	-0.2	3.9	3	silty CLAY to CLAY	115	1.5	8	5	-	-	0.5	15
6.56	5.4	8.6	-	0.1	0.0	2.9	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
6.73	4.3	6.8	-	0.1	0.1	3.3	3	silty CLAY to CLAY	115	1.5	5	3	-	-	0.3	15
6.89	5.0	8.0	-	0.3	0.1	5.9	3	silty CLAY to CLAY	115	1.5	5	3	-	-	0.3	15
7.05	6.2	9.9	-	0.4	-0.4	6.7	3	silty CLAY to CLAY	115	1.5	7	4	-	-	0.4	15
7.22	9.0	14.4	-	0.4	-0.2	5.2	3	silty CLAY to CLAY	115	1.5	10	6	-	-	0.6	15
7.38	9.8	15.8	-	0.5	-0.2	5.1	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
7.55	10.6	16.9	-	0.5	-0.7	5.3	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
7.71	11.7	18.8	-	0.6	-0.4	5.6	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
7.87	11.9	19.1	-	0.6	-0.8	5.6	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
8.04	10.9	17.6	-	0.6	-0.1	5.5	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.8	15
8.20	9.4	15.1	-	0.5	0.0	5.6	3	silty CLAY to CLAY	115	1.5	10	6	-	-	0.6	15
8.37	10.4	16.7	-	0.5	-0.1	4.7	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
8.53	10.6	17.1	-	0.5	-0.2	4.8	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
8.69	9.8	15.7	-	0.5	-0.3	5.3	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.7	15
8.86	11.2	18.0	-	0.5	-1.0	4.7	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.8	15
9.02	11.2	17.9	-	0.5	-0.8	4.9	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.8	15
9.19	10.9	17.5	-	0.5	-0.6	5.2	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.7	15
9.35	11.0	17.7	-	0.5	-0.3	5.2	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.8	15
9.51	11.2	17.9	-	0.6	-0.3	5.3	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.8	15
9.68	16.4	26.2	-	0.5	-0.4	3.4	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.1	15
9.84	35.1	44.9	88.3	0.5	0.1	1.5	5	silty SAND to sandy SILT	120	4.0	11	9	41	40	-	16
10.01	47.4	60.1	97.8	0.7	0.1	1.4	5	silty SAND to sandy SILT	120	4.0	15	12	50	42	-	16
10.17	54.5	68.5	112.7	0.9	0.1	1.7	5	silty SAND to sandy SILT	120	4.0	17	14	54	42	-	16
10.34	61.5	76.6	123.5	1.1	0.1	1.8	5	silty SAND to sandy SILT	120	4.0	19	15	58	43	-	16
10.50	67.5	83.5	126.1	1.2	0.1	1.7	5	silty SAND to sandy SILT	120	4.0	21	17	61	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Earth Mechanics
Data File: SDF(464).cpt
CPT Date: 12/4/2008 11:58:14 AM
GW During Test: 12 ft

Sounding ID: CPT-08-40
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	76.2	93.5	132.7	1.2	0.1	1.7	5	silty SAND to sandy SILT	120	4.0	23	19	65	44	-	16
10.83	85.4	104.0	140.0	1.3	0.1	1.6	5	silty SAND to sandy SILT	120	4.0	26	21	68	44	-	16
10.99	94.4	114.0	146.9	1.4	0.1	1.5	6	clean SAND to silty SAND	125	5.0	23	19	71	45	-	16
11.16	100.3	120.2	150.9	1.5	0.1	1.5	6	clean SAND to silty SAND	125	5.0	24	20	73	45	-	16
11.32	101.8	121.0	150.9	1.5	0.1	1.4	6	clean SAND to silty SAND	125	5.0	24	20	73	45	-	16
11.48	106.9	126.2	155.3	1.5	0.2	1.4	6	clean SAND to silty SAND	125	5.0	25	21	75	45	-	16
11.65	110.1	129.0	156.7	1.5	0.2	1.4	6	clean SAND to silty SAND	125	5.0	26	22	75	45	-	16
11.81	109.6	127.5	150.7	1.3	0.2	1.2	6	clean SAND to silty SAND	125	5.0	26	22	75	45	-	16
11.98	108.7	125.5	146.4	1.2	0.2	1.1	6	clean SAND to silty SAND	125	5.0	25	22	74	45	-	16
12.14	103.7	119.3	140.8	1.2	0.0	1.1	6	clean SAND to silty SAND	125	5.0	24	21	73	45	-	16
12.30	105.0	120.3	141.6	1.2	0.1	1.1	6	clean SAND to silty SAND	125	5.0	24	21	73	45	-	16
12.47	103.2	117.9	136.4	1.0	0.1	1.0	6	clean SAND to silty SAND	125	5.0	24	21	72	45	-	16
12.63	104.9	119.4	139.0	1.1	0.2	1.1	6	clean SAND to silty SAND	125	5.0	24	21	73	45	-	16
12.80	97.0	110.0	132.1	1.1	0.2	1.1	6	clean SAND to silty SAND	125	5.0	22	19	70	44	-	16
12.96	88.4	99.9	123.2	1.0	0.2	1.1	6	clean SAND to silty SAND	125	5.0	20	18	67	44	-	16
13.12	76.5	86.1	119.0	1.1	0.2	1.4	5	silty SAND to sandy SILT	120	4.0	22	19	62	43	-	16
13.29	62.0	69.6	114.1	1.1	0.2	1.7	5	silty SAND to sandy SILT	120	4.0	17	15	55	42	-	16
13.45	38.0	42.5	109.7	0.9	0.2	2.5	5	silty SAND to sandy SILT	120	4.0	11	9	39	39	-	16
13.62	19.1	25.2	-	0.6	-0.2	3.2	4	clayy SILT to silty CLAY	115	2.0	13	10	-	-	1.3	15
13.78	9.6	12.5	-	0.3	-0.7	3.8	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
13.94	8.5	11.1	-	0.2	0.2	3.1	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
14.11	7.7	10.0	-	0.2	2.1	3.3	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
14.27	6.3	8.1	-	0.2	3.6	3.0	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.44	6.0	7.7	-	0.1	6.2	2.6	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.60	4.7	6.0	-	0.2	7.4	4.3	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
14.76	4.8	6.1	-	0.2	7.8	4.0	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
14.93	4.5	5.7	-	0.2	7.2	4.6	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.09	4.7	5.9	-	0.2	7.4	4.0	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.26	5.6	7.0	-	0.2	6.7	3.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.42	5.0	6.3	-	0.2	4.6	5.0	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.58	4.5	5.5	-	0.2	4.6	5.0	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.75	4.9	6.0	-	0.2	4.8	4.7	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.91	5.8	7.0	-	0.2	4.8	4.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.08	5.7	6.9	-	0.2	3.9	4.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.24	6.5	7.8	-	0.3	4.1	4.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.40	8.0	9.6	-	0.3	4.0	4.2	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.57	9.5	11.3	-	0.4	3.8	4.2	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
16.73	9.5	11.3	-	0.4	3.6	5.0	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
16.90	8.6	10.2	-	0.5	2.2	6.3	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
17.06	15.4	18.1	-	0.4	2.3	2.9	4	clayy SILT to silty CLAY	115	2.0	9	8	-	-	1.0	15
17.23	32.6	34.3	80.3	0.5	-3.7	1.6	5	silty SAND to sandy SILT	120	4.0	9	8	32	37	-	16
17.39	37.5	39.3	89.8	0.6	-6.4	1.8	5	silty SAND to sandy SILT	120	4.0	10	9	36	38	-	16
17.55	41.2	43.1	98.1	0.8	-5.4	2.0	5	silty SAND to sandy SILT	120	4.0	11	10	39	39	-	16
17.72	48.6	50.7	103.5	0.9	-5.2	1.9	5	silty SAND to sandy SILT	120	4.0	13	12	45	39	-	16
17.88	53.4	55.6	106.8	1.0	-5.1	1.9	5	silty SAND to sandy SILT	120	4.0	14	13	48	40	-	16
18.05	56.4	58.5	109.5	1.1	-5.0	1.9	5	silty SAND to sandy SILT	120	4.0	15	14	49	40	-	16
18.21	53.7	55.6	96.4	0.8	-4.9	1.5	5	silty SAND to sandy SILT	120	4.0	14	13	48	40	-	16
18.37	64.6	66.7	96.5	0.7	-4.7	1.2	5	silty SAND to sandy SILT	120	4.0	17	16	54	41	-	16
18.54	67.6	69.5	105.1	0.9	-1.2	1.4	5	silty SAND to sandy SILT	120	4.0	17	17	55	41	-	16
18.70	59.5	61.1	111.6	1.1	-3.0	1.9	5	silty SAND to sandy SILT	120	4.0	15	15	51	40	-	16
18.87	44.0	45.1	112.5	1.1	-2.7	2.5	5	silty SAND to sandy SILT	120	4.0	11	11	41	39	-	16
19.03	23.8	26.3	-	0.8	-2.5	3.6	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.6	15
19.19	12.4	13.6	-	0.4	-2.3	3.9	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
19.36	9.1	9.9	-	0.3	-1.9	3.2	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
19.52	8.6	9.4	-	0.2	-1.2	2.6	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
19.69	22.8	23.7	78.1	0.4	0.6	1.9	4	clayy SILT to silty CLAY	115	2.0	12	11	-	-	1.6	15
19.85	43.3	43.7	89.1	0.7	-1.1	1.6	5	silty SAND to sandy SILT	120	4.0	11	11	40	38	-	16
20.01	57.2	57.6	97.7	0.8	-1.3	1.5	5	silty SAND to sandy SILT	120	4.0	14	14	49	40	-	16
20.18	58.1	58.4	102.6	0.9	-1.3	1.6	5	silty SAND to sandy SILT	120	4.0	15	15	49	40	-	16
20.34	59.2	59.3	103.4	1.0	1.4	1.6	5	silty SAND to sandy SILT	120	4.0	15	15	50	40	-	16
20.51	53.8	53.7	101.9	0.9	0.9	1.8	5	silty SAND to sandy SILT	120	4.0	13	13	47	39	-	16
20.67	47.5	47.3	95.2	0.8	0.9	1.7	5	silty SAND to sandy SILT	120	4.0	12	12	42	39	-	16
20.83	40.8	40.5	99.8	0.9	0.6	2.2	5	silty SAND to sandy SILT	120	4.0	10	10	37	38	-	16
21.00	27.4	28.6	-	0.7	0.6	2.7	4	clayy SILT to silty CLAY	115	2.0	14	14	-	-	1.9	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(464).cpt
CPT Date: 12/4/2008 11:58:14 AM
GW During Test: 12 ft

Sounding ID: CPT-08-40
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	22.6	23.5	-	0.5	-0.3	2.2	4	clayy SILT to silty CLAY	115	2.0	12	11	-	-	1.6	15
21.33	19.8	19.9	-	0.3	-2.5	1.5	4	clayy SILT to silty CLAY	115	2.0	10	10	-	-	1.3	15
21.49	14.5	14.9	-	0.2	-3.5	1.3	4	clayy SILT to silty CLAY	115	2.0	7	7	-	-	1.0	15
21.65	8.3	8.5	-	0.1	-3.3	0.9	4	clayy SILT to silty CLAY	115	2.0	4	4	-	-	0.5	15
21.82	6.1	6.2	-	0.0	-2.6	0.1	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.4	15
21.98	5.2	5.2	-	0.0	-2.2	0.1	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.3	15
22.15	4.5	4.5	-	0.0	-0.4	0.1	1	sensitive fine SOIL	115	2.0	2	2	-	-	0.3	15
22.31	4.4	4.4	-	0.0	-0.1	0.1	1	sensitive fine SOIL	115	2.0	2	2	-	-	0.3	15
22.47	4.6	4.6	-	0.0	0.3	0.1	1	sensitive fine SOIL	115	2.0	2	2	-	-	0.3	15
22.64	5.2	5.2	-	0.0	0.7	0.1	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.3	15
22.80	5.5	5.4	-	0.0	1.0	0.6	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.3	15
22.97	5.3	5.3	-	0.1	1.4	1.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
23.13	5.3	5.3	-	0.1	1.8	1.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
23.30	5.3	5.2	-	0.1	2.1	2.3	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	15
23.46	5.4	5.3	-	0.1	2.5	2.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
23.62	5.9	5.8	-	0.1	2.8	3.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.79	6.5	6.3	-	0.2	3.0	3.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.95	6.2	6.0	-	0.2	3.1	4.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
24.12	6.2	6.0	-	0.1	3.1	3.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
24.28	6.6	6.3	-	0.2	3.3	3.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
24.44	6.6	6.3	-	0.1	3.5	2.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
24.61	6.0	5.7	-	0.1	3.8	1.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
24.77	6.6	6.2	-	0.1	4.5	1.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
24.94	13.9	13.1	-	0.1	5.5	0.9	4	clayy SILT to silty CLAY	115	2.0	7	7	-	-	0.9	15
25.10	42.9	40.3	55.9	0.2	-3.4	0.4	6	clean SAND to silty SAND	125	5.0	8	9	37	37	-	16
25.26	59.0	55.4	68.8	0.3	-5.6	0.5	6	clean SAND to silty SAND	125	5.0	11	12	47	39	-	16
25.43	65.7	61.4	78.0	0.4	-5.3	0.6	6	clean SAND to silty SAND	125	5.0	12	13	51	39	-	16
25.59	68.2	63.7	86.1	0.6	-4.9	0.9	6	clean SAND to silty SAND	125	5.0	13	14	52	40	-	16
25.76	68.8	64.1	91.0	0.7	-4.6	1.0	5	silty SAND to sandy SILT	120	4.0	16	17	52	40	-	16
25.92	69.1	64.2	97.0	0.8	-4.4	1.3	5	silty SAND to sandy SILT	120	4.0	16	17	52	40	-	16
26.08	69.0	64.0	100.0	0.9	-4.1	1.4	5	silty SAND to sandy SILT	120	4.0	16	17	52	40	-	16
26.25	68.3	63.2	103.3	1.0	-3.8	1.5	5	silty SAND to sandy SILT	120	4.0	16	17	52	39	-	16
26.41	70.2	64.8	111.1	1.2	-3.5	1.7	5	silty SAND to sandy SILT	120	4.0	16	18	53	40	-	16
26.58	70.3	64.8	115.6	1.3	-3.2	1.9	5	silty SAND to sandy SILT	120	4.0	16	18	53	40	-	16
26.74	69.1	63.5	117.4	1.4	-3.0	2.0	5	silty SAND to sandy SILT	120	4.0	16	17	52	39	-	16
26.90	67.6	62.0	117.2	1.4	-2.7	2.1	5	silty SAND to sandy SILT	120	4.0	16	17	51	39	-	16
27.07	71.4	65.3	120.2	1.4	-2.5	2.1	5	silty SAND to sandy SILT	120	4.0	16	18	53	40	-	16
27.23	74.4	67.9	123.3	1.5	-1.1	2.1	5	silty SAND to sandy SILT	120	4.0	17	19	54	40	-	16
27.40	70.1	63.9	123.2	1.5	-0.9	2.2	5	silty SAND to sandy SILT	120	4.0	16	18	52	39	-	16
27.56	62.7	57.0	118.9	1.4	-0.8	2.3	5	silty SAND to sandy SILT	120	4.0	14	16	48	39	-	16
27.72	50.5	45.8	114.2	1.2	-0.5	2.5	5	silty SAND to sandy SILT	120	4.0	11	13	41	37	-	16
27.89	45.5	41.2	103.9	1.0	-0.3	2.3	5	silty SAND to sandy SILT	120	4.0	10	11	38	37	-	16
28.05	44.5	40.3	97.0	0.9	-1.0	2.0	5	silty SAND to sandy SILT	120	4.0	10	11	37	37	-	16
28.22	44.2	39.9	87.9	0.7	-1.5	1.7	5	silty SAND to sandy SILT	120	4.0	10	11	37	37	-	16
28.38	40.5	36.4	87.3	0.7	-2.0	1.8	5	silty SAND to sandy SILT	120	4.0	9	10	34	36	-	16
28.54	27.8	23.8	-	0.6	1.4	2.4	4	clayy SILT to silty CLAY	115	2.0	12	14	-	-	1.9	15
28.71	16.1	13.8	-	0.5	1.5	3.1	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
28.87	11.1	9.4	-	0.3	2.0	3.2	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
29.04	9.2	7.8	-	0.2	3.1	2.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.20	8.3	7.0	-	0.2	3.6	2.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
29.36	7.5	6.3	-	0.2	3.9	2.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
29.53	7.3	6.1	-	0.1	4.3	2.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
29.69	7.2	6.0	-	0.1	4.9	1.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
29.86	6.8	5.6	-	0.1	5.3	1.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
30.02	8.4	6.9	-	0.1	6.0	1.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
30.19	9.4	7.7	-	0.1	5.2	1.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.35	7.6	6.3	-	0.1	4.9	1.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.51	7.2	5.9	-	0.1	6.5	1.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
30.68	6.7	5.5	-	0.1	7.9	2.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
30.84	7.5	6.1	-	0.2	9.4	4.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.01	19.8	16.1	-	0.2	9.8	1.0	4	clayy SILT to silty CLAY	115	2.0	8	10	-	-	1.3	15
31.17	33.2	29.0	55.3	0.2	0.7	0.7	5	silty SAND to sandy SILT	120	4.0	7	8	26	34	-	16
31.33	36.0	31.4	57.5	0.2	-1.1	0.7	5	silty SAND to sandy SILT	120	4.0	8	9	29	35	-	16
31.50	39.7	34.6	57.2	0.2	-0.5	0.6	5	silty SAND to sandy SILT	120	4.0	9	10	32	35	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(464).cpt
CPT Date: 12/4/2008 11:58:14 AM
GW During Test: 12 ft

Sounding ID: CPT-08-40
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n * PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	41.4	35.9	66.5	0.4	-0.9	0.9	5	silty SAND to sandy SILT	120	4.0	9	10	33	36	-	16
31.83	27.8	24.1	64.1	0.3	-2.8	1.2	5	silty SAND to sandy SILT	120	4.0	6	7	20	33	-	16
31.99	15.9	12.6	-	0.2	-4.8	1.2	4	clayy SILT to silty CLAY	115	2.0	6	8	-	-	1.1	15
32.15	8.7	6.9	-	0.1	-4.8	1.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
32.32	8.3	6.5	-	0.1	-3.7	1.5	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
32.48	8.1	6.3	-	0.1	-2.9	1.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.65	8.1	6.3	-	0.1	-2.3	2.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.81	10.5	8.2	-	0.2	-1.5	2.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
32.97	10.8	8.4	-	0.2	-1.4	1.8	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
33.14	8.5	6.6	-	0.1	-0.8	1.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
33.30	7.9	6.1	-	0.1	0.1	2.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
33.47	11.4	8.8	-	0.2	1.0	2.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
33.63	48.1	40.9	73.4	0.5	0.7	1.0	5	silty SAND to sandy SILT	120	4.0	10	12	38	36	-	16
33.79	64.4	54.7	91.1	0.8	0.8	1.3	5	silty SAND to sandy SILT	120	4.0	14	16	47	38	-	16
33.96	70.4	59.6	104.4	1.1	1.5	1.7	5	silty SAND to sandy SILT	120	4.0	15	18	50	38	-	16
34.12	74.5	63.1	114.3	1.4	2.0	1.9	5	silty SAND to sandy SILT	120	4.0	16	19	52	39	-	16
34.29	75.0	63.4	117.7	1.5	2.3	2.0	5	silty SAND to sandy SILT	120	4.0	16	19	52	39	-	16
34.45	75.3	63.4	119.3	1.5	2.6	2.1	5	silty SAND to sandy SILT	120	4.0	16	19	52	39	-	16
34.61	76.5	64.4	121.9	1.6	3.1	2.2	5	silty SAND to sandy SILT	120	4.0	16	19	52	39	-	16
34.78	74.1	62.2	127.0	1.7	3.5	2.4	5	silty SAND to sandy SILT	120	4.0	16	19	51	39	-	16
34.94	72.9	61.2	125.2	1.7	7.0	2.4	5	silty SAND to sandy SILT	120	4.0	15	18	51	38	-	16
35.11	81.4	68.1	121.6	1.6	6.9	2.0	5	silty SAND to sandy SILT	120	4.0	17	20	54	39	-	16
35.27	90.5	75.6	120.8	1.6	6.5	1.8	5	silty SAND to sandy SILT	120	4.0	19	23	58	40	-	16
35.43	99.5	83.0	123.1	1.6	6.4	1.6	5	silty SAND to sandy SILT	120	4.0	21	25	61	40	-	16
35.60	103.3	86.0	122.9	1.5	6.8	1.5	5	silty SAND to sandy SILT	120	4.0	21	26	62	40	-	16
35.76	100.7	83.7	124.8	1.6	7.2	1.7	5	silty SAND to sandy SILT	120	4.0	21	25	61	40	-	16
35.93	93.9	77.9	137.3	2.1	7.4	2.3	5	silty SAND to sandy SILT	120	4.0	19	23	59	40	-	16
36.09	76.1	63.0	140.5	2.1	7.6	2.9	5	silty SAND to sandy SILT	120	4.0	16	19	52	38	-	16
36.26	42.1	30.5	-	1.8	7.5	4.4	3	silty CLAY to CLAY	115	1.5	20	28	-	-	2.9	15
36.42	24.5	17.7	-	1.1	7.9	4.7	3	silty CLAY to CLAY	115	1.5	12	16	-	-	1.7	15
36.58	17.7	12.8	-	0.6	8.9	3.9	3	silty CLAY to CLAY	115	1.5	9	12	-	-	1.2	15
36.75	13.1	9.4	-	0.4	12.1	3.2	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
36.91	11.2	8.0	-	0.2	17.3	2.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.08	10.1	7.2	-	0.3	22.3	3.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
37.24	10.1	7.2	-	0.3	24.9	3.3	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
37.40	10.5	7.5	-	0.3	27.4	3.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.57	11.4	8.1	-	0.4	29.8	4.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
37.73	13.0	9.2	-	0.6	32.9	5.5	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
37.90	14.1	9.9	-	0.7	36.5	5.5	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
38.06	12.9	9.0	-	0.5	31.9	5.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
38.22	11.5	8.0	-	0.3	53.2	3.7	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
38.39	11.4	7.9	-	0.3	50.9	3.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
38.55	11.4	7.9	-	0.3	47.9	3.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
38.72	11.2	7.8	-	0.3	49.5	3.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.88	11.1	7.7	-	0.4	52.5	4.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
39.04	29.4	20.3	-	0.7	63.6	2.7	4	clayy SILT to silty CLAY	115	2.0	10	15	-	-	2.0	15
39.21	79.3	63.8	103.6	1.2	4.7	1.5	5	silty SAND to sandy SILT	120	4.0	16	20	52	38	-	16
39.37	93.7	75.3	116.4	1.5	4.8	1.6	5	silty SAND to sandy SILT	120	4.0	19	23	58	39	-	16
39.54	98.2	78.8	131.4	1.9	5.1	2.0	5	silty SAND to sandy SILT	120	4.0	20	25	59	39	-	16
39.70	98.5	78.9	140.3	2.2	5.4	2.3	5	silty SAND to sandy SILT	120	4.0	20	25	59	39	-	16
39.86	94.4	75.5	144.3	2.4	5.6	2.6	5	silty SAND to sandy SILT	120	4.0	19	24	58	39	-	16
40.03	92.0	73.5	142.5	2.3	5.7	2.6	5	silty SAND to sandy SILT	120	4.0	18	23	57	39	-	16
40.19	90.4	72.0	141.8	2.3	5.9	2.6	5	silty SAND to sandy SILT	120	4.0	18	23	56	39	-	16
40.36	86.7	69.0	143.8	2.4	5.9	2.8	5	silty SAND to sandy SILT	120	4.0	17	22	55	39	-	16
40.52	82.4	65.4	140.8	2.2	6.2	2.8	5	silty SAND to sandy SILT	120	4.0	16	21	53	38	-	16
40.68	79.2	62.8	134.0	2.0	6.3	2.6	5	silty SAND to sandy SILT	120	4.0	16	20	52	38	-	16
40.85	70.0	55.5	119.8	1.6	5.0	2.4	5	silty SAND to sandy SILT	120	4.0	14	18	48	37	-	16
41.01	59.1	46.8	109.9	1.3	2.0	2.3	5	silty SAND to sandy SILT	120	4.0	12	15	42	36	-	16
41.18	44.9	35.4	94.1	0.9	-2.1	2.1	5	silty SAND to sandy SILT	120	4.0	9	11	33	35	-	16
41.34	33.6	22.1	-	0.7	-3.8	2.2	4	clayy SILT to silty CLAY	115	2.0	11	17	-	-	2.3	15
41.50	20.5	13.5	-	0.6	-3.5	3.3	3	silty CLAY to CLAY	115	1.5	9	14	-	-	1.4	15
41.67	17.5	11.5	-	0.5	8.2	3.5	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.1	15
41.83	17.9	11.7	-	0.5	10.5	3.0	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
42.00	29.8	19.4	-	0.4	11.9	1.6	4	clayy SILT to silty CLAY	115	2.0	10	15	-	-	2.0	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(464).cpt
CPT Date: 12/4/2008 11:58:14 AM
GW During Test: 12 ft

Sounding ID: CPT-08-40
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	29.9	19.4	-	0.5	4.1	1.9	4	clayy SILT to silty CLAY	115	2.0	10	15	-	-	2.0	15
42.32	19.6	12.7	-	0.6	5.1	3.4	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
42.49	22.5	14.5	-	0.5	6.7	2.6	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.5	15
42.65	24.6	15.9	-	0.4	6.2	1.9	4	clayy SILT to silty CLAY	115	2.0	8	12	-	-	1.6	15
42.82	24.9	16.0	-	0.3	5.3	1.5	4	clayy SILT to silty CLAY	115	2.0	8	12	-	-	1.7	15
42.98	19.6	12.6	-	0.4	4.6	2.5	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
43.15	19.9	12.7	-	0.4	6.7	2.6	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
43.31	25.7	16.4	-	0.5	5.3	2.0	4	clayy SILT to silty CLAY	115	2.0	8	13	-	-	1.7	15
43.47	23.1	14.7	-	0.6	3.6	2.7	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.5	15
43.64	24.5	15.5	-	0.4	2.9	1.6	4	clayy SILT to silty CLAY	115	2.0	8	12	-	-	1.6	15
43.80	22.6	14.2	-	0.3	2.0	1.5	4	clayy SILT to silty CLAY	115	2.0	7	11	-	-	1.5	15
43.97	15.6	9.8	-	0.3	1.5	2.1	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
44.13	12.8	8.0	-	0.3	2.5	3.0	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
44.29	12.8	8.0	-	0.3	3.4	2.9	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
44.46	13.7	8.6	-	0.3	6.6	3.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
44.62	14.4	9.0	-	0.4	7.3	3.2	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
44.79	14.8	9.2	-	0.4	7.9	3.6	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
44.95	16.1	10.0	-	0.4	8.6	3.2	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
45.11	15.5	9.6	-	0.4	12.7	3.3	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
45.28	14.2	8.7	-	0.4	13.4	3.5	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
45.44	14.8	9.1	-	0.4	14.4	3.2	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
45.61	14.7	9.0	-	0.4	15.2	3.0	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
45.77	13.7	8.4	-	0.4	16.4	3.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
45.93	15.3	9.4	-	0.5	17.9	3.7	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
46.10	15.0	9.1	-	0.5	17.8	4.1	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
46.26	16.0	9.7	-	0.6	18.8	4.6	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
46.43	24.5	14.8	-	0.9	19.2	3.9	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.6	15
46.59	27.4	16.5	-	0.9	7.2	3.7	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.8	15
46.75	35.0	21.1	-	1.0	5.5	3.1	4	clayy SILT to silty CLAY	115	2.0	11	18	-	-	2.4	15
46.92	35.2	21.1	-	0.9	-0.7	2.8	4	clayy SILT to silty CLAY	115	2.0	11	18	-	-	2.4	15
47.08	26.0	15.6	-	0.9	-3.1	4.0	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
47.25	21.2	12.7	-	0.8	-2.4	4.2	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
47.41	45.5	34.1	96.6	0.9	-1.9	2.2	4	clayy SILT to silty CLAY	115	2.0	17	23	-	-	3.1	15
47.57	47.4	28.2	-	1.4	-3.0	3.2	4	clayy SILT to silty CLAY	115	2.0	14	24	-	-	3.3	15
47.74	48.0	28.5	-	1.3	-3.2	2.8	4	clayy SILT to silty CLAY	115	2.0	14	24	-	-	3.3	15
47.90	59.4	44.3	107.8	1.3	-4.4	2.3	5	silty SAND to sandy SILT	120	4.0	11	15	40	36	-	16
48.07	58.8	43.9	108.5	1.3	-5.5	2.3	5	silty SAND to sandy SILT	120	4.0	11	15	40	35	-	16
48.23	50.0	29.4	-	1.5	-5.9	3.2	4	clayy SILT to silty CLAY	115	2.0	15	25	-	-	3.4	15
48.39	37.6	22.0	-	1.4	4.6	4.1	3	silty CLAY to CLAY	115	1.5	15	25	-	-	2.6	15
48.56	24.9	14.6	-	1.0	0.2	4.7	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
48.72	18.8	11.0	-	0.7	1.4	4.4	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.2	15
48.89	19.2	11.2	-	0.8	2.8	4.7	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
49.05	34.8	20.2	-	1.0	4.3	3.2	4	clayy SILT to silty CLAY	115	2.0	10	17	-	-	2.4	15
49.22	57.7	42.7	111.2	1.4	-1.1	2.5	5	silty SAND to sandy SILT	120	4.0	11	14	39	35	-	16
49.38	64.3	47.4	104.5	1.2	-4.2	2.0	5	silty SAND to sandy SILT	120	4.0	12	16	42	36	-	16
49.54	71.5	52.7	112.5	1.5	-5.6	2.2	5	silty SAND to sandy SILT	120	4.0	13	18	46	36	-	16
49.71	56.9	32.7	-	1.7	-6.5	3.1	4	clayy SILT to silty CLAY	115	2.0	16	28	-	-	3.9	15
49.87	55.7	40.9	114.5	1.4	-6.6	2.7	4	clayy SILT to silty CLAY	115	2.0	20	28	-	-	3.8	15
50.04	73.8	54.2	128.1	1.9	-6.7	2.7	5	silty SAND to sandy SILT	120	4.0	14	18	47	37	-	16
50.20	90.1	66.1	138.1	2.3	-6.9	2.7	5	silty SAND to sandy SILT	120	4.0	17	23	53	38	-	16
50.36	140.1	102.6	155.4	2.9	-7.2	2.1	5	silty SAND to sandy SILT	120	4.0	26	35	68	40	-	16
50.53	176.9	129.4	176.8	3.5	-8.1	2.0	5	silty SAND to sandy SILT	120	4.0	32	44	76	41	-	16
50.69	206.1	150.5	192.5	3.9	-8.1	1.9	6	clean SAND to silty SAND	125	5.0	30	41	81	42	-	16
50.86	229.9	167.7	211.2	4.5	-8.3	2.0	6	clean SAND to silty SAND	125	5.0	34	46	84	43	-	16
51.02	259.5	189.0	228.8	4.9	-8.4	1.9	6	clean SAND to silty SAND	125	5.0	38	52	88	43	-	16
51.18	280.6	204.1	246.4	5.6	-8.6	2.0	6	clean SAND to silty SAND	125	5.0	41	56	91	44	-	16
51.35	271.1	196.9	245.6	5.9	-8.9	2.2	6	clean SAND to silty SAND	125	5.0	39	54	89	43	-	16
51.51	258.1	187.2	245.6	6.3	-8.8	2.5	5	silty SAND to sandy SILT	120	4.0	47	65	88	43	-	16
51.68	238.4	172.7	239.1	6.3	-7.8	2.7	5	silty SAND to sandy SILT	120	4.0	43	60	85	43	-	16
51.84	220.8	159.7	227.7	5.9	-7.7	2.7	5	silty SAND to sandy SILT	120	4.0	40	55	82	42	-	16
52.00	203.2	146.7	217.2	5.5	-7.5	2.7	5	silty SAND to sandy SILT	120	4.0	37	51	80	42	-	16
52.17	197.3	142.3	211.7	5.3	-7.4	2.7	5	silty SAND to sandy SILT	120	4.0	36	49	79	42	-	16
52.33	186.5	134.4	202.2	4.9	-7.2	2.7	5	silty SAND to sandy SILT	120	4.0	34	47	77	42	-	16
52.50	175.1	126.0	191.7	4.4	-7.1	2.6	5	silty SAND to sandy SILT	120	4.0	31	44	75	41	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(464).cpt
CPT Date: 12/4/2008 11:58:14 AM
GW During Test: 12 ft

Sounding ID: CPT-08-40
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	177.4	127.4	189.2	4.3	-7.0	2.5	5	silty SAND to sandy SILT	120	4.0	32	44	75	41	-	16
52.82	190.5	136.7	192.3	4.3	-6.9	2.3	5	silty SAND to sandy SILT	120	4.0	34	48	77	42	-	16
52.99	199.4	142.9	193.5	4.2	-6.8	2.1	5	silty SAND to sandy SILT	120	4.0	36	50	79	42	-	16
53.15	196.8	140.8	194.8	4.4	-6.7	2.2	5	silty SAND to sandy SILT	120	4.0	35	49	78	42	-	16
53.32	179.4	128.2	187.3	4.2	-6.6	2.4	5	silty SAND to sandy SILT	120	4.0	32	45	75	41	-	16
53.48	148.1	105.7	173.6	3.8	-6.5	2.6	5	silty SAND to sandy SILT	120	4.0	26	37	69	40	-	16
53.64	152.2	108.5	157.6	3.0	-6.4	2.0	5	silty SAND to sandy SILT	120	4.0	27	38	70	40	-	16
53.81	152.4	108.5	165.6	3.4	-6.4	2.3	5	silty SAND to sandy SILT	120	4.0	27	38	70	40	-	16
53.97	146.0	103.8	175.7	3.9	-6.6	2.7	5	silty SAND to sandy SILT	120	4.0	26	37	68	40	-	16
54.14	124.7	88.6	178.3	4.0	-6.6	3.3	5	silty SAND to sandy SILT	120	4.0	22	31	63	39	-	16
54.30	82.0	43.8	-	3.5	-6.6	4.5	4	clayy SILT to silty CLAY	115	2.0	22	41	-	-	5.7	15
54.46	47.0	25.0	-	2.3	-6.5	5.2	3	silty CLAY to CLAY	115	1.5	17	31	-	-	3.2	15
54.63	32.4	17.2	-	1.1	-6.3	3.9	3	silty CLAY to CLAY	115	1.5	11	22	-	-	2.2	15
54.79	26.7	14.1	-	1.0	-5.9	4.2	3	silty CLAY to CLAY	115	1.5	9	18	-	-	1.8	15
54.96	24.8	13.1	-	1.0	-5.6	4.5	3	silty CLAY to CLAY	115	1.5	9	17	-	-	1.6	15
55.12	23.9	12.6	-	1.0	-2.5	4.8	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.6	15
55.28	24.7	13.0	-	0.9	-2.2	4.2	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
55.45	23.2	12.2	-	0.8	-1.9	4.0	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
55.61	20.1	10.6	-	0.6	-1.5	3.8	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
55.78	18.0	9.4	-	0.6	-1.1	3.8	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.2	15
55.94	18.6	9.7	-	0.6	-0.6	3.6	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.2	15
56.11	20.8	10.8	-	0.5	-0.1	3.1	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.4	15
56.27	18.8	9.8	-	0.5	0.3	2.9	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.2	15
56.43	18.9	9.8	-	0.4	0.8	2.4	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.2	15
56.60	17.8	9.2	-	0.4	1.4	3.0	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
56.76	18.5	9.5	-	0.5	2.0	3.2	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.2	15
56.93	20.4	10.5	-	0.4	2.4	2.3	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.3	15
57.09	15.7	8.1	-	0.4	2.7	2.9	3	silty CLAY to CLAY	115	1.5	5	10	-	-	1.0	15
57.25	13.3	6.8	-	0.4	3.3	3.9	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
57.42	13.5	6.9	-	0.5	3.9	4.9	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
57.58	24.3	12.4	-	0.8	4.3	4.0	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.6	15
57.75	69.9	48.4	117.2	1.7	2.5	2.5	5	silty SAND to sandy SILT	120	4.0	12	17	43	35	-	16
57.91	68.9	35.0	-	2.1	2.9	3.2	4	clayy SILT to silty CLAY	115	2.0	17	34	-	-	4.7	15
58.07	54.1	27.4	-	2.0	9.0	3.9	4	clayy SILT to silty CLAY	115	2.0	14	27	-	-	3.7	15
58.24	32.4	16.4	-	1.1	7.7	3.7	3	silty CLAY to CLAY	115	1.5	11	22	-	-	2.2	15
58.40	18.7	9.4	-	0.5	7.9	3.0	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.2	15
58.57	15.6	7.9	-	0.2	11.5	1.4	3	silty CLAY to CLAY	115	1.5	5	10	-	-	1.0	15
58.73	15.3	7.7	-	0.2	15.2	1.9	3	silty CLAY to CLAY	115	1.5	5	10	-	-	1.0	15
58.89	18.9	9.5	-	0.3	18.6	2.3	3	silty CLAY to CLAY	115	1.5	6	13	-	-	1.2	15
59.06	17.4	8.7	-	0.4	20.6	2.6	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
59.22	19.0	9.5	-	0.3	23.9	2.0	3	silty CLAY to CLAY	115	1.5	6	13	-	-	1.2	15
59.39	33.7	16.8	-	0.8	27.4	2.6	4	clayy SILT to silty CLAY	115	2.0	8	17	-	-	2.3	15
59.55	92.7	63.5	117.8	1.8	5.5	2.0	5	silty SAND to sandy SILT	120	4.0	16	23	52	37	-	16
59.71	126.0	86.2	139.8	2.5	5.8	2.1	5	silty SAND to sandy SILT	120	4.0	22	32	62	39	-	16
59.88	143.1	97.7	156.9	3.2	6.3	2.3	5	silty SAND to sandy SILT	120	4.0	24	36	66	39	-	16
60.04	151.2	103.1	167.5	3.7	6.0	2.5	5	silty SAND to sandy SILT	120	4.0	26	38	68	40	-	16
60.21	149.1	101.6	173.7	4.0	5.9	2.7	5	silty SAND to sandy SILT	120	4.0	25	37	68	40	-	16
60.37	147.2	100.2	169.4	3.8	6.5	2.6	5	silty SAND to sandy SILT	120	4.0	25	37	67	40	-	16
60.53	154.9	105.3	159.7	3.3	6.9	2.2	5	silty SAND to sandy SILT	120	4.0	26	39	69	40	-	16
60.70	186.0	126.3	156.3	2.6	2.7	1.4	6	clean SAND to silty SAND	125	5.0	25	37	75	41	-	16
60.86	206.7	140.2	158.2	2.2	-3.2	1.1	6	clean SAND to silty SAND	125	5.0	28	41	78	41	-	16
61.03	229.0	155.1	166.7	2.1	-3.8	0.9	6	clean SAND to silty SAND	125	5.0	31	46	81	42	-	16
61.19	244.1	165.2	175.2	2.3	-3.0	0.9	6	clean SAND to silty SAND	125	5.0	33	49	84	42	-	16
61.35	244.4	165.2	178.2	2.5	-2.3	1.0	6	clean SAND to silty SAND	125	5.0	33	49	84	42	-	16
61.52	216.8	146.3	172.9	3.0	2.2	1.4	6	clean SAND to silty SAND	125	5.0	29	43	80	42	-	16
61.68	196.9	132.7	169.9	3.3	2.7	1.7	6	clean SAND to silty SAND	125	5.0	27	39	76	41	-	16
61.85	220.6	148.5	180.1	3.4	3.6	1.6	6	clean SAND to silty SAND	125	5.0	30	44	80	42	-	16
62.01	277.7	186.7	189.6	2.3	-2.4	0.9	6	clean SAND to silty SAND	125	5.0	37	56	88	43	-	16
62.17	310.6	208.5	208.5	2.5	-4.6	0.8	6	clean SAND to silty SAND	125	5.0	42	62	91	43	-	16
62.34	320.3	214.8	214.8	2.7	-5.0	0.9	6	clean SAND to silty SAND	125	5.0	43	64	92	43	-	16
62.50	319.3	213.9	213.9	2.5	-4.6	0.8	6	clean SAND to silty SAND	125	5.0	43	64	92	43	-	16
62.67	338.0	226.1	226.1	2.5	-4.0	0.7	6	clean SAND to silty SAND	125	5.0	45	68	94	44	-	16
62.83	377.7	252.4	252.4	1.9	-3.4	0.5	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
63.00	382.6	255.4	255.4	3.3	-2.8	0.9	6	clean SAND to silty SAND	125	5.0	51	77	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(464).cpt
CPT Date: 12/4/2008 11:58:14 AM
GW During Test: 12 ft

Sounding ID: CPT-08-40
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	390.1	260.1	260.1	2.8	-1.6	0.7	6	clean SAND to silty SAND	125	5.0	52	78	95	44	-	16
63.32	344.3	229.2	229.2	1.9	1.1	0.6	6	clean SAND to silty SAND	125	5.0	46	69	94	44	-	16
63.49	354.3	235.6	235.6	1.5	2.9	0.4	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
63.65	344.4	228.8	228.8	1.1	4.0	0.3	6	clean SAND to silty SAND	125	5.0	46	69	94	44	-	16
63.82	343.5	227.9	227.9	1.3	5.0	0.4	6	clean SAND to silty SAND	125	5.0	46	69	94	44	-	16
63.98	342.9	227.2	227.2	2.4	5.6	0.7	6	clean SAND to silty SAND	125	5.0	45	69	94	44	-	16
64.14	359.0	237.6	237.6	1.7	6.0	0.5	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
64.31	361.4	238.9	238.9	1.8	7.1	0.5	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
64.47	367.6	242.7	242.7	1.6	9.0	0.4	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
64.64	380.5	250.9	250.9	1.8	9.2	0.5	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
64.80	380.6	250.7	250.7	2.1	11.7	0.6	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
64.96	377.5	248.4	248.4	2.5	11.1	0.7	6	clean SAND to silty SAND	125	5.0	50	75	95	44	-	16
65.13	369.0	242.5	242.5	2.9	11.8	0.8	6	clean SAND to silty SAND	125	5.0	48	74	95	44	-	16
65.29	367.3	241.1	241.1	3.1	11.8	0.8	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
65.46	380.4	249.4	249.4	3.1	11.5	0.8	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
65.62	391.9	256.7	256.7	3.0	11.6	0.8	6	clean SAND to silty SAND	125	5.0	51	78	95	44	-	16
65.78	408.7	267.3	267.3	2.8	11.7	0.7	6	clean SAND to silty SAND	125	5.0	53	82	95	44	-	16
65.95	431.2	281.7	281.7	2.8	11.1	0.7	6	clean SAND to silty SAND	125	5.0	56	86	95	45	-	16
66.11	442.1	288.5	288.5	2.9	10.4	0.7	6	clean SAND to silty SAND	125	5.0	58	88	95	45	-	16
66.28	427.9	278.9	278.9	2.8	8.8	0.7	6	clean SAND to silty SAND	125	5.0	56	86	95	44	-	16
66.44	444.0	289.1	289.1	2.5	9.7	0.6	6	clean SAND to silty SAND	125	5.0	58	89	95	45	-	16
66.60	448.4	291.6	291.6	1.9	8.4	0.4	7	grvly SAND to dense SAND	130	6.0	49	75	95	45	-	16
66.77	445.1	289.1	289.1	2.1	10.8	0.5	6	clean SAND to silty SAND	125	5.0	58	89	95	45	-	16
66.93	442.0	286.7	286.7	1.9	10.2	0.4	7	grvly SAND to dense SAND	130	6.0	48	74	95	45	-	16
67.10	445.1	288.4	288.4	1.8	9.9	0.4	7	grvly SAND to dense SAND	130	6.0	48	74	95	45	-	16
67.26	421.8	272.9	272.9	2.9	9.5	0.7	6	clean SAND to silty SAND	125	5.0	55	84	95	44	-	16
67.42	422.4	273.1	273.1	2.7	8.0	0.6	6	clean SAND to silty SAND	125	5.0	55	84	95	44	-	16
67.59	351.5	227.0	227.0	2.5	7.3	0.7	6	clean SAND to silty SAND	125	5.0	45	70	94	43	-	16
67.75	334.0	215.4	215.4	2.0	8.7	0.6	6	clean SAND to silty SAND	125	5.0	43	67	92	43	-	16
67.92	313.5	202.0	202.0	1.9	8.8	0.6	6	clean SAND to silty SAND	125	5.0	40	63	90	43	-	16
68.08	300.9	193.6	193.6	2.0	11.9	0.7	6	clean SAND to silty SAND	125	5.0	39	60	89	43	-	16
68.24	314.6	202.2	202.2	2.2	10.9	0.7	6	clean SAND to silty SAND	125	5.0	40	63	90	43	-	16
68.41	312.5	200.7	200.7	2.5	11.7	0.8	6	clean SAND to silty SAND	125	5.0	40	63	90	43	-	16
68.57	326.0	209.1	209.1	2.5	11.5	0.8	6	clean SAND to silty SAND	125	5.0	42	65	91	43	-	16
68.74	319.3	204.5	204.5	2.5	11.4	0.8	6	clean SAND to silty SAND	125	5.0	41	64	91	43	-	16
68.90	318.1	203.5	203.5	2.4	11.5	0.8	6	clean SAND to silty SAND	125	5.0	41	64	90	43	-	16
69.07	329.4	210.5	210.5	2.5	11.5	0.8	6	clean SAND to silty SAND	125	5.0	42	66	92	43	-	16
69.23	339.1	216.5	216.5	2.5	11.7	0.8	6	clean SAND to silty SAND	125	5.0	43	68	92	43	-	16
69.39	357.3	227.9	227.9	2.4	12.4	0.7	6	clean SAND to silty SAND	125	5.0	46	71	94	43	-	16
69.56	378.3	241.0	241.0	3.4	12.0	0.9	6	clean SAND to silty SAND	125	5.0	48	76	95	44	-	16
69.72	432.5	275.2	275.2	2.8	10.7	0.7	6	clean SAND to silty SAND	125	5.0	55	86	95	44	-	16
69.89	346.0	220.0	220.0	2.1	8.1	0.6	6	clean SAND to silty SAND	125	5.0	44	69	93	43	-	16
70.05	293.9	186.6	186.6	0.6	9.4	0.2	6	clean SAND to silty SAND	125	5.0	37	59	88	42	-	16
70.21	282.0	178.9	178.9	0.6	10.4	0.2	6	clean SAND to silty SAND	125	5.0	36	56	86	42	-	16
70.38	323.4	204.9	204.9	1.0	10.3	0.3	6	clean SAND to silty SAND	125	5.0	41	65	91	43	-	16
70.54	402.6	254.8	254.8	2.5	11.4	0.6	6	clean SAND to silty SAND	125	5.0	51	81	95	44	-	16
70.71	401.9	254.1	259.7	4.7	14.6	1.2	6	clean SAND to silty SAND	125	5.0	51	80	95	44	-	16
70.87	389.7	246.1	253.1	4.6	10.8	1.2	6	clean SAND to silty SAND	125	5.0	49	78	95	44	-	16
71.03	508.3	320.7	321.3	6.6	11.9	1.3	6	clean SAND to silty SAND	125	5.0	64	100	95	45	-	16
71.20	549.5	346.3	346.3	5.7	14.7	1.0	6	clean SAND to silty SAND	125	5.0	69	100	95	45	-	16
71.36	425.6	267.9	267.9	3.8	12.7	0.9	6	clean SAND to silty SAND	125	5.0	54	85	95	44	-	16
71.53	382.9	240.8	240.8	3.1	12.9	0.8	6	clean SAND to silty SAND	125	5.0	48	77	95	44	-	16
71.69	370.7	232.8	232.8	3.2	13.6	0.9	6	clean SAND to silty SAND	125	5.0	47	74	95	43	-	16
71.85	381.1	239.1	249.3	4.6	15.6	1.2	6	clean SAND to silty SAND	125	5.0	48	76	95	44	-	16
72.02	406.9	255.1	255.1	2.6	16.1	0.6	6	clean SAND to silty SAND	125	5.0	51	81	95	44	-	16
72.18	500.4	313.3	313.3	3.3	14.6	0.7	6	clean SAND to silty SAND	125	5.0	63	100	95	45	-	16
72.35	580.4	363.0	363.0	4.0	5.5	0.7	6	clean SAND to silty SAND	125	5.0	73	100	95	45	-	16
72.51	514.9	321.7	321.7	2.7	0.2	0.5	6	clean SAND to silty SAND	125	5.0	64	100	95	45	-	16
72.67	461.7	288.1	288.1	1.4	-0.3	0.3	7	grvly SAND to dense SAND	130	6.0	48	77	95	44	-	16
72.84	408.7	254.8	254.8	1.2	-1.1	0.3	7	grvly SAND to dense SAND	130	6.0	42	68	95	44	-	16
73.00	373.4	232.5	232.5	1.9	-1.2	0.5	6	clean SAND to silty SAND	125	5.0	47	75	95	43	-	16
73.17	388.1	241.4	245.3	4.2	-0.6	1.1	6	clean SAND to silty SAND	125	5.0	48	78	95	44	-	16
73.33	353.2	219.4	219.4	2.3	0.4	0.7	6	clean SAND to silty SAND	125	5.0	44	71	93	43	-	16
73.49	358.6	222.6	222.6	1.7	0.1	0.5	6	clean SAND to silty SAND	125	5.0	45	72	93	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(464).cpt
CPT Date: 12/4/2008 11:58:14 AM
GW During Test: 12 ft

Sounding ID: CPT-08-40
Project No: 08-156
Cone/Rig: DSG0906

. Depth ft	. qc PS tsf	* qc1n PS -	. q1ncs PS -	. Slv Stss tsf	. pore prss (psi)	. Frct Rato %	* Mat Typ Zon	* Material Behavior Description	. Unit Wght pcf	. Qc to N	* SPT R-N1 60%	. SPT R-N 60%	* Rel Den %	* Ftn Ang deg	. Und Shr tsf	* Nk -
73.66	458.8	284.5	284.5	2.3	0.5	0.5	6	clean SAND to silty SAND	125	5.0	57	92	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(424).cpt
CPT Date: 11/20/2008 7:21:28 AM
GW During Test: 12 ft

Sounding ID: CPT-08-41
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	75.7	121.4	142.3	0.9	0.0	1.1	6	clean SAND to silty SAND	125	5.0	24	15	73	48	-	16
0.49	55.4	88.8	156.3	1.4	0.0	2.6	5	silty SAND to sandy SILT	120	4.0	22	14	63	48	-	16
0.66	52.5	84.2	156.1	1.5	-0.2	2.8	5	silty SAND to sandy SILT	120	4.0	21	13	61	48	-	16
0.82	38.2	61.3	115.8	0.8	-0.7	2.1	5	silty SAND to sandy SILT	120	4.0	15	10	51	48	-	16
0.98	19.4	31.1	82.8	0.4	-0.1	1.9	5	silty SAND to sandy SILT	120	4.0	8	5	28	46	-	16
1.15	16.2	26.0	53.8	0.1	0.0	0.8	5	silty SAND to sandy SILT	120	4.0	7	4	23	45	-	16
1.31	8.0	12.8	28.6	0.0	0.0	0.1	5	silty SAND to sandy SILT	120	4.0	3	2	5	41	-	16
1.48	12.7	20.3	62.9	0.2	0.0	1.4	4	clayy SILT to silty CLAY	115	2.0	10	6	-	-	0.9	15
1.64	27.5	44.1	84.4	0.4	0.0	1.4	5	silty SAND to sandy SILT	120	4.0	11	7	40	46	-	16
1.80	39.6	63.4	108.2	0.7	0.0	1.7	5	silty SAND to sandy SILT	120	4.0	16	10	52	47	-	16
1.97	49.6	79.5	113.1	0.7	0.0	1.4	5	silty SAND to sandy SILT	120	4.0	20	12	59	47	-	16
2.13	72.8	116.7	161.9	1.4	0.1	1.9	5	silty SAND to sandy SILT	120	4.0	29	18	72	48	-	16
2.30	90.6	145.4	217.0	2.5	0.1	2.8	5	silty SAND to sandy SILT	120	4.0	36	23	79	48	-	16
2.46	91.0	145.9	234.3	3.0	-0.2	3.3	5	silty SAND to sandy SILT	120	4.0	36	23	79	48	-	16
2.62	89.2	143.1	220.5	2.6	-0.2	3.0	5	silty SAND to sandy SILT	120	4.0	36	22	79	48	-	16
2.79	81.0	129.9	209.8	2.5	0.0	3.0	5	silty SAND to sandy SILT	120	4.0	32	20	76	48	-	16
2.95	52.0	83.4	190.9	2.1	0.0	4.0	4	clayy SILT to silty CLAY	115	2.0	42	26	-	-	3.7	15
3.12	42.3	67.9	191.0	2.0	0.3	4.8	4	clayy SILT to silty CLAY	115	2.0	34	21	-	-	3.0	15
3.28	30.2	48.5	-	1.9	0.0	6.3	3	silty CLAY to CLAY	115	1.5	32	20	-	-	2.1	15
3.45	28.0	44.9	-	1.7	0.0	6.2	3	silty CLAY to CLAY	115	1.5	30	19	-	-	2.0	15
3.61	25.1	40.3	-	1.4	0.0	5.6	3	silty CLAY to CLAY	115	1.5	27	17	-	-	1.8	15
3.77	21.9	35.1	-	1.0	-0.2	4.8	3	silty CLAY to CLAY	115	1.5	23	15	-	-	1.5	15
3.94	18.7	30.0	-	0.8	-0.3	4.4	3	silty CLAY to CLAY	115	1.5	20	12	-	-	1.3	15
4.10	17.0	27.3	-	0.7	-0.2	4.4	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.2	15
4.27	15.9	25.5	-	0.6	0.0	4.0	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.1	15
4.43	14.7	23.5	-	0.6	0.0	4.2	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
4.59	13.9	22.3	-	0.6	-0.3	4.3	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
4.76	13.1	21.0	-	0.5	-0.6	4.2	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
4.92	12.9	20.6	-	0.5	-0.5	4.3	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
5.09	12.4	19.8	-	0.5	-0.5	4.5	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
5.25	12.4	19.9	-	0.5	-0.8	4.2	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
5.41	12.4	19.9	-	0.5	-0.8	4.0	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
5.58	10.2	16.3	-	0.5	0.1	4.6	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
5.74	11.7	18.8	-	0.5	-0.1	4.2	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
5.91	12.2	19.5	-	0.6	-0.3	4.7	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
6.07	12.7	20.3	-	0.6	-1.2	5.1	3	silty CLAY to CLAY	115	1.5	14	8	-	-	0.9	15
6.23	12.0	19.2	-	0.6	-1.9	5.5	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
6.40	12.5	20.1	-	0.6	-0.8	4.9	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
6.56	11.4	18.2	-	0.5	-0.4	5.0	3	silty CLAY to CLAY	115	1.5	12	8	-	-	0.8	15
6.73	12.3	19.7	-	0.5	-0.8	4.2	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
6.89	12.2	19.5	-	0.4	-0.7	3.8	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
7.05	11.4	18.2	-	0.5	0.0	4.3	3	silty CLAY to CLAY	115	1.5	12	8	-	-	0.8	15
7.22	10.8	17.4	-	0.5	0.0	5.2	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.7	15
7.38	11.9	19.1	-	0.7	0.1	6.3	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
7.55	13.7	22.0	-	0.8	-0.4	6.4	3	silty CLAY to CLAY	115	1.5	15	9	-	-	0.9	15
7.71	14.0	22.4	-	0.9	-1.5	6.4	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
7.87	14.0	22.5	-	0.8	-1.2	5.9	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
8.04	13.8	22.2	-	0.8	-1.4	6.2	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
8.20	13.5	21.6	-	0.8	-1.1	6.4	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
8.37	13.7	22.0	-	0.9	-0.2	6.5	3	silty CLAY to CLAY	115	1.5	15	9	-	-	0.9	15
8.53	13.9	22.2	-	0.9	-1.1	6.4	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
8.69	14.9	23.9	-	0.8	-1.3	5.8	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
8.86	15.1	24.3	-	0.9	-2.7	5.9	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
9.02	14.1	22.7	-	0.9	-1.5	6.5	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
9.19	14.6	23.3	-	1.0	-1.5	7.0	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
9.35	15.5	24.8	-	1.1	-1.1	7.3	3	silty CLAY to CLAY	115	1.5	17	10	-	-	1.1	15
9.51	15.9	25.6	-	1.2	-1.0	7.6	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.1	15
9.68	17.1	27.4	-	1.0	-0.8	6.1	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.2	15
9.84	34.2	43.8	110.9	0.9	-0.5	2.5	5	silty SAND to sandy SILT	120	4.0	11	9	40	40	-	16
10.01	56.4	71.8	113.7	0.9	0.0	1.7	5	silty SAND to sandy SILT	120	4.0	18	14	56	43	-	16
10.17	67.1	84.6	129.5	1.2	-0.1	1.8	5	silty SAND to sandy SILT	120	4.0	21	17	61	44	-	16
10.34	83.2	104.1	146.2	1.5	-0.1	1.8	5	silty SAND to sandy SILT	120	4.0	26	21	68	44	-	16
10.50	101.0	125.3	161.9	1.7	-0.1	1.7	6	clean SAND to silty SAND	125	5.0	25	20	74	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(424).cpt
CPT Date: 11/20/2008 7:21:28 AM
GW During Test: 12 ft

Sounding ID: CPT-08-41
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	113.9	140.1	175.6	1.9	-0.1	1.7	6	clean SAND to silty SAND	125	5.0	28	23	78	46	-	16
10.83	122.1	149.1	183.4	2.0	0.0	1.7	6	clean SAND to silty SAND	125	5.0	30	24	80	46	-	16
10.99	123.1	149.0	186.6	2.2	-0.1	1.8	6	clean SAND to silty SAND	125	5.0	30	25	80	46	-	16
11.16	127.6	153.3	195.9	2.5	-0.1	1.9	6	clean SAND to silty SAND	125	5.0	31	26	81	46	-	16
11.32	127.3	151.7	197.4	2.6	0.0	2.0	5	silty SAND to sandy SILT	120	4.0	38	32	81	46	-	16
11.48	128.2	151.7	194.6	2.5	0.0	1.9	5	silty SAND to sandy SILT	120	4.0	38	32	81	46	-	16
11.65	136.8	160.7	199.7	2.5	0.0	1.8	6	clean SAND to silty SAND	125	5.0	32	27	83	46	-	16
11.81	139.3	162.5	201.0	2.5	0.1	1.8	6	clean SAND to silty SAND	125	5.0	32	28	83	46	-	16
11.98	139.7	161.7	190.0	2.1	0.1	1.5	6	clean SAND to silty SAND	125	5.0	32	28	83	46	-	16
12.14	138.2	159.3	191.4	2.2	0.1	1.6	6	clean SAND to silty SAND	125	5.0	32	28	82	46	-	16
12.30	131.1	150.6	186.5	2.2	0.2	1.7	6	clean SAND to silty SAND	125	5.0	30	26	81	46	-	16
12.47	124.1	142.1	182.5	2.3	0.2	1.8	6	clean SAND to silty SAND	125	5.0	28	25	79	46	-	16
12.63	114.2	130.3	170.2	2.0	0.1	1.8	5	silty SAND to sandy SILT	120	4.0	33	29	76	45	-	16
12.80	96.7	110.0	156.8	1.9	0.1	2.0	5	silty SAND to sandy SILT	120	4.0	28	24	70	44	-	16
12.96	77.4	87.7	137.2	1.5	0.0	2.0	5	silty SAND to sandy SILT	120	4.0	22	19	63	43	-	16
13.12	47.0	53.1	130.9	1.4	0.0	3.0	4	clayy SILT to silty CLAY	115	2.0	27	23	-	-	3.3	15
13.29	42.8	48.2	124.0	1.2	-0.1	2.9	4	clayy SILT to silty CLAY	115	2.0	24	21	-	-	3.0	15
13.45	33.7	37.9	112.9	1.0	-3.9	2.9	4	clayy SILT to silty CLAY	115	2.0	19	17	-	-	2.3	15
13.62	19.3	25.7	-	0.6	-7.3	3.2	4	clayy SILT to silty CLAY	115	2.0	13	10	-	-	1.3	15
13.78	11.5	15.2	-	0.3	-8.3	2.5	4	clayy SILT to silty CLAY	115	2.0	8	6	-	-	0.8	15
13.94	7.6	9.9	-	0.2	-8.3	2.4	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
14.11	7.4	9.6	-	0.1	-7.9	2.1	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
14.27	7.1	9.2	-	0.1	-7.5	1.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
14.44	6.3	8.1	-	0.1	-7.3	1.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.60	6.1	7.8	-	0.1	-7.1	1.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.76	6.0	7.6	-	0.1	-6.8	2.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.93	6.4	8.1	-	0.2	-6.5	4.4	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.09	6.8	8.5	-	0.3	-6.3	5.2	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.4	15
15.26	6.9	8.7	-	0.3	-6.1	4.6	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.42	6.8	8.5	-	0.2	-6.0	3.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.4	15
15.58	5.9	7.4	-	0.2	-4.9	4.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.75	6.4	7.9	-	0.2	-4.6	3.0	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.91	5.9	7.3	-	0.3	-4.5	5.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.08	5.7	6.9	-	0.4	-2.5	8.5	2	Organic SOILS - Peats	100	1.0	7	6	-	-	0.5	10
16.24	10.6	12.9	-	0.5	-2.7	4.8	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
16.40	12.4	15.1	-	0.5	-4.4	4.5	3	silty CLAY to CLAY	115	1.5	10	8	-	-	0.8	15
16.57	11.2	13.5	-	0.4	-5.8	4.2	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.8	15
16.73	7.8	9.4	-	0.4	-5.8	6.1	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.90	16.1	19.3	-	0.5	-5.1	3.1	4	clayy SILT to silty CLAY	115	2.0	10	8	-	-	1.1	15
17.06	40.0	42.4	91.9	0.7	-6.3	1.8	5	silty SAND to sandy SILT	120	4.0	11	10	39	39	-	16
17.23	55.4	58.5	99.3	0.8	-7.8	1.5	5	silty SAND to sandy SILT	120	4.0	15	14	49	40	-	16
17.39	61.0	64.3	112.4	1.1	-7.9	1.8	5	silty SAND to sandy SILT	120	4.0	16	15	52	41	-	16
17.55	64.5	67.7	118.9	1.2	-7.8	2.0	5	silty SAND to sandy SILT	120	4.0	17	16	54	41	-	16
17.72	62.2	65.2	123.7	1.4	-7.5	2.2	5	silty SAND to sandy SILT	120	4.0	16	16	53	41	-	16
17.88	74.9	78.2	122.6	1.3	-7.3	1.8	5	silty SAND to sandy SILT	120	4.0	20	19	59	42	-	16
18.05	90.8	94.5	138.9	1.6	-7.7	1.8	5	silty SAND to sandy SILT	120	4.0	24	23	65	43	-	16
18.21	97.9	101.7	147.6	1.8	-8.3	1.9	5	silty SAND to sandy SILT	120	4.0	25	24	68	43	-	16
18.37	96.7	100.2	148.8	1.9	-8.2	2.0	5	silty SAND to sandy SILT	120	4.0	25	24	67	43	-	16
18.54	97.1	100.4	152.3	2.0	-3.3	2.1	5	silty SAND to sandy SILT	120	4.0	25	24	67	43	-	16
18.70	99.2	102.3	156.1	2.1	-3.4	2.2	5	silty SAND to sandy SILT	120	4.0	26	25	68	43	-	16
18.87	96.5	99.1	158.5	2.2	-3.4	2.3	5	silty SAND to sandy SILT	120	4.0	25	24	67	43	-	16
19.03	91.1	93.3	152.4	2.1	-3.3	2.3	5	silty SAND to sandy SILT	120	4.0	23	23	65	42	-	16
19.19	85.7	87.6	144.9	1.9	-3.1	2.2	5	silty SAND to sandy SILT	120	4.0	22	21	63	42	-	16
19.36	85.6	87.3	141.7	1.8	-2.9	2.1	5	silty SAND to sandy SILT	120	4.0	22	21	63	42	-	16
19.52	88.4	89.9	134.9	1.6	-3.2	1.8	5	silty SAND to sandy SILT	120	4.0	22	22	63	42	-	16
19.69	89.6	90.9	130.7	1.5	-4.5	1.7	5	silty SAND to sandy SILT	120	4.0	23	22	64	42	-	16
19.85	77.6	78.5	127.6	1.5	-4.9	1.9	5	silty SAND to sandy SILT	120	4.0	20	19	59	41	-	16
20.01	55.5	56.0	118.3	1.3	-4.6	2.3	5	silty SAND to sandy SILT	120	4.0	14	14	48	40	-	16
20.18	41.9	42.1	108.9	1.0	-4.3	2.5	5	silty SAND to sandy SILT	120	4.0	11	10	38	38	-	16
20.34	49.3	49.5	90.5	0.7	-5.5	1.5	5	silty SAND to sandy SILT	120	4.0	12	12	44	39	-	16
20.51	49.6	49.7	94.1	0.8	-8.6	1.6	5	silty SAND to sandy SILT	120	4.0	12	12	44	39	-	16
20.67	19.9	21.1	-	0.6	-9.5	3.3	4	clayy SILT to silty CLAY	115	2.0	11	10	-	-	1.4	15
20.83	11.0	11.6	-	0.4	-9.2	3.8	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
21.00	8.7	9.1	-	0.1	-8.6	1.6	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(424).cpt
CPT Date: 11/20/2008 7:21:28 AM
GW During Test: 12 ft

Sounding ID: CPT-08-41
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	7.8	8.1	-	0.1	-7.8	1.0	4	clayy SILT to silty CLAY	115	2.0	4	4	-	-	0.5	15
21.33	7.3	7.6	-	0.1	-7.2	1.0	4	clayy SILT to silty CLAY	115	2.0	4	4	-	-	0.5	15
21.49	7.1	7.4	-	0.1	-6.6	2.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.65	7.4	7.6	-	0.1	-6.1	2.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.82	6.6	6.7	-	0.1	-1.4	2.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.98	6.4	6.5	-	0.1	-0.6	2.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.15	6.1	6.2	-	0.1	0.1	2.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.31	6.0	6.0	-	0.1	1.1	2.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.47	6.2	6.2	-	0.2	2.1	3.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.64	6.5	6.5	-	0.2	2.7	4.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.80	6.8	6.7	-	0.3	3.1	5.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
22.97	7.0	7.0	-	0.4	3.3	6.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
23.13	6.9	6.8	-	0.4	3.5	6.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
23.30	6.5	6.4	-	0.3	3.7	5.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.46	6.2	6.1	-	0.2	4.0	3.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.62	6.0	5.9	-	0.3	4.7	6.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.79	11.6	11.3	-	0.2	5.5	2.0	4	clayy SILT to silty CLAY	115	2.0	6	6	-	-	0.8	15
23.95	32.5	31.1	55.8	0.2	-0.3	0.7	5	silty SAND to sandy SILT	120	4.0	8	8	28	36	-	16
24.12	37.6	35.9	64.6	0.3	-4.6	0.9	5	silty SAND to sandy SILT	120	4.0	9	9	33	37	-	16
24.28	48.7	46.4	71.9	0.4	-1.7	0.8	5	silty SAND to sandy SILT	120	4.0	12	12	42	38	-	16
24.44	65.0	61.8	87.2	0.6	-2.0	1.0	5	silty SAND to sandy SILT	120	4.0	15	16	51	40	-	16
24.61	73.4	69.6	95.0	0.7	-2.6	1.0	6	clean SAND to silty SAND	125	5.0	14	15	55	40	-	16
24.77	78.1	73.9	106.3	1.0	-2.2	1.3	5	silty SAND to sandy SILT	120	4.0	18	20	57	41	-	16
24.94	77.8	73.4	110.4	1.1	0.1	1.5	5	silty SAND to sandy SILT	120	4.0	18	19	57	40	-	16
25.10	75.7	71.2	113.9	1.2	0.6	1.7	5	silty SAND to sandy SILT	120	4.0	18	19	56	40	-	16
25.26	82.4	77.4	122.0	1.4	1.1	1.8	5	silty SAND to sandy SILT	120	4.0	19	21	59	41	-	16
25.43	118.4	110.9	141.9	1.7	4.4	1.4	6	clean SAND to silty SAND	125	5.0	22	24	70	43	-	16
25.59	132.7	124.0	155.2	1.9	4.6	1.5	6	clean SAND to silty SAND	125	5.0	25	27	74	43	-	16
25.76	141.7	132.1	164.3	2.2	4.7	1.5	6	clean SAND to silty SAND	125	5.0	26	28	76	43	-	16
25.92	146.5	136.3	170.3	2.3	4.8	1.6	6	clean SAND to silty SAND	125	5.0	27	29	77	44	-	16
26.08	140.8	130.7	165.1	2.2	4.5	1.6	6	clean SAND to silty SAND	125	5.0	26	28	76	43	-	16
26.25	134.4	124.4	159.1	2.1	4.7	1.6	6	clean SAND to silty SAND	125	5.0	25	27	74	43	-	16
26.41	125.9	116.3	150.2	1.9	4.6	1.5	6	clean SAND to silty SAND	125	5.0	23	25	72	43	-	16
26.58	103.3	95.2	141.2	1.9	5.3	1.9	5	silty SAND to sandy SILT	120	4.0	24	26	65	42	-	16
26.74	91.8	84.5	133.4	1.7	5.1	1.9	5	silty SAND to sandy SILT	120	4.0	21	23	61	41	-	16
26.90	85.6	78.5	133.9	1.8	4.0	2.1	5	silty SAND to sandy SILT	120	4.0	20	21	59	41	-	16
27.07	82.1	75.2	127.1	1.6	2.3	2.0	5	silty SAND to sandy SILT	120	4.0	19	21	58	40	-	16
27.23	64.3	58.8	121.5	1.5	-2.2	2.3	5	silty SAND to sandy SILT	120	4.0	15	16	49	39	-	16
27.40	31.0	27.3	-	1.0	-3.2	3.4	4	clayy SILT to silty CLAY	115	2.0	14	15	-	-	2.1	15
27.56	16.6	14.6	-	0.7	-2.6	4.6	3	silty CLAY to CLAY	115	1.5	10	11	-	-	1.1	15
27.72	12.6	11.0	-	0.4	-1.6	3.5	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
27.89	11.7	10.2	-	0.2	9.9	2.4	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
28.05	11.5	10.0	-	0.2	11.3	2.0	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
28.22	10.8	9.4	-	0.2	14.1	2.3	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
28.38	11.0	9.4	-	0.3	16.1	2.7	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
28.54	12.0	10.3	-	0.2	17.5	2.2	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
28.71	11.9	10.2	-	0.2	19.3	2.0	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
28.87	9.2	7.8	-	0.2	20.6	2.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.04	8.3	7.0	-	0.3	21.9	4.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
29.20	8.7	7.4	-	0.3	23.5	4.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.36	17.2	14.5	-	0.3	25.1	1.8	4	clayy SILT to silty CLAY	115	2.0	7	9	-	-	1.2	15
29.53	25.2	22.4	71.5	0.4	7.1	1.6	4	clayy SILT to silty CLAY	115	2.0	11	13	-	-	1.7	15
29.69	21.1	17.6	-	0.4	4.9	2.0	4	clayy SILT to silty CLAY	115	2.0	9	11	-	-	1.4	15
29.86	19.0	15.8	-	0.4	5.7	2.2	4	clayy SILT to silty CLAY	115	2.0	8	9	-	-	1.3	15
30.02	24.1	20.1	-	0.4	2.5	1.8	4	clayy SILT to silty CLAY	115	2.0	10	12	-	-	1.6	15
30.19	16.0	13.3	-	0.4	0.9	3.0	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
30.35	12.2	10.0	-	0.3	1.8	3.2	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
30.51	8.0	6.6	-	0.3	2.1	4.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.68	7.4	6.1	-	0.2	4.4	4.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.84	7.3	5.9	-	0.3	10.7	4.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
31.01	7.1	5.8	-	0.3	12.6	5.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
31.17	6.9	5.6	-	0.3	15.8	5.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
31.33	8.1	6.6	-	0.3	18.0	4.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.50	8.4	6.7	-	0.3	18.4	5.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(424).cpt
CPT Date: 11/20/2008 7:21:28 AM
GW During Test: 12 ft

Sounding ID: CPT-08-41
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n * PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	9.0	7.2	-	0.4	20.0	5.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.83	8.2	6.5	-	0.4	18.7	6.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.99	8.5	6.8	-	0.4	21.1	6.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
32.15	36.8	31.8	86.2	0.7	22.3	1.9	5	silty SAND to sandy SILT	120	4.0	8	9	29	35	-	16
32.32	65.2	56.3	93.6	0.9	7.3	1.4	5	silty SAND to sandy SILT	120	4.0	14	16	48	38	-	16
32.48	77.9	67.2	103.4	1.1	6.5	1.4	5	silty SAND to sandy SILT	120	4.0	17	19	54	39	-	16
32.65	87.7	75.5	114.9	1.3	6.4	1.6	5	silty SAND to sandy SILT	120	4.0	19	22	58	40	-	16
32.81	94.1	80.9	129.1	1.7	6.3	1.9	5	silty SAND to sandy SILT	120	4.0	20	24	60	40	-	16
32.97	98.6	84.5	138.3	2.0	6.4	2.1	5	silty SAND to sandy SILT	120	4.0	21	25	61	40	-	16
33.14	98.8	84.6	145.9	2.3	6.5	2.4	5	silty SAND to sandy SILT	120	4.0	21	25	61	40	-	16
33.30	98.1	83.8	148.3	2.4	6.5	2.5	5	silty SAND to sandy SILT	120	4.0	21	25	61	40	-	16
33.47	95.5	81.4	149.5	2.4	6.6	2.6	5	silty SAND to sandy SILT	120	4.0	20	24	60	40	-	16
33.63	93.2	79.3	147.1	2.3	6.6	2.6	5	silty SAND to sandy SILT	120	4.0	20	23	59	40	-	16
33.79	92.4	78.5	141.3	2.2	6.6	2.4	5	silty SAND to sandy SILT	120	4.0	20	23	59	40	-	16
33.96	93.0	78.9	130.2	1.8	6.8	2.0	5	silty SAND to sandy SILT	120	4.0	20	23	59	40	-	16
34.12	97.2	82.3	129.2	1.8	6.9	1.9	5	silty SAND to sandy SILT	120	4.0	21	24	61	40	-	16
34.29	100.2	84.7	128.1	1.7	6.9	1.7	5	silty SAND to sandy SILT	120	4.0	21	25	62	40	-	16
34.45	105.6	89.1	133.1	1.8	6.6	1.8	5	silty SAND to sandy SILT	120	4.0	22	26	63	41	-	16
34.61	103.6	87.3	135.5	1.9	6.8	1.9	5	silty SAND to sandy SILT	120	4.0	22	26	63	40	-	16
34.78	86.3	72.6	139.2	2.1	7.0	2.5	5	silty SAND to sandy SILT	120	4.0	18	22	56	39	-	16
34.94	54.6	40.8	-	2.1	7.3	4.0	4	clayy SILT to silty CLAY	115	2.0	20	27	-	-	3.8	15
35.11	27.5	20.5	-	1.4	7.5	5.6	3	silty CLAY to CLAY	115	1.5	14	18	-	-	1.9	15
35.27	21.1	15.7	-	0.9	8.4	4.8	3	silty CLAY to CLAY	115	1.5	10	14	-	-	1.4	15
35.43	19.5	14.4	-	0.8	16.5	4.3	3	silty CLAY to CLAY	115	1.5	10	13	-	-	1.3	15
35.60	14.2	10.5	-	0.6	22.9	5.0	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
35.76	10.5	7.7	-	0.4	27.3	4.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
35.93	9.6	7.1	-	0.3	36.2	4.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
36.09	9.4	6.8	-	0.3	41.0	4.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
36.26	9.4	6.9	-	0.3	43.4	4.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
36.42	9.8	7.1	-	0.3	43.1	4.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
36.58	10.5	7.6	-	0.4	42.1	4.7	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
36.75	11.6	8.4	-	0.5	40.8	5.0	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
36.91	12.4	8.9	-	0.7	42.4	6.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
37.08	14.3	10.2	-	0.7	36.8	5.9	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.9	15
37.24	12.3	8.8	-	0.6	36.3	6.2	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
37.40	11.4	8.1	-	0.5	48.8	5.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
37.57	10.8	7.7	-	0.4	51.5	5.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.73	10.9	7.7	-	0.4	55.4	4.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.90	10.6	7.5	-	0.5	55.2	5.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.06	10.8	7.6	-	0.5	54.6	5.7	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.22	29.7	20.8	-	0.8	64.5	3.0	4	clayy SILT to silty CLAY	115	2.0	10	15	-	-	2.0	15
38.39	60.1	48.8	99.4	1.0	9.1	1.8	5	silty SAND to sandy SILT	120	4.0	12	15	43	37	-	16
38.55	66.4	53.9	96.4	1.0	8.0	1.5	5	silty SAND to sandy SILT	120	4.0	13	17	47	37	-	16
38.72	69.2	56.0	93.0	0.9	7.1	1.3	5	silty SAND to sandy SILT	120	4.0	14	17	48	38	-	16
38.88	70.5	57.0	94.3	0.9	3.8	1.4	5	silty SAND to sandy SILT	120	4.0	14	18	48	38	-	16
39.04	69.6	56.1	98.3	1.0	1.7	1.5	5	silty SAND to sandy SILT	120	4.0	14	17	48	38	-	16
39.21	65.8	53.0	97.5	1.0	1.2	1.6	5	silty SAND to sandy SILT	120	4.0	13	16	46	37	-	16
39.37	56.8	45.7	102.1	1.1	-2.1	2.0	5	silty SAND to sandy SILT	120	4.0	11	14	41	36	-	16
39.54	45.1	30.8	-	1.2	-2.3	2.9	4	clayy SILT to silty CLAY	115	2.0	15	23	-	-	3.1	15
39.70	33.1	22.5	-	1.3	-2.4	4.2	3	silty CLAY to CLAY	115	1.5	15	22	-	-	2.3	15
39.86	30.3	20.6	-	1.1	3.9	3.8	3	silty CLAY to CLAY	115	1.5	14	20	-	-	2.1	15
40.03	43.8	35.0	96.7	0.9	1.2	2.2	4	clayy SILT to silty CLAY	115	2.0	18	22	-	-	3.0	15
40.19	43.4	29.3	-	1.1	-2.6	2.6	4	clayy SILT to silty CLAY	115	2.0	15	22	-	-	3.0	15
40.36	24.3	16.4	-	0.9	-2.0	4.3	3	silty CLAY to CLAY	115	1.5	11	16	-	-	1.6	15
40.52	17.4	11.7	-	0.7	-0.8	4.6	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.1	15
40.68	15.7	10.5	-	0.5	4.1	4.1	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
40.85	17.4	11.6	-	0.6	28.8	3.8	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.1	15
41.01	23.6	15.7	-	0.5	17.4	2.2	4	clayy SILT to silty CLAY	115	2.0	8	12	-	-	1.6	15
41.18	15.2	10.1	-	0.5	17.8	3.7	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
41.34	15.1	10.0	-	0.4	24.8	3.1	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
41.50	15.2	10.0	-	0.4	29.3	3.3	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
41.67	15.3	10.0	-	0.4	33.5	3.2	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
41.83	15.2	10.0	-	0.4	37.2	3.0	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
42.00	13.8	9.1	-	0.4	40.0	3.2	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(424).cpt
CPT Date: 11/20/2008 7:21:28 AM
GW During Test: 12 ft

Sounding ID: CPT-08-41
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	13.5	8.8	-	0.4	47.2	3.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.32	13.8	9.0	-	0.5	47.7	4.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.49	14.5	9.4	-	0.6	45.8	4.6	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
42.65	16.0	10.4	-	0.6	45.0	4.5	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
42.82	16.2	10.5	-	0.6	36.5	4.7	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
42.98	15.2	9.8	-	0.7	33.9	5.1	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
43.15	15.7	10.1	-	0.6	36.1	4.8	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
43.31	15.7	10.1	-	0.7	35.3	5.2	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
43.47	15.8	10.1	-	0.8	35.3	5.8	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
43.64	17.2	10.9	-	0.9	33.8	6.2	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
43.80	24.1	15.3	-	0.9	30.7	4.2	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.6	15
43.97	20.5	13.0	-	0.8	10.9	4.6	3	silty CLAY to CLAY	115	1.5	9	14	-	-	1.4	15
44.13	15.3	9.7	-	0.8	31.3	6.4	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
44.29	16.1	10.1	-	0.8	36.9	6.2	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
44.46	16.8	10.5	-	1.0	35.9	7.0	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
44.62	24.3	15.2	-	1.0	38.3	4.7	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.6	15
44.79	35.9	22.4	-	1.0	11.5	3.1	4	clayy SILT to silty CLAY	115	2.0	11	18	-	-	2.4	15
44.95	36.0	22.4	-	1.1	1.2	3.3	4	clayy SILT to silty CLAY	115	2.0	11	18	-	-	2.5	15
45.11	37.9	23.6	-	1.1	0.3	3.2	4	clayy SILT to silty CLAY	115	2.0	12	19	-	-	2.6	15
45.28	41.1	25.5	-	1.2	-1.8	3.2	4	clayy SILT to silty CLAY	115	2.0	13	21	-	-	2.8	15
45.44	30.4	18.8	-	1.3	-3.3	4.7	3	silty CLAY to CLAY	115	1.5	13	20	-	-	2.1	15
45.61	53.5	33.0	-	1.8	-1.8	3.5	4	clayy SILT to silty CLAY	115	2.0	16	27	-	-	3.7	15
45.77	78.5	59.8	123.6	1.8	-3.0	2.4	5	silty SAND to sandy SILT	120	4.0	15	20	50	37	-	16
45.93	104.1	79.1	128.3	1.9	-4.8	1.9	5	silty SAND to sandy SILT	120	4.0	20	26	59	39	-	16
46.10	107.9	81.9	133.7	2.1	-4.3	2.0	5	silty SAND to sandy SILT	120	4.0	20	27	60	39	-	16
46.26	98.1	74.4	135.4	2.2	-4.8	2.3	5	silty SAND to sandy SILT	120	4.0	19	25	57	39	-	16
46.43	78.5	59.4	142.0	2.3	-4.8	3.1	4	clayy SILT to silty CLAY	115	2.0	30	39	-	-	5.5	15
46.59	53.4	32.4	-	2.1	-4.9	4.2	4	clayy SILT to silty CLAY	115	2.0	16	27	-	-	3.7	15
46.75	41.1	24.8	-	1.5	-5.2	3.9	4	clayy SILT to silty CLAY	115	2.0	12	21	-	-	2.8	15
46.92	26.0	15.7	-	1.1	-5.1	4.6	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
47.08	20.0	12.0	-	0.9	-4.5	5.0	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
47.25	19.1	11.5	-	1.3	-3.8	7.8	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
47.41	39.6	23.7	-	1.4	0.4	3.9	3	silty CLAY to CLAY	115	1.5	16	26	-	-	2.7	15
47.57	54.8	41.1	108.6	1.3	-2.2	2.5	4	clayy SILT to silty CLAY	115	2.0	21	27	-	-	3.8	15
47.74	59.8	44.8	113.3	1.4	-4.1	2.5	5	silty SAND to sandy SILT	120	4.0	11	15	41	36	-	16
47.90	62.8	47.0	122.3	1.7	-1.9	2.8	4	clayy SILT to silty CLAY	115	2.0	23	31	-	-	4.3	15
48.07	64.4	48.1	121.5	1.7	-3.9	2.7	4	clayy SILT to silty CLAY	115	2.0	24	32	-	-	4.5	15
48.23	75.6	56.4	119.7	1.7	-5.1	2.3	5	silty SAND to sandy SILT	120	4.0	14	19	48	37	-	16
48.39	82.5	61.5	120.6	1.7	-6.3	2.2	5	silty SAND to sandy SILT	120	4.0	15	21	51	37	-	16
48.56	92.0	68.5	128.3	2.0	-6.8	2.2	5	silty SAND to sandy SILT	120	4.0	17	23	55	38	-	16
48.72	94.3	70.1	146.4	2.6	-7.1	2.8	5	silty SAND to sandy SILT	120	4.0	18	24	55	38	-	16
48.89	105.0	77.9	159.7	3.1	-6.8	3.0	5	silty SAND to sandy SILT	120	4.0	19	26	59	39	-	16
49.05	150.2	111.3	167.0	3.3	-7.0	2.2	5	silty SAND to sandy SILT	120	4.0	28	38	71	41	-	16
49.22	179.1	132.6	180.7	3.6	-7.8	2.0	5	silty SAND to sandy SILT	120	4.0	33	45	76	42	-	16
49.38	210.2	155.4	203.4	4.3	-7.9	2.1	5	silty SAND to sandy SILT	120	4.0	39	53	82	42	-	16
49.54	238.5	176.0	222.7	4.9	-7.6	2.1	6	clean SAND to silty SAND	125	5.0	35	48	86	43	-	16
49.71	262.6	193.6	242.3	5.7	-7.3	2.2	6	clean SAND to silty SAND	125	5.0	39	53	89	44	-	16
49.87	269.0	198.0	248.6	6.0	-7.0	2.2	6	clean SAND to silty SAND	125	5.0	40	54	90	44	-	16
50.04	259.3	190.5	250.1	6.4	-6.7	2.5	5	silty SAND to sandy SILT	120	4.0	48	65	88	43	-	16
50.20	247.2	181.4	247.1	6.5	-6.5	2.6	5	silty SAND to sandy SILT	120	4.0	45	62	87	43	-	16
50.36	252.1	184.8	245.7	6.3	-6.2	2.5	5	silty SAND to sandy SILT	120	4.0	46	63	87	43	-	16
50.53	240.7	176.2	237.6	6.0	-6.0	2.5	5	silty SAND to sandy SILT	120	4.0	44	60	86	43	-	16
50.69	230.1	168.1	236.1	6.1	-4.4	2.7	5	silty SAND to sandy SILT	120	4.0	42	58	84	43	-	16
50.86	251.3	183.5	250.6	6.7	-4.2	2.7	5	silty SAND to sandy SILT	120	4.0	46	63	87	43	-	16
51.02	260.3	189.7	260.7	7.2	-4.0	2.8	5	silty SAND to sandy SILT	120	4.0	47	65	88	43	-	16
51.18	241.1	175.5	254.1	7.1	-3.9	3.0	5	silty SAND to sandy SILT	120	4.0	44	60	86	43	-	16
51.35	214.5	155.9	237.3	6.5	-3.8	3.1	5	silty SAND to sandy SILT	120	4.0	39	54	82	42	-	16
51.51	192.7	139.9	221.4	5.8	-3.7	3.1	5	silty SAND to sandy SILT	120	4.0	35	48	78	42	-	16
51.68	177.4	128.6	208.0	5.2	-3.6	3.0	5	silty SAND to sandy SILT	120	4.0	32	44	75	41	-	16
51.84	168.0	121.6	196.2	4.7	-3.4	2.8	5	silty SAND to sandy SILT	120	4.0	30	42	73	41	-	16
52.00	163.3	118.1	191.3	4.5	-3.3	2.8	5	silty SAND to sandy SILT	120	4.0	30	41	72	41	-	16
52.17	157.3	113.6	189.5	4.4	-3.3	2.9	5	silty SAND to sandy SILT	120	4.0	28	39	71	41	-	16
52.33	139.7	100.8	185.0	4.3	-3.1	3.1	5	silty SAND to sandy SILT	120	4.0	25	35	67	40	-	16
52.50	112.4	81.0	176.2	3.8	-3.1	3.5	4	clayy SILT to silty CLAY	115	2.0	40	56	-	-	7.8	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(424).cpt
CPT Date: 11/20/2008 7:21:28 AM
GW During Test: 12 ft

Sounding ID: CPT-08-41
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n * PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	72.9	40.0	-	3.1	-3.2	4.5	4	clayy SILT to silty CLAY	115	2.0	20	36	-	-	5.0	15
52.82	44.9	24.6	-	2.1	-3.1	5.1	3	silty CLAY to CLAY	115	1.5	16	30	-	-	3.1	15
52.99	36.4	19.9	-	1.4	-2.7	4.1	3	silty CLAY to CLAY	115	1.5	13	24	-	-	2.5	15
53.15	31.2	17.0	-	1.1	-2.1	4.1	3	silty CLAY to CLAY	115	1.5	11	21	-	-	2.1	15
53.32	27.5	14.9	-	0.9	-1.5	3.6	3	silty CLAY to CLAY	115	1.5	10	18	-	-	1.8	15
53.48	23.6	12.8	-	0.7	-1.1	3.2	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
53.64	23.1	12.5	-	0.6	-0.7	3.2	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
53.81	21.3	11.5	-	0.9	2.7	4.9	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
53.97	22.9	12.3	-	1.3	3.3	6.6	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
54.14	87.6	62.4	132.0	2.2	2.1	2.6	5	silty SAND to sandy SILT	120	4.0	16	22	51	37	-	16
54.30	159.1	113.1	170.2	3.6	-2.8	2.3	5	silty SAND to sandy SILT	120	4.0	28	40	71	41	-	16
54.46	179.8	127.7	194.7	4.6	-2.3	2.6	5	silty SAND to sandy SILT	120	4.0	32	45	75	41	-	16
54.63	172.2	122.1	200.3	5.0	-1.7	3.0	5	silty SAND to sandy SILT	120	4.0	31	43	74	41	-	16
54.79	163.0	115.5	199.1	5.0	-1.4	3.1	5	silty SAND to sandy SILT	120	4.0	29	41	72	41	-	16
54.96	160.9	113.9	197.5	4.9	-1.2	3.1	5	silty SAND to sandy SILT	120	4.0	28	40	71	41	-	16
55.12	151.3	106.9	184.7	4.3	-1.0	2.9	5	silty SAND to sandy SILT	120	4.0	27	38	69	40	-	16
55.28	140.3	99.0	174.7	3.9	-0.8	2.8	5	silty SAND to sandy SILT	120	4.0	25	35	67	40	-	16
55.45	141.2	99.5	173.1	3.8	-0.6	2.8	5	silty SAND to sandy SILT	120	4.0	25	35	67	40	-	16
55.61	133.3	93.9	169.8	3.7	-0.4	2.8	5	silty SAND to sandy SILT	120	4.0	23	33	65	39	-	16
55.78	118.0	83.0	162.9	3.4	-0.2	3.0	5	silty SAND to sandy SILT	120	4.0	21	29	61	39	-	16
55.94	111.6	78.4	160.6	3.3	-0.1	3.1	5	silty SAND to sandy SILT	120	4.0	20	28	59	38	-	16
56.11	92.1	64.6	158.1	3.1	-0.6	3.5	4	clayy SILT to silty CLAY	115	2.0	32	46	-	-	6.4	15
56.27	55.1	28.7	-	2.6	-0.6	5.0	3	silty CLAY to CLAY	115	1.5	19	37	-	-	3.8	15
56.43	32.8	17.0	-	1.4	-0.3	4.8	3	silty CLAY to CLAY	115	1.5	11	22	-	-	2.2	15
56.60	21.6	11.2	-	0.6	0.7	3.3	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.4	15
56.76	17.7	9.2	-	0.4	2.1	3.1	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
56.93	15.4	7.9	-	0.4	7.0	3.6	3	silty CLAY to CLAY	115	1.5	5	10	-	-	1.0	15
57.09	15.5	8.0	-	0.5	8.3	4.2	3	silty CLAY to CLAY	115	1.5	5	10	-	-	1.0	15
57.25	17.5	9.0	-	0.9	8.8	6.6	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
57.42	42.3	21.7	-	1.7	9.0	4.3	3	silty CLAY to CLAY	115	1.5	14	28	-	-	2.9	15
57.58	130.5	90.6	149.7	2.9	3.9	2.3	5	silty SAND to sandy SILT	120	4.0	23	33	64	39	-	16
57.75	150.9	104.7	174.7	3.9	3.6	2.7	5	silty SAND to sandy SILT	120	4.0	26	38	69	40	-	16
57.91	153.4	106.2	183.6	4.4	4.2	2.9	5	silty SAND to sandy SILT	120	4.0	27	38	69	40	-	16
58.07	167.3	115.7	186.9	4.5	4.6	2.7	5	silty SAND to sandy SILT	120	4.0	29	42	72	40	-	16
58.24	190.9	131.9	185.7	4.2	4.8	2.2	5	silty SAND to sandy SILT	120	4.0	33	48	76	41	-	16
58.40	195.0	134.6	176.9	3.6	3.9	1.9	5	silty SAND to sandy SILT	120	4.0	34	49	77	41	-	16
58.57	197.1	135.9	173.0	3.3	3.9	1.7	6	clean SAND to silty SAND	125	5.0	27	39	77	41	-	16
58.73	196.9	135.6	169.2	3.1	4.3	1.6	6	clean SAND to silty SAND	125	5.0	27	39	77	41	-	16
58.89	188.1	129.3	167.7	3.2	4.8	1.7	6	clean SAND to silty SAND	125	5.0	26	38	75	41	-	16
59.06	201.8	138.6	171.3	3.1	5.1	1.6	6	clean SAND to silty SAND	125	5.0	28	40	78	41	-	16
59.22	239.6	164.3	182.0	2.8	4.1	1.2	6	clean SAND to silty SAND	125	5.0	33	48	83	42	-	16
59.39	250.7	171.7	185.4	2.6	-2.9	1.1	6	clean SAND to silty SAND	125	5.0	34	50	85	42	-	16
59.55	250.9	171.6	189.0	2.9	-2.9	1.2	6	clean SAND to silty SAND	125	5.0	34	50	85	42	-	16
59.71	255.4	174.5	195.6	3.3	-2.4	1.3	6	clean SAND to silty SAND	125	5.0	35	51	85	42	-	16
59.88	269.4	183.8	203.3	3.4	1.6	1.3	6	clean SAND to silty SAND	125	5.0	37	54	87	43	-	16
60.04	281.7	192.0	211.4	3.7	2.2	1.3	6	clean SAND to silty SAND	125	5.0	38	56	89	43	-	16
60.21	290.2	197.5	218.1	3.9	2.6	1.4	6	clean SAND to silty SAND	125	5.0	39	58	89	43	-	16
60.37	290.6	197.5	219.9	4.1	3.1	1.4	6	clean SAND to silty SAND	125	5.0	40	58	89	43	-	16
60.53	288.4	195.8	219.5	4.1	3.4	1.5	6	clean SAND to silty SAND	125	5.0	39	58	89	43	-	16
60.70	300.0	203.5	223.9	4.1	3.8	1.4	6	clean SAND to silty SAND	125	5.0	41	60	90	43	-	16
60.86	315.0	213.3	231.6	4.2	4.2	1.3	6	clean SAND to silty SAND	125	5.0	43	63	92	43	-	16
61.03	328.6	222.3	234.9	4.0	4.4	1.2	6	clean SAND to silty SAND	125	5.0	44	66	93	44	-	16
61.19	365.0	246.6	246.6	2.7	1.5	0.7	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
61.35	355.5	239.8	239.8	3.0	4.9	0.9	6	clean SAND to silty SAND	125	5.0	48	71	95	44	-	16
61.52	338.1	227.8	227.8	3.1	5.1	0.9	6	clean SAND to silty SAND	125	5.0	46	68	94	44	-	16
61.68	317.1	213.5	216.4	3.0	6.2	1.0	6	clean SAND to silty SAND	125	5.0	43	63	92	43	-	16
61.85	303.1	203.7	214.9	3.4	6.3	1.1	6	clean SAND to silty SAND	125	5.0	41	61	90	43	-	16
62.01	322.8	216.8	216.8	2.7	6.6	0.9	6	clean SAND to silty SAND	125	5.0	43	65	93	43	-	16
62.17	323.2	216.7	216.7	2.4	4.1	0.7	6	clean SAND to silty SAND	125	5.0	43	65	93	43	-	16
62.34	329.0	220.4	220.4	2.2	6.6	0.7	6	clean SAND to silty SAND	125	5.0	44	66	93	44	-	16
62.50	331.0	221.4	221.4	2.1	7.6	0.6	6	clean SAND to silty SAND	125	5.0	44	66	93	44	-	16
62.67	341.0	227.8	227.8	1.8	12.6	0.5	6	clean SAND to silty SAND	125	5.0	46	68	94	44	-	16
62.83	353.6	236.0	236.0	1.6	9.7	0.5	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
63.00	352.5	235.0	235.0	1.6	9.2	0.5	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	351.4	233.9	233.9	1.9	9.3	0.5	6	clean SAND to silty SAND	125	5.0	47	70	95	44	-	16
63.32	348.9	232.0	232.0	2.0	8.7	0.6	6	clean SAND to silty SAND	125	5.0	46	70	95	44	-	16
63.49	355.0	235.8	235.8	2.9	9.3	0.8	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
63.65	348.1	230.9	230.9	2.7	8.7	0.8	6	clean SAND to silty SAND	125	5.0	46	70	95	44	-	16
63.82	352.5	233.6	233.6	2.4	8.1	0.7	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
63.98	341.4	225.9	225.9	2.5	9.0	0.7	6	clean SAND to silty SAND	125	5.0	45	68	94	44	-	16
64.14	346.4	229.0	229.0	2.5	9.4	0.7	6	clean SAND to silty SAND	125	5.0	46	69	94	44	-	16
64.31	359.0	237.0	237.0	2.4	9.8	0.7	6	clean SAND to silty SAND	125	5.0	47	72	95	44	-	16
64.47	361.1	238.1	238.1	2.6	10.4	0.7	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
64.64	347.2	228.7	228.7	2.5	10.6	0.7	6	clean SAND to silty SAND	125	5.0	46	69	94	44	-	16
64.80	354.2	233.0	233.0	2.6	11.7	0.7	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
64.96	356.1	234.0	234.0	2.7	11.4	0.8	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
65.13	357.1	234.4	234.4	2.8	10.9	0.8	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
65.29	362.5	237.7	237.7	3.0	10.8	0.8	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
65.46	367.6	240.7	240.7	2.6	10.9	0.7	6	clean SAND to silty SAND	125	5.0	48	74	95	44	-	16
65.62	377.3	246.7	246.7	2.9	10.6	0.8	6	clean SAND to silty SAND	125	5.0	49	75	95	44	-	16
65.78	399.2	260.8	268.8	4.9	10.3	1.3	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
65.95	399.9	260.9	263.5	4.5	9.6	1.1	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
66.11	368.3	240.1	242.4	3.9	5.1	1.1	6	clean SAND to silty SAND	125	5.0	48	74	95	44	-	16
66.28	366.2	238.4	238.4	3.0	3.5	0.8	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
66.44	372.4	242.1	242.1	2.5	4.9	0.7	6	clean SAND to silty SAND	125	5.0	48	74	95	44	-	16
66.60	353.7	229.7	229.7	1.9	5.3	0.5	6	clean SAND to silty SAND	125	5.0	46	71	94	44	-	16
66.77	384.7	249.6	249.6	1.6	6.0	0.4	6	clean SAND to silty SAND	125	5.0	50	77	95	44	-	16
66.93	425.6	275.8	275.8	1.1	6.0	0.3	7	grvly SAND to dense SAND	130	6.0	46	71	95	44	-	16
67.10	438.5	283.8	283.8	0.8	7.0	0.2	7	grvly SAND to dense SAND	130	6.0	47	73	95	45	-	16
67.26	466.8	301.7	301.7	2.1	8.6	0.5	7	grvly SAND to dense SAND	130	6.0	50	78	95	45	-	16
67.42	443.2	286.1	286.1	2.3	7.0	0.5	6	clean SAND to silty SAND	125	5.0	57	89	95	45	-	16
67.59	447.2	288.4	288.4	1.0	8.6	0.2	7	grvly SAND to dense SAND	130	6.0	48	75	95	45	-	16
67.75	433.4	279.1	279.1	1.8	8.5	0.4	7	grvly SAND to dense SAND	130	6.0	47	72	95	44	-	16
67.92	405.1	260.6	260.6	2.1	7.9	0.5	6	clean SAND to silty SAND	125	5.0	52	81	95	44	-	16
68.08	381.8	245.3	245.3	1.5	10.3	0.4	6	clean SAND to silty SAND	125	5.0	49	76	95	44	-	16
68.24	345.4	221.7	221.7	2.0	8.7	0.6	6	clean SAND to silty SAND	125	5.0	44	69	93	43	-	16
68.41	341.3	218.8	218.8	1.0	10.0	0.3	6	clean SAND to silty SAND	125	5.0	44	68	93	43	-	16
68.57	328.1	210.1	210.1	1.0	5.6	0.3	6	clean SAND to silty SAND	125	5.0	42	66	92	43	-	16
68.74	293.0	187.4	187.4	0.7	6.1	0.2	6	clean SAND to silty SAND	125	5.0	37	59	88	42	-	16
68.90	330.8	211.4	218.8	3.5	4.8	1.1	6	clean SAND to silty SAND	125	5.0	42	66	92	43	-	16
69.07	360.2	229.9	242.8	4.5	3.2	1.3	6	clean SAND to silty SAND	125	5.0	46	72	94	43	-	16
69.23	381.9	243.5	250.7	4.4	4.8	1.2	6	clean SAND to silty SAND	125	5.0	49	76	95	44	-	16
69.39	383.8	244.4	244.4	2.4	9.0	0.6	6	clean SAND to silty SAND	125	5.0	49	77	95	44	-	16
69.56	377.3	240.0	240.0	2.0	9.4	0.5	6	clean SAND to silty SAND	125	5.0	48	75	95	44	-	16
69.72	364.0	231.3	231.3	0.9	9.8	0.3	7	grvly SAND to dense SAND	130	6.0	39	61	95	43	-	16
69.89	356.7	226.4	226.4	1.5	7.1	0.4	6	clean SAND to silty SAND	125	5.0	45	71	94	43	-	16
70.05	358.3	227.2	227.2	2.0	8.5	0.6	6	clean SAND to silty SAND	125	5.0	45	72	94	43	-	16
70.21	315.9	200.1	200.1	1.5	9.6	0.5	6	clean SAND to silty SAND	125	5.0	40	63	90	43	-	16
70.38	303.4	191.9	191.9	1.4	9.8	0.5	6	clean SAND to silty SAND	125	5.0	38	61	89	42	-	16
70.54	311.7	197.0	197.0	1.3	10.7	0.4	6	clean SAND to silty SAND	125	5.0	39	62	89	43	-	16
70.71	293.8	185.4	185.4	1.5	7.9	0.5	6	clean SAND to silty SAND	125	5.0	37	59	87	42	-	16
70.87	283.5	178.8	178.8	0.9	8.5	0.3	6	clean SAND to silty SAND	125	5.0	36	57	86	42	-	16
71.03	248.9	156.8	156.8	0.7	10.2	0.3	6	clean SAND to silty SAND	125	5.0	31	50	82	41	-	16
71.20	181.8	114.4	118.8	0.9	8.8	0.5	6	clean SAND to silty SAND	125	5.0	23	36	71	40	-	16
71.36	140.0	88.0	93.8	0.5	8.6	0.4	6	clean SAND to silty SAND	125	5.0	18	28	63	38	-	16
71.53	90.0	56.5	115.9	1.8	7.7	2.1	5	silty SAND to sandy SILT	120	4.0	14	23	48	36	-	16
71.69	57.5	24.0	-	1.8	8.6	3.4	4	clayy SILT to silty CLAY	115	2.0	12	29	-	-	3.9	15
71.85	38.4	16.0	-	2.0	22.0	5.7	3	silty CLAY to CLAY	115	1.5	11	26	-	-	2.6	15
72.02	35.1	14.6	-	1.9	5.5	6.0	3	silty CLAY to CLAY	115	1.5	10	23	-	-	2.3	15
72.18	126.9	79.4	91.0	0.7	8.9	0.5	6	clean SAND to silty SAND	125	5.0	16	25	59	38	-	16
72.35	199.0	124.4	151.9	2.6	4.3	1.3	6	clean SAND to silty SAND	125	5.0	25	40	74	40	-	16
72.51	302.0	188.5	188.5	2.3	15.6	0.8	6	clean SAND to silty SAND	125	5.0	38	60	88	42	-	16
72.67	378.5	236.0	243.5	4.3	6.6	1.2	6	clean SAND to silty SAND	125	5.0	47	76	95	43	-	16
72.84	543.1	338.3	338.3	5.9	6.5	1.1	6	clean SAND to silty SAND	125	5.0	68	100	95	45	-	16
73.00	481.7	299.7	299.7	4.7	4.6	1.0	6	clean SAND to silty SAND	125	5.0	60	96	95	45	-	16
73.17	443.1	275.5	275.5	3.9	9.2	0.9	6	clean SAND to silty SAND	125	5.0	55	89	95	44	-	16
73.33	449.5	279.1	279.1	3.9	9.9	0.9	6	clean SAND to silty SAND	125	5.0	56	90	95	44	-	16
73.49	437.1	271.1	271.1	4.4	10.4	1.0	6	clean SAND to silty SAND	125	5.0	54	87	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(424).cpt
CPT Date: 11/20/2008 7:21:28 AM
GW During Test: 12 ft

Sounding ID: CPT-08-41
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
73.66	445.6	276.1	276.1	4.7	10.9	1.1	6	clean SAND to silty SAND	125	5.0	55	89	95	44	-	16
73.82	461.5	285.7	285.7	5.3	11.5	1.2	6	clean SAND to silty SAND	125	5.0	57	92	95	44	-	16
73.99	477.6	295.3	302.7	6.4	12.9	1.3	6	clean SAND to silty SAND	125	5.0	59	96	95	44	-	16
74.15	511.3	315.9	338.2	8.6	13.4	1.7	6	clean SAND to silty SAND	125	5.0	63	100	95	45	-	16
74.31	525.9	324.5	344.8	8.8	16.0	1.7	6	clean SAND to silty SAND	125	5.0	65	100	95	45	-	16
74.48	495.6	305.5	332.8	8.8	17.8	1.8	6	clean SAND to silty SAND	125	5.0	61	99	95	45	-	16
74.64	497.7	306.5	333.5	8.8	17.5	1.8	6	clean SAND to silty SAND	125	5.0	61	100	95	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(465).cpt
CPT Date: 12/4/2008 1:10:41 PM
GW During Test: 12 ft

Sounding ID: CPT-08-42
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	118.5	190.1	190.1	0.7	0.0	0.6	6	clean SAND to silty SAND	125	5.0	38	24	88	48	-	16
0.49	202.2	324.2	324.2	1.2	0.0	0.6	6	clean SAND to silty SAND	125	5.0	65	40	95	48	-	16
0.66	195.8	314.1	314.1	1.4	0.0	0.7	6	clean SAND to silty SAND	125	5.0	63	39	95	48	-	16
0.82	171.5	275.1	275.1	1.5	0.0	0.9	6	clean SAND to silty SAND	125	5.0	55	34	95	48	-	16
0.98	185.1	296.9	296.9	1.6	0.0	0.9	6	clean SAND to silty SAND	125	5.0	59	37	95	48	-	16
1.15	172.4	276.5	276.5	1.6	0.0	0.9	6	clean SAND to silty SAND	125	5.0	55	34	95	48	-	16
1.31	155.2	249.0	253.7	1.8	0.0	1.2	6	clean SAND to silty SAND	125	5.0	50	31	95	48	-	16
1.48	130.0	208.5	223.0	1.6	0.1	1.2	6	clean SAND to silty SAND	125	5.0	42	26	91	48	-	16
1.64	112.4	180.2	198.0	1.4	0.1	1.2	6	clean SAND to silty SAND	125	5.0	36	22	86	48	-	16
1.80	98.9	158.6	185.6	1.4	0.1	1.5	6	clean SAND to silty SAND	125	5.0	32	20	82	48	-	16
1.97	98.8	158.5	209.8	2.2	0.2	2.2	5	silty SAND to sandy SILT	120	4.0	40	25	82	48	-	16
2.13	93.0	149.1	214.0	2.4	0.2	2.6	5	silty SAND to sandy SILT	120	4.0	37	23	80	48	-	16
2.30	99.7	159.8	214.8	2.3	0.2	2.3	5	silty SAND to sandy SILT	120	4.0	40	25	82	48	-	16
2.46	74.6	119.7	187.4	2.0	0.3	2.7	5	silty SAND to sandy SILT	120	4.0	30	19	73	48	-	16
2.62	63.4	101.7	173.0	1.7	0.1	2.8	5	silty SAND to sandy SILT	120	4.0	25	16	68	47	-	16
2.79	46.3	74.2	163.2	1.6	0.3	3.4	4	clayy SILT to silty CLAY	115	2.0	37	23	-	-	3.3	15
2.95	35.4	56.8	173.0	1.6	-0.7	4.6	4	clayy SILT to silty CLAY	115	2.0	28	18	-	-	2.5	15
3.12	52.3	83.9	178.0	1.8	-0.3	3.5	4	clayy SILT to silty CLAY	115	2.0	42	26	-	-	3.7	15
3.28	51.9	83.3	188.7	2.0	-0.4	3.9	4	clayy SILT to silty CLAY	115	2.0	42	26	-	-	3.7	15
3.45	47.4	76.0	174.4	1.8	-1.0	3.7	4	clayy SILT to silty CLAY	115	2.0	38	24	-	-	3.3	15
3.61	41.7	66.9	160.1	1.5	-1.2	3.6	4	clayy SILT to silty CLAY	115	2.0	33	21	-	-	2.9	15
3.77	37.5	60.1	146.3	1.2	-0.2	3.3	4	clayy SILT to silty CLAY	115	2.0	30	19	-	-	2.6	15
3.94	32.7	52.5	142.6	1.1	0.3	3.5	4	clayy SILT to silty CLAY	115	2.0	26	16	-	-	2.3	15
4.10	27.6	44.2	135.5	1.0	0.0	3.7	4	clayy SILT to silty CLAY	115	2.0	22	14	-	-	1.9	15
4.27	24.6	39.4	121.7	0.8	-0.6	3.3	4	clayy SILT to silty CLAY	115	2.0	20	12	-	-	1.7	15
4.43	22.4	35.9	109.0	0.6	-0.6	2.9	4	clayy SILT to silty CLAY	115	2.0	18	11	-	-	1.6	15
4.59	20.3	32.6	97.4	0.5	0.0	2.5	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
4.76	17.8	28.5	87.0	0.4	-0.3	2.2	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
4.92	16.3	26.1	-	0.4	-0.5	2.3	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.1	15
5.09	14.9	23.9	-	0.4	0.0	2.5	4	clayy SILT to silty CLAY	115	2.0	12	7	-	-	1.0	15
5.25	13.7	21.9	-	0.3	0.1	2.5	4	clayy SILT to silty CLAY	115	2.0	11	7	-	-	0.9	15
5.41	13.7	22.0	-	0.4	0.1	2.8	4	clayy SILT to silty CLAY	115	2.0	11	7	-	-	1.0	15
5.58	14.6	23.5	-	0.5	0.1	3.1	4	clayy SILT to silty CLAY	115	2.0	12	7	-	-	1.0	15
5.74	17.2	27.5	-	0.6	-0.1	3.6	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
5.91	17.5	28.0	-	0.7	-0.2	4.4	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.2	15
6.07	18.1	29.0	-	0.8	-0.5	4.4	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.3	15
6.23	22.8	36.4	120.3	0.8	-0.5	3.4	4	clayy SILT to silty CLAY	115	2.0	18	11	-	-	1.6	15
6.40	22.8	35.9	117.0	0.7	-0.7	3.3	4	clayy SILT to silty CLAY	115	2.0	18	11	-	-	1.6	15
6.56	21.0	33.6	-	0.7	-1.3	3.3	4	clayy SILT to silty CLAY	115	2.0	17	10	-	-	1.5	15
6.73	19.7	31.7	-	0.6	-1.3	3.2	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
6.89	17.6	28.2	-	0.6	-1.3	3.2	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
7.05	16.4	26.3	-	0.5	-0.2	3.3	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.1	15
7.22	16.2	26.0	-	0.6	-0.1	3.8	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.1	15
7.38	15.5	24.8	-	0.6	-0.3	4.3	3	silty CLAY to CLAY	115	1.5	17	10	-	-	1.1	15
7.55	15.1	24.2	-	0.5	-0.9	3.5	4	clayy SILT to silty CLAY	115	2.0	12	8	-	-	1.0	15
7.71	15.6	25.0	-	0.4	-1.2	2.7	4	clayy SILT to silty CLAY	115	2.0	12	8	-	-	1.1	15
7.87	13.3	21.4	-	0.4	-0.1	3.2	4	clayy SILT to silty CLAY	115	2.0	11	7	-	-	0.9	15
8.04	11.9	19.0	-	0.5	0.0	4.4	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
8.20	10.6	17.0	-	0.6	-0.1	6.2	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
8.37	10.4	16.6	-	0.6	-0.7	6.5	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
8.53	10.3	16.6	-	0.6	-0.7	5.8	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
8.69	10.9	17.5	-	0.6	-0.2	5.5	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.7	15
8.86	12.2	19.5	-	0.6	0.1	5.0	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
9.02	12.5	20.1	-	0.6	0.4	4.9	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
9.19	12.7	20.4	-	0.7	0.6	5.7	3	silty CLAY to CLAY	115	1.5	14	8	-	-	0.9	15
9.35	15.6	25.0	-	0.7	0.8	4.4	3	silty CLAY to CLAY	115	1.5	17	10	-	-	1.1	15
9.51	36.9	48.0	93.6	0.6	0.1	1.7	5	silty SAND to sandy SILT	120	4.0	12	9	43	41	-	16
9.68	52.0	67.1	98.5	0.6	0.1	1.2	5	silty SAND to sandy SILT	120	4.0	17	13	54	42	-	16
9.84	56.7	72.5	105.7	0.8	0.1	1.3	5	silty SAND to sandy SILT	120	4.0	18	14	56	43	-	16
10.01	58.5	74.2	111.9	0.9	0.1	1.5	5	silty SAND to sandy SILT	120	4.0	19	15	57	43	-	16
10.17	60.2	75.6	118.0	1.0	0.1	1.7	5	silty SAND to sandy SILT	120	4.0	19	15	58	43	-	16
10.34	61.4	76.5	120.0	1.0	0.1	1.7	5	silty SAND to sandy SILT	120	4.0	19	15	58	43	-	16
10.50	65.7	81.2	120.2	1.0	0.1	1.6	5	silty SAND to sandy SILT	120	4.0	20	16	60	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(465).cpt
CPT Date: 12/4/2008 1:10:41 PM
GW During Test: 12 ft

Sounding ID: CPT-08-42
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	72.1	88.5	120.5	1.0	0.1	1.4	5	silty SAND to sandy SILT	120	4.0	22	18	63	44	-	16
10.83	79.1	96.3	123.1	1.0	0.1	1.2	6	clean SAND to silty SAND	125	5.0	19	16	66	44	-	16
10.99	88.2	106.4	129.6	1.0	0.2	1.1	6	clean SAND to silty SAND	125	5.0	21	18	69	44	-	16
11.16	93.7	112.2	135.1	1.1	0.2	1.2	6	clean SAND to silty SAND	125	5.0	22	19	71	45	-	16
11.32	97.5	115.9	139.8	1.2	0.2	1.2	6	clean SAND to silty SAND	125	5.0	23	20	72	45	-	16
11.48	96.3	113.6	140.1	1.2	0.3	1.3	6	clean SAND to silty SAND	125	5.0	23	19	71	45	-	16
11.65	92.7	108.5	137.4	1.2	0.3	1.4	6	clean SAND to silty SAND	125	5.0	22	19	70	44	-	16
11.81	87.5	101.6	126.7	1.0	0.3	1.2	6	clean SAND to silty SAND	125	5.0	20	17	68	44	-	16
11.98	85.9	99.1	124.2	1.0	0.4	1.2	6	clean SAND to silty SAND	125	5.0	20	17	67	44	-	16
12.14	78.1	89.8	116.7	0.9	0.3	1.2	6	clean SAND to silty SAND	125	5.0	18	16	63	43	-	16
12.30	70.5	80.7	107.8	0.8	0.3	1.2	6	clean SAND to silty SAND	125	5.0	16	14	60	43	-	16
12.47	61.5	70.2	101.8	0.8	0.3	1.3	5	silty SAND to sandy SILT	120	4.0	18	15	55	42	-	16
12.63	50.4	57.3	99.8	0.8	0.3	1.6	5	silty SAND to sandy SILT	120	4.0	14	13	49	41	-	16
12.80	44.9	51.0	104.6	0.9	-1.1	2.0	5	silty SAND to sandy SILT	120	4.0	13	11	45	40	-	16
12.96	35.3	39.9	106.6	0.9	-6.0	2.5	4	clayy SILT to silty CLAY	115	2.0	20	18	-	-	2.5	15
13.12	20.5	27.6	-	0.6	-8.2	3.2	4	clayy SILT to silty CLAY	115	2.0	14	10	-	-	1.4	15
13.29	12.1	16.2	-	0.4	-8.8	3.8	3	silty CLAY to CLAY	115	1.5	11	8	-	-	0.8	15
13.45	9.6	12.8	-	0.3	-8.9	3.5	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
13.62	7.4	9.8	-	0.3	-8.8	3.9	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
13.78	6.2	8.1	-	0.2	-8.7	4.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
13.94	5.5	7.2	-	0.2	-8.6	3.4	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.11	5.2	6.7	-	0.1	-8.5	2.8	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
14.27	5.1	6.6	-	0.1	-8.4	2.5	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
14.44	4.6	5.9	-	0.2	-8.3	4.1	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
14.60	5.1	6.5	-	0.2	-8.2	4.4	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
14.76	5.8	7.4	-	0.2	-8.2	3.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.93	5.6	7.0	-	0.2	-8.1	3.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.09	4.8	6.0	-	0.1	-8.0	3.7	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.26	4.1	5.1	-	0.1	-6.7	4.2	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
15.42	4.4	5.4	-	0.2	-6.6	4.8	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.58	4.9	6.1	-	0.2	-6.5	5.1	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.75	6.0	7.4	-	0.2	-6.4	4.6	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.91	7.4	9.0	-	0.3	-6.3	4.0	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.08	8.3	10.1	-	0.3	-6.2	3.6	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.5	15
16.24	8.5	10.3	-	0.3	-6.1	3.8	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
16.40	8.2	9.9	-	0.4	-6.0	5.2	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
16.57	10.4	12.4	-	0.3	-5.9	3.3	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
16.73	25.5	27.0	66.5	0.3	-6.2	1.2	5	silty SAND to sandy SILT	120	4.0	7	6	24	36	-	16
16.90	34.0	36.0	70.2	0.4	-6.4	1.1	5	silty SAND to sandy SILT	120	4.0	9	9	33	38	-	16
17.06	45.6	48.1	76.9	0.4	-6.6	1.0	5	silty SAND to sandy SILT	120	4.0	12	11	43	39	-	16
17.23	53.4	56.2	90.0	0.7	-7.3	1.2	5	silty SAND to sandy SILT	120	4.0	14	13	48	40	-	16
17.39	56.6	59.5	96.1	0.8	-7.4	1.4	5	silty SAND to sandy SILT	120	4.0	15	14	50	40	-	16
17.55	56.2	58.9	95.4	0.8	-7.2	1.4	5	silty SAND to sandy SILT	120	4.0	15	14	50	40	-	16
17.72	59.9	62.6	99.0	0.8	-7.1	1.4	5	silty SAND to sandy SILT	120	4.0	16	15	52	41	-	16
17.88	59.2	61.7	97.3	0.8	-7.0	1.4	5	silty SAND to sandy SILT	120	4.0	15	15	51	40	-	16
18.05	54.1	56.2	98.4	0.8	-6.9	1.6	5	silty SAND to sandy SILT	120	4.0	14	14	48	40	-	16
18.21	63.6	65.8	101.1	0.9	-6.8	1.4	5	silty SAND to sandy SILT	120	4.0	16	16	53	41	-	16
18.37	55.2	57.0	94.3	0.7	-6.9	1.4	5	silty SAND to sandy SILT	120	4.0	14	14	48	40	-	16
18.54	48.5	50.0	91.3	0.7	-6.9	1.5	5	silty SAND to sandy SILT	120	4.0	12	12	44	39	-	16
18.70	29.4	30.1	94.2	0.7	-5.8	2.4	4	clayy SILT to silty CLAY	115	2.0	15	15	-	-	2.0	15
18.87	15.0	16.7	-	0.4	-5.7	3.1	3	silty CLAY to CLAY	115	1.5	11	10	-	-	1.0	15
19.03	10.6	11.7	-	0.2	-5.6	2.4	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
19.19	9.3	10.3	-	0.1	-5.4	1.1	4	clayy SILT to silty CLAY	115	2.0	5	5	-	-	0.6	15
19.36	7.6	8.4	-	0.1	-5.2	1.0	4	clayy SILT to silty CLAY	115	2.0	4	4	-	-	0.5	15
19.52	7.6	8.3	-	0.2	-4.9	2.6	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
19.69	8.2	8.9	-	0.3	-4.6	3.6	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
19.85	29.7	30.0	79.6	0.5	-4.2	1.7	5	silty SAND to sandy SILT	120	4.0	8	7	27	36	-	16
20.01	48.2	48.6	92.5	0.7	-4.6	1.6	5	silty SAND to sandy SILT	120	4.0	12	12	43	39	-	16
20.18	49.5	49.8	97.5	0.8	-3.1	1.7	5	silty SAND to sandy SILT	120	4.0	12	12	44	39	-	16
20.34	42.0	42.1	97.3	0.8	2.6	2.0	5	silty SAND to sandy SILT	120	4.0	11	11	38	38	-	16
20.51	40.9	40.9	95.5	0.8	-0.7	2.0	5	silty SAND to sandy SILT	120	4.0	10	10	38	38	-	16
20.67	29.0	29.6	-	0.7	-1.6	2.7	4	clayy SILT to silty CLAY	115	2.0	15	14	-	-	2.0	15
20.83	13.8	14.5	-	0.5	-2.1	4.1	3	silty CLAY to CLAY	115	1.5	10	9	-	-	0.9	15
21.00	8.5	8.8	-	0.3	-1.7	3.7	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(465).cpt
CPT Date: 12/4/2008 1:10:41 PM
GW During Test: 12 ft

Sounding ID: CPT-08-42
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	6.2	6.4	-	0.1	-0.8	2.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.33	5.5	5.7	-	0.1	-0.1	3.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
21.49	5.2	5.4	-	0.2	0.7	4.0	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
21.65	5.7	5.8	-	0.2	1.6	3.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.82	5.6	5.7	-	0.0	2.2	0.1	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.3	15
21.98	5.1	5.1	-	0.1	2.8	2.3	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
22.15	4.9	4.9	-	0.1	13.4	3.5	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
22.31	4.6	4.6	-	0.1	14.3	3.9	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
22.47	4.6	4.6	-	0.1	15.1	4.1	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
22.64	4.8	4.8	-	0.2	15.9	4.6	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
22.80	4.8	4.8	-	0.2	16.2	5.0	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
22.97	4.7	4.6	-	0.2	16.4	6.4	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.4	10
23.13	4.8	4.7	-	0.2	17.4	6.2	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.4	10
23.30	5.1	5.0	-	0.2	16.5	5.5	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
23.46	5.1	5.0	-	0.2	16.5	4.8	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
23.62	5.3	5.2	-	0.2	17.9	5.9	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	15
23.79	7.4	7.2	-	0.2	19.5	2.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.95	8.9	8.6	-	0.1	11.8	0.9	4	clayy SILT to silty CLAY	115	2.0	4	4	-	-	0.6	15
24.12	5.5	5.3	-	0.1	12.0	2.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
24.28	6.0	5.8	-	0.3	16.8	5.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
24.44	14.4	13.8	-	0.3	18.7	2.4	4	clayy SILT to silty CLAY	115	2.0	7	7	-	-	1.0	15
24.61	33.6	31.9	80.2	0.5	1.5	1.6	5	silty SAND to sandy SILT	120	4.0	8	8	29	36	-	16
24.77	44.2	41.8	91.6	0.7	0.1	1.8	5	silty SAND to sandy SILT	120	4.0	10	11	38	37	-	16
24.94	52.4	49.5	98.9	0.9	0.4	1.8	5	silty SAND to sandy SILT	120	4.0	12	13	44	38	-	16
25.10	54.8	51.6	104.8	1.0	4.8	1.9	5	silty SAND to sandy SILT	120	4.0	13	14	45	39	-	16
25.26	54.8	51.5	111.3	1.2	5.1	2.2	5	silty SAND to sandy SILT	120	4.0	13	14	45	38	-	16
25.43	56.6	53.1	115.7	1.3	5.3	2.3	5	silty SAND to sandy SILT	120	4.0	13	14	46	39	-	16
25.59	60.3	56.4	116.9	1.3	5.2	2.2	5	silty SAND to sandy SILT	120	4.0	14	15	48	39	-	16
25.76	64.4	60.1	117.2	1.3	5.1	2.1	5	silty SAND to sandy SILT	120	4.0	15	16	50	39	-	16
25.92	68.8	64.1	115.1	1.3	5.0	1.9	5	silty SAND to sandy SILT	120	4.0	16	17	52	40	-	16
26.08	64.0	59.5	109.5	1.2	5.2	1.9	5	silty SAND to sandy SILT	120	4.0	15	16	50	39	-	16
26.25	52.4	48.6	104.1	1.0	5.4	2.0	5	silty SAND to sandy SILT	120	4.0	12	13	43	38	-	16
26.41	38.8	35.9	108.6	1.0	5.6	2.8	4	clayy SILT to silty CLAY	115	2.0	18	19	-	-	2.7	15
26.58	25.8	23.3	-	1.0	6.0	4.0	3	silty CLAY to CLAY	115	1.5	16	17	-	-	1.8	15
26.74	20.4	18.4	-	0.7	5.6	3.5	3	silty CLAY to CLAY	115	1.5	12	14	-	-	1.4	15
26.90	20.1	18.0	-	0.5	3.6	2.8	4	clayy SILT to silty CLAY	115	2.0	9	10	-	-	1.4	15
27.07	14.9	13.3	-	0.4	2.8	3.1	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
27.23	9.2	8.2	-	0.4	12.4	5.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
27.40	8.1	7.2	-	0.4	16.9	5.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.56	7.7	6.8	-	0.3	17.4	5.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.72	7.6	6.7	-	0.5	17.9	8.4	2	Organic SOILS - Peats	100	1.0	7	8	-	-	0.7	10
27.89	8.5	7.4	-	0.3	18.9	4.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
28.05	8.0	7.0	-	0.3	16.0	4.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
28.22	7.2	6.3	-	0.2	22.1	4.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
28.38	6.4	5.5	-	0.2	21.7	4.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
28.54	5.9	5.1	-	0.2	22.2	5.2	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.4	15
28.71	6.1	5.3	-	0.2	23.7	4.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
28.87	6.1	5.2	-	0.2	28.2	3.9	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.4	15
29.04	6.6	5.6	-	0.2	28.6	3.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
29.20	6.3	5.4	-	0.2	27.3	4.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
29.36	6.1	5.2	-	0.2	26.5	4.5	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.4	15
29.53	6.2	5.3	-	0.2	32.0	4.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
29.69	6.7	5.6	-	0.2	32.5	4.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
29.86	8.7	7.3	-	0.4	31.9	5.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.02	21.4	17.9	-	0.5	11.7	2.4	4	clayy SILT to silty CLAY	115	2.0	9	11	-	-	1.4	15
30.19	29.3	26.0	80.3	0.5	-1.9	1.9	4	clayy SILT to silty CLAY	115	2.0	13	15	-	-	2.0	15
30.35	22.3	18.5	-	0.5	-6.0	2.4	4	clayy SILT to silty CLAY	115	2.0	9	11	-	-	1.5	15
30.51	17.7	14.7	-	0.4	-5.9	2.4	4	clayy SILT to silty CLAY	115	2.0	7	9	-	-	1.2	15
30.68	10.3	8.5	-	0.3	-6.0	3.3	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
30.84	7.1	5.8	-	0.2	-5.2	4.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
31.01	7.0	5.7	-	0.2	-4.3	3.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
31.17	7.0	5.7	-	0.2	-3.5	3.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
31.33	6.6	5.4	-	0.2	4.5	4.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
31.50	7.6	6.1	-	0.3	6.8	5.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(465).cpt
CPT Date: 12/4/2008 1:10:41 PM
GW During Test: 12 ft

Sounding ID: CPT-08-42
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	11.3	9.1	-	0.3	8.1	3.4	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
31.83	10.1	8.1	-	0.4	9.2	4.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
31.99	8.9	7.2	-	0.3	9.8	4.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
32.15	8.1	6.5	-	0.3	11.9	5.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.32	29.2	25.3	76.5	0.5	15.0	1.7	4	clayy SILT to silty CLAY	115	2.0	13	15	-	-	2.0	15
32.48	57.2	49.5	90.2	0.8	7.1	1.4	5	silty SAND to sandy SILT	120	4.0	12	14	44	37	-	16
32.65	67.7	58.4	103.3	1.1	7.3	1.7	5	silty SAND to sandy SILT	120	4.0	15	17	49	38	-	16
32.81	74.3	64.1	117.3	1.4	7.0	2.0	5	silty SAND to sandy SILT	120	4.0	16	19	52	39	-	16
32.97	78.2	67.3	125.2	1.7	7.0	2.2	5	silty SAND to sandy SILT	120	4.0	17	20	54	39	-	16
33.14	84.0	72.2	131.3	1.8	7.1	2.2	5	silty SAND to sandy SILT	120	4.0	18	21	56	40	-	16
33.30	94.8	81.3	134.5	1.9	6.7	2.1	5	silty SAND to sandy SILT	120	4.0	20	24	60	40	-	16
33.47	102.2	87.5	137.5	2.0	6.6	2.0	5	silty SAND to sandy SILT	120	4.0	22	26	63	41	-	16
33.63	105.0	89.7	140.9	2.1	6.8	2.0	5	silty SAND to sandy SILT	120	4.0	22	26	63	41	-	16
33.79	103.3	88.1	141.5	2.1	7.1	2.1	5	silty SAND to sandy SILT	120	4.0	22	26	63	41	-	16
33.96	98.0	83.5	139.0	2.1	7.2	2.2	5	silty SAND to sandy SILT	120	4.0	21	25	61	40	-	16
34.12	91.9	78.1	132.4	1.9	7.4	2.1	5	silty SAND to sandy SILT	120	4.0	20	23	59	40	-	16
34.29	84.5	71.7	126.6	1.7	7.6	2.1	5	silty SAND to sandy SILT	120	4.0	18	21	56	39	-	16
34.45	79.5	67.3	118.4	1.5	7.6	1.9	5	silty SAND to sandy SILT	120	4.0	17	20	54	39	-	16
34.61	64.6	54.6	125.1	1.6	7.3	2.6	5	silty SAND to sandy SILT	120	4.0	14	16	47	38	-	16
34.78	41.1	31.0	-	1.2	7.8	3.2	4	clayy SILT to silty CLAY	115	2.0	16	21	-	-	2.8	15
34.94	33.0	24.8	-	1.0	7.5	3.1	4	clayy SILT to silty CLAY	115	2.0	12	16	-	-	2.3	15
35.11	24.4	18.3	-	0.5	11.9	2.3	4	clayy SILT to silty CLAY	115	2.0	9	12	-	-	1.6	15
35.27	13.7	10.3	-	0.4	5.5	3.3	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
35.43	9.0	6.7	-	0.3	17.1	4.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
35.60	8.9	6.6	-	0.3	21.8	4.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
35.76	8.7	6.4	-	0.3	25.4	4.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
35.93	8.7	6.4	-	0.4	29.0	5.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
36.09	9.2	6.8	-	0.4	32.0	5.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
36.26	9.7	7.1	-	0.4	33.4	4.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
36.42	9.8	7.2	-	0.3	36.4	4.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
36.58	9.7	7.1	-	0.4	40.4	5.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
36.75	9.7	7.0	-	0.4	49.4	5.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
36.91	9.2	6.7	-	0.4	49.0	5.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
37.08	9.6	6.9	-	0.4	50.1	5.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
37.24	10.3	7.4	-	0.4	42.9	5.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
37.40	10.2	7.3	-	0.4	42.7	5.0	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
37.57	10.8	7.7	-	0.5	47.0	5.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.73	13.4	9.6	-	0.5	50.0	4.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
37.90	13.5	9.6	-	0.5	25.4	4.5	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
38.06	11.0	7.8	-	0.5	31.5	5.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.22	11.3	8.0	-	0.5	40.5	5.4	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
38.39	18.6	13.1	-	0.9	48.3	5.7	3	silty CLAY to CLAY	115	1.5	9	12	-	-	1.2	15
38.55	75.0	61.0	97.3	1.0	6.1	1.3	5	silty SAND to sandy SILT	120	4.0	15	19	51	38	-	16
38.72	86.1	69.9	107.1	1.2	6.2	1.4	5	silty SAND to sandy SILT	120	4.0	17	22	55	39	-	16
38.88	84.6	68.6	114.0	1.4	6.0	1.7	5	silty SAND to sandy SILT	120	4.0	17	21	55	39	-	16
39.04	84.5	68.5	122.1	1.7	6.1	2.0	5	silty SAND to sandy SILT	120	4.0	17	21	54	39	-	16
39.21	76.9	62.2	129.1	1.9	6.1	2.5	5	silty SAND to sandy SILT	120	4.0	16	19	51	38	-	16
39.37	66.0	53.2	125.7	1.7	5.9	2.7	5	silty SAND to sandy SILT	120	4.0	13	16	46	37	-	16
39.54	51.6	41.6	123.9	1.6	3.4	3.1	4	clayy SILT to silty CLAY	115	2.0	21	26	-	-	3.6	15
39.70	42.8	34.5	103.3	1.0	-0.5	2.5	4	clayy SILT to silty CLAY	115	2.0	17	21	-	-	2.9	15
39.86	45.9	36.9	108.3	1.2	-1.2	2.7	4	clayy SILT to silty CLAY	115	2.0	18	23	-	-	3.2	15
40.03	29.3	20.0	-	0.9	-1.7	3.3	3	silty CLAY to CLAY	115	1.5	13	20	-	-	2.0	15
40.19	12.9	8.8	-	0.6	17.3	5.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
40.36	13.2	8.9	-	0.5	26.8	4.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
40.52	18.2	12.3	-	0.5	36.1	3.5	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
40.68	15.6	10.5	-	0.5	31.5	3.6	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
40.85	15.7	10.5	-	0.5	34.2	3.5	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
41.01	16.0	10.7	-	0.5	34.8	3.7	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
41.18	15.9	10.6	-	0.5	37.7	3.6	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
41.34	15.9	10.6	-	0.4	34.1	3.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
41.50	12.6	8.4	-	0.4	33.2	4.2	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
41.67	11.8	7.8	-	0.5	40.2	4.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
41.83	12.1	8.0	-	0.5	43.2	4.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
42.00	12.0	7.9	-	0.5	42.0	5.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(465).cpt
CPT Date: 12/4/2008 1:10:41 PM
GW During Test: 12 ft

Sounding ID: CPT-08-42
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	12.3	8.1	-	0.5	42.2	5.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
42.32	13.8	9.1	-	0.5	41.0	4.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.49	13.5	8.8	-	0.6	33.6	5.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.65	15.3	9.9	-	0.7	35.1	5.2	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
42.82	15.4	10.0	-	0.7	27.7	5.1	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
42.98	13.7	8.9	-	0.7	26.9	6.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
43.15	13.7	8.9	-	0.7	26.9	6.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
43.31	15.0	9.6	-	0.7	26.3	5.5	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
43.47	15.0	9.6	-	0.7	25.3	5.8	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
43.64	14.6	9.4	-	0.8	25.0	6.4	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
43.80	15.7	10.1	-	0.8	26.2	6.0	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
43.97	16.6	10.6	-	1.0	23.3	7.1	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
44.13	17.8	11.3	-	1.1	18.7	7.1	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
44.29	19.2	12.1	-	1.0	18.7	6.3	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
44.46	29.3	18.5	-	0.9	19.3	3.4	3	silty CLAY to CLAY	115	1.5	12	20	-	-	2.0	15
44.62	30.1	19.0	-	0.8	3.9	3.0	4	clayy SILT to silty CLAY	115	2.0	9	15	-	-	2.0	15
44.79	22.8	14.3	-	1.1	3.1	5.2	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.5	15
44.95	83.4	64.1	113.6	1.5	6.6	1.8	5	silty SAND to sandy SILT	120	4.0	16	21	52	38	-	16
45.11	144.6	111.0	139.8	1.9	3.7	1.3	6	clean SAND to silty SAND	125	5.0	22	29	70	41	-	16
45.28	192.5	147.6	176.8	2.8	4.8	1.5	6	clean SAND to silty SAND	125	5.0	30	38	80	42	-	16
45.44	216.2	165.5	202.2	3.8	6.9	1.8	6	clean SAND to silty SAND	125	5.0	33	43	84	43	-	16
45.61	224.7	171.7	211.6	4.2	6.7	1.9	6	clean SAND to silty SAND	125	5.0	34	45	85	43	-	16
45.77	223.9	170.8	206.2	3.9	6.6	1.7	6	clean SAND to silty SAND	125	5.0	34	45	85	43	-	16
45.93	222.0	169.1	199.5	3.5	6.6	1.6	6	clean SAND to silty SAND	125	5.0	34	44	84	43	-	16
46.10	225.3	171.3	199.0	3.4	6.8	1.5	6	clean SAND to silty SAND	125	5.0	34	45	85	43	-	16
46.26	227.6	172.8	196.6	3.1	7.0	1.4	6	clean SAND to silty SAND	125	5.0	35	46	85	43	-	16
46.43	230.4	174.7	193.4	2.8	7.1	1.2	6	clean SAND to silty SAND	125	5.0	35	46	85	43	-	16
46.59	229.6	173.8	188.8	2.5	7.0	1.1	6	clean SAND to silty SAND	125	5.0	35	46	85	43	-	16
46.75	223.0	168.5	179.7	2.2	7.0	1.0	6	clean SAND to silty SAND	125	5.0	34	45	84	43	-	16
46.92	213.2	160.9	171.3	2.0	7.0	0.9	6	clean SAND to silty SAND	125	5.0	32	43	83	43	-	16
47.08	192.7	145.2	161.1	2.0	7.0	1.0	6	clean SAND to silty SAND	125	5.0	29	39	79	42	-	16
47.25	153.1	115.1	155.6	2.6	7.2	1.8	5	silty SAND to sandy SILT	120	4.0	29	38	72	41	-	16
47.41	115.8	87.0	139.5	2.3	8.0	2.1	5	silty SAND to sandy SILT	120	4.0	22	29	62	39	-	16
47.57	128.5	96.4	124.5	1.6	5.5	1.3	6	clean SAND to silty SAND	125	5.0	19	26	66	40	-	16
47.74	132.8	99.4	126.2	1.6	-0.8	1.2	6	clean SAND to silty SAND	125	5.0	20	27	67	40	-	16
47.90	110.1	82.3	129.3	2.0	-0.7	1.8	5	silty SAND to sandy SILT	120	4.0	21	28	61	39	-	16
48.07	82.7	61.8	142.9	2.4	0.0	3.0	4	clayy SILT to silty CLAY	115	2.0	31	41	-	-	5.7	15
48.23	44.4	26.2	-	2.0	0.1	4.7	3	silty CLAY to CLAY	115	1.5	17	30	-	-	3.0	15
48.39	27.7	16.3	-	1.2	0.7	4.9	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.9	15
48.56	21.5	12.6	-	0.6	2.1	3.4	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
48.72	19.8	11.6	-	0.6	4.4	3.4	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
48.89	20.8	12.2	-	0.6	6.5	3.5	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
49.05	19.8	11.5	-	0.7	8.2	4.0	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
49.22	23.4	13.6	-	0.7	10.2	3.4	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
49.38	20.7	12.0	-	0.8	12.0	4.4	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
49.54	41.1	23.8	-	1.0	13.9	2.6	4	clayy SILT to silty CLAY	115	2.0	12	21	-	-	2.8	15
49.71	74.1	54.6	113.4	1.5	10.1	2.1	5	silty SAND to sandy SILT	120	4.0	14	19	47	37	-	16
49.87	89.2	65.7	130.4	2.1	8.8	2.4	5	silty SAND to sandy SILT	120	4.0	16	22	53	38	-	16
50.04	91.1	67.0	133.0	2.2	8.6	2.5	5	silty SAND to sandy SILT	120	4.0	17	23	54	38	-	16
50.20	99.9	73.4	138.8	2.4	5.7	2.5	5	silty SAND to sandy SILT	120	4.0	18	25	57	38	-	16
50.36	97.8	71.7	145.9	2.6	5.6	2.8	5	silty SAND to sandy SILT	120	4.0	18	24	56	38	-	16
50.53	96.6	70.8	146.0	2.6	6.0	2.8	5	silty SAND to sandy SILT	120	4.0	18	24	56	38	-	16
50.69	101.2	74.0	144.5	2.6	5.3	2.6	5	silty SAND to sandy SILT	120	4.0	19	25	57	38	-	16
50.86	99.6	72.8	152.2	2.9	3.7	3.0	5	silty SAND to sandy SILT	120	4.0	18	25	57	38	-	16
51.02	99.4	72.5	147.8	2.7	3.3	2.8	5	silty SAND to sandy SILT	120	4.0	18	25	56	38	-	16
51.18	156.6	114.1	157.7	2.8	-1.0	1.8	5	silty SAND to sandy SILT	120	4.0	29	39	71	41	-	16
51.35	164.7	119.8	164.0	3.1	-4.5	1.9	5	silty SAND to sandy SILT	120	4.0	30	41	73	41	-	16
51.51	156.5	113.7	164.4	3.2	-4.2	2.1	5	silty SAND to sandy SILT	120	4.0	28	39	71	41	-	16
51.68	155.6	112.9	168.8	3.4	-3.7	2.2	5	silty SAND to sandy SILT	120	4.0	28	39	71	41	-	16
51.84	162.9	118.1	174.2	3.6	-3.4	2.3	5	silty SAND to sandy SILT	120	4.0	30	41	72	41	-	16
52.00	172.4	124.8	179.3	3.8	-3.4	2.2	5	silty SAND to sandy SILT	120	4.0	31	43	74	41	-	16
52.17	173.0	125.0	179.5	3.8	-3.7	2.2	5	silty SAND to sandy SILT	120	4.0	31	43	74	41	-	16
52.33	160.7	116.0	175.1	3.7	-3.6	2.4	5	silty SAND to sandy SILT	120	4.0	29	40	72	41	-	16
52.50	156.9	113.1	174.7	3.7	-3.4	2.4	5	silty SAND to sandy SILT	120	4.0	28	39	71	41	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(465).cpt
CPT Date: 12/4/2008 1:10:41 PM
GW During Test: 12 ft

Sounding ID: CPT-08-42
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	139.1	100.2	173.3	3.8	-3.2	2.8	5	silty SAND to sandy SILT	120	4.0	25	35	67	40	-	16
52.82	116.9	84.0	180.5	4.0	-3.0	3.6	4	clayy SILT to silty CLAY	115	2.0	42	58	-	-	8.1	15
52.99	95.0	68.2	171.9	3.6	-2.8	3.9	4	clayy SILT to silty CLAY	115	2.0	34	47	-	-	6.6	15
53.15	97.7	70.1	164.2	3.3	-3.0	3.5	4	clayy SILT to silty CLAY	115	2.0	35	49	-	-	6.8	15
53.32	239.8	171.9	193.1	3.1	-3.6	1.3	6	clean SAND to silty SAND	125	5.0	34	48	85	43	-	16
53.48	261.1	186.8	197.2	2.7	-5.2	1.0	6	clean SAND to silty SAND	125	5.0	37	52	88	43	-	16
53.64	252.8	180.7	189.9	2.5	-5.3	1.0	6	clean SAND to silty SAND	125	5.0	36	51	87	43	-	16
53.81	292.9	209.0	209.0	2.6	-5.0	0.9	6	clean SAND to silty SAND	125	5.0	42	59	91	44	-	16
53.97	348.4	248.2	248.2	3.2	-4.6	0.9	6	clean SAND to silty SAND	125	5.0	50	70	95	44	-	16
54.14	358.3	255.0	254.6	3.8	-2.4	1.1	6	clean SAND to silty SAND	125	5.0	51	72	95	45	-	16
54.30	353.6	251.2	254.3	3.9	-2.2	1.1	6	clean SAND to silty SAND	125	5.0	50	71	95	45	-	16
54.46	352.0	249.8	256.4	4.1	-1.9	1.2	6	clean SAND to silty SAND	125	5.0	50	70	95	44	-	16
54.63	347.2	246.0	255.9	4.3	-1.7	1.2	6	clean SAND to silty SAND	125	5.0	49	69	95	44	-	16
54.79	348.9	246.9	259.5	4.5	-1.5	1.3	6	clean SAND to silty SAND	125	5.0	49	70	95	44	-	16
54.96	333.5	235.7	254.0	4.7	-1.2	1.4	6	clean SAND to silty SAND	125	5.0	47	67	95	44	-	16
55.12	288.5	203.6	232.7	4.7	2.7	1.6	6	clean SAND to silty SAND	125	5.0	41	58	90	43	-	16
55.28	296.9	209.3	236.2	4.6	2.7	1.6	6	clean SAND to silty SAND	125	5.0	42	59	91	44	-	16
55.45	356.4	250.9	255.1	4.0	2.4	1.1	6	clean SAND to silty SAND	125	5.0	50	71	95	44	-	16
55.61	387.0	272.0	278.4	4.8	-0.7	1.3	6	clean SAND to silty SAND	125	5.0	54	77	95	45	-	16
55.78	392.4	275.5	283.9	5.1	-2.0	1.3	6	clean SAND to silty SAND	125	5.0	55	78	95	45	-	16
55.94	382.8	268.4	277.0	4.9	-1.7	1.3	6	clean SAND to silty SAND	125	5.0	54	77	95	45	-	16
56.11	376.3	263.5	264.2	4.2	-1.6	1.1	6	clean SAND to silty SAND	125	5.0	53	75	95	45	-	16
56.27	394.7	276.0	282.6	5.0	-1.4	1.3	6	clean SAND to silty SAND	125	5.0	55	79	95	45	-	16
56.43	398.3	278.1	299.3	6.3	-1.0	1.6	6	clean SAND to silty SAND	125	5.0	56	80	95	45	-	16
56.60	393.3	274.3	310.2	7.6	-0.5	2.0	6	clean SAND to silty SAND	125	5.0	55	79	95	45	-	16
56.76	392.4	273.3	306.1	7.3	-0.2	1.9	6	clean SAND to silty SAND	125	5.0	55	78	95	45	-	16
56.93	384.9	267.7	292.7	6.4	0.1	1.7	6	clean SAND to silty SAND	125	5.0	54	77	95	45	-	16
57.09	300.9	209.0	244.2	5.4	1.0	1.8	6	clean SAND to silty SAND	125	5.0	42	60	91	43	-	16
57.25	348.8	242.0	260.5	5.0	1.0	1.4	6	clean SAND to silty SAND	125	5.0	48	70	95	44	-	16
57.42	330.1	228.7	248.5	4.7	1.2	1.4	6	clean SAND to silty SAND	125	5.0	46	66	94	44	-	16
57.58	319.0	220.7	227.1	3.4	1.2	1.1	6	clean SAND to silty SAND	125	5.0	44	64	93	44	-	16
57.75	271.1	187.3	187.3	2.0	1.1	0.8	6	clean SAND to silty SAND	125	5.0	37	54	88	43	-	16
57.91	192.5	132.8	142.1	1.4	0.9	0.8	6	clean SAND to silty SAND	125	5.0	27	39	76	41	-	16
58.07	148.3	102.2	129.4	1.8	0.7	1.2	6	clean SAND to silty SAND	125	5.0	20	30	68	40	-	16
58.24	84.8	58.4	139.2	2.4	0.9	3.0	4	clayy SILT to silty CLAY	115	2.0	29	42	-	-	5.9	15
58.40	47.0	23.6	-	2.4	1.8	5.5	3	silty CLAY to CLAY	115	1.5	16	31	-	-	3.2	15
58.57	58.1	29.0	-	1.8	3.3	3.3	4	clayy SILT to silty CLAY	115	2.0	15	29	-	-	4.0	15
58.73	129.7	89.0	111.8	1.3	3.5	1.0	6	clean SAND to silty SAND	125	5.0	18	26	63	39	-	16
58.89	261.6	179.2	179.2	1.8	3.2	0.7	6	clean SAND to silty SAND	125	5.0	36	52	86	43	-	16
59.06	334.2	228.7	228.7	2.2	3.5	0.7	6	clean SAND to silty SAND	125	5.0	46	67	94	44	-	16
59.22	374.7	256.1	256.1	2.0	4.0	0.5	6	clean SAND to silty SAND	125	5.0	51	75	95	44	-	16
59.39	379.2	258.8	258.8	1.9	4.0	0.5	6	clean SAND to silty SAND	125	5.0	52	76	95	44	-	16
59.55	396.5	270.3	270.3	2.9	4.5	0.7	6	clean SAND to silty SAND	125	5.0	54	79	95	45	-	16
59.71	400.9	273.0	273.0	2.3	4.6	0.6	6	clean SAND to silty SAND	125	5.0	55	80	95	45	-	16
59.88	383.2	260.6	260.6	1.8	4.9	0.5	6	clean SAND to silty SAND	125	5.0	52	77	95	44	-	16
60.04	366.2	248.7	248.7	1.9	5.0	0.5	6	clean SAND to silty SAND	125	5.0	50	73	95	44	-	16
60.21	340.4	230.9	230.9	1.7	11.6	0.5	6	clean SAND to silty SAND	125	5.0	46	68	95	44	-	16
60.37	323.9	219.4	219.4	1.9	10.1	0.6	6	clean SAND to silty SAND	125	5.0	44	65	93	44	-	16
60.53	319.2	216.0	216.0	2.1	10.3	0.7	6	clean SAND to silty SAND	125	5.0	43	64	92	43	-	16
60.70	325.6	220.1	220.1	2.0	10.3	0.6	6	clean SAND to silty SAND	125	5.0	44	65	93	44	-	16
60.86	332.6	224.5	224.5	2.2	10.2	0.7	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
61.03	337.9	227.8	227.8	2.2	9.7	0.7	6	clean SAND to silty SAND	125	5.0	46	68	94	44	-	16
61.19	357.9	240.9	240.9	2.5	10.1	0.7	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
61.35	350.3	235.6	235.6	2.6	9.9	0.7	6	clean SAND to silty SAND	125	5.0	47	70	95	44	-	16
61.52	358.3	240.6	240.6	2.4	9.5	0.7	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
61.68	362.9	243.5	243.5	2.4	9.4	0.7	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
61.85	366.4	245.5	245.5	2.1	9.2	0.6	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
62.01	361.1	241.6	241.6	3.1	8.5	0.9	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
62.17	369.7	247.1	247.1	2.7	7.1	0.7	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
62.34	355.4	237.3	237.3	2.4	6.4	0.7	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
62.50	371.9	248.0	248.0	2.5	6.9	0.7	6	clean SAND to silty SAND	125	5.0	50	74	95	44	-	16
62.67	369.9	246.3	246.3	2.5	6.9	0.7	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
62.83	368.1	244.8	244.8	2.2	7.7	0.6	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
63.00	374.4	248.7	248.7	1.6	7.6	0.4	6	clean SAND to silty SAND	125	5.0	50	75	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(465).cpt
CPT Date: 12/4/2008 1:10:41 PM
GW During Test: 12 ft

Sounding ID: CPT-08-42
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	366.8	243.4	243.4	1.7	7.2	0.5	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
63.32	353.7	234.4	234.4	2.3	6.7	0.7	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
63.49	353.4	233.9	233.9	2.5	6.3	0.7	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
63.65	315.4	208.5	208.5	1.6	5.8	0.5	6	clean SAND to silty SAND	125	5.0	42	63	91	43	-	16
63.82	301.2	198.9	198.9	1.0	5.6	0.3	6	clean SAND to silty SAND	125	5.0	40	60	90	43	-	16
63.98	270.8	178.6	178.6	1.0	5.7	0.4	6	clean SAND to silty SAND	125	5.0	36	54	86	42	-	16
64.14	242.6	159.8	159.8	0.9	7.6	0.4	6	clean SAND to silty SAND	125	5.0	32	49	82	42	-	16
64.31	237.7	156.4	156.4	0.3	7.8	0.1	6	clean SAND to silty SAND	125	5.0	31	48	82	42	-	16
64.47	235.2	154.6	154.6	0.9	7.5	0.4	6	clean SAND to silty SAND	125	5.0	31	47	81	42	-	16
64.64	221.6	145.4	151.2	1.6	6.1	0.7	6	clean SAND to silty SAND	125	5.0	29	44	79	41	-	16
64.80	157.5	103.3	113.1	1.0	5.7	0.6	6	clean SAND to silty SAND	125	5.0	21	32	68	39	-	16
64.96	142.5	93.3	100.5	0.7	3.6	0.5	6	clean SAND to silty SAND	125	5.0	19	28	65	39	-	16
65.13	135.5	88.6	105.9	1.1	8.3	0.8	6	clean SAND to silty SAND	125	5.0	18	27	63	39	-	16
65.29	168.4	110.0	128.4	1.6	7.5	1.0	6	clean SAND to silty SAND	125	5.0	22	34	70	40	-	16
65.46	174.5	113.9	123.8	1.2	8.3	0.7	6	clean SAND to silty SAND	125	5.0	23	35	71	40	-	16
65.62	177.0	115.4	132.4	1.6	9.7	0.9	6	clean SAND to silty SAND	125	5.0	23	35	72	40	-	16
65.78	230.4	150.0	163.5	2.2	3.9	1.0	6	clean SAND to silty SAND	125	5.0	30	46	80	41	-	16
65.95	222.2	144.5	149.2	1.5	7.6	0.7	6	clean SAND to silty SAND	125	5.0	29	44	79	41	-	16
66.11	177.4	115.3	127.5	1.3	9.1	0.8	6	clean SAND to silty SAND	125	5.0	23	35	72	40	-	16
66.28	155.2	100.7	106.4	0.7	10.4	0.5	6	clean SAND to silty SAND	125	5.0	20	31	67	39	-	16
66.44	102.7	66.6	78.0	0.4	9.6	0.5	6	clean SAND to silty SAND	125	5.0	13	21	54	37	-	16
66.60	71.2	46.1	104.9	1.4	10.9	2.1	5	silty SAND to sandy SILT	120	4.0	12	18	41	35	-	16
66.77	43.3	19.2	-	1.6	13.0	4.0	3	silty CLAY to CLAY	115	1.5	13	29	-	-	2.9	15
66.93	10.9	4.8	-	1.1	16.3	9.9	2	Organic SOILS - Peats	100	1.0	5	11	-	-	1.0	10
67.10	7.7	3.4	-	0.3	26.0	8.6	2	Organic SOILS - Peats	100	1.0	3	8	-	-	0.6	10
67.26	8.5	3.8	-	0.3	31.7	6.2	2	Organic SOILS - Peats	100	1.0	4	9	-	-	0.7	10
67.42	7.6	3.3	-	0.2	35.3	6.4	2	Organic SOILS - Peats	100	1.0	3	8	-	-	0.6	10
67.59	12.2	5.4	-	0.6	40.6	7.1	2	Organic SOILS - Peats	100	1.0	5	12	-	-	1.1	10
67.75	39.1	25.2	47.0	0.1	24.1	0.4	5	silty SAND to sandy SILT	120	4.0	6	10	21	31	-	16
67.92	80.2	51.6	101.4	1.3	21.6	1.8	5	silty SAND to sandy SILT	120	4.0	13	20	45	35	-	16
68.08	135.7	87.2	117.7	1.7	11.6	1.3	5	silty SAND to sandy SILT	120	4.0	22	34	62	38	-	16
68.24	196.3	126.0	164.8	3.3	9.1	1.7	6	clean SAND to silty SAND	125	5.0	25	39	75	40	-	16
68.41	281.8	180.7	186.0	2.5	4.5	0.9	6	clean SAND to silty SAND	125	5.0	36	56	87	42	-	16
68.57	298.4	191.1	216.3	4.4	6.9	1.5	6	clean SAND to silty SAND	125	5.0	38	60	88	43	-	16
68.74	324.4	207.6	224.6	4.1	5.6	1.3	6	clean SAND to silty SAND	125	5.0	42	65	91	43	-	16
68.90	281.5	179.9	187.9	2.6	6.7	0.9	6	clean SAND to silty SAND	125	5.0	36	56	86	42	-	16
69.07	301.2	192.3	192.3	2.3	6.3	0.8	6	clean SAND to silty SAND	125	5.0	38	60	89	43	-	16
69.23	346.4	220.9	279.2	8.5	1.1	2.5	5	silty SAND to sandy SILT	120	4.0	55	87	93	43	-	16
69.39	464.4	295.8	295.8	3.6	0.0	0.8	6	clean SAND to silty SAND	125	5.0	59	93	95	45	-	16
69.56	407.1	259.0	259.0	1.6	4.0	0.4	6	clean SAND to silty SAND	125	5.0	52	81	95	44	-	16
69.72	356.5	226.6	226.6	1.2	5.6	0.4	6	clean SAND to silty SAND	125	5.0	45	71	94	43	-	16
69.89	324.6	206.1	206.1	2.4	6.5	0.7	6	clean SAND to silty SAND	125	5.0	41	65	91	43	-	16
70.05	350.3	222.1	223.0	3.3	1.9	1.0	6	clean SAND to silty SAND	125	5.0	44	70	93	43	-	16
70.21	320.5	203.0	208.2	3.1	7.6	1.0	6	clean SAND to silty SAND	125	5.0	41	64	90	43	-	16
70.38	311.6	197.2	197.2	2.2	3.9	0.7	6	clean SAND to silty SAND	125	5.0	39	62	89	43	-	16
70.54	352.4	222.8	222.8	3.0	1.8	0.9	6	clean SAND to silty SAND	125	5.0	45	70	93	43	-	16
70.71	371.6	234.6	234.6	1.8	3.0	0.5	6	clean SAND to silty SAND	125	5.0	47	74	95	43	-	16
70.87	364.0	229.6	229.6	2.7	2.1	0.7	6	clean SAND to silty SAND	125	5.0	46	73	94	43	-	16
71.03	389.9	245.7	253.5	4.6	2.3	1.2	6	clean SAND to silty SAND	125	5.0	49	78	95	44	-	16
71.20	377.6	237.7	239.1	3.9	3.3	1.0	6	clean SAND to silty SAND	125	5.0	48	76	95	44	-	16
71.36	406.4	255.5	255.5	3.3	4.7	0.8	6	clean SAND to silty SAND	125	5.0	51	81	95	44	-	16
71.53	414.8	260.5	260.5	2.4	4.9	0.6	6	clean SAND to silty SAND	125	5.0	52	83	95	44	-	16
71.69	389.6	244.4	244.4	2.6	6.1	0.7	6	clean SAND to silty SAND	125	5.0	49	78	95	44	-	16
71.85	382.9	240.0	240.0	2.7	5.8	0.7	6	clean SAND to silty SAND	125	5.0	48	77	95	44	-	16
72.02	382.3	239.3	239.3	1.4	5.5	0.4	6	clean SAND to silty SAND	125	5.0	48	76	95	44	-	16
72.18	338.8	211.9	211.9	1.6	3.7	0.5	6	clean SAND to silty SAND	125	5.0	42	68	92	43	-	16
72.35	335.5	209.6	209.6	1.6	3.4	0.5	6	clean SAND to silty SAND	125	5.0	42	67	91	43	-	16
72.51	350.5	218.7	218.7	2.7	2.6	0.8	6	clean SAND to silty SAND	125	5.0	44	70	93	43	-	16
72.67	351.5	219.1	219.1	2.6	1.3	0.8	6	clean SAND to silty SAND	125	5.0	44	70	93	43	-	16
72.84	335.8	209.1	209.1	2.2	1.5	0.7	6	clean SAND to silty SAND	125	5.0	42	67	91	43	-	16
73.00	329.9	205.2	205.2	1.0	2.1	0.3	6	clean SAND to silty SAND	125	5.0	41	66	91	43	-	16
73.17	337.8	209.9	209.9	2.2	2.7	0.7	6	clean SAND to silty SAND	125	5.0	42	68	91	43	-	16
73.33	364.4	226.2	227.4	3.6	3.0	1.0	6	clean SAND to silty SAND	125	5.0	45	73	94	43	-	16
73.49	442.2	274.2	274.2	2.9	4.0	0.7	6	clean SAND to silty SAND	125	5.0	55	88	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(465).cpt
CPT Date: 12/4/2008 1:10:41 PM
GW During Test: 12 ft

Sounding ID: CPT-08-42
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
73.66	390.1	241.7	241.7	3.4	13.0	0.9	6	clean SAND to silty SAND	125	5.0	48	78	95	43	-	16
73.82	318.8	197.3	197.3	2.4	6.5	0.8	6	clean SAND to silty SAND	125	5.0	39	64	89	42	-	16
73.99	330.6	204.4	213.4	3.5	-0.4	1.1	6	clean SAND to silty SAND	125	5.0	41	66	91	43	-	16
74.15	360.6	222.7	231.3	4.0	-0.1	1.1	6	clean SAND to silty SAND	125	5.0	45	72	93	43	-	16
74.31	386.3	238.3	238.3	3.5	1.5	0.9	6	clean SAND to silty SAND	125	5.0	48	77	95	43	-	16
74.48	393.6	242.5	254.2	4.9	2.1	1.3	6	clean SAND to silty SAND	125	5.0	49	79	95	43	-	16
74.64	360.9	222.2	232.9	4.2	1.9	1.2	6	clean SAND to silty SAND	125	5.0	44	72	93	43	-	16
74.81	342.7	210.7	220.8	3.8	0.4	1.1	6	clean SAND to silty SAND	125	5.0	42	69	92	43	-	16
74.97	338.2	207.8	215.0	3.5	-2.1	1.0	6	clean SAND to silty SAND	125	5.0	42	68	91	43	-	16
75.13	153.8	94.4	116.1	1.5	11.5	1.0	6	clean SAND to silty SAND	125	5.0	19	31	65	38	-	16
75.30	145.5	89.2	100.2	0.8	6.7	0.6	6	clean SAND to silty SAND	125	5.0	18	29	63	38	-	16
75.46	188.2	115.3	173.8	4.3	3.1	2.3	5	silty SAND to sandy SILT	120	4.0	29	47	72	40	-	16
75.63	253.3	155.0	196.3	4.7	-0.7	1.9	6	clean SAND to silty SAND	125	5.0	31	51	81	41	-	16
75.79	143.7	87.9	174.6	4.4	-0.9	3.2	5	silty SAND to sandy SILT	120	4.0	22	36	63	38	-	16
75.96	145.7	89.0	148.4	3.2	1.1	2.3	5	silty SAND to sandy SILT	120	4.0	22	36	63	38	-	16
76.12	195.2	119.1	141.0	2.2	0.7	1.1	6	clean SAND to silty SAND	125	5.0	24	39	73	40	-	16
76.28	234.0	142.6	159.0	2.4	1.2	1.0	6	clean SAND to silty SAND	125	5.0	29	47	79	41	-	16
76.45	204.1	124.3	155.8	2.9	17.6	1.5	6	clean SAND to silty SAND	125	5.0	25	41	74	40	-	16
76.61	241.1	146.7	161.7	2.4	14.9	1.0	6	clean SAND to silty SAND	125	5.0	29	48	80	41	-	16
76.78	360.9	219.3	219.3	0.5	18.0	0.1	7	grvly SAND to dense SAND	130	6.0	37	60	93	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(421).cpt
CPT Date: 11/19/2008 1:56:55 PM
GW During Test: 12 ft

Sounding ID: CPT-08-43
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	146.7	235.2	235.2	1.5	-0.2	1.0	6	clean SAND to silty SAND	125	5.0	47	29	95	48	-	16
0.49	136.1	218.2	228.2	1.6	0.0	1.2	6	clean SAND to silty SAND	125	5.0	44	27	93	48	-	16
0.66	103.9	166.7	170.8	0.8	0.1	0.8	6	clean SAND to silty SAND	125	5.0	33	21	84	48	-	16
0.82	84.1	134.9	136.4	0.5	0.1	0.6	6	clean SAND to silty SAND	125	5.0	27	17	77	48	-	16
0.98	68.4	109.7	122.0	0.5	0.2	0.8	6	clean SAND to silty SAND	125	5.0	22	14	70	48	-	16
1.15	54.4	87.2	112.3	0.6	0.3	1.1	6	clean SAND to silty SAND	125	5.0	17	11	62	48	-	16
1.31	52.3	83.9	113.4	0.7	0.3	1.3	5	silty SAND to sandy SILT	120	4.0	21	13	61	48	-	16
1.48	53.4	85.6	109.2	0.6	0.3	1.1	6	clean SAND to silty SAND	125	5.0	17	11	62	48	-	16
1.64	57.3	91.8	112.1	0.6	0.4	1.0	6	clean SAND to silty SAND	125	5.0	18	11	64	48	-	16
1.80	65.7	105.4	125.4	0.7	0.3	1.0	6	clean SAND to silty SAND	125	5.0	21	13	69	48	-	16
1.97	100.0	160.4	172.2	1.0	0.4	1.0	6	clean SAND to silty SAND	125	5.0	32	20	83	48	-	16
2.13	161.3	258.7	265.6	2.0	0.3	1.2	6	clean SAND to silty SAND	125	5.0	52	32	95	48	-	16
2.30	143.3	229.8	259.9	2.5	0.3	1.7	6	clean SAND to silty SAND	125	5.0	46	29	94	48	-	16
2.46	116.9	187.4	245.3	2.9	0.4	2.5	5	silty SAND to sandy SILT	120	4.0	47	29	88	48	-	16
2.62	100.1	160.5	234.5	2.9	0.4	2.9	5	silty SAND to sandy SILT	120	4.0	40	25	83	48	-	16
2.79	90.0	144.3	225.5	2.8	0.2	3.1	5	silty SAND to sandy SILT	120	4.0	36	22	79	48	-	16
2.95	63.1	101.2	198.7	2.3	-0.5	3.6	5	silty SAND to sandy SILT	120	4.0	25	16	67	47	-	16
3.12	45.1	72.4	189.8	2.0	-0.4	4.5	4	clayy SILT to silty CLAY	115	2.0	36	23	-	-	3.2	15
3.28	38.1	61.1	169.4	1.6	-0.9	4.2	4	clayy SILT to silty CLAY	115	2.0	31	19	-	-	2.7	15
3.45	29.4	47.2	150.6	1.2	0.0	4.2	4	clayy SILT to silty CLAY	115	2.0	24	15	-	-	2.1	15
3.61	25.4	40.7	133.9	1.0	0.1	3.8	4	clayy SILT to silty CLAY	115	2.0	20	13	-	-	1.8	15
3.77	22.9	36.7	-	0.9	-1.0	3.9	4	clayy SILT to silty CLAY	115	2.0	18	11	-	-	1.6	15
3.94	20.9	33.6	-	0.9	-1.0	4.2	4	clayy SILT to silty CLAY	115	2.0	17	10	-	-	1.5	15
4.10	18.9	30.4	-	0.9	-1.3	4.5	3	silty CLAY to CLAY	115	1.5	20	13	-	-	1.3	15
4.27	19.0	30.5	-	0.7	-0.6	3.8	4	clayy SILT to silty CLAY	115	2.0	15	10	-	-	1.3	15
4.43	19.9	31.9	-	0.6	-0.5	3.0	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
4.59	21.9	35.2	98.0	0.5	-0.2	2.4	4	clayy SILT to silty CLAY	115	2.0	18	11	-	-	1.5	15
4.76	21.1	33.8	96.0	0.5	-0.1	2.3	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.5	15
4.92	20.4	32.7	95.7	0.5	0.0	2.4	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
5.09	20.8	33.3	97.7	0.5	-0.2	2.5	4	clayy SILT to silty CLAY	115	2.0	17	10	-	-	1.4	15
5.25	20.4	32.8	85.4	0.4	-0.2	1.9	5	silty SAND to sandy SILT	120	4.0	8	5	30	39	-	16
5.41	17.9	28.8	87.8	0.4	0.0	2.2	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
5.58	19.9	31.9	90.8	0.4	-0.3	2.2	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
5.74	20.0	32.0	90.9	0.4	-0.3	2.2	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
5.91	18.3	29.3	88.0	0.4	-0.6	2.2	4	clayy SILT to silty CLAY	115	2.0	15	9	-	-	1.3	15
6.07	16.7	26.8	-	0.4	-0.3	2.4	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.2	15
6.23	19.2	30.6	91.0	0.4	-0.3	2.3	4	clayy SILT to silty CLAY	115	2.0	15	10	-	-	1.3	15
6.40	21.0	33.1	90.0	0.4	-0.3	2.1	5	silty SAND to sandy SILT	120	4.0	8	5	30	39	-	16
6.56	20.6	32.0	86.9	0.4	-0.3	2.0	5	silty SAND to sandy SILT	120	4.0	8	5	29	39	-	16
6.73	19.2	29.4	89.7	0.4	-0.4	2.3	4	clayy SILT to silty CLAY	115	2.0	15	10	-	-	1.3	15
6.89	17.8	28.5	-	0.5	-0.2	3.1	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
7.05	16.3	26.1	-	0.7	-0.3	4.5	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.1	15
7.22	15.1	24.2	-	0.7	-0.5	4.9	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
7.38	13.3	21.3	-	0.6	-0.3	5.0	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
7.55	13.0	20.8	-	0.5	-0.7	4.2	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
7.71	15.4	24.7	-	0.5	-0.8	3.1	4	clayy SILT to silty CLAY	115	2.0	12	8	-	-	1.1	15
7.87	16.9	27.0	-	0.5	-0.3	3.1	4	clayy SILT to silty CLAY	115	2.0	14	8	-	-	1.2	15
8.04	14.8	23.7	-	0.6	-0.3	4.1	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
8.20	12.1	19.5	-	0.7	-0.7	5.8	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
8.37	10.8	17.2	-	0.7	-0.8	6.4	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
8.53	10.6	17.0	-	0.7	-0.5	6.5	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
8.69	12.4	19.9	-	0.7	0.0	5.6	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
8.86	12.7	20.4	-	0.7	0.2	5.6	3	silty CLAY to CLAY	115	1.5	14	8	-	-	0.9	15
9.02	12.3	19.8	-	0.7	0.4	5.7	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
9.19	11.5	18.5	-	0.7	0.5	6.4	3	silty CLAY to CLAY	115	1.5	12	8	-	-	0.8	15
9.35	13.2	21.2	-	0.7	0.6	5.1	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
9.51	31.9	41.4	91.1	0.6	0.5	1.8	5	silty SAND to sandy SILT	120	4.0	10	8	38	40	-	16
9.68	54.1	69.5	98.1	0.6	-0.2	1.2	5	silty SAND to sandy SILT	120	4.0	17	14	55	43	-	16
9.84	69.9	89.1	116.1	0.8	-0.2	1.2	6	clean SAND to silty SAND	125	5.0	18	14	63	44	-	16
10.01	81.1	102.5	130.8	1.1	-0.2	1.3	6	clean SAND to silty SAND	125	5.0	21	16	68	44	-	16
10.17	86.8	108.7	141.4	1.3	-0.2	1.5	6	clean SAND to silty SAND	125	5.0	22	17	70	45	-	16
10.34	88.6	110.0	147.2	1.4	-0.2	1.6	5	silty SAND to sandy SILT	120	4.0	27	22	70	45	-	16
10.50	94.2	116.1	150.3	1.5	-0.2	1.6	6	clean SAND to silty SAND	125	5.0	23	19	72	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(421).cpt
CPT Date: 11/19/2008 1:56:55 PM
GW During Test: 12 ft

Sounding ID: CPT-08-43
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	104.5	127.7	156.4	1.5	-0.2	1.4	6	clean SAND to silty SAND	125	5.0	26	21	75	45	-	16
10.83	112.6	136.5	161.8	1.5	-0.2	1.3	6	clean SAND to silty SAND	125	5.0	27	23	77	46	-	16
10.99	114.9	138.2	161.7	1.5	-0.2	1.3	6	clean SAND to silty SAND	125	5.0	28	23	78	46	-	16
11.16	116.1	138.6	161.7	1.5	-0.1	1.3	6	clean SAND to silty SAND	125	5.0	28	23	78	46	-	16
11.32	115.5	136.8	159.6	1.4	-0.1	1.2	6	clean SAND to silty SAND	125	5.0	27	23	77	46	-	16
11.48	107.8	126.7	150.4	1.3	-0.1	1.2	6	clean SAND to silty SAND	125	5.0	25	22	75	45	-	16
11.65	104.2	121.6	142.1	1.1	-0.1	1.1	6	clean SAND to silty SAND	125	5.0	24	21	73	45	-	16
11.81	102.1	118.2	132.9	0.9	0.0	0.9	6	clean SAND to silty SAND	125	5.0	24	20	73	45	-	16
11.98	97.1	111.6	125.7	0.8	0.0	0.8	6	clean SAND to silty SAND	125	5.0	22	19	71	45	-	16
12.14	79.8	91.4	108.4	0.7	0.2	0.8	6	clean SAND to silty SAND	125	5.0	18	16	64	44	-	16
12.30	59.5	68.0	91.1	0.5	0.2	0.9	6	clean SAND to silty SAND	125	5.0	14	12	54	42	-	16
12.47	43.3	49.3	88.0	0.6	0.2	1.4	5	silty SAND to sandy SILT	120	4.0	12	11	44	40	-	16
12.63	35.1	39.8	92.9	0.7	0.2	1.9	5	silty SAND to sandy SILT	120	4.0	10	9	37	39	-	16
12.80	32.5	36.7	93.7	0.7	-0.6	2.1	5	silty SAND to sandy SILT	120	4.0	9	8	34	39	-	16
12.96	25.8	29.1	80.9	0.5	-5.6	1.8	5	silty SAND to sandy SILT	120	4.0	7	6	26	37	-	16
13.12	15.0	20.0	-	0.3	-8.4	2.1	4	clayy SILT to silty CLAY	115	2.0	10	7	-	-	1.0	15
13.29	8.7	11.5	-	0.2	-8.9	2.3	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
13.45	5.7	7.6	-	0.1	-8.8	2.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
13.62	5.9	7.7	-	0.1	-8.7	2.6	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
13.78	5.5	7.1	-	0.1	-8.7	2.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
13.94	5.5	7.1	-	0.2	-8.7	4.0	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.11	5.8	7.5	-	0.2	-8.7	3.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.27	5.2	6.7	-	0.1	-8.7	2.8	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
14.44	5.0	6.4	-	0.1	-8.7	2.6	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
14.60	5.3	6.8	-	0.2	-8.6	3.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.3	15
14.76	5.7	7.2	-	0.2	-8.6	4.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.93	5.8	7.3	-	0.2	-8.6	4.0	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.09	5.6	7.0	-	0.2	-8.1	3.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.26	4.8	6.0	-	0.1	-8.1	3.4	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.42	4.5	5.6	-	0.1	-8.0	3.3	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.58	4.4	5.4	-	0.2	-7.9	4.4	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.75	4.7	5.8	-	0.2	-7.9	5.3	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.91	4.9	6.0	-	0.2	-7.8	5.7	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
16.08	5.5	6.6	-	0.2	-7.8	5.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
16.24	6.3	7.7	-	0.2	-7.7	4.4	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.40	7.0	8.4	-	0.2	-7.7	3.7	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.57	7.0	8.3	-	0.4	-7.6	6.2	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.73	20.0	22.1	73.3	0.3	-7.6	1.7	4	clayy SILT to silty CLAY	115	2.0	11	10	-	-	1.4	15
16.90	38.9	41.0	70.4	0.4	-9.5	1.0	5	silty SAND to sandy SILT	120	4.0	10	10	38	38	-	16
17.06	40.3	42.4	78.2	0.5	-9.5	1.2	5	silty SAND to sandy SILT	120	4.0	11	10	39	39	-	16
17.23	42.5	44.6	80.7	0.5	-9.4	1.2	5	silty SAND to sandy SILT	120	4.0	11	11	40	39	-	16
17.39	45.8	48.0	78.5	0.5	-9.4	1.1	5	silty SAND to sandy SILT	120	4.0	12	11	43	39	-	16
17.55	38.0	39.7	78.2	0.5	-9.4	1.3	5	silty SAND to sandy SILT	120	4.0	10	10	37	38	-	16
17.72	33.2	34.6	80.0	0.5	-9.4	1.5	5	silty SAND to sandy SILT	120	4.0	9	8	32	37	-	16
17.88	31.2	32.4	80.4	0.5	-9.3	1.6	5	silty SAND to sandy SILT	120	4.0	8	8	30	37	-	16
18.05	33.5	34.7	74.8	0.4	-9.3	1.3	5	silty SAND to sandy SILT	120	4.0	9	8	32	37	-	16
18.21	38.1	39.4	71.0	0.4	-9.2	1.0	5	silty SAND to sandy SILT	120	4.0	10	10	36	38	-	16
18.37	35.2	36.3	76.4	0.5	-9.2	1.3	5	silty SAND to sandy SILT	120	4.0	9	9	34	37	-	16
18.54	16.7	18.7	-	0.5	-9.2	3.1	4	clayy SILT to silty CLAY	115	2.0	9	8	-	-	1.1	15
18.70	9.5	10.6	-	0.4	-9.1	4.4	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
18.87	6.7	7.5	-	0.3	-8.7	4.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
19.03	6.8	7.5	-	0.2	-8.6	3.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
19.19	6.7	7.3	-	0.2	-8.5	4.0	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
19.36	6.8	7.4	-	0.3	-8.5	5.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
19.52	15.8	17.1	-	0.3	-8.4	1.9	4	clayy SILT to silty CLAY	115	2.0	9	8	-	-	1.1	15
19.69	32.8	33.1	64.9	0.3	-8.5	1.0	5	silty SAND to sandy SILT	120	4.0	8	8	30	37	-	16
19.85	44.2	44.6	68.1	0.3	-8.5	0.8	5	silty SAND to sandy SILT	120	4.0	11	11	40	38	-	16
20.01	51.9	52.2	75.3	0.4	-8.5	0.8	5	silty SAND to sandy SILT	120	4.0	13	13	46	39	-	16
20.18	54.8	54.9	81.9	0.5	-8.5	1.0	5	silty SAND to sandy SILT	120	4.0	14	14	47	39	-	16
20.34	52.7	52.7	86.6	0.6	-8.5	1.2	5	silty SAND to sandy SILT	120	4.0	13	13	46	39	-	16
20.51	48.8	48.6	86.7	0.6	-8.4	1.3	5	silty SAND to sandy SILT	120	4.0	12	12	43	39	-	16
20.67	37.9	37.7	88.7	0.7	-8.4	1.8	5	silty SAND to sandy SILT	120	4.0	9	9	35	37	-	16
20.83	22.2	23.2	-	0.6	-8.3	3.1	4	clayy SILT to silty CLAY	115	2.0	12	11	-	-	1.5	15
21.00	10.9	11.3	-	0.5	-8.2	4.8	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(421).cpt
CPT Date: 11/19/2008 1:56:55 PM
GW During Test: 12 ft

Sounding ID: CPT-08-43
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	7.8	8.1	-	0.2	-8.1	3.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.33	6.5	6.7	-	0.1	-8.1	2.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.49	5.8	5.9	-	0.1	-8.0	1.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.65	5.8	5.9	-	0.1	-7.8	1.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.82	6.0	6.1	-	0.1	-6.9	2.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.98	5.8	5.9	-	0.1	-6.7	2.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.15	5.5	5.5	-	0.1	-6.6	3.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
22.31	5.6	5.6	-	0.2	-6.5	4.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
22.47	5.6	5.6	-	0.2	-6.4	4.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
22.64	5.6	5.6	-	0.2	-6.3	4.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
22.80	5.9	5.9	-	0.2	-6.2	5.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.97	6.2	6.1	-	0.3	-6.1	5.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.13	6.3	6.2	-	0.3	-6.1	5.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.30	6.2	6.1	-	0.2	-6.0	4.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.46	5.9	5.8	-	0.2	-5.9	4.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.62	6.5	6.3	-	0.3	-5.7	6.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.79	15.1	14.6	-	0.2	-5.6	1.7	4	clayy SILT to silty CLAY	115	2.0	7	8	-	-	1.0	15
23.95	41.9	40.0	69.3	0.4	-6.0	0.9	5	silty SAND to sandy SILT	120	4.0	10	10	37	37	-	16
24.12	52.2	49.6	74.3	0.4	-6.0	0.8	5	silty SAND to sandy SILT	120	4.0	12	13	44	38	-	16
24.28	56.5	53.5	80.5	0.5	-3.5	1.0	5	silty SAND to sandy SILT	120	4.0	13	14	46	39	-	16
24.44	60.9	57.6	85.5	0.6	-3.4	1.0	5	silty SAND to sandy SILT	120	4.0	14	15	49	39	-	16
24.61	68.7	64.9	95.0	0.8	-3.3	1.2	5	silty SAND to sandy SILT	120	4.0	16	17	53	40	-	16
24.77	75.9	71.5	97.0	0.8	-3.2	1.0	6	clean SAND to silty SAND	125	5.0	14	15	56	40	-	16
24.94	67.7	63.6	94.3	0.8	-1.9	1.2	5	silty SAND to sandy SILT	120	4.0	16	17	52	40	-	16
25.10	63.6	59.6	93.8	0.8	-1.8	1.3	5	silty SAND to sandy SILT	120	4.0	15	16	50	39	-	16
25.26	48.9	45.8	102.5	1.0	-1.8	2.1	5	silty SAND to sandy SILT	120	4.0	11	12	41	38	-	16
25.43	36.7	34.2	98.6	0.8	-1.7	2.4	4	clayy SILT to silty CLAY	115	2.0	17	18	-	-	2.5	15
25.59	53.7	50.1	86.3	0.7	-2.4	1.3	5	silty SAND to sandy SILT	120	4.0	13	13	44	38	-	16
25.76	66.4	61.8	96.1	0.8	-6.8	1.3	5	silty SAND to sandy SILT	120	4.0	15	17	51	39	-	16
25.92	66.8	62.0	105.3	1.1	-6.7	1.6	5	silty SAND to sandy SILT	120	4.0	15	17	51	39	-	16
26.08	69.4	64.2	111.8	1.2	-6.5	1.8	5	silty SAND to sandy SILT	120	4.0	16	17	52	40	-	16
26.25	65.3	60.3	108.2	1.1	-6.4	1.8	5	silty SAND to sandy SILT	120	4.0	15	16	50	39	-	16
26.41	62.9	58.0	99.4	0.9	-6.3	1.5	5	silty SAND to sandy SILT	120	4.0	14	16	49	39	-	16
26.58	56.2	51.7	89.6	0.7	-6.5	1.4	5	silty SAND to sandy SILT	120	4.0	13	14	45	38	-	16
26.74	29.9	26.7	-	0.7	-6.6	2.6	4	clayy SILT to silty CLAY	115	2.0	13	15	-	-	2.1	15
26.90	15.1	13.4	-	0.6	-6.4	4.3	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
27.07	10.2	9.0	-	0.4	-6.1	5.1	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
27.23	9.5	8.3	-	0.4	-5.9	4.5	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
27.40	8.9	7.9	-	0.3	-5.7	4.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
27.56	8.3	7.3	-	0.3	-5.5	4.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
27.72	8.2	7.1	-	0.3	-5.3	3.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.89	7.7	6.7	-	0.2	-5.0	3.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
28.05	7.0	6.0	-	0.2	-4.7	4.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
28.22	7.4	6.4	-	0.2	-2.9	3.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
28.38	7.5	6.5	-	0.2	-2.5	3.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
28.54	7.4	6.4	-	0.2	-2.1	4.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
28.71	8.0	6.9	-	0.2	-1.5	3.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
28.87	7.1	6.0	-	0.2	-1.1	3.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
29.04	7.3	6.2	-	0.2	-0.4	3.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
29.20	7.7	6.5	-	0.3	0.1	4.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
29.36	8.7	7.3	-	0.4	0.8	5.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
29.53	13.9	11.6	-	0.4	1.3	3.4	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
29.69	16.0	13.4	-	0.4	1.0	2.6	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
29.86	11.9	9.9	-	0.4	0.9	4.0	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
30.02	10.7	8.9	-	0.3	1.5	3.6	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
30.19	7.9	6.5	-	0.3	1.7	4.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.35	7.0	5.8	-	0.2	2.6	4.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
30.51	7.1	5.8	-	0.2	3.2	4.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
30.68	6.7	5.5	-	0.2	3.9	3.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
30.84	6.4	5.2	-	0.2	4.6	3.7	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.4	15
31.01	6.4	5.2	-	0.3	5.9	6.0	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.4	15
31.17	6.7	5.4	-	0.3	7.0	6.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
31.33	6.9	5.5	-	0.3	13.8	5.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
31.50	7.7	6.2	-	0.3	15.2	5.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(421).cpt
CPT Date: 11/19/2008 1:56:55 PM
GW During Test: 12 ft

Sounding ID: CPT-08-43
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	8.7	7.0	-	0.3	16.0	4.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
31.83	7.7	6.2	-	0.3	16.3	5.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.99	7.4	5.9	-	0.3	17.7	5.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.15	7.8	6.2	-	0.4	19.5	6.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.32	32.4	28.0	77.7	0.5	22.4	1.6	5	silty SAND to sandy SILT	120	4.0	7	8	25	34	-	16
32.48	69.4	59.8	88.1	0.7	5.2	1.1	5	silty SAND to sandy SILT	120	4.0	15	17	50	39	-	16
32.65	85.2	73.3	98.2	0.8	5.6	1.0	6	clean SAND to silty SAND	125	5.0	15	17	57	40	-	16
32.81	93.7	80.4	111.1	1.2	6.1	1.3	5	silty SAND to sandy SILT	120	4.0	20	23	60	40	-	16
32.97	101.9	87.3	122.4	1.5	6.5	1.5	5	silty SAND to sandy SILT	120	4.0	22	25	63	41	-	16
33.14	105.8	90.5	130.3	1.7	6.7	1.6	5	silty SAND to sandy SILT	120	4.0	23	26	64	41	-	16
33.30	106.7	91.1	132.0	1.8	6.9	1.7	5	silty SAND to sandy SILT	120	4.0	23	27	64	41	-	16
33.47	105.2	89.6	130.6	1.7	7.0	1.7	5	silty SAND to sandy SILT	120	4.0	22	26	63	41	-	16
33.63	102.0	86.7	127.8	1.7	7.1	1.7	5	silty SAND to sandy SILT	120	4.0	22	26	62	40	-	16
33.79	94.7	80.4	122.5	1.6	7.2	1.7	5	silty SAND to sandy SILT	120	4.0	20	24	60	40	-	16
33.96	84.5	71.6	111.1	1.3	7.4	1.5	5	silty SAND to sandy SILT	120	4.0	18	21	56	39	-	16
34.12	81.7	69.1	98.8	0.9	7.4	1.2	5	silty SAND to sandy SILT	120	4.0	17	20	55	39	-	16
34.29	84.5	71.4	99.9	0.9	6.5	1.1	5	silty SAND to sandy SILT	120	4.0	18	21	56	39	-	16
34.45	78.1	65.8	110.3	1.3	5.4	1.7	5	silty SAND to sandy SILT	120	4.0	16	20	53	39	-	16
34.61	51.6	43.4	126.9	1.6	5.6	3.2	4	clayy SILT to silty CLAY	115	2.0	22	26	-	-	3.6	15
34.78	25.4	19.0	-	1.2	5.8	5.2	3	silty CLAY to CLAY	115	1.5	13	17	-	-	1.7	15
34.94	21.9	16.3	-	0.9	8.4	4.4	3	silty CLAY to CLAY	115	1.5	11	15	-	-	1.5	15
35.11	31.6	23.5	-	0.6	7.0	2.2	4	clayy SILT to silty CLAY	115	2.0	12	16	-	-	2.2	15
35.27	21.3	15.7	-	0.5	-1.1	2.8	3	silty CLAY to CLAY	115	1.5	10	14	-	-	1.4	15
35.43	10.5	7.8	-	0.5	20.9	5.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
35.60	7.9	5.8	-	0.3	24.2	5.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
35.76	7.6	5.6	-	0.3	28.8	5.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
35.93	7.5	5.5	-	0.3	32.3	5.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
36.09	7.5	5.5	-	0.3	33.8	6.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
36.26	7.8	5.6	-	0.3	35.5	6.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
36.42	8.0	5.8	-	0.3	37.0	5.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
36.58	8.6	6.2	-	0.4	39.2	5.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
36.75	8.5	6.1	-	0.4	42.8	5.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
36.91	8.5	6.1	-	0.4	37.9	5.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
37.08	8.7	6.3	-	0.3	42.3	4.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
37.24	9.4	6.7	-	0.3	42.6	4.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
37.40	9.4	6.7	-	0.3	44.0	4.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
37.57	9.9	7.0	-	0.4	47.2	4.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
37.73	10.8	7.7	-	0.4	50.4	5.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.90	15.9	11.2	-	0.5	49.7	3.6	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
38.06	16.1	11.3	-	0.5	28.3	3.5	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
38.22	12.3	8.6	-	0.5	31.3	4.6	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.39	11.8	8.3	-	0.5	37.0	5.7	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.55	12.1	8.4	-	0.6	42.0	5.8	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.72	34.8	28.2	80.5	0.6	49.1	1.7	5	silty SAND to sandy SILT	120	4.0	7	9	25	33	-	16
38.88	65.4	52.9	85.6	0.7	6.7	1.2	5	silty SAND to sandy SILT	120	4.0	13	16	46	37	-	16
39.04	65.8	53.1	84.8	0.7	6.5	1.1	5	silty SAND to sandy SILT	120	4.0	13	16	46	37	-	16
39.21	67.6	54.5	82.0	0.6	4.7	1.0	5	silty SAND to sandy SILT	120	4.0	14	17	47	37	-	16
39.37	61.9	49.8	103.3	1.1	-4.2	1.9	5	silty SAND to sandy SILT	120	4.0	12	15	44	37	-	16
39.54	41.4	28.3	-	1.1	-4.0	2.9	4	clayy SILT to silty CLAY	115	2.0	14	21	-	-	2.8	15
39.70	38.5	26.2	-	1.0	-3.5	2.8	4	clayy SILT to silty CLAY	115	2.0	13	19	-	-	2.6	15
39.86	28.0	19.0	-	0.8	-4.4	3.1	4	clayy SILT to silty CLAY	115	2.0	10	14	-	-	1.9	15
40.03	16.4	11.1	-	0.6	-4.1	4.6	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
40.19	13.9	9.4	-	0.5	-3.1	4.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
40.36	16.6	11.2	-	0.5	-2.4	3.6	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
40.52	18.3	12.3	-	0.5	-1.9	3.3	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
40.68	19.6	13.1	-	0.6	-1.4	3.5	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
40.85	19.7	13.2	-	0.6	-0.7	3.3	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
41.01	26.2	17.5	-	0.5	-0.4	2.0	4	clayy SILT to silty CLAY	115	2.0	9	13	-	-	1.8	15
41.18	27.0	17.9	-	0.3	-1.0	1.3	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.8	15
41.34	15.3	10.1	-	0.3	4.6	2.5	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
41.50	12.8	8.5	-	0.3	6.1	3.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
41.67	13.5	8.9	-	0.4	7.6	3.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
41.83	15.4	10.1	-	0.4	8.9	3.4	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
42.00	15.0	9.8	-	0.4	9.8	3.3	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(421).cpt
CPT Date: 11/19/2008 1:56:55 PM
GW During Test: 12 ft

Sounding ID: CPT-08-43
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	13.9	9.0	-	0.4	10.9	3.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.32	13.6	8.8	-	0.5	12.2	4.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.49	14.5	9.4	-	0.6	13.6	5.0	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
42.65	16.7	10.8	-	0.6	14.5	4.6	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
42.82	16.3	10.5	-	0.7	14.6	5.0	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
42.98	15.5	10.0	-	0.7	15.2	5.8	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
43.15	17.0	10.9	-	0.8	16.4	5.2	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
43.31	22.2	14.2	-	0.7	16.3	3.8	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.5	15
43.47	24.3	15.5	-	0.7	14.8	3.4	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.6	15
43.64	19.2	12.2	-	0.7	11.3	4.4	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
43.80	17.8	11.3	-	0.8	13.5	5.1	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
43.97	18.3	11.5	-	0.8	13.6	5.3	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
44.13	18.8	11.8	-	1.0	14.5	6.2	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.2	15
44.29	22.2	14.0	-	1.1	14.4	5.7	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.5	15
44.46	30.1	18.9	-	0.9	16.0	3.3	3	silty CLAY to CLAY	115	1.5	13	20	-	-	2.0	15
44.62	46.4	29.0	-	1.3	10.0	2.9	4	clayy SILT to silty CLAY	115	2.0	15	23	-	-	3.2	15
44.79	42.2	26.3	-	1.4	12.3	3.5	4	clayy SILT to silty CLAY	115	2.0	13	21	-	-	2.9	15
44.95	129.9	99.5	126.9	1.6	8.1	1.2	6	clean SAND to silty SAND	125	5.0	20	26	67	40	-	16
45.11	184.6	141.2	154.6	1.7	-0.6	0.9	6	clean SAND to silty SAND	125	5.0	28	37	78	42	-	16
45.28	206.2	157.5	176.7	2.4	-0.1	1.2	6	clean SAND to silty SAND	125	5.0	32	41	82	43	-	16
45.44	231.5	176.5	198.1	3.0	0.5	1.3	6	clean SAND to silty SAND	125	5.0	35	46	86	43	-	16
45.61	249.7	190.1	209.7	3.2	1.2	1.3	6	clean SAND to silty SAND	125	5.0	38	50	88	44	-	16
45.77	252.1	191.6	204.8	2.8	1.4	1.1	6	clean SAND to silty SAND	125	5.0	38	50	88	44	-	16
45.93	247.7	188.0	198.8	2.6	1.6	1.1	6	clean SAND to silty SAND	125	5.0	38	50	88	44	-	16
46.10	252.3	191.2	198.0	2.4	1.9	1.0	6	clean SAND to silty SAND	125	5.0	38	50	88	44	-	16
46.26	255.6	193.4	206.5	2.9	2.5	1.1	6	clean SAND to silty SAND	125	5.0	39	51	89	44	-	16
46.43	253.4	191.4	205.5	2.9	2.9	1.2	6	clean SAND to silty SAND	125	5.0	38	51	88	44	-	16
46.59	247.9	187.0	202.2	2.9	3.6	1.2	6	clean SAND to silty SAND	125	5.0	37	50	88	44	-	16
46.75	253.1	190.6	200.6	2.6	3.8	1.0	6	clean SAND to silty SAND	125	5.0	38	51	88	44	-	16
46.92	250.9	188.6	197.2	2.5	4.2	1.0	6	clean SAND to silty SAND	125	5.0	38	50	88	44	-	16
47.08	235.7	176.9	180.7	1.9	4.3	0.8	6	clean SAND to silty SAND	125	5.0	35	47	86	43	-	16
47.25	245.6	184.1	184.1	1.7	4.7	0.7	6	clean SAND to silty SAND	125	5.0	37	49	87	43	-	16
47.41	267.2	200.0	200.0	1.9	5.0	0.7	6	clean SAND to silty SAND	125	5.0	40	53	90	44	-	16
47.57	277.6	207.4	207.4	2.1	5.4	0.8	6	clean SAND to silty SAND	125	5.0	41	56	91	44	-	16
47.74	274.9	205.1	205.1	2.3	5.8	0.8	6	clean SAND to silty SAND	125	5.0	41	55	91	44	-	16
47.90	259.7	193.5	200.0	2.5	6.8	1.0	6	clean SAND to silty SAND	125	5.0	39	52	89	44	-	16
48.07	250.7	186.5	196.7	2.6	7.1	1.0	6	clean SAND to silty SAND	125	5.0	37	50	88	43	-	16
48.23	241.7	179.5	191.2	2.5	7.0	1.0	6	clean SAND to silty SAND	125	5.0	36	48	86	43	-	16
48.39	230.2	170.7	189.0	2.7	7.0	1.2	6	clean SAND to silty SAND	125	5.0	34	46	85	43	-	16
48.56	228.3	169.1	196.4	3.4	7.7	1.5	6	clean SAND to silty SAND	125	5.0	34	46	84	43	-	16
48.72	230.7	170.6	202.9	3.8	7.9	1.6	6	clean SAND to silty SAND	125	5.0	34	46	85	43	-	16
48.89	231.5	171.0	207.6	4.1	8.2	1.8	6	clean SAND to silty SAND	125	5.0	34	46	85	43	-	16
49.05	224.1	165.3	204.4	4.1	8.1	1.8	6	clean SAND to silty SAND	125	5.0	33	45	84	43	-	16
49.22	214.7	158.1	199.3	4.0	8.1	1.9	6	clean SAND to silty SAND	125	5.0	32	43	82	43	-	16
49.38	202.2	148.6	192.4	3.9	8.1	2.0	5	silty SAND to sandy SILT	120	4.0	37	51	80	42	-	16
49.54	186.7	137.0	183.1	3.7	8.1	2.0	5	silty SAND to sandy SILT	120	4.0	34	47	77	42	-	16
49.71	170.8	125.2	171.5	3.3	8.0	2.0	5	silty SAND to sandy SILT	120	4.0	31	43	74	41	-	16
49.87	150.1	109.9	156.4	2.8	7.8	1.9	5	silty SAND to sandy SILT	120	4.0	27	38	70	41	-	16
50.04	128.9	94.2	144.6	2.5	7.6	2.0	5	silty SAND to sandy SILT	120	4.0	24	32	65	40	-	16
50.20	105.3	76.9	133.7	2.2	7.4	2.2	5	silty SAND to sandy SILT	120	4.0	19	26	58	39	-	16
50.36	68.2	49.7	135.1	2.1	7.1	3.2	4	clayy SILT to silty CLAY	115	2.0	25	34	-	-	4.7	15
50.53	39.4	22.2	-	1.3	6.8	3.5	4	clayy SILT to silty CLAY	115	2.0	11	20	-	-	2.7	15
50.69	27.8	15.6	-	0.9	6.8	3.5	3	silty CLAY to CLAY	115	1.5	10	19	-	-	1.9	15
50.86	17.0	9.5	-	0.5	12.1	3.8	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
51.02	15.5	8.6	-	0.5	14.6	3.6	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
51.18	14.9	8.3	-	0.5	16.4	4.0	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
51.35	14.8	8.2	-	0.5	17.9	3.9	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
51.51	15.3	8.5	-	0.5	19.6	4.0	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
51.68	14.6	8.1	-	0.5	20.8	4.7	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
51.84	19.1	10.5	-	0.5	22.2	2.9	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.2	15
52.00	15.9	8.7	-	0.7	20.2	5.1	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
52.17	49.8	35.8	81.2	0.7	25.1	1.5	5	silty SAND to sandy SILT	120	4.0	9	12	33	34	-	16
52.33	147.8	106.2	118.4	1.1	9.7	0.7	6	clean SAND to silty SAND	125	5.0	21	30	69	40	-	16
52.50	168.8	121.2	133.5	1.3	2.9	0.8	6	clean SAND to silty SAND	125	5.0	24	34	73	41	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(421).cpt
CPT Date: 11/19/2008 1:56:55 PM
GW During Test: 12 ft

Sounding ID: CPT-08-43
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	194.1	139.1	152.9	1.8	3.2	0.9	6	clean SAND to silty SAND	125	5.0	28	39	78	42	-	16
52.82	239.5	171.4	175.2	1.9	-0.4	0.8	6	clean SAND to silty SAND	125	5.0	34	48	85	43	-	16
52.99	268.5	191.9	191.2	2.1	-2.3	0.8	6	clean SAND to silty SAND	125	5.0	38	54	89	43	-	16
53.15	269.1	192.1	191.9	2.2	-2.7	0.8	6	clean SAND to silty SAND	125	5.0	38	54	89	43	-	16
53.32	253.2	180.5	186.6	2.3	-2.5	0.9	6	clean SAND to silty SAND	125	5.0	36	51	86	43	-	16
53.48	228.4	162.6	177.3	2.4	0.2	1.1	6	clean SAND to silty SAND	125	5.0	33	46	83	42	-	16
53.64	229.2	162.9	182.5	2.8	0.7	1.2	6	clean SAND to silty SAND	125	5.0	33	46	83	42	-	16
53.81	249.5	177.1	197.0	3.2	1.1	1.3	6	clean SAND to silty SAND	125	5.0	35	50	86	43	-	16
53.97	262.9	186.3	207.2	3.5	1.3	1.3	6	clean SAND to silty SAND	125	5.0	37	53	88	43	-	16
54.14	275.6	195.1	215.0	3.6	1.7	1.3	6	clean SAND to silty SAND	125	5.0	39	55	89	43	-	16
54.30	282.8	199.9	212.7	3.2	2.1	1.2	6	clean SAND to silty SAND	125	5.0	40	57	90	43	-	16
54.46	288.7	203.8	211.5	3.0	2.3	1.0	6	clean SAND to silty SAND	125	5.0	41	58	91	43	-	16
54.63	297.3	209.6	211.9	2.8	3.4	0.9	6	clean SAND to silty SAND	125	5.0	42	59	91	44	-	16
54.79	323.4	227.7	227.7	2.7	3.8	0.9	6	clean SAND to silty SAND	125	5.0	46	65	94	44	-	16
54.96	347.1	244.1	244.1	2.7	4.1	0.8	6	clean SAND to silty SAND	125	5.0	49	69	95	44	-	16
55.12	355.1	249.3	249.3	2.7	4.3	0.8	6	clean SAND to silty SAND	125	5.0	50	71	95	44	-	16
55.28	353.9	248.2	248.2	2.5	4.6	0.7	6	clean SAND to silty SAND	125	5.0	50	71	95	44	-	16
55.45	359.8	251.9	251.9	2.3	5.4	0.6	6	clean SAND to silty SAND	125	5.0	50	72	95	44	-	16
55.61	369.2	258.2	258.2	2.2	5.8	0.6	6	clean SAND to silty SAND	125	5.0	52	74	95	45	-	16
55.78	375.2	262.0	262.0	2.1	6.0	0.6	6	clean SAND to silty SAND	125	5.0	52	75	95	45	-	16
55.94	367.2	256.1	256.1	2.0	6.7	0.6	6	clean SAND to silty SAND	125	5.0	51	73	95	45	-	16
56.11	373.2	260.0	260.0	2.4	6.8	0.6	6	clean SAND to silty SAND	125	5.0	52	75	95	45	-	16
56.27	386.5	268.8	268.8	1.9	6.9	0.5	6	clean SAND to silty SAND	125	5.0	54	77	95	45	-	16
56.43	390.5	271.3	271.3	2.1	6.9	0.5	6	clean SAND to silty SAND	125	5.0	54	78	95	45	-	16
56.60	388.2	269.3	269.3	1.9	6.9	0.5	6	clean SAND to silty SAND	125	5.0	54	78	95	45	-	16
56.76	386.5	267.8	267.8	2.7	7.3	0.7	6	clean SAND to silty SAND	125	5.0	54	77	95	45	-	16
56.93	391.0	270.5	270.5	2.5	7.3	0.7	6	clean SAND to silty SAND	125	5.0	54	78	95	45	-	16
57.09	386.1	266.8	266.8	2.4	7.2	0.6	6	clean SAND to silty SAND	125	5.0	53	77	95	45	-	16
57.25	390.2	269.3	269.3	1.9	7.6	0.5	6	clean SAND to silty SAND	125	5.0	54	78	95	45	-	16
57.42	378.7	261.0	261.0	1.9	8.3	0.5	6	clean SAND to silty SAND	125	5.0	52	76	95	45	-	16
57.58	368.9	254.0	254.0	1.9	8.6	0.5	6	clean SAND to silty SAND	125	5.0	51	74	95	44	-	16
57.75	353.9	243.3	243.3	2.1	8.8	0.6	6	clean SAND to silty SAND	125	5.0	49	71	95	44	-	16
57.91	340.2	233.6	233.6	2.1	8.7	0.6	6	clean SAND to silty SAND	125	5.0	47	68	95	44	-	16
58.07	335.3	229.9	229.9	2.1	8.9	0.6	6	clean SAND to silty SAND	125	5.0	46	67	94	44	-	16
58.24	329.9	226.0	226.0	2.2	9.0	0.7	6	clean SAND to silty SAND	125	5.0	45	66	94	44	-	16
58.40	336.5	230.2	230.2	2.2	9.2	0.7	6	clean SAND to silty SAND	125	5.0	46	67	95	44	-	16
58.57	345.2	235.8	235.8	2.2	9.2	0.6	6	clean SAND to silty SAND	125	5.0	47	69	95	44	-	16
58.73	349.2	238.2	238.2	2.2	9.3	0.6	6	clean SAND to silty SAND	125	5.0	48	70	95	44	-	16
58.89	357.5	243.6	243.6	2.2	9.4	0.6	6	clean SAND to silty SAND	125	5.0	49	71	95	44	-	16
59.06	364.3	248.0	248.0	2.2	9.7	0.6	6	clean SAND to silty SAND	125	5.0	50	73	95	44	-	16
59.22	373.1	253.6	253.6	2.2	9.8	0.6	6	clean SAND to silty SAND	125	5.0	51	75	95	44	-	16
59.39	383.4	260.3	260.3	2.2	10.0	0.6	6	clean SAND to silty SAND	125	5.0	52	77	95	44	-	16
59.55	390.9	265.1	265.1	2.2	10.1	0.6	6	clean SAND to silty SAND	125	5.0	53	78	95	44	-	16
59.71	395.0	267.5	267.5	2.2	10.2	0.6	6	clean SAND to silty SAND	125	5.0	53	79	95	45	-	16
59.88	399.1	269.9	269.9	2.3	10.3	0.6	6	clean SAND to silty SAND	125	5.0	54	80	95	45	-	16
60.04	383.5	259.0	259.0	2.6	10.1	0.7	6	clean SAND to silty SAND	125	5.0	52	77	95	44	-	16
60.21	348.7	235.2	235.2	2.4	9.9	0.7	6	clean SAND to silty SAND	125	5.0	47	70	95	44	-	16
60.37	360.8	243.1	243.1	2.6	10.8	0.7	6	clean SAND to silty SAND	125	5.0	49	72	95	44	-	16
60.53	383.9	258.4	258.4	2.6	8.4	0.7	6	clean SAND to silty SAND	125	5.0	52	77	95	44	-	16
60.70	391.1	262.9	262.9	2.6	7.2	0.7	6	clean SAND to silty SAND	125	5.0	53	78	95	44	-	16
60.86	384.1	257.8	257.8	2.4	7.0	0.6	6	clean SAND to silty SAND	125	5.0	52	77	95	44	-	16
61.03	372.6	249.8	249.8	2.8	7.2	0.8	6	clean SAND to silty SAND	125	5.0	50	75	95	44	-	16
61.19	365.7	244.9	244.9	2.6	6.8	0.7	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
61.35	357.0	238.8	238.8	3.1	7.6	0.9	6	clean SAND to silty SAND	125	5.0	48	71	95	44	-	16
61.52	351.6	234.9	236.4	3.6	7.7	1.0	6	clean SAND to silty SAND	125	5.0	47	70	95	44	-	16
61.68	346.1	231.0	240.4	4.0	8.2	1.2	6	clean SAND to silty SAND	125	5.0	46	69	95	44	-	16
61.85	340.3	226.8	237.3	4.0	8.1	1.2	6	clean SAND to silty SAND	125	5.0	45	68	94	44	-	16
62.01	346.6	230.7	238.7	3.9	7.1	1.1	6	clean SAND to silty SAND	125	5.0	46	69	95	44	-	16
62.17	343.9	228.6	241.0	4.2	6.9	1.2	6	clean SAND to silty SAND	125	5.0	46	69	94	44	-	16
62.34	338.2	224.6	241.5	4.5	7.0	1.3	6	clean SAND to silty SAND	125	5.0	45	68	94	44	-	16
62.50	340.0	225.5	242.4	4.5	7.1	1.3	6	clean SAND to silty SAND	125	5.0	45	68	94	44	-	16
62.67	346.0	229.2	246.1	4.7	7.1	1.4	6	clean SAND to silty SAND	125	5.0	46	69	94	44	-	16
62.83	353.1	233.6	246.2	4.4	6.9	1.3	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
63.00	360.6	238.3	246.6	4.2	7.0	1.2	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(421).cpt
CPT Date: 11/19/2008 1:56:55 PM
GW During Test: 12 ft

Sounding ID: CPT-08-43
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	368.1	243.0	243.0	3.5	6.9	1.0	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
63.32	376.1	248.0	248.0	2.8	6.8	0.7	6	clean SAND to silty SAND	125	5.0	50	75	95	44	-	16
63.49	382.8	252.1	252.1	2.3	6.7	0.6	6	clean SAND to silty SAND	125	5.0	50	77	95	44	-	16
63.65	387.6	255.0	255.0	3.2	6.6	0.8	6	clean SAND to silty SAND	125	5.0	51	78	95	44	-	16
63.82	435.6	286.2	286.2	3.3	6.4	0.8	6	clean SAND to silty SAND	125	5.0	57	87	95	45	-	16
63.98	527.5	346.2	346.2	2.8	4.5	0.5	7	grvly SAND to dense SAND	130	6.0	58	88	95	46	-	16
64.14	398.1	260.9	260.9	2.3	7.3	0.6	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
64.31	373.0	244.2	244.2	3.3	8.3	0.9	6	clean SAND to silty SAND	125	5.0	49	75	95	44	-	16
64.47	303.5	198.4	203.5	2.9	8.3	1.0	6	clean SAND to silty SAND	125	5.0	40	61	90	43	-	16
64.64	203.3	132.8	163.1	2.9	11.3	1.5	6	clean SAND to silty SAND	125	5.0	27	41	76	41	-	16
64.80	303.9	198.3	198.3	1.8	-3.1	0.6	6	clean SAND to silty SAND	125	5.0	40	61	90	43	-	16
64.96	255.1	166.2	166.2	1.4	-2.9	0.6	6	clean SAND to silty SAND	125	5.0	33	51	84	42	-	16
65.13	172.7	112.4	136.2	2.0	-3.1	1.2	6	clean SAND to silty SAND	125	5.0	22	35	71	40	-	16
65.29	155.4	101.0	108.5	0.8	-2.9	0.5	6	clean SAND to silty SAND	125	5.0	20	31	67	39	-	16
65.46	134.9	87.6	95.0	0.6	-7.8	0.4	6	clean SAND to silty SAND	125	5.0	18	27	63	38	-	16
65.62	124.6	80.8	164.5	3.7	-7.4	3.1	5	silty SAND to sandy SILT	120	4.0	20	31	60	38	-	16
65.78	98.4	63.8	153.4	3.1	-6.9	3.3	4	clayy SILT to silty CLAY	115	2.0	32	49	-	-	6.8	15
65.95	43.7	19.4	-	1.4	-6.7	3.5	3	silty CLAY to CLAY	115	1.5	13	29	-	-	2.9	15
66.11	29.4	13.0	-	0.9	-7.0	3.7	3	silty CLAY to CLAY	115	1.5	9	20	-	-	1.9	15
66.28	16.4	7.2	-	0.4	-7.1	3.3	3	silty CLAY to CLAY	115	1.5	5	11	-	-	1.0	15
66.44	14.1	6.2	-	0.0	-6.9	0.1	1	sensitive fine SOIL	115	2.0	3	7	-	-	0.9	15
66.60	48.0	21.1	-	1.5	-6.6	3.4	4	clayy SILT to silty CLAY	115	2.0	11	24	-	-	3.2	15
66.77	95.1	61.2	130.7	2.3	-6.9	2.5	5	silty SAND to sandy SILT	120	4.0	15	24	51	36	-	16
66.93	97.0	62.4	129.4	2.3	-6.8	2.5	5	silty SAND to sandy SILT	120	4.0	16	24	51	36	-	16
67.10	107.5	69.1	121.3	2.0	-3.7	2.0	5	silty SAND to sandy SILT	120	4.0	17	27	55	37	-	16
67.26	97.4	62.6	115.8	1.8	-2.8	2.0	5	silty SAND to sandy SILT	120	4.0	16	24	52	36	-	16
67.42	57.6	25.1	-	1.6	-2.8	2.9	4	clayy SILT to silty CLAY	115	2.0	13	29	-	-	3.9	15
67.59	32.3	14.1	-	0.8	-2.2	2.9	3	silty CLAY to CLAY	115	1.5	9	22	-	-	2.1	15
67.75	23.3	10.1	-	0.9	-1.2	4.8	3	silty CLAY to CLAY	115	1.5	7	16	-	-	1.5	15
67.92	83.9	53.7	105.0	1.5	-0.9	1.8	5	silty SAND to sandy SILT	120	4.0	13	21	46	35	-	16
68.08	173.7	111.0	139.9	2.3	-0.8	1.3	6	clean SAND to silty SAND	125	5.0	22	35	70	40	-	16
68.24	328.7	209.9	209.9	2.1	-0.1	0.6	6	clean SAND to silty SAND	125	5.0	42	66	91	43	-	16
68.41	382.3	243.8	243.8	2.4	-0.4	0.6	6	clean SAND to silty SAND	125	5.0	49	76	95	44	-	16
68.57	442.8	282.1	282.1	3.0	0.4	0.7	6	clean SAND to silty SAND	125	5.0	56	89	95	44	-	16
68.74	531.6	338.2	338.2	3.5	0.7	0.7	6	clean SAND to silty SAND	125	5.0	68	100	95	45	-	16
68.90	550.8	350.1	350.1	2.7	1.8	0.5	7	grvly SAND to dense SAND	130	6.0	58	92	95	45	-	16
69.07	549.2	348.6	348.6	1.9	2.2	0.4	7	grvly SAND to dense SAND	130	6.0	58	92	95	45	-	16
69.23	494.4	313.5	313.5	1.8	2.0	0.4	7	grvly SAND to dense SAND	130	6.0	52	82	95	45	-	16
69.39	485.6	307.6	307.6	2.9	2.4	0.6	6	clean SAND to silty SAND	125	5.0	62	97	95	45	-	16
69.56	491.8	311.1	311.1	2.0	2.0	0.4	7	grvly SAND to dense SAND	130	6.0	52	82	95	45	-	16
69.72	422.0	266.6	266.6	1.8	5.5	0.4	6	clean SAND to silty SAND	125	5.0	53	84	95	44	-	16
69.89	293.0	184.9	184.9	1.8	11.8	0.6	6	clean SAND to silty SAND	125	5.0	37	59	87	42	-	16
70.05	332.4	209.6	209.6	1.6	11.6	0.5	6	clean SAND to silty SAND	125	5.0	42	66	91	43	-	16
70.21	318.1	200.3	200.3	1.5	11.8	0.5	6	clean SAND to silty SAND	125	5.0	40	64	90	43	-	16
70.38	328.5	206.7	206.7	1.4	12.1	0.4	6	clean SAND to silty SAND	125	5.0	41	66	91	43	-	16
70.54	352.4	221.5	221.5	1.3	12.3	0.4	6	clean SAND to silty SAND	125	5.0	44	70	93	43	-	16
70.71	341.6	214.5	214.5	1.2	12.3	0.4	6	clean SAND to silty SAND	125	5.0	43	68	92	43	-	16
70.87	320.7	201.1	201.1	1.4	12.0	0.4	6	clean SAND to silty SAND	125	5.0	40	64	90	43	-	16
71.03	311.0	194.8	194.8	1.2	12.0	0.4	6	clean SAND to silty SAND	125	5.0	39	62	89	42	-	16
71.20	319.2	199.8	199.8	1.3	12.7	0.4	6	clean SAND to silty SAND	125	5.0	40	64	90	43	-	16
71.36	334.6	209.2	209.2	1.5	13.0	0.5	6	clean SAND to silty SAND	125	5.0	42	67	91	43	-	16
71.53	344.7	215.2	215.2	1.5	13.3	0.4	6	clean SAND to silty SAND	125	5.0	43	69	92	43	-	16
71.69	348.0	217.1	217.1	1.4	13.4	0.4	6	clean SAND to silty SAND	125	5.0	43	70	93	43	-	16
71.85	326.1	203.2	203.2	1.3	13.4	0.4	6	clean SAND to silty SAND	125	5.0	41	65	90	43	-	16
72.02	331.6	206.4	206.4	1.3	13.6	0.4	6	clean SAND to silty SAND	125	5.0	41	66	91	43	-	16
72.18	343.2	213.4	213.4	1.3	13.8	0.4	6	clean SAND to silty SAND	125	5.0	43	69	92	43	-	16
72.35	365.1	226.8	226.8	1.5	14.2	0.4	6	clean SAND to silty SAND	125	5.0	45	73	94	43	-	16
72.51	378.6	234.9	234.9	1.8	14.2	0.5	6	clean SAND to silty SAND	125	5.0	47	76	95	43	-	16
72.67	382.9	237.3	237.3	2.1	14.9	0.6	6	clean SAND to silty SAND	125	5.0	47	77	95	43	-	16
72.84	379.5	235.0	235.0	2.3	15.6	0.6	6	clean SAND to silty SAND	125	5.0	47	76	95	43	-	16
73.00	366.0	226.4	226.4	2.3	15.4	0.6	6	clean SAND to silty SAND	125	5.0	45	73	94	43	-	16
73.17	359.0	221.9	221.9	2.3	14.4	0.6	6	clean SAND to silty SAND	125	5.0	44	72	93	43	-	16
73.33	344.7	212.8	212.8	2.0	13.9	0.6	6	clean SAND to silty SAND	125	5.0	43	69	92	43	-	16
73.49	342.3	211.1	211.1	1.7	13.6	0.5	6	clean SAND to silty SAND	125	5.0	42	68	92	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(421).cpt
CPT Date: 11/19/2008 1:56:55 PM
GW During Test: 12 ft

Sounding ID: CPT-08-43
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS - *	q1ncs PS - *	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description *	Unit Wght pcf	Qc to N	SPT R-N1 60% *	SPT R-N 60% *	Rel Den % *	Ftn Ang deg *	Und Shr tsf	Nk - *
73.66	335.3	206.5	206.5	1.5	13.3	0.5	6	clean SAND to silty SAND	125	5.0	41	67	91	43	-	16
73.82	329.6	202.8	202.8	1.6	13.5	0.5	6	clean SAND to silty SAND	125	5.0	41	66	90	43	-	16
73.99	344.6	211.8	211.8	1.7	13.7	0.5	6	clean SAND to silty SAND	125	5.0	42	69	92	43	-	16
74.15	360.3	221.3	221.3	1.9	14.2	0.5	6	clean SAND to silty SAND	125	5.0	44	72	93	43	-	16
74.31	394.5	242.0	242.0	2.1	14.4	0.5	6	clean SAND to silty SAND	125	5.0	48	79	95	43	-	16
74.48	417.8	256.1	256.1	2.4	14.7	0.6	6	clean SAND to silty SAND	125	5.0	51	84	95	44	-	16
74.64	441.2	270.1	270.1	2.9	15.6	0.7	6	clean SAND to silty SAND	125	5.0	54	88	95	44	-	16
74.81	441.1	269.8	269.8	3.3	15.9	0.8	6	clean SAND to silty SAND	125	5.0	54	88	95	44	-	16
74.97	422.4	258.1	258.1	3.4	15.7	0.8	6	clean SAND to silty SAND	125	5.0	52	84	95	44	-	16
75.13	401.0	244.8	244.8	3.3	15.3	0.8	6	clean SAND to silty SAND	125	5.0	49	80	95	43	-	16
75.30	398.2	242.8	242.8	3.2	14.9	0.8	6	clean SAND to silty SAND	125	5.0	49	80	95	43	-	16
75.46	405.4	247.0	247.0	3.4	15.3	0.8	6	clean SAND to silty SAND	125	5.0	49	81	95	43	-	16
75.63	403.2	245.4	245.4	3.2	15.0	0.8	6	clean SAND to silty SAND	125	5.0	49	81	95	43	-	16
75.79	399.1	242.6	242.6	3.2	15.2	0.8	6	clean SAND to silty SAND	125	5.0	49	80	95	43	-	16
75.96	404.0	245.3	245.3	3.1	15.2	0.8	6	clean SAND to silty SAND	125	5.0	49	81	95	43	-	16
76.12	407.3	247.1	247.1	3.2	15.3	0.8	6	clean SAND to silty SAND	125	5.0	49	81	95	43	-	16
76.28	402.0	243.7	243.7	3.3	14.7	0.8	6	clean SAND to silty SAND	125	5.0	49	80	95	43	-	16
76.45	412.3	249.7	249.7	3.5	14.7	0.9	6	clean SAND to silty SAND	125	5.0	50	82	95	44	-	16
76.61	434.9	263.0	263.0	4.1	15.3	1.0	6	clean SAND to silty SAND	125	5.0	53	87	95	44	-	16
76.78	452.0	273.2	273.2	4.5	15.5	1.0	6	clean SAND to silty SAND	125	5.0	55	90	95	44	-	16
76.94	450.0	271.7	271.7	4.8	15.7	1.1	6	clean SAND to silty SAND	125	5.0	54	90	95	44	-	16
77.10	425.4	256.5	256.7	4.6	15.8	1.1	6	clean SAND to silty SAND	125	5.0	51	85	95	44	-	16
77.27	384.9	231.9	235.3	4.0	15.0	1.1	6	clean SAND to silty SAND	125	5.0	46	77	95	43	-	16
77.43	361.7	217.7	217.4	3.3	14.5	0.9	6	clean SAND to silty SAND	125	5.0	44	72	93	43	-	16
77.60	358.2	215.4	215.4	3.1	14.3	0.9	6	clean SAND to silty SAND	125	5.0	43	72	92	43	-	16
77.76	354.9	213.2	221.7	3.8	14.7	1.1	6	clean SAND to silty SAND	125	5.0	43	71	92	43	-	16
77.92	327.5	196.6	219.0	4.6	14.8	1.4	6	clean SAND to silty SAND	125	5.0	39	66	89	42	-	16
78.09	306.6	183.8	219.1	5.3	16.2	1.8	6	clean SAND to silty SAND	125	5.0	37	61	87	42	-	16
78.25	300.9	180.2	221.3	5.7	15.6	1.9	6	clean SAND to silty SAND	125	5.0	36	60	86	42	-	16
78.42	313.2	187.4	229.6	6.1	14.3	2.0	6	clean SAND to silty SAND	125	5.0	37	63	88	42	-	16
78.58	355.7	212.7	251.4	6.8	14.8	1.9	6	clean SAND to silty SAND	125	5.0	43	71	92	43	-	16
78.74	409.1	244.3	273.2	6.9	13.5	1.7	6	clean SAND to silty SAND	125	5.0	49	82	95	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(466).cpt
CPT Date: 12/5/2008 7:04:30 AM
GW During Test: 12 ft

Sounding ID: CPT-08-44
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	92.5	148.3	193.1	1.9	0.2	2.0	5	silty SAND to sandy SILT	120	4.0	37	23	80	48	-	16
0.49	83.5	134.0	211.8	2.5	0.0	3.0	5	silty SAND to sandy SILT	120	4.0	33	21	77	48	-	16
0.66	69.3	111.1	199.0	2.3	-0.6	3.3	5	silty SAND to sandy SILT	120	4.0	28	17	70	48	-	16
0.82	61.9	99.3	155.2	1.4	-1.5	2.2	5	silty SAND to sandy SILT	120	4.0	25	15	67	48	-	16
0.98	53.2	85.3	124.0	0.9	-1.0	1.6	5	silty SAND to sandy SILT	120	4.0	21	13	62	48	-	16
1.15	43.3	69.5	108.0	0.7	0.0	1.5	5	silty SAND to sandy SILT	120	4.0	17	11	55	48	-	16
1.31	47.2	75.7	104.6	0.6	0.0	1.2	5	silty SAND to sandy SILT	120	4.0	19	12	58	48	-	16
1.48	59.0	94.6	122.5	0.7	0.0	1.3	6	clean SAND to silty SAND	125	5.0	19	12	65	48	-	16
1.64	67.4	108.2	151.7	1.3	0.0	1.9	5	silty SAND to sandy SILT	120	4.0	27	17	70	48	-	16
1.80	105.7	169.5	201.9	1.8	0.1	1.7	6	clean SAND to silty SAND	125	5.0	34	21	84	48	-	16
1.97	117.2	187.9	218.1	1.9	0.1	1.6	6	clean SAND to silty SAND	125	5.0	38	23	88	48	-	16
2.13	104.5	167.5	203.5	1.8	0.0	1.8	6	clean SAND to silty SAND	125	5.0	34	21	84	48	-	16
2.30	77.7	124.6	169.6	1.5	-0.1	2.0	5	silty SAND to sandy SILT	120	4.0	31	19	74	48	-	16
2.46	48.1	77.2	136.9	1.1	0.0	2.3	5	silty SAND to sandy SILT	120	4.0	19	12	58	46	-	16
2.62	33.4	53.6	111.3	0.7	0.0	2.2	5	silty SAND to sandy SILT	120	4.0	13	8	46	44	-	16
2.79	29.1	46.7	106.6	0.7	0.0	2.3	5	silty SAND to sandy SILT	120	4.0	12	7	42	43	-	16
2.95	40.5	65.0	123.5	0.9	0.1	2.2	5	silty SAND to sandy SILT	120	4.0	16	10	53	45	-	16
3.12	46.1	74.0	151.1	1.4	0.2	2.9	5	silty SAND to sandy SILT	120	4.0	18	12	57	45	-	16
3.28	51.6	82.7	158.7	1.5	0.1	2.9	5	silty SAND to sandy SILT	120	4.0	21	13	61	45	-	16
3.45	51.5	82.6	160.2	1.5	-2.7	3.0	5	silty SAND to sandy SILT	120	4.0	21	13	61	45	-	16
3.61	45.0	72.1	155.7	1.4	0.1	3.2	5	silty SAND to sandy SILT	120	4.0	18	11	56	45	-	16
3.77	39.9	64.1	136.0	1.1	0.1	2.7	5	silty SAND to sandy SILT	120	4.0	16	10	52	44	-	16
3.94	45.8	73.4	123.4	0.9	-0.4	2.0	5	silty SAND to sandy SILT	120	4.0	18	11	57	44	-	16
4.10	44.0	70.6	124.2	0.9	0.0	2.1	5	silty SAND to sandy SILT	120	4.0	18	11	56	44	-	16
4.27	40.9	65.6	121.9	0.9	0.1	2.2	5	silty SAND to sandy SILT	120	4.0	16	10	53	44	-	16
4.43	37.7	60.5	117.8	0.8	0.0	2.2	5	silty SAND to sandy SILT	120	4.0	15	9	50	43	-	16
4.59	34.5	55.3	116.3	0.8	0.1	2.3	5	silty SAND to sandy SILT	120	4.0	14	9	47	43	-	16
4.76	33.8	54.2	108.8	0.7	0.1	2.0	5	silty SAND to sandy SILT	120	4.0	14	8	47	42	-	16
4.92	29.6	47.5	103.0	0.6	0.1	2.1	5	silty SAND to sandy SILT	120	4.0	12	7	42	42	-	16
5.09	24.7	39.7	101.9	0.6	0.1	2.3	5	silty SAND to sandy SILT	120	4.0	10	6	36	41	-	16
5.25	22.7	36.3	93.6	0.5	0.1	2.1	5	silty SAND to sandy SILT	120	4.0	9	6	34	40	-	16
5.41	19.5	31.3	95.5	0.5	0.1	2.4	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
5.58	18.9	30.3	-	0.5	0.1	2.9	4	clayy SILT to silty CLAY	115	2.0	15	9	-	-	1.3	15
5.74	21.4	34.3	111.1	0.6	-0.2	3.1	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.5	15
5.91	24.7	39.6	114.8	0.7	-0.2	2.9	4	clayy SILT to silty CLAY	115	2.0	20	12	-	-	1.7	15
6.07	24.5	39.3	103.3	0.6	-0.1	2.4	5	silty SAND to sandy SILT	120	4.0	10	6	36	40	-	16
6.23	22.5	35.7	103.1	0.6	-0.2	2.6	4	clayy SILT to silty CLAY	115	2.0	18	11	-	-	1.6	15
6.40	23.7	37.2	97.7	0.5	-0.1	2.2	5	silty SAND to sandy SILT	120	4.0	9	6	34	40	-	16
6.56	24.5	38.0	96.6	0.5	0.0	2.2	5	silty SAND to sandy SILT	120	4.0	9	6	35	40	-	16
6.73	18.0	28.8	-	0.5	0.1	3.1	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.3	15
6.89	26.2	39.6	99.2	0.6	0.1	2.2	5	silty SAND to sandy SILT	120	4.0	10	7	36	40	-	16
7.05	26.2	39.2	99.5	0.6	0.1	2.2	5	silty SAND to sandy SILT	120	4.0	10	7	36	40	-	16
7.22	24.5	36.2	99.4	0.6	0.1	2.4	4	clayy SILT to silty CLAY	115	2.0	18	12	-	-	1.7	15
7.38	22.2	32.5	100.0	0.6	0.0	2.6	4	clayy SILT to silty CLAY	115	2.0	16	11	-	-	1.5	15
7.55	18.0	28.9	-	0.6	-0.2	3.3	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
7.71	13.4	21.4	-	0.6	-0.1	4.3	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
7.87	10.7	17.1	-	0.5	-0.2	5.2	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
8.04	10.0	16.1	-	0.6	-0.4	5.8	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
8.20	12.4	19.8	-	0.6	0.3	4.7	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
8.37	12.2	19.6	-	0.5	-4.2	4.3	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
8.53	10.3	16.5	-	0.5	-3.8	5.5	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
8.69	11.2	17.9	-	0.6	-3.2	5.6	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.8	15
8.86	13.2	21.1	-	0.6	-2.9	5.0	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
9.02	12.7	20.4	-	0.6	-3.0	5.1	3	silty CLAY to CLAY	115	1.5	14	8	-	-	0.9	15
9.19	12.7	20.3	-	0.6	-3.0	5.3	3	silty CLAY to CLAY	115	1.5	14	8	-	-	0.9	15
9.35	17.9	28.7	-	0.6	-2.7	3.6	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
9.51	42.4	54.8	96.0	0.6	-1.7	1.5	5	silty SAND to sandy SILT	120	4.0	14	11	47	41	-	16
9.68	63.7	81.7	109.3	0.7	0.0	1.2	6	clean SAND to silty SAND	125	5.0	16	13	60	43	-	16
9.84	75.7	96.2	123.2	0.9	0.0	1.2	6	clean SAND to silty SAND	125	5.0	19	15	66	44	-	16
10.01	84.3	106.2	134.6	1.1	0.0	1.3	6	clean SAND to silty SAND	125	5.0	21	17	69	45	-	16
10.17	89.4	111.6	140.9	1.2	0.0	1.4	6	clean SAND to silty SAND	125	5.0	22	18	71	45	-	16
10.34	89.9	111.4	142.4	1.3	0.0	1.4	6	clean SAND to silty SAND	125	5.0	22	18	71	45	-	16
10.50	89.2	109.5	138.3	1.2	0.0	1.4	6	clean SAND to silty SAND	125	5.0	22	18	70	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Earth Mechanics
Data File: SDF(466).cpt
CPT Date: 12/5/2008 7:04:30 AM
GW During Test: 12 ft

Sounding ID: CPT-08-44
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	90.3	110.0	139.5	1.2	0.1	1.4	6	clean SAND to silty SAND	125	5.0	22	18	70	45	-	16
10.83	97.6	118.0	145.7	1.3	0.0	1.3	6	clean SAND to silty SAND	125	5.0	24	20	72	45	-	16
10.99	98.2	117.8	145.4	1.3	0.0	1.3	6	clean SAND to silty SAND	125	5.0	24	20	72	45	-	16
11.16	88.0	104.7	136.0	1.2	0.1	1.4	6	clean SAND to silty SAND	125	5.0	21	18	69	44	-	16
11.32	79.1	93.4	123.3	1.0	0.0	1.3	6	clean SAND to silty SAND	125	5.0	19	16	65	44	-	16
11.48	69.8	81.8	110.1	0.8	0.0	1.2	6	clean SAND to silty SAND	125	5.0	16	14	60	43	-	16
11.65	60.8	70.8	102.5	0.8	0.6	1.3	5	silty SAND to sandy SILT	120	4.0	18	15	56	42	-	16
11.81	58.8	67.9	102.0	0.8	-0.6	1.3	5	silty SAND to sandy SILT	120	4.0	17	15	54	42	-	16
11.98	49.7	57.0	99.3	0.8	-0.7	1.6	5	silty SAND to sandy SILT	120	4.0	14	12	48	41	-	16
12.14	40.0	45.7	101.8	0.8	-0.7	2.1	5	silty SAND to sandy SILT	120	4.0	11	10	41	40	-	16
12.30	34.8	39.7	94.8	0.7	-1.4	2.0	5	silty SAND to sandy SILT	120	4.0	10	9	36	39	-	16
12.47	23.1	28.3	-	0.6	-4.5	2.5	4	clayy SILT to silty CLAY	115	2.0	14	12	-	-	1.6	15
12.63	12.4	16.9	-	0.4	-6.6	3.3	3	silty CLAY to CLAY	115	1.5	11	8	-	-	0.8	15
12.80	8.8	12.0	-	0.2	-7.2	2.7	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
12.96	8.1	10.8	-	0.2	-6.8	2.3	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
13.12	6.8	9.1	-	0.1	-6.3	2.3	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.4	15
13.29	6.3	8.4	-	0.1	-6.0	2.2	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
13.45	5.9	7.9	-	0.1	-5.6	2.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
13.62	5.9	7.8	-	0.1	-5.4	1.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
13.78	5.5	7.1	-	0.1	-5.2	1.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
13.94	5.4	7.0	-	0.1	-5.0	2.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.3	15
14.11	5.5	7.1	-	0.1	-4.7	3.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.27	5.4	7.0	-	0.2	-1.5	3.4	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.3	15
14.44	5.4	6.9	-	0.1	-1.2	2.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.3	15
14.60	5.0	6.4	-	0.1	-0.8	2.7	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
14.76	4.5	5.7	-	0.1	-0.4	2.3	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
14.93	5.0	6.2	-	0.1	4.2	2.9	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.09	4.6	5.7	-	0.1	6.5	3.5	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.26	5.3	6.6	-	0.2	6.4	4.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
15.42	6.3	7.8	-	0.2	5.0	4.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.58	6.8	8.4	-	0.3	3.8	5.1	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.4	15
15.75	7.9	9.6	-	0.4	3.1	5.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.91	15.3	18.7	-	0.4	3.2	3.0	4	clayy SILT to silty CLAY	115	2.0	9	8	-	-	1.0	15
16.08	34.8	37.2	78.1	0.5	-2.7	1.4	5	silty SAND to sandy SILT	120	4.0	9	9	34	38	-	16
16.24	45.7	48.7	89.7	0.7	-4.8	1.5	5	silty SAND to sandy SILT	120	4.0	12	11	43	39	-	16
16.40	46.5	49.5	95.9	0.8	-5.0	1.7	5	silty SAND to sandy SILT	120	4.0	12	12	44	40	-	16
16.57	55.3	58.6	100.0	0.8	-4.3	1.5	5	silty SAND to sandy SILT	120	4.0	15	14	49	40	-	16
16.73	65.1	68.8	106.8	1.0	-6.0	1.5	5	silty SAND to sandy SILT	120	4.0	17	16	55	41	-	16
16.90	72.0	75.9	111.0	1.0	-6.6	1.4	5	silty SAND to sandy SILT	120	4.0	19	18	58	42	-	16
17.06	81.5	85.7	120.1	1.2	-6.3	1.4	5	silty SAND to sandy SILT	120	4.0	21	20	62	42	-	16
17.23	91.2	95.6	129.4	1.3	-5.6	1.5	5	silty SAND to sandy SILT	120	4.0	24	23	66	43	-	16
17.39	92.5	96.7	131.7	1.4	-5.0	1.5	5	silty SAND to sandy SILT	120	4.0	24	23	66	43	-	16
17.55	88.2	91.9	130.5	1.4	-4.5	1.6	5	silty SAND to sandy SILT	120	4.0	23	22	64	43	-	16
17.72	78.5	81.6	121.9	1.3	-3.9	1.6	5	silty SAND to sandy SILT	120	4.0	20	20	60	42	-	16
17.88	64.2	66.6	112.2	1.1	-3.6	1.7	5	silty SAND to sandy SILT	120	4.0	17	16	54	41	-	16
18.05	49.8	51.4	102.1	0.9	-3.2	1.9	5	silty SAND to sandy SILT	120	4.0	13	12	45	39	-	16
18.21	32.1	33.1	96.7	0.7	-3.5	2.4	4	clayy SILT to silty CLAY	115	2.0	17	16	-	-	2.2	15
18.37	14.3	16.0	-	0.4	-2.7	3.3	3	silty CLAY to CLAY	115	1.5	11	10	-	-	1.0	15
18.54	9.7	10.8	-	0.5	-2.7	6.0	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
18.70	13.0	14.4	-	0.5	-0.9	4.2	3	silty CLAY to CLAY	115	1.5	10	9	-	-	0.9	15
18.87	40.4	41.2	84.4	0.6	0.2	1.5	5	silty SAND to sandy SILT	120	4.0	10	10	38	38	-	16
19.03	62.2	63.3	92.5	0.7	-3.3	1.1	5	silty SAND to sandy SILT	120	4.0	16	16	52	40	-	16
19.19	69.7	70.8	102.9	0.9	-5.6	1.3	5	silty SAND to sandy SILT	120	4.0	18	17	56	41	-	16
19.36	69.2	70.2	108.3	1.0	-5.4	1.5	5	silty SAND to sandy SILT	120	4.0	18	17	55	41	-	16
19.52	69.7	70.5	109.7	1.1	-4.8	1.5	5	silty SAND to sandy SILT	120	4.0	18	17	55	41	-	16
19.69	74.9	75.5	114.1	1.1	-4.4	1.5	5	silty SAND to sandy SILT	120	4.0	19	19	58	41	-	16
19.85	68.5	68.8	109.5	1.1	-4.2	1.6	5	silty SAND to sandy SILT	120	4.0	17	17	55	41	-	16
20.01	68.2	68.4	105.6	1.0	-3.9	1.4	5	silty SAND to sandy SILT	120	4.0	17	17	54	41	-	16
20.18	65.4	65.5	102.8	0.9	-4.4	1.4	5	silty SAND to sandy SILT	120	4.0	16	16	53	40	-	16
20.34	51.8	51.7	102.4	0.9	-4.1	1.9	5	silty SAND to sandy SILT	120	4.0	13	13	45	39	-	16
20.51	38.0	37.8	104.7	0.9	-3.4	2.5	4	clayy SILT to silty CLAY	115	2.0	19	19	-	-	2.6	15
20.67	22.7	23.8	-	0.8	-2.6	3.5	4	clayy SILT to silty CLAY	115	2.0	12	11	-	-	1.6	15
20.83	12.8	13.4	-	0.4	-1.9	3.8	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
21.00	8.7	9.0	-	0.2	-1.2	3.2	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(466).cpt
CPT Date: 12/5/2008 7:04:30 AM
GW During Test: 12 ft

Sounding ID: CPT-08-44
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	5.6	5.8	-	0.2	8.2	3.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
21.33	6.3	6.4	-	0.1	9.4	2.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.49	6.5	6.6	-	0.1	11.1	2.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.65	6.8	6.9	-	0.2	11.9	2.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
21.82	6.9	7.0	-	0.2	11.6	2.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
21.98	6.7	6.7	-	0.2	10.6	3.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.15	6.4	6.4	-	0.2	9.8	3.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.31	6.1	6.1	-	0.2	9.7	4.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.47	6.5	6.4	-	0.2	9.9	3.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.64	7.6	7.5	-	0.2	10.5	3.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.80	8.6	8.5	-	0.2	10.8	2.9	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
22.97	35.1	33.8	62.9	0.3	5.9	0.9	5	silty SAND to sandy SILT	120	4.0	8	9	31	36	-	16
23.13	64.3	61.8	78.3	0.4	-1.7	0.6	6	clean SAND to silty SAND	125	5.0	12	13	51	40	-	16
23.30	73.4	70.4	87.9	0.5	-0.4	0.7	6	clean SAND to silty SAND	125	5.0	14	15	55	40	-	16
23.46	73.9	70.7	92.0	0.6	0.7	0.9	6	clean SAND to silty SAND	125	5.0	14	15	56	40	-	16
23.62	72.3	69.0	93.8	0.7	1.9	1.0	6	clean SAND to silty SAND	125	5.0	14	14	55	40	-	16
23.79	71.9	68.4	96.0	0.8	3.1	1.1	5	silty SAND to sandy SILT	120	4.0	17	18	54	40	-	16
23.95	74.1	70.4	98.4	0.8	3.6	1.1	5	silty SAND to sandy SILT	120	4.0	18	19	55	40	-	16
24.12	77.1	73.0	100.8	0.9	3.3	1.1	5	silty SAND to sandy SILT	120	4.0	18	19	57	40	-	16
24.28	77.7	73.4	101.4	0.9	3.3	1.1	5	silty SAND to sandy SILT	120	4.0	18	19	57	40	-	16
24.44	76.7	72.4	100.0	0.8	3.9	1.1	5	silty SAND to sandy SILT	120	4.0	18	19	56	40	-	16
24.61	76.7	72.2	99.3	0.8	4.5	1.1	5	silty SAND to sandy SILT	120	4.0	18	19	56	40	-	16
24.77	77.3	72.6	99.1	0.8	4.9	1.1	6	clean SAND to silty SAND	125	5.0	15	15	56	40	-	16
24.94	79.6	74.6	102.1	0.9	4.9	1.1	5	silty SAND to sandy SILT	120	4.0	19	20	57	40	-	16
25.10	84.8	79.3	106.2	0.9	4.8	1.1	6	clean SAND to silty SAND	125	5.0	16	17	59	41	-	16
25.26	91.5	85.3	110.4	1.0	4.8	1.1	6	clean SAND to silty SAND	125	5.0	17	18	62	41	-	16
25.43	94.8	88.2	110.5	0.9	4.9	1.0	6	clean SAND to silty SAND	125	5.0	18	19	63	41	-	16
25.59	91.2	84.7	108.0	0.9	5.2	1.0	6	clean SAND to silty SAND	125	5.0	17	18	62	41	-	16
25.76	86.1	79.7	102.9	0.8	5.3	1.0	6	clean SAND to silty SAND	125	5.0	16	17	60	41	-	16
25.92	77.5	71.6	98.8	0.8	5.4	1.1	5	silty SAND to sandy SILT	120	4.0	18	19	56	40	-	16
26.08	62.7	57.8	97.4	0.9	5.5	1.5	5	silty SAND to sandy SILT	120	4.0	14	16	49	39	-	16
26.25	41.8	38.5	102.1	0.9	5.7	2.3	5	silty SAND to sandy SILT	120	4.0	10	10	35	37	-	16
26.41	21.9	19.6	-	0.8	6.1	4.0	3	silty CLAY to CLAY	115	1.5	13	15	-	-	1.5	15
26.58	13.2	11.7	-	0.6	9.0	4.9	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
26.74	10.1	9.0	-	0.4	15.5	4.2	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
26.90	8.9	7.8	-	0.3	19.6	3.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
27.07	8.5	7.5	-	0.3	19.2	3.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
27.23	7.9	6.9	-	0.3	16.8	4.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.40	7.6	6.6	-	0.3	17.3	4.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
27.56	7.4	6.4	-	0.3	18.3	5.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
27.72	8.0	6.9	-	0.3	15.9	5.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.89	7.2	6.2	-	0.2	16.6	4.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
28.05	8.2	7.0	-	0.3	18.0	4.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
28.22	9.2	7.9	-	0.4	18.4	5.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.38	22.9	19.5	-	0.6	15.7	2.7	4	clayy SILT to silty CLAY	115	2.0	10	11	-	-	1.6	15
28.54	17.4	14.8	-	0.5	2.9	3.0	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.2	15
28.71	10.5	8.9	-	0.4	-0.5	4.8	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
28.87	8.3	7.0	-	0.4	1.3	6.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
29.04	8.2	6.9	-	0.3	2.7	4.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
29.20	7.6	6.4	-	0.3	3.5	5.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
29.36	7.8	6.5	-	0.5	4.6	8.2	2	Organic SOILS - Peats	100	1.0	7	8	-	-	0.7	10
29.53	12.9	10.8	-	0.5	5.6	4.4	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.8	15
29.69	20.4	16.9	-	0.5	2.7	2.6	4	clayy SILT to silty CLAY	115	2.0	8	10	-	-	1.4	15
29.86	27.4	22.7	-	0.6	-0.9	2.2	4	clayy SILT to silty CLAY	115	2.0	11	14	-	-	1.9	15
30.02	26.2	21.6	-	0.7	-1.3	2.8	4	clayy SILT to silty CLAY	115	2.0	11	13	-	-	1.8	15
30.19	27.6	22.6	-	0.6	-5.0	2.5	4	clayy SILT to silty CLAY	115	2.0	11	14	-	-	1.9	15
30.35	15.7	12.9	-	0.4	-8.1	3.0	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
30.51	9.9	8.1	-	0.4	-8.3	4.3	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
30.68	9.3	7.6	-	0.3	-7.8	3.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.84	8.0	6.5	-	0.3	-7.4	4.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.01	7.2	5.8	-	0.2	-6.9	3.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
31.17	6.8	5.4	-	0.2	-3.7	4.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
31.33	6.7	5.3	-	0.3	-3.0	5.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
31.50	7.3	5.9	-	0.3	-2.3	6.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(466).cpt
CPT Date: 12/5/2008 7:04:30 AM
GW During Test: 12 ft

Sounding ID: CPT-08-44
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	9.8	7.8	-	0.3	-1.7	3.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
31.83	7.0	5.6	-	0.2	-1.6	4.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
31.99	6.7	5.3	-	0.2	-0.7	4.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
32.15	6.8	5.3	-	0.2	-0.1	4.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
32.32	6.5	5.1	-	0.2	0.3	4.8	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.4	15
32.48	6.9	5.4	-	0.2	0.9	4.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
32.65	6.9	5.4	-	0.2	1.5	4.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
32.81	7.6	5.9	-	0.3	2.1	5.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.97	11.6	9.0	-	0.4	2.7	4.2	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
33.14	23.2	17.9	-	0.5	2.1	2.3	4	clayy SILT to silty CLAY	115	2.0	9	12	-	-	1.6	15
33.30	22.4	17.3	-	0.5	2.2	2.6	4	clayy SILT to silty CLAY	115	2.0	9	11	-	-	1.5	15
33.47	26.2	20.1	-	0.7	-2.0	2.9	4	clayy SILT to silty CLAY	115	2.0	10	13	-	-	1.8	15
33.63	20.6	15.7	-	0.7	-1.1	3.8	3	silty CLAY to CLAY	115	1.5	10	14	-	-	1.4	15
33.79	46.2	39.2	92.0	0.8	-1.6	1.8	5	silty SAND to sandy SILT	120	4.0	10	12	36	36	-	16
33.96	54.8	46.4	95.2	0.9	-3.8	1.7	5	silty SAND to sandy SILT	120	4.0	12	14	42	37	-	16
34.12	58.1	49.1	92.2	0.9	-3.4	1.5	5	silty SAND to sandy SILT	120	4.0	12	15	44	37	-	16
34.29	55.0	46.4	87.4	0.8	-2.8	1.4	5	silty SAND to sandy SILT	120	4.0	12	14	42	37	-	16
34.45	34.2	25.7	-	0.7	5.4	2.2	4	clayy SILT to silty CLAY	115	2.0	13	17	-	-	2.3	15
34.61	23.3	17.4	-	0.6	2.2	2.8	4	clayy SILT to silty CLAY	115	2.0	9	12	-	-	1.6	15
34.78	13.2	9.8	-	0.4	3.3	3.7	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
34.94	8.1	6.0	-	0.3	5.8	4.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
35.11	6.1	4.5	-	0.2	9.9	3.7	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.4	15
35.27	5.3	3.9	-	0.1	12.5	4.1	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	15
35.43	5.2	3.9	-	0.1	15.1	3.6	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
35.60	5.6	4.1	-	0.1	17.6	3.6	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	15
35.76	6.0	4.4	-	0.2	20.0	4.0	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	15
35.93	6.5	4.7	-	0.2	21.7	4.0	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.4	15
36.09	7.0	5.1	-	0.2	23.9	3.9	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.4	15
36.26	7.4	5.4	-	0.2	24.8	4.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
36.42	7.7	5.5	-	0.2	25.7	4.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
36.58	8.0	5.8	-	0.3	27.2	4.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
36.75	8.3	6.0	-	0.3	29.9	4.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
36.91	8.4	6.0	-	0.3	25.5	4.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
37.08	8.4	6.0	-	0.2	27.3	3.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
37.24	8.5	6.1	-	0.3	29.4	4.0	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
37.40	8.9	6.3	-	0.3	30.2	3.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
37.57	9.5	6.8	-	0.2	32.4	3.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
37.73	9.4	6.7	-	0.3	33.4	3.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
37.90	10.1	7.1	-	0.3	34.2	3.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
38.06	10.8	7.5	-	0.4	35.5	4.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.22	19.2	13.4	-	0.4	33.7	2.6	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
38.39	20.5	14.3	-	0.4	6.5	2.2	4	clayy SILT to silty CLAY	115	2.0	7	10	-	-	1.4	15
38.55	11.9	8.3	-	0.4	3.2	4.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.72	11.0	7.6	-	0.4	6.2	4.3	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.88	10.8	7.5	-	0.4	7.7	4.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
39.04	10.6	7.3	-	0.4	8.8	4.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
39.21	11.0	7.5	-	0.3	10.1	3.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
39.37	13.5	9.2	-	0.5	11.6	4.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
39.54	41.2	33.0	90.5	0.8	9.8	2.0	5	silty SAND to sandy SILT	120	4.0	8	10	30	34	-	16
39.70	44.1	35.3	92.0	0.8	5.8	2.0	5	silty SAND to sandy SILT	120	4.0	9	11	33	35	-	16
39.86	45.9	36.7	101.9	1.0	0.9	2.4	4	clayy SILT to silty CLAY	115	2.0	18	23	-	-	3.2	15
40.03	35.3	23.9	-	1.0	-4.4	3.0	4	clayy SILT to silty CLAY	115	2.0	12	18	-	-	2.4	15
40.19	25.8	17.4	-	0.8	-4.4	3.4	3	silty CLAY to CLAY	115	1.5	12	17	-	-	1.7	15
40.36	43.6	34.8	93.5	0.9	-5.2	2.1	5	silty SAND to sandy SILT	120	4.0	9	11	32	35	-	16
40.52	28.5	19.1	-	0.8	-6.0	3.2	3	silty CLAY to CLAY	115	1.5	13	19	-	-	1.9	15
40.68	17.2	11.5	-	0.7	-6.2	4.6	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
40.85	14.1	9.4	-	0.5	-5.5	4.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
41.01	14.1	9.4	-	0.6	-5.0	5.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
41.18	16.6	11.0	-	0.6	-2.7	4.5	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
41.34	43.8	34.6	100.4	1.0	-2.3	2.4	4	clayy SILT to silty CLAY	115	2.0	17	22	-	-	3.0	15
41.50	25.5	16.8	-	0.9	-3.1	3.8	3	silty CLAY to CLAY	115	1.5	11	17	-	-	1.7	15
41.67	16.3	10.7	-	0.7	-2.3	5.0	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
41.83	15.2	9.9	-	0.5	-1.7	4.0	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
42.00	15.1	9.9	-	0.5	-1.3	4.0	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(466).cpt
CPT Date: 12/5/2008 7:04:30 AM
GW During Test: 12 ft

Sounding ID: CPT-08-44
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	14.9	9.7	-	0.5	-0.9	4.2	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
42.32	15.0	9.7	-	0.5	-0.6	4.2	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
42.49	15.2	9.9	-	0.5	-0.3	4.1	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
42.65	15.3	9.9	-	0.6	0.0	4.3	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
42.82	15.3	9.8	-	0.6	0.1	4.4	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
42.98	15.7	10.1	-	0.5	0.4	4.0	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
43.15	15.4	9.8	-	0.5	0.6	3.7	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
43.31	14.9	9.5	-	0.5	0.9	3.9	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
43.47	16.3	10.4	-	0.5	1.3	3.6	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
43.64	18.5	11.7	-	0.5	1.5	3.2	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
43.80	16.5	10.5	-	0.5	1.5	3.9	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
43.97	16.1	10.2	-	0.6	1.8	4.6	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
44.13	16.3	10.3	-	0.7	1.6	5.0	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
44.29	15.9	10.0	-	0.7	1.1	5.1	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
44.46	16.5	10.3	-	0.7	3.6	4.9	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
44.62	17.5	10.9	-	0.6	3.5	4.0	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.1	15
44.79	16.9	10.5	-	0.7	3.4	4.7	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
44.95	22.4	13.9	-	0.7	4.3	3.5	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.5	15
45.11	95.3	72.9	93.0	0.8	0.3	0.8	6	clean SAND to silty SAND	125	5.0	15	19	57	39	-	16
45.28	163.0	124.5	135.7	1.3	-5.7	0.8	6	clean SAND to silty SAND	125	5.0	25	33	74	42	-	16
45.44	203.8	155.3	165.2	1.8	-5.2	0.9	6	clean SAND to silty SAND	125	5.0	31	41	82	43	-	16
45.61	225.9	172.0	183.5	2.3	-4.6	1.0	6	clean SAND to silty SAND	125	5.0	34	45	85	43	-	16
45.77	250.2	190.1	199.1	2.5	-4.0	1.0	6	clean SAND to silty SAND	125	5.0	38	50	88	44	-	16
45.93	272.9	207.1	212.0	2.7	-3.5	1.0	6	clean SAND to silty SAND	125	5.0	41	55	91	44	-	16
46.10	285.0	215.9	218.3	2.8	-3.0	1.0	6	clean SAND to silty SAND	125	5.0	43	57	92	44	-	16
46.26	277.6	210.0	215.2	2.8	-2.5	1.0	6	clean SAND to silty SAND	125	5.0	42	56	91	44	-	16
46.43	272.4	205.7	214.1	2.9	-1.9	1.1	6	clean SAND to silty SAND	125	5.0	41	54	91	44	-	16
46.59	274.3	206.9	216.7	3.0	-1.4	1.1	6	clean SAND to silty SAND	125	5.0	41	55	91	44	-	16
46.75	274.1	206.4	217.2	3.1	-1.0	1.1	6	clean SAND to silty SAND	125	5.0	41	55	91	44	-	16
46.92	276.5	207.9	216.2	2.9	-0.6	1.1	6	clean SAND to silty SAND	125	5.0	42	55	91	44	-	16
47.08	289.0	216.9	218.2	2.7	-0.2	1.0	6	clean SAND to silty SAND	125	5.0	43	58	93	44	-	16
47.25	303.9	227.7	227.7	2.5	0.2	0.8	6	clean SAND to silty SAND	125	5.0	46	61	94	44	-	16
47.41	314.0	234.9	234.9	2.7	0.6	0.9	6	clean SAND to silty SAND	125	5.0	47	63	95	45	-	16
47.57	300.2	224.3	224.2	2.8	2.5	1.0	6	clean SAND to silty SAND	125	5.0	45	60	94	44	-	16
47.74	286.2	213.5	217.4	2.8	2.2	1.0	6	clean SAND to silty SAND	125	5.0	43	57	92	44	-	16
47.90	264.5	197.0	206.8	2.8	2.3	1.1	6	clean SAND to silty SAND	125	5.0	39	53	89	44	-	16
48.07	226.6	168.5	189.0	2.8	2.2	1.3	6	clean SAND to silty SAND	125	5.0	34	45	84	43	-	16
48.23	191.8	142.5	172.2	2.8	2.2	1.5	6	clean SAND to silty SAND	125	5.0	28	38	79	42	-	16
48.39	176.2	130.6	168.5	3.0	2.8	1.7	6	clean SAND to silty SAND	125	5.0	26	35	76	42	-	16
48.56	168.1	124.5	167.1	3.1	3.2	1.9	5	silty SAND to sandy SILT	120	4.0	31	42	74	41	-	16
48.72	155.8	115.2	166.0	3.2	1.9	2.1	5	silty SAND to sandy SILT	120	4.0	29	39	72	41	-	16
48.89	132.1	97.5	161.8	3.2	0.3	2.5	5	silty SAND to sandy SILT	120	4.0	24	33	66	40	-	16
49.05	94.0	69.3	155.5	2.9	-0.4	3.2	4	clayy SILT to silty CLAY	115	2.0	35	47	-	-	6.5	15
49.22	55.2	31.7	-	2.0	-1.0	3.8	4	clayy SILT to silty CLAY	115	2.0	16	28	-	-	3.8	15
49.38	36.2	20.7	-	1.2	-1.4	3.5	3	silty CLAY to CLAY	115	1.5	14	24	-	-	2.5	15
49.54	25.2	14.4	-	0.6	-0.2	2.8	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
49.71	22.1	12.6	-	0.6	1.5	3.4	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
49.87	26.3	15.0	-	0.8	2.4	3.4	3	silty CLAY to CLAY	115	1.5	10	18	-	-	1.8	15
50.04	35.5	20.2	-	1.3	2.9	4.1	3	silty CLAY to CLAY	115	1.5	13	24	-	-	2.4	15
50.20	55.7	40.7	109.2	1.3	2.6	2.5	4	clayy SILT to silty CLAY	115	2.0	20	28	-	-	3.8	15
50.36	71.2	52.0	108.5	1.4	3.8	2.0	5	silty SAND to sandy SILT	120	4.0	13	18	45	36	-	16
50.53	69.0	50.3	114.5	1.5	0.6	2.3	5	silty SAND to sandy SILT	120	4.0	13	17	44	36	-	16
50.69	72.1	52.5	108.2	1.4	0.3	2.0	5	silty SAND to sandy SILT	120	4.0	13	18	46	36	-	16
50.86	80.5	58.6	123.1	1.8	-4.0	2.4	5	silty SAND to sandy SILT	120	4.0	15	20	49	37	-	16
51.02	70.9	51.5	133.2	2.1	-4.7	3.1	4	clayy SILT to silty CLAY	115	2.0	26	35	-	-	4.9	15
51.18	56.6	31.5	-	2.0	-2.3	3.8	4	clayy SILT to silty CLAY	115	2.0	16	28	-	-	3.9	15
51.35	43.8	24.4	-	1.5	-4.1	3.8	4	clayy SILT to silty CLAY	115	2.0	12	22	-	-	3.0	15
51.51	149.9	108.5	132.9	1.7	-3.8	1.2	6	clean SAND to silty SAND	125	5.0	22	30	70	40	-	16
51.68	204.9	148.1	160.0	1.9	-3.7	0.9	6	clean SAND to silty SAND	125	5.0	30	41	80	42	-	16
51.84	237.9	171.7	181.9	2.3	-3.3	1.0	6	clean SAND to silty SAND	125	5.0	34	48	85	43	-	16
52.00	257.7	185.7	193.9	2.5	-2.8	1.0	6	clean SAND to silty SAND	125	5.0	37	52	87	43	-	16
52.17	267.5	192.5	202.3	2.8	-2.5	1.0	6	clean SAND to silty SAND	125	5.0	38	53	89	43	-	16
52.33	277.8	199.6	209.1	2.9	-2.1	1.1	6	clean SAND to silty SAND	125	5.0	40	56	90	43	-	16
52.50	294.1	211.1	218.2	3.1	-1.8	1.1	6	clean SAND to silty SAND	125	5.0	42	59	92	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(466).cpt
CPT Date: 12/5/2008 7:04:30 AM
GW During Test: 12 ft

Sounding ID: CPT-08-44
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	315.4	226.0	231.4	3.4	-1.4	1.1	6	clean SAND to silty SAND	125	5.0	45	63	94	44	-	16
52.82	340.0	243.3	243.4	3.5	-1.0	1.0	6	clean SAND to silty SAND	125	5.0	49	68	95	44	-	16
52.99	347.7	248.5	248.5	3.1	-0.7	0.9	6	clean SAND to silty SAND	125	5.0	50	70	95	45	-	16
53.15	358.0	255.4	255.4	2.9	-0.3	0.8	6	clean SAND to silty SAND	125	5.0	51	72	95	45	-	16
53.32	364.7	259.9	259.9	2.8	7.8	0.8	6	clean SAND to silty SAND	125	5.0	52	73	95	45	-	16
53.48	375.8	267.4	267.4	2.8	6.4	0.8	6	clean SAND to silty SAND	125	5.0	53	75	95	45	-	16
53.64	372.9	265.0	265.0	2.7	5.9	0.7	6	clean SAND to silty SAND	125	5.0	53	75	95	45	-	16
53.81	356.0	252.6	252.6	2.2	5.1	0.6	6	clean SAND to silty SAND	125	5.0	51	71	95	45	-	16
53.97	344.0	243.8	243.8	2.4	4.9	0.7	6	clean SAND to silty SAND	125	5.0	49	69	95	44	-	16
54.14	352.9	249.8	249.8	2.5	6.0	0.7	6	clean SAND to silty SAND	125	5.0	50	71	95	44	-	16
54.30	363.7	257.0	257.0	2.7	5.9	0.8	6	clean SAND to silty SAND	125	5.0	51	73	95	45	-	16
54.46	389.4	274.9	274.9	2.8	5.8	0.7	6	clean SAND to silty SAND	125	5.0	55	78	95	45	-	16
54.63	388.0	273.5	273.5	2.6	4.8	0.7	6	clean SAND to silty SAND	125	5.0	55	78	95	45	-	16
54.79	385.3	271.2	271.2	2.5	5.0	0.7	6	clean SAND to silty SAND	125	5.0	54	77	95	45	-	16
54.96	376.2	264.5	264.5	2.5	5.2	0.7	6	clean SAND to silty SAND	125	5.0	53	75	95	45	-	16
55.12	372.1	261.2	261.2	2.6	5.0	0.7	6	clean SAND to silty SAND	125	5.0	52	74	95	45	-	16
55.28	379.2	265.8	265.8	2.6	5.0	0.7	6	clean SAND to silty SAND	125	5.0	53	76	95	45	-	16
55.45	385.2	269.7	269.7	2.5	4.6	0.7	6	clean SAND to silty SAND	125	5.0	54	77	95	45	-	16
55.61	384.5	268.9	268.9	2.2	4.3	0.6	6	clean SAND to silty SAND	125	5.0	54	77	95	45	-	16
55.78	386.4	269.8	269.8	2.2	4.1	0.6	6	clean SAND to silty SAND	125	5.0	54	77	95	45	-	16
55.94	388.9	271.2	271.2	2.1	3.8	0.5	6	clean SAND to silty SAND	125	5.0	54	78	95	45	-	16
56.11	372.4	259.4	259.4	1.9	4.1	0.5	6	clean SAND to silty SAND	125	5.0	52	74	95	45	-	16
56.27	372.0	258.7	258.7	2.0	4.0	0.5	6	clean SAND to silty SAND	125	5.0	52	74	95	45	-	16
56.43	376.8	261.7	261.7	1.9	4.0	0.5	6	clean SAND to silty SAND	125	5.0	52	75	95	45	-	16
56.60	371.1	257.4	257.4	2.2	4.5	0.6	6	clean SAND to silty SAND	125	5.0	51	74	95	44	-	16
56.76	361.4	250.4	250.4	2.4	4.5	0.7	6	clean SAND to silty SAND	125	5.0	50	72	95	44	-	16
56.93	337.9	233.8	233.8	3.0	4.6	0.9	6	clean SAND to silty SAND	125	5.0	47	68	95	44	-	16
57.09	321.2	222.0	228.6	3.5	5.1	1.1	6	clean SAND to silty SAND	125	5.0	44	64	93	44	-	16
57.25	320.1	220.9	237.8	4.2	5.3	1.3	6	clean SAND to silty SAND	125	5.0	44	64	93	44	-	16
57.42	308.5	212.6	238.5	4.8	7.3	1.6	6	clean SAND to silty SAND	125	5.0	43	62	92	44	-	16
57.58	295.8	203.6	235.3	5.0	6.6	1.7	6	clean SAND to silty SAND	125	5.0	41	59	90	43	-	16
57.75	322.6	221.8	250.0	5.3	6.0	1.6	6	clean SAND to silty SAND	125	5.0	44	65	93	44	-	16
57.91	353.4	242.6	269.2	5.8	4.6	1.7	6	clean SAND to silty SAND	125	5.0	49	71	95	44	-	16
58.07	372.6	255.5	282.4	6.2	3.1	1.7	6	clean SAND to silty SAND	125	5.0	51	75	95	44	-	16
58.24	389.1	266.4	292.7	6.5	2.6	1.7	6	clean SAND to silty SAND	125	5.0	53	78	95	45	-	16
58.40	401.1	274.3	291.1	5.9	2.3	1.5	6	clean SAND to silty SAND	125	5.0	55	80	95	45	-	16
58.57	403.5	275.6	281.3	5.0	4.9	1.3	6	clean SAND to silty SAND	125	5.0	55	81	95	45	-	16
58.73	404.7	276.1	276.1	3.7	3.8	0.9	6	clean SAND to silty SAND	125	5.0	55	81	95	45	-	16
58.89	413.3	281.6	281.6	2.7	3.0	0.6	6	clean SAND to silty SAND	125	5.0	56	83	95	45	-	16
59.06	399.8	272.1	272.1	2.3	2.7	0.6	6	clean SAND to silty SAND	125	5.0	54	80	95	45	-	16
59.22	369.8	251.3	251.3	2.7	2.3	0.7	6	clean SAND to silty SAND	125	5.0	50	74	95	44	-	16
59.39	356.8	242.2	242.2	2.9	2.0	0.8	6	clean SAND to silty SAND	125	5.0	48	71	95	44	-	16
59.55	367.1	248.8	248.8	3.2	2.4	0.9	6	clean SAND to silty SAND	125	5.0	50	73	95	44	-	16
59.71	385.5	261.0	261.0	3.2	2.4	0.8	6	clean SAND to silty SAND	125	5.0	52	77	95	44	-	16
59.88	403.2	272.6	272.6	3.4	2.5	0.9	6	clean SAND to silty SAND	125	5.0	55	81	95	45	-	16
60.04	417.0	281.6	281.6	3.2	2.6	0.8	6	clean SAND to silty SAND	125	5.0	56	83	95	45	-	16
60.21	424.3	286.2	286.2	2.6	2.6	0.6	6	clean SAND to silty SAND	125	5.0	57	85	95	45	-	16
60.37	436.8	294.3	294.3	2.7	2.6	0.6	6	clean SAND to silty SAND	125	5.0	59	87	95	45	-	16
60.53	445.3	299.7	299.7	2.6	11.5	0.6	6	clean SAND to silty SAND	125	5.0	60	89	95	45	-	16
60.70	468.4	314.8	314.8	2.3	8.4	0.5	6	clean SAND to silty SAND	125	5.0	63	94	95	45	-	16
60.86	470.9	316.0	316.0	2.2	6.3	0.5	7	grvly SAND to dense SAND	130	6.0	53	78	95	45	-	16
61.03	458.2	307.1	307.1	2.6	4.0	0.6	6	clean SAND to silty SAND	125	5.0	61	92	95	45	-	16
61.19	379.9	254.3	254.3	2.7	4.9	0.7	6	clean SAND to silty SAND	125	5.0	51	76	95	44	-	16
61.35	384.6	257.1	257.1	1.5	3.2	0.4	6	clean SAND to silty SAND	125	5.0	51	77	95	44	-	16
61.52	373.8	249.6	249.6	2.6	-1.4	0.7	6	clean SAND to silty SAND	125	5.0	50	75	95	44	-	16
61.68	381.6	254.6	254.6	2.4	-2.0	0.6	6	clean SAND to silty SAND	125	5.0	51	76	95	44	-	16
61.85	360.7	240.3	240.3	2.4	-2.2	0.7	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
62.01	365.0	242.9	242.9	2.8	-1.7	0.8	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
62.17	371.5	246.9	246.9	3.1	-1.3	0.8	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
62.34	380.5	252.6	252.6	3.4	-1.0	0.9	6	clean SAND to silty SAND	125	5.0	51	76	95	44	-	16
62.50	380.2	252.1	252.1	3.8	-0.7	1.0	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
62.67	372.9	247.0	249.3	4.0	-0.4	1.1	6	clean SAND to silty SAND	125	5.0	49	75	95	44	-	16
62.83	374.6	247.8	250.6	4.1	-0.1	1.1	6	clean SAND to silty SAND	125	5.0	50	75	95	44	-	16
63.00	364.7	240.9	249.6	4.3	0.1	1.2	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(466).cpt
CPT Date: 12/5/2008 7:04:30 AM
GW During Test: 12 ft

Sounding ID: CPT-08-44
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	351.3	231.8	241.4	4.1	0.3	1.2	6	clean SAND to silty SAND	125	5.0	46	70	95	44	-	16
63.32	335.2	220.9	235.3	4.2	0.4	1.3	6	clean SAND to silty SAND	125	5.0	44	67	93	43	-	16
63.49	343.6	226.2	229.9	3.5	0.6	1.0	6	clean SAND to silty SAND	125	5.0	45	69	94	44	-	16
63.65	337.4	221.8	222.5	3.2	0.7	1.0	6	clean SAND to silty SAND	125	5.0	44	67	93	43	-	16
63.82	364.1	239.2	239.2	3.3	0.9	0.9	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
63.98	359.9	236.1	236.1	3.4	4.9	1.0	6	clean SAND to silty SAND	125	5.0	47	72	95	44	-	16
64.14	371.0	243.1	243.1	3.5	5.2	1.0	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
64.31	368.1	240.9	241.4	3.8	5.5	1.0	6	clean SAND to silty SAND	125	5.0	48	74	95	44	-	16
64.47	357.8	233.9	235.3	3.6	5.6	1.0	6	clean SAND to silty SAND	125	5.0	47	72	95	44	-	16
64.64	348.8	227.7	230.9	3.6	5.8	1.0	6	clean SAND to silty SAND	125	5.0	46	70	94	44	-	16
64.80	342.1	223.1	227.7	3.5	6.1	1.0	6	clean SAND to silty SAND	125	5.0	45	68	93	43	-	16
64.96	328.4	213.9	223.3	3.6	6.2	1.1	6	clean SAND to silty SAND	125	5.0	43	66	92	43	-	16
65.13	312.3	203.2	210.8	3.2	6.4	1.0	6	clean SAND to silty SAND	125	5.0	41	62	90	43	-	16
65.29	308.4	200.4	204.4	2.9	6.6	0.9	6	clean SAND to silty SAND	125	5.0	40	62	90	43	-	16
65.46	307.1	199.4	211.8	3.5	6.8	1.1	6	clean SAND to silty SAND	125	5.0	40	61	90	43	-	16
65.62	286.7	185.9	187.7	2.3	6.8	0.8	6	clean SAND to silty SAND	125	5.0	37	57	87	42	-	16
65.78	237.4	153.8	191.9	4.2	7.1	1.8	6	clean SAND to silty SAND	125	5.0	31	47	81	41	-	16
65.95	133.4	86.3	135.4	2.5	6.3	1.9	5	silty SAND to sandy SILT	120	4.0	22	33	62	38	-	16
66.11	175.1	113.2	133.1	1.8	19.8	1.0	6	clean SAND to silty SAND	125	5.0	23	35	71	40	-	16
66.28	251.9	162.6	162.6	1.4	10.3	0.6	6	clean SAND to silty SAND	125	5.0	33	50	83	42	-	16
66.44	217.4	140.2	153.1	1.9	9.7	0.9	6	clean SAND to silty SAND	125	5.0	28	43	78	41	-	16
66.60	144.7	93.2	122.5	1.8	10.4	1.3	6	clean SAND to silty SAND	125	5.0	19	29	65	39	-	16
66.77	149.8	96.4	140.4	2.6	11.9	1.8	5	silty SAND to sandy SILT	120	4.0	24	37	66	39	-	16
66.93	236.6	152.1	185.4	3.8	10.6	1.6	6	clean SAND to silty SAND	125	5.0	30	47	81	41	-	16
67.10	316.4	203.1	217.7	3.8	15.1	1.2	6	clean SAND to silty SAND	125	5.0	41	63	90	43	-	16
67.26	357.6	229.3	236.0	3.9	15.6	1.1	6	clean SAND to silty SAND	125	5.0	46	72	94	43	-	16
67.42	377.4	241.7	241.7	2.7	14.5	0.7	6	clean SAND to silty SAND	125	5.0	48	75	95	44	-	16
67.59	422.4	270.3	270.3	3.1	7.5	0.7	6	clean SAND to silty SAND	125	5.0	54	84	95	44	-	16
67.75	369.0	235.9	235.9	3.4	15.6	0.9	6	clean SAND to silty SAND	125	5.0	47	74	95	44	-	16
67.92	349.1	222.9	232.1	4.0	14.4	1.1	6	clean SAND to silty SAND	125	5.0	45	70	93	43	-	16
68.08	340.1	216.9	232.2	4.3	10.8	1.3	6	clean SAND to silty SAND	125	5.0	43	68	93	43	-	16
68.24	351.9	224.2	231.2	3.8	11.2	1.1	6	clean SAND to silty SAND	125	5.0	45	70	94	43	-	16
68.41	318.9	202.9	205.5	2.9	8.0	0.9	6	clean SAND to silty SAND	125	5.0	41	64	90	43	-	16
68.57	236.4	150.3	165.7	2.4	13.1	1.0	6	clean SAND to silty SAND	125	5.0	30	47	80	41	-	16
68.74	214.0	135.9	169.2	3.3	16.7	1.6	6	clean SAND to silty SAND	125	5.0	27	43	77	41	-	16
68.90	292.7	185.6	253.0	7.8	7.4	2.7	5	silty SAND to sandy SILT	120	4.0	46	73	87	42	-	16
69.07	317.6	201.3	237.3	5.7	4.4	1.8	6	clean SAND to silty SAND	125	5.0	40	64	90	43	-	16
69.23	413.5	261.7	271.3	5.3	9.0	1.3	6	clean SAND to silty SAND	125	5.0	52	83	95	44	-	16
69.39	330.7	209.1	215.0	3.3	17.1	1.0	6	clean SAND to silty SAND	125	5.0	42	66	91	43	-	16
69.56	396.3	250.2	250.2	3.2	15.9	0.8	6	clean SAND to silty SAND	125	5.0	50	79	95	44	-	16
69.72	381.9	240.9	240.2	3.8	12.5	1.0	6	clean SAND to silty SAND	125	5.0	48	76	95	44	-	16
69.89	343.0	216.1	216.1	2.8	12.4	0.8	6	clean SAND to silty SAND	125	5.0	43	69	92	43	-	16
70.05	345.0	217.1	217.1	2.7	12.5	0.8	6	clean SAND to silty SAND	125	5.0	43	69	93	43	-	16
70.21	374.6	235.6	235.6	3.7	11.9	1.0	6	clean SAND to silty SAND	125	5.0	47	75	95	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(420).cpt
CPT Date: 11/19/2008 12:45:46 PM
GW During Test: 12 ft

Sounding ID: CPT-08-45
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	81.4	130.5	130.5	0.2	0.0	0.3	6	clean SAND to silty SAND	125	5.0	26	16	76	48	-	16
0.49	69.9	112.1	117.0	0.4	0.0	0.5	6	clean SAND to silty SAND	125	5.0	22	14	71	48	-	16
0.66	78.6	126.1	126.1	0.3	0.0	0.4	6	clean SAND to silty SAND	125	5.0	25	16	75	48	-	16
0.82	5.4	8.6	-	0.1	0.0	1.0	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
0.98	2.2	3.5	-	0.0	0.1	0.4	1	sensitive fine SOIL	115	2.0	2	1	-	-	0.1	15
1.15	2.1	3.4	-	0.1	0.1	4.1	3	silty CLAY to CLAY	115	1.5	2	1	-	-	0.1	15
1.31	7.2	11.5	-	0.2	0.1	2.4	3	silty CLAY to CLAY	115	1.5	8	5	-	-	0.5	15
1.48	41.8	67.0	115.9	0.8	0.2	1.9	5	silty SAND to sandy SILT	120	4.0	17	10	54	48	-	16
1.64	128.6	206.2	221.2	1.6	-0.1	1.2	6	clean SAND to silty SAND	125	5.0	41	26	91	48	-	16
1.80	123.7	198.5	236.1	2.3	0.2	1.9	6	clean SAND to silty SAND	125	5.0	40	25	90	48	-	16
1.97	88.6	142.1	240.7	3.2	0.1	3.6	8	stiff SAND to clayy SAND	115	1.0	100	89	-	-	5.9	16
2.13	74.3	119.1	233.9	3.1	-0.1	4.1	9	very stiff fine SOIL	120	2.0	60	37	73	48	-	30
2.30	54.6	87.6	195.3	2.2	-0.2	4.0	4	clayy SILT to silty CLAY	115	2.0	44	27	-	-	3.9	15
2.46	44.7	71.7	164.7	1.6	-0.1	3.5	4	clayy SILT to silty CLAY	115	2.0	36	22	-	-	3.2	15
2.62	40.4	64.8	148.2	1.3	-0.1	3.2	4	clayy SILT to silty CLAY	115	2.0	32	20	-	-	2.8	15
2.79	34.1	54.8	148.3	1.2	0.0	3.7	4	clayy SILT to silty CLAY	115	2.0	27	17	-	-	2.4	15
2.95	41.4	66.3	137.6	1.1	0.2	2.7	5	silty SAND to sandy SILT	120	4.0	17	10	53	45	-	16
3.12	40.7	65.3	140.4	1.2	0.2	2.9	5	silty SAND to sandy SILT	120	4.0	16	10	53	44	-	16
3.28	45.0	72.2	151.6	1.4	0.6	3.0	5	silty SAND to sandy SILT	120	4.0	18	11	56	45	-	16
3.45	52.8	84.7	153.2	1.4	0.3	2.6	5	silty SAND to sandy SILT	120	4.0	21	13	62	45	-	16
3.61	41.0	65.8	147.5	1.3	-1.2	3.1	4	clayy SILT to silty CLAY	115	2.0	33	21	-	-	2.9	15
3.77	29.9	48.0	125.8	0.9	-3.9	3.0	4	clayy SILT to silty CLAY	115	2.0	24	15	-	-	2.1	15
3.94	25.1	40.2	107.8	0.6	-5.0	2.6	4	clayy SILT to silty CLAY	115	2.0	20	13	-	-	1.8	15
4.10	25.4	40.7	133.6	1.0	-4.6	3.8	4	clayy SILT to silty CLAY	115	2.0	20	13	-	-	1.8	15
4.27	48.8	78.3	140.1	1.2	-4.5	2.4	5	silty SAND to sandy SILT	120	4.0	20	12	59	45	-	16
4.43	39.1	62.7	148.4	1.3	-3.4	3.3	4	clayy SILT to silty CLAY	115	2.0	31	20	-	-	2.7	15
4.59	49.5	79.3	149.9	1.3	-2.6	2.7	5	silty SAND to sandy SILT	120	4.0	20	12	59	44	-	16
4.76	47.4	75.9	162.5	1.5	-5.4	3.3	5	silty SAND to sandy SILT	120	4.0	19	12	58	44	-	16
4.92	27.7	44.4	144.2	1.1	-8.5	4.1	4	clayy SILT to silty CLAY	115	2.0	22	14	-	-	1.9	15
5.09	20.2	32.3	-	0.6	-8.6	3.1	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
5.25	19.5	31.2	101.3	0.5	-8.4	2.8	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
5.41	29.0	46.5	111.5	0.7	-8.3	2.5	5	silty SAND to sandy SILT	120	4.0	12	7	42	41	-	16
5.58	31.6	50.6	121.5	0.8	-7.8	2.7	5	silty SAND to sandy SILT	120	4.0	13	8	45	42	-	16
5.74	35.3	56.7	127.3	0.9	-7.1	2.7	5	silty SAND to sandy SILT	120	4.0	14	9	48	42	-	16
5.91	37.6	60.4	122.8	0.9	-5.8	2.4	5	silty SAND to sandy SILT	120	4.0	15	9	50	42	-	16
6.07	34.4	55.2	120.3	0.8	-0.5	2.5	5	silty SAND to sandy SILT	120	4.0	14	9	47	42	-	16
6.23	30.1	48.1	124.3	0.9	-0.8	2.9	4	clayy SILT to silty CLAY	115	2.0	24	15	-	-	2.1	15
6.40	25.8	40.8	123.5	0.8	-1.2	3.3	4	clayy SILT to silty CLAY	115	2.0	20	13	-	-	1.8	15
6.56	25.2	39.3	115.1	0.7	-1.2	3.0	4	clayy SILT to silty CLAY	115	2.0	20	13	-	-	1.8	15
6.73	25.1	38.7	106.2	0.6	-0.5	2.6	4	clayy SILT to silty CLAY	115	2.0	19	13	-	-	1.8	15
6.89	24.4	37.2	101.3	0.6	-1.0	2.4	4	clayy SILT to silty CLAY	115	2.0	19	12	-	-	1.7	15
7.05	24.4	36.7	103.3	0.6	-0.8	2.5	4	clayy SILT to silty CLAY	115	2.0	18	12	-	-	1.7	15
7.22	22.6	33.6	103.2	0.6	-0.6	2.7	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.6	15
7.38	21.1	31.0	97.9	0.5	-1.1	2.6	4	clayy SILT to silty CLAY	115	2.0	16	11	-	-	1.5	15
7.55	20.8	30.3	92.9	0.5	-0.4	2.4	4	clayy SILT to silty CLAY	115	2.0	15	10	-	-	1.4	15
7.71	18.5	29.7	94.1	0.4	-0.5	2.5	4	clayy SILT to silty CLAY	115	2.0	15	9	-	-	1.3	15
7.87	14.9	23.9	-	0.3	-1.6	2.2	4	clayy SILT to silty CLAY	115	2.0	12	7	-	-	1.0	15
8.04	13.7	22.0	68.4	0.2	-0.5	1.5	4	clayy SILT to silty CLAY	115	2.0	11	7	-	-	0.9	15
8.20	12.8	17.9	58.7	0.2	-0.2	1.2	4	clayy SILT to silty CLAY	115	2.0	9	6	-	-	0.9	15
8.37	12.0	19.2	62.0	0.2	-0.2	1.3	4	clayy SILT to silty CLAY	115	2.0	10	6	-	-	0.8	15
8.53	11.9	19.2	-	0.2	-0.2	1.4	4	clayy SILT to silty CLAY	115	2.0	10	6	-	-	0.8	15
8.69	12.1	19.0	-	0.2	-0.4	1.4	4	clayy SILT to silty CLAY	115	2.0	9	6	-	-	0.8	15
8.86	11.9	19.1	-	0.2	-0.5	1.8	4	clayy SILT to silty CLAY	115	2.0	10	6	-	-	0.8	15
9.02	10.5	16.8	-	0.2	-0.3	2.0	4	clayy SILT to silty CLAY	115	2.0	8	5	-	-	0.7	15
9.19	9.5	15.2	-	0.2	-0.6	2.0	4	clayy SILT to silty CLAY	115	2.0	8	5	-	-	0.6	15
9.35	10.5	16.8	-	0.1	-0.4	1.5	4	clayy SILT to silty CLAY	115	2.0	8	5	-	-	0.7	15
9.51	10.1	16.2	-	0.1	-0.3	1.5	4	clayy SILT to silty CLAY	115	2.0	8	5	-	-	0.7	15
9.68	9.8	15.7	-	0.1	-0.4	1.6	4	clayy SILT to silty CLAY	115	2.0	8	5	-	-	0.7	15
9.84	10.4	16.6	-	0.1	-0.4	1.4	4	clayy SILT to silty CLAY	115	2.0	8	5	-	-	0.7	15
10.01	11.0	17.6	-	0.2	-0.7	1.5	4	clayy SILT to silty CLAY	115	2.0	9	5	-	-	0.7	15
10.17	11.1	17.8	-	0.2	-0.7	1.8	4	clayy SILT to silty CLAY	115	2.0	9	6	-	-	0.8	15
10.34	9.9	15.8	-	0.2	-1.0	2.2	4	clayy SILT to silty CLAY	115	2.0	8	5	-	-	0.7	15
10.50	8.5	13.6	-	0.2	-1.3	2.8	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Earth Mechanics
Data File: SDF(420).cpt
CPT Date: 11/19/2008 12:45:46 PM
GW During Test: 12 ft

Sounding ID: CPT-08-45
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	8.8	14.0	-	0.2	-1.5	2.6	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
10.83	9.6	15.2	-	0.1	-2.0	1.6	4	clayy SILT to silty CLAY	115	2.0	8	5	-	-	0.7	15
10.99	25.1	30.4	54.7	0.2	-1.8	0.7	5	silty SAND to sandy SILT	120	4.0	8	6	28	38	-	16
11.16	54.0	64.9	79.5	0.3	-0.2	0.6	6	clean SAND to silty SAND	125	5.0	13	11	53	42	-	16
11.32	79.3	94.6	107.5	0.6	-0.2	0.7	6	clean SAND to silty SAND	125	5.0	19	16	65	44	-	16
11.48	91.1	107.8	122.0	0.7	-0.2	0.8	6	clean SAND to silty SAND	125	5.0	22	18	69	45	-	16
11.65	95.8	112.6	128.4	0.9	-0.2	0.9	6	clean SAND to silty SAND	125	5.0	23	19	71	45	-	16
11.81	92.6	108.0	124.7	0.8	-0.2	0.9	6	clean SAND to silty SAND	125	5.0	22	19	70	44	-	16
11.98	86.0	99.5	123.6	1.0	-0.2	1.1	6	clean SAND to silty SAND	125	5.0	20	17	67	44	-	16
12.14	76.4	88.1	120.9	1.1	0.0	1.4	5	silty SAND to sandy SILT	120	4.0	22	19	63	43	-	16
12.30	66.1	76.0	115.2	1.0	-0.1	1.6	5	silty SAND to sandy SILT	120	4.0	19	17	58	43	-	16
12.47	55.3	63.4	107.9	0.9	-0.2	1.7	5	silty SAND to sandy SILT	120	4.0	16	14	52	42	-	16
12.63	48.7	55.6	105.3	0.9	-2.8	1.8	5	silty SAND to sandy SILT	120	4.0	14	12	48	41	-	16
12.80	40.6	46.2	95.0	0.7	-4.3	1.8	5	silty SAND to sandy SILT	120	4.0	12	10	41	40	-	16
12.96	32.6	36.9	83.3	0.5	-5.2	1.6	5	silty SAND to sandy SILT	120	4.0	9	8	34	39	-	16
13.12	17.8	21.7	71.4	0.3	-9.1	1.7	4	clayy SILT to silty CLAY	115	2.0	11	9	-	-	1.2	15
13.29	10.4	14.1	-	0.1	-9.1	1.5	4	clayy SILT to silty CLAY	115	2.0	7	5	-	-	0.7	15
13.45	6.9	9.2	-	0.1	-9.0	1.1	4	clayy SILT to silty CLAY	115	2.0	5	3	-	-	0.5	15
13.62	6.6	8.8	-	0.0	-8.8	0.5	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
13.78	6.2	8.3	-	0.1	-8.8	1.2	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
13.94	6.6	8.7	-	0.1	-8.7	2.0	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
14.11	6.9	9.1	-	0.1	-8.7	1.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
14.27	6.5	8.5	-	0.1	-8.6	1.4	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
14.44	6.2	8.0	-	0.1	-8.6	1.3	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
14.60	6.3	8.2	-	0.1	-8.6	1.2	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
14.76	6.5	8.3	-	0.1	-8.6	1.3	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
14.93	6.9	8.8	-	0.1	-8.6	1.8	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.4	15
15.09	6.9	8.8	-	0.1	-8.5	1.4	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.5	15
15.26	6.4	8.1	-	0.1	-7.9	1.1	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
15.42	5.3	6.7	-	0.0	-7.8	0.1	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.3	15
15.58	4.8	6.0	-	0.0	-7.7	0.1	1	sensitive fine SOIL	115	2.0	3	2	-	-	0.3	15
15.75	5.0	6.2	-	0.1	-7.6	1.7	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.91	6.1	7.5	-	0.2	-7.5	3.2	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.08	7.3	8.9	-	0.2	-7.5	3.1	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.24	7.8	9.5	-	0.3	-7.5	3.7	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.40	9.6	11.7	-	0.2	-7.4	2.6	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
16.57	24.6	26.2	57.5	0.2	-7.4	0.9	5	silty SAND to sandy SILT	120	4.0	7	6	23	36	-	16
16.73	29.9	31.8	64.0	0.3	-7.6	1.0	5	silty SAND to sandy SILT	120	4.0	8	7	29	37	-	16
16.90	39.4	41.9	72.8	0.4	-7.6	1.0	5	silty SAND to sandy SILT	120	4.0	10	10	38	39	-	16
17.06	46.9	49.7	77.2	0.4	-7.8	1.0	5	silty SAND to sandy SILT	120	4.0	12	12	44	39	-	16
17.23	64.7	68.3	92.6	0.6	-7.8	1.0	6	clean SAND to silty SAND	125	5.0	14	13	54	41	-	16
17.39	70.7	74.4	101.9	0.8	-7.9	1.1	5	silty SAND to sandy SILT	120	4.0	19	18	57	42	-	16
17.55	72.3	75.9	105.8	0.9	-7.8	1.2	5	silty SAND to sandy SILT	120	4.0	19	18	58	42	-	16
17.72	71.7	75.1	104.7	0.9	-7.8	1.2	5	silty SAND to sandy SILT	120	4.0	19	18	58	42	-	16
17.88	67.7	70.6	101.6	0.8	-7.7	1.2	5	silty SAND to sandy SILT	120	4.0	18	17	56	41	-	16
18.05	57.5	59.8	94.3	0.7	-7.6	1.3	5	silty SAND to sandy SILT	120	4.0	15	14	50	40	-	16
18.21	52.0	54.0	89.7	0.7	-7.5	1.3	5	silty SAND to sandy SILT	120	4.0	13	13	47	40	-	16
18.37	45.2	46.8	86.9	0.6	-7.4	1.4	5	silty SAND to sandy SILT	120	4.0	12	11	42	39	-	16
18.54	38.7	39.9	88.9	0.6	-7.4	1.7	5	silty SAND to sandy SILT	120	4.0	10	10	37	38	-	16
18.70	27.1	27.9	87.7	0.6	-7.4	2.2	4	clayy SILT to silty CLAY	115	2.0	14	14	-	-	1.9	15
18.87	15.0	16.8	-	0.4	-7.4	2.9	4	clayy SILT to silty CLAY	115	2.0	8	7	-	-	1.0	15
19.03	8.6	9.6	-	0.2	-5.3	3.1	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
19.19	7.5	8.3	-	0.1	-5.0	2.3	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
19.36	7.1	7.8	-	0.2	-4.8	3.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
19.52	9.5	10.5	-	0.1	-4.7	1.7	4	clayy SILT to silty CLAY	115	2.0	5	5	-	-	0.6	15
19.69	31.9	32.4	57.4	0.2	-4.7	0.7	5	silty SAND to sandy SILT	120	4.0	8	8	30	37	-	16
19.85	46.1	46.7	69.5	0.3	-4.8	0.8	5	silty SAND to sandy SILT	120	4.0	12	12	42	39	-	16
20.01	50.7	51.2	77.5	0.5	-4.7	0.9	5	silty SAND to sandy SILT	120	4.0	13	13	45	39	-	16
20.18	45.1	45.5	80.1	0.5	-3.7	1.2	5	silty SAND to sandy SILT	120	4.0	11	11	41	38	-	16
20.34	35.8	36.0	80.3	0.5	-3.6	1.5	5	silty SAND to sandy SILT	120	4.0	9	9	33	37	-	16
20.51	26.9	27.0	80.1	0.5	-3.5	1.8	4	clayy SILT to silty CLAY	115	2.0	13	13	-	-	1.9	15
20.67	15.5	16.4	-	0.4	-3.3	2.6	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.0	15
20.83	8.7	9.1	-	0.2	-3.2	2.4	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
21.00	5.8	6.1	-	0.0	-3.0	1.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(420).cpt
CPT Date: 11/19/2008 12:45:46 PM
GW During Test: 12 ft

Sounding ID: CPT-08-45
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	5.5	5.8	-	0.0	-2.7	0.5	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.3	15
21.33	5.5	5.7	-	0.0	-2.6	0.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
21.49	5.5	5.6	-	0.1	-2.4	1.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
21.65	5.5	5.6	-	0.1	-2.3	2.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
21.82	5.7	5.8	-	0.1	-2.1	2.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.98	5.6	5.8	-	0.1	-2.0	2.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
22.15	5.9	6.0	-	0.1	-1.9	2.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.31	5.9	6.0	-	0.1	-1.8	3.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.47	5.7	5.8	-	0.1	-1.7	3.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.64	5.5	5.5	-	0.1	-1.2	2.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
22.80	5.4	5.4	-	0.1	-1.1	2.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
22.97	6.2	6.1	-	0.1	-0.9	2.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.13	6.9	6.8	-	0.1	-0.7	2.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
23.30	8.0	7.9	-	0.1	-0.6	1.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.46	9.5	9.3	-	0.2	-0.4	2.8	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
23.62	12.4	12.2	-	0.1	-0.1	1.2	4	clayy SILT to silty CLAY	115	2.0	6	6	-	-	0.8	15
23.79	31.5	30.2	50.7	0.1	-0.4	0.5	5	silty SAND to sandy SILT	120	4.0	8	8	28	36	-	16
23.95	39.3	37.6	62.2	0.3	-1.3	0.7	5	silty SAND to sandy SILT	120	4.0	9	10	35	37	-	16
24.12	40.8	39.0	71.3	0.4	-1.0	1.0	5	silty SAND to sandy SILT	120	4.0	10	10	36	37	-	16
24.28	44.4	42.3	76.9	0.5	-0.8	1.2	5	silty SAND to sandy SILT	120	4.0	11	11	39	37	-	16
24.44	48.9	46.5	82.1	0.6	-0.6	1.2	5	silty SAND to sandy SILT	120	4.0	12	12	42	38	-	16
24.61	52.6	49.9	85.7	0.6	-0.4	1.3	5	silty SAND to sandy SILT	120	4.0	12	13	44	38	-	16
24.77	54.4	51.4	87.9	0.7	-0.2	1.3	5	silty SAND to sandy SILT	120	4.0	13	14	45	39	-	16
24.94	54.1	51.1	89.0	0.7	0.0	1.4	5	silty SAND to sandy SILT	120	4.0	13	14	45	38	-	16
25.10	48.2	45.4	93.4	0.8	0.2	1.7	5	silty SAND to sandy SILT	120	4.0	11	12	41	38	-	16
25.26	39.4	37.0	102.6	0.9	2.5	2.4	4	clayy SILT to silty CLAY	115	2.0	19	20	-	-	2.7	15
25.43	34.4	32.3	90.9	0.7	2.6	2.1	4	clayy SILT to silty CLAY	115	2.0	16	17	-	-	2.4	15
25.59	47.3	44.2	72.1	0.4	-1.8	0.9	5	silty SAND to sandy SILT	120	4.0	11	12	40	38	-	16
25.76	59.6	55.7	81.0	0.5	-4.0	0.9	5	silty SAND to sandy SILT	120	4.0	14	15	48	39	-	16
25.92	63.9	59.5	89.1	0.7	-3.8	1.1	5	silty SAND to sandy SILT	120	4.0	15	16	50	39	-	16
26.08	42.3	39.3	97.1	0.8	-3.8	2.1	5	silty SAND to sandy SILT	120	4.0	10	11	36	37	-	16
26.25	19.5	17.8	-	0.6	-3.6	3.5	3	silty CLAY to CLAY	115	1.5	12	13	-	-	1.3	15
26.41	11.1	10.1	-	0.4	-3.3	3.9	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
26.58	9.6	8.7	-	0.1	-2.8	1.9	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
26.74	9.4	8.4	-	0.1	-2.2	1.1	4	clayy SILT to silty CLAY	115	2.0	4	5	-	-	0.6	15
26.90	9.0	8.1	-	0.1	-1.8	1.2	4	clayy SILT to silty CLAY	115	2.0	4	4	-	-	0.6	15
27.07	7.5	6.7	-	0.1	-1.3	1.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
27.23	7.1	6.3	-	0.1	-0.7	1.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
27.40	6.8	6.0	-	0.0	-0.2	0.7	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.4	15
27.56	6.7	5.9	-	0.0	0.3	0.7	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.4	15
27.72	6.8	6.0	-	0.0	0.8	0.6	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.4	15
27.89	6.6	5.8	-	0.0	1.3	0.6	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.4	15
28.05	6.6	5.8	-	0.0	1.8	0.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
28.22	6.7	5.9	-	0.1	2.4	1.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
28.38	8.4	7.3	-	0.2	3.1	3.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
28.54	14.5	12.5	-	0.2	3.8	1.6	4	clayy SILT to silty CLAY	115	2.0	6	7	-	-	1.0	15
28.71	8.0	6.9	-	0.2	4.1	2.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
28.87	6.9	6.0	-	0.1	5.3	2.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
29.04	7.8	6.7	-	0.2	6.0	3.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
29.20	9.2	7.9	-	0.2	6.5	3.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.36	9.0	7.6	-	0.3	6.5	4.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.53	10.1	8.5	-	0.3	7.1	4.0	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
29.69	21.9	18.4	-	0.4	7.4	1.7	4	clayy SILT to silty CLAY	115	2.0	9	11	-	-	1.5	15
29.86	20.3	17.1	-	0.3	-1.9	1.6	4	clayy SILT to silty CLAY	115	2.0	9	10	-	-	1.4	15
30.02	12.1	10.1	-	0.3	-2.2	3.0	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
30.19	10.8	9.0	-	0.2	11.7	2.4	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
30.35	8.7	7.2	-	0.2	11.5	3.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
30.51	8.0	6.6	-	0.2	13.1	2.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.68	7.2	5.9	-	0.2	13.9	2.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
30.84	6.9	5.7	-	0.1	14.9	2.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
31.01	7.7	6.3	-	0.2	16.2	3.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.17	8.9	7.2	-	0.2	17.1	2.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.33	8.1	6.6	-	0.2	17.6	3.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.50	8.3	6.7	-	0.2	19.0	3.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(420).cpt
CPT Date: 11/19/2008 12:45:46 PM
GW During Test: 12 ft

Sounding ID: CPT-08-45
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	9.2	7.4	-	0.2	19.7	3.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.83	7.7	6.2	-	0.2	22.2	3.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.99	7.3	5.8	-	0.2	24.2	2.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
32.15	8.0	6.4	-	0.2	26.0	3.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.32	12.9	10.3	-	0.2	23.6	1.6	4	clayy SILT to silty CLAY	115	2.0	5	6	-	-	0.8	15
32.48	10.3	8.2	-	0.2	15.4	2.3	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
32.65	15.5	12.3	-	0.3	18.0	2.2	4	clayy SILT to silty CLAY	115	2.0	6	8	-	-	1.0	15
32.81	20.5	16.1	-	0.3	15.7	1.5	4	clayy SILT to silty CLAY	115	2.0	8	10	-	-	1.4	15
32.97	30.9	26.6	79.9	0.5	8.4	1.8	4	clayy SILT to silty CLAY	115	2.0	13	15	-	-	2.1	15
33.14	24.4	19.1	-	0.5	7.8	2.2	4	clayy SILT to silty CLAY	115	2.0	10	12	-	-	1.7	15
33.30	29.2	22.8	-	0.5	7.3	1.8	4	clayy SILT to silty CLAY	115	2.0	11	15	-	-	2.0	15
33.47	58.8	50.4	87.5	0.7	4.0	1.3	5	silty SAND to sandy SILT	120	4.0	13	15	44	37	-	16
33.63	69.9	59.8	96.7	0.9	-1.4	1.4	5	silty SAND to sandy SILT	120	4.0	15	17	50	38	-	16
33.79	73.9	63.1	101.7	1.0	-0.8	1.5	5	silty SAND to sandy SILT	120	4.0	16	18	52	39	-	16
33.96	70.1	59.7	99.1	1.0	-0.4	1.5	5	silty SAND to sandy SILT	120	4.0	15	18	50	38	-	16
34.12	64.6	55.0	92.2	0.8	0.1	1.3	5	silty SAND to sandy SILT	120	4.0	14	16	47	38	-	16
34.29	65.8	55.9	86.8	0.7	0.6	1.1	5	silty SAND to sandy SILT	120	4.0	14	16	48	38	-	16
34.45	68.4	58.0	87.7	0.7	-0.7	1.1	5	silty SAND to sandy SILT	120	4.0	14	17	49	38	-	16
34.61	65.2	55.1	88.6	0.8	-0.4	1.2	5	silty SAND to sandy SILT	120	4.0	14	16	47	38	-	16
34.78	62.4	52.7	90.9	0.8	0.2	1.4	5	silty SAND to sandy SILT	120	4.0	13	16	46	38	-	16
34.94	49.1	41.4	101.8	1.0	0.8	2.2	5	silty SAND to sandy SILT	120	4.0	10	12	38	36	-	16
35.11	39.1	32.9	101.3	0.9	2.1	2.5	4	clayy SILT to silty CLAY	115	2.0	16	20	-	-	2.7	15
35.27	36.9	31.0	77.0	0.5	3.0	1.5	5	silty SAND to sandy SILT	120	4.0	8	9	28	34	-	16
35.43	41.2	34.6	67.0	0.4	-3.3	1.0	5	silty SAND to sandy SILT	120	4.0	9	10	32	35	-	16
35.60	42.3	35.4	71.4	0.4	-4.3	1.1	5	silty SAND to sandy SILT	120	4.0	9	11	33	35	-	16
35.76	24.1	17.9	-	0.4	-4.2	2.0	4	clayy SILT to silty CLAY	115	2.0	9	12	-	-	1.6	15
35.93	13.6	10.0	-	0.3	-3.5	2.9	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
36.09	9.8	7.2	-	0.2	-2.7	2.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
36.26	9.4	6.9	-	0.2	-2.2	2.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
36.42	9.8	7.2	-	0.2	-1.8	2.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
36.58	9.6	7.0	-	0.2	-1.4	2.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
36.75	9.6	7.0	-	0.2	-1.1	2.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
36.91	10.3	7.5	-	0.2	-0.7	2.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
37.08	10.5	7.6	-	0.2	-0.4	2.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.24	11.0	7.9	-	0.3	-0.1	3.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.40	11.4	8.2	-	0.3	0.5	3.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
37.57	10.5	7.5	-	0.3	0.9	3.0	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.73	10.3	7.3	-	0.2	1.5	2.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
37.90	10.9	7.7	-	0.2	2.0	2.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.06	10.8	7.6	-	0.2	2.4	2.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.22	10.8	7.6	-	0.2	2.8	2.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.39	10.9	7.7	-	0.2	7.6	2.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.55	11.3	7.9	-	0.2	8.3	2.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
38.72	10.9	7.6	-	0.3	9.0	3.0	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.88	14.6	10.2	-	0.3	10.0	2.8	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
39.04	24.2	16.9	-	0.3	8.4	1.6	4	clayy SILT to silty CLAY	115	2.0	8	12	-	-	1.6	15
39.21	12.9	9.0	-	0.4	6.8	3.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
39.37	12.1	8.4	-	0.3	8.2	3.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
39.54	11.9	8.2	-	0.3	9.2	3.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
39.70	11.9	8.2	-	0.3	10.0	3.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
39.86	12.5	8.5	-	0.4	11.0	3.7	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
40.03	18.7	12.8	-	0.5	12.1	3.0	3	silty CLAY to CLAY	115	1.5	9	12	-	-	1.2	15
40.19	43.0	34.5	83.2	0.7	6.4	1.6	5	silty SAND to sandy SILT	120	4.0	9	11	32	35	-	16
40.36	38.9	31.2	85.6	0.7	6.7	1.9	5	silty SAND to sandy SILT	120	4.0	8	10	29	34	-	16
40.52	34.7	23.5	-	0.7	6.2	2.1	4	clayy SILT to silty CLAY	115	2.0	12	17	-	-	2.4	15
40.68	41.0	32.8	81.7	0.6	-0.5	1.6	5	silty SAND to sandy SILT	120	4.0	8	10	30	34	-	16
40.85	23.5	15.8	-	0.6	-2.1	2.9	3	silty CLAY to CLAY	115	1.5	11	16	-	-	1.6	15
41.01	18.3	12.3	-	0.4	-1.3	2.8	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
41.18	15.7	10.5	-	0.4	-0.9	2.7	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
41.34	14.4	9.6	-	0.4	-0.2	3.0	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
41.50	13.9	9.3	-	0.5	0.4	4.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
41.67	24.9	16.5	-	0.5	4.7	2.4	4	clayy SILT to silty CLAY	115	2.0	8	12	-	-	1.7	15
41.83	16.5	10.9	-	0.5	4.6	3.7	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
42.00	15.3	10.1	-	0.4	5.7	3.1	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(420).cpt
CPT Date: 11/19/2008 12:45:46 PM
GW During Test: 12 ft

Sounding ID: CPT-08-45
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	15.0	9.9	-	0.4	6.3	3.3	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
42.32	15.1	9.9	-	0.4	6.9	3.3	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
42.49	15.0	9.8	-	0.4	7.3	3.6	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
42.65	15.4	10.0	-	0.5	7.9	3.5	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
42.82	15.7	10.2	-	0.5	8.3	3.5	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
42.98	15.3	9.9	-	0.5	8.7	3.8	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
43.15	15.4	9.9	-	0.5	9.2	3.9	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
43.31	15.3	9.9	-	0.5	9.5	4.0	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
43.47	15.1	9.7	-	0.5	9.9	4.0	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
43.64	15.5	10.0	-	0.5	10.3	4.1	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
43.80	15.1	9.7	-	0.5	10.5	4.3	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
43.97	16.0	10.2	-	0.6	10.9	4.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
44.13	19.2	12.2	-	0.5	10.9	3.1	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
44.29	15.6	9.9	-	0.6	10.6	4.3	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
44.46	16.3	10.3	-	0.6	11.6	4.6	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
44.62	17.1	10.8	-	0.8	11.9	5.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
44.79	17.0	10.7	-	0.8	11.7	5.4	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
44.95	16.8	10.6	-	0.7	11.3	5.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
45.11	18.8	11.8	-	0.6	11.5	3.8	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.2	15
45.28	20.5	12.8	-	0.8	20.2	4.5	3	silty CLAY to CLAY	115	1.5	9	14	-	-	1.4	15
45.44	108.3	82.9	106.4	1.1	22.4	1.0	6	clean SAND to silty SAND	125	5.0	17	22	61	39	-	16
45.61	223.0	170.6	172.3	1.7	-0.3	0.8	6	clean SAND to silty SAND	125	5.0	34	45	85	43	-	16
45.77	275.9	210.8	210.8	2.3	0.5	0.9	6	clean SAND to silty SAND	125	5.0	42	55	92	44	-	16
45.93	307.6	234.6	234.6	3.0	1.2	1.0	6	clean SAND to silty SAND	125	5.0	47	62	95	45	-	16
46.10	317.6	241.8	246.2	3.5	1.7	1.1	6	clean SAND to silty SAND	125	5.0	48	64	95	45	-	16
46.26	333.5	253.5	254.5	3.6	2.2	1.1	6	clean SAND to silty SAND	125	5.0	51	67	95	45	-	16
46.43	346.6	263.1	263.1	3.7	2.8	1.1	6	clean SAND to silty SAND	125	5.0	53	69	95	45	-	16
46.59	357.6	271.0	271.0	3.6	3.2	1.0	6	clean SAND to silty SAND	125	5.0	54	72	95	45	-	16
46.75	363.4	275.0	275.0	3.5	3.7	1.0	6	clean SAND to silty SAND	125	5.0	55	73	95	45	-	16
46.92	344.4	260.1	260.1	3.4	4.0	1.0	6	clean SAND to silty SAND	125	5.0	52	69	95	45	-	16
47.08	329.8	248.8	248.8	3.2	4.5	1.0	6	clean SAND to silty SAND	125	5.0	50	66	95	45	-	16
47.25	307.6	231.6	237.0	3.3	5.0	1.1	6	clean SAND to silty SAND	125	5.0	46	62	95	45	-	16
47.41	282.5	212.4	226.4	3.4	5.2	1.2	6	clean SAND to silty SAND	125	5.0	42	57	92	44	-	16
47.57	257.6	193.4	215.2	3.5	5.9	1.4	6	clean SAND to silty SAND	125	5.0	39	52	89	44	-	16
47.74	242.9	182.1	199.3	2.9	6.1	1.2	6	clean SAND to silty SAND	125	5.0	36	49	87	43	-	16
47.90	225.1	168.5	186.4	2.6	6.3	1.2	6	clean SAND to silty SAND	125	5.0	34	45	84	43	-	16
48.07	195.6	146.2	161.0	1.9	7.1	1.0	6	clean SAND to silty SAND	125	5.0	29	39	80	42	-	16
48.23	153.5	114.6	132.7	1.5	7.1	1.0	6	clean SAND to silty SAND	125	5.0	23	31	71	41	-	16
48.39	136.1	101.4	116.7	1.1	6.8	0.8	6	clean SAND to silty SAND	125	5.0	20	27	67	40	-	16
48.56	113.4	84.3	99.2	0.8	6.7	0.7	6	clean SAND to silty SAND	125	5.0	17	23	61	39	-	16
48.72	84.2	62.5	92.8	0.9	6.6	1.1	5	silty SAND to sandy SILT	120	4.0	16	21	52	38	-	16
48.89	66.8	49.5	84.6	0.8	6.4	1.2	5	silty SAND to sandy SILT	120	4.0	12	17	44	36	-	16
49.05	39.3	22.9	-	0.7	6.1	2.0	4	clayy SILT to silty CLAY	115	2.0	11	20	-	-	2.7	15
49.22	21.3	12.4	-	0.7	6.3	3.7	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
49.38	14.1	8.2	-	0.3	7.2	3.0	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
49.54	12.4	7.2	-	0.1	8.0	1.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
49.71	12.0	6.9	-	0.1	11.0	1.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
49.87	11.5	6.6	-	0.1	14.3	1.2	3	silty CLAY to CLAY	115	1.5	4	8	-	-	0.7	15
50.04	10.9	6.2	-	0.2	17.4	2.3	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.7	15
50.20	10.9	6.3	-	0.2	19.8	2.0	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.7	15
50.36	9.6	5.5	-	0.1	30.8	2.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
50.53	9.0	5.1	-	0.1	33.3	2.2	3	silty CLAY to CLAY	115	1.5	3	6	-	-	0.5	15
50.69	9.0	5.1	-	0.1	36.8	2.0	3	silty CLAY to CLAY	115	1.5	3	6	-	-	0.5	15
50.86	9.0	5.1	-	0.2	38.0	3.0	3	silty CLAY to CLAY	115	1.5	3	6	-	-	0.5	15
51.02	10.6	6.0	-	0.3	39.9	3.3	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
51.18	13.9	7.8	-	0.4	40.1	3.5	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
51.35	26.4	14.8	-	0.5	18.3	2.0	4	clayy SILT to silty CLAY	115	2.0	7	13	-	-	1.8	15
51.51	46.6	33.9	87.2	0.8	18.9	1.8	5	silty SAND to sandy SILT	120	4.0	8	12	31	34	-	16
51.68	81.5	59.2	96.4	1.1	9.7	1.4	5	silty SAND to sandy SILT	120	4.0	15	20	50	37	-	16
51.84	101.7	73.8	111.3	1.4	8.5	1.5	5	silty SAND to sandy SILT	120	4.0	18	25	57	38	-	16
52.00	104.4	75.6	118.2	1.7	8.0	1.7	5	silty SAND to sandy SILT	120	4.0	19	26	58	38	-	16
52.17	101.3	73.3	122.0	1.8	8.4	1.9	5	silty SAND to sandy SILT	120	4.0	18	25	57	38	-	16
52.33	92.0	66.4	119.7	1.8	8.5	2.0	5	silty SAND to sandy SILT	120	4.0	17	23	54	38	-	16
52.50	80.1	57.8	115.8	1.6	8.7	2.1	5	silty SAND to sandy SILT	120	4.0	14	20	49	37	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(420).cpt
CPT Date: 11/19/2008 12:45:46 PM
GW During Test: 12 ft

Sounding ID: CPT-08-45
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	72.4	52.2	109.9	1.4	9.0	2.1	5	silty SAND to sandy SILT	120	4.0	13	18	46	36	-	16
52.82	79.4	57.1	108.2	1.4	9.2	1.9	5	silty SAND to sandy SILT	120	4.0	14	20	49	37	-	16
52.99	111.0	79.8	114.2	1.5	5.5	1.4	5	silty SAND to sandy SILT	120	4.0	20	28	60	39	-	16
53.15	142.6	102.4	132.6	1.9	3.9	1.4	6	clean SAND to silty SAND	125	5.0	20	29	68	40	-	16
53.32	129.1	92.6	132.8	2.1	3.6	1.7	5	silty SAND to sandy SILT	120	4.0	23	32	64	39	-	16
53.48	107.7	77.1	129.6	2.1	4.0	2.0	5	silty SAND to sandy SILT	120	4.0	19	27	58	38	-	16
53.64	123.7	88.4	133.8	2.2	4.5	1.8	5	silty SAND to sandy SILT	120	4.0	22	31	63	39	-	16
53.81	165.7	118.3	149.7	2.4	2.7	1.5	6	clean SAND to silty SAND	125	5.0	24	33	73	41	-	16
53.97	194.1	138.4	160.4	2.3	0.5	1.2	6	clean SAND to silty SAND	125	5.0	28	39	78	42	-	16
54.14	170.4	121.4	146.2	2.1	0.3	1.2	6	clean SAND to silty SAND	125	5.0	24	34	73	41	-	16
54.30	147.3	104.7	131.6	1.8	2.8	1.2	6	clean SAND to silty SAND	125	5.0	21	29	69	40	-	16
54.46	120.9	85.9	125.8	1.9	3.2	1.6	5	silty SAND to sandy SILT	120	4.0	21	30	62	39	-	16
54.63	86.8	61.6	131.4	2.2	3.5	2.6	5	silty SAND to sandy SILT	120	4.0	15	22	51	37	-	16
54.79	81.8	57.9	105.3	1.4	3.2	1.7	5	silty SAND to sandy SILT	120	4.0	14	20	49	37	-	16
54.96	63.9	45.2	113.2	1.5	-3.5	2.5	5	silty SAND to sandy SILT	120	4.0	11	16	41	35	-	16
55.12	40.3	21.3	-	1.3	-3.9	3.5	3	silty CLAY to CLAY	115	1.5	14	27	-	-	2.7	15
55.28	125.4	88.5	127.2	1.9	0.4	1.6	5	silty SAND to sandy SILT	120	4.0	22	31	63	39	-	16
55.45	135.4	95.4	123.3	1.6	-1.0	1.2	6	clean SAND to silty SAND	125	5.0	19	27	65	40	-	16
55.61	169.6	119.4	143.1	2.0	-0.6	1.2	6	clean SAND to silty SAND	125	5.0	24	34	73	41	-	16
55.78	213.1	149.8	166.2	2.2	-3.8	1.1	6	clean SAND to silty SAND	125	5.0	30	43	80	42	-	16
55.94	217.1	152.4	172.8	2.6	-3.6	1.2	6	clean SAND to silty SAND	125	5.0	30	43	81	42	-	16
56.11	196.1	137.5	160.8	2.4	-3.3	1.3	6	clean SAND to silty SAND	125	5.0	27	39	78	41	-	16
56.27	166.1	116.3	145.6	2.2	-3.1	1.4	6	clean SAND to silty SAND	125	5.0	23	33	72	41	-	16
56.43	131.0	91.6	127.0	1.9	-2.9	1.5	5	silty SAND to sandy SILT	120	4.0	23	33	64	39	-	16
56.60	89.0	62.1	101.6	1.2	-2.6	1.5	5	silty SAND to sandy SILT	120	4.0	16	22	51	37	-	16
56.76	74.0	51.6	86.4	0.9	-2.3	1.2	5	silty SAND to sandy SILT	120	4.0	13	18	45	36	-	16
56.93	46.9	32.7	82.4	0.7	-2.2	1.6	5	silty SAND to sandy SILT	120	4.0	8	12	30	33	-	16
57.09	20.8	10.7	-	0.7	-1.9	4.0	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.4	15
57.25	13.5	6.9	-	0.5	-1.6	5.4	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
57.42	23.5	12.0	-	0.6	-1.1	3.0	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.5	15
57.58	31.7	16.1	-	0.6	-0.8	2.0	4	clayy SILT to silty CLAY	115	2.0	8	16	-	-	2.1	15
57.75	49.1	34.0	81.4	0.7	-0.4	1.5	5	silty SAND to sandy SILT	120	4.0	9	12	31	33	-	16
57.91	102.1	70.7	98.8	1.1	2.1	1.1	5	silty SAND to sandy SILT	120	4.0	18	26	56	38	-	16
58.07	155.1	107.2	130.5	1.7	2.6	1.1	6	clean SAND to silty SAND	125	5.0	21	31	69	40	-	16
58.24	189.8	131.0	153.1	2.2	3.2	1.2	6	clean SAND to silty SAND	125	5.0	26	38	76	41	-	16
58.40	206.8	142.6	164.0	2.5	3.7	1.2	6	clean SAND to silty SAND	125	5.0	29	41	79	42	-	16
58.57	244.2	168.1	191.2	3.2	4.2	1.3	6	clean SAND to silty SAND	125	5.0	34	49	84	42	-	16
58.73	308.1	211.8	218.2	3.2	4.6	1.0	6	clean SAND to silty SAND	125	5.0	42	62	92	43	-	16
58.89	335.2	230.2	230.2	3.1	5.4	0.9	6	clean SAND to silty SAND	125	5.0	46	67	95	44	-	16
59.06	367.7	252.1	252.1	2.9	6.1	0.8	6	clean SAND to silty SAND	125	5.0	50	74	95	44	-	16
59.22	384.2	263.1	263.1	3.1	6.8	0.8	6	clean SAND to silty SAND	125	5.0	53	77	95	45	-	16
59.39	391.5	267.8	267.8	3.7	7.5	1.0	6	clean SAND to silty SAND	125	5.0	54	78	95	45	-	16
59.55	396.8	271.1	271.1	3.9	8.2	1.0	6	clean SAND to silty SAND	125	5.0	54	79	95	45	-	16
59.71	395.3	269.7	272.8	4.6	9.0	1.2	6	clean SAND to silty SAND	125	5.0	54	79	95	45	-	16
59.88	384.1	261.7	273.4	5.1	9.5	1.3	6	clean SAND to silty SAND	125	5.0	52	77	95	44	-	16
60.04	368.2	250.6	271.2	5.5	10.4	1.5	6	clean SAND to silty SAND	125	5.0	50	74	95	44	-	16
60.21	347.9	236.5	263.9	5.7	11.6	1.7	6	clean SAND to silty SAND	125	5.0	47	70	95	44	-	16
60.37	343.5	233.2	259.1	5.5	11.5	1.6	6	clean SAND to silty SAND	125	5.0	47	69	95	44	-	16
60.53	348.0	235.9	258.6	5.3	11.4	1.5	6	clean SAND to silty SAND	125	5.0	47	70	95	44	-	16
60.70	359.6	243.5	265.6	5.5	11.5	1.5	6	clean SAND to silty SAND	125	5.0	49	72	95	44	-	16
60.86	374.1	253.0	276.0	5.9	11.7	1.6	6	clean SAND to silty SAND	125	5.0	51	75	95	44	-	16
61.03	387.2	261.5	286.4	6.3	12.1	1.6	6	clean SAND to silty SAND	125	5.0	52	77	95	44	-	16
61.19	397.8	268.4	292.4	6.5	12.0	1.6	6	clean SAND to silty SAND	125	5.0	54	80	95	45	-	16
61.35	405.5	273.3	297.1	6.6	12.2	1.7	6	clean SAND to silty SAND	125	5.0	55	81	95	45	-	16
61.52	411.1	276.6	300.4	6.7	12.4	1.7	6	clean SAND to silty SAND	125	5.0	55	82	95	45	-	16
61.68	412.4	277.2	302.6	6.9	12.2	1.7	6	clean SAND to silty SAND	125	5.0	55	82	95	45	-	16
61.85	412.5	276.9	304.6	7.2	12.4	1.8	6	clean SAND to silty SAND	125	5.0	55	82	95	45	-	16
62.01	414.4	277.9	306.2	7.3	12.6	1.8	6	clean SAND to silty SAND	125	5.0	56	83	95	45	-	16
62.17	416.2	278.7	306.9	7.3	12.3	1.8	6	clean SAND to silty SAND	125	5.0	56	83	95	45	-	16
62.34	407.5	272.6	301.5	7.2	12.1	1.8	6	clean SAND to silty SAND	125	5.0	55	82	95	45	-	16
62.50	393.6	263.0	289.4	6.6	12.1	1.7	6	clean SAND to silty SAND	125	5.0	53	79	95	44	-	16
62.67	385.9	257.5	277.5	5.8	11.9	1.5	6	clean SAND to silty SAND	125	5.0	51	77	95	44	-	16
62.83	370.9	247.2	267.2	5.5	11.4	1.5	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
63.00	348.9	232.2	260.0	5.7	11.8	1.7	6	clean SAND to silty SAND	125	5.0	46	70	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(420).cpt
CPT Date: 11/19/2008 12:45:46 PM
GW During Test: 12 ft

Sounding ID: CPT-08-45
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	339.7	225.9	256.6	5.8	11.8	1.7	6	clean SAND to silty SAND	125	5.0	45	68	94	44	-	16
63.32	333.8	221.7	252.1	5.6	11.4	1.7	6	clean SAND to silty SAND	125	5.0	44	67	93	43	-	16
63.49	326.8	216.7	249.5	5.7	11.3	1.8	6	clean SAND to silty SAND	125	5.0	43	65	93	43	-	16
63.65	328.3	217.4	247.5	5.5	11.2	1.7	6	clean SAND to silty SAND	125	5.0	43	66	93	43	-	16
63.82	317.3	209.9	242.7	5.5	10.9	1.8	6	clean SAND to silty SAND	125	5.0	42	63	91	43	-	16
63.98	299.1	197.7	233.1	5.3	10.0	1.8	6	clean SAND to silty SAND	125	5.0	40	60	89	43	-	16
64.14	295.2	194.9	228.9	5.1	10.1	1.8	6	clean SAND to silty SAND	125	5.0	39	59	89	43	-	16
64.31	308.2	203.2	227.9	4.6	9.7	1.5	6	clean SAND to silty SAND	125	5.0	41	62	90	43	-	16
64.47	323.3	212.9	226.8	3.9	9.6	1.2	6	clean SAND to silty SAND	125	5.0	43	65	92	43	-	16
64.64	329.8	216.9	223.2	3.4	9.2	1.1	6	clean SAND to silty SAND	125	5.0	43	66	93	43	-	16
64.80	334.9	220.0	221.6	3.2	9.3	1.0	6	clean SAND to silty SAND	125	5.0	44	67	93	43	-	16
64.96	334.9	219.8	219.8	2.8	9.8	0.8	6	clean SAND to silty SAND	125	5.0	44	67	93	43	-	16
65.13	334.5	219.2	219.2	2.6	9.8	0.8	6	clean SAND to silty SAND	125	5.0	44	67	93	43	-	16
65.29	321.9	210.7	210.7	2.6	10.2	0.8	6	clean SAND to silty SAND	125	5.0	42	64	92	43	-	16
65.46	314.3	205.5	206.5	2.8	10.4	0.9	6	clean SAND to silty SAND	125	5.0	41	63	91	43	-	16
65.62	304.7	199.0	202.4	2.8	10.6	0.9	6	clean SAND to silty SAND	125	5.0	40	61	90	43	-	16
65.78	314.5	205.2	205.2	2.7	10.6	0.9	6	clean SAND to silty SAND	125	5.0	41	63	91	43	-	16
65.95	317.7	207.0	207.0	2.7	10.6	0.9	6	clean SAND to silty SAND	125	5.0	41	64	91	43	-	16
66.11	316.3	205.9	205.9	2.5	10.6	0.8	6	clean SAND to silty SAND	125	5.0	41	63	91	43	-	16
66.28	311.8	202.7	202.7	2.5	10.8	0.8	6	clean SAND to silty SAND	125	5.0	41	62	90	43	-	16
66.44	299.7	194.7	196.5	2.6	10.9	0.9	6	clean SAND to silty SAND	125	5.0	39	60	89	43	-	16
66.60	281.4	182.5	190.6	2.7	11.1	1.0	6	clean SAND to silty SAND	125	5.0	37	56	87	42	-	16
66.77	260.8	169.0	179.4	2.5	11.2	1.0	6	clean SAND to silty SAND	125	5.0	34	52	84	42	-	16
66.93	244.5	158.2	169.6	2.3	11.2	0.9	6	clean SAND to silty SAND	125	5.0	32	49	82	42	-	16
67.10	228.9	148.0	156.5	1.8	11.2	0.8	6	clean SAND to silty SAND	125	5.0	30	46	80	41	-	16
67.26	209.1	135.0	143.3	1.5	11.2	0.7	6	clean SAND to silty SAND	125	5.0	27	42	77	41	-	16
67.42	158.6	102.3	117.5	1.3	11.5	0.8	6	clean SAND to silty SAND	125	5.0	20	32	68	39	-	16
67.59	98.2	63.3	94.2	1.1	11.2	1.2	5	silty SAND to sandy SILT	120	4.0	16	25	52	36	-	16
67.75	49.9	21.9	-	1.2	10.9	2.5	4	clayy SILT to silty CLAY	115	2.0	11	25	-	-	3.4	15
67.92	26.0	11.4	-	1.0	11.1	4.3	3	silty CLAY to CLAY	115	1.5	8	17	-	-	1.7	15
68.08	21.6	9.5	-	0.6	12.8	3.6	3	silty CLAY to CLAY	115	1.5	6	14	-	-	1.4	15
68.24	19.5	8.5	-	0.3	16.1	2.0	3	silty CLAY to CLAY	115	1.5	6	13	-	-	1.2	15
68.41	18.6	8.1	-	0.8	33.5	5.3	3	silty CLAY to CLAY	115	1.5	5	12	-	-	1.2	15
68.57	69.5	44.5	90.8	1.0	79.2	1.6	5	silty SAND to sandy SILT	120	4.0	11	17	40	34	-	16
68.74	248.3	158.9	158.9	1.4	13.3	0.6	6	clean SAND to silty SAND	125	5.0	32	50	82	42	-	16
68.90	330.3	211.1	211.1	0.9	12.6	0.3	6	clean SAND to silty SAND	125	5.0	42	66	92	43	-	16
69.07	424.2	270.9	270.9	1.0	9.8	0.2	7	grvly SAND to dense SAND	130	6.0	45	71	95	44	-	16
69.23	475.4	303.2	303.2	2.0	8.3	0.4	7	grvly SAND to dense SAND	130	6.0	51	79	95	45	-	16
69.39	538.9	343.3	343.3	3.1	3.4	0.6	6	clean SAND to silty SAND	125	5.0	69	100	95	45	-	16
69.56	445.9	283.7	283.7	2.9	2.9	0.7	6	clean SAND to silty SAND	125	5.0	57	89	95	44	-	16
69.72	430.9	273.9	273.9	2.2	3.2	0.5	6	clean SAND to silty SAND	125	5.0	55	86	95	44	-	16
69.89	459.4	291.6	291.6	1.3	3.6	0.3	7	grvly SAND to dense SAND	130	6.0	49	77	95	45	-	16
70.05	539.2	341.9	341.9	1.8	3.2	0.3	7	grvly SAND to dense SAND	130	6.0	57	90	95	45	-	16
70.21	648.9	410.9	410.9	2.3	12.0	0.4	7	grvly SAND to dense SAND	130	6.0	68	100	95	46	-	16
70.38	735.6	465.4	465.4	5.2	7.3	0.7	6	clean SAND to silty SAND	125	5.0	93	100	95	47	-	16
70.54	685.9	433.4	433.4	6.3	8.6	0.9	6	clean SAND to silty SAND	125	5.0	87	100	95	46	-	16
70.71	645.9	407.7	407.7	6.6	2.8	1.0	6	clean SAND to silty SAND	125	5.0	82	100	95	46	-	16
70.87	691.9	436.2	436.2	6.6	2.0	1.0	6	clean SAND to silty SAND	125	5.0	87	100	95	46	-	16
71.03	569.5	358.7	358.7	6.6	14.7	1.2	6	clean SAND to silty SAND	125	5.0	72	100	95	45	-	16
71.20	515.2	324.2	324.2	4.9	16.4	1.0	6	clean SAND to silty SAND	125	5.0	65	100	95	45	-	16
71.36	572.2	359.6	359.6	5.3	17.2	0.9	6	clean SAND to silty SAND	125	5.0	72	100	95	45	-	16
71.53	624.4	392.0	392.0	2.7	16.8	0.4	7	grvly SAND to dense SAND	130	6.0	65	100	95	46	-	16
71.69	707.9	443.9	443.9	5.2	15.7	0.7	6	clean SAND to silty SAND	125	5.0	89	100	95	46	-	16
71.85	716.7	448.9	448.9	3.9	16.3	0.5	7	grvly SAND to dense SAND	130	6.0	75	100	95	46	-	16
72.02	615.8	385.3	385.3	3.5	13.1	0.6	7	grvly SAND to dense SAND	130	6.0	64	100	95	46	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(467).cpt
CPT Date: 12/5/2008 8:35:39 AM
GW During Test: 12 ft

Sounding ID: CPT-08-46
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	47.1	75.5	75.5	0.0	0.1	0.1	6	clean SAND to silty SAND	125	5.0	15	9	58	48	-	16
0.49	102.0	163.5	163.5	0.0	0.0	0.1	7	grvly SAND to dense SAND	130	6.0	27	17	83	48	-	16
0.66	86.5	138.7	138.7	0.4	0.0	0.4	6	clean SAND to silty SAND	125	5.0	28	17	78	48	-	16
0.82	71.7	115.1	127.6	0.6	0.0	0.8	6	clean SAND to silty SAND	125	5.0	23	14	72	48	-	16
0.98	55.9	89.7	109.4	0.5	0.0	0.9	6	clean SAND to silty SAND	125	5.0	18	11	63	48	-	16
1.15	39.3	63.1	86.8	0.4	0.0	0.9	6	clean SAND to silty SAND	125	5.0	13	8	52	48	-	16
1.31	26.7	42.8	74.2	0.3	0.0	1.1	5	silty SAND to sandy SILT	120	4.0	11	7	39	46	-	16
1.48	21.6	34.7	62.0	0.2	0.0	0.8	5	silty SAND to sandy SILT	120	4.0	9	5	32	45	-	16
1.64	19.5	31.3	50.5	0.1	0.0	0.5	5	silty SAND to sandy SILT	120	4.0	8	5	29	44	-	16
1.80	20.7	33.2	74.0	0.3	0.1	1.4	5	silty SAND to sandy SILT	120	4.0	8	5	31	44	-	16
1.97	33.1	53.1	112.3	0.7	0.1	2.2	5	silty SAND to sandy SILT	120	4.0	13	8	46	45	-	16
2.13	49.7	79.7	132.2	1.0	0.1	2.1	5	silty SAND to sandy SILT	120	4.0	20	12	60	47	-	16
2.30	68.0	109.1	126.3	0.6	-0.8	0.9	6	clean SAND to silty SAND	125	5.0	22	14	70	48	-	16
2.46	63.8	102.3	133.0	0.9	-1.2	1.4	6	clean SAND to silty SAND	125	5.0	20	13	68	47	-	16
2.62	63.4	101.6	136.2	1.0	0.2	1.5	5	silty SAND to sandy SILT	120	4.0	25	16	68	47	-	16
2.79	55.3	88.7	136.3	1.1	0.2	1.9	5	silty SAND to sandy SILT	120	4.0	22	14	63	46	-	16
2.95	58.0	93.0	137.9	1.1	0.2	1.9	5	silty SAND to sandy SILT	120	4.0	23	14	65	46	-	16
3.12	57.9	92.8	141.3	1.1	0.2	2.0	5	silty SAND to sandy SILT	120	4.0	23	14	65	46	-	16
3.28	57.3	91.9	147.9	1.3	0.2	2.2	5	silty SAND to sandy SILT	120	4.0	23	14	64	46	-	16
3.45	54.5	87.4	164.4	1.6	0.1	2.9	5	silty SAND to sandy SILT	120	4.0	22	14	63	45	-	16
3.61	56.6	90.7	182.6	1.9	-0.4	3.4	5	silty SAND to sandy SILT	120	4.0	23	14	64	46	-	16
3.77	74.3	119.2	198.1	2.2	0.1	3.0	5	silty SAND to sandy SILT	120	4.0	30	19	73	47	-	16
3.94	72.5	116.3	208.2	2.5	-1.7	3.4	5	silty SAND to sandy SILT	120	4.0	29	18	72	46	-	16
4.10	63.5	101.9	199.3	2.3	-2.8	3.6	5	silty SAND to sandy SILT	120	4.0	25	16	68	46	-	16
4.27	51.6	82.7	181.1	1.9	-3.7	3.7	4	clayy SILT to silty CLAY	115	2.0	41	26	-	-	3.6	15
4.43	53.9	86.5	157.0	1.5	-3.4	2.7	5	silty SAND to sandy SILT	120	4.0	22	13	62	45	-	16
4.59	50.7	81.2	153.4	1.4	-3.4	2.8	5	silty SAND to sandy SILT	120	4.0	20	13	60	44	-	16
4.76	42.3	67.9	150.3	1.3	-4.1	3.1	5	silty SAND to sandy SILT	120	4.0	17	11	54	43	-	16
4.92	35.8	57.4	148.6	1.3	-4.0	3.5	4	clayy SILT to silty CLAY	115	2.0	29	18	-	-	2.5	15
5.09	37.3	59.9	153.4	1.3	-3.8	3.6	4	clayy SILT to silty CLAY	115	2.0	30	19	-	-	2.6	15
5.25	43.4	69.6	157.1	1.4	-3.3	3.3	4	clayy SILT to silty CLAY	115	2.0	35	22	-	-	3.0	15
5.41	41.3	66.3	157.8	1.4	-3.3	3.5	4	clayy SILT to silty CLAY	115	2.0	33	21	-	-	2.9	15
5.58	36.0	57.7	149.7	1.3	-3.3	3.6	4	clayy SILT to silty CLAY	115	2.0	29	18	-	-	2.5	15
5.74	32.9	52.8	137.8	1.1	-2.7	3.3	4	clayy SILT to silty CLAY	115	2.0	26	16	-	-	2.3	15
5.91	28.9	46.3	131.8	1.0	-2.0	3.4	4	clayy SILT to silty CLAY	115	2.0	23	14	-	-	2.0	15
6.07	26.4	42.4	129.3	0.9	-0.7	3.5	4	clayy SILT to silty CLAY	115	2.0	21	13	-	-	1.8	15
6.23	26.3	41.8	129.2	0.9	-0.6	3.5	4	clayy SILT to silty CLAY	115	2.0	21	13	-	-	1.8	15
6.40	25.0	39.2	124.2	0.8	-1.6	3.4	4	clayy SILT to silty CLAY	115	2.0	20	13	-	-	1.7	15
6.56	22.6	36.2	-	0.8	-1.8	3.6	4	clayy SILT to silty CLAY	115	2.0	18	11	-	-	1.6	15
6.73	21.4	34.3	-	0.8	-1.8	3.7	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.5	15
6.89	21.6	34.6	-	0.8	-2.0	3.7	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.5	15
7.05	19.9	31.9	-	0.8	-2.0	3.9	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
7.22	18.2	29.1	-	0.7	-1.6	4.0	4	clayy SILT to silty CLAY	115	2.0	15	9	-	-	1.3	15
7.38	16.4	26.2	-	0.6	-2.3	4.0	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.1	15
7.55	14.3	22.9	-	0.6	-2.2	4.6	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.0	15
7.71	13.6	21.9	-	0.6	-2.5	4.6	3	silty CLAY to CLAY	115	1.5	15	9	-	-	0.9	15
7.87	13.0	20.9	-	0.5	-3.3	4.1	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
8.04	13.3	21.3	-	0.5	-4.5	3.6	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
8.20	12.8	20.5	-	0.5	-4.4	3.9	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
8.37	13.9	22.3	-	0.5	-4.2	3.7	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
8.53	14.2	22.7	-	0.5	-4.2	3.8	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
8.69	12.6	20.2	-	0.5	-4.2	4.1	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
8.86	13.2	21.2	-	0.5	-4.2	3.7	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
9.02	14.5	23.3	-	0.4	-4.2	3.2	4	clayy SILT to silty CLAY	115	2.0	12	7	-	-	1.0	15
9.19	12.9	20.7	-	0.4	-4.3	3.6	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
9.35	11.0	17.7	-	0.4	-4.3	4.0	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.8	15
9.51	10.2	16.4	-	0.4	-4.2	3.7	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
9.68	9.6	15.3	-	0.3	-4.1	3.9	3	silty CLAY to CLAY	115	1.5	10	6	-	-	0.7	15
9.84	8.4	13.4	-	0.4	-4.0	4.9	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
10.01	13.2	21.2	-	0.4	-3.9	3.1	4	clayy SILT to silty CLAY	115	2.0	11	7	-	-	0.9	15
10.17	27.9	35.0	83.5	0.5	-5.6	1.7	5	silty SAND to sandy SILT	120	4.0	9	7	32	39	-	16
10.34	33.5	41.7	88.1	0.5	-5.7	1.6	5	silty SAND to sandy SILT	120	4.0	10	8	38	40	-	16
10.50	35.6	43.9	91.5	0.6	-6.1	1.7	5	silty SAND to sandy SILT	120	4.0	11	9	40	40	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(467).cpt
CPT Date: 12/5/2008 8:35:39 AM
GW During Test: 12 ft

Sounding ID: CPT-08-46
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	40.1	49.1	92.4	0.6	-6.2	1.6	5	silty SAND to sandy SILT	120	4.0	12	10	44	41	-	16
10.83	39.8	48.3	92.3	0.6	-6.2	1.6	5	silty SAND to sandy SILT	120	4.0	12	10	43	40	-	16
10.99	38.3	46.1	97.5	0.7	-6.2	1.9	5	silty SAND to sandy SILT	120	4.0	12	10	41	40	-	16
11.16	37.3	44.6	96.4	0.7	-6.1	1.9	5	silty SAND to sandy SILT	120	4.0	11	9	40	40	-	16
11.32	37.8	44.9	97.7	0.7	-5.4	1.9	5	silty SAND to sandy SILT	120	4.0	11	9	41	40	-	16
11.48	40.2	47.3	99.9	0.8	-5.4	1.9	5	silty SAND to sandy SILT	120	4.0	12	10	42	40	-	16
11.65	44.8	52.4	102.8	0.8	-5.4	1.9	5	silty SAND to sandy SILT	120	4.0	13	11	46	41	-	16
11.81	47.9	55.6	104.1	0.9	-5.4	1.8	5	silty SAND to sandy SILT	120	4.0	14	12	48	41	-	16
11.98	50.7	58.5	105.6	0.9	-5.4	1.8	5	silty SAND to sandy SILT	120	4.0	15	13	49	41	-	16
12.14	50.4	57.9	100.0	0.8	-5.4	1.6	5	silty SAND to sandy SILT	120	4.0	14	13	49	41	-	16
12.30	48.3	55.3	98.5	0.8	-5.4	1.6	5	silty SAND to sandy SILT	120	4.0	14	12	47	41	-	16
12.47	46.8	53.4	99.6	0.8	-5.4	1.7	5	silty SAND to sandy SILT	120	4.0	13	12	46	41	-	16
12.63	44.1	50.2	97.8	0.8	-5.4	1.7	5	silty SAND to sandy SILT	120	4.0	13	11	44	40	-	16
12.80	40.9	46.4	96.0	0.7	-5.3	1.8	5	silty SAND to sandy SILT	120	4.0	12	10	42	40	-	16
12.96	37.6	42.5	86.3	0.6	-5.3	1.5	5	silty SAND to sandy SILT	120	4.0	11	9	39	39	-	16
13.12	28.6	32.2	83.0	0.5	-5.3	1.8	5	silty SAND to sandy SILT	120	4.0	8	7	30	38	-	16
13.29	14.5	19.4	-	0.4	-5.4	2.6	4	clayy SILT to silty CLAY	115	2.0	10	7	-	-	1.0	15
13.45	8.7	11.6	-	0.2	-5.3	3.0	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
13.62	7.1	9.4	-	0.2	-4.9	3.0	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
13.78	6.8	8.9	-	0.2	-4.6	3.2	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.4	15
13.94	7.0	9.2	-	0.2	-4.5	3.7	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
14.11	6.9	8.9	-	0.2	-4.3	4.0	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.4	15
14.27	6.8	8.7	-	0.2	-4.2	4.1	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.4	15
14.44	6.2	8.0	-	0.2	-4.1	4.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.60	6.0	7.7	-	0.2	-4.0	4.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.76	5.7	7.3	-	0.2	-2.8	4.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.93	5.8	7.3	-	0.3	-2.6	5.2	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.09	6.8	8.5	-	0.3	-2.5	4.5	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.4	15
15.26	8.5	10.7	-	0.2	-2.4	2.7	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
15.42	8.0	9.9	-	0.2	-2.4	2.8	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
15.58	5.8	7.2	-	0.2	-2.3	3.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.75	5.6	6.9	-	0.2	-2.0	3.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.91	6.0	7.4	-	0.2	-1.8	4.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.08	6.2	7.6	-	0.3	-1.7	5.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.24	6.7	8.1	-	0.3	-1.6	5.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.40	16.1	19.4	-	0.3	-1.5	2.2	4	clayy SILT to silty CLAY	115	2.0	10	8	-	-	1.1	15
16.57	27.9	29.7	77.4	0.4	-1.8	1.6	5	silty SAND to sandy SILT	120	4.0	7	7	27	37	-	16
16.73	42.4	45.0	91.6	0.7	-1.8	1.7	5	silty SAND to sandy SILT	120	4.0	11	11	41	39	-	16
16.90	56.1	59.4	105.1	0.9	-2.3	1.7	5	silty SAND to sandy SILT	120	4.0	15	14	50	40	-	16
17.06	57.6	60.8	108.8	1.0	-1.3	1.8	5	silty SAND to sandy SILT	120	4.0	15	14	51	41	-	16
17.23	66.5	70.0	113.9	1.1	-1.3	1.7	5	silty SAND to sandy SILT	120	4.0	17	17	55	41	-	16
17.39	76.5	80.3	123.0	1.3	-1.5	1.7	5	silty SAND to sandy SILT	120	4.0	20	19	60	42	-	16
17.55	83.7	87.6	128.5	1.4	-1.6	1.7	5	silty SAND to sandy SILT	120	4.0	22	21	63	42	-	16
17.72	100.9	105.3	139.0	1.5	-0.9	1.5	6	clean SAND to silty SAND	125	5.0	21	20	69	43	-	16
17.88	103.6	107.8	144.3	1.6	-0.7	1.6	5	silty SAND to sandy SILT	120	4.0	27	26	69	43	-	16
18.05	109.1	113.2	149.7	1.8	-0.7	1.6	6	clean SAND to silty SAND	125	5.0	23	22	71	44	-	16
18.21	106.5	110.2	150.3	1.8	-0.6	1.7	5	silty SAND to sandy SILT	120	4.0	28	27	70	43	-	16
18.37	91.1	94.1	141.1	1.7	-0.4	1.9	5	silty SAND to sandy SILT	120	4.0	24	23	65	43	-	16
18.54	66.3	68.3	123.3	1.4	-0.6	2.1	5	silty SAND to sandy SILT	120	4.0	17	17	54	41	-	16
18.70	34.6	35.6	114.0	1.0	-0.8	3.1	4	clayy SILT to silty CLAY	115	2.0	18	17	-	-	2.4	15
18.87	15.1	16.8	-	0.6	-0.7	4.2	3	silty CLAY to CLAY	115	1.5	11	10	-	-	1.0	15
19.03	9.7	10.8	-	0.3	-0.1	3.7	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
19.19	9.2	10.2	-	0.3	0.7	3.9	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
19.36	21.6	23.7	-	0.5	2.5	2.5	4	clayy SILT to silty CLAY	115	2.0	12	11	-	-	1.5	15
19.52	37.7	38.2	85.2	0.6	1.7	1.6	5	silty SAND to sandy SILT	120	4.0	10	9	35	38	-	16
19.69	52.2	52.8	90.3	0.7	-0.6	1.4	5	silty SAND to sandy SILT	120	4.0	13	13	46	39	-	16
19.85	61.2	61.7	99.7	0.9	-1.3	1.4	5	silty SAND to sandy SILT	120	4.0	15	15	51	40	-	16
20.01	66.4	66.8	105.1	1.0	2.1	1.5	5	silty SAND to sandy SILT	120	4.0	17	17	54	41	-	16
20.18	64.6	64.9	106.2	1.0	1.8	1.6	5	silty SAND to sandy SILT	120	4.0	16	16	53	40	-	16
20.34	56.9	57.0	104.9	1.0	1.8	1.8	5	silty SAND to sandy SILT	120	4.0	14	14	48	40	-	16
20.51	47.7	47.6	106.1	1.0	2.0	2.1	5	silty SAND to sandy SILT	120	4.0	12	12	43	39	-	16
20.67	38.0	37.9	109.8	1.0	2.2	2.7	4	clayy SILT to silty CLAY	115	2.0	19	19	-	-	2.6	15
20.83	30.7	32.2	-	1.0	3.2	3.3	4	clayy SILT to silty CLAY	115	2.0	16	15	-	-	2.1	15
21.00	17.5	18.3	-	0.7	3.5	4.6	3	silty CLAY to CLAY	115	1.5	12	12	-	-	1.2	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(467).cpt
CPT Date: 12/5/2008 8:35:39 AM
GW During Test: 12 ft

Sounding ID: CPT-08-46
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	10.5	10.9	-	0.4	3.8	4.3	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
21.33	7.3	7.6	-	0.2	4.7	3.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.49	6.7	6.9	-	0.1	6.0	2.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
21.65	6.5	6.6	-	0.2	6.9	3.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.82	6.4	6.5	-	0.2	7.5	3.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.98	6.3	6.4	-	0.2	8.0	4.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.15	6.4	6.5	-	0.2	8.5	4.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.31	6.6	6.6	-	0.3	9.7	4.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.47	6.9	6.9	-	0.3	10.0	4.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
22.64	7.0	7.0	-	0.3	10.3	5.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
22.80	7.1	7.1	-	0.3	10.6	5.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.97	7.0	6.9	-	0.2	10.6	4.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
23.13	6.5	6.4	-	0.3	11.1	5.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.30	7.6	7.4	-	0.3	12.0	4.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.46	22.1	21.2	61.8	0.2	13.2	1.2	5	silty SAND to sandy SILT	120	4.0	5	6	16	33	-	16
23.62	59.5	57.0	77.5	0.4	1.1	0.8	6	clean SAND to silty SAND	125	5.0	11	12	48	39	-	16
23.79	76.2	72.9	92.4	0.6	1.2	0.8	6	clean SAND to silty SAND	125	5.0	15	15	57	41	-	16
23.95	87.8	83.7	104.5	0.8	2.4	0.9	6	clean SAND to silty SAND	125	5.0	17	18	61	41	-	16
24.12	93.8	89.2	109.8	0.9	2.6	1.0	6	clean SAND to silty SAND	125	5.0	18	19	63	42	-	16
24.28	95.7	90.8	114.6	1.0	2.8	1.1	6	clean SAND to silty SAND	125	5.0	18	19	64	42	-	16
24.44	94.6	89.6	116.2	1.1	4.9	1.2	6	clean SAND to silty SAND	125	5.0	18	19	63	42	-	16
24.61	94.4	89.1	117.1	1.1	4.9	1.2	6	clean SAND to silty SAND	125	5.0	18	19	63	42	-	16
24.77	96.1	90.5	118.1	1.2	5.0	1.2	6	clean SAND to silty SAND	125	5.0	18	19	64	42	-	16
24.94	97.5	91.6	118.8	1.2	5.1	1.2	6	clean SAND to silty SAND	125	5.0	18	19	64	42	-	16
25.10	97.3	91.2	118.9	1.2	5.1	1.2	6	clean SAND to silty SAND	125	5.0	18	19	64	42	-	16
25.26	96.3	90.0	118.4	1.2	5.3	1.2	6	clean SAND to silty SAND	125	5.0	18	19	64	41	-	16
25.43	93.4	87.2	116.6	1.2	5.3	1.3	6	clean SAND to silty SAND	125	5.0	17	19	62	41	-	16
25.59	90.6	84.3	118.1	1.3	5.3	1.4	5	silty SAND to sandy SILT	120	4.0	21	23	61	41	-	16
25.76	91.4	84.8	117.9	1.2	5.4	1.4	5	silty SAND to sandy SILT	120	4.0	21	23	62	41	-	16
25.92	86.5	80.1	112.7	1.1	5.3	1.3	5	silty SAND to sandy SILT	120	4.0	20	22	60	41	-	16
26.08	50.9	47.1	109.6	1.1	5.0	2.3	5	silty SAND to sandy SILT	120	4.0	12	13	42	38	-	16
26.25	28.8	26.0	-	1.0	5.0	3.5	4	clayy SILT to silty CLAY	115	2.0	13	14	-	-	2.0	15
26.41	14.6	13.1	-	0.6	5.5	4.5	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
26.58	12.0	10.8	-	0.3	6.6	2.7	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
26.74	10.0	8.9	-	0.2	8.6	2.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
26.90	8.9	7.9	-	0.2	10.0	3.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
27.07	8.7	7.7	-	0.2	11.2	2.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
27.23	7.8	6.9	-	0.2	11.9	3.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.40	7.7	6.8	-	0.2	18.5	3.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.56	7.1	6.2	-	0.2	21.5	3.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
27.72	8.2	7.2	-	0.2	24.7	3.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.89	10.3	8.9	-	0.3	23.2	3.0	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
28.05	8.2	7.1	-	0.2	18.9	3.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
28.22	7.3	6.3	-	0.2	20.5	4.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
28.38	9.1	7.8	-	0.4	23.4	4.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.54	26.5	22.6	-	0.5	19.3	2.2	4	clayy SILT to silty CLAY	115	2.0	11	13	-	-	1.8	15
28.71	39.0	35.0	87.6	0.7	7.9	1.8	5	silty SAND to sandy SILT	120	4.0	9	10	32	36	-	16
28.87	40.3	36.1	90.0	0.7	7.8	1.9	5	silty SAND to sandy SILT	120	4.0	9	10	33	36	-	16
29.04	32.7	27.6	-	0.8	8.0	2.7	4	clayy SILT to silty CLAY	115	2.0	14	16	-	-	2.2	15
29.20	19.4	16.3	-	0.8	8.3	4.4	3	silty CLAY to CLAY	115	1.5	11	13	-	-	1.3	15
29.36	14.9	12.5	-	0.6	8.7	4.4	3	silty CLAY to CLAY	115	1.5	8	10	-	-	1.0	15
29.53	23.6	19.7	-	0.5	9.4	2.4	4	clayy SILT to silty CLAY	115	2.0	10	12	-	-	1.6	15
29.69	26.6	23.6	68.8	0.3	6.0	1.4	5	silty SAND to sandy SILT	120	4.0	6	7	19	33	-	16
29.86	31.1	27.5	70.4	0.4	3.1	1.3	5	silty SAND to sandy SILT	120	4.0	7	8	24	34	-	16
30.02	35.8	31.6	83.9	0.6	1.4	1.8	5	silty SAND to sandy SILT	120	4.0	8	9	29	35	-	16
30.19	40.0	35.3	87.9	0.7	1.2	1.8	5	silty SAND to sandy SILT	120	4.0	9	10	33	36	-	16
30.35	49.5	43.5	90.1	0.8	2.0	1.6	5	silty SAND to sandy SILT	120	4.0	11	12	40	37	-	16
30.51	41.1	36.1	89.8	0.7	1.4	1.9	5	silty SAND to sandy SILT	120	4.0	9	10	33	36	-	16
30.68	30.9	25.2	-	0.7	0.2	2.4	4	clayy SILT to silty CLAY	115	2.0	13	15	-	-	2.1	15
30.84	21.9	17.8	-	0.6	-0.2	2.8	4	clayy SILT to silty CLAY	115	2.0	9	11	-	-	1.5	15
31.01	13.7	11.1	-	0.4	-0.3	3.6	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
31.17	9.0	7.3	-	0.3	0.4	4.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.33	9.0	7.2	-	0.3	1.3	3.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.50	8.4	6.7	-	0.3	2.0	4.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(467).cpt
CPT Date: 12/5/2008 8:35:39 AM
GW During Test: 12 ft

Sounding ID: CPT-08-46
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	8.3	6.6	-	0.3	2.7	5.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
31.83	11.7	9.3	-	0.5	3.5	4.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
31.99	25.4	20.1	-	0.5	3.2	2.0	4	clayy SILT to silty CLAY	115	2.0	10	13	-	-	1.7	15
32.15	20.3	16.0	-	0.5	-0.5	2.5	4	clayy SILT to silty CLAY	115	2.0	8	10	-	-	1.4	15
32.32	11.2	8.8	-	0.4	-0.4	4.8	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.48	11.9	9.3	-	0.3	0.6	3.4	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
32.65	10.5	8.2	-	0.3	1.2	4.0	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
32.81	9.7	7.5	-	0.4	2.0	5.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
32.97	14.3	11.1	-	0.6	2.8	4.7	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.9	15
33.14	53.7	45.9	88.7	0.8	2.8	1.5	5	silty SAND to sandy SILT	120	4.0	11	13	41	37	-	16
33.30	69.3	59.1	101.6	1.1	2.9	1.6	5	silty SAND to sandy SILT	120	4.0	15	17	50	38	-	16
33.47	72.9	62.1	110.8	1.3	6.1	1.8	5	silty SAND to sandy SILT	120	4.0	16	18	51	39	-	16
33.63	77.4	65.7	117.4	1.5	6.5	1.9	5	silty SAND to sandy SILT	120	4.0	16	19	53	39	-	16
33.79	87.6	74.3	123.9	1.6	6.6	1.9	5	silty SAND to sandy SILT	120	4.0	19	22	57	40	-	16
33.96	93.6	79.2	128.2	1.7	6.6	1.9	5	silty SAND to sandy SILT	120	4.0	20	23	59	40	-	16
34.12	102.0	86.2	134.3	1.9	6.7	1.9	5	silty SAND to sandy SILT	120	4.0	22	25	62	40	-	16
34.29	104.4	88.1	138.8	2.1	6.9	2.0	5	silty SAND to sandy SILT	120	4.0	22	26	63	40	-	16
34.45	107.0	90.1	137.3	2.0	7.0	1.9	5	silty SAND to sandy SILT	120	4.0	23	27	64	41	-	16
34.61	103.4	86.9	135.0	1.9	7.1	1.9	5	silty SAND to sandy SILT	120	4.0	22	26	62	40	-	16
34.78	97.2	81.5	131.4	1.9	7.1	1.9	5	silty SAND to sandy SILT	120	4.0	20	24	60	40	-	16
34.94	96.0	80.4	133.9	1.9	7.3	2.1	5	silty SAND to sandy SILT	120	4.0	20	24	60	40	-	16
35.11	94.9	79.4	137.0	2.1	7.5	2.2	5	silty SAND to sandy SILT	120	4.0	20	24	59	40	-	16
35.27	93.6	78.1	137.1	2.1	7.6	2.3	5	silty SAND to sandy SILT	120	4.0	20	23	59	40	-	16
35.43	101.7	84.7	139.2	2.1	7.6	2.1	5	silty SAND to sandy SILT	120	4.0	21	25	62	40	-	16
35.60	116.9	97.2	142.7	2.1	7.7	1.9	5	silty SAND to sandy SILT	120	4.0	24	29	66	41	-	16
35.76	122.6	101.8	143.5	2.1	7.7	1.8	5	silty SAND to sandy SILT	120	4.0	25	31	68	41	-	16
35.93	125.8	104.3	143.5	2.1	7.7	1.7	5	silty SAND to sandy SILT	120	4.0	26	31	68	41	-	16
36.09	125.1	103.5	142.7	2.1	7.9	1.7	5	silty SAND to sandy SILT	120	4.0	26	31	68	41	-	16
36.26	120.7	99.7	138.6	2.0	8.0	1.6	5	silty SAND to sandy SILT	120	4.0	25	30	67	41	-	16
36.42	105.1	86.7	131.4	1.8	7.9	1.8	5	silty SAND to sandy SILT	120	4.0	22	26	62	40	-	16
36.58	85.7	70.6	123.3	1.7	8.0	2.0	5	silty SAND to sandy SILT	120	4.0	18	21	55	39	-	16
36.75	79.3	65.2	113.6	1.4	8.1	1.8	5	silty SAND to sandy SILT	120	4.0	16	20	53	39	-	16
36.91	76.2	62.5	111.4	1.3	8.6	1.8	5	silty SAND to sandy SILT	120	4.0	16	19	51	38	-	16
37.08	59.8	49.0	104.9	1.2	5.3	2.0	5	silty SAND to sandy SILT	120	4.0	12	15	43	37	-	16
37.24	46.9	38.4	98.9	1.0	4.9	2.2	5	silty SAND to sandy SILT	120	4.0	10	12	35	35	-	16
37.40	28.2	19.9	-	0.8	4.7	3.3	4	clayy SILT to silty CLAY	115	2.0	10	14	-	-	1.9	15
37.57	17.1	12.0	-	0.6	5.8	3.9	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
37.73	11.3	8.0	-	0.4	7.1	4.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
37.90	9.7	6.8	-	0.3	9.0	3.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
38.06	9.3	6.5	-	0.3	10.2	4.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
38.22	9.6	6.7	-	0.3	11.3	4.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
38.39	9.6	6.7	-	0.3	12.0	4.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
38.55	9.3	6.4	-	0.3	13.0	4.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
38.72	9.6	6.6	-	0.3	14.1	4.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
38.88	9.6	6.6	-	0.3	15.2	4.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
39.04	9.3	6.4	-	0.4	16.6	5.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
39.21	10.6	7.3	-	0.5	19.1	6.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
39.37	13.0	8.9	-	0.7	21.1	6.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
39.54	11.3	7.7	-	0.6	22.8	6.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
39.70	10.1	6.9	-	0.4	25.4	4.7	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
39.86	9.6	6.5	-	0.3	28.4	4.0	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
40.03	9.0	6.0	-	0.3	35.9	4.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
40.19	8.3	5.6	-	0.3	36.5	4.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
40.36	8.3	5.5	-	0.3	37.3	4.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
40.52	8.5	5.7	-	0.3	38.4	4.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
40.68	8.9	5.9	-	0.3	39.0	4.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
40.85	8.6	5.7	-	0.3	39.0	4.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
41.01	8.8	5.8	-	0.3	40.3	5.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
41.18	9.3	6.1	-	0.4	40.9	5.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
41.34	16.0	10.5	-	0.4	42.0	2.9	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
41.50	15.6	10.2	-	0.5	17.0	3.5	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
41.67	10.5	6.9	-	0.4	20.5	5.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
41.83	10.0	6.5	-	0.4	22.0	5.1	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
42.00	9.8	6.4	-	0.4	25.2	5.1	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(467).cpt
CPT Date: 12/5/2008 8:35:39 AM
GW During Test: 12 ft

Sounding ID: CPT-08-46
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	9.9	6.4	-	0.4	27.3	5.9	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
42.32	10.5	6.8	-	0.4	29.8	5.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
42.49	9.8	6.3	-	0.4	31.9	5.8	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
42.65	10.0	6.4	-	0.4	34.5	4.9	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
42.82	10.3	6.6	-	0.3	37.5	4.4	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
42.98	9.9	6.3	-	0.3	39.9	4.5	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
43.15	9.9	6.3	-	0.3	42.3	4.7	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
43.31	10.0	6.4	-	0.3	43.3	4.4	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
43.47	10.0	6.4	-	0.4	46.7	4.7	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
43.64	10.4	6.6	-	0.3	47.0	4.3	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
43.80	10.1	6.4	-	0.3	47.0	4.4	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
43.97	10.7	6.8	-	0.3	49.7	4.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
44.13	11.2	7.1	-	0.4	50.6	4.3	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
44.29	10.9	6.8	-	0.4	49.7	4.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
44.46	11.3	7.0	-	0.4	51.2	4.7	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
44.62	13.5	8.4	-	0.5	54.2	4.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
44.79	29.4	18.3	-	0.6	25.3	2.3	4	clayy SILT to silty CLAY	115	2.0	9	15	-	-	2.0	15
44.95	16.0	9.9	-	0.5	5.6	4.0	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
45.11	11.8	7.3	-	0.3	8.3	3.8	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
45.28	11.4	7.0	-	0.3	11.1	3.4	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
45.44	11.5	7.1	-	0.3	13.7	3.5	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
45.61	11.4	7.0	-	0.3	16.5	3.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
45.77	11.8	7.2	-	0.3	19.3	3.4	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
45.93	11.7	7.1	-	0.4	22.2	4.0	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
46.10	12.4	7.6	-	0.4	25.0	4.4	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
46.26	14.5	8.8	-	0.5	23.3	3.9	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
46.43	15.3	9.3	-	0.6	27.7	4.7	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
46.59	15.9	9.6	-	0.6	27.5	4.7	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
46.75	50.2	37.9	89.6	0.8	5.6	1.8	5	silty SAND to sandy SILT	120	4.0	9	13	35	35	-	16
46.92	38.0	22.8	-	1.0	5.7	2.9	4	clayy SILT to silty CLAY	115	2.0	11	19	-	-	2.6	15
47.08	22.0	13.1	-	1.0	4.9	5.0	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.5	15
47.25	36.7	21.9	-	0.9	6.7	2.7	4	clayy SILT to silty CLAY	115	2.0	11	18	-	-	2.5	15
47.41	40.0	23.8	-	1.1	4.2	2.9	4	clayy SILT to silty CLAY	115	2.0	12	20	-	-	2.7	15
47.57	33.6	20.0	-	1.0	1.2	3.2	4	clayy SILT to silty CLAY	115	2.0	10	17	-	-	2.3	15
47.74	43.2	25.6	-	1.1	1.5	2.6	4	clayy SILT to silty CLAY	115	2.0	13	22	-	-	3.0	15
47.90	36.0	21.3	-	0.8	2.5	2.5	4	clayy SILT to silty CLAY	115	2.0	11	18	-	-	2.4	15
48.07	25.5	15.0	-	0.8	3.2	3.7	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
48.23	21.2	12.5	-	0.6	2.6	3.4	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
48.39	17.0	10.0	-	0.6	4.1	4.5	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
48.56	19.0	11.1	-	0.6	4.2	3.7	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.2	15
48.72	12.9	7.5	-	0.4	4.3	4.3	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
48.89	12.8	7.5	-	0.3	5.5	3.1	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
49.05	13.1	7.6	-	0.4	6.6	3.7	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
49.22	12.5	7.3	-	0.5	7.6	4.7	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
49.38	25.5	14.7	-	0.5	9.0	2.2	4	clayy SILT to silty CLAY	115	2.0	7	13	-	-	1.7	15
49.54	47.4	35.0	90.3	0.8	8.1	1.9	5	silty SAND to sandy SILT	120	4.0	9	12	32	34	-	16
49.71	36.9	21.2	-	1.0	8.3	3.1	4	clayy SILT to silty CLAY	115	2.0	11	18	-	-	2.5	15
49.87	28.8	16.5	-	0.9	8.7	3.4	3	silty CLAY to CLAY	115	1.5	11	19	-	-	1.9	15
50.04	21.2	12.1	-	0.7	13.2	3.6	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
50.20	16.5	9.4	-	0.6	14.4	4.1	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
50.36	14.5	8.2	-	0.8	16.3	6.6	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
50.53	21.9	12.4	-	1.1	18.7	6.0	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.4	15
50.69	91.1	66.6	129.8	2.1	12.1	2.4	5	silty SAND to sandy SILT	120	4.0	17	23	54	38	-	16
50.86	103.9	75.8	140.1	2.4	10.4	2.4	5	silty SAND to sandy SILT	120	4.0	19	26	58	39	-	16
51.02	107.7	78.5	146.7	2.7	10.7	2.6	5	silty SAND to sandy SILT	120	4.0	20	27	59	39	-	16
51.18	108.8	79.2	148.8	2.8	10.5	2.6	5	silty SAND to sandy SILT	120	4.0	20	27	59	39	-	16
51.35	97.4	70.8	148.1	2.7	10.1	2.9	5	silty SAND to sandy SILT	120	4.0	18	24	56	38	-	16
51.51	94.3	68.5	134.4	2.2	9.8	2.5	5	silty SAND to sandy SILT	120	4.0	17	24	54	38	-	16
51.68	99.2	71.9	124.4	1.9	6.7	2.0	5	silty SAND to sandy SILT	120	4.0	18	25	56	38	-	16
51.84	104.0	75.3	129.4	2.1	2.6	2.1	5	silty SAND to sandy SILT	120	4.0	19	26	58	38	-	16
52.00	109.9	79.5	136.4	2.3	2.4	2.2	5	silty SAND to sandy SILT	120	4.0	20	27	59	39	-	16
52.17	120.6	87.1	145.0	2.6	1.8	2.2	5	silty SAND to sandy SILT	120	4.0	22	30	62	39	-	16
52.33	115.8	83.5	150.9	2.9	6.4	2.5	5	silty SAND to sandy SILT	120	4.0	21	29	61	39	-	16
52.50	101.3	73.0	152.1	2.9	6.0	2.9	5	silty SAND to sandy SILT	120	4.0	18	25	57	38	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(467).cpt
CPT Date: 12/5/2008 8:35:39 AM
GW During Test: 12 ft

Sounding ID: CPT-08-46
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	128.4	92.4	151.9	2.9	4.5	2.3	5	silty SAND to sandy SILT	120	4.0	23	32	64	40	-	16
52.82	113.1	81.3	160.0	3.2	1.4	2.9	5	silty SAND to sandy SILT	120	4.0	20	28	60	39	-	16
52.99	128.0	91.8	142.4	2.5	1.4	2.0	5	silty SAND to sandy SILT	120	4.0	23	32	64	39	-	16
53.15	196.7	141.0	174.8	3.1	1.2	1.6	6	clean SAND to silty SAND	125	5.0	28	39	78	42	-	16
53.32	246.8	176.6	203.0	3.6	1.4	1.5	6	clean SAND to silty SAND	125	5.0	35	49	86	43	-	16
53.48	274.6	196.2	215.8	3.6	1.4	1.3	6	clean SAND to silty SAND	125	5.0	39	55	89	43	-	16
53.64	293.4	209.4	219.0	3.2	1.6	1.1	6	clean SAND to silty SAND	125	5.0	42	59	91	44	-	16
53.81	305.4	217.7	222.1	3.1	1.7	1.0	6	clean SAND to silty SAND	125	5.0	44	61	93	44	-	16
53.97	308.3	219.4	222.4	3.0	2.0	1.0	6	clean SAND to silty SAND	125	5.0	44	62	93	44	-	16
54.14	316.2	224.7	230.3	3.4	2.4	1.1	6	clean SAND to silty SAND	125	5.0	45	63	94	44	-	16
54.30	316.9	224.9	232.5	3.5	2.7	1.1	6	clean SAND to silty SAND	125	5.0	45	63	94	44	-	16
54.46	323.7	229.4	238.4	3.7	3.0	1.2	6	clean SAND to silty SAND	125	5.0	46	65	94	44	-	16
54.63	317.5	224.8	243.9	4.4	3.3	1.4	6	clean SAND to silty SAND	125	5.0	45	64	94	44	-	16
54.79	301.1	212.8	242.1	4.9	3.5	1.7	6	clean SAND to silty SAND	125	5.0	43	60	92	44	-	16
54.96	304.4	214.9	249.1	5.4	4.0	1.8	6	clean SAND to silty SAND	125	5.0	43	61	92	44	-	16
55.12	312.0	220.0	255.2	5.7	4.3	1.8	6	clean SAND to silty SAND	125	5.0	44	62	93	44	-	16
55.28	322.7	227.2	264.6	6.1	4.3	1.9	6	clean SAND to silty SAND	125	5.0	45	65	94	44	-	16
55.45	325.7	229.0	271.5	6.7	4.5	2.1	6	clean SAND to silty SAND	125	5.0	46	65	94	44	-	16
55.61	295.0	207.1	261.0	6.8	4.6	2.3	6	clean SAND to silty SAND	125	5.0	41	59	91	44	-	16
55.78	259.5	182.0	249.2	6.9	4.5	2.7	5	silty SAND to sandy SILT	120	4.0	45	65	87	43	-	16
55.94	306.7	214.8	255.0	6.0	5.0	2.0	6	clean SAND to silty SAND	125	5.0	43	61	92	44	-	16
56.11	334.8	234.2	260.6	5.4	4.5	1.6	6	clean SAND to silty SAND	125	5.0	47	67	95	44	-	16
56.27	368.1	257.1	262.9	4.4	2.8	1.2	6	clean SAND to silty SAND	125	5.0	51	74	95	45	-	16
56.43	360.6	251.6	262.8	4.6	2.4	1.3	6	clean SAND to silty SAND	125	5.0	50	72	95	44	-	16
56.60	362.7	252.7	267.0	4.9	3.9	1.4	6	clean SAND to silty SAND	125	5.0	51	73	95	44	-	16
56.76	367.2	255.5	269.0	4.9	4.0	1.4	6	clean SAND to silty SAND	125	5.0	51	73	95	44	-	16
56.93	358.7	249.2	260.4	4.6	3.9	1.3	6	clean SAND to silty SAND	125	5.0	50	72	95	44	-	16
57.09	355.2	246.5	252.7	4.1	3.9	1.2	6	clean SAND to silty SAND	125	5.0	49	71	95	44	-	16
57.25	348.3	241.3	252.2	4.3	4.0	1.3	6	clean SAND to silty SAND	125	5.0	48	70	95	44	-	16
57.42	345.5	239.1	251.8	4.4	4.1	1.3	6	clean SAND to silty SAND	125	5.0	48	69	95	44	-	16
57.58	327.1	226.1	239.7	4.1	4.3	1.3	6	clean SAND to silty SAND	125	5.0	45	65	94	44	-	16
57.75	279.5	193.0	211.5	3.6	4.2	1.3	6	clean SAND to silty SAND	125	5.0	39	56	89	43	-	16
57.91	227.8	157.1	189.4	3.6	4.1	1.6	6	clean SAND to silty SAND	125	5.0	31	46	82	42	-	16
58.07	215.6	148.4	185.3	3.7	4.3	1.7	6	clean SAND to silty SAND	125	5.0	30	43	80	42	-	16
58.24	221.6	152.4	192.9	4.1	4.4	1.9	6	clean SAND to silty SAND	125	5.0	30	44	81	42	-	16
58.40	223.0	153.2	196.0	4.2	4.2	1.9	6	clean SAND to silty SAND	125	5.0	31	45	81	42	-	16
58.57	233.0	159.8	201.6	4.4	4.1	1.9	6	clean SAND to silty SAND	125	5.0	32	47	82	42	-	16
58.73	243.8	167.0	210.8	4.8	3.9	2.0	6	clean SAND to silty SAND	125	5.0	33	49	84	42	-	16
58.89	263.0	179.9	223.1	5.2	3.7	2.0	6	clean SAND to silty SAND	125	5.0	36	53	86	43	-	16
59.06	278.0	189.9	233.2	5.5	3.7	2.0	6	clean SAND to silty SAND	125	5.0	38	56	88	43	-	16
59.22	291.4	198.9	239.2	5.6	3.7	2.0	6	clean SAND to silty SAND	125	5.0	40	58	90	43	-	16
59.39	320.6	218.5	244.2	5.0	3.8	1.6	6	clean SAND to silty SAND	125	5.0	44	64	93	44	-	16
59.55	358.8	244.2	254.9	4.5	3.8	1.3	6	clean SAND to silty SAND	125	5.0	49	72	95	44	-	16
59.71	378.2	257.1	257.1	3.5	5.4	0.9	6	clean SAND to silty SAND	125	5.0	51	76	95	44	-	16
59.88	383.2	260.1	260.1	3.7	5.0	1.0	6	clean SAND to silty SAND	125	5.0	52	77	95	44	-	16
60.04	354.3	240.3	240.3	3.2	4.7	0.9	6	clean SAND to silty SAND	125	5.0	48	71	95	44	-	16
60.21	316.1	214.0	221.4	3.4	4.1	1.1	6	clean SAND to silty SAND	125	5.0	43	63	92	43	-	16
60.37	304.3	205.8	206.0	2.7	4.3	0.9	6	clean SAND to silty SAND	125	5.0	41	61	91	43	-	16
60.53	371.4	250.9	250.9	2.6	4.0	0.7	6	clean SAND to silty SAND	125	5.0	50	74	95	44	-	16
60.70	392.2	264.6	264.6	2.6	3.4	0.7	6	clean SAND to silty SAND	125	5.0	53	78	95	44	-	16
60.86	400.9	270.2	270.2	2.4	3.3	0.6	6	clean SAND to silty SAND	125	5.0	54	80	95	45	-	16
61.03	403.0	271.2	271.2	2.8	3.6	0.7	6	clean SAND to silty SAND	125	5.0	54	81	95	45	-	16
61.19	412.6	277.3	277.3	3.0	3.6	0.7	6	clean SAND to silty SAND	125	5.0	55	83	95	45	-	16
61.35	401.6	269.6	269.6	3.2	4.0	0.8	6	clean SAND to silty SAND	125	5.0	54	80	95	45	-	16
61.52	396.1	265.6	265.6	2.3	4.3	0.6	6	clean SAND to silty SAND	125	5.0	53	79	95	44	-	16
61.68	404.0	270.6	270.6	2.3	4.3	0.6	6	clean SAND to silty SAND	125	5.0	54	81	95	45	-	16
61.85	393.5	263.2	263.2	3.2	4.0	0.8	6	clean SAND to silty SAND	125	5.0	53	79	95	44	-	16
62.01	386.1	258.0	258.0	2.1	4.1	0.6	6	clean SAND to silty SAND	125	5.0	52	77	95	44	-	16
62.17	382.1	255.0	255.0	2.9	3.7	0.8	6	clean SAND to silty SAND	125	5.0	51	76	95	44	-	16
62.34	411.5	274.3	274.3	2.5	3.7	0.6	6	clean SAND to silty SAND	125	5.0	55	82	95	45	-	16
62.50	399.8	266.2	266.2	3.3	3.9	0.8	6	clean SAND to silty SAND	125	5.0	53	80	95	44	-	16
62.67	403.0	267.9	269.6	4.6	4.3	1.2	6	clean SAND to silty SAND	125	5.0	54	81	95	44	-	16
62.83	395.4	262.6	272.0	5.0	6.7	1.3	6	clean SAND to silty SAND	125	5.0	53	79	95	44	-	16
63.00	399.9	265.2	271.2	4.8	6.9	1.2	6	clean SAND to silty SAND	125	5.0	53	80	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(467).cpt
CPT Date: 12/5/2008 8:35:39 AM
GW During Test: 12 ft

Sounding ID: CPT-08-46
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	391.3	259.2	259.2	3.8	6.6	1.0	6	clean SAND to silty SAND	125	5.0	52	78	95	44	-	16
63.32	392.1	259.4	259.4	3.5	6.5	0.9	6	clean SAND to silty SAND	125	5.0	52	78	95	44	-	16
63.49	378.5	250.1	250.1	3.2	6.5	0.9	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
63.65	359.5	237.3	237.3	2.8	6.3	0.8	6	clean SAND to silty SAND	125	5.0	47	72	95	44	-	16
63.82	332.4	219.2	219.2	2.2	6.2	0.7	6	clean SAND to silty SAND	125	5.0	44	66	93	43	-	16
63.98	308.4	203.1	203.1	1.9	6.1	0.6	6	clean SAND to silty SAND	125	5.0	41	62	90	43	-	16
64.14	285.2	187.6	187.6	1.6	5.9	0.6	6	clean SAND to silty SAND	125	5.0	38	57	88	43	-	16
64.31	251.3	165.1	165.1	1.3	5.8	0.5	6	clean SAND to silty SAND	125	5.0	33	50	84	42	-	16
64.47	211.4	138.7	138.7	1.1	5.7	0.5	6	clean SAND to silty SAND	125	5.0	28	42	78	41	-	16
64.64	162.0	106.2	113.5	0.9	5.5	0.6	6	clean SAND to silty SAND	125	5.0	21	32	69	40	-	16
64.80	90.9	59.5	78.9	0.6	5.2	0.7	6	clean SAND to silty SAND	125	5.0	12	18	50	36	-	16
64.96	41.1	18.6	-	0.7	4.9	1.9	4	clayy SILT to silty CLAY	115	2.0	9	21	-	-	2.8	15
65.13	21.8	9.9	-	0.7	4.8	3.9	3	silty CLAY to CLAY	115	1.5	7	15	-	-	1.4	15
65.29	12.9	5.8	-	0.6	6.0	7.2	2	Organic SOILS - Peats	100	1.0	6	13	-	-	1.2	10
65.46	9.0	4.1	-	0.3	7.6	5.9	2	Organic SOILS - Peats	100	1.0	4	9	-	-	0.7	10
65.62	7.6	3.4	-	0.2	8.5	5.1	2	Organic SOILS - Peats	100	1.0	3	8	-	-	0.6	10
65.78	7.1	3.2	-	0.2	9.3	5.5	2	Organic SOILS - Peats	100	1.0	3	7	-	-	0.5	10
65.95	5.4	2.4	-	0.2	15.6	9.9	2	Organic SOILS - Peats	100	1.0	2	5	-	-	0.4	10
66.11	5.5	2.4	-	0.3	16.7	9.9	2	Organic SOILS - Peats	100	1.0	2	5	-	-	0.4	10
66.28	8.3	3.7	-	0.2	17.9	5.6	2	Organic SOILS - Peats	100	1.0	4	8	-	-	0.7	10
66.44	6.9	3.1	-	0.2	19.2	7.7	2	Organic SOILS - Peats	100	1.0	3	7	-	-	0.5	10
66.60	5.6	2.5	-	0.2	20.5	9.9	2	Organic SOILS - Peats	100	1.0	2	6	-	-	0.4	10
66.77	7.4	3.3	-	0.2	21.8	6.2	2	Organic SOILS - Peats	100	1.0	3	7	-	-	0.6	10
66.93	6.6	2.9	-	0.3	21.9	9.9	2	Organic SOILS - Peats	100	1.0	3	7	-	-	0.5	10
67.10	6.8	3.0	-	0.4	23.4	9.9	2	Organic SOILS - Peats	100	1.0	3	7	-	-	0.5	10
67.26	7.0	3.1	-	0.6	24.5	9.9	2	Organic SOILS - Peats	100	1.0	3	7	-	-	0.5	10
67.42	7.6	3.4	-	0.7	25.1	9.9	2	Organic SOILS - Peats	100	1.0	3	8	-	-	0.6	10
67.59	31.4	13.9	-	0.9	22.7	3.2	3	silty CLAY to CLAY	115	1.5	9	21	-	-	2.1	15
67.75	17.7	7.8	-	0.8	16.1	5.8	3	silty CLAY to CLAY	115	1.5	5	12	-	-	1.1	15
67.92	7.1	3.1	-	0.7	17.8	9.9	2	Organic SOILS - Peats	100	1.0	3	7	-	-	0.5	10
68.08	26.6	11.7	-	0.8	23.8	3.5	3	silty CLAY to CLAY	115	1.5	8	18	-	-	1.7	15
68.24	32.3	14.2	-	1.0	16.7	3.5	3	silty CLAY to CLAY	115	1.5	9	22	-	-	2.1	15
68.41	24.2	10.6	-	1.1	17.0	5.5	3	silty CLAY to CLAY	115	1.5	7	16	-	-	1.6	15
68.57	18.4	8.0	-	1.0	16.9	6.7	3	silty CLAY to CLAY	115	1.5	5	12	-	-	1.2	15
68.74	21.9	9.6	-	0.9	19.7	5.2	3	silty CLAY to CLAY	115	1.5	6	15	-	-	1.4	15
68.90	19.6	8.6	-	0.7	15.4	4.6	3	silty CLAY to CLAY	115	1.5	6	13	-	-	1.2	15
69.07	35.4	15.4	-	0.7	16.0	2.1	4	clayy SILT to silty CLAY	115	2.0	8	18	-	-	2.4	15
69.23	38.8	16.9	-	0.7	14.5	1.9	4	clayy SILT to silty CLAY	115	2.0	8	19	-	-	2.6	15
69.39	25.7	11.1	-	0.8	14.8	3.6	3	silty CLAY to CLAY	115	1.5	7	17	-	-	1.7	15
69.56	16.5	7.2	-	0.6	15.7	5.0	3	silty CLAY to CLAY	115	1.5	5	11	-	-	1.0	15
69.72	8.4	3.6	-	0.8	16.6	9.9	2	Organic SOILS - Peats	100	1.0	4	8	-	-	0.7	10
69.89	20.8	9.0	-	0.7	22.0	3.9	3	silty CLAY to CLAY	115	1.5	6	14	-	-	1.3	15
70.05	67.9	29.3	-	1.7	17.3	2.6	4	clayy SILT to silty CLAY	115	2.0	15	34	-	-	4.7	15
70.21	178.3	113.6	145.3	2.5	16.9	1.4	6	clean SAND to silty SAND	125	5.0	23	36	71	40	-	16
70.38	331.9	211.2	211.2	2.0	16.4	0.6	6	clean SAND to silty SAND	125	5.0	42	66	92	43	-	16
70.54	355.7	226.1	226.1	1.8	14.5	0.5	6	clean SAND to silty SAND	125	5.0	45	71	94	43	-	16
70.71	365.1	231.9	231.9	1.7	14.0	0.5	6	clean SAND to silty SAND	125	5.0	46	73	95	43	-	16
70.87	362.4	229.9	229.9	2.9	13.6	0.8	6	clean SAND to silty SAND	125	5.0	46	72	94	43	-	16
71.03	372.9	236.3	251.4	4.9	12.4	1.3	6	clean SAND to silty SAND	125	5.0	47	75	95	44	-	16
71.20	350.5	221.8	223.8	3.4	12.7	1.0	6	clean SAND to silty SAND	125	5.0	44	70	93	43	-	16
71.36	335.4	212.0	253.4	6.6	13.6	2.0	6	clean SAND to silty SAND	125	5.0	42	67	92	43	-	16
71.53	397.2	250.9	325.9	11.5	14.1	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	26.2	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(419).cpt
CPT Date: 11/19/2008 11:49:29 AM
GW During Test: 12 ft

Sounding ID: CPT-08-47
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	58.0	93.0	145.7	1.2	-0.1	2.1	5	silty SAND to sandy SILT	120	4.0	23	14	65	48	-	16
0.49	56.9	91.3	150.6	1.3	-0.2	2.3	5	silty SAND to sandy SILT	120	4.0	23	14	64	48	-	16
0.66	47.7	76.5	135.5	1.1	-0.2	2.3	5	silty SAND to sandy SILT	120	4.0	19	12	58	48	-	16
0.82	44.9	72.0	116.7	0.8	-0.1	1.8	5	silty SAND to sandy SILT	120	4.0	18	11	56	48	-	16
0.98	43.9	70.4	122.1	0.9	-0.1	2.0	5	silty SAND to sandy SILT	120	4.0	18	11	55	48	-	16
1.15	47.0	75.3	128.4	1.0	0.0	2.1	5	silty SAND to sandy SILT	120	4.0	19	12	58	48	-	16
1.31	59.7	95.8	152.3	1.3	-0.1	2.3	5	silty SAND to sandy SILT	120	4.0	24	15	66	48	-	16
1.48	138.5	222.1	238.9	1.9	-0.1	1.3	6	clean SAND to silty SAND	125	5.0	44	28	93	48	-	16
1.64	147.4	236.4	254.2	2.1	-0.1	1.4	6	clean SAND to silty SAND	125	5.0	47	29	95	48	-	16
1.80	124.6	199.8	239.5	2.4	-0.1	2.0	6	clean SAND to silty SAND	125	5.0	40	25	90	48	-	16
1.97	75.7	121.4	198.5	2.2	0.0	3.0	5	silty SAND to sandy SILT	120	4.0	30	19	73	48	-	16
2.13	53.9	86.4	189.3	2.1	-0.1	3.8	4	clayy SILT to silty CLAY	115	2.0	43	27	-	-	3.8	15
2.30	52.4	84.0	180.0	1.9	-0.9	3.6	4	clayy SILT to silty CLAY	115	2.0	42	26	-	-	3.7	15
2.46	63.9	102.5	183.6	2.0	-0.5	3.1	5	silty SAND to sandy SILT	120	4.0	26	16	68	48	-	16
2.62	69.0	110.6	181.3	1.9	-1.4	2.7	5	silty SAND to sandy SILT	120	4.0	28	17	70	48	-	16
2.79	63.4	101.7	172.0	1.7	-0.5	2.7	5	silty SAND to sandy SILT	120	4.0	25	16	68	47	-	16
2.95	55.6	89.1	158.6	1.5	-0.4	2.7	5	silty SAND to sandy SILT	120	4.0	22	14	63	46	-	16
3.12	44.1	70.7	142.2	1.2	-1.1	2.7	5	silty SAND to sandy SILT	120	4.0	18	11	56	45	-	16
3.28	36.8	58.9	128.5	1.0	0.0	2.7	5	silty SAND to sandy SILT	120	4.0	15	9	50	44	-	16
3.45	30.4	48.8	118.8	0.8	-0.2	2.7	5	silty SAND to sandy SILT	120	4.0	12	8	43	43	-	16
3.61	24.7	39.6	101.5	0.6	0.0	2.3	5	silty SAND to sandy SILT	120	4.0	10	6	36	42	-	16
3.77	22.5	36.1	92.0	0.5	0.0	2.1	5	silty SAND to sandy SILT	120	4.0	9	6	33	41	-	16
3.94	20.3	32.6	86.1	0.4	-0.1	1.9	5	silty SAND to sandy SILT	120	4.0	8	5	30	40	-	16
4.10	17.1	27.5	84.2	0.4	-0.2	2.1	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
4.27	15.3	24.5	80.1	0.3	-0.1	2.1	4	clayy SILT to silty CLAY	115	2.0	12	8	-	-	1.1	15
4.43	14.6	23.4	-	0.3	-0.1	2.1	4	clayy SILT to silty CLAY	115	2.0	12	7	-	-	1.0	15
4.59	14.4	23.2	-	0.3	0.0	2.0	4	clayy SILT to silty CLAY	115	2.0	12	7	-	-	1.0	15
4.76	13.4	21.6	-	0.3	0.0	2.0	4	clayy SILT to silty CLAY	115	2.0	11	7	-	-	0.9	15
4.92	12.1	19.4	-	0.2	-0.1	2.0	4	clayy SILT to silty CLAY	115	2.0	10	6	-	-	0.8	15
5.09	11.0	17.7	-	0.2	-0.1	2.0	4	clayy SILT to silty CLAY	115	2.0	9	6	-	-	0.8	15
5.25	10.3	16.6	-	0.2	-0.1	2.1	4	clayy SILT to silty CLAY	115	2.0	8	5	-	-	0.7	15
5.41	10.6	16.9	-	0.3	-0.2	2.9	4	clayy SILT to silty CLAY	115	2.0	8	5	-	-	0.7	15
5.58	15.1	24.2	-	0.4	-0.3	2.5	4	clayy SILT to silty CLAY	115	2.0	12	8	-	-	1.1	15
5.74	18.4	29.5	89.8	0.4	-0.4	2.3	4	clayy SILT to silty CLAY	115	2.0	15	9	-	-	1.3	15
5.91	17.5	28.0	86.1	0.4	-0.4	2.2	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
6.07	16.1	25.9	84.8	0.3	-0.2	2.2	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.1	15
6.23	14.8	23.7	-	0.3	-0.2	2.4	4	clayy SILT to silty CLAY	115	2.0	12	7	-	-	1.0	15
6.40	16.4	26.3	-	0.5	-0.2	2.9	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.1	15
6.56	20.1	31.4	101.7	0.5	-0.3	2.8	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
6.73	22.4	34.6	104.7	0.6	-0.5	2.7	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.6	15
6.89	24.8	37.8	101.1	0.6	-0.3	2.4	4	clayy SILT to silty CLAY	115	2.0	19	12	-	-	1.7	15
7.05	24.5	36.9	100.6	0.6	-0.3	2.4	4	clayy SILT to silty CLAY	115	2.0	18	12	-	-	1.7	15
7.22	24.3	36.2	98.5	0.6	-0.3	2.3	4	clayy SILT to silty CLAY	115	2.0	18	12	-	-	1.7	15
7.38	22.8	33.5	95.8	0.5	-0.3	2.3	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.6	15
7.55	20.2	32.5	104.3	0.6	-0.3	2.8	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
7.71	18.5	29.7	-	0.6	-0.4	3.3	4	clayy SILT to silty CLAY	115	2.0	15	9	-	-	1.3	15
7.87	16.7	26.9	-	0.6	-0.8	3.8	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.2	15
8.04	14.8	23.8	-	0.5	-1.1	3.6	4	clayy SILT to silty CLAY	115	2.0	12	7	-	-	1.0	15
8.20	16.4	26.2	-	0.4	-0.3	2.7	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.1	15
8.37	17.2	27.6	-	0.5	-0.3	3.3	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
8.53	14.6	23.5	-	0.6	-0.3	4.1	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
8.69	12.5	20.0	-	0.6	-0.3	5.4	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
8.86	9.7	15.6	-	0.6	-2.5	6.2	3	silty CLAY to CLAY	115	1.5	10	6	-	-	0.7	15
9.02	8.5	13.7	-	0.5	-2.3	6.4	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
9.19	6.3	10.0	-	0.4	-3.0	7.8	3	silty CLAY to CLAY	115	1.5	7	4	-	-	0.4	15
9.35	9.1	14.5	-	0.3	-2.7	3.6	3	silty CLAY to CLAY	115	1.5	10	6	-	-	0.6	15
9.51	22.7	29.5	72.4	0.3	-5.9	1.4	5	silty SAND to sandy SILT	120	4.0	7	6	27	38	-	16
9.68	25.2	32.5	77.3	0.4	-0.3	1.5	5	silty SAND to sandy SILT	120	4.0	8	6	30	39	-	16
9.84	29.7	38.0	83.4	0.5	-0.3	1.6	5	silty SAND to sandy SILT	120	4.0	10	7	35	39	-	16
10.01	30.7	38.9	86.5	0.5	-0.8	1.7	5	silty SAND to sandy SILT	120	4.0	10	8	36	39	-	16
10.17	37.1	46.6	85.8	0.5	-2.7	1.4	5	silty SAND to sandy SILT	120	4.0	12	9	42	40	-	16
10.34	39.9	49.7	89.6	0.6	-1.5	1.4	5	silty SAND to sandy SILT	120	4.0	12	10	44	41	-	16
10.50	39.8	49.2	92.9	0.6	-1.1	1.6	5	silty SAND to sandy SILT	120	4.0	12	10	44	41	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(419).cpt
CPT Date: 11/19/2008 11:49:29 AM
GW During Test: 12 ft

Sounding ID: CPT-08-47
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	37.2	45.6	96.4	0.7	-0.7	1.8	5	silty SAND to sandy SILT	120	4.0	11	9	41	40	-	16
10.83	33.9	41.3	94.2	0.6	-0.7	1.9	5	silty SAND to sandy SILT	120	4.0	10	8	38	40	-	16
10.99	34.4	41.6	87.2	0.5	-2.4	1.6	5	silty SAND to sandy SILT	120	4.0	10	9	38	40	-	16
11.16	31.9	38.3	83.4	0.5	-3.0	1.6	5	silty SAND to sandy SILT	120	4.0	10	8	35	39	-	16
11.32	29.7	35.4	79.9	0.4	-2.7	1.5	5	silty SAND to sandy SILT	120	4.0	9	7	33	39	-	16
11.48	33.6	39.7	81.5	0.5	-4.6	1.4	5	silty SAND to sandy SILT	120	4.0	10	8	37	39	-	16
11.65	35.0	41.1	79.8	0.5	-6.5	1.3	5	silty SAND to sandy SILT	120	4.0	10	9	38	40	-	16
11.81	34.1	39.7	80.2	0.5	-6.5	1.4	5	silty SAND to sandy SILT	120	4.0	10	9	37	39	-	16
11.98	32.4	37.5	81.1	0.5	-4.5	1.5	5	silty SAND to sandy SILT	120	4.0	9	8	35	39	-	16
12.14	29.7	34.2	85.9	0.5	-5.7	1.8	5	silty SAND to sandy SILT	120	4.0	9	7	32	38	-	16
12.30	26.0	29.9	88.7	0.5	-7.1	2.2	4	clayy SILT to silty CLAY	115	2.0	15	13	-	-	1.8	15
12.47	22.4	27.7	91.2	0.5	-8.3	2.4	4	clayy SILT to silty CLAY	115	2.0	14	11	-	-	1.6	15
12.63	14.6	20.2	-	0.5	-9.6	3.3	4	clayy SILT to silty CLAY	115	2.0	10	7	-	-	1.0	15
12.80	7.8	10.7	-	0.3	-9.7	4.5	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
12.96	5.1	7.0	-	0.3	-9.5	6.1	3	silty CLAY to CLAY	115	1.5	5	3	-	-	0.3	15
13.12	5.0	6.8	-	0.2	-9.2	5.1	3	silty CLAY to CLAY	115	1.5	5	3	-	-	0.3	15
13.29	4.3	5.8	-	0.2	-9.0	6.2	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
13.45	4.1	5.6	-	0.2	-8.9	6.8	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
13.62	3.9	5.3	-	0.2	-8.7	6.3	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.2	15
13.78	3.5	4.6	-	0.2	-8.6	6.6	2	Organic SOILS - Peats	100	1.0	5	3	-	-	0.3	10
13.94	3.6	4.8	-	0.2	-8.4	7.6	2	Organic SOILS - Peats	100	1.0	5	4	-	-	0.3	10
14.11	4.4	5.8	-	0.3	-8.2	7.7	2	Organic SOILS - Peats	100	1.0	6	4	-	-	0.4	10
14.27	5.2	6.8	-	0.3	-8.1	5.9	3	silty CLAY to CLAY	115	1.5	5	3	-	-	0.3	15
14.44	5.3	6.9	-	0.2	-8.0	4.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.3	15
14.60	4.6	6.0	-	0.2	-7.9	5.4	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
14.76	4.0	5.1	-	0.3	-7.6	8.3	2	Organic SOILS - Peats	100	1.0	5	4	-	-	0.4	10
14.93	4.7	6.0	-	0.3	-7.5	8.0	2	Organic SOILS - Peats	100	1.0	6	5	-	-	0.4	10
15.09	5.1	6.6	-	0.4	-7.3	9.3	2	Organic SOILS - Peats	100	1.0	7	5	-	-	0.5	10
15.26	6.8	8.7	-	0.4	-7.2	5.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.4	15
15.42	23.8	26.1	77.2	0.4	-7.0	1.8	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.6	15
15.58	31.1	34.0	75.2	0.4	-8.2	1.4	5	silty SAND to sandy SILT	120	4.0	8	8	31	38	-	16
15.75	39.2	42.6	84.2	0.6	-8.0	1.4	5	silty SAND to sandy SILT	120	4.0	11	10	39	39	-	16
15.91	47.4	51.4	88.3	0.6	-8.6	1.3	5	silty SAND to sandy SILT	120	4.0	13	12	45	40	-	16
16.08	59.3	64.1	93.6	0.7	-9.3	1.1	5	silty SAND to sandy SILT	120	4.0	16	15	52	41	-	16
16.24	65.2	70.2	98.7	0.7	-9.8	1.1	5	silty SAND to sandy SILT	120	4.0	18	16	55	42	-	16
16.40	68.4	73.5	102.9	0.8	-9.5	1.2	5	silty SAND to sandy SILT	120	4.0	18	17	57	42	-	16
16.57	72.1	77.3	105.3	0.8	-9.1	1.2	5	silty SAND to sandy SILT	120	4.0	19	18	58	42	-	16
16.73	70.7	75.5	105.0	0.8	-8.7	1.2	5	silty SAND to sandy SILT	120	4.0	19	18	58	42	-	16
16.90	64.1	68.3	96.9	0.7	-8.3	1.1	5	silty SAND to sandy SILT	120	4.0	17	16	54	41	-	16
17.06	61.3	65.1	92.4	0.6	-8.0	1.1	5	silty SAND to sandy SILT	120	4.0	16	15	53	41	-	16
17.23	55.2	58.5	87.1	0.6	-7.6	1.1	5	silty SAND to sandy SILT	120	4.0	15	14	49	40	-	16
17.39	54.2	57.3	88.4	0.6	-7.2	1.2	5	silty SAND to sandy SILT	120	4.0	14	14	49	40	-	16
17.55	44.0	46.4	87.4	0.6	-6.9	1.4	5	silty SAND to sandy SILT	120	4.0	12	11	42	39	-	16
17.72	28.5	29.9	85.8	0.5	-6.6	2.0	4	clayy SILT to silty CLAY	115	2.0	15	14	-	-	2.0	15
17.88	15.0	17.4	-	0.5	-6.8	3.2	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.0	15
18.05	8.0	9.2	-	0.4	-6.7	5.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
18.21	6.3	7.3	-	0.4	-6.1	7.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
18.37	6.1	7.0	-	0.3	-4.8	5.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
18.54	24.2	25.1	68.5	0.3	-2.7	1.4	5	silty SAND to sandy SILT	120	4.0	6	6	21	35	-	16
18.70	37.5	38.8	72.3	0.4	-2.8	1.1	5	silty SAND to sandy SILT	120	4.0	10	9	36	38	-	16
18.87	48.6	50.1	77.5	0.5	-3.7	1.0	5	silty SAND to sandy SILT	120	4.0	13	12	44	39	-	16
19.03	41.4	42.6	79.0	0.5	-3.1	1.2	5	silty SAND to sandy SILT	120	4.0	11	10	39	38	-	16
19.19	32.4	33.3	80.5	0.5	-2.2	1.6	5	silty SAND to sandy SILT	120	4.0	8	8	31	37	-	16
19.36	26.9	27.6	80.4	0.5	-1.0	1.8	4	clayy SILT to silty CLAY	115	2.0	14	13	-	-	1.9	15
19.52	25.1	25.6	77.3	0.4	0.0	1.8	4	clayy SILT to silty CLAY	115	2.0	13	13	-	-	1.7	15
19.69	22.3	22.8	73.6	0.4	0.9	1.7	4	clayy SILT to silty CLAY	115	2.0	11	11	-	-	1.5	15
19.85	17.3	19.0	-	0.4	1.7	2.3	4	clayy SILT to silty CLAY	115	2.0	9	9	-	-	1.2	15
20.01	9.8	10.7	-	0.3	2.8	3.8	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.6	15
20.18	5.2	5.7	-	0.3	4.8	6.7	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
20.34	4.5	4.9	-	0.2	7.7	6.2	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
20.51	4.1	4.4	-	0.2	9.4	6.8	2	Organic SOILS - Peats	100	1.0	4	4	-	-	0.4	10
20.67	3.9	4.2	-	0.2	10.8	7.7	2	Organic SOILS - Peats	100	1.0	4	4	-	-	0.3	10
20.83	3.9	4.1	-	0.2	12.0	8.0	2	Organic SOILS - Peats	100	1.0	4	4	-	-	0.3	10
21.00	3.4	3.6	-	0.2	12.9	9.9	2	Organic SOILS - Peats	100	1.0	4	3	-	-	0.3	10

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(419).cpt
CPT Date: 11/19/2008 11:49:29 AM
GW During Test: 12 ft

Sounding ID: CPT-08-47
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	3.6	3.8	-	0.2	13.4	8.1	2	Organic SOILS - Peats	100	1.0	4	4	-	-	0.3	10
21.33	3.8	4.0	-	0.2	14.5	8.1	2	Organic SOILS - Peats	100	1.0	4	4	-	-	0.3	10
21.49	4.1	4.3	-	0.3	15.0	9.0	2	Organic SOILS - Peats	100	1.0	4	4	-	-	0.4	10
21.65	4.4	4.7	-	0.3	13.4	9.0	2	Organic SOILS - Peats	100	1.0	5	4	-	-	0.4	10
21.82	4.5	4.7	-	0.3	12.2	8.7	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.4	10
21.98	4.4	4.6	-	0.3	13.4	8.2	2	Organic SOILS - Peats	100	1.0	5	4	-	-	0.4	10
22.15	4.6	4.8	-	0.2	14.3	7.0	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.4	10
22.31	4.6	4.7	-	0.2	14.7	7.1	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.4	10
22.47	4.8	4.9	-	0.2	17.4	5.5	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
22.64	6.6	6.8	-	0.3	17.3	4.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
22.80	7.6	7.8	-	0.3	17.7	5.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.97	15.6	16.0	-	0.3	8.1	2.2	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.1	15
23.13	21.2	20.8	66.8	0.3	-1.2	1.5	4	clayy SILT to silty CLAY	115	2.0	10	11	-	-	1.4	15
23.30	27.4	26.7	68.9	0.3	-4.1	1.3	5	silty SAND to sandy SILT	120	4.0	7	7	23	35	-	16
23.46	30.5	29.8	75.3	0.4	-2.9	1.5	5	silty SAND to sandy SILT	120	4.0	7	8	27	36	-	16
23.62	29.7	28.9	76.3	0.4	-1.7	1.6	5	silty SAND to sandy SILT	120	4.0	7	7	26	35	-	16
23.79	28.4	27.6	77.6	0.5	-0.3	1.7	5	silty SAND to sandy SILT	120	4.0	7	7	24	35	-	16
23.95	28.1	27.2	86.0	0.6	0.8	2.1	4	clayy SILT to silty CLAY	115	2.0	14	14	-	-	1.9	15
24.12	26.3	26.0	-	0.6	2.0	2.3	4	clayy SILT to silty CLAY	115	2.0	13	13	-	-	1.8	15
24.28	34.8	33.6	80.8	0.5	2.2	1.6	5	silty SAND to sandy SILT	120	4.0	8	9	31	36	-	16
24.44	45.8	44.1	82.7	0.6	-6.7	1.3	5	silty SAND to sandy SILT	120	4.0	11	11	40	38	-	16
24.61	55.9	53.6	86.2	0.6	-6.4	1.2	5	silty SAND to sandy SILT	120	4.0	13	14	46	39	-	16
24.77	64.0	61.2	95.4	0.8	-6.8	1.3	5	silty SAND to sandy SILT	120	4.0	15	16	51	40	-	16
24.94	63.4	60.5	100.1	0.9	-7.2	1.5	5	silty SAND to sandy SILT	120	4.0	15	16	50	40	-	16
25.10	66.2	63.0	98.6	0.9	-6.7	1.4	5	silty SAND to sandy SILT	120	4.0	16	17	52	40	-	16
25.26	62.0	58.9	93.8	0.8	-3.2	1.3	5	silty SAND to sandy SILT	120	4.0	15	15	50	39	-	16
25.43	43.7	41.5	91.0	0.7	-3.4	1.7	5	silty SAND to sandy SILT	120	4.0	10	11	38	37	-	16
25.59	23.1	21.9	-	0.6	-2.7	2.7	4	clayy SILT to silty CLAY	115	2.0	11	12	-	-	1.6	15
25.76	11.6	10.9	-	0.4	-1.5	4.1	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
25.92	8.0	7.6	-	0.2	0.0	3.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.08	7.3	6.9	-	0.2	2.7	3.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.25	6.9	6.5	-	0.2	5.0	4.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
26.41	6.3	5.9	-	0.3	7.1	5.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
26.58	5.7	5.2	-	0.2	9.6	5.8	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	15
26.74	5.2	4.8	-	0.2	12.4	5.8	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
26.90	5.0	4.6	-	0.3	15.8	7.3	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.4	10
27.07	6.8	6.3	-	0.2	19.7	4.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
27.23	9.3	8.5	-	0.3	21.7	3.4	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
27.40	6.8	6.2	-	0.3	10.3	5.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
27.56	5.2	4.7	-	0.3	12.0	7.2	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
27.72	21.1	19.1	-	0.3	19.1	1.7	4	clayy SILT to silty CLAY	115	2.0	10	11	-	-	1.4	15
27.89	38.0	35.0	75.8	0.5	0.4	1.3	5	silty SAND to sandy SILT	120	4.0	9	10	32	36	-	16
28.05	34.7	31.9	85.2	0.6	1.5	1.8	5	silty SAND to sandy SILT	120	4.0	8	9	29	35	-	16
28.22	21.0	18.7	-	0.7	2.5	3.8	3	silty CLAY to CLAY	115	1.5	12	14	-	-	1.4	15
28.38	13.6	12.1	-	0.6	3.5	4.8	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
28.54	28.5	26.1	75.8	0.4	12.5	1.6	5	silty SAND to sandy SILT	120	4.0	7	7	23	34	-	16
28.71	36.7	33.5	70.4	0.4	-1.7	1.2	5	silty SAND to sandy SILT	120	4.0	8	9	31	36	-	16
28.87	38.9	35.4	66.3	0.3	-2.6	0.9	5	silty SAND to sandy SILT	120	4.0	9	10	33	36	-	16
29.04	47.0	42.7	70.9	0.4	-7.0	0.9	5	silty SAND to sandy SILT	120	4.0	11	12	39	37	-	16
29.20	39.5	35.8	83.5	0.6	-7.1	1.6	5	silty SAND to sandy SILT	120	4.0	9	10	33	36	-	16
29.36	32.4	29.3	89.8	0.7	-6.4	2.2	4	clayy SILT to silty CLAY	115	2.0	15	16	-	-	2.2	15
29.53	37.9	34.2	76.3	0.5	-6.3	1.4	5	silty SAND to sandy SILT	120	4.0	9	9	32	36	-	16
29.69	45.4	40.9	78.8	0.6	-8.5	1.3	5	silty SAND to sandy SILT	120	4.0	10	11	38	37	-	16
29.86	25.7	22.0	-	0.5	-10.2	2.2	4	clayy SILT to silty CLAY	115	2.0	11	13	-	-	1.8	15
30.02	18.0	15.3	-	0.5	-10.1	3.2	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.2	15
30.19	10.8	9.2	-	0.4	-10.1	4.5	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
30.35	7.5	6.4	-	0.3	-9.8	5.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.51	6.8	5.7	-	0.3	-9.4	5.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
30.68	6.5	5.5	-	0.3	-9.2	6.6	2	Organic SOILS - Peats	100	1.0	5	6	-	-	0.6	10
30.84	7.5	6.3	-	0.5	-9.0	8.2	2	Organic SOILS - Peats	100	1.0	6	8	-	-	0.7	10
31.01	13.5	11.3	-	0.4	-8.8	3.8	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
31.17	14.9	12.4	-	0.4	-8.9	3.0	3	silty CLAY to CLAY	115	1.5	8	10	-	-	1.0	15
31.33	9.0	7.5	-	0.4	-9.0	5.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.50	7.3	6.0	-	0.3	-8.6	6.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(419).cpt
CPT Date: 11/19/2008 11:49:29 AM
GW During Test: 12 ft

Sounding ID: CPT-08-47
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	7.1	5.8	-	0.3	-8.3	6.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
31.83	6.4	5.2	-	0.3	-7.9	6.0	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.4	15
31.99	6.4	5.2	-	0.3	-7.6	6.4	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.4	15
32.15	6.7	5.4	-	0.4	-7.3	8.5	2	Organic SOILS - Peats	100	1.0	5	7	-	-	0.6	10
32.32	8.5	6.9	-	0.5	-7.1	7.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
32.48	37.5	32.8	80.3	0.6	-6.5	1.6	5	silty SAND to sandy SILT	120	4.0	8	9	30	35	-	16
32.65	62.7	54.8	88.1	0.7	-6.8	1.2	5	silty SAND to sandy SILT	120	4.0	14	16	47	38	-	16
32.81	74.3	64.8	96.7	0.9	-6.3	1.2	5	silty SAND to sandy SILT	120	4.0	16	19	53	39	-	16
32.97	83.0	72.2	106.0	1.1	-5.7	1.3	5	silty SAND to sandy SILT	120	4.0	18	21	56	40	-	16
33.14	92.2	80.1	113.7	1.2	-4.9	1.4	5	silty SAND to sandy SILT	120	4.0	20	23	60	40	-	16
33.30	99.2	86.0	116.9	1.3	-4.1	1.3	5	silty SAND to sandy SILT	120	4.0	21	25	62	41	-	16
33.47	102.9	89.0	118.5	1.3	-3.1	1.3	6	clean SAND to silty SAND	125	5.0	18	21	63	41	-	16
33.63	104.8	90.5	119.9	1.3	-2.0	1.3	6	clean SAND to silty SAND	125	5.0	18	21	64	41	-	16
33.79	101.4	87.4	118.0	1.3	-0.7	1.3	5	silty SAND to sandy SILT	120	4.0	22	25	63	41	-	16
33.96	91.8	79.0	112.2	1.2	0.7	1.4	5	silty SAND to sandy SILT	120	4.0	20	23	59	40	-	16
34.12	85.0	73.0	104.4	1.0	2.2	1.3	5	silty SAND to sandy SILT	120	4.0	18	21	57	40	-	16
34.29	79.6	68.2	102.3	1.0	3.7	1.3	5	silty SAND to sandy SILT	120	4.0	17	20	54	39	-	16
34.45	77.9	66.6	102.8	1.1	5.1	1.4	5	silty SAND to sandy SILT	120	4.0	17	19	54	39	-	16
34.61	85.8	73.3	111.4	1.3	5.8	1.5	5	silty SAND to sandy SILT	120	4.0	18	21	57	40	-	16
34.78	88.2	75.1	114.0	1.3	5.9	1.5	5	silty SAND to sandy SILT	120	4.0	19	22	58	40	-	16
34.94	83.7	71.2	112.3	1.3	7.4	1.6	5	silty SAND to sandy SILT	120	4.0	18	21	56	39	-	16
35.11	72.7	61.7	111.7	1.3	8.1	1.9	5	silty SAND to sandy SILT	120	4.0	15	18	51	39	-	16
35.27	57.2	48.5	102.6	1.1	6.4	1.9	5	silty SAND to sandy SILT	120	4.0	12	14	43	37	-	16
35.43	35.5	26.9	-	0.9	-2.2	2.6	4	clayy SILT to silty CLAY	115	2.0	13	18	-	-	2.4	15
35.60	16.6	12.6	-	0.5	-4.9	3.7	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
35.76	10.4	7.9	-	0.4	-3.1	4.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
35.93	7.6	5.7	-	0.3	-0.1	5.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
36.09	7.3	5.4	-	0.3	2.8	5.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
36.26	7.3	5.5	-	0.3	5.4	5.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
36.42	8.0	5.9	-	0.3	8.6	5.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
36.58	8.8	6.5	-	0.4	11.9	6.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
36.75	9.5	7.0	-	0.4	16.8	5.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
36.91	9.5	7.0	-	0.4	21.1	5.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
37.08	9.4	6.9	-	0.4	25.0	5.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
37.24	9.4	6.9	-	0.4	27.9	5.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
37.40	9.6	7.0	-	0.4	31.7	5.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
37.57	11.9	8.7	-	0.4	34.6	4.6	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
37.73	11.3	8.2	-	0.5	31.3	4.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
37.90	10.7	7.7	-	0.4	32.1	5.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.06	11.8	8.5	-	0.4	35.6	4.6	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.22	10.4	7.5	-	0.5	41.5	6.0	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.39	20.2	14.5	-	0.6	52.7	3.2	3	silty CLAY to CLAY	115	1.5	10	13	-	-	1.3	15
38.55	26.2	18.7	-	0.7	7.2	2.8	4	clayy SILT to silty CLAY	115	2.0	9	13	-	-	1.8	15
38.72	25.7	18.3	-	0.7	0.9	3.0	4	clayy SILT to silty CLAY	115	2.0	9	13	-	-	1.7	15
38.88	21.4	15.2	-	0.6	-2.3	2.9	3	silty CLAY to CLAY	115	1.5	10	14	-	-	1.4	15
39.04	11.3	8.0	-	0.5	-3.3	5.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
39.21	10.3	7.3	-	0.4	-1.5	4.7	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
39.37	10.1	7.1	-	0.4	0.5	5.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
39.54	9.7	6.8	-	0.4	2.3	6.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
39.70	10.1	7.1	-	0.5	4.7	6.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
39.86	10.4	7.2	-	0.5	7.9	6.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
40.03	12.8	8.9	-	0.5	11.9	5.2	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
40.19	16.3	11.3	-	0.5	12.6	3.8	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
40.36	13.0	9.0	-	0.5	13.5	5.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
40.52	12.5	8.6	-	0.6	19.5	5.5	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
40.68	14.4	9.9	-	0.6	26.8	4.7	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.9	15
40.85	13.9	9.5	-	0.6	26.7	4.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
41.01	12.7	8.7	-	0.5	33.1	5.0	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
41.18	12.0	8.1	-	0.6	39.7	5.8	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
41.34	12.9	8.8	-	0.5	49.9	4.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
41.50	15.1	10.2	-	0.6	48.7	4.8	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
41.67	29.2	19.7	-	1.0	37.8	3.6	3	silty CLAY to CLAY	115	1.5	13	19	-	-	2.0	15
41.83	37.9	25.5	-	1.1	11.4	3.1	4	clayy SILT to silty CLAY	115	2.0	13	19	-	-	2.6	15
42.00	22.2	14.9	-	0.7	11.6	3.8	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.5	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(419).cpt
CPT Date: 11/19/2008 11:49:29 AM
GW During Test: 12 ft

Sounding ID: CPT-08-47
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	14.3	9.6	-	0.6	13.9	5.0	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
42.32	14.3	9.5	-	0.6	19.4	5.1	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
42.49	13.9	9.3	-	0.6	21.5	5.5	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.65	13.3	8.8	-	0.6	22.8	5.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.82	13.8	9.2	-	0.7	25.0	5.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.98	15.0	9.9	-	0.6	26.7	4.9	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
43.15	14.1	9.2	-	0.7	27.7	5.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
43.31	15.2	10.0	-	0.8	32.3	6.4	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
43.47	16.8	11.0	-	1.0	28.0	6.8	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
43.64	17.8	11.6	-	1.0	23.5	6.4	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
43.80	18.3	11.9	-	0.9	20.8	5.7	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
43.97	19.0	12.3	-	0.9	20.8	5.5	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
44.13	43.3	33.8	96.5	0.9	25.3	2.2	4	clayy SILT to silty CLAY	115	2.0	17	22	-	-	3.0	15
44.29	140.7	109.7	121.8	1.0	-2.3	0.7	6	clean SAND to silty SAND	125	5.0	22	28	70	41	-	16
44.46	162.5	126.5	134.1	1.1	-4.9	0.7	6	clean SAND to silty SAND	125	5.0	25	33	75	42	-	16
44.62	190.4	148.0	154.7	1.4	-4.4	0.8	6	clean SAND to silty SAND	125	5.0	30	38	80	43	-	16
44.79	221.1	171.5	178.3	1.9	-3.6	0.9	6	clean SAND to silty SAND	125	5.0	34	44	85	43	-	16
44.95	237.1	183.7	189.9	2.2	-2.9	0.9	6	clean SAND to silty SAND	125	5.0	37	47	87	44	-	16
45.11	249.5	193.0	199.2	2.4	3.3	1.0	6	clean SAND to silty SAND	125	5.0	39	50	89	44	-	16
45.28	258.0	199.2	207.3	2.6	3.9	1.0	6	clean SAND to silty SAND	125	5.0	40	52	90	44	-	16
45.44	272.1	209.7	220.0	3.0	4.6	1.1	6	clean SAND to silty SAND	125	5.0	42	54	91	44	-	16
45.61	288.8	222.2	235.2	3.5	5.1	1.2	6	clean SAND to silty SAND	125	5.0	44	58	93	44	-	16
45.77	300.3	230.7	246.3	4.0	5.4	1.3	6	clean SAND to silty SAND	125	5.0	46	60	95	45	-	16
45.93	308.1	236.4	250.9	4.0	5.1	1.3	6	clean SAND to silty SAND	125	5.0	47	62	95	45	-	16
46.10	303.1	232.1	248.3	4.1	4.8	1.4	6	clean SAND to silty SAND	125	5.0	46	61	95	45	-	16
46.26	281.7	215.4	231.5	3.6	4.6	1.3	6	clean SAND to silty SAND	125	5.0	43	56	92	44	-	16
46.43	246.3	188.1	202.6	2.8	4.5	1.2	6	clean SAND to silty SAND	125	5.0	38	49	88	44	-	16
46.59	206.6	157.5	174.2	2.3	4.5	1.1	6	clean SAND to silty SAND	125	5.0	31	41	82	43	-	16
46.75	177.4	135.0	160.5	2.3	5.0	1.3	6	clean SAND to silty SAND	125	5.0	27	35	77	42	-	16
46.92	165.1	125.5	162.2	2.7	5.8	1.7	6	clean SAND to silty SAND	125	5.0	25	33	74	42	-	16
47.08	145.0	110.0	167.0	3.2	5.2	2.3	5	silty SAND to sandy SILT	120	4.0	28	36	70	41	-	16
47.25	85.4	64.7	162.4	3.0	3.6	3.7	4	clayy SILT to silty CLAY	115	2.0	32	43	-	-	5.9	15
47.41	52.3	31.7	-	2.2	3.9	4.5	3	silty CLAY to CLAY	115	1.5	21	35	-	-	3.6	15
47.57	35.2	21.3	-	1.7	4.9	5.4	3	silty CLAY to CLAY	115	1.5	14	23	-	-	2.4	15
47.74	28.1	16.9	-	1.1	8.3	4.4	3	silty CLAY to CLAY	115	1.5	11	19	-	-	1.9	15
47.90	49.2	29.6	-	1.2	50.6	2.7	4	clayy SILT to silty CLAY	115	2.0	15	25	-	-	3.4	15
48.07	53.9	40.6	104.7	1.2	17.8	2.3	5	silty SAND to sandy SILT	120	4.0	10	13	37	35	-	16
48.23	43.5	26.0	-	1.2	15.0	2.9	4	clayy SILT to silty CLAY	115	2.0	13	22	-	-	3.0	15
48.39	31.0	18.5	-	1.2	15.1	4.3	3	silty CLAY to CLAY	115	1.5	12	21	-	-	2.1	15
48.56	92.0	68.9	122.2	1.8	22.9	2.0	5	silty SAND to sandy SILT	120	4.0	17	23	55	38	-	16
48.72	139.2	104.2	162.8	3.1	10.5	2.3	5	silty SAND to sandy SILT	120	4.0	26	35	68	40	-	16
48.89	87.4	65.3	158.2	2.9	8.7	3.5	4	clayy SILT to silty CLAY	115	2.0	33	44	-	-	6.1	15
49.05	125.1	93.4	159.4	3.1	9.5	2.5	5	silty SAND to sandy SILT	120	4.0	23	31	65	40	-	16
49.22	154.8	115.4	162.3	3.0	-0.8	2.0	5	silty SAND to sandy SILT	120	4.0	29	39	72	41	-	16
49.38	165.3	123.0	168.5	3.1	-1.2	1.9	5	silty SAND to sandy SILT	120	4.0	31	41	74	41	-	16
49.54	167.4	124.5	169.6	3.2	-1.0	1.9	5	silty SAND to sandy SILT	120	4.0	31	42	74	41	-	16
49.71	165.5	122.9	165.1	3.0	-0.5	1.8	5	silty SAND to sandy SILT	120	4.0	31	41	74	41	-	16
49.87	184.3	136.6	167.2	2.7	-0.4	1.5	6	clean SAND to silty SAND	125	5.0	27	37	77	42	-	16
50.04	193.5	143.2	172.2	2.8	-3.8	1.5	6	clean SAND to silty SAND	125	5.0	29	39	79	42	-	16
50.20	167.8	124.1	161.0	2.7	-4.0	1.7	6	clean SAND to silty SAND	125	5.0	25	34	74	41	-	16
50.36	142.7	105.3	152.8	2.7	-3.5	2.0	5	silty SAND to sandy SILT	120	4.0	26	36	69	40	-	16
50.53	133.5	98.4	149.7	2.7	-2.9	2.1	5	silty SAND to sandy SILT	120	4.0	25	33	66	40	-	16
50.69	159.0	117.1	156.3	2.7	-3.3	1.7	5	silty SAND to sandy SILT	120	4.0	29	40	72	41	-	16
50.86	203.1	149.3	178.9	3.0	-6.8	1.5	6	clean SAND to silty SAND	125	5.0	30	41	80	42	-	16
51.02	227.2	166.8	191.6	3.1	-7.6	1.4	6	clean SAND to silty SAND	125	5.0	33	45	84	43	-	16
51.18	225.9	165.6	192.2	3.2	-5.2	1.5	6	clean SAND to silty SAND	125	5.0	33	45	84	43	-	16
51.35	209.9	153.6	184.9	3.2	-4.8	1.6	6	clean SAND to silty SAND	125	5.0	31	42	81	42	-	16
51.51	194.4	142.1	179.4	3.3	-4.5	1.7	6	clean SAND to silty SAND	125	5.0	28	39	79	42	-	16
51.68	169.3	123.6	182.6	3.9	-4.1	2.4	5	silty SAND to sandy SILT	120	4.0	31	42	74	41	-	16
51.84	141.4	103.0	171.9	3.6	-3.6	2.6	5	silty SAND to sandy SILT	120	4.0	26	35	68	40	-	16
52.00	216.6	157.7	193.6	3.7	-2.4	1.7	6	clean SAND to silty SAND	125	5.0	32	43	82	42	-	16
52.17	268.6	195.2	220.4	4.0	-3.9	1.5	6	clean SAND to silty SAND	125	5.0	39	54	89	43	-	16
52.33	292.6	212.3	255.2	5.9	-3.6	2.0	6	clean SAND to silty SAND	125	5.0	42	59	92	44	-	16
52.50	276.7	200.5	251.0	6.1	-3.0	2.2	6	clean SAND to silty SAND	125	5.0	40	55	90	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(419).cpt
CPT Date: 11/19/2008 11:49:29 AM
GW During Test: 12 ft

Sounding ID: CPT-08-47
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	195.7	141.6	206.5	5.0	-2.6	2.6	5	silty SAND to sandy SILT	120	4.0	35	49	78	42	-	16
52.82	229.8	166.1	190.0	3.1	-2.2	1.4	6	clean SAND to silty SAND	125	5.0	33	46	84	43	-	16
52.99	364.8	263.3	263.3	2.8	-1.8	0.8	6	clean SAND to silty SAND	125	5.0	53	73	95	45	-	16
53.15	419.7	302.5	302.5	3.1	-2.1	0.7	6	clean SAND to silty SAND	125	5.0	60	84	95	45	-	16
53.32	436.5	314.2	314.2	3.6	-1.6	0.8	6	clean SAND to silty SAND	125	5.0	63	87	95	46	-	16
53.48	423.7	304.5	304.5	4.0	-1.0	1.0	6	clean SAND to silty SAND	125	5.0	61	85	95	45	-	16
53.64	403.4	289.5	289.5	3.9	-0.8	1.0	6	clean SAND to silty SAND	125	5.0	58	81	95	45	-	16
53.81	393.9	282.3	282.3	4.2	-0.4	1.1	6	clean SAND to silty SAND	125	5.0	56	79	95	45	-	16
53.97	387.3	277.2	276.4	4.4	-0.1	1.1	6	clean SAND to silty SAND	125	5.0	55	77	95	45	-	16
54.14	373.2	266.7	270.2	4.4	0.4	1.2	6	clean SAND to silty SAND	125	5.0	53	75	95	45	-	16
54.30	359.8	256.8	262.9	4.3	0.7	1.2	6	clean SAND to silty SAND	125	5.0	51	72	95	45	-	16
54.46	348.5	248.4	257.5	4.3	2.1	1.2	6	clean SAND to silty SAND	125	5.0	50	70	95	44	-	16
54.63	342.7	243.9	262.5	4.9	2.6	1.4	6	clean SAND to silty SAND	125	5.0	49	69	95	44	-	16
54.79	336.1	238.9	262.2	5.2	2.8	1.6	6	clean SAND to silty SAND	125	5.0	48	67	95	44	-	16
54.96	331.4	235.2	255.9	4.9	2.9	1.5	6	clean SAND to silty SAND	125	5.0	47	66	95	44	-	16
55.12	326.9	231.7	247.8	4.4	2.9	1.3	6	clean SAND to silty SAND	125	5.0	46	65	95	44	-	16
55.28	329.7	233.4	241.4	3.8	2.8	1.2	6	clean SAND to silty SAND	125	5.0	47	66	95	44	-	16
55.45	345.6	244.3	244.0	3.5	3.0	1.0	6	clean SAND to silty SAND	125	5.0	49	69	95	44	-	16
55.61	356.6	251.8	251.8	3.3	3.1	0.9	6	clean SAND to silty SAND	125	5.0	50	71	95	44	-	16
55.78	358.9	253.0	253.0	3.4	3.2	0.9	6	clean SAND to silty SAND	125	5.0	51	72	95	45	-	16
55.94	354.8	249.8	249.8	3.3	3.6	1.0	6	clean SAND to silty SAND	125	5.0	50	71	95	44	-	16
56.11	349.8	245.9	245.9	3.2	3.9	0.9	6	clean SAND to silty SAND	125	5.0	49	70	95	44	-	16
56.27	364.5	255.9	255.9	3.4	4.0	1.0	6	clean SAND to silty SAND	125	5.0	51	73	95	45	-	16
56.43	362.5	254.2	254.2	3.6	4.3	1.0	6	clean SAND to silty SAND	125	5.0	51	72	95	44	-	16
56.60	346.6	242.7	242.4	3.5	4.5	1.0	6	clean SAND to silty SAND	125	5.0	49	69	95	44	-	16
56.76	341.0	238.4	238.4	3.3	4.5	1.0	6	clean SAND to silty SAND	125	5.0	48	68	95	44	-	16
56.93	348.6	243.4	243.4	3.2	4.7	0.9	6	clean SAND to silty SAND	125	5.0	49	70	95	44	-	16
57.09	366.5	255.6	255.6	3.2	5.3	0.9	6	clean SAND to silty SAND	125	5.0	51	73	95	44	-	16
57.25	378.2	263.4	263.4	3.0	5.3	0.8	6	clean SAND to silty SAND	125	5.0	53	76	95	45	-	16
57.42	386.1	268.5	268.5	3.1	5.3	0.8	6	clean SAND to silty SAND	125	5.0	54	77	95	45	-	16
57.58	389.8	270.8	270.8	3.6	5.5	0.9	6	clean SAND to silty SAND	125	5.0	54	78	95	45	-	16
57.75	382.7	265.5	265.5	3.7	6.1	1.0	6	clean SAND to silty SAND	125	5.0	53	77	95	45	-	16
57.91	373.2	258.6	258.6	3.4	6.4	0.9	6	clean SAND to silty SAND	125	5.0	52	75	95	45	-	16
58.07	372.7	257.9	257.9	3.3	6.2	0.9	6	clean SAND to silty SAND	125	5.0	52	75	95	44	-	16
58.24	376.4	260.2	260.2	3.3	6.4	0.9	6	clean SAND to silty SAND	125	5.0	52	75	95	45	-	16
58.40	370.8	255.9	255.9	3.3	6.3	0.9	6	clean SAND to silty SAND	125	5.0	51	74	95	44	-	16
58.57	363.8	250.8	250.8	3.4	6.5	0.9	6	clean SAND to silty SAND	125	5.0	50	73	95	44	-	16
58.73	357.0	245.8	244.8	3.6	6.7	1.0	6	clean SAND to silty SAND	125	5.0	49	71	95	44	-	16
58.89	350.9	241.2	247.3	4.0	6.6	1.1	6	clean SAND to silty SAND	125	5.0	48	70	95	44	-	16
59.06	340.9	234.1	243.1	4.0	6.9	1.2	6	clean SAND to silty SAND	125	5.0	47	68	95	44	-	16
59.22	327.3	224.4	234.3	3.8	7.0	1.2	6	clean SAND to silty SAND	125	5.0	45	65	94	44	-	16
59.39	321.3	220.0	226.3	3.4	6.6	1.1	6	clean SAND to silty SAND	125	5.0	44	64	93	44	-	16
59.55	313.1	214.1	223.0	3.4	7.1	1.1	6	clean SAND to silty SAND	125	5.0	43	63	92	44	-	16
59.71	308.8	211.0	218.4	3.2	7.1	1.1	6	clean SAND to silty SAND	125	5.0	42	62	92	43	-	16
59.88	307.7	209.9	214.5	3.0	7.1	1.0	6	clean SAND to silty SAND	125	5.0	42	62	91	43	-	16
60.04	310.9	211.8	216.7	3.1	7.2	1.0	6	clean SAND to silty SAND	125	5.0	42	62	92	43	-	16
60.21	304.5	207.2	214.0	3.1	7.4	1.0	6	clean SAND to silty SAND	125	5.0	41	61	91	43	-	16
60.37	292.2	198.6	207.7	3.0	7.7	1.1	6	clean SAND to silty SAND	125	5.0	40	58	90	43	-	16
60.53	297.6	202.0	204.8	2.7	7.6	0.9	6	clean SAND to silty SAND	125	5.0	40	60	90	43	-	16
60.70	300.6	203.8	204.7	2.6	7.7	0.9	6	clean SAND to silty SAND	125	5.0	41	60	90	43	-	16
60.86	301.8	204.3	203.8	2.6	7.8	0.9	6	clean SAND to silty SAND	125	5.0	41	60	91	43	-	16
61.03	296.1	200.3	199.9	2.5	7.8	0.9	6	clean SAND to silty SAND	125	5.0	40	59	90	43	-	16
61.19	294.9	199.2	200.6	2.6	8.0	0.9	6	clean SAND to silty SAND	125	5.0	40	59	90	43	-	16
61.35	275.5	185.9	192.1	2.5	10.6	0.9	6	clean SAND to silty SAND	125	5.0	37	55	87	43	-	16
61.52	264.6	178.3	188.8	2.6	10.4	1.0	6	clean SAND to silty SAND	125	5.0	36	53	86	43	-	16
61.68	236.3	159.0	172.9	2.4	10.1	1.0	6	clean SAND to silty SAND	125	5.0	32	47	82	42	-	16
61.85	202.1	135.8	149.1	1.8	9.6	0.9	6	clean SAND to silty SAND	125	5.0	27	40	77	41	-	16
62.01	190.8	128.1	136.0	1.3	9.7	0.7	6	clean SAND to silty SAND	125	5.0	26	38	75	41	-	16
62.17	253.7	170.1	200.5	4.0	8.7	1.6	6	clean SAND to silty SAND	125	5.0	34	51	85	42	-	16
62.34	178.0	119.2	253.5	8.1	12.9	4.7	9	very stiff fine SOIL	120	2.0	60	89	73	40	-	30
62.50	203.4	136.1	185.4	4.2	3.5	2.1	5	silty SAND to sandy SILT	120	4.0	34	51	77	41	-	16
62.67	137.8	92.1	135.4	2.4	5.3	1.8	5	silty SAND to sandy SILT	120	4.0	23	34	64	39	-	16
62.83	113.9	76.0	109.5	1.5	7.3	1.3	5	silty SAND to sandy SILT	120	4.0	19	28	58	38	-	16
63.00	109.8	73.2	111.8	1.6	8.3	1.5	5	silty SAND to sandy SILT	120	4.0	18	27	57	38	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(419).cpt
CPT Date: 11/19/2008 11:49:29 AM
GW During Test: 12 ft

Sounding ID: CPT-08-47
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	77.0	51.3	116.0	1.7	4.6	2.3	5	silty SAND to sandy SILT	120	4.0	13	19	45	35	-	16
63.32	32.1	15.1	-	1.0	7.2	3.6	3	silty CLAY to CLAY	115	1.5	10	21	-	-	2.1	15
63.49	19.7	9.2	-	0.4	13.7	2.3	3	silty CLAY to CLAY	115	1.5	6	13	-	-	1.3	15
63.65	19.1	8.9	-	0.3	39.4	2.1	3	silty CLAY to CLAY	115	1.5	6	13	-	-	1.2	15
63.82	85.5	56.7	77.0	0.6	67.9	0.7	6	clean SAND to silty SAND	125	5.0	11	17	48	36	-	16
63.98	184.9	122.5	122.0	0.8	5.9	0.4	6	clean SAND to silty SAND	125	5.0	24	37	74	40	-	16
64.14	274.7	181.7	181.7	1.3	11.1	0.5	6	clean SAND to silty SAND	125	5.0	36	55	87	42	-	16
64.31	317.8	210.0	210.0	1.8	12.0	0.6	6	clean SAND to silty SAND	125	5.0	42	64	91	43	-	16
64.47	325.4	214.8	214.8	2.2	13.2	0.7	6	clean SAND to silty SAND	125	5.0	43	65	92	43	-	16
64.64	338.3	223.0	223.0	2.5	12.8	0.8	6	clean SAND to silty SAND	125	5.0	45	68	93	43	-	16
64.80	358.9	236.3	236.3	2.7	13.2	0.8	6	clean SAND to silty SAND	125	5.0	47	72	95	44	-	16
64.96	370.2	243.5	243.5	2.5	12.8	0.7	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
65.13	379.7	249.4	249.4	2.3	12.2	0.6	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
65.29	372.9	244.7	244.7	2.2	12.1	0.6	6	clean SAND to silty SAND	125	5.0	49	75	95	44	-	16
65.46	367.8	241.0	241.0	2.0	11.9	0.6	6	clean SAND to silty SAND	125	5.0	48	74	95	44	-	16
65.62	358.2	234.5	234.5	2.0	12.0	0.6	6	clean SAND to silty SAND	125	5.0	47	72	95	44	-	16
65.78	344.9	225.5	225.5	1.8	12.2	0.5	6	clean SAND to silty SAND	125	5.0	45	69	94	43	-	16
65.95	339.1	221.5	221.5	1.5	12.3	0.4	6	clean SAND to silty SAND	125	5.0	44	68	93	43	-	16
66.11	344.6	224.8	224.8	1.6	12.9	0.5	6	clean SAND to silty SAND	125	5.0	45	69	94	43	-	16
66.28	338.2	220.3	220.3	1.5	12.4	0.4	6	clean SAND to silty SAND	125	5.0	44	68	93	43	-	16
66.44	317.4	206.6	206.6	1.4	12.4	0.4	6	clean SAND to silty SAND	125	5.0	41	63	91	43	-	16
66.60	304.6	198.0	198.0	1.4	12.7	0.5	6	clean SAND to silty SAND	125	5.0	40	61	90	43	-	16
66.77	308.1	200.0	200.0	1.1	12.3	0.4	6	clean SAND to silty SAND	125	5.0	40	62	90	43	-	16
66.93	309.9	201.0	201.0	1.3	13.3	0.4	6	clean SAND to silty SAND	125	5.0	40	62	90	43	-	16
67.10	308.5	199.9	199.9	1.4	13.3	0.4	6	clean SAND to silty SAND	125	5.0	40	62	90	43	-	16
67.26	281.3	182.0	182.0	1.3	13.5	0.5	6	clean SAND to silty SAND	125	5.0	36	56	87	42	-	16
67.42	280.9	181.5	181.5	1.0	14.1	0.4	6	clean SAND to silty SAND	125	5.0	36	56	87	42	-	16
67.59	283.2	182.9	182.9	1.2	14.1	0.4	6	clean SAND to silty SAND	125	5.0	37	57	87	42	-	16
67.75	283.4	182.8	182.8	1.3	13.6	0.5	6	clean SAND to silty SAND	125	5.0	37	57	87	42	-	16
67.92	261.1	168.2	168.2	1.0	14.4	0.4	6	clean SAND to silty SAND	125	5.0	34	52	84	42	-	16
68.08	230.5	148.3	148.3	0.8	14.3	0.3	6	clean SAND to silty SAND	125	5.0	30	46	80	41	-	16
68.24	167.9	107.9	107.9	0.5	13.8	0.3	6	clean SAND to silty SAND	125	5.0	22	34	70	40	-	16
68.41	106.7	68.5	69.8	0.0	12.8	0.1	6	clean SAND to silty SAND	125	5.0	14	21	55	37	-	16
68.57	55.2	35.4	66.3	0.5	13.4	0.9	5	silty SAND to sandy SILT	120	4.0	9	14	33	33	-	16
68.74	28.6	12.5	-	0.6	15.2	2.5	3	silty CLAY to CLAY	115	1.5	8	19	-	-	1.9	15
68.90	12.7	5.5	-	0.6	15.8	6.5	2	Organic SOILS - Peats	100	1.0	6	13	-	-	1.1	10
69.07	7.5	3.2	-	0.2	16.7	5.7	2	Organic SOILS - Peats	100	1.0	3	7	-	-	0.6	10
69.23	5.1	2.2	-	0.1	17.7	5.1	2	Organic SOILS - Peats	100	1.0	2	5	-	-	0.3	10
69.39	4.6	2.0	-	0.0	31.2	0.1	1	sensitive fine SOIL	115	2.0	1	2	-	-	0.2	15
69.56	5.5	2.4	-	0.0	28.2	0.7	1	sensitive fine SOIL	115	2.0	1	3	-	-	0.2	15
69.72	4.5	1.9	-	0.1	28.3	9.9	2	Organic SOILS - Peats	100	1.0	2	4	-	-	0.3	10
69.89	27.9	12.0	-	0.6	30.6	2.6	3	silty CLAY to CLAY	115	1.5	8	19	-	-	1.8	15
70.05	151.3	96.3	107.8	0.9	13.2	0.6	6	clean SAND to silty SAND	125	5.0	19	30	66	39	-	16
70.21	252.3	160.4	162.6	1.8	16.2	0.7	6	clean SAND to silty SAND	125	5.0	32	50	83	42	-	16
70.38	432.4	274.6	274.6	4.7	15.6	1.1	6	clean SAND to silty SAND	125	5.0	55	86	95	44	-	16
70.54	584.6	370.9	370.9	4.1	5.2	0.7	6	clean SAND to silty SAND	125	5.0	74	100	95	46	-	16
70.71	812.7	515.0	515.0	4.1	10.4	0.5	7	grvly SAND to dense SAND	130	6.0	86	100	95	47	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(468).cpt
CPT Date: 12/5/2008 9:56:17 AM
GW During Test: 12 ft

Sounding ID: CPT-08-48
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	60.2	96.5	112.6	0.5	0.1	0.8	6	clean SAND to silty SAND	125	5.0	19	12	66	48	-	16
0.49	70.6	113.1	134.7	0.8	0.1	1.1	6	clean SAND to silty SAND	125	5.0	23	14	71	48	-	16
0.66	62.7	100.5	135.3	1.0	0.0	1.5	5	silty SAND to sandy SILT	120	4.0	25	16	67	48	-	16
0.82	51.1	81.9	127.5	0.9	0.0	1.8	5	silty SAND to sandy SILT	120	4.0	20	13	60	48	-	16
0.98	40.0	64.2	117.8	0.8	-0.1	2.1	5	silty SAND to sandy SILT	120	4.0	16	10	52	48	-	16
1.15	30.9	49.5	103.9	0.6	0.0	2.0	5	silty SAND to sandy SILT	120	4.0	12	8	44	48	-	16
1.31	24.9	40.0	100.6	0.6	0.0	2.3	5	silty SAND to sandy SILT	120	4.0	10	6	37	46	-	16
1.48	22.2	35.5	96.9	0.5	0.0	2.3	4	clayy SILT to silty CLAY	115	2.0	18	11	-	-	1.6	15
1.64	21.2	34.1	87.2	0.4	0.0	1.9	5	silty SAND to sandy SILT	120	4.0	9	5	31	44	-	16
1.80	20.4	32.7	68.5	0.2	0.0	1.2	5	silty SAND to sandy SILT	120	4.0	8	5	30	44	-	16
1.97	17.5	28.1	76.4	0.3	0.0	1.7	5	silty SAND to sandy SILT	120	4.0	7	4	25	43	-	16
2.13	18.8	30.2	91.0	0.4	0.0	2.3	4	clayy SILT to silty CLAY	115	2.0	15	9	-	-	1.3	15
2.30	16.2	26.0	-	0.6	0.0	3.9	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.1	15
2.46	18.5	29.7	-	0.8	0.0	4.1	4	clayy SILT to silty CLAY	115	2.0	15	9	-	-	1.3	15
2.62	51.4	82.5	142.3	1.2	0.1	2.3	5	silty SAND to sandy SILT	120	4.0	21	13	61	46	-	16
2.79	57.0	91.4	165.7	1.6	0.0	2.8	5	silty SAND to sandy SILT	120	4.0	23	14	64	46	-	16
2.95	78.0	125.1	181.6	1.8	-1.7	2.3	5	silty SAND to sandy SILT	120	4.0	31	20	74	48	-	16
3.12	63.5	101.8	165.7	1.6	-0.2	2.5	5	silty SAND to sandy SILT	120	4.0	25	16	68	46	-	16
3.28	43.9	70.4	147.5	1.3	0.0	2.9	5	silty SAND to sandy SILT	120	4.0	18	11	55	45	-	16
3.45	26.8	42.9	-	1.2	0.1	4.4	4	clayy SILT to silty CLAY	115	2.0	21	13	-	-	1.9	15
3.61	21.1	33.8	-	0.9	-0.1	4.2	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.5	15
3.77	18.9	30.3	-	0.7	-0.2	3.7	4	clayy SILT to silty CLAY	115	2.0	15	9	-	-	1.3	15
3.94	19.6	31.4	-	0.6	0.2	3.0	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
4.10	25.5	40.9	125.9	0.9	0.2	3.4	4	clayy SILT to silty CLAY	115	2.0	20	13	-	-	1.8	15
4.27	41.2	66.1	146.6	1.3	0.2	3.1	5	silty SAND to sandy SILT	120	4.0	17	10	53	44	-	16
4.43	44.8	71.9	167.8	1.6	-0.7	3.6	4	clayy SILT to silty CLAY	115	2.0	36	22	-	-	3.2	15
4.59	35.6	57.0	170.2	1.6	-1.3	4.5	4	clayy SILT to silty CLAY	115	2.0	29	18	-	-	2.5	15
4.76	33.2	53.3	154.5	1.3	-0.5	4.0	4	clayy SILT to silty CLAY	115	2.0	27	17	-	-	2.3	15
4.92	31.5	50.5	123.5	0.9	0.0	2.8	4	clayy SILT to silty CLAY	115	2.0	25	16	-	-	2.2	15
5.09	27.6	44.2	108.5	0.7	-0.3	2.4	5	silty SAND to sandy SILT	120	4.0	11	7	40	41	-	16
5.25	24.1	38.7	103.2	0.6	-0.3	2.4	4	clayy SILT to silty CLAY	115	2.0	19	12	-	-	1.7	15
5.41	20.6	33.0	101.0	0.5	-0.2	2.6	4	clayy SILT to silty CLAY	115	2.0	17	10	-	-	1.4	15
5.58	18.5	29.6	92.9	0.4	0.0	2.4	4	clayy SILT to silty CLAY	115	2.0	15	9	-	-	1.3	15
5.74	16.6	26.6	-	0.4	0.0	2.5	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.2	15
5.91	16.1	25.9	-	0.4	0.1	2.5	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.1	15
6.07	15.0	24.0	-	0.4	0.1	2.6	4	clayy SILT to silty CLAY	115	2.0	12	7	-	-	1.0	15
6.23	14.3	22.9	-	0.3	0.1	2.4	4	clayy SILT to silty CLAY	115	2.0	11	7	-	-	1.0	15
6.40	13.5	21.7	-	0.3	0.1	2.4	4	clayy SILT to silty CLAY	115	2.0	11	7	-	-	0.9	15
6.56	12.2	19.6	-	0.3	0.1	2.5	4	clayy SILT to silty CLAY	115	2.0	10	6	-	-	0.8	15
6.73	11.1	17.9	-	0.3	0.1	2.7	4	clayy SILT to silty CLAY	115	2.0	9	6	-	-	0.8	15
6.89	12.3	19.7	-	0.4	0.1	3.8	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
7.05	16.7	26.7	-	0.6	0.0	3.5	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.2	15
7.22	17.6	28.2	-	0.6	-1.3	3.2	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
7.38	16.8	26.9	-	0.5	-0.1	2.8	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.2	15
7.55	15.9	25.5	-	0.5	0.1	3.1	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.1	15
7.71	16.7	26.8	-	0.6	0.0	3.9	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.2	15
7.87	17.7	28.3	-	0.7	-0.4	4.4	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.2	15
8.04	18.0	28.8	-	0.7	0.1	3.8	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
8.20	22.9	32.1	99.5	0.6	0.2	2.6	4	clayy SILT to silty CLAY	115	2.0	16	11	-	-	1.6	15
8.37	25.4	35.2	96.7	0.6	0.2	2.3	4	clayy SILT to silty CLAY	115	2.0	18	13	-	-	1.8	15
8.53	26.2	36.1	102.1	0.6	0.2	2.5	4	clayy SILT to silty CLAY	115	2.0	18	13	-	-	1.8	15
8.69	25.4	34.6	108.9	0.7	-0.1	2.9	4	clayy SILT to silty CLAY	115	2.0	17	13	-	-	1.8	15
8.86	21.7	34.8	-	0.7	-0.9	3.4	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.5	15
9.02	17.9	28.7	-	0.7	-1.3	3.8	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
9.19	13.1	21.1	-	0.6	-0.5	5.0	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
9.35	10.1	16.2	-	0.6	-0.5	6.3	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
9.51	9.8	15.7	-	0.5	-0.1	5.5	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.7	15
9.68	9.8	15.7	-	0.5	0.0	5.6	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.7	15
9.84	10.5	16.8	-	0.6	-0.1	5.7	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
10.01	10.4	16.6	-	0.6	-0.7	6.1	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
10.17	11.0	17.7	-	0.6	-1.3	5.6	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.8	15
10.34	31.1	38.8	89.7	0.6	-1.2	1.8	5	silty SAND to sandy SILT	120	4.0	10	8	36	39	-	16
10.50	53.3	66.2	97.1	0.6	0.2	1.2	5	silty SAND to sandy SILT	120	4.0	17	13	53	42	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(468).cpt
CPT Date: 12/5/2008 9:56:17 AM
GW During Test: 12 ft

Sounding ID: CPT-08-48
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	66.2	81.5	110.8	0.8	0.3	1.2	5	silty SAND to sandy SILT	120	4.0	20	17	60	43	-	16
10.83	70.3	85.9	116.0	0.9	0.3	1.3	5	silty SAND to sandy SILT	120	4.0	21	18	62	44	-	16
10.99	73.7	89.4	121.5	1.0	0.2	1.4	5	silty SAND to sandy SILT	120	4.0	22	18	63	44	-	16
11.16	77.5	93.2	125.8	1.1	0.3	1.4	5	silty SAND to sandy SILT	120	4.0	23	19	65	44	-	16
11.32	82.8	98.8	133.8	1.3	0.3	1.5	5	silty SAND to sandy SILT	120	4.0	25	21	67	44	-	16
11.48	85.4	101.2	125.6	1.0	0.3	1.2	6	clean SAND to silty SAND	125	5.0	20	17	67	44	-	16
11.65	86.4	101.7	127.0	1.0	0.3	1.2	6	clean SAND to silty SAND	125	5.0	20	17	68	44	-	16
11.81	94.4	110.2	135.6	1.2	0.2	1.2	6	clean SAND to silty SAND	125	5.0	22	19	70	45	-	16
11.98	104.3	120.9	142.4	1.2	0.2	1.1	6	clean SAND to silty SAND	125	5.0	24	21	73	45	-	16
12.14	97.9	113.0	135.9	1.1	0.2	1.2	6	clean SAND to silty SAND	125	5.0	23	20	71	45	-	16
12.30	83.0	95.5	117.5	0.9	0.2	1.0	6	clean SAND to silty SAND	125	5.0	19	17	65	44	-	16
12.47	70.2	80.5	103.1	0.7	0.2	1.0	6	clean SAND to silty SAND	125	5.0	16	14	60	43	-	16
12.63	60.0	68.5	95.4	0.6	0.2	1.1	5	silty SAND to sandy SILT	120	4.0	17	15	55	42	-	16
12.80	64.1	72.9	94.1	0.6	0.2	0.9	6	clean SAND to silty SAND	125	5.0	15	13	57	42	-	16
12.96	59.6	67.6	96.0	0.7	0.2	1.1	5	silty SAND to sandy SILT	120	4.0	17	15	54	42	-	16
13.12	42.7	48.3	93.1	0.7	0.1	1.6	5	silty SAND to sandy SILT	120	4.0	12	11	43	40	-	16
13.29	31.6	35.7	93.5	0.6	0.2	2.1	5	silty SAND to sandy SILT	120	4.0	9	8	33	38	-	16
13.45	28.5	32.0	89.1	0.6	-0.5	2.1	4	clayy SILT to silty CLAY	115	2.0	16	14	-	-	2.0	15
13.62	23.4	26.2	84.9	0.5	-2.4	2.2	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.6	15
13.78	14.2	18.7	-	0.4	-2.7	2.9	4	clayy SILT to silty CLAY	115	2.0	9	7	-	-	1.0	15
13.94	8.1	10.6	-	0.3	-2.5	3.7	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
14.11	6.0	7.9	-	0.2	-2.3	3.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.27	5.5	7.2	-	0.2	-2.0	3.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.44	5.2	6.8	-	0.1	-1.7	3.4	3	silty CLAY to CLAY	115	1.5	5	3	-	-	0.3	15
14.60	5.6	7.2	-	0.2	-1.4	3.6	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.76	6.0	7.6	-	0.2	-1.1	4.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.93	6.0	7.6	-	0.2	-0.8	4.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.09	4.9	6.2	-	0.2	0.8	5.8	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.26	4.7	5.9	-	0.2	1.0	6.2	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.42	5.5	6.9	-	0.2	1.2	4.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.58	4.6	5.8	-	0.3	4.8	7.0	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.75	5.2	6.4	-	0.3	5.1	7.7	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.91	5.9	7.3	-	0.4	5.2	8.8	2	Organic SOILS - Peats	100	1.0	7	6	-	-	0.6	10
16.08	8.5	10.5	-	0.5	5.3	6.0	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
16.24	30.6	32.8	87.6	0.6	2.0	2.0	5	silty SAND to sandy SILT	120	4.0	8	8	30	37	-	16
16.40	43.2	46.2	93.5	0.7	0.2	1.7	5	silty SAND to sandy SILT	120	4.0	12	11	42	39	-	16
16.57	52.9	56.4	103.8	0.9	0.1	1.8	5	silty SAND to sandy SILT	120	4.0	14	13	48	40	-	16
16.73	57.8	61.5	110.1	1.0	0.1	1.8	5	silty SAND to sandy SILT	120	4.0	15	14	51	41	-	16
16.90	58.8	62.3	111.9	1.1	0.2	1.9	5	silty SAND to sandy SILT	120	4.0	16	15	51	41	-	16
17.06	60.5	64.0	112.6	1.1	0.5	1.8	5	silty SAND to sandy SILT	120	4.0	16	15	52	41	-	16
17.23	66.6	70.2	116.4	1.2	0.6	1.8	5	silty SAND to sandy SILT	120	4.0	18	17	55	41	-	16
17.39	73.5	77.3	114.8	1.1	0.7	1.5	5	silty SAND to sandy SILT	120	4.0	19	18	59	42	-	16
17.55	81.8	85.9	115.0	1.0	0.7	1.3	6	clean SAND to silty SAND	125	5.0	17	16	62	42	-	16
17.72	99.6	104.2	129.0	1.2	0.8	1.2	6	clean SAND to silty SAND	125	5.0	21	20	68	43	-	16
17.88	101.7	106.1	136.6	1.4	0.8	1.4	6	clean SAND to silty SAND	125	5.0	21	20	69	43	-	16
18.05	96.3	100.1	137.9	1.5	0.9	1.6	5	silty SAND to sandy SILT	120	4.0	25	24	67	43	-	16
18.21	87.8	91.1	135.5	1.6	1.0	1.8	5	silty SAND to sandy SILT	120	4.0	23	22	64	42	-	16
18.37	79.9	82.6	130.5	1.5	1.0	1.9	5	silty SAND to sandy SILT	120	4.0	21	20	61	42	-	16
18.54	60.3	62.2	116.7	1.2	0.9	2.1	5	silty SAND to sandy SILT	120	4.0	16	15	51	40	-	16
18.70	37.1	38.2	109.7	1.0	0.5	2.7	4	clayy SILT to silty CLAY	115	2.0	19	19	-	-	2.6	15
18.87	18.6	20.8	-	0.7	0.1	4.1	3	silty CLAY to CLAY	115	1.5	14	12	-	-	1.3	15
19.03	10.9	12.1	-	0.5	-0.2	5.3	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
19.19	9.1	10.1	-	0.4	0.0	5.1	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
19.36	7.3	8.0	-	0.4	0.5	6.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
19.52	15.9	17.4	-	0.5	1.2	3.6	3	silty CLAY to CLAY	115	1.5	12	11	-	-	1.1	15
19.69	36.7	37.2	87.8	0.6	1.0	1.8	5	silty SAND to sandy SILT	120	4.0	9	9	34	37	-	16
19.85	45.8	46.4	96.0	0.8	0.8	1.8	5	silty SAND to sandy SILT	120	4.0	12	11	42	39	-	16
20.01	47.3	47.7	100.3	0.9	0.6	1.9	5	silty SAND to sandy SILT	120	4.0	12	12	43	39	-	16
20.18	45.4	45.7	101.8	0.9	2.5	2.0	5	silty SAND to sandy SILT	120	4.0	11	11	41	38	-	16
20.34	39.5	39.6	103.1	0.9	2.6	2.3	5	silty SAND to sandy SILT	120	4.0	10	10	36	38	-	16
20.51	33.6	33.6	102.0	0.8	2.6	2.6	4	clayy SILT to silty CLAY	115	2.0	17	17	-	-	2.3	15
20.67	26.9	28.4	-	0.8	2.7	3.0	4	clayy SILT to silty CLAY	115	2.0	14	13	-	-	1.9	15
20.83	15.4	16.2	-	0.6	2.7	4.0	3	silty CLAY to CLAY	115	1.5	11	10	-	-	1.0	15
21.00	9.0	9.5	-	0.4	2.7	4.9	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15

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EGG-WC Warner/Edwards

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CPT Date: 12/5/2008 9:56:17 AM
GW During Test: 12 ft

Sounding ID: CPT-08-48
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Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	5.8	6.0	-	0.3	8.8	5.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.33	5.5	5.7	-	0.2	9.6	5.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
21.49	5.1	5.3	-	0.2	10.1	6.0	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
21.65	5.1	5.2	-	0.2	10.5	6.4	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
21.82	5.3	5.5	-	0.3	11.0	7.0	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
21.98	6.0	6.2	-	0.4	11.4	7.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.15	7.0	7.2	-	0.4	11.8	7.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
22.31	7.3	7.3	-	0.4	11.6	7.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.47	7.5	7.6	-	0.4	11.5	6.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.64	7.6	7.7	-	0.4	11.6	6.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.80	7.6	7.6	-	0.4	11.5	6.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.97	7.3	7.3	-	0.4	10.9	6.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.13	7.0	6.9	-	0.4	11.0	8.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
23.30	10.2	10.0	-	0.4	11.6	4.3	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
23.46	32.3	31.1	68.2	0.4	4.1	1.1	5	silty SAND to sandy SILT	120	4.0	8	8	28	36	-	16
23.62	46.2	44.4	72.3	0.4	1.2	0.9	5	silty SAND to sandy SILT	120	4.0	11	12	40	38	-	16
23.79	51.0	48.9	78.4	0.5	1.2	1.0	5	silty SAND to sandy SILT	120	4.0	12	13	43	38	-	16
23.95	56.3	53.8	85.1	0.6	1.3	1.1	5	silty SAND to sandy SILT	120	4.0	13	14	47	39	-	16
24.12	61.4	58.6	89.8	0.7	1.5	1.2	5	silty SAND to sandy SILT	120	4.0	15	15	49	39	-	16
24.28	61.6	58.7	91.6	0.7	2.7	1.2	5	silty SAND to sandy SILT	120	4.0	15	15	49	39	-	16
24.44	60.2	57.2	92.1	0.8	2.8	1.3	5	silty SAND to sandy SILT	120	4.0	14	15	49	39	-	16
24.61	59.8	56.7	92.8	0.8	2.9	1.3	5	silty SAND to sandy SILT	120	4.0	14	15	48	39	-	16
24.77	62.2	58.8	96.2	0.8	3.0	1.4	5	silty SAND to sandy SILT	120	4.0	15	16	49	39	-	16
24.94	69.5	65.5	98.7	0.9	3.1	1.3	5	silty SAND to sandy SILT	120	4.0	16	17	53	40	-	16
25.10	72.9	68.7	103.8	1.0	5.0	1.4	5	silty SAND to sandy SILT	120	4.0	17	18	55	40	-	16
25.26	86.0	80.8	112.2	1.1	4.7	1.3	5	silty SAND to sandy SILT	120	4.0	20	22	60	41	-	16
25.43	92.4	86.6	118.2	1.2	4.7	1.3	5	silty SAND to sandy SILT	120	4.0	22	23	62	41	-	16
25.59	93.5	87.4	120.4	1.3	4.7	1.4	5	silty SAND to sandy SILT	120	4.0	22	23	63	41	-	16
25.76	92.4	86.2	120.3	1.3	4.8	1.4	5	silty SAND to sandy SILT	120	4.0	22	23	62	41	-	16
25.92	93.6	87.1	123.4	1.4	4.8	1.5	5	silty SAND to sandy SILT	120	4.0	22	23	62	41	-	16
26.08	93.2	86.6	131.2	1.6	4.8	1.8	5	silty SAND to sandy SILT	120	4.0	22	23	62	41	-	16
26.25	79.5	73.7	130.2	1.7	4.8	2.2	5	silty SAND to sandy SILT	120	4.0	18	20	57	40	-	16
26.41	66.1	61.1	129.0	1.6	4.8	2.5	5	silty SAND to sandy SILT	120	4.0	15	17	51	39	-	16
26.58	42.8	38.6	-	1.6	4.7	3.8	4	clayy SILT to silty CLAY	115	2.0	19	21	-	-	3.0	15
26.74	21.8	19.6	-	1.2	4.7	5.9	3	silty CLAY to CLAY	115	1.5	13	15	-	-	1.5	15
26.90	12.8	11.5	-	0.7	4.8	6.5	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.8	15
27.07	8.7	7.8	-	0.5	5.3	6.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
27.23	7.1	6.3	-	0.3	6.1	5.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
27.40	6.8	6.0	-	0.3	6.8	6.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
27.56	6.9	6.1	-	0.3	7.4	6.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
27.72	6.7	5.9	-	0.3	8.0	6.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
27.89	6.8	6.0	-	0.5	8.8	9.8	2	Organic SOILS - Peats	100	1.0	6	7	-	-	0.6	10
28.05	16.1	14.1	-	0.7	10.1	4.6	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
28.22	17.3	15.0	-	0.7	4.9	4.2	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.2	15
28.38	11.1	9.6	-	0.6	1.6	6.4	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
28.54	8.9	7.7	-	0.5	2.3	6.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.71	25.5	22.0	-	0.5	3.3	2.2	4	clayy SILT to silty CLAY	115	2.0	11	13	-	-	1.7	15
28.87	32.2	29.0	86.0	0.6	1.6	2.0	4	clayy SILT to silty CLAY	115	2.0	14	16	-	-	2.2	15
29.04	22.9	19.5	-	0.7	3.1	3.3	3	silty CLAY to CLAY	115	1.5	13	15	-	-	1.6	15
29.20	15.9	13.5	-	0.8	2.5	5.3	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
29.36	11.1	9.4	-	0.7	2.4	7.8	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
29.53	16.8	14.2	-	0.7	3.2	4.7	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
29.69	34.7	30.9	93.9	0.8	2.6	2.3	4	clayy SILT to silty CLAY	115	2.0	15	17	-	-	2.4	15
29.86	47.4	42.2	104.3	1.0	1.3	2.3	5	silty SAND to sandy SILT	120	4.0	11	12	38	37	-	16
30.02	53.4	47.4	110.0	1.2	1.1	2.3	5	silty SAND to sandy SILT	120	4.0	12	13	42	37	-	16
30.19	58.5	51.9	115.3	1.3	6.5	2.3	5	silty SAND to sandy SILT	120	4.0	13	15	45	38	-	16
30.35	65.3	57.7	120.6	1.5	6.2	2.3	5	silty SAND to sandy SILT	120	4.0	14	16	49	39	-	16
30.51	66.5	58.7	119.2	1.5	5.8	2.2	5	silty SAND to sandy SILT	120	4.0	15	17	49	39	-	16
30.68	65.0	57.3	117.9	1.4	5.7	2.2	5	silty SAND to sandy SILT	120	4.0	14	16	49	38	-	16
30.84	65.3	57.4	114.1	1.3	5.1	2.1	5	silty SAND to sandy SILT	120	4.0	14	16	49	38	-	16
31.01	57.8	50.7	116.4	1.4	4.0	2.4	5	silty SAND to sandy SILT	120	4.0	13	14	45	38	-	16
31.17	37.1	30.1	-	1.2	3.4	3.4	4	clayy SILT to silty CLAY	115	2.0	15	19	-	-	2.6	15
31.33	32.3	26.2	-	1.1	3.4	3.5	4	clayy SILT to silty CLAY	115	2.0	13	16	-	-	2.2	15
31.50	30.3	24.4	-	0.9	2.1	3.0	4	clayy SILT to silty CLAY	115	2.0	12	15	-	-	2.1	15

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Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	32.3	26.0	-	0.7	1.2	2.3	4	clayy SILT to silty CLAY	115	2.0	13	16	-	-	2.2	15
31.83	18.6	15.0	-	0.5	-3.4	3.2	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.2	15
31.99	10.0	8.0	-	0.4	-3.2	5.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
32.15	8.7	6.9	-	0.3	-2.6	4.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
32.32	8.9	7.1	-	0.4	-2.1	5.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
32.48	9.9	7.8	-	0.4	-1.6	5.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
32.65	10.2	8.0	-	0.5	-1.1	5.7	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
32.81	11.4	9.0	-	0.5	-0.7	4.8	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
32.97	9.7	7.6	-	0.4	-0.2	5.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
33.14	9.0	7.0	-	0.4	0.3	5.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
33.30	8.8	6.9	-	0.4	0.8	5.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
33.47	8.7	6.7	-	0.5	1.2	7.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
33.63	11.3	8.7	-	0.5	1.7	5.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
33.79	20.6	15.8	-	0.5	2.0	2.5	4	clayy SILT to silty CLAY	115	2.0	8	10	-	-	1.4	15
33.96	38.2	32.5	88.3	0.7	3.7	1.9	5	silty SAND to sandy SILT	120	4.0	8	10	30	35	-	16
34.12	33.8	25.8	-	0.9	3.2	2.8	4	clayy SILT to silty CLAY	115	2.0	13	17	-	-	2.3	15
34.29	31.9	24.3	-	0.9	3.9	3.1	4	clayy SILT to silty CLAY	115	2.0	12	16	-	-	2.2	15
34.45	59.8	50.6	108.4	1.2	2.7	2.1	5	silty SAND to sandy SILT	120	4.0	13	15	45	37	-	16
34.61	75.6	63.8	116.5	1.4	1.9	2.0	5	silty SAND to sandy SILT	120	4.0	16	19	52	39	-	16
34.78	79.6	67.1	107.1	1.2	2.1	1.5	5	silty SAND to sandy SILT	120	4.0	17	20	54	39	-	16
34.94	76.1	64.1	110.1	1.3	2.3	1.7	5	silty SAND to sandy SILT	120	4.0	16	19	52	39	-	16
35.11	67.6	56.8	109.0	1.3	5.7	1.9	5	silty SAND to sandy SILT	120	4.0	14	17	48	38	-	16
35.27	70.8	59.4	115.3	1.4	6.0	2.1	5	silty SAND to sandy SILT	120	4.0	15	18	50	38	-	16
35.43	75.0	62.8	118.3	1.5	6.1	2.1	5	silty SAND to sandy SILT	120	4.0	16	19	52	39	-	16
35.60	73.9	61.8	121.5	1.6	6.1	2.2	5	silty SAND to sandy SILT	120	4.0	15	18	51	38	-	16
35.76	71.1	59.3	116.5	1.5	6.2	2.1	5	silty SAND to sandy SILT	120	4.0	15	18	50	38	-	16
35.93	58.7	48.9	117.8	1.4	6.2	2.5	5	silty SAND to sandy SILT	120	4.0	12	15	43	37	-	16
36.09	41.0	30.1	-	1.3	6.5	3.3	4	clayy SILT to silty CLAY	115	2.0	15	20	-	-	2.8	15
36.26	41.5	34.5	100.3	0.9	7.1	2.4	4	clayy SILT to silty CLAY	115	2.0	17	21	-	-	2.9	15
36.42	43.0	35.6	97.4	0.9	3.2	2.2	4	clayy SILT to silty CLAY	115	2.0	18	21	-	-	3.0	15
36.58	23.0	16.7	-	0.8	2.2	3.9	3	silty CLAY to CLAY	115	1.5	11	15	-	-	1.6	15
36.75	14.5	10.5	-	0.6	3.0	4.5	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.9	15
36.91	10.5	7.6	-	0.3	4.6	4.0	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.08	9.6	6.9	-	0.3	6.3	4.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
37.24	9.0	6.4	-	0.3	11.3	4.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
37.40	8.7	6.2	-	0.3	12.6	4.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
37.57	9.6	6.9	-	0.3	14.0	3.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
37.73	10.3	7.3	-	0.3	15.1	3.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
37.90	10.9	7.7	-	0.4	17.6	4.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.06	10.2	7.2	-	0.4	18.9	4.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
38.22	9.9	7.0	-	0.3	21.4	4.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
38.39	9.9	7.0	-	0.4	23.1	4.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
38.55	10.6	7.4	-	0.3	24.7	4.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.72	9.5	6.6	-	0.3	25.1	4.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
38.88	8.9	6.2	-	0.3	27.2	4.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
39.04	9.6	6.7	-	0.3	28.7	4.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
39.21	9.5	6.5	-	0.3	29.7	4.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
39.37	10.9	7.5	-	0.4	31.5	4.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
39.54	13.5	9.3	-	0.3	24.1	3.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
39.70	9.6	6.6	-	0.3	27.0	4.5	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
39.86	9.3	6.4	-	0.4	31.5	5.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
40.03	9.6	6.6	-	0.4	35.0	5.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
40.19	9.7	6.6	-	0.4	41.9	5.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
40.36	9.7	6.5	-	0.4	43.5	5.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
40.52	10.2	6.9	-	0.4	46.2	5.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
40.68	10.5	7.0	-	0.4	48.8	5.0	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
40.85	10.3	6.9	-	0.4	51.3	5.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
41.01	11.7	7.8	-	0.4	51.5	4.7	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
41.18	12.2	8.1	-	0.5	42.9	4.7	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
41.34	12.5	8.3	-	0.4	45.5	4.4	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
41.50	16.8	11.2	-	0.4	34.5	3.0	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
41.67	12.5	8.3	-	0.4	28.2	4.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
41.83	12.5	8.3	-	0.4	32.3	4.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
42.00	13.0	8.6	-	0.4	35.9	4.2	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(468).cpt
CPT Date: 12/5/2008 9:56:17 AM
GW During Test: 12 ft

Sounding ID: CPT-08-48
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	14.1	9.3	-	0.5	38.1	4.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.32	15.7	10.3	-	0.6	37.1	4.5	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
42.49	16.5	10.8	-	0.6	35.4	4.1	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
42.65	18.2	11.8	-	0.5	37.3	3.5	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
42.82	16.5	10.7	-	0.5	24.8	3.5	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
42.98	13.1	8.5	-	0.5	30.2	4.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
43.15	12.5	8.1	-	0.4	33.2	4.4	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
43.31	12.8	8.2	-	0.4	47.1	4.2	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
43.47	13.2	8.5	-	0.4	47.0	4.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
43.64	12.9	8.3	-	0.5	46.9	4.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
43.80	13.2	8.5	-	0.6	42.8	5.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
43.97	13.5	8.6	-	0.7	40.1	6.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
44.13	14.3	9.1	-	0.8	38.8	6.4	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
44.29	23.4	14.8	-	0.7	37.9	3.5	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.6	15
44.46	19.0	12.0	-	0.7	18.8	4.3	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.2	15
44.62	15.3	9.7	-	0.7	24.7	5.8	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
44.79	15.4	9.7	-	0.7	25.1	5.6	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
44.95	15.1	9.4	-	0.6	25.4	5.0	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
45.11	15.3	9.5	-	0.6	26.6	4.4	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
45.28	16.0	10.0	-	0.7	26.9	5.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
45.44	70.1	53.6	85.0	0.7	22.5	1.1	5	silty SAND to sandy SILT	120	4.0	13	18	46	37	-	16
45.61	150.1	114.7	123.6	1.0	6.3	0.7	6	clean SAND to silty SAND	125	5.0	23	30	72	41	-	16
45.77	196.6	150.0	154.1	1.4	6.6	0.7	6	clean SAND to silty SAND	125	5.0	30	39	80	42	-	16
45.93	220.5	168.0	171.0	1.7	6.7	0.8	6	clean SAND to silty SAND	125	5.0	34	44	84	43	-	16
46.10	228.6	173.9	184.2	2.2	6.8	1.0	6	clean SAND to silty SAND	125	5.0	35	46	85	43	-	16
46.26	234.3	178.0	194.8	2.8	7.0	1.2	6	clean SAND to silty SAND	125	5.0	36	47	86	43	-	16
46.43	226.0	171.4	199.6	3.4	7.4	1.5	6	clean SAND to silty SAND	125	5.0	34	45	85	43	-	16
46.59	212.5	160.9	195.3	3.5	7.3	1.7	6	clean SAND to silty SAND	125	5.0	32	43	83	43	-	16
46.75	208.4	157.5	197.7	3.8	8.1	1.9	6	clean SAND to silty SAND	125	5.0	32	42	82	43	-	16
46.92	222.3	167.8	204.9	3.9	8.1	1.8	6	clean SAND to silty SAND	125	5.0	34	44	84	43	-	16
47.08	229.4	172.9	207.7	3.9	7.8	1.7	6	clean SAND to silty SAND	125	5.0	35	46	85	43	-	16
47.25	232.7	175.1	206.4	3.7	7.7	1.6	6	clean SAND to silty SAND	125	5.0	35	47	85	43	-	16
47.41	231.6	174.0	201.3	3.4	7.6	1.5	6	clean SAND to silty SAND	125	5.0	35	46	85	43	-	16
47.57	234.1	175.6	197.7	3.1	7.5	1.3	6	clean SAND to silty SAND	125	5.0	35	47	86	43	-	16
47.74	237.8	178.2	197.6	3.0	7.5	1.3	6	clean SAND to silty SAND	125	5.0	36	48	86	43	-	16
47.90	241.6	180.7	197.1	2.8	7.6	1.2	6	clean SAND to silty SAND	125	5.0	36	48	87	43	-	16
48.07	233.0	174.0	187.6	2.5	7.6	1.1	6	clean SAND to silty SAND	125	5.0	35	47	85	43	-	16
48.23	215.2	160.5	177.5	2.4	7.5	1.1	6	clean SAND to silty SAND	125	5.0	32	43	83	43	-	16
48.39	169.2	126.0	155.4	2.4	7.2	1.4	6	clean SAND to silty SAND	125	5.0	25	34	75	41	-	16
48.56	90.0	66.9	142.9	2.5	7.0	2.8	5	silty SAND to sandy SILT	120	4.0	17	23	54	38	-	16
48.72	51.4	30.0	-	1.9	7.1	3.8	4	clayy SILT to silty CLAY	115	2.0	15	26	-	-	3.5	15
48.89	32.1	18.7	-	1.4	8.5	4.8	3	silty CLAY to CLAY	115	1.5	12	21	-	-	2.2	15
49.05	29.6	17.2	-	0.5	12.7	2.0	4	clayy SILT to silty CLAY	115	2.0	9	15	-	-	2.0	15
49.22	28.9	16.8	-	0.6	85.8	2.4	4	clayy SILT to silty CLAY	115	2.0	8	14	-	-	1.9	15
49.38	49.4	28.6	-	1.2	105.0	2.5	4	clayy SILT to silty CLAY	115	2.0	14	25	-	-	3.4	15
49.54	63.8	47.1	116.3	1.5	36.2	2.5	5	silty SAND to sandy SILT	120	4.0	12	16	42	36	-	16
49.71	57.8	42.6	108.2	1.3	25.3	2.4	5	silty SAND to sandy SILT	120	4.0	11	14	39	35	-	16
49.87	48.7	27.9	-	1.4	9.8	3.0	4	clayy SILT to silty CLAY	115	2.0	14	24	-	-	3.3	15
50.04	29.2	16.7	-	1.4	7.0	5.3	3	silty CLAY to CLAY	115	1.5	11	19	-	-	2.0	15
50.20	22.4	12.8	-	1.1	38.1	5.9	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.5	15
50.36	59.5	43.6	106.9	1.3	36.8	2.3	5	silty SAND to sandy SILT	120	4.0	11	15	40	35	-	16
50.53	81.2	59.5	118.4	1.7	20.4	2.2	5	silty SAND to sandy SILT	120	4.0	15	20	50	37	-	16
50.69	83.8	61.3	136.2	2.2	17.4	2.8	5	silty SAND to sandy SILT	120	4.0	15	21	51	37	-	16
50.86	97.1	70.9	134.9	2.3	17.4	2.4	5	silty SAND to sandy SILT	120	4.0	18	24	56	38	-	16
51.02	123.8	90.3	147.2	2.7	2.4	2.2	5	silty SAND to sandy SILT	120	4.0	23	31	64	39	-	16
51.18	136.2	99.2	156.5	3.0	-0.1	2.3	5	silty SAND to sandy SILT	120	4.0	25	34	67	40	-	16
51.35	152.6	111.0	163.4	3.2	-0.1	2.1	5	silty SAND to sandy SILT	120	4.0	28	38	70	41	-	16
51.51	175.7	127.6	171.5	3.3	-1.4	1.9	5	silty SAND to sandy SILT	120	4.0	32	44	75	41	-	16
51.68	184.4	133.8	178.2	3.5	-2.5	1.9	5	silty SAND to sandy SILT	120	4.0	33	46	77	42	-	16
51.84	178.1	129.0	174.5	3.4	-2.6	2.0	5	silty SAND to sandy SILT	120	4.0	32	45	75	41	-	16
52.00	159.0	115.0	171.1	3.5	-2.4	2.3	5	silty SAND to sandy SILT	120	4.0	29	40	72	41	-	16
52.17	139.8	101.0	161.6	3.2	-2.2	2.4	5	silty SAND to sandy SILT	120	4.0	25	35	67	40	-	16
52.33	144.8	104.5	163.2	3.3	-1.9	2.3	5	silty SAND to sandy SILT	120	4.0	26	36	68	40	-	16
52.50	163.5	117.8	166.9	3.3	-1.8	2.0	5	silty SAND to sandy SILT	120	4.0	29	41	72	41	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(468).cpt
CPT Date: 12/5/2008 9:56:17 AM
GW During Test: 12 ft

Sounding ID: CPT-08-48
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	143.6	103.4	155.1	2.9	-2.1	2.1	5	silty SAND to sandy SILT	120	4.0	26	36	68	40	-	16
52.82	130.0	93.4	147.3	2.7	-2.1	2.1	5	silty SAND to sandy SILT	120	4.0	23	33	65	40	-	16
52.99	128.0	91.9	150.1	2.8	-1.9	2.3	5	silty SAND to sandy SILT	120	4.0	23	32	64	39	-	16
53.15	131.6	94.4	152.1	2.9	-1.7	2.2	5	silty SAND to sandy SILT	120	4.0	24	33	65	40	-	16
53.32	121.0	86.7	151.7	2.9	-1.4	2.5	5	silty SAND to sandy SILT	120	4.0	22	30	62	39	-	16
53.48	97.9	70.0	152.1	2.9	1.4	3.0	5	silty SAND to sandy SILT	120	4.0	18	24	55	38	-	16
53.64	89.0	63.6	149.5	2.7	1.6	3.2	4	clayy SILT to silty CLAY	115	2.0	32	45	-	-	6.2	15
53.81	105.0	74.9	142.9	2.6	1.5	2.5	5	silty SAND to sandy SILT	120	4.0	19	26	57	38	-	16
53.97	158.0	112.6	157.6	2.9	-0.1	1.9	5	silty SAND to sandy SILT	120	4.0	28	40	71	41	-	16
54.14	218.6	155.5	181.9	3.1	-1.3	1.4	6	clean SAND to silty SAND	125	5.0	31	44	82	42	-	16
54.30	230.1	163.5	182.8	2.8	-1.6	1.2	6	clean SAND to silty SAND	125	5.0	33	46	83	42	-	16
54.46	220.7	156.6	174.3	2.5	-1.5	1.1	6	clean SAND to silty SAND	125	5.0	31	44	82	42	-	16
54.63	187.1	132.6	157.6	2.4	-1.3	1.3	6	clean SAND to silty SAND	125	5.0	27	37	76	41	-	16
54.79	162.9	115.3	156.9	2.9	-1.1	1.8	5	silty SAND to sandy SILT	120	4.0	29	41	72	41	-	16
54.96	187.4	132.5	173.5	3.4	-0.7	1.8	5	silty SAND to sandy SILT	120	4.0	33	47	76	41	-	16
55.12	214.9	151.7	194.8	4.1	5.4	1.9	5	silty SAND to sandy SILT	120	4.0	38	54	81	42	-	16
55.28	247.5	174.5	218.0	4.9	3.6	2.0	6	clean SAND to silty SAND	125	5.0	35	50	85	43	-	16
55.45	274.3	193.1	236.2	5.5	3.0	2.0	6	clean SAND to silty SAND	125	5.0	39	55	89	43	-	16
55.61	290.6	204.3	247.7	5.9	3.0	2.1	6	clean SAND to silty SAND	125	5.0	41	58	91	43	-	16
55.78	298.4	209.5	255.2	6.3	2.9	2.1	6	clean SAND to silty SAND	125	5.0	42	60	91	44	-	16
55.94	291.9	204.6	254.5	6.4	2.9	2.2	6	clean SAND to silty SAND	125	5.0	41	58	91	43	-	16
56.11	285.7	200.1	249.7	6.3	2.8	2.2	6	clean SAND to silty SAND	125	5.0	40	57	90	43	-	16
56.27	299.6	209.5	259.5	6.6	2.7	2.2	6	clean SAND to silty SAND	125	5.0	42	60	91	44	-	16
56.43	313.1	218.6	265.8	6.7	2.6	2.2	6	clean SAND to silty SAND	125	5.0	44	63	93	44	-	16
56.60	312.4	217.9	265.8	6.8	2.3	2.2	6	clean SAND to silty SAND	125	5.0	44	62	93	44	-	16
56.76	318.0	221.5	270.1	7.0	3.2	2.2	6	clean SAND to silty SAND	125	5.0	44	64	93	44	-	16
56.93	327.3	227.7	276.8	7.3	2.9	2.2	6	clean SAND to silty SAND	125	5.0	46	65	94	44	-	16
57.09	332.4	230.9	279.5	7.3	2.6	2.2	6	clean SAND to silty SAND	125	5.0	46	66	95	44	-	16
57.25	320.9	222.6	272.0	7.1	2.4	2.2	6	clean SAND to silty SAND	125	5.0	45	64	93	44	-	16
57.42	316.9	219.6	264.1	6.6	2.2	2.1	6	clean SAND to silty SAND	125	5.0	44	63	93	44	-	16
57.58	305.4	211.3	254.5	6.2	2.1	2.1	6	clean SAND to silty SAND	125	5.0	42	61	92	44	-	16
57.75	301.6	208.4	248.6	5.9	2.2	2.0	6	clean SAND to silty SAND	125	5.0	42	60	91	43	-	16
57.91	304.4	210.1	247.5	5.7	2.2	1.9	6	clean SAND to silty SAND	125	5.0	42	61	91	43	-	16
58.07	305.6	210.7	246.2	5.5	2.3	1.8	6	clean SAND to silty SAND	125	5.0	42	61	92	43	-	16
58.24	298.3	205.4	240.4	5.3	2.4	1.8	6	clean SAND to silty SAND	125	5.0	41	60	91	43	-	16
58.40	295.5	203.1	236.8	5.2	2.4	1.8	6	clean SAND to silty SAND	125	5.0	41	59	90	43	-	16
58.57	299.2	205.4	237.2	5.1	2.6	1.7	6	clean SAND to silty SAND	125	5.0	41	60	91	43	-	16
58.73	317.4	217.7	246.2	5.2	2.7	1.6	6	clean SAND to silty SAND	125	5.0	44	63	93	44	-	16
58.89	323.3	221.4	252.3	5.5	2.8	1.7	6	clean SAND to silty SAND	125	5.0	44	65	93	44	-	16
59.06	325.0	222.3	254.3	5.6	2.8	1.8	6	clean SAND to silty SAND	125	5.0	44	65	93	44	-	16
59.22	327.4	223.7	255.9	5.7	2.9	1.8	6	clean SAND to silty SAND	125	5.0	45	65	94	44	-	16
59.39	329.6	224.9	259.3	6.0	3.0	1.8	6	clean SAND to silty SAND	125	5.0	45	66	94	44	-	16
59.55	337.5	230.0	262.0	5.9	3.0	1.8	6	clean SAND to silty SAND	125	5.0	46	68	94	44	-	16
59.71	343.9	234.0	256.0	5.1	3.1	1.5	6	clean SAND to silty SAND	125	5.0	47	69	95	44	-	16
59.88	345.9	235.1	252.6	4.8	3.2	1.4	6	clean SAND to silty SAND	125	5.0	47	69	95	44	-	16
60.04	338.0	229.4	251.1	5.0	3.8	1.5	6	clean SAND to silty SAND	125	5.0	46	68	94	44	-	16
60.21	333.8	226.3	250.7	5.1	4.9	1.6	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
60.37	333.3	225.7	251.3	5.2	4.8	1.6	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
60.53	329.0	222.5	249.9	5.3	4.8	1.6	6	clean SAND to silty SAND	125	5.0	45	66	93	44	-	16
60.70	321.5	217.1	244.2	5.1	4.8	1.6	6	clean SAND to silty SAND	125	5.0	43	64	93	44	-	16
60.86	310.1	209.2	235.1	4.8	4.8	1.6	6	clean SAND to silty SAND	125	5.0	42	62	91	43	-	16
61.03	324.0	218.3	235.4	4.3	4.8	1.3	6	clean SAND to silty SAND	125	5.0	44	65	93	44	-	16
61.19	354.6	238.6	237.9	3.5	4.9	1.0	6	clean SAND to silty SAND	125	5.0	48	71	95	44	-	16
61.35	365.8	245.9	245.9	2.9	4.8	0.8	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
61.52	381.7	256.2	256.2	2.9	4.8	0.8	6	clean SAND to silty SAND	125	5.0	51	76	95	44	-	16
61.68	392.3	263.0	263.0	2.8	4.8	0.7	6	clean SAND to silty SAND	125	5.0	53	78	95	44	-	16
61.85	394.9	264.4	264.4	2.9	4.9	0.7	6	clean SAND to silty SAND	125	5.0	53	79	95	44	-	16
62.01	402.1	268.9	268.9	3.1	5.0	0.8	6	clean SAND to silty SAND	125	5.0	54	80	95	44	-	16
62.17	404.1	269.9	269.9	3.0	5.1	0.8	6	clean SAND to silty SAND	125	5.0	54	81	95	44	-	16
62.34	399.2	266.4	266.4	3.0	5.2	0.8	6	clean SAND to silty SAND	125	5.0	53	80	95	44	-	16
62.50	390.7	260.3	260.3	2.9	5.3	0.8	6	clean SAND to silty SAND	125	5.0	52	78	95	44	-	16
62.67	392.3	261.1	261.1	3.0	5.4	0.8	6	clean SAND to silty SAND	125	5.0	52	78	95	44	-	16
62.83	397.5	264.2	264.2	2.8	5.5	0.7	6	clean SAND to silty SAND	125	5.0	53	79	95	44	-	16
63.00	401.6	266.6	266.6	2.9	5.7	0.7	6	clean SAND to silty SAND	125	5.0	53	80	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(468).cpt
CPT Date: 12/5/2008 9:56:17 AM
GW During Test: 12 ft

Sounding ID: CPT-08-48
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	392.7	260.4	260.4	3.1	6.7	0.8	6	clean SAND to silty SAND	125	5.0	52	79	95	44	-	16
63.32	402.7	266.7	266.7	3.0	6.7	0.8	6	clean SAND to silty SAND	125	5.0	53	81	95	44	-	16
63.49	401.3	265.5	265.5	2.9	6.7	0.7	6	clean SAND to silty SAND	125	5.0	53	80	95	44	-	16
63.65	398.6	263.4	263.4	2.8	6.7	0.7	6	clean SAND to silty SAND	125	5.0	53	80	95	44	-	16
63.82	390.1	257.5	257.5	2.9	6.7	0.7	6	clean SAND to silty SAND	125	5.0	51	78	95	44	-	16
63.98	383.0	252.5	252.5	2.9	6.7	0.8	6	clean SAND to silty SAND	125	5.0	51	77	95	44	-	16
64.14	384.2	253.0	253.0	2.9	6.8	0.8	6	clean SAND to silty SAND	125	5.0	51	77	95	44	-	16
64.31	425.8	280.0	280.0	2.0	6.9	0.5	6	clean SAND to silty SAND	125	5.0	56	85	95	45	-	16
64.47	439.2	288.5	288.5	0.8	6.5	0.2	7	grvly SAND to dense SAND	130	6.0	48	73	95	45	-	16
64.64	429.7	282.0	282.0	0.8	6.6	0.2	7	grvly SAND to dense SAND	130	6.0	47	72	95	45	-	16
64.80	416.3	272.8	272.8	0.7	5.6	0.2	7	grvly SAND to dense SAND	130	6.0	45	69	95	44	-	16
64.96	394.3	258.0	258.0	1.0	4.9	0.3	7	grvly SAND to dense SAND	130	6.0	43	66	95	44	-	16
65.13	473.6	309.6	309.6	1.8	3.9	0.4	7	grvly SAND to dense SAND	130	6.0	52	79	95	45	-	16
65.29	504.0	329.0	329.0	1.4	14.4	0.3	7	grvly SAND to dense SAND	130	6.0	55	84	95	45	-	16
65.46	464.8	303.1	303.1	2.8	12.7	0.6	6	clean SAND to silty SAND	125	5.0	61	93	95	45	-	16
65.62	480.4	312.9	312.9	1.6	8.8	0.3	7	grvly SAND to dense SAND	130	6.0	52	80	95	45	-	16
65.78	473.0	307.7	307.7	2.2	7.4	0.5	7	grvly SAND to dense SAND	130	6.0	51	79	95	45	-	16
65.95	487.1	316.4	316.4	2.7	4.8	0.6	6	clean SAND to silty SAND	125	5.0	63	97	95	45	-	16
66.11	482.4	313.0	313.0	1.6	3.7	0.3	7	grvly SAND to dense SAND	130	6.0	52	80	95	45	-	16
66.28	474.6	307.6	307.6	1.1	3.4	0.2	7	grvly SAND to dense SAND	130	6.0	51	79	95	45	-	16
66.44	404.2	261.6	261.6	1.6	7.0	0.4	6	clean SAND to silty SAND	125	5.0	52	81	95	44	-	16
66.60	362.3	234.3	234.3	2.5	6.3	0.7	6	clean SAND to silty SAND	125	5.0	47	72	95	44	-	16
66.77	316.8	204.6	204.6	1.2	6.2	0.4	6	clean SAND to silty SAND	125	5.0	41	63	91	43	-	16
66.93	259.7	167.5	178.1	2.5	6.5	1.0	6	clean SAND to silty SAND	125	5.0	34	52	84	42	-	16
67.10	226.6	146.0	172.2	3.1	6.5	1.4	6	clean SAND to silty SAND	125	5.0	29	45	79	41	-	16
67.26	176.3	113.5	155.0	3.1	6.1	1.8	5	silty SAND to sandy SILT	120	4.0	28	44	71	40	-	16
67.42	136.3	87.6	142.7	2.8	6.7	2.1	5	silty SAND to sandy SILT	120	4.0	22	34	63	38	-	16
67.59	135.2	86.9	124.7	2.0	8.3	1.5	5	silty SAND to sandy SILT	120	4.0	22	34	62	38	-	16
67.75	239.2	153.5	159.8	1.8	7.3	0.8	6	clean SAND to silty SAND	125	5.0	31	48	81	41	-	16
67.92	270.0	173.0	175.0	2.1	7.1	0.8	6	clean SAND to silty SAND	125	5.0	35	54	85	42	-	16
68.08	296.5	189.8	189.8	2.1	7.7	0.7	6	clean SAND to silty SAND	125	5.0	38	59	88	42	-	16
68.24	327.4	209.4	209.4	2.1	7.8	0.6	6	clean SAND to silty SAND	125	5.0	42	65	91	43	-	16
68.41	356.6	227.8	227.8	1.9	7.9	0.5	6	clean SAND to silty SAND	125	5.0	46	71	94	43	-	16
68.57	376.0	239.9	239.9	1.8	7.9	0.5	6	clean SAND to silty SAND	125	5.0	48	75	95	44	-	16
68.74	419.0	267.1	267.1	2.2	7.9	0.5	6	clean SAND to silty SAND	125	5.0	53	84	95	44	-	16
68.90	381.2	242.7	242.7	2.1	9.4	0.6	6	clean SAND to silty SAND	125	5.0	49	76	95	44	-	16
69.07	433.6	275.8	275.8	1.9	8.7	0.4	6	clean SAND to silty SAND	125	5.0	55	87	95	44	-	16
69.23	442.9	281.4	281.4	1.5	8.7	0.3	7	grvly SAND to dense SAND	130	6.0	47	74	95	44	-	16
69.39	464.6	294.8	294.8	0.8	7.6	0.2	7	grvly SAND to dense SAND	130	6.0	49	77	95	45	-	16
69.56	472.6	299.5	299.5	1.7	7.6	0.4	7	grvly SAND to dense SAND	130	6.0	50	79	95	45	-	16
69.72	466.5	295.3	295.3	1.6	13.9	0.3	7	grvly SAND to dense SAND	130	6.0	49	78	95	45	-	16
69.89	465.6	294.4	294.4	1.5	12.5	0.3	7	grvly SAND to dense SAND	130	6.0	49	78	95	45	-	16
70.05	520.1	328.5	328.5	1.6	11.0	0.3	7	grvly SAND to dense SAND	130	6.0	55	87	95	45	-	16
70.21	418.8	264.2	264.2	1.4	12.2	0.3	7	grvly SAND to dense SAND	130	6.0	44	70	95	44	-	16
70.38	403.7	254.3	254.3	0.8	12.4	0.2	7	grvly SAND to dense SAND	130	6.0	42	67	95	44	-	16
70.54	397.8	250.3	250.3	1.0	10.8	0.2	7	grvly SAND to dense SAND	130	6.0	42	66	95	44	-	16
70.71	410.6	258.1	258.1	1.9	11.3	0.5	6	clean SAND to silty SAND	125	5.0	52	82	95	44	-	16
70.87	419.1	263.2	263.2	1.5	11.0	0.4	7	grvly SAND to dense SAND	130	6.0	44	70	95	44	-	16
71.03	415.3	260.5	260.5	2.6	11.8	0.6	6	clean SAND to silty SAND	125	5.0	52	83	95	44	-	16
71.20	409.2	256.3	256.3	1.6	11.9	0.4	6	clean SAND to silty SAND	125	5.0	51	82	95	44	-	16
71.36	403.6	252.6	252.6	3.0	12.4	0.7	6	clean SAND to silty SAND	125	5.0	51	81	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(418).cpt
CPT Date: 11/19/2008 10:01:06 AM
GW During Test: 12 ft

Sounding ID: CPT-08-49
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	63.4	101.7	170.3	1.7	0.0	2.7	5	silty SAND to sandy SILT	120	4.0	25	16	68	48	-	16
0.49	59.3	95.0	185.3	2.0	-0.5	3.4	5	silty SAND to sandy SILT	120	4.0	24	15	65	48	-	16
0.66	44.4	71.2	176.2	1.8	-1.1	4.0	4	clayy SILT to silty CLAY	115	2.0	36	22	-	-	3.1	15
0.82	27.0	43.2	-	1.4	-0.7	5.0	3	silty CLAY to CLAY	115	1.5	29	18	-	-	1.9	15
0.98	22.3	35.8	-	1.2	-0.7	5.2	3	silty CLAY to CLAY	115	1.5	24	15	-	-	1.6	15
1.15	29.6	47.5	142.6	1.1	-0.2	3.8	4	clayy SILT to silty CLAY	115	2.0	24	15	-	-	2.1	15
1.31	46.9	75.2	130.6	1.0	-0.2	2.2	5	silty SAND to sandy SILT	120	4.0	19	12	58	48	-	16
1.48	56.1	90.0	125.8	0.9	-0.1	1.5	5	silty SAND to sandy SILT	120	4.0	22	14	64	48	-	16
1.64	83.1	133.2	162.8	1.2	0.0	1.5	6	clean SAND to silty SAND	125	5.0	27	17	76	48	-	16
1.80	134.9	216.4	245.4	2.3	0.0	1.7	6	clean SAND to silty SAND	125	5.0	43	27	92	48	-	16
1.97	129.6	207.8	260.1	3.0	0.0	2.3	6	clean SAND to silty SAND	125	5.0	42	26	91	48	-	16
2.13	93.7	150.3	241.0	3.1	-0.1	3.4	5	silty SAND to sandy SILT	120	4.0	38	23	80	48	-	16
2.30	87.1	139.7	216.2	2.6	0.0	2.9	5	silty SAND to sandy SILT	120	4.0	35	22	78	48	-	16
2.46	57.6	92.3	187.7	2.0	0.1	3.6	5	silty SAND to sandy SILT	120	4.0	23	14	64	47	-	16
2.62	45.4	72.8	170.0	1.7	0.1	3.7	4	clayy SILT to silty CLAY	115	2.0	36	23	-	-	3.2	15
2.79	46.5	74.5	171.5	1.7	0.3	3.7	4	clayy SILT to silty CLAY	115	2.0	37	23	-	-	3.3	15
2.95	58.6	93.9	182.4	1.9	0.2	3.3	5	silty SAND to sandy SILT	120	4.0	23	15	65	46	-	16
3.12	57.7	92.6	183.4	2.0	0.4	3.4	5	silty SAND to sandy SILT	120	4.0	23	14	64	46	-	16
3.28	53.1	85.1	161.3	1.5	0.3	2.9	5	silty SAND to sandy SILT	120	4.0	21	13	62	46	-	16
3.45	51.7	82.9	140.5	1.2	0.1	2.3	5	silty SAND to sandy SILT	120	4.0	21	13	61	45	-	16
3.61	47.3	75.9	122.7	0.9	0.1	1.9	5	silty SAND to sandy SILT	120	4.0	19	12	58	45	-	16
3.77	38.0	60.9	112.9	0.7	0.1	2.0	5	silty SAND to sandy SILT	120	4.0	15	9	51	44	-	16
3.94	31.9	51.1	99.9	0.6	0.0	1.8	5	silty SAND to sandy SILT	120	4.0	13	8	45	43	-	16
4.10	26.6	42.7	89.8	0.4	0.1	1.7	5	silty SAND to sandy SILT	120	4.0	11	7	39	42	-	16
4.27	24.0	38.6	81.7	0.4	0.1	1.5	5	silty SAND to sandy SILT	120	4.0	10	6	36	41	-	16
4.43	21.7	34.8	77.2	0.3	0.2	1.4	5	silty SAND to sandy SILT	120	4.0	9	5	32	40	-	16
4.59	19.8	31.7	72.9	0.3	0.1	1.4	5	silty SAND to sandy SILT	120	4.0	8	5	29	40	-	16
4.76	18.7	30.0	71.7	0.3	0.1	1.4	5	silty SAND to sandy SILT	120	4.0	8	5	27	39	-	16
4.92	17.6	28.2	71.6	0.2	0.1	1.4	5	silty SAND to sandy SILT	120	4.0	7	4	25	39	-	16
5.09	17.1	27.4	68.1	0.2	0.1	1.3	5	silty SAND to sandy SILT	120	4.0	7	4	24	39	-	16
5.25	15.7	25.2	66.5	0.2	0.2	1.3	5	silty SAND to sandy SILT	120	4.0	6	4	21	38	-	16
5.41	14.8	23.8	62.6	0.2	0.1	1.2	5	silty SAND to sandy SILT	120	4.0	6	4	20	38	-	16
5.58	14.3	23.0	63.3	0.2	0.1	1.3	5	silty SAND to sandy SILT	120	4.0	6	4	18	37	-	16
5.74	13.4	21.5	63.3	0.2	-0.1	1.3	5	silty SAND to sandy SILT	120	4.0	5	3	16	37	-	16
5.91	13.8	22.2	66.3	0.2	-0.1	1.4	4	clayy SILT to silty CLAY	115	2.0	11	7	-	-	1.0	15
6.07	15.7	25.2	68.4	0.2	-0.2	1.4	5	silty SAND to sandy SILT	120	4.0	6	4	21	37	-	16
6.23	15.2	24.3	70.0	0.2	-0.1	1.5	5	silty SAND to sandy SILT	120	4.0	6	4	20	37	-	16
6.40	14.8	23.3	67.8	0.2	-0.2	1.5	5	silty SAND to sandy SILT	120	4.0	6	4	19	37	-	16
6.56	14.5	22.5	66.5	0.2	-0.2	1.4	5	silty SAND to sandy SILT	120	4.0	6	4	18	37	-	16
6.73	14.3	22.0	67.4	0.2	-0.1	1.5	4	clayy SILT to silty CLAY	115	2.0	11	7	-	-	1.0	15
6.89	15.2	23.0	67.8	0.2	-0.1	1.5	5	silty SAND to sandy SILT	120	4.0	6	4	19	37	-	16
7.05	17.5	26.2	68.7	0.2	-0.1	1.4	5	silty SAND to sandy SILT	120	4.0	7	4	23	38	-	16
7.22	21.6	32.0	69.2	0.3	-0.1	1.2	5	silty SAND to sandy SILT	120	4.0	8	5	29	39	-	16
7.38	22.1	32.3	73.5	0.3	-0.1	1.4	5	silty SAND to sandy SILT	120	4.0	8	6	30	39	-	16
7.55	22.0	31.8	81.7	0.4	-0.1	1.7	5	silty SAND to sandy SILT	120	4.0	8	5	29	39	-	16
7.71	22.3	32.0	91.5	0.5	-0.1	2.2	4	clayy SILT to silty CLAY	115	2.0	16	11	-	-	1.6	15
7.87	23.5	33.3	100.8	0.6	-0.1	2.6	4	clayy SILT to silty CLAY	115	2.0	17	12	-	-	1.6	15
8.04	17.7	28.4	-	0.6	-0.2	3.8	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
8.20	11.3	18.1	-	0.6	-0.5	5.6	3	silty CLAY to CLAY	115	1.5	12	8	-	-	0.8	15
8.37	8.4	13.5	-	0.5	-0.8	6.5	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
8.53	7.6	12.1	-	0.5	-0.8	7.5	3	silty CLAY to CLAY	115	1.5	8	5	-	-	0.5	15
8.69	11.1	17.8	-	0.5	-0.4	4.7	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.8	15
8.86	13.5	21.6	-	0.5	-0.4	3.6	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
9.02	11.2	18.0	-	0.5	-2.6	4.3	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.8	15
9.19	8.4	13.4	-	0.4	-2.4	5.1	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
9.35	12.3	19.7	-	0.3	-2.3	2.7	4	clayy SILT to silty CLAY	115	2.0	10	6	-	-	0.8	15
9.51	30.9	40.0	69.1	0.3	-1.5	0.9	5	silty SAND to sandy SILT	120	4.0	10	8	37	40	-	16
9.68	37.6	48.2	73.6	0.3	-0.4	0.9	5	silty SAND to sandy SILT	120	4.0	12	9	43	41	-	16
9.84	39.0	49.6	79.8	0.4	-0.1	1.1	5	silty SAND to sandy SILT	120	4.0	12	10	44	41	-	16
10.01	39.1	49.2	79.8	0.4	-0.1	1.1	5	silty SAND to sandy SILT	120	4.0	12	10	44	41	-	16
10.17	41.9	52.5	78.7	0.4	-0.1	0.9	5	silty SAND to sandy SILT	120	4.0	13	10	46	41	-	16
10.34	50.7	62.9	84.9	0.4	-0.1	0.9	6	clean SAND to silty SAND	125	5.0	13	10	52	42	-	16
10.50	61.7	75.8	95.7	0.5	-0.1	0.9	6	clean SAND to silty SAND	125	5.0	15	12	58	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(418).cpt
CPT Date: 11/19/2008 10:01:06 AM
GW During Test: 12 ft

Sounding ID: CPT-08-49
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n * PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	71.8	87.6	104.6	0.6	-0.1	0.8	6	clean SAND to silty SAND	125	5.0	18	14	63	44	-	16
10.83	85.7	103.8	116.9	0.6	-0.1	0.8	6	clean SAND to silty SAND	125	5.0	21	17	68	44	-	16
10.99	97.0	116.5	129.4	0.8	0.0	0.8	6	clean SAND to silty SAND	125	5.0	23	19	72	45	-	16
11.16	105.3	125.5	140.3	1.0	0.0	0.9	6	clean SAND to silty SAND	125	5.0	25	21	74	45	-	16
11.32	113.7	134.4	149.8	1.1	0.0	1.0	6	clean SAND to silty SAND	125	5.0	27	23	77	45	-	16
11.48	118.1	138.6	155.8	1.2	0.0	1.1	6	clean SAND to silty SAND	125	5.0	28	24	78	46	-	16
11.65	113.6	132.4	153.2	1.3	0.0	1.2	6	clean SAND to silty SAND	125	5.0	26	23	76	45	-	16
11.81	107.1	123.9	143.9	1.2	0.0	1.1	6	clean SAND to silty SAND	125	5.0	25	21	74	45	-	16
11.98	107.3	123.2	145.0	1.2	0.0	1.2	6	clean SAND to silty SAND	125	5.0	25	21	74	45	-	16
12.14	106.0	121.3	140.0	1.1	0.2	1.0	6	clean SAND to silty SAND	125	5.0	24	21	73	45	-	16
12.30	106.7	121.7	135.6	0.9	0.1	0.9	6	clean SAND to silty SAND	125	5.0	24	21	73	45	-	16
12.47	101.2	114.9	127.3	0.8	0.1	0.8	6	clean SAND to silty SAND	125	5.0	23	20	72	45	-	16
12.63	87.1	98.6	115.0	0.7	0.2	0.9	6	clean SAND to silty SAND	125	5.0	20	17	67	44	-	16
12.80	68.3	77.0	106.7	0.8	0.2	1.2	5	silty SAND to sandy SILT	120	4.0	19	17	58	43	-	16
12.96	47.0	52.9	109.9	1.0	0.2	2.1	5	silty SAND to sandy SILT	120	4.0	13	12	46	41	-	16
13.12	34.0	38.2	103.3	0.8	-1.0	2.4	4	clayy SILT to silty CLAY	115	2.0	19	17	-	-	2.4	15
13.29	18.3	24.3	-	0.5	-5.9	3.0	4	clayy SILT to silty CLAY	115	2.0	12	9	-	-	1.3	15
13.45	11.3	14.9	-	0.3	-6.8	3.3	3	silty CLAY to CLAY	115	1.5	10	8	-	-	0.8	15
13.62	8.6	11.3	-	0.2	-6.6	2.4	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
13.78	7.0	9.1	-	0.1	-6.5	2.1	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
13.94	6.9	8.9	-	0.1	-6.3	1.8	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
14.11	6.5	8.4	-	0.1	-6.1	2.2	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
14.27	6.5	8.4	-	0.1	-6.0	2.4	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
14.44	6.3	8.1	-	0.2	-5.8	3.0	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.60	6.2	7.9	-	0.2	-5.8	3.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.76	6.3	7.9	-	0.3	-5.8	4.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.93	7.8	9.7	-	0.3	-5.6	4.1	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.09	9.2	11.4	-	0.2	-5.7	2.8	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
15.26	6.6	8.2	-	0.2	-5.7	3.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.42	5.7	7.1	-	0.2	-5.6	3.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.58	5.6	6.9	-	0.2	-5.0	5.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.75	6.3	7.7	-	0.3	-4.9	5.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.91	15.2	18.5	-	0.3	-4.8	2.4	4	clayy SILT to silty CLAY	115	2.0	9	8	-	-	1.0	15
16.08	26.2	27.9	72.9	0.4	-4.9	1.5	5	silty SAND to sandy SILT	120	4.0	7	7	25	36	-	16
16.24	30.5	32.5	70.9	0.4	-4.9	1.2	5	silty SAND to sandy SILT	120	4.0	8	8	30	37	-	16
16.40	36.6	38.8	77.8	0.5	-5.4	1.3	5	silty SAND to sandy SILT	120	4.0	10	9	36	38	-	16
16.57	38.3	40.5	86.8	0.6	-5.6	1.6	5	silty SAND to sandy SILT	120	4.0	10	10	37	38	-	16
16.73	55.1	58.1	86.7	0.6	-6.5	1.1	5	silty SAND to sandy SILT	120	4.0	15	14	49	40	-	16
16.90	62.8	66.1	94.6	0.7	-7.8	1.1	5	silty SAND to sandy SILT	120	4.0	17	16	53	41	-	16
17.06	64.2	67.4	95.3	0.7	-7.8	1.1	5	silty SAND to sandy SILT	120	4.0	17	16	54	41	-	16
17.23	62.4	65.3	91.4	0.6	-7.8	1.0	5	silty SAND to sandy SILT	120	4.0	16	16	53	41	-	16
17.39	64.9	67.7	91.9	0.6	-7.7	1.0	6	clean SAND to silty SAND	125	5.0	14	13	54	41	-	16
17.55	68.6	71.3	97.2	0.7	-7.6	1.1	6	clean SAND to silty SAND	125	5.0	14	14	56	41	-	16
17.72	66.4	68.9	102.2	0.9	-7.5	1.3	5	silty SAND to sandy SILT	120	4.0	17	17	55	41	-	16
17.88	67.4	69.7	104.8	0.9	-7.4	1.4	5	silty SAND to sandy SILT	120	4.0	17	17	55	41	-	16
18.05	70.8	73.1	108.1	1.0	-7.4	1.4	5	silty SAND to sandy SILT	120	4.0	18	18	57	41	-	16
18.21	70.3	72.4	104.8	0.9	-7.3	1.3	5	silty SAND to sandy SILT	120	4.0	18	18	56	41	-	16
18.37	60.6	62.2	98.0	0.8	-7.3	1.4	5	silty SAND to sandy SILT	120	4.0	16	15	51	40	-	16
18.54	48.1	49.3	86.0	0.6	-7.2	1.3	5	silty SAND to sandy SILT	120	4.0	12	12	44	39	-	16
18.70	30.3	30.9	89.3	0.6	-7.2	2.1	4	clayy SILT to silty CLAY	115	2.0	15	15	-	-	2.1	15
18.87	13.1	14.4	-	0.6	-7.2	4.9	3	silty CLAY to CLAY	115	1.5	10	9	-	-	0.9	15
19.03	10.5	11.5	-	0.4	-5.5	4.2	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
19.19	7.1	7.8	-	0.2	-5.4	3.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
19.36	5.9	6.4	-	0.3	-5.1	6.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
19.52	12.0	13.0	-	0.3	-4.8	2.8	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
19.69	38.6	38.8	69.8	0.4	-5.0	1.0	5	silty SAND to sandy SILT	120	4.0	10	10	36	38	-	16
19.85	39.7	39.8	70.9	0.4	-5.9	1.0	5	silty SAND to sandy SILT	120	4.0	10	10	37	38	-	16
20.01	36.6	36.6	68.1	0.3	-5.8	1.0	5	silty SAND to sandy SILT	120	4.0	9	9	34	37	-	16
20.18	36.6	36.6	61.9	0.3	-5.8	0.7	5	silty SAND to sandy SILT	120	4.0	9	9	34	37	-	16
20.34	35.2	35.1	61.1	0.3	-6.0	0.8	5	silty SAND to sandy SILT	120	4.0	9	9	32	37	-	16
20.51	29.5	29.3	62.6	0.3	-6.0	1.0	5	silty SAND to sandy SILT	120	4.0	7	7	26	36	-	16
20.67	25.0	24.8	65.4	0.3	-5.9	1.2	5	silty SAND to sandy SILT	120	4.0	6	6	21	35	-	16
20.83	19.7	20.4	-	0.4	-5.8	1.9	4	clayy SILT to silty CLAY	115	2.0	10	10	-	-	1.3	15
21.00	11.2	11.6	-	0.3	-5.6	3.4	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(418).cpt
CPT Date: 11/19/2008 10:01:06 AM
GW During Test: 12 ft

Sounding ID: CPT-08-49
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	6.9	7.1	-	0.3	-5.4	5.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
21.33	5.5	5.6	-	0.2	-5.1	4.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
21.49	5.2	5.3	-	0.2	-4.9	4.7	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
21.65	5.3	5.4	-	0.2	-4.7	5.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
21.82	5.5	5.6	-	0.2	-4.6	5.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
21.98	5.6	5.6	-	0.3	-4.5	6.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
22.15	5.8	5.8	-	0.3	-4.4	6.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.31	6.1	6.1	-	0.3	-4.3	7.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.47	6.0	5.9	-	0.4	-3.5	7.9	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
22.64	6.2	6.2	-	0.4	-3.4	8.4	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
22.80	6.5	6.4	-	0.5	-3.4	8.9	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
22.97	6.8	6.7	-	0.5	-3.4	8.3	2	Organic SOILS - Peats	100	1.0	7	7	-	-	0.6	10
23.13	6.6	6.5	-	0.4	-3.4	8.1	2	Organic SOILS - Peats	100	1.0	7	7	-	-	0.6	10
23.30	6.2	6.1	-	0.4	-3.4	7.7	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
23.46	6.4	6.2	-	0.4	-3.2	7.6	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
23.62	18.4	17.8	-	0.3	-3.0	1.6	4	clayy SILT to silty CLAY	115	2.0	9	9	-	-	1.2	15
23.79	36.5	34.9	67.7	0.4	-3.5	1.0	5	silty SAND to sandy SILT	120	4.0	9	9	32	36	-	16
23.95	35.7	34.0	82.0	0.6	-3.3	1.6	5	silty SAND to sandy SILT	120	4.0	9	9	31	36	-	16
24.12	21.1	20.2	-	0.7	-3.1	3.5	3	silty CLAY to CLAY	115	1.5	13	14	-	-	1.4	15
24.28	12.6	12.0	-	0.5	-2.9	4.9	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
24.44	17.8	16.9	-	0.4	-2.4	2.6	4	clayy SILT to silty CLAY	115	2.0	8	9	-	-	1.2	15
24.61	56.5	53.4	79.3	0.5	-2.4	0.9	5	silty SAND to sandy SILT	120	4.0	13	14	46	39	-	16
24.77	64.2	60.6	87.6	0.6	-2.4	1.0	5	silty SAND to sandy SILT	120	4.0	15	16	50	39	-	16
24.94	61.0	57.4	96.5	0.9	-2.2	1.4	5	silty SAND to sandy SILT	120	4.0	14	15	49	39	-	16
25.10	52.4	49.2	117.0	1.3	-2.0	2.5	5	silty SAND to sandy SILT	120	4.0	12	13	44	38	-	16
25.26	36.4	33.9	-	1.2	-1.9	3.3	4	clayy SILT to silty CLAY	115	2.0	17	18	-	-	2.5	15
25.43	44.7	41.8	101.5	0.9	-1.5	2.2	5	silty SAND to sandy SILT	120	4.0	10	11	38	37	-	16
25.59	68.7	64.1	104.3	1.0	-0.3	1.5	5	silty SAND to sandy SILT	120	4.0	16	17	52	40	-	16
25.76	71.5	66.6	107.6	1.1	-0.6	1.6	5	silty SAND to sandy SILT	120	4.0	17	18	54	40	-	16
25.92	73.4	68.2	110.8	1.2	-0.4	1.6	5	silty SAND to sandy SILT	120	4.0	17	18	54	40	-	16
26.08	82.1	76.1	114.5	1.2	-0.6	1.5	5	silty SAND to sandy SILT	120	4.0	19	21	58	41	-	16
26.25	86.7	80.3	118.9	1.3	-0.7	1.6	5	silty SAND to sandy SILT	120	4.0	20	22	60	41	-	16
26.41	85.4	78.9	122.0	1.4	-0.6	1.7	5	silty SAND to sandy SILT	120	4.0	20	21	59	41	-	16
26.58	82.5	76.0	118.0	1.3	-0.4	1.7	5	silty SAND to sandy SILT	120	4.0	19	21	58	40	-	16
26.74	83.7	77.0	110.2	1.1	-0.4	1.3	5	silty SAND to sandy SILT	120	4.0	19	21	58	40	-	16
26.90	87.0	79.8	108.4	1.0	-1.4	1.2	5	silty SAND to sandy SILT	120	4.0	20	22	60	41	-	16
27.07	69.1	63.3	104.3	1.0	-2.2	1.5	5	silty SAND to sandy SILT	120	4.0	16	17	52	39	-	16
27.23	46.0	42.0	104.7	1.0	-2.0	2.3	5	silty SAND to sandy SILT	120	4.0	10	11	38	37	-	16
27.40	22.7	20.0	-	0.8	-1.8	3.8	3	silty CLAY to CLAY	115	1.5	13	15	-	-	1.5	15
27.56	12.2	10.7	-	0.5	-1.4	4.8	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
27.72	10.2	8.9	-	0.3	-0.9	3.2	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
27.89	8.4	7.4	-	0.2	-0.4	3.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
28.05	7.9	6.8	-	0.3	0.2	4.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
28.22	7.3	6.3	-	0.2	0.6	4.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
28.38	6.6	5.7	-	0.2	1.1	4.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
28.54	6.2	5.3	-	0.2	1.6	4.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
28.71	6.8	5.8	-	0.2	2.3	3.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
28.87	6.6	5.6	-	0.2	2.8	3.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
29.04	6.1	5.2	-	0.2	8.4	4.6	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.4	15
29.20	6.4	5.4	-	0.3	9.4	6.8	2	Organic SOILS - Peats	100	1.0	5	6	-	-	0.6	10
29.36	11.7	9.9	-	0.4	10.7	4.0	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
29.53	19.6	16.5	-	0.5	6.6	2.7	4	clayy SILT to silty CLAY	115	2.0	8	10	-	-	1.3	15
29.69	18.2	15.3	-	0.4	2.9	2.7	4	clayy SILT to silty CLAY	115	2.0	8	9	-	-	1.2	15
29.86	19.9	16.6	-	0.4	0.3	2.2	4	clayy SILT to silty CLAY	115	2.0	8	10	-	-	1.3	15
30.02	16.1	13.4	-	0.4	-1.5	2.5	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
30.19	9.8	8.1	-	0.4	-2.0	4.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
30.35	8.7	7.1	-	0.4	-1.4	5.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
30.51	16.6	13.6	-	0.4	-1.0	2.8	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
30.68	19.0	15.5	-	0.5	-0.9	2.6	4	clayy SILT to silty CLAY	115	2.0	8	9	-	-	1.3	15
30.84	18.7	15.3	-	0.3	-1.6	2.0	4	clayy SILT to silty CLAY	115	2.0	8	9	-	-	1.3	15
31.01	26.7	23.4	68.2	0.3	-2.7	1.4	5	silty SAND to sandy SILT	120	4.0	6	7	19	33	-	16
31.17	25.3	20.5	-	0.4	-3.9	1.7	4	clayy SILT to silty CLAY	115	2.0	10	13	-	-	1.7	15
31.33	18.8	15.2	-	0.4	-3.7	2.5	4	clayy SILT to silty CLAY	115	2.0	8	9	-	-	1.3	15
31.50	18.3	14.7	-	0.5	-4.2	2.9	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.2	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(418).cpt
CPT Date: 11/19/2008 10:01:06 AM
GW During Test: 12 ft

Sounding ID: CPT-08-49
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	16.6	13.4	-	0.5	-4.5	3.1	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
31.83	15.1	12.1	-	0.4	-5.0	3.1	3	silty CLAY to CLAY	115	1.5	8	10	-	-	1.0	15
31.99	7.9	6.3	-	0.3	-5.2	5.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.15	7.0	5.5	-	0.3	2.7	5.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
32.32	7.5	5.9	-	0.3	3.8	6.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.48	15.6	12.3	-	0.3	4.6	2.3	3	silty CLAY to CLAY	115	1.5	8	10	-	-	1.0	15
32.65	8.7	6.8	-	0.4	3.0	5.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
32.81	8.7	6.8	-	0.4	4.4	5.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
32.97	8.2	6.4	-	0.4	5.2	6.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
33.14	7.2	5.6	-	0.3	6.5	6.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
33.30	7.3	5.6	-	0.3	7.5	5.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
33.47	7.1	5.5	-	0.3	8.7	5.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
33.63	7.6	5.9	-	0.3	9.8	5.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
33.79	8.5	6.5	-	0.4	10.8	6.5	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
33.96	18.6	14.2	-	0.4	11.0	2.3	4	clayy SILT to silty CLAY	115	2.0	7	9	-	-	1.2	15
34.12	30.5	25.9	68.5	0.4	9.2	1.3	5	silty SAND to sandy SILT	120	4.0	6	8	22	33	-	16
34.29	45.2	38.3	71.8	0.5	4.1	1.1	5	silty SAND to sandy SILT	120	4.0	10	11	35	36	-	16
34.45	52.0	43.9	78.1	0.6	2.2	1.1	5	silty SAND to sandy SILT	120	4.0	11	13	40	37	-	16
34.61	51.6	43.5	86.3	0.7	3.0	1.5	5	silty SAND to sandy SILT	120	4.0	11	13	40	36	-	16
34.78	43.9	36.9	89.0	0.8	3.6	1.8	5	silty SAND to sandy SILT	120	4.0	9	11	34	35	-	16
34.94	38.1	32.0	80.6	0.6	4.2	1.6	5	silty SAND to sandy SILT	120	4.0	8	10	29	35	-	16
35.11	37.3	31.3	90.7	0.7	0.9	2.1	4	clayy SILT to silty CLAY	115	2.0	16	19	-	-	2.6	15
35.27	22.0	16.4	-	0.8	0.7	3.9	3	silty CLAY to CLAY	115	1.5	11	15	-	-	1.5	15
35.43	22.1	16.4	-	0.7	6.1	3.3	3	silty CLAY to CLAY	115	1.5	11	15	-	-	1.5	15
35.60	24.7	18.3	-	0.4	2.7	2.0	4	clayy SILT to silty CLAY	115	2.0	9	12	-	-	1.7	15
35.76	15.5	11.4	-	0.4	1.3	2.8	3	silty CLAY to CLAY	115	1.5	8	10	-	-	1.0	15
35.93	8.8	6.4	-	0.3	2.3	4.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
36.09	7.5	5.5	-	0.3	3.9	4.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
36.26	7.3	5.3	-	0.2	5.2	4.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
36.42	7.3	5.3	-	0.2	6.4	4.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
36.58	7.7	5.6	-	0.3	7.9	4.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
36.75	8.4	6.0	-	0.3	9.4	5.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
36.91	10.2	7.3	-	0.4	11.5	5.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
37.08	9.8	7.0	-	0.4	13.7	5.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
37.24	8.4	6.1	-	0.4	15.6	5.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
37.40	8.5	6.1	-	0.3	18.6	4.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
37.57	8.6	6.1	-	0.3	20.7	4.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
37.73	8.6	6.1	-	0.3	22.5	4.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
37.90	9.4	6.7	-	0.3	21.8	4.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
38.06	9.8	6.9	-	0.3	20.6	4.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
38.22	9.1	6.4	-	0.3	22.5	4.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
38.39	9.2	6.4	-	0.3	24.2	4.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
38.55	10.6	7.4	-	0.4	25.5	4.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.72	18.7	13.1	-	0.4	13.5	2.7	3	silty CLAY to CLAY	115	1.5	9	12	-	-	1.2	15
38.88	15.0	10.4	-	0.4	12.9	3.4	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
39.04	10.0	6.9	-	0.4	14.7	5.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
39.21	9.8	6.8	-	0.4	16.8	4.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
39.37	9.4	6.5	-	0.4	18.1	5.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
39.54	8.9	6.1	-	0.4	20.4	5.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
39.70	8.8	6.0	-	0.4	22.4	5.5	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
39.86	8.9	6.1	-	0.4	24.9	5.5	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
40.03	9.4	6.4	-	0.4	27.4	5.5	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
40.19	9.6	6.5	-	0.4	29.2	5.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
40.36	9.5	6.5	-	0.4	30.5	5.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
40.52	10.2	6.9	-	0.4	32.0	5.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
40.68	12.0	8.1	-	0.5	32.9	5.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
40.85	14.8	10.0	-	0.4	31.3	3.6	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
41.01	11.7	7.8	-	0.4	28.3	4.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
41.18	11.0	7.3	-	0.4	32.4	4.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
41.34	11.3	7.5	-	0.4	34.3	4.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
41.50	11.3	7.5	-	0.4	35.2	5.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
41.67	12.1	8.0	-	0.5	36.3	5.4	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
41.83	15.0	9.9	-	0.5	35.9	3.7	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
42.00	21.0	13.8	-	0.7	35.4	3.8	3	silty CLAY to CLAY	115	1.5	9	14	-	-	1.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(418).cpt
CPT Date: 11/19/2008 10:01:06 AM
GW During Test: 12 ft

Sounding ID: CPT-08-49
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	31.2	20.4	-	0.7	5.3	2.5	4	clayy SILT to silty CLAY	115	2.0	10	16	-	-	2.1	15
42.32	14.3	9.3	-	0.6	14.4	5.0	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
42.49	12.7	8.3	-	0.4	16.1	3.7	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
42.65	12.7	8.2	-	0.4	17.6	3.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
42.82	12.5	8.1	-	0.5	19.0	4.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
42.98	13.0	8.4	-	0.5	20.4	4.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
43.15	14.6	9.4	-	0.4	22.1	3.7	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
43.31	13.2	8.5	-	0.5	23.7	4.5	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
43.47	12.6	8.1	-	0.5	25.3	5.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
43.64	12.4	7.9	-	0.6	26.6	5.8	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
43.80	13.6	8.7	-	0.5	27.8	4.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
43.97	15.0	9.5	-	0.5	28.1	3.9	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
44.13	14.5	9.2	-	0.5	29.7	4.4	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
44.29	13.8	8.7	-	0.6	28.9	5.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
44.46	14.0	8.9	-	0.6	29.0	5.5	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
44.62	14.7	9.3	-	0.7	29.1	5.8	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
44.79	18.3	11.5	-	0.7	29.0	4.3	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
44.95	16.7	10.5	-	0.7	19.5	5.0	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
45.11	57.0	43.7	72.0	0.5	21.7	0.9	5	silty SAND to sandy SILT	120	4.0	11	14	40	36	-	16
45.28	134.6	103.1	109.1	0.7	6.0	0.5	6	clean SAND to silty SAND	125	5.0	21	27	68	41	-	16
45.44	100.3	76.7	98.7	0.9	7.2	0.9	6	clean SAND to silty SAND	125	5.0	15	20	58	39	-	16
45.61	168.3	128.5	136.9	1.2	7.0	0.7	6	clean SAND to silty SAND	125	5.0	26	34	75	42	-	16
45.77	177.6	135.4	144.4	1.3	6.9	0.8	6	clean SAND to silty SAND	125	5.0	27	36	77	42	-	16
45.93	196.5	149.6	157.4	1.6	7.1	0.8	6	clean SAND to silty SAND	125	5.0	30	39	80	42	-	16
46.10	211.3	160.6	166.9	1.7	7.1	0.8	6	clean SAND to silty SAND	125	5.0	32	42	83	43	-	16
46.26	213.2	161.8	169.3	1.8	7.1	0.9	6	clean SAND to silty SAND	125	5.0	32	43	83	43	-	16
46.43	209.5	158.7	166.9	1.8	7.0	0.9	6	clean SAND to silty SAND	125	5.0	32	42	82	43	-	16
46.59	204.0	154.3	163.5	1.7	7.0	0.9	6	clean SAND to silty SAND	125	5.0	31	41	81	43	-	16
46.75	191.5	144.7	155.8	1.7	7.1	0.9	6	clean SAND to silty SAND	125	5.0	29	38	79	42	-	16
46.92	159.9	120.6	138.5	1.6	7.1	1.0	6	clean SAND to silty SAND	125	5.0	24	32	73	41	-	16
47.08	114.0	85.9	119.0	1.5	7.1	1.4	5	silty SAND to sandy SILT	120	4.0	21	29	62	39	-	16
47.25	68.8	51.7	119.5	1.6	7.2	2.5	5	silty SAND to sandy SILT	120	4.0	13	17	45	37	-	16
47.41	37.4	22.4	-	1.4	7.6	3.9	3	silty CLAY to CLAY	115	1.5	15	25	-	-	2.5	15
47.57	24.4	14.6	-	0.8	8.8	3.9	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.6	15
47.74	19.1	11.4	-	0.5	10.8	2.8	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
47.90	17.8	10.5	-	0.5	13.4	3.2	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
48.07	21.9	12.9	-	0.5	16.1	2.4	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.4	15
48.23	31.6	18.6	-	0.4	15.9	1.5	4	clayy SILT to silty CLAY	115	2.0	9	16	-	-	2.1	15
48.39	33.2	19.6	-	0.5	15.0	1.6	4	clayy SILT to silty CLAY	115	2.0	10	17	-	-	2.2	15
48.56	25.0	14.7	-	0.7	15.5	3.1	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
48.72	21.1	12.4	-	0.5	17.0	2.8	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
48.89	15.0	8.7	-	0.5	27.1	3.9	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
49.05	13.8	8.0	-	0.5	32.0	4.8	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
49.22	20.3	11.8	-	0.4	32.9	2.3	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.3	15
49.38	33.3	19.3	-	0.6	31.6	1.9	4	clayy SILT to silty CLAY	115	2.0	10	17	-	-	2.2	15
49.54	35.0	20.2	-	0.6	19.1	1.7	4	clayy SILT to silty CLAY	115	2.0	10	17	-	-	2.4	15
49.71	33.0	19.1	-	0.7	13.3	2.2	4	clayy SILT to silty CLAY	115	2.0	10	17	-	-	2.2	15
49.87	28.0	16.1	-	0.7	11.8	2.9	3	silty CLAY to CLAY	115	1.5	11	19	-	-	1.9	15
50.04	69.8	51.4	93.9	1.0	12.7	1.5	5	silty SAND to sandy SILT	120	4.0	13	17	45	36	-	16
50.20	104.1	76.5	104.8	1.2	5.3	1.2	5	silty SAND to sandy SILT	120	4.0	19	26	58	39	-	16
50.36	112.2	82.3	113.7	1.4	5.5	1.3	5	silty SAND to sandy SILT	120	4.0	21	28	61	39	-	16
50.53	122.4	89.7	125.2	1.8	6.0	1.5	5	silty SAND to sandy SILT	120	4.0	22	31	63	39	-	16
50.69	133.5	97.7	134.1	2.0	6.4	1.5	5	silty SAND to sandy SILT	120	4.0	24	33	66	40	-	16
50.86	135.5	99.0	140.0	2.3	6.5	1.7	5	silty SAND to sandy SILT	120	4.0	25	34	67	40	-	16
51.02	132.2	96.5	144.0	2.5	6.4	1.9	5	silty SAND to sandy SILT	120	4.0	24	33	66	40	-	16
51.18	153.0	111.5	140.5	2.0	5.2	1.3	6	clean SAND to silty SAND	125	5.0	22	31	71	41	-	16
51.35	151.1	110.0	142.9	2.2	-2.7	1.5	6	clean SAND to silty SAND	125	5.0	22	30	70	41	-	16
51.51	140.7	102.3	142.2	2.3	-3.4	1.7	5	silty SAND to sandy SILT	120	4.0	26	35	68	40	-	16
51.68	138.1	100.3	143.0	2.4	-2.9	1.8	5	silty SAND to sandy SILT	120	4.0	25	35	67	40	-	16
51.84	144.9	105.0	143.9	2.4	-2.5	1.7	5	silty SAND to sandy SILT	120	4.0	26	36	69	40	-	16
52.00	132.2	95.7	135.1	2.1	-2.5	1.6	5	silty SAND to sandy SILT	120	4.0	24	33	66	40	-	16
52.17	125.9	91.1	128.8	1.9	-0.5	1.6	5	silty SAND to sandy SILT	120	4.0	23	31	64	39	-	16
52.33	109.1	78.8	121.7	1.8	-0.5	1.7	5	silty SAND to sandy SILT	120	4.0	20	27	59	39	-	16
52.50	90.2	65.0	123.3	1.9	-0.3	2.2	5	silty SAND to sandy SILT	120	4.0	16	23	53	38	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(418).cpt
CPT Date: 11/19/2008 10:01:06 AM
GW During Test: 12 ft

Sounding ID: CPT-08-49
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	102.1	73.5	111.3	1.5	-0.1	1.5	5	silty SAND to sandy SILT	120	4.0	18	26	57	38	-	16
52.82	132.0	95.0	125.3	1.7	-2.7	1.3	6	clean SAND to silty SAND	125	5.0	19	26	65	40	-	16
52.99	129.0	92.6	128.9	1.9	-3.6	1.5	5	silty SAND to sandy SILT	120	4.0	23	32	64	40	-	16
53.15	134.2	96.3	137.3	2.2	-3.2	1.7	5	silty SAND to sandy SILT	120	4.0	24	34	66	40	-	16
53.32	132.1	94.7	135.7	2.2	-3.0	1.7	5	silty SAND to sandy SILT	120	4.0	24	33	65	40	-	16
53.48	142.7	102.1	130.3	1.8	-2.9	1.3	6	clean SAND to silty SAND	125	5.0	20	29	68	40	-	16
53.64	141.7	101.2	130.2	1.8	-3.5	1.3	6	clean SAND to silty SAND	125	5.0	20	28	67	40	-	16
53.81	110.7	79.0	128.8	2.1	-3.9	1.9	5	silty SAND to sandy SILT	120	4.0	20	28	59	39	-	16
53.97	60.7	32.7	-	2.3	-3.6	3.9	4	clayy SILT to silty CLAY	115	2.0	16	30	-	-	4.2	15
54.14	45.5	24.4	-	1.6	-3.3	3.7	4	clayy SILT to silty CLAY	115	2.0	12	23	-	-	3.1	15
54.30	106.7	75.9	121.3	1.8	-2.7	1.8	5	silty SAND to sandy SILT	120	4.0	19	27	58	38	-	16
54.46	148.7	105.6	140.0	2.2	-3.4	1.5	6	clean SAND to silty SAND	125	5.0	21	30	69	40	-	16
54.63	197.9	140.3	172.8	3.1	-3.2	1.6	6	clean SAND to silty SAND	125	5.0	28	40	78	42	-	16
54.79	240.7	170.5	201.3	3.8	-3.4	1.6	6	clean SAND to silty SAND	125	5.0	34	48	85	43	-	16
54.96	266.0	188.1	218.0	4.3	-3.3	1.6	6	clean SAND to silty SAND	125	5.0	38	53	88	43	-	16
55.12	277.1	195.7	222.2	4.2	-3.1	1.5	6	clean SAND to silty SAND	125	5.0	39	55	89	43	-	16
55.28	279.1	196.8	226.2	4.5	-2.9	1.6	6	clean SAND to silty SAND	125	5.0	39	56	89	43	-	16
55.45	275.7	194.2	226.0	4.6	-1.0	1.7	6	clean SAND to silty SAND	125	5.0	39	55	89	43	-	16
55.61	268.0	188.5	224.2	4.8	-0.8	1.8	6	clean SAND to silty SAND	125	5.0	38	54	88	43	-	16
55.78	256.6	180.2	218.0	4.7	-0.7	1.8	6	clean SAND to silty SAND	125	5.0	36	51	86	43	-	16
55.94	252.0	176.7	215.0	4.6	-0.5	1.8	6	clean SAND to silty SAND	125	5.0	35	50	86	43	-	16
56.11	258.4	181.0	217.2	4.6	-0.3	1.8	6	clean SAND to silty SAND	125	5.0	36	52	87	43	-	16
56.27	274.1	191.8	226.6	4.8	-0.2	1.8	6	clean SAND to silty SAND	125	5.0	38	55	88	43	-	16
56.43	299.8	209.5	241.3	5.1	0.0	1.7	6	clean SAND to silty SAND	125	5.0	42	60	91	44	-	16
56.60	317.2	221.3	250.0	5.2	0.1	1.7	6	clean SAND to silty SAND	125	5.0	44	63	93	44	-	16
56.76	330.9	230.5	255.4	5.2	0.2	1.6	6	clean SAND to silty SAND	125	5.0	46	66	95	44	-	16
56.93	352.6	245.4	265.4	5.2	0.3	1.5	6	clean SAND to silty SAND	125	5.0	49	71	95	44	-	16
57.09	369.0	256.4	271.8	5.1	0.5	1.4	6	clean SAND to silty SAND	125	5.0	51	74	95	44	-	16
57.25	371.9	258.1	268.7	4.8	0.6	1.3	6	clean SAND to silty SAND	125	5.0	52	74	95	45	-	16
57.42	367.9	255.0	263.9	4.6	0.9	1.3	6	clean SAND to silty SAND	125	5.0	51	74	95	44	-	16
57.58	364.8	252.5	265.6	4.8	1.2	1.3	6	clean SAND to silty SAND	125	5.0	51	73	95	44	-	16
57.75	369.6	255.5	263.6	4.5	1.4	1.2	6	clean SAND to silty SAND	125	5.0	51	74	95	44	-	16
57.91	375.0	258.9	258.9	4.0	1.6	1.1	6	clean SAND to silty SAND	125	5.0	52	75	95	44	-	16
58.07	377.6	260.4	260.4	3.4	1.7	0.9	6	clean SAND to silty SAND	125	5.0	52	76	95	45	-	16
58.24	379.1	261.0	261.0	3.3	2.0	0.9	6	clean SAND to silty SAND	125	5.0	52	76	95	45	-	16
58.40	379.7	261.1	261.1	3.2	2.2	0.9	6	clean SAND to silty SAND	125	5.0	52	76	95	45	-	16
58.57	380.9	261.6	261.6	2.6	2.3	0.7	6	clean SAND to silty SAND	125	5.0	52	76	95	45	-	16
58.73	384.8	264.0	264.0	2.4	2.5	0.6	6	clean SAND to silty SAND	125	5.0	53	77	95	45	-	16
58.89	382.6	262.1	262.1	2.3	2.8	0.6	6	clean SAND to silty SAND	125	5.0	52	77	95	44	-	16
59.06	389.1	266.2	266.2	2.4	2.7	0.6	6	clean SAND to silty SAND	125	5.0	53	78	95	45	-	16
59.22	390.5	266.8	266.8	2.4	2.7	0.6	6	clean SAND to silty SAND	125	5.0	53	78	95	45	-	16
59.39	387.9	264.7	264.7	2.3	2.5	0.6	6	clean SAND to silty SAND	125	5.0	53	78	95	45	-	16
59.55	386.6	263.5	263.5	2.1	2.5	0.6	6	clean SAND to silty SAND	125	5.0	53	77	95	44	-	16
59.71	383.3	260.9	260.9	2.0	2.4	0.5	6	clean SAND to silty SAND	125	5.0	52	77	95	44	-	16
59.88	377.6	256.8	256.8	1.9	2.5	0.5	6	clean SAND to silty SAND	125	5.0	51	76	95	44	-	16
60.04	370.6	251.6	251.6	1.8	2.3	0.5	6	clean SAND to silty SAND	125	5.0	50	74	95	44	-	16
60.21	356.0	241.4	241.4	1.6	2.0	0.5	6	clean SAND to silty SAND	125	5.0	48	71	95	44	-	16
60.37	330.0	223.5	223.5	1.5	1.8	0.5	6	clean SAND to silty SAND	125	5.0	45	66	94	44	-	16
60.53	283.9	192.0	192.0	1.6	1.7	0.6	6	clean SAND to silty SAND	125	5.0	38	57	89	43	-	16
60.70	222.0	150.0	163.9	2.2	1.4	1.0	6	clean SAND to silty SAND	125	5.0	30	44	80	42	-	16
60.86	212.1	143.1	164.4	2.5	1.0	1.2	6	clean SAND to silty SAND	125	5.0	29	42	79	41	-	16
61.03	218.5	147.3	169.0	2.7	1.8	1.2	6	clean SAND to silty SAND	125	5.0	29	44	80	42	-	16
61.19	251.2	169.1	183.4	2.7	-0.4	1.1	6	clean SAND to silty SAND	125	5.0	34	50	84	42	-	16
61.35	258.6	173.8	193.6	3.2	-1.7	1.3	6	clean SAND to silty SAND	125	5.0	35	52	85	42	-	16
61.52	268.5	180.3	205.3	3.8	-1.7	1.4	6	clean SAND to silty SAND	125	5.0	36	54	86	43	-	16
61.68	277.9	186.4	213.8	4.2	-1.5	1.5	6	clean SAND to silty SAND	125	5.0	37	56	88	43	-	16
61.85	286.2	191.7	220.5	4.5	-1.3	1.6	6	clean SAND to silty SAND	125	5.0	38	57	88	43	-	16
62.01	287.1	192.1	222.4	4.6	-1.2	1.6	6	clean SAND to silty SAND	125	5.0	38	57	89	43	-	16
62.17	294.3	196.6	226.1	4.7	-1.0	1.6	6	clean SAND to silty SAND	125	5.0	39	59	89	43	-	16
62.34	294.5	196.5	226.2	4.7	-0.9	1.6	6	clean SAND to silty SAND	125	5.0	39	59	89	43	-	16
62.50	293.5	195.7	228.2	5.0	-0.8	1.7	6	clean SAND to silty SAND	125	5.0	39	59	89	43	-	16
62.67	293.1	195.1	224.7	4.7	-0.6	1.6	6	clean SAND to silty SAND	125	5.0	39	59	89	43	-	16
62.83	264.2	175.7	212.3	4.7	-0.3	1.8	6	clean SAND to silty SAND	125	5.0	35	53	86	42	-	16
63.00	283.1	188.1	219.5	4.6	-0.2	1.7	6	clean SAND to silty SAND	125	5.0	38	57	88	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(418).cpt
CPT Date: 11/19/2008 10:01:06 AM
GW During Test: 12 ft

Sounding ID: CPT-08-49
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	291.1	193.1	223.1	4.7	-0.2	1.6	6	clean SAND to silty SAND	125	5.0	39	58	89	43	-	16
63.32	314.6	208.5	232.9	4.7	-0.1	1.5	6	clean SAND to silty SAND	125	5.0	42	63	91	43	-	16
63.49	354.0	234.3	245.0	4.3	0.1	1.2	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
63.65	389.0	257.1	257.1	3.2	0.1	0.8	6	clean SAND to silty SAND	125	5.0	51	78	95	44	-	16
63.82	417.6	275.7	275.7	2.3	0.1	0.6	6	clean SAND to silty SAND	125	5.0	55	84	95	45	-	16
63.98	423.0	279.0	279.0	1.9	0.1	0.5	6	clean SAND to silty SAND	125	5.0	56	85	95	45	-	16
64.14	421.9	277.9	277.9	1.9	0.1	0.5	6	clean SAND to silty SAND	125	5.0	56	84	95	45	-	16
64.31	396.7	261.0	261.0	1.6	0.2	0.4	6	clean SAND to silty SAND	125	5.0	52	79	95	44	-	16
64.47	353.1	232.1	232.1	1.7	0.0	0.5	6	clean SAND to silty SAND	125	5.0	46	71	95	44	-	16
64.64	328.0	215.3	215.3	1.7	0.2	0.5	6	clean SAND to silty SAND	125	5.0	43	66	92	43	-	16
64.80	308.9	202.5	202.5	1.7	0.4	0.6	6	clean SAND to silty SAND	125	5.0	41	62	90	43	-	16
64.96	255.2	167.1	167.1	1.3	0.3	0.5	6	clean SAND to silty SAND	125	5.0	33	51	84	42	-	16
65.13	188.6	123.4	146.3	2.2	0.1	1.2	6	clean SAND to silty SAND	125	5.0	25	38	74	40	-	16
65.29	128.5	84.0	120.3	1.8	0.1	1.5	5	silty SAND to sandy SILT	120	4.0	21	32	61	38	-	16
65.46	69.9	31.5	-	2.4	2.8	3.6	4	clayy SILT to silty CLAY	115	2.0	16	35	-	-	4.8	15
65.62	37.7	17.0	-	1.7	2.9	4.9	3	silty CLAY to CLAY	115	1.5	11	25	-	-	2.5	15
65.78	18.6	8.4	-	1.8	4.5	9.9	2	Organic SOILS - Peats	100	1.0	8	19	-	-	1.8	10
65.95	66.2	29.7	-	1.6	8.7	2.6	4	clayy SILT to silty CLAY	115	2.0	15	33	-	-	4.5	15
66.11	325.1	211.4	211.4	2.8	9.9	0.9	6	clean SAND to silty SAND	125	5.0	42	65	92	43	-	16
66.28	457.9	297.4	297.4	3.1	9.5	0.7	6	clean SAND to silty SAND	125	5.0	59	92	95	45	-	16
66.44	538.2	349.2	349.2	3.3	5.0	0.6	6	clean SAND to silty SAND	125	5.0	70	100	95	46	-	16
66.60	626.6	406.1	406.1	3.2	-0.4	0.5	7	grvly SAND to dense SAND	130	6.0	68	100	95	46	-	16
66.77	685.0	443.4	443.4	3.5	-4.9	0.5	7	grvly SAND to dense SAND	130	6.0	74	100	95	47	-	16
66.93	654.3	423.0	423.0	2.8	-4.3	0.4	7	grvly SAND to dense SAND	130	6.0	70	100	95	46	-	16
67.10	574.9	371.2	371.2	2.8	-4.5	0.5	7	grvly SAND to dense SAND	130	6.0	62	96	95	46	-	16
67.26	512.1	330.3	330.3	2.9	-4.5	0.6	6	clean SAND to silty SAND	125	5.0	66	100	95	45	-	16
67.42	478.8	308.4	308.4	3.0	-4.2	0.6	6	clean SAND to silty SAND	125	5.0	62	96	95	45	-	16
67.59	533.8	343.5	343.5	3.2	-4.6	0.6	6	clean SAND to silty SAND	125	5.0	69	100	95	45	-	16
67.75	541.2	347.8	347.8	2.4	-5.1	0.4	7	grvly SAND to dense SAND	130	6.0	58	90	95	45	-	16
67.92	465.6	298.8	298.8	1.6	-5.0	0.3	7	grvly SAND to dense SAND	130	6.0	50	78	95	45	-	16
68.08	436.9	280.1	280.1	0.9	-4.9	0.2	7	grvly SAND to dense SAND	130	6.0	47	73	95	44	-	16
68.24	421.9	270.2	270.2	0.8	-4.6	0.2	7	grvly SAND to dense SAND	130	6.0	45	70	95	44	-	16
68.41	407.7	260.7	260.7	0.9	-4.2	0.2	7	grvly SAND to dense SAND	130	6.0	43	68	95	44	-	16
68.57	383.3	244.9	244.9	0.8	-1.1	0.2	7	grvly SAND to dense SAND	130	6.0	41	64	95	44	-	16
68.74	352.5	224.9	224.9	1.2	-1.1	0.3	6	clean SAND to silty SAND	125	5.0	45	71	94	43	-	16
68.90	317.9	202.6	202.6	1.0	-0.9	0.3	6	clean SAND to silty SAND	125	5.0	41	64	90	43	-	16
69.07	280.3	178.5	178.5	0.8	-0.9	0.3	6	clean SAND to silty SAND	125	5.0	36	56	86	42	-	16
69.23	188.9	120.1	120.1	0.6	-1.0	0.3	6	clean SAND to silty SAND	125	5.0	24	38	73	40	-	16
69.39	125.1	79.5	80.0	0.2	-0.8	0.2	6	clean SAND to silty SAND	125	5.0	16	25	59	38	-	16
69.56	80.4	51.0	60.5	0.2	-0.8	0.3	6	clean SAND to silty SAND	125	5.0	10	16	45	35	-	16
69.72	53.5	33.9	45.9	0.1	-0.6	0.2	6	clean SAND to silty SAND	125	5.0	7	11	31	32	-	16
69.89	36.1	15.4	-	1.0	-0.4	3.0	3	silty CLAY to CLAY	115	1.5	10	24	-	-	2.4	15
70.05	33.2	14.1	-	1.1	-0.2	3.8	3	silty CLAY to CLAY	115	1.5	9	22	-	-	2.2	15
70.21	15.4	6.5	-	1.0	0.1	8.7	2	Organic SOILS - Peats	100	1.0	7	15	-	-	1.4	10
70.38	8.8	3.7	-	0.3	0.4	7.5	2	Organic SOILS - Peats	100	1.0	4	9	-	-	0.7	10
70.54	7.5	3.2	-	0.3	1.1	8.3	2	Organic SOILS - Peats	100	1.0	3	7	-	-	0.6	10
70.71	11.0	4.6	-	0.1	1.9	2.0	3	silty CLAY to CLAY	115	1.5	3	7	-	-	0.6	15
70.87	7.0	3.0	-	0.4	2.7	9.9	2	Organic SOILS - Peats	100	1.0	3	7	-	-	0.5	10
71.03	12.9	5.4	-	1.0	3.6	9.9	2	Organic SOILS - Peats	100	1.0	5	13	-	-	1.1	10
71.20	175.7	110.6	146.2	2.7	4.7	1.6	6	clean SAND to silty SAND	125	5.0	22	35	70	40	-	16
71.36	281.3	176.8	181.8	2.4	5.3	0.9	6	clean SAND to silty SAND	125	5.0	35	56	86	42	-	16
71.53	329.6	207.0	207.0	2.3	5.4	0.7	6	clean SAND to silty SAND	125	5.0	41	66	91	43	-	16
71.69	344.1	215.9	215.9	1.8	5.9	0.5	6	clean SAND to silty SAND	125	5.0	43	69	92	43	-	16
71.85	372.2	233.3	233.3	1.4	7.2	0.4	6	clean SAND to silty SAND	125	5.0	47	74	95	43	-	16
72.02	364.5	228.2	228.2	1.3	15.1	0.4	6	clean SAND to silty SAND	125	5.0	46	73	94	43	-	16
72.18	393.6	246.1	246.1	1.5	13.6	0.4	6	clean SAND to silty SAND	125	5.0	49	79	95	44	-	16
72.35	426.2	266.2	266.2	1.5	11.8	0.4	7	grvly SAND to dense SAND	130	6.0	44	71	95	44	-	16
72.51	491.2	306.5	306.5	4.3	11.8	0.9	6	clean SAND to silty SAND	125	5.0	61	98	95	45	-	16
72.67	504.1	314.2	314.2	4.6	10.2	0.9	6	clean SAND to silty SAND	125	5.0	63	100	95	45	-	16
72.84	474.0	295.1	295.1	3.2	7.0	0.7	6	clean SAND to silty SAND	125	5.0	59	95	95	44	-	16
73.00	441.3	274.5	274.5	2.4	16.5	0.6	6	clean SAND to silty SAND	125	5.0	55	88	95	44	-	16
73.17	430.5	267.5	267.5	1.8	8.0	0.4	6	clean SAND to silty SAND	125	5.0	53	86	95	44	-	16
73.33	429.8	266.8	266.8	2.3	7.9	0.5	6	clean SAND to silty SAND	125	5.0	53	86	95	44	-	16
73.49	426.9	264.7	264.7	2.2	8.2	0.5	6	clean SAND to silty SAND	125	5.0	53	85	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(418).cpt
CPT Date: 11/19/2008 10:01:06 AM
GW During Test: 12 ft

Sounding ID: CPT-08-49
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS - *	q1ncs PS - *	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60% *	SPT R-N 60% *	Rel Den % *	Ftn Ang deg *	Und Shr tsf *	Nk - *
73.66	429.3	265.9	265.9	1.9	8.6	0.4	6	clean SAND to silty SAND	125	5.0	53	86	95	44	-	16
73.82	437.3	270.6	270.6	1.9	8.5	0.4	6	clean SAND to silty SAND	125	5.0	54	87	95	44	-	16
73.99	467.7	289.1	289.1	2.0	9.0	0.4	7	grvly SAND to dense SAND	130	6.0	48	78	95	44	-	16
74.15	517.2	319.4	319.4	4.6	9.3	0.9	6	clean SAND to silty SAND	125	5.0	64	100	95	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(469).cpt
CPT Date: 12/5/2008 12:31:45 PM
GW During Test: 12 ft

Sounding ID: CPT-08-50
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	65.4	104.9	116.5	0.5	0.0	0.7	6	clean SAND to silty SAND	125	5.0	21	13	69	48	-	16
0.49	82.9	132.9	141.4	0.6	0.1	0.8	6	clean SAND to silty SAND	125	5.0	27	17	76	48	-	16
0.66	67.7	108.6	126.3	0.6	-0.2	1.0	6	clean SAND to silty SAND	125	5.0	22	14	70	48	-	16
0.82	56.0	89.8	112.1	0.6	-0.2	1.0	6	clean SAND to silty SAND	125	5.0	18	11	63	48	-	16
0.98	50.4	80.8	108.3	0.6	-0.2	1.2	6	clean SAND to silty SAND	125	5.0	16	10	60	48	-	16
1.15	44.6	71.6	100.6	0.5	-0.2	1.2	5	silty SAND to sandy SILT	120	4.0	18	11	56	48	-	16
1.31	36.0	57.7	86.5	0.4	-0.2	1.1	5	silty SAND to sandy SILT	120	4.0	14	9	49	48	-	16
1.48	27.5	44.1	69.6	0.2	-0.2	0.9	5	silty SAND to sandy SILT	120	4.0	11	7	40	46	-	16
1.64	21.9	35.2	60.7	0.2	-0.2	0.8	5	silty SAND to sandy SILT	120	4.0	9	5	33	44	-	16
1.80	21.2	33.9	71.2	0.3	-0.2	1.2	5	silty SAND to sandy SILT	120	4.0	8	5	31	44	-	16
1.97	24.5	39.2	94.1	0.5	-0.2	2.0	5	silty SAND to sandy SILT	120	4.0	10	6	36	44	-	16
2.13	27.4	44.0	84.8	0.4	-0.2	1.5	5	silty SAND to sandy SILT	120	4.0	11	7	40	44	-	16
2.30	27.0	43.4	72.5	0.3	0.1	1.0	5	silty SAND to sandy SILT	120	4.0	11	7	39	44	-	16
2.46	34.0	54.5	93.3	0.5	0.0	1.4	5	silty SAND to sandy SILT	120	4.0	14	9	47	45	-	16
2.62	50.2	80.5	110.1	0.6	0.0	1.3	5	silty SAND to sandy SILT	120	4.0	20	13	60	46	-	16
2.79	44.3	71.0	116.2	0.8	0.0	1.8	5	silty SAND to sandy SILT	120	4.0	18	11	56	45	-	16
2.95	33.9	54.3	116.8	0.8	0.0	2.4	5	silty SAND to sandy SILT	120	4.0	14	8	47	44	-	16
3.12	35.1	56.2	118.0	0.8	0.3	2.3	5	silty SAND to sandy SILT	120	4.0	14	9	48	44	-	16
3.28	37.3	59.9	98.8	0.6	0.1	1.5	5	silty SAND to sandy SILT	120	4.0	15	9	50	44	-	16
3.45	39.0	62.5	97.8	0.5	0.0	1.4	5	silty SAND to sandy SILT	120	4.0	16	10	51	44	-	16
3.61	58.4	93.6	125.5	0.8	0.0	1.4	5	silty SAND to sandy SILT	120	4.0	23	15	65	46	-	16
3.77	74.8	119.9	154.7	1.2	0.0	1.6	6	clean SAND to silty SAND	125	5.0	24	15	73	47	-	16
3.94	63.3	101.4	162.7	1.5	0.0	2.4	5	silty SAND to sandy SILT	120	4.0	25	16	67	46	-	16
4.10	45.7	73.4	152.9	1.4	0.0	3.0	5	silty SAND to sandy SILT	120	4.0	18	11	57	44	-	16
4.27	35.5	56.9	129.4	1.0	0.0	2.8	5	silty SAND to sandy SILT	120	4.0	14	9	48	43	-	16
4.43	27.6	44.2	101.1	0.6	-0.5	2.1	5	silty SAND to sandy SILT	120	4.0	11	7	40	42	-	16
4.59	22.4	36.0	94.2	0.5	1.0	2.2	5	silty SAND to sandy SILT	120	4.0	9	6	33	40	-	16
4.76	19.9	31.9	84.4	0.4	-0.1	1.9	5	silty SAND to sandy SILT	120	4.0	8	5	29	40	-	16
4.92	19.8	31.8	77.3	0.3	-0.2	1.6	5	silty SAND to sandy SILT	120	4.0	8	5	29	39	-	16
5.09	19.4	31.1	70.4	0.2	-0.2	1.3	5	silty SAND to sandy SILT	120	4.0	8	5	28	39	-	16
5.25	17.5	28.1	41.4	0.0	-0.3	0.2	5	silty SAND to sandy SILT	120	4.0	7	4	25	39	-	16
5.41	15.8	25.3	38.0	0.0	-0.6	0.2	5	silty SAND to sandy SILT	120	4.0	6	4	22	38	-	16
5.58	13.4	21.6	43.5	0.1	-0.1	0.5	5	silty SAND to sandy SILT	120	4.0	5	3	16	37	-	16
5.74	13.4	21.5	44.9	0.1	-0.3	0.5	5	silty SAND to sandy SILT	120	4.0	5	3	16	37	-	16
5.91	13.7	22.0	54.9	0.1	-0.2	0.9	5	silty SAND to sandy SILT	120	4.0	5	3	17	37	-	16
6.07	17.3	27.7	65.5	0.2	-0.4	1.2	5	silty SAND to sandy SILT	120	4.0	7	4	25	38	-	16
6.23	17.1	27.1	65.5	0.2	-0.7	1.2	5	silty SAND to sandy SILT	120	4.0	7	4	24	38	-	16
6.40	14.7	23.0	52.8	0.1	-1.2	0.8	5	silty SAND to sandy SILT	120	4.0	6	4	18	37	-	16
6.56	12.3	19.0	48.1	0.1	-0.8	0.7	5	silty SAND to sandy SILT	120	4.0	5	3	12	36	-	16
6.73	11.6	18.5	60.3	0.1	-0.4	1.3	4	clayy SILT to silty CLAY	115	2.0	9	6	-	-	0.8	15
6.89	13.9	20.9	62.4	0.2	-0.3	1.3	5	silty SAND to sandy SILT	120	4.0	5	3	15	36	-	16
7.05	15.0	22.3	63.4	0.2	-0.6	1.3	5	silty SAND to sandy SILT	120	4.0	6	4	17	37	-	16
7.22	15.6	23.0	72.4	0.3	-0.5	1.7	4	clayy SILT to silty CLAY	115	2.0	11	8	-	-	1.1	15
7.38	14.2	22.7	-	0.3	-0.7	2.3	4	clayy SILT to silty CLAY	115	2.0	11	7	-	-	1.0	15
7.55	13.7	21.9	-	0.3	-0.7	2.4	4	clayy SILT to silty CLAY	115	2.0	11	7	-	-	0.9	15
7.71	13.5	21.6	-	0.3	-1.7	2.1	4	clayy SILT to silty CLAY	115	2.0	11	7	-	-	0.9	15
7.87	12.3	19.7	-	0.4	-0.7	3.5	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
8.04	11.0	17.6	-	0.4	-0.8	3.8	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.8	15
8.20	10.4	16.6	-	0.4	-2.8	4.0	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
8.37	9.5	15.3	-	0.4	-0.6	4.4	3	silty CLAY to CLAY	115	1.5	10	6	-	-	0.6	15
8.53	9.5	15.2	-	0.4	-1.4	4.4	3	silty CLAY to CLAY	115	1.5	10	6	-	-	0.6	15
8.69	9.8	15.8	-	0.4	-1.9	4.2	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
8.86	10.5	16.9	-	0.4	-1.4	3.7	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
9.02	18.5	24.5	79.7	0.4	-0.2	2.0	4	clayy SILT to silty CLAY	115	2.0	12	9	-	-	1.3	15
9.19	35.7	46.8	68.8	0.3	-0.1	0.7	5	silty SAND to sandy SILT	120	4.0	12	9	42	40	-	16
9.35	40.6	52.7	74.0	0.3	-0.1	0.8	6	clean SAND to silty SAND	125	5.0	11	8	46	41	-	16
9.51	44.1	56.8	71.7	0.2	-0.1	0.5	6	clean SAND to silty SAND	125	5.0	11	9	48	41	-	16
9.68	46.1	58.9	75.5	0.3	-0.1	0.6	6	clean SAND to silty SAND	125	5.0	12	9	50	42	-	16
9.84	49.1	62.1	79.1	0.3	-0.1	0.7	6	clean SAND to silty SAND	125	5.0	12	10	51	42	-	16
10.01	53.7	67.4	84.7	0.4	-0.1	0.7	6	clean SAND to silty SAND	125	5.0	13	11	54	42	-	16
10.17	60.2	74.9	89.9	0.4	-0.1	0.7	6	clean SAND to silty SAND	125	5.0	15	12	57	43	-	16
10.34	69.5	85.8	99.3	0.5	-0.1	0.7	6	clean SAND to silty SAND	125	5.0	17	14	62	43	-	16
10.50	76.1	93.2	104.2	0.5	-0.1	0.6	6	clean SAND to silty SAND	125	5.0	19	15	65	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Earth Mechanics
Data File: SDF(469).cpt
CPT Date: 12/5/2008 12:31:45 PM
GW During Test: 12 ft

Sounding ID: CPT-08-50
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	81.7	99.2	108.6	0.5	-0.1	0.6	6	clean SAND to silty SAND	125	5.0	20	16	67	44	-	16
10.83	87.9	105.8	115.1	0.6	-0.1	0.6	6	clean SAND to silty SAND	125	5.0	21	18	69	44	-	16
10.99	86.3	103.1	106.6	0.4	-0.1	0.4	6	clean SAND to silty SAND	125	5.0	21	17	68	44	-	16
11.16	83.9	99.5	110.5	0.5	-0.1	0.7	6	clean SAND to silty SAND	125	5.0	20	17	67	44	-	16
11.32	78.4	92.3	92.3	0.2	-0.2	0.3	6	clean SAND to silty SAND	125	5.0	18	16	64	44	-	16
11.48	80.0	93.4	94.5	0.2	-0.1	0.3	6	clean SAND to silty SAND	125	5.0	19	16	65	44	-	16
11.65	68.2	79.0	87.6	0.3	0.2	0.4	6	clean SAND to silty SAND	125	5.0	16	14	59	43	-	16
11.81	66.9	77.0	90.1	0.4	-0.1	0.6	6	clean SAND to silty SAND	125	5.0	15	13	58	43	-	16
11.98	64.0	73.2	93.7	0.6	-0.2	0.9	6	clean SAND to silty SAND	125	5.0	15	13	57	42	-	16
12.14	64.0	72.8	97.4	0.6	-0.7	1.0	6	clean SAND to silty SAND	125	5.0	15	13	57	42	-	16
12.30	63.3	71.9	95.4	0.6	-1.1	1.0	6	clean SAND to silty SAND	125	5.0	14	13	56	42	-	16
12.47	57.5	65.0	90.6	0.6	-1.4	1.0	5	silty SAND to sandy SILT	120	4.0	16	14	53	42	-	16
12.63	46.0	51.8	83.6	0.5	-1.4	1.1	5	silty SAND to sandy SILT	120	4.0	13	11	45	40	-	16
12.80	36.5	41.0	75.0	0.4	-1.3	1.1	5	silty SAND to sandy SILT	120	4.0	10	9	38	39	-	16
12.96	31.5	35.3	62.7	0.3	-2.8	0.8	5	silty SAND to sandy SILT	120	4.0	9	8	33	38	-	16
13.12	19.3	21.6	50.6	0.1	-8.3	0.7	5	silty SAND to sandy SILT	120	4.0	5	5	16	35	-	16
13.29	9.9	13.0	-	0.1	-9.2	0.9	4	clayy SILT to silty CLAY	115	2.0	6	5	-	-	0.7	15
13.45	5.9	7.8	-	0.0	-9.0	0.1	1	sensitive fine SOIL	115	2.0	4	3	-	-	0.4	15
13.62	6.0	7.8	-	0.0	-8.2	0.1	1	sensitive fine SOIL	115	2.0	4	3	-	-	0.4	15
13.78	5.1	6.6	-	0.0	-7.1	0.1	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.3	15
13.94	4.2	5.4	-	0.0	-6.0	0.1	1	sensitive fine SOIL	115	2.0	3	2	-	-	0.3	15
14.11	4.1	5.3	-	0.0	-5.4	0.1	1	sensitive fine SOIL	115	2.0	3	2	-	-	0.3	15
14.27	4.1	5.2	-	0.0	-5.0	0.1	1	sensitive fine SOIL	115	2.0	3	2	-	-	0.3	15
14.44	4.5	5.7	-	0.0	-1.8	0.1	1	sensitive fine SOIL	115	2.0	3	2	-	-	0.3	15
14.60	5.1	6.4	-	0.0	-1.7	0.1	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.3	15
14.76	5.8	7.3	-	0.0	-1.0	0.1	1	sensitive fine SOIL	115	2.0	4	3	-	-	0.4	15
14.93	6.4	7.9	-	0.0	-1.0	0.1	1	sensitive fine SOIL	115	2.0	4	3	-	-	0.4	15
15.09	5.4	6.6	-	0.0	-1.8	0.1	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.3	15
15.26	6.5	8.0	-	0.0	-0.6	0.6	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
15.42	7.2	8.8	-	0.1	-1.9	0.9	4	clayy SILT to silty CLAY	115	2.0	4	4	-	-	0.5	15
15.58	6.2	7.6	-	0.0	-3.0	0.6	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
15.75	21.6	23.0	41.1	0.1	-2.3	0.3	5	silty SAND to sandy SILT	120	4.0	6	5	19	35	-	16
15.91	38.6	41.1	55.6	0.1	-3.9	0.4	6	clean SAND to silty SAND	125	5.0	8	8	38	38	-	16
16.08	43.2	45.8	60.1	0.2	-3.2	0.4	6	clean SAND to silty SAND	125	5.0	9	9	41	39	-	16
16.24	48.6	51.5	69.5	0.3	-1.7	0.6	6	clean SAND to silty SAND	125	5.0	10	10	45	40	-	16
16.40	52.0	54.9	74.7	0.4	-0.4	0.7	6	clean SAND to silty SAND	125	5.0	11	10	47	40	-	16
16.57	55.9	58.9	78.7	0.4	0.3	0.7	6	clean SAND to silty SAND	125	5.0	12	11	50	40	-	16
16.73	60.7	63.7	84.3	0.5	0.5	0.8	6	clean SAND to silty SAND	125	5.0	13	12	52	41	-	16
16.90	69.2	72.4	93.6	0.6	0.8	0.9	6	clean SAND to silty SAND	125	5.0	14	14	56	41	-	16
17.06	72.9	76.0	98.5	0.7	0.3	1.0	6	clean SAND to silty SAND	125	5.0	15	15	58	42	-	16
17.23	72.1	75.0	97.8	0.7	1.4	1.0	6	clean SAND to silty SAND	125	5.0	15	14	58	42	-	16
17.39	74.5	77.3	99.3	0.7	1.0	0.9	6	clean SAND to silty SAND	125	5.0	15	15	58	42	-	16
17.55	78.7	81.4	102.4	0.7	-1.2	0.9	6	clean SAND to silty SAND	125	5.0	16	16	60	42	-	16
17.72	82.0	84.5	104.3	0.7	-1.8	0.9	6	clean SAND to silty SAND	125	5.0	17	16	61	42	-	16
17.88	76.1	78.3	102.3	0.8	-1.2	1.0	6	clean SAND to silty SAND	125	5.0	16	15	59	42	-	16
18.05	64.0	65.6	92.3	0.7	-0.2	1.0	5	silty SAND to sandy SILT	120	4.0	16	16	53	41	-	16
18.21	52.0	53.2	84.7	0.6	1.0	1.1	5	silty SAND to sandy SILT	120	4.0	13	13	46	39	-	16
18.37	42.6	43.4	62.7	0.2	1.6	0.6	5	silty SAND to sandy SILT	120	4.0	11	11	39	38	-	16
18.54	35.6	36.3	58.6	0.2	-2.6	0.6	5	silty SAND to sandy SILT	120	4.0	9	9	34	37	-	16
18.70	10.0	10.9	-	0.1	-1.2	1.2	4	clayy SILT to silty CLAY	115	2.0	5	5	-	-	0.7	15
18.87	28.4	28.8	48.8	0.1	-0.4	0.5	5	silty SAND to sandy SILT	120	4.0	7	7	26	36	-	16
19.03	39.1	39.5	53.6	0.1	-3.1	0.4	6	clean SAND to silty SAND	125	5.0	8	8	36	38	-	16
19.19	42.7	43.0	59.4	0.2	-2.9	0.5	6	clean SAND to silty SAND	125	5.0	9	9	39	38	-	16
19.36	38.2	38.4	59.4	0.2	-1.6	0.6	5	silty SAND to sandy SILT	120	4.0	10	10	35	37	-	16
19.52	38.3	38.3	59.6	0.2	-0.5	0.6	5	silty SAND to sandy SILT	120	4.0	10	10	35	37	-	16
19.69	37.6	37.5	60.0	0.2	-2.7	0.6	5	silty SAND to sandy SILT	120	4.0	9	9	35	37	-	16
19.85	32.0	31.9	60.6	0.3	-3.2	0.8	5	silty SAND to sandy SILT	120	4.0	8	8	29	36	-	16
20.01	28.0	27.8	57.4	0.2	-2.1	0.8	5	silty SAND to sandy SILT	120	4.0	7	7	25	35	-	16
20.18	23.7	23.5	53.1	0.2	-1.0	0.7	5	silty SAND to sandy SILT	120	4.0	6	6	19	34	-	16
20.34	17.6	17.5	49.6	0.1	0.4	0.8	5	silty SAND to sandy SILT	120	4.0	4	4	9	32	-	16
20.51	11.4	11.8	-	0.1	2.4	1.0	4	clayy SILT to silty CLAY	115	2.0	6	6	-	-	0.8	15
20.67	7.6	7.8	-	0.1	8.0	1.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
20.83	6.8	7.0	-	0.0	7.5	0.5	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.4	15
21.00	5.8	5.9	-	0.0	9.5	0.1	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(469).cpt
CPT Date: 12/5/2008 12:31:45 PM
GW During Test: 12 ft

Sounding ID: CPT-08-50
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	5.4	5.5	-	0.0	12.5	0.1	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.3	15
21.33	5.3	5.3	-	0.0	13.9	0.1	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.3	15
21.49	5.6	5.6	-	0.0	11.5	0.1	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.3	15
21.65	5.9	5.9	-	0.0	6.8	0.1	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.4	15
21.82	6.1	6.1	-	0.0	3.6	0.5	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.4	15
21.98	6.3	6.3	-	0.0	1.8	0.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.15	6.5	6.4	-	0.0	1.0	0.8	4	clayy SILT to silty CLAY	115	2.0	3	3	-	-	0.4	15
22.31	6.7	6.6	-	0.0	0.8	0.6	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.4	15
22.47	6.8	6.7	-	0.0	0.9	0.8	4	clayy SILT to silty CLAY	115	2.0	3	3	-	-	0.4	15
22.64	8.2	8.0	-	0.1	1.0	0.8	4	clayy SILT to silty CLAY	115	2.0	4	4	-	-	0.5	15
22.80	31.5	30.1	40.3	0.0	-0.4	0.1	6	clean SAND to silty SAND	125	5.0	6	6	27	35	-	16
22.97	56.6	54.0	58.4	0.1	-7.4	0.1	6	clean SAND to silty SAND	125	5.0	11	11	47	39	-	16
23.13	64.3	61.2	68.9	0.2	-7.1	0.3	6	clean SAND to silty SAND	125	5.0	12	13	51	40	-	16
23.30	65.5	62.3	73.7	0.3	-6.4	0.4	6	clean SAND to silty SAND	125	5.0	12	13	51	40	-	16
23.46	67.1	63.6	77.4	0.4	-5.5	0.5	6	clean SAND to silty SAND	125	5.0	13	13	52	40	-	16
23.62	68.9	65.1	80.4	0.4	-4.6	0.6	6	clean SAND to silty SAND	125	5.0	13	14	53	40	-	16
23.79	71.8	67.7	79.8	0.4	-3.4	0.5	6	clean SAND to silty SAND	125	5.0	14	14	54	40	-	16
23.95	73.8	69.4	81.7	0.4	-2.3	0.5	6	clean SAND to silty SAND	125	5.0	14	15	55	40	-	16
24.12	72.0	67.6	83.2	0.5	2.8	0.6	6	clean SAND to silty SAND	125	5.0	14	14	54	40	-	16
24.28	70.3	65.8	86.2	0.6	3.6	0.8	6	clean SAND to silty SAND	125	5.0	13	14	53	40	-	16
24.44	62.9	58.8	86.2	0.6	4.6	1.0	5	silty SAND to sandy SILT	120	4.0	15	16	49	39	-	16
24.61	55.4	51.6	83.2	0.6	4.2	1.1	5	silty SAND to sandy SILT	120	4.0	13	14	45	38	-	16
24.77	73.0	67.9	91.6	0.7	-0.5	0.9	6	clean SAND to silty SAND	125	5.0	14	15	54	40	-	16
24.94	82.2	76.3	101.1	0.8	-7.6	1.0	6	clean SAND to silty SAND	125	5.0	15	16	58	41	-	16
25.10	81.6	75.5	106.5	1.0	-7.8	1.3	5	silty SAND to sandy SILT	120	4.0	19	20	58	40	-	16
25.26	84.1	77.7	109.0	1.1	-7.2	1.3	5	silty SAND to sandy SILT	120	4.0	19	21	59	41	-	16
25.43	97.5	89.9	114.5	1.1	-7.1	1.1	6	clean SAND to silty SAND	125	5.0	18	20	64	41	-	16
25.59	104.3	96.0	119.5	1.1	-8.0	1.1	6	clean SAND to silty SAND	125	5.0	19	21	66	42	-	16
25.76	96.3	88.4	115.5	1.1	-8.4	1.2	6	clean SAND to silty SAND	125	5.0	18	19	63	41	-	16
25.92	90.7	83.1	112.7	1.1	-8.3	1.3	5	silty SAND to sandy SILT	120	4.0	21	23	61	41	-	16
26.08	94.5	86.4	107.9	0.9	-8.4	1.0	6	clean SAND to silty SAND	125	5.0	17	19	62	41	-	16
26.25	73.7	67.2	92.4	0.7	-8.9	1.0	6	clean SAND to silty SAND	125	5.0	13	15	54	40	-	16
26.41	31.6	28.7	86.0	0.6	-8.7	2.0	4	clayy SILT to silty CLAY	115	2.0	14	16	-	-	2.2	15
26.58	13.6	11.9	-	0.2	-8.1	2.0	4	clayy SILT to silty CLAY	115	2.0	6	7	-	-	0.9	15
26.74	9.7	8.5	-	0.0	-6.5	0.1	1	sensitive fine SOIL	115	2.0	4	5	-	-	0.6	15
26.90	8.9	7.8	-	0.0	-3.7	0.1	1	sensitive fine SOIL	115	2.0	4	4	-	-	0.6	15
27.07	8.8	7.6	-	0.0	-0.7	0.1	1	sensitive fine SOIL	115	2.0	4	4	-	-	0.6	15
27.23	8.2	7.1	-	0.0	18.7	0.1	1	sensitive fine SOIL	115	2.0	4	4	-	-	0.5	15
27.40	7.2	6.2	-	0.0	22.6	0.1	1	sensitive fine SOIL	115	2.0	3	4	-	-	0.4	15
27.56	6.4	5.5	-	0.0	24.8	0.1	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.4	15
27.72	6.3	5.4	-	0.0	30.7	0.1	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.4	15
27.89	7.8	6.7	-	0.0	33.6	0.1	1	sensitive fine SOIL	115	2.0	3	4	-	-	0.5	15
28.05	8.6	7.3	-	0.0	29.2	0.1	1	sensitive fine SOIL	115	2.0	4	4	-	-	0.5	15
28.22	7.1	6.0	-	0.0	23.1	0.1	1	sensitive fine SOIL	115	2.0	3	4	-	-	0.4	15
28.38	7.0	5.9	-	0.0	25.7	0.1	1	sensitive fine SOIL	115	2.0	3	3	-	-	0.4	15
28.54	11.8	10.5	33.0	0.0	28.8	0.1	1	sensitive fine SOIL	115	2.0	5	6	-	-	0.8	15
28.71	28.5	25.2	50.7	0.2	9.4	0.6	5	silty SAND to sandy SILT	120	4.0	6	7	22	34	-	16
28.87	32.4	28.6	53.0	0.2	2.4	0.6	5	silty SAND to sandy SILT	120	4.0	7	8	26	34	-	16
29.04	37.5	33.1	55.6	0.2	1.6	0.6	5	silty SAND to sandy SILT	120	4.0	8	9	31	35	-	16
29.20	35.4	31.2	66.7	0.4	-2.5	1.1	5	silty SAND to sandy SILT	120	4.0	8	9	29	35	-	16
29.36	25.0	20.5	-	0.4	-0.6	1.8	4	clayy SILT to silty CLAY	115	2.0	10	13	-	-	1.7	15
29.53	16.8	13.8	-	0.3	1.9	1.9	4	clayy SILT to silty CLAY	115	2.0	7	8	-	-	1.1	15
29.69	11.2	9.1	-	0.1	1.9	1.4	4	clayy SILT to silty CLAY	115	2.0	5	6	-	-	0.7	15
29.86	34.6	30.3	60.6	0.3	6.6	0.8	5	silty SAND to sandy SILT	120	4.0	8	9	28	35	-	16
30.02	42.4	37.0	60.1	0.3	2.3	0.7	5	silty SAND to sandy SILT	120	4.0	9	11	34	36	-	16
30.19	63.8	55.6	77.3	0.5	-3.3	0.8	6	clean SAND to silty SAND	125	5.0	11	13	48	38	-	16
30.35	69.8	60.7	86.1	0.6	0.3	1.0	5	silty SAND to sandy SILT	120	4.0	15	17	51	39	-	16
30.51	69.9	60.7	89.7	0.7	-1.4	1.1	5	silty SAND to sandy SILT	120	4.0	15	17	51	39	-	16
30.68	65.5	56.8	87.0	0.7	0.1	1.1	5	silty SAND to sandy SILT	120	4.0	14	16	48	38	-	16
30.84	72.6	62.8	86.3	0.6	-0.7	0.9	6	clean SAND to silty SAND	125	5.0	13	15	52	39	-	16
31.01	69.1	59.7	81.7	0.6	-7.5	0.8	6	clean SAND to silty SAND	125	5.0	12	14	50	39	-	16
31.17	55.5	47.8	77.1	0.5	-8.4	1.0	5	silty SAND to sandy SILT	120	4.0	12	14	43	37	-	16
31.33	36.8	31.7	73.7	0.5	-8.6	1.3	5	silty SAND to sandy SILT	120	4.0	8	9	29	35	-	16
31.50	23.6	18.4	-	0.3	-8.5	1.5	4	clayy SILT to silty CLAY	115	2.0	9	12	-	-	1.6	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(469).cpt
CPT Date: 12/5/2008 12:31:45 PM
GW During Test: 12 ft

Sounding ID: CPT-08-50
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	12.9	10.0	-	0.2	-8.8	1.5	4	clayy SILT to silty CLAY	115	2.0	5	6	-	-	0.8	15
31.83	10.0	7.8	-	0.0	-8.5	0.2	1	sensitive fine SOIL	115	2.0	4	5	-	-	0.6	15
31.99	8.9	6.9	-	0.0	-7.9	0.1	1	sensitive fine SOIL	115	2.0	3	4	-	-	0.6	15
32.15	8.7	6.7	-	0.0	-7.4	0.1	1	sensitive fine SOIL	115	2.0	3	4	-	-	0.5	15
32.32	10.4	8.0	-	0.0	-6.8	0.1	1	sensitive fine SOIL	115	2.0	4	5	-	-	0.7	15
32.48	8.8	6.7	-	0.1	-6.6	0.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
32.65	8.9	6.8	-	0.0	-6.0	0.7	4	clayy SILT to silty CLAY	115	2.0	3	4	-	-	0.6	15
32.81	9.1	6.9	-	0.0	-5.5	0.3	1	sensitive fine SOIL	115	2.0	3	5	-	-	0.6	15
32.97	9.2	6.9	-	0.0	-5.2	0.1	1	sensitive fine SOIL	115	2.0	3	5	-	-	0.6	15
33.14	8.1	6.1	-	0.0	-4.9	0.1	1	sensitive fine SOIL	115	2.0	3	4	-	-	0.5	15
33.30	8.5	6.4	-	0.0	-4.4	0.1	1	sensitive fine SOIL	115	2.0	3	4	-	-	0.5	15
33.47	8.4	6.3	-	0.1	-4.0	0.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
33.63	8.6	6.4	-	0.1	-0.1	1.5	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
33.79	8.9	6.6	-	0.2	0.5	2.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
33.96	15.5	13.0	39.0	0.1	1.1	0.4	5	silty SAND to sandy SILT	120	4.0	3	4	5	28	-	16
34.12	19.8	14.7	-	0.2	0.3	0.9	4	clayy SILT to silty CLAY	115	2.0	7	10	-	-	1.3	15
34.29	24.8	20.7	54.8	0.2	0.0	0.9	5	silty SAND to sandy SILT	120	4.0	5	6	15	32	-	16
34.45	33.7	28.1	50.7	0.2	-6.9	0.5	5	silty SAND to sandy SILT	120	4.0	7	8	25	34	-	16
34.61	21.8	18.1	44.1	0.1	1.0	0.5	5	silty SAND to sandy SILT	120	4.0	5	5	11	31	-	16
34.78	14.0	10.2	-	0.1	0.6	0.4	4	clayy SILT to silty CLAY	115	2.0	5	7	-	-	0.9	15
34.94	8.4	6.1	-	0.0	3.7	0.6	1	sensitive fine SOIL	115	2.0	3	4	-	-	0.5	15
35.11	7.7	5.6	-	0.0	4.8	0.1	1	sensitive fine SOIL	115	2.0	3	4	-	-	0.5	15
35.27	5.0	3.6	-	0.0	5.0	0.1	1	sensitive fine SOIL	115	2.0	2	3	-	-	0.3	15
35.43	4.7	3.4	-	0.0	6.4	0.1	1	sensitive fine SOIL	115	2.0	2	2	-	-	0.3	15
35.60	4.6	3.3	-	0.0	7.5	0.1	1	sensitive fine SOIL	115	2.0	2	2	-	-	0.2	15
35.76	5.3	3.8	-	0.0	8.8	0.1	1	sensitive fine SOIL	115	2.0	2	3	-	-	0.3	15
35.93	6.0	4.3	-	0.0	9.7	0.1	1	sensitive fine SOIL	115	2.0	2	3	-	-	0.3	15
36.09	6.0	4.3	-	0.0	10.5	0.1	1	sensitive fine SOIL	115	2.0	2	3	-	-	0.3	15
36.26	6.1	4.3	-	0.0	11.5	0.1	1	sensitive fine SOIL	115	2.0	2	3	-	-	0.4	15
36.42	6.4	4.5	-	0.0	12.5	0.1	1	sensitive fine SOIL	115	2.0	2	3	-	-	0.4	15
36.58	7.7	5.4	-	0.0	13.7	0.1	1	sensitive fine SOIL	115	2.0	3	4	-	-	0.5	15
36.75	8.9	6.3	-	0.1	15.0	1.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
36.91	9.0	6.3	-	0.1	15.4	1.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
37.08	8.6	6.0	-	0.0	18.0	0.6	1	sensitive fine SOIL	115	2.0	3	4	-	-	0.5	15
37.24	8.7	6.1	-	0.0	25.9	0.2	1	sensitive fine SOIL	115	2.0	3	4	-	-	0.5	15
37.40	8.8	6.1	-	0.1	27.8	1.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
37.57	9.7	6.7	-	0.0	28.8	0.6	1	sensitive fine SOIL	115	2.0	3	5	-	-	0.6	15
37.73	10.0	6.9	-	0.1	37.1	0.7	4	clayy SILT to silty CLAY	115	2.0	3	5	-	-	0.6	15
37.90	10.6	7.3	-	0.1	33.0	1.0	4	clayy SILT to silty CLAY	115	2.0	4	5	-	-	0.7	15
38.06	11.2	7.7	-	0.1	33.5	0.9	4	clayy SILT to silty CLAY	115	2.0	4	6	-	-	0.7	15
38.22	12.4	8.5	-	0.2	33.9	1.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.39	27.7	22.2	65.2	0.3	26.5	1.3	5	silty SAND to sandy SILT	120	4.0	6	7	17	32	-	16
38.55	33.9	27.2	68.6	0.4	3.3	1.2	5	silty SAND to sandy SILT	120	4.0	7	8	24	33	-	16
38.72	21.4	14.5	-	0.3	-3.5	1.8	4	clayy SILT to silty CLAY	115	2.0	7	11	-	-	1.4	15
38.88	13.2	8.9	-	0.3	-3.6	2.5	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
39.04	12.6	8.5	-	0.2	-2.9	1.7	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
39.21	11.8	8.0	-	0.2	-2.4	1.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
39.37	11.4	7.6	-	0.1	-1.9	1.5	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
39.54	11.7	7.9	-	0.1	-1.5	1.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
39.70	11.9	8.0	-	0.1	-1.0	1.2	4	clayy SILT to silty CLAY	115	2.0	4	6	-	-	0.8	15
39.86	11.6	7.7	-	0.1	-0.4	0.9	4	clayy SILT to silty CLAY	115	2.0	4	6	-	-	0.7	15
40.03	11.7	7.8	-	0.1	0.1	0.7	4	clayy SILT to silty CLAY	115	2.0	4	6	-	-	0.7	15
40.19	12.3	8.1	-	0.1	0.6	0.8	4	clayy SILT to silty CLAY	115	2.0	4	6	-	-	0.8	15
40.36	13.5	8.9	-	0.2	1.1	1.5	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
40.52	16.9	11.1	-	0.2	1.7	1.6	4	clayy SILT to silty CLAY	115	2.0	6	8	-	-	1.1	15
40.68	15.5	10.1	-	0.2	1.8	1.9	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
40.85	18.2	11.9	-	0.2	5.7	1.4	4	clayy SILT to silty CLAY	115	2.0	6	9	-	-	1.2	15
41.01	16.0	10.4	-	0.2	4.4	1.4	4	clayy SILT to silty CLAY	115	2.0	5	8	-	-	1.0	15
41.18	14.1	9.2	-	0.2	4.9	1.4	4	clayy SILT to silty CLAY	115	2.0	5	7	-	-	0.9	15
41.34	13.8	9.0	-	0.2	5.6	1.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
41.50	13.5	8.8	-	0.2	6.2	1.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
41.67	13.5	8.7	-	0.2	6.8	2.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
41.83	14.2	9.1	-	0.3	7.3	2.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.00	14.7	9.4	-	0.3	7.3	2.1	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(469).cpt
CPT Date: 12/5/2008 12:31:45 PM
GW During Test: 12 ft

Sounding ID: CPT-08-50
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	15.0	9.6	-	0.3	7.3	2.1	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
42.32	14.4	9.2	-	0.3	6.9	2.3	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
42.49	14.6	9.3	-	0.3	7.0	2.4	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
42.65	14.8	9.4	-	0.4	6.9	2.9	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
42.82	15.7	9.9	-	0.3	7.0	2.7	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
42.98	27.5	17.3	-	0.3	7.6	1.1	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.9	15
43.15	106.0	81.7	92.7	0.6	1.7	0.5	6	clean SAND to silty SAND	125	5.0	16	21	60	39	-	16
43.31	143.6	110.5	113.1	0.6	0.7	0.4	6	clean SAND to silty SAND	125	5.0	22	29	70	41	-	16
43.47	180.5	138.6	142.1	1.1	1.0	0.6	6	clean SAND to silty SAND	125	5.0	28	36	78	42	-	16
43.64	193.7	148.5	156.3	1.5	2.5	0.8	6	clean SAND to silty SAND	125	5.0	30	39	80	42	-	16
43.80	221.1	169.3	178.4	2.0	1.3	0.9	6	clean SAND to silty SAND	125	5.0	34	44	84	43	-	16
43.97	226.3	173.0	182.2	2.1	1.8	1.0	6	clean SAND to silty SAND	125	5.0	35	45	85	43	-	16
44.13	219.2	167.2	173.9	1.9	3.2	0.9	6	clean SAND to silty SAND	125	5.0	33	44	84	43	-	16
44.29	221.4	168.7	170.1	1.6	3.2	0.7	6	clean SAND to silty SAND	125	5.0	34	44	84	43	-	16
44.46	204.3	155.4	159.2	1.5	3.3	0.7	6	clean SAND to silty SAND	125	5.0	31	41	82	43	-	16
44.62	158.3	120.2	136.0	1.4	3.5	0.9	6	clean SAND to silty SAND	125	5.0	24	32	73	41	-	16
44.79	108.1	82.0	116.4	1.5	3.7	1.4	5	silty SAND to sandy SILT	120	4.0	20	27	60	39	-	16
44.95	53.8	40.7	114.5	1.4	3.9	2.7	4	clayy SILT to silty CLAY	115	2.0	20	27	-	-	3.7	15
45.11	33.3	20.2	-	0.8	4.8	2.6	4	clayy SILT to silty CLAY	115	2.0	10	17	-	-	2.3	15
45.28	27.0	16.3	-	0.3	7.7	1.4	4	clayy SILT to silty CLAY	115	2.0	8	13	-	-	1.8	15
45.44	20.5	12.4	-	0.2	20.2	1.0	4	clayy SILT to silty CLAY	115	2.0	6	10	-	-	1.4	15
45.61	18.4	13.9	33.0	0.0	43.9	0.1	5	silty SAND to sandy SILT	120	4.0	3	5	5	28	-	16
45.77	24.0	14.4	-	0.2	62.9	0.8	4	clayy SILT to silty CLAY	115	2.0	7	12	-	-	1.6	15
45.93	24.1	14.4	-	0.3	48.7	1.6	4	clayy SILT to silty CLAY	115	2.0	7	12	-	-	1.6	15
46.10	21.5	12.8	-	0.3	38.5	1.5	4	clayy SILT to silty CLAY	115	2.0	6	11	-	-	1.4	15
46.26	40.7	30.5	63.9	0.4	28.7	0.9	5	silty SAND to sandy SILT	120	4.0	8	10	28	33	-	16
46.43	64.1	48.0	81.6	0.7	20.7	1.1	5	silty SAND to sandy SILT	120	4.0	12	16	43	36	-	16
46.59	86.0	64.2	104.0	1.2	15.1	1.5	5	silty SAND to sandy SILT	120	4.0	16	21	52	38	-	16
46.75	109.0	81.3	117.0	1.5	9.8	1.4	5	silty SAND to sandy SILT	120	4.0	20	27	60	39	-	16
46.92	129.7	96.6	129.9	1.8	1.8	1.4	5	silty SAND to sandy SILT	120	4.0	24	32	66	40	-	16
47.08	136.0	101.2	138.1	2.1	0.0	1.6	5	silty SAND to sandy SILT	120	4.0	25	34	67	40	-	16
47.25	136.5	101.4	138.9	2.1	-0.7	1.6	5	silty SAND to sandy SILT	120	4.0	25	34	67	40	-	16
47.41	156.0	115.8	144.8	2.1	-1.2	1.4	6	clean SAND to silty SAND	125	5.0	23	31	72	41	-	16
47.57	161.7	119.8	149.5	2.2	-4.2	1.4	6	clean SAND to silty SAND	125	5.0	24	32	73	41	-	16
47.74	156.1	115.5	149.3	2.3	-4.5	1.5	6	clean SAND to silty SAND	125	5.0	23	31	72	41	-	16
47.90	149.9	110.7	147.6	2.4	-4.4	1.6	5	silty SAND to sandy SILT	120	4.0	28	37	70	41	-	16
48.07	142.6	105.2	144.8	2.4	-4.2	1.7	5	silty SAND to sandy SILT	120	4.0	26	36	69	40	-	16
48.23	131.6	97.0	138.5	2.2	-4.1	1.7	5	silty SAND to sandy SILT	120	4.0	24	33	66	40	-	16
48.39	121.1	89.1	136.9	2.2	-4.3	1.9	5	silty SAND to sandy SILT	120	4.0	22	30	63	39	-	16
48.56	111.8	82.2	134.5	2.2	-4.4	2.0	5	silty SAND to sandy SILT	120	4.0	21	28	61	39	-	16
48.72	124.8	91.5	137.7	2.3	-4.6	1.9	5	silty SAND to sandy SILT	120	4.0	23	31	64	40	-	16
48.89	143.5	105.2	147.3	2.5	-5.7	1.8	5	silty SAND to sandy SILT	120	4.0	26	36	69	40	-	16
49.05	156.7	114.6	157.5	2.8	-6.2	1.8	5	silty SAND to sandy SILT	120	4.0	29	39	72	41	-	16
49.22	161.7	118.2	164.5	3.1	-6.4	2.0	5	silty SAND to sandy SILT	120	4.0	30	40	73	41	-	16
49.38	178.2	130.0	172.4	3.3	-6.4	1.9	5	silty SAND to sandy SILT	120	4.0	33	45	76	41	-	16
49.54	213.7	155.7	191.6	3.6	-6.5	1.7	6	clean SAND to silty SAND	125	5.0	31	43	82	42	-	16
49.71	249.0	181.2	224.9	5.0	-6.7	2.0	6	clean SAND to silty SAND	125	5.0	36	50	87	43	-	16
49.87	271.6	197.4	232.3	4.8	-6.7	1.8	6	clean SAND to silty SAND	125	5.0	39	54	89	44	-	16
50.04	263.9	191.5	226.4	4.6	-4.8	1.8	6	clean SAND to silty SAND	125	5.0	38	53	88	43	-	16
50.20	235.5	170.6	209.3	4.3	-4.8	1.8	6	clean SAND to silty SAND	125	5.0	34	47	85	43	-	16
50.36	204.1	147.7	188.0	3.7	-4.7	1.8	6	clean SAND to silty SAND	125	5.0	30	41	80	42	-	16
50.53	171.2	123.7	171.1	3.4	-4.6	2.0	5	silty SAND to sandy SILT	120	4.0	31	43	74	41	-	16
50.69	130.3	94.0	167.1	3.5	-4.5	2.8	5	silty SAND to sandy SILT	120	4.0	24	33	65	40	-	16
50.86	86.4	62.3	152.9	2.8	-4.4	3.4	4	clayy SILT to silty CLAY	115	2.0	31	43	-	-	6.0	15
51.02	93.8	67.5	174.3	3.6	-4.1	4.0	4	clayy SILT to silty CLAY	115	2.0	34	47	-	-	6.5	15
51.18	292.6	210.4	224.0	3.5	-5.3	1.2	6	clean SAND to silty SAND	125	5.0	42	59	92	44	-	16
51.35	325.4	233.6	243.6	3.9	-4.8	1.2	6	clean SAND to silty SAND	125	5.0	47	65	95	44	-	16
51.51	362.0	259.5	264.4	4.2	-4.7	1.2	6	clean SAND to silty SAND	125	5.0	52	72	95	45	-	16
51.68	383.1	274.3	274.3	3.4	-4.8	0.9	6	clean SAND to silty SAND	125	5.0	55	77	95	45	-	16
51.84	356.8	255.1	255.1	3.2	-4.6	0.9	6	clean SAND to silty SAND	125	5.0	51	71	95	45	-	16
52.00	354.6	253.2	253.2	3.4	-4.5	1.0	6	clean SAND to silty SAND	125	5.0	51	71	95	45	-	16
52.17	347.1	247.5	255.5	4.2	-4.3	1.2	6	clean SAND to silty SAND	125	5.0	49	69	95	44	-	16
52.33	341.1	242.8	255.0	4.3	-4.0	1.3	6	clean SAND to silty SAND	125	5.0	49	68	95	44	-	16
52.50	340.3	242.0	251.9	4.2	-3.8	1.2	6	clean SAND to silty SAND	125	5.0	48	68	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(469).cpt
CPT Date: 12/5/2008 12:31:45 PM
GW During Test: 12 ft

Sounding ID: CPT-08-50
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	343.2	243.7	243.7	3.1	-3.6	0.9	6	clean SAND to silty SAND	125	5.0	49	69	95	44	-	16
52.82	340.0	241.1	241.1	2.7	-3.5	0.8	6	clean SAND to silty SAND	125	5.0	48	68	95	44	-	16
52.99	340.9	241.4	241.4	2.8	-2.3	0.8	6	clean SAND to silty SAND	125	5.0	48	68	95	44	-	16
53.15	338.4	239.3	239.3	3.0	-0.1	0.9	6	clean SAND to silty SAND	125	5.0	48	68	95	44	-	16
53.32	334.3	236.1	236.1	3.0	0.0	0.9	6	clean SAND to silty SAND	125	5.0	47	67	95	44	-	16
53.48	331.0	233.4	233.4	2.8	0.3	0.9	6	clean SAND to silty SAND	125	5.0	47	66	95	44	-	16
53.64	339.3	238.9	238.9	3.0	0.4	0.9	6	clean SAND to silty SAND	125	5.0	48	68	95	44	-	16
53.81	347.0	244.0	244.0	2.4	0.5	0.7	6	clean SAND to silty SAND	125	5.0	49	69	95	44	-	16
53.97	365.4	256.6	256.6	1.7	0.8	0.5	6	clean SAND to silty SAND	125	5.0	51	73	95	45	-	16
54.14	368.0	258.1	258.1	2.4	1.1	0.7	6	clean SAND to silty SAND	125	5.0	52	74	95	45	-	16
54.30	332.2	232.7	239.3	3.7	1.4	1.1	6	clean SAND to silty SAND	125	5.0	47	66	95	44	-	16
54.46	215.9	151.1	185.5	3.5	1.5	1.7	6	clean SAND to silty SAND	125	5.0	30	43	81	42	-	16
54.63	164.3	114.8	131.9	1.5	1.5	0.9	6	clean SAND to silty SAND	125	5.0	23	33	72	40	-	16
54.79	185.3	129.3	143.5	1.7	4.8	0.9	6	clean SAND to silty SAND	125	5.0	26	37	75	41	-	16
54.96	335.2	233.5	233.5	2.3	4.9	0.7	6	clean SAND to silty SAND	125	5.0	47	67	95	44	-	16
55.12	343.2	238.8	238.8	2.2	7.8	0.6	6	clean SAND to silty SAND	125	5.0	48	69	95	44	-	16
55.28	244.6	169.9	180.1	2.3	10.5	1.0	6	clean SAND to silty SAND	125	5.0	34	49	85	42	-	16
55.45	156.4	108.5	139.6	2.2	9.0	1.4	6	clean SAND to silty SAND	125	5.0	22	31	70	40	-	16
55.61	56.6	28.8	-	1.6	8.6	3.1	4	clayy SILT to silty CLAY	115	2.0	14	28	-	-	3.9	15
55.78	39.1	19.9	-	0.7	10.9	1.9	4	clayy SILT to silty CLAY	115	2.0	10	20	-	-	2.6	15
55.94	37.9	19.2	-	0.5	12.9	1.5	4	clayy SILT to silty CLAY	115	2.0	10	19	-	-	2.6	15
56.11	37.1	18.8	-	0.9	21.1	2.6	4	clayy SILT to silty CLAY	115	2.0	9	19	-	-	2.5	15
56.27	34.3	17.3	-	0.9	35.6	2.8	4	clayy SILT to silty CLAY	115	2.0	9	17	-	-	2.3	15
56.43	32.2	16.2	-	0.8	51.2	2.9	3	silty CLAY to CLAY	115	1.5	11	21	-	-	2.2	15
56.60	27.2	13.7	-	0.9	51.9	3.9	3	silty CLAY to CLAY	115	1.5	9	18	-	-	1.8	15
56.76	26.4	13.3	-	0.9	54.8	3.8	3	silty CLAY to CLAY	115	1.5	9	18	-	-	1.7	15
56.93	45.4	22.7	-	1.1	58.8	2.5	4	clayy SILT to silty CLAY	115	2.0	11	23	-	-	3.1	15
57.09	47.6	23.8	-	1.3	36.2	3.0	4	clayy SILT to silty CLAY	115	2.0	12	24	-	-	3.2	15
57.25	47.7	23.8	-	1.4	37.4	3.1	4	clayy SILT to silty CLAY	115	2.0	12	24	-	-	3.2	15
57.42	70.4	48.2	113.8	1.6	30.2	2.4	5	silty SAND to sandy SILT	120	4.0	12	18	43	35	-	16
57.58	76.3	52.2	131.3	2.1	26.9	2.9	4	clayy SILT to silty CLAY	115	2.0	26	38	-	-	5.3	15
57.75	71.5	35.4	-	2.5	25.5	3.7	4	clayy SILT to silty CLAY	115	2.0	18	36	-	-	4.9	15
57.91	114.8	78.4	123.1	1.9	23.0	1.7	5	silty SAND to sandy SILT	120	4.0	20	29	59	38	-	16
58.07	158.2	107.9	136.1	2.0	5.8	1.3	6	clean SAND to silty SAND	125	5.0	22	32	70	40	-	16
58.24	168.7	114.9	148.4	2.5	11.5	1.5	6	clean SAND to silty SAND	125	5.0	23	34	72	40	-	16
58.40	206.6	140.5	176.9	3.4	10.5	1.7	6	clean SAND to silty SAND	125	5.0	28	41	78	41	-	16
58.57	234.1	159.0	191.3	3.7	7.0	1.6	6	clean SAND to silty SAND	125	5.0	32	47	82	42	-	16
58.73	248.0	168.2	186.4	2.9	5.8	1.2	6	clean SAND to silty SAND	125	5.0	34	50	84	42	-	16
58.89	254.9	172.7	192.4	3.2	5.7	1.3	6	clean SAND to silty SAND	125	5.0	35	51	85	42	-	16
59.06	272.7	184.6	204.4	3.5	10.4	1.3	6	clean SAND to silty SAND	125	5.0	37	55	87	43	-	16
59.22	268.2	181.3	209.5	4.1	10.3	1.5	6	clean SAND to silty SAND	125	5.0	36	54	87	43	-	16
59.39	283.7	191.5	217.4	4.2	10.7	1.5	6	clean SAND to silty SAND	125	5.0	38	57	88	43	-	16
59.55	291.5	196.5	214.5	3.7	10.2	1.3	6	clean SAND to silty SAND	125	5.0	39	58	89	43	-	16
59.71	301.9	203.3	203.3	2.3	9.4	0.8	6	clean SAND to silty SAND	125	5.0	41	60	90	43	-	16
59.88	311.6	209.6	209.6	1.9	8.8	0.6	6	clean SAND to silty SAND	125	5.0	42	62	91	43	-	16
60.04	316.7	212.7	212.7	2.0	9.8	0.7	6	clean SAND to silty SAND	125	5.0	43	63	92	43	-	16
60.21	316.7	212.5	212.5	2.7	9.5	0.9	6	clean SAND to silty SAND	125	5.0	42	63	92	43	-	16
60.37	324.7	217.6	219.4	3.1	9.8	1.0	6	clean SAND to silty SAND	125	5.0	44	65	93	43	-	16
60.53	326.7	218.6	218.9	3.0	9.8	0.9	6	clean SAND to silty SAND	125	5.0	44	65	93	43	-	16
60.70	316.6	211.6	213.2	2.9	9.1	0.9	6	clean SAND to silty SAND	125	5.0	42	63	92	43	-	16
60.86	325.6	217.4	217.4	2.5	9.0	0.8	6	clean SAND to silty SAND	125	5.0	43	65	93	43	-	16
61.03	334.8	223.2	223.2	2.2	9.7	0.7	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
61.19	348.7	232.2	232.2	2.0	10.0	0.6	6	clean SAND to silty SAND	125	5.0	46	70	95	44	-	16
61.35	365.6	243.2	243.2	1.7	9.7	0.5	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
61.52	364.6	242.2	242.2	2.2	10.1	0.6	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
61.68	375.1	248.9	248.9	2.5	9.8	0.7	6	clean SAND to silty SAND	125	5.0	50	75	95	44	-	16
61.85	357.2	236.8	236.8	2.0	9.5	0.6	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
62.01	344.4	228.0	228.0	2.2	10.7	0.6	6	clean SAND to silty SAND	125	5.0	46	69	94	44	-	16
62.17	336.1	222.3	222.3	2.8	13.1	0.8	6	clean SAND to silty SAND	125	5.0	44	67	93	43	-	16
62.34	341.2	225.3	225.3	2.9	13.0	0.8	6	clean SAND to silty SAND	125	5.0	45	68	94	44	-	16
62.50	342.9	226.2	226.2	2.4	12.2	0.7	6	clean SAND to silty SAND	125	5.0	45	69	94	44	-	16
62.67	340.3	224.2	224.2	1.8	11.2	0.5	6	clean SAND to silty SAND	125	5.0	45	68	94	44	-	16
62.83	344.6	226.8	226.8	1.4	10.8	0.4	6	clean SAND to silty SAND	125	5.0	45	69	94	44	-	16
63.00	365.5	240.3	240.3	1.5	11.1	0.4	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(469).cpt
CPT Date: 12/5/2008 12:31:45 PM
GW During Test: 12 ft

Sounding ID: CPT-08-50
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	371.6	244.0	244.0	1.7	11.0	0.5	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
63.32	402.8	264.1	264.1	2.2	11.2	0.5	6	clean SAND to silty SAND	125	5.0	53	81	95	44	-	16
63.49	414.6	271.6	271.6	2.1	10.5	0.5	6	clean SAND to silty SAND	125	5.0	54	83	95	44	-	16
63.65	441.8	289.0	289.0	3.4	10.9	0.8	6	clean SAND to silty SAND	125	5.0	58	88	95	45	-	16
63.82	454.2	296.8	296.8	3.0	10.3	0.7	6	clean SAND to silty SAND	125	5.0	59	91	95	45	-	16
63.98	410.9	268.2	268.2	2.0	7.8	0.5	6	clean SAND to silty SAND	125	5.0	54	82	95	44	-	16
64.14	401.9	262.1	262.1	2.4	9.5	0.6	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
64.31	413.7	269.4	269.4	3.2	10.1	0.8	6	clean SAND to silty SAND	125	5.0	54	83	95	44	-	16
64.47	431.9	280.9	280.9	3.1	10.3	0.7	6	clean SAND to silty SAND	125	5.0	56	86	95	45	-	16
64.64	448.2	291.2	291.2	3.6	14.7	0.8	6	clean SAND to silty SAND	125	5.0	58	90	95	45	-	16
64.80	469.3	304.6	304.6	3.3	13.8	0.7	6	clean SAND to silty SAND	125	5.0	61	94	95	45	-	16
64.96	440.3	285.4	285.4	2.6	12.5	0.6	6	clean SAND to silty SAND	125	5.0	57	88	95	45	-	16
65.13	401.6	260.0	260.0	1.7	11.8	0.4	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
65.29	359.4	232.4	232.4	1.9	13.0	0.5	6	clean SAND to silty SAND	125	5.0	46	72	95	44	-	16
65.46	356.7	230.4	230.4	1.5	12.7	0.4	6	clean SAND to silty SAND	125	5.0	46	71	95	44	-	16
65.62	354.7	228.9	228.9	1.9	11.8	0.5	6	clean SAND to silty SAND	125	5.0	46	71	94	43	-	16
65.78	358.4	231.0	231.0	1.9	12.3	0.5	6	clean SAND to silty SAND	125	5.0	46	72	95	44	-	16
65.95	347.1	223.5	223.5	1.9	12.7	0.6	6	clean SAND to silty SAND	125	5.0	45	69	94	43	-	16
66.11	339.1	218.1	218.1	1.8	12.9	0.5	6	clean SAND to silty SAND	125	5.0	44	68	93	43	-	16
66.28	342.6	220.1	220.1	2.0	12.5	0.6	6	clean SAND to silty SAND	125	5.0	44	69	93	43	-	16
66.44	351.7	225.7	225.7	1.7	12.4	0.5	6	clean SAND to silty SAND	125	5.0	45	70	94	43	-	16
66.60	355.7	228.0	228.0	1.9	12.9	0.5	6	clean SAND to silty SAND	125	5.0	46	71	94	43	-	16
66.77	367.2	235.1	235.1	1.8	12.9	0.5	6	clean SAND to silty SAND	125	5.0	47	73	95	44	-	16
66.93	361.7	231.3	231.3	2.4	12.8	0.7	6	clean SAND to silty SAND	125	5.0	46	72	95	43	-	16
67.10	376.4	240.4	240.4	2.5	13.5	0.7	6	clean SAND to silty SAND	125	5.0	48	75	95	44	-	16
67.26	437.6	279.3	279.3	3.4	13.8	0.8	6	clean SAND to silty SAND	125	5.0	56	88	95	44	-	16
67.42	486.9	310.3	310.3	2.4	13.1	0.5	6	clean SAND to silty SAND	125	5.0	62	97	95	45	-	16
67.59	433.4	276.0	276.0	1.5	13.5	0.4	7	grvly SAND to dense SAND	130	6.0	46	72	95	44	-	16
67.75	421.4	268.0	268.0	1.5	12.9	0.4	7	grvly SAND to dense SAND	130	6.0	45	70	95	44	-	16
67.92	404.8	257.1	257.1	2.5	14.0	0.6	6	clean SAND to silty SAND	125	5.0	51	81	95	44	-	16
68.08	388.7	246.6	246.6	2.4	12.8	0.6	6	clean SAND to silty SAND	125	5.0	49	78	95	44	-	16
68.24	399.5	253.2	253.2	2.0	15.7	0.5	6	clean SAND to silty SAND	125	5.0	51	80	95	44	-	16
68.41	408.5	258.6	258.6	3.2	14.0	0.8	6	clean SAND to silty SAND	125	5.0	52	82	95	44	-	16
68.57	431.2	272.7	272.7	4.5	14.4	1.0	6	clean SAND to silty SAND	125	5.0	55	86	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(417).cpt
CPT Date: 11/19/2008 8:40:13 AM
GW During Test: 12 ft

Sounding ID: CPT-08-51
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	70.5	113.0	153.0	1.2	0.0	1.8	5	silty SAND to sandy SILT	120	4.0	28	18	71	48	-	16
0.49	69.4	111.3	184.6	2.0	0.0	2.8	5	silty SAND to sandy SILT	120	4.0	28	17	71	48	-	16
0.66	78.9	126.5	187.4	1.9	0.2	2.5	5	silty SAND to sandy SILT	120	4.0	32	20	75	48	-	16
0.82	92.7	148.7	184.3	1.6	-0.1	1.7	6	clean SAND to silty SAND	125	5.0	30	19	80	48	-	16
0.98	82.0	131.5	161.4	1.2	-0.1	1.5	6	clean SAND to silty SAND	125	5.0	26	16	76	48	-	16
1.15	92.5	148.3	170.2	1.2	-0.3	1.3	6	clean SAND to silty SAND	125	5.0	30	18	80	48	-	16
1.31	98.7	158.4	175.4	1.1	-0.1	1.1	6	clean SAND to silty SAND	125	5.0	32	20	82	48	-	16
1.48	89.4	143.3	167.0	1.2	0.1	1.3	6	clean SAND to silty SAND	125	5.0	29	18	79	48	-	16
1.64	83.1	133.3	166.0	1.3	0.3	1.6	6	clean SAND to silty SAND	125	5.0	27	17	76	48	-	16
1.80	84.3	135.2	165.2	1.3	0.3	1.5	6	clean SAND to silty SAND	125	5.0	27	17	77	48	-	16
1.97	55.2	88.6	132.1	1.0	0.4	1.8	5	silty SAND to sandy SILT	120	4.0	22	14	63	48	-	16
2.13	63.9	102.5	135.2	0.9	0.4	1.5	6	clean SAND to silty SAND	125	5.0	21	13	68	48	-	16
2.30	67.7	108.5	145.1	1.1	0.4	1.6	5	silty SAND to sandy SILT	120	4.0	27	17	70	48	-	16
2.46	89.7	143.8	186.5	1.7	0.4	1.9	5	silty SAND to sandy SILT	120	4.0	36	22	79	48	-	16
2.62	77.3	124.0	195.8	2.2	0.4	2.8	5	silty SAND to sandy SILT	120	4.0	31	19	74	48	-	16
2.79	63.4	101.7	197.7	2.3	0.4	3.6	5	silty SAND to sandy SILT	120	4.0	25	16	68	47	-	16
2.95	65.3	104.7	185.0	2.0	0.4	3.0	5	silty SAND to sandy SILT	120	4.0	26	16	69	47	-	16
3.12	61.3	98.3	178.7	1.9	0.1	3.1	5	silty SAND to sandy SILT	120	4.0	25	15	66	46	-	16
3.28	57.9	92.9	161.1	1.5	0.0	2.6	5	silty SAND to sandy SILT	120	4.0	23	14	65	46	-	16
3.45	50.0	80.2	140.5	1.2	-1.5	2.3	5	silty SAND to sandy SILT	120	4.0	20	12	60	45	-	16
3.61	41.4	66.4	120.3	0.9	-1.1	2.1	5	silty SAND to sandy SILT	120	4.0	17	10	53	44	-	16
3.77	35.8	57.5	111.6	0.7	0.0	2.0	5	silty SAND to sandy SILT	120	4.0	14	9	49	43	-	16
3.94	35.2	56.5	111.3	0.7	-0.2	2.1	5	silty SAND to sandy SILT	120	4.0	14	9	48	43	-	16
4.10	34.1	54.7	112.0	0.7	-0.4	2.2	5	silty SAND to sandy SILT	120	4.0	14	9	47	43	-	16
4.27	33.7	54.0	112.4	0.7	-0.2	2.2	5	silty SAND to sandy SILT	120	4.0	14	8	47	43	-	16
4.43	38.6	62.0	113.1	0.7	-0.3	1.9	5	silty SAND to sandy SILT	120	4.0	15	10	51	43	-	16
4.59	39.3	63.1	111.5	0.7	-0.7	1.9	5	silty SAND to sandy SILT	120	4.0	16	10	52	43	-	16
4.76	34.8	55.8	104.2	0.6	-0.3	1.8	5	silty SAND to sandy SILT	120	4.0	14	9	48	43	-	16
4.92	29.6	47.5	93.4	0.5	-0.1	1.7	5	silty SAND to sandy SILT	120	4.0	12	7	42	42	-	16
5.09	23.9	38.4	86.7	0.4	-0.4	1.7	5	silty SAND to sandy SILT	120	4.0	10	6	35	40	-	16
5.25	22.0	35.3	81.3	0.3	-0.2	1.6	5	silty SAND to sandy SILT	120	4.0	9	6	33	40	-	16
5.41	20.4	32.6	77.3	0.3	-0.2	1.5	5	silty SAND to sandy SILT	120	4.0	8	5	30	39	-	16
5.58	20.2	32.3	79.9	0.3	-0.2	1.7	5	silty SAND to sandy SILT	120	4.0	8	5	30	39	-	16
5.74	22.7	36.5	85.8	0.4	-0.2	1.7	5	silty SAND to sandy SILT	120	4.0	9	6	34	40	-	16
5.91	25.9	41.5	89.4	0.4	-0.4	1.7	5	silty SAND to sandy SILT	120	4.0	10	6	38	40	-	16
6.07	26.3	42.2	86.0	0.4	-0.4	1.6	5	silty SAND to sandy SILT	120	4.0	11	7	39	40	-	16
6.23	23.1	36.6	80.2	0.3	-0.3	1.5	5	silty SAND to sandy SILT	120	4.0	9	6	34	39	-	16
6.40	20.8	32.5	79.4	0.3	-0.3	1.6	5	silty SAND to sandy SILT	120	4.0	8	5	30	39	-	16
6.56	20.2	31.1	84.4	0.4	-0.2	1.9	5	silty SAND to sandy SILT	120	4.0	8	5	28	39	-	16
6.73	25.4	38.7	89.1	0.5	-0.3	1.8	5	silty SAND to sandy SILT	120	4.0	10	6	36	40	-	16
6.89	26.3	39.6	91.2	0.5	-0.3	1.9	5	silty SAND to sandy SILT	120	4.0	10	7	36	40	-	16
7.05	24.0	35.7	87.0	0.4	-0.2	1.8	5	silty SAND to sandy SILT	120	4.0	9	6	33	39	-	16
7.22	22.2	32.6	81.2	0.4	-0.2	1.7	5	silty SAND to sandy SILT	120	4.0	8	6	30	39	-	16
7.38	20.9	30.3	83.0	0.4	-0.2	1.9	5	silty SAND to sandy SILT	120	4.0	8	5	28	38	-	16
7.55	22.0	31.6	88.0	0.4	-0.2	2.1	4	clayy SILT to silty CLAY	115	2.0	16	11	-	-	1.5	15
7.71	24.5	34.8	89.2	0.5	-0.5	2.0	5	silty SAND to sandy SILT	120	4.0	9	6	32	39	-	16
7.87	25.0	35.2	87.4	0.5	-0.4	1.9	5	silty SAND to sandy SILT	120	4.0	9	6	33	39	-	16
8.04	23.9	33.3	84.6	0.4	-0.4	1.8	5	silty SAND to sandy SILT	120	4.0	8	6	31	39	-	16
8.20	23.1	31.8	85.9	0.4	-0.3	1.9	5	silty SAND to sandy SILT	120	4.0	8	6	29	38	-	16
8.37	25.0	34.2	97.0	0.6	-0.4	2.4	4	clayy SILT to silty CLAY	115	2.0	17	13	-	-	1.7	15
8.53	26.3	35.7	102.5	0.7	-0.7	2.5	4	clayy SILT to silty CLAY	115	2.0	18	13	-	-	1.8	15
8.69	23.9	32.1	106.1	0.7	-0.6	2.9	4	clayy SILT to silty CLAY	115	2.0	16	12	-	-	1.7	15
8.86	22.8	34.8	110.8	0.7	-1.0	3.0	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.6	15
9.02	20.4	32.8	-	0.7	-0.5	3.4	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
9.19	18.6	29.9	-	0.7	-0.3	3.8	4	clayy SILT to silty CLAY	115	2.0	15	9	-	-	1.3	15
9.35	19.3	30.9	-	0.7	-0.4	3.8	4	clayy SILT to silty CLAY	115	2.0	15	10	-	-	1.3	15
9.51	19.2	30.8	-	0.7	-0.4	3.6	4	clayy SILT to silty CLAY	115	2.0	15	10	-	-	1.3	15
9.68	19.5	31.2	-	0.6	-0.5	3.3	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
9.84	20.6	29.2	-	0.6	-0.2	2.9	4	clayy SILT to silty CLAY	115	2.0	15	10	-	-	1.4	15
10.01	16.8	27.0	-	0.5	-0.1	3.2	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.2	15
10.17	18.3	25.5	83.7	0.4	-0.3	2.1	4	clayy SILT to silty CLAY	115	2.0	13	9	-	-	1.3	15
10.34	29.3	36.2	67.3	0.3	-0.2	1.0	5	silty SAND to sandy SILT	120	4.0	9	7	33	39	-	16
10.50	33.4	41.0	70.8	0.3	-0.2	1.0	5	silty SAND to sandy SILT	120	4.0	10	8	38	40	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(417).cpt
CPT Date: 11/19/2008 8:40:13 AM
GW During Test: 12 ft

Sounding ID: CPT-08-51
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	32.2	39.2	78.9	0.4	-0.2	1.4	5	silty SAND to sandy SILT	120	4.0	10	8	36	39	-	16
10.83	42.9	51.8	87.0	0.5	-0.2	1.3	5	silty SAND to sandy SILT	120	4.0	13	11	45	41	-	16
10.99	55.3	66.2	93.1	0.6	-0.2	1.1	5	silty SAND to sandy SILT	120	4.0	17	14	53	42	-	16
11.16	66.3	78.9	96.4	0.5	-0.2	0.8	6	clean SAND to silty SAND	125	5.0	16	13	59	43	-	16
11.32	72.1	85.1	110.9	0.8	-0.2	1.1	6	clean SAND to silty SAND	125	5.0	17	14	62	43	-	16
11.48	96.4	113.0	133.7	1.0	-0.2	1.1	6	clean SAND to silty SAND	125	5.0	23	19	71	45	-	16
11.65	96.8	112.6	133.4	1.0	-0.1	1.1	6	clean SAND to silty SAND	125	5.0	23	19	71	45	-	16
11.81	91.6	105.7	123.7	0.9	-0.2	0.9	6	clean SAND to silty SAND	125	5.0	21	18	69	44	-	16
11.98	91.4	104.8	123.6	0.9	-0.1	1.0	6	clean SAND to silty SAND	125	5.0	21	18	69	44	-	16
12.14	86.3	98.5	119.0	0.9	0.1	1.0	6	clean SAND to silty SAND	125	5.0	20	17	67	44	-	16
12.30	82.3	93.7	114.3	0.8	0.1	1.0	6	clean SAND to silty SAND	125	5.0	19	16	65	44	-	16
12.47	73.8	83.7	109.5	0.8	0.1	1.1	6	clean SAND to silty SAND	125	5.0	17	15	61	43	-	16
12.63	68.7	77.7	108.2	0.9	0.1	1.3	5	silty SAND to sandy SILT	120	4.0	19	17	59	43	-	16
12.80	69.4	78.2	108.9	0.9	0.1	1.3	5	silty SAND to sandy SILT	120	4.0	20	17	59	43	-	16
12.96	62.1	69.7	103.3	0.8	-0.1	1.3	5	silty SAND to sandy SILT	120	4.0	17	16	55	42	-	16
13.12	56.5	63.3	94.0	0.7	-0.5	1.2	5	silty SAND to sandy SILT	120	4.0	16	14	52	41	-	16
13.29	47.0	52.5	82.7	0.5	-2.9	1.1	5	silty SAND to sandy SILT	120	4.0	13	12	46	40	-	16
13.45	36.0	40.1	72.2	0.4	-3.4	1.1	5	silty SAND to sandy SILT	120	4.0	10	9	37	39	-	16
13.62	22.0	24.4	61.9	0.2	-6.3	1.1	5	silty SAND to sandy SILT	120	4.0	6	6	20	36	-	16
13.78	11.1	14.4	-	0.2	-8.2	1.6	4	clayy SILT to silty CLAY	115	2.0	7	6	-	-	0.8	15
13.94	9.5	12.3	-	0.1	-8.1	0.8	4	clayy SILT to silty CLAY	115	2.0	6	5	-	-	0.6	15
14.11	9.3	11.9	-	0.1	-7.9	0.7	4	clayy SILT to silty CLAY	115	2.0	6	5	-	-	0.6	15
14.27	8.9	11.4	-	0.1	-7.8	0.9	4	clayy SILT to silty CLAY	115	2.0	6	4	-	-	0.6	15
14.44	9.2	11.6	-	0.2	-7.6	2.0	4	clayy SILT to silty CLAY	115	2.0	6	5	-	-	0.6	15
14.60	10.6	13.3	-	0.1	-7.6	1.5	4	clayy SILT to silty CLAY	115	2.0	7	5	-	-	0.7	15
14.76	8.3	10.4	-	0.1	-7.5	1.8	4	clayy SILT to silty CLAY	115	2.0	5	4	-	-	0.6	15
14.93	7.6	9.5	-	0.1	-7.5	2.1	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.09	6.9	8.5	-	0.2	-6.5	2.8	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.4	15
15.26	7.0	8.6	-	0.2	-6.5	2.7	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.42	6.4	7.9	-	0.1	-6.4	2.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.58	6.5	8.0	-	0.1	-6.3	2.2	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.75	6.3	7.6	-	0.1	-6.2	2.2	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.91	6.2	7.5	-	0.1	-6.1	2.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.08	6.3	7.6	-	0.1	-6.0	2.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.24	7.1	8.5	-	0.2	-6.0	3.4	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.40	26.4	27.9	65.9	0.3	-5.9	1.2	5	silty SAND to sandy SILT	120	4.0	7	7	25	36	-	16
16.57	38.3	40.5	71.8	0.4	-5.8	1.0	5	silty SAND to sandy SILT	120	4.0	10	10	37	38	-	16
16.73	46.7	49.1	76.9	0.4	-5.8	1.0	5	silty SAND to sandy SILT	120	4.0	12	12	44	39	-	16
16.90	52.2	54.8	82.7	0.5	-5.7	1.0	5	silty SAND to sandy SILT	120	4.0	14	13	47	40	-	16
17.06	59.7	62.5	91.8	0.7	-5.6	1.1	5	silty SAND to sandy SILT	120	4.0	16	15	52	41	-	16
17.23	66.7	69.6	98.6	0.8	-5.6	1.2	5	silty SAND to sandy SILT	120	4.0	17	17	55	41	-	16
17.39	69.9	72.8	101.7	0.8	-5.5	1.2	5	silty SAND to sandy SILT	120	4.0	18	17	57	41	-	16
17.55	71.9	74.7	102.0	0.8	-5.4	1.1	5	silty SAND to sandy SILT	120	4.0	19	18	57	41	-	16
17.72	67.4	69.8	97.0	0.7	-5.3	1.1	5	silty SAND to sandy SILT	120	4.0	17	17	55	41	-	16
17.88	63.7	65.9	92.0	0.6	-5.3	1.0	5	silty SAND to sandy SILT	120	4.0	16	16	53	41	-	16
18.05	63.6	65.6	93.7	0.7	-5.2	1.1	5	silty SAND to sandy SILT	120	4.0	16	16	53	41	-	16
18.21	67.5	69.4	97.3	0.7	-5.1	1.1	5	silty SAND to sandy SILT	120	4.0	17	17	55	41	-	16
18.37	64.7	66.3	93.0	0.7	-5.0	1.1	5	silty SAND to sandy SILT	120	4.0	17	16	53	41	-	16
18.54	57.4	58.7	91.1	0.7	-4.9	1.2	5	silty SAND to sandy SILT	120	4.0	15	14	49	40	-	16
18.70	53.6	54.7	86.0	0.6	-4.3	1.1	5	silty SAND to sandy SILT	120	4.0	14	13	47	40	-	16
18.87	48.2	49.0	79.5	0.5	-4.3	1.1	5	silty SAND to sandy SILT	120	4.0	12	12	43	39	-	16
19.03	45.0	45.7	73.9	0.4	-4.2	0.9	5	silty SAND to sandy SILT	120	4.0	11	11	41	39	-	16
19.19	39.2	39.6	71.7	0.4	-4.2	1.0	5	silty SAND to sandy SILT	120	4.0	10	10	36	38	-	16
19.36	34.0	34.3	67.2	0.3	-4.1	1.0	5	silty SAND to sandy SILT	120	4.0	9	9	32	37	-	16
19.52	31.3	31.5	71.5	0.4	-4.2	1.3	5	silty SAND to sandy SILT	120	4.0	8	8	29	36	-	16
19.69	21.9	22.0	64.7	0.3	-4.2	1.3	5	silty SAND to sandy SILT	120	4.0	6	5	17	34	-	16
19.85	22.8	22.9	68.9	0.3	-4.2	1.5	4	clayy SILT to silty CLAY	115	2.0	11	11	-	-	1.6	15
20.01	11.8	12.5	-	0.2	-4.9	2.2	4	clayy SILT to silty CLAY	115	2.0	6	6	-	-	0.8	15
20.18	7.3	7.7	-	0.2	-1.3	3.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
20.34	6.9	7.2	-	0.2	-0.6	3.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
20.51	14.2	14.8	-	0.3	0.0	1.9	4	clayy SILT to silty CLAY	115	2.0	7	7	-	-	1.0	15
20.67	29.1	28.8	62.9	0.3	-1.1	1.0	5	silty SAND to sandy SILT	120	4.0	7	7	26	36	-	16
20.83	36.2	35.8	64.7	0.3	-1.0	0.9	5	silty SAND to sandy SILT	120	4.0	9	9	33	37	-	16
21.00	37.1	36.5	65.8	0.3	-2.3	0.9	5	silty SAND to sandy SILT	120	4.0	9	9	34	37	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(417).cpt
CPT Date: 11/19/2008 8:40:13 AM
GW During Test: 12 ft

Sounding ID: CPT-08-51
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	36.6	36.0	66.0	0.3	-2.1	0.9	5	silty SAND to sandy SILT	120	4.0	9	9	33	37	-	16
21.33	34.6	33.9	64.0	0.3	-2.0	0.9	5	silty SAND to sandy SILT	120	4.0	8	9	31	36	-	16
21.49	33.3	32.6	62.6	0.3	-2.0	0.9	5	silty SAND to sandy SILT	120	4.0	8	8	30	36	-	16
21.65	28.8	28.1	81.1	0.5	-2.0	1.8	4	clayy SILT to silty CLAY	115	2.0	14	14	-	-	2.0	15
21.82	19.1	19.2	-	0.5	-1.9	3.0	4	clayy SILT to silty CLAY	115	2.0	10	10	-	-	1.3	15
21.98	11.1	11.1	-	0.6	3.4	5.7	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
22.15	9.4	9.4	-	0.4	4.3	5.5	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
22.31	8.5	8.5	-	0.3	5.1	4.8	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
22.47	7.7	7.6	-	0.3	5.7	4.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.64	7.1	6.9	-	0.2	6.2	4.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
22.80	7.0	6.9	-	0.2	6.5	3.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
22.97	6.7	6.6	-	0.2	6.8	3.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.13	6.6	6.5	-	0.3	7.2	4.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.30	7.0	6.8	-	0.3	7.2	5.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
23.46	7.1	6.8	-	0.3	7.1	5.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
23.62	6.9	6.7	-	0.3	7.0	5.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
23.79	7.1	6.8	-	0.3	7.1	5.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
23.95	7.1	6.8	-	0.3	7.3	5.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
24.12	7.5	7.1	-	0.3	7.4	5.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.28	8.9	8.4	-	0.3	7.6	4.5	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
24.44	16.9	15.9	-	0.3	7.9	2.0	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.1	15
24.61	25.5	24.0	73.2	0.4	0.7	1.6	4	clayy SILT to silty CLAY	115	2.0	12	13	-	-	1.7	15
24.77	25.9	24.3	71.3	0.4	-0.6	1.5	5	silty SAND to sandy SILT	120	4.0	6	6	20	34	-	16
24.94	20.6	19.2	-	0.4	-3.5	2.1	4	clayy SILT to silty CLAY	115	2.0	10	10	-	-	1.4	15
25.10	49.0	45.8	72.6	0.4	-1.7	0.9	5	silty SAND to sandy SILT	120	4.0	11	12	41	38	-	16
25.26	59.3	55.3	79.2	0.5	-1.6	0.9	5	silty SAND to sandy SILT	120	4.0	14	15	47	39	-	16
25.43	69.5	64.7	87.9	0.6	-1.4	0.9	6	clean SAND to silty SAND	125	5.0	13	14	53	40	-	16
25.59	69.8	64.8	94.2	0.8	-1.2	1.1	5	silty SAND to sandy SILT	120	4.0	16	17	53	40	-	16
25.76	53.7	49.7	99.9	0.9	-1.0	1.8	5	silty SAND to sandy SILT	120	4.0	12	13	44	38	-	16
25.92	42.4	39.1	94.5	0.8	-0.9	2.0	5	silty SAND to sandy SILT	120	4.0	10	11	36	37	-	16
26.08	38.1	35.1	93.6	0.8	-2.1	2.1	5	silty SAND to sandy SILT	120	4.0	9	10	32	36	-	16
26.25	74.3	68.4	101.1	0.9	-3.0	1.3	5	silty SAND to sandy SILT	120	4.0	17	19	54	40	-	16
26.41	85.5	78.5	104.9	0.9	-3.0	1.1	6	clean SAND to silty SAND	125	5.0	16	17	59	41	-	16
26.58	89.9	82.3	109.9	1.0	-2.7	1.2	6	clean SAND to silty SAND	125	5.0	16	18	61	41	-	16
26.74	97.1	88.7	116.8	1.2	-2.4	1.2	6	clean SAND to silty SAND	125	5.0	18	19	63	41	-	16
26.90	90.8	82.8	114.3	1.2	-2.1	1.3	5	silty SAND to sandy SILT	120	4.0	21	23	61	41	-	16
27.07	78.3	71.2	104.4	1.0	-1.9	1.3	5	silty SAND to sandy SILT	120	4.0	18	20	56	40	-	16
27.23	76.4	69.4	99.4	0.9	-1.7	1.2	5	silty SAND to sandy SILT	120	4.0	17	19	55	40	-	16
27.40	75.5	68.4	105.5	1.1	-1.5	1.4	5	silty SAND to sandy SILT	120	4.0	17	19	54	40	-	16
27.56	65.7	59.4	102.9	1.0	-1.3	1.6	5	silty SAND to sandy SILT	120	4.0	15	16	50	39	-	16
27.72	55.8	50.3	93.6	0.8	-0.5	1.5	5	silty SAND to sandy SILT	120	4.0	13	14	44	38	-	16
27.89	49.6	44.6	82.2	0.6	-2.9	1.3	5	silty SAND to sandy SILT	120	4.0	11	12	40	37	-	16
28.05	34.4	30.9	80.6	0.5	-4.6	1.7	5	silty SAND to sandy SILT	120	4.0	8	9	28	35	-	16
28.22	19.2	16.4	-	0.4	-4.5	2.0	4	clayy SILT to silty CLAY	115	2.0	8	10	-	-	1.3	15
28.38	11.2	9.5	-	0.3	-4.1	2.7	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
28.54	10.1	8.5	-	0.2	-3.5	2.2	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
28.71	9.5	8.0	-	0.2	-3.1	2.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.87	9.3	7.8	-	0.2	-2.7	2.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.04	8.6	7.2	-	0.2	-1.1	2.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
29.20	8.8	7.3	-	0.2	-0.6	2.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.36	9.5	7.9	-	0.2	-0.2	2.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.53	9.2	7.7	-	0.2	0.4	2.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.69	8.2	6.7	-	0.2	1.0	3.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
29.86	10.8	8.9	-	0.3	1.7	3.4	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
30.02	15.0	12.3	-	0.3	1.7	2.3	3	silty CLAY to CLAY	115	1.5	8	10	-	-	1.0	15
30.19	22.3	18.3	-	0.4	2.7	1.8	4	clayy SILT to silty CLAY	115	2.0	9	11	-	-	1.5	15
30.35	25.7	22.5	68.2	0.3	2.9	1.4	4	clayy SILT to silty CLAY	115	2.0	11	13	-	-	1.7	15
30.51	31.7	27.7	64.5	0.3	1.4	1.1	5	silty SAND to sandy SILT	120	4.0	7	8	25	34	-	16
30.68	32.3	28.2	76.6	0.5	0.8	1.6	5	silty SAND to sandy SILT	120	4.0	7	8	25	34	-	16
30.84	26.9	21.7	-	0.6	1.3	2.2	4	clayy SILT to silty CLAY	115	2.0	11	13	-	-	1.8	15
31.01	26.4	21.2	-	0.5	2.1	2.1	4	clayy SILT to silty CLAY	115	2.0	11	13	-	-	1.8	15
31.17	52.8	45.9	76.0	0.5	-2.0	1.0	5	silty SAND to sandy SILT	120	4.0	11	13	41	37	-	16
31.33	59.1	51.3	77.2	0.5	-3.5	0.9	5	silty SAND to sandy SILT	120	4.0	13	15	45	38	-	16
31.50	55.0	47.6	76.4	0.5	-3.2	1.0	5	silty SAND to sandy SILT	120	4.0	12	14	43	37	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(417).cpt
CPT Date: 11/19/2008 8:40:13 AM
GW During Test: 12 ft

Sounding ID: CPT-08-51
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	50.9	44.0	78.8	0.6	-2.9	1.2	5	silty SAND to sandy SILT	120	4.0	11	13	40	37	-	16
31.83	52.9	45.6	86.3	0.7	3.6	1.4	5	silty SAND to sandy SILT	120	4.0	11	13	41	37	-	16
31.99	37.1	31.9	93.8	0.8	2.6	2.2	4	clayy SILT to silty CLAY	115	2.0	16	19	-	-	2.6	15
32.15	19.0	14.8	-	0.6	3.0	3.5	3	silty CLAY to CLAY	115	1.5	10	13	-	-	1.3	15
32.32	12.5	9.7	-	0.3	3.5	3.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
32.48	10.2	7.9	-	0.2	4.6	2.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
32.65	10.2	7.9	-	0.2	6.0	3.0	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
32.81	13.0	10.1	-	0.2	7.5	2.2	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
32.97	12.0	9.2	-	0.4	7.4	3.7	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
33.14	10.7	8.2	-	0.5	9.3	5.7	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
33.30	10.5	8.0	-	0.5	10.2	5.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
33.47	10.1	7.7	-	0.4	14.3	4.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
33.63	9.8	7.4	-	0.3	16.0	4.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
33.79	10.5	7.9	-	0.3	17.5	3.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
33.96	10.6	8.0	-	0.4	18.8	4.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
34.12	11.5	8.7	-	0.4	21.1	4.5	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
34.29	11.7	8.8	-	0.5	22.6	5.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
34.45	14.8	11.0	-	0.4	22.3	3.5	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
34.61	27.4	20.4	-	0.4	13.8	1.6	4	clayy SILT to silty CLAY	115	2.0	10	14	-	-	1.9	15
34.78	32.9	27.6	52.9	0.2	10.1	0.6	5	silty SAND to sandy SILT	120	4.0	7	8	24	34	-	16
34.94	30.9	25.8	78.9	0.5	10.8	1.8	4	clayy SILT to silty CLAY	115	2.0	13	15	-	-	2.1	15
35.11	18.8	13.8	-	0.4	8.6	2.7	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
35.27	25.4	18.7	-	0.5	2.5	2.2	4	clayy SILT to silty CLAY	115	2.0	9	13	-	-	1.7	15
35.43	17.4	12.7	-	0.4	2.0	2.8	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.1	15
35.60	21.2	15.4	-	0.4	3.1	2.0	4	clayy SILT to silty CLAY	115	2.0	8	11	-	-	1.4	15
35.76	15.5	11.3	-	0.3	1.1	2.3	3	silty CLAY to CLAY	115	1.5	8	10	-	-	1.0	15
35.93	10.0	7.3	-	0.3	2.5	3.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
36.09	9.9	7.1	-	0.2	3.9	3.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
36.26	10.8	7.8	-	0.3	5.5	3.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
36.42	12.4	8.9	-	0.4	6.8	4.0	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
36.58	12.8	9.2	-	0.6	8.7	5.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
36.75	14.6	10.4	-	0.6	10.4	5.2	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
36.91	12.9	9.2	-	0.5	12.9	5.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
37.08	11.4	8.1	-	0.4	14.7	4.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
37.24	11.1	7.9	-	0.3	17.3	3.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.40	10.9	7.7	-	0.3	18.8	3.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.57	9.6	6.7	-	0.3	39.5	4.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
37.73	11.3	7.9	-	0.3	38.4	3.8	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
37.90	12.2	8.5	-	0.4	39.0	3.5	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.06	12.0	8.3	-	0.4	36.2	4.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.22	11.7	8.1	-	0.4	37.8	4.0	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
38.39	12.7	8.8	-	0.5	35.8	4.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.55	27.2	18.8	-	0.4	35.8	1.8	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.8	15
38.72	26.9	18.5	-	0.4	0.1	1.7	4	clayy SILT to silty CLAY	115	2.0	9	13	-	-	1.8	15
38.88	13.3	9.1	-	0.4	-0.4	3.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
39.04	12.2	8.4	-	0.3	1.0	3.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
39.21	12.0	8.2	-	0.3	2.3	3.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
39.37	12.0	8.2	-	0.3	3.5	3.5	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
39.54	12.2	8.3	-	0.3	4.8	3.4	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
39.70	12.1	8.2	-	0.3	6.1	3.5	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
39.86	12.4	8.4	-	0.4	7.7	4.4	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
40.03	12.8	8.6	-	0.4	9.2	4.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
40.19	13.7	9.2	-	0.5	33.1	4.2	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
40.36	15.5	10.3	-	0.5	35.8	3.7	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
40.52	15.5	10.3	-	0.5	36.7	3.6	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
40.68	14.1	9.3	-	0.5	36.3	3.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
40.85	14.0	9.3	-	0.4	41.3	3.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
41.01	14.5	9.6	-	0.3	43.7	2.8	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
41.18	14.8	9.8	-	0.3	41.7	2.8	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
41.34	10.8	7.1	-	0.3	50.6	3.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
41.50	13.8	9.1	-	0.3	46.0	2.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
41.67	13.0	8.5	-	0.3	48.4	3.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
41.83	13.5	8.8	-	0.4	47.0	3.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.00	13.8	9.0	-	0.5	47.3	4.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(417).cpt
CPT Date: 11/19/2008 8:40:13 AM
GW During Test: 12 ft

Sounding ID: CPT-08-51
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	14.1	9.1	-	0.5	44.1	4.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.32	14.6	9.5	-	0.4	44.0	3.6	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
42.49	14.1	9.1	-	0.4	43.3	3.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.65	14.0	9.0	-	0.5	44.2	4.2	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.82	14.3	9.1	-	0.6	41.6	4.8	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
42.98	16.6	10.6	-	0.6	41.9	4.1	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
43.15	16.6	10.6	-	0.6	31.8	4.4	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
43.31	15.9	10.1	-	0.6	31.1	4.6	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
43.47	16.8	10.7	-	0.6	31.2	4.4	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
43.64	18.1	11.5	-	0.6	31.7	4.0	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
43.80	19.6	12.4	-	0.9	32.4	5.1	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
43.97	50.0	38.5	101.9	1.1	38.3	2.3	5	silty SAND to sandy SILT	120	4.0	10	13	36	35	-	16
44.13	101.6	78.2	110.9	1.3	-1.9	1.3	5	silty SAND to sandy SILT	120	4.0	20	25	59	39	-	16
44.29	116.8	89.7	119.8	1.5	-4.2	1.3	6	clean SAND to silty SAND	125	5.0	18	23	63	40	-	16
44.46	121.8	93.4	123.0	1.5	-3.8	1.3	6	clean SAND to silty SAND	125	5.0	19	24	65	40	-	16
44.62	127.8	97.9	123.1	1.5	-3.4	1.2	6	clean SAND to silty SAND	125	5.0	20	26	66	40	-	16
44.79	130.4	99.7	119.7	1.3	-3.1	1.0	6	clean SAND to silty SAND	125	5.0	20	26	67	40	-	16
44.95	122.8	93.7	113.4	1.1	-2.7	0.9	6	clean SAND to silty SAND	125	5.0	19	25	65	40	-	16
45.11	108.5	82.7	103.1	1.0	4.6	0.9	6	clean SAND to silty SAND	125	5.0	17	22	61	39	-	16
45.28	93.0	70.8	93.1	0.8	4.7	0.9	6	clean SAND to silty SAND	125	5.0	14	19	56	38	-	16
45.44	79.0	60.0	85.8	0.7	4.9	1.0	5	silty SAND to sandy SILT	120	4.0	15	20	50	37	-	16
45.61	64.8	49.2	79.5	0.6	5.0	1.0	5	silty SAND to sandy SILT	120	4.0	12	16	44	36	-	16
45.77	45.3	34.3	74.0	0.5	5.0	1.2	5	silty SAND to sandy SILT	120	4.0	9	11	32	34	-	16
45.93	27.2	16.5	-	0.5	5.0	1.9	4	clayy SILT to silty CLAY	115	2.0	8	14	-	-	1.8	15
46.10	13.7	8.3	-	0.4	5.1	3.2	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
46.26	8.1	4.9	-	0.2	5.5	4.2	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.5	15
46.43	5.8	3.5	-	0.1	6.3	3.7	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.3	15
46.59	5.2	3.1	-	0.1	7.7	2.8	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.3	15
46.75	5.3	3.1	-	0.1	11.0	3.4	2	Organic SOILS - Peats	100	1.0	3	5	-	-	0.4	10
46.92	5.6	3.4	-	0.1	13.3	4.0	2	Organic SOILS - Peats	100	1.0	3	6	-	-	0.4	10
47.08	6.1	3.6	-	0.2	15.4	5.1	2	Organic SOILS - Peats	100	1.0	4	6	-	-	0.5	10
47.25	6.6	3.9	-	0.2	17.5	6.2	2	Organic SOILS - Peats	100	1.0	4	7	-	-	0.5	10
47.41	11.7	7.0	-	0.2	20.0	2.5	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
47.57	21.2	12.6	-	0.3	1.6	1.5	4	clayy SILT to silty CLAY	115	2.0	6	11	-	-	1.4	15
47.74	10.3	6.1	-	0.4	-0.7	5.3	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
47.90	20.1	11.9	-	0.4	0.4	2.4	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
48.07	30.8	18.1	-	0.4	0.7	1.4	4	clayy SILT to silty CLAY	115	2.0	9	15	-	-	2.1	15
48.23	24.3	14.2	-	0.4	-3.0	1.7	4	clayy SILT to silty CLAY	115	2.0	7	12	-	-	1.6	15
48.39	12.6	7.4	-	0.3	-3.5	2.8	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
48.56	10.2	5.9	-	0.3	7.2	3.6	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
48.72	9.9	5.7	-	0.3	10.0	3.8	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
48.89	27.9	16.2	-	0.4	13.4	1.5	4	clayy SILT to silty CLAY	115	2.0	8	14	-	-	1.9	15
49.05	59.0	43.6	74.5	0.6	7.7	1.0	5	silty SAND to sandy SILT	120	4.0	11	15	40	35	-	16
49.22	64.4	47.5	81.4	0.7	8.6	1.1	5	silty SAND to sandy SILT	120	4.0	12	16	42	36	-	16
49.38	84.8	62.5	88.0	0.8	3.0	1.0	5	silty SAND to sandy SILT	120	4.0	16	21	52	37	-	16
49.54	109.6	80.7	109.1	1.3	-3.1	1.2	6	clean SAND to silty SAND	125	5.0	16	22	60	39	-	16
49.71	97.5	71.7	116.7	1.6	-4.2	1.7	5	silty SAND to sandy SILT	120	4.0	18	24	56	38	-	16
49.87	88.1	64.7	118.2	1.7	-3.6	2.0	5	silty SAND to sandy SILT	120	4.0	16	22	53	38	-	16
50.04	98.7	72.4	115.2	1.6	-4.6	1.6	5	silty SAND to sandy SILT	120	4.0	18	25	56	38	-	16
50.20	116.1	85.0	122.4	1.7	-2.5	1.5	5	silty SAND to sandy SILT	120	4.0	21	29	62	39	-	16
50.36	150.1	109.8	139.5	2.0	-3.5	1.4	6	clean SAND to silty SAND	125	5.0	22	30	70	41	-	16
50.53	182.1	133.0	149.2	1.8	-5.5	1.0	6	clean SAND to silty SAND	125	5.0	27	36	76	42	-	16
50.69	193.3	140.9	153.0	1.7	-5.9	0.9	6	clean SAND to silty SAND	125	5.0	28	39	78	42	-	16
50.86	226.5	164.9	164.9	1.5	-6.1	0.7	6	clean SAND to silty SAND	125	5.0	33	45	84	43	-	16
51.02	247.5	180.0	180.0	1.6	-6.1	0.7	6	clean SAND to silty SAND	125	5.0	36	50	86	43	-	16
51.18	262.4	190.4	190.4	2.0	-6.0	0.8	6	clean SAND to silty SAND	125	5.0	38	52	88	43	-	16
51.35	278.8	202.1	208.2	2.8	-5.6	1.0	6	clean SAND to silty SAND	125	5.0	40	56	90	44	-	16
51.51	297.6	215.4	227.9	3.5	-5.1	1.2	6	clean SAND to silty SAND	125	5.0	43	60	92	44	-	16
51.68	322.0	232.8	242.5	3.8	-3.3	1.2	6	clean SAND to silty SAND	125	5.0	47	64	95	44	-	16
51.84	327.4	236.3	246.0	3.9	-3.1	1.2	6	clean SAND to silty SAND	125	5.0	47	65	95	44	-	16
52.00	324.6	234.0	242.5	3.8	-2.9	1.2	6	clean SAND to silty SAND	125	5.0	47	65	95	44	-	16
52.17	318.2	229.1	238.3	3.7	-2.7	1.2	6	clean SAND to silty SAND	125	5.0	46	64	94	44	-	16
52.33	316.1	227.2	235.1	3.6	-2.4	1.1	6	clean SAND to silty SAND	125	5.0	45	63	94	44	-	16
52.50	318.6	228.7	233.8	3.4	-2.1	1.1	6	clean SAND to silty SAND	125	5.0	46	64	94	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(417).cpt
CPT Date: 11/19/2008 8:40:13 AM
GW During Test: 12 ft

Sounding ID: CPT-08-51
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	317.2	227.3	233.9	3.5	-1.9	1.1	6	clean SAND to silty SAND	125	5.0	45	63	94	44	-	16
52.82	310.6	222.3	230.2	3.4	-1.6	1.1	6	clean SAND to silty SAND	125	5.0	44	62	93	44	-	16
52.99	295.2	211.0	222.3	3.4	-1.3	1.2	6	clean SAND to silty SAND	125	5.0	42	59	92	44	-	16
53.15	274.7	196.1	210.8	3.2	-1.1	1.2	6	clean SAND to silty SAND	125	5.0	39	55	89	43	-	16
53.32	257.6	183.6	195.6	2.7	-0.9	1.1	6	clean SAND to silty SAND	125	5.0	37	52	87	43	-	16
53.48	235.7	167.8	179.0	2.3	-0.7	1.0	6	clean SAND to silty SAND	125	5.0	34	47	84	43	-	16
53.64	237.4	168.7	176.9	2.1	-0.7	0.9	6	clean SAND to silty SAND	125	5.0	34	47	84	43	-	16
53.81	253.5	179.9	183.2	2.1	-0.6	0.8	6	clean SAND to silty SAND	125	5.0	36	51	86	43	-	16
53.97	249.7	177.0	188.3	2.5	-3.3	1.0	6	clean SAND to silty SAND	125	5.0	35	50	86	43	-	16
54.14	224.2	158.7	182.4	3.0	-4.2	1.3	6	clean SAND to silty SAND	125	5.0	32	45	82	42	-	16
54.30	224.1	158.4	184.6	3.1	-4.2	1.4	6	clean SAND to silty SAND	125	5.0	32	45	82	42	-	16
54.46	246.3	173.9	198.6	3.5	-4.2	1.4	6	clean SAND to silty SAND	125	5.0	35	49	85	43	-	16
54.63	255.0	179.7	204.7	3.6	-5.0	1.4	6	clean SAND to silty SAND	125	5.0	36	51	86	43	-	16
54.79	254.6	179.2	201.3	3.4	-5.2	1.4	6	clean SAND to silty SAND	125	5.0	36	51	86	43	-	16
54.96	263.6	185.3	207.6	3.6	-5.1	1.4	6	clean SAND to silty SAND	125	5.0	37	53	87	43	-	16
55.12	251.4	176.5	201.2	3.5	-2.9	1.4	6	clean SAND to silty SAND	125	5.0	35	50	86	43	-	16
55.28	251.3	176.2	201.9	3.6	-2.9	1.5	6	clean SAND to silty SAND	125	5.0	35	50	86	43	-	16
55.45	246.4	172.5	198.9	3.6	-2.9	1.5	6	clean SAND to silty SAND	125	5.0	35	49	85	43	-	16
55.61	238.6	166.8	193.6	3.4	-2.9	1.5	6	clean SAND to silty SAND	125	5.0	33	48	84	42	-	16
55.78	233.6	163.1	190.4	3.4	-2.9	1.5	6	clean SAND to silty SAND	125	5.0	33	47	83	42	-	16
55.94	221.1	154.2	184.9	3.4	-3.0	1.5	6	clean SAND to silty SAND	125	5.0	31	44	81	42	-	16
56.11	217.5	151.5	182.4	3.3	-2.9	1.6	6	clean SAND to silty SAND	125	5.0	30	44	81	42	-	16
56.27	226.2	157.3	186.2	3.3	-0.9	1.5	6	clean SAND to silty SAND	125	5.0	31	45	82	42	-	16
56.43	240.6	167.1	195.9	3.6	-2.3	1.5	6	clean SAND to silty SAND	125	5.0	33	48	84	42	-	16
56.60	253.1	175.6	203.8	3.8	-3.9	1.5	6	clean SAND to silty SAND	125	5.0	35	51	86	43	-	16
56.76	261.1	180.9	211.2	4.2	-4.3	1.6	6	clean SAND to silty SAND	125	5.0	36	52	87	43	-	16
56.93	261.0	180.6	212.1	4.2	-4.4	1.6	6	clean SAND to silty SAND	125	5.0	36	52	87	43	-	16
57.09	269.4	186.2	216.6	4.3	-4.0	1.6	6	clean SAND to silty SAND	125	5.0	37	54	88	43	-	16
57.25	284.3	196.2	225.2	4.5	-3.9	1.6	6	clean SAND to silty SAND	125	5.0	39	57	89	43	-	16
57.42	292.6	201.7	231.6	4.8	-3.9	1.6	6	clean SAND to silty SAND	125	5.0	40	59	90	43	-	16
57.58	297.7	205.0	236.2	5.0	-3.7	1.7	6	clean SAND to silty SAND	125	5.0	41	60	91	43	-	16
57.75	303.0	208.3	238.3	5.0	-3.3	1.7	6	clean SAND to silty SAND	125	5.0	42	61	91	43	-	16
57.91	310.2	213.0	241.3	5.0	-3.2	1.6	6	clean SAND to silty SAND	125	5.0	43	62	92	44	-	16
58.07	335.6	230.1	246.0	4.4	-3.1	1.3	6	clean SAND to silty SAND	125	5.0	46	67	95	44	-	16
58.24	357.1	244.6	250.0	4.0	-3.3	1.1	6	clean SAND to silty SAND	125	5.0	49	71	95	44	-	16
58.40	361.2	247.1	252.3	4.1	-1.3	1.1	6	clean SAND to silty SAND	125	5.0	49	72	95	44	-	16
58.57	360.9	246.6	246.6	3.6	-1.4	1.0	6	clean SAND to silty SAND	125	5.0	49	72	95	44	-	16
58.73	316.2	215.7	221.2	3.2	-1.1	1.0	6	clean SAND to silty SAND	125	5.0	43	63	92	44	-	16
58.89	363.6	247.7	247.7	2.9	-1.0	0.8	6	clean SAND to silty SAND	125	5.0	50	73	95	44	-	16
59.06	370.2	251.9	251.9	2.9	-0.9	0.8	6	clean SAND to silty SAND	125	5.0	50	74	95	44	-	16
59.22	368.4	250.4	250.4	3.1	-0.5	0.9	6	clean SAND to silty SAND	125	5.0	50	74	95	44	-	16
59.39	361.7	245.6	245.6	3.3	-0.2	0.9	6	clean SAND to silty SAND	125	5.0	49	72	95	44	-	16
59.55	360.5	244.4	244.4	3.0	0.0	0.8	6	clean SAND to silty SAND	125	5.0	49	72	95	44	-	16
59.71	363.0	245.8	245.8	2.9	0.2	0.8	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
59.88	364.9	246.8	246.8	3.1	0.5	0.8	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
60.04	355.2	240.0	240.0	2.9	0.6	0.8	6	clean SAND to silty SAND	125	5.0	48	71	95	44	-	16
60.21	347.0	234.1	234.1	3.1	1.4	0.9	6	clean SAND to silty SAND	125	5.0	47	69	95	44	-	16
60.37	349.2	235.3	235.3	3.1	1.7	0.9	6	clean SAND to silty SAND	125	5.0	47	70	95	44	-	16
60.53	346.7	233.3	233.3	3.1	1.8	0.9	6	clean SAND to silty SAND	125	5.0	47	69	95	44	-	16
60.70	339.2	228.0	231.3	3.5	1.9	1.0	6	clean SAND to silty SAND	125	5.0	46	68	94	44	-	16
60.86	338.5	227.3	238.1	4.0	2.3	1.2	6	clean SAND to silty SAND	125	5.0	45	68	94	44	-	16
61.03	332.4	222.9	232.9	3.8	2.3	1.2	6	clean SAND to silty SAND	125	5.0	45	66	93	44	-	16
61.19	329.5	220.7	229.0	3.6	2.4	1.1	6	clean SAND to silty SAND	125	5.0	44	66	93	44	-	16
61.35	331.9	222.0	228.2	3.5	3.2	1.1	6	clean SAND to silty SAND	125	5.0	44	66	93	44	-	16
61.52	328.1	219.2	225.8	3.5	3.2	1.1	6	clean SAND to silty SAND	125	5.0	44	66	93	43	-	16
61.68	317.9	212.1	223.3	3.6	3.1	1.2	6	clean SAND to silty SAND	125	5.0	42	64	92	43	-	16
61.85	308.0	205.3	222.3	3.9	3.3	1.3	6	clean SAND to silty SAND	125	5.0	41	62	91	43	-	16
62.01	296.4	197.3	217.6	4.0	3.2	1.4	6	clean SAND to silty SAND	125	5.0	39	59	89	43	-	16
62.17	290.8	193.3	215.2	4.0	3.3	1.4	6	clean SAND to silty SAND	125	5.0	39	58	89	43	-	16
62.34	293.1	194.6	217.4	4.1	3.3	1.4	6	clean SAND to silty SAND	125	5.0	39	59	89	43	-	16
62.50	302.6	200.7	222.6	4.2	3.5	1.4	6	clean SAND to silty SAND	125	5.0	40	61	90	43	-	16
62.67	303.8	201.2	223.8	4.3	3.6	1.4	6	clean SAND to silty SAND	125	5.0	40	61	90	43	-	16
62.83	307.0	203.1	225.2	4.3	3.7	1.4	6	clean SAND to silty SAND	125	5.0	41	61	90	43	-	16
63.00	302.9	200.2	223.4	4.3	3.7	1.4	6	clean SAND to silty SAND	125	5.0	40	61	90	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(417).cpt
CPT Date: 11/19/2008 8:40:13 AM
GW During Test: 12 ft

Sounding ID: CPT-08-51
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	298.2	196.9	220.9	4.3	3.8	1.5	6	clean SAND to silty SAND	125	5.0	39	60	89	43	-	16
63.32	300.0	197.8	219.9	4.2	3.8	1.4	6	clean SAND to silty SAND	125	5.0	40	60	90	43	-	16
63.49	299.8	197.5	219.4	4.2	3.8	1.4	6	clean SAND to silty SAND	125	5.0	39	60	89	43	-	16
63.65	300.4	197.6	219.4	4.2	3.8	1.4	6	clean SAND to silty SAND	125	5.0	40	60	89	43	-	16
63.82	302.5	198.7	220.5	4.2	3.9	1.4	6	clean SAND to silty SAND	125	5.0	40	60	90	43	-	16
63.98	303.4	199.1	219.7	4.1	3.9	1.4	6	clean SAND to silty SAND	125	5.0	40	61	90	43	-	16
64.14	305.5	200.2	221.3	4.2	4.2	1.4	6	clean SAND to silty SAND	125	5.0	40	61	90	43	-	16
64.31	311.5	203.9	222.7	4.1	4.2	1.3	6	clean SAND to silty SAND	125	5.0	41	62	91	43	-	16
64.47	317.2	207.4	224.4	4.0	4.3	1.3	6	clean SAND to silty SAND	125	5.0	41	63	91	43	-	16
64.64	318.9	208.3	219.8	3.6	6.3	1.2	6	clean SAND to silty SAND	125	5.0	42	64	91	43	-	16
64.80	346.5	226.1	226.1	2.4	6.0	0.7	6	clean SAND to silty SAND	125	5.0	45	69	94	43	-	16
64.96	363.2	236.7	236.7	2.1	5.4	0.6	6	clean SAND to silty SAND	125	5.0	47	73	95	44	-	16
65.13	361.5	235.3	235.3	2.0	6.9	0.6	6	clean SAND to silty SAND	125	5.0	47	72	95	44	-	16
65.29	354.3	230.3	230.3	2.1	7.3	0.6	6	clean SAND to silty SAND	125	5.0	46	71	95	44	-	16
65.46	354.0	229.9	229.9	2.0	7.1	0.6	6	clean SAND to silty SAND	125	5.0	46	71	94	44	-	16
65.62	339.7	220.4	220.4	1.9	7.0	0.6	6	clean SAND to silty SAND	125	5.0	44	68	93	43	-	16
65.78	333.0	215.8	215.8	1.7	7.1	0.5	6	clean SAND to silty SAND	125	5.0	43	67	92	43	-	16
65.95	331.2	214.3	214.3	1.7	7.4	0.5	6	clean SAND to silty SAND	125	5.0	43	66	92	43	-	16
66.11	326.4	211.0	211.0	1.6	7.7	0.5	6	clean SAND to silty SAND	125	5.0	42	65	92	43	-	16
66.28	332.6	214.8	214.8	1.6	8.1	0.5	6	clean SAND to silty SAND	125	5.0	43	67	92	43	-	16
66.44	337.3	217.5	217.5	1.8	8.3	0.5	6	clean SAND to silty SAND	125	5.0	44	67	93	43	-	16
66.60	349.9	225.4	225.4	2.1	8.6	0.6	6	clean SAND to silty SAND	125	5.0	45	70	94	43	-	16
66.77	394.6	254.0	254.0	2.7	9.1	0.7	6	clean SAND to silty SAND	125	5.0	51	79	95	44	-	16
66.93	410.8	264.0	264.0	2.2	9.1	0.5	6	clean SAND to silty SAND	125	5.0	53	82	95	44	-	16
67.10	399.8	256.7	256.7	2.8	10.0	0.7	6	clean SAND to silty SAND	125	5.0	51	80	95	44	-	16
67.26	432.5	277.4	277.4	2.8	8.6	0.7	6	clean SAND to silty SAND	125	5.0	55	87	95	44	-	16
67.42	437.2	280.1	280.1	2.1	8.8	0.5	6	clean SAND to silty SAND	125	5.0	56	87	95	44	-	16
67.59	461.6	295.4	295.4	2.0	8.3	0.4	7	grvly SAND to dense SAND	130	6.0	49	77	95	45	-	16
67.75	448.0	286.3	286.3	2.0	9.2	0.5	6	clean SAND to silty SAND	125	5.0	57	90	95	44	-	16
67.92	438.0	279.6	279.6	3.0	8.3	0.7	6	clean SAND to silty SAND	125	5.0	56	88	95	44	-	16
68.08	451.1	287.7	287.7	2.9	7.5	0.6	6	clean SAND to silty SAND	125	5.0	58	90	95	45	-	16
68.24	443.1	282.3	282.3	3.1	8.8	0.7	6	clean SAND to silty SAND	125	5.0	56	89	95	44	-	16
68.41	466.4	296.8	296.8	1.9	7.3	0.4	7	grvly SAND to dense SAND	130	6.0	49	78	95	45	-	16
68.57	469.9	298.7	298.7	2.6	6.4	0.6	6	clean SAND to silty SAND	125	5.0	60	94	95	45	-	16
68.74	483.0	306.6	306.6	1.9	5.9	0.4	7	grvly SAND to dense SAND	130	6.0	51	81	95	45	-	16
68.90	459.5	291.4	291.4	2.1	6.8	0.5	6	clean SAND to silty SAND	125	5.0	58	92	95	45	-	16
69.07	424.0	268.6	268.6	1.7	6.9	0.4	6	clean SAND to silty SAND	125	5.0	54	85	95	44	-	16
69.23	447.6	283.2	283.2	1.6	7.6	0.4	7	grvly SAND to dense SAND	130	6.0	47	75	95	44	-	16
69.39	445.3	281.4	281.4	1.4	7.8	0.3	7	grvly SAND to dense SAND	130	6.0	47	74	95	44	-	16
69.56	463.1	292.3	292.3	1.9	8.2	0.4	7	grvly SAND to dense SAND	130	6.0	49	77	95	45	-	16
69.72	487.5	307.4	307.4	2.3	8.6	0.5	7	grvly SAND to dense SAND	130	6.0	51	81	95	45	-	16
69.89	486.8	306.6	306.6	1.9	8.9	0.4	7	grvly SAND to dense SAND	130	6.0	51	81	95	45	-	16
70.05	477.6	300.5	300.5	2.2	9.0	0.5	7	grvly SAND to dense SAND	130	6.0	50	80	95	45	-	16
70.21	466.1	292.9	292.9	2.0	11.4	0.4	7	grvly SAND to dense SAND	130	6.0	49	78	95	44	-	16
70.38	466.6	292.9	292.9	5.0	11.1	1.1	6	clean SAND to silty SAND	125	5.0	59	93	95	44	-	16
70.54	476.3	298.6	298.6	3.1	14.2	0.7	6	clean SAND to silty SAND	125	5.0	60	95	95	45	-	16
70.71	486.5	304.6	304.6	4.8	13.2	1.0	6	clean SAND to silty SAND	125	5.0	61	97	95	45	-	16
70.87	456.5	285.6	285.6	2.5	14.8	0.5	6	clean SAND to silty SAND	125	5.0	57	91	95	44	-	16
71.03	454.2	283.8	283.8	2.0	11.2	0.4	6	clean SAND to silty SAND	125	5.0	57	91	95	44	-	16
71.20	419.1	261.6	261.6	1.4	7.2	0.3	7	grvly SAND to dense SAND	130	6.0	44	70	95	44	-	16
71.36	410.1	255.7	255.7	2.2	6.9	0.5	6	clean SAND to silty SAND	125	5.0	51	82	95	44	-	16
71.53	376.5	234.5	234.5	0.6	7.2	0.2	7	grvly SAND to dense SAND	130	6.0	39	63	95	43	-	16
71.69	361.4	224.8	224.8	1.9	6.9	0.5	6	clean SAND to silty SAND	125	5.0	45	72	94	43	-	16
71.85	365.6	227.2	227.2	1.8	7.2	0.5	6	clean SAND to silty SAND	125	5.0	45	73	94	43	-	16
72.02	344.3	213.8	213.8	1.4	8.9	0.4	6	clean SAND to silty SAND	125	5.0	43	69	92	43	-	16
72.18	401.5	249.0	249.0	1.2	9.6	0.3	7	grvly SAND to dense SAND	130	6.0	42	67	95	44	-	16
72.35	459.1	284.4	284.4	3.5	10.2	0.8	6	clean SAND to silty SAND	125	5.0	57	92	95	44	-	16
72.51	512.1	316.9	316.9	4.5	8.8	0.9	6	clean SAND to silty SAND	125	5.0	63	100	95	45	-	16
72.67	541.4	334.7	334.7	3.3	9.6	0.6	6	clean SAND to silty SAND	125	5.0	67	100	95	45	-	16
72.84	561.8	347.0	347.0	3.7	10.9	0.7	6	clean SAND to silty SAND	125	5.0	69	100	95	45	-	16
73.00	581.0	358.5	358.5	4.7	8.6	0.8	6	clean SAND to silty SAND	125	5.0	72	100	95	45	-	16
73.17	529.2	326.2	326.2	3.0	9.7	0.6	6	clean SAND to silty SAND	125	5.0	65	100	95	45	-	16
73.33	558.8	344.0	344.0	2.8	6.9	0.5	7	grvly SAND to dense SAND	130	6.0	57	93	95	45	-	16
73.49	635.6	390.9	390.9	2.6	1.4	0.4	7	grvly SAND to dense SAND	130	6.0	65	100	95	46	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(417).cpt
CPT Date: 11/19/2008 8:40:13 AM
GW During Test: 12 ft

Sounding ID: CPT-08-51
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
73.66	623.2	382.8	382.8	2.5	-0.9	0.4	7	grvly SAND to dense SAND	130	6.0	64	100	95	46	-	16
73.82	581.8	357.0	357.0	5.2	-0.2	0.9	6	clean SAND to silty SAND	125	5.0	71	100	95	45	-	16
73.99	601.2	368.5	368.5	2.8	0.4	0.5	7	grvly SAND to dense SAND	130	6.0	61	100	95	45	-	16
74.15	563.6	345.1	345.1	4.3	10.1	0.8	6	clean SAND to silty SAND	125	5.0	69	100	95	45	-	16
74.31	541.0	330.9	330.9	4.5	8.1	0.8	6	clean SAND to silty SAND	125	5.0	66	100	95	45	-	16
74.48	499.9	305.5	305.5	5.2	6.7	1.0	6	clean SAND to silty SAND	125	5.0	61	100	95	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(470).cpt
CPT Date: 12/5/2008 2:43:25 PM
GW During Test: 12 ft

Sounding ID: CPT-08-52
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	41.5	66.5	83.6	0.3	0.0	0.7	6	clean SAND to silty SAND	125	5.0	13	8	54	48	-	16
0.49	56.8	91.1	109.5	0.5	-0.1	0.9	6	clean SAND to silty SAND	125	5.0	18	11	64	48	-	16
0.66	47.2	75.6	108.3	0.6	-0.1	1.4	5	silty SAND to sandy SILT	120	4.0	19	12	58	48	-	16
0.82	42.4	68.0	105.0	0.6	-0.1	1.5	5	silty SAND to sandy SILT	120	4.0	17	11	54	48	-	16
0.98	40.4	64.7	105.9	0.6	0.0	1.6	5	silty SAND to sandy SILT	120	4.0	16	10	53	48	-	16
1.15	36.0	57.7	97.7	0.5	0.0	1.5	5	silty SAND to sandy SILT	120	4.0	14	9	49	48	-	16
1.31	29.6	47.5	93.4	0.5	0.0	1.7	5	silty SAND to sandy SILT	120	4.0	12	7	42	47	-	16
1.48	24.8	39.8	83.8	0.4	0.0	1.6	5	silty SAND to sandy SILT	120	4.0	10	6	37	46	-	16
1.64	19.7	31.6	54.3	0.1	0.0	0.6	5	silty SAND to sandy SILT	120	4.0	8	5	29	44	-	16
1.80	17.5	28.1	64.2	0.2	0.0	1.1	5	silty SAND to sandy SILT	120	4.0	7	4	25	43	-	16
1.97	20.4	32.6	91.7	0.4	0.0	2.2	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
2.13	42.6	68.3	113.2	0.7	0.0	1.8	5	silty SAND to sandy SILT	120	4.0	17	11	54	46	-	16
2.30	46.9	75.2	142.7	1.2	0.0	2.6	5	silty SAND to sandy SILT	120	4.0	19	12	58	46	-	16
2.46	38.3	61.5	151.3	1.3	0.0	3.5	4	clayy SILT to silty CLAY	115	2.0	31	19	-	-	2.7	15
2.62	46.5	74.5	165.2	1.6	0.0	3.4	4	clayy SILT to silty CLAY	115	2.0	37	23	-	-	3.3	15
2.79	48.2	77.3	159.7	1.5	0.0	3.1	5	silty SAND to sandy SILT	120	4.0	19	12	59	46	-	16
2.95	43.3	69.4	149.6	1.3	0.0	3.1	5	silty SAND to sandy SILT	120	4.0	17	11	55	45	-	16
3.12	52.2	83.8	134.0	1.0	0.0	2.0	5	silty SAND to sandy SILT	120	4.0	21	13	61	46	-	16
3.28	49.6	79.5	128.0	1.0	0.0	1.9	5	silty SAND to sandy SILT	120	4.0	20	12	59	45	-	16
3.45	49.8	79.8	127.7	0.9	0.0	1.9	5	silty SAND to sandy SILT	120	4.0	20	12	60	45	-	16
3.61	54.6	87.6	129.4	0.9	0.0	1.7	5	silty SAND to sandy SILT	120	4.0	22	14	63	45	-	16
3.77	72.7	116.5	154.8	1.2	0.0	1.7	5	silty SAND to sandy SILT	120	4.0	29	18	72	47	-	16
3.94	84.5	135.6	173.6	1.5	0.0	1.8	6	clean SAND to silty SAND	125	5.0	27	17	77	47	-	16
4.10	88.3	141.6	181.8	1.6	0.0	1.8	6	clean SAND to silty SAND	125	5.0	28	18	78	47	-	16
4.27	112.0	179.5	219.0	2.1	-0.1	1.9	6	clean SAND to silty SAND	125	5.0	36	22	86	48	-	16
4.43	144.2	231.3	261.5	2.5	-0.4	1.7	6	clean SAND to silty SAND	125	5.0	46	29	95	48	-	16
4.59	154.7	248.0	269.1	2.4	0.1	1.5	6	clean SAND to silty SAND	125	5.0	50	31	95	48	-	16
4.76	151.4	242.9	265.0	2.3	0.1	1.5	6	clean SAND to silty SAND	125	5.0	49	30	95	48	-	16
4.92	150.7	241.7	268.3	2.5	0.1	1.7	6	clean SAND to silty SAND	125	5.0	48	30	95	48	-	16
5.09	143.2	229.7	260.9	2.5	0.1	1.8	6	clean SAND to silty SAND	125	5.0	46	29	94	48	-	16
5.25	125.4	201.1	238.4	2.3	0.2	1.9	6	clean SAND to silty SAND	125	5.0	40	25	90	48	-	16
5.41	110.6	177.4	206.9	1.8	0.2	1.6	6	clean SAND to silty SAND	125	5.0	35	22	86	47	-	16
5.58	91.8	147.2	184.0	1.6	0.2	1.7	6	clean SAND to silty SAND	125	5.0	29	18	80	47	-	16
5.74	69.1	110.8	158.4	1.4	0.4	2.0	5	silty SAND to sandy SILT	120	4.0	28	17	70	45	-	16
5.91	51.0	81.8	142.1	1.2	0.4	2.3	5	silty SAND to sandy SILT	120	4.0	20	13	60	44	-	16
6.07	42.1	67.3	133.4	1.1	0.4	2.5	5	silty SAND to sandy SILT	120	4.0	17	11	54	43	-	16
6.23	35.8	56.5	120.3	0.9	0.4	2.4	5	silty SAND to sandy SILT	120	4.0	14	9	48	42	-	16
6.40	30.9	48.2	109.9	0.7	0.4	2.3	5	silty SAND to sandy SILT	120	4.0	12	8	43	41	-	16
6.56	30.4	46.8	104.8	0.6	0.4	2.2	5	silty SAND to sandy SILT	120	4.0	12	8	42	41	-	16
6.73	30.3	46.1	101.4	0.6	0.4	2.0	5	silty SAND to sandy SILT	120	4.0	12	8	41	41	-	16
6.89	38.8	58.3	97.9	0.6	0.4	1.5	5	silty SAND to sandy SILT	120	4.0	15	10	49	42	-	16
7.05	52.6	78.1	103.4	0.6	0.4	1.1	6	clean SAND to silty SAND	125	5.0	16	11	59	43	-	16
7.22	48.7	71.5	99.8	0.6	0.4	1.2	5	silty SAND to sandy SILT	120	4.0	18	12	56	43	-	16
7.38	37.2	54.1	92.6	0.5	0.4	1.4	5	silty SAND to sandy SILT	120	4.0	14	9	47	41	-	16
7.55	27.5	39.4	88.7	0.5	0.4	1.8	5	silty SAND to sandy SILT	120	4.0	10	7	36	40	-	16
7.71	26.0	37.0	101.2	0.6	0.4	2.4	4	clayy SILT to silty CLAY	115	2.0	19	13	-	-	1.8	15
7.87	30.8	43.4	97.3	0.6	0.3	2.0	5	silty SAND to sandy SILT	120	4.0	11	8	39	40	-	16
8.04	29.9	41.6	92.8	0.5	0.4	1.8	5	silty SAND to sandy SILT	120	4.0	10	7	38	40	-	16
8.20	22.0	30.4	94.1	0.5	0.4	2.4	4	clayy SILT to silty CLAY	115	2.0	15	11	-	-	1.5	15
8.37	20.6	33.1	-	0.6	0.4	3.1	4	clayy SILT to silty CLAY	115	2.0	17	10	-	-	1.4	15
8.53	20.9	32.7	101.1	0.5	0.3	2.6	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.5	15
8.69	18.2	24.4	75.8	0.3	0.3	1.8	4	clayy SILT to silty CLAY	115	2.0	12	9	-	-	1.3	15
8.86	13.8	22.2	-	0.4	0.3	3.2	4	clayy SILT to silty CLAY	115	2.0	11	7	-	-	1.0	15
9.02	12.3	19.7	-	0.5	0.1	4.6	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
9.19	16.2	26.0	-	0.6	-1.1	3.9	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.1	15
9.35	16.8	27.0	-	0.6	-0.9	3.7	4	clayy SILT to silty CLAY	115	2.0	14	8	-	-	1.2	15
9.51	17.4	27.9	-	0.5	-0.7	2.8	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
9.68	26.1	33.2	74.0	0.3	0.2	1.3	5	silty SAND to sandy SILT	120	4.0	8	7	31	38	-	16
9.84	32.8	41.4	65.7	0.2	0.2	0.8	5	silty SAND to sandy SILT	120	4.0	10	8	38	40	-	16
10.01	41.3	51.8	80.2	0.4	0.2	1.0	5	silty SAND to sandy SILT	120	4.0	13	10	45	41	-	16
10.17	59.3	73.8	100.5	0.6	0.2	1.1	6	clean SAND to silty SAND	125	5.0	15	12	57	43	-	16
10.34	74.6	92.0	117.9	0.9	0.2	1.2	6	clean SAND to silty SAND	125	5.0	18	15	64	44	-	16
10.50	83.0	101.5	128.5	1.0	0.2	1.3	6	clean SAND to silty SAND	125	5.0	20	17	67	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Earth Mechanics
Data File: SDF(470).cpt
CPT Date: 12/5/2008 2:43:25 PM
GW During Test: 12 ft

Sounding ID: CPT-08-52
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	82.4	100.0	129.5	1.1	0.2	1.3	6	clean SAND to silty SAND	125	5.0	20	16	67	44	-	16
10.83	87.8	105.6	133.6	1.1	0.2	1.3	6	clean SAND to silty SAND	125	5.0	21	18	69	44	-	16
10.99	94.3	112.6	137.2	1.1	0.2	1.2	6	clean SAND to silty SAND	125	5.0	23	19	71	45	-	16
11.16	98.7	116.9	140.7	1.2	0.2	1.2	6	clean SAND to silty SAND	125	5.0	23	20	72	45	-	16
11.32	98.3	115.5	138.6	1.1	0.2	1.2	6	clean SAND to silty SAND	125	5.0	23	20	72	45	-	16
11.48	95.9	111.9	133.1	1.0	0.2	1.1	6	clean SAND to silty SAND	125	5.0	22	19	71	45	-	16
11.65	95.7	110.9	131.8	1.0	0.2	1.1	6	clean SAND to silty SAND	125	5.0	22	19	70	44	-	16
11.81	95.8	110.2	133.5	1.1	0.1	1.2	6	clean SAND to silty SAND	125	5.0	22	19	70	44	-	16
11.98	92.3	105.4	122.6	0.8	0.2	0.9	6	clean SAND to silty SAND	125	5.0	21	18	69	44	-	16
12.14	84.3	95.9	118.7	0.9	0.2	1.1	6	clean SAND to silty SAND	125	5.0	19	17	66	44	-	16
12.30	75.3	85.3	114.5	0.9	0.0	1.3	6	clean SAND to silty SAND	125	5.0	17	15	62	43	-	16
12.47	77.1	87.2	119.7	1.1	0.1	1.4	5	silty SAND to sandy SILT	120	4.0	22	19	62	43	-	16
12.63	73.1	82.4	118.2	1.1	0.1	1.5	5	silty SAND to sandy SILT	120	4.0	21	18	61	43	-	16
12.80	67.9	76.2	115.5	1.1	0.1	1.6	5	silty SAND to sandy SILT	120	4.0	19	17	58	42	-	16
12.96	65.5	73.3	110.3	1.0	0.1	1.5	5	silty SAND to sandy SILT	120	4.0	18	16	57	42	-	16
13.12	60.8	67.8	115.7	1.1	0.1	1.8	5	silty SAND to sandy SILT	120	4.0	17	15	54	42	-	16
13.29	56.8	63.1	115.4	1.1	0.1	2.0	5	silty SAND to sandy SILT	120	4.0	16	14	52	41	-	16
13.45	53.1	58.9	116.5	1.1	0.0	2.2	5	silty SAND to sandy SILT	120	4.0	15	13	50	41	-	16
13.62	49.6	54.8	108.6	1.0	-0.1	2.0	5	silty SAND to sandy SILT	120	4.0	14	12	47	41	-	16
13.78	39.6	43.6	102.1	0.8	-0.2	2.2	5	silty SAND to sandy SILT	120	4.0	11	10	40	39	-	16
13.94	29.8	32.7	91.4	0.6	-0.2	2.1	4	clayy SILT to silty CLAY	115	2.0	16	15	-	-	2.1	15
14.11	30.1	33.0	77.7	0.4	-3.1	1.5	5	silty SAND to sandy SILT	120	4.0	8	8	30	38	-	16
14.27	29.6	32.3	57.2	0.2	-6.3	0.7	5	silty SAND to sandy SILT	120	4.0	8	7	30	37	-	16
14.44	27.8	30.3	65.9	0.3	-6.6	1.1	5	silty SAND to sandy SILT	120	4.0	8	7	28	37	-	16
14.60	19.2	24.0	-	0.4	-8.1	2.2	4	clayy SILT to silty CLAY	115	2.0	12	10	-	-	1.3	15
14.76	14.5	18.1	-	0.4	-8.4	2.7	4	clayy SILT to silty CLAY	115	2.0	9	7	-	-	1.0	15
14.93	8.2	10.1	-	0.2	-8.8	3.2	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
15.09	5.6	6.8	-	0.2	-8.6	3.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.26	5.2	6.4	-	0.2	-8.5	3.9	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.42	5.6	6.8	-	0.1	-8.4	3.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.58	5.1	6.2	-	0.1	-7.8	3.0	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.75	4.2	5.1	-	0.1	-7.6	3.5	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
15.91	4.5	5.4	-	0.1	-7.4	4.2	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
16.08	5.0	6.0	-	0.2	-7.3	5.1	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
16.24	6.7	7.9	-	0.2	-7.2	3.6	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.40	6.0	7.1	-	0.2	-7.2	3.2	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.57	4.8	5.6	-	0.2	-7.1	6.0	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
16.73	7.5	8.8	-	0.2	-7.0	3.8	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.90	6.1	7.1	-	0.2	-7.0	4.6	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.06	9.4	10.9	-	0.2	-6.9	2.6	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
17.23	13.4	15.4	-	0.2	-6.9	1.9	4	clayy SILT to silty CLAY	115	2.0	8	7	-	-	0.9	15
17.39	18.2	20.8	-	0.3	-7.0	1.7	4	clayy SILT to silty CLAY	115	2.0	10	9	-	-	1.2	15
17.55	20.7	22.3	-	0.4	-7.0	1.9	4	clayy SILT to silty CLAY	115	2.0	11	10	-	-	1.4	15
17.72	11.9	13.5	-	0.4	-7.1	3.8	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
17.88	28.0	28.8	68.4	0.3	-7.2	1.2	5	silty SAND to sandy SILT	120	4.0	7	7	26	36	-	16
18.05	35.7	36.7	59.9	0.2	-9.0	0.7	5	silty SAND to sandy SILT	120	4.0	9	9	34	37	-	16
18.21	33.9	34.8	61.6	0.3	-9.5	0.8	5	silty SAND to sandy SILT	120	4.0	9	8	32	37	-	16
18.37	34.6	35.4	66.3	0.3	-8.3	1.0	5	silty SAND to sandy SILT	120	4.0	9	9	33	37	-	16
18.54	40.5	41.4	80.7	0.5	-8.3	1.3	5	silty SAND to sandy SILT	120	4.0	10	10	38	38	-	16
18.70	47.0	47.8	90.1	0.7	-8.2	1.5	5	silty SAND to sandy SILT	120	4.0	12	12	43	39	-	16
18.87	53.1	53.9	92.8	0.7	-6.4	1.4	5	silty SAND to sandy SILT	120	4.0	13	13	47	40	-	16
19.03	54.8	55.5	98.2	0.8	-6.7	1.6	5	silty SAND to sandy SILT	120	4.0	14	14	48	40	-	16
19.19	53.5	54.1	97.5	0.8	-6.8	1.6	5	silty SAND to sandy SILT	120	4.0	14	13	47	39	-	16
19.36	48.7	49.1	101.2	0.9	-6.9	1.9	5	silty SAND to sandy SILT	120	4.0	12	12	43	39	-	16
19.52	47.6	47.8	93.8	0.8	-7.0	1.6	5	silty SAND to sandy SILT	120	4.0	12	12	43	39	-	16
19.69	43.6	43.8	86.2	0.6	-7.1	1.5	5	silty SAND to sandy SILT	120	4.0	11	11	40	38	-	16
19.85	26.8	26.8	81.0	0.5	-7.9	1.9	4	clayy SILT to silty CLAY	115	2.0	13	13	-	-	1.8	15
20.01	12.3	13.0	-	0.4	-7.9	3.2	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
20.18	6.8	7.1	-	0.2	-7.6	3.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
20.34	4.8	5.0	-	0.1	-7.3	3.8	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
20.51	5.0	5.2	-	0.2	-6.9	4.0	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
20.67	6.4	6.6	-	0.3	-6.7	5.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
20.83	25.3	25.0	68.7	0.3	-6.4	1.4	5	silty SAND to sandy SILT	120	4.0	6	6	21	35	-	16
21.00	30.9	30.4	69.6	0.4	-6.8	1.2	5	silty SAND to sandy SILT	120	4.0	8	8	28	36	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(470).cpt
CPT Date: 12/5/2008 2:43:25 PM
GW During Test: 12 ft

Sounding ID: CPT-08-52
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	27.2	26.7	77.7	0.4	-3.8	1.7	4	clayy SILT to silty CLAY	115	2.0	13	14	-	-	1.9	15
21.33	13.8	14.0	-	0.4	-3.7	2.8	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
21.49	6.4	6.5	-	0.3	-3.3	5.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.65	4.7	4.7	-	0.3	-2.6	9.9	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.4	10
21.82	4.3	4.4	-	0.3	-1.9	9.9	2	Organic SOILS - Peats	100	1.0	4	4	-	-	0.4	10
21.98	5.1	5.1	-	0.4	11.6	9.4	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
22.15	4.8	4.8	-	0.2	10.9	5.5	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
22.31	4.7	4.7	-	0.2	11.8	5.6	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
22.47	5.0	4.9	-	0.2	12.9	6.8	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
22.64	5.7	5.6	-	0.5	11.2	9.9	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.5	10
22.80	6.1	6.0	-	0.5	8.1	9.8	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
22.97	5.9	5.8	-	0.4	5.7	9.6	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.5	10
23.13	5.8	5.7	-	0.4	5.0	9.5	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.5	10
23.30	5.9	5.8	-	0.4	5.5	9.2	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.5	10
23.46	13.3	13.0	-	0.3	6.6	2.2	4	clayy SILT to silty CLAY	115	2.0	6	7	-	-	0.9	15
23.62	55.9	53.4	71.5	0.3	-0.3	0.6	6	clean SAND to silty SAND	125	5.0	11	11	46	39	-	16
23.79	76.9	73.3	91.9	0.6	2.7	0.8	6	clean SAND to silty SAND	125	5.0	15	15	57	41	-	16
23.95	91.3	86.8	106.7	0.8	3.2	0.9	6	clean SAND to silty SAND	125	5.0	17	18	62	41	-	16
24.12	97.1	92.2	114.8	1.0	3.4	1.0	6	clean SAND to silty SAND	125	5.0	18	19	64	42	-	16
24.28	100.9	95.5	118.4	1.1	3.6	1.1	6	clean SAND to silty SAND	125	5.0	19	20	65	42	-	16
24.44	100.6	95.0	118.1	1.1	3.9	1.1	6	clean SAND to silty SAND	125	5.0	19	20	65	42	-	16
24.61	99.1	93.4	116.0	1.0	4.1	1.1	6	clean SAND to silty SAND	125	5.0	19	20	65	42	-	16
24.77	96.3	90.5	113.3	1.0	4.3	1.0	6	clean SAND to silty SAND	125	5.0	18	19	64	42	-	16
24.94	93.5	87.6	105.5	0.8	4.5	0.8	6	clean SAND to silty SAND	125	5.0	18	19	63	41	-	16
25.10	89.9	84.1	101.6	0.7	4.6	0.8	6	clean SAND to silty SAND	125	5.0	17	18	61	41	-	16
25.26	80.7	75.3	95.5	0.7	4.3	0.9	6	clean SAND to silty SAND	125	5.0	15	16	58	41	-	16
25.43	74.8	69.6	94.2	0.7	4.6	1.0	6	clean SAND to silty SAND	125	5.0	14	15	55	40	-	16
25.59	65.4	60.8	92.5	0.8	4.9	1.2	5	silty SAND to sandy SILT	120	4.0	15	16	51	39	-	16
25.76	51.7	47.9	92.6	0.8	4.9	1.6	5	silty SAND to sandy SILT	120	4.0	12	13	43	38	-	16
25.92	42.1	38.9	95.1	0.8	5.3	2.0	5	silty SAND to sandy SILT	120	4.0	10	11	36	37	-	16
26.08	46.0	42.4	87.6	0.7	2.1	1.6	5	silty SAND to sandy SILT	120	4.0	11	11	39	37	-	16
26.25	54.8	50.5	89.6	0.7	-5.2	1.4	5	silty SAND to sandy SILT	120	4.0	13	14	44	38	-	16
26.41	50.1	46.1	91.4	0.8	-6.1	1.6	5	silty SAND to sandy SILT	120	4.0	12	13	41	38	-	16
26.58	48.1	44.1	91.2	0.8	-6.2	1.7	5	silty SAND to sandy SILT	120	4.0	11	12	40	37	-	16
26.74	40.5	37.0	89.7	0.7	-7.1	1.8	5	silty SAND to sandy SILT	120	4.0	9	10	34	36	-	16
26.90	32.1	29.3	88.7	0.6	-7.5	2.1	4	clayy SILT to silty CLAY	115	2.0	15	16	-	-	2.2	15
27.07	21.8	19.2	-	0.5	-8.0	2.2	4	clayy SILT to silty CLAY	115	2.0	10	11	-	-	1.5	15
27.23	12.4	10.9	-	0.3	-8.1	2.3	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
27.40	8.0	7.0	-	0.2	-7.6	2.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.56	7.5	6.5	-	0.2	-7.0	3.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
27.72	8.0	7.0	-	0.2	-6.6	3.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.89	7.5	6.5	-	0.2	-6.3	3.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
28.05	8.1	7.0	-	0.1	-5.9	1.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
28.22	7.6	6.6	-	0.2	-5.5	3.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
28.38	9.7	8.3	-	0.2	1.2	2.9	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
28.54	23.0	20.6	61.7	0.3	0.4	1.2	5	silty SAND to sandy SILT	120	4.0	5	6	15	32	-	16
28.71	29.3	26.2	61.8	0.3	-2.5	1.0	5	silty SAND to sandy SILT	120	4.0	7	7	23	34	-	16
28.87	33.0	29.4	66.4	0.3	-2.4	1.1	5	silty SAND to sandy SILT	120	4.0	7	8	27	35	-	16
29.04	33.4	29.8	76.4	0.5	-1.6	1.5	5	silty SAND to sandy SILT	120	4.0	7	8	27	35	-	16
29.20	30.1	25.2	-	0.7	-0.6	2.6	4	clayy SILT to silty CLAY	115	2.0	13	15	-	-	2.1	15
29.36	29.9	25.0	-	0.7	0.5	2.4	4	clayy SILT to silty CLAY	115	2.0	12	15	-	-	2.0	15
29.53	41.1	36.4	87.4	0.7	-2.0	1.8	5	silty SAND to sandy SILT	120	4.0	9	10	34	36	-	16
29.69	45.7	40.4	89.0	0.7	-4.1	1.7	5	silty SAND to sandy SILT	120	4.0	10	11	37	36	-	16
29.86	47.7	42.1	87.8	0.7	-3.5	1.6	5	silty SAND to sandy SILT	120	4.0	11	12	38	37	-	16
30.02	50.0	44.0	91.3	0.8	-2.7	1.7	5	silty SAND to sandy SILT	120	4.0	11	12	40	37	-	16
30.19	48.5	42.6	98.0	0.9	-1.9	2.0	5	silty SAND to sandy SILT	120	4.0	11	12	39	37	-	16
30.35	48.1	42.2	101.1	1.0	-1.0	2.1	5	silty SAND to sandy SILT	120	4.0	11	12	39	37	-	16
30.51	54.5	47.7	100.6	1.0	-0.4	1.9	5	silty SAND to sandy SILT	120	4.0	12	14	43	37	-	16
30.68	59.5	52.0	104.2	1.1	-0.7	1.9	5	silty SAND to sandy SILT	120	4.0	13	15	45	38	-	16
30.84	57.5	50.2	99.0	1.0	-0.9	1.8	5	silty SAND to sandy SILT	120	4.0	13	14	44	38	-	16
31.01	40.2	35.0	103.1	1.0	-0.8	2.5	4	clayy SILT to silty CLAY	115	2.0	17	20	-	-	2.8	15
31.17	24.6	19.7	-	0.8	-0.2	3.5	3	silty CLAY to CLAY	115	1.5	13	16	-	-	1.7	15
31.33	19.4	15.5	-	0.5	-0.1	3.0	3	silty CLAY to CLAY	115	1.5	10	13	-	-	1.3	15
31.50	13.8	11.0	-	0.4	-1.1	3.3	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(470).cpt
CPT Date: 12/5/2008 2:43:25 PM
GW During Test: 12 ft

Sounding ID: CPT-08-52
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	8.7	6.9	-	0.3	8.2	4.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
31.83	6.9	5.5	-	0.2	11.8	3.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
31.99	6.5	5.1	-	0.2	14.2	4.7	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.4	15
32.15	9.0	7.1	-	0.3	18.8	4.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
32.32	14.9	11.7	-	0.3	12.5	2.6	3	silty CLAY to CLAY	115	1.5	8	10	-	-	1.0	15
32.48	13.2	10.3	-	0.3	7.0	2.8	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
32.65	8.6	6.7	-	0.3	7.1	4.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
32.81	7.9	6.1	-	0.3	9.7	4.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.97	8.5	6.6	-	0.2	12.4	3.5	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
33.14	7.6	5.8	-	0.2	13.5	3.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
33.30	6.8	5.2	-	0.2	15.4	3.3	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.4	15
33.47	6.7	5.1	-	0.1	18.0	3.0	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.4	15
33.63	6.9	5.2	-	0.2	20.3	3.2	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.4	15
33.79	7.6	5.7	-	0.3	21.6	4.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
33.96	17.1	12.9	-	0.4	19.4	2.4	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
34.12	33.2	28.0	75.1	0.5	7.6	1.5	5	silty SAND to sandy SILT	120	4.0	7	8	25	34	-	16
34.29	41.2	34.7	80.8	0.6	8.3	1.5	5	silty SAND to sandy SILT	120	4.0	9	10	32	35	-	16
34.45	48.4	40.7	90.1	0.8	7.2	1.7	5	silty SAND to sandy SILT	120	4.0	10	12	37	36	-	16
34.61	42.1	35.3	94.2	0.8	7.6	2.1	5	silty SAND to sandy SILT	120	4.0	9	11	33	35	-	16
34.78	27.6	20.5	-	0.8	8.1	3.1	4	clayy SILT to silty CLAY	115	2.0	10	14	-	-	1.9	15
34.94	17.7	13.1	-	0.7	11.8	4.4	3	silty CLAY to CLAY	115	1.5	9	12	-	-	1.2	15
35.11	14.7	10.9	-	0.5	15.5	3.7	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
35.27	19.3	14.2	-	0.3	8.9	2.0	4	clayy SILT to silty CLAY	115	2.0	7	10	-	-	1.3	15
35.43	10.7	7.9	-	0.3	4.1	3.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
35.60	7.7	5.6	-	0.2	7.2	3.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
35.76	7.4	5.4	-	0.2	10.1	3.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
35.93	7.7	5.6	-	0.2	12.3	4.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
36.09	7.9	5.7	-	0.2	14.5	3.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
36.26	7.7	5.6	-	0.2	16.5	3.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
36.42	8.1	5.8	-	0.2	19.1	4.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
36.58	8.5	6.1	-	0.3	21.1	4.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
36.75	8.7	6.2	-	0.3	20.5	3.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
36.91	8.3	5.9	-	0.2	22.6	3.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
37.08	8.3	5.9	-	0.2	22.8	3.5	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
37.24	8.3	5.9	-	0.2	23.1	3.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
37.40	9.0	6.4	-	0.3	23.9	3.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
37.57	9.4	6.6	-	0.3	24.2	3.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
37.73	10.2	7.2	-	0.4	25.6	5.0	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
37.90	12.8	9.0	-	0.4	22.4	3.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
38.06	11.2	7.8	-	0.3	17.4	3.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.22	9.6	6.7	-	0.3	25.8	3.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
38.39	9.7	6.7	-	0.2	28.3	3.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
38.55	11.4	7.9	-	0.3	29.9	3.4	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
38.72	12.5	8.6	-	0.3	18.0	3.0	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.88	10.2	7.0	-	0.3	19.7	3.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
39.04	9.2	6.3	-	0.3	22.8	4.0	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
39.21	8.7	5.9	-	0.2	26.6	3.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
39.37	8.7	5.9	-	0.2	31.1	3.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
39.54	8.9	6.1	-	0.3	34.1	4.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
39.70	9.4	6.4	-	0.4	34.9	5.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
39.86	10.2	6.9	-	0.4	35.8	4.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
40.03	10.2	6.9	-	0.4	31.4	5.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
40.19	10.4	7.0	-	0.4	32.6	5.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
40.36	11.1	7.4	-	0.4	32.1	4.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
40.52	11.3	7.6	-	0.4	30.6	4.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
40.68	11.1	7.4	-	0.4	31.8	4.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
40.85	10.8	7.2	-	0.4	33.0	4.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
41.01	10.4	6.9	-	0.3	32.5	3.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
41.18	10.7	7.0	-	0.2	36.2	2.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
41.34	11.7	7.7	-	0.3	40.3	2.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
41.50	10.0	6.5	-	0.3	40.0	3.4	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
41.67	11.9	7.8	-	0.2	33.3	2.4	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
41.83	11.0	7.2	-	0.3	35.9	2.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
42.00	11.2	7.3	-	0.2	38.7	2.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(470).cpt
CPT Date: 12/5/2008 2:43:25 PM
GW During Test: 12 ft

Sounding ID: CPT-08-52
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	11.4	7.4	-	0.3	39.2	3.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
42.32	10.7	7.0	-	0.4	35.7	4.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
42.49	10.8	7.0	-	0.4	36.5	4.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
42.65	11.0	7.1	-	0.4	33.9	5.0	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
42.82	12.0	7.7	-	0.5	34.0	4.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
42.98	13.1	8.4	-	0.5	30.5	4.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
43.15	12.6	8.1	-	0.5	28.9	5.0	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
43.31	13.2	8.4	-	0.6	29.5	5.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
43.47	13.5	8.6	-	0.6	22.6	5.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
43.64	13.8	8.8	-	0.6	17.8	5.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
43.80	14.6	9.2	-	0.6	15.4	4.9	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
43.97	15.2	9.6	-	0.6	15.0	4.9	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
44.13	24.8	15.6	-	0.7	17.5	3.0	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
44.29	105.2	80.9	105.5	1.1	-0.4	1.0	6	clean SAND to silty SAND	125	5.0	16	21	60	39	-	16
44.46	143.2	109.9	130.2	1.5	-3.3	1.0	6	clean SAND to silty SAND	125	5.0	22	29	70	41	-	16
44.62	154.1	118.2	147.2	2.1	-2.5	1.4	6	clean SAND to silty SAND	125	5.0	24	31	73	41	-	16
44.79	156.1	119.5	157.2	2.6	6.1	1.7	6	clean SAND to silty SAND	125	5.0	24	31	73	41	-	16
44.95	184.0	140.6	172.5	2.8	6.2	1.6	6	clean SAND to silty SAND	125	5.0	28	37	78	42	-	16
45.11	208.2	158.8	184.1	2.9	6.1	1.4	6	clean SAND to silty SAND	125	5.0	32	42	82	43	-	16
45.28	225.0	171.4	189.1	2.7	5.8	1.2	6	clean SAND to silty SAND	125	5.0	34	45	85	43	-	16
45.44	235.6	179.2	188.2	2.3	5.5	1.0	6	clean SAND to silty SAND	125	5.0	36	47	86	43	-	16
45.61	238.2	180.8	180.9	1.8	5.3	0.8	6	clean SAND to silty SAND	125	5.0	36	48	87	43	-	16
45.77	217.9	165.2	165.2	1.4	5.1	0.7	6	clean SAND to silty SAND	125	5.0	33	44	84	43	-	16
45.93	162.3	122.8	136.7	1.4	5.3	0.9	6	clean SAND to silty SAND	125	5.0	25	32	74	41	-	16
46.10	88.7	67.0	116.8	1.6	5.1	1.9	5	silty SAND to sandy SILT	120	4.0	17	22	54	38	-	16
46.26	40.8	24.6	-	1.3	5.7	3.4	4	clayy SILT to silty CLAY	115	2.0	12	20	-	-	2.8	15
46.43	25.1	15.1	-	1.0	7.4	4.4	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
46.59	23.6	14.2	-	0.6	11.8	2.9	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
46.75	28.3	17.0	-	0.7	44.8	2.7	4	clayy SILT to silty CLAY	115	2.0	8	14	-	-	1.9	15
46.92	65.0	48.8	96.3	1.0	51.5	1.7	5	silty SAND to sandy SILT	120	4.0	12	16	43	36	-	16
47.08	86.1	64.5	105.7	1.3	12.4	1.5	5	silty SAND to sandy SILT	120	4.0	16	22	53	38	-	16
47.25	96.4	72.2	116.0	1.6	12.8	1.7	5	silty SAND to sandy SILT	120	4.0	18	24	56	38	-	16
47.41	102.6	76.7	120.2	1.7	12.9	1.7	5	silty SAND to sandy SILT	120	4.0	19	26	58	39	-	16
47.57	100.6	75.1	142.7	2.5	12.9	2.5	5	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
47.74	88.1	65.7	136.0	2.2	13.4	2.6	5	silty SAND to sandy SILT	120	4.0	16	22	53	38	-	16
47.90	105.2	78.3	140.5	2.4	1.6	2.4	5	silty SAND to sandy SILT	120	4.0	20	26	59	39	-	16
48.07	124.0	92.2	145.3	2.5	-2.5	2.1	5	silty SAND to sandy SILT	120	4.0	23	31	64	40	-	16
48.23	127.5	94.6	151.9	2.8	-1.8	2.2	5	silty SAND to sandy SILT	120	4.0	24	32	65	40	-	16
48.39	132.7	98.4	155.6	2.9	-1.3	2.2	5	silty SAND to sandy SILT	120	4.0	25	33	66	40	-	16
48.56	131.7	97.5	155.1	2.9	-1.0	2.3	5	silty SAND to sandy SILT	120	4.0	24	33	66	40	-	16
48.72	124.3	91.9	146.1	2.6	-0.6	2.1	5	silty SAND to sandy SILT	120	4.0	23	31	64	40	-	16
48.89	111.3	82.1	134.1	2.2	-0.4	2.0	5	silty SAND to sandy SILT	120	4.0	21	28	61	39	-	16
49.05	94.1	69.4	138.7	2.4	-0.3	2.6	5	silty SAND to sandy SILT	120	4.0	17	24	55	38	-	16
49.22	73.3	53.9	141.7	2.3	0.2	3.3	4	clayy SILT to silty CLAY	115	2.0	27	37	-	-	5.1	15
49.38	70.1	51.5	137.9	2.2	0.9	3.3	4	clayy SILT to silty CLAY	115	2.0	26	35	-	-	4.8	15
49.54	91.6	67.3	127.9	2.0	-1.4	2.3	5	silty SAND to sandy SILT	120	4.0	17	23	54	38	-	16
49.71	151.8	111.3	143.7	2.2	-4.2	1.5	6	clean SAND to silty SAND	125	5.0	22	30	71	41	-	16
49.87	212.3	155.5	174.5	2.5	-5.7	1.2	6	clean SAND to silty SAND	125	5.0	31	42	82	42	-	16
50.04	234.6	171.5	189.5	2.8	-5.6	1.2	6	clean SAND to silty SAND	125	5.0	34	47	85	43	-	16
50.20	249.1	181.9	199.6	3.0	-5.2	1.2	6	clean SAND to silty SAND	125	5.0	36	50	87	43	-	16
50.36	247.2	180.3	204.3	3.5	-4.8	1.4	6	clean SAND to silty SAND	125	5.0	36	49	86	43	-	16
50.53	255.2	185.8	209.6	3.6	-4.4	1.4	6	clean SAND to silty SAND	125	5.0	37	51	87	43	-	16
50.69	263.2	191.4	217.8	4.0	-4.1	1.5	6	clean SAND to silty SAND	125	5.0	38	53	88	43	-	16
50.86	273.7	198.7	206.0	2.7	-3.7	1.0	6	clean SAND to silty SAND	125	5.0	40	55	90	44	-	16
51.02	281.0	203.7	221.9	3.7	-3.3	1.3	6	clean SAND to silty SAND	125	5.0	41	56	90	44	-	16
51.18	135.5	98.1	158.1	3.1	-1.5	2.3	5	silty SAND to sandy SILT	120	4.0	25	34	66	40	-	16
51.35	238.8	172.7	181.1	2.2	-1.3	0.9	6	clean SAND to silty SAND	125	5.0	35	48	85	43	-	16
51.51	198.5	143.3	156.7	1.9	-1.2	0.9	6	clean SAND to silty SAND	125	5.0	29	40	79	42	-	16
51.68	133.7	96.4	132.2	2.0	-1.0	1.5	5	silty SAND to sandy SILT	120	4.0	24	33	66	40	-	16
51.84	71.1	51.2	132.3	2.1	-0.8	3.0	4	clayy SILT to silty CLAY	115	2.0	26	36	-	-	4.9	15
52.00	44.5	24.4	-	1.8	1.1	4.4	3	silty CLAY to CLAY	115	1.5	16	30	-	-	3.0	15
52.17	29.9	16.4	-	1.2	3.1	4.5	3	silty CLAY to CLAY	115	1.5	11	20	-	-	2.0	15
52.33	22.3	12.2	-	0.5	6.4	2.8	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
52.50	18.9	10.3	-	0.4	12.2	2.4	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.2	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(470).cpt
CPT Date: 12/5/2008 2:43:25 PM
GW During Test: 12 ft

Sounding ID: CPT-08-52
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	17.3	9.4	-	0.4	18.4	2.7	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
52.82	18.6	10.1	-	0.5	26.1	3.3	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
52.99	19.7	10.7	-	1.1	36.9	6.5	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
53.15	62.0	44.2	124.0	1.8	38.3	3.0	4	clayy SILT to silty CLAY	115	2.0	22	31	-	-	4.3	15
53.32	158.3	112.8	160.0	3.0	2.5	2.0	5	silty SAND to sandy SILT	120	4.0	28	40	71	41	-	16
53.48	199.8	142.2	188.8	4.0	-1.5	2.0	5	silty SAND to sandy SILT	120	4.0	36	50	79	42	-	16
53.64	211.2	150.1	202.8	4.6	-1.4	2.2	5	silty SAND to sandy SILT	120	4.0	38	53	80	42	-	16
53.81	217.2	154.2	213.6	5.2	-1.0	2.4	5	silty SAND to sandy SILT	120	4.0	39	54	81	42	-	16
53.97	207.7	147.2	206.3	4.9	-0.7	2.4	5	silty SAND to sandy SILT	120	4.0	37	52	80	42	-	16
54.14	186.5	132.1	201.7	5.0	-0.4	2.7	5	silty SAND to sandy SILT	120	4.0	33	47	76	41	-	16
54.30	170.8	120.8	191.0	4.5	2.0	2.7	5	silty SAND to sandy SILT	120	4.0	30	43	73	41	-	16
54.46	163.4	115.4	184.4	4.3	2.2	2.7	5	silty SAND to sandy SILT	120	4.0	29	41	72	41	-	16
54.63	155.8	109.9	178.9	4.0	2.4	2.6	5	silty SAND to sandy SILT	120	4.0	27	39	70	40	-	16
54.79	149.3	105.2	176.5	4.0	2.6	2.7	5	silty SAND to sandy SILT	120	4.0	26	37	69	40	-	16
54.96	145.9	102.7	180.0	4.1	2.9	2.9	5	silty SAND to sandy SILT	120	4.0	26	36	68	40	-	16
55.12	144.9	101.8	179.8	4.1	3.2	2.9	5	silty SAND to sandy SILT	120	4.0	25	36	68	40	-	16
55.28	132.9	93.3	175.3	4.0	3.5	3.0	5	silty SAND to sandy SILT	120	4.0	23	33	65	39	-	16
55.45	118.8	83.2	164.6	3.5	3.7	3.0	5	silty SAND to sandy SILT	120	4.0	21	30	61	39	-	16
55.61	117.2	82.1	165.4	3.5	3.6	3.1	5	silty SAND to sandy SILT	120	4.0	21	29	60	39	-	16
55.78	92.8	64.9	168.3	3.5	2.8	3.9	4	clayy SILT to silty CLAY	115	2.0	32	46	-	-	6.4	15
55.94	48.9	25.3	-	2.6	2.7	5.7	3	silty CLAY to CLAY	115	1.5	17	33	-	-	3.3	15
56.11	29.0	14.9	-	1.5	3.5	5.8	3	silty CLAY to CLAY	115	1.5	10	19	-	-	1.9	15
56.27	22.6	11.6	-	0.8	5.1	4.0	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
56.43	19.4	10.0	-	0.5	7.9	3.1	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
56.60	19.1	9.8	-	0.4	10.8	2.5	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.2	15
56.76	18.3	9.4	-	0.4	13.6	2.6	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.2	15
56.93	18.9	9.6	-	0.3	16.9	2.2	3	silty CLAY to CLAY	115	1.5	6	13	-	-	1.2	15
57.09	18.6	9.5	-	0.4	19.9	2.8	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.2	15
57.25	20.9	10.6	-	0.6	23.9	3.4	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.4	15
57.42	25.9	13.2	-	1.1	26.8	4.7	3	silty CLAY to CLAY	115	1.5	9	17	-	-	1.7	15
57.58	32.1	16.2	-	1.3	33.2	4.5	3	silty CLAY to CLAY	115	1.5	11	21	-	-	2.1	15
57.75	50.4	25.4	-	1.5	22.6	3.2	4	clayy SILT to silty CLAY	115	2.0	13	25	-	-	3.4	15
57.91	56.6	28.5	-	1.7	4.4	3.3	4	clayy SILT to silty CLAY	115	2.0	14	28	-	-	3.9	15
58.07	58.6	29.5	-	1.8	-0.2	3.3	4	clayy SILT to silty CLAY	115	2.0	15	29	-	-	4.0	15
58.24	61.3	30.8	-	2.0	-2.7	3.5	4	clayy SILT to silty CLAY	115	2.0	15	31	-	-	4.2	15
58.40	55.4	27.7	-	2.1	-4.2	4.0	4	clayy SILT to silty CLAY	115	2.0	14	28	-	-	3.8	15
58.57	68.9	47.3	122.1	1.8	-4.0	2.8	4	clayy SILT to silty CLAY	115	2.0	24	34	-	-	4.7	15
58.73	84.4	57.9	116.5	1.7	-5.1	2.1	5	silty SAND to sandy SILT	120	4.0	14	21	49	36	-	16
58.89	86.1	58.9	120.4	1.9	-5.2	2.2	5	silty SAND to sandy SILT	120	4.0	15	22	50	37	-	16
59.06	83.0	56.8	124.6	2.0	-4.8	2.5	5	silty SAND to sandy SILT	120	4.0	14	21	48	36	-	16
59.22	81.3	55.5	126.0	2.0	-4.2	2.6	5	silty SAND to sandy SILT	120	4.0	14	20	48	36	-	16
59.39	76.6	52.3	129.9	2.1	-3.7	2.9	4	clayy SILT to silty CLAY	115	2.0	26	38	-	-	5.3	15
59.55	69.1	34.0	-	2.1	-3.2	3.2	4	clayy SILT to silty CLAY	115	2.0	17	35	-	-	4.8	15
59.71	60.4	29.7	-	2.0	-2.6	3.6	4	clayy SILT to silty CLAY	115	2.0	15	30	-	-	4.1	15
59.88	51.1	25.1	-	1.8	-2.0	3.9	4	clayy SILT to silty CLAY	115	2.0	13	26	-	-	3.5	15
60.04	49.0	24.0	-	1.5	-1.5	3.3	4	clayy SILT to silty CLAY	115	2.0	12	25	-	-	3.3	15
60.21	43.9	21.4	-	1.3	-1.7	3.3	4	clayy SILT to silty CLAY	115	2.0	11	22	-	-	3.0	15
60.37	69.3	47.0	117.9	1.7	-1.9	2.6	5	silty SAND to sandy SILT	120	4.0	12	17	42	35	-	16
60.53	85.8	58.1	139.1	2.5	-2.9	3.0	4	clayy SILT to silty CLAY	115	2.0	29	43	-	-	5.9	15
60.70	83.3	56.3	142.2	2.5	-2.5	3.2	4	clayy SILT to silty CLAY	115	2.0	28	42	-	-	5.8	15
60.86	87.9	59.4	137.8	2.4	-2.2	2.9	5	silty SAND to sandy SILT	120	4.0	15	22	50	36	-	16
61.03	96.4	65.1	141.5	2.6	-2.0	2.8	5	silty SAND to sandy SILT	120	4.0	16	24	53	37	-	16
61.19	109.5	73.9	144.6	2.8	-3.4	2.6	5	silty SAND to sandy SILT	120	4.0	18	27	57	38	-	16
61.35	139.4	93.9	152.4	3.1	-4.7	2.3	5	silty SAND to sandy SILT	120	4.0	23	35	65	39	-	16
61.52	166.0	111.7	165.8	3.5	-5.8	2.2	5	silty SAND to sandy SILT	120	4.0	28	42	71	40	-	16
61.68	210.1	141.2	190.1	4.3	-5.7	2.1	5	silty SAND to sandy SILT	120	4.0	35	53	78	41	-	16
61.85	239.5	160.8	204.3	4.6	-5.4	2.0	6	clean SAND to silty SAND	125	5.0	32	48	83	42	-	16
62.01	255.8	171.5	217.4	5.2	-5.1	2.1	6	clean SAND to silty SAND	125	5.0	34	51	85	42	-	16
62.17	277.4	185.8	230.9	5.7	-4.8	2.1	6	clean SAND to silty SAND	125	5.0	37	55	87	43	-	16
62.34	292.2	195.4	241.8	6.1	-4.5	2.1	6	clean SAND to silty SAND	125	5.0	39	58	89	43	-	16
62.50	302.2	201.9	243.9	6.0	-4.1	2.0	6	clean SAND to silty SAND	125	5.0	40	60	90	43	-	16
62.67	309.7	206.6	245.6	5.9	-3.9	1.9	6	clean SAND to silty SAND	125	5.0	41	62	91	43	-	16
62.83	318.6	212.3	249.5	5.9	-3.5	1.9	6	clean SAND to silty SAND	125	5.0	42	64	92	43	-	16
63.00	316.7	210.8	249.9	6.1	-3.2	1.9	6	clean SAND to silty SAND	125	5.0	42	63	92	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(470).cpt
CPT Date: 12/5/2008 2:43:25 PM
GW During Test: 12 ft

Sounding ID: CPT-08-52
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	321.0	213.4	248.2	5.8	-2.9	1.8	6	clean SAND to silty SAND	125	5.0	43	64	92	43	-	16
63.32	323.1	214.6	245.0	5.4	-2.6	1.7	6	clean SAND to silty SAND	125	5.0	43	65	92	43	-	16
63.49	327.3	217.1	243.4	5.1	-2.3	1.6	6	clean SAND to silty SAND	125	5.0	43	65	93	43	-	16
63.65	342.9	227.2	246.5	4.8	-1.9	1.4	6	clean SAND to silty SAND	125	5.0	45	69	94	44	-	16
63.82	359.3	237.7	251.2	4.6	-1.6	1.3	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
63.98	366.2	242.0	242.0	3.6	-1.2	1.0	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
64.14	367.6	242.6	245.2	3.9	-0.9	1.1	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
64.31	358.3	236.2	236.2	3.1	1.4	0.9	6	clean SAND to silty SAND	125	5.0	47	72	95	44	-	16
64.47	424.1	279.3	279.3	2.9	1.9	0.7	6	clean SAND to silty SAND	125	5.0	56	85	95	45	-	16
64.64	469.3	308.7	308.7	2.2	2.2	0.5	7	grvly SAND to dense SAND	130	6.0	51	78	95	45	-	16
64.80	504.6	331.5	331.5	3.2	2.7	0.6	6	clean SAND to silty SAND	125	5.0	66	100	95	45	-	16
64.96	530.1	347.8	347.8	3.8	3.6	0.7	6	clean SAND to silty SAND	125	5.0	70	100	95	46	-	16
65.13	510.2	334.4	334.4	5.6	-0.2	1.1	6	clean SAND to silty SAND	125	5.0	67	100	95	45	-	16
65.29	551.0	360.7	360.7	4.5	2.0	0.8	6	clean SAND to silty SAND	125	5.0	72	100	95	46	-	16
65.46	538.9	352.4	352.4	3.1	0.6	0.6	6	clean SAND to silty SAND	125	5.0	70	100	95	46	-	16
65.62	499.3	326.1	326.1	2.2	3.8	0.4	7	grvly SAND to dense SAND	130	6.0	54	83	95	45	-	16
65.78	477.3	311.4	311.4	2.5	6.0	0.5	6	clean SAND to silty SAND	125	5.0	62	95	95	45	-	16
65.95	460.7	300.1	300.1	4.4	7.0	1.0	6	clean SAND to silty SAND	125	5.0	60	92	95	45	-	16
66.11	457.6	297.8	297.8	2.5	7.7	0.6	6	clean SAND to silty SAND	125	5.0	60	92	95	45	-	16
66.28	396.7	257.9	257.9	2.5	8.9	0.6	6	clean SAND to silty SAND	125	5.0	52	79	95	44	-	16
66.44	422.1	274.1	274.1	2.5	11.1	0.6	6	clean SAND to silty SAND	125	5.0	55	84	95	44	-	16
66.60	433.0	280.8	280.8	2.3	10.6	0.5	6	clean SAND to silty SAND	125	5.0	56	87	95	44	-	16
66.77	443.6	287.4	287.4	2.7	9.4	0.6	6	clean SAND to silty SAND	125	5.0	57	89	95	45	-	16
66.93	449.8	291.0	291.0	2.2	9.3	0.5	6	clean SAND to silty SAND	125	5.0	58	90	95	45	-	16
67.10	415.8	268.7	268.7	2.1	9.7	0.5	6	clean SAND to silty SAND	125	5.0	54	83	95	44	-	16
67.26	413.8	267.1	267.1	1.8	12.0	0.4	6	clean SAND to silty SAND	125	5.0	53	83	95	44	-	16
67.42	392.3	253.0	253.0	2.0	13.1	0.5	6	clean SAND to silty SAND	125	5.0	51	78	95	44	-	16
67.59	402.1	259.0	259.0	2.3	14.5	0.6	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
67.75	417.0	268.3	268.3	1.6	12.7	0.4	7	grvly SAND to dense SAND	130	6.0	45	69	95	44	-	16
67.92	416.9	267.9	267.9	1.9	11.5	0.5	6	clean SAND to silty SAND	125	5.0	54	83	95	44	-	16
68.08	411.5	264.2	264.2	2.2	12.0	0.5	6	clean SAND to silty SAND	125	5.0	53	82	95	44	-	16
68.24	416.9	267.3	267.3	2.1	12.5	0.5	6	clean SAND to silty SAND	125	5.0	53	83	95	44	-	16
68.41	457.0	292.7	292.7	2.7	12.6	0.6	6	clean SAND to silty SAND	125	5.0	59	91	95	45	-	16
68.57	477.9	305.7	305.7	2.6	11.4	0.5	6	clean SAND to silty SAND	125	5.0	61	96	95	45	-	16
68.74	466.7	298.3	298.3	2.3	10.1	0.5	6	clean SAND to silty SAND	125	5.0	60	93	95	45	-	16
68.90	420.1	268.1	268.1	1.6	10.6	0.4	7	grvly SAND to dense SAND	130	6.0	45	70	95	44	-	16
69.07	423.3	269.9	269.9	1.6	11.9	0.4	7	grvly SAND to dense SAND	130	6.0	45	71	95	44	-	16
69.23	435.3	277.2	277.2	1.9	10.4	0.4	6	clean SAND to silty SAND	125	5.0	55	87	95	44	-	16
69.39	460.7	293.0	293.0	2.1	10.7	0.5	6	clean SAND to silty SAND	125	5.0	59	92	95	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(416).cpt
CPT Date: 11/19/2008 7:32:19 AM
GW During Test: 12 ft

Sounding ID: CPT-08-53
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	54.7	87.7	126.0	0.9	-0.1	1.6	5	silty SAND to sandy SILT	120	4.0	22	14	63	48	-	16
0.49	66.8	107.1	163.7	1.5	-0.1	2.3	5	silty SAND to sandy SILT	120	4.0	27	17	69	48	-	16
0.66	57.3	91.8	189.7	2.1	-0.1	3.7	5	silty SAND to sandy SILT	120	4.0	23	14	64	48	-	16
0.82	52.8	84.7	194.8	2.2	1.0	4.1	4	clayy SILT to silty CLAY	115	2.0	42	26	-	-	3.7	15
0.98	43.4	69.5	178.4	1.8	-1.3	4.2	4	clayy SILT to silty CLAY	115	2.0	35	22	-	-	3.1	15
1.15	31.7	50.9	151.8	1.3	-3.9	4.1	4	clayy SILT to silty CLAY	115	2.0	25	16	-	-	2.2	15
1.31	33.0	52.9	116.3	0.8	-0.7	2.4	5	silty SAND to sandy SILT	120	4.0	13	8	46	47	-	16
1.48	35.1	56.3	110.2	0.7	-0.1	2.0	5	silty SAND to sandy SILT	120	4.0	14	9	48	47	-	16
1.64	51.0	81.7	129.3	1.0	0.0	1.9	5	silty SAND to sandy SILT	120	4.0	20	13	60	48	-	16
1.80	56.9	91.3	129.3	0.9	0.3	1.6	5	silty SAND to sandy SILT	120	4.0	23	14	64	48	-	16
1.97	45.0	72.1	118.2	0.8	0.4	1.8	5	silty SAND to sandy SILT	120	4.0	18	11	56	47	-	16
2.13	39.8	63.8	106.9	0.7	0.2	1.7	5	silty SAND to sandy SILT	120	4.0	16	10	52	46	-	16
2.30	35.4	56.7	84.2	0.4	0.1	1.0	5	silty SAND to sandy SILT	120	4.0	14	9	48	45	-	16
2.46	33.5	53.8	92.1	0.5	0.1	1.4	5	silty SAND to sandy SILT	120	4.0	13	8	47	45	-	16
2.62	45.1	72.4	113.7	0.7	0.2	1.6	5	silty SAND to sandy SILT	120	4.0	18	11	56	46	-	16
2.79	41.0	65.8	126.3	0.9	0.3	2.3	5	silty SAND to sandy SILT	120	4.0	16	10	53	45	-	16
2.95	25.1	40.3	88.6	0.4	0.3	1.7	5	silty SAND to sandy SILT	120	4.0	10	6	37	42	-	16
3.12	15.3	24.6	-	0.6	0.1	3.9	4	clayy SILT to silty CLAY	115	2.0	12	8	-	-	1.1	15
3.28	43.6	69.9	121.7	0.9	0.3	2.0	5	silty SAND to sandy SILT	120	4.0	17	11	55	45	-	16
3.45	66.6	106.8	151.2	1.3	0.4	1.9	5	silty SAND to sandy SILT	120	4.0	27	17	69	46	-	16
3.61	62.0	99.5	142.3	1.1	0.3	1.8	5	silty SAND to sandy SILT	120	4.0	25	16	67	46	-	16
3.77	50.7	81.3	142.3	1.2	0.1	2.4	5	silty SAND to sandy SILT	120	4.0	20	13	60	45	-	16
3.94	44.4	71.3	150.8	1.3	0.3	3.0	5	silty SAND to sandy SILT	120	4.0	18	11	56	44	-	16
4.10	43.1	69.1	160.4	1.5	0.4	3.5	4	clayy SILT to silty CLAY	115	2.0	35	22	-	-	3.0	15
4.27	56.2	90.1	169.8	1.7	1.3	3.0	5	silty SAND to sandy SILT	120	4.0	23	14	64	45	-	16
4.43	98.3	157.7	202.0	2.0	1.2	2.0	5	silty SAND to sandy SILT	120	4.0	39	25	82	48	-	16
4.59	173.5	278.2	295.3	2.6	0.5	1.5	6	clean SAND to silty SAND	125	5.0	56	35	95	48	-	16
4.76	179.5	287.9	304.0	2.7	0.5	1.5	6	clean SAND to silty SAND	125	5.0	58	36	95	48	-	16
4.92	156.5	251.0	277.9	2.6	0.4	1.7	6	clean SAND to silty SAND	125	5.0	50	31	95	48	-	16
5.09	111.0	177.9	227.0	2.4	0.5	2.2	5	silty SAND to sandy SILT	120	4.0	44	28	86	48	-	16
5.25	94.0	150.8	198.3	2.0	0.6	2.1	5	silty SAND to sandy SILT	120	4.0	38	24	81	47	-	16
5.41	83.4	133.7	195.3	2.1	0.4	2.5	5	silty SAND to sandy SILT	120	4.0	33	21	77	46	-	16
5.58	54.1	86.8	168.6	1.7	0.8	3.1	5	silty SAND to sandy SILT	120	4.0	22	14	62	44	-	16
5.74	42.6	68.3	144.1	1.2	0.9	2.9	5	silty SAND to sandy SILT	120	4.0	17	11	54	43	-	16
5.91	56.6	90.8	142.0	1.2	1.0	2.1	5	silty SAND to sandy SILT	120	4.0	23	14	64	44	-	16
6.07	52.9	84.9	133.1	1.0	0.8	1.9	5	silty SAND to sandy SILT	120	4.0	21	13	62	44	-	16
6.23	72.8	115.7	141.7	0.9	1.1	1.3	6	clean SAND to silty SAND	125	5.0	23	15	72	45	-	16
6.40	67.8	106.4	127.5	0.7	0.7	1.1	6	clean SAND to silty SAND	125	5.0	21	14	69	45	-	16
6.56	49.2	76.2	109.0	0.7	0.6	1.3	5	silty SAND to sandy SILT	120	4.0	19	12	58	43	-	16
6.73	30.2	46.3	108.5	0.7	0.6	2.3	5	silty SAND to sandy SILT	120	4.0	12	8	42	41	-	16
6.89	21.6	34.6	-	0.8	0.7	3.6	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.5	15
7.05	18.3	29.3	-	0.7	0.7	3.9	4	clayy SILT to silty CLAY	115	2.0	15	9	-	-	1.3	15
7.22	16.4	26.3	-	0.5	0.4	3.4	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.1	15
7.38	14.5	23.3	-	0.5	0.5	3.4	4	clayy SILT to silty CLAY	115	2.0	12	7	-	-	1.0	15
7.55	11.9	19.0	-	0.5	0.4	4.2	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
7.71	12.0	19.3	-	0.5	0.6	4.6	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
7.87	12.9	20.6	-	0.6	-1.0	4.8	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
8.04	14.8	23.7	-	0.6	-0.3	4.1	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
8.20	14.4	23.1	-	0.6	0.1	4.6	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.0	15
8.37	14.6	23.5	-	0.6	-0.1	4.2	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
8.53	14.4	23.0	-	0.6	-0.3	4.0	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.0	15
8.69	12.1	19.3	-	0.5	-0.1	4.1	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
8.86	12.3	19.7	-	0.5	0.4	3.9	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
9.02	14.0	22.5	-	0.6	0.5	4.1	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
9.19	14.0	22.5	-	0.7	0.3	4.9	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
9.35	14.7	23.6	-	0.7	0.3	4.9	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
9.51	14.1	22.7	-	0.7	0.0	5.2	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
9.68	12.9	20.7	-	0.6	-0.5	5.1	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
9.84	12.9	20.7	-	0.6	-0.2	4.8	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
10.01	13.9	22.3	-	0.6	0.0	4.8	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
10.17	14.6	23.4	-	0.7	0.0	5.1	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
10.34	16.1	25.8	-	0.8	0.4	4.9	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.1	15
10.50	16.4	26.3	-	0.8	0.3	5.0	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.1	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(416).cpt
CPT Date: 11/19/2008 7:32:19 AM
GW During Test: 12 ft

Sounding ID: CPT-08-53
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	14.5	23.0	-	0.7	-0.5	5.1	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.0	15
10.83	12.3	19.2	-	0.6	-2.2	5.2	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
10.99	8.6	13.2	-	0.4	-1.4	5.1	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
11.16	7.2	10.9	-	0.3	-1.4	4.2	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
11.32	7.4	11.1	-	0.3	-1.4	3.9	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
11.48	11.4	16.9	-	0.2	-0.6	2.1	4	clayy SILT to silty CLAY	115	2.0	8	6	-	-	0.8	15
11.65	15.5	19.8	-	0.2	-0.6	1.6	4	clayy SILT to silty CLAY	115	2.0	10	8	-	-	1.1	15
11.81	14.8	21.2	-	0.3	-0.6	1.8	4	clayy SILT to silty CLAY	115	2.0	11	7	-	-	1.0	15
11.98	12.8	18.1	-	0.2	-0.8	2.0	4	clayy SILT to silty CLAY	115	2.0	9	6	-	-	0.9	15
12.14	26.8	30.8	66.5	0.3	-1.1	1.1	5	silty SAND to sandy SILT	120	4.0	8	7	28	38	-	16
12.30	34.9	40.1	75.5	0.4	-2.7	1.2	5	silty SAND to sandy SILT	120	4.0	10	9	37	39	-	16
12.47	36.2	41.5	75.9	0.4	-2.4	1.2	5	silty SAND to sandy SILT	120	4.0	10	9	38	39	-	16
12.63	47.0	53.7	80.1	0.4	-5.9	1.0	5	silty SAND to sandy SILT	120	4.0	13	12	46	41	-	16
12.80	52.5	59.8	83.5	0.5	-6.5	0.9	5	silty SAND to sandy SILT	120	4.0	15	13	50	41	-	16
12.96	51.9	58.8	90.1	0.6	-6.3	1.2	5	silty SAND to sandy SILT	120	4.0	15	13	49	41	-	16
13.12	57.5	65.0	99.4	0.8	-6.2	1.3	5	silty SAND to sandy SILT	120	4.0	16	14	53	42	-	16
13.29	56.2	63.3	102.4	0.8	-6.2	1.5	5	silty SAND to sandy SILT	120	4.0	16	14	52	41	-	16
13.45	52.1	58.6	102.4	0.8	-6.0	1.6	5	silty SAND to sandy SILT	120	4.0	15	13	49	41	-	16
13.62	45.9	51.5	99.3	0.8	-5.8	1.8	5	silty SAND to sandy SILT	120	4.0	13	11	45	40	-	16
13.78	35.6	39.7	100.5	0.8	-5.6	2.2	5	silty SAND to sandy SILT	120	4.0	10	9	37	39	-	16
13.94	26.9	29.9	99.2	0.7	-5.4	2.7	4	clayy SILT to silty CLAY	115	2.0	15	13	-	-	1.9	15
14.11	26.7	29.6	86.8	0.5	-5.7	2.1	4	clayy SILT to silty CLAY	115	2.0	15	13	-	-	1.9	15
14.27	23.2	25.6	84.8	0.5	-8.2	2.2	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.6	15
14.44	20.6	22.7	74.1	0.3	-9.1	1.8	4	clayy SILT to silty CLAY	115	2.0	11	10	-	-	1.4	15
14.60	19.1	22.3	-	0.4	-10.0	2.0	4	clayy SILT to silty CLAY	115	2.0	11	10	-	-	1.3	15
14.76	15.5	19.7	-	0.4	-10.2	2.5	4	clayy SILT to silty CLAY	115	2.0	10	8	-	-	1.1	15
14.93	15.8	20.0	-	0.3	-10.5	1.9	4	clayy SILT to silty CLAY	115	2.0	10	8	-	-	1.1	15
15.09	9.6	12.1	-	0.2	-10.7	2.5	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
15.26	6.2	7.8	-	0.2	-10.6	3.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.42	6.1	7.7	-	0.1	-10.3	2.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.58	6.4	8.0	-	0.2	-10.1	3.0	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.75	6.5	8.1	-	0.2	-9.2	3.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.91	6.6	8.1	-	0.2	-9.0	3.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.08	6.2	7.6	-	0.2	-8.8	3.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.24	6.0	7.3	-	0.2	-8.6	3.4	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.40	6.1	7.4	-	0.2	-8.4	3.0	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.57	6.0	7.2	-	0.1	-8.3	2.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.73	6.2	7.4	-	0.2	-8.0	3.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.90	6.6	7.8	-	0.3	-7.8	5.2	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.06	7.0	8.3	-	0.3	-7.6	4.6	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
17.23	5.9	7.0	-	0.3	-7.3	5.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.39	6.7	7.8	-	0.2	-6.9	3.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.55	9.9	11.6	-	0.2	-7.0	2.1	4	clayy SILT to silty CLAY	115	2.0	6	5	-	-	0.7	15
17.72	6.0	7.0	-	0.2	-7.1	3.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.88	5.6	6.5	-	0.1	-6.6	3.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
18.05	11.6	13.3	-	0.2	-6.3	2.2	4	clayy SILT to silty CLAY	115	2.0	7	6	-	-	0.8	15
18.21	14.6	16.8	-	0.3	-6.6	2.0	4	clayy SILT to silty CLAY	115	2.0	8	7	-	-	1.0	15
18.37	18.9	21.6	-	0.4	-5.9	2.0	4	clayy SILT to silty CLAY	115	2.0	11	9	-	-	1.3	15
18.54	35.2	36.4	72.1	0.4	-5.5	1.2	5	silty SAND to sandy SILT	120	4.0	9	9	34	37	-	16
18.70	49.3	50.8	77.7	0.5	-9.1	0.9	5	silty SAND to sandy SILT	120	4.0	13	12	45	39	-	16
18.87	57.4	59.0	84.8	0.5	-8.8	1.0	5	silty SAND to sandy SILT	120	4.0	15	14	50	40	-	16
19.03	61.9	63.4	89.8	0.6	-8.3	1.0	5	silty SAND to sandy SILT	120	4.0	16	15	52	40	-	16
19.19	74.5	76.2	99.2	0.7	-7.9	1.0	6	clean SAND to silty SAND	125	5.0	15	15	58	41	-	16
19.36	72.2	73.6	102.6	0.8	-7.4	1.2	5	silty SAND to sandy SILT	120	4.0	18	18	57	41	-	16
19.52	68.6	69.8	101.6	0.8	-6.9	1.3	5	silty SAND to sandy SILT	120	4.0	17	17	55	41	-	16
19.69	64.9	65.8	98.5	0.8	-6.3	1.3	5	silty SAND to sandy SILT	120	4.0	16	16	53	41	-	16
19.85	62.5	63.3	95.8	0.8	-5.8	1.2	5	silty SAND to sandy SILT	120	4.0	16	16	52	40	-	16
20.01	58.9	59.5	93.6	0.7	-5.6	1.3	5	silty SAND to sandy SILT	120	4.0	15	15	50	40	-	16
20.18	52.8	53.2	84.8	0.6	-8.7	1.1	5	silty SAND to sandy SILT	120	4.0	13	13	46	39	-	16
20.34	34.4	34.5	81.0	0.5	-10.8	1.6	5	silty SAND to sandy SILT	120	4.0	9	9	32	37	-	16
20.51	18.6	19.8	-	0.4	-11.0	2.0	4	clayy SILT to silty CLAY	115	2.0	10	9	-	-	1.3	15
20.67	11.3	11.9	-	0.2	-10.9	2.4	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.7	15
20.83	7.0	7.3	-	0.2	-10.2	3.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
21.00	6.9	7.2	-	0.3	-9.6	4.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(416).cpt
CPT Date: 11/19/2008 7:32:19 AM
GW During Test: 12 ft

Sounding ID: CPT-08-53
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	7.9	8.3	-	0.3	-9.2	4.0	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
21.33	10.7	11.2	-	0.2	-9.0	2.6	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
21.49	11.6	12.0	-	0.2	-6.1	2.1	4	clayy SILT to silty CLAY	115	2.0	6	6	-	-	0.8	15
21.65	17.1	17.7	-	0.2	-5.7	1.2	4	clayy SILT to silty CLAY	115	2.0	9	9	-	-	1.2	15
21.82	14.1	14.5	-	0.3	-5.1	2.2	4	clayy SILT to silty CLAY	115	2.0	7	7	-	-	0.9	15
21.98	8.8	9.0	-	0.4	-4.1	5.7	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
22.15	8.5	8.6	-	0.4	-2.8	6.0	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
22.31	7.7	7.9	-	0.4	-1.4	5.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.47	6.5	6.5	-	0.2	0.1	4.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.64	6.1	6.1	-	0.2	1.0	3.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.80	5.6	5.6	-	0.2	2.0	3.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
22.97	5.5	5.5	-	0.1	2.9	3.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
23.13	5.7	5.6	-	0.1	4.0	3.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.30	6.0	5.9	-	0.2	5.1	3.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.46	6.6	6.5	-	0.2	6.3	4.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.62	27.9	26.8	67.5	0.3	6.9	1.2	5	silty SAND to sandy SILT	120	4.0	7	7	24	35	-	16
23.79	49.7	47.7	75.2	0.5	2.3	0.9	5	silty SAND to sandy SILT	120	4.0	12	12	43	38	-	16
23.95	54.6	52.2	80.8	0.5	3.7	1.0	5	silty SAND to sandy SILT	120	4.0	13	14	46	39	-	16
24.12	49.3	47.1	85.7	0.6	4.7	1.3	5	silty SAND to sandy SILT	120	4.0	12	12	42	38	-	16
24.28	41.8	39.8	93.9	0.8	4.7	1.9	5	silty SAND to sandy SILT	120	4.0	10	10	37	37	-	16
24.44	30.4	29.1	-	0.8	5.4	2.8	4	clayy SILT to silty CLAY	115	2.0	15	15	-	-	2.1	15
24.61	23.9	22.7	-	0.6	6.2	2.9	4	clayy SILT to silty CLAY	115	2.0	11	12	-	-	1.6	15
24.77	37.5	35.5	79.7	0.5	1.4	1.5	5	silty SAND to sandy SILT	120	4.0	9	9	33	36	-	16
24.94	49.9	47.1	75.7	0.5	0.3	1.0	5	silty SAND to sandy SILT	120	4.0	12	12	42	38	-	16
25.10	57.7	54.4	81.6	0.6	-0.4	1.0	5	silty SAND to sandy SILT	120	4.0	14	14	47	39	-	16
25.26	57.9	54.4	88.8	0.7	0.2	1.2	5	silty SAND to sandy SILT	120	4.0	14	14	47	39	-	16
25.43	46.9	43.9	91.7	0.8	1.5	1.7	5	silty SAND to sandy SILT	120	4.0	11	12	40	38	-	16
25.59	42.2	39.5	86.2	0.7	3.0	1.6	5	silty SAND to sandy SILT	120	4.0	10	11	36	37	-	16
25.76	60.6	56.6	86.3	0.6	-7.6	1.1	5	silty SAND to sandy SILT	120	4.0	14	15	48	39	-	16
25.92	53.1	49.5	89.4	0.7	-9.3	1.4	5	silty SAND to sandy SILT	120	4.0	12	13	44	38	-	16
26.08	53.4	49.6	81.8	0.6	-8.6	1.1	5	silty SAND to sandy SILT	120	4.0	12	13	44	38	-	16
26.25	53.3	49.5	77.0	0.5	-9.5	0.9	5	silty SAND to sandy SILT	120	4.0	12	13	44	38	-	16
26.41	48.3	44.8	75.5	0.5	-10.6	1.0	5	silty SAND to sandy SILT	120	4.0	11	12	40	38	-	16
26.58	34.1	31.5	76.8	0.5	-10.4	1.5	5	silty SAND to sandy SILT	120	4.0	8	9	29	35	-	16
26.74	30.3	27.9	73.6	0.4	-9.9	1.5	5	silty SAND to sandy SILT	120	4.0	7	8	25	35	-	16
26.90	30.8	28.4	72.6	0.4	-9.7	1.4	5	silty SAND to sandy SILT	120	4.0	7	8	25	35	-	16
27.07	28.9	26.5	71.0	0.4	-9.9	1.4	5	silty SAND to sandy SILT	120	4.0	7	7	23	34	-	16
27.23	22.9	20.3	-	0.3	-10.4	1.5	4	clayy SILT to silty CLAY	115	2.0	10	11	-	-	1.6	15
27.40	15.6	13.8	-	0.2	-9.9	1.6	4	clayy SILT to silty CLAY	115	2.0	7	8	-	-	1.0	15
27.56	9.0	8.0	-	0.2	-9.7	2.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
27.72	7.8	6.9	-	0.2	-9.0	2.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.89	8.3	7.2	-	0.2	-8.6	2.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
28.05	8.0	7.0	-	0.2	-8.3	2.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
28.22	8.0	7.0	-	0.3	-8.0	4.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
28.38	8.7	7.5	-	0.2	-7.6	3.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.54	18.2	15.7	-	0.3	-5.3	1.7	4	clayy SILT to silty CLAY	115	2.0	8	9	-	-	1.2	15
28.71	19.7	16.9	-	0.2	-5.0	1.3	4	clayy SILT to silty CLAY	115	2.0	8	10	-	-	1.3	15
28.87	25.9	23.3	59.2	0.2	-4.3	1.0	5	silty SAND to sandy SILT	120	4.0	6	6	19	33	-	16
29.04	30.1	27.0	58.5	0.2	-4.3	0.8	5	silty SAND to sandy SILT	120	4.0	7	8	24	34	-	16
29.20	35.0	31.4	60.0	0.3	-3.6	0.8	5	silty SAND to sandy SILT	120	4.0	8	9	29	35	-	16
29.36	44.8	40.0	70.1	0.4	-3.9	0.9	5	silty SAND to sandy SILT	120	4.0	10	11	37	37	-	16
29.53	44.0	39.2	77.7	0.5	-3.7	1.3	5	silty SAND to sandy SILT	120	4.0	10	11	36	36	-	16
29.69	44.8	39.9	77.8	0.5	-2.3	1.2	5	silty SAND to sandy SILT	120	4.0	10	11	37	36	-	16
29.86	46.0	40.8	69.7	0.4	-1.0	0.9	5	silty SAND to sandy SILT	120	4.0	10	11	37	37	-	16
30.02	49.0	43.4	71.7	0.4	-0.2	0.9	5	silty SAND to sandy SILT	120	4.0	11	12	39	37	-	16
30.19	50.4	44.6	71.6	0.4	0.7	0.9	5	silty SAND to sandy SILT	120	4.0	11	13	40	37	-	16
30.35	57.1	50.4	87.1	0.7	-2.0	1.3	5	silty SAND to sandy SILT	120	4.0	13	14	44	38	-	16
30.51	50.1	44.2	88.9	0.8	-6.0	1.6	5	silty SAND to sandy SILT	120	4.0	11	13	40	37	-	16
30.68	51.2	45.0	89.0	0.8	-4.4	1.5	5	silty SAND to sandy SILT	120	4.0	11	13	41	37	-	16
30.84	63.4	55.7	93.8	0.9	-5.6	1.4	5	silty SAND to sandy SILT	120	4.0	14	16	48	38	-	16
31.01	67.7	59.3	98.1	0.9	-7.2	1.4	5	silty SAND to sandy SILT	120	4.0	15	17	50	39	-	16
31.17	72.0	62.9	99.7	1.0	-6.1	1.4	5	silty SAND to sandy SILT	120	4.0	16	18	52	39	-	16
31.33	74.5	65.0	102.3	1.0	-4.8	1.4	5	silty SAND to sandy SILT	120	4.0	16	19	53	39	-	16
31.50	73.9	64.4	105.1	1.1	-3.2	1.5	5	silty SAND to sandy SILT	120	4.0	16	18	52	39	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(416).cpt
CPT Date: 11/19/2008 7:32:19 AM
GW During Test: 12 ft

Sounding ID: CPT-08-53
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	58.7	51.1	106.2	1.1	-1.4	2.0	5	silty SAND to sandy SILT	120	4.0	13	15	45	38	-	16
31.83	41.2	35.7	105.0	1.0	0.4	2.6	4	clayy SILT to silty CLAY	115	2.0	18	21	-	-	2.8	15
31.99	22.0	17.5	-	0.7	0.7	3.5	3	silty CLAY to CLAY	115	1.5	12	15	-	-	1.5	15
32.15	12.0	9.5	-	0.5	20.3	5.2	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
32.32	9.0	7.1	-	0.3	26.1	4.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
32.48	7.9	6.2	-	0.3	29.9	4.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.65	7.9	6.2	-	0.3	32.2	4.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.81	12.2	9.6	-	0.3	27.0	2.8	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
32.97	9.8	7.6	-	0.5	20.0	6.0	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
33.14	9.9	7.7	-	0.5	27.1	6.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
33.30	9.1	7.1	-	0.4	18.5	5.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
33.47	9.0	6.9	-	0.3	29.2	4.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
33.63	8.3	6.3	-	0.3	30.4	4.5	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
33.79	7.7	5.9	-	0.3	26.5	4.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
33.96	8.4	6.4	-	0.3	34.6	4.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
34.12	8.8	6.7	-	0.4	33.1	6.0	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
34.29	9.4	7.2	-	0.5	32.4	7.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
34.45	10.0	7.5	-	0.5	39.4	6.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
34.61	26.2	19.7	-	0.5	11.2	2.2	4	clayy SILT to silty CLAY	115	2.0	10	13	-	-	1.8	15
34.78	38.5	32.4	77.4	0.5	-2.5	1.5	5	silty SAND to sandy SILT	120	4.0	8	10	30	35	-	16
34.94	34.0	28.6	73.7	0.5	8.0	1.4	5	silty SAND to sandy SILT	120	4.0	7	9	26	34	-	16
35.11	26.4	19.7	-	0.4	6.3	1.7	4	clayy SILT to silty CLAY	115	2.0	10	13	-	-	1.8	15
35.27	17.3	12.8	-	0.4	5.5	2.5	3	silty CLAY to CLAY	115	1.5	9	12	-	-	1.1	15
35.43	11.7	8.7	-	0.4	4.6	3.7	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
35.60	7.5	5.5	-	0.3	8.9	5.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
35.76	7.3	5.4	-	0.2	17.5	4.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
35.93	7.5	5.5	-	0.2	24.2	4.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
36.09	7.2	5.2	-	0.3	28.5	5.1	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.4	15
36.26	7.5	5.4	-	0.3	37.0	6.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
36.42	8.6	6.3	-	0.4	41.1	5.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
36.58	9.3	6.7	-	0.5	42.2	6.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
36.75	9.8	7.1	-	0.4	35.9	5.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
36.91	8.9	6.4	-	0.3	34.5	5.0	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
37.08	8.6	6.1	-	0.2	35.5	3.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
37.24	8.2	5.9	-	0.2	35.8	3.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
37.40	8.6	6.2	-	0.2	36.8	3.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
37.57	9.2	6.6	-	0.3	34.7	3.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
37.73	10.0	7.1	-	0.3	34.1	3.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
37.90	10.9	7.7	-	0.3	29.5	3.3	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.06	9.4	6.6	-	0.3	34.0	3.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
38.22	9.8	6.9	-	0.2	40.2	3.3	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
38.39	11.8	8.3	-	0.3	39.8	3.5	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.55	24.0	16.8	-	0.4	9.4	1.7	4	clayy SILT to silty CLAY	115	2.0	8	12	-	-	1.6	15
38.72	14.6	10.1	-	0.4	-3.9	3.1	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.9	15
38.88	10.3	7.1	-	0.3	-1.2	3.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
39.04	10.1	7.0	-	0.3	1.4	3.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
39.21	10.0	6.9	-	0.3	3.8	3.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
39.37	10.2	7.0	-	0.3	6.7	3.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
39.54	10.7	7.3	-	0.3	10.2	3.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
39.70	10.7	7.3	-	0.3	13.4	3.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
39.86	11.1	7.6	-	0.4	17.5	4.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
40.03	12.5	8.5	-	0.4	20.9	4.0	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
40.19	12.9	8.7	-	0.4	22.0	3.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
40.36	12.8	8.7	-	0.4	25.7	3.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
40.52	12.5	8.4	-	0.3	28.0	3.4	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
40.68	13.4	9.0	-	0.4	28.3	3.2	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
40.85	14.6	9.8	-	0.4	33.1	3.3	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.9	15
41.01	19.0	12.7	-	0.4	22.0	2.2	4	clayy SILT to silty CLAY	115	2.0	6	10	-	-	1.3	15
41.18	20.6	13.7	-	0.4	13.1	2.1	4	clayy SILT to silty CLAY	115	2.0	7	10	-	-	1.4	15
41.34	22.0	14.7	-	0.3	8.3	1.6	4	clayy SILT to silty CLAY	115	2.0	7	11	-	-	1.5	15
41.50	15.8	10.5	-	0.3	4.8	2.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
41.67	11.7	7.7	-	0.4	9.2	4.0	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
41.83	12.4	8.2	-	0.4	16.6	4.0	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
42.00	12.5	8.2	-	0.4	17.3	4.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(416).cpt
CPT Date: 11/19/2008 7:32:19 AM
GW During Test: 12 ft

Sounding ID: CPT-08-53
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	13.3	8.7	-	0.4	20.4	3.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.32	12.9	8.4	-	0.4	25.0	3.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
42.49	12.5	8.2	-	0.4	29.6	4.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
42.65	14.4	9.4	-	0.5	32.5	3.9	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
42.82	14.4	9.3	-	0.5	27.0	4.3	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
42.98	14.3	9.2	-	0.5	26.0	4.6	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
43.15	15.4	9.9	-	0.6	24.5	4.5	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
43.31	16.2	10.4	-	0.6	23.0	4.2	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
43.47	17.5	11.2	-	0.6	21.3	3.9	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.1	15
43.64	23.2	14.8	-	0.6	20.5	2.8	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.6	15
43.80	44.6	34.6	83.5	0.7	6.3	1.6	5	silty SAND to sandy SILT	120	4.0	9	11	32	34	-	16
43.97	61.0	47.2	93.6	0.9	-2.7	1.6	5	silty SAND to sandy SILT	120	4.0	12	15	42	36	-	16
44.13	76.2	58.9	101.9	1.2	-8.1	1.6	5	silty SAND to sandy SILT	120	4.0	15	19	50	38	-	16
44.29	92.9	71.7	103.5	1.1	-9.9	1.3	5	silty SAND to sandy SILT	120	4.0	18	23	56	39	-	16
44.46	104.6	80.6	106.4	1.1	-10.4	1.1	6	clean SAND to silty SAND	125	5.0	16	21	60	39	-	16
44.62	121.2	93.3	110.2	1.0	-9.9	0.8	6	clean SAND to silty SAND	125	5.0	19	24	65	40	-	16
44.79	132.5	101.8	115.9	1.0	-9.3	0.8	6	clean SAND to silty SAND	125	5.0	20	26	68	41	-	16
44.95	115.7	88.8	112.4	1.2	6.3	1.1	6	clean SAND to silty SAND	125	5.0	18	23	63	40	-	16
45.11	83.0	63.5	114.4	1.5	6.5	1.9	5	silty SAND to sandy SILT	120	4.0	16	21	52	38	-	16
45.28	42.4	26.3	-	1.4	7.8	3.6	4	clayy SILT to silty CLAY	115	2.0	13	21	-	-	2.9	15
45.44	23.8	14.7	-	1.1	12.7	5.1	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.6	15
45.61	16.2	10.0	-	0.6	45.8	4.2	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
45.77	15.7	9.7	-	0.4	60.5	3.2	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
45.93	27.3	16.7	-	0.5	50.2	2.0	4	clayy SILT to silty CLAY	115	2.0	8	14	-	-	1.8	15
46.10	27.2	16.6	-	0.6	17.3	2.5	4	clayy SILT to silty CLAY	115	2.0	8	14	-	-	1.8	15
46.26	19.9	12.2	-	0.6	22.5	3.7	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
46.43	47.7	36.1	88.0	0.8	31.5	1.8	5	silty SAND to sandy SILT	120	4.0	9	12	33	34	-	16
46.59	89.4	67.7	103.0	1.2	2.7	1.4	5	silty SAND to sandy SILT	120	4.0	17	22	54	38	-	16
46.75	108.3	81.9	121.5	1.7	4.3	1.6	5	silty SAND to sandy SILT	120	4.0	20	27	60	39	-	16
46.92	110.3	83.2	132.3	2.1	8.1	1.9	5	silty SAND to sandy SILT	120	4.0	21	28	61	39	-	16
47.08	112.7	84.9	132.0	2.0	10.7	1.9	5	silty SAND to sandy SILT	120	4.0	21	28	62	39	-	16
47.25	118.1	88.8	127.9	1.8	7.8	1.6	5	silty SAND to sandy SILT	120	4.0	22	30	63	40	-	16
47.41	107.4	80.7	122.5	1.7	9.6	1.7	5	silty SAND to sandy SILT	120	4.0	20	27	60	39	-	16
47.57	86.9	65.2	116.3	1.6	11.3	1.9	5	silty SAND to sandy SILT	120	4.0	16	22	53	38	-	16
47.74	74.7	56.0	112.1	1.5	13.5	2.0	5	silty SAND to sandy SILT	120	4.0	14	19	48	37	-	16
47.90	72.6	54.3	112.9	1.5	6.2	2.1	5	silty SAND to sandy SILT	120	4.0	14	18	47	37	-	16
48.07	66.7	49.8	114.9	1.5	10.4	2.4	5	silty SAND to sandy SILT	120	4.0	12	17	44	36	-	16
48.23	79.2	59.1	114.2	1.5	11.7	2.0	5	silty SAND to sandy SILT	120	4.0	15	20	50	37	-	16
48.39	99.9	74.4	123.0	1.8	-3.9	1.9	5	silty SAND to sandy SILT	120	4.0	19	25	57	39	-	16
48.56	112.1	83.4	128.6	2.0	-4.3	1.8	5	silty SAND to sandy SILT	120	4.0	21	28	61	39	-	16
48.72	117.5	87.3	130.9	2.0	-2.6	1.7	5	silty SAND to sandy SILT	120	4.0	22	29	63	39	-	16
48.89	116.5	86.4	129.7	2.0	-0.9	1.7	5	silty SAND to sandy SILT	120	4.0	22	29	62	39	-	16
49.05	100.4	74.4	127.1	2.0	1.4	2.0	5	silty SAND to sandy SILT	120	4.0	19	25	57	39	-	16
49.22	83.2	61.5	139.0	2.3	4.8	2.9	5	silty SAND to sandy SILT	120	4.0	15	21	51	37	-	16
49.38	72.5	53.6	138.3	2.2	10.5	3.2	4	clayy SILT to silty CLAY	115	2.0	27	36	-	-	5.0	15
49.54	118.1	87.2	136.1	2.2	5.4	1.9	5	silty SAND to sandy SILT	120	4.0	22	30	62	39	-	16
49.71	164.2	121.0	157.4	2.6	-6.6	1.6	6	clean SAND to silty SAND	125	5.0	24	33	73	41	-	16
49.87	190.4	140.1	176.3	3.2	-5.9	1.7	6	clean SAND to silty SAND	125	5.0	28	38	78	42	-	16
50.04	190.0	139.6	179.7	3.4	-4.7	1.8	6	clean SAND to silty SAND	125	5.0	28	38	78	42	-	16
50.20	181.5	133.1	167.8	2.9	-3.5	1.6	6	clean SAND to silty SAND	125	5.0	27	36	76	42	-	16
50.36	168.4	123.4	151.6	2.3	-2.3	1.4	6	clean SAND to silty SAND	125	5.0	25	34	74	41	-	16
50.53	167.5	122.5	139.1	1.6	-1.5	1.0	6	clean SAND to silty SAND	125	5.0	25	33	74	41	-	16
50.69	171.7	125.4	132.7	1.1	-1.0	0.7	6	clean SAND to silty SAND	125	5.0	25	34	74	41	-	16
50.86	144.6	105.5	122.1	1.2	-6.7	0.9	6	clean SAND to silty SAND	125	5.0	21	29	69	40	-	16
51.02	105.9	77.1	111.6	1.4	-5.5	1.4	5	silty SAND to sandy SILT	120	4.0	19	26	58	39	-	16
51.18	82.0	59.6	104.9	1.3	-3.9	1.7	5	silty SAND to sandy SILT	120	4.0	15	20	50	37	-	16
51.35	31.8	17.8	-	0.8	-5.0	2.8	4	clayy SILT to silty CLAY	115	2.0	9	16	-	-	2.1	15
51.51	22.6	12.6	-	0.3	-2.1	1.5	4	clayy SILT to silty CLAY	115	2.0	6	11	-	-	1.5	15
51.68	18.1	10.1	-	0.1	2.1	0.5	4	clayy SILT to silty CLAY	115	2.0	5	9	-	-	1.2	15
51.84	16.1	8.9	-	0.2	8.2	1.3	4	clayy SILT to silty CLAY	115	2.0	4	8	-	-	1.0	15
52.00	16.5	9.2	-	0.3	16.6	1.9	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
52.17	19.0	10.5	-	0.7	30.4	4.3	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.2	15
52.33	72.6	52.4	102.5	1.2	27.0	1.8	5	silty SAND to sandy SILT	120	4.0	13	18	46	36	-	16
52.50	156.9	113.0	146.1	2.3	-4.9	1.5	6	clean SAND to silty SAND	125	5.0	23	31	71	41	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(416).cpt
CPT Date: 11/19/2008 7:32:19 AM
GW During Test: 12 ft

Sounding ID: CPT-08-53
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	168.0	120.9	161.5	2.9	-8.0	1.8	5	silty SAND to sandy SILT	120	4.0	30	42	73	41	-	16
52.82	167.5	120.3	161.5	2.9	-7.3	1.8	5	silty SAND to sandy SILT	120	4.0	30	42	73	41	-	16
52.99	188.3	135.1	168.0	2.9	-7.2	1.6	6	clean SAND to silty SAND	125	5.0	27	38	77	42	-	16
53.15	177.6	127.2	168.6	3.2	-9.3	1.8	5	silty SAND to sandy SILT	120	4.0	32	44	75	41	-	16
53.32	153.2	109.6	161.1	3.1	-9.2	2.1	5	silty SAND to sandy SILT	120	4.0	27	38	70	40	-	16
53.48	128.5	91.8	154.1	3.0	-8.7	2.4	5	silty SAND to sandy SILT	120	4.0	23	32	64	39	-	16
53.64	110.4	78.8	139.8	2.5	-8.2	2.3	5	silty SAND to sandy SILT	120	4.0	20	28	59	39	-	16
53.81	107.0	76.3	127.5	2.0	-8.1	2.0	5	silty SAND to sandy SILT	120	4.0	19	27	58	38	-	16
53.97	106.5	75.8	123.4	1.9	-9.2	1.8	5	silty SAND to sandy SILT	120	4.0	19	27	58	38	-	16
54.14	110.9	78.8	122.8	1.8	-9.2	1.7	5	silty SAND to sandy SILT	120	4.0	20	28	59	39	-	16
54.30	116.4	82.6	126.7	2.0	-8.9	1.7	5	silty SAND to sandy SILT	120	4.0	21	29	61	39	-	16
54.46	113.2	80.3	128.6	2.1	-8.5	1.9	5	silty SAND to sandy SILT	120	4.0	20	28	60	39	-	16
54.63	111.5	79.0	129.9	2.1	4.2	2.0	5	silty SAND to sandy SILT	120	4.0	20	28	59	39	-	16
54.79	108.0	76.4	129.7	2.1	0.8	2.0	5	silty SAND to sandy SILT	120	4.0	19	27	58	38	-	16
54.96	93.4	66.0	125.5	2.0	1.4	2.2	5	silty SAND to sandy SILT	120	4.0	17	23	53	37	-	16
55.12	81.6	57.6	120.1	1.8	1.4	2.3	5	silty SAND to sandy SILT	120	4.0	14	20	49	37	-	16
55.28	55.2	29.0	-	1.6	1.2	3.1	4	clayy SILT to silty CLAY	115	2.0	15	28	-	-	3.8	15
55.45	31.2	16.4	-	1.1	3.3	3.9	3	silty CLAY to CLAY	115	1.5	11	21	-	-	2.1	15
55.61	21.7	11.4	-	0.7	6.8	3.8	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
55.78	32.0	16.7	-	0.4	13.9	1.5	4	clayy SILT to silty CLAY	115	2.0	8	16	-	-	2.1	15
55.94	32.6	17.0	-	0.4	3.1	1.3	4	clayy SILT to silty CLAY	115	2.0	8	16	-	-	2.2	15
56.11	17.8	9.3	-	0.4	5.1	2.5	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
56.27	13.5	7.0	-	0.2	15.9	2.1	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
56.43	13.6	7.0	-	0.2	21.9	1.9	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
56.60	14.1	7.3	-	0.2	27.6	2.2	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
56.76	15.2	7.8	-	0.3	33.5	2.4	3	silty CLAY to CLAY	115	1.5	5	10	-	-	1.0	15
56.93	16.2	8.3	-	0.3	38.1	2.5	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
57.09	16.6	8.5	-	0.3	41.0	2.6	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
57.25	15.8	8.1	-	0.3	42.1	2.6	3	silty CLAY to CLAY	115	1.5	5	11	-	-	1.0	15
57.42	15.3	7.8	-	0.5	50.0	4.6	3	silty CLAY to CLAY	115	1.5	5	10	-	-	1.0	15
57.58	26.8	13.7	-	0.4	58.4	1.7	4	clayy SILT to silty CLAY	115	2.0	7	13	-	-	1.8	15
57.75	40.5	20.6	-	0.6	-0.5	1.7	4	clayy SILT to silty CLAY	115	2.0	10	20	-	-	2.7	15
57.91	35.5	18.0	-	0.8	4.0	2.4	4	clayy SILT to silty CLAY	115	2.0	9	18	-	-	2.4	15
58.07	65.7	45.4	97.1	1.1	7.8	1.8	5	silty SAND to sandy SILT	120	4.0	11	16	41	35	-	16
58.24	110.1	76.0	108.0	1.4	-6.4	1.3	5	silty SAND to sandy SILT	120	4.0	19	28	58	38	-	16
58.40	165.7	114.3	132.2	1.6	-6.2	1.0	6	clean SAND to silty SAND	125	5.0	23	33	71	40	-	16
58.57	189.0	130.2	144.3	1.7	-5.7	0.9	6	clean SAND to silty SAND	125	5.0	26	38	76	41	-	16
58.73	198.8	136.8	152.3	1.9	-4.3	1.0	6	clean SAND to silty SAND	125	5.0	27	40	77	41	-	16
58.89	219.2	150.6	165.3	2.2	-2.1	1.0	6	clean SAND to silty SAND	125	5.0	30	44	81	42	-	16
59.06	231.1	158.6	176.2	2.6	1.2	1.1	6	clean SAND to silty SAND	125	5.0	32	46	82	42	-	16
59.22	242.3	166.1	184.0	2.8	3.6	1.2	6	clean SAND to silty SAND	125	5.0	33	48	84	42	-	16
59.39	237.8	162.8	174.0	2.3	5.1	1.0	6	clean SAND to silty SAND	125	5.0	33	48	83	42	-	16
59.55	233.8	159.8	168.6	2.0	9.2	0.9	6	clean SAND to silty SAND	125	5.0	32	47	82	42	-	16
59.71	241.4	164.8	169.4	1.9	9.5	0.8	6	clean SAND to silty SAND	125	5.0	33	48	83	42	-	16
59.88	246.6	168.2	174.5	2.1	11.6	0.9	6	clean SAND to silty SAND	125	5.0	34	49	84	42	-	16
60.04	248.6	169.3	179.0	2.3	11.5	0.9	6	clean SAND to silty SAND	125	5.0	34	50	84	42	-	16
60.21	257.5	175.2	180.7	2.2	11.2	0.9	6	clean SAND to silty SAND	125	5.0	35	51	85	42	-	16
60.37	267.4	181.6	181.6	2.0	10.5	0.8	6	clean SAND to silty SAND	125	5.0	36	53	87	43	-	16
60.53	274.8	186.5	186.5	1.8	10.1	0.7	6	clean SAND to silty SAND	125	5.0	37	55	88	43	-	16
60.70	279.7	189.6	189.6	1.8	10.3	0.7	6	clean SAND to silty SAND	125	5.0	38	56	88	43	-	16
60.86	282.1	190.9	192.7	2.4	10.8	0.9	6	clean SAND to silty SAND	125	5.0	38	56	88	43	-	16
61.03	280.0	189.3	195.7	2.6	10.8	0.9	6	clean SAND to silty SAND	125	5.0	38	56	88	43	-	16
61.19	278.2	187.8	203.5	3.3	12.4	1.2	6	clean SAND to silty SAND	125	5.0	38	56	88	43	-	16
61.35	275.6	185.8	205.0	3.5	11.1	1.3	6	clean SAND to silty SAND	125	5.0	37	55	87	43	-	16
61.52	279.7	188.4	210.6	3.8	12.7	1.4	6	clean SAND to silty SAND	125	5.0	38	56	88	43	-	16
61.68	306.4	206.1	218.8	3.6	10.9	1.2	6	clean SAND to silty SAND	125	5.0	41	61	91	43	-	16
61.85	343.9	231.0	230.6	3.3	10.4	1.0	6	clean SAND to silty SAND	125	5.0	46	69	95	44	-	16
62.01	369.1	247.7	247.7	3.1	10.0	0.8	6	clean SAND to silty SAND	125	5.0	50	74	95	44	-	16
62.17	377.3	252.9	252.9	3.1	10.0	0.8	6	clean SAND to silty SAND	125	5.0	51	75	95	44	-	16
62.34	381.0	255.0	255.0	3.1	10.3	0.8	6	clean SAND to silty SAND	125	5.0	51	76	95	44	-	16
62.50	396.8	265.3	265.3	3.6	10.5	0.9	6	clean SAND to silty SAND	125	5.0	53	79	95	44	-	16
62.67	431.8	288.3	288.3	4.8	10.0	1.1	6	clean SAND to silty SAND	125	5.0	58	86	95	45	-	16
62.83	524.5	349.8	349.8	5.7	7.6	1.1	6	clean SAND to silty SAND	125	5.0	70	100	95	46	-	16
63.00	607.5	404.7	404.7	5.7	11.6	0.9	6	clean SAND to silty SAND	125	5.0	81	100	95	46	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(416).cpt
CPT Date: 11/19/2008 7:32:19 AM
GW During Test: 12 ft

Sounding ID: CPT-08-53
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	531.3	353.5	353.5	4.6	12.3	0.9	6	clean SAND to silty SAND	125	5.0	71	100	95	46	-	16
63.32	481.9	320.2	320.2	3.4	11.8	0.7	6	clean SAND to silty SAND	125	5.0	64	96	95	45	-	16
63.49	456.6	303.1	303.1	3.0	9.8	0.7	6	clean SAND to silty SAND	125	5.0	61	91	95	45	-	16
63.65	435.4	288.7	288.7	2.4	10.2	0.6	6	clean SAND to silty SAND	125	5.0	58	87	95	45	-	16
63.82	406.1	268.9	268.9	2.1	10.9	0.5	6	clean SAND to silty SAND	125	5.0	54	81	95	44	-	16
63.98	401.2	265.4	265.4	1.7	11.0	0.4	6	clean SAND to silty SAND	125	5.0	53	80	95	44	-	16
64.14	394.3	260.5	260.5	1.7	12.4	0.4	6	clean SAND to silty SAND	125	5.0	52	79	95	44	-	16
64.31	380.7	251.2	251.2	1.3	8.5	0.4	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
64.47	374.8	247.0	247.0	1.7	10.8	0.5	6	clean SAND to silty SAND	125	5.0	49	75	95	44	-	16
64.64	361.2	237.8	237.8	1.7	12.4	0.5	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
64.80	377.0	247.9	247.9	2.1	13.4	0.6	6	clean SAND to silty SAND	125	5.0	50	75	95	44	-	16
64.96	382.9	251.4	251.4	1.9	12.8	0.5	6	clean SAND to silty SAND	125	5.0	50	77	95	44	-	16
65.13	388.8	255.0	255.0	3.1	11.2	0.8	6	clean SAND to silty SAND	125	5.0	51	78	95	44	-	16
65.29	414.3	271.4	271.4	3.6	11.5	0.9	6	clean SAND to silty SAND	125	5.0	54	83	95	44	-	16
65.46	429.5	281.1	281.1	2.2	7.4	0.5	6	clean SAND to silty SAND	125	5.0	56	86	95	45	-	16
65.62	394.0	257.5	257.5	2.2	0.7	0.6	6	clean SAND to silty SAND	125	5.0	52	79	95	44	-	16
65.78	386.1	252.1	252.1	2.1	0.1	0.6	6	clean SAND to silty SAND	125	5.0	50	77	95	44	-	16
65.95	364.0	237.4	237.4	1.8	5.0	0.5	6	clean SAND to silty SAND	125	5.0	47	73	95	44	-	16
66.11	365.1	237.8	237.8	1.9	6.8	0.5	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
66.28	366.7	238.6	238.6	2.1	6.5	0.6	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
66.44	379.4	246.6	246.6	2.0	7.1	0.5	6	clean SAND to silty SAND	125	5.0	49	76	95	44	-	16
66.60	403.5	262.0	262.0	1.4	8.9	0.4	7	grvly SAND to dense SAND	130	6.0	44	67	95	44	-	16
66.77	407.0	263.9	263.9	1.6	8.7	0.4	6	clean SAND to silty SAND	125	5.0	53	81	95	44	-	16
66.93	391.0	253.2	253.2	1.4	11.9	0.4	6	clean SAND to silty SAND	125	5.0	51	78	95	44	-	16
67.10	390.4	252.5	252.5	1.3	12.2	0.3	7	grvly SAND to dense SAND	130	6.0	42	65	95	44	-	16
67.26	428.2	276.7	276.7	1.2	11.3	0.3	7	grvly SAND to dense SAND	130	6.0	46	71	95	44	-	16
67.42	416.7	268.9	268.9	2.6	12.1	0.6	6	clean SAND to silty SAND	125	5.0	54	83	95	44	-	16
67.59	415.0	267.5	267.5	2.9	11.2	0.7	6	clean SAND to silty SAND	125	5.0	53	83	95	44	-	16
67.75	468.0	301.3	301.3	2.0	11.6	0.4	7	grvly SAND to dense SAND	130	6.0	50	78	95	45	-	16
67.92	493.8	317.5	317.5	2.3	6.5	0.5	7	grvly SAND to dense SAND	130	6.0	53	82	95	45	-	16
68.08	495.7	318.4	318.4	3.2	6.1	0.6	6	clean SAND to silty SAND	125	5.0	64	99	95	45	-	16
68.24	456.4	292.8	292.8	4.0	5.9	0.9	6	clean SAND to silty SAND	125	5.0	59	91	95	45	-	16
68.41	409.0	262.1	262.1	2.5	6.7	0.6	6	clean SAND to silty SAND	125	5.0	52	82	95	44	-	16
68.57	360.0	230.4	230.4	3.3	5.9	0.9	6	clean SAND to silty SAND	125	5.0	46	72	95	43	-	16
68.74	394.2	252.0	252.0	2.5	4.7	0.6	6	clean SAND to silty SAND	125	5.0	50	79	95	44	-	16
68.90	446.1	284.9	284.9	2.8	6.1	0.6	6	clean SAND to silty SAND	125	5.0	57	89	95	44	-	16
69.07	428.7	273.5	273.5	2.5	12.3	0.6	6	clean SAND to silty SAND	125	5.0	55	86	95	44	-	16
69.23	351.1	223.8	223.8	1.1	13.4	0.3	6	clean SAND to silty SAND	125	5.0	45	70	94	43	-	16
69.39	283.6	180.6	180.6	0.9	9.7	0.3	6	clean SAND to silty SAND	125	5.0	36	57	87	42	-	16
69.56	331.2	210.6	210.6	0.9	12.1	0.3	6	clean SAND to silty SAND	125	5.0	42	66	92	43	-	16
69.72	388.7	246.9	246.9	0.8	-1.4	0.2	7	grvly SAND to dense SAND	130	6.0	41	65	95	44	-	16
69.89	388.6	246.5	246.5	1.6	-4.3	0.4	6	clean SAND to silty SAND	125	5.0	49	78	95	44	-	16
70.05	382.1	242.1	242.1	0.6	-3.5	0.2	7	grvly SAND to dense SAND	130	6.0	40	64	95	44	-	16
70.21	374.5	237.1	237.1	1.2	-0.3	0.3	6	clean SAND to silty SAND	125	5.0	47	75	95	44	-	16
70.38	366.4	231.6	231.6	0.6	0.9	0.2	7	grvly SAND to dense SAND	130	6.0	39	61	95	43	-	16
70.54	308.3	194.7	194.7	0.4	2.6	0.1	7	grvly SAND to dense SAND	130	6.0	32	51	89	43	-	16
70.71	203.2	128.2	134.7	1.3	13.0	0.7	6	clean SAND to silty SAND	125	5.0	26	41	75	40	-	16
70.87	173.4	109.2	171.7	4.1	13.6	2.4	5	silty SAND to sandy SILT	120	4.0	27	43	70	39	-	16
71.03	212.8	133.9	145.0	1.7	13.2	0.8	6	clean SAND to silty SAND	125	5.0	27	43	77	41	-	16
71.20	373.7	235.0	235.0	1.1	-4.0	0.3	7	grvly SAND to dense SAND	130	6.0	39	62	95	43	-	16
71.36	464.8	291.9	291.9	0.9	-3.9	0.2	7	grvly SAND to dense SAND	130	6.0	49	77	95	44	-	16
71.53	427.5	268.2	268.2	2.0	-1.3	0.5	6	clean SAND to silty SAND	125	5.0	54	86	95	44	-	16
71.69	370.7	232.3	232.3	1.7	-0.5	0.5	6	clean SAND to silty SAND	125	5.0	46	74	95	43	-	16
71.85	323.9	202.7	202.7	1.4	3.7	0.4	6	clean SAND to silty SAND	125	5.0	41	65	90	43	-	16
72.02	215.5	134.7	155.8	2.5	6.7	1.2	6	clean SAND to silty SAND	125	5.0	27	43	77	41	-	16
72.18	178.6	111.6	141.8	2.4	5.5	1.4	6	clean SAND to silty SAND	125	5.0	22	36	71	40	-	16
72.35	208.3	130.0	135.8	1.3	-0.8	0.6	6	clean SAND to silty SAND	125	5.0	26	42	76	40	-	16
72.51	281.0	175.1	175.1	1.4	-5.1	0.5	6	clean SAND to silty SAND	125	5.0	35	56	85	42	-	16
72.67	349.4	217.6	217.6	1.3	-4.6	0.4	6	clean SAND to silty SAND	125	5.0	44	70	93	43	-	16
72.84	415.9	258.7	258.7	2.5	-4.3	0.6	6	clean SAND to silty SAND	125	5.0	52	83	95	44	-	16
73.00	526.1	326.9	326.9	4.0	-3.4	0.8	6	clean SAND to silty SAND	125	5.0	65	100	95	45	-	16
73.17	581.3	360.8	360.8	5.2	-2.8	0.9	6	clean SAND to silty SAND	125	5.0	72	100	95	45	-	16
73.33	583.6	361.9	361.9	3.3	-1.5	0.6	6	clean SAND to silty SAND	125	5.0	72	100	95	45	-	16
73.49	602.0	372.9	372.9	5.2	1.4	0.9	6	clean SAND to silty SAND	125	5.0	75	100	95	46	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(416).cpt
CPT Date: 11/19/2008 7:32:19 AM
GW During Test: 12 ft

Sounding ID: CPT-08-53
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
73.66	606.1	375.0	375.0	3.7	7.8	0.6	6	clean SAND to silty SAND	125	5.0	75	100	95	46	-	16
73.82	425.5	263.0	263.0	4.1	8.7	1.0	6	clean SAND to silty SAND	125	5.0	53	85	95	44	-	16
73.99	404.4	249.7	249.7	2.2	8.6	0.5	6	clean SAND to silty SAND	125	5.0	50	81	95	44	-	16
74.15	417.2	257.4	257.4	2.8	9.8	0.7	6	clean SAND to silty SAND	125	5.0	51	83	95	44	-	16
74.31	448.4	276.3	276.3	3.2	9.4	0.7	6	clean SAND to silty SAND	125	5.0	55	90	95	44	-	16
74.48	528.9	325.6	325.6	2.6	10.6	0.5	7	grvly SAND to dense SAND	130	6.0	54	88	95	45	-	16
74.64	550.3	338.4	338.4	3.5	0.8	0.6	6	clean SAND to silty SAND	125	5.0	68	100	95	45	-	16
74.81	504.8	310.1	310.1	3.2	-0.4	0.6	6	clean SAND to silty SAND	125	5.0	62	100	95	45	-	16
74.97	483.1	296.4	296.4	3.0	1.1	0.6	6	clean SAND to silty SAND	125	5.0	59	97	95	44	-	16
75.13	522.6	320.4	320.4	1.7	0.7	0.3	7	grvly SAND to dense SAND	130	6.0	53	87	95	45	-	16
75.30	531.9	325.7	325.7	2.1	-1.8	0.4	7	grvly SAND to dense SAND	130	6.0	54	89	95	45	-	16
75.46	510.0	311.9	311.9	3.4	1.2	0.7	6	clean SAND to silty SAND	125	5.0	62	100	95	45	-	16
75.63	423.9	259.0	274.8	5.9	2.5	1.4	6	clean SAND to silty SAND	125	5.0	52	85	95	44	-	16
75.79	288.3	176.0	229.4	6.5	-0.1	2.3	5	silty SAND to sandy SILT	120	4.0	44	72	86	42	-	16
75.96	104.1	41.0	-	4.4	10.0	4.4	4	clayy SILT to silty CLAY	115	2.0	21	52	-	-	7.2	15
76.12	74.6	45.4	115.3	1.8	44.3	2.5	5	silty SAND to sandy SILT	120	4.0	11	19	41	34	-	16
76.28	71.3	43.4	99.9	1.3	129.0	2.0	5	silty SAND to sandy SILT	120	4.0	11	18	39	34	-	16
76.45	72.2	43.9	101.2	1.3	186.3	2.0	5	silty SAND to sandy SILT	120	4.0	11	18	40	34	-	16
76.61	80.6	49.0	109.0	1.6	250.3	2.1	5	silty SAND to sandy SILT	120	4.0	12	20	43	34	-	16
76.78	88.0	53.4	108.8	1.6	333.0	2.0	5	silty SAND to sandy SILT	120	4.0	13	22	46	35	-	16
76.94	79.9	48.5	113.9	1.8	207.9	2.3	5	silty SAND to sandy SILT	120	4.0	12	20	43	34	-	16
77.10	59.5	23.2	-	1.4	199.0	2.6	4	clayy SILT to silty CLAY	115	2.0	12	30	-	-	4.0	15
77.27	49.7	19.3	-	1.2	199.8	2.6	4	clayy SILT to silty CLAY	115	2.0	10	25	-	-	3.3	15
77.43	49.2	19.1	-	1.7	251.1	3.8	3	silty CLAY to CLAY	115	1.5	13	33	-	-	3.3	15
77.60	70.9	27.5	-	2.6	191.7	3.9	4	clayy SILT to silty CLAY	115	2.0	14	35	-	-	4.8	15
77.76	85.7	33.1	-	2.7	131.8	3.3	4	clayy SILT to silty CLAY	115	2.0	17	43	-	-	5.9	15
77.92	75.3	29.1	-	2.2	146.4	3.2	4	clayy SILT to silty CLAY	115	2.0	15	38	-	-	5.2	15
78.09	64.9	25.0	-	1.7	162.0	2.8	4	clayy SILT to silty CLAY	115	2.0	13	32	-	-	4.4	15
78.25	53.6	20.6	-	1.3	201.6	2.7	4	clayy SILT to silty CLAY	115	2.0	10	27	-	-	3.6	15
78.42	48.5	18.6	-	1.0	227.3	2.4	4	clayy SILT to silty CLAY	115	2.0	9	24	-	-	3.3	15
78.58	47.5	18.2	-	1.5	274.2	3.4	3	silty CLAY to CLAY	115	1.5	12	32	-	-	3.2	15
78.74	60.0	23.0	-	1.7	195.6	3.1	4	clayy SILT to silty CLAY	115	2.0	11	30	-	-	4.1	15
78.91	62.4	23.9	-	2.1	206.4	3.6	4	clayy SILT to silty CLAY	115	2.0	12	31	-	-	4.2	15
79.07	68.1	26.0	-	2.0	180.6	3.1	4	clayy SILT to silty CLAY	115	2.0	13	34	-	-	4.6	15
79.24	69.3	26.4	-	2.1	200.6	3.3	4	clayy SILT to silty CLAY	115	2.0	13	35	-	-	4.7	15
79.40	71.0	27.0	-	2.2	193.7	3.3	4	clayy SILT to silty CLAY	115	2.0	13	35	-	-	4.8	15
79.56	70.3	26.7	-	2.4	189.8	3.7	4	clayy SILT to silty CLAY	115	2.0	13	35	-	-	4.8	15
79.73	72.1	27.3	-	2.4	175.5	3.6	4	clayy SILT to silty CLAY	115	2.0	14	36	-	-	4.9	15
79.89	74.6	28.2	-	2.7	186.6	3.8	4	clayy SILT to silty CLAY	115	2.0	14	37	-	-	5.1	15
80.06	77.0	29.1	-	2.8	143.8	3.9	4	clayy SILT to silty CLAY	115	2.0	15	38	-	-	5.3	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(472).cpt
CPT Date: 12/8/2008 9:12:32 AM
GW During Test: 12 ft

Sounding ID: CPT-08-54
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	42.4	67.9	105.8	0.6	0.1	1.5	5	silty SAND to sandy SILT	120	4.0	17	11	54	48	-	16
0.49	53.7	86.2	106.2	0.5	0.0	0.9	6	clean SAND to silty SAND	125	5.0	17	11	62	48	-	16
0.66	51.9	83.3	130.0	1.0	-0.1	1.9	5	silty SAND to sandy SILT	120	4.0	21	13	61	48	-	16
0.82	59.8	95.9	130.8	0.9	0.3	1.5	5	silty SAND to sandy SILT	120	4.0	24	15	66	48	-	16
0.98	46.6	74.8	123.3	0.9	0.0	1.9	5	silty SAND to sandy SILT	120	4.0	19	12	57	48	-	16
1.15	35.2	56.4	88.3	0.4	0.0	1.2	5	silty SAND to sandy SILT	120	4.0	14	9	48	48	-	16
1.31	25.4	40.8	74.6	0.3	-0.1	1.2	5	silty SAND to sandy SILT	120	4.0	10	6	37	46	-	16
1.48	19.6	31.4	71.6	0.3	-0.1	1.3	5	silty SAND to sandy SILT	120	4.0	8	5	29	44	-	16
1.64	18.4	29.5	72.5	0.3	-0.1	1.5	5	silty SAND to sandy SILT	120	4.0	7	5	27	44	-	16
1.80	20.1	32.2	71.7	0.3	0.0	1.3	5	silty SAND to sandy SILT	120	4.0	8	5	30	44	-	16
1.97	21.2	33.9	76.4	0.3	0.0	1.5	5	silty SAND to sandy SILT	120	4.0	8	5	31	43	-	16
2.13	21.4	34.3	81.9	0.4	0.0	1.7	5	silty SAND to sandy SILT	120	4.0	9	5	32	43	-	16
2.30	25.0	40.1	108.6	0.7	0.1	2.6	4	clayy SILT to silty CLAY	115	2.0	20	12	-	-	1.8	15
2.46	46.0	73.7	147.8	1.3	0.1	2.8	5	silty SAND to sandy SILT	120	4.0	18	11	57	46	-	16
2.62	64.5	103.5	175.3	1.8	0.1	2.8	5	silty SAND to sandy SILT	120	4.0	26	16	68	47	-	16
2.79	66.7	107.0	179.2	1.9	0.0	2.8	5	silty SAND to sandy SILT	120	4.0	27	17	69	47	-	16
2.95	70.3	112.8	173.0	1.7	-0.1	2.4	5	silty SAND to sandy SILT	120	4.0	28	18	71	47	-	16
3.12	54.1	86.8	158.9	1.5	0.0	2.8	5	silty SAND to sandy SILT	120	4.0	22	14	62	46	-	16
3.28	38.5	61.7	144.8	1.2	0.0	3.2	4	clayy SILT to silty CLAY	115	2.0	31	19	-	-	2.7	15
3.45	38.3	61.4	142.3	1.2	0.0	3.1	4	clayy SILT to silty CLAY	115	2.0	31	19	-	-	2.7	15
3.61	45.8	73.5	137.1	1.1	0.0	2.4	5	silty SAND to sandy SILT	120	4.0	18	11	57	45	-	16
3.77	54.9	88.1	122.8	0.8	0.0	1.5	5	silty SAND to sandy SILT	120	4.0	22	14	63	45	-	16
3.94	15.1	24.2	-	0.3	0.0	2.2	4	clayy SILT to silty CLAY	115	2.0	12	8	-	-	1.0	15
4.10	2.9	4.6	-	0.0	0.0	0.1	1	sensitive fine SOIL	115	2.0	2	1	-	-	0.2	15
4.27	4.7	7.5	-	0.0	0.0	0.1	1	sensitive fine SOIL	115	2.0	4	2	-	-	0.3	15
4.43	13.9	22.3	34.4	0.0	0.1	0.1	5	silty SAND to sandy SILT	120	4.0	6	3	17	38	-	16
4.59	39.7	63.6	95.5	0.5	0.2	1.2	5	silty SAND to sandy SILT	120	4.0	16	10	52	43	-	16
4.76	72.5	116.3	145.1	1.0	0.4	1.4	6	clean SAND to silty SAND	125	5.0	23	14	72	46	-	16
4.92	95.0	152.4	169.4	1.1	0.4	1.1	6	clean SAND to silty SAND	125	5.0	30	19	81	47	-	16
5.09	79.0	126.7	156.7	1.2	0.4	1.5	6	clean SAND to silty SAND	125	5.0	25	16	75	46	-	16
5.25	68.2	109.4	150.0	1.2	0.4	1.8	5	silty SAND to sandy SILT	120	4.0	27	17	70	46	-	16
5.41	59.1	94.9	146.8	1.2	0.4	2.1	5	silty SAND to sandy SILT	120	4.0	24	15	65	45	-	16
5.58	49.0	78.5	139.7	1.2	0.4	2.4	5	silty SAND to sandy SILT	120	4.0	20	12	59	44	-	16
5.74	50.7	81.4	130.4	1.0	0.4	1.9	5	silty SAND to sandy SILT	120	4.0	20	13	60	44	-	16
5.91	51.2	82.2	115.0	0.7	0.4	1.4	5	silty SAND to sandy SILT	120	4.0	21	13	61	44	-	16
6.07	36.1	57.9	111.6	0.7	0.4	2.0	5	silty SAND to sandy SILT	120	4.0	14	9	49	42	-	16
6.23	29.2	46.5	105.9	0.6	0.4	2.2	5	silty SAND to sandy SILT	120	4.0	12	7	42	41	-	16
6.40	35.9	56.4	105.3	0.7	0.4	1.8	5	silty SAND to sandy SILT	120	4.0	14	9	48	42	-	16
6.56	46.5	72.1	104.3	0.6	0.4	1.3	5	silty SAND to sandy SILT	120	4.0	18	12	56	43	-	16
6.73	48.6	74.4	100.9	0.5	0.4	1.1	6	clean SAND to silty SAND	125	5.0	15	10	57	43	-	16
6.89	45.2	68.3	97.8	0.5	0.4	1.2	5	silty SAND to sandy SILT	120	4.0	17	11	54	43	-	16
7.05	39.9	59.7	94.9	0.5	0.4	1.3	5	silty SAND to sandy SILT	120	4.0	15	10	50	42	-	16
7.22	37.5	55.4	92.9	0.5	0.4	1.4	5	silty SAND to sandy SILT	120	4.0	14	9	48	42	-	16
7.38	37.1	54.2	89.5	0.5	0.4	1.3	5	silty SAND to sandy SILT	120	4.0	14	9	47	41	-	16
7.55	34.2	49.4	87.4	0.5	0.4	1.4	5	silty SAND to sandy SILT	120	4.0	12	9	44	41	-	16
7.71	29.8	42.5	81.3	0.4	0.4	1.3	5	silty SAND to sandy SILT	120	4.0	11	7	39	40	-	16
7.87	26.0	36.8	79.5	0.4	0.4	1.5	5	silty SAND to sandy SILT	120	4.0	9	7	34	39	-	16
8.04	24.6	34.4	77.3	0.4	0.4	1.5	5	silty SAND to sandy SILT	120	4.0	9	6	32	39	-	16
8.20	22.1	30.6	76.7	0.3	0.4	1.6	5	silty SAND to sandy SILT	120	4.0	8	6	28	38	-	16
8.37	19.6	26.9	74.8	0.3	0.4	1.6	5	silty SAND to sandy SILT	120	4.0	7	5	24	37	-	16
8.53	19.3	26.3	70.8	0.3	0.4	1.5	5	silty SAND to sandy SILT	120	4.0	7	5	23	37	-	16
8.69	18.2	24.4	75.5	0.3	0.4	1.8	4	clayy SILT to silty CLAY	115	2.0	12	9	-	-	1.3	15
8.86	15.5	24.9	-	0.4	0.4	2.8	4	clayy SILT to silty CLAY	115	2.0	12	8	-	-	1.1	15
9.02	12.6	20.1	-	0.5	0.4	4.1	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
9.19	13.4	21.5	-	0.5	0.4	4.0	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
9.35	32.3	42.0	91.5	0.6	-0.5	1.8	5	silty SAND to sandy SILT	120	4.0	10	8	38	40	-	16
9.51	67.0	86.4	107.3	0.6	0.3	1.0	6	clean SAND to silty SAND	125	5.0	17	13	62	44	-	16
9.68	86.6	110.6	130.4	0.9	0.4	1.0	6	clean SAND to silty SAND	125	5.0	22	17	70	45	-	16
9.84	95.8	121.2	143.6	1.1	0.3	1.2	6	clean SAND to silty SAND	125	5.0	24	19	73	45	-	16
10.01	98.8	124.0	150.1	1.3	0.3	1.3	6	clean SAND to silty SAND	125	5.0	25	20	74	45	-	16
10.17	107.8	134.1	158.4	1.4	0.4	1.3	6	clean SAND to silty SAND	125	5.0	27	22	77	46	-	16
10.34	121.4	149.8	170.0	1.5	0.4	1.2	6	clean SAND to silty SAND	125	5.0	30	24	80	46	-	16
10.50	130.5	159.7	179.9	1.6	0.4	1.2	6	clean SAND to silty SAND	125	5.0	32	26	82	46	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Earth Mechanics
Data File: SDF(472).cpt
CPT Date: 12/8/2008 9:12:32 AM
GW During Test: 12 ft

Sounding ID: CPT-08-54
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	137.0	166.3	187.0	1.7	0.4	1.3	6	clean SAND to silty SAND	125	5.0	33	27	84	46	-	16
10.83	131.8	158.7	180.0	1.7	0.4	1.3	6	clean SAND to silty SAND	125	5.0	32	26	82	46	-	16
10.99	129.3	154.5	172.1	1.5	0.4	1.1	6	clean SAND to silty SAND	125	5.0	31	26	81	46	-	16
11.16	126.3	149.7	166.1	1.4	0.4	1.1	6	clean SAND to silty SAND	125	5.0	30	25	80	46	-	16
11.32	126.4	148.8	161.9	1.2	0.4	1.0	6	clean SAND to silty SAND	125	5.0	30	25	80	46	-	16
11.48	126.5	147.7	157.9	1.1	0.4	0.9	6	clean SAND to silty SAND	125	5.0	30	25	80	46	-	16
11.65	121.5	140.9	148.7	0.9	0.4	0.8	6	clean SAND to silty SAND	125	5.0	28	24	78	46	-	16
11.81	109.1	125.6	131.5	0.7	0.4	0.6	6	clean SAND to silty SAND	125	5.0	25	22	75	45	-	16
11.98	89.7	102.5	119.5	0.8	0.4	0.9	6	clean SAND to silty SAND	125	5.0	20	18	68	44	-	16
12.14	62.9	71.6	109.3	0.9	0.4	1.5	5	silty SAND to sandy SILT	120	4.0	18	16	56	42	-	16
12.30	54.6	62.0	112.0	1.0	-0.4	1.9	5	silty SAND to sandy SILT	120	4.0	16	14	51	41	-	16
12.47	49.4	55.8	111.2	1.0	0.9	2.1	5	silty SAND to sandy SILT	120	4.0	14	12	48	41	-	16
12.63	45.3	51.1	108.8	1.0	-0.4	2.1	5	silty SAND to sandy SILT	120	4.0	13	11	45	40	-	16
12.80	43.9	49.3	102.8	0.8	-1.2	2.0	5	silty SAND to sandy SILT	120	4.0	12	11	44	40	-	16
12.96	41.1	46.1	99.2	0.8	-2.0	1.9	5	silty SAND to sandy SILT	120	4.0	12	10	41	40	-	16
13.12	38.4	42.9	92.9	0.7	-2.4	1.8	5	silty SAND to sandy SILT	120	4.0	11	10	39	39	-	16
13.29	33.8	37.7	87.2	0.6	-2.7	1.7	5	silty SAND to sandy SILT	120	4.0	9	8	35	39	-	16
13.45	29.8	33.1	79.0	0.5	-2.8	1.6	5	silty SAND to sandy SILT	120	4.0	8	7	30	38	-	16
13.62	27.1	30.0	78.5	0.4	-3.1	1.7	5	silty SAND to sandy SILT	120	4.0	7	7	27	37	-	16
13.78	22.6	24.9	81.8	0.4	-4.4	2.1	4	clayy SILT to silty CLAY	115	2.0	12	11	-	-	1.6	15
13.94	20.1	25.7	-	0.4	-7.6	2.2	4	clayy SILT to silty CLAY	115	2.0	13	10	-	-	1.4	15
14.11	14.0	17.8	-	0.4	-7.9	3.2	3	silty CLAY to CLAY	115	1.5	12	9	-	-	1.0	15
14.27	9.2	11.7	-	0.4	-8.1	4.4	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
14.44	7.1	8.9	-	0.3	-8.2	4.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
14.60	7.2	9.0	-	0.3	-7.8	4.6	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
14.76	6.6	8.2	-	0.3	-7.6	5.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.93	5.9	7.3	-	0.3	-7.3	6.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.09	4.5	5.6	-	0.3	1.2	8.4	2	Organic SOILS - Peats	100	1.0	6	5	-	-	0.4	10
15.26	5.1	6.3	-	0.3	2.3	6.4	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.42	4.8	5.9	-	0.3	2.4	7.8	2	Organic SOILS - Peats	100	1.0	6	5	-	-	0.5	10
15.58	5.1	6.2	-	0.4	3.2	9.6	2	Organic SOILS - Peats	100	1.0	6	5	-	-	0.5	10
15.75	8.2	10.0	-	0.4	3.4	5.9	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
15.91	13.3	16.0	-	0.4	-1.2	3.4	3	silty CLAY to CLAY	115	1.5	11	9	-	-	0.9	15
16.08	9.2	11.0	-	0.4	-6.5	5.0	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
16.24	8.7	10.4	-	0.3	-7.1	4.3	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
16.40	26.9	28.5	75.7	0.4	-6.9	1.6	5	silty SAND to sandy SILT	120	4.0	7	7	26	36	-	16
16.57	28.6	30.3	78.7	0.5	-4.1	1.6	5	silty SAND to sandy SILT	120	4.0	8	7	28	37	-	16
16.73	34.9	36.8	78.9	0.5	-4.0	1.4	5	silty SAND to sandy SILT	120	4.0	9	9	34	38	-	16
16.90	49.1	51.6	88.2	0.6	-5.8	1.3	5	silty SAND to sandy SILT	120	4.0	13	12	45	40	-	16
17.06	57.0	59.7	95.8	0.8	-7.8	1.4	5	silty SAND to sandy SILT	120	4.0	15	14	50	40	-	16
17.23	63.8	66.6	102.6	0.9	-7.3	1.4	5	silty SAND to sandy SILT	120	4.0	17	16	54	41	-	16
17.39	65.4	68.1	107.7	1.0	-6.7	1.5	5	silty SAND to sandy SILT	120	4.0	17	16	54	41	-	16
17.55	66.3	68.9	113.0	1.1	-5.9	1.7	5	silty SAND to sandy SILT	120	4.0	17	17	55	41	-	16
17.72	67.4	69.9	113.4	1.1	-4.9	1.7	5	silty SAND to sandy SILT	120	4.0	17	17	55	41	-	16
17.88	73.6	76.1	115.1	1.1	-4.0	1.6	5	silty SAND to sandy SILT	120	4.0	19	18	58	42	-	16
18.05	74.3	76.6	119.7	1.2	-5.3	1.7	5	silty SAND to sandy SILT	120	4.0	19	19	58	42	-	16
18.21	68.3	70.3	114.2	1.1	-5.5	1.7	5	silty SAND to sandy SILT	120	4.0	18	17	55	41	-	16
18.37	69.7	71.5	112.6	1.1	-4.8	1.6	5	silty SAND to sandy SILT	120	4.0	18	17	56	41	-	16
18.54	59.5	60.9	108.3	1.0	-1.3	1.8	5	silty SAND to sandy SILT	120	4.0	15	15	51	40	-	16
18.70	51.4	52.5	106.1	1.0	-0.8	2.0	5	silty SAND to sandy SILT	120	4.0	13	13	46	39	-	16
18.87	41.8	42.5	96.6	0.8	-1.7	1.9	5	silty SAND to sandy SILT	120	4.0	11	10	39	38	-	16
19.03	33.1	33.6	88.6	0.6	-5.7	2.0	5	silty SAND to sandy SILT	120	4.0	8	8	31	37	-	16
19.19	15.9	17.3	-	0.5	-8.1	3.4	3	silty CLAY to CLAY	115	1.5	12	11	-	-	1.1	15
19.36	8.2	8.8	-	0.4	-7.3	5.8	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
19.52	6.0	6.5	-	0.3	-6.1	5.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
19.69	5.5	5.9	-	0.2	-5.5	5.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
19.85	5.4	5.7	-	0.3	-5.0	7.9	2	Organic SOILS - Peats	100	1.0	6	5	-	-	0.5	10
20.01	7.1	7.6	-	0.4	-4.6	6.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
20.18	9.2	9.7	-	0.4	-2.7	4.6	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
20.34	13.6	14.4	-	0.3	-3.6	2.7	3	silty CLAY to CLAY	115	1.5	10	9	-	-	0.9	15
20.51	15.6	16.4	-	0.3	-4.0	2.3	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.1	15
20.67	12.4	12.9	-	0.3	-3.0	3.1	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
20.83	7.5	7.8	-	0.4	-2.3	5.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.00	6.1	6.3	-	0.3	-0.8	6.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(472).cpt
CPT Date: 12/8/2008 9:12:32 AM
GW During Test: 12 ft

Sounding ID: CPT-08-54
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	5.1	5.3	-	0.3	0.2	7.8	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
21.33	5.0	5.1	-	0.3	1.2	9.1	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
21.49	5.2	5.3	-	0.3	1.9	8.3	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
21.65	4.9	5.0	-	0.3	4.4	8.9	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.4	10
21.82	5.5	5.6	-	0.4	3.6	8.8	2	Organic SOILS - Peats	100	1.0	6	5	-	-	0.5	10
21.98	5.8	5.9	-	0.4	2.5	8.9	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.5	10
22.15	5.9	6.0	-	0.4	1.3	8.8	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
22.31	5.3	5.3	-	0.5	0.5	9.9	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
22.47	6.4	6.4	-	0.4	0.4	7.8	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
22.64	21.3	21.4	-	0.4	0.4	2.2	4	clayy SILT to silty CLAY	115	2.0	11	11	-	-	1.5	15
22.80	50.3	48.8	79.5	0.5	-4.3	1.1	5	silty SAND to sandy SILT	120	4.0	12	13	43	38	-	16
22.97	70.3	68.1	93.5	0.7	-4.6	1.0	6	clean SAND to silty SAND	125	5.0	14	14	54	40	-	16
23.13	80.6	77.8	103.0	0.8	-4.0	1.1	6	clean SAND to silty SAND	125	5.0	16	16	59	41	-	16
23.30	88.7	85.4	111.4	1.0	-3.2	1.1	6	clean SAND to silty SAND	125	5.0	17	18	62	41	-	16
23.46	96.1	92.3	117.4	1.1	-2.4	1.1	6	clean SAND to silty SAND	125	5.0	18	19	64	42	-	16
23.62	103.2	98.9	123.0	1.2	-1.6	1.1	6	clean SAND to silty SAND	125	5.0	20	21	67	42	-	16
23.79	107.9	103.1	126.6	1.2	-0.8	1.1	6	clean SAND to silty SAND	125	5.0	21	22	68	42	-	16
23.95	111.6	106.3	129.5	1.2	0.1	1.1	6	clean SAND to silty SAND	125	5.0	21	22	69	42	-	16
24.12	116.3	110.6	132.9	1.3	1.1	1.1	6	clean SAND to silty SAND	125	5.0	22	23	70	43	-	16
24.28	119.0	112.9	135.0	1.3	2.1	1.1	6	clean SAND to silty SAND	125	5.0	23	24	71	43	-	16
24.44	116.8	110.5	132.4	1.3	2.9	1.1	6	clean SAND to silty SAND	125	5.0	22	23	70	43	-	16
24.61	112.1	105.8	124.4	1.1	3.5	1.0	6	clean SAND to silty SAND	125	5.0	21	22	69	42	-	16
24.77	107.7	101.5	122.6	1.1	4.0	1.0	6	clean SAND to silty SAND	125	5.0	20	22	67	42	-	16
24.94	98.4	92.4	117.8	1.1	4.7	1.1	6	clean SAND to silty SAND	125	5.0	18	20	64	42	-	16
25.10	101.4	95.0	123.2	1.3	4.7	1.3	6	clean SAND to silty SAND	125	5.0	19	20	65	42	-	16
25.26	105.3	98.5	130.3	1.5	4.1	1.4	6	clean SAND to silty SAND	125	5.0	20	21	66	42	-	16
25.43	104.1	97.1	133.4	1.6	3.7	1.6	5	silty SAND to sandy SILT	120	4.0	24	26	66	42	-	16
25.59	97.2	90.5	136.8	1.8	3.7	1.9	5	silty SAND to sandy SILT	120	4.0	23	24	64	41	-	16
25.76	74.3	69.0	126.6	1.6	4.1	2.2	5	silty SAND to sandy SILT	120	4.0	17	19	55	40	-	16
25.92	46.6	43.2	127.7	1.5	4.6	3.3	4	clayy SILT to silty CLAY	115	2.0	22	23	-	-	3.2	15
26.08	22.8	20.6	-	1.1	5.2	5.1	3	silty CLAY to CLAY	115	1.5	14	15	-	-	1.5	15
26.25	12.4	11.2	-	0.8	6.4	7.0	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
26.41	9.4	8.4	-	0.4	12.4	5.2	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
26.58	8.1	7.3	-	0.3	18.2	4.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.74	7.6	6.8	-	0.3	19.5	4.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.90	6.6	5.8	-	0.3	24.0	5.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
27.07	6.4	5.7	-	0.3	26.9	5.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
27.23	6.2	5.5	-	0.3	24.8	6.8	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
27.40	6.7	5.9	-	0.5	27.3	8.9	2	Organic SOILS - Peats	100	1.0	6	7	-	-	0.6	10
27.56	15.3	13.4	-	0.6	28.2	4.3	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
27.72	25.1	22.0	-	0.7	-2.9	2.9	4	clayy SILT to silty CLAY	115	2.0	11	13	-	-	1.7	15
27.89	29.4	25.6	-	0.9	-5.4	3.1	4	clayy SILT to silty CLAY	115	2.0	13	15	-	-	2.0	15
28.05	30.5	26.5	-	1.0	-5.2	3.6	4	clayy SILT to silty CLAY	115	2.0	13	15	-	-	2.1	15
28.22	27.8	24.0	-	1.0	-7.9	4.0	3	silty CLAY to CLAY	115	1.5	16	19	-	-	1.9	15
28.38	25.1	21.7	-	0.9	-9.3	4.0	3	silty CLAY to CLAY	115	1.5	14	17	-	-	1.7	15
28.54	33.8	29.0	-	0.9	-10.3	2.8	4	clayy SILT to silty CLAY	115	2.0	14	17	-	-	2.3	15
28.71	40.2	36.1	99.5	0.9	-10.6	2.3	4	clayy SILT to silty CLAY	115	2.0	18	20	-	-	2.8	15
28.87	43.6	39.1	103.6	1.0	-10.8	2.4	5	silty SAND to sandy SILT	120	4.0	10	11	36	36	-	16
29.04	41.5	37.1	113.1	1.2	-10.7	2.9	4	clayy SILT to silty CLAY	115	2.0	19	21	-	-	2.9	15
29.20	42.8	38.2	109.5	1.1	-10.4	2.7	4	clayy SILT to silty CLAY	115	2.0	19	21	-	-	3.0	15
29.36	50.9	45.3	100.3	1.0	-10.1	2.0	5	silty SAND to sandy SILT	120	4.0	11	13	41	37	-	16
29.53	51.8	46.1	102.5	1.0	-10.5	2.0	5	silty SAND to sandy SILT	120	4.0	12	13	41	37	-	16
29.69	38.2	32.0	-	1.1	-10.4	3.0	4	clayy SILT to silty CLAY	115	2.0	16	19	-	-	2.6	15
29.86	27.2	22.7	-	1.0	-10.0	3.9	3	silty CLAY to CLAY	115	1.5	15	18	-	-	1.9	15
30.02	22.2	18.4	-	1.1	-9.8	5.2	3	silty CLAY to CLAY	115	1.5	12	15	-	-	1.5	15
30.19	16.8	13.9	-	0.9	-1.8	5.7	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
30.35	27.4	22.5	-	0.8	-3.4	3.2	4	clayy SILT to silty CLAY	115	2.0	11	14	-	-	1.9	15
30.51	21.8	17.9	-	0.8	-7.1	4.0	3	silty CLAY to CLAY	115	1.5	12	15	-	-	1.5	15
30.68	13.9	11.4	-	0.7	-7.4	5.7	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
30.84	9.4	7.7	-	0.5	-7.8	7.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.01	7.5	6.1	-	0.4	-7.2	7.8	2	Organic SOILS - Peats	100	1.0	6	8	-	-	0.7	10
31.17	6.6	5.4	-	0.4	0.0	9.0	2	Organic SOILS - Peats	100	1.0	5	7	-	-	0.6	10
31.33	6.8	5.5	-	0.4	1.2	8.7	2	Organic SOILS - Peats	100	1.0	6	7	-	-	0.6	10
31.50	7.2	5.8	-	0.5	2.2	9.1	2	Organic SOILS - Peats	100	1.0	6	7	-	-	0.7	10

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(472).cpt
CPT Date: 12/8/2008 9:12:32 AM
GW During Test: 12 ft

Sounding ID: CPT-08-54
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	12.5	10.1	-	0.5	3.3	5.0	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
31.83	24.3	19.5	-	0.6	1.8	2.8	4	clayy SILT to silty CLAY	115	2.0	10	12	-	-	1.6	15
31.99	28.7	22.9	-	0.8	-1.9	2.9	4	clayy SILT to silty CLAY	115	2.0	11	14	-	-	2.0	15
32.15	18.0	14.3	-	0.8	-3.8	4.8	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.2	15
32.32	10.2	8.1	-	0.7	-4.6	8.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
32.48	10.1	8.0	-	0.6	-3.2	7.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
32.65	11.2	8.8	-	0.6	-1.7	6.4	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.81	10.1	7.9	-	0.6	-1.7	6.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
32.97	8.8	6.9	-	0.5	-0.7	7.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
33.14	7.9	6.1	-	0.4	0.5	7.4	2	Organic SOILS - Peats	100	1.0	6	8	-	-	0.7	10
33.30	7.6	5.9	-	0.4	1.9	7.8	2	Organic SOILS - Peats	100	1.0	6	8	-	-	0.7	10
33.47	7.8	6.1	-	0.4	3.2	7.4	2	Organic SOILS - Peats	100	1.0	6	8	-	-	0.7	10
33.63	7.9	6.1	-	0.5	4.5	8.6	2	Organic SOILS - Peats	100	1.0	6	8	-	-	0.7	10
33.79	7.9	6.1	-	0.5	6.2	8.2	2	Organic SOILS - Peats	100	1.0	6	8	-	-	0.7	10
33.96	18.0	13.9	-	0.5	8.4	3.1	3	silty CLAY to CLAY	115	1.5	9	12	-	-	1.2	15
34.12	30.6	26.0	79.9	0.5	2.5	1.8	4	clayy SILT to silty CLAY	115	2.0	13	15	-	-	2.1	15
34.29	39.8	33.8	84.2	0.6	3.8	1.7	5	silty SAND to sandy SILT	120	4.0	8	10	31	35	-	16
34.45	38.4	32.6	89.8	0.7	3.9	2.0	5	silty SAND to sandy SILT	120	4.0	8	10	30	35	-	16
34.61	33.6	25.5	-	0.7	4.4	2.2	4	clayy SILT to silty CLAY	115	2.0	13	17	-	-	2.3	15
34.78	25.1	19.0	-	0.7	-5.3	3.1	4	clayy SILT to silty CLAY	115	2.0	10	13	-	-	1.7	15
34.94	12.8	9.6	-	0.6	-8.2	5.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
35.11	7.7	5.8	-	0.5	8.8	8.5	2	Organic SOILS - Peats	100	1.0	6	8	-	-	0.7	10
35.27	7.3	5.5	-	0.4	12.8	7.7	2	Organic SOILS - Peats	100	1.0	5	7	-	-	0.7	10
35.43	7.7	5.7	-	0.4	16.7	7.2	2	Organic SOILS - Peats	100	1.0	6	8	-	-	0.7	10
35.60	7.7	5.8	-	0.4	20.4	7.5	2	Organic SOILS - Peats	100	1.0	6	8	-	-	0.7	10
35.76	8.3	6.2	-	0.5	23.9	7.9	2	Organic SOILS - Peats	100	1.0	6	8	-	-	0.8	10
35.93	9.9	7.3	-	0.5	21.4	6.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
36.09	9.1	6.7	-	0.5	20.2	7.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
36.26	9.5	7.0	-	0.5	25.3	6.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
36.42	9.3	6.8	-	0.5	23.2	7.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
36.58	9.4	6.9	-	0.5	26.6	6.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
36.75	9.7	7.1	-	0.5	25.9	6.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
36.91	10.7	7.8	-	0.6	24.8	6.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.08	11.8	8.6	-	0.6	19.2	6.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
37.24	10.9	7.9	-	0.5	18.4	6.0	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.40	10.4	7.5	-	0.5	20.7	5.7	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.57	9.5	6.8	-	0.5	24.3	6.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
37.73	10.3	7.4	-	0.6	29.1	7.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.90	12.3	8.8	-	0.5	28.5	5.4	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.06	11.2	8.0	-	0.5	16.2	6.0	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.22	12.6	8.9	-	0.5	18.4	5.2	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.39	10.2	7.3	-	0.5	14.7	6.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
38.55	9.9	7.0	-	0.5	18.0	6.7	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
38.72	9.9	7.0	-	0.5	20.0	6.7	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
38.88	10.2	7.2	-	0.6	22.4	7.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
39.04	10.5	7.4	-	0.6	18.0	7.3	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
39.21	10.8	7.5	-	0.6	15.1	7.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
39.37	10.7	7.4	-	0.6	13.0	7.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
39.54	11.1	7.7	-	0.7	12.7	7.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
39.70	11.8	8.2	-	0.6	12.8	6.7	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
39.86	12.4	8.5	-	0.6	12.7	6.5	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
40.03	12.0	8.3	-	0.6	11.3	6.4	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
40.19	11.5	7.9	-	0.5	11.2	6.0	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
40.36	11.1	7.6	-	0.4	13.5	5.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
40.52	10.3	7.1	-	0.5	16.3	6.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
40.68	9.4	6.4	-	0.5	33.6	7.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
40.85	10.6	7.2	-	0.6	32.0	7.3	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
41.01	16.7	11.3	-	0.6	26.8	4.4	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
41.18	14.5	9.8	-	0.6	5.5	4.8	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.9	15
41.34	11.1	7.5	-	0.6	4.5	7.0	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
41.50	11.6	7.8	-	0.7	7.5	7.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
41.67	12.0	8.0	-	0.7	8.2	7.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
41.83	11.4	7.6	-	0.6	8.5	7.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
42.00	10.7	7.1	-	0.6	9.6	7.7	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(472).cpt
CPT Date: 12/8/2008 9:12:32 AM
GW During Test: 12 ft

Sounding ID: CPT-08-54
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS - *	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60% *	SPT R-N 60% *	Rel Den % *	Ftn Ang deg *	Und Shr tsf	Nk - *
42.16	11.4	7.6	-	0.8	12.2	8.9	2	Organic SOILS - Peats	100	1.0	8	11	-	-	1.1	10
42.32	14.3	9.5	-	0.9	12.9	7.3	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
42.49	35.3	23.3	-	0.9	13.3	2.7	4	clayy SILT to silty CLAY	115	2.0	12	18	-	-	2.4	15
42.65	80.5	63.4	104.4	1.2	-4.5	1.5	5	silty SAND to sandy SILT	120	4.0	16	20	52	38	-	16
42.82	103.3	81.3	120.0	1.6	-5.2	1.6	5	silty SAND to sandy SILT	120	4.0	20	26	60	39	-	16
42.98	129.5	101.7	137.8	2.0	-4.9	1.6	5	silty SAND to sandy SILT	120	4.0	25	32	68	41	-	16
43.15	157.7	123.7	152.1	2.1	-6.1	1.4	6	clean SAND to silty SAND	125	5.0	25	32	74	42	-	16
43.31	159.9	125.2	153.4	2.2	-0.7	1.4	6	clean SAND to silty SAND	125	5.0	25	32	74	42	-	16
43.47	154.2	120.5	154.7	2.4	0.0	1.6	6	clean SAND to silty SAND	125	5.0	24	31	73	42	-	16
43.64	144.4	112.7	154.3	2.5	1.7	1.8	5	silty SAND to sandy SILT	120	4.0	28	36	71	41	-	16
43.80	137.7	107.3	158.1	2.8	3.2	2.1	5	silty SAND to sandy SILT	120	4.0	27	34	69	41	-	16
43.97	132.7	103.2	159.4	2.9	4.2	2.2	5	silty SAND to sandy SILT	120	4.0	26	33	68	41	-	16
44.13	129.4	100.5	159.8	2.9	3.7	2.3	5	silty SAND to sandy SILT	120	4.0	25	32	67	41	-	16
44.29	125.5	97.3	160.2	3.0	3.5	2.4	5	silty SAND to sandy SILT	120	4.0	24	31	66	40	-	16
44.46	120.4	93.2	158.8	3.0	2.5	2.5	5	silty SAND to sandy SILT	120	4.0	23	30	65	40	-	16
44.62	112.7	87.2	153.7	2.8	2.2	2.5	5	silty SAND to sandy SILT	120	4.0	22	28	62	40	-	16
44.79	108.5	83.7	144.4	2.5	2.2	2.3	5	silty SAND to sandy SILT	120	4.0	21	27	61	39	-	16
44.95	99.9	77.0	144.4	2.5	1.3	2.5	5	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
45.11	84.9	65.3	144.1	2.4	2.5	2.9	5	silty SAND to sandy SILT	120	4.0	16	21	53	38	-	16
45.28	63.8	39.9	-	2.4	0.0	4.0	4	clayy SILT to silty CLAY	115	2.0	20	32	-	-	4.4	15
45.44	35.4	22.1	-	1.9	-2.9	5.7	3	silty CLAY to CLAY	115	1.5	15	24	-	-	2.4	15
45.61	21.6	13.4	-	1.4	-3.3	7.5	3	silty CLAY to CLAY	115	1.5	9	14	-	-	1.4	15
45.77	17.9	11.1	-	1.1	-1.5	7.1	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
45.93	29.9	18.5	-	1.1	1.3	4.0	3	silty CLAY to CLAY	115	1.5	12	20	-	-	2.0	15
46.10	37.7	23.3	-	1.5	-0.6	4.1	3	silty CLAY to CLAY	115	1.5	16	25	-	-	2.6	15
46.26	41.8	25.8	-	1.3	-3.4	3.3	4	clayy SILT to silty CLAY	115	2.0	13	21	-	-	2.9	15
46.43	58.7	44.7	98.8	1.1	-6.2	1.9	5	silty SAND to sandy SILT	120	4.0	11	15	40	36	-	16
46.59	75.8	57.7	93.2	0.9	-7.7	1.3	5	silty SAND to sandy SILT	120	4.0	14	19	49	37	-	16
46.75	82.8	62.9	97.9	1.0	-7.8	1.3	5	silty SAND to sandy SILT	120	4.0	16	21	52	38	-	16
46.92	87.2	66.1	104.6	1.2	-7.6	1.5	5	silty SAND to sandy SILT	120	4.0	17	22	53	38	-	16
47.08	94.4	71.5	122.1	1.8	-7.2	1.9	5	silty SAND to sandy SILT	120	4.0	18	24	56	38	-	16
47.25	101.0	76.4	132.9	2.1	-7.0	2.1	5	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
47.41	117.6	88.8	144.1	2.5	-3.7	2.2	5	silty SAND to sandy SILT	120	4.0	22	29	63	40	-	16
47.57	135.1	101.8	158.0	2.9	-5.9	2.2	5	silty SAND to sandy SILT	120	4.0	25	34	68	40	-	16
47.74	160.0	120.4	168.4	3.2	-7.2	2.0	5	silty SAND to sandy SILT	120	4.0	30	40	73	41	-	16
47.90	192.8	144.9	181.0	3.2	-8.7	1.7	6	clean SAND to silty SAND	125	5.0	29	39	79	42	-	16
48.07	214.9	161.3	189.0	3.1	-9.7	1.5	6	clean SAND to silty SAND	125	5.0	32	43	83	43	-	16
48.23	211.4	158.4	172.2	2.1	-9.7	1.0	6	clean SAND to silty SAND	125	5.0	32	42	82	43	-	16
48.39	196.8	147.2	150.2	1.3	-9.6	0.7	6	clean SAND to silty SAND	125	5.0	29	39	80	42	-	16
48.56	199.0	148.7	148.7	0.6	-9.4	0.3	6	clean SAND to silty SAND	125	5.0	30	40	80	42	-	16
48.72	202.3	150.9	150.9	0.2	-9.7	0.1	6	clean SAND to silty SAND	125	5.0	30	40	81	42	-	16
48.89	188.3	140.3	140.1	1.0	-10.9	0.6	6	clean SAND to silty SAND	125	5.0	28	38	78	42	-	16
49.05	194.6	144.8	160.5	2.0	-10.6	1.0	6	clean SAND to silty SAND	125	5.0	29	39	79	42	-	16
49.22	200.4	148.8	163.7	2.0	-9.8	1.0	6	clean SAND to silty SAND	125	5.0	30	40	80	42	-	16
49.38	201.7	149.6	160.7	1.8	-10.5	0.9	6	clean SAND to silty SAND	125	5.0	30	40	80	42	-	16
49.54	199.6	147.8	158.3	1.7	-10.6	0.9	6	clean SAND to silty SAND	125	5.0	30	40	80	42	-	16
49.71	192.5	142.3	159.2	2.0	-10.4	1.1	6	clean SAND to silty SAND	125	5.0	28	39	79	42	-	16
49.87	190.0	140.3	162.9	2.3	-10.2	1.2	6	clean SAND to silty SAND	125	5.0	28	38	78	42	-	16
50.04	189.9	140.0	159.8	2.1	-7.8	1.1	6	clean SAND to silty SAND	125	5.0	28	38	78	42	-	16
50.20	199.2	146.6	162.0	2.0	-7.6	1.0	6	clean SAND to silty SAND	125	5.0	29	40	80	42	-	16
50.36	206.5	151.7	162.6	1.8	-7.4	0.9	6	clean SAND to silty SAND	125	5.0	30	41	81	42	-	16
50.53	217.2	159.4	165.7	1.7	-7.1	0.8	6	clean SAND to silty SAND	125	5.0	32	43	82	43	-	16
50.69	246.0	180.2	184.6	2.1	-6.9	0.9	6	clean SAND to silty SAND	125	5.0	36	49	86	43	-	16
50.86	254.9	186.5	187.1	2.0	-6.5	0.8	6	clean SAND to silty SAND	125	5.0	37	51	88	43	-	16
51.02	224.4	164.0	169.5	1.8	-1.5	0.8	6	clean SAND to silty SAND	125	5.0	33	45	83	43	-	16
51.18	197.7	144.2	153.6	1.6	-1.2	0.8	6	clean SAND to silty SAND	125	5.0	29	40	79	42	-	16
51.35	190.3	138.6	149.8	1.6	-1.0	0.9	6	clean SAND to silty SAND	125	5.0	28	38	78	42	-	16
51.51	171.0	124.4	144.2	1.8	-0.6	1.1	6	clean SAND to silty SAND	125	5.0	25	34	74	41	-	16
51.68	122.4	88.9	138.1	2.3	-0.4	1.9	5	silty SAND to sandy SILT	120	4.0	22	31	63	39	-	16
51.84	64.9	36.2	-	2.2	-0.2	3.5	4	clayy SILT to silty CLAY	115	2.0	18	32	-	-	4.5	15
52.00	36.4	20.3	-	1.9	0.3	5.6	3	silty CLAY to CLAY	115	1.5	14	24	-	-	2.5	15
52.17	35.3	19.6	-	1.5	1.1	4.7	3	silty CLAY to CLAY	115	1.5	13	24	-	-	2.4	15
52.33	26.5	14.7	-	1.2	2.3	5.3	3	silty CLAY to CLAY	115	1.5	10	18	-	-	1.8	15
52.50	18.6	10.3	-	0.7	3.5	4.7	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(472).cpt
CPT Date: 12/8/2008 9:12:32 AM
GW During Test: 12 ft

Sounding ID: CPT-08-54
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	17.1	9.4	-	0.6	4.6	4.2	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
52.82	16.2	8.9	-	0.6	6.2	4.5	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
52.99	14.9	8.2	-	0.6	7.8	4.9	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
53.15	14.3	7.8	-	0.5	9.7	4.6	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
53.32	14.0	7.6	-	0.6	11.8	5.3	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
53.48	17.7	9.7	-	1.0	14.9	6.5	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
53.64	26.1	14.2	-	1.2	26.0	5.1	3	silty CLAY to CLAY	115	1.5	9	17	-	-	1.7	15
53.81	101.0	72.2	117.5	1.7	8.8	1.7	5	silty SAND to sandy SILT	120	4.0	18	25	56	38	-	16
53.97	111.4	79.6	132.7	2.2	2.6	2.0	5	silty SAND to sandy SILT	120	4.0	20	28	59	39	-	16
54.14	95.7	68.2	141.6	2.5	3.1	2.7	5	silty SAND to sandy SILT	120	4.0	17	24	54	38	-	16
54.30	84.0	59.8	141.0	2.4	3.7	3.0	4	clayy SILT to silty CLAY	115	2.0	30	42	-	-	5.8	15
54.46	89.9	64.0	130.5	2.1	1.2	2.5	5	silty SAND to sandy SILT	120	4.0	16	22	52	37	-	16
54.63	95.5	67.9	136.6	2.4	-3.4	2.6	5	silty SAND to sandy SILT	120	4.0	17	24	54	38	-	16
54.79	98.8	70.1	139.1	2.5	-4.0	2.6	5	silty SAND to sandy SILT	120	4.0	18	25	55	38	-	16
54.96	107.4	76.2	145.4	2.7	-3.8	2.6	5	silty SAND to sandy SILT	120	4.0	19	27	58	38	-	16
55.12	119.1	84.3	153.8	3.0	-3.6	2.6	5	silty SAND to sandy SILT	120	4.0	21	30	61	39	-	16
55.28	122.4	86.6	154.9	3.1	-3.3	2.6	5	silty SAND to sandy SILT	120	4.0	22	31	62	39	-	16
55.45	111.9	79.0	160.6	3.3	-3.1	3.0	5	silty SAND to sandy SILT	120	4.0	20	28	59	38	-	16
55.61	111.0	78.3	152.3	3.0	3.7	2.8	5	silty SAND to sandy SILT	120	4.0	20	28	59	38	-	16
55.78	106.1	74.8	149.6	2.9	0.3	2.8	5	silty SAND to sandy SILT	120	4.0	19	27	57	38	-	16
55.94	102.0	71.7	143.6	2.6	-1.6	2.7	5	silty SAND to sandy SILT	120	4.0	18	25	56	38	-	16
56.11	98.5	69.3	139.0	2.5	-3.1	2.6	5	silty SAND to sandy SILT	120	4.0	17	25	55	38	-	16
56.27	90.4	63.4	139.1	2.4	-4.3	2.8	5	silty SAND to sandy SILT	120	4.0	16	23	52	37	-	16
56.43	74.5	52.2	144.4	2.5	-4.5	3.5	4	clayy SILT to silty CLAY	115	2.0	26	37	-	-	5.1	15
56.60	49.3	25.6	-	2.3	-4.3	5.0	3	silty CLAY to CLAY	115	1.5	17	33	-	-	3.4	15
56.76	27.4	14.2	-	1.9	-4.1	7.8	3	silty CLAY to CLAY	115	1.5	9	18	-	-	1.8	15
56.93	19.8	10.2	-	1.1	5.1	6.9	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
57.09	14.8	7.7	-	0.6	7.1	5.2	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
57.25	14.0	7.2	-	0.5	9.9	4.7	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
57.42	14.5	7.5	-	0.5	13.0	4.6	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
57.58	17.1	8.8	-	0.5	16.5	3.8	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
57.75	18.3	9.4	-	0.7	20.2	4.6	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.2	15
57.91	21.6	11.0	-	1.0	24.2	5.7	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.4	15
58.07	30.7	15.6	-	1.1	28.3	4.2	3	silty CLAY to CLAY	115	1.5	10	20	-	-	2.0	15
58.24	45.4	23.1	-	1.1	18.4	2.7	4	clayy SILT to silty CLAY	115	2.0	12	23	-	-	3.1	15
58.40	41.9	21.2	-	1.4	2.8	3.7	3	silty CLAY to CLAY	115	1.5	14	28	-	-	2.8	15
58.57	29.0	14.7	-	1.9	2.6	7.3	3	silty CLAY to CLAY	115	1.5	10	19	-	-	1.9	15
58.73	46.5	23.5	-	2.1	5.1	4.8	3	silty CLAY to CLAY	115	1.5	16	31	-	-	3.2	15
58.89	78.7	54.3	122.5	1.9	1.8	2.5	5	silty SAND to sandy SILT	120	4.0	14	20	47	36	-	16
59.06	86.4	59.5	117.2	1.7	-3.1	2.1	5	silty SAND to sandy SILT	120	4.0	15	22	50	37	-	16
59.22	88.4	60.8	117.2	1.8	-3.6	2.1	5	silty SAND to sandy SILT	120	4.0	15	22	51	37	-	16
59.39	90.1	61.9	133.6	2.3	-3.6	2.6	5	silty SAND to sandy SILT	120	4.0	15	23	51	37	-	16
59.55	94.4	64.8	153.9	3.0	-3.2	3.3	4	clayy SILT to silty CLAY	115	2.0	32	47	-	-	6.5	15
59.71	110.6	75.9	167.2	3.6	-2.6	3.4	4	clayy SILT to silty CLAY	115	2.0	38	55	-	-	7.7	15
59.88	139.0	95.2	165.7	3.6	-3.1	2.7	5	silty SAND to sandy SILT	120	4.0	24	35	65	39	-	16
60.04	157.8	107.9	172.6	3.9	-1.6	2.5	5	silty SAND to sandy SILT	120	4.0	27	39	70	40	-	16
60.21	168.1	114.8	163.9	3.3	-4.0	2.0	5	silty SAND to sandy SILT	120	4.0	29	42	72	40	-	16
60.37	230.0	157.0	180.6	3.0	-1.8	1.3	6	clean SAND to silty SAND	125	5.0	31	46	82	42	-	16
60.53	284.8	194.1	204.9	3.0	-5.4	1.1	6	clean SAND to silty SAND	125	5.0	39	57	89	43	-	16
60.70	315.0	214.4	214.4	2.1	-6.2	0.7	6	clean SAND to silty SAND	125	5.0	43	63	92	43	-	16
60.86	338.6	230.2	230.2	2.1	-5.6	0.6	6	clean SAND to silty SAND	125	5.0	46	68	95	44	-	16
61.03	374.4	254.2	254.2	1.9	-4.9	0.5	6	clean SAND to silty SAND	125	5.0	51	75	95	44	-	16
61.19	384.1	260.4	260.4	2.0	-4.2	0.5	6	clean SAND to silty SAND	125	5.0	52	77	95	44	-	16
61.35	381.5	258.4	258.4	2.0	-3.1	0.5	6	clean SAND to silty SAND	125	5.0	52	76	95	44	-	16
61.52	376.9	254.9	254.9	2.3	-1.5	0.6	6	clean SAND to silty SAND	125	5.0	51	75	95	44	-	16
61.68	384.1	259.5	259.5	2.1	-1.0	0.6	6	clean SAND to silty SAND	125	5.0	52	77	95	44	-	16
61.85	379.2	255.8	255.8	2.4	0.2	0.6	6	clean SAND to silty SAND	125	5.0	51	76	95	44	-	16
62.01	399.1	269.0	269.0	2.4	0.7	0.6	6	clean SAND to silty SAND	125	5.0	54	80	95	45	-	16
62.17	422.4	284.3	284.3	2.1	1.2	0.5	6	clean SAND to silty SAND	125	5.0	57	84	95	45	-	16
62.34	430.3	289.3	289.3	3.0	1.7	0.7	6	clean SAND to silty SAND	125	5.0	58	86	95	45	-	16
62.50	422.8	283.9	283.9	3.2	2.5	0.8	6	clean SAND to silty SAND	125	5.0	57	85	95	45	-	16
62.67	417.1	279.7	279.7	3.2	2.2	0.8	6	clean SAND to silty SAND	125	5.0	56	83	95	45	-	16
62.83	423.0	283.4	283.4	3.4	2.3	0.8	6	clean SAND to silty SAND	125	5.0	57	85	95	45	-	16
63.00	415.6	278.0	278.0	3.7	2.9	0.9	6	clean SAND to silty SAND	125	5.0	56	83	95	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(472).cpt
CPT Date: 12/8/2008 9:12:32 AM
GW During Test: 12 ft

Sounding ID: CPT-08-54
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	404.2	270.1	270.1	3.7	3.1	0.9	6	clean SAND to silty SAND	125	5.0	54	81	95	44	-	16
63.32	386.8	258.1	261.0	4.4	3.4	1.1	6	clean SAND to silty SAND	125	5.0	52	77	95	44	-	16
63.49	383.0	255.3	269.4	5.2	6.9	1.4	6	clean SAND to silty SAND	125	5.0	51	77	95	44	-	16
63.65	423.3	281.8	282.4	5.0	7.3	1.2	6	clean SAND to silty SAND	125	5.0	56	85	95	45	-	16
63.82	501.2	333.3	333.3	3.9	7.8	0.8	6	clean SAND to silty SAND	125	5.0	67	100	95	45	-	16
63.98	540.7	359.1	359.1	5.2	14.6	1.0	6	clean SAND to silty SAND	125	5.0	72	100	95	46	-	16
64.14	465.9	309.1	309.1	5.0	13.2	1.1	6	clean SAND to silty SAND	125	5.0	62	93	95	45	-	16
64.31	436.3	289.1	289.1	5.0	13.5	1.2	6	clean SAND to silty SAND	125	5.0	58	87	95	45	-	16
64.47	442.5	292.9	292.9	2.9	9.7	0.7	6	clean SAND to silty SAND	125	5.0	59	89	95	45	-	16
64.64	474.5	313.6	313.6	3.4	9.7	0.7	6	clean SAND to silty SAND	125	5.0	63	95	95	45	-	16
64.80	481.4	317.8	317.8	5.0	8.2	1.0	6	clean SAND to silty SAND	125	5.0	64	96	95	45	-	16
64.96	314.4	207.3	246.2	6.0	16.0	1.9	6	clean SAND to silty SAND	125	5.0	41	63	91	43	-	16
65.13	396.4	261.1	269.2	4.9	12.9	1.3	6	clean SAND to silty SAND	125	5.0	52	79	95	44	-	16
65.29	416.2	273.8	273.8	4.6	16.2	1.1	6	clean SAND to silty SAND	125	5.0	55	83	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(415).cpt
CPT Date: 11/18/2008 2:44:52 PM
GW During Test: 12 ft

Sounding ID: CPT-08-55
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	108.5	174.0	193.2	1.4	-0.1	1.3	6	clean SAND to silty SAND	125	5.0	35	22	85	48	-	16
0.49	109.5	175.6	215.7	2.1	-0.2	1.9	6	clean SAND to silty SAND	125	5.0	35	22	86	48	-	16
0.66	95.5	153.2	205.8	2.2	-0.1	2.3	5	silty SAND to sandy SILT	120	4.0	38	24	81	48	-	16
0.82	89.4	143.5	195.7	2.0	-0.2	2.2	5	silty SAND to sandy SILT	120	4.0	36	22	79	48	-	16
0.98	82.9	132.9	170.0	1.4	0.0	1.7	6	clean SAND to silty SAND	125	5.0	27	17	76	48	-	16
1.15	79.7	127.9	171.1	1.5	0.0	1.9	5	silty SAND to sandy SILT	120	4.0	32	20	75	48	-	16
1.31	55.7	89.4	163.0	1.6	0.3	2.8	5	silty SAND to sandy SILT	120	4.0	22	14	63	48	-	16
1.48	43.9	70.4	144.6	1.2	0.3	2.8	5	silty SAND to sandy SILT	120	4.0	18	11	55	48	-	16
1.64	54.1	86.8	131.2	1.0	0.4	1.8	5	silty SAND to sandy SILT	120	4.0	22	14	62	48	-	16
1.80	58.1	93.1	121.2	0.7	0.3	1.3	6	clean SAND to silty SAND	125	5.0	19	12	65	48	-	16
1.97	71.0	113.9	129.9	0.7	0.2	0.9	6	clean SAND to silty SAND	125	5.0	23	14	71	48	-	16
2.13	85.5	137.1	159.1	1.0	0.3	1.2	6	clean SAND to silty SAND	125	5.0	27	17	77	48	-	16
2.30	163.5	262.2	265.2	1.9	0.4	1.2	6	clean SAND to silty SAND	125	5.0	52	33	95	48	-	16
2.46	177.4	284.6	294.8	2.4	0.4	1.4	6	clean SAND to silty SAND	125	5.0	57	35	95	48	-	16
2.62	145.7	233.7	261.4	2.4	0.3	1.7	6	clean SAND to silty SAND	125	5.0	47	29	95	48	-	16
2.79	138.0	221.3	247.2	2.2	0.3	1.6	6	clean SAND to silty SAND	125	5.0	44	28	93	48	-	16
2.95	140.5	225.4	243.2	1.9	0.3	1.4	6	clean SAND to silty SAND	125	5.0	45	28	94	48	-	16
3.12	140.3	225.1	246.4	2.1	0.2	1.5	6	clean SAND to silty SAND	125	5.0	45	28	94	48	-	16
3.28	159.4	255.7	259.6	1.8	0.2	1.2	6	clean SAND to silty SAND	125	5.0	51	32	95	48	-	16
3.45	134.8	216.1	248.5	2.4	0.5	1.8	6	clean SAND to silty SAND	125	5.0	43	27	92	48	-	16
3.61	147.1	236.0	282.5	3.2	0.4	2.2	6	clean SAND to silty SAND	125	5.0	47	29	95	48	-	16
3.77	125.1	200.6	276.9	3.7	0.2	3.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	8.3	16
3.94	131.6	211.0	280.0	3.6	-0.8	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	8.7	16
4.10	136.1	218.3	262.7	2.9	-0.9	2.1	6	clean SAND to silty SAND	125	5.0	44	27	93	48	-	16
4.27	167.5	268.7	275.3	2.1	-0.2	1.3	6	clean SAND to silty SAND	125	5.0	54	34	95	48	-	16
4.43	155.2	248.9	248.8	1.6	0.6	1.1	6	clean SAND to silty SAND	125	5.0	50	31	95	48	-	16
4.59	146.0	234.1	247.9	1.9	0.6	1.3	6	clean SAND to silty SAND	125	5.0	47	29	95	48	-	16
4.76	148.5	238.1	244.0	1.7	0.6	1.1	6	clean SAND to silty SAND	125	5.0	48	30	95	48	-	16
4.92	138.5	222.1	222.1	1.2	0.6	0.9	6	clean SAND to silty SAND	125	5.0	44	28	93	48	-	16
5.09	133.9	214.7	214.7	1.1	0.6	0.8	6	clean SAND to silty SAND	125	5.0	43	27	92	48	-	16
5.25	114.4	183.5	187.8	1.0	0.6	0.9	6	clean SAND to silty SAND	125	5.0	37	23	87	48	-	16
5.41	100.2	160.6	170.1	0.9	0.6	0.9	6	clean SAND to silty SAND	125	5.0	32	20	83	47	-	16
5.58	81.8	131.1	148.0	0.8	0.5	1.0	6	clean SAND to silty SAND	125	5.0	26	16	76	46	-	16
5.74	63.1	101.2	123.6	0.7	0.5	1.1	6	clean SAND to silty SAND	125	5.0	20	13	67	45	-	16
5.91	44.3	71.0	101.1	0.5	0.5	1.2	5	silty SAND to sandy SILT	120	4.0	18	11	56	43	-	16
6.07	31.6	50.3	85.9	0.4	0.4	1.3	5	silty SAND to sandy SILT	120	4.0	13	8	44	41	-	16
6.23	24.2	37.9	78.8	0.3	0.4	1.4	5	silty SAND to sandy SILT	120	4.0	9	6	35	40	-	16
6.40	22.2	34.4	86.0	0.4	0.4	1.8	5	silty SAND to sandy SILT	120	4.0	9	6	32	39	-	16
6.56	20.2	30.9	96.0	0.5	0.3	2.5	4	clayy SILT to silty CLAY	115	2.0	15	10	-	-	1.4	15
6.73	17.7	28.4	-	0.5	0.3	3.1	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
6.89	16.6	26.6	-	0.5	0.3	3.3	4	clayy SILT to silty CLAY	115	2.0	13	8	-	-	1.2	15
7.05	17.8	28.5	-	0.4	0.2	2.6	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
7.22	19.7	28.8	84.8	0.4	0.2	2.0	4	clayy SILT to silty CLAY	115	2.0	14	10	-	-	1.4	15
7.38	17.5	28.1	87.9	0.4	0.2	2.2	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
7.55	12.8	20.6	-	0.4	0.2	3.5	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
7.71	10.8	17.3	-	0.5	0.1	4.5	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.7	15
7.87	12.4	19.9	-	0.5	0.2	4.1	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
8.04	13.6	21.9	-	0.5	0.2	3.7	3	silty CLAY to CLAY	115	1.5	15	9	-	-	0.9	15
8.20	14.5	23.3	-	0.5	0.1	3.5	4	clayy SILT to silty CLAY	115	2.0	12	7	-	-	1.0	15
8.37	11.3	18.1	-	0.4	-0.1	4.0	3	silty CLAY to CLAY	115	1.5	12	8	-	-	0.8	15
8.53	10.8	17.3	-	0.4	0.0	4.2	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.7	15
8.69	12.8	20.6	-	0.4	0.0	3.4	4	clayy SILT to silty CLAY	115	2.0	10	6	-	-	0.9	15
8.86	12.2	19.6	-	0.4	-0.7	3.7	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
9.02	10.3	16.5	-	0.4	-1.0	4.3	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
9.19	9.9	15.9	-	0.5	-1.1	4.8	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
9.35	12.3	19.8	-	0.6	-1.2	4.9	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.8	15
9.51	21.5	31.1	98.0	0.5	-0.9	2.6	4	clayy SILT to silty CLAY	115	2.0	16	11	-	-	1.5	15
9.68	47.6	60.5	91.4	0.6	-0.9	1.2	5	silty SAND to sandy SILT	120	4.0	15	12	50	42	-	16
9.84	74.4	93.9	107.0	0.5	-0.6	0.7	6	clean SAND to silty SAND	125	5.0	19	15	65	44	-	16
10.01	89.3	111.7	122.9	0.6	-0.6	0.7	6	clean SAND to silty SAND	125	5.0	22	18	71	45	-	16
10.17	96.0	119.1	131.4	0.8	-0.5	0.8	6	clean SAND to silty SAND	125	5.0	24	19	73	45	-	16
10.34	96.3	118.4	134.1	0.9	-0.6	0.9	6	clean SAND to silty SAND	125	5.0	24	19	73	45	-	16
10.50	100.9	123.1	137.7	0.9	-0.5	0.9	6	clean SAND to silty SAND	125	5.0	25	20	74	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(415).cpt
CPT Date: 11/18/2008 2:44:52 PM
GW During Test: 12 ft

Sounding ID: CPT-08-55
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n * PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	106.3	128.7	143.5	1.0	-0.5	0.9	6	clean SAND to silty SAND	125	5.0	26	21	75	45	-	16
10.83	111.7	134.2	149.1	1.1	-0.5	1.0	6	clean SAND to silty SAND	125	5.0	27	22	77	45	-	16
10.99	118.0	140.6	154.7	1.1	-0.5	1.0	6	clean SAND to silty SAND	125	5.0	28	24	78	46	-	16
11.16	118.7	140.4	155.3	1.2	-0.5	1.0	6	clean SAND to silty SAND	125	5.0	28	24	78	46	-	16
11.32	116.3	136.5	151.1	1.1	-0.5	1.0	6	clean SAND to silty SAND	125	5.0	27	23	77	45	-	16
11.48	116.0	135.2	148.3	1.1	-0.5	0.9	6	clean SAND to silty SAND	125	5.0	27	23	77	45	-	16
11.65	111.1	128.5	141.4	1.0	-0.4	0.9	6	clean SAND to silty SAND	125	5.0	26	22	75	45	-	16
11.81	104.2	119.6	129.3	0.7	-0.4	0.7	6	clean SAND to silty SAND	125	5.0	24	21	73	45	-	16
11.98	98.4	112.1	122.6	0.7	-0.4	0.7	6	clean SAND to silty SAND	125	5.0	22	20	71	44	-	16
12.14	95.8	108.8	119.1	0.7	-0.1	0.7	6	clean SAND to silty SAND	125	5.0	22	19	70	44	-	16
12.30	97.7	110.6	119.2	0.6	-0.1	0.6	6	clean SAND to silty SAND	125	5.0	22	20	70	44	-	16
12.47	99.5	112.3	118.5	0.6	-0.1	0.6	6	clean SAND to silty SAND	125	5.0	22	20	71	44	-	16
12.63	97.3	109.4	115.1	0.5	-0.1	0.5	6	clean SAND to silty SAND	125	5.0	22	19	70	44	-	16
12.80	90.1	100.9	109.2	0.5	-0.1	0.6	6	clean SAND to silty SAND	125	5.0	20	18	67	44	-	16
12.96	86.8	96.9	105.5	0.5	-0.1	0.6	6	clean SAND to silty SAND	125	5.0	19	17	66	44	-	16
13.12	85.9	95.6	102.6	0.4	-0.1	0.5	6	clean SAND to silty SAND	125	5.0	19	17	66	43	-	16
13.29	84.3	93.5	100.3	0.4	-0.1	0.5	6	clean SAND to silty SAND	125	5.0	19	17	65	43	-	16
13.45	82.8	91.6	100.8	0.5	-0.1	0.6	6	clean SAND to silty SAND	125	5.0	18	17	64	43	-	16
13.62	77.2	85.1	94.6	0.4	-0.1	0.5	6	clean SAND to silty SAND	125	5.0	17	15	62	43	-	16
13.78	58.8	64.6	79.9	0.4	-0.2	0.6	6	clean SAND to silty SAND	125	5.0	13	12	53	41	-	16
13.94	55.7	60.9	75.5	0.3	-0.2	0.6	6	clean SAND to silty SAND	125	5.0	12	11	51	41	-	16
14.11	51.3	55.9	74.7	0.3	-2.8	0.7	6	clean SAND to silty SAND	125	5.0	11	10	48	40	-	16
14.27	40.3	43.9	72.5	0.4	-1.6	1.0	5	silty SAND to sandy SILT	120	4.0	11	10	40	39	-	16
14.44	27.3	29.6	77.3	0.4	-1.6	1.6	5	silty SAND to sandy SILT	120	4.0	7	7	27	37	-	16
14.60	21.4	24.4	-	0.4	-1.7	2.1	4	clayy SILT to silty CLAY	115	2.0	12	11	-	-	1.5	15
14.76	20.7	23.5	-	0.4	-1.8	2.0	4	clayy SILT to silty CLAY	115	2.0	12	10	-	-	1.4	15
14.93	20.3	24.9	-	0.4	-3.2	2.2	4	clayy SILT to silty CLAY	115	2.0	12	10	-	-	1.4	15
15.09	14.5	17.7	-	0.3	-4.9	2.4	4	clayy SILT to silty CLAY	115	2.0	9	7	-	-	1.0	15
15.26	8.5	10.3	-	0.3	-5.5	3.5	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
15.42	6.8	8.2	-	0.2	-4.7	3.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
15.58	5.9	7.1	-	0.2	-4.6	4.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.75	5.8	6.9	-	0.3	-4.4	5.4	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.91	5.7	6.7	-	0.3	-4.2	5.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
16.08	5.4	6.3	-	0.3	-4.1	6.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
16.24	5.3	6.2	-	0.3	-3.9	6.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
16.40	8.6	10.1	-	0.3	-3.7	3.3	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
16.57	11.3	13.1	-	0.3	-3.7	2.4	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
16.73	9.7	11.3	-	0.2	-3.7	2.8	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
16.90	20.3	21.2	66.0	0.3	-3.6	1.4	4	clayy SILT to silty CLAY	115	2.0	11	10	-	-	1.4	15
17.06	11.8	13.5	-	0.3	-4.0	2.5	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
17.23	10.3	11.8	-	0.3	-3.8	2.8	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
17.39	31.3	32.4	67.5	0.3	-3.8	1.1	5	silty SAND to sandy SILT	120	4.0	8	8	30	37	-	16
17.55	31.4	32.4	80.6	0.5	-3.7	1.6	5	silty SAND to sandy SILT	120	4.0	8	8	30	37	-	16
17.72	23.4	26.2	-	0.5	-3.7	2.4	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.6	15
17.88	25.2	25.9	75.6	0.4	-3.6	1.7	4	clayy SILT to silty CLAY	115	2.0	13	13	-	-	1.7	15
18.05	37.0	37.9	72.1	0.4	-4.2	1.1	5	silty SAND to sandy SILT	120	4.0	9	9	35	38	-	16
18.21	58.1	59.3	83.0	0.5	-6.1	0.9	5	silty SAND to sandy SILT	120	4.0	15	15	50	40	-	16
18.37	61.9	63.1	88.7	0.6	-6.6	1.0	5	silty SAND to sandy SILT	120	4.0	16	15	52	40	-	16
18.54	72.0	73.2	102.9	0.9	-6.5	1.2	5	silty SAND to sandy SILT	120	4.0	18	18	57	41	-	16
18.70	71.2	72.2	98.2	0.7	-6.4	1.1	6	clean SAND to silty SAND	125	5.0	14	14	56	41	-	16
18.87	49.1	49.7	87.7	0.7	-4.3	1.4	5	silty SAND to sandy SILT	120	4.0	12	12	44	39	-	16
19.03	26.4	28.5	-	0.7	-4.3	2.6	4	clayy SILT to silty CLAY	115	2.0	14	13	-	-	1.8	15
19.19	12.1	13.0	-	0.5	-4.2	4.3	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
19.36	7.9	8.4	-	0.3	-3.9	4.6	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
19.52	7.3	7.7	-	0.3	-3.5	4.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
19.69	9.2	9.8	-	0.4	-3.1	4.9	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
19.85	13.5	14.2	-	0.4	-2.8	3.0	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
20.01	17.9	18.7	-	0.3	-3.0	1.9	4	clayy SILT to silty CLAY	115	2.0	9	9	-	-	1.2	15
20.18	18.9	19.1	-	0.2	-3.4	1.4	4	clayy SILT to silty CLAY	115	2.0	10	9	-	-	1.3	15
20.34	13.6	14.2	-	0.3	-3.5	2.3	4	clayy SILT to silty CLAY	115	2.0	7	7	-	-	0.9	15
20.51	8.8	9.1	-	0.4	-3.4	5.6	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
20.67	9.1	9.4	-	0.4	-3.0	5.5	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
20.83	7.6	7.8	-	0.4	-2.7	5.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.00	6.7	6.9	-	0.3	-2.3	4.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(415).cpt
CPT Date: 11/18/2008 2:44:52 PM
GW During Test: 12 ft

Sounding ID: CPT-08-55
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	6.2	6.3	-	0.3	-1.9	5.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.33	6.3	6.4	-	0.3	-1.7	5.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.49	6.3	6.3	-	0.3	-1.3	5.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.65	6.0	6.0	-	0.3	-1.1	6.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.82	6.6	6.6	-	0.5	-0.9	9.7	2	Organic SOILS - Peats	100	1.0	7	7	-	-	0.6	10
21.98	7.0	7.0	-	0.5	-0.8	9.1	2	Organic SOILS - Peats	100	1.0	7	7	-	-	0.7	10
22.15	7.8	7.8	-	0.6	-0.4	9.0	2	Organic SOILS - Peats	100	1.0	8	8	-	-	0.8	10
22.31	8.1	8.0	-	0.6	-0.6	8.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.47	13.5	13.3	-	0.5	-0.6	4.1	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
22.64	64.9	62.5	80.0	0.4	-0.5	0.7	6	clean SAND to silty SAND	125	5.0	12	13	51	40	-	16
22.80	89.4	85.9	96.3	0.5	-0.4	0.6	6	clean SAND to silty SAND	125	5.0	17	18	62	41	-	16
22.97	101.2	96.9	106.7	0.6	-0.2	0.6	6	clean SAND to silty SAND	125	5.0	19	20	66	42	-	16
23.13	110.6	105.6	115.2	0.7	0.0	0.6	6	clean SAND to silty SAND	125	5.0	21	22	69	42	-	16
23.30	122.4	116.7	124.8	0.8	0.2	0.7	6	clean SAND to silty SAND	125	5.0	23	24	72	43	-	16
23.46	129.0	122.6	131.1	0.9	0.4	0.7	6	clean SAND to silty SAND	125	5.0	25	26	74	43	-	16
23.62	133.3	126.4	135.0	0.9	0.6	0.7	6	clean SAND to silty SAND	125	5.0	25	27	75	43	-	16
23.79	131.7	124.6	134.3	1.0	0.9	0.7	6	clean SAND to silty SAND	125	5.0	25	26	74	43	-	16
23.95	129.9	122.6	132.1	0.9	1.0	0.7	6	clean SAND to silty SAND	125	5.0	25	26	74	43	-	16
24.12	124.5	117.2	127.1	0.9	1.2	0.7	6	clean SAND to silty SAND	125	5.0	23	25	72	43	-	16
24.28	116.1	109.0	122.9	0.9	2.1	0.8	6	clean SAND to silty SAND	125	5.0	22	23	70	42	-	16
24.44	108.9	102.0	118.8	0.9	2.3	0.9	6	clean SAND to silty SAND	125	5.0	20	22	68	42	-	16
24.61	102.2	95.5	114.3	0.9	2.5	0.9	6	clean SAND to silty SAND	125	5.0	19	20	65	42	-	16
24.77	109.2	101.8	119.0	1.0	2.6	0.9	6	clean SAND to silty SAND	125	5.0	20	22	68	42	-	16
24.94	107.1	99.6	117.2	0.9	2.7	0.9	6	clean SAND to silty SAND	125	5.0	20	21	67	42	-	16
25.10	91.4	84.8	104.3	0.8	2.8	0.9	6	clean SAND to silty SAND	125	5.0	17	18	62	41	-	16
25.26	70.1	64.9	92.6	0.7	2.8	1.1	5	silty SAND to sandy SILT	120	4.0	16	18	53	40	-	16
25.43	37.3	34.5	96.2	0.8	2.8	2.2	4	clayy SILT to silty CLAY	115	2.0	17	19	-	-	2.6	15
25.59	17.6	15.9	-	0.7	2.8	4.2	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.2	15
25.76	11.0	9.9	-	0.2	3.1	2.3	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
25.92	9.7	8.7	-	0.2	3.3	2.7	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
26.08	4.9	4.4	-	0.3	14.8	9.9	2	Organic SOILS - Peats	100	1.0	4	5	-	-	0.4	10
26.25	4.9	4.3	-	0.2	15.3	4.7	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
26.41	8.4	7.5	-	0.2	17.2	3.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
26.58	7.3	6.5	-	0.2	21.1	2.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
26.74	7.3	6.4	-	0.2	23.4	3.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
26.90	9.1	8.0	-	0.4	25.8	5.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
27.07	14.3	12.5	-	0.4	21.4	3.3	3	silty CLAY to CLAY	115	1.5	8	10	-	-	1.0	15
27.23	19.8	17.2	-	0.4	11.1	2.0	4	clayy SILT to silty CLAY	115	2.0	9	10	-	-	1.3	15
27.40	27.5	24.8	66.1	0.3	6.3	1.2	5	silty SAND to sandy SILT	120	4.0	6	7	21	34	-	16
27.56	31.6	28.5	72.6	0.4	3.3	1.4	5	silty SAND to sandy SILT	120	4.0	7	8	26	35	-	16
27.72	31.1	28.0	79.5	0.5	3.6	1.7	5	silty SAND to sandy SILT	120	4.0	7	8	25	34	-	16
27.89	32.4	29.1	80.9	0.5	4.2	1.8	5	silty SAND to sandy SILT	120	4.0	7	8	26	35	-	16
28.05	33.3	29.9	82.7	0.6	4.5	1.8	5	silty SAND to sandy SILT	120	4.0	7	8	27	35	-	16
28.22	36.1	32.3	78.3	0.5	3.8	1.5	5	silty SAND to sandy SILT	120	4.0	8	9	30	35	-	16
28.38	53.4	47.6	81.2	0.6	1.8	1.2	5	silty SAND to sandy SILT	120	4.0	12	13	43	38	-	16
28.54	52.2	46.5	80.6	0.6	-2.1	1.2	5	silty SAND to sandy SILT	120	4.0	12	13	42	37	-	16
28.71	47.4	42.2	82.2	0.6	-1.7	1.4	5	silty SAND to sandy SILT	120	4.0	11	12	39	37	-	16
28.87	35.1	31.1	84.7	0.6	-1.4	1.8	5	silty SAND to sandy SILT	120	4.0	8	9	28	35	-	16
29.04	33.4	29.6	81.3	0.6	-1.0	1.7	5	silty SAND to sandy SILT	120	4.0	7	8	27	35	-	16
29.20	32.3	28.5	77.9	0.5	-2.4	1.6	5	silty SAND to sandy SILT	120	4.0	7	8	26	34	-	16
29.36	30.9	27.2	79.1	0.5	-3.1	1.7	4	clayy SILT to silty CLAY	115	2.0	14	15	-	-	2.1	15
29.53	31.3	27.6	73.9	0.4	-4.2	1.5	5	silty SAND to sandy SILT	120	4.0	7	8	25	34	-	16
29.69	17.4	14.2	-	0.1	-6.1	0.8	4	clayy SILT to silty CLAY	115	2.0	7	9	-	-	1.2	15
29.86	8.9	7.3	-	0.3	-6.5	3.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.02	4.5	3.7	-	0.2	-3.6	8.9	2	Organic SOILS - Peats	100	1.0	4	5	-	-	0.4	10
30.19	7.4	6.0	-	0.2	-3.4	4.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.35	7.4	6.0	-	0.3	-3.0	5.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.51	9.6	7.8	-	0.4	-2.6	4.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.68	10.5	8.4	-	0.4	-2.3	4.1	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
30.84	13.2	10.6	-	0.3	-1.9	3.1	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
31.01	10.0	8.0	-	0.5	-1.6	6.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
31.17	10.5	8.3	-	0.6	-0.7	7.2	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
31.33	11.2	8.8	-	0.5	-0.2	5.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
31.50	9.7	7.7	-	0.4	0.2	4.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(415).cpt
CPT Date: 11/18/2008 2:44:52 PM
GW During Test: 12 ft

Sounding ID: CPT-08-55
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	9.5	7.5	-	0.3	0.6	4.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.83	8.8	6.9	-	0.3	1.0	4.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
31.99	7.2	5.7	-	0.3	1.5	4.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
32.15	7.5	5.8	-	0.3	2.1	4.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.32	7.9	6.1	-	0.3	2.8	4.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.48	8.5	6.6	-	0.4	3.5	5.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
32.65	11.1	8.5	-	0.4	4.2	4.5	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.81	18.4	14.1	-	0.4	3.8	2.6	3	silty CLAY to CLAY	115	1.5	9	12	-	-	1.2	15
32.97	21.0	16.0	-	0.4	4.2	2.4	4	clayy SILT to silty CLAY	115	2.0	8	10	-	-	1.4	15
33.14	27.7	21.1	-	0.4	4.4	1.7	4	clayy SILT to silty CLAY	115	2.0	11	14	-	-	1.9	15
33.30	35.0	29.6	56.8	0.2	4.4	0.7	5	silty SAND to sandy SILT	120	4.0	7	9	27	34	-	16
33.47	38.7	32.7	80.4	0.6	4.5	1.6	5	silty SAND to sandy SILT	120	4.0	8	10	30	35	-	16
33.63	12.7	9.6	-	0.7	6.5	6.6	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
33.79	18.8	14.2	-	0.7	6.5	3.9	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
33.96	10.2	7.7	-	0.4	7.0	5.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
34.12	7.7	5.8	-	0.3	8.5	4.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
34.29	7.9	5.9	-	0.3	10.4	4.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
34.45	8.4	6.3	-	0.3	12.2	4.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
34.61	8.7	6.4	-	0.3	13.7	5.0	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
34.78	9.4	7.0	-	0.4	16.5	5.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
34.94	10.4	7.6	-	0.5	19.1	6.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
35.11	9.4	6.9	-	0.4	21.0	5.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
35.27	8.5	6.2	-	0.3	23.1	5.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
35.43	8.1	5.9	-	0.3	25.3	4.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
35.60	8.2	5.9	-	0.3	27.0	4.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
35.76	8.3	6.0	-	0.3	28.2	4.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
35.93	8.9	6.5	-	0.3	29.8	4.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
36.09	9.8	7.1	-	0.3	30.9	4.3	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
36.26	9.1	6.5	-	0.4	28.3	5.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
36.42	10.2	7.3	-	0.4	30.4	4.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
36.58	11.9	8.5	-	0.5	31.4	5.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
36.75	21.4	15.2	-	0.2	21.5	1.1	4	clayy SILT to silty CLAY	115	2.0	8	11	-	-	1.4	15
36.91	33.5	27.4	54.0	0.2	2.2	0.7	5	silty SAND to sandy SILT	120	4.0	7	8	24	33	-	16
37.08	9.6	6.8	-	0.5	-0.1	7.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
37.24	9.6	6.7	-	0.5	0.0	6.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
37.40	13.6	9.5	-	0.5	0.3	4.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
37.57	11.2	7.8	-	0.4	0.9	3.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.73	10.1	7.1	-	0.3	1.5	4.3	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
37.90	10.1	7.0	-	0.4	2.2	4.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
38.06	9.8	6.8	-	0.4	2.8	4.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
38.22	9.8	6.7	-	0.3	3.7	4.5	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
38.39	10.2	7.0	-	0.4	4.6	4.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
38.55	10.3	7.1	-	0.4	5.6	5.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
38.72	11.0	7.5	-	0.4	6.5	4.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.88	10.8	7.4	-	0.4	7.3	5.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
39.04	10.9	7.4	-	0.4	8.5	5.0	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
39.21	11.8	8.0	-	0.4	9.7	4.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
39.37	12.0	8.1	-	0.4	10.9	4.0	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
39.54	11.5	7.8	-	0.3	12.1	3.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
39.70	11.9	8.0	-	0.3	14.0	3.0	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
39.86	11.2	7.5	-	0.3	15.8	3.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
40.03	10.4	7.0	-	0.3	18.0	4.3	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
40.19	10.1	6.7	-	0.4	20.2	4.6	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
40.36	10.4	6.9	-	0.4	21.9	4.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
40.52	10.3	6.8	-	0.4	35.2	5.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
40.68	10.4	6.9	-	0.4	37.9	5.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
40.85	10.6	7.0	-	0.4	39.3	5.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
41.01	10.7	7.0	-	0.5	40.4	5.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
41.18	11.9	7.8	-	0.6	43.1	6.0	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
41.34	14.2	9.3	-	0.8	39.5	6.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
41.50	20.7	13.5	-	0.9	34.1	4.8	3	silty CLAY to CLAY	115	1.5	9	14	-	-	1.4	15
41.67	44.0	34.5	87.6	0.8	12.5	1.8	5	silty SAND to sandy SILT	120	4.0	9	11	32	34	-	16
41.83	79.2	61.9	93.7	0.9	1.4	1.2	5	silty SAND to sandy SILT	120	4.0	15	20	51	38	-	16
42.00	94.2	73.6	105.9	1.2	-2.6	1.3	5	silty SAND to sandy SILT	120	4.0	18	24	57	39	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(415).cpt
CPT Date: 11/18/2008 2:44:52 PM
GW During Test: 12 ft

Sounding ID: CPT-08-55
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	101.7	79.4	120.2	1.6	-1.9	1.6	5	silty SAND to sandy SILT	120	4.0	20	25	59	39	-	16
42.32	102.8	80.1	129.3	1.9	-1.5	1.9	5	silty SAND to sandy SILT	120	4.0	20	26	60	39	-	16
42.49	103.1	80.2	133.3	2.1	-1.2	2.1	5	silty SAND to sandy SILT	120	4.0	20	26	60	39	-	16
42.65	101.4	78.7	133.6	2.1	-0.9	2.1	5	silty SAND to sandy SILT	120	4.0	20	25	59	39	-	16
42.82	97.6	75.7	131.3	2.0	-0.6	2.1	5	silty SAND to sandy SILT	120	4.0	19	24	58	39	-	16
42.98	91.0	70.5	128.0	1.9	-0.3	2.2	5	silty SAND to sandy SILT	120	4.0	18	23	55	39	-	16
43.15	85.5	66.1	122.4	1.7	-0.1	2.1	5	silty SAND to sandy SILT	120	4.0	17	21	53	38	-	16
43.31	84.5	65.2	115.0	1.5	2.9	1.9	5	silty SAND to sandy SILT	120	4.0	16	21	53	38	-	16
43.47	82.9	63.9	77.5	0.4	2.3	0.5	6	clean SAND to silty SAND	125	5.0	13	17	52	38	-	16
43.64	75.0	57.7	73.9	0.4	1.5	0.6	6	clean SAND to silty SAND	125	5.0	12	15	49	37	-	16
43.80	29.5	18.5	-	1.4	3.5	5.3	3	silty CLAY to CLAY	115	1.5	12	20	-	-	2.0	15
43.97	29.4	18.3	-	1.5	3.6	5.5	3	silty CLAY to CLAY	115	1.5	12	20	-	-	2.0	15
44.13	42.4	26.4	-	1.3	2.4	3.2	4	clayy SILT to silty CLAY	115	2.0	13	21	-	-	2.9	15
44.29	25.4	15.8	-	1.0	1.3	4.2	3	silty CLAY to CLAY	115	1.5	11	17	-	-	1.7	15
44.46	18.3	11.3	-	0.7	1.5	4.4	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
44.62	16.0	9.9	-	0.5	2.6	3.9	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
44.79	17.9	11.0	-	0.7	4.2	4.3	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
44.95	21.1	12.9	-	0.6	6.3	3.1	3	silty CLAY to CLAY	115	1.5	9	14	-	-	1.4	15
45.11	56.1	42.6	77.7	0.6	6.0	1.1	5	silty SAND to sandy SILT	120	4.0	11	14	39	35	-	16
45.28	73.2	55.6	87.0	0.8	3.8	1.1	5	silty SAND to sandy SILT	120	4.0	14	18	48	37	-	16
45.44	79.0	59.8	91.4	0.9	4.3	1.2	5	silty SAND to sandy SILT	120	4.0	15	20	50	37	-	16
45.61	77.5	58.6	94.5	1.0	4.7	1.3	5	silty SAND to sandy SILT	120	4.0	15	19	49	37	-	16
45.77	65.0	49.1	103.0	1.2	5.2	1.9	5	silty SAND to sandy SILT	120	4.0	12	16	44	36	-	16
45.93	54.3	41.0	101.4	1.1	5.8	2.1	5	silty SAND to sandy SILT	120	4.0	10	14	38	35	-	16
46.10	54.8	41.3	76.2	0.6	2.8	1.1	5	silty SAND to sandy SILT	120	4.0	10	14	38	35	-	16
46.26	66.9	50.3	91.2	0.9	1.6	1.4	5	silty SAND to sandy SILT	120	4.0	13	17	44	36	-	16
46.43	65.6	49.3	87.8	0.8	1.5	1.3	5	silty SAND to sandy SILT	120	4.0	12	16	44	36	-	16
46.59	80.6	60.5	92.9	0.9	0.2	1.2	5	silty SAND to sandy SILT	120	4.0	15	20	50	37	-	16
46.75	82.4	61.8	74.4	0.4	-1.9	0.5	6	clean SAND to silty SAND	125	5.0	12	16	51	38	-	16
46.92	77.7	58.1	73.5	0.4	-2.6	0.6	6	clean SAND to silty SAND	125	5.0	12	16	49	37	-	16
47.08	42.3	25.0	-	1.3	1.7	3.3	4	clayy SILT to silty CLAY	115	2.0	13	21	-	-	2.9	15
47.25	42.2	24.9	-	1.6	3.4	4.0	3	silty CLAY to CLAY	115	1.5	17	28	-	-	2.9	15
47.41	92.2	68.7	113.3	1.5	-1.5	1.7	5	silty SAND to sandy SILT	120	4.0	17	23	55	38	-	16
47.57	150.5	112.0	118.0	0.8	-4.0	0.6	6	clean SAND to silty SAND	125	5.0	22	30	71	41	-	16
47.74	181.9	135.1	135.1	0.6	-6.4	0.3	6	clean SAND to silty SAND	125	5.0	27	36	77	42	-	16
47.90	194.7	144.4	144.4	0.6	-6.4	0.3	6	clean SAND to silty SAND	125	5.0	29	39	79	42	-	16
48.07	210.7	156.0	156.0	0.6	-6.1	0.3	6	clean SAND to silty SAND	125	5.0	31	42	82	42	-	16
48.23	224.0	165.6	165.6	0.5	-5.8	0.2	6	clean SAND to silty SAND	125	5.0	33	45	84	43	-	16
48.39	221.6	163.7	163.7	0.6	-4.4	0.3	6	clean SAND to silty SAND	125	5.0	33	44	83	43	-	16
48.56	222.0	163.7	163.7	0.4	-4.2	0.2	6	clean SAND to silty SAND	125	5.0	33	44	83	43	-	16
48.72	211.8	156.0	156.0	0.6	-3.8	0.3	6	clean SAND to silty SAND	125	5.0	31	42	82	42	-	16
48.89	188.3	138.5	138.5	0.9	-1.9	0.5	6	clean SAND to silty SAND	125	5.0	28	38	78	42	-	16
49.05	166.9	122.5	127.0	0.9	-1.6	0.6	6	clean SAND to silty SAND	125	5.0	25	33	74	41	-	16
49.22	154.3	113.1	126.4	1.2	-1.0	0.8	6	clean SAND to silty SAND	125	5.0	23	31	71	41	-	16
49.38	136.3	99.7	112.4	0.9	-0.9	0.7	6	clean SAND to silty SAND	125	5.0	20	27	67	40	-	16
49.54	126.0	92.1	105.0	0.8	-0.8	0.7	6	clean SAND to silty SAND	125	5.0	18	25	64	40	-	16
49.71	120.5	88.0	99.8	0.7	-0.6	0.6	6	clean SAND to silty SAND	125	5.0	18	24	63	39	-	16
49.87	108.7	79.2	95.0	0.7	-1.2	0.7	6	clean SAND to silty SAND	125	5.0	16	22	59	39	-	16
50.04	83.3	60.6	95.2	1.0	-2.6	1.3	5	silty SAND to sandy SILT	120	4.0	15	21	50	37	-	16
50.20	53.9	30.2	-	1.4	-2.6	2.7	4	clayy SILT to silty CLAY	115	2.0	15	27	-	-	3.7	15
50.36	35.7	20.0	-	1.1	-2.3	3.5	3	silty CLAY to CLAY	115	1.5	13	24	-	-	2.4	15
50.53	30.6	17.0	-	0.7	-2.0	2.4	4	clayy SILT to silty CLAY	115	2.0	9	15	-	-	2.1	15
50.69	16.1	8.9	-	1.0	-1.3	7.9	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
50.86	12.8	7.1	-	0.3	-1.2	3.2	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
51.02	17.1	9.5	-	0.7	3.6	5.0	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
51.18	23.3	12.8	-	0.8	12.3	4.2	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.5	15
51.35	75.5	54.4	99.1	1.2	13.1	1.6	5	silty SAND to sandy SILT	120	4.0	14	19	47	36	-	16
51.51	127.5	91.8	141.9	2.5	8.5	2.0	5	silty SAND to sandy SILT	120	4.0	23	32	64	39	-	16
51.68	153.7	110.5	154.4	2.8	6.5	1.8	5	silty SAND to sandy SILT	120	4.0	28	38	70	40	-	16
51.84	156.0	112.0	156.7	2.9	6.3	1.9	5	silty SAND to sandy SILT	120	4.0	28	39	71	41	-	16
52.00	151.9	108.9	152.1	2.7	6.1	1.8	5	silty SAND to sandy SILT	120	4.0	27	38	70	40	-	16
52.17	151.9	108.8	139.2	2.1	5.8	1.4	6	clean SAND to silty SAND	125	5.0	22	30	70	40	-	16
52.33	22.8	12.4	-	0.8	9.1	4.3	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
52.50	41.3	29.5	76.2	0.6	12.3	1.5	5	silty SAND to sandy SILT	120	4.0	7	10	27	33	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(415).cpt
CPT Date: 11/18/2008 2:44:52 PM
GW During Test: 12 ft

Sounding ID: CPT-08-55
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	22.1	11.9	-	0.4	12.1	2.4	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
52.82	16.4	8.8	-	0.3	14.5	2.6	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
52.99	17.3	9.3	-	0.6	17.2	4.3	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
53.15	23.7	12.7	-	0.7	19.9	3.4	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.6	15
53.32	27.1	14.5	-	1.0	31.6	4.2	3	silty CLAY to CLAY	115	1.5	10	18	-	-	1.8	15
53.48	33.8	18.0	-	1.4	34.8	4.7	3	silty CLAY to CLAY	115	1.5	12	23	-	-	2.3	15
53.64	48.1	25.6	-	1.8	30.6	4.0	3	silty CLAY to CLAY	115	1.5	17	32	-	-	3.3	15
53.81	65.8	34.9	-	2.2	14.6	3.5	4	clayy SILT to silty CLAY	115	2.0	17	33	-	-	4.5	15
53.97	63.8	45.1	111.2	1.5	2.6	2.4	5	silty SAND to sandy SILT	120	4.0	11	16	41	35	-	16
54.14	72.3	51.1	93.3	1.0	0.1	1.5	5	silty SAND to sandy SILT	120	4.0	13	18	45	36	-	16
54.30	65.2	46.0	100.5	1.2	2.5	1.9	5	silty SAND to sandy SILT	120	4.0	11	16	41	35	-	16
54.46	59.7	31.4	-	1.6	3.7	2.8	4	clayy SILT to silty CLAY	115	2.0	16	30	-	-	4.1	15
54.63	82.7	58.1	111.9	1.6	7.3	2.0	5	silty SAND to sandy SILT	120	4.0	15	21	49	37	-	16
54.79	119.2	83.7	122.2	1.8	2.0	1.6	5	silty SAND to sandy SILT	120	4.0	21	30	61	39	-	16
54.96	118.3	83.0	124.0	1.9	0.0	1.6	5	silty SAND to sandy SILT	120	4.0	21	30	61	39	-	16
55.12	107.5	75.3	125.9	2.0	0.5	1.9	5	silty SAND to sandy SILT	120	4.0	19	27	58	38	-	16
55.28	98.9	69.2	139.7	2.5	1.1	2.6	5	silty SAND to sandy SILT	120	4.0	17	25	55	38	-	16
55.45	93.1	65.1	145.5	2.7	1.7	3.0	5	silty SAND to sandy SILT	120	4.0	16	23	53	37	-	16
55.61	139.4	97.3	138.5	2.3	2.4	1.7	5	silty SAND to sandy SILT	120	4.0	24	35	66	40	-	16
55.78	216.7	151.1	168.0	2.3	-1.1	1.1	6	clean SAND to silty SAND	125	5.0	30	43	81	42	-	16
55.94	264.1	183.9	192.6	2.6	-1.5	1.0	6	clean SAND to silty SAND	125	5.0	37	53	87	43	-	16
56.11	273.0	189.9	198.4	2.7	-1.0	1.0	6	clean SAND to silty SAND	125	5.0	38	55	88	43	-	16
56.27	281.1	195.3	203.0	2.8	-0.7	1.0	6	clean SAND to silty SAND	125	5.0	39	56	89	43	-	16
56.43	301.5	209.1	209.1	2.4	-0.3	0.8	6	clean SAND to silty SAND	125	5.0	42	60	91	43	-	16
56.60	312.8	216.7	216.7	2.4	0.1	0.8	6	clean SAND to silty SAND	125	5.0	43	63	93	44	-	16
56.76	329.7	228.1	228.1	2.1	0.9	0.6	6	clean SAND to silty SAND	125	5.0	46	66	94	44	-	16
56.93	349.4	241.4	241.4	2.2	1.4	0.6	6	clean SAND to silty SAND	125	5.0	48	70	95	44	-	16
57.09	360.2	248.6	248.6	2.4	1.9	0.7	6	clean SAND to silty SAND	125	5.0	50	72	95	44	-	16
57.25	382.1	263.3	263.3	2.1	2.3	0.6	6	clean SAND to silty SAND	125	5.0	53	76	95	45	-	16
57.42	383.9	264.2	264.2	2.3	5.6	0.6	6	clean SAND to silty SAND	125	5.0	53	77	95	45	-	16
57.58	394.1	270.9	270.9	2.1	6.1	0.5	6	clean SAND to silty SAND	125	5.0	54	79	95	45	-	16
57.75	397.4	272.8	272.8	1.9	6.0	0.5	6	clean SAND to silty SAND	125	5.0	55	79	95	45	-	16
57.91	411.5	282.1	282.1	2.1	7.4	0.5	6	clean SAND to silty SAND	125	5.0	56	82	95	45	-	16
58.07	411.5	281.7	281.7	1.8	6.8	0.4	6	clean SAND to silty SAND	125	5.0	56	82	95	45	-	16
58.24	434.4	297.1	297.1	2.5	7.7	0.6	6	clean SAND to silty SAND	125	5.0	59	87	95	45	-	16
58.40	437.4	298.7	298.7	2.2	7.6	0.5	6	clean SAND to silty SAND	125	5.0	60	87	95	45	-	16
58.57	434.9	296.7	296.7	2.6	8.1	0.6	6	clean SAND to silty SAND	125	5.0	59	87	95	45	-	16
58.73	457.7	311.8	311.8	2.6	8.3	0.6	6	clean SAND to silty SAND	125	5.0	62	92	95	45	-	16
58.89	502.1	341.6	341.6	4.8	9.0	1.0	6	clean SAND to silty SAND	125	5.0	68	100	95	46	-	16
59.06	575.4	391.0	391.0	3.4	9.2	0.6	6	clean SAND to silty SAND	125	5.0	78	100	95	46	-	16
59.22	552.7	375.1	375.1	2.2	5.9	0.4	7	grvly SAND to dense SAND	130	6.0	63	92	95	46	-	16
59.39	509.5	345.4	345.4	2.6	8.6	0.5	7	grvly SAND to dense SAND	130	6.0	58	85	95	46	-	16
59.55	548.6	371.4	371.4	3.6	11.7	0.7	6	clean SAND to silty SAND	125	5.0	74	100	95	46	-	16
59.71	551.0	372.5	372.5	3.8	10.4	0.7	6	clean SAND to silty SAND	125	5.0	74	100	95	46	-	16
59.88	513.8	346.9	346.9	3.1	7.9	0.6	6	clean SAND to silty SAND	125	5.0	69	100	95	46	-	16
60.04	442.2	298.2	298.2	3.2	8.7	0.7	6	clean SAND to silty SAND	125	5.0	60	88	95	45	-	16
60.21	438.4	295.3	295.3	2.3	9.5	0.5	6	clean SAND to silty SAND	125	5.0	59	88	95	45	-	16
60.37	439.8	295.9	295.9	2.0	9.2	0.5	6	clean SAND to silty SAND	125	5.0	59	88	95	45	-	16
60.53	451.0	303.0	303.0	3.7	10.3	0.8	6	clean SAND to silty SAND	125	5.0	61	90	95	45	-	16
60.70	481.9	323.4	323.4	3.6	9.1	0.8	6	clean SAND to silty SAND	125	5.0	65	96	95	45	-	16
60.86	467.2	313.1	313.1	2.7	9.1	0.6	6	clean SAND to silty SAND	125	5.0	63	93	95	45	-	16
61.03	487.6	326.4	326.4	4.2	8.1	0.9	6	clean SAND to silty SAND	125	5.0	65	98	95	45	-	16
61.19	431.1	288.2	288.2	2.9	7.3	0.7	6	clean SAND to silty SAND	125	5.0	58	86	95	45	-	16
61.35	406.4	271.4	271.4	2.1	8.9	0.5	6	clean SAND to silty SAND	125	5.0	54	81	95	45	-	16
61.52	413.2	275.6	275.6	2.0	8.9	0.5	6	clean SAND to silty SAND	125	5.0	55	83	95	45	-	16
61.68	431.2	287.3	287.3	1.7	8.8	0.4	7	grvly SAND to dense SAND	130	6.0	48	72	95	45	-	16
61.85	420.4	279.7	279.7	2.6	8.9	0.6	6	clean SAND to silty SAND	125	5.0	56	84	95	45	-	16
62.01	414.2	275.2	275.2	2.8	9.9	0.7	6	clean SAND to silty SAND	125	5.0	55	83	95	45	-	16
62.17	435.6	289.1	289.1	2.8	9.9	0.7	6	clean SAND to silty SAND	125	5.0	58	87	95	45	-	16
62.34	412.5	273.4	273.4	2.3	8.0	0.6	6	clean SAND to silty SAND	125	5.0	55	82	95	44	-	16
62.50	434.3	287.5	287.5	1.5	8.4	0.3	7	grvly SAND to dense SAND	130	6.0	48	72	95	45	-	16
62.67	418.3	276.6	276.6	1.7	8.8	0.4	7	grvly SAND to dense SAND	130	6.0	46	70	95	45	-	16
62.83	409.5	270.4	270.4	2.7	8.6	0.7	6	clean SAND to silty SAND	125	5.0	54	82	95	44	-	16
63.00	419.4	276.6	276.6	2.2	8.4	0.5	6	clean SAND to silty SAND	125	5.0	55	84	95	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(415).cpt
CPT Date: 11/18/2008 2:44:52 PM
GW During Test: 12 ft

Sounding ID: CPT-08-55
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	392.2	258.4	258.4	3.0	10.8	0.8	6	clean SAND to silty SAND	125	5.0	52	78	95	44	-	16
63.32	396.4	260.9	260.9	4.0	9.3	1.0	6	clean SAND to silty SAND	125	5.0	52	79	95	44	-	16
63.49	437.3	287.4	287.4	3.1	9.8	0.7	6	clean SAND to silty SAND	125	5.0	57	87	95	45	-	16
63.65	428.8	281.5	281.5	2.2	12.3	0.5	6	clean SAND to silty SAND	125	5.0	56	86	95	45	-	16
63.82	398.4	261.3	261.3	2.0	9.8	0.5	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
63.98	411.4	269.4	269.4	1.6	11.7	0.4	6	clean SAND to silty SAND	125	5.0	54	82	95	44	-	16
64.14	422.7	276.5	276.5	3.9	11.5	0.9	6	clean SAND to silty SAND	125	5.0	55	85	95	44	-	16
64.31	435.0	284.3	284.3	2.1	11.6	0.5	6	clean SAND to silty SAND	125	5.0	57	87	95	45	-	16
64.47	429.6	280.4	280.4	1.7	10.4	0.4	7	grvly SAND to dense SAND	130	6.0	47	72	95	45	-	16
64.64	427.0	278.3	278.3	2.1	11.0	0.5	6	clean SAND to silty SAND	125	5.0	56	85	95	44	-	16
64.80	447.1	291.1	291.1	1.2	10.5	0.3	7	grvly SAND to dense SAND	130	6.0	49	75	95	45	-	16
64.96	460.3	299.3	299.3	1.5	8.4	0.3	7	grvly SAND to dense SAND	130	6.0	50	77	95	45	-	16
65.13	497.3	323.0	323.0	1.6	7.8	0.3	7	grvly SAND to dense SAND	130	6.0	54	83	95	45	-	16
65.29	465.1	301.7	301.7	1.8	8.6	0.4	7	grvly SAND to dense SAND	130	6.0	50	78	95	45	-	16
65.46	441.0	285.8	285.8	2.1	8.6	0.5	6	clean SAND to silty SAND	125	5.0	57	88	95	45	-	16
65.62	444.1	287.4	287.4	1.5	8.6	0.3	7	grvly SAND to dense SAND	130	6.0	48	74	95	45	-	16
65.78	425.9	275.3	275.3	1.3	8.7	0.3	7	grvly SAND to dense SAND	130	6.0	46	71	95	44	-	16
65.95	419.0	270.5	270.5	1.3	9.7	0.3	7	grvly SAND to dense SAND	130	6.0	45	70	95	44	-	16
66.11	421.0	271.5	271.5	2.7	9.4	0.6	6	clean SAND to silty SAND	125	5.0	54	84	95	44	-	16
66.28	450.1	289.9	289.9	5.1	10.7	1.1	6	clean SAND to silty SAND	125	5.0	58	90	95	45	-	16
66.44	465.0	299.2	302.3	5.9	10.0	1.3	6	clean SAND to silty SAND	125	5.0	60	93	95	45	-	16
66.60	413.3	265.6	265.6	2.6	13.6	0.6	6	clean SAND to silty SAND	125	5.0	53	83	95	44	-	16
66.77	387.6	248.8	248.8	1.3	12.0	0.3	6	clean SAND to silty SAND	125	5.0	50	78	95	44	-	16
66.93	416.7	267.2	267.2	1.7	13.0	0.4	6	clean SAND to silty SAND	125	5.0	53	83	95	44	-	16
67.10	438.7	281.0	281.0	4.8	13.7	1.1	6	clean SAND to silty SAND	125	5.0	56	88	95	44	-	16
67.26	548.6	351.0	351.0	4.5	14.2	0.8	6	clean SAND to silty SAND	125	5.0	70	100	95	45	-	16
67.42	482.2	308.2	308.2	5.0	12.7	1.1	6	clean SAND to silty SAND	125	5.0	62	96	95	45	-	16
67.59	437.9	279.5	279.5	2.8	16.9	0.7	6	clean SAND to silty SAND	125	5.0	56	88	95	44	-	16
67.75	417.8	266.4	266.4	2.3	15.7	0.6	6	clean SAND to silty SAND	125	5.0	53	84	95	44	-	16
67.92	406.5	258.9	258.9	2.5	15.1	0.6	6	clean SAND to silty SAND	125	5.0	52	81	95	44	-	16
68.08	407.3	259.2	259.2	3.0	13.6	0.7	6	clean SAND to silty SAND	125	5.0	52	81	95	44	-	16
68.24	421.2	267.7	267.7	2.6	12.7	0.6	6	clean SAND to silty SAND	125	5.0	54	84	95	44	-	16
68.41	413.7	262.6	262.6	2.3	13.0	0.6	6	clean SAND to silty SAND	125	5.0	53	83	95	44	-	16
68.57	425.5	269.8	269.8	3.4	17.8	0.8	6	clean SAND to silty SAND	125	5.0	54	85	95	44	-	16
68.74	445.6	282.3	282.3	2.9	15.3	0.7	6	clean SAND to silty SAND	125	5.0	56	89	95	44	-	16
68.90	461.9	292.2	292.2	2.2	10.3	0.5	6	clean SAND to silty SAND	125	5.0	58	92	95	45	-	16
69.07	414.1	261.8	261.8	1.6	6.6	0.4	6	clean SAND to silty SAND	125	5.0	52	83	95	44	-	16
69.23	399.1	252.0	252.0	1.6	7.1	0.4	6	clean SAND to silty SAND	125	5.0	50	80	95	44	-	16
69.39	414.0	261.1	261.1	1.7	9.0	0.4	6	clean SAND to silty SAND	125	5.0	52	83	95	44	-	16
69.56	426.1	268.4	268.4	1.5	9.6	0.3	7	grvly SAND to dense SAND	130	6.0	45	71	95	44	-	16
69.72	460.0	289.4	289.4	1.2	9.6	0.3	7	grvly SAND to dense SAND	130	6.0	48	77	95	44	-	16
69.89	506.0	318.1	318.1	1.7	10.2	0.3	7	grvly SAND to dense SAND	130	6.0	53	84	95	45	-	16
70.05	542.5	340.6	340.6	1.4	14.1	0.3	7	grvly SAND to dense SAND	130	6.0	57	90	95	45	-	16
70.21	580.8	364.2	364.2	1.0	13.6	0.2	7	grvly SAND to dense SAND	130	6.0	61	97	95	45	-	16
70.38	656.2	411.0	411.0	2.0	10.4	0.3	7	grvly SAND to dense SAND	130	6.0	68	100	95	46	-	16
70.54	576.3	360.6	360.6	3.3	9.8	0.6	6	clean SAND to silty SAND	125	5.0	72	100	95	45	-	16
70.71	484.1	302.5	302.5	2.8	13.0	0.6	6	clean SAND to silty SAND	125	5.0	61	97	95	45	-	16
70.87	445.7	278.3	278.3	2.3	13.9	0.5	6	clean SAND to silty SAND	125	5.0	56	89	95	44	-	16
71.03	441.2	275.2	275.2	1.9	12.6	0.4	6	clean SAND to silty SAND	125	5.0	55	88	95	44	-	16
71.20	452.8	282.1	282.1	1.9	10.0	0.4	7	grvly SAND to dense SAND	130	6.0	47	75	95	44	-	16
71.36	467.5	290.9	290.9	1.7	9.0	0.4	7	grvly SAND to dense SAND	130	6.0	48	78	95	44	-	16
71.53	469.9	292.1	292.1	1.4	8.1	0.3	7	grvly SAND to dense SAND	130	6.0	49	78	95	44	-	16
71.69	471.8	292.9	292.9	1.6	8.3	0.3	7	grvly SAND to dense SAND	130	6.0	49	79	95	44	-	16
71.85	444.1	275.4	275.4	1.5	8.6	0.3	7	grvly SAND to dense SAND	130	6.0	46	74	95	44	-	16
72.02	431.1	267.0	267.0	1.9	9.6	0.4	6	clean SAND to silty SAND	125	5.0	53	86	95	44	-	16
72.18	425.0	263.0	263.0	1.6	9.7	0.4	7	grvly SAND to dense SAND	130	6.0	44	71	95	44	-	16
72.35	399.7	247.1	247.1	1.3	11.2	0.3	7	grvly SAND to dense SAND	130	6.0	41	67	95	44	-	16
72.51	424.5	262.1	262.1	1.3	11.0	0.3	7	grvly SAND to dense SAND	130	6.0	44	71	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(473).cpt
CPT Date: 12/8/2008 10:58:22 AM
GW During Test: 12 ft

Sounding ID: CPT-08-56
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	4.1	6.6	-	1.0	0.0	9.9	2	Organic SOILS - Peats	100	1.0	7	4	-	-	0.4	10
0.49	30.8	49.4	115.9	0.8	-0.7	2.5	5	silty SAND to sandy SILT	120	4.0	12	8	44	48	-	16
0.66	27.2	43.7	98.2	0.6	-0.7	2.0	5	silty SAND to sandy SILT	120	4.0	11	7	40	48	-	16
0.82	23.9	38.3	90.2	0.5	-0.3	1.9	5	silty SAND to sandy SILT	120	4.0	10	6	35	48	-	16
0.98	19.5	31.3	88.0	0.4	0.0	2.1	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
1.15	15.6	25.0	-	0.4	0.0	2.4	4	clayy SILT to silty CLAY	115	2.0	12	8	-	-	1.1	15
1.31	13.4	21.5	-	0.3	0.0	2.1	4	clayy SILT to silty CLAY	115	2.0	11	7	-	-	0.9	15
1.48	11.8	19.0	-	0.3	0.0	2.2	4	clayy SILT to silty CLAY	115	2.0	9	6	-	-	0.8	15
1.64	10.6	17.0	-	0.2	0.0	2.3	4	clayy SILT to silty CLAY	115	2.0	9	5	-	-	0.7	15
1.80	8.7	13.9	-	0.2	0.0	2.2	4	clayy SILT to silty CLAY	115	2.0	7	4	-	-	0.6	15
1.97	7.7	12.3	-	0.1	0.0	1.5	4	clayy SILT to silty CLAY	115	2.0	6	4	-	-	0.5	15
2.13	8.3	13.3	-	0.1	0.0	1.4	4	clayy SILT to silty CLAY	115	2.0	7	4	-	-	0.6	15
2.30	9.8	15.7	-	0.1	0.0	1.5	4	clayy SILT to silty CLAY	115	2.0	8	5	-	-	0.7	15
2.46	17.8	28.5	83.6	0.4	0.0	2.0	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.2	15
2.62	49.6	79.5	115.0	0.7	0.0	1.5	5	silty SAND to sandy SILT	120	4.0	20	12	59	46	-	16
2.79	79.0	126.7	160.5	1.3	0.0	1.6	6	clean SAND to silty SAND	125	5.0	25	16	75	48	-	16
2.95	100.2	160.7	195.6	1.7	0.0	1.7	6	clean SAND to silty SAND	125	5.0	32	20	83	48	-	16
3.12	95.0	152.4	197.5	1.9	0.0	2.0	5	silty SAND to sandy SILT	120	4.0	38	24	81	48	-	16
3.28	74.4	119.4	184.3	1.9	-0.1	2.6	5	silty SAND to sandy SILT	120	4.0	30	19	73	47	-	16
3.45	59.0	94.7	167.2	1.6	0.0	2.8	5	silty SAND to sandy SILT	120	4.0	24	15	65	46	-	16
3.61	55.3	88.8	153.2	1.4	0.0	2.5	5	silty SAND to sandy SILT	120	4.0	22	14	63	46	-	16
3.77	78.2	125.5	186.1	1.9	0.0	2.5	5	silty SAND to sandy SILT	120	4.0	31	20	74	47	-	16
3.94	83.6	134.2	226.0	2.8	0.0	3.4	5	silty SAND to sandy SILT	120	4.0	34	21	77	47	-	16
4.10	117.6	188.6	272.8	3.7	0.2	3.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	7.8	16
4.27	188.8	302.7	346.7	4.2	0.1	2.2	6	clean SAND to silty SAND	125	5.0	61	38	95	48	-	16
4.43	201.8	323.6	369.8	4.6	0.1	2.3	6	clean SAND to silty SAND	125	5.0	65	40	95	48	-	16
4.59	198.6	318.5	376.9	5.1	0.1	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.1	16
4.76	184.0	295.1	363.1	5.1	0.1	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	12.2	16
4.92	168.7	270.6	316.8	3.7	0.2	2.2	6	clean SAND to silty SAND	125	5.0	54	34	95	48	-	16
5.09	163.2	261.8	310.2	3.7	0.2	2.3	6	clean SAND to silty SAND	125	5.0	52	33	95	48	-	16
5.25	151.3	242.6	296.1	3.6	0.4	2.4	6	clean SAND to silty SAND	125	5.0	49	30	95	48	-	16
5.41	136.7	219.2	279.7	3.5	0.4	2.6	5	silty SAND to sandy SILT	120	4.0	55	34	93	48	-	16
5.58	117.6	188.6	250.6	3.0	0.4	2.6	5	silty SAND to sandy SILT	120	4.0	47	29	88	48	-	16
5.74	96.7	155.1	216.6	2.4	0.4	2.5	5	silty SAND to sandy SILT	120	4.0	39	24	81	47	-	16
5.91	78.6	126.1	184.7	1.9	0.5	2.4	5	silty SAND to sandy SILT	120	4.0	32	20	75	46	-	16
6.07	68.7	110.2	159.1	1.4	0.5	2.0	5	silty SAND to sandy SILT	120	4.0	28	17	70	45	-	16
6.23	61.6	98.7	141.2	1.1	0.5	1.8	5	silty SAND to sandy SILT	120	4.0	25	15	67	45	-	16
6.40	57.7	91.2	129.1	0.9	0.5	1.6	5	silty SAND to sandy SILT	120	4.0	23	14	64	44	-	16
6.56	55.0	85.8	121.9	0.8	0.5	1.5	5	silty SAND to sandy SILT	120	4.0	21	14	62	44	-	16
6.73	51.4	79.1	115.4	0.8	0.5	1.5	5	silty SAND to sandy SILT	120	4.0	20	13	59	44	-	16
6.89	43.7	66.6	108.1	0.7	0.5	1.6	5	silty SAND to sandy SILT	120	4.0	17	11	54	43	-	16
7.05	38.2	57.5	104.6	0.7	0.5	1.8	5	silty SAND to sandy SILT	120	4.0	14	10	49	42	-	16
7.22	32.6	48.5	99.2	0.6	0.5	1.9	5	silty SAND to sandy SILT	120	4.0	12	8	43	41	-	16
7.38	26.8	39.4	93.4	0.5	0.5	2.0	5	silty SAND to sandy SILT	120	4.0	10	7	36	40	-	16
7.55	23.0	33.5	94.1	0.5	0.5	2.3	4	clayy SILT to silty CLAY	115	2.0	17	12	-	-	1.6	15
7.71	21.0	30.2	93.6	0.5	0.5	2.4	4	clayy SILT to silty CLAY	115	2.0	15	11	-	-	1.5	15
7.87	19.9	28.4	90.3	0.5	0.5	2.3	4	clayy SILT to silty CLAY	115	2.0	14	10	-	-	1.4	15
8.04	22.2	31.3	79.3	0.4	0.5	1.7	5	silty SAND to sandy SILT	120	4.0	8	6	29	38	-	16
8.20	21.4	29.8	79.3	0.4	0.5	1.7	5	silty SAND to sandy SILT	120	4.0	7	5	27	38	-	16
8.37	25.2	34.9	79.1	0.4	0.4	1.5	5	silty SAND to sandy SILT	120	4.0	9	6	32	39	-	16
8.53	24.6	33.6	93.1	0.5	0.4	2.2	4	clayy SILT to silty CLAY	115	2.0	17	12	-	-	1.7	15
8.69	21.7	34.0	-	0.7	0.4	3.3	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.5	15
8.86	21.0	33.6	-	0.7	0.3	3.5	4	clayy SILT to silty CLAY	115	2.0	17	10	-	-	1.5	15
9.02	25.9	34.5	105.5	0.7	0.3	2.8	4	clayy SILT to silty CLAY	115	2.0	17	13	-	-	1.8	15
9.19	36.8	48.5	103.1	0.7	0.3	2.0	5	silty SAND to sandy SILT	120	4.0	12	9	43	41	-	16
9.35	62.2	81.3	116.5	0.9	0.3	1.5	5	silty SAND to sandy SILT	120	4.0	20	16	60	43	-	16
9.51	81.2	105.2	138.0	1.2	0.3	1.5	6	clean SAND to silty SAND	125	5.0	21	16	69	45	-	16
9.68	88.5	113.6	149.1	1.4	0.3	1.6	6	clean SAND to silty SAND	125	5.0	23	18	71	45	-	16
9.84	91.9	117.0	156.0	1.6	0.3	1.7	5	silty SAND to sandy SILT	120	4.0	29	23	72	45	-	16
10.01	103.9	131.2	170.3	1.8	0.3	1.8	6	clean SAND to silty SAND	125	5.0	26	21	76	46	-	16
10.17	105.7	132.3	174.2	2.0	0.3	1.9	5	silty SAND to sandy SILT	120	4.0	33	26	76	46	-	16
10.34	93.0	115.4	161.8	1.8	0.3	2.0	5	silty SAND to sandy SILT	120	4.0	29	23	72	45	-	16
10.50	83.1	102.3	150.8	1.6	0.3	2.0	5	silty SAND to sandy SILT	120	4.0	26	21	68	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(473).cpt
CPT Date: 12/8/2008 10:58:22 AM
GW During Test: 12 ft

Sounding ID: CPT-08-56
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	79.6	97.3	141.4	1.4	0.3	1.8	5	silty SAND to sandy SILT	120	4.0	24	20	66	44	-	16
10.83	77.1	93.4	132.7	1.3	0.3	1.7	5	silty SAND to sandy SILT	120	4.0	23	19	65	44	-	16
10.99	73.3	88.2	122.3	1.1	0.3	1.5	5	silty SAND to sandy SILT	120	4.0	22	18	63	44	-	16
11.16	65.8	78.6	112.5	0.9	0.3	1.4	5	silty SAND to sandy SILT	120	4.0	20	16	59	43	-	16
11.32	53.5	63.4	99.6	0.7	0.3	1.4	5	silty SAND to sandy SILT	120	4.0	16	13	52	42	-	16
11.48	39.5	46.5	91.8	0.6	0.3	1.6	5	silty SAND to sandy SILT	120	4.0	12	10	42	40	-	16
11.65	29.8	34.8	91.9	0.6	0.2	2.1	5	silty SAND to sandy SILT	120	4.0	9	7	32	39	-	16
11.81	26.4	30.7	87.3	0.5	-1.1	2.0	4	clayy SILT to silty CLAY	115	2.0	15	13	-	-	1.8	15
11.98	23.3	26.8	78.4	0.4	-1.2	1.8	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.6	15
12.14	17.7	24.8	-	0.4	-1.8	2.5	4	clayy SILT to silty CLAY	115	2.0	12	9	-	-	1.2	15
12.30	16.5	22.9	-	0.5	-1.7	3.0	4	clayy SILT to silty CLAY	115	2.0	11	8	-	-	1.1	15
12.47	23.2	28.6	92.5	0.5	-2.0	2.4	4	clayy SILT to silty CLAY	115	2.0	14	12	-	-	1.6	15
12.63	27.1	30.9	89.5	0.6	-3.1	2.1	4	clayy SILT to silty CLAY	115	2.0	15	14	-	-	1.9	15
12.80	27.3	31.0	98.6	0.7	-3.4	2.6	4	clayy SILT to silty CLAY	115	2.0	15	14	-	-	1.9	15
12.96	30.8	34.9	94.2	0.7	-5.4	2.2	5	silty SAND to sandy SILT	120	4.0	9	8	32	38	-	16
13.12	21.5	26.1	-	0.5	-9.5	2.5	4	clayy SILT to silty CLAY	115	2.0	13	11	-	-	1.5	15
13.29	10.7	14.4	-	0.3	-10.3	3.3	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.7	15
13.45	6.0	8.0	-	0.2	-10.3	4.2	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
13.62	4.2	5.6	-	0.2	-10.2	4.4	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
13.78	3.8	5.0	-	0.2	-10.0	5.0	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.2	15
13.94	3.8	5.0	-	0.1	-10.0	4.6	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.2	15
14.11	3.9	5.1	-	0.1	-9.9	4.3	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.2	15
14.27	3.9	5.0	-	0.1	-9.9	4.7	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.2	15
14.44	4.1	5.3	-	0.1	-9.8	4.5	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
14.60	4.3	5.5	-	0.2	-9.7	6.5	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
14.76	4.4	5.6	-	0.3	-9.7	9.2	2	Organic SOILS - Peats	100	1.0	6	4	-	-	0.4	10
14.93	15.6	19.8	-	0.4	-8.8	2.8	4	clayy SILT to silty CLAY	115	2.0	10	8	-	-	1.1	15
15.09	17.0	21.4	-	0.4	-8.8	2.5	4	clayy SILT to silty CLAY	115	2.0	11	8	-	-	1.2	15
15.26	19.2	24.1	-	0.4	-8.8	2.4	4	clayy SILT to silty CLAY	115	2.0	12	10	-	-	1.3	15
15.42	16.4	20.5	-	0.4	-8.9	2.7	4	clayy SILT to silty CLAY	115	2.0	10	8	-	-	1.1	15
15.58	10.3	12.8	-	0.4	-8.9	4.8	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
15.75	6.1	7.6	-	0.3	-8.9	6.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.91	28.6	30.8	77.0	0.4	-8.9	1.6	5	silty SAND to sandy SILT	120	4.0	8	7	28	37	-	16
16.08	46.5	50.0	90.6	0.7	-8.9	1.5	5	silty SAND to sandy SILT	120	4.0	12	12	44	40	-	16
16.24	48.4	51.8	101.2	0.9	-8.9	1.8	5	silty SAND to sandy SILT	120	4.0	13	12	45	40	-	16
16.40	49.1	52.5	105.7	0.9	-8.8	2.0	5	silty SAND to sandy SILT	120	4.0	13	12	46	40	-	16
16.57	53.4	56.8	109.6	1.0	-8.8	2.0	5	silty SAND to sandy SILT	120	4.0	14	13	48	40	-	16
16.73	57.7	61.3	113.5	1.1	-8.7	2.0	5	silty SAND to sandy SILT	120	4.0	15	14	51	41	-	16
16.90	63.1	66.8	120.3	1.3	-8.7	2.0	5	silty SAND to sandy SILT	120	4.0	17	16	54	41	-	16
17.06	69.0	72.9	125.2	1.4	-8.6	2.0	5	silty SAND to sandy SILT	120	4.0	18	17	57	42	-	16
17.23	69.1	72.8	130.2	1.5	-8.6	2.2	5	silty SAND to sandy SILT	120	4.0	18	17	57	41	-	16
17.39	63.6	66.8	129.4	1.5	-8.6	2.4	5	silty SAND to sandy SILT	120	4.0	17	16	54	41	-	16
17.55	56.9	59.6	116.1	1.2	-8.5	2.1	5	silty SAND to sandy SILT	120	4.0	15	14	50	40	-	16
17.72	51.7	54.0	110.9	1.1	-8.5	2.1	5	silty SAND to sandy SILT	120	4.0	14	13	47	40	-	16
17.88	42.7	44.5	105.5	0.9	-8.1	2.2	5	silty SAND to sandy SILT	120	4.0	11	11	40	39	-	16
18.05	25.5	29.1	-	0.8	-8.1	3.3	4	clayy SILT to silty CLAY	115	2.0	15	13	-	-	1.8	15
18.21	12.4	14.1	-	0.5	-8.1	4.7	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
18.37	7.6	8.6	-	0.3	-8.0	5.3	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
18.54	5.2	5.9	-	0.2	-7.9	5.0	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
18.70	4.8	5.4	-	0.2	-7.8	4.9	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
18.87	4.6	5.1	-	0.2	-7.8	6.8	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.4	10
19.03	5.6	6.2	-	0.3	-7.7	6.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
19.19	19.6	21.7	-	0.4	-7.6	2.3	4	clayy SILT to silty CLAY	115	2.0	11	10	-	-	1.3	15
19.36	23.4	23.8	79.0	0.4	-7.7	1.9	4	clayy SILT to silty CLAY	115	2.0	12	12	-	-	1.6	15
19.52	24.7	25.2	81.8	0.5	-7.8	2.0	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.7	15
19.69	15.2	16.5	-	0.4	-7.9	2.8	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.0	15
19.85	7.8	8.4	-	0.3	-8.1	4.8	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
20.01	4.9	5.3	-	0.1	-8.1	4.0	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
20.18	4.3	4.6	-	0.1	-7.9	3.9	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
20.34	4.3	4.6	-	0.2	-7.9	5.8	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
20.51	5.5	5.8	-	0.3	-7.8	6.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
20.67	6.5	6.9	-	0.3	-7.7	6.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
20.83	6.8	7.2	-	0.4	-7.6	6.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
21.00	6.8	7.1	-	0.5	-7.6	8.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(473).cpt
CPT Date: 12/8/2008 10:58:22 AM
GW During Test: 12 ft

Sounding ID: CPT-08-56
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	7.7	8.0	-	0.5	-7.6	7.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.33	11.3	11.8	-	0.4	-7.3	4.0	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
21.49	23.3	23.1	66.9	0.3	-7.2	1.4	5	silty SAND to sandy SILT	120	4.0	6	6	19	34	-	16
21.65	42.6	42.0	69.4	0.4	-7.5	0.9	5	silty SAND to sandy SILT	120	4.0	11	11	38	38	-	16
21.82	53.7	52.8	77.3	0.5	-7.6	0.9	5	silty SAND to sandy SILT	120	4.0	13	13	46	39	-	16
21.98	58.7	57.6	86.9	0.6	-7.6	1.1	5	silty SAND to sandy SILT	120	4.0	14	15	49	40	-	16
22.15	61.6	60.3	97.8	0.8	2.7	1.4	5	silty SAND to sandy SILT	120	4.0	15	15	50	40	-	16
22.31	61.6	60.2	107.0	1.1	2.8	1.8	5	silty SAND to sandy SILT	120	4.0	15	15	50	40	-	16
22.47	58.7	57.2	113.1	1.2	2.9	2.1	5	silty SAND to sandy SILT	120	4.0	14	15	49	39	-	16
22.64	59.6	58.0	115.8	1.3	3.2	2.2	5	silty SAND to sandy SILT	120	4.0	14	15	49	39	-	16
22.80	63.8	61.9	116.9	1.3	3.2	2.1	5	silty SAND to sandy SILT	120	4.0	15	16	51	40	-	16
22.97	69.1	66.9	116.0	1.3	3.2	1.9	5	silty SAND to sandy SILT	120	4.0	17	17	54	40	-	16
23.13	77.7	75.1	120.2	1.3	3.3	1.8	5	silty SAND to sandy SILT	120	4.0	19	19	58	41	-	16
23.30	85.4	82.3	131.3	1.6	3.4	1.9	5	silty SAND to sandy SILT	120	4.0	21	21	61	41	-	16
23.46	89.2	85.7	140.7	1.9	3.6	2.2	5	silty SAND to sandy SILT	120	4.0	21	22	62	41	-	16
23.62	94.7	90.9	144.4	2.0	3.8	2.1	5	silty SAND to sandy SILT	120	4.0	23	24	64	42	-	16
23.79	96.7	92.5	147.9	2.1	3.9	2.2	5	silty SAND to sandy SILT	120	4.0	23	24	64	42	-	16
23.95	96.8	92.4	151.5	2.2	3.9	2.3	5	silty SAND to sandy SILT	120	4.0	23	24	64	42	-	16
24.12	95.0	90.5	152.5	2.2	4.0	2.4	5	silty SAND to sandy SILT	120	4.0	23	24	64	42	-	16
24.28	87.2	82.9	142.9	2.0	4.0	2.3	5	silty SAND to sandy SILT	120	4.0	21	22	61	41	-	16
24.44	77.7	73.7	132.1	1.7	4.1	2.2	5	silty SAND to sandy SILT	120	4.0	18	19	57	41	-	16
24.61	76.9	72.8	126.6	1.6	4.7	2.1	5	silty SAND to sandy SILT	120	4.0	18	19	57	40	-	16
24.77	84.2	79.5	132.7	1.7	3.8	2.1	5	silty SAND to sandy SILT	120	4.0	20	21	59	41	-	16
24.94	75.1	70.7	129.6	1.6	2.8	2.2	5	silty SAND to sandy SILT	120	4.0	18	19	56	40	-	16
25.10	74.5	70.0	119.1	1.4	2.9	1.9	5	silty SAND to sandy SILT	120	4.0	18	19	55	40	-	16
25.26	78.4	73.5	124.4	1.5	2.6	2.0	5	silty SAND to sandy SILT	120	4.0	18	20	57	40	-	16
25.43	71.6	67.0	126.5	1.6	2.5	2.2	5	silty SAND to sandy SILT	120	4.0	17	18	54	40	-	16
25.59	65.4	61.1	122.1	1.5	2.5	2.3	5	silty SAND to sandy SILT	120	4.0	15	16	51	39	-	16
25.76	53.8	50.2	128.4	1.5	2.6	3.0	4	clayy SILT to silty CLAY	115	2.0	25	27	-	-	3.7	15
25.92	30.4	27.9	-	1.4	2.8	4.7	3	silty CLAY to CLAY	115	1.5	19	20	-	-	2.1	15
26.08	15.7	14.3	-	0.8	2.9	5.8	3	silty CLAY to CLAY	115	1.5	10	10	-	-	1.1	15
26.25	12.2	11.1	-	0.5	3.5	4.8	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
26.41	9.4	8.5	-	0.3	4.5	4.0	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
26.58	8.7	7.8	-	0.3	5.2	4.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
26.74	9.9	8.9	-	0.3	6.2	4.0	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
26.90	10.5	9.4	-	0.3	6.9	3.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
27.07	8.7	7.8	-	0.4	7.4	4.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
27.23	8.0	7.1	-	0.3	8.2	4.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.40	7.8	6.9	-	0.3	8.8	4.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.56	8.0	7.1	-	0.3	9.2	4.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.72	8.0	7.0	-	0.3	9.5	4.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.89	8.1	7.1	-	0.4	12.5	6.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
28.05	10.4	9.1	-	0.4	13.4	5.1	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
28.22	19.6	17.0	-	0.4	12.3	2.5	4	clayy SILT to silty CLAY	115	2.0	9	10	-	-	1.3	15
28.38	30.5	27.6	79.0	0.5	4.7	1.7	5	silty SAND to sandy SILT	120	4.0	7	8	25	34	-	16
28.54	34.7	31.3	87.6	0.7	1.4	2.0	4	clayy SILT to silty CLAY	115	2.0	16	17	-	-	2.4	15
28.71	35.3	31.8	99.9	0.9	1.4	2.5	4	clayy SILT to silty CLAY	115	2.0	16	18	-	-	2.4	15
28.87	39.1	35.1	102.3	0.9	1.5	2.5	4	clayy SILT to silty CLAY	115	2.0	18	20	-	-	2.7	15
29.04	44.6	40.0	104.1	1.0	-0.7	2.3	5	silty SAND to sandy SILT	120	4.0	10	11	37	37	-	16
29.20	40.3	36.1	108.0	1.0	-1.7	2.7	4	clayy SILT to silty CLAY	115	2.0	18	20	-	-	2.8	15
29.36	35.3	29.9	-	1.1	-1.4	3.3	4	clayy SILT to silty CLAY	115	2.0	15	18	-	-	2.4	15
29.53	34.7	29.3	-	1.1	-1.2	3.3	4	clayy SILT to silty CLAY	115	2.0	15	17	-	-	2.4	15
29.69	33.4	28.1	-	1.0	-2.3	3.3	4	clayy SILT to silty CLAY	115	2.0	14	17	-	-	2.3	15
29.86	26.5	22.1	-	1.1	-3.1	4.3	3	silty CLAY to CLAY	115	1.5	15	18	-	-	1.8	15
30.02	22.9	19.1	-	1.0	-4.0	4.7	3	silty CLAY to CLAY	115	1.5	13	15	-	-	1.6	15
30.19	21.5	17.9	-	0.9	-4.4	4.7	3	silty CLAY to CLAY	115	1.5	12	14	-	-	1.5	15
30.35	16.3	13.5	-	0.8	-4.5	5.8	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
30.51	11.7	9.7	-	0.7	-4.4	7.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
30.68	8.7	7.2	-	0.5	-4.1	7.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.84	7.7	6.3	-	0.3	-3.7	5.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.01	7.6	6.2	-	0.3	-3.4	5.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.17	7.6	6.1	-	0.3	-1.0	5.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.33	7.3	5.9	-	0.4	-0.8	6.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.50	9.3	7.5	-	0.6	-0.5	8.6	2	Organic SOILS - Peats	100	1.0	8	9	-	-	0.9	10

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(473).cpt
CPT Date: 12/8/2008 10:58:22 AM
GW During Test: 12 ft

Sounding ID: CPT-08-56
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	43.0	37.5	79.0	0.6	-0.5	1.4	5	silty SAND to sandy SILT	120	4.0	9	11	35	36	-	16
31.83	24.1	19.3	-	0.6	-2.7	2.8	4	clayy SILT to silty CLAY	115	2.0	10	12	-	-	1.6	15
31.99	13.6	10.8	-	0.7	-2.6	6.1	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
32.15	19.1	15.2	-	0.5	-2.0	3.1	3	silty CLAY to CLAY	115	1.5	10	13	-	-	1.3	15
32.32	27.0	23.3	71.8	0.4	-2.3	1.5	4	clayy SILT to silty CLAY	115	2.0	12	13	-	-	1.8	15
32.48	25.4	20.1	-	0.6	-3.2	2.5	4	clayy SILT to silty CLAY	115	2.0	10	13	-	-	1.7	15
32.65	14.9	11.7	-	0.5	3.1	4.2	3	silty CLAY to CLAY	115	1.5	8	10	-	-	1.0	15
32.81	13.2	10.4	-	0.5	1.0	4.1	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
32.97	9.0	7.0	-	0.4	1.2	5.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
33.14	7.9	6.2	-	0.3	1.7	5.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
33.30	7.9	6.2	-	0.3	2.2	4.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
33.47	7.6	5.9	-	0.3	2.6	4.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
33.63	7.7	5.9	-	0.3	3.1	5.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
33.79	9.4	7.2	-	0.3	3.6	4.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
33.96	28.5	24.2	68.9	0.4	3.9	1.4	5	silty SAND to sandy SILT	120	4.0	6	7	20	33	-	16
34.12	38.8	32.9	73.9	0.5	2.4	1.3	5	silty SAND to sandy SILT	120	4.0	8	10	30	35	-	16
34.29	42.6	36.1	79.9	0.6	5.5	1.4	5	silty SAND to sandy SILT	120	4.0	9	11	33	35	-	16
34.45	36.3	30.8	92.8	0.8	2.3	2.2	4	clayy SILT to silty CLAY	115	2.0	15	18	-	-	2.5	15
34.61	20.9	15.8	-	0.6	2.5	3.1	3	silty CLAY to CLAY	115	1.5	11	14	-	-	1.4	15
34.78	11.1	8.3	-	0.4	1.6	4.8	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
34.94	9.8	7.4	-	0.3	2.3	4.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
35.11	9.0	6.8	-	0.3	3.2	4.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
35.27	7.8	5.9	-	0.3	4.0	5.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
35.43	8.4	6.3	-	0.4	5.2	5.5	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
35.60	10.3	7.6	-	0.4	6.3	4.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
35.76	10.2	7.5	-	0.3	6.8	4.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
35.93	8.9	6.6	-	0.3	7.7	5.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
36.09	9.0	6.6	-	0.4	8.7	5.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
36.26	9.3	6.8	-	0.3	9.6	4.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
36.42	9.4	6.9	-	0.4	10.5	5.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
36.58	10.5	7.6	-	0.4	11.5	4.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
36.75	10.9	7.9	-	0.4	12.2	4.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
36.91	11.2	8.1	-	0.5	13.2	5.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.08	15.6	11.3	-	0.5	14.7	4.0	3	silty CLAY to CLAY	115	1.5	8	10	-	-	1.0	15
37.24	12.3	8.8	-	0.7	12.3	7.0	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
37.40	14.6	10.5	-	0.7	13.7	5.5	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
37.57	19.8	14.2	-	0.6	11.7	3.3	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
37.73	25.1	17.9	-	0.6	11.7	2.5	4	clayy SILT to silty CLAY	115	2.0	9	13	-	-	1.7	15
37.90	43.5	35.6	85.5	0.7	2.5	1.7	5	silty SAND to sandy SILT	120	4.0	9	11	33	35	-	16
38.06	24.9	17.6	-	0.7	-3.1	3.0	4	clayy SILT to silty CLAY	115	2.0	9	12	-	-	1.7	15
38.22	14.0	9.9	-	0.5	-2.7	4.6	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
38.39	11.7	8.2	-	0.4	-2.0	4.5	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
38.55	12.9	9.1	-	0.5	-1.4	4.5	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
38.72	12.7	8.9	-	0.5	-1.1	5.0	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.88	12.0	8.4	-	0.5	-0.7	5.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
39.04	11.7	8.1	-	0.5	-0.3	5.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
39.21	11.5	8.0	-	0.5	0.0	4.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
39.37	11.0	7.6	-	0.4	0.4	5.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
39.54	11.1	7.6	-	0.5	0.8	5.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
39.70	11.7	8.0	-	0.5	1.1	5.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
39.86	12.6	8.6	-	0.6	1.5	5.7	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
40.03	14.6	9.9	-	0.6	1.9	5.2	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.9	15
40.19	14.8	10.1	-	0.6	2.1	5.1	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
40.36	19.0	12.9	-	0.5	2.4	3.2	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
40.52	15.8	10.7	-	0.6	2.8	4.7	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
40.68	31.2	21.1	-	0.6	3.6	2.1	4	clayy SILT to silty CLAY	115	2.0	11	16	-	-	2.1	15
40.85	48.8	38.9	91.1	0.8	-2.3	1.8	5	silty SAND to sandy SILT	120	4.0	10	12	36	35	-	16
41.01	51.6	41.1	82.1	0.7	-3.2	1.4	5	silty SAND to sandy SILT	120	4.0	10	13	38	36	-	16
41.18	39.1	31.0	88.5	0.7	-4.8	2.0	4	clayy SILT to silty CLAY	115	2.0	16	20	-	-	2.7	15
41.34	19.2	12.8	-	0.7	-4.9	4.1	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
41.50	14.6	9.7	-	0.6	-4.6	5.0	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
41.67	13.9	9.2	-	0.5	-4.2	4.2	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
41.83	13.4	8.9	-	0.4	-3.8	4.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.00	12.2	8.1	-	0.4	-3.5	4.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(473).cpt
CPT Date: 12/8/2008 10:58:22 AM
GW During Test: 12 ft

Sounding ID: CPT-08-56
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	11.9	7.8	-	0.5	-3.2	5.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
42.32	13.6	8.9	-	0.5	-2.8	4.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.49	13.4	8.8	-	0.6	-2.6	5.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.65	13.5	8.8	-	0.6	-2.3	5.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.82	13.3	8.7	-	0.7	-2.1	6.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.98	13.5	8.8	-	0.8	-2.0	7.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
43.15	14.5	9.4	-	0.9	-1.8	7.3	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
43.31	19.9	12.8	-	0.9	-1.5	5.1	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
43.47	116.4	90.7	119.7	1.4	-1.4	1.3	6	clean SAND to silty SAND	125	5.0	18	23	64	40	-	16
43.64	169.9	132.1	159.5	2.3	-2.7	1.4	6	clean SAND to silty SAND	125	5.0	26	34	76	42	-	16
43.80	175.4	136.2	177.8	3.2	-2.5	1.9	5	silty SAND to sandy SILT	120	4.0	34	44	77	42	-	16
43.97	175.1	135.8	189.9	3.9	-1.1	2.2	5	silty SAND to sandy SILT	120	4.0	34	44	77	42	-	16
44.13	182.4	141.1	193.5	4.0	-0.9	2.2	5	silty SAND to sandy SILT	120	4.0	35	46	78	42	-	16
44.29	185.9	143.7	185.4	3.4	-0.7	1.9	6	clean SAND to silty SAND	125	5.0	29	37	79	42	-	16
44.46	191.0	147.3	181.2	3.1	-0.6	1.6	6	clean SAND to silty SAND	125	5.0	29	38	80	42	-	16
44.62	197.2	151.9	181.0	2.9	-0.4	1.5	6	clean SAND to silty SAND	125	5.0	30	39	81	43	-	16
44.79	195.3	150.2	178.2	2.8	-0.3	1.5	6	clean SAND to silty SAND	125	5.0	30	39	80	43	-	16
44.95	194.8	149.6	178.8	2.9	-0.1	1.5	6	clean SAND to silty SAND	125	5.0	30	39	80	43	-	16
45.11	185.2	142.0	178.1	3.1	0.1	1.7	6	clean SAND to silty SAND	125	5.0	28	37	79	42	-	16
45.28	167.7	128.4	169.8	3.0	0.5	1.8	5	silty SAND to sandy SILT	120	4.0	32	42	75	42	-	16
45.44	160.2	122.4	163.6	2.8	0.6	1.8	5	silty SAND to sandy SILT	120	4.0	31	40	74	41	-	16
45.61	154.0	117.6	158.5	2.7	0.8	1.8	5	silty SAND to sandy SILT	120	4.0	29	39	72	41	-	16
45.77	138.9	105.9	155.7	2.8	0.9	2.0	5	silty SAND to sandy SILT	120	4.0	26	35	69	41	-	16
45.93	127.8	97.3	155.1	2.8	1.1	2.3	5	silty SAND to sandy SILT	120	4.0	24	32	66	40	-	16
46.10	117.6	89.4	155.2	2.9	1.4	2.5	5	silty SAND to sandy SILT	120	4.0	22	29	63	40	-	16
46.26	105.2	79.8	155.1	2.9	1.5	2.8	5	silty SAND to sandy SILT	120	4.0	20	26	60	39	-	16
46.43	86.8	65.7	158.8	2.9	1.6	3.5	4	clayy SILT to silty CLAY	115	2.0	33	43	-	-	6.0	15
46.59	58.8	35.7	-	2.6	1.6	4.6	3	silty CLAY to CLAY	115	1.5	24	39	-	-	4.1	15
46.75	31.9	19.3	-	1.5	1.5	5.0	3	silty CLAY to CLAY	115	1.5	13	21	-	-	2.2	15
46.92	20.3	12.3	-	0.7	1.8	4.0	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.3	15
47.08	17.9	10.8	-	0.4	2.3	2.8	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
47.25	17.3	10.4	-	0.8	3.0	5.6	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.1	15
47.41	25.7	15.4	-	1.0	3.8	4.3	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
47.57	29.1	17.4	-	0.9	10.2	3.3	3	silty CLAY to CLAY	115	1.5	12	19	-	-	2.0	15
47.74	50.3	37.7	95.2	1.0	9.9	2.0	5	silty SAND to sandy SILT	120	4.0	9	13	35	35	-	16
47.90	56.8	42.6	104.2	1.2	7.8	2.2	5	silty SAND to sandy SILT	120	4.0	11	14	39	35	-	16
48.07	43.7	25.9	-	0.9	7.9	2.2	4	clayy SILT to silty CLAY	115	2.0	13	22	-	-	3.0	15
48.23	44.6	26.3	-	1.0	6.7	2.3	4	clayy SILT to silty CLAY	115	2.0	13	22	-	-	3.0	15
48.39	28.5	16.8	-	1.0	5.5	3.9	3	silty CLAY to CLAY	115	1.5	11	19	-	-	1.9	15
48.56	19.3	11.4	-	0.9	6.0	5.5	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
48.72	18.2	10.7	-	0.8	7.1	5.4	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
48.89	23.8	14.0	-	0.7	7.8	3.4	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
49.05	27.4	16.0	-	1.0	7.8	4.0	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.8	15
49.22	26.1	15.2	-	0.9	8.0	4.0	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
49.38	60.4	44.7	116.9	1.5	8.7	2.7	4	clayy SILT to silty CLAY	115	2.0	22	30	-	-	4.2	15
49.54	84.7	62.6	131.7	2.1	6.3	2.6	5	silty SAND to sandy SILT	120	4.0	16	21	52	37	-	16
49.71	74.6	55.1	146.7	2.5	6.5	3.5	4	clayy SILT to silty CLAY	115	2.0	28	37	-	-	5.2	15
49.87	41.2	23.8	-	2.2	6.5	5.8	3	silty CLAY to CLAY	115	1.5	16	27	-	-	2.8	15
50.04	30.6	17.6	-	1.8	7.3	6.3	3	silty CLAY to CLAY	115	1.5	12	20	-	-	2.1	15
50.20	63.7	36.5	-	2.1	8.7	3.4	4	clayy SILT to silty CLAY	115	2.0	18	32	-	-	4.4	15
50.36	184.5	135.5	167.2	2.8	4.2	1.5	6	clean SAND to silty SAND	125	5.0	27	37	77	42	-	16
50.53	243.5	178.6	203.3	3.5	5.5	1.4	6	clean SAND to silty SAND	125	5.0	36	49	86	43	-	16
50.69	270.6	198.2	222.9	4.0	5.3	1.5	6	clean SAND to silty SAND	125	5.0	40	54	90	44	-	16
50.86	272.2	199.1	232.6	4.7	5.4	1.8	6	clean SAND to silty SAND	125	5.0	40	54	90	44	-	16
51.02	268.1	195.8	231.8	4.8	5.7	1.8	6	clean SAND to silty SAND	125	5.0	39	54	89	44	-	16
51.18	266.3	194.2	228.5	4.6	5.9	1.8	6	clean SAND to silty SAND	125	5.0	39	53	89	43	-	16
51.35	267.2	194.6	220.4	4.0	6.0	1.5	6	clean SAND to silty SAND	125	5.0	39	53	89	43	-	16
51.51	262.4	190.8	213.5	3.7	6.0	1.4	6	clean SAND to silty SAND	125	5.0	38	52	88	43	-	16
51.68	256.4	186.2	203.5	3.1	6.1	1.2	6	clean SAND to silty SAND	125	5.0	37	51	88	43	-	16
51.84	255.7	185.4	200.6	3.0	7.7	1.2	6	clean SAND to silty SAND	125	5.0	37	51	87	43	-	16
52.00	237.3	171.8	189.4	2.8	7.8	1.2	6	clean SAND to silty SAND	125	5.0	34	47	85	43	-	16
52.17	204.5	147.9	172.2	2.7	7.7	1.3	6	clean SAND to silty SAND	125	5.0	30	41	80	42	-	16
52.33	158.6	114.5	147.5	2.3	7.6	1.5	6	clean SAND to silty SAND	125	5.0	23	32	71	41	-	16
52.50	102.0	73.5	136.5	2.3	7.3	2.4	5	silty SAND to sandy SILT	120	4.0	18	25	57	38	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(473).cpt
CPT Date: 12/8/2008 10:58:22 AM
GW During Test: 12 ft

Sounding ID: CPT-08-56
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	57.2	31.5	-	2.1	7.3	3.9	4	clayy SILT to silty CLAY	115	2.0	16	29	-	-	3.9	15
52.82	37.6	20.6	-	2.0	8.2	5.7	3	silty CLAY to CLAY	115	1.5	14	25	-	-	2.5	15
52.99	32.9	18.0	-	1.6	10.0	5.3	3	silty CLAY to CLAY	115	1.5	12	22	-	-	2.2	15
53.15	21.8	11.9	-	1.1	12.0	5.8	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.4	15
53.32	17.4	9.5	-	0.6	13.3	4.1	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
53.48	18.0	9.8	-	0.4	15.4	2.7	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
53.64	17.1	9.3	-	0.3	17.7	2.5	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
53.81	17.4	9.4	-	0.9	20.4	6.2	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
53.97	24.3	13.1	-	1.5	33.5	6.9	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
54.14	112.2	79.9	145.7	2.7	32.2	2.5	5	silty SAND to sandy SILT	120	4.0	20	28	60	39	-	16
54.30	168.0	119.6	178.9	3.9	11.6	2.4	5	silty SAND to sandy SILT	120	4.0	30	42	73	41	-	16
54.46	190.8	135.6	200.3	4.8	11.5	2.6	5	silty SAND to sandy SILT	120	4.0	34	48	77	41	-	16
54.63	208.3	147.8	216.9	5.5	11.3	2.7	5	silty SAND to sandy SILT	120	4.0	37	52	80	42	-	16
54.79	213.6	151.4	223.1	5.9	10.8	2.8	5	silty SAND to sandy SILT	120	4.0	38	53	81	42	-	16
54.96	220.3	156.0	225.1	5.9	10.5	2.7	5	silty SAND to sandy SILT	120	4.0	39	55	82	42	-	16
55.12	225.4	159.4	228.4	6.0	10.2	2.7	5	silty SAND to sandy SILT	120	4.0	40	56	82	42	-	16
55.28	228.1	161.1	230.6	6.1	10.0	2.7	5	silty SAND to sandy SILT	120	4.0	40	57	83	42	-	16
55.45	228.4	161.1	230.9	6.2	9.8	2.7	5	silty SAND to sandy SILT	120	4.0	40	57	83	42	-	16
55.61	226.9	159.9	228.9	6.1	9.6	2.7	5	silty SAND to sandy SILT	120	4.0	40	57	82	42	-	16
55.78	227.0	159.7	229.0	6.1	9.5	2.7	5	silty SAND to sandy SILT	120	4.0	40	57	82	42	-	16
55.94	217.2	152.6	224.7	6.0	9.3	2.8	5	silty SAND to sandy SILT	120	4.0	38	54	81	42	-	16
56.11	202.8	142.3	216.2	5.7	9.2	2.8	5	silty SAND to sandy SILT	120	4.0	36	51	79	42	-	16
56.27	192.1	134.7	204.3	5.1	8.9	2.7	5	silty SAND to sandy SILT	120	4.0	34	48	77	41	-	16
56.43	176.2	123.4	200.0	5.0	8.7	2.9	5	silty SAND to sandy SILT	120	4.0	31	44	74	41	-	16
56.60	151.7	106.1	196.9	5.0	8.4	3.3	5	silty SAND to sandy SILT	120	4.0	27	38	69	40	-	16
56.76	127.0	88.7	183.9	4.3	8.2	3.5	5	silty SAND to sandy SILT	120	4.0	22	32	63	39	-	16
56.93	107.7	75.1	162.6	3.4	8.1	3.2	5	silty SAND to sandy SILT	120	4.0	19	27	58	38	-	16
57.09	93.6	65.2	151.0	2.9	6.2	3.2	4	clayy SILT to silty CLAY	115	2.0	33	47	-	-	6.5	15
57.25	78.4	54.6	143.1	2.5	5.4	3.3	4	clayy SILT to silty CLAY	115	2.0	27	39	-	-	5.4	15
57.42	61.2	31.4	-	2.0	3.9	3.5	4	clayy SILT to silty CLAY	115	2.0	16	31	-	-	4.2	15
57.58	45.7	23.4	-	1.4	4.2	3.4	4	clayy SILT to silty CLAY	115	2.0	12	23	-	-	3.1	15
57.75	40.0	20.4	-	1.1	4.6	3.1	4	clayy SILT to silty CLAY	115	2.0	10	20	-	-	2.7	15
57.91	27.2	13.9	-	1.0	5.1	4.2	3	silty CLAY to CLAY	115	1.5	9	18	-	-	1.8	15
58.07	19.9	10.1	-	0.9	6.2	5.2	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
58.24	21.7	11.0	-	0.7	7.2	3.8	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.4	15
58.40	22.8	11.5	-	0.7	7.7	3.5	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
58.57	17.5	8.8	-	0.5	8.5	3.8	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
58.73	15.7	7.9	-	0.4	9.2	3.0	3	silty CLAY to CLAY	115	1.5	5	10	-	-	1.0	15
58.89	14.5	7.3	-	0.3	10.0	2.5	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
59.06	14.2	7.1	-	0.3	11.0	2.4	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
59.22	13.7	6.9	-	0.3	12.0	3.1	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
59.39	13.9	6.9	-	0.4	13.1	4.0	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
59.55	14.6	7.3	-	0.7	14.3	6.5	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
59.71	36.9	18.4	-	1.1	15.3	3.3	3	silty CLAY to CLAY	115	1.5	12	25	-	-	2.5	15
59.88	59.3	29.4	-	1.6	15.1	2.9	4	clayy SILT to silty CLAY	115	2.0	15	30	-	-	4.1	15
60.04	72.9	49.8	131.3	2.1	15.0	3.0	4	clayy SILT to silty CLAY	115	2.0	25	36	-	-	5.0	15
60.21	67.8	33.5	-	2.9	15.5	4.5	3	silty CLAY to CLAY	115	1.5	22	45	-	-	4.7	15
60.37	60.4	29.8	-	2.3	15.9	4.1	4	clayy SILT to silty CLAY	115	2.0	15	30	-	-	4.1	15
60.53	77.7	52.9	121.2	1.8	7.9	2.5	5	silty SAND to sandy SILT	120	4.0	13	19	46	36	-	16
60.70	88.4	60.1	126.1	2.1	3.1	2.4	5	silty SAND to sandy SILT	120	4.0	15	22	50	37	-	16
60.86	94.8	64.4	143.4	2.7	2.8	2.9	5	silty SAND to sandy SILT	120	4.0	16	24	52	37	-	16
61.03	60.4	29.5	-	1.7	3.0	3.0	4	clayy SILT to silty CLAY	115	2.0	15	30	-	-	4.1	15
61.19	41.6	20.2	-	1.0	3.1	2.6	4	clayy SILT to silty CLAY	115	2.0	10	21	-	-	2.8	15
61.35	23.8	11.6	-	0.6	3.4	3.0	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.6	15
61.52	20.2	9.8	-	0.7	3.6	3.9	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
61.68	34.5	16.7	-	0.8	4.1	2.6	4	clayy SILT to silty CLAY	115	2.0	8	17	-	-	2.3	15
61.85	22.3	10.8	-	0.8	4.6	4.5	3	silty CLAY to CLAY	115	1.5	7	15	-	-	1.4	15
62.01	15.9	7.7	-	0.6	5.5	5.1	3	silty CLAY to CLAY	115	1.5	5	11	-	-	1.0	15
62.17	42.6	20.5	-	0.8	6.2	2.0	4	clayy SILT to silty CLAY	115	2.0	10	21	-	-	2.9	15
62.34	30.7	14.7	-	0.8	5.6	2.9	3	silty CLAY to CLAY	115	1.5	10	20	-	-	2.0	15
62.50	25.0	12.0	-	0.8	5.9	3.9	3	silty CLAY to CLAY	115	1.5	8	17	-	-	1.6	15
62.67	21.4	10.2	-	0.7	6.5	4.1	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.4	15
62.83	51.1	34.3	89.1	0.9	7.5	1.8	5	silty SAND to sandy SILT	120	4.0	9	13	32	33	-	16
63.00	61.0	40.9	88.9	0.9	7.0	1.6	5	silty SAND to sandy SILT	120	4.0	10	15	37	34	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(473).cpt
CPT Date: 12/8/2008 10:58:22 AM
GW During Test: 12 ft

Sounding ID: CPT-08-56
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	59.0	39.5	100.1	1.2	7.2	2.1	5	silty SAND to sandy SILT	120	4.0	10	15	36	34	-	16
63.32	77.4	51.8	105.5	1.4	7.5	1.9	5	silty SAND to sandy SILT	120	4.0	13	19	45	36	-	16
63.49	97.7	65.3	113.9	1.7	7.9	1.8	5	silty SAND to sandy SILT	120	4.0	16	24	53	37	-	16
63.65	84.1	56.1	104.4	1.4	13.2	1.7	5	silty SAND to sandy SILT	120	4.0	14	21	48	36	-	16
63.82	77.0	51.3	93.5	1.1	13.0	1.5	5	silty SAND to sandy SILT	120	4.0	13	19	45	35	-	16
63.98	80.5	53.6	93.8	1.1	12.9	1.4	5	silty SAND to sandy SILT	120	4.0	13	20	46	36	-	16
64.14	90.3	60.0	89.5	0.9	9.6	1.1	5	silty SAND to sandy SILT	120	4.0	15	23	50	36	-	16
64.31	74.5	49.5	86.4	0.9	6.3	1.3	5	silty SAND to sandy SILT	120	4.0	12	19	44	35	-	16
64.47	55.0	36.5	86.2	0.8	6.9	1.6	5	silty SAND to sandy SILT	120	4.0	9	14	34	33	-	16
64.64	37.1	17.3	-	0.8	7.7	2.5	4	clayy SILT to silty CLAY	115	2.0	9	19	-	-	2.5	15
64.80	25.3	11.8	-	0.7	8.8	3.3	3	silty CLAY to CLAY	115	1.5	8	17	-	-	1.7	15
64.96	22.5	10.4	-	0.6	9.9	3.4	3	silty CLAY to CLAY	115	1.5	7	15	-	-	1.5	15
65.13	23.1	10.7	-	0.6	9.8	3.3	3	silty CLAY to CLAY	115	1.5	7	15	-	-	1.5	15
65.29	24.6	11.4	-	0.6	7.1	2.9	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.6	15
65.46	37.5	17.3	-	0.8	7.8	2.4	4	clayy SILT to silty CLAY	115	2.0	9	19	-	-	2.5	15
65.62	61.2	40.3	83.8	0.8	11.4	1.4	5	silty SAND to sandy SILT	120	4.0	10	15	37	34	-	16
65.78	89.1	58.6	98.8	1.2	13.7	1.5	5	silty SAND to sandy SILT	120	4.0	15	22	49	36	-	16
65.95	110.2	72.5	113.6	1.7	14.0	1.6	5	silty SAND to sandy SILT	120	4.0	18	28	56	37	-	16
66.11	125.8	82.6	124.0	2.0	14.3	1.6	5	silty SAND to sandy SILT	120	4.0	21	31	61	38	-	16
66.28	140.3	92.0	175.2	4.2	14.9	3.1	5	silty SAND to sandy SILT	120	4.0	23	35	64	39	-	16
66.44	194.7	127.6	291.6	10.5	15.3	5.5	9	very stiff fine SOIL	120	2.0	64	97	75	41	-	30
66.60	562.5	368.2	393.1	10.4	11.5	1.9	6	clean SAND to silty SAND	125	5.0	74	100	95	46	-	16
66.77	473.5	309.6	331.6	7.9	6.3	1.7	6	clean SAND to silty SAND	125	5.0	62	95	95	45	-	16
66.93	425.6	277.9	277.9	3.5	7.7	0.8	6	clean SAND to silty SAND	125	5.0	56	85	95	44	-	16
67.10	447.3	291.7	291.7	2.5	8.9	0.6	6	clean SAND to silty SAND	125	5.0	58	89	95	45	-	16
67.26	497.9	324.4	324.4	2.2	10.6	0.5	7	grvly SAND to dense SAND	130	6.0	54	83	95	45	-	16
67.42	502.8	327.2	327.2	2.3	17.0	0.5	7	grvly SAND to dense SAND	130	6.0	55	84	95	45	-	16
67.59	595.0	386.7	386.7	3.6	12.1	0.6	6	clean SAND to silty SAND	125	5.0	77	100	95	46	-	16
67.75	579.0	375.9	375.9	3.9	14.6	0.7	6	clean SAND to silty SAND	125	5.0	75	100	95	46	-	16
67.92	572.0	370.9	370.9	4.6	13.9	0.8	6	clean SAND to silty SAND	125	5.0	74	100	95	46	-	16
68.08	476.8	308.8	308.8	3.7	8.5	0.8	6	clean SAND to silty SAND	125	5.0	62	95	95	45	-	16
68.24	429.4	277.8	277.8	3.2	11.0	0.8	6	clean SAND to silty SAND	125	5.0	56	86	95	44	-	16
68.41	379.9	245.5	245.5	3.0	15.8	0.8	6	clean SAND to silty SAND	125	5.0	49	76	95	44	-	16
68.57	387.0	249.8	249.8	2.5	14.9	0.7	6	clean SAND to silty SAND	125	5.0	50	77	95	44	-	16
68.74	384.7	248.0	248.0	2.6	14.5	0.7	6	clean SAND to silty SAND	125	5.0	50	77	95	44	-	16
68.90	395.3	254.6	254.6	3.3	14.2	0.8	6	clean SAND to silty SAND	125	5.0	51	79	95	44	-	16
69.07	425.8	273.9	273.9	3.1	13.1	0.7	6	clean SAND to silty SAND	125	5.0	55	85	95	44	-	16
69.23	389.3	250.2	250.2	1.9	13.4	0.5	6	clean SAND to silty SAND	125	5.0	50	78	95	44	-	16
69.39	424.0	272.1	272.1	3.9	13.6	0.9	6	clean SAND to silty SAND	125	5.0	54	85	95	44	-	16
69.56	415.4	266.3	266.3	3.6	12.9	0.9	6	clean SAND to silty SAND	125	5.0	53	83	95	44	-	16
69.72	406.9	260.6	260.6	4.1	18.0	1.0	6	clean SAND to silty SAND	125	5.0	52	81	95	44	-	16
69.89	430.0	275.1	275.1	3.6	17.2	0.9	6	clean SAND to silty SAND	125	5.0	55	86	95	44	-	16
70.05	485.3	310.1	310.1	1.1	17.0	0.2	7	grvly SAND to dense SAND	130	6.0	52	81	95	45	-	16
70.21	517.3	330.1	330.1	2.4	18.8	0.5	7	grvly SAND to dense SAND	130	6.0	55	86	95	45	-	16
70.38	508.2	324.0	324.0	3.5	14.0	0.7	6	clean SAND to silty SAND	125	5.0	65	100	95	45	-	16
70.54	395.4	251.8	251.8	2.3	18.4	0.6	6	clean SAND to silty SAND	125	5.0	50	79	95	44	-	16
70.71	349.0	222.0	222.0	2.8	18.0	0.8	6	clean SAND to silty SAND	125	5.0	44	70	93	43	-	16
70.87	330.1	209.7	210.0	2.9	16.8	0.9	6	clean SAND to silty SAND	125	5.0	42	66	91	43	-	16
71.03	319.7	202.9	205.6	2.9	16.8	0.9	6	clean SAND to silty SAND	125	5.0	41	64	90	43	-	16
71.20	308.5	195.6	203.0	3.0	15.9	1.0	6	clean SAND to silty SAND	125	5.0	39	62	89	43	-	16
71.36	304.6	192.9	201.6	3.1	16.1	1.0	6	clean SAND to silty SAND	125	5.0	39	61	89	43	-	16
71.53	309.7	195.9	202.4	3.0	16.0	1.0	6	clean SAND to silty SAND	125	5.0	39	62	89	43	-	16
71.69	320.7	202.6	207.6	3.1	16.1	1.0	6	clean SAND to silty SAND	125	5.0	41	64	90	43	-	16
71.85	332.6	209.9	209.9	2.1	16.1	0.6	6	clean SAND to silty SAND	125	5.0	42	67	91	43	-	16
72.02	357.7	225.5	225.5	1.6	16.1	0.5	6	clean SAND to silty SAND	125	5.0	45	72	94	43	-	16
72.18	370.8	233.5	233.5	0.9	15.7	0.2	7	grvly SAND to dense SAND	130	6.0	39	62	95	43	-	16
72.35	366.7	230.7	230.7	0.7	13.6	0.2	7	grvly SAND to dense SAND	130	6.0	38	61	95	43	-	16
72.51	341.0	214.2	214.2	1.8	13.8	0.5	6	clean SAND to silty SAND	125	5.0	43	68	92	43	-	16
72.67	307.2	192.8	192.8	1.8	14.0	0.6	6	clean SAND to silty SAND	125	5.0	39	61	89	42	-	16
72.84	302.3	189.6	189.6	2.3	15.3	0.8	6	clean SAND to silty SAND	125	5.0	38	60	88	42	-	16
73.00	340.5	213.3	213.3	2.8	14.4	0.8	6	clean SAND to silty SAND	125	5.0	43	68	92	43	-	16
73.17	339.5	212.4	213.0	3.1	18.6	0.9	6	clean SAND to silty SAND	125	5.0	42	68	92	43	-	16
73.33	316.1	197.6	212.6	3.8	15.3	1.2	6	clean SAND to silty SAND	125	5.0	40	63	89	43	-	16
73.49	269.5	168.3	176.1	2.4	9.9	0.9	6	clean SAND to silty SAND	125	5.0	34	54	84	42	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(473).cpt
CPT Date: 12/8/2008 10:58:22 AM
GW During Test: 12 ft

Sounding ID: CPT-08-56
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
73.66	210.9	131.5	145.9	1.9	12.6	0.9	6	clean SAND to silty SAND	125	5.0	26	42	76	40	-	16
73.82	254.6	158.6	169.7	2.4	6.4	0.9	6	clean SAND to silty SAND	125	5.0	32	51	82	41	-	16
73.99	339.5	211.3	211.3	2.7	4.9	0.8	6	clean SAND to silty SAND	125	5.0	42	68	92	43	-	16
74.15	433.8	269.7	269.7	4.2	2.3	1.0	6	clean SAND to silty SAND	125	5.0	54	87	95	44	-	16
74.31	431.2	267.8	281.7	6.0	4.4	1.4	6	clean SAND to silty SAND	125	5.0	54	86	95	44	-	16
74.48	406.1	252.0	271.0	5.9	2.6	1.5	6	clean SAND to silty SAND	125	5.0	50	81	95	44	-	16
74.64	312.8	193.9	221.4	4.8	1.9	1.6	6	clean SAND to silty SAND	125	5.0	39	63	89	42	-	16
74.81	378.9	234.6	255.3	5.5	2.7	1.5	6	clean SAND to silty SAND	125	5.0	47	76	95	43	-	16
74.97	443.6	274.3	274.3	4.6	0.8	1.1	6	clean SAND to silty SAND	125	5.0	55	89	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(414).cpt
CPT Date: 11/18/2008 1:34:00 PM
GW During Test: 12 ft

Sounding ID: CPT-08-57
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	89.7	143.9	183.0	1.6	-0.2	1.8	6	clean SAND to silty SAND	125	5.0	29	18	79	48	-	16
0.49	123.0	197.2	228.1	2.1	0.0	1.7	6	clean SAND to silty SAND	125	5.0	39	25	89	48	-	16
0.66	108.5	174.1	205.7	1.8	0.0	1.7	6	clean SAND to silty SAND	125	5.0	35	22	85	48	-	16
0.82	83.1	133.3	217.1	2.6	0.1	3.2	5	silty SAND to sandy SILT	120	4.0	33	21	76	48	-	16
0.98	82.0	131.4	209.2	2.4	0.0	3.0	5	silty SAND to sandy SILT	120	4.0	33	20	76	48	-	16
1.15	93.8	150.4	197.2	1.9	0.1	2.1	5	silty SAND to sandy SILT	120	4.0	38	23	80	48	-	16
1.31	104.1	166.9	188.9	1.4	0.0	1.3	6	clean SAND to silty SAND	125	5.0	33	21	84	48	-	16
1.48	97.3	156.1	182.6	1.4	0.1	1.4	6	clean SAND to silty SAND	125	5.0	31	19	82	48	-	16
1.64	90.3	144.8	179.5	1.5	0.2	1.7	6	clean SAND to silty SAND	125	5.0	29	18	79	48	-	16
1.80	86.4	138.6	181.9	1.7	0.2	1.9	5	silty SAND to sandy SILT	120	4.0	35	22	78	48	-	16
1.97	119.3	191.4	220.9	1.9	0.3	1.6	6	clean SAND to silty SAND	125	5.0	38	24	88	48	-	16
2.13	149.4	239.6	267.4	2.5	0.2	1.7	6	clean SAND to silty SAND	125	5.0	48	30	95	48	-	16
2.30	127.3	204.2	262.2	3.1	-0.1	2.5	5	silty SAND to sandy SILT	120	4.0	51	32	91	48	-	16
2.46	91.8	147.3	228.9	2.8	0.0	3.1	5	silty SAND to sandy SILT	120	4.0	37	23	80	48	-	16
2.62	82.7	132.6	203.7	2.3	0.3	2.8	5	silty SAND to sandy SILT	120	4.0	33	21	76	48	-	16
2.79	101.5	162.8	198.4	1.8	0.1	1.7	6	clean SAND to silty SAND	125	5.0	33	20	83	48	-	16
2.95	113.3	181.8	211.0	1.8	0.0	1.6	6	clean SAND to silty SAND	125	5.0	36	23	87	48	-	16
3.12	122.8	197.0	243.5	2.6	0.0	2.1	6	clean SAND to silty SAND	125	5.0	39	25	89	48	-	16
3.28	113.4	181.9	254.0	3.2	0.1	2.8	5	silty SAND to sandy SILT	120	4.0	45	28	87	48	-	16
3.45	117.5	188.4	281.6	4.0	0.5	3.4	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	7.8	16
3.61	123.4	197.9	298.4	4.4	0.2	3.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	8.2	16
3.77	123.9	198.7	324.8	5.2	-0.3	4.2	9	very stiff fine SOIL	120	2.0	99	62	90	48	-	30
3.94	128.6	206.3	315.6	4.9	-0.5	3.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	8.5	16
4.10	211.8	339.7	348.6	3.2	0.0	1.5	6	clean SAND to silty SAND	125	5.0	68	42	95	48	-	16
4.27	36.9	59.1	184.2	1.8	0.1	5.0	4	clayy SILT to silty CLAY	115	2.0	30	18	-	-	2.6	15
4.43	41.9	67.2	92.5	0.4	0.6	1.0	5	silty SAND to sandy SILT	120	4.0	17	10	54	44	-	16
4.59	43.2	69.3	80.3	0.2	0.6	0.5	6	clean SAND to silty SAND	125	5.0	14	9	55	44	-	16
4.76	38.9	62.4	87.2	0.4	0.6	1.0	5	silty SAND to sandy SILT	120	4.0	16	10	51	43	-	16
4.92	50.5	80.9	101.6	0.5	0.6	0.9	6	clean SAND to silty SAND	125	5.0	16	10	60	44	-	16
5.09	83.6	134.1	145.7	0.7	0.5	0.9	6	clean SAND to silty SAND	125	5.0	27	17	77	46	-	16
5.25	85.8	137.5	155.4	0.9	-0.1	1.1	6	clean SAND to silty SAND	125	5.0	28	17	78	46	-	16
5.41	82.9	132.9	155.8	1.0	-0.1	1.2	6	clean SAND to silty SAND	125	5.0	27	17	76	46	-	16
5.58	78.1	125.3	153.4	1.1	-0.2	1.4	6	clean SAND to silty SAND	125	5.0	25	16	74	46	-	16
5.74	83.3	133.5	167.4	1.3	-0.2	1.6	6	clean SAND to silty SAND	125	5.0	27	17	77	46	-	16
5.91	91.4	146.6	170.2	1.2	-0.3	1.3	6	clean SAND to silty SAND	125	5.0	29	18	80	46	-	16
6.07	66.9	106.7	132.0	0.8	-0.2	1.2	6	clean SAND to silty SAND	125	5.0	21	13	69	45	-	16
6.23	63.9	100.5	118.8	0.6	-0.2	0.9	6	clean SAND to silty SAND	125	5.0	20	13	67	45	-	16
6.40	53.9	83.7	107.4	0.6	-0.2	1.1	6	clean SAND to silty SAND	125	5.0	17	11	61	44	-	16
6.56	47.2	72.4	99.3	0.5	-0.2	1.1	5	silty SAND to sandy SILT	120	4.0	18	12	56	43	-	16
6.73	44.9	68.0	95.6	0.5	-0.2	1.1	5	silty SAND to sandy SILT	120	4.0	17	11	54	43	-	16
6.89	42.5	63.5	92.0	0.5	-0.2	1.1	5	silty SAND to sandy SILT	120	4.0	16	11	52	42	-	16
7.05	36.2	53.5	84.7	0.4	-0.2	1.1	5	silty SAND to sandy SILT	120	4.0	13	9	46	41	-	16
7.22	30.2	44.2	77.3	0.3	-0.2	1.1	5	silty SAND to sandy SILT	120	4.0	11	8	40	40	-	16
7.38	26.6	38.4	74.5	0.3	-0.2	1.2	5	silty SAND to sandy SILT	120	4.0	10	7	35	40	-	16
7.55	24.4	34.9	71.1	0.3	-0.2	1.2	5	silty SAND to sandy SILT	120	4.0	9	6	32	39	-	16
7.71	22.5	31.9	75.6	0.3	-0.2	1.5	5	silty SAND to sandy SILT	120	4.0	8	6	29	38	-	16
7.87	19.0	30.5	97.5	0.5	-0.2	2.6	4	clayy SILT to silty CLAY	115	2.0	15	10	-	-	1.3	15
8.04	16.9	27.1	-	0.7	-0.2	4.1	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.2	15
8.20	20.6	33.1	-	0.7	-0.1	3.3	4	clayy SILT to silty CLAY	115	2.0	17	10	-	-	1.4	15
8.37	35.5	48.3	92.8	0.6	0.1	1.6	5	silty SAND to sandy SILT	120	4.0	12	9	43	41	-	16
8.53	50.9	68.6	94.1	0.5	-0.2	1.0	6	clean SAND to silty SAND	125	5.0	14	10	55	42	-	16
8.69	51.1	68.3	93.5	0.5	-0.3	1.0	6	clean SAND to silty SAND	125	5.0	14	10	54	42	-	16
8.86	51.3	67.9	96.3	0.6	-0.3	1.1	5	silty SAND to sandy SILT	120	4.0	17	13	54	42	-	16
9.02	54.9	72.0	100.1	0.6	-0.3	1.1	5	silty SAND to sandy SILT	120	4.0	18	14	56	43	-	16
9.19	74.9	97.3	118.1	0.8	-0.3	1.0	6	clean SAND to silty SAND	125	5.0	19	15	66	44	-	16
9.35	98.1	126.3	142.1	0.9	-0.3	1.0	6	clean SAND to silty SAND	125	5.0	25	20	75	45	-	16
9.51	109.0	139.1	155.4	1.1	-0.3	1.0	6	clean SAND to silty SAND	125	5.0	28	22	78	46	-	16
9.68	107.6	136.2	155.1	1.2	-0.3	1.1	6	clean SAND to silty SAND	125	5.0	27	22	77	46	-	16
9.84	99.2	124.4	143.5	1.1	-0.3	1.1	6	clean SAND to silty SAND	125	5.0	25	20	74	45	-	16
10.01	89.6	111.5	131.7	0.9	-0.3	1.1	6	clean SAND to silty SAND	125	5.0	22	18	71	45	-	16
10.17	84.6	104.4	124.3	0.9	-0.2	1.0	6	clean SAND to silty SAND	125	5.0	21	17	68	44	-	16
10.34	86.5	105.8	122.5	0.8	-0.2	0.9	6	clean SAND to silty SAND	125	5.0	21	17	69	44	-	16
10.50	78.7	95.6	116.8	0.8	-0.2	1.0	6	clean SAND to silty SAND	125	5.0	19	16	65	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Earth Mechanics
Data File: SDF(414).cpt
CPT Date: 11/18/2008 1:34:00 PM
GW During Test: 12 ft

Sounding ID: CPT-08-57
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	68.6	82.6	106.8	0.7	-0.2	1.1	6	clean SAND to silty SAND	125	5.0	17	14	61	43	-	16
10.83	56.9	68.0	97.8	0.7	-0.2	1.2	5	silty SAND to sandy SILT	120	4.0	17	14	54	42	-	16
10.99	47.6	56.4	88.0	0.6	-0.2	1.2	5	silty SAND to sandy SILT	120	4.0	14	12	48	41	-	16
11.16	46.8	55.1	83.2	0.5	-0.2	1.0	5	silty SAND to sandy SILT	120	4.0	14	12	47	41	-	16
11.32	47.4	55.4	85.5	0.5	-0.2	1.1	5	silty SAND to sandy SILT	120	4.0	14	12	47	41	-	16
11.48	46.1	53.5	88.6	0.6	-0.2	1.3	5	silty SAND to sandy SILT	120	4.0	13	12	46	41	-	16
11.65	47.7	55.0	91.3	0.6	-0.1	1.3	5	silty SAND to sandy SILT	120	4.0	14	12	47	41	-	16
11.81	50.6	58.0	90.8	0.6	-1.7	1.2	5	silty SAND to sandy SILT	120	4.0	14	13	49	41	-	16
11.98	47.5	54.0	89.9	0.6	-3.1	1.3	5	silty SAND to sandy SILT	120	4.0	14	12	47	41	-	16
12.14	44.7	50.7	85.9	0.6	-3.2	1.3	5	silty SAND to sandy SILT	120	4.0	13	11	45	40	-	16
12.30	44.0	49.8	84.8	0.5	-3.5	1.3	5	silty SAND to sandy SILT	120	4.0	12	11	44	40	-	16
12.47	41.1	46.2	86.4	0.6	-3.7	1.4	5	silty SAND to sandy SILT	120	4.0	12	10	42	40	-	16
12.63	31.5	35.3	85.3	0.5	-3.8	1.8	5	silty SAND to sandy SILT	120	4.0	9	8	33	38	-	16
12.80	30.2	33.8	81.9	0.5	-3.9	1.7	5	silty SAND to sandy SILT	120	4.0	8	8	31	38	-	16
12.96	28.7	32.0	80.5	0.5	-6.2	1.7	5	silty SAND to sandy SILT	120	4.0	8	7	29	38	-	16
13.12	24.6	27.3	84.9	0.5	-7.1	2.1	4	clayy SILT to silty CLAY	115	2.0	14	12	-	-	1.7	15
13.29	19.3	25.2	-	0.5	-8.4	2.5	4	clayy SILT to silty CLAY	115	2.0	13	10	-	-	1.3	15
13.45	12.2	15.8	-	0.4	-9.2	3.4	3	silty CLAY to CLAY	115	1.5	11	8	-	-	0.8	15
13.62	7.3	9.4	-	0.2	-9.6	3.2	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
13.78	5.3	6.8	-	0.1	-9.6	3.0	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.3	15
13.94	4.6	5.9	-	0.1	-9.6	2.4	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
14.11	4.0	5.0	-	0.1	-9.5	2.3	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.2	15
14.27	3.8	4.8	-	0.1	-9.5	2.7	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.2	15
14.44	4.0	5.1	-	0.1	-9.5	3.1	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.2	15
14.60	4.4	5.4	-	0.1	-9.4	4.0	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
14.76	4.8	6.0	-	0.2	-9.4	5.7	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
14.93	14.8	18.2	-	0.2	-9.4	1.7	4	clayy SILT to silty CLAY	115	2.0	9	7	-	-	1.0	15
15.09	12.7	15.5	-	0.3	-9.5	2.4	4	clayy SILT to silty CLAY	115	2.0	8	6	-	-	0.9	15
15.26	9.2	11.2	-	0.2	-8.5	2.8	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
15.42	30.5	32.6	66.3	0.3	-8.5	1.0	5	silty SAND to sandy SILT	120	4.0	8	8	30	37	-	16
15.58	37.1	39.5	72.7	0.4	-8.5	1.1	5	silty SAND to sandy SILT	120	4.0	10	9	36	38	-	16
15.75	49.0	52.2	83.1	0.5	-8.5	1.1	5	silty SAND to sandy SILT	120	4.0	13	12	46	40	-	16
15.91	59.7	63.3	93.7	0.7	-8.4	1.2	5	silty SAND to sandy SILT	120	4.0	16	15	52	41	-	16
16.08	69.5	73.6	104.7	0.9	-8.4	1.3	5	silty SAND to sandy SILT	120	4.0	18	17	57	42	-	16
16.24	74.3	78.4	115.3	1.1	-8.3	1.5	5	silty SAND to sandy SILT	120	4.0	20	19	59	42	-	16
16.40	74.9	78.9	119.2	1.2	-8.3	1.6	5	silty SAND to sandy SILT	120	4.0	20	19	59	42	-	16
16.57	76.8	80.6	115.7	1.1	-8.2	1.4	5	silty SAND to sandy SILT	120	4.0	20	19	60	42	-	16
16.73	83.4	87.3	113.2	0.9	-8.2	1.1	6	clean SAND to silty SAND	125	5.0	17	17	63	42	-	16
16.90	100.6	105.0	126.5	1.1	-8.1	1.1	6	clean SAND to silty SAND	125	5.0	21	20	69	43	-	16
17.06	103.9	108.1	134.0	1.3	-8.1	1.2	6	clean SAND to silty SAND	125	5.0	22	21	70	43	-	16
17.23	104.9	108.8	135.9	1.3	-8.0	1.3	6	clean SAND to silty SAND	125	5.0	22	21	70	43	-	16
17.39	105.2	108.8	135.8	1.3	-7.9	1.3	6	clean SAND to silty SAND	125	5.0	22	21	70	43	-	16
17.55	110.8	114.3	136.9	1.3	-7.8	1.1	6	clean SAND to silty SAND	125	5.0	23	22	71	44	-	16
17.72	110.3	113.4	138.5	1.3	-7.7	1.2	6	clean SAND to silty SAND	125	5.0	23	22	71	43	-	16
17.88	107.1	109.8	138.1	1.4	-7.7	1.3	6	clean SAND to silty SAND	125	5.0	22	21	70	43	-	16
18.05	105.7	108.0	135.8	1.4	-7.6	1.3	6	clean SAND to silty SAND	125	5.0	22	21	70	43	-	16
18.21	88.0	89.7	121.8	1.2	-7.5	1.4	5	silty SAND to sandy SILT	120	4.0	22	22	63	42	-	16
18.37	62.5	63.6	101.6	0.9	-7.5	1.4	5	silty SAND to sandy SILT	120	4.0	16	16	52	40	-	16
18.54	31.7	32.2	98.1	0.8	-7.4	2.5	4	clayy SILT to silty CLAY	115	2.0	16	16	-	-	2.2	15
18.70	12.8	13.9	-	0.5	-7.4	4.4	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
18.87	7.7	8.3	-	0.3	-7.0	4.8	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
19.03	5.9	6.4	-	0.1	-7.0	2.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
19.19	5.4	5.8	-	0.1	-6.9	1.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
19.36	5.9	6.3	-	0.1	-6.8	1.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
19.52	8.6	9.1	-	0.3	-6.7	4.1	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
19.69	33.8	33.7	64.0	0.3	-6.6	0.9	5	silty SAND to sandy SILT	120	4.0	8	8	31	37	-	16
19.85	32.1	32.0	69.7	0.4	-6.8	1.2	5	silty SAND to sandy SILT	120	4.0	8	8	29	36	-	16
20.01	13.5	14.1	-	0.4	-6.9	3.0	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
20.18	11.5	12.0	-	0.3	-3.8	2.8	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
20.34	7.4	7.7	-	0.2	-3.8	3.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
20.51	5.3	5.5	-	0.1	-3.8	2.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
20.67	5.0	5.2	-	0.1	-3.6	2.8	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
20.83	5.0	5.1	-	0.1	-3.4	3.5	3	silty CLAY to CLAY	115	1.5	3	3	-	-	0.3	15
21.00	5.5	5.6	-	0.2	-3.2	5.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(414).cpt
CPT Date: 11/18/2008 1:34:00 PM
GW During Test: 12 ft

Sounding ID: CPT-08-57
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	6.1	6.1	-	0.3	-3.0	6.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.33	6.1	6.2	-	0.3	-3.0	5.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.49	6.0	6.0	-	0.3	-2.9	5.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.65	6.3	6.3	-	0.4	-2.7	7.7	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
21.82	9.3	9.3	-	0.4	-2.5	4.4	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
21.98	37.6	36.4	62.2	0.3	-2.4	0.8	5	silty SAND to sandy SILT	120	4.0	9	9	34	37	-	16
22.15	61.1	59.0	77.1	0.4	-3.1	0.7	6	clean SAND to silty SAND	125	5.0	12	12	50	39	-	16
22.31	67.8	65.3	89.0	0.6	-2.2	0.9	6	clean SAND to silty SAND	125	5.0	13	14	53	40	-	16
22.47	74.6	71.7	98.3	0.8	-2.0	1.1	5	silty SAND to sandy SILT	120	4.0	18	19	56	41	-	16
22.64	78.4	75.1	103.8	0.9	-1.9	1.2	5	silty SAND to sandy SILT	120	4.0	19	20	58	41	-	16
22.80	80.5	76.9	104.1	0.9	-1.8	1.1	6	clean SAND to silty SAND	125	5.0	15	16	58	41	-	16
22.97	80.8	77.1	105.3	0.9	-1.7	1.2	5	silty SAND to sandy SILT	120	4.0	19	20	58	41	-	16
23.13	78.8	75.0	104.7	0.9	-1.5	1.2	5	silty SAND to sandy SILT	120	4.0	19	20	57	41	-	16
23.30	73.4	69.7	103.8	1.0	-1.4	1.3	5	silty SAND to sandy SILT	120	4.0	17	18	55	40	-	16
23.46	62.1	58.9	102.2	1.0	-1.3	1.6	5	silty SAND to sandy SILT	120	4.0	15	16	50	39	-	16
23.62	42.5	40.2	105.8	1.0	-1.2	2.4	5	silty SAND to sandy SILT	120	4.0	10	11	37	37	-	16
23.79	24.8	23.4	-	0.8	-1.1	3.3	4	clayy SILT to silty CLAY	115	2.0	12	12	-	-	1.7	15
23.95	14.5	13.6	-	0.6	-1.0	4.8	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
24.12	12.0	11.2	-	0.5	-0.6	4.5	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
24.28	47.2	44.2	78.6	0.5	0.0	1.2	5	silty SAND to sandy SILT	120	4.0	11	12	40	38	-	16
24.44	72.7	68.0	92.9	0.7	-0.3	1.0	6	clean SAND to silty SAND	125	5.0	14	15	54	40	-	16
24.61	77.4	72.2	98.1	0.8	-0.2	1.1	6	clean SAND to silty SAND	125	5.0	14	15	56	40	-	16
24.77	75.5	70.3	101.6	0.9	-0.1	1.2	5	silty SAND to sandy SILT	120	4.0	18	19	55	40	-	16
24.94	67.4	62.6	98.2	0.9	0.0	1.3	5	silty SAND to sandy SILT	120	4.0	16	17	52	39	-	16
25.10	55.8	51.7	95.7	0.9	0.1	1.6	5	silty SAND to sandy SILT	120	4.0	13	14	45	38	-	16
25.26	53.1	49.2	85.8	0.7	2.8	1.3	5	silty SAND to sandy SILT	120	4.0	12	13	44	38	-	16
25.43	59.3	54.7	78.8	0.5	2.0	0.9	5	silty SAND to sandy SILT	120	4.0	14	15	47	39	-	16
25.59	59.7	55.0	84.6	0.6	-1.0	1.1	5	silty SAND to sandy SILT	120	4.0	14	15	47	39	-	16
25.76	41.0	37.6	97.5	0.9	-1.6	2.2	5	silty SAND to sandy SILT	120	4.0	9	10	35	36	-	16
25.92	17.8	15.9	-	0.7	-1.5	4.3	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.2	15
26.08	10.9	9.7	-	0.5	-1.2	4.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
26.25	7.4	6.5	-	0.3	-0.8	4.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
26.41	6.5	5.7	-	0.2	-0.4	3.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
26.58	7.2	6.4	-	0.2	0.2	3.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
26.74	8.5	7.5	-	0.3	0.6	4.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
26.90	9.1	8.0	-	0.3	0.9	3.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
27.07	7.2	6.3	-	0.2	1.0	4.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
27.23	6.2	5.4	-	0.2	1.4	4.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
27.40	6.2	5.4	-	0.2	1.9	4.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
27.56	6.4	5.5	-	0.2	2.2	5.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
27.72	6.4	5.5	-	0.3	2.5	6.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
27.89	8.4	7.1	-	0.5	2.9	6.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
28.05	15.4	13.1	-	0.3	3.4	2.5	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
28.22	22.6	19.1	-	0.4	2.7	1.7	4	clayy SILT to silty CLAY	115	2.0	10	11	-	-	1.5	15
28.38	19.5	16.4	-	0.6	1.9	3.3	3	silty CLAY to CLAY	115	1.5	11	13	-	-	1.3	15
28.54	16.4	13.8	-	0.8	1.7	5.3	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
28.71	22.6	18.9	-	0.6	2.1	2.7	4	clayy SILT to silty CLAY	115	2.0	9	11	-	-	1.5	15
28.87	34.1	30.2	75.6	0.5	0.9	1.5	5	silty SAND to sandy SILT	120	4.0	8	9	27	35	-	16
29.04	36.6	32.4	84.1	0.6	4.4	1.8	5	silty SAND to sandy SILT	120	4.0	8	9	30	35	-	16
29.20	33.9	28.0	-	0.8	3.6	2.6	4	clayy SILT to silty CLAY	115	2.0	14	17	-	-	2.3	15
29.36	32.0	28.2	87.8	0.6	1.2	2.1	4	clayy SILT to silty CLAY	115	2.0	14	16	-	-	2.2	15
29.53	36.1	31.8	94.0	0.8	-3.0	2.3	4	clayy SILT to silty CLAY	115	2.0	16	18	-	-	2.5	15
29.69	37.7	33.2	94.3	0.8	-3.3	2.2	4	clayy SILT to silty CLAY	115	2.0	17	19	-	-	2.6	15
29.86	48.7	42.7	93.4	0.8	-3.2	1.8	5	silty SAND to sandy SILT	120	4.0	11	12	39	37	-	16
30.02	57.3	50.2	95.7	0.9	-4.2	1.6	5	silty SAND to sandy SILT	120	4.0	13	14	44	38	-	16
30.19	53.6	46.9	97.0	0.9	-4.1	1.8	5	silty SAND to sandy SILT	120	4.0	12	13	42	37	-	16
30.35	49.9	43.5	102.1	1.0	1.0	2.1	5	silty SAND to sandy SILT	120	4.0	11	12	40	37	-	16
30.51	39.7	34.6	103.2	1.0	1.3	2.6	4	clayy SILT to silty CLAY	115	2.0	17	20	-	-	2.7	15
30.68	38.7	33.6	95.7	0.8	0.2	2.2	4	clayy SILT to silty CLAY	115	2.0	17	19	-	-	2.7	15
30.84	36.1	31.3	83.7	0.6	-4.1	1.8	5	silty SAND to sandy SILT	120	4.0	8	9	29	35	-	16
31.01	21.9	17.4	-	0.5	-4.9	2.5	4	clayy SILT to silty CLAY	115	2.0	9	11	-	-	1.5	15
31.17	13.0	10.3	-	0.4	-4.8	3.4	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
31.33	9.1	7.2	-	0.3	-4.4	4.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.50	8.0	6.3	-	0.3	-3.9	4.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(414).cpt
CPT Date: 11/18/2008 1:34:00 PM
GW During Test: 12 ft

Sounding ID: CPT-08-57
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	7.5	5.9	-	0.2	-3.4	3.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.83	7.8	6.1	-	0.2	-3.0	3.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.99	8.5	6.6	-	0.3	-2.5	4.0	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
32.15	8.9	6.9	-	0.3	-2.0	5.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
32.32	11.0	8.5	-	0.4	-1.6	4.2	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.48	8.9	6.9	-	0.4	-1.2	5.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
32.65	9.5	7.3	-	0.5	1.4	5.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
32.81	11.8	9.1	-	0.5	1.9	5.4	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
32.97	15.2	11.6	-	0.5	2.2	3.6	3	silty CLAY to CLAY	115	1.5	8	10	-	-	1.0	15
33.14	11.2	8.5	-	0.4	1.2	3.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
33.30	7.3	5.5	-	0.3	1.4	5.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
33.47	7.5	5.6	-	0.3	2.2	4.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
33.63	7.3	5.5	-	0.2	2.8	4.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
33.79	7.1	5.3	-	0.2	3.4	4.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
33.96	7.0	5.2	-	0.3	4.1	5.2	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.4	15
34.12	7.4	5.5	-	0.3	4.8	5.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
34.29	8.4	6.3	-	0.2	5.3	3.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
34.45	7.2	5.4	-	0.2	5.9	3.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
34.61	6.3	4.6	-	0.2	6.8	4.1	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.4	15
34.78	5.6	4.2	-	0.2	8.0	5.0	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	15
34.94	6.2	4.6	-	0.2	9.1	5.3	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.4	15
35.11	6.3	4.6	-	0.2	10.0	5.5	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.4	15
35.27	7.1	5.2	-	0.3	22.7	5.2	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.4	15
35.43	7.5	5.4	-	0.3	24.3	6.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
35.60	9.0	6.5	-	0.3	25.4	5.0	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
35.76	7.9	5.7	-	0.4	25.0	6.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
35.93	8.2	5.9	-	0.3	36.2	5.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
36.09	8.6	6.2	-	0.3	36.8	5.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
36.26	8.7	6.2	-	0.3	37.3	5.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
36.42	8.6	6.2	-	0.3	37.4	4.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
36.58	8.7	6.2	-	0.3	37.9	5.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
36.75	9.4	6.7	-	0.4	38.7	5.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
36.91	9.5	6.7	-	0.4	37.9	6.0	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
37.08	13.4	9.5	-	0.5	39.1	4.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
37.24	15.3	10.8	-	0.5	17.0	3.6	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
37.40	9.8	6.9	-	0.4	13.0	5.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
37.57	10.5	7.3	-	0.4	14.9	4.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.73	12.9	9.0	-	0.6	16.7	6.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
37.90	22.7	15.7	-	0.5	14.0	2.6	4	clayy SILT to silty CLAY	115	2.0	8	11	-	-	1.5	15
38.06	13.9	9.6	-	0.5	4.5	4.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
38.22	16.2	11.2	-	0.5	5.1	3.5	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
38.39	13.5	9.3	-	0.5	6.1	4.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
38.55	11.4	7.8	-	0.5	6.4	5.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
38.72	11.3	7.8	-	0.5	7.5	5.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
38.88	12.2	8.3	-	0.4	14.6	4.4	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
39.04	11.8	8.0	-	0.4	15.3	4.8	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
39.21	11.2	7.6	-	0.5	16.4	5.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
39.37	11.7	7.9	-	0.5	17.7	5.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
39.54	11.2	7.6	-	0.5	18.2	5.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
39.70	10.9	7.3	-	0.5	19.3	5.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
39.86	11.4	7.6	-	0.5	20.4	5.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
40.03	12.8	8.6	-	0.6	21.7	5.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
40.19	13.9	9.3	-	0.6	31.4	5.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
40.36	15.7	10.4	-	0.6	31.0	4.6	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
40.52	17.1	11.4	-	0.6	29.2	3.9	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
40.68	17.6	11.7	-	0.6	29.1	3.6	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
40.85	18.9	12.4	-	0.4	29.1	2.5	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.2	15
41.01	14.7	9.7	-	0.4	23.9	2.9	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
41.18	10.9	7.1	-	0.4	27.0	4.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
41.34	10.8	7.1	-	0.4	30.2	4.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
41.50	10.7	7.0	-	0.4	32.3	5.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
41.67	19.3	12.6	-	0.5	34.8	3.0	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
41.83	21.8	14.2	-	0.4	6.8	1.9	4	clayy SILT to silty CLAY	115	2.0	7	11	-	-	1.5	15
42.00	12.8	8.3	-	0.4	4.9	4.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(414).cpt
CPT Date: 11/18/2008 1:34:00 PM
GW During Test: 12 ft

Sounding ID: CPT-08-57
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	12.5	8.1	-	0.5	6.3	4.7	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
42.32	12.7	8.2	-	0.6	7.0	5.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
42.49	12.9	8.3	-	0.7	7.7	6.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
42.65	14.0	9.0	-	0.9	8.4	7.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.82	16.7	10.7	-	1.1	11.7	7.6	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
42.98	44.3	34.3	96.1	0.9	12.9	2.2	4	clayy SILT to silty CLAY	115	2.0	17	22	-	-	3.0	15
43.15	123.6	95.6	115.5	1.2	0.1	1.0	6	clean SAND to silty SAND	125	5.0	19	25	66	40	-	16
43.31	143.8	111.0	129.2	1.4	-1.9	1.0	6	clean SAND to silty SAND	125	5.0	22	29	70	41	-	16
43.47	144.6	111.5	133.4	1.6	-1.6	1.1	6	clean SAND to silty SAND	125	5.0	22	29	71	41	-	16
43.64	143.3	110.3	140.2	1.9	-1.3	1.4	6	clean SAND to silty SAND	125	5.0	22	29	70	41	-	16
43.80	143.2	110.0	145.2	2.2	-0.9	1.6	6	clean SAND to silty SAND	125	5.0	22	29	70	41	-	16
43.97	143.8	110.3	152.0	2.5	-0.5	1.8	5	silty SAND to sandy SILT	120	4.0	28	36	70	41	-	16
44.13	145.2	111.2	156.4	2.7	-0.2	1.9	5	silty SAND to sandy SILT	120	4.0	28	36	71	41	-	16
44.29	144.9	110.8	159.5	2.9	0.0	2.0	5	silty SAND to sandy SILT	120	4.0	28	36	70	41	-	16
44.46	143.3	109.5	157.6	2.8	0.3	2.0	5	silty SAND to sandy SILT	120	4.0	27	36	70	41	-	16
44.62	142.2	108.5	154.4	2.7	0.5	1.9	5	silty SAND to sandy SILT	120	4.0	27	36	70	41	-	16
44.79	141.4	107.7	153.3	2.6	0.8	1.9	5	silty SAND to sandy SILT	120	4.0	27	35	69	41	-	16
44.95	139.3	106.0	152.9	2.6	1.1	1.9	5	silty SAND to sandy SILT	120	4.0	26	35	69	41	-	16
45.11	133.0	101.0	150.2	2.6	1.3	2.0	5	silty SAND to sandy SILT	120	4.0	25	33	67	40	-	16
45.28	124.6	94.5	146.3	2.5	3.9	2.1	5	silty SAND to sandy SILT	120	4.0	24	31	65	40	-	16
45.44	116.2	88.0	145.7	2.5	3.8	2.2	5	silty SAND to sandy SILT	120	4.0	22	29	63	40	-	16
45.61	89.2	67.5	146.1	2.5	3.8	2.9	5	silty SAND to sandy SILT	120	4.0	17	22	54	38	-	16
45.77	55.5	33.5	-	2.2	3.8	4.2	4	clayy SILT to silty CLAY	115	2.0	17	28	-	-	3.8	15
45.93	30.6	18.4	-	1.5	3.9	5.5	3	silty CLAY to CLAY	115	1.5	12	20	-	-	2.1	15
46.10	23.4	14.1	-	0.9	4.4	4.1	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
46.26	18.4	11.1	-	0.6	6.0	3.8	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
46.43	16.2	9.7	-	0.6	6.9	4.4	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
46.59	20.2	12.0	-	0.6	8.0	3.5	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
46.75	30.8	18.3	-	0.7	8.1	2.6	4	clayy SILT to silty CLAY	115	2.0	9	15	-	-	2.1	15
46.92	33.5	19.9	-	0.7	8.5	2.1	4	clayy SILT to silty CLAY	115	2.0	10	17	-	-	2.3	15
47.08	46.2	34.5	76.2	0.6	7.0	1.3	5	silty SAND to sandy SILT	120	4.0	9	12	32	34	-	16
47.25	45.8	34.2	85.3	0.7	6.7	1.7	5	silty SAND to sandy SILT	120	4.0	9	11	32	34	-	16
47.41	30.6	18.0	-	1.0	7.1	3.7	3	silty CLAY to CLAY	115	1.5	12	20	-	-	2.1	15
47.57	29.3	17.2	-	0.9	8.1	3.3	3	silty CLAY to CLAY	115	1.5	11	20	-	-	2.0	15
47.74	39.2	22.9	-	0.8	8.5	2.2	4	clayy SILT to silty CLAY	115	2.0	11	20	-	-	2.7	15
47.90	38.0	22.2	-	1.1	9.1	3.1	4	clayy SILT to silty CLAY	115	2.0	11	19	-	-	2.6	15
48.07	73.4	54.4	105.6	1.3	10.4	1.8	5	silty SAND to sandy SILT	120	4.0	14	18	47	37	-	16
48.23	175.8	130.2	140.5	1.4	3.0	0.8	6	clean SAND to silty SAND	125	5.0	26	35	76	42	-	16
48.39	247.5	183.0	182.9	1.9	-4.1	0.8	6	clean SAND to silty SAND	125	5.0	37	49	87	43	-	16
48.56	271.4	200.4	202.7	2.4	-4.8	0.9	6	clean SAND to silty SAND	125	5.0	40	54	90	44	-	16
48.72	272.9	201.2	208.2	2.7	-4.5	1.0	6	clean SAND to silty SAND	125	5.0	40	55	90	44	-	16
48.89	269.4	198.3	206.4	2.7	-3.5	1.0	6	clean SAND to silty SAND	125	5.0	40	54	90	44	-	16
49.05	253.7	186.5	196.2	2.6	-3.3	1.0	6	clean SAND to silty SAND	125	5.0	37	51	88	43	-	16
49.22	233.6	171.4	182.1	2.3	-3.2	1.0	6	clean SAND to silty SAND	125	5.0	34	47	85	43	-	16
49.38	217.5	159.4	172.6	2.2	-3.0	1.0	6	clean SAND to silty SAND	125	5.0	32	43	82	43	-	16
49.54	201.4	147.4	165.5	2.2	-2.8	1.1	6	clean SAND to silty SAND	125	5.0	29	40	80	42	-	16
49.71	185.1	135.3	156.7	2.2	-2.6	1.2	6	clean SAND to silty SAND	125	5.0	27	37	77	42	-	16
49.87	169.2	123.4	149.1	2.1	-2.4	1.3	6	clean SAND to silty SAND	125	5.0	25	34	74	41	-	16
50.04	161.1	117.3	141.9	1.9	-2.3	1.2	6	clean SAND to silty SAND	125	5.0	23	32	72	41	-	16
50.20	157.6	114.6	141.2	2.0	-1.3	1.3	6	clean SAND to silty SAND	125	5.0	23	32	72	41	-	16
50.36	158.1	114.8	141.9	2.0	-1.2	1.3	6	clean SAND to silty SAND	125	5.0	23	32	72	41	-	16
50.53	152.5	110.6	139.1	2.0	-1.0	1.3	6	clean SAND to silty SAND	125	5.0	22	31	70	41	-	16
50.69	164.3	119.1	139.8	1.8	-0.9	1.1	6	clean SAND to silty SAND	125	5.0	24	33	73	41	-	16
50.86	180.9	130.8	144.4	1.6	-0.8	0.9	6	clean SAND to silty SAND	125	5.0	26	36	76	41	-	16
51.02	204.3	147.6	151.7	1.4	-0.7	0.7	6	clean SAND to silty SAND	125	5.0	30	41	80	42	-	16
51.18	214.5	154.7	154.7	1.2	-0.6	0.6	6	clean SAND to silty SAND	125	5.0	31	43	81	42	-	16
51.35	222.3	160.2	160.2	1.1	-0.4	0.5	6	clean SAND to silty SAND	125	5.0	32	44	83	42	-	16
51.51	229.6	165.1	165.1	1.1	-0.2	0.5	6	clean SAND to silty SAND	125	5.0	33	46	84	43	-	16
51.68	235.2	168.9	168.9	1.1	0.0	0.5	6	clean SAND to silty SAND	125	5.0	34	47	84	43	-	16
51.84	235.3	168.8	168.8	1.1	0.2	0.5	6	clean SAND to silty SAND	125	5.0	34	47	84	43	-	16
52.00	218.0	156.2	156.2	1.0	0.4	0.5	6	clean SAND to silty SAND	125	5.0	31	44	82	42	-	16
52.17	181.6	129.9	131.3	1.0	0.5	0.5	6	clean SAND to silty SAND	125	5.0	26	36	76	41	-	16
52.33	126.6	90.4	118.6	1.5	0.5	1.2	6	clean SAND to silty SAND	125	5.0	18	25	64	39	-	16
52.50	51.6	27.8	-	1.7	2.4	3.6	4	clayy SILT to silty CLAY	115	2.0	14	26	-	-	3.5	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(414).cpt
CPT Date: 11/18/2008 1:34:00 PM
GW During Test: 12 ft

Sounding ID: CPT-08-57
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	40.5	21.8	-	1.8	3.3	4.8	3	silty CLAY to CLAY	115	1.5	15	27	-	-	2.8	15
52.82	35.4	19.0	-	1.4	4.3	4.5	3	silty CLAY to CLAY	115	1.5	13	24	-	-	2.4	15
52.99	21.9	11.7	-	0.8	4.5	4.0	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.4	15
53.15	17.1	9.1	-	0.4	5.6	3.2	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
53.32	15.1	8.0	-	0.4	6.8	3.5	3	silty CLAY to CLAY	115	1.5	5	10	-	-	1.0	15
53.48	14.4	7.7	-	0.4	8.2	3.4	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
53.64	14.6	7.8	-	0.3	9.5	2.6	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
53.81	14.7	7.8	-	0.4	11.2	3.5	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
53.97	17.8	9.4	-	0.9	13.4	5.9	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
54.14	31.9	16.8	-	1.2	15.5	4.0	3	silty CLAY to CLAY	115	1.5	11	21	-	-	2.1	15
54.30	157.7	111.0	139.9	2.1	16.2	1.3	6	clean SAND to silty SAND	125	5.0	22	32	70	40	-	16
54.46	194.9	137.1	167.7	2.9	13.8	1.5	6	clean SAND to silty SAND	125	5.0	27	39	77	41	-	16
54.63	194.0	136.3	174.1	3.3	13.3	1.7	6	clean SAND to silty SAND	125	5.0	27	39	77	41	-	16
54.79	185.6	130.2	170.7	3.3	12.4	1.8	5	silty SAND to sandy SILT	120	4.0	33	46	76	41	-	16
54.96	184.4	129.2	167.4	3.1	11.6	1.7	6	clean SAND to silty SAND	125	5.0	26	37	75	41	-	16
55.12	178.2	124.7	162.7	3.0	11.1	1.7	6	clean SAND to silty SAND	125	5.0	25	36	74	41	-	16
55.28	155.8	108.8	152.7	2.8	10.1	1.8	5	silty SAND to sandy SILT	120	4.0	27	39	70	40	-	16
55.45	128.6	89.8	141.5	2.5	9.9	2.0	5	silty SAND to sandy SILT	120	4.0	22	32	63	39	-	16
55.61	116.6	81.3	132.8	2.3	9.8	2.0	5	silty SAND to sandy SILT	120	4.0	20	29	60	39	-	16
55.78	118.4	82.5	126.8	2.0	6.1	1.7	5	silty SAND to sandy SILT	120	4.0	21	30	61	39	-	16
55.94	116.2	80.8	121.6	1.8	2.6	1.6	5	silty SAND to sandy SILT	120	4.0	20	29	60	38	-	16
56.11	102.2	71.0	120.5	1.8	1.7	1.9	5	silty SAND to sandy SILT	120	4.0	18	26	56	38	-	16
56.27	66.7	46.3	128.2	1.9	1.7	3.1	4	clayy SILT to silty CLAY	115	2.0	23	33	-	-	4.6	15
56.43	36.2	18.4	-	1.4	2.0	4.3	3	silty CLAY to CLAY	115	1.5	12	24	-	-	2.4	15
56.60	23.3	11.9	-	1.2	2.9	6.2	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.5	15
56.76	24.7	12.5	-	0.7	4.3	3.3	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.6	15
56.93	53.0	36.6	80.5	0.7	4.7	1.4	5	silty SAND to sandy SILT	120	4.0	9	13	34	34	-	16
57.09	29.9	15.1	-	0.7	3.0	2.5	4	clayy SILT to silty CLAY	115	2.0	8	15	-	-	2.0	15
57.25	17.1	8.6	-	0.5	3.8	3.6	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
57.42	15.0	7.5	-	0.2	5.1	2.1	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
57.58	14.8	7.4	-	0.2	6.3	1.8	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
57.75	14.8	7.4	-	0.2	7.5	2.0	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
57.91	15.6	7.8	-	0.3	8.9	2.4	3	silty CLAY to CLAY	115	1.5	5	10	-	-	1.0	15
58.07	17.2	8.6	-	0.5	10.2	3.7	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
58.24	20.6	10.2	-	0.8	11.5	4.7	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.3	15
58.40	24.2	12.0	-	1.0	12.3	4.9	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.6	15
58.57	25.6	12.7	-	1.3	12.9	5.7	3	silty CLAY to CLAY	115	1.5	8	17	-	-	1.7	15
58.73	26.8	13.2	-	1.3	21.6	5.7	3	silty CLAY to CLAY	115	1.5	9	18	-	-	1.8	15
58.89	27.0	13.3	-	1.1	22.3	4.7	3	silty CLAY to CLAY	115	1.5	9	18	-	-	1.8	15
59.06	23.9	11.7	-	1.2	23.5	5.7	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.6	15
59.22	25.9	12.7	-	0.9	26.4	4.2	3	silty CLAY to CLAY	115	1.5	8	17	-	-	1.7	15
59.39	51.8	35.2	87.3	0.8	22.1	1.7	5	silty SAND to sandy SILT	120	4.0	9	13	33	33	-	16
59.55	60.9	41.3	89.5	0.9	18.0	1.6	5	silty SAND to sandy SILT	120	4.0	10	15	38	34	-	16
59.71	59.3	40.2	93.4	1.0	18.7	1.8	5	silty SAND to sandy SILT	120	4.0	10	15	37	34	-	16
59.88	56.5	38.3	97.7	1.1	18.3	2.1	5	silty SAND to sandy SILT	120	4.0	10	14	35	34	-	16
60.04	52.6	35.6	85.1	0.8	19.2	1.6	5	silty SAND to sandy SILT	120	4.0	9	13	33	33	-	16
60.21	57.1	38.6	99.6	1.1	14.7	2.1	5	silty SAND to sandy SILT	120	4.0	10	14	36	34	-	16
60.37	45.5	21.9	-	1.3	15.7	3.1	4	clayy SILT to silty CLAY	115	2.0	11	23	-	-	3.1	15
60.53	53.0	25.5	-	1.1	13.6	2.2	4	clayy SILT to silty CLAY	115	2.0	13	26	-	-	3.6	15
60.70	80.6	54.3	101.2	1.3	2.6	1.7	5	silty SAND to sandy SILT	120	4.0	14	20	47	36	-	16
60.86	94.6	63.6	101.5	1.3	-1.0	1.4	5	silty SAND to sandy SILT	120	4.0	16	24	52	37	-	16
61.03	108.5	72.9	118.8	1.8	-2.1	1.8	5	silty SAND to sandy SILT	120	4.0	18	27	57	38	-	16
61.19	103.0	69.2	128.3	2.2	-2.6	2.2	5	silty SAND to sandy SILT	120	4.0	17	26	55	37	-	16
61.35	103.5	69.4	120.8	1.9	-2.3	1.9	5	silty SAND to sandy SILT	120	4.0	17	26	55	37	-	16
61.52	173.8	116.4	124.3	1.1	-2.4	0.6	6	clean SAND to silty SAND	125	5.0	23	35	72	40	-	16
61.68	179.3	119.9	124.7	1.0	-4.5	0.6	6	clean SAND to silty SAND	125	5.0	24	36	73	40	-	16
61.85	144.1	96.3	115.1	1.3	-4.5	0.9	6	clean SAND to silty SAND	125	5.0	19	29	66	39	-	16
62.01	112.3	74.9	122.2	2.0	-4.1	1.8	5	silty SAND to sandy SILT	120	4.0	19	28	57	38	-	16
62.17	111.6	74.4	145.4	2.9	-3.8	2.6	5	silty SAND to sandy SILT	120	4.0	19	28	57	38	-	16
62.34	141.6	94.3	125.2	1.8	-3.5	1.3	6	clean SAND to silty SAND	125	5.0	19	28	65	39	-	16
62.50	215.0	143.0	153.2	1.8	-4.2	0.8	6	clean SAND to silty SAND	125	5.0	29	43	79	41	-	16
62.67	371.2	246.5	246.5	2.5	-3.8	0.7	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
62.83	455.8	302.4	302.4	2.9	-3.3	0.7	6	clean SAND to silty SAND	125	5.0	60	91	95	45	-	16
63.00	481.1	318.8	318.8	2.5	-2.5	0.5	6	clean SAND to silty SAND	125	5.0	64	96	95	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(414).cpt
CPT Date: 11/18/2008 1:34:00 PM
GW During Test: 12 ft

Sounding ID: CPT-08-57
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	509.8	337.4	337.4	2.1	-1.7	0.4	7	grvly SAND to dense SAND	130	6.0	56	85	95	45	-	16
63.32	505.7	334.2	334.2	2.1	-1.3	0.4	7	grvly SAND to dense SAND	130	6.0	56	84	95	45	-	16
63.49	511.6	337.7	337.7	2.0	-0.5	0.4	7	grvly SAND to dense SAND	130	6.0	56	85	95	45	-	16
63.65	504.2	332.4	332.4	2.0	0.5	0.4	7	grvly SAND to dense SAND	130	6.0	55	84	95	45	-	16
63.82	495.5	326.3	326.3	1.4	0.8	0.3	7	grvly SAND to dense SAND	130	6.0	54	83	95	45	-	16
63.98	477.7	314.1	314.1	1.7	1.0	0.4	7	grvly SAND to dense SAND	130	6.0	52	80	95	45	-	16
64.14	449.4	295.1	295.1	1.5	1.5	0.3	7	grvly SAND to dense SAND	130	6.0	49	75	95	45	-	16
64.31	421.3	276.3	276.3	1.3	1.8	0.3	7	grvly SAND to dense SAND	130	6.0	46	70	95	44	-	16
64.47	413.9	271.1	271.1	1.7	2.6	0.4	6	clean SAND to silty SAND	125	5.0	54	83	95	44	-	16
64.64	359.8	235.4	235.4	2.3	3.9	0.7	6	clean SAND to silty SAND	125	5.0	47	72	95	44	-	16
64.80	333.1	217.7	217.7	1.7	5.1	0.5	6	clean SAND to silty SAND	125	5.0	44	67	93	43	-	16
64.96	286.7	187.1	187.1	1.6	6.3	0.5	6	clean SAND to silty SAND	125	5.0	37	57	88	43	-	16
65.13	271.5	177.0	177.0	1.6	6.3	0.6	6	clean SAND to silty SAND	125	5.0	35	54	86	42	-	16
65.29	249.6	162.6	162.6	0.6	11.0	0.2	6	clean SAND to silty SAND	125	5.0	33	50	83	42	-	16
65.46	165.0	107.4	117.5	1.1	11.7	0.7	6	clean SAND to silty SAND	125	5.0	21	33	69	40	-	16
65.62	135.8	88.2	101.8	0.9	11.7	0.7	6	clean SAND to silty SAND	125	5.0	18	27	63	38	-	16
65.78	94.8	61.5	92.1	1.0	11.6	1.1	5	silty SAND to sandy SILT	120	4.0	15	24	51	36	-	16
65.95	62.6	40.6	92.9	1.0	12.3	1.8	5	silty SAND to sandy SILT	120	4.0	10	16	37	34	-	16
66.11	51.9	33.6	79.2	0.7	13.0	1.4	5	silty SAND to sandy SILT	120	4.0	8	13	31	33	-	16
66.28	40.5	18.0	-	0.5	14.2	1.4	4	clayy SILT to silty CLAY	115	2.0	9	20	-	-	2.7	15
66.44	36.4	16.1	-	0.5	15.5	1.6	4	clayy SILT to silty CLAY	115	2.0	8	18	-	-	2.4	15
66.60	39.2	25.3	64.6	0.4	19.4	1.1	5	silty SAND to sandy SILT	120	4.0	6	10	22	31	-	16
66.77	118.6	76.5	83.4	0.4	6.5	0.4	6	clean SAND to silty SAND	125	5.0	15	24	58	38	-	16
66.93	179.9	115.9	115.9	0.7	1.0	0.4	6	clean SAND to silty SAND	125	5.0	23	36	72	40	-	16
67.10	237.3	152.8	159.9	1.9	2.1	0.8	6	clean SAND to silty SAND	125	5.0	31	47	81	41	-	16
67.26	348.5	224.0	224.0	1.5	4.4	0.4	6	clean SAND to silty SAND	125	5.0	45	70	94	43	-	16
67.42	453.2	291.1	291.1	1.1	5.8	0.2	7	grvly SAND to dense SAND	130	6.0	49	76	95	45	-	16
67.59	492.5	315.9	315.9	0.9	7.4	0.2	7	grvly SAND to dense SAND	130	6.0	53	82	95	45	-	16
67.75	519.9	333.1	333.1	1.6	6.7	0.3	7	grvly SAND to dense SAND	130	6.0	56	87	95	45	-	16
67.92	477.8	305.7	305.7	2.3	7.4	0.5	6	clean SAND to silty SAND	125	5.0	61	96	95	45	-	16
68.08	425.0	271.7	270.7	4.7	9.2	1.1	6	clean SAND to silty SAND	125	5.0	54	85	95	44	-	16
68.24	449.5	287.0	287.0	3.5	8.0	0.8	6	clean SAND to silty SAND	125	5.0	57	90	95	44	-	16
68.41	434.8	277.3	277.3	2.4	5.1	0.6	6	clean SAND to silty SAND	125	5.0	55	87	95	44	-	16
68.57	419.0	266.9	266.9	2.3	11.3	0.5	6	clean SAND to silty SAND	125	5.0	53	84	95	44	-	16
68.74	413.4	263.1	263.1	1.8	12.8	0.4	6	clean SAND to silty SAND	125	5.0	53	83	95	44	-	16
68.90	397.6	252.7	252.7	2.0	12.8	0.5	6	clean SAND to silty SAND	125	5.0	51	80	95	44	-	16
69.07	416.7	264.6	264.6	1.4	12.4	0.3	7	grvly SAND to dense SAND	130	6.0	44	69	95	44	-	16
69.23	404.1	256.3	256.3	1.7	12.2	0.4	6	clean SAND to silty SAND	125	5.0	51	81	95	44	-	16
69.39	388.3	246.0	246.0	1.2	11.4	0.3	7	grvly SAND to dense SAND	130	6.0	41	65	95	44	-	16
69.56	405.8	256.7	256.7	1.9	12.1	0.5	6	clean SAND to silty SAND	125	5.0	51	81	95	44	-	16
69.72	414.0	261.7	261.7	1.9	14.2	0.5	6	clean SAND to silty SAND	125	5.0	52	83	95	44	-	16
69.89	442.7	279.5	279.5	2.4	13.0	0.5	6	clean SAND to silty SAND	125	5.0	56	89	95	44	-	16
70.05	483.2	304.7	304.7	5.7	14.6	1.2	6	clean SAND to silty SAND	125	5.0	61	97	95	45	-	16
70.21	503.8	317.4	317.4	5.7	14.7	1.1	6	clean SAND to silty SAND	125	5.0	63	100	95	45	-	16
70.38	565.9	356.1	356.1	5.0	13.1	0.9	6	clean SAND to silty SAND	125	5.0	71	100	95	45	-	16
70.54	499.6	314.1	314.1	3.0	8.6	0.6	6	clean SAND to silty SAND	125	5.0	63	100	95	45	-	16
70.71	478.7	300.6	300.6	2.3	8.2	0.5	6	clean SAND to silty SAND	125	5.0	60	96	95	45	-	16
70.87	463.2	290.6	290.6	1.2	10.1	0.3	7	grvly SAND to dense SAND	130	6.0	48	77	95	44	-	16
71.03	461.9	289.4	289.4	0.9	10.7	0.2	7	grvly SAND to dense SAND	130	6.0	48	77	95	44	-	16
71.20	499.0	312.3	312.3	1.1	9.9	0.2	7	grvly SAND to dense SAND	130	6.0	52	83	95	45	-	16
71.36	541.7	338.7	338.7	2.7	10.8	0.5	7	grvly SAND to dense SAND	130	6.0	56	90	95	45	-	16
71.53	514.8	321.5	321.5	2.3	10.7	0.4	7	grvly SAND to dense SAND	130	6.0	54	86	95	45	-	16
71.69	478.6	298.5	298.5	2.0	13.7	0.4	7	grvly SAND to dense SAND	130	6.0	50	80	95	45	-	16
71.85	445.8	277.7	277.7	1.4	13.3	0.3	7	grvly SAND to dense SAND	130	6.0	46	74	95	44	-	16
72.02	443.9	276.2	276.2	3.1	16.6	0.7	6	clean SAND to silty SAND	125	5.0	55	89	95	44	-	16
72.18	458.9	285.3	285.3	2.4	10.9	0.5	6	clean SAND to silty SAND	125	5.0	57	92	95	44	-	16
72.35	453.8	281.8	281.8	2.0	8.8	0.4	6	clean SAND to silty SAND	125	5.0	56	91	95	44	-	16
72.51	442.9	274.8	274.8	1.5	10.5	0.3	7	grvly SAND to dense SAND	130	6.0	46	74	95	44	-	16
72.67	456.2	282.7	282.7	1.2	11.4	0.3	7	grvly SAND to dense SAND	130	6.0	47	76	95	44	-	16
72.84	447.1	276.7	276.7	1.2	11.6	0.3	7	grvly SAND to dense SAND	130	6.0	46	75	95	44	-	16
73.00	452.6	279.8	279.8	1.1	12.3	0.2	7	grvly SAND to dense SAND	130	6.0	47	75	95	44	-	16
73.17	453.7	280.2	280.2	1.2	13.2	0.3	7	grvly SAND to dense SAND	130	6.0	47	76	95	44	-	16
73.33	461.5	284.7	284.7	1.1	13.7	0.2	7	grvly SAND to dense SAND	130	6.0	47	77	95	44	-	16
73.49	466.6	287.5	287.5	1.0	13.9	0.2	7	grvly SAND to dense SAND	130	6.0	48	78	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(414).cpt
CPT Date: 11/18/2008 1:34:00 PM
GW During Test: 12 ft

Sounding ID: CPT-08-57
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
73.66	471.5	290.2	290.2	1.7	13.4	0.4	7	grvly SAND to dense SAND	130	6.0	48	79	95	44	-	16
73.82	464.4	285.5	285.5	1.6	12.7	0.4	7	grvly SAND to dense SAND	130	6.0	48	77	95	44	-	16
73.99	447.0	274.5	274.5	1.6	13.4	0.4	7	grvly SAND to dense SAND	130	6.0	46	74	95	44	-	16
74.15	431.1	264.4	264.4	1.4	14.1	0.3	7	grvly SAND to dense SAND	130	6.0	44	72	95	44	-	16
74.31	443.1	271.5	271.5	2.4	10.7	0.6	6	clean SAND to silty SAND	125	5.0	54	89	95	44	-	16
74.48	415.5	254.3	254.3	2.6	11.9	0.6	6	clean SAND to silty SAND	125	5.0	51	83	95	44	-	16
74.64	381.9	233.6	233.6	0.7	10.5	0.2	7	grvly SAND to dense SAND	130	6.0	39	64	95	43	-	16
74.81	209.1	127.7	150.8	2.5	11.1	1.2	6	clean SAND to silty SAND	125	5.0	26	42	75	40	-	16
74.97	131.2	80.0	201.1	5.6	11.4	4.4	4	clayy SILT to silty CLAY	115	2.0	40	66	-	-	9.1	15
75.13	224.5	136.9	177.0	4.0	14.3	1.8	6	clean SAND to silty SAND	125	5.0	27	45	77	40	-	16
75.30	287.5	175.1	195.3	3.6	16.7	1.3	6	clean SAND to silty SAND	125	5.0	35	57	85	42	-	16
75.46	336.5	204.8	204.8	2.6	6.1	0.8	6	clean SAND to silty SAND	125	5.0	41	67	91	43	-	16
75.63	407.4	247.6	247.6	2.1	7.0	0.5	6	clean SAND to silty SAND	125	5.0	50	81	95	43	-	16
75.79	456.2	277.0	277.0	3.1	9.8	0.7	6	clean SAND to silty SAND	125	5.0	55	91	95	44	-	16
75.96	488.6	296.4	296.4	3.6	10.9	0.7	6	clean SAND to silty SAND	125	5.0	59	98	95	44	-	16
76.12	549.1	332.8	332.8	2.8	8.0	0.5	6	clean SAND to silty SAND	125	5.0	67	100	95	45	-	16
76.28	586.0	354.8	354.8	2.6	8.1	0.4	7	grvly SAND to dense SAND	130	6.0	59	98	95	45	-	16
76.45	575.7	348.2	348.2	3.1	3.4	0.5	6	clean SAND to silty SAND	125	5.0	70	100	95	45	-	16
76.61	580.0	350.4	350.4	3.0	2.8	0.5	7	grvly SAND to dense SAND	130	6.0	58	97	95	45	-	16
76.78	538.9	325.2	325.2	2.3	2.0	0.4	7	grvly SAND to dense SAND	130	6.0	54	90	95	45	-	16
76.94	572.0	344.8	344.8	1.8	2.5	0.3	7	grvly SAND to dense SAND	130	6.0	57	95	95	45	-	16
77.10	563.6	339.4	339.4	2.9	3.9	0.5	7	grvly SAND to dense SAND	130	6.0	57	94	95	45	-	16
77.27	573.7	345.1	345.1	2.9	4.1	0.5	7	grvly SAND to dense SAND	130	6.0	58	96	95	45	-	16
77.43	563.6	338.7	338.7	3.2	4.1	0.6	6	clean SAND to silty SAND	125	5.0	68	100	95	45	-	16
77.60	553.4	332.2	332.2	2.6	3.8	0.5	7	grvly SAND to dense SAND	130	6.0	55	92	95	45	-	16
77.76	559.9	335.8	335.8	2.6	3.6	0.5	7	grvly SAND to dense SAND	130	6.0	56	93	95	45	-	16
77.92	585.8	351.0	351.0	3.8	3.7	0.7	6	clean SAND to silty SAND	125	5.0	70	100	95	45	-	16
78.09	693.0	414.7	414.7	3.8	7.8	0.5	7	grvly SAND to dense SAND	130	6.0	69	100	95	46	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(474).cpt
CPT Date: 12/8/2008 12:52:04 PM
GW During Test: 12 ft

Sounding ID: CPT-08-58
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	27.6	44.3	86.1	0.4	0.0	1.5	5	silty SAND to sandy SILT	120	4.0	11	7	40	48	-	16
0.49	36.9	59.1	102.4	0.6	0.0	1.7	5	silty SAND to sandy SILT	120	4.0	15	9	50	48	-	16
0.66	43.7	70.1	95.4	0.5	0.0	1.0	6	clean SAND to silty SAND	125	5.0	14	9	55	48	-	16
0.82	39.1	62.8	75.6	0.2	0.0	0.5	6	clean SAND to silty SAND	125	5.0	13	8	52	48	-	16
0.98	13.3	21.4	37.5	0.0	0.0	0.3	5	silty SAND to sandy SILT	120	4.0	5	3	16	45	-	16
1.15	14.9	23.9	41.8	0.1	0.0	0.4	5	silty SAND to sandy SILT	120	4.0	6	4	20	44	-	16
1.31	16.6	26.6	59.2	0.2	0.0	1.0	5	silty SAND to sandy SILT	120	4.0	7	4	23	44	-	16
1.48	21.8	34.9	62.4	0.2	0.0	0.9	5	silty SAND to sandy SILT	120	4.0	9	5	32	45	-	16
1.64	21.9	35.1	69.5	0.2	0.0	1.1	5	silty SAND to sandy SILT	120	4.0	9	5	32	44	-	16
1.80	23.3	37.4	80.6	0.4	0.0	1.5	5	silty SAND to sandy SILT	120	4.0	9	6	35	44	-	16
1.97	25.0	40.1	85.7	0.4	0.0	1.6	5	silty SAND to sandy SILT	120	4.0	10	6	37	44	-	16
2.13	35.2	56.5	95.6	0.5	0.0	1.5	5	silty SAND to sandy SILT	120	4.0	14	9	48	45	-	16
2.30	50.2	80.6	116.9	0.8	0.0	1.5	5	silty SAND to sandy SILT	120	4.0	20	13	60	47	-	16
2.46	50.9	81.6	122.1	0.8	0.0	1.7	5	silty SAND to sandy SILT	120	4.0	20	13	60	47	-	16
2.62	44.8	71.8	111.1	0.7	0.0	1.6	5	silty SAND to sandy SILT	120	4.0	18	11	56	46	-	16
2.79	45.3	72.6	116.6	0.8	0.0	1.7	5	silty SAND to sandy SILT	120	4.0	18	11	56	45	-	16
2.95	59.1	94.7	157.8	1.5	0.0	2.5	5	silty SAND to sandy SILT	120	4.0	24	15	65	46	-	16
3.12	53.4	85.6	189.2	2.1	0.0	3.9	4	clayy SILT to silty CLAY	115	2.0	43	27	-	-	3.8	15
3.28	54.8	87.9	215.8	2.6	0.0	4.7	9	very stiff fine SOIL	120	2.0	44	27	63	46	-	30
3.45	60.1	96.3	223.4	2.8	0.1	4.6	9	very stiff fine SOIL	120	2.0	48	30	66	46	-	30
3.61	52.3	84.0	227.3	2.8	-1.3	5.3	9	very stiff fine SOIL	120	2.0	42	26	61	45	-	30
3.77	47.7	76.5	186.3	2.0	-3.0	4.1	4	clayy SILT to silty CLAY	115	2.0	38	24	-	-	3.4	15
3.94	95.4	153.0	201.2	2.0	-2.9	2.1	5	silty SAND to sandy SILT	120	4.0	38	24	81	48	-	16
4.10	129.9	208.3	236.5	2.1	-2.5	1.6	6	clean SAND to silty SAND	125	5.0	42	26	91	48	-	16
4.27	97.0	155.5	210.1	2.2	-2.9	2.3	5	silty SAND to sandy SILT	120	4.0	39	24	82	48	-	16
4.43	73.5	117.9	204.7	2.4	-2.6	3.3	5	silty SAND to sandy SILT	120	4.0	29	18	72	46	-	16
4.59	59.4	95.3	193.9	2.2	-1.8	3.7	5	silty SAND to sandy SILT	120	4.0	24	15	65	45	-	16
4.76	90.2	144.6	204.2	2.2	-1.7	2.4	5	silty SAND to sandy SILT	120	4.0	36	23	79	47	-	16
4.92	101.1	162.2	195.6	1.7	-1.5	1.7	6	clean SAND to silty SAND	125	5.0	32	20	83	47	-	16
5.09	99.4	159.4	192.0	1.6	0.0	1.6	6	clean SAND to silty SAND	125	5.0	32	20	82	47	-	16
5.25	117.3	188.1	221.7	2.0	0.0	1.7	6	clean SAND to silty SAND	125	5.0	38	23	88	48	-	16
5.41	128.9	206.7	253.5	2.8	0.0	2.2	6	clean SAND to silty SAND	125	5.0	41	26	91	48	-	16
5.58	124.9	200.4	250.1	2.8	0.0	2.2	6	clean SAND to silty SAND	125	5.0	40	25	90	48	-	16
5.74	124.1	199.1	250.9	2.8	-0.1	2.3	6	clean SAND to silty SAND	125	5.0	40	25	90	48	-	16
5.91	120.4	193.0	247.7	2.8	0.0	2.4	5	silty SAND to sandy SILT	120	4.0	48	30	89	48	-	16
6.07	126.2	202.4	253.7	2.9	0.0	2.3	6	clean SAND to silty SAND	125	5.0	40	25	90	48	-	16
6.23	117.6	186.1	234.5	2.6	0.0	2.2	6	clean SAND to silty SAND	125	5.0	37	24	88	47	-	16
6.40	110.4	172.3	216.9	2.2	0.0	2.0	6	clean SAND to silty SAND	125	5.0	34	22	85	47	-	16
6.56	105.6	162.8	207.2	2.1	0.0	2.0	6	clean SAND to silty SAND	125	5.0	33	21	83	47	-	16
6.73	91.1	138.6	191.8	2.0	0.0	2.2	5	silty SAND to sandy SILT	120	4.0	35	23	78	46	-	16
6.89	81.4	122.4	180.7	1.9	0.0	2.4	5	silty SAND to sandy SILT	120	4.0	31	20	74	45	-	16
7.05	72.7	108.1	168.7	1.7	0.0	2.4	5	silty SAND to sandy SILT	120	4.0	27	18	70	45	-	16
7.22	66.1	97.0	156.1	1.5	0.1	2.3	5	silty SAND to sandy SILT	120	4.0	24	17	66	44	-	16
7.38	60.8	88.3	145.9	1.4	0.2	2.3	5	silty SAND to sandy SILT	120	4.0	22	15	63	44	-	16
7.55	57.0	81.9	136.1	1.2	0.2	2.1	5	silty SAND to sandy SILT	120	4.0	20	14	60	43	-	16
7.71	54.0	76.7	131.7	1.1	0.3	2.1	5	silty SAND to sandy SILT	120	4.0	19	13	58	43	-	16
7.87	49.9	70.3	128.7	1.1	0.3	2.2	5	silty SAND to sandy SILT	120	4.0	18	12	55	43	-	16
8.04	45.7	63.7	124.1	1.0	0.3	2.3	5	silty SAND to sandy SILT	120	4.0	16	11	52	42	-	16
8.20	40.9	56.4	120.0	1.0	0.3	2.4	5	silty SAND to sandy SILT	120	4.0	14	10	48	42	-	16
8.37	34.1	46.5	107.8	0.8	0.3	2.3	5	silty SAND to sandy SILT	120	4.0	12	9	42	40	-	16
8.53	26.2	40.9	125.5	0.9	0.3	3.4	4	clayy SILT to silty CLAY	115	2.0	20	13	-	-	1.8	15
8.69	24.1	37.1	114.1	0.7	0.3	3.0	4	clayy SILT to silty CLAY	115	2.0	19	12	-	-	1.7	15
8.86	28.7	38.1	103.4	0.7	0.3	2.5	4	clayy SILT to silty CLAY	115	2.0	19	14	-	-	2.0	15
9.02	32.5	42.8	101.1	0.7	0.3	2.2	5	silty SAND to sandy SILT	120	4.0	11	8	39	40	-	16
9.19	42.4	55.4	96.5	0.6	0.3	1.5	5	silty SAND to sandy SILT	120	4.0	14	11	47	41	-	16
9.35	53.4	69.0	105.5	0.8	0.3	1.4	5	silty SAND to sandy SILT	120	4.0	17	13	55	42	-	16
9.51	64.1	82.2	117.6	0.9	0.3	1.5	5	silty SAND to sandy SILT	120	4.0	21	16	61	43	-	16
9.68	71.4	90.7	131.1	1.2	0.3	1.7	5	silty SAND to sandy SILT	120	4.0	23	18	64	44	-	16
9.84	73.5	92.7	138.5	1.4	0.3	1.9	5	silty SAND to sandy SILT	120	4.0	23	18	64	44	-	16
10.01	71.6	89.5	140.5	1.4	0.3	2.0	5	silty SAND to sandy SILT	120	4.0	22	18	63	44	-	16
10.17	69.0	85.6	136.7	1.4	0.2	2.0	5	silty SAND to sandy SILT	120	4.0	21	17	62	43	-	16
10.34	67.6	83.2	133.7	1.3	0.2	2.0	5	silty SAND to sandy SILT	120	4.0	21	17	61	43	-	16
10.50	70.2	85.7	132.1	1.3	0.3	1.9	5	silty SAND to sandy SILT	120	4.0	21	18	62	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(474).cpt
CPT Date: 12/8/2008 12:52:04 PM
GW During Test: 12 ft

Sounding ID: CPT-08-58
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	75.0	90.9	132.9	1.3	0.3	1.7	5	silty SAND to sandy SILT	120	4.0	23	19	64	44	-	16
10.83	77.4	93.1	132.5	1.3	0.3	1.7	5	silty SAND to sandy SILT	120	4.0	23	19	65	44	-	16
10.99	75.4	90.0	130.6	1.3	0.3	1.7	5	silty SAND to sandy SILT	120	4.0	23	19	64	44	-	16
11.16	73.2	86.7	130.7	1.3	0.3	1.8	5	silty SAND to sandy SILT	120	4.0	22	18	62	43	-	16
11.32	67.9	79.9	129.1	1.3	0.3	1.9	5	silty SAND to sandy SILT	120	4.0	20	17	60	43	-	16
11.48	61.9	72.3	126.9	1.3	0.3	2.1	5	silty SAND to sandy SILT	120	4.0	18	15	56	42	-	16
11.65	58.7	68.1	122.4	1.2	0.3	2.1	5	silty SAND to sandy SILT	120	4.0	17	15	54	42	-	16
11.81	60.7	69.9	114.7	1.0	0.3	1.7	5	silty SAND to sandy SILT	120	4.0	17	15	55	42	-	16
11.98	67.9	77.7	128.8	1.3	0.3	2.0	5	silty SAND to sandy SILT	120	4.0	19	17	59	43	-	16
12.14	67.4	76.9	130.1	1.4	0.2	2.1	5	silty SAND to sandy SILT	120	4.0	19	17	58	43	-	16
12.30	68.8	78.2	124.4	1.2	0.1	1.8	5	silty SAND to sandy SILT	120	4.0	20	17	59	43	-	16
12.47	69.9	79.1	122.7	1.2	0.1	1.7	5	silty SAND to sandy SILT	120	4.0	20	17	59	43	-	16
12.63	74.8	84.4	130.0	1.4	0.1	1.8	5	silty SAND to sandy SILT	120	4.0	21	19	61	43	-	16
12.80	82.1	92.4	141.9	1.6	0.1	2.0	5	silty SAND to sandy SILT	120	4.0	23	21	64	43	-	16
12.96	78.7	88.3	141.4	1.6	0.1	2.1	5	silty SAND to sandy SILT	120	4.0	22	20	63	43	-	16
13.12	75.3	84.2	131.9	1.4	0.1	1.9	5	silty SAND to sandy SILT	120	4.0	21	19	61	43	-	16
13.29	72.8	81.1	124.0	1.2	0.1	1.7	5	silty SAND to sandy SILT	120	4.0	20	18	60	43	-	16
13.45	61.6	68.4	108.6	0.9	0.0	1.6	5	silty SAND to sandy SILT	120	4.0	17	15	54	42	-	16
13.62	46.6	51.6	98.8	0.8	-0.1	1.7	5	silty SAND to sandy SILT	120	4.0	13	12	45	40	-	16
13.78	28.3	33.3	108.5	0.8	-0.7	3.0	4	clayy SILT to silty CLAY	115	2.0	17	14	-	-	2.0	15
13.94	15.8	20.4	-	0.7	-1.8	4.8	3	silty CLAY to CLAY	115	1.5	14	11	-	-	1.1	15
14.11	9.5	12.1	-	0.6	-2.6	6.7	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
14.27	6.6	8.5	-	0.4	-2.6	7.2	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
14.44	5.0	6.3	-	0.3	-2.5	7.5	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
14.60	4.0	5.0	-	0.3	-2.4	8.4	2	Organic SOILS - Peats	100	1.0	5	4	-	-	0.4	10
14.76	3.7	4.6	-	0.2	-2.3	8.4	2	Organic SOILS - Peats	100	1.0	5	4	-	-	0.3	10
14.93	4.3	5.3	-	0.3	-1.6	7.5	2	Organic SOILS - Peats	100	1.0	5	4	-	-	0.4	10
15.09	3.4	4.3	-	0.3	-1.6	9.9	2	Organic SOILS - Peats	100	1.0	4	3	-	-	0.3	10
15.26	3.7	4.6	-	0.3	-1.5	9.9	2	Organic SOILS - Peats	100	1.0	5	4	-	-	0.3	10
15.42	8.1	10.0	-	0.4	-1.4	5.1	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
15.58	7.3	8.9	-	0.4	-2.1	6.2	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.75	4.8	5.9	-	0.4	-2.1	9.3	2	Organic SOILS - Peats	100	1.0	6	5	-	-	0.5	10
15.91	17.1	20.8	-	0.4	-2.0	2.3	4	clayy SILT to silty CLAY	115	2.0	10	9	-	-	1.2	15
16.08	33.3	35.5	83.9	0.5	-2.0	1.7	5	silty SAND to sandy SILT	120	4.0	9	8	33	38	-	16
16.24	30.3	32.3	105.7	0.8	-2.0	2.9	4	clayy SILT to silty CLAY	115	2.0	16	15	-	-	2.1	15
16.40	16.4	19.6	-	0.6	-2.0	3.8	3	silty CLAY to CLAY	115	1.5	13	11	-	-	1.1	15
16.57	24.2	26.9	-	0.6	-2.0	2.4	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.7	15
16.73	48.8	51.6	89.2	0.6	-2.0	1.4	5	silty SAND to sandy SILT	120	4.0	13	12	45	40	-	16
16.90	63.5	66.9	100.9	0.8	-2.0	1.3	5	silty SAND to sandy SILT	120	4.0	17	16	54	41	-	16
17.06	69.3	72.8	115.2	1.1	-1.9	1.7	5	silty SAND to sandy SILT	120	4.0	18	17	57	41	-	16
17.23	72.5	76.1	119.3	1.2	-1.9	1.7	5	silty SAND to sandy SILT	120	4.0	19	18	58	42	-	16
17.39	70.9	74.1	121.6	1.3	-1.9	1.9	5	silty SAND to sandy SILT	120	4.0	19	18	57	42	-	16
17.55	80.1	83.5	123.7	1.3	-1.8	1.6	5	silty SAND to sandy SILT	120	4.0	21	20	61	42	-	16
17.72	70.8	73.6	123.9	1.4	-1.9	1.9	5	silty SAND to sandy SILT	120	4.0	18	18	57	41	-	16
17.88	63.1	65.4	116.7	1.2	-1.8	1.9	5	silty SAND to sandy SILT	120	4.0	16	16	53	41	-	16
18.05	63.6	65.7	115.1	1.2	-2.1	1.9	5	silty SAND to sandy SILT	120	4.0	16	16	53	41	-	16
18.21	64.6	66.7	112.4	1.1	-2.2	1.7	5	silty SAND to sandy SILT	120	4.0	17	16	54	41	-	16
18.37	59.3	61.0	110.1	1.1	-2.3	1.8	5	silty SAND to sandy SILT	120	4.0	15	15	51	40	-	16
18.54	49.8	51.1	106.4	1.0	-2.0	2.0	5	silty SAND to sandy SILT	120	4.0	13	12	45	39	-	16
18.70	37.5	38.4	103.1	0.9	-3.9	2.4	4	clayy SILT to silty CLAY	115	2.0	19	19	-	-	2.6	15
18.87	17.3	19.1	-	0.7	-5.1	4.5	3	silty CLAY to CLAY	115	1.5	13	12	-	-	1.2	15
19.03	9.4	10.4	-	0.5	-5.0	6.0	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
19.19	6.8	7.4	-	0.4	-4.9	6.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
19.36	5.4	5.8	-	0.4	-4.8	9.0	2	Organic SOILS - Peats	100	1.0	6	5	-	-	0.5	10
19.52	5.6	6.0	-	0.5	-4.6	9.9	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.5	10
19.69	37.9	38.3	94.9	0.7	-4.5	2.0	5	silty SAND to sandy SILT	120	4.0	10	9	35	38	-	16
19.85	50.5	50.9	91.7	0.7	-4.4	1.5	5	silty SAND to sandy SILT	120	4.0	13	13	45	39	-	16
20.01	37.4	37.6	93.0	0.7	-4.4	2.0	5	silty SAND to sandy SILT	120	4.0	9	9	35	37	-	16
20.18	15.2	16.2	-	0.5	-2.0	3.8	3	silty CLAY to CLAY	115	1.5	11	10	-	-	1.0	15
20.34	8.6	9.1	-	0.3	-2.1	4.7	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
20.51	6.4	6.7	-	0.2	-2.1	3.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
20.67	6.1	6.4	-	0.2	-1.6	3.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
20.83	6.3	6.6	-	0.2	-1.5	3.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.00	6.2	6.5	-	0.2	-1.3	3.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(474).cpt
CPT Date: 12/8/2008 12:52:04 PM
GW During Test: 12 ft

Sounding ID: CPT-08-58
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	6.0	6.2	-	0.2	-1.2	4.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.33	6.1	6.3	-	0.3	-1.0	7.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.49	7.0	7.2	-	0.6	-0.8	9.9	2	Organic SOILS - Peats	100	1.0	7	7	-	-	0.7	10
21.65	13.8	14.1	-	0.6	3.3	4.8	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
21.82	17.4	17.7	-	0.6	3.1	3.6	3	silty CLAY to CLAY	115	1.5	12	12	-	-	1.2	15
21.98	14.1	14.3	-	0.7	2.0	5.4	3	silty CLAY to CLAY	115	1.5	10	9	-	-	0.9	15
22.15	17.4	17.6	-	0.6	2.1	3.4	3	silty CLAY to CLAY	115	1.5	12	12	-	-	1.2	15
22.31	35.2	34.3	91.0	0.7	1.8	2.0	5	silty SAND to sandy SILT	120	4.0	9	9	32	36	-	16
22.47	39.9	38.8	96.4	0.8	1.3	2.1	5	silty SAND to sandy SILT	120	4.0	10	10	36	37	-	16
22.64	47.8	46.4	101.2	0.9	1.3	2.0	5	silty SAND to sandy SILT	120	4.0	12	12	42	38	-	16
22.80	56.9	55.0	107.6	1.1	0.0	1.9	5	silty SAND to sandy SILT	120	4.0	14	14	47	39	-	16
22.97	64.6	62.4	117.4	1.3	0.0	2.1	5	silty SAND to sandy SILT	120	4.0	16	16	51	40	-	16
23.13	66.9	64.4	125.6	1.5	0.1	2.3	5	silty SAND to sandy SILT	120	4.0	16	17	52	40	-	16
23.30	65.6	63.1	129.2	1.6	0.2	2.5	5	silty SAND to sandy SILT	120	4.0	16	16	52	40	-	16
23.46	66.3	63.6	133.7	1.7	0.3	2.6	5	silty SAND to sandy SILT	120	4.0	16	17	52	40	-	16
23.62	59.6	57.0	135.8	1.7	0.5	3.0	4	clayy SILT to silty CLAY	115	2.0	29	30	-	-	4.2	15
23.79	46.7	44.5	131.6	1.5	0.6	3.4	4	clayy SILT to silty CLAY	115	2.0	22	23	-	-	3.2	15
23.95	63.1	60.1	109.0	1.1	0.2	1.8	5	silty SAND to sandy SILT	120	4.0	15	16	50	39	-	16
24.12	66.9	63.6	109.9	1.1	-2.5	1.8	5	silty SAND to sandy SILT	120	4.0	16	17	52	40	-	16
24.28	70.0	66.3	110.4	1.2	-2.8	1.7	5	silty SAND to sandy SILT	120	4.0	17	17	53	40	-	16
24.44	97.0	91.8	123.3	1.3	-2.6	1.4	5	silty SAND to sandy SILT	120	4.0	23	24	64	42	-	16
24.61	110.2	104.0	144.2	1.9	-3.0	1.7	5	silty SAND to sandy SILT	120	4.0	26	28	68	42	-	16
24.77	96.0	90.4	143.1	2.0	-3.0	2.1	5	silty SAND to sandy SILT	120	4.0	23	24	64	42	-	16
24.94	62.2	58.5	149.8	2.1	-2.9	3.5	4	clayy SILT to silty CLAY	115	2.0	29	31	-	-	4.3	15
25.10	35.8	33.4	-	1.7	-2.1	5.1	3	silty CLAY to CLAY	115	1.5	22	24	-	-	2.5	15
25.26	18.8	17.4	-	1.0	-2.0	5.9	3	silty CLAY to CLAY	115	1.5	12	13	-	-	1.3	15
25.43	11.3	10.5	-	0.5	-1.8	5.3	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.7	15
25.59	9.3	8.6	-	0.3	-1.5	3.5	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
25.76	8.4	7.7	-	0.3	-1.1	4.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
25.92	11.8	10.8	-	0.4	-0.7	4.3	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
26.08	17.9	16.3	-	0.5	-0.3	2.8	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.2	15
26.25	12.0	10.9	-	0.4	-0.5	4.0	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
26.41	8.0	7.3	-	0.4	-0.4	6.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.58	8.2	7.4	-	0.4	0.1	6.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.74	8.3	7.5	-	0.4	0.5	6.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
26.90	7.2	6.4	-	0.4	0.7	6.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
27.07	7.1	6.3	-	0.4	1.2	6.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
27.23	7.6	6.7	-	0.4	1.7	7.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
27.40	8.0	7.1	-	0.4	2.0	6.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.56	8.1	7.1	-	0.4	2.2	6.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.72	8.4	7.4	-	0.5	2.6	7.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
27.89	13.9	12.1	-	0.5	3.1	4.4	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
28.05	20.4	17.7	-	0.5	3.0	2.7	4	clayy SILT to silty CLAY	115	2.0	9	10	-	-	1.4	15
28.22	26.0	22.6	-	0.6	2.9	2.4	4	clayy SILT to silty CLAY	115	2.0	11	13	-	-	1.8	15
28.38	37.5	33.8	89.1	0.7	4.0	1.9	5	silty SAND to sandy SILT	120	4.0	8	9	31	36	-	16
28.54	34.9	31.4	98.9	0.8	2.9	2.5	4	clayy SILT to silty CLAY	115	2.0	16	17	-	-	2.4	15
28.71	30.1	25.8	-	0.8	2.6	2.9	4	clayy SILT to silty CLAY	115	2.0	13	15	-	-	2.1	15
28.87	26.0	22.2	-	0.9	1.5	3.8	3	silty CLAY to CLAY	115	1.5	15	17	-	-	1.8	15
29.04	25.3	21.5	-	0.8	2.1	3.4	4	clayy SILT to silty CLAY	115	2.0	11	13	-	-	1.7	15
29.20	34.4	29.1	-	0.9	1.7	2.6	4	clayy SILT to silty CLAY	115	2.0	15	17	-	-	2.4	15
29.36	42.3	37.8	96.4	0.9	0.7	2.1	5	silty SAND to sandy SILT	120	4.0	9	11	35	36	-	16
29.53	43.5	38.7	105.1	1.0	0.6	2.4	4	clayy SILT to silty CLAY	115	2.0	19	22	-	-	3.0	15
29.69	40.8	36.2	97.8	0.9	0.6	2.2	4	clayy SILT to silty CLAY	115	2.0	18	20	-	-	2.8	15
29.86	34.7	28.9	-	1.0	-0.7	3.1	4	clayy SILT to silty CLAY	115	2.0	14	17	-	-	2.4	15
30.02	25.7	21.4	-	1.0	-1.5	4.4	3	silty CLAY to CLAY	115	1.5	14	17	-	-	1.8	15
30.19	22.6	18.7	-	0.9	-1.5	4.5	3	silty CLAY to CLAY	115	1.5	12	15	-	-	1.5	15
30.35	27.9	23.0	-	0.8	-1.4	2.9	4	clayy SILT to silty CLAY	115	2.0	12	14	-	-	1.9	15
30.51	30.5	25.1	-	0.7	-2.2	2.5	4	clayy SILT to silty CLAY	115	2.0	13	15	-	-	2.1	15
30.68	18.9	15.5	-	0.7	-2.3	4.2	3	silty CLAY to CLAY	115	1.5	10	13	-	-	1.3	15
30.84	12.3	10.0	-	0.5	-2.1	5.2	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
31.01	9.5	7.8	-	0.4	-1.8	4.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.17	9.0	7.3	-	0.3	-1.5	4.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.33	8.9	7.2	-	0.3	-1.3	4.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.50	9.8	7.9	-	0.4	2.5	5.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(474).cpt
CPT Date: 12/8/2008 12:52:04 PM
GW During Test: 12 ft

Sounding ID: CPT-08-58
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	15.2	12.2	-	0.5	2.9	3.9	3	silty CLAY to CLAY	115	1.5	8	10	-	-	1.0	15
31.83	14.6	11.6	-	0.5	2.8	3.8	3	silty CLAY to CLAY	115	1.5	8	10	-	-	1.0	15
31.99	10.4	8.3	-	0.5	3.4	6.0	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.15	17.9	14.3	-	0.4	3.9	2.6	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.2	15
32.32	24.6	19.5	-	0.4	3.4	1.6	4	clayy SILT to silty CLAY	115	2.0	10	12	-	-	1.7	15
32.48	29.9	25.8	70.3	0.4	2.5	1.4	5	silty SAND to sandy SILT	120	4.0	6	7	22	33	-	16
32.65	30.2	26.0	74.5	0.4	1.0	1.6	5	silty SAND to sandy SILT	120	4.0	6	8	22	33	-	16
32.81	18.6	14.5	-	0.5	-0.1	2.9	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.2	15
32.97	10.8	8.4	-	0.4	-0.3	4.5	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
33.14	7.8	6.1	-	0.3	0.0	5.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
33.30	7.4	5.8	-	0.3	0.6	5.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
33.47	7.5	5.8	-	0.3	1.1	5.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
33.63	8.3	6.4	-	0.4	1.7	6.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
33.79	9.8	7.5	-	0.4	2.3	4.7	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
33.96	28.7	24.4	71.1	0.4	2.8	1.5	5	silty SAND to sandy SILT	120	4.0	6	7	20	33	-	16
34.12	36.0	30.5	73.7	0.5	2.7	1.4	5	silty SAND to sandy SILT	120	4.0	8	9	28	34	-	16
34.29	40.6	34.4	71.1	0.4	2.8	1.1	5	silty SAND to sandy SILT	120	4.0	9	10	32	35	-	16
34.45	47.8	40.4	80.6	0.6	1.8	1.3	5	silty SAND to sandy SILT	120	4.0	10	12	37	36	-	16
34.61	35.2	26.5	-	0.9	0.6	2.6	4	clayy SILT to silty CLAY	115	2.0	13	18	-	-	2.4	15
34.78	17.6	13.2	-	0.7	0.7	4.6	3	silty CLAY to CLAY	115	1.5	9	12	-	-	1.2	15
34.94	10.6	7.9	-	0.5	5.8	6.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
35.11	10.8	8.1	-	0.4	6.7	4.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
35.27	11.5	8.6	-	0.4	7.2	4.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
35.43	8.4	6.3	-	0.4	7.1	5.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
35.60	8.4	6.2	-	0.4	8.5	5.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
35.76	8.6	6.3	-	0.4	9.8	5.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
35.93	9.0	6.6	-	0.4	11.1	6.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
36.09	9.7	7.1	-	0.4	13.0	5.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
36.26	9.7	7.1	-	0.3	14.6	3.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
36.42	10.7	7.8	-	0.5	16.6	5.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
36.58	6.4	4.7	-	0.4	18.8	9.8	2	Organic SOILS - Peats	100	1.0	5	6	-	-	0.6	10
36.75	10.4	7.5	-	0.4	20.1	5.3	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
36.91	9.2	6.6	-	0.5	21.6	7.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
37.08	12.2	8.8	-	0.6	23.3	5.7	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
37.24	15.1	10.8	-	0.6	24.6	4.6	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
37.40	19.3	13.8	-	0.7	25.0	4.0	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
37.57	45.8	37.5	97.3	0.9	18.0	2.1	5	silty SAND to sandy SILT	120	4.0	9	11	35	35	-	16
37.73	39.0	27.7	-	1.0	1.8	2.6	4	clayy SILT to silty CLAY	115	2.0	14	20	-	-	2.7	15
37.90	23.6	16.7	-	0.8	-0.8	4.0	3	silty CLAY to CLAY	115	1.5	11	16	-	-	1.6	15
38.06	15.5	11.0	-	0.7	-0.2	5.1	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
38.22	41.2	33.6	101.9	1.0	8.3	2.5	4	clayy SILT to silty CLAY	115	2.0	17	21	-	-	2.8	15
38.39	88.9	72.4	115.4	1.4	7.7	1.7	5	silty SAND to sandy SILT	120	4.0	18	22	56	39	-	16
38.55	111.3	90.5	137.3	2.0	4.4	1.9	5	silty SAND to sandy SILT	120	4.0	23	28	64	40	-	16
38.72	130.6	106.0	154.7	2.6	3.7	2.0	5	silty SAND to sandy SILT	120	4.0	26	33	69	41	-	16
38.88	137.6	111.4	162.6	2.8	2.8	2.1	5	silty SAND to sandy SILT	120	4.0	28	34	71	41	-	16
39.04	134.3	108.6	165.3	3.0	2.8	2.3	5	silty SAND to sandy SILT	120	4.0	27	34	70	41	-	16
39.21	131.0	105.7	159.5	2.8	2.8	2.2	5	silty SAND to sandy SILT	120	4.0	26	33	69	41	-	16
39.37	132.6	106.9	157.6	2.7	2.6	2.1	5	silty SAND to sandy SILT	120	4.0	27	33	69	41	-	16
39.54	135.4	109.0	150.0	2.3	1.6	1.8	5	silty SAND to sandy SILT	120	4.0	27	34	70	41	-	16
39.70	123.8	99.5	134.9	1.9	0.2	1.5	5	silty SAND to sandy SILT	120	4.0	25	31	67	41	-	16
39.86	92.0	73.8	119.4	1.6	-1.5	1.8	5	silty SAND to sandy SILT	120	4.0	18	23	57	39	-	16
40.03	50.6	40.5	119.2	1.4	-1.6	3.0	4	clayy SILT to silty CLAY	115	2.0	20	25	-	-	3.5	15
40.19	27.1	18.4	-	1.1	-1.4	4.5	3	silty CLAY to CLAY	115	1.5	12	18	-	-	1.8	15
40.36	17.4	11.8	-	0.6	-1.1	4.2	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.1	15
40.52	13.2	8.9	-	0.4	-0.8	3.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
40.68	10.7	7.2	-	0.3	-0.3	3.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
40.85	9.6	6.4	-	0.3	0.1	4.0	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
41.01	9.8	6.5	-	0.2	0.5	2.9	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
41.18	9.8	6.5	-	0.4	0.9	5.3	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
41.34	17.9	11.9	-	0.4	2.7	2.3	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
41.50	31.0	20.5	-	0.6	2.5	2.2	4	clayy SILT to silty CLAY	115	2.0	10	15	-	-	2.1	15
41.67	20.1	13.3	-	0.6	2.5	3.4	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
41.83	14.1	9.3	-	0.6	2.9	5.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.00	16.1	10.6	-	0.5	3.4	4.0	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(474).cpt
CPT Date: 12/8/2008 12:52:04 PM
GW During Test: 12 ft

Sounding ID: CPT-08-58
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	18.1	11.9	-	0.6	3.8	4.1	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
42.32	22.8	14.9	-	0.5	3.8	2.3	4	clayy SILT to silty CLAY	115	2.0	7	11	-	-	1.5	15
42.49	16.7	10.8	-	0.4	3.4	3.1	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
42.65	11.8	7.7	-	0.5	3.6	5.4	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
42.82	12.0	7.8	-	0.5	4.0	5.4	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
42.98	12.1	7.8	-	0.6	4.2	6.0	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
43.15	12.7	8.1	-	0.7	4.4	6.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
43.31	13.7	8.8	-	0.7	4.5	6.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
43.47	62.2	48.3	88.6	0.8	5.0	1.4	5	silty SAND to sandy SILT	120	4.0	12	16	43	36	-	16
43.64	164.1	127.3	139.6	1.4	4.4	0.8	6	clean SAND to silty SAND	125	5.0	25	33	75	42	-	16
43.80	189.1	146.5	165.7	2.1	4.5	1.2	6	clean SAND to silty SAND	125	5.0	29	38	80	42	-	16
43.97	205.1	158.6	188.0	3.1	4.7	1.5	6	clean SAND to silty SAND	125	5.0	32	41	82	43	-	16
44.13	211.6	163.4	203.4	3.9	7.0	1.9	6	clean SAND to silty SAND	125	5.0	33	42	83	43	-	16
44.29	225.0	173.5	216.2	4.4	7.0	2.0	6	clean SAND to silty SAND	125	5.0	35	45	85	43	-	16
44.46	238.7	183.7	221.6	4.4	7.1	1.9	6	clean SAND to silty SAND	125	5.0	37	48	87	44	-	16
44.62	249.1	191.4	221.6	4.0	7.1	1.6	6	clean SAND to silty SAND	125	5.0	38	50	88	44	-	16
44.79	249.0	191.1	216.8	3.7	7.4	1.5	6	clean SAND to silty SAND	125	5.0	38	50	88	44	-	16
44.95	240.8	184.4	208.3	3.4	7.4	1.4	6	clean SAND to silty SAND	125	5.0	37	48	87	44	-	16
45.11	219.1	167.6	190.6	2.9	7.3	1.3	6	clean SAND to silty SAND	125	5.0	34	44	84	43	-	16
45.28	175.0	133.6	161.2	2.4	7.2	1.4	6	clean SAND to silty SAND	125	5.0	27	35	77	42	-	16
45.44	109.4	83.4	134.1	2.1	7.0	2.0	5	silty SAND to sandy SILT	120	4.0	21	27	61	39	-	16
45.61	54.7	33.6	-	1.9	6.8	3.6	4	clayy SILT to silty CLAY	115	2.0	17	27	-	-	3.8	15
45.77	33.0	20.2	-	1.4	7.0	4.6	3	silty CLAY to CLAY	115	1.5	13	22	-	-	2.2	15
45.93	22.5	13.8	-	0.8	7.8	4.0	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.5	15
46.10	22.1	13.5	-	0.4	9.2	2.3	4	clayy SILT to silty CLAY	115	2.0	7	11	-	-	1.5	15
46.26	17.1	10.4	-	0.6	11.5	3.8	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
46.43	18.6	11.3	-	0.7	13.6	4.2	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
46.59	24.1	14.6	-	1.0	15.2	4.8	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.6	15
46.75	26.7	16.1	-	1.5	16.3	6.1	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.8	15
46.92	50.0	30.1	-	1.6	16.7	3.4	4	clayy SILT to silty CLAY	115	2.0	15	25	-	-	3.4	15
47.08	75.4	56.8	117.1	1.6	11.6	2.2	5	silty SAND to sandy SILT	120	4.0	14	19	48	37	-	16
47.25	78.4	58.9	100.0	1.1	3.3	1.5	5	silty SAND to sandy SILT	120	4.0	15	20	50	37	-	16
47.41	77.2	57.9	99.2	1.1	-0.2	1.5	5	silty SAND to sandy SILT	120	4.0	14	19	49	37	-	16
47.57	79.9	59.9	96.5	1.0	-1.4	1.3	5	silty SAND to sandy SILT	120	4.0	15	20	50	37	-	16
47.74	90.0	67.4	107.9	1.3	-2.2	1.5	5	silty SAND to sandy SILT	120	4.0	17	23	54	38	-	16
47.90	72.1	53.9	106.8	1.3	-2.8	1.9	5	silty SAND to sandy SILT	120	4.0	13	18	47	37	-	16
48.07	59.7	44.5	98.9	1.1	1.5	1.9	5	silty SAND to sandy SILT	120	4.0	11	15	40	36	-	16
48.23	58.4	43.5	125.1	1.7	0.6	3.1	4	clayy SILT to silty CLAY	115	2.0	22	29	-	-	4.0	15
48.39	67.7	50.4	136.3	2.1	1.0	3.2	4	clayy SILT to silty CLAY	115	2.0	25	34	-	-	4.7	15
48.56	140.8	104.6	151.6	2.7	0.6	1.9	5	silty SAND to sandy SILT	120	4.0	26	35	68	40	-	16
48.72	148.3	110.0	158.5	2.9	-0.7	2.0	5	silty SAND to sandy SILT	120	4.0	28	37	70	41	-	16
48.89	145.6	107.9	162.7	3.1	-0.7	2.2	5	silty SAND to sandy SILT	120	4.0	27	36	70	41	-	16
49.05	140.2	103.7	166.1	3.3	-0.6	2.4	5	silty SAND to sandy SILT	120	4.0	26	35	68	40	-	16
49.22	133.9	99.0	167.1	3.4	-0.4	2.6	5	silty SAND to sandy SILT	120	4.0	25	33	67	40	-	16
49.38	141.3	104.3	167.7	3.4	-0.3	2.5	5	silty SAND to sandy SILT	120	4.0	26	35	68	40	-	16
49.54	137.8	101.6	168.5	3.5	-0.1	2.6	5	silty SAND to sandy SILT	120	4.0	25	34	68	40	-	16
49.71	127.7	94.0	165.9	3.4	0.0	2.7	5	silty SAND to sandy SILT	120	4.0	23	32	65	40	-	16
49.87	119.2	87.6	160.2	3.2	0.1	2.7	5	silty SAND to sandy SILT	120	4.0	22	30	63	39	-	16
50.04	126.7	93.0	159.4	3.1	0.3	2.5	5	silty SAND to sandy SILT	120	4.0	23	32	65	40	-	16
50.20	143.5	105.2	168.7	3.5	0.4	2.5	5	silty SAND to sandy SILT	120	4.0	26	36	69	40	-	16
50.36	152.3	111.5	175.6	3.7	0.5	2.5	5	silty SAND to sandy SILT	120	4.0	28	38	71	41	-	16
50.53	153.5	112.2	177.6	3.8	0.6	2.5	5	silty SAND to sandy SILT	120	4.0	28	38	71	41	-	16
50.69	150.9	110.2	179.8	4.0	0.7	2.7	5	silty SAND to sandy SILT	120	4.0	28	38	70	41	-	16
50.86	157.8	115.0	180.7	4.0	0.9	2.6	5	silty SAND to sandy SILT	120	4.0	29	39	72	41	-	16
51.02	165.4	120.4	183.0	4.0	1.0	2.5	5	silty SAND to sandy SILT	120	4.0	30	41	73	41	-	16
51.18	156.7	114.0	181.4	4.0	1.8	2.6	5	silty SAND to sandy SILT	120	4.0	28	39	71	41	-	16
51.35	153.1	111.2	182.5	4.1	1.9	2.7	5	silty SAND to sandy SILT	120	4.0	28	38	71	41	-	16
51.51	144.6	104.9	180.7	4.1	1.9	2.9	5	silty SAND to sandy SILT	120	4.0	26	36	69	40	-	16
51.68	145.1	105.1	179.9	4.0	2.0	2.8	5	silty SAND to sandy SILT	120	4.0	26	36	69	40	-	16
51.84	136.9	99.0	175.3	3.8	2.1	2.9	5	silty SAND to sandy SILT	120	4.0	25	34	67	40	-	16
52.00	129.7	93.7	169.9	3.6	2.2	2.9	5	silty SAND to sandy SILT	120	4.0	23	32	65	40	-	16
52.17	135.5	97.8	170.5	3.6	2.3	2.8	5	silty SAND to sandy SILT	120	4.0	24	34	66	40	-	16
52.33	129.3	93.1	168.5	3.6	2.4	2.8	5	silty SAND to sandy SILT	120	4.0	23	32	65	40	-	16
52.50	123.3	88.7	167.7	3.5	2.5	2.9	5	silty SAND to sandy SILT	120	4.0	22	31	63	39	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(474).cpt
CPT Date: 12/8/2008 12:52:04 PM
GW During Test: 12 ft

Sounding ID: CPT-08-58
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	105.8	76.0	164.6	3.4	2.4	3.3	5	silty SAND to sandy SILT	120	4.0	19	26	58	38	-	16
52.82	77.5	42.3	-	3.2	2.3	4.2	4	clayy SILT to silty CLAY	115	2.0	21	39	-	-	5.4	15
52.99	45.5	24.8	-	2.3	2.4	5.3	3	silty CLAY to CLAY	115	1.5	17	30	-	-	3.1	15
53.15	41.8	22.7	-	1.6	2.5	4.1	3	silty CLAY to CLAY	115	1.5	15	28	-	-	2.8	15
53.32	28.2	15.3	-	1.2	2.6	4.7	3	silty CLAY to CLAY	115	1.5	10	19	-	-	1.9	15
53.48	19.1	10.4	-	0.7	2.7	4.5	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.2	15
53.64	18.3	9.9	-	0.6	3.2	3.7	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
53.81	19.2	10.3	-	0.7	3.7	4.3	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.2	15
53.97	25.3	13.6	-	0.6	4.0	2.7	3	silty CLAY to CLAY	115	1.5	9	17	-	-	1.7	15
54.14	17.6	9.4	-	0.7	4.2	5.2	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
54.30	25.6	13.7	-	1.0	8.8	4.5	3	silty CLAY to CLAY	115	1.5	9	17	-	-	1.7	15
54.46	86.9	61.6	121.6	1.8	9.8	2.2	5	silty SAND to sandy SILT	120	4.0	15	22	51	37	-	16
54.63	138.2	97.9	147.4	2.7	7.4	2.0	5	silty SAND to sandy SILT	120	4.0	24	35	66	40	-	16
54.79	153.0	108.2	164.2	3.3	7.4	2.2	5	silty SAND to sandy SILT	120	4.0	27	38	70	40	-	16
54.96	153.0	108.1	173.7	3.8	7.2	2.5	5	silty SAND to sandy SILT	120	4.0	27	38	70	40	-	16
55.12	142.2	100.4	173.7	3.9	7.1	2.8	5	silty SAND to sandy SILT	120	4.0	25	36	67	40	-	16
55.28	133.6	94.2	168.2	3.6	7.0	2.8	5	silty SAND to sandy SILT	120	4.0	24	33	65	39	-	16
55.45	125.1	88.1	163.7	3.5	6.8	2.8	5	silty SAND to sandy SILT	120	4.0	22	31	63	39	-	16
55.61	124.3	87.4	158.4	3.2	6.5	2.7	5	silty SAND to sandy SILT	120	4.0	22	31	63	39	-	16
55.78	140.7	98.8	157.9	3.2	5.7	2.3	5	silty SAND to sandy SILT	120	4.0	25	35	67	40	-	16
55.94	155.1	108.8	162.6	3.3	4.0	2.2	5	silty SAND to sandy SILT	120	4.0	27	39	70	40	-	16
56.11	150.9	105.7	163.8	3.4	2.9	2.3	5	silty SAND to sandy SILT	120	4.0	26	38	69	40	-	16
56.27	147.3	103.1	165.9	3.5	2.7	2.4	5	silty SAND to sandy SILT	120	4.0	26	37	68	40	-	16
56.43	142.5	99.6	163.4	3.4	2.6	2.5	5	silty SAND to sandy SILT	120	4.0	25	36	67	40	-	16
56.60	140.9	98.4	160.0	3.3	2.5	2.4	5	silty SAND to sandy SILT	120	4.0	25	35	66	40	-	16
56.76	147.4	102.7	161.4	3.3	2.2	2.3	5	silty SAND to sandy SILT	120	4.0	26	37	68	40	-	16
56.93	152.0	105.8	165.2	3.5	1.9	2.3	5	silty SAND to sandy SILT	120	4.0	26	38	69	40	-	16
57.09	146.3	101.7	164.8	3.5	1.8	2.4	5	silty SAND to sandy SILT	120	4.0	25	37	68	40	-	16
57.25	144.9	100.6	163.2	3.4	1.8	2.4	5	silty SAND to sandy SILT	120	4.0	25	36	67	40	-	16
57.42	137.7	95.6	158.1	3.2	1.9	2.4	5	silty SAND to sandy SILT	120	4.0	24	34	65	39	-	16
57.58	126.2	87.4	154.8	3.1	2.7	2.5	5	silty SAND to sandy SILT	120	4.0	22	32	63	39	-	16
57.75	105.2	72.8	159.0	3.3	2.1	3.2	5	silty SAND to sandy SILT	120	4.0	18	26	57	38	-	16
57.91	66.9	33.9	-	2.9	1.9	4.6	3	silty CLAY to CLAY	115	1.5	23	45	-	-	4.6	15
58.07	34.8	17.6	-	2.0	1.9	6.5	3	silty CLAY to CLAY	115	1.5	12	23	-	-	2.3	15
58.24	22.6	11.4	-	0.9	2.2	5.0	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
58.40	17.6	8.9	-	0.6	2.7	4.2	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
58.57	18.0	9.0	-	0.5	3.3	3.7	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
58.73	38.1	19.1	-	0.6	3.8	1.7	4	clayy SILT to silty CLAY	115	2.0	10	19	-	-	2.6	15
58.89	44.5	22.3	-	0.7	3.8	1.8	4	clayy SILT to silty CLAY	115	2.0	11	22	-	-	3.0	15
59.06	32.8	16.4	-	0.8	3.7	2.7	4	clayy SILT to silty CLAY	115	2.0	8	16	-	-	2.2	15
59.22	20.1	10.0	-	0.8	4.0	4.9	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
59.39	19.7	9.8	-	0.8	4.8	5.2	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
59.55	19.7	9.8	-	1.0	5.3	6.4	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
59.71	19.8	9.8	-	1.0	5.7	6.4	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
59.88	40.7	20.1	-	0.8	6.1	2.2	4	clayy SILT to silty CLAY	115	2.0	10	20	-	-	2.8	15
60.04	112.1	76.4	93.3	0.8	5.4	0.7	6	clean SAND to silty SAND	125	5.0	15	22	58	38	-	16
60.21	131.6	89.6	106.0	1.0	5.6	0.8	6	clean SAND to silty SAND	125	5.0	18	26	63	39	-	16
60.37	139.6	94.9	112.0	1.1	5.8	0.8	6	clean SAND to silty SAND	125	5.0	19	28	65	39	-	16
60.53	150.4	102.2	121.9	1.4	6.0	1.0	6	clean SAND to silty SAND	125	5.0	20	30	68	40	-	16
60.70	163.6	111.0	133.4	1.8	6.2	1.1	6	clean SAND to silty SAND	125	5.0	22	33	70	40	-	16
60.86	177.1	120.0	144.3	2.1	9.1	1.2	6	clean SAND to silty SAND	125	5.0	24	35	73	40	-	16
61.03	173.9	117.7	149.3	2.5	9.2	1.5	6	clean SAND to silty SAND	125	5.0	24	35	72	40	-	16
61.19	160.0	108.1	149.1	2.7	9.5	1.7	5	silty SAND to sandy SILT	120	4.0	27	40	70	40	-	16
61.35	150.6	101.7	148.5	2.8	9.5	1.9	5	silty SAND to sandy SILT	120	4.0	25	38	68	40	-	16
61.52	147.9	99.7	146.2	2.7	9.8	1.9	5	silty SAND to sandy SILT	120	4.0	25	37	67	39	-	16
61.68	176.5	118.8	153.4	2.7	10.0	1.6	6	clean SAND to silty SAND	125	5.0	24	35	73	40	-	16
61.85	211.0	141.9	164.8	2.6	10.1	1.3	6	clean SAND to silty SAND	125	5.0	28	42	79	41	-	16
62.01	238.1	159.9	175.3	2.5	10.1	1.1	6	clean SAND to silty SAND	125	5.0	32	48	82	42	-	16
62.17	278.4	186.8	193.5	2.6	10.4	0.9	6	clean SAND to silty SAND	125	5.0	37	56	88	43	-	16
62.34	309.1	207.2	211.7	3.0	10.7	1.0	6	clean SAND to silty SAND	125	5.0	41	62	91	43	-	16
62.50	334.1	223.6	231.5	3.7	11.0	1.1	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
62.67	354.3	236.9	251.4	4.6	11.4	1.3	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
62.83	374.3	249.9	267.9	5.4	11.7	1.4	6	clean SAND to silty SAND	125	5.0	50	75	95	44	-	16
63.00	384.2	256.2	274.5	5.6	11.9	1.5	6	clean SAND to silty SAND	125	5.0	51	77	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(474).cpt
CPT Date: 12/8/2008 12:52:04 PM
GW During Test: 12 ft

Sounding ID: CPT-08-58
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	393.3	262.0	276.9	5.5	12.0	1.4	6	clean SAND to silty SAND	125	5.0	52	79	95	44	-	16
63.32	415.9	276.7	276.8	4.8	12.0	1.2	6	clean SAND to silty SAND	125	5.0	55	83	95	45	-	16
63.49	419.8	279.0	279.0	3.8	12.0	0.9	6	clean SAND to silty SAND	125	5.0	56	84	95	45	-	16
63.65	454.5	301.7	301.7	3.2	11.1	0.7	6	clean SAND to silty SAND	125	5.0	60	91	95	45	-	16
63.82	477.0	316.2	316.2	2.7	10.8	0.6	6	clean SAND to silty SAND	125	5.0	63	95	95	45	-	16
63.98	489.6	324.2	324.2	2.8	10.6	0.6	6	clean SAND to silty SAND	125	5.0	65	98	95	45	-	16
64.14	485.0	320.7	320.7	2.7	10.3	0.6	6	clean SAND to silty SAND	125	5.0	64	97	95	45	-	16
64.31	455.5	300.9	300.9	3.3	9.5	0.7	6	clean SAND to silty SAND	125	5.0	60	91	95	45	-	16
64.47	437.7	288.8	288.8	2.6	8.2	0.6	6	clean SAND to silty SAND	125	5.0	58	88	95	45	-	16
64.64	433.4	285.6	285.6	2.9	8.0	0.7	6	clean SAND to silty SAND	125	5.0	57	87	95	45	-	16
64.80	457.2	300.9	300.9	3.0	7.8	0.7	6	clean SAND to silty SAND	125	5.0	60	91	95	45	-	16
64.96	445.4	292.8	308.9	6.7	8.9	1.5	6	clean SAND to silty SAND	125	5.0	59	89	95	45	-	16
65.13	469.1	308.0	308.4	5.9	7.9	1.3	6	clean SAND to silty SAND	125	5.0	62	94	95	45	-	16
65.29	405.0	265.7	265.7	3.3	8.7	0.8	6	clean SAND to silty SAND	125	5.0	53	81	95	44	-	16
65.46	394.1	258.2	258.2	2.3	9.2	0.6	6	clean SAND to silty SAND	125	5.0	52	79	95	44	-	16
65.62	395.6	258.8	258.8	2.0	9.4	0.5	6	clean SAND to silty SAND	125	5.0	52	79	95	44	-	16
65.78	384.9	251.6	251.6	1.9	9.6	0.5	6	clean SAND to silty SAND	125	5.0	50	77	95	44	-	16
65.95	386.3	252.2	252.2	1.8	9.7	0.5	6	clean SAND to silty SAND	125	5.0	50	77	95	44	-	16
66.11	400.3	261.0	261.0	2.0	9.8	0.5	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
66.28	394.5	257.0	257.0	2.3	9.7	0.6	6	clean SAND to silty SAND	125	5.0	51	79	95	44	-	16
66.44	396.2	257.8	257.8	2.4	10.4	0.6	6	clean SAND to silty SAND	125	5.0	52	79	95	44	-	16
66.60	414.9	269.6	269.6	2.6	10.4	0.6	6	clean SAND to silty SAND	125	5.0	54	83	95	44	-	16
66.77	435.7	282.8	282.8	3.0	10.5	0.7	6	clean SAND to silty SAND	125	5.0	57	87	95	45	-	16
66.93	473.1	306.7	306.7	3.7	10.7	0.8	6	clean SAND to silty SAND	125	5.0	61	95	95	45	-	16
67.10	498.1	322.6	322.6	2.5	11.5	0.5	6	clean SAND to silty SAND	125	5.0	65	100	95	45	-	16
67.26	462.4	299.1	299.1	4.0	14.4	0.9	6	clean SAND to silty SAND	125	5.0	60	92	95	45	-	16
67.42	438.9	283.6	283.6	3.9	14.4	0.9	6	clean SAND to silty SAND	125	5.0	57	88	95	45	-	16
67.59	414.7	267.7	267.7	3.5	15.5	0.8	6	clean SAND to silty SAND	125	5.0	54	83	95	44	-	16
67.75	412.9	266.2	266.2	3.0	14.8	0.7	6	clean SAND to silty SAND	125	5.0	53	83	95	44	-	16
67.92	395.9	254.9	254.9	2.9	15.2	0.7	6	clean SAND to silty SAND	125	5.0	51	79	95	44	-	16
68.08	413.9	266.2	266.2	3.0	15.2	0.7	6	clean SAND to silty SAND	125	5.0	53	83	95	44	-	16
68.24	423.4	272.0	272.0	2.9	15.3	0.7	6	clean SAND to silty SAND	125	5.0	54	85	95	44	-	16
68.41	459.1	294.6	294.6	3.7	15.3	0.8	6	clean SAND to silty SAND	125	5.0	59	92	95	45	-	16
68.57	489.3	313.6	313.6	3.5	15.2	0.7	6	clean SAND to silty SAND	125	5.0	63	98	95	45	-	16
68.74	456.9	292.5	292.5	4.9	13.5	1.1	6	clean SAND to silty SAND	125	5.0	59	91	95	45	-	16
68.90	449.7	287.6	287.6	2.3	13.8	0.5	6	clean SAND to silty SAND	125	5.0	58	90	95	45	-	16
69.07	399.0	255.0	255.0	2.2	12.1	0.6	6	clean SAND to silty SAND	125	5.0	51	80	95	44	-	16
69.23	395.6	252.5	252.5	2.6	12.2	0.7	6	clean SAND to silty SAND	125	5.0	50	79	95	44	-	16
69.39	395.2	252.0	252.0	2.5	12.4	0.6	6	clean SAND to silty SAND	125	5.0	50	79	95	44	-	16
69.56	379.8	241.8	241.8	2.8	12.8	0.7	6	clean SAND to silty SAND	125	5.0	48	76	95	44	-	16
69.72	371.4	236.3	236.3	2.3	12.7	0.6	6	clean SAND to silty SAND	125	5.0	47	74	95	44	-	16
69.89	379.6	241.2	241.2	2.7	12.9	0.7	6	clean SAND to silty SAND	125	5.0	48	76	95	44	-	16
70.05	398.1	252.6	252.6	3.6	12.7	0.9	6	clean SAND to silty SAND	125	5.0	51	80	95	44	-	16
70.21	386.7	245.2	245.2	3.8	13.4	1.0	6	clean SAND to silty SAND	125	5.0	49	77	95	44	-	16
70.38	379.8	240.5	240.5	3.7	14.1	1.0	6	clean SAND to silty SAND	125	5.0	48	76	95	44	-	16
70.54	385.6	244.0	244.0	3.0	14.1	0.8	6	clean SAND to silty SAND	125	5.0	49	77	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(413).cpt
CPT Date: 11/18/2008 12:29:40 PM
GW During Test: 12 ft

Sounding ID: CPT-08-59
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n * PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	82.3	132.0	190.2	2.0	-0.2	2.4	5	silty SAND to sandy SILT	120	4.0	33	21	76	48	-	16
0.49	83.2	133.4	210.4	2.5	-0.1	3.0	5	silty SAND to sandy SILT	120	4.0	33	21	77	48	-	16
0.66	85.4	136.9	227.0	2.9	-0.4	3.3	5	silty SAND to sandy SILT	120	4.0	34	21	77	48	-	16
0.82	89.5	143.5	244.8	3.3	-0.4	3.7	8	stiff SAND to clayy SAND	115	1.0	100	90	-	-	5.9	16
0.98	95.3	152.9	229.3	2.8	-1.1	3.0	5	silty SAND to sandy SILT	120	4.0	38	24	81	48	-	16
1.15	106.9	171.5	220.7	2.3	-0.6	2.2	5	silty SAND to sandy SILT	120	4.0	43	27	85	48	-	16
1.31	118.4	190.0	224.7	2.1	-0.1	1.8	6	clean SAND to silty SAND	125	5.0	38	24	88	48	-	16
1.48	110.0	176.4	216.8	2.1	-0.1	1.9	6	clean SAND to silty SAND	125	5.0	35	22	86	48	-	16
1.64	76.5	122.7	169.1	1.5	-0.1	2.0	5	silty SAND to sandy SILT	120	4.0	31	19	74	48	-	16
1.80	61.3	98.3	141.2	1.1	0.0	1.8	5	silty SAND to sandy SILT	120	4.0	25	15	66	48	-	16
1.97	65.4	104.9	154.0	1.3	0.0	2.0	5	silty SAND to sandy SILT	120	4.0	26	16	69	48	-	16
2.13	99.0	158.7	182.7	1.3	-0.1	1.4	6	clean SAND to silty SAND	125	5.0	32	20	82	48	-	16
2.30	89.0	142.7	175.6	1.4	-0.3	1.6	6	clean SAND to silty SAND	125	5.0	29	18	79	48	-	16
2.46	60.6	97.3	155.4	1.4	-0.2	2.3	5	silty SAND to sandy SILT	120	4.0	24	15	66	47	-	16
2.62	49.0	78.5	143.5	1.2	-0.4	2.5	5	silty SAND to sandy SILT	120	4.0	20	12	59	46	-	16
2.79	42.5	68.1	177.3	1.8	-0.7	4.2	4	clayy SILT to silty CLAY	115	2.0	34	21	-	-	3.0	15
2.95	55.8	89.6	148.9	1.3	-0.1	2.3	5	silty SAND to sandy SILT	120	4.0	22	14	63	46	-	16
3.12	59.8	96.0	152.2	1.3	-0.1	2.2	5	silty SAND to sandy SILT	120	4.0	24	15	66	46	-	16
3.28	97.2	155.8	189.0	1.6	-0.1	1.7	6	clean SAND to silty SAND	125	5.0	31	19	82	48	-	16
3.45	94.5	151.5	220.0	2.6	-0.2	2.7	5	silty SAND to sandy SILT	120	4.0	38	24	81	48	-	16
3.61	74.0	118.6	222.7	2.8	0.0	3.8	8	stiff SAND to clayy SAND	115	1.0	100	74	-	-	4.9	16
3.77	64.3	103.1	221.3	2.7	0.5	4.3	9	very stiff fine SOIL	120	2.0	52	32	68	46	-	30
3.94	67.9	108.9	205.5	2.4	0.5	3.6	5	silty SAND to sandy SILT	120	4.0	27	17	70	46	-	16
4.10	70.6	113.2	203.2	2.4	0.4	3.4	5	silty SAND to sandy SILT	120	4.0	28	18	71	46	-	16
4.27	62.2	99.7	207.4	2.4	0.3	4.0	4	clayy SILT to silty CLAY	115	2.0	50	31	-	-	4.4	15
4.43	60.4	96.9	235.2	3.0	-0.2	5.0	9	very stiff fine SOIL	120	2.0	48	30	66	45	-	30
4.59	70.6	113.2	234.4	3.0	-1.0	4.3	9	very stiff fine SOIL	120	2.0	57	35	71	46	-	30
4.76	78.3	125.6	221.9	2.8	-1.6	3.5	5	silty SAND to sandy SILT	120	4.0	31	20	75	46	-	16
4.92	191.9	307.8	336.5	3.5	-1.2	1.8	6	clean SAND to silty SAND	125	5.0	62	38	95	48	-	16
5.09	202.4	324.6	378.3	5.0	-0.4	2.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.4	16
5.25	216.7	347.6	411.6	5.8	-0.2	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	14.3	16
5.41	200.8	322.0	396.5	5.9	-0.2	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.3	16
5.58	176.9	283.8	358.2	5.2	-0.2	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.7	16
5.74	161.5	259.0	331.9	4.7	-0.3	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.7	16
5.91	146.1	234.3	308.0	4.2	-0.3	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	9.7	16
6.07	128.1	205.5	276.5	3.6	-0.3	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	8.5	16
6.23	109.2	174.1	241.0	2.9	-0.3	2.7	5	silty SAND to sandy SILT	120	4.0	44	27	85	47	-	16
6.40	105.6	166.1	220.4	2.4	-0.2	2.3	5	silty SAND to sandy SILT	120	4.0	42	26	84	47	-	16
6.56	99.6	154.7	207.2	2.2	-0.2	2.2	5	silty SAND to sandy SILT	120	4.0	39	25	81	47	-	16
6.73	89.6	137.4	191.9	2.0	0.1	2.3	5	silty SAND to sandy SILT	120	4.0	34	22	77	46	-	16
6.89	81.0	122.7	176.4	1.8	0.1	2.2	5	silty SAND to sandy SILT	120	4.0	31	20	74	46	-	16
7.05	76.5	114.6	164.2	1.6	0.2	2.1	5	silty SAND to sandy SILT	120	4.0	29	19	71	45	-	16
7.22	76.6	113.4	158.3	1.5	0.3	1.9	5	silty SAND to sandy SILT	120	4.0	28	19	71	45	-	16
7.38	81.0	118.5	163.1	1.5	0.3	1.9	5	silty SAND to sandy SILT	120	4.0	30	20	73	45	-	16
7.55	77.9	112.7	161.0	1.6	0.3	2.0	5	silty SAND to sandy SILT	120	4.0	28	19	71	45	-	16
7.71	71.3	102.2	153.9	1.5	0.4	2.1	5	silty SAND to sandy SILT	120	4.0	26	18	68	45	-	16
7.87	64.2	90.9	141.3	1.3	0.4	2.0	5	silty SAND to sandy SILT	120	4.0	23	16	64	44	-	16
8.04	58.0	81.3	128.5	1.1	0.4	1.9	5	silty SAND to sandy SILT	120	4.0	20	14	60	43	-	16
8.20	51.1	70.9	117.2	0.9	0.4	1.8	5	silty SAND to sandy SILT	120	4.0	18	13	56	43	-	16
8.37	44.3	60.9	108.5	0.8	0.4	1.8	5	silty SAND to sandy SILT	120	4.0	15	11	51	42	-	16
8.53	38.5	52.4	108.8	0.8	0.4	2.1	5	silty SAND to sandy SILT	120	4.0	13	10	46	41	-	16
8.69	35.1	47.3	110.1	0.8	0.4	2.4	5	silty SAND to sandy SILT	120	4.0	12	9	42	41	-	16
8.86	30.8	41.1	105.8	0.7	0.2	2.4	5	silty SAND to sandy SILT	120	4.0	10	8	38	40	-	16
9.02	27.9	36.9	108.7	0.8	0.2	2.8	4	clayy SILT to silty CLAY	115	2.0	18	14	-	-	1.9	15
9.19	24.8	32.6	106.3	0.7	0.2	2.9	4	clayy SILT to silty CLAY	115	2.0	16	12	-	-	1.7	15
9.35	23.0	34.0	107.5	0.6	0.1	2.9	4	clayy SILT to silty CLAY	115	2.0	17	12	-	-	1.6	15
9.51	23.1	29.8	92.7	0.5	0.1	2.4	4	clayy SILT to silty CLAY	115	2.0	15	12	-	-	1.6	15
9.68	23.9	30.5	91.3	0.5	0.1	2.3	4	clayy SILT to silty CLAY	115	2.0	15	12	-	-	1.7	15
9.84	23.4	29.7	91.0	0.5	0.0	2.3	4	clayy SILT to silty CLAY	115	2.0	15	12	-	-	1.6	15
10.01	25.2	31.7	85.8	0.5	0.0	1.9	5	silty SAND to sandy SILT	120	4.0	8	6	29	38	-	16
10.17	33.8	42.2	86.6	0.5	0.0	1.6	5	silty SAND to sandy SILT	120	4.0	11	8	39	40	-	16
10.34	53.2	65.8	96.6	0.6	-0.1	1.2	5	silty SAND to sandy SILT	120	4.0	16	13	53	42	-	16
10.50	70.9	87.1	115.5	0.9	-0.1	1.2	6	clean SAND to silty SAND	125	5.0	17	14	62	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(413).cpt
CPT Date: 11/18/2008 12:29:40 PM
GW During Test: 12 ft

Sounding ID: CPT-08-59
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	91.0	110.9	141.0	1.3	-0.2	1.4	6	clean SAND to silty SAND	125	5.0	22	18	70	45	-	16
10.83	107.0	129.4	161.4	1.6	-0.2	1.5	6	clean SAND to silty SAND	125	5.0	26	21	75	45	-	16
10.99	113.1	135.7	171.0	1.9	-0.2	1.7	6	clean SAND to silty SAND	125	5.0	27	23	77	46	-	16
11.16	116.0	138.0	173.8	1.9	-0.3	1.7	6	clean SAND to silty SAND	125	5.0	28	23	78	46	-	16
11.32	111.4	131.5	172.5	2.0	-0.3	1.8	5	silty SAND to sandy SILT	120	4.0	33	28	76	45	-	16
11.48	104.2	122.2	166.8	2.0	-0.3	1.9	5	silty SAND to sandy SILT	120	4.0	31	26	74	45	-	16
11.65	99.3	115.6	159.4	1.9	-0.3	1.9	5	silty SAND to sandy SILT	120	4.0	29	25	72	45	-	16
11.81	95.8	110.8	153.3	1.7	-0.4	1.8	5	silty SAND to sandy SILT	120	4.0	28	24	70	44	-	16
11.98	95.0	109.1	152.1	1.7	-0.2	1.8	5	silty SAND to sandy SILT	120	4.0	27	24	70	44	-	16
12.14	88.1	100.8	139.7	1.5	-0.1	1.7	5	silty SAND to sandy SILT	120	4.0	25	22	67	44	-	16
12.30	95.4	108.8	137.5	1.3	-0.1	1.3	6	clean SAND to silty SAND	125	5.0	22	19	70	44	-	16
12.47	104.0	118.3	144.2	1.3	-0.7	1.3	6	clean SAND to silty SAND	125	5.0	24	21	73	45	-	16
12.63	104.0	117.8	146.8	1.4	-0.8	1.4	6	clean SAND to silty SAND	125	5.0	24	21	72	45	-	16
12.80	100.4	113.3	146.7	1.5	-0.8	1.5	6	clean SAND to silty SAND	125	5.0	23	20	71	44	-	16
12.96	91.5	103.0	142.2	1.5	-0.9	1.7	5	silty SAND to sandy SILT	120	4.0	26	23	68	44	-	16
13.12	77.8	87.3	130.8	1.4	-1.3	1.8	5	silty SAND to sandy SILT	120	4.0	22	19	63	43	-	16
13.29	51.1	57.1	119.1	1.2	-1.8	2.3	5	silty SAND to sandy SILT	120	4.0	14	13	49	41	-	16
13.45	26.3	34.6	-	0.9	-3.2	3.7	4	clayy SILT to silty CLAY	115	2.0	17	13	-	-	1.8	15
13.62	15.4	20.2	-	0.7	-3.4	4.9	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.1	15
13.78	9.9	12.9	-	0.4	-3.8	4.9	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
13.94	7.8	10.0	-	0.3	-3.2	4.3	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
14.11	6.4	8.2	-	0.3	-2.6	5.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.27	5.7	7.3	-	0.3	-0.7	6.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.44	5.4	6.9	-	0.3	-0.4	6.6	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.3	15
14.60	5.3	6.7	-	0.3	0.0	5.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
14.76	5.1	6.5	-	0.2	0.2	4.9	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
14.93	4.6	5.7	-	0.3	0.5	7.7	2	Organic SOILS - Peats	100	1.0	6	5	-	-	0.4	10
15.09	10.2	12.8	-	0.3	0.8	3.0	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
15.26	15.1	18.8	-	0.3	-1.7	2.3	4	clayy SILT to silty CLAY	115	2.0	9	8	-	-	1.0	15
15.42	12.3	15.1	-	0.4	-0.7	3.7	3	silty CLAY to CLAY	115	1.5	10	8	-	-	0.8	15
15.58	9.0	11.1	-	0.4	-1.3	5.2	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
15.75	29.7	31.9	76.5	0.4	-1.1	1.5	5	silty SAND to sandy SILT	120	4.0	8	7	29	37	-	16
15.91	42.1	45.1	83.8	0.6	-1.3	1.4	5	silty SAND to sandy SILT	120	4.0	11	11	41	39	-	16
16.08	46.7	49.8	91.0	0.7	-1.2	1.5	5	silty SAND to sandy SILT	120	4.0	12	12	44	40	-	16
16.24	50.4	53.6	100.3	0.8	-0.9	1.7	5	silty SAND to sandy SILT	120	4.0	13	13	46	40	-	16
16.40	52.8	56.0	105.8	1.0	-0.7	1.8	5	silty SAND to sandy SILT	120	4.0	14	13	48	40	-	16
16.57	54.4	57.6	104.9	0.9	-0.6	1.8	5	silty SAND to sandy SILT	120	4.0	14	14	49	40	-	16
16.73	51.2	54.0	100.7	0.9	-0.4	1.7	5	silty SAND to sandy SILT	120	4.0	14	13	47	40	-	16
16.90	40.5	42.6	93.0	0.7	-0.2	1.8	5	silty SAND to sandy SILT	120	4.0	11	10	39	39	-	16
17.06	30.9	32.4	88.0	0.6	0.1	2.0	5	silty SAND to sandy SILT	120	4.0	8	8	30	37	-	16
17.23	24.5	28.4	-	0.8	0.3	3.3	4	clayy SILT to silty CLAY	115	2.0	14	12	-	-	1.7	15
17.39	21.4	24.7	-	0.7	0.9	3.2	4	clayy SILT to silty CLAY	115	2.0	12	11	-	-	1.5	15
17.55	44.5	46.3	87.7	0.6	-0.1	1.5	5	silty SAND to sandy SILT	120	4.0	12	11	42	39	-	16
17.72	57.4	59.6	91.5	0.7	-1.7	1.2	5	silty SAND to sandy SILT	120	4.0	15	14	50	40	-	16
17.88	55.2	57.1	89.3	0.6	-1.4	1.2	5	silty SAND to sandy SILT	120	4.0	14	14	49	40	-	16
18.05	51.2	52.9	89.9	0.7	-2.9	1.3	5	silty SAND to sandy SILT	120	4.0	13	13	46	40	-	16
18.21	46.0	47.4	90.7	0.7	-6.5	1.5	5	silty SAND to sandy SILT	120	4.0	12	12	42	39	-	16
18.37	30.8	31.6	89.9	0.6	-9.5	2.1	4	clayy SILT to silty CLAY	115	2.0	16	15	-	-	2.1	15
18.54	13.4	14.9	-	0.4	-11.0	3.6	3	silty CLAY to CLAY	115	1.5	10	9	-	-	0.9	15
18.70	6.8	7.5	-	0.3	2.7	5.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
18.87	4.3	4.8	-	0.3	8.5	8.0	2	Organic SOILS - Peats	100	1.0	5	4	-	-	0.4	10
19.03	4.2	4.7	-	0.3	13.3	9.5	2	Organic SOILS - Peats	100	1.0	5	4	-	-	0.4	10
19.19	12.1	13.2	-	0.4	16.2	3.5	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
19.36	40.8	41.4	77.3	0.5	0.9	1.2	5	silty SAND to sandy SILT	120	4.0	10	10	38	38	-	16
19.52	38.3	38.7	76.1	0.5	-0.5	1.2	5	silty SAND to sandy SILT	120	4.0	10	10	36	38	-	16
19.69	21.9	22.7	-	0.4	-3.2	1.8	4	clayy SILT to silty CLAY	115	2.0	11	11	-	-	1.5	15
19.85	8.9	9.5	-	0.3	-2.3	3.7	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
20.01	6.7	7.2	-	0.2	0.4	4.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
20.18	6.5	6.9	-	0.2	1.9	3.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
20.34	5.2	5.5	-	0.2	2.6	4.7	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
20.51	5.1	5.4	-	0.2	4.8	6.1	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
20.67	6.4	6.7	-	0.3	7.0	5.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
20.83	6.7	7.0	-	0.4	8.7	6.6	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
21.00	6.5	6.8	-	0.4	8.8	6.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(413).cpt
CPT Date: 11/18/2008 12:29:40 PM
GW During Test: 12 ft

Sounding ID: CPT-08-59
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	5.8	6.0	-	0.3	8.7	7.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.33	5.7	5.9	-	0.3	9.8	6.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.49	7.4	7.6	-	0.3	11.9	5.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.65	13.3	13.6	-	0.3	11.1	2.9	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
21.82	16.6	16.9	-	0.3	2.9	2.0	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.1	15
21.98	27.1	26.5	70.9	0.4	2.5	1.4	5	silty SAND to sandy SILT	120	4.0	7	7	23	35	-	16
22.15	37.5	36.6	81.9	0.6	-5.0	1.5	5	silty SAND to sandy SILT	120	4.0	9	9	34	37	-	16
22.31	46.4	45.2	90.4	0.7	-2.9	1.6	5	silty SAND to sandy SILT	120	4.0	11	12	41	38	-	16
22.47	67.4	65.4	102.0	0.9	-2.4	1.4	5	silty SAND to sandy SILT	120	4.0	16	17	53	40	-	16
22.64	78.6	76.1	115.8	1.2	-0.5	1.6	5	silty SAND to sandy SILT	120	4.0	19	20	58	41	-	16
22.80	84.9	82.0	123.2	1.4	1.3	1.7	5	silty SAND to sandy SILT	120	4.0	21	21	60	41	-	16
22.97	88.9	85.7	129.1	1.5	3.3	1.8	5	silty SAND to sandy SILT	120	4.0	21	22	62	41	-	16
23.13	92.5	89.0	130.9	1.6	3.6	1.7	5	silty SAND to sandy SILT	120	4.0	22	23	63	42	-	16
23.30	93.2	89.5	131.9	1.6	3.9	1.7	5	silty SAND to sandy SILT	120	4.0	22	23	63	42	-	16
23.46	91.7	87.8	130.7	1.6	4.1	1.7	5	silty SAND to sandy SILT	120	4.0	22	23	63	42	-	16
23.62	87.7	83.8	130.5	1.6	4.3	1.9	5	silty SAND to sandy SILT	120	4.0	21	22	61	41	-	16
23.79	85.3	81.2	128.4	1.6	4.4	1.9	5	silty SAND to sandy SILT	120	4.0	20	21	60	41	-	16
23.95	82.3	78.3	126.8	1.5	4.6	1.9	5	silty SAND to sandy SILT	120	4.0	20	21	59	41	-	16
24.12	84.2	79.9	126.2	1.5	4.4	1.8	5	silty SAND to sandy SILT	120	4.0	20	21	60	41	-	16
24.28	85.0	80.5	123.9	1.4	4.4	1.7	5	silty SAND to sandy SILT	120	4.0	20	21	60	41	-	16
24.44	84.7	80.0	120.4	1.4	4.0	1.6	5	silty SAND to sandy SILT	120	4.0	20	21	60	41	-	16
24.61	78.1	73.6	116.4	1.3	3.7	1.7	5	silty SAND to sandy SILT	120	4.0	18	20	57	40	-	16
24.77	66.3	62.3	112.9	1.2	3.0	1.9	5	silty SAND to sandy SILT	120	4.0	16	17	51	40	-	16
24.94	41.6	39.0	117.9	1.2	4.1	3.0	4	clayy SILT to silty CLAY	115	2.0	20	21	-	-	2.9	15
25.10	19.8	18.4	-	1.1	5.9	6.2	3	silty CLAY to CLAY	115	1.5	12	13	-	-	1.3	15
25.26	13.9	12.9	-	0.8	4.9	6.5	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
25.43	9.4	8.7	-	0.5	10.7	5.7	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
25.59	7.2	6.6	-	0.3	23.1	5.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
25.76	7.2	6.6	-	0.3	23.1	4.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
25.92	7.7	7.0	-	0.3	23.3	4.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.08	8.0	7.3	-	0.3	21.1	4.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.25	7.8	7.1	-	0.3	18.1	4.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.41	6.4	5.8	-	0.3	17.6	5.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
26.58	5.5	4.9	-	0.2	20.3	6.3	2	Organic SOILS - Peats	100	1.0	5	6	-	-	0.5	10
26.74	5.6	5.0	-	0.2	24.4	6.1	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	15
26.90	6.0	5.3	-	0.3	26.4	6.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
27.07	5.9	5.3	-	0.3	24.9	5.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
27.23	6.0	5.3	-	0.3	23.1	5.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
27.40	6.6	5.8	-	0.2	25.0	3.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
27.56	6.1	5.3	-	0.3	22.2	6.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
27.72	10.5	9.2	-	0.4	29.2	4.1	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
27.89	16.9	14.8	-	0.4	4.4	2.7	3	silty CLAY to CLAY	115	1.5	10	11	-	-	1.1	15
28.05	19.5	16.9	-	0.5	-1.3	2.7	4	clayy SILT to silty CLAY	115	2.0	8	10	-	-	1.3	15
28.22	22.5	19.4	-	0.5	-3.8	2.4	4	clayy SILT to silty CLAY	115	2.0	10	11	-	-	1.5	15
28.38	30.2	27.3	82.9	0.6	-5.1	1.9	4	clayy SILT to silty CLAY	115	2.0	14	15	-	-	2.1	15
28.54	35.4	31.9	87.6	0.7	-6.7	1.9	5	silty SAND to sandy SILT	120	4.0	8	9	29	35	-	16
28.71	37.1	33.3	89.9	0.7	2.0	2.0	5	silty SAND to sandy SILT	120	4.0	8	9	31	35	-	16
28.87	34.9	31.3	89.5	0.7	3.9	2.1	4	clayy SILT to silty CLAY	115	2.0	16	17	-	-	2.4	15
29.04	32.5	29.1	90.4	0.7	5.9	2.2	4	clayy SILT to silty CLAY	115	2.0	15	16	-	-	2.2	15
29.20	31.7	28.3	90.5	0.7	5.0	2.3	4	clayy SILT to silty CLAY	115	2.0	14	16	-	-	2.2	15
29.36	31.7	26.7	-	0.7	3.0	2.4	4	clayy SILT to silty CLAY	115	2.0	13	16	-	-	2.2	15
29.53	30.8	25.8	-	0.8	3.4	2.6	4	clayy SILT to silty CLAY	115	2.0	13	15	-	-	2.1	15
29.69	29.7	24.8	-	0.7	2.9	2.6	4	clayy SILT to silty CLAY	115	2.0	12	15	-	-	2.0	15
29.86	30.7	25.6	-	0.6	-1.3	2.2	4	clayy SILT to silty CLAY	115	2.0	13	15	-	-	2.1	15
30.02	27.5	22.8	-	0.6	-4.4	2.4	4	clayy SILT to silty CLAY	115	2.0	11	14	-	-	1.9	15
30.19	22.1	18.3	-	0.5	-4.7	2.7	4	clayy SILT to silty CLAY	115	2.0	9	11	-	-	1.5	15
30.35	18.2	15.0	-	0.5	-4.5	3.1	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.2	15
30.51	10.5	8.6	-	0.4	-4.5	4.8	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
30.68	6.7	5.5	-	0.3	-2.8	5.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
30.84	6.4	5.2	-	0.2	-0.1	4.9	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.4	15
31.01	6.5	5.3	-	0.2	1.1	5.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
31.17	7.1	5.8	-	0.3	2.5	5.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
31.33	11.6	9.3	-	0.4	4.2	4.2	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
31.50	27.6	24.1	70.7	0.4	1.8	1.5	5	silty SAND to sandy SILT	120	4.0	6	7	20	33	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(413).cpt
CPT Date: 11/18/2008 12:29:40 PM
GW During Test: 12 ft

Sounding ID: CPT-08-59
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	18.8	15.1	-	0.4	-5.6	2.5	4	clayy SILT to silty CLAY	115	2.0	8	9	-	-	1.3	15
31.83	7.7	6.2	-	0.5	-5.0	8.8	2	Organic SOILS - Peats	100	1.0	6	8	-	-	0.7	10
31.99	9.0	7.2	-	0.4	20.1	5.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
32.15	15.2	12.0	-	0.4	14.5	2.8	3	silty CLAY to CLAY	115	1.5	8	10	-	-	1.0	15
32.32	16.2	12.8	-	0.3	5.4	2.2	4	clayy SILT to silty CLAY	115	2.0	6	8	-	-	1.1	15
32.48	7.2	5.7	-	0.3	3.8	5.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
32.65	6.2	4.8	-	0.3	12.3	6.8	2	Organic SOILS - Peats	100	1.0	5	6	-	-	0.5	10
32.81	6.9	5.4	-	0.3	16.9	6.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
32.97	6.9	5.4	-	0.3	20.9	6.6	2	Organic SOILS - Peats	100	1.0	5	7	-	-	0.6	10
33.14	7.4	5.8	-	0.4	26.1	6.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
33.30	7.6	5.9	-	0.4	30.8	7.1	2	Organic SOILS - Peats	100	1.0	6	8	-	-	0.7	10
33.47	9.1	7.1	-	0.4	33.1	6.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
33.63	34.1	29.1	76.7	0.5	12.3	1.5	5	silty SAND to sandy SILT	120	4.0	7	9	26	34	-	16
33.79	51.1	43.5	77.5	0.6	1.3	1.1	5	silty SAND to sandy SILT	120	4.0	11	13	40	37	-	16
33.96	57.1	48.5	86.2	0.7	3.6	1.3	5	silty SAND to sandy SILT	120	4.0	12	14	43	37	-	16
34.12	48.8	41.4	94.3	0.9	5.9	1.9	5	silty SAND to sandy SILT	120	4.0	10	12	38	36	-	16
34.29	26.6	20.2	-	0.9	8.6	3.8	3	silty CLAY to CLAY	115	1.5	13	18	-	-	1.8	15
34.45	13.2	10.0	-	0.6	13.3	5.7	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
34.61	8.7	6.6	-	0.4	26.5	5.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
34.78	7.9	6.0	-	0.4	33.7	5.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
34.94	7.6	5.7	-	0.4	35.1	6.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
35.11	8.0	6.0	-	0.4	36.8	6.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
35.27	9.5	7.1	-	0.5	38.7	6.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
35.43	11.6	8.6	-	0.5	29.1	5.4	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
35.60	9.9	7.3	-	0.6	33.9	7.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
35.76	10.7	7.9	-	0.6	39.1	6.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
35.93	10.7	7.8	-	0.5	36.8	6.3	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
36.09	9.6	7.0	-	0.4	40.6	5.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
36.26	9.6	7.0	-	0.4	39.8	5.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
36.42	9.9	7.2	-	0.5	40.3	5.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
36.58	10.5	7.7	-	0.6	39.2	6.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
36.75	10.2	7.4	-	0.5	40.8	6.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
36.91	35.3	29.1	86.4	0.7	46.6	2.0	4	clayy SILT to silty CLAY	115	2.0	15	18	-	-	2.4	15
37.08	68.6	56.5	92.0	0.9	-4.2	1.3	5	silty SAND to sandy SILT	120	4.0	14	17	48	38	-	16
37.24	81.7	67.3	103.1	1.1	-7.8	1.4	5	silty SAND to sandy SILT	120	4.0	17	20	54	39	-	16
37.40	72.4	59.5	111.6	1.4	-9.6	1.9	5	silty SAND to sandy SILT	120	4.0	15	18	50	38	-	16
37.57	40.5	28.9	-	1.4	-10.3	3.6	4	clayy SILT to silty CLAY	115	2.0	14	20	-	-	2.8	15
37.73	23.4	16.7	-	1.1	-10.6	5.4	3	silty CLAY to CLAY	115	1.5	11	16	-	-	1.6	15
37.90	44.8	36.6	111.3	1.2	-10.3	2.8	4	clayy SILT to silty CLAY	115	2.0	18	22	-	-	3.1	15
38.06	75.7	61.8	114.0	1.4	-10.2	1.9	5	silty SAND to sandy SILT	120	4.0	15	19	51	38	-	16
38.22	90.4	73.7	116.2	1.5	-10.2	1.7	5	silty SAND to sandy SILT	120	4.0	18	23	57	39	-	16
38.39	94.2	76.6	115.2	1.4	-10.1	1.5	5	silty SAND to sandy SILT	120	4.0	19	24	58	39	-	16
38.55	100.4	81.6	116.1	1.4	-9.9	1.4	5	silty SAND to sandy SILT	120	4.0	20	25	60	40	-	16
38.72	97.5	79.1	120.5	1.6	1.4	1.6	5	silty SAND to sandy SILT	120	4.0	20	24	59	40	-	16
38.88	100.3	81.2	134.2	2.0	0.8	2.1	5	silty SAND to sandy SILT	120	4.0	20	25	60	40	-	16
39.04	103.4	83.6	139.0	2.2	2.4	2.1	5	silty SAND to sandy SILT	120	4.0	21	26	61	40	-	16
39.21	104.0	84.0	136.6	2.1	3.7	2.0	5	silty SAND to sandy SILT	120	4.0	21	26	61	40	-	16
39.37	107.7	86.8	126.6	1.7	3.6	1.6	5	silty SAND to sandy SILT	120	4.0	22	27	62	40	-	16
39.54	118.5	95.3	121.4	1.4	3.1	1.2	6	clean SAND to silty SAND	125	5.0	19	24	65	41	-	16
39.70	131.6	105.7	125.7	1.3	-1.3	1.0	6	clean SAND to silty SAND	125	5.0	21	26	69	41	-	16
39.86	162.2	130.0	149.0	1.7	-5.0	1.1	6	clean SAND to silty SAND	125	5.0	26	32	76	42	-	16
40.03	186.0	148.9	179.1	2.8	-7.7	1.5	6	clean SAND to silty SAND	125	5.0	30	37	80	43	-	16
40.19	189.2	151.1	197.5	3.8	-7.5	2.0	5	silty SAND to sandy SILT	120	4.0	38	47	81	43	-	16
40.36	190.6	152.0	201.7	4.0	-6.8	2.1	5	silty SAND to sandy SILT	120	4.0	38	48	81	43	-	16
40.52	161.0	128.2	184.0	3.6	-6.1	2.3	5	silty SAND to sandy SILT	120	4.0	32	40	75	42	-	16
40.68	145.1	115.4	163.3	2.9	-5.5	2.0	5	silty SAND to sandy SILT	120	4.0	29	36	72	41	-	16
40.85	139.2	110.5	149.1	2.3	-5.2	1.7	5	silty SAND to sandy SILT	120	4.0	28	35	70	41	-	16
41.01	141.7	112.3	141.0	1.9	-5.4	1.3	6	clean SAND to silty SAND	125	5.0	22	28	71	41	-	16
41.18	148.5	117.5	146.7	2.0	-6.0	1.4	6	clean SAND to silty SAND	125	5.0	24	30	72	42	-	16
41.34	165.5	130.7	166.2	2.7	-6.0	1.6	6	clean SAND to silty SAND	125	5.0	26	33	76	42	-	16
41.50	182.2	143.6	186.0	3.4	-6.9	1.9	5	silty SAND to sandy SILT	120	4.0	36	46	79	43	-	16
41.67	184.1	144.9	189.2	3.6	-6.9	2.0	5	silty SAND to sandy SILT	120	4.0	36	46	79	43	-	16
41.83	185.9	146.2	193.9	3.8	-6.5	2.1	5	silty SAND to sandy SILT	120	4.0	37	46	80	43	-	16
42.00	177.9	139.6	192.7	3.9	-2.2	2.2	5	silty SAND to sandy SILT	120	4.0	35	44	78	42	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Earth Mechanics
Data File: SDF(413).cpt
CPT Date: 11/18/2008 12:29:40 PM
GW During Test: 12 ft

Sounding ID: CPT-08-59
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	163.3	128.0	183.5	3.7	-1.9	2.3	5	silty SAND to sandy SILT	120	4.0	32	41	75	42	-	16
42.32	144.0	112.7	180.1	3.7	-1.2	2.6	5	silty SAND to sandy SILT	120	4.0	28	36	71	41	-	16
42.49	121.8	95.1	162.6	3.1	-4.5	2.6	5	silty SAND to sandy SILT	120	4.0	24	30	65	40	-	16
42.65	131.3	102.4	142.9	2.2	-6.4	1.7	5	silty SAND to sandy SILT	120	4.0	26	33	68	41	-	16
42.82	137.2	106.9	139.2	2.0	-8.3	1.4	6	clean SAND to silty SAND	125	5.0	21	27	69	41	-	16
42.98	113.8	88.5	148.4	2.6	-8.9	2.3	5	silty SAND to sandy SILT	120	4.0	22	28	63	40	-	16
43.15	127.4	98.9	152.8	2.7	-9.0	2.1	5	silty SAND to sandy SILT	120	4.0	25	32	67	40	-	16
43.31	204.2	158.3	184.1	2.8	-8.9	1.4	6	clean SAND to silty SAND	125	5.0	32	41	82	43	-	16
43.47	236.2	182.8	192.2	2.3	-9.2	1.0	6	clean SAND to silty SAND	125	5.0	37	47	87	44	-	16
43.64	243.9	188.5	199.9	2.6	-9.0	1.1	6	clean SAND to silty SAND	125	5.0	38	49	88	44	-	16
43.80	236.9	182.8	197.7	2.7	-8.6	1.2	6	clean SAND to silty SAND	125	5.0	37	47	87	44	-	16
43.97	233.3	179.7	194.8	2.6	-8.1	1.1	6	clean SAND to silty SAND	125	5.0	36	47	86	43	-	16
44.13	235.8	181.3	195.8	2.6	-7.6	1.1	6	clean SAND to silty SAND	125	5.0	36	47	87	43	-	16
44.29	234.4	180.0	195.4	2.7	-7.0	1.2	6	clean SAND to silty SAND	125	5.0	36	47	86	43	-	16
44.46	230.3	176.5	196.1	2.9	-6.3	1.3	6	clean SAND to silty SAND	125	5.0	35	46	86	43	-	16
44.62	216.1	165.4	191.1	3.0	-5.5	1.4	6	clean SAND to silty SAND	125	5.0	33	43	84	43	-	16
44.79	203.0	155.1	186.7	3.2	-4.7	1.6	6	clean SAND to silty SAND	125	5.0	31	41	81	43	-	16
44.95	189.4	144.5	175.6	2.9	-4.1	1.5	6	clean SAND to silty SAND	125	5.0	29	38	79	42	-	16
45.11	169.0	128.7	154.1	2.2	-3.6	1.3	6	clean SAND to silty SAND	125	5.0	26	34	75	42	-	16
45.28	145.8	110.9	135.0	1.7	6.5	1.2	6	clean SAND to silty SAND	125	5.0	22	29	70	41	-	16
45.44	120.1	91.2	132.2	2.0	5.7	1.7	5	silty SAND to sandy SILT	120	4.0	23	30	64	40	-	16
45.61	72.9	55.3	137.1	2.1	6.8	3.1	4	clayy SILT to silty CLAY	115	2.0	28	36	-	-	5.1	15
45.77	34.7	21.1	-	1.7	7.8	5.3	3	silty CLAY to CLAY	115	1.5	14	23	-	-	2.4	15
45.93	20.6	12.5	-	1.1	10.9	6.0	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
46.10	16.9	10.2	-	0.7	33.1	5.2	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
46.26	20.2	12.2	-	0.7	53.4	4.0	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
46.43	39.5	23.8	-	0.8	59.8	2.3	4	clayy SILT to silty CLAY	115	2.0	12	20	-	-	2.7	15
46.59	61.0	45.9	97.5	1.1	8.2	1.8	5	silty SAND to sandy SILT	120	4.0	11	15	41	36	-	16
46.75	56.2	42.2	99.1	1.1	12.0	2.0	5	silty SAND to sandy SILT	120	4.0	11	14	39	35	-	16
46.92	47.8	28.5	-	1.2	11.0	2.6	4	clayy SILT to silty CLAY	115	2.0	14	24	-	-	3.3	15
47.08	28.1	16.7	-	1.0	10.1	4.1	3	silty CLAY to CLAY	115	1.5	11	19	-	-	1.9	15
47.25	19.8	11.7	-	0.8	15.6	4.5	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
47.41	18.4	10.9	-	0.7	25.4	4.4	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
47.57	25.9	15.3	-	1.0	34.5	4.5	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
47.74	86.9	64.8	102.0	1.2	37.5	1.4	5	silty SAND to sandy SILT	120	4.0	16	22	53	38	-	16
47.90	194.7	144.9	156.3	1.7	-6.7	0.9	6	clean SAND to silty SAND	125	5.0	29	39	79	42	-	16
48.07	228.9	170.1	178.4	2.1	-8.7	0.9	6	clean SAND to silty SAND	125	5.0	34	46	85	43	-	16
48.23	244.1	181.2	189.3	2.3	-8.3	1.0	6	clean SAND to silty SAND	125	5.0	36	49	87	43	-	16
48.39	260.8	193.3	197.6	2.4	-7.8	0.9	6	clean SAND to silty SAND	125	5.0	39	52	89	44	-	16
48.56	241.5	178.7	190.8	2.5	-7.7	1.1	6	clean SAND to silty SAND	125	5.0	36	48	86	43	-	16
48.72	220.3	162.8	184.9	2.8	-7.3	1.3	6	clean SAND to silty SAND	125	5.0	33	44	83	43	-	16
48.89	215.6	159.1	182.2	2.8	-6.8	1.3	6	clean SAND to silty SAND	125	5.0	32	43	82	43	-	16
49.05	206.6	152.2	175.1	2.6	-4.4	1.3	6	clean SAND to silty SAND	125	5.0	30	41	81	42	-	16
49.22	205.5	151.2	169.9	2.3	-3.9	1.2	6	clean SAND to silty SAND	125	5.0	30	41	81	42	-	16
49.38	211.2	155.1	169.1	2.1	-3.3	1.0	6	clean SAND to silty SAND	125	5.0	31	42	81	42	-	16
49.54	223.0	163.5	171.6	1.9	-2.6	0.9	6	clean SAND to silty SAND	125	5.0	33	45	83	43	-	16
49.71	233.0	170.6	176.9	2.0	-1.7	0.9	6	clean SAND to silty SAND	125	5.0	34	47	85	43	-	16
49.87	243.4	178.0	178.4	1.8	-0.9	0.8	6	clean SAND to silty SAND	125	5.0	36	49	86	43	-	16
50.04	257.8	188.3	188.3	1.7	0.2	0.7	6	clean SAND to silty SAND	125	5.0	38	52	88	43	-	16
50.20	272.2	198.4	198.4	1.6	1.1	0.6	6	clean SAND to silty SAND	125	5.0	40	54	90	44	-	16
50.36	287.0	208.9	208.9	1.9	2.4	0.7	6	clean SAND to silty SAND	125	5.0	42	57	91	44	-	16
50.53	299.7	217.9	217.9	2.0	3.8	0.7	6	clean SAND to silty SAND	125	5.0	44	60	93	44	-	16
50.69	299.2	217.2	217.2	2.1	4.8	0.7	6	clean SAND to silty SAND	125	5.0	43	60	93	44	-	16
50.86	295.3	214.1	214.1	2.0	5.9	0.7	6	clean SAND to silty SAND	125	5.0	43	59	92	44	-	16
51.02	287.0	207.7	207.7	1.8	6.8	0.6	6	clean SAND to silty SAND	125	5.0	42	57	91	44	-	16
51.18	276.4	199.8	199.8	1.6	7.5	0.6	6	clean SAND to silty SAND	125	5.0	40	55	90	44	-	16
51.35	256.7	185.3	185.3	1.3	7.8	0.5	6	clean SAND to silty SAND	125	5.0	37	51	87	43	-	16
51.51	230.6	166.2	165.9	1.6	8.4	0.7	6	clean SAND to silty SAND	125	5.0	33	46	84	43	-	16
51.68	191.0	137.5	138.2	1.1	8.1	0.6	6	clean SAND to silty SAND	125	5.0	27	38	78	42	-	16
51.84	149.5	107.5	122.0	1.2	8.6	0.8	6	clean SAND to silty SAND	125	5.0	21	30	69	40	-	16
52.00	114.1	81.9	113.5	1.4	8.9	1.3	5	silty SAND to sandy SILT	120	4.0	20	29	60	39	-	16
52.17	63.9	45.8	119.9	1.7	10.2	2.7	4	clayy SILT to silty CLAY	115	2.0	23	32	-	-	4.4	15
52.33	53.4	29.0	-	1.5	11.3	3.1	4	clayy SILT to silty CLAY	115	2.0	15	27	-	-	3.7	15
52.50	31.8	17.2	-	1.1	9.2	3.7	3	silty CLAY to CLAY	115	1.5	11	21	-	-	2.1	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(413).cpt
CPT Date: 11/18/2008 12:29:40 PM
GW During Test: 12 ft

Sounding ID: CPT-08-59
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	19.5	10.6	-	0.6	9.2	4.0	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
52.82	16.5	8.9	-	0.4	18.6	3.1	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
52.99	15.2	8.2	-	0.4	28.0	3.2	3	silty CLAY to CLAY	115	1.5	5	10	-	-	1.0	15
53.15	15.4	8.2	-	0.4	40.8	3.2	3	silty CLAY to CLAY	115	1.5	5	10	-	-	1.0	15
53.32	14.5	7.8	-	0.5	48.2	4.1	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
53.48	21.6	11.5	-	0.7	73.4	4.0	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
53.64	29.3	15.6	-	1.4	38.5	5.3	3	silty CLAY to CLAY	115	1.5	10	20	-	-	2.0	15
53.81	109.0	77.2	130.5	2.2	16.3	2.0	5	silty SAND to sandy SILT	120	4.0	19	27	58	38	-	16
53.97	149.5	105.8	148.3	2.6	8.7	1.8	5	silty SAND to sandy SILT	120	4.0	26	37	69	40	-	16
54.14	171.4	121.1	163.1	3.1	9.7	1.8	5	silty SAND to sandy SILT	120	4.0	30	43	73	41	-	16
54.30	199.2	140.6	179.0	3.5	10.6	1.8	6	clean SAND to silty SAND	125	5.0	28	40	78	42	-	16
54.46	209.5	147.7	188.8	3.8	10.9	1.9	6	clean SAND to silty SAND	125	5.0	30	42	80	42	-	16
54.63	203.1	143.0	187.2	3.9	11.3	2.0	5	silty SAND to sandy SILT	120	4.0	36	51	79	42	-	16
54.79	184.4	129.6	177.6	3.7	11.1	2.0	5	silty SAND to sandy SILT	120	4.0	32	46	76	41	-	16
54.96	157.7	110.7	159.6	3.1	10.8	2.0	5	silty SAND to sandy SILT	120	4.0	28	39	70	40	-	16
55.12	129.7	90.9	138.7	2.4	10.6	1.9	5	silty SAND to sandy SILT	120	4.0	23	32	64	39	-	16
55.28	115.3	80.8	129.2	2.1	10.3	1.9	5	silty SAND to sandy SILT	120	4.0	20	29	60	39	-	16
55.45	73.5	51.4	132.2	2.1	9.8	3.0	4	clayy SILT to silty CLAY	115	2.0	26	37	-	-	5.1	15
55.61	37.3	19.3	-	1.8	11.2	5.2	3	silty CLAY to CLAY	115	1.5	13	25	-	-	2.5	15
55.78	23.5	12.1	-	1.0	19.5	4.8	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.5	15
55.94	16.6	8.5	-	0.5	43.0	3.6	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
56.11	16.1	8.3	-	0.3	62.6	2.6	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
56.27	16.7	8.6	-	0.3	74.5	2.5	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
56.43	18.3	9.4	-	0.3	76.0	2.3	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.2	15
56.60	20.2	10.3	-	0.4	68.7	2.6	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
56.76	20.8	10.6	-	0.5	64.1	2.9	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.3	15
56.93	22.1	11.2	-	0.6	63.4	3.2	3	silty CLAY to CLAY	115	1.5	7	15	-	-	1.4	15
57.09	22.8	11.6	-	0.6	50.8	3.2	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
57.25	23.0	11.6	-	0.8	44.6	4.2	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
57.42	28.0	14.2	-	1.5	54.2	6.1	3	silty CLAY to CLAY	115	1.5	9	19	-	-	1.9	15
57.58	43.7	22.0	-	1.9	42.4	4.8	3	silty CLAY to CLAY	115	1.5	15	29	-	-	3.0	15
57.75	75.2	51.8	127.4	2.0	2.7	2.8	4	clayy SILT to silty CLAY	115	2.0	26	38	-	-	5.2	15
57.91	85.4	58.8	129.6	2.1	-4.5	2.6	5	silty SAND to sandy SILT	120	4.0	15	21	49	37	-	16
58.07	89.6	61.6	106.3	1.4	-5.6	1.6	5	silty SAND to sandy SILT	120	4.0	15	22	51	37	-	16
58.24	85.5	58.7	124.1	2.0	-6.6	2.4	5	silty SAND to sandy SILT	120	4.0	15	21	49	37	-	16
58.40	59.5	29.7	-	2.2	-6.2	4.0	4	clayy SILT to silty CLAY	115	2.0	15	30	-	-	4.1	15
58.57	78.6	53.9	114.5	1.7	1.4	2.2	5	silty SAND to sandy SILT	120	4.0	13	20	47	36	-	16
58.73	100.8	69.0	123.2	2.0	-2.8	2.0	5	silty SAND to sandy SILT	120	4.0	17	25	55	37	-	16
58.89	105.1	71.8	128.5	2.2	11.4	2.1	5	silty SAND to sandy SILT	120	4.0	18	26	56	38	-	16
59.06	106.5	72.7	130.2	2.2	14.0	2.2	5	silty SAND to sandy SILT	120	4.0	18	27	56	38	-	16
59.22	106.0	72.3	131.8	2.3	16.1	2.2	5	silty SAND to sandy SILT	120	4.0	18	27	56	38	-	16
59.39	101.4	69.1	134.0	2.4	17.4	2.4	5	silty SAND to sandy SILT	120	4.0	17	25	55	37	-	16
59.55	101.5	69.1	133.9	2.4	17.4	2.4	5	silty SAND to sandy SILT	120	4.0	17	25	55	37	-	16
59.71	107.6	73.1	131.2	2.3	14.4	2.2	5	silty SAND to sandy SILT	120	4.0	18	27	57	38	-	16
59.88	112.5	76.3	134.2	2.4	13.2	2.2	5	silty SAND to sandy SILT	120	4.0	19	28	58	38	-	16
60.04	105.9	71.8	141.2	2.6	14.4	2.6	5	silty SAND to sandy SILT	120	4.0	18	26	56	38	-	16
60.21	103.6	70.2	143.1	2.7	16.3	2.7	5	silty SAND to sandy SILT	120	4.0	18	26	55	37	-	16
60.37	117.3	79.3	129.0	2.2	4.6	1.9	5	silty SAND to sandy SILT	120	4.0	20	29	59	38	-	16
60.53	230.6	155.8	162.4	1.8	2.3	0.8	6	clean SAND to silty SAND	125	5.0	31	46	82	42	-	16
60.70	411.8	277.8	277.8	3.0	-5.0	0.7	6	clean SAND to silty SAND	125	5.0	56	82	95	45	-	16
60.86	515.1	347.2	347.2	2.3	-4.0	0.5	7	grvly SAND to dense SAND	130	6.0	58	86	95	46	-	16
61.03	581.0	391.0	391.0	2.4	-2.1	0.4	7	grvly SAND to dense SAND	130	6.0	65	97	95	46	-	16
61.19	593.4	398.9	398.9	8.1	1.0	1.4	6	clean SAND to silty SAND	125	5.0	80	100	95	46	-	16
61.35	648.5	435.3	435.3	4.8	2.6	0.8	6	clean SAND to silty SAND	125	5.0	87	100	95	47	-	16
61.52	591.8	396.8	396.8	3.5	-1.1	0.6	6	clean SAND to silty SAND	125	5.0	79	100	95	46	-	16
61.68	628.3	420.7	420.7	4.2	4.5	0.7	6	clean SAND to silty SAND	125	5.0	84	100	95	47	-	16
61.85	698.5	467.2	467.2	7.3	9.6	1.1	6	clean SAND to silty SAND	125	5.0	93	100	95	47	-	16
62.01	707.1	472.3	472.3	4.3	5.5	0.6	7	grvly SAND to dense SAND	130	6.0	79	100	95	47	-	16
62.17	609.9	406.9	406.9	4.2	10.9	0.7	6	clean SAND to silty SAND	125	5.0	81	100	95	46	-	16
62.34	601.6	400.9	400.9	3.6	4.9	0.6	6	clean SAND to silty SAND	125	5.0	80	100	95	46	-	16
62.50	547.1	364.1	364.1	2.9	4.8	0.5	7	grvly SAND to dense SAND	130	6.0	61	91	95	46	-	16
62.67	542.3	360.5	360.5	1.3	5.1	0.2	7	grvly SAND to dense SAND	130	6.0	60	90	95	46	-	16
62.83	625.5	415.2	415.2	1.5	9.4	0.2	7	grvly SAND to dense SAND	130	6.0	69	100	95	46	-	16
63.00	683.2	452.9	452.9	1.4	9.0	0.2	7	grvly SAND to dense SAND	130	6.0	75	100	95	47	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(413).cpt
CPT Date: 11/18/2008 12:29:40 PM
GW During Test: 12 ft

Sounding ID: CPT-08-59
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS - *	q1ncs PS - *	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk - *
63.16	677.4	448.5	448.5	1.6	14.7	0.2	7	grvly SAND to dense SAND	130	6.0	75	100	95	47	-	16
63.32	628.2	415.4	415.4	2.9	12.1	0.5	7	grvly SAND to dense SAND	130	6.0	69	100	95	46	-	16
63.49	629.2	415.6	415.6	3.0	9.9	0.5	7	grvly SAND to dense SAND	130	6.0	69	100	95	46	-	16
63.65	571.8	377.2	377.2	3.5	6.4	0.6	6	clean SAND to silty SAND	125	5.0	75	100	95	46	-	16
63.82	549.5	362.0	362.0	2.1	9.7	0.4	7	grvly SAND to dense SAND	130	6.0	60	92	95	46	-	16
63.98	479.3	315.4	315.4	1.9	13.1	0.4	7	grvly SAND to dense SAND	130	6.0	53	80	95	45	-	16
64.14	460.3	302.5	302.5	1.3	11.7	0.3	7	grvly SAND to dense SAND	130	6.0	50	77	95	45	-	16
64.31	458.7	301.0	301.0	2.1	12.1	0.5	7	grvly SAND to dense SAND	130	6.0	50	76	95	45	-	16
64.47	454.8	298.1	298.1	2.4	10.7	0.5	6	clean SAND to silty SAND	125	5.0	60	91	95	45	-	16
64.64	409.9	268.3	268.3	3.5	14.5	0.9	6	clean SAND to silty SAND	125	5.0	54	82	95	44	-	16
64.80	425.6	278.3	278.3	3.5	11.6	0.8	6	clean SAND to silty SAND	125	5.0	56	85	95	44	-	16
64.96	421.4	275.3	275.3	2.2	11.2	0.5	6	clean SAND to silty SAND	125	5.0	55	84	95	44	-	16
65.13	405.0	264.2	264.2	1.9	12.1	0.5	6	clean SAND to silty SAND	125	5.0	53	81	95	44	-	16
65.29	405.3	264.1	264.1	1.7	15.0	0.4	6	clean SAND to silty SAND	125	5.0	53	81	95	44	-	16
65.46	415.1	270.2	270.2	1.7	14.9	0.4	6	clean SAND to silty SAND	125	5.0	54	83	95	44	-	16
65.62	415.4	270.1	270.1	1.5	13.7	0.4	7	grvly SAND to dense SAND	130	6.0	45	69	95	44	-	16
65.78	412.0	267.5	267.5	1.5	13.1	0.4	7	grvly SAND to dense SAND	130	6.0	45	69	95	44	-	16
65.95	418.2	271.2	271.2	1.2	13.3	0.3	7	grvly SAND to dense SAND	130	6.0	45	70	95	44	-	16
66.11	406.7	263.4	263.4	1.2	13.2	0.3	7	grvly SAND to dense SAND	130	6.0	44	68	95	44	-	16
66.28	413.8	267.7	267.7	2.7	12.8	0.6	6	clean SAND to silty SAND	125	5.0	54	83	95	44	-	16
66.44	443.1	286.4	286.4	2.6	13.8	0.6	6	clean SAND to silty SAND	125	5.0	57	89	95	45	-	16
66.60	553.3	357.1	357.1	2.6	13.8	0.5	7	grvly SAND to dense SAND	130	6.0	60	92	95	46	-	16
66.77	650.3	419.3	419.3	3.2	13.6	0.5	7	grvly SAND to dense SAND	130	6.0	70	100	95	46	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(475).cpt
CPT Date: 12/8/2008 2:33:03 PM
GW During Test: 12 ft

Sounding ID: CPT-08-60
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	91.4	146.6	158.4	0.8	0.0	0.9	6	clean SAND to silty SAND	125	5.0	29	18	80	48	-	16
0.49	76.5	122.7	152.9	1.1	-0.1	1.5	6	clean SAND to silty SAND	125	5.0	25	15	74	48	-	16
0.66	72.0	115.5	142.9	1.0	-0.1	1.3	6	clean SAND to silty SAND	125	5.0	23	14	72	48	-	16
0.82	97.4	156.2	174.0	1.1	0.0	1.2	6	clean SAND to silty SAND	125	5.0	31	19	82	48	-	16
0.98	115.9	185.9	197.9	1.3	-0.1	1.1	6	clean SAND to silty SAND	125	5.0	37	23	87	48	-	16
1.15	108.0	173.2	194.0	1.4	-0.1	1.3	6	clean SAND to silty SAND	125	5.0	35	22	85	48	-	16
1.31	101.4	162.5	188.3	1.5	-0.1	1.4	6	clean SAND to silty SAND	125	5.0	33	20	83	48	-	16
1.48	90.5	145.2	176.8	1.4	-0.1	1.6	6	clean SAND to silty SAND	125	5.0	29	18	79	48	-	16
1.64	79.2	127.0	159.4	1.2	-0.1	1.5	6	clean SAND to silty SAND	125	5.0	25	16	75	48	-	16
1.80	69.7	111.7	139.0	0.9	-0.1	1.3	6	clean SAND to silty SAND	125	5.0	22	14	71	48	-	16
1.97	74.5	119.5	146.5	1.0	-0.1	1.3	6	clean SAND to silty SAND	125	5.0	24	15	73	48	-	16
2.13	85.8	137.5	165.0	1.2	0.1	1.4	6	clean SAND to silty SAND	125	5.0	28	17	78	48	-	16
2.30	100.5	161.1	189.8	1.5	0.0	1.5	6	clean SAND to silty SAND	125	5.0	32	20	83	48	-	16
2.46	109.9	176.2	195.5	1.4	0.1	1.3	6	clean SAND to silty SAND	125	5.0	35	22	86	48	-	16
2.62	66.9	107.2	156.4	1.4	0.1	2.0	5	silty SAND to sandy SILT	120	4.0	27	17	69	47	-	16
2.79	91.5	146.7	195.1	1.9	0.1	2.1	5	silty SAND to sandy SILT	120	4.0	37	23	80	48	-	16
2.95	144.7	232.1	282.0	3.3	0.1	2.3	6	clean SAND to silty SAND	125	5.0	46	29	95	48	-	16
3.12	169.5	271.9	346.1	4.9	0.1	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.2	16
3.28	159.1	255.2	381.0	6.5	0.1	4.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.5	16
3.45	130.7	209.6	389.0	7.1	-0.1	5.5	9	very stiff fine SOIL	120	2.0	100	65	91	48	-	30
3.61	120.2	192.8	370.4	6.6	-0.2	5.5	9	very stiff fine SOIL	120	2.0	96	60	89	48	-	30
3.77	101.7	163.1	343.0	5.8	-0.1	5.7	9	very stiff fine SOIL	120	2.0	82	51	83	48	-	30
3.94	114.0	182.9	324.0	5.3	-2.1	4.6	9	very stiff fine SOIL	120	2.0	91	57	87	48	-	30
4.10	161.8	259.5	360.0	5.7	-2.8	3.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.7	16
4.27	156.7	251.3	378.6	6.5	0.0	4.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.4	16
4.43	134.5	215.7	346.5	5.8	0.2	4.3	9	very stiff fine SOIL	120	2.0	100	67	92	48	-	30
4.59	126.2	202.4	313.5	4.8	0.3	3.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	8.3	16
4.76	139.6	223.9	284.3	3.6	0.2	2.6	5	silty SAND to sandy SILT	120	4.0	56	35	94	48	-	16
4.92	159.5	255.8	314.3	4.0	0.3	2.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.6	16
5.09	160.7	257.8	323.9	4.4	0.4	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.6	16
5.25	140.6	225.5	304.7	4.3	0.4	3.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	9.3	16
5.41	116.3	186.5	271.8	3.7	0.4	3.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	7.7	16
5.58	97.0	155.5	238.1	3.0	0.4	3.1	5	silty SAND to sandy SILT	120	4.0	39	24	82	47	-	16
5.74	81.6	130.9	209.6	2.4	0.4	3.0	5	silty SAND to sandy SILT	120	4.0	33	20	76	46	-	16
5.91	68.8	110.3	188.9	2.0	0.4	3.0	5	silty SAND to sandy SILT	120	4.0	28	17	70	45	-	16
6.07	57.3	91.8	166.9	1.6	0.4	2.9	5	silty SAND to sandy SILT	120	4.0	23	14	64	44	-	16
6.23	42.3	67.0	145.4	1.3	0.3	3.0	5	silty SAND to sandy SILT	120	4.0	17	11	54	43	-	16
6.40	30.9	48.3	128.5	0.9	0.3	3.1	4	clayy SILT to silty CLAY	115	2.0	24	15	-	-	2.2	15
6.56	22.7	36.4	-	0.8	0.3	3.5	4	clayy SILT to silty CLAY	115	2.0	18	11	-	-	1.6	15
6.73	18.1	29.0	-	0.8	0.3	4.4	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.3	15
6.89	15.2	24.4	-	0.8	0.3	5.4	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.1	15
7.05	13.9	22.2	-	0.8	0.3	6.2	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
7.22	13.5	21.7	-	0.8	0.2	6.1	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
7.38	13.6	21.7	-	0.8	0.4	6.0	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
7.55	13.1	21.1	-	0.8	-0.2	6.4	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
7.71	13.1	21.0	-	0.8	-0.2	6.6	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
7.87	13.5	21.6	-	0.8	0.2	6.4	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
8.04	13.2	21.1	-	0.8	-0.2	6.6	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
8.20	13.0	20.8	-	0.7	0.6	6.0	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
8.37	13.0	20.8	-	0.7	0.7	6.0	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
8.53	12.7	20.4	-	0.8	0.5	6.4	3	silty CLAY to CLAY	115	1.5	14	8	-	-	0.9	15
8.69	11.2	17.9	-	0.7	0.7	6.9	3	silty CLAY to CLAY	115	1.5	12	7	-	-	0.8	15
8.86	9.1	14.6	-	0.6	0.9	7.4	3	silty CLAY to CLAY	115	1.5	10	6	-	-	0.6	15
9.02	8.6	13.7	-	0.6	1.2	7.2	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
9.19	8.5	13.6	-	0.6	1.3	7.1	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
9.35	8.1	13.0	-	0.5	2.7	7.1	3	silty CLAY to CLAY	115	1.5	9	5	-	-	0.5	15
9.51	7.1	11.4	-	0.5	3.1	8.4	3	silty CLAY to CLAY	115	1.5	8	5	-	-	0.5	15
9.68	8.1	13.0	-	0.6	4.4	7.4	3	silty CLAY to CLAY	115	1.5	9	5	-	-	0.5	15
9.84	21.9	31.3	98.6	0.5	0.1	2.6	4	clayy SILT to silty CLAY	115	2.0	16	11	-	-	1.5	15
10.01	33.0	41.6	93.8	0.6	0.1	1.9	5	silty SAND to sandy SILT	120	4.0	10	8	38	40	-	16
10.17	41.2	51.5	99.5	0.7	0.0	1.8	5	silty SAND to sandy SILT	120	4.0	13	10	45	41	-	16
10.34	50.5	62.6	109.1	0.9	0.0	1.8	5	silty SAND to sandy SILT	120	4.0	16	13	52	42	-	16
10.50	56.8	69.9	113.7	1.0	0.0	1.7	5	silty SAND to sandy SILT	120	4.0	17	14	55	42	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(475).cpt
CPT Date: 12/8/2008 2:33:03 PM
GW During Test: 12 ft

Sounding ID: CPT-08-60
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	53.7	65.5	113.1	1.0	0.0	1.8	5	silty SAND to sandy SILT	120	4.0	16	13	53	42	-	16
10.83	52.3	63.3	115.6	1.0	0.0	2.0	5	silty SAND to sandy SILT	120	4.0	16	13	52	42	-	16
10.99	45.2	54.3	116.1	1.0	0.0	2.3	5	silty SAND to sandy SILT	120	4.0	14	11	47	41	-	16
11.16	41.1	49.1	116.0	1.0	0.0	2.5	5	silty SAND to sandy SILT	120	4.0	12	10	44	40	-	16
11.32	39.5	46.8	112.5	1.0	-2.4	2.5	5	silty SAND to sandy SILT	120	4.0	12	10	42	40	-	16
11.48	33.3	39.2	104.0	0.8	-2.1	2.4	4	clayy SILT to silty CLAY	115	2.0	20	17	-	-	2.3	15
11.65	25.2	29.5	93.6	0.6	-1.8	2.4	4	clayy SILT to silty CLAY	115	2.0	15	13	-	-	1.8	15
11.81	24.0	27.9	91.9	0.6	-0.8	2.4	4	clayy SILT to silty CLAY	115	2.0	14	12	-	-	1.7	15
11.98	33.2	38.3	95.9	0.7	-2.7	2.1	5	silty SAND to sandy SILT	120	4.0	10	8	35	39	-	16
12.14	34.7	39.9	90.1	0.6	-1.2	1.8	5	silty SAND to sandy SILT	120	4.0	10	9	37	39	-	16
12.30	31.9	36.5	91.5	0.6	-1.0	2.0	5	silty SAND to sandy SILT	120	4.0	9	8	34	39	-	16
12.47	30.2	34.5	98.4	0.7	-0.9	2.4	4	clayy SILT to silty CLAY	115	2.0	17	15	-	-	2.1	15
12.63	32.4	36.8	108.2	0.9	-1.3	2.7	4	clayy SILT to silty CLAY	115	2.0	18	16	-	-	2.3	15
12.80	37.0	41.9	106.9	0.9	-1.8	2.4	5	silty SAND to sandy SILT	120	4.0	10	9	38	39	-	16
12.96	42.3	47.8	104.2	0.9	-2.5	2.1	5	silty SAND to sandy SILT	120	4.0	12	11	43	40	-	16
13.12	37.2	41.9	103.9	0.8	-3.8	2.3	5	silty SAND to sandy SILT	120	4.0	10	9	38	39	-	16
13.29	23.5	31.4	-	0.8	-6.2	3.6	4	clayy SILT to silty CLAY	115	2.0	16	12	-	-	1.6	15
13.45	14.2	18.9	-	0.7	-7.2	5.2	3	silty CLAY to CLAY	115	1.5	13	9	-	-	1.0	15
13.62	8.9	11.8	-	0.5	-7.5	6.1	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
13.78	6.7	8.8	-	0.3	-7.4	5.9	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
13.94	6.4	8.3	-	0.3	-7.2	5.5	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
14.11	6.5	8.4	-	0.4	-7.1	7.8	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
14.27	6.8	8.8	-	0.6	-6.9	9.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.4	15
14.44	7.3	9.3	-	0.7	-6.8	9.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
14.60	7.0	9.0	-	0.6	-6.5	9.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
14.76	6.8	8.6	-	0.5	-6.3	9.2	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.4	15
14.93	6.5	8.2	-	0.7	-6.1	9.9	2	Organic SOILS - Peats	100	1.0	8	7	-	-	0.6	10
15.09	5.8	7.3	-	0.5	-5.9	9.9	2	Organic SOILS - Peats	100	1.0	7	6	-	-	0.6	10
15.26	5.2	6.5	-	0.4	-4.2	9.9	2	Organic SOILS - Peats	100	1.0	7	5	-	-	0.5	10
15.42	7.0	8.8	-	0.3	-3.9	4.7	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.58	12.2	15.2	-	0.3	-4.4	2.9	3	silty CLAY to CLAY	115	1.5	10	8	-	-	0.8	15
15.75	8.0	9.9	-	0.3	-5.0	4.5	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
15.91	6.6	8.1	-	0.3	-5.1	4.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.08	5.4	6.6	-	0.2	-5.1	4.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
16.24	4.1	5.0	-	0.2	-5.1	7.5	2	Organic SOILS - Peats	100	1.0	5	4	-	-	0.4	10
16.40	4.9	5.9	-	0.3	-4.8	7.5	2	Organic SOILS - Peats	100	1.0	6	5	-	-	0.5	10
16.57	9.0	10.8	-	0.3	-4.7	3.7	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
16.73	11.7	14.1	-	0.4	-5.3	3.4	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
16.90	8.5	10.2	-	0.3	-6.0	4.0	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
17.06	4.7	5.6	-	0.3	-6.2	8.4	2	Organic SOILS - Peats	100	1.0	6	5	-	-	0.4	10
17.23	4.4	5.2	-	0.4	-6.2	9.9	2	Organic SOILS - Peats	100	1.0	5	4	-	-	0.4	10
17.39	21.1	24.9	-	0.5	-5.9	2.7	4	clayy SILT to silty CLAY	115	2.0	12	11	-	-	1.4	15
17.55	28.8	30.3	96.3	0.7	-7.9	2.5	4	clayy SILT to silty CLAY	115	2.0	15	14	-	-	2.0	15
17.72	35.2	37.0	86.7	0.6	-9.8	1.7	5	silty SAND to sandy SILT	120	4.0	9	9	34	38	-	16
17.88	25.2	26.3	76.3	0.4	-10.3	1.7	5	silty SAND to sandy SILT	120	4.0	7	6	23	36	-	16
18.05	11.4	13.1	-	0.3	-10.5	2.8	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
18.21	4.9	5.7	-	0.2	-10.7	6.3	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
18.37	3.6	4.1	-	0.2	-4.5	7.4	2	Organic SOILS - Peats	100	1.0	4	4	-	-	0.3	10
18.54	3.8	4.3	-	0.2	-4.1	8.3	2	Organic SOILS - Peats	100	1.0	4	4	-	-	0.3	10
18.70	7.5	8.5	-	0.3	-3.6	5.0	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
18.87	12.9	14.6	-	0.3	-4.4	2.8	3	silty CLAY to CLAY	115	1.5	10	9	-	-	0.9	15
19.03	22.8	23.5	73.9	0.4	-5.5	1.7	4	clayy SILT to silty CLAY	115	2.0	12	11	-	-	1.6	15
19.19	23.7	24.3	77.6	0.4	-7.9	1.9	4	clayy SILT to silty CLAY	115	2.0	12	12	-	-	1.6	15
19.36	19.6	21.9	-	0.4	-7.4	2.2	4	clayy SILT to silty CLAY	115	2.0	11	10	-	-	1.3	15
19.52	24.6	25.2	74.7	0.4	-7.0	1.7	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.7	15
19.69	21.1	23.3	-	0.5	-8.2	2.6	4	clayy SILT to silty CLAY	115	2.0	12	11	-	-	1.4	15
19.85	8.8	9.7	-	0.4	-7.8	5.7	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
20.01	5.1	5.6	-	0.4	-7.2	9.0	2	Organic SOILS - Peats	100	1.0	6	5	-	-	0.5	10
20.18	4.3	4.7	-	0.3	9.9	8.7	2	Organic SOILS - Peats	100	1.0	5	4	-	-	0.4	10
20.34	3.7	4.1	-	0.2	11.8	8.7	2	Organic SOILS - Peats	100	1.0	4	4	-	-	0.3	10
20.51	3.8	4.1	-	0.2	13.1	7.9	2	Organic SOILS - Peats	100	1.0	4	4	-	-	0.3	10
20.67	3.7	4.0	-	0.2	12.0	8.5	2	Organic SOILS - Peats	100	1.0	4	4	-	-	0.3	10
20.83	3.7	3.9	-	0.3	10.5	9.9	2	Organic SOILS - Peats	100	1.0	4	4	-	-	0.3	10
21.00	4.0	4.2	-	0.3	7.6	9.9	2	Organic SOILS - Peats	100	1.0	4	4	-	-	0.3	10

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(475).cpt
CPT Date: 12/8/2008 2:33:03 PM
GW During Test: 12 ft

Sounding ID: CPT-08-60
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	4.5	4.8	-	0.4	5.7	9.9	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.4	10
21.33	5.4	5.8	-	0.4	4.1	10.0	2	Organic SOILS - Peats	100	1.0	6	5	-	-	0.5	10
21.49	15.6	16.5	-	0.5	4.7	3.3	3	silty CLAY to CLAY	115	1.5	11	10	-	-	1.1	15
21.65	43.8	43.7	77.0	0.5	-4.2	1.1	5	silty SAND to sandy SILT	120	4.0	11	11	40	38	-	16
21.82	65.6	65.3	94.9	0.7	-5.0	1.2	5	silty SAND to sandy SILT	120	4.0	16	16	53	40	-	16
21.98	69.9	69.4	108.4	1.0	0.6	1.5	5	silty SAND to sandy SILT	120	4.0	17	17	55	41	-	16
22.15	71.5	70.9	113.1	1.2	1.3	1.6	5	silty SAND to sandy SILT	120	4.0	18	18	56	41	-	16
22.31	72.4	71.6	117.4	1.3	2.4	1.8	5	silty SAND to sandy SILT	120	4.0	18	18	56	41	-	16
22.47	68.4	67.5	122.8	1.4	3.1	2.1	5	silty SAND to sandy SILT	120	4.0	17	17	54	40	-	16
22.64	57.9	56.9	126.0	1.5	3.5	2.6	5	silty SAND to sandy SILT	120	4.0	14	14	48	39	-	16
22.80	51.4	50.4	118.0	1.3	3.6	2.5	5	silty SAND to sandy SILT	120	4.0	13	13	44	39	-	16
22.97	71.5	70.0	118.5	1.3	-3.3	1.9	5	silty SAND to sandy SILT	120	4.0	17	18	55	41	-	16
23.13	84.7	82.7	132.8	1.6	-9.5	2.0	5	silty SAND to sandy SILT	120	4.0	21	21	61	41	-	16
23.30	85.9	83.7	139.0	1.8	-9.8	2.2	5	silty SAND to sandy SILT	120	4.0	21	21	61	41	-	16
23.46	88.9	86.4	146.4	2.0	-9.2	2.3	5	silty SAND to sandy SILT	120	4.0	22	22	62	42	-	16
23.62	85.4	82.8	145.4	2.0	-8.4	2.4	5	silty SAND to sandy SILT	120	4.0	21	21	61	41	-	16
23.79	82.1	79.4	142.5	1.9	-7.8	2.4	5	silty SAND to sandy SILT	120	4.0	20	21	59	41	-	16
23.95	73.1	70.6	140.2	1.9	-7.0	2.6	5	silty SAND to sandy SILT	120	4.0	18	18	55	40	-	16
24.12	62.0	59.7	130.0	1.6	-6.3	2.6	5	silty SAND to sandy SILT	120	4.0	15	15	50	40	-	16
24.28	64.6	62.1	120.8	1.4	-5.6	2.2	5	silty SAND to sandy SILT	120	4.0	16	16	51	40	-	16
24.44	51.8	49.6	121.7	1.4	-5.3	2.7	5	silty SAND to sandy SILT	120	4.0	12	13	44	38	-	16
24.61	22.2	21.5	-	0.9	-4.7	4.4	3	silty CLAY to CLAY	115	1.5	14	15	-	-	1.5	15
24.77	11.4	11.0	-	0.6	-3.1	6.2	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
24.94	9.2	8.8	-	0.3	14.3	4.4	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
25.10	7.3	7.0	-	0.3	18.0	5.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
25.26	8.7	8.3	-	0.4	20.7	6.0	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
25.43	12.9	12.3	-	0.5	14.7	4.7	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
25.59	16.9	15.9	-	0.3	3.5	1.8	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.1	15
25.76	16.2	15.3	-	0.4	-5.4	2.6	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.1	15
25.92	8.9	8.4	-	0.4	1.6	5.1	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
26.08	9.9	9.2	-	0.4	3.1	4.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
26.25	8.6	8.0	-	0.4	0.2	5.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
26.41	6.6	6.1	-	0.4	-1.1	7.7	2	Organic SOILS - Peats	100	1.0	6	7	-	-	0.6	10
26.58	5.9	5.5	-	0.4	0.2	8.9	2	Organic SOILS - Peats	100	1.0	5	6	-	-	0.5	10
26.74	5.3	4.9	-	0.4	0.5	9.9	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
26.90	5.4	5.0	-	0.4	0.5	9.9	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
27.07	6.3	5.8	-	0.4	0.5	8.7	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
27.23	8.1	7.4	-	0.5	1.4	8.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.40	18.5	16.8	-	0.5	1.6	2.8	4	clayy SILT to silty CLAY	115	2.0	8	9	-	-	1.2	15
27.56	34.1	31.6	77.1	0.5	-3.3	1.5	5	silty SAND to sandy SILT	120	4.0	8	9	29	35	-	16
27.72	45.2	41.7	79.9	0.6	-5.9	1.3	5	silty SAND to sandy SILT	120	4.0	10	11	38	37	-	16
27.89	49.5	45.6	87.5	0.7	-5.2	1.5	5	silty SAND to sandy SILT	120	4.0	11	12	41	38	-	16
28.05	46.8	43.0	92.0	0.8	-4.2	1.7	5	silty SAND to sandy SILT	120	4.0	11	12	39	37	-	16
28.22	37.8	34.7	106.1	1.0	-2.9	2.7	4	clayy SILT to silty CLAY	115	2.0	17	19	-	-	2.6	15
28.38	27.3	24.2	-	0.9	-1.2	3.7	4	clayy SILT to silty CLAY	115	2.0	12	14	-	-	1.9	15
28.54	21.4	18.9	-	0.8	-3.3	4.2	3	silty CLAY to CLAY	115	1.5	13	14	-	-	1.5	15
28.71	14.1	12.4	-	0.6	-6.6	4.9	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
28.87	11.1	9.8	-	0.7	-6.1	6.9	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
29.04	11.2	9.8	-	0.7	-5.2	7.6	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
29.20	8.1	7.1	-	0.6	-4.3	8.6	2	Organic SOILS - Peats	100	1.0	7	8	-	-	0.8	10
29.36	6.3	5.4	-	0.3	-3.1	7.4	2	Organic SOILS - Peats	100	1.0	5	6	-	-	0.6	10
29.53	5.6	4.8	-	0.3	-2.2	8.2	2	Organic SOILS - Peats	100	1.0	5	6	-	-	0.5	10
29.69	5.8	5.0	-	0.4	-1.1	9.2	2	Organic SOILS - Peats	100	1.0	5	6	-	-	0.5	10
29.86	6.8	5.9	-	0.5	-0.5	9.0	2	Organic SOILS - Peats	100	1.0	6	7	-	-	0.6	10
30.02	8.1	7.0	-	0.5	-0.4	7.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
30.19	7.5	6.4	-	0.6	2.7	9.9	2	Organic SOILS - Peats	100	1.0	6	8	-	-	0.7	10
30.35	7.6	6.5	-	0.5	2.2	9.4	2	Organic SOILS - Peats	100	1.0	6	8	-	-	0.7	10
30.51	17.5	14.9	-	0.5	2.5	3.1	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.2	15
30.68	27.4	23.3	-	0.5	-1.4	1.9	4	clayy SILT to silty CLAY	115	2.0	12	14	-	-	1.9	15
30.84	34.2	30.5	80.9	0.5	-6.0	1.7	5	silty SAND to sandy SILT	120	4.0	8	9	28	35	-	16
31.01	36.1	32.2	85.7	0.6	-6.7	1.8	5	silty SAND to sandy SILT	120	4.0	8	9	30	35	-	16
31.17	24.4	20.5	-	0.8	-8.6	3.6	3	silty CLAY to CLAY	115	1.5	14	16	-	-	1.7	15
31.33	13.2	11.0	-	0.6	-9.0	5.4	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
31.50	9.1	7.6	-	0.4	-9.0	6.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(475).cpt
CPT Date: 12/8/2008 2:33:03 PM
GW During Test: 12 ft

Sounding ID: CPT-08-60
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	6.9	5.8	-	0.4	-2.3	6.9	2	Organic SOILS - Peats	100	1.0	6	7	-	-	0.6	10
31.83	6.2	5.1	-	0.3	-1.1	7.2	2	Organic SOILS - Peats	100	1.0	5	6	-	-	0.6	10
31.99	6.0	5.0	-	0.4	-0.3	9.1	2	Organic SOILS - Peats	100	1.0	5	6	-	-	0.5	10
32.15	7.6	6.3	-	0.4	0.6	6.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.32	23.9	19.6	-	0.4	0.9	2.0	4	clayy SILT to silty CLAY	115	2.0	10	12	-	-	1.6	15
32.48	35.0	30.7	77.6	0.5	-1.6	1.5	5	silty SAND to sandy SILT	120	4.0	8	9	28	35	-	16
32.65	44.0	38.6	79.9	0.6	-0.9	1.4	5	silty SAND to sandy SILT	120	4.0	10	11	36	36	-	16
32.81	47.5	41.5	85.3	0.7	-0.3	1.5	5	silty SAND to sandy SILT	120	4.0	10	12	38	37	-	16
32.97	50.7	44.3	88.5	0.7	1.1	1.5	5	silty SAND to sandy SILT	120	4.0	11	13	40	37	-	16
33.14	59.2	51.6	100.8	1.0	2.1	1.8	5	silty SAND to sandy SILT	120	4.0	13	15	45	38	-	16
33.30	65.3	56.8	114.6	1.4	2.5	2.1	5	silty SAND to sandy SILT	120	4.0	14	16	48	38	-	16
33.47	61.9	53.8	123.7	1.6	2.1	2.6	5	silty SAND to sandy SILT	120	4.0	13	15	47	38	-	16
33.63	36.5	29.0	-	1.4	1.2	4.1	4	clayy SILT to silty CLAY	115	2.0	15	18	-	-	2.5	15
33.79	18.4	14.6	-	0.9	3.2	5.8	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.2	15
33.96	13.0	10.2	-	0.7	5.6	6.2	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.8	15
34.12	9.0	7.1	-	0.5	5.4	6.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
34.29	7.3	5.7	-	0.4	7.3	6.9	2	Organic SOILS - Peats	100	1.0	6	7	-	-	0.7	10
34.45	7.1	5.6	-	0.3	9.7	6.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
34.61	6.9	5.4	-	0.3	11.8	7.0	2	Organic SOILS - Peats	100	1.0	5	7	-	-	0.6	10
34.78	7.2	5.6	-	0.3	14.3	6.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
34.94	7.4	5.7	-	0.3	17.7	6.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
35.11	8.2	6.4	-	0.4	26.7	5.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
35.27	6.6	5.1	-	0.3	33.4	7.2	2	Organic SOILS - Peats	100	1.0	5	7	-	-	0.6	10
35.43	7.5	5.8	-	0.3	29.9	5.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
35.60	7.4	5.7	-	0.3	32.2	5.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
35.76	7.9	6.1	-	0.3	34.6	5.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
35.93	8.1	6.2	-	0.3	32.6	5.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
36.09	10.4	7.9	-	0.4	34.9	4.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
36.26	11.1	8.4	-	0.6	23.7	6.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
36.42	33.8	28.5	87.7	0.7	11.7	2.1	4	clayy SILT to silty CLAY	115	2.0	14	17	-	-	2.3	15
36.58	27.0	20.3	-	0.8	-7.2	3.0	4	clayy SILT to silty CLAY	115	2.0	10	13	-	-	1.8	15
36.75	13.8	10.4	-	0.6	-7.8	5.5	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
36.91	35.9	30.1	73.7	0.5	-7.2	1.4	5	silty SAND to sandy SILT	120	4.0	8	9	27	34	-	16
37.08	51.2	42.9	78.3	0.6	-8.1	1.2	5	silty SAND to sandy SILT	120	4.0	11	13	39	36	-	16
37.24	36.1	26.8	-	0.8	-8.6	2.5	4	clayy SILT to silty CLAY	115	2.0	13	18	-	-	2.5	15
37.40	22.5	16.7	-	0.8	-8.2	3.9	3	silty CLAY to CLAY	115	1.5	11	15	-	-	1.5	15
37.57	12.7	9.4	-	0.6	-8.1	5.6	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
37.73	10.8	7.9	-	0.5	-7.7	5.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.90	10.3	7.6	-	0.5	-7.5	5.7	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.06	9.3	6.8	-	0.4	-7.3	6.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
38.22	9.2	6.7	-	0.4	-7.1	5.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
38.39	9.3	6.7	-	0.4	-5.7	5.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
38.55	9.5	6.9	-	0.5	-5.4	6.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
38.72	13.2	9.6	-	0.5	-5.0	4.2	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
38.88	26.3	18.9	-	0.5	-5.0	2.1	4	clayy SILT to silty CLAY	115	2.0	9	13	-	-	1.8	15
39.04	37.9	31.2	84.8	0.6	-5.7	1.8	5	silty SAND to sandy SILT	120	4.0	8	9	29	34	-	16
39.21	53.1	43.6	96.9	1.0	-5.4	1.9	5	silty SAND to sandy SILT	120	4.0	11	13	40	36	-	16
39.37	64.6	52.9	111.5	1.3	-5.0	2.1	5	silty SAND to sandy SILT	120	4.0	13	16	46	37	-	16
39.54	77.5	63.4	119.4	1.6	-4.6	2.1	5	silty SAND to sandy SILT	120	4.0	16	19	52	38	-	16
39.70	92.8	75.8	137.0	2.1	-4.3	2.3	5	silty SAND to sandy SILT	120	4.0	19	23	58	39	-	16
39.86	106.3	86.7	151.3	2.6	2.4	2.5	5	silty SAND to sandy SILT	120	4.0	22	27	62	40	-	16
40.03	111.7	90.9	160.0	2.9	0.5	2.6	5	silty SAND to sandy SILT	120	4.0	23	28	64	40	-	16
40.19	106.2	86.3	162.0	3.0	1.4	2.8	5	silty SAND to sandy SILT	120	4.0	22	27	62	40	-	16
40.36	84.1	68.2	158.4	2.8	0.3	3.4	4	clayy SILT to silty CLAY	115	2.0	34	42	-	-	5.9	15
40.52	51.8	36.0	-	2.3	0.5	4.6	3	silty CLAY to CLAY	115	1.5	24	35	-	-	3.6	15
40.68	25.8	17.9	-	1.4	1.5	6.1	3	silty CLAY to CLAY	115	1.5	12	17	-	-	1.7	15
40.85	17.8	12.3	-	0.9	3.4	5.6	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
41.01	14.1	9.7	-	0.6	7.1	5.5	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
41.18	16.3	11.2	-	0.5	10.5	3.9	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
41.34	15.9	10.9	-	0.5	11.5	3.7	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
41.50	11.9	8.1	-	0.5	10.2	5.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
41.67	13.2	9.0	-	0.6	30.7	5.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
41.83	13.3	9.0	-	0.6	20.6	5.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
42.00	13.1	8.9	-	0.7	16.2	6.5	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(475).cpt
CPT Date: 12/8/2008 2:33:03 PM
GW During Test: 12 ft

Sounding ID: CPT-08-60
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	14.4	9.7	-	0.9	13.8	7.4	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
42.32	17.9	12.1	-	0.9	12.9	5.8	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
42.49	121.3	96.6	124.2	1.5	14.9	1.2	6	clean SAND to silty SAND	125	5.0	19	24	66	41	-	16
42.65	179.6	142.7	167.8	2.4	1.5	1.3	6	clean SAND to silty SAND	125	5.0	29	36	79	43	-	16
42.82	206.3	163.7	191.1	3.0	3.2	1.5	6	clean SAND to silty SAND	125	5.0	33	41	83	43	-	16
42.98	222.6	176.3	204.9	3.4	3.7	1.5	6	clean SAND to silty SAND	125	5.0	35	45	86	44	-	16
43.15	233.8	184.8	212.0	3.5	2.9	1.5	6	clean SAND to silty SAND	125	5.0	37	47	87	44	-	16
43.31	236.2	186.4	213.2	3.6	2.1	1.5	6	clean SAND to silty SAND	125	5.0	37	47	88	44	-	16
43.47	228.8	180.2	203.1	3.1	1.9	1.4	6	clean SAND to silty SAND	125	5.0	36	46	86	44	-	16
43.64	212.4	167.1	190.5	2.9	2.2	1.4	6	clean SAND to silty SAND	125	5.0	33	42	84	43	-	16
43.80	197.7	155.2	181.4	2.8	2.4	1.4	6	clean SAND to silty SAND	125	5.0	31	40	82	43	-	16
43.97	171.4	134.4	172.8	3.0	2.4	1.7	6	clean SAND to silty SAND	125	5.0	27	34	77	42	-	16
44.13	130.1	101.8	165.7	3.2	2.5	2.5	5	silty SAND to sandy SILT	120	4.0	25	33	68	41	-	16
44.29	78.1	61.0	168.7	3.1	3.0	4.1	4	clayy SILT to silty CLAY	115	2.0	31	39	-	-	5.4	15
44.46	43.9	28.4	-	2.1	3.9	5.1	3	silty CLAY to CLAY	115	1.5	19	29	-	-	3.0	15
44.62	28.7	18.5	-	1.2	6.2	4.8	3	silty CLAY to CLAY	115	1.5	12	19	-	-	1.9	15
44.79	20.7	13.3	-	0.7	11.6	3.7	3	silty CLAY to CLAY	115	1.5	9	14	-	-	1.4	15
44.95	22.7	14.6	-	0.7	41.2	3.6	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.5	15
45.11	26.9	17.2	-	1.0	37.0	4.1	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.8	15
45.28	27.8	17.7	-	1.3	35.7	5.2	3	silty CLAY to CLAY	115	1.5	12	19	-	-	1.9	15
45.44	30.2	19.2	-	1.1	25.9	4.0	3	silty CLAY to CLAY	115	1.5	13	20	-	-	2.0	15
45.61	64.1	49.5	97.1	1.0	16.4	1.7	5	silty SAND to sandy SILT	120	4.0	12	16	44	36	-	16
45.77	100.6	77.6	113.2	1.4	-2.5	1.4	5	silty SAND to sandy SILT	120	4.0	19	25	59	39	-	16
45.93	119.8	92.3	128.3	1.8	-3.2	1.5	5	silty SAND to sandy SILT	120	4.0	23	30	64	40	-	16
46.10	145.6	112.0	144.4	2.1	-5.0	1.5	6	clean SAND to silty SAND	125	5.0	22	29	71	41	-	16
46.26	157.7	121.2	154.4	2.4	-8.5	1.5	6	clean SAND to silty SAND	125	5.0	24	32	73	41	-	16
46.43	156.1	119.7	157.6	2.6	-8.6	1.7	6	clean SAND to silty SAND	125	5.0	24	31	73	41	-	16
46.59	151.8	116.2	158.9	2.7	-8.3	1.8	5	silty SAND to sandy SILT	120	4.0	29	38	72	41	-	16
46.75	139.4	106.6	158.7	2.9	-8.1	2.1	5	silty SAND to sandy SILT	120	4.0	27	35	69	41	-	16
46.92	118.8	90.7	154.9	2.9	-7.8	2.5	5	silty SAND to sandy SILT	120	4.0	23	30	64	40	-	16
47.08	98.5	75.1	158.2	3.0	-7.5	3.1	5	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
47.25	81.0	61.7	159.1	2.9	-7.2	3.7	4	clayy SILT to silty CLAY	115	2.0	31	41	-	-	5.6	15
47.41	84.5	64.3	140.1	2.3	-6.9	2.8	5	silty SAND to sandy SILT	120	4.0	16	21	52	38	-	16
47.57	85.9	65.2	143.1	2.4	-9.1	2.9	5	silty SAND to sandy SILT	120	4.0	16	21	53	38	-	16
47.74	92.3	70.0	142.4	2.4	-9.6	2.7	5	silty SAND to sandy SILT	120	4.0	18	23	55	38	-	16
47.90	98.1	74.3	157.5	2.9	-9.7	3.1	5	silty SAND to sandy SILT	120	4.0	19	25	57	39	-	16
48.07	89.9	67.9	163.6	3.1	-9.7	3.6	4	clayy SILT to silty CLAY	115	2.0	34	45	-	-	6.3	15
48.23	76.7	57.9	164.5	3.0	-7.7	4.1	4	clayy SILT to silty CLAY	115	2.0	29	38	-	-	5.3	15
48.39	72.5	54.7	156.6	2.7	-7.6	3.9	4	clayy SILT to silty CLAY	115	2.0	27	36	-	-	5.0	15
48.56	89.8	67.6	151.8	2.7	-7.5	3.1	4	clayy SILT to silty CLAY	115	2.0	34	45	-	-	6.2	15
48.72	143.2	107.7	166.1	3.2	-8.4	2.3	5	silty SAND to sandy SILT	120	4.0	27	36	69	41	-	16
48.89	167.5	125.8	181.2	3.7	-9.1	2.3	5	silty SAND to sandy SILT	120	4.0	31	42	75	41	-	16
49.05	162.5	121.9	183.2	3.9	-8.9	2.4	5	silty SAND to sandy SILT	120	4.0	30	41	74	41	-	16
49.22	156.8	117.4	183.0	3.9	-8.7	2.6	5	silty SAND to sandy SILT	120	4.0	29	39	72	41	-	16
49.38	174.5	130.4	185.8	3.9	-8.5	2.3	5	silty SAND to sandy SILT	120	4.0	33	44	76	42	-	16
49.54	178.5	133.3	188.8	4.0	-9.5	2.3	5	silty SAND to sandy SILT	120	4.0	33	45	76	42	-	16
49.71	182.8	136.3	193.6	4.2	-10.0	2.3	5	silty SAND to sandy SILT	120	4.0	34	46	77	42	-	16
49.87	182.6	136.0	191.9	4.1	-10.0	2.3	5	silty SAND to sandy SILT	120	4.0	34	46	77	42	-	16
50.04	181.4	134.9	195.3	4.3	-9.9	2.4	5	silty SAND to sandy SILT	120	4.0	34	45	77	42	-	16
50.20	186.1	138.2	202.2	4.7	-8.1	2.5	5	silty SAND to sandy SILT	120	4.0	35	47	78	42	-	16
50.36	200.6	148.7	211.7	5.0	-8.0	2.5	5	silty SAND to sandy SILT	120	4.0	37	50	80	42	-	16
50.53	206.4	152.9	221.2	5.5	-7.8	2.7	5	silty SAND to sandy SILT	120	4.0	38	52	81	42	-	16
50.69	202.4	149.7	218.2	5.4	-7.7	2.7	5	silty SAND to sandy SILT	120	4.0	37	51	80	42	-	16
50.86	189.0	139.6	208.1	5.0	-7.6	2.7	5	silty SAND to sandy SILT	120	4.0	35	47	78	42	-	16
51.02	184.2	135.8	204.0	4.8	-7.5	2.7	5	silty SAND to sandy SILT	120	4.0	34	46	77	42	-	16
51.18	179.8	132.4	197.1	4.5	-7.3	2.6	5	silty SAND to sandy SILT	120	4.0	33	45	76	42	-	16
51.35	172.8	127.1	194.5	4.5	-7.2	2.6	5	silty SAND to sandy SILT	120	4.0	32	43	75	41	-	16
51.51	160.2	117.7	189.9	4.3	-5.9	2.8	5	silty SAND to sandy SILT	120	4.0	29	40	72	41	-	16
51.68	148.3	108.8	181.9	4.0	-5.8	2.8	5	silty SAND to sandy SILT	120	4.0	27	37	70	41	-	16
51.84	140.3	102.8	177.1	3.9	-5.7	2.8	5	silty SAND to sandy SILT	120	4.0	26	35	68	40	-	16
52.00	117.9	86.3	166.9	3.5	-5.6	3.0	5	silty SAND to sandy SILT	120	4.0	22	29	62	39	-	16
52.17	96.3	70.3	153.3	2.9	-5.5	3.1	5	silty SAND to sandy SILT	120	4.0	18	24	55	38	-	16
52.33	68.2	38.5	-	2.3	-5.5	3.6	4	clayy SILT to silty CLAY	115	2.0	19	34	-	-	4.7	15
52.50	47.0	26.5	-	1.8	-6.2	4.0	4	clayy SILT to silty CLAY	115	2.0	13	24	-	-	3.2	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(475).cpt
CPT Date: 12/8/2008 2:33:03 PM
GW During Test: 12 ft

Sounding ID: CPT-08-60
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	25.4	14.3	-	1.1	-7.0	4.9	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
52.82	18.7	10.5	-	0.6	-6.8	3.8	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
52.99	18.6	10.4	-	0.4	-6.5	2.7	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
53.15	15.6	8.7	-	0.4	-6.2	3.1	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
53.32	13.2	7.3	-	0.4	-6.0	3.8	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
53.48	15.4	8.6	-	0.6	-5.7	4.7	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
53.64	26.2	14.5	-	0.7	-5.7	3.2	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
53.81	19.9	11.0	-	1.1	-5.6	6.3	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
53.97	88.6	63.8	121.3	1.8	-5.6	2.1	5	silty SAND to sandy SILT	120	4.0	16	22	52	37	-	16
54.14	111.4	80.2	143.3	2.6	-5.8	2.4	5	silty SAND to sandy SILT	120	4.0	20	28	60	39	-	16
54.30	131.4	94.5	164.1	3.4	-5.7	2.6	5	silty SAND to sandy SILT	120	4.0	24	33	65	40	-	16
54.46	154.9	111.2	184.1	4.2	-5.6	2.8	5	silty SAND to sandy SILT	120	4.0	28	39	71	40	-	16
54.63	158.7	113.8	191.5	4.6	-3.4	2.9	5	silty SAND to sandy SILT	120	4.0	28	40	71	41	-	16
54.79	158.7	113.7	192.2	4.6	-3.2	3.0	5	silty SAND to sandy SILT	120	4.0	28	40	71	41	-	16
54.96	154.5	110.5	188.2	4.4	-3.1	2.9	5	silty SAND to sandy SILT	120	4.0	28	39	70	40	-	16
55.12	142.5	101.8	183.3	4.2	0.7	3.0	5	silty SAND to sandy SILT	120	4.0	25	36	68	40	-	16
55.28	122.1	87.1	168.3	3.6	-0.8	3.0	5	silty SAND to sandy SILT	120	4.0	22	31	62	39	-	16
55.45	109.4	78.0	154.4	3.0	-0.6	2.8	5	silty SAND to sandy SILT	120	4.0	19	27	59	38	-	16
55.61	110.6	78.7	149.5	2.8	-0.2	2.6	5	silty SAND to sandy SILT	120	4.0	20	28	59	39	-	16
55.78	102.1	72.5	147.0	2.7	0.2	2.8	5	silty SAND to sandy SILT	120	4.0	18	26	56	38	-	16
55.94	96.9	68.8	138.9	2.4	0.8	2.6	5	silty SAND to sandy SILT	120	4.0	17	24	55	38	-	16
56.11	97.3	69.0	137.7	2.4	-0.1	2.6	5	silty SAND to sandy SILT	120	4.0	17	24	55	38	-	16
56.27	77.7	55.0	153.3	2.8	-0.5	3.7	4	clayy SILT to silty CLAY	115	2.0	27	39	-	-	5.4	15
56.43	39.7	21.0	-	2.1	-0.3	5.9	3	silty CLAY to CLAY	115	1.5	14	26	-	-	2.7	15
56.60	22.5	11.9	-	1.4	0.6	7.2	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
56.76	24.7	13.0	-	0.9	2.2	4.0	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
56.93	40.7	21.4	-	0.9	3.1	2.4	4	clayy SILT to silty CLAY	115	2.0	11	20	-	-	2.8	15
57.09	47.7	25.1	-	0.9	1.8	2.1	4	clayy SILT to silty CLAY	115	2.0	13	24	-	-	3.3	15
57.25	49.5	25.9	-	1.1	1.6	2.4	4	clayy SILT to silty CLAY	115	2.0	13	25	-	-	3.4	15
57.42	57.9	30.3	-	1.5	-0.5	2.7	4	clayy SILT to silty CLAY	115	2.0	15	29	-	-	4.0	15
57.58	82.5	57.9	127.1	2.0	-3.7	2.5	5	silty SAND to sandy SILT	120	4.0	14	21	49	37	-	16
57.75	85.4	59.9	133.9	2.2	1.6	2.7	5	silty SAND to sandy SILT	120	4.0	15	21	50	37	-	16
57.91	95.6	66.9	137.0	2.4	2.1	2.6	5	silty SAND to sandy SILT	120	4.0	17	24	54	37	-	16
58.07	87.7	61.3	153.8	2.9	-4.7	3.5	4	clayy SILT to silty CLAY	115	2.0	31	44	-	-	6.1	15
58.24	54.7	28.3	-	2.5	-5.6	4.8	3	silty CLAY to CLAY	115	1.5	19	36	-	-	3.7	15
58.40	40.1	20.7	-	1.6	-5.3	4.3	3	silty CLAY to CLAY	115	1.5	14	27	-	-	2.7	15
58.57	28.5	14.7	-	1.1	-5.1	4.4	3	silty CLAY to CLAY	115	1.5	10	19	-	-	1.9	15
58.73	19.0	9.7	-	1.0	-4.6	6.1	3	silty CLAY to CLAY	115	1.5	6	13	-	-	1.2	15
58.89	18.7	9.6	-	1.0	-4.1	6.4	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.2	15
59.06	18.2	9.3	-	1.1	-3.8	7.3	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.2	15
59.22	16.3	8.3	-	1.0	-3.5	7.8	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
59.39	19.9	10.1	-	0.8	-3.3	5.0	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
59.55	75.0	51.9	92.4	1.0	-3.0	1.4	5	silty SAND to sandy SILT	120	4.0	13	19	45	36	-	16
59.71	99.8	69.0	100.8	1.2	-3.1	1.2	5	silty SAND to sandy SILT	120	4.0	17	25	55	38	-	16
59.88	122.1	84.3	105.0	1.1	-2.5	0.9	6	clean SAND to silty SAND	125	5.0	17	24	61	39	-	16
60.04	155.4	107.2	122.0	1.2	-1.3	0.8	6	clean SAND to silty SAND	125	5.0	21	31	69	40	-	16
60.21	169.6	116.8	133.8	1.6	11.6	0.9	6	clean SAND to silty SAND	125	5.0	23	34	72	40	-	16
60.37	181.3	124.7	145.6	2.0	11.9	1.1	6	clean SAND to silty SAND	125	5.0	25	36	74	41	-	16
60.53	193.8	133.1	156.7	2.4	11.4	1.2	6	clean SAND to silty SAND	125	5.0	27	39	76	41	-	16
60.70	213.6	146.6	170.9	2.8	11.7	1.3	6	clean SAND to silty SAND	125	5.0	29	43	80	42	-	16
60.86	227.6	156.0	182.3	3.2	11.5	1.4	6	clean SAND to silty SAND	125	5.0	31	46	82	42	-	16
61.03	237.0	162.2	189.5	3.4	10.4	1.5	6	clean SAND to silty SAND	125	5.0	32	47	83	42	-	16
61.19	247.1	168.9	196.9	3.7	10.8	1.5	6	clean SAND to silty SAND	125	5.0	34	49	84	42	-	16
61.35	264.5	180.5	205.2	3.8	11.0	1.4	6	clean SAND to silty SAND	125	5.0	36	53	86	43	-	16
61.52	286.5	195.3	216.5	3.9	10.8	1.4	6	clean SAND to silty SAND	125	5.0	39	57	89	43	-	16
61.68	310.9	211.7	224.5	3.7	10.6	1.2	6	clean SAND to silty SAND	125	5.0	42	62	92	43	-	16
61.85	335.7	228.3	231.3	3.4	10.5	1.0	6	clean SAND to silty SAND	125	5.0	46	67	94	44	-	16
62.01	353.5	240.0	240.0	3.4	9.3	1.0	6	clean SAND to silty SAND	125	5.0	48	71	95	44	-	16
62.17	363.3	246.4	246.4	3.3	8.9	0.9	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
62.34	370.2	250.8	250.8	3.6	8.9	1.0	6	clean SAND to silty SAND	125	5.0	50	74	95	44	-	16
62.50	373.9	252.9	255.0	4.1	8.2	1.1	6	clean SAND to silty SAND	125	5.0	51	75	95	44	-	16
62.67	389.5	263.2	264.0	4.3	7.4	1.1	6	clean SAND to silty SAND	125	5.0	53	78	95	44	-	16
62.83	404.9	273.2	273.2	4.1	6.7	1.0	6	clean SAND to silty SAND	125	5.0	55	81	95	45	-	16
63.00	422.7	284.9	284.9	3.5	6.2	0.8	6	clean SAND to silty SAND	125	5.0	57	85	95	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(475).cpt
CPT Date: 12/8/2008 2:33:03 PM
GW During Test: 12 ft

Sounding ID: CPT-08-60
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	440.7	296.7	296.7	2.9	6.1	0.7	6	clean SAND to silty SAND	125	5.0	59	88	95	45	-	16
63.32	450.7	303.1	303.1	2.8	4.8	0.6	6	clean SAND to silty SAND	125	5.0	61	90	95	45	-	16
63.49	433.8	291.3	291.3	3.0	7.1	0.7	6	clean SAND to silty SAND	125	5.0	58	87	95	45	-	16
63.65	431.3	289.3	289.3	3.2	7.0	0.8	6	clean SAND to silty SAND	125	5.0	58	86	95	45	-	16
63.82	430.2	288.2	288.2	3.8	7.7	0.9	6	clean SAND to silty SAND	125	5.0	58	86	95	45	-	16
63.98	428.1	286.5	286.5	4.4	8.9	1.0	6	clean SAND to silty SAND	125	5.0	57	86	95	45	-	16
64.14	437.4	292.3	292.3	3.9	8.1	0.9	6	clean SAND to silty SAND	125	5.0	58	87	95	45	-	16
64.31	435.2	290.5	290.5	3.6	10.7	0.8	6	clean SAND to silty SAND	125	5.0	58	87	95	45	-	16
64.47	431.3	287.6	287.6	3.8	10.3	0.9	6	clean SAND to silty SAND	125	5.0	58	86	95	45	-	16
64.64	433.2	288.5	288.5	3.8	9.1	0.9	6	clean SAND to silty SAND	125	5.0	58	87	95	45	-	16
64.80	422.7	281.2	281.2	3.7	9.0	0.9	6	clean SAND to silty SAND	125	5.0	56	85	95	45	-	16
64.96	417.5	277.3	277.3	4.0	8.7	1.0	6	clean SAND to silty SAND	125	5.0	55	83	95	45	-	16
65.13	391.5	259.8	259.8	3.5	14.2	0.9	6	clean SAND to silty SAND	125	5.0	52	78	95	44	-	16
65.29	408.0	270.4	270.4	3.3	10.4	0.8	6	clean SAND to silty SAND	125	5.0	54	82	95	44	-	16
65.46	401.6	265.8	265.8	3.5	9.4	0.9	6	clean SAND to silty SAND	125	5.0	53	80	95	44	-	16
65.62	400.5	264.8	264.8	3.5	9.2	0.9	6	clean SAND to silty SAND	125	5.0	53	80	95	44	-	16
65.78	398.1	262.9	262.9	3.2	9.3	0.8	6	clean SAND to silty SAND	125	5.0	53	80	95	44	-	16
65.95	401.0	264.5	264.5	3.0	9.8	0.8	6	clean SAND to silty SAND	125	5.0	53	80	95	44	-	16
66.11	410.4	270.4	270.4	2.6	9.6	0.6	6	clean SAND to silty SAND	125	5.0	54	82	95	44	-	16
66.28	414.2	272.6	272.6	2.5	10.5	0.6	6	clean SAND to silty SAND	125	5.0	55	83	95	44	-	16
66.44	427.2	280.8	280.8	2.4	11.3	0.6	6	clean SAND to silty SAND	125	5.0	56	85	95	45	-	16
66.60	442.8	290.7	290.7	2.3	11.3	0.5	6	clean SAND to silty SAND	125	5.0	58	89	95	45	-	16
66.77	458.8	300.8	300.8	2.1	11.5	0.5	7	grvly SAND to dense SAND	130	6.0	50	76	95	45	-	16
66.93	503.6	329.8	329.8	2.0	11.7	0.4	7	grvly SAND to dense SAND	130	6.0	55	84	95	45	-	16
67.10	496.9	325.0	325.0	3.1	12.4	0.6	6	clean SAND to silty SAND	125	5.0	65	99	95	45	-	16
67.26	483.3	315.7	315.7	2.5	10.9	0.5	6	clean SAND to silty SAND	125	5.0	63	97	95	45	-	16
67.42	475.9	310.5	310.5	1.7	12.8	0.4	7	grvly SAND to dense SAND	130	6.0	52	79	95	45	-	16
67.59	469.7	306.1	306.1	1.6	12.4	0.4	7	grvly SAND to dense SAND	130	6.0	51	78	95	45	-	16
67.75	485.1	315.7	315.7	1.4	12.4	0.3	7	grvly SAND to dense SAND	130	6.0	53	81	95	45	-	16
67.92	562.0	365.4	365.4	1.0	11.9	0.2	7	grvly SAND to dense SAND	130	6.0	61	94	95	46	-	16
68.08	595.1	386.4	386.4	1.5	13.3	0.3	7	grvly SAND to dense SAND	130	6.0	64	99	95	46	-	16
68.24	582.7	377.9	377.9	2.6	12.9	0.4	7	grvly SAND to dense SAND	130	6.0	63	97	95	46	-	16
68.41	528.6	342.4	342.4	3.4	14.2	0.6	6	clean SAND to silty SAND	125	5.0	68	100	95	45	-	16
68.57	505.7	327.2	327.2	2.6	9.2	0.5	7	grvly SAND to dense SAND	130	6.0	55	84	95	45	-	16
68.74	483.7	312.5	312.5	2.8	15.2	0.6	6	clean SAND to silty SAND	125	5.0	63	97	95	45	-	16
68.90	500.7	323.2	323.2	2.2	14.4	0.4	7	grvly SAND to dense SAND	130	6.0	54	83	95	45	-	16
69.07	520.3	335.4	335.4	2.5	14.5	0.5	7	grvly SAND to dense SAND	130	6.0	56	87	95	45	-	16
69.23	513.2	330.4	330.4	2.9	13.4	0.6	6	clean SAND to silty SAND	125	5.0	66	100	95	45	-	16
69.39	476.9	306.7	306.7	3.2	11.1	0.7	6	clean SAND to silty SAND	125	5.0	61	95	95	45	-	16
69.56	452.6	290.7	290.7	2.0	14.4	0.5	6	clean SAND to silty SAND	125	5.0	58	91	95	45	-	16
69.72	393.8	252.7	252.7	2.1	11.6	0.5	6	clean SAND to silty SAND	125	5.0	51	79	95	44	-	16
69.89	374.0	239.7	239.7	3.4	17.6	0.9	6	clean SAND to silty SAND	125	5.0	48	75	95	44	-	16
70.05	378.5	242.3	244.4	4.0	15.7	1.1	6	clean SAND to silty SAND	125	5.0	48	76	95	44	-	16
70.21	382.0	244.3	248.1	4.2	16.4	1.1	6	clean SAND to silty SAND	125	5.0	49	76	95	44	-	16
70.38	397.7	254.0	254.0	3.9	15.6	1.0	6	clean SAND to silty SAND	125	5.0	51	80	95	44	-	16
70.54	402.2	256.6	256.6	3.0	15.1	0.8	6	clean SAND to silty SAND	125	5.0	51	80	95	44	-	16
70.71	428.1	272.9	272.9	2.6	16.2	0.6	6	clean SAND to silty SAND	125	5.0	55	86	95	44	-	16
70.87	462.9	294.7	294.7	2.5	15.1	0.5	6	clean SAND to silty SAND	125	5.0	59	93	95	45	-	16
71.03	496.9	316.0	316.0	5.6	15.2	1.1	6	clean SAND to silty SAND	125	5.0	63	99	95	45	-	16
71.20	491.2	312.0	312.0	6.0	14.7	1.2	6	clean SAND to silty SAND	125	5.0	62	98	95	45	-	16
71.36	567.6	360.2	360.2	6.9	7.2	1.2	6	clean SAND to silty SAND	125	5.0	72	100	95	46	-	16
71.53	481.1	305.0	305.0	4.6	17.1	1.0	6	clean SAND to silty SAND	125	5.0	61	96	95	45	-	16
71.69	457.8	289.8	289.8	4.1	16.0	0.9	6	clean SAND to silty SAND	125	5.0	58	92	95	44	-	16
71.85	474.9	300.4	300.4	4.1	16.9	0.9	6	clean SAND to silty SAND	125	5.0	60	95	95	45	-	16
72.02	485.9	307.0	307.0	3.4	9.6	0.7	6	clean SAND to silty SAND	125	5.0	61	97	95	45	-	16
72.18	498.0	314.3	314.3	4.4	14.8	0.9	6	clean SAND to silty SAND	125	5.0	63	100	95	45	-	16
72.35	495.7	312.5	312.5	3.3	11.3	0.7	6	clean SAND to silty SAND	125	5.0	63	99	95	45	-	16
72.51	473.2	298.0	298.0	2.6	12.1	0.6	6	clean SAND to silty SAND	125	5.0	60	95	95	45	-	16
72.67	494.6	311.1	311.1	2.3	10.8	0.5	7	grvly SAND to dense SAND	130	6.0	52	82	95	45	-	16
72.84	475.5	298.8	298.8	3.5	14.2	0.8	6	clean SAND to silty SAND	125	5.0	60	95	95	45	-	16
73.00	488.0	306.3	306.3	4.0	8.3	0.8	6	clean SAND to silty SAND	125	5.0	61	98	95	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(412).cpt
CPT Date: 11/18/2008 10:14:03 AM
GW During Test: 12 ft

Sounding ID: CPT-08-61
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	119.8	192.1	192.1	0.3	0.0	0.3	6	clean SAND to silty SAND	125	5.0	38	24	89	48	-	16
0.49	123.8	198.6	198.6	0.6	0.0	0.5	6	clean SAND to silty SAND	125	5.0	40	25	90	48	-	16
0.66	111.2	178.4	178.4	0.7	-0.1	0.7	6	clean SAND to silty SAND	125	5.0	36	22	86	48	-	16
0.82	115.6	185.4	185.4	0.8	0.0	0.7	6	clean SAND to silty SAND	125	5.0	37	23	87	48	-	16
0.98	102.2	163.9	174.5	1.0	0.0	1.0	6	clean SAND to silty SAND	125	5.0	33	20	83	48	-	16
1.15	76.3	122.4	157.6	1.2	0.0	1.6	6	clean SAND to silty SAND	125	5.0	24	15	74	48	-	16
1.31	58.8	94.4	156.6	1.4	0.0	2.5	5	silty SAND to sandy SILT	120	4.0	24	15	65	48	-	16
1.48	49.2	78.9	160.3	1.5	-0.1	3.1	5	silty SAND to sandy SILT	120	4.0	20	12	59	48	-	16
1.64	49.3	79.1	140.9	1.2	-0.7	2.4	5	silty SAND to sandy SILT	120	4.0	20	12	59	48	-	16
1.80	49.3	79.1	122.6	0.9	-0.2	1.8	5	silty SAND to sandy SILT	120	4.0	20	12	59	48	-	16
1.97	43.7	70.0	106.9	0.6	0.0	1.5	5	silty SAND to sandy SILT	120	4.0	18	11	55	47	-	16
2.13	44.3	71.1	102.4	0.6	0.0	1.3	5	silty SAND to sandy SILT	120	4.0	18	11	56	46	-	16
2.30	42.1	67.5	94.0	0.4	0.1	1.1	5	silty SAND to sandy SILT	120	4.0	17	11	54	46	-	16
2.46	41.2	66.0	89.2	0.4	0.1	0.9	6	clean SAND to silty SAND	125	5.0	13	8	53	45	-	16
2.62	40.2	64.5	87.2	0.4	0.1	0.9	6	clean SAND to silty SAND	125	5.0	13	8	53	45	-	16
2.79	46.9	75.3	96.0	0.4	0.1	0.9	6	clean SAND to silty SAND	125	5.0	15	9	58	46	-	16
2.95	66.0	105.8	129.8	0.8	0.1	1.2	6	clean SAND to silty SAND	125	5.0	21	13	69	47	-	16
3.12	93.5	150.0	174.5	1.3	0.1	1.4	6	clean SAND to silty SAND	125	5.0	30	19	80	48	-	16
3.28	95.9	153.8	197.0	1.9	0.1	2.0	5	silty SAND to sandy SILT	120	4.0	38	24	81	48	-	16
3.45	85.1	136.5	193.2	2.0	0.1	2.3	5	silty SAND to sandy SILT	120	4.0	34	21	77	47	-	16
3.61	88.7	142.2	188.4	1.8	-0.6	2.0	5	silty SAND to sandy SILT	120	4.0	36	22	79	47	-	16
3.77	94.3	151.2	191.0	1.7	-0.3	1.9	6	clean SAND to silty SAND	125	5.0	30	19	81	48	-	16
3.94	97.0	155.6	186.2	1.5	-0.1	1.6	6	clean SAND to silty SAND	125	5.0	31	19	82	48	-	16
4.10	86.4	138.6	182.2	1.7	-0.1	1.9	5	silty SAND to sandy SILT	120	4.0	35	22	78	47	-	16
4.27	80.2	128.5	190.4	2.0	-1.3	2.5	5	silty SAND to sandy SILT	120	4.0	32	20	75	47	-	16
4.43	68.0	109.0	190.2	2.1	-1.6	3.1	5	silty SAND to sandy SILT	120	4.0	27	17	70	46	-	16
4.59	69.8	112.0	214.5	2.6	-1.7	3.8	5	silty SAND to sandy SILT	120	4.0	28	17	71	46	-	16
4.76	94.2	151.1	240.7	3.1	-0.2	3.3	5	silty SAND to sandy SILT	120	4.0	38	24	81	47	-	16
4.92	74.3	119.1	242.4	3.2	-0.2	4.4	9	very stiff fine SOIL	120	2.0	60	37	73	46	-	30
5.09	58.9	94.5	220.7	2.7	-0.2	4.6	9	very stiff fine SOIL	120	2.0	47	29	65	45	-	30
5.25	53.9	86.5	208.2	2.4	-0.2	4.5	4	clayy SILT to silty CLAY	115	2.0	43	27	-	-	3.8	15
5.41	56.8	91.1	197.3	2.2	-0.2	3.9	4	clayy SILT to silty CLAY	115	2.0	46	28	-	-	4.0	15
5.58	57.1	91.5	195.8	2.2	0.0	3.9	4	clayy SILT to silty CLAY	115	2.0	46	29	-	-	4.0	15
5.74	60.5	97.1	187.5	2.0	0.0	3.4	5	silty SAND to sandy SILT	120	4.0	24	15	66	45	-	16
5.91	51.3	82.3	177.5	1.8	-0.4	3.6	4	clayy SILT to silty CLAY	115	2.0	41	26	-	-	3.6	15
6.07	45.8	73.4	168.6	1.6	-0.3	3.6	4	clayy SILT to silty CLAY	115	2.0	37	23	-	-	3.2	15
6.23	46.5	73.5	172.2	1.7	-0.6	3.7	4	clayy SILT to silty CLAY	115	2.0	37	23	-	-	3.3	15
6.40	46.5	72.7	179.1	1.9	-0.7	4.0	4	clayy SILT to silty CLAY	115	2.0	36	23	-	-	3.3	15
6.56	47.3	73.0	179.8	1.9	-0.7	4.0	4	clayy SILT to silty CLAY	115	2.0	37	24	-	-	3.3	15
6.73	58.0	88.4	177.3	1.9	-0.8	3.3	5	silty SAND to sandy SILT	120	4.0	22	14	63	44	-	16
6.89	56.2	84.7	187.5	2.1	-2.9	3.8	4	clayy SILT to silty CLAY	115	2.0	42	28	-	-	4.0	15
7.05	42.0	62.6	158.9	1.5	-0.9	3.7	4	clayy SILT to silty CLAY	115	2.0	31	21	-	-	2.9	15
7.22	69.9	103.0	168.7	1.8	-0.5	2.6	5	silty SAND to sandy SILT	120	4.0	26	17	68	45	-	16
7.38	57.6	84.0	155.2	1.6	0.1	2.7	5	silty SAND to sandy SILT	120	4.0	21	14	61	44	-	16
7.55	54.0	77.9	164.0	1.7	0.3	3.3	5	silty SAND to sandy SILT	120	4.0	19	14	59	43	-	16
7.71	60.1	85.7	162.9	1.7	0.1	2.9	5	silty SAND to sandy SILT	120	4.0	21	15	62	44	-	16
7.87	58.7	82.9	151.5	1.5	0.2	2.6	5	silty SAND to sandy SILT	120	4.0	21	15	61	44	-	16
8.04	75.4	105.4	139.8	1.1	0.1	1.5	6	clean SAND to silty SAND	125	5.0	21	15	69	45	-	16
8.20	83.0	114.8	134.0	0.9	0.2	1.0	6	clean SAND to silty SAND	125	5.0	23	17	72	45	-	16
8.37	73.0	99.9	134.0	1.1	0.2	1.5	5	silty SAND to sandy SILT	120	4.0	25	18	67	44	-	16
8.53	38.7	52.4	144.7	1.4	0.2	3.6	4	clayy SILT to silty CLAY	115	2.0	26	19	-	-	2.7	15
8.69	29.5	47.3	-	1.4	0.1	4.7	4	clayy SILT to silty CLAY	115	2.0	24	15	-	-	2.1	15
8.86	20.5	32.9	-	1.1	0.2	5.6	3	silty CLAY to CLAY	115	1.5	22	14	-	-	1.4	15
9.02	16.4	26.3	-	0.8	0.2	5.0	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.1	15
9.19	14.0	22.4	-	0.7	0.1	5.2	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
9.35	14.2	22.8	-	0.7	0.2	4.8	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
9.51	14.7	23.6	-	0.7	0.2	5.0	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
9.68	15.2	24.3	-	0.8	0.3	5.4	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
9.84	14.6	23.4	-	0.8	-0.9	5.9	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
10.01	13.9	22.3	-	0.7	-1.0	5.6	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
10.17	13.0	20.8	-	0.6	-1.2	5.0	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
10.34	10.1	16.2	-	0.6	1.1	5.9	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
10.50	8.9	14.2	-	0.5	0.1	6.0	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(412).cpt
CPT Date: 11/18/2008 10:14:03 AM
GW During Test: 12 ft

Sounding ID: CPT-08-61
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	8.9	14.0	-	0.5	0.4	5.5	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
10.83	8.5	13.1	-	0.5	0.4	6.2	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
10.99	9.2	14.1	-	0.5	0.6	5.8	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
11.16	9.9	14.9	-	0.5	0.8	5.8	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.7	15
11.32	11.2	16.6	-	0.6	0.9	5.3	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.8	15
11.48	11.0	16.1	-	0.6	0.9	5.7	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.8	15
11.65	10.0	14.5	-	0.5	1.0	5.6	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.7	15
11.81	9.7	13.8	-	0.5	1.0	5.8	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.7	15
11.98	11.5	16.1	-	0.5	1.0	4.8	3	silty CLAY to CLAY	115	1.5	11	8	-	-	0.8	15
12.14	11.1	15.5	-	0.5	1.1	5.0	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.8	15
12.30	10.4	14.4	-	0.5	1.2	4.8	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.7	15
12.47	9.2	12.8	-	0.4	1.2	5.0	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
12.63	7.7	10.6	-	0.3	1.3	4.9	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
12.80	15.1	20.5	-	0.4	1.3	2.6	4	clayy SILT to silty CLAY	115	2.0	10	8	-	-	1.0	15
12.96	15.7	21.3	-	0.4	-0.3	2.7	4	clayy SILT to silty CLAY	115	2.0	11	8	-	-	1.1	15
13.12	32.3	36.5	71.3	0.4	-1.8	1.1	5	silty SAND to sandy SILT	120	4.0	9	8	34	38	-	16
13.29	36.4	41.0	73.0	0.4	-5.1	1.1	5	silty SAND to sandy SILT	120	4.0	10	9	38	39	-	16
13.45	32.3	36.2	70.7	0.3	-5.3	1.1	5	silty SAND to sandy SILT	120	4.0	9	8	33	38	-	16
13.62	32.3	36.1	74.3	0.4	-5.9	1.3	5	silty SAND to sandy SILT	120	4.0	9	8	33	38	-	16
13.78	26.7	29.7	81.2	0.5	-6.9	1.8	5	silty SAND to sandy SILT	120	4.0	7	7	27	37	-	16
13.94	25.6	28.4	80.3	0.4	-7.3	1.8	5	silty SAND to sandy SILT	120	4.0	7	6	26	37	-	16
14.11	27.4	30.4	73.8	0.4	-8.3	1.4	5	silty SAND to sandy SILT	120	4.0	8	7	28	37	-	16
14.27	28.3	31.2	73.9	0.4	-8.7	1.4	5	silty SAND to sandy SILT	120	4.0	8	7	29	37	-	16
14.44	29.3	32.2	75.2	0.4	-8.8	1.4	5	silty SAND to sandy SILT	120	4.0	8	7	30	37	-	16
14.60	30.7	33.7	81.0	0.5	-8.9	1.6	5	silty SAND to sandy SILT	120	4.0	8	8	31	38	-	16
14.76	23.0	25.1	82.5	0.5	-9.1	2.1	4	clayy SILT to silty CLAY	115	2.0	13	11	-	-	1.6	15
14.93	13.6	17.1	-	0.4	-9.1	3.3	3	silty CLAY to CLAY	115	1.5	11	9	-	-	0.9	15
15.09	8.5	10.7	-	0.5	-6.2	6.1	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
15.26	8.9	11.1	-	0.6	-6.0	7.0	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
15.42	8.7	10.8	-	0.7	-6.0	8.6	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
15.58	8.7	10.7	-	0.8	-5.9	9.9	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
15.75	8.5	10.4	-	0.7	-5.9	9.3	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
15.91	8.3	10.2	-	0.8	-5.9	9.9	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.5	15
16.08	9.0	10.9	-	0.8	-5.8	9.9	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
16.24	10.0	12.0	-	0.8	-5.8	8.7	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
16.40	8.7	10.4	-	0.6	-5.7	7.9	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
16.57	7.3	8.7	-	0.5	-5.7	7.6	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.73	13.3	15.8	-	0.5	-5.6	3.9	3	silty CLAY to CLAY	115	1.5	11	9	-	-	0.9	15
16.90	14.2	16.8	-	0.4	-5.8	3.1	3	silty CLAY to CLAY	115	1.5	11	9	-	-	1.0	15
17.06	17.4	20.4	-	0.4	-5.8	2.4	4	clayy SILT to silty CLAY	115	2.0	10	9	-	-	1.2	15
17.23	14.1	16.5	-	0.4	-6.2	3.1	3	silty CLAY to CLAY	115	1.5	11	9	-	-	1.0	15
17.39	15.5	18.1	-	0.3	-6.2	2.3	4	clayy SILT to silty CLAY	115	2.0	9	8	-	-	1.1	15
17.55	7.9	9.2	-	0.3	-6.5	4.1	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
17.72	5.8	6.7	-	0.2	-6.4	4.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
17.88	5.8	6.7	-	0.3	-6.2	7.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
18.05	9.4	10.8	-	0.4	-6.1	4.3	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
18.21	13.5	15.3	-	0.5	-6.1	3.7	3	silty CLAY to CLAY	115	1.5	10	9	-	-	0.9	15
18.37	29.4	30.4	79.3	0.5	-5.4	1.7	5	silty SAND to sandy SILT	120	4.0	8	7	28	36	-	16
18.54	36.7	37.8	65.7	0.3	-6.0	0.9	5	silty SAND to sandy SILT	120	4.0	9	9	35	38	-	16
18.70	29.7	30.5	62.3	0.3	-6.5	0.9	5	silty SAND to sandy SILT	120	4.0	8	7	28	36	-	16
18.87	13.3	14.8	-	0.2	-6.8	1.9	4	clayy SILT to silty CLAY	115	2.0	7	7	-	-	0.9	15
19.03	7.0	7.7	-	0.3	-6.8	4.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
19.19	4.9	5.4	-	0.3	-6.6	6.9	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
19.36	5.0	5.5	-	0.3	-6.4	7.3	2	Organic SOILS - Peats	100	1.0	6	5	-	-	0.5	10
19.52	13.4	14.7	-	0.3	-6.3	2.6	4	clayy SILT to silty CLAY	115	2.0	7	7	-	-	0.9	15
19.69	22.1	22.4	70.4	0.3	-6.3	1.6	4	clayy SILT to silty CLAY	115	2.0	11	11	-	-	1.5	15
19.85	35.1	35.5	69.5	0.4	-6.2	1.1	5	silty SAND to sandy SILT	120	4.0	9	9	33	37	-	16
20.01	40.5	40.9	72.9	0.4	-6.2	1.0	5	silty SAND to sandy SILT	120	4.0	10	10	37	38	-	16
20.18	40.6	40.9	76.4	0.5	-6.1	1.2	5	silty SAND to sandy SILT	120	4.0	10	10	37	38	-	16
20.34	34.3	34.4	86.6	0.6	-6.1	1.8	5	silty SAND to sandy SILT	120	4.0	9	9	32	37	-	16
20.51	19.1	20.3	-	0.6	-6.0	3.5	3	silty CLAY to CLAY	115	1.5	14	13	-	-	1.3	15
20.67	10.9	11.6	-	0.5	-5.9	5.5	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
20.83	7.5	7.9	-	0.4	-5.8	5.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.00	6.3	6.6	-	0.3	-5.2	5.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(412).cpt
CPT Date: 11/18/2008 10:14:03 AM
GW During Test: 12 ft

Sounding ID: CPT-08-61
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	5.6	5.8	-	0.2	-5.2	5.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
21.33	5.6	5.9	-	0.2	-5.1	5.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
21.49	5.6	5.8	-	0.2	-5.0	5.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
21.65	5.5	5.7	-	0.3	-5.0	6.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
21.82	5.6	5.8	-	0.3	-4.9	6.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
21.98	5.9	6.0	-	0.3	-4.7	6.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.15	6.9	7.0	-	0.3	-4.7	5.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
22.31	21.0	21.3	-	0.3	-4.6	1.7	4	clayy SILT to silty CLAY	115	2.0	11	11	-	-	1.4	15
22.47	32.6	31.8	71.1	0.4	-4.8	1.2	5	silty SAND to sandy SILT	120	4.0	8	8	29	36	-	16
22.64	32.5	31.6	73.9	0.4	-4.7	1.4	5	silty SAND to sandy SILT	120	4.0	8	8	29	36	-	16
22.80	29.8	28.9	81.5	0.5	-4.6	1.8	5	silty SAND to sandy SILT	120	4.0	7	7	26	35	-	16
22.97	24.3	24.2	-	0.5	-4.5	2.3	4	clayy SILT to silty CLAY	115	2.0	12	12	-	-	1.7	15
23.13	18.8	18.6	-	0.6	-4.5	3.3	3	silty CLAY to CLAY	115	1.5	12	13	-	-	1.3	15
23.30	14.1	13.9	-	0.5	-4.4	4.0	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
23.46	45.7	44.0	83.0	0.6	-4.5	1.3	5	silty SAND to sandy SILT	120	4.0	11	11	40	38	-	16
23.62	52.2	50.1	87.1	0.7	-4.6	1.3	5	silty SAND to sandy SILT	120	4.0	13	13	44	39	-	16
23.79	54.8	52.4	88.6	0.7	-4.5	1.3	5	silty SAND to sandy SILT	120	4.0	13	14	46	39	-	16
23.95	49.9	47.7	91.4	0.8	-4.4	1.5	5	silty SAND to sandy SILT	120	4.0	12	12	43	38	-	16
24.12	43.5	41.5	87.8	0.7	-4.4	1.6	5	silty SAND to sandy SILT	120	4.0	10	11	38	37	-	16
24.28	47.3	45.0	79.1	0.5	-4.3	1.2	5	silty SAND to sandy SILT	120	4.0	11	12	41	38	-	16
24.44	56.3	53.4	79.4	0.5	-5.2	0.9	5	silty SAND to sandy SILT	120	4.0	13	14	46	39	-	16
24.61	37.7	35.7	83.0	0.6	-5.7	1.6	5	silty SAND to sandy SILT	120	4.0	9	9	33	36	-	16
24.77	13.7	13.0	-	0.5	-3.9	3.9	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
24.94	9.0	8.5	-	0.3	-3.8	3.8	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
25.10	8.3	7.8	-	0.2	-3.6	2.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
25.26	8.1	7.5	-	0.2	-3.4	2.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
25.43	8.7	8.1	-	0.4	-3.2	5.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
25.59	14.6	13.5	-	0.4	-3.0	3.3	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
25.76	29.7	27.7	72.9	0.4	-3.2	1.5	5	silty SAND to sandy SILT	120	4.0	7	7	25	35	-	16
25.92	35.0	32.6	74.9	0.5	-4.1	1.4	5	silty SAND to sandy SILT	120	4.0	8	9	30	36	-	16
26.08	35.7	33.2	78.7	0.5	-4.2	1.5	5	silty SAND to sandy SILT	120	4.0	8	9	31	36	-	16
26.25	36.8	34.1	80.4	0.5	-4.1	1.5	5	silty SAND to sandy SILT	120	4.0	9	9	32	36	-	16
26.41	32.8	30.3	80.2	0.5	-4.2	1.7	5	silty SAND to sandy SILT	120	4.0	8	8	28	35	-	16
26.58	23.2	20.9	-	0.5	-4.3	2.2	4	clayy SILT to silty CLAY	115	2.0	10	12	-	-	1.6	15
26.74	14.8	13.3	-	0.6	-4.8	4.5	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
26.90	14.1	12.7	-	0.5	-4.7	3.6	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
27.07	18.8	16.8	-	0.4	-4.8	2.4	4	clayy SILT to silty CLAY	115	2.0	8	9	-	-	1.3	15
27.23	11.6	10.3	-	0.4	-5.2	3.7	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
27.40	8.6	7.6	-	0.3	-5.0	5.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
27.56	8.0	7.1	-	0.3	-4.8	5.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.72	7.7	6.7	-	0.4	-4.7	5.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
27.89	7.8	6.8	-	0.4	-4.6	6.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
28.05	9.5	8.3	-	0.5	-4.6	6.9	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
28.22	12.5	10.9	-	0.6	-3.2	5.9	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
28.38	19.0	16.4	-	0.5	-3.2	2.8	3	silty CLAY to CLAY	115	1.5	11	13	-	-	1.3	15
28.54	28.4	24.5	-	0.6	-3.6	2.4	4	clayy SILT to silty CLAY	115	2.0	12	14	-	-	1.9	15
28.71	31.2	28.1	84.9	0.6	-3.6	2.0	4	clayy SILT to silty CLAY	115	2.0	14	16	-	-	2.1	15
28.87	45.7	41.1	81.1	0.6	-4.6	1.3	5	silty SAND to sandy SILT	120	4.0	10	11	38	37	-	16
29.04	42.4	38.1	86.5	0.7	-5.1	1.7	5	silty SAND to sandy SILT	120	4.0	10	11	35	36	-	16
29.20	32.2	28.8	88.1	0.6	-4.9	2.1	4	clayy SILT to silty CLAY	115	2.0	14	16	-	-	2.2	15
29.36	24.7	20.9	-	0.6	-4.8	2.5	4	clayy SILT to silty CLAY	115	2.0	10	12	-	-	1.7	15
29.53	14.1	11.9	-	0.4	-5.0	3.6	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
29.69	10.0	8.4	-	0.3	-5.0	3.8	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
29.86	7.4	6.2	-	0.3	-4.8	4.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.02	6.7	5.6	-	0.3	-4.5	5.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
30.19	7.1	5.9	-	0.3	-4.3	6.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
30.35	7.7	6.4	-	0.4	-4.1	6.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.51	9.1	7.5	-	0.5	-4.0	6.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.68	11.4	9.4	-	0.5	-3.9	4.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
30.84	10.0	8.2	-	0.6	-3.9	7.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
31.01	16.1	13.2	-	0.5	-3.7	3.3	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
31.17	43.0	37.7	71.6	0.4	-4.2	1.1	5	silty SAND to sandy SILT	120	4.0	9	11	35	36	-	16
31.33	48.1	42.1	67.8	0.4	-4.1	0.8	5	silty SAND to sandy SILT	120	4.0	11	12	38	37	-	16
31.50	38.4	33.6	72.8	0.5	-3.2	1.2	5	silty SAND to sandy SILT	120	4.0	8	10	31	35	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(412).cpt
CPT Date: 11/18/2008 10:14:03 AM
GW During Test: 12 ft

Sounding ID: CPT-08-61
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	19.3	15.5	-	0.5	-3.1	2.7	3	silty CLAY to CLAY	115	1.5	10	13	-	-	1.3	15
31.83	11.4	9.1	-	0.4	-3.0	3.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
31.99	9.0	7.2	-	0.3	-2.9	4.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
32.15	8.5	6.7	-	0.3	-2.6	4.0	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
32.32	8.6	6.9	-	0.3	-2.4	4.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
32.48	7.8	6.1	-	0.3	-2.3	5.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.65	7.4	5.8	-	0.3	-2.1	6.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.81	10.4	8.2	-	0.4	-1.9	5.0	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
32.97	33.3	28.6	78.0	0.5	-2.0	1.6	5	silty SAND to sandy SILT	120	4.0	7	8	26	34	-	16
33.14	46.3	39.7	77.8	0.6	-1.9	1.2	5	silty SAND to sandy SILT	120	4.0	10	12	37	36	-	16
33.30	37.8	32.4	87.1	0.7	-1.8	1.9	5	silty SAND to sandy SILT	120	4.0	8	9	30	35	-	16
33.47	18.8	14.6	-	0.6	-1.8	3.5	3	silty CLAY to CLAY	115	1.5	10	13	-	-	1.3	15
33.63	12.0	9.3	-	0.4	-1.7	3.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
33.79	8.5	6.5	-	0.3	-1.5	4.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
33.96	7.5	5.7	-	0.3	-1.3	4.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
34.12	7.6	5.8	-	0.3	-1.1	4.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
34.29	8.2	6.2	-	0.3	-0.8	4.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
34.45	8.3	6.3	-	0.4	-0.6	5.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
34.61	8.4	6.3	-	0.3	-0.4	5.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
34.78	8.4	6.3	-	0.3	1.3	4.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
34.94	8.2	6.2	-	0.3	1.5	4.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
35.11	8.7	6.5	-	0.3	1.8	4.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
35.27	10.1	7.5	-	0.3	2.0	4.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
35.43	11.0	8.2	-	0.3	2.1	3.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
35.60	10.4	7.7	-	0.4	2.4	4.7	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
35.76	13.8	10.2	-	0.5	2.7	4.3	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
35.93	45.3	37.8	80.1	0.6	1.6	1.4	5	silty SAND to sandy SILT	120	4.0	9	11	35	36	-	16
36.09	50.9	42.4	91.9	0.8	-0.2	1.7	5	silty SAND to sandy SILT	120	4.0	11	13	39	36	-	16
36.26	31.5	23.1	-	0.9	-3.0	3.2	4	clayy SILT to silty CLAY	115	2.0	12	16	-	-	2.2	15
36.42	19.0	13.9	-	0.7	-3.2	4.1	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
36.58	53.0	43.9	72.2	0.5	-3.0	0.9	5	silty SAND to sandy SILT	120	4.0	11	13	40	36	-	16
36.75	42.7	35.3	78.3	0.6	-3.8	1.4	5	silty SAND to sandy SILT	120	4.0	9	11	33	35	-	16
36.91	22.0	15.9	-	0.5	-3.8	2.7	4	clayy SILT to silty CLAY	115	2.0	8	11	-	-	1.5	15
37.08	11.9	8.6	-	0.4	-3.6	4.4	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
37.24	10.3	7.4	-	0.3	-3.3	3.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.40	9.8	7.0	-	0.3	-3.1	4.3	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
37.57	9.3	6.6	-	0.3	-2.9	4.5	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
37.73	8.9	6.4	-	0.3	-2.8	4.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
37.90	8.6	6.1	-	0.3	1.0	4.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
38.06	9.0	6.4	-	0.3	1.3	4.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
38.22	9.5	6.7	-	0.4	1.6	6.0	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
38.39	13.9	9.8	-	0.5	2.0	4.0	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
38.55	29.4	20.6	-	0.4	2.1	1.5	4	clayy SILT to silty CLAY	115	2.0	10	15	-	-	2.0	15
38.72	47.9	38.8	75.2	0.5	2.1	1.2	5	silty SAND to sandy SILT	120	4.0	10	12	36	35	-	16
38.88	62.0	50.3	89.0	0.8	2.2	1.4	5	silty SAND to sandy SILT	120	4.0	13	16	44	37	-	16
39.04	72.0	58.2	99.4	1.1	2.3	1.5	5	silty SAND to sandy SILT	120	4.0	15	18	49	38	-	16
39.21	81.2	65.6	107.5	1.2	2.5	1.6	5	silty SAND to sandy SILT	120	4.0	16	20	53	38	-	16
39.37	83.0	67.0	108.3	1.3	2.6	1.6	5	silty SAND to sandy SILT	120	4.0	17	21	54	39	-	16
39.54	70.1	56.4	106.8	1.2	2.7	1.8	5	silty SAND to sandy SILT	120	4.0	14	18	48	38	-	16
39.70	52.3	42.1	106.6	1.2	2.8	2.3	5	silty SAND to sandy SILT	120	4.0	11	13	38	36	-	16
39.86	34.2	23.4	-	1.0	2.9	3.1	4	clayy SILT to silty CLAY	115	2.0	12	17	-	-	2.3	15
40.03	20.6	14.0	-	0.6	3.0	3.5	3	silty CLAY to CLAY	115	1.5	9	14	-	-	1.4	15
40.19	13.9	9.4	-	0.5	3.2	4.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
40.36	13.0	8.8	-	0.4	3.7	3.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
40.52	13.7	9.3	-	0.4	4.0	3.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
40.68	12.0	8.1	-	0.4	4.2	4.4	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
40.85	14.0	9.4	-	0.5	4.6	4.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
41.01	14.6	9.8	-	0.7	4.8	5.8	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.9	15
41.18	15.7	10.5	-	0.8	5.0	6.0	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
41.34	19.2	12.7	-	1.2	6.4	6.9	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
41.50	33.6	22.3	-	1.1	6.8	3.5	4	clayy SILT to silty CLAY	115	2.0	11	17	-	-	2.3	15
41.67	150.4	118.8	134.5	1.4	2.9	0.9	6	clean SAND to silty SAND	125	5.0	24	30	73	42	-	16
41.83	190.4	150.2	156.3	1.4	1.6	0.8	6	clean SAND to silty SAND	125	5.0	30	38	80	43	-	16
42.00	211.4	166.4	172.2	1.7	1.8	0.8	6	clean SAND to silty SAND	125	5.0	33	42	84	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(412).cpt
CPT Date: 11/18/2008 10:14:03 AM
GW During Test: 12 ft

Sounding ID: CPT-08-61
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	217.9	171.3	177.5	1.9	2.0	0.9	6	clean SAND to silty SAND	125	5.0	34	44	85	43	-	16
42.32	211.4	165.9	173.5	1.8	2.2	0.9	6	clean SAND to silty SAND	125	5.0	33	42	84	43	-	16
42.49	206.7	161.9	169.8	1.8	2.3	0.9	6	clean SAND to silty SAND	125	5.0	32	41	83	43	-	16
42.65	204.4	159.8	167.3	1.7	2.6	0.8	6	clean SAND to silty SAND	125	5.0	32	41	82	43	-	16
42.82	199.9	156.1	164.0	1.7	2.8	0.8	6	clean SAND to silty SAND	125	5.0	31	40	82	43	-	16
42.98	189.9	148.0	157.7	1.6	3.0	0.9	6	clean SAND to silty SAND	125	5.0	30	38	80	43	-	16
43.15	189.0	147.1	151.8	1.3	3.2	0.7	6	clean SAND to silty SAND	125	5.0	29	38	80	43	-	16
43.31	188.6	146.5	148.8	1.2	3.4	0.6	6	clean SAND to silty SAND	125	5.0	29	38	80	43	-	16
43.47	190.1	147.4	151.4	1.3	3.7	0.7	6	clean SAND to silty SAND	125	5.0	29	38	80	43	-	16
43.64	186.2	144.2	152.2	1.4	4.0	0.8	6	clean SAND to silty SAND	125	5.0	29	37	79	42	-	16
43.80	172.9	133.7	146.3	1.5	4.1	0.9	6	clean SAND to silty SAND	125	5.0	27	35	77	42	-	16
43.97	152.4	117.6	133.4	1.4	4.2	0.9	6	clean SAND to silty SAND	125	5.0	24	30	72	41	-	16
44.13	134.7	103.8	124.4	1.3	4.4	1.0	6	clean SAND to silty SAND	125	5.0	21	27	68	41	-	16
44.29	106.3	81.8	121.9	1.7	5.2	1.6	5	silty SAND to sandy SILT	120	4.0	20	27	60	39	-	16
44.46	68.6	52.7	129.2	1.9	5.2	2.8	4	clayy SILT to silty CLAY	115	2.0	26	34	-	-	4.8	15
44.62	38.5	24.0	-	1.4	5.1	3.8	4	clayy SILT to silty CLAY	115	2.0	12	19	-	-	2.6	15
44.79	24.1	15.0	-	0.9	5.3	4.4	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.6	15
44.95	19.5	12.1	-	0.6	5.8	3.7	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
45.11	23.9	14.8	-	0.5	6.8	2.5	4	clayy SILT to silty CLAY	115	2.0	7	12	-	-	1.6	15
45.28	41.9	32.0	77.8	0.6	6.9	1.5	5	silty SAND to sandy SILT	120	4.0	8	10	29	34	-	16
45.44	35.4	21.8	-	0.6	7.1	1.8	4	clayy SILT to silty CLAY	115	2.0	11	18	-	-	2.4	15
45.61	28.4	17.5	-	0.7	7.2	2.6	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.9	15
45.77	24.8	15.2	-	0.8	7.6	3.5	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
45.93	30.2	18.4	-	0.8	7.7	3.0	4	clayy SILT to silty CLAY	115	2.0	9	15	-	-	2.0	15
46.10	34.0	20.7	-	0.8	7.8	2.7	4	clayy SILT to silty CLAY	115	2.0	10	17	-	-	2.3	15
46.26	35.3	21.5	-	0.7	7.6	2.1	4	clayy SILT to silty CLAY	115	2.0	11	18	-	-	2.4	15
46.43	31.0	18.8	-	0.6	7.1	2.0	4	clayy SILT to silty CLAY	115	2.0	9	16	-	-	2.1	15
46.59	26.6	16.1	-	0.4	7.3	1.8	4	clayy SILT to silty CLAY	115	2.0	8	13	-	-	1.8	15
46.75	20.9	12.6	-	0.9	7.6	5.2	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
46.92	71.2	53.6	110.1	1.4	8.1	2.0	5	silty SAND to sandy SILT	120	4.0	13	18	46	37	-	16
47.08	138.8	104.4	127.7	1.5	-0.4	1.1	6	clean SAND to silty SAND	125	5.0	21	28	68	40	-	16
47.25	213.5	160.3	160.3	1.1	-5.5	0.5	6	clean SAND to silty SAND	125	5.0	32	43	83	43	-	16
47.41	232.0	173.9	173.9	1.3	-6.7	0.6	6	clean SAND to silty SAND	125	5.0	35	46	85	43	-	16
47.57	213.0	159.4	159.5	1.4	-6.4	0.7	6	clean SAND to silty SAND	125	5.0	32	43	82	43	-	16
47.74	188.7	141.0	149.7	1.5	-5.4	0.8	6	clean SAND to silty SAND	125	5.0	28	38	78	42	-	16
47.90	189.2	141.2	150.6	1.5	-5.2	0.8	6	clean SAND to silty SAND	125	5.0	28	38	78	42	-	16
48.07	195.8	145.9	153.8	1.5	-5.1	0.8	6	clean SAND to silty SAND	125	5.0	29	39	79	42	-	16
48.23	201.8	150.1	153.1	1.4	-5.1	0.7	6	clean SAND to silty SAND	125	5.0	30	40	80	42	-	16
48.39	201.5	149.6	155.4	1.5	-4.9	0.8	6	clean SAND to silty SAND	125	5.0	30	40	80	42	-	16
48.56	204.0	151.3	152.0	1.3	-4.8	0.6	6	clean SAND to silty SAND	125	5.0	30	41	81	42	-	16
48.72	204.7	151.6	154.6	1.4	-4.6	0.7	6	clean SAND to silty SAND	125	5.0	30	41	81	42	-	16
48.89	208.5	154.2	156.0	1.4	-4.5	0.7	6	clean SAND to silty SAND	125	5.0	31	42	81	42	-	16
49.05	213.5	157.7	158.7	1.4	-4.4	0.7	6	clean SAND to silty SAND	125	5.0	32	43	82	43	-	16
49.22	215.6	159.0	159.7	1.4	-4.2	0.7	6	clean SAND to silty SAND	125	5.0	32	43	82	43	-	16
49.38	221.2	162.8	163.1	1.5	-4.1	0.7	6	clean SAND to silty SAND	125	5.0	33	44	83	43	-	16
49.54	225.9	166.1	166.3	1.6	-3.9	0.7	6	clean SAND to silty SAND	125	5.0	33	45	84	43	-	16
49.71	231.8	170.2	170.2	1.6	-3.8	0.7	6	clean SAND to silty SAND	125	5.0	34	46	85	43	-	16
49.87	238.7	175.0	175.0	1.5	-3.6	0.7	6	clean SAND to silty SAND	125	5.0	35	48	85	43	-	16
50.04	241.8	177.0	177.0	1.5	-3.5	0.6	6	clean SAND to silty SAND	125	5.0	35	48	86	43	-	16
50.20	244.5	178.7	178.7	1.4	-3.3	0.6	6	clean SAND to silty SAND	125	5.0	36	49	86	43	-	16
50.36	245.9	179.5	179.5	1.3	-3.2	0.5	6	clean SAND to silty SAND	125	5.0	36	49	86	43	-	16
50.53	231.3	168.6	168.6	1.1	-3.0	0.5	6	clean SAND to silty SAND	125	5.0	34	46	84	43	-	16
50.69	203.1	147.8	147.8	0.9	-2.9	0.5	6	clean SAND to silty SAND	125	5.0	30	41	80	42	-	16
50.86	135.4	98.4	114.1	1.1	-2.4	0.8	6	clean SAND to silty SAND	125	5.0	20	27	66	40	-	16
51.02	72.0	52.2	101.5	1.2	-2.5	1.8	5	silty SAND to sandy SILT	120	4.0	13	18	46	36	-	16
51.18	33.3	18.5	-	1.0	-2.4	3.3	3	silty CLAY to CLAY	115	1.5	12	22	-	-	2.2	15
51.35	22.5	12.5	-	0.5	-2.0	2.6	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
51.51	22.1	12.2	-	0.3	-1.4	1.4	4	clayy SILT to silty CLAY	115	2.0	6	11	-	-	1.5	15
51.68	23.8	13.1	-	0.3	0.2	1.4	4	clayy SILT to silty CLAY	115	2.0	7	12	-	-	1.6	15
51.84	22.3	12.3	-	0.4	1.6	2.3	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
52.00	17.6	9.7	-	0.4	2.6	2.6	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
52.17	16.5	9.1	-	0.5	3.2	3.6	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
52.33	31.6	17.3	-	1.0	3.9	3.5	3	silty CLAY to CLAY	115	1.5	12	21	-	-	2.1	15
52.50	63.2	45.3	110.2	1.4	4.2	2.3	5	silty SAND to sandy SILT	120	4.0	11	16	41	35	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(412).cpt
CPT Date: 11/18/2008 10:14:03 AM
GW During Test: 12 ft

Sounding ID: CPT-08-61
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n * PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	125.0	89.6	124.5	1.8	2.2	1.5	5	silty SAND to sandy SILT	120	4.0	22	31	63	39	-	16
52.82	151.7	108.6	140.1	2.1	1.7	1.4	6	clean SAND to silty SAND	125	5.0	22	30	70	40	-	16
52.99	172.6	123.4	155.2	2.5	1.7	1.5	6	clean SAND to silty SAND	125	5.0	25	35	74	41	-	16
53.15	180.6	128.9	161.4	2.7	1.8	1.5	6	clean SAND to silty SAND	125	5.0	26	36	75	41	-	16
53.32	185.0	131.9	165.8	2.9	2.0	1.6	6	clean SAND to silty SAND	125	5.0	26	37	76	41	-	16
53.48	188.7	134.4	168.2	3.0	2.1	1.6	6	clean SAND to silty SAND	125	5.0	27	38	77	41	-	16
53.64	182.4	129.7	163.2	2.8	2.2	1.6	6	clean SAND to silty SAND	125	5.0	26	36	76	41	-	16
53.81	168.2	119.5	154.0	2.6	2.3	1.6	6	clean SAND to silty SAND	125	5.0	24	34	73	41	-	16
53.97	155.5	110.3	146.8	2.4	2.3	1.6	5	silty SAND to sandy SILT	120	4.0	28	39	70	40	-	16
54.14	149.7	106.0	139.4	2.2	2.4	1.5	6	clean SAND to silty SAND	125	5.0	21	30	69	40	-	16
54.30	142.9	101.1	138.7	2.2	2.6	1.6	5	silty SAND to sandy SILT	120	4.0	25	36	67	40	-	16
54.46	100.9	71.3	136.1	2.4	3.4	2.4	5	silty SAND to sandy SILT	120	4.0	18	25	56	38	-	16
54.63	47.7	25.2	-	1.9	3.3	4.4	3	silty CLAY to CLAY	115	1.5	17	32	-	-	3.3	15
54.79	25.5	13.4	-	1.2	3.5	5.4	3	silty CLAY to CLAY	115	1.5	9	17	-	-	1.7	15
54.96	19.6	10.3	-	0.5	3.7	2.8	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
55.12	16.6	8.7	-	0.2	4.4	1.9	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
55.28	14.3	7.5	-	0.2	5.2	1.7	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
55.45	14.3	7.5	-	0.2	6.1	1.7	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
55.61	16.9	8.8	-	0.3	7.0	2.0	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
55.78	19.2	9.9	-	0.4	7.8	2.7	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.2	15
55.94	18.7	9.7	-	0.6	8.3	3.6	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.2	15
56.11	21.3	11.0	-	0.6	8.8	3.6	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.4	15
56.27	21.2	11.0	-	0.7	9.1	3.9	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.4	15
56.43	22.9	11.8	-	0.8	9.5	4.1	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
56.60	23.6	12.1	-	0.8	9.9	4.1	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.5	15
56.76	25.6	13.1	-	1.0	10.0	4.3	3	silty CLAY to CLAY	115	1.5	9	17	-	-	1.7	15
56.93	25.5	13.0	-	1.1	10.3	4.9	3	silty CLAY to CLAY	115	1.5	9	17	-	-	1.7	15
57.09	28.4	14.5	-	1.2	9.8	5.0	3	silty CLAY to CLAY	115	1.5	10	19	-	-	1.9	15
57.25	32.0	16.3	-	1.2	10.0	4.1	3	silty CLAY to CLAY	115	1.5	11	21	-	-	2.1	15
57.42	56.6	39.2	96.4	1.1	12.5	2.0	5	silty SAND to sandy SILT	120	4.0	10	14	36	34	-	16
57.58	79.4	54.9	94.5	1.1	4.1	1.4	5	silty SAND to sandy SILT	120	4.0	14	20	47	36	-	16
57.75	82.2	56.8	95.8	1.1	4.3	1.4	5	silty SAND to sandy SILT	120	4.0	14	21	48	36	-	16
57.91	80.1	55.2	97.6	1.2	4.7	1.5	5	silty SAND to sandy SILT	120	4.0	14	20	47	36	-	16
58.07	68.7	47.3	106.2	1.4	5.1	2.1	5	silty SAND to sandy SILT	120	4.0	12	17	42	35	-	16
58.24	59.1	29.7	-	1.7	5.5	3.1	4	clayy SILT to silty CLAY	115	2.0	15	30	-	-	4.1	15
58.40	71.5	49.2	108.8	1.5	6.1	2.1	5	silty SAND to sandy SILT	120	4.0	12	18	44	35	-	16
58.57	97.2	66.7	112.6	1.6	1.3	1.7	5	silty SAND to sandy SILT	120	4.0	17	24	54	37	-	16
58.73	100.8	69.1	112.2	1.6	-0.4	1.6	5	silty SAND to sandy SILT	120	4.0	17	25	55	37	-	16
58.89	122.6	83.9	117.9	1.7	-0.3	1.4	5	silty SAND to sandy SILT	120	4.0	21	31	61	39	-	16
59.06	185.7	127.0	142.9	1.7	-0.9	1.0	6	clean SAND to silty SAND	125	5.0	25	37	75	41	-	16
59.22	228.4	156.1	161.6	1.7	-3.0	0.8	6	clean SAND to silty SAND	125	5.0	31	46	82	42	-	16
59.39	236.6	161.4	170.2	2.1	-2.8	0.9	6	clean SAND to silty SAND	125	5.0	32	47	83	42	-	16
59.55	235.5	160.5	174.4	2.4	-2.5	1.0	6	clean SAND to silty SAND	125	5.0	32	47	83	42	-	16
59.71	229.5	156.2	173.1	2.5	-2.3	1.1	6	clean SAND to silty SAND	125	5.0	31	46	82	42	-	16
59.88	235.9	160.4	175.6	2.5	-2.0	1.1	6	clean SAND to silty SAND	125	5.0	32	47	83	42	-	16
60.04	243.1	165.1	178.7	2.5	-1.8	1.0	6	clean SAND to silty SAND	125	5.0	33	49	84	42	-	16
60.21	253.4	171.8	177.9	2.2	-1.5	0.9	6	clean SAND to silty SAND	125	5.0	34	51	85	42	-	16
60.37	258.5	175.0	178.5	2.1	-1.3	0.8	6	clean SAND to silty SAND	125	5.0	35	52	85	42	-	16
60.53	292.3	197.7	197.7	2.4	-1.0	0.8	6	clean SAND to silty SAND	125	5.0	40	58	89	43	-	16
60.70	313.8	212.0	212.0	2.6	-0.7	0.8	6	clean SAND to silty SAND	125	5.0	42	63	92	43	-	16
60.86	331.7	223.8	223.8	2.9	0.7	0.9	6	clean SAND to silty SAND	125	5.0	45	66	94	44	-	16
61.03	367.0	247.3	247.3	2.9	1.0	0.8	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
61.19	397.0	267.2	267.2	2.9	1.2	0.7	6	clean SAND to silty SAND	125	5.0	53	79	95	44	-	16
61.35	412.7	277.4	277.4	3.5	1.4	0.9	6	clean SAND to silty SAND	125	5.0	55	83	95	45	-	16
61.52	425.1	285.4	285.4	2.1	1.7	0.5	6	clean SAND to silty SAND	125	5.0	57	85	95	45	-	16
61.68	480.9	322.5	322.5	2.4	2.0	0.5	6	clean SAND to silty SAND	125	5.0	65	96	95	45	-	16
61.85	567.4	380.0	380.0	3.1	1.3	0.5	7	grvly SAND to dense SAND	130	6.0	63	95	95	46	-	16
62.01	468.2	313.2	313.2	2.9	1.4	0.6	6	clean SAND to silty SAND	125	5.0	63	94	95	45	-	16
62.17	464.8	310.5	310.5	3.0	-0.8	0.6	6	clean SAND to silty SAND	125	5.0	62	93	95	45	-	16
62.34	456.6	304.7	304.7	2.6	-1.1	0.6	6	clean SAND to silty SAND	125	5.0	61	91	95	45	-	16
62.50	438.4	292.2	292.2	2.5	-1.2	0.6	6	clean SAND to silty SAND	125	5.0	58	88	95	45	-	16
62.67	453.9	302.1	302.1	2.2	-1.0	0.5	6	clean SAND to silty SAND	125	5.0	60	91	95	45	-	16
62.83	542.5	360.6	360.6	4.0	-0.9	0.7	6	clean SAND to silty SAND	125	5.0	72	100	95	46	-	16
63.00	574.7	381.6	381.6	4.8	-1.0	0.8	6	clean SAND to silty SAND	125	5.0	76	100	95	46	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(412).cpt
CPT Date: 11/18/2008 10:14:03 AM
GW During Test: 12 ft

Sounding ID: CPT-08-61
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	540.3	358.4	358.4	4.1	-0.2	0.8	6	clean SAND to silty SAND	125	5.0	72	100	95	46	-	16
63.32	431.8	286.0	286.0	3.3	0.7	0.8	6	clean SAND to silty SAND	125	5.0	57	86	95	45	-	16
63.49	406.4	268.9	268.9	2.3	0.9	0.6	6	clean SAND to silty SAND	125	5.0	54	81	95	44	-	16
63.65	401.4	265.3	265.3	1.7	1.6	0.4	6	clean SAND to silty SAND	125	5.0	53	80	95	44	-	16
63.82	439.3	290.0	290.0	1.1	1.7	0.3	7	grvly SAND to dense SAND	130	6.0	48	73	95	45	-	16
63.98	481.7	317.5	317.5	2.8	1.6	0.6	6	clean SAND to silty SAND	125	5.0	64	96	95	45	-	16
64.14	511.0	336.5	336.5	2.7	2.9	0.5	6	clean SAND to silty SAND	125	5.0	67	100	95	45	-	16
64.31	512.8	337.2	337.2	3.4	3.6	0.7	6	clean SAND to silty SAND	125	5.0	67	100	95	45	-	16
64.47	495.0	325.2	325.2	2.0	3.3	0.4	7	grvly SAND to dense SAND	130	6.0	54	83	95	45	-	16
64.64	463.6	304.1	304.1	2.4	3.3	0.5	6	clean SAND to silty SAND	125	5.0	61	93	95	45	-	16
64.80	429.3	281.3	281.3	2.4	1.4	0.6	6	clean SAND to silty SAND	125	5.0	56	86	95	45	-	16
64.96	383.0	250.7	250.7	2.1	1.6	0.5	6	clean SAND to silty SAND	125	5.0	50	77	95	44	-	16
65.13	370.0	241.9	241.9	1.3	1.6	0.4	6	clean SAND to silty SAND	125	5.0	48	74	95	44	-	16
65.29	380.5	248.5	248.5	1.1	1.5	0.3	7	grvly SAND to dense SAND	130	6.0	41	63	95	44	-	16
65.46	392.4	255.9	255.9	1.0	1.6	0.3	7	grvly SAND to dense SAND	130	6.0	43	65	95	44	-	16
65.62	396.1	258.0	258.0	1.4	1.9	0.4	7	grvly SAND to dense SAND	130	6.0	43	66	95	44	-	16
65.78	421.1	273.9	273.9	1.3	1.7	0.3	7	grvly SAND to dense SAND	130	6.0	46	70	95	44	-	16
65.95	494.1	321.1	321.1	1.7	2.1	0.3	7	grvly SAND to dense SAND	130	6.0	54	82	95	45	-	16
66.11	515.5	334.5	334.5	2.2	2.2	0.4	7	grvly SAND to dense SAND	130	6.0	56	86	95	45	-	16
66.28	562.2	364.4	364.4	2.2	1.6	0.4	7	grvly SAND to dense SAND	130	6.0	61	94	95	46	-	16
66.44	554.3	358.9	358.9	2.0	2.2	0.4	7	grvly SAND to dense SAND	130	6.0	60	92	95	46	-	16
66.60	570.6	369.0	369.0	1.9	2.0	0.3	7	grvly SAND to dense SAND	130	6.0	61	95	95	46	-	16
66.77	528.5	341.3	341.3	2.8	1.5	0.5	6	clean SAND to silty SAND	125	5.0	68	100	95	45	-	16
66.93	485.8	313.4	313.4	2.2	1.6	0.5	7	grvly SAND to dense SAND	130	6.0	52	81	95	45	-	16
67.10	424.4	273.4	273.4	2.0	2.1	0.5	6	clean SAND to silty SAND	125	5.0	55	85	95	44	-	16
67.26	424.5	273.2	273.2	1.0	2.4	0.2	7	grvly SAND to dense SAND	130	6.0	46	71	95	44	-	16
67.42	430.9	277.0	277.0	2.3	2.5	0.5	6	clean SAND to silty SAND	125	5.0	55	86	95	44	-	16
67.59	454.0	291.5	291.5	1.8	2.3	0.4	7	grvly SAND to dense SAND	130	6.0	49	76	95	45	-	16
67.75	413.4	265.1	265.1	1.8	2.7	0.4	6	clean SAND to silty SAND	125	5.0	53	83	95	44	-	16
67.92	407.9	261.3	261.3	1.1	3.1	0.3	7	grvly SAND to dense SAND	130	6.0	44	68	95	44	-	16
68.08	414.7	265.3	265.3	0.9	3.1	0.2	7	grvly SAND to dense SAND	130	6.0	44	69	95	44	-	16
68.24	433.4	276.9	276.9	1.2	3.2	0.3	7	grvly SAND to dense SAND	130	6.0	46	72	95	44	-	16
68.41	449.6	286.9	286.9	1.2	3.7	0.3	7	grvly SAND to dense SAND	130	6.0	48	75	95	44	-	16
68.57	446.6	284.7	284.7	1.9	4.1	0.4	7	grvly SAND to dense SAND	130	6.0	47	74	95	44	-	16
68.74	440.7	280.6	280.6	1.8	4.3	0.4	7	grvly SAND to dense SAND	130	6.0	47	73	95	44	-	16
68.90	433.4	275.6	275.6	2.6	4.9	0.6	6	clean SAND to silty SAND	125	5.0	55	87	95	44	-	16
69.07	509.7	323.8	323.8	2.6	4.8	0.5	6	clean SAND to silty SAND	125	5.0	65	100	95	45	-	16
69.23	414.2	262.8	262.8	2.4	9.4	0.6	6	clean SAND to silty SAND	125	5.0	53	83	95	44	-	16
69.39	467.7	296.5	296.5	2.1	9.5	0.5	7	grvly SAND to dense SAND	130	6.0	49	78	95	45	-	16
69.56	496.4	314.3	314.3	2.3	8.9	0.5	7	grvly SAND to dense SAND	130	6.0	52	83	95	45	-	16
69.72	506.2	320.1	320.1	2.1	7.9	0.4	7	grvly SAND to dense SAND	130	6.0	53	84	95	45	-	16
69.89	482.9	305.0	305.0	2.0	8.1	0.4	7	grvly SAND to dense SAND	130	6.0	51	80	95	45	-	16
70.05	472.6	298.2	298.2	1.4	9.0	0.3	7	grvly SAND to dense SAND	130	6.0	50	79	95	45	-	16
70.21	443.3	279.3	279.3	1.4	12.6	0.3	7	grvly SAND to dense SAND	130	6.0	47	74	95	44	-	16
70.38	415.4	261.5	261.5	1.1	9.9	0.3	7	grvly SAND to dense SAND	130	6.0	44	69	95	44	-	16
70.54	411.1	258.5	258.5	1.5	10.4	0.4	6	clean SAND to silty SAND	125	5.0	52	82	95	44	-	16
70.71	406.0	255.0	255.0	1.5	10.8	0.4	6	clean SAND to silty SAND	125	5.0	51	81	95	44	-	16
70.87	393.8	247.1	247.1	1.8	13.2	0.5	6	clean SAND to silty SAND	125	5.0	49	79	95	44	-	16
71.03	391.7	245.5	245.5	1.8	13.3	0.5	6	clean SAND to silty SAND	125	5.0	49	78	95	44	-	16
71.20	406.1	254.2	254.2	1.6	13.4	0.4	6	clean SAND to silty SAND	125	5.0	51	81	95	44	-	16
71.36	406.7	254.3	254.3	1.4	12.1	0.4	7	grvly SAND to dense SAND	130	6.0	42	68	95	44	-	16
71.53	408.3	255.0	255.0	1.2	11.8	0.3	7	grvly SAND to dense SAND	130	6.0	43	68	95	44	-	16
71.69	429.3	267.9	267.9	3.1	11.7	0.7	6	clean SAND to silty SAND	125	5.0	54	86	95	44	-	16
71.85	428.6	267.1	267.1	2.5	11.7	0.6	6	clean SAND to silty SAND	125	5.0	53	86	95	44	-	16
72.02	401.8	250.2	250.2	2.7	11.4	0.7	6	clean SAND to silty SAND	125	5.0	50	80	95	44	-	16
72.18	364.7	226.8	226.8	2.4	11.9	0.7	6	clean SAND to silty SAND	125	5.0	45	73	94	43	-	16
72.35	359.3	223.2	223.2	2.6	12.1	0.7	6	clean SAND to silty SAND	125	5.0	45	72	94	43	-	16
72.51	389.6	241.8	241.8	3.0	13.4	0.8	6	clean SAND to silty SAND	125	5.0	48	78	95	44	-	16
72.67	423.2	262.4	262.4	2.9	12.8	0.7	6	clean SAND to silty SAND	125	5.0	52	85	95	44	-	16
72.84	438.6	271.6	271.6	2.7	12.4	0.6	6	clean SAND to silty SAND	125	5.0	54	88	95	44	-	16
73.00	478.1	295.8	295.8	3.1	11.8	0.7	6	clean SAND to silty SAND	125	5.0	59	96	95	44	-	16
73.17	514.4	317.9	317.9	4.7	10.8	0.9	6	clean SAND to silty SAND	125	5.0	64	100	95	45	-	16
73.33	526.4	325.0	325.0	3.4	10.9	0.6	6	clean SAND to silty SAND	125	5.0	65	100	95	45	-	16
73.49	524.3	323.4	323.4	2.9	7.6	0.6	6	clean SAND to silty SAND	125	5.0	65	100	95	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(412).cpt
CPT Date: 11/18/2008 10:14:03 AM
GW During Test: 12 ft

Sounding ID: CPT-08-61
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
73.66	548.8	338.1	338.1	2.3	7.9	0.4	7	grvly SAND to dense SAND	130	6.0	56	91	95	45	-	16
73.82	546.8	336.5	336.5	3.0	10.2	0.5	6	clean SAND to silty SAND	125	5.0	67	100	95	45	-	16
73.99	580.0	356.6	356.6	2.8	10.0	0.5	7	grvly SAND to dense SAND	130	6.0	59	97	95	45	-	16
74.15	580.2	356.3	356.3	4.6	10.0	0.8	6	clean SAND to silty SAND	125	5.0	71	100	95	45	-	16
74.31	636.6	390.5	390.5	3.5	9.4	0.6	7	grvly SAND to dense SAND	130	6.0	65	100	95	46	-	16
74.48	559.6	342.9	342.9	3.4	11.9	0.6	6	clean SAND to silty SAND	125	5.0	69	100	95	45	-	16
74.64	507.8	310.9	310.9	2.4	9.0	0.5	7	grvly SAND to dense SAND	130	6.0	52	85	95	45	-	16
74.81	479.0	292.9	292.9	2.5	9.7	0.5	6	clean SAND to silty SAND	125	5.0	59	96	95	44	-	16
74.97	465.7	284.5	284.5	2.5	9.3	0.5	6	clean SAND to silty SAND	125	5.0	57	93	95	44	-	16
75.13	463.5	282.9	282.9	2.6	9.5	0.6	6	clean SAND to silty SAND	125	5.0	57	93	95	44	-	16
75.30	469.2	286.1	286.1	2.2	9.7	0.5	6	clean SAND to silty SAND	125	5.0	57	94	95	44	-	16
75.46	496.4	302.3	302.3	2.3	9.9	0.5	7	grvly SAND to dense SAND	130	6.0	50	83	95	44	-	16
75.63	561.1	341.4	341.4	2.0	8.4	0.4	7	grvly SAND to dense SAND	130	6.0	57	94	95	45	-	16
75.79	511.4	310.8	310.8	6.0	9.3	1.2	6	clean SAND to silty SAND	125	5.0	62	100	95	45	-	16
75.96	524.7	318.5	318.5	4.8	10.8	0.9	6	clean SAND to silty SAND	125	5.0	64	100	95	45	-	16
76.12	439.7	266.7	268.4	5.0	8.8	1.1	6	clean SAND to silty SAND	125	5.0	53	88	95	44	-	16
76.28	425.8	258.0	258.0	3.1	10.4	0.7	6	clean SAND to silty SAND	125	5.0	52	85	95	44	-	16
76.45	427.6	258.8	258.8	2.1	10.7	0.5	6	clean SAND to silty SAND	125	5.0	52	86	95	44	-	16
76.61	416.2	251.7	251.7	2.0	11.2	0.5	6	clean SAND to silty SAND	125	5.0	50	83	95	44	-	16
76.78	411.7	248.7	248.7	2.5	11.3	0.6	6	clean SAND to silty SAND	125	5.0	50	82	95	43	-	16
76.94	411.5	248.3	248.3	3.2	11.5	0.8	6	clean SAND to silty SAND	125	5.0	50	82	95	43	-	16
77.10	414.1	249.6	249.6	3.4	11.5	0.8	6	clean SAND to silty SAND	125	5.0	50	83	95	43	-	16
77.27	409.6	246.7	246.7	2.7	10.5	0.7	6	clean SAND to silty SAND	125	5.0	49	82	95	43	-	16
77.43	371.7	223.7	223.7	2.2	15.9	0.6	6	clean SAND to silty SAND	125	5.0	45	74	94	43	-	16
77.60	392.2	235.8	235.8	2.5	15.8	0.6	6	clean SAND to silty SAND	125	5.0	47	78	95	43	-	16
77.76	412.4	247.7	247.7	2.8	15.1	0.7	6	clean SAND to silty SAND	125	5.0	50	82	95	43	-	16
77.92	422.3	253.4	253.4	2.9	15.2	0.7	6	clean SAND to silty SAND	125	5.0	51	84	95	44	-	16
78.09	426.2	255.5	255.5	3.0	15.5	0.7	6	clean SAND to silty SAND	125	5.0	51	85	95	44	-	16
78.25	429.0	256.9	256.9	3.2	15.2	0.8	6	clean SAND to silty SAND	125	5.0	51	86	95	44	-	16
78.42	430.7	257.6	257.6	3.3	14.9	0.8	6	clean SAND to silty SAND	125	5.0	52	86	95	44	-	16
78.58	435.0	260.0	260.0	3.4	14.9	0.8	6	clean SAND to silty SAND	125	5.0	52	87	95	44	-	16
78.74	439.9	262.7	262.7	3.3	14.6	0.7	6	clean SAND to silty SAND	125	5.0	53	88	95	44	-	16
78.91	446.6	266.4	266.4	2.8	14.2	0.6	6	clean SAND to silty SAND	125	5.0	53	89	95	44	-	16
79.07	456.6	272.1	272.1	2.8	14.3	0.6	6	clean SAND to silty SAND	125	5.0	54	91	95	44	-	16
79.24	469.5	279.5	279.5	2.7	15.2	0.6	6	clean SAND to silty SAND	125	5.0	56	94	95	44	-	16
79.40	482.7	287.1	287.1	2.7	14.9	0.6	6	clean SAND to silty SAND	125	5.0	57	97	95	44	-	16
79.56	484.3	287.8	287.8	2.7	14.6	0.6	6	clean SAND to silty SAND	125	5.0	58	97	95	44	-	16
79.73	470.4	279.2	279.2	2.7	14.5	0.6	6	clean SAND to silty SAND	125	5.0	56	94	95	44	-	16
79.89	468.8	278.0	278.0	2.5	14.3	0.5	6	clean SAND to silty SAND	125	5.0	56	94	95	44	-	16
80.06	465.4	275.7	275.7	2.6	14.0	0.6	6	clean SAND to silty SAND	125	5.0	55	93	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(476).cpt
CPT Date: 12/9/2008 7:20:34 AM
GW During Test: 12 ft

Sounding ID: CPT-08-62
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	46.9	75.2	108.8	0.6	0.1	1.4	5	silty SAND to sandy SILT	120	4.0	19	12	58	48	-	16
0.49	78.1	125.3	147.2	0.9	0.0	1.2	6	clean SAND to silty SAND	125	5.0	25	16	74	48	-	16
0.66	99.9	160.2	173.9	1.0	0.0	1.0	6	clean SAND to silty SAND	125	5.0	32	20	83	48	-	16
0.82	96.1	154.1	154.1	0.6	-0.1	0.6	6	clean SAND to silty SAND	125	5.0	31	19	81	48	-	16
0.98	5.5	8.8	-	0.0	-0.1	0.6	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
1.15	5.8	9.3	-	0.0	-0.1	0.4	4	clayy SILT to silty CLAY	115	2.0	5	3	-	-	0.4	15
1.31	5.2	8.4	-	0.0	0.0	0.8	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15
1.48	4.0	6.4	-	0.0	0.0	0.1	1	sensitive fine SOIL	115	2.0	3	2	-	-	0.3	15
1.64	5.1	8.1	26.1	0.0	0.0	0.1	1	sensitive fine SOIL	115	2.0	4	3	-	-	0.4	15
1.80	11.3	18.2	-	0.2	0.0	1.7	4	clayy SILT to silty CLAY	115	2.0	9	6	-	-	0.8	15
1.97	43.4	69.7	102.3	0.6	0.2	1.3	5	silty SAND to sandy SILT	120	4.0	17	11	55	47	-	16
2.13	74.3	119.1	149.0	1.1	0.1	1.4	6	clean SAND to silty SAND	125	5.0	24	15	73	48	-	16
2.30	85.5	137.2	171.2	1.4	0.1	1.6	6	clean SAND to silty SAND	125	5.0	27	17	77	48	-	16
2.46	87.7	140.6	185.0	1.7	0.1	2.0	5	silty SAND to sandy SILT	120	4.0	35	22	78	48	-	16
2.62	87.8	140.9	182.9	1.7	0.2	1.9	5	silty SAND to sandy SILT	120	4.0	35	22	78	48	-	16
2.79	89.4	143.4	194.8	2.0	0.1	2.2	5	silty SAND to sandy SILT	120	4.0	36	22	79	48	-	16
2.95	95.9	153.8	205.2	2.1	0.1	2.2	5	silty SAND to sandy SILT	120	4.0	38	24	81	48	-	16
3.12	115.6	185.4	243.1	2.8	0.2	2.4	5	silty SAND to sandy SILT	120	4.0	46	29	87	48	-	16
3.28	118.6	190.2	258.1	3.2	0.2	2.7	5	silty SAND to sandy SILT	120	4.0	48	30	88	48	-	16
3.45	91.0	145.9	258.2	3.6	0.3	4.0	8	stiff SAND to clayy SAND	115	1.0	100	91	-	-	6.0	16
3.61	99.9	160.1	267.8	3.8	0.4	3.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	6.6	16
3.77	110.4	177.1	275.9	3.9	1.0	3.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	7.3	16
3.94	128.7	206.5	305.7	4.6	-1.4	3.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	8.5	16
4.10	105.8	169.7	294.0	4.5	-0.8	4.2	9	very stiff fine SOIL	120	2.0	85	53	84	48	-	30
4.27	79.3	127.1	281.5	4.2	-0.2	5.3	9	very stiff fine SOIL	120	2.0	64	40	75	47	-	30
4.43	77.0	123.5	255.3	3.5	-0.2	4.6	9	very stiff fine SOIL	120	2.0	62	38	74	47	-	30
4.59	77.5	124.3	242.3	3.2	-1.5	4.2	9	very stiff fine SOIL	120	2.0	62	39	74	46	-	30
4.76	62.0	99.4	256.7	3.5	-3.2	5.6	9	very stiff fine SOIL	120	2.0	50	31	67	45	-	30
4.92	76.2	122.3	262.9	3.7	-4.2	4.9	9	very stiff fine SOIL	120	2.0	61	38	74	46	-	30
5.09	95.2	152.7	286.2	4.3	-4.7	4.5	9	very stiff fine SOIL	120	2.0	76	48	81	47	-	30
5.25	98.5	157.9	309.1	4.9	-2.6	5.0	9	very stiff fine SOIL	120	2.0	79	49	82	47	-	30
5.41	88.1	141.3	297.6	4.6	-1.1	5.2	9	very stiff fine SOIL	120	2.0	71	44	78	47	-	30
5.58	80.2	128.7	265.1	3.8	-1.5	4.7	9	very stiff fine SOIL	120	2.0	64	40	75	46	-	30
5.74	71.0	113.8	266.1	3.8	-0.3	5.3	9	very stiff fine SOIL	120	2.0	57	35	71	45	-	30
5.91	80.1	128.4	262.3	3.7	0.6	4.6	9	very stiff fine SOIL	120	2.0	64	40	75	46	-	30
6.07	195.1	312.9	361.3	4.5	0.5	2.3	6	clean SAND to silty SAND	125	5.0	63	39	95	48	-	16
6.23	313.8	499.8	511.4	5.8	0.4	1.9	6	clean SAND to silty SAND	125	5.0	100	63	95	48	-	16
6.40	353.9	556.0	555.4	6.4	0.4	1.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	23.4	16
6.56	319.7	496.1	531.3	7.1	0.4	2.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	21.2	16
6.73	267.7	410.5	468.8	7.0	0.4	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	17.7	16
6.89	225.0	341.1	403.7	6.0	0.3	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	14.9	16
7.05	177.6	266.2	339.2	5.1	0.3	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.7	16
7.22	119.0	176.3	270.4	4.1	0.2	3.4	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	7.9	16
7.38	90.3	132.3	237.1	3.4	0.3	3.8	8	stiff SAND to clayy SAND	115	1.0	100	90	-	-	6.0	16
7.55	101.5	147.3	208.3	2.5	0.2	2.5	5	silty SAND to sandy SILT	120	4.0	37	25	80	46	-	16
7.71	72.7	104.4	180.5	2.1	0.2	2.9	5	silty SAND to sandy SILT	120	4.0	26	18	68	45	-	16
7.87	48.4	68.7	158.1	1.6	0.3	3.4	4	clayy SILT to silty CLAY	115	2.0	34	24	-	-	3.4	15
8.04	33.7	47.3	144.9	1.3	0.4	3.9	4	clayy SILT to silty CLAY	115	2.0	24	17	-	-	2.4	15
8.20	36.6	50.9	129.2	1.1	0.0	3.0	4	clayy SILT to silty CLAY	115	2.0	25	18	-	-	2.6	15
8.37	22.4	35.9	-	0.8	0.2	3.7	4	clayy SILT to silty CLAY	115	2.0	18	11	-	-	1.6	15
8.53	16.7	26.9	-	0.7	0.4	4.6	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.2	15
8.69	18.1	29.1	-	0.6	0.6	3.3	4	clayy SILT to silty CLAY	115	2.0	15	9	-	-	1.3	15
8.86	16.3	26.1	-	0.8	1.0	5.2	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.1	15
9.02	19.8	31.7	-	0.8	1.3	4.3	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
9.19	14.5	23.3	-	0.8	0.6	6.1	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
9.35	15.0	24.1	-	0.9	-0.2	6.2	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
9.51	15.9	25.5	-	0.9	-1.2	6.2	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.1	15
9.68	17.1	27.4	-	0.9	-1.2	5.7	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.2	15
9.84	15.7	25.2	-	0.9	-1.1	6.1	3	silty CLAY to CLAY	115	1.5	17	10	-	-	1.1	15
10.01	15.7	25.1	-	0.9	-1.1	5.9	3	silty CLAY to CLAY	115	1.5	17	10	-	-	1.1	15
10.17	15.5	24.8	-	0.9	-0.5	6.0	3	silty CLAY to CLAY	115	1.5	17	10	-	-	1.1	15
10.34	13.2	21.2	-	0.8	-0.5	6.4	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
10.50	9.7	15.6	-	0.7	-1.2	7.7	3	silty CLAY to CLAY	115	1.5	10	6	-	-	0.7	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Earth Mechanics
Data File: SDF(476).cpt
CPT Date: 12/9/2008 7:20:34 AM
GW During Test: 12 ft

Sounding ID: CPT-08-62
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	9.7	15.5	-	0.6	-1.2	6.4	3	silty CLAY to CLAY	115	1.5	10	6	-	-	0.7	15
10.83	9.8	15.3	-	0.6	-1.2	6.1	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.7	15
10.99	8.8	13.7	-	0.5	-0.9	6.5	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
11.16	8.0	12.2	-	0.5	0.3	6.1	3	silty CLAY to CLAY	115	1.5	8	5	-	-	0.5	15
11.32	8.2	12.4	-	0.5	0.6	6.3	3	silty CLAY to CLAY	115	1.5	8	5	-	-	0.6	15
11.48	7.4	10.9	-	0.5	1.5	7.2	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
11.65	6.4	9.4	-	0.4	1.4	6.8	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
11.81	5.9	8.6	-	0.3	1.5	6.5	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
11.98	6.5	9.2	-	0.3	2.0	5.7	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
12.14	6.6	9.3	-	0.3	1.9	5.7	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
12.30	6.5	9.2	-	0.3	2.0	4.6	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
12.47	6.3	8.8	-	0.2	2.2	3.9	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
12.63	6.1	8.5	-	0.3	2.3	4.8	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
12.80	6.8	9.3	-	0.4	2.5	7.3	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.4	15
12.96	7.3	10.0	-	0.6	-0.7	8.6	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
13.12	6.4	8.7	-	0.4	-3.6	8.0	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
13.29	8.5	11.5	-	0.4	-3.7	4.7	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
13.45	8.0	10.8	-	0.4	-3.7	4.9	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
13.62	8.3	11.1	-	0.3	-3.6	3.8	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
13.78	5.9	7.9	-	0.4	-3.7	7.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
13.94	10.0	13.3	-	0.4	-3.5	4.1	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
14.11	7.9	10.4	-	0.4	-3.8	5.9	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
14.27	8.7	11.4	-	0.5	-3.8	6.8	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
14.44	9.4	12.2	-	0.8	-3.1	9.0	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
14.60	9.5	12.3	-	0.7	-3.8	7.7	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
14.76	8.7	11.2	-	0.7	-4.8	8.9	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
14.93	10.9	14.0	-	0.8	-4.9	8.0	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
15.09	13.8	17.6	-	1.1	-4.9	8.2	3	silty CLAY to CLAY	115	1.5	12	9	-	-	0.9	15
15.26	13.9	17.6	-	1.0	-4.8	8.0	3	silty CLAY to CLAY	115	1.5	12	9	-	-	0.9	15
15.42	11.3	14.2	-	0.8	-4.7	7.7	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
15.58	8.4	10.5	-	0.5	-4.6	6.7	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
15.75	7.0	8.7	-	0.4	-4.4	5.8	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.91	12.8	15.9	-	0.4	-4.3	3.2	3	silty CLAY to CLAY	115	1.5	11	9	-	-	0.9	15
16.08	10.5	12.9	-	0.4	-4.6	4.4	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
16.24	14.2	17.4	-	0.5	-4.6	4.1	3	silty CLAY to CLAY	115	1.5	12	9	-	-	1.0	15
16.40	18.3	22.3	-	0.5	-5.3	2.7	4	clayy SILT to silty CLAY	115	2.0	11	9	-	-	1.3	15
16.57	10.0	12.1	-	0.4	-5.7	4.3	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
16.73	7.9	9.6	-	0.3	-5.7	3.8	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.90	6.8	8.1	-	0.2	-5.6	4.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
17.06	6.6	7.8	-	0.2	-5.5	3.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.23	6.5	7.8	-	0.2	-5.4	4.0	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.39	7.3	8.7	-	0.4	-5.3	6.1	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
17.55	22.9	24.1	73.1	0.4	-5.1	1.6	4	clayy SILT to silty CLAY	115	2.0	12	11	-	-	1.6	15
17.72	24.2	26.6	86.7	0.5	-6.6	2.2	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.7	15
17.88	14.4	16.8	-	0.6	0.8	4.2	3	silty CLAY to CLAY	115	1.5	11	10	-	-	1.0	15
18.05	8.6	9.9	-	0.5	0.5	6.8	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
18.21	7.3	8.5	-	0.4	1.0	6.3	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
18.37	6.8	7.8	-	0.4	1.5	6.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
18.54	8.4	9.6	-	0.4	1.9	5.6	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
18.70	24.3	26.2	-	0.6	1.8	2.4	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.7	15
18.87	33.5	34.6	105.6	0.9	0.3	2.7	4	clayy SILT to silty CLAY	115	2.0	17	17	-	-	2.3	15
19.03	26.3	29.6	-	1.1	0.9	4.4	3	silty CLAY to CLAY	115	1.5	20	18	-	-	1.8	15
19.19	14.9	16.7	-	0.9	1.6	6.4	3	silty CLAY to CLAY	115	1.5	11	10	-	-	1.0	15
19.36	10.0	11.1	-	0.5	2.4	5.7	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
19.52	7.8	8.6	-	0.3	3.5	5.2	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
19.69	7.2	7.9	-	0.3	4.1	5.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
19.85	6.8	7.4	-	0.3	4.5	5.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
20.01	6.5	7.1	-	0.3	4.9	5.2	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
20.18	6.4	7.0	-	0.3	5.2	5.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
20.34	6.9	7.5	-	0.4	5.5	6.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
20.51	21.3	21.5	68.1	0.3	6.0	1.5	4	clayy SILT to silty CLAY	115	2.0	11	11	-	-	1.5	15
20.67	39.0	39.2	78.4	0.5	0.4	1.3	5	silty SAND to sandy SILT	120	4.0	10	10	36	38	-	16
20.83	42.7	42.8	95.5	0.8	1.3	1.9	5	silty SAND to sandy SILT	120	4.0	11	11	39	38	-	16
21.00	37.4	37.5	108.0	1.0	2.2	2.7	4	clayy SILT to silty CLAY	115	2.0	19	19	-	-	2.6	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(476).cpt
CPT Date: 12/9/2008 7:20:34 AM
GW During Test: 12 ft

Sounding ID: CPT-08-62
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	40.9	40.8	105.8	1.0	2.5	2.4	5	silty SAND to sandy SILT	120	4.0	10	10	37	38	-	16
21.33	50.9	50.7	109.4	1.1	-4.2	2.2	5	silty SAND to sandy SILT	120	4.0	13	13	45	39	-	16
21.49	53.7	53.3	120.2	1.3	-5.4	2.5	5	silty SAND to sandy SILT	120	4.0	13	13	46	39	-	16
21.65	54.5	54.0	124.4	1.4	-4.8	2.6	5	silty SAND to sandy SILT	120	4.0	14	14	47	39	-	16
21.82	60.6	59.9	127.7	1.5	-4.3	2.5	5	silty SAND to sandy SILT	120	4.0	15	15	50	40	-	16
21.98	69.1	68.1	130.5	1.6	-4.3	2.4	5	silty SAND to sandy SILT	120	4.0	17	17	54	40	-	16
22.15	70.2	69.1	131.2	1.6	-4.1	2.4	5	silty SAND to sandy SILT	120	4.0	17	18	55	41	-	16
22.31	72.7	71.4	132.5	1.7	-3.7	2.3	5	silty SAND to sandy SILT	120	4.0	18	18	56	41	-	16
22.47	73.7	72.2	132.1	1.7	-3.3	2.3	5	silty SAND to sandy SILT	120	4.0	18	18	56	41	-	16
22.64	73.4	71.7	131.2	1.6	-2.8	2.3	5	silty SAND to sandy SILT	120	4.0	18	18	56	41	-	16
22.80	77.4	75.4	132.9	1.7	-2.2	2.2	5	silty SAND to sandy SILT	120	4.0	19	19	58	41	-	16
22.97	71.9	69.9	132.6	1.7	-1.8	2.4	5	silty SAND to sandy SILT	120	4.0	17	18	55	40	-	16
23.13	52.2	50.7	126.6	1.5	-1.5	2.9	4	clayy SILT to silty CLAY	115	2.0	25	26	-	-	3.6	15
23.30	29.4	29.2	-	1.0	-1.2	3.7	4	clayy SILT to silty CLAY	115	2.0	15	15	-	-	2.0	15
23.46	19.5	19.3	-	0.7	-0.7	3.9	3	silty CLAY to CLAY	115	1.5	13	13	-	-	1.3	15
23.62	10.4	10.2	-	0.5	-1.7	5.7	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
23.79	8.2	8.1	-	0.2	-1.3	3.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.95	8.2	8.0	-	0.2	4.6	2.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.12	8.1	7.8	-	0.3	6.0	4.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.28	9.6	9.3	-	0.4	7.3	4.4	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
24.44	16.3	15.7	-	0.4	6.7	2.6	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.1	15
24.61	19.5	18.7	-	0.4	-1.2	2.0	4	clayy SILT to silty CLAY	115	2.0	9	10	-	-	1.3	15
24.77	17.1	16.4	-	0.4	-3.7	2.5	4	clayy SILT to silty CLAY	115	2.0	8	9	-	-	1.2	15
24.94	11.6	11.0	-	0.4	-4.6	4.2	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
25.10	10.6	10.1	-	0.4	-4.3	4.8	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
25.26	13.1	12.4	-	0.4	-4.1	3.8	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
25.43	14.3	13.4	-	0.4	-4.5	3.3	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
25.59	10.8	10.2	-	0.4	-4.9	4.1	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
25.76	8.5	7.9	-	0.3	-4.8	4.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
25.92	8.5	7.9	-	0.3	-4.5	4.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
26.08	9.2	8.5	-	0.4	-4.3	5.6	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
26.25	11.2	10.3	-	0.4	-4.3	4.6	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
26.41	15.8	14.5	-	0.4	-4.5	2.8	3	silty CLAY to CLAY	115	1.5	10	11	-	-	1.1	15
26.58	17.1	15.6	-	0.5	-5.3	3.0	3	silty CLAY to CLAY	115	1.5	10	11	-	-	1.1	15
26.74	15.3	13.9	-	0.5	-5.4	3.7	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
26.90	19.8	18.0	-	0.6	-5.6	3.6	3	silty CLAY to CLAY	115	1.5	12	13	-	-	1.3	15
27.07	19.0	17.2	-	0.6	-5.6	3.6	3	silty CLAY to CLAY	115	1.5	11	13	-	-	1.3	15
27.23	27.5	24.7	-	0.7	-6.3	2.8	4	clayy SILT to silty CLAY	115	2.0	12	14	-	-	1.9	15
27.40	40.3	37.1	103.2	0.9	-6.8	2.4	4	clayy SILT to silty CLAY	115	2.0	19	20	-	-	2.8	15
27.56	45.0	41.3	112.3	1.2	-2.5	2.7	4	clayy SILT to silty CLAY	115	2.0	21	22	-	-	3.1	15
27.72	38.3	34.0	-	1.3	-2.0	3.5	4	clayy SILT to silty CLAY	115	2.0	17	19	-	-	2.6	15
27.89	25.3	22.5	-	1.1	-1.5	4.8	3	silty CLAY to CLAY	115	1.5	15	17	-	-	1.7	15
28.05	17.6	15.6	-	0.9	-0.8	5.4	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.2	15
28.22	11.8	10.4	-	0.5	-0.6	4.8	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
28.38	9.8	8.6	-	0.2	-0.1	2.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
28.54	8.9	7.7	-	0.3	0.7	3.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.71	8.8	7.7	-	0.2	1.7	3.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.87	9.5	8.3	-	0.3	2.2	3.7	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
29.04	9.1	7.9	-	0.3	2.4	4.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.20	10.5	9.0	-	0.3	2.7	3.7	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
29.36	9.2	7.9	-	0.3	2.1	4.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.53	10.0	8.6	-	0.3	2.4	3.4	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
29.69	11.7	10.0	-	0.4	2.3	3.9	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
29.86	15.1	12.8	-	0.3	2.5	2.5	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
30.02	24.5	21.8	69.0	0.3	-0.7	1.5	4	clayy SILT to silty CLAY	115	2.0	11	12	-	-	1.7	15
30.19	14.2	11.9	-	0.3	-3.1	2.5	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
30.35	8.6	7.2	-	0.3	-2.8	4.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
30.51	8.8	7.3	-	0.2	-2.2	3.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.68	8.2	6.8	-	0.2	-2.0	3.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
30.84	8.6	7.1	-	0.3	-1.6	4.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
31.01	9.6	7.9	-	0.3	0.0	4.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.17	28.2	23.2	-	0.5	0.4	1.9	4	clayy SILT to silty CLAY	115	2.0	12	14	-	-	1.9	15
31.33	42.0	37.0	82.1	0.6	-1.3	1.5	5	silty SAND to sandy SILT	120	4.0	9	11	34	36	-	16
31.50	47.4	41.6	81.2	0.6	-0.7	1.3	5	silty SAND to sandy SILT	120	4.0	10	12	38	37	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(476).cpt
CPT Date: 12/9/2008 7:20:34 AM
GW During Test: 12 ft

Sounding ID: CPT-08-62
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	56.0	49.1	92.8	0.8	-1.9	1.5	5	silty SAND to sandy SILT	120	4.0	12	14	44	38	-	16
31.83	52.3	45.7	104.2	1.1	-2.4	2.1	5	silty SAND to sandy SILT	120	4.0	11	13	41	37	-	16
31.99	47.8	41.7	103.8	1.0	-1.8	2.3	5	silty SAND to sandy SILT	120	4.0	10	12	38	37	-	16
32.15	47.3	41.2	107.0	1.1	-1.3	2.4	5	silty SAND to sandy SILT	120	4.0	10	12	38	36	-	16
32.32	32.1	25.8	-	1.1	-1.0	3.5	4	clayy SILT to silty CLAY	115	2.0	13	16	-	-	2.2	15
32.48	19.6	15.6	-	0.7	-0.5	4.0	3	silty CLAY to CLAY	115	1.5	10	13	-	-	1.3	15
32.65	11.4	9.1	-	0.4	0.0	3.7	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
32.81	8.6	6.8	-	0.2	0.9	3.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
32.97	8.7	6.9	-	0.2	1.6	2.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
33.14	7.9	6.2	-	0.2	2.2	2.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
33.30	8.6	6.8	-	0.2	2.9	3.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
33.47	9.5	7.5	-	0.3	3.4	4.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
33.63	12.0	9.4	-	0.3	3.8	3.5	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
33.79	10.0	7.8	-	0.4	3.6	4.7	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
33.96	10.1	7.8	-	0.4	4.2	4.7	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
34.12	9.5	7.3	-	0.3	4.7	3.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
34.29	8.8	6.8	-	0.2	9.4	3.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
34.45	9.2	7.1	-	0.2	10.4	3.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
34.61	9.7	7.5	-	0.4	11.2	4.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
34.78	13.0	9.9	-	0.4	12.0	4.0	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.8	15
34.94	14.2	10.8	-	0.6	10.3	5.1	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
35.11	24.0	18.2	-	0.8	9.5	3.7	3	silty CLAY to CLAY	115	1.5	12	16	-	-	1.6	15
35.27	24.1	18.2	-	0.8	0.5	3.5	3	silty CLAY to CLAY	115	1.5	12	16	-	-	1.6	15
35.43	30.7	23.1	-	0.6	-2.0	2.2	4	clayy SILT to silty CLAY	115	2.0	12	15	-	-	2.1	15
35.60	34.2	28.7	87.1	0.7	-3.3	2.0	4	clayy SILT to silty CLAY	115	2.0	14	17	-	-	2.3	15
35.76	40.5	34.0	78.8	0.6	-3.7	1.5	5	silty SAND to sandy SILT	120	4.0	9	10	31	35	-	16
35.93	51.6	43.3	82.5	0.7	-5.2	1.3	5	silty SAND to sandy SILT	120	4.0	11	13	39	36	-	16
36.09	47.8	40.0	86.0	0.7	-7.1	1.6	5	silty SAND to sandy SILT	120	4.0	10	12	37	36	-	16
36.26	30.9	22.9	-	0.8	-2.2	2.8	4	clayy SILT to silty CLAY	115	2.0	11	15	-	-	2.1	15
36.42	19.2	14.2	-	0.7	-3.0	4.0	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
36.58	11.3	8.3	-	0.5	-3.5	4.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
36.75	10.3	7.6	-	0.3	-2.9	4.3	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
36.91	10.2	7.4	-	0.3	-2.5	4.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
37.08	10.2	7.5	-	0.3	-2.2	4.3	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
37.24	10.2	7.4	-	0.4	-1.9	4.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
37.40	13.7	9.9	-	0.4	-1.5	3.4	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
37.57	34.4	28.3	86.1	0.6	-1.5	2.0	4	clayy SILT to silty CLAY	115	2.0	14	17	-	-	2.3	15
37.73	22.1	15.9	-	0.8	-1.7	3.9	3	silty CLAY to CLAY	115	1.5	11	15	-	-	1.5	15
37.90	27.3	19.6	-	1.0	-0.7	4.1	3	silty CLAY to CLAY	115	1.5	13	18	-	-	1.8	15
38.06	84.2	69.2	125.9	1.8	-2.4	2.1	5	silty SAND to sandy SILT	120	4.0	17	21	55	39	-	16
38.22	105.5	86.5	152.8	2.6	-4.4	2.5	5	silty SAND to sandy SILT	120	4.0	22	26	62	40	-	16
38.39	112.4	92.0	168.0	3.2	-4.1	2.9	5	silty SAND to sandy SILT	120	4.0	23	28	64	40	-	16
38.55	110.2	90.1	170.6	3.3	-3.9	3.0	5	silty SAND to sandy SILT	120	4.0	23	28	64	40	-	16
38.72	102.7	83.8	167.1	3.1	-3.7	3.1	5	silty SAND to sandy SILT	120	4.0	21	26	61	40	-	16
38.88	91.4	74.4	165.1	3.0	-3.5	3.4	4	clayy SILT to silty CLAY	115	2.0	37	46	-	-	6.4	15
39.04	79.8	64.9	163.5	2.9	-3.4	3.7	4	clayy SILT to silty CLAY	115	2.0	32	40	-	-	5.6	15
39.21	53.4	37.3	-	2.6	-3.3	5.1	3	silty CLAY to CLAY	115	1.5	25	36	-	-	3.7	15
39.37	27.6	19.3	-	1.5	-3.1	5.9	3	silty CLAY to CLAY	115	1.5	13	18	-	-	1.9	15
39.54	17.7	12.3	-	0.7	-2.7	4.6	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
39.70	16.5	11.4	-	0.3	-2.0	1.9	4	clayy SILT to silty CLAY	115	2.0	6	8	-	-	1.1	15
39.86	14.5	10.0	-	0.2	-1.3	1.9	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.9	15
40.03	13.9	9.6	-	0.2	-0.7	1.4	4	clayy SILT to silty CLAY	115	2.0	5	7	-	-	0.9	15
40.19	14.6	10.0	-	0.3	-0.2	2.3	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.9	15
40.36	12.9	8.8	-	0.5	1.2	5.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
40.52	16.0	10.9	-	0.6	1.9	4.7	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
40.68	16.9	11.5	-	0.9	6.3	6.2	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
40.85	47.5	32.2	-	1.3	8.4	3.0	4	clayy SILT to silty CLAY	115	2.0	16	24	-	-	3.3	15
41.01	148.2	118.3	147.6	2.0	0.6	1.4	6	clean SAND to silty SAND	125	5.0	24	30	73	42	-	16
41.18	178.9	142.6	170.7	2.5	-4.0	1.4	6	clean SAND to silty SAND	125	5.0	29	36	79	43	-	16
41.34	188.6	150.1	181.7	2.9	-3.9	1.6	6	clean SAND to silty SAND	125	5.0	30	38	80	43	-	16
41.50	197.1	156.6	190.5	3.2	-3.4	1.7	6	clean SAND to silty SAND	125	5.0	31	39	82	43	-	16
41.67	200.2	158.8	192.9	3.3	-2.8	1.7	6	clean SAND to silty SAND	125	5.0	32	40	82	43	-	16
41.83	193.9	153.5	189.8	3.3	-2.3	1.7	6	clean SAND to silty SAND	125	5.0	31	39	81	43	-	16
42.00	179.9	142.2	178.5	3.0	-1.7	1.7	6	clean SAND to silty SAND	125	5.0	28	36	79	42	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(476).cpt
CPT Date: 12/9/2008 7:20:34 AM
GW During Test: 12 ft

Sounding ID: CPT-08-62
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	177.9	140.4	176.7	3.0	-1.2	1.7	6	clean SAND to silty SAND	125	5.0	28	36	78	42	-	16
42.32	178.0	140.2	181.1	3.2	5.8	1.8	6	clean SAND to silty SAND	125	5.0	28	36	78	42	-	16
42.49	196.4	154.5	187.4	3.2	3.4	1.6	6	clean SAND to silty SAND	125	5.0	31	39	81	43	-	16
42.65	198.2	155.6	188.4	3.2	2.8	1.6	6	clean SAND to silty SAND	125	5.0	31	40	82	43	-	16
42.82	198.2	155.4	189.7	3.3	2.6	1.7	6	clean SAND to silty SAND	125	5.0	31	40	82	43	-	16
42.98	182.8	143.1	181.0	3.2	2.3	1.8	6	clean SAND to silty SAND	125	5.0	29	37	79	42	-	16
43.15	160.1	125.1	164.4	2.8	2.4	1.7	5	silty SAND to sandy SILT	120	4.0	31	40	74	42	-	16
43.31	118.7	92.6	151.7	2.7	2.7	2.3	5	silty SAND to sandy SILT	120	4.0	23	30	64	40	-	16
43.47	64.5	41.5	-	2.5	3.0	4.0	4	clayy SILT to silty CLAY	115	2.0	21	32	-	-	4.5	15
43.64	33.9	21.7	-	1.6	3.7	5.1	3	silty CLAY to CLAY	115	1.5	14	23	-	-	2.3	15
43.80	26.6	17.0	-	1.0	5.1	4.2	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.8	15
43.97	16.7	10.6	-	0.5	10.1	3.7	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
44.13	15.7	10.0	-	0.3	12.6	2.6	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
44.29	13.7	8.7	-	0.4	16.3	3.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
44.46	16.6	10.5	-	0.9	21.2	6.1	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
44.62	18.5	11.7	-	0.8	22.5	4.8	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
44.79	41.4	26.1	-	0.9	0.8	2.2	4	clayy SILT to silty CLAY	115	2.0	13	21	-	-	2.8	15
44.95	48.3	37.2	107.7	1.2	-2.4	2.6	4	clayy SILT to silty CLAY	115	2.0	19	24	-	-	3.3	15
45.11	30.2	18.9	-	1.1	2.9	4.0	3	silty CLAY to CLAY	115	1.5	13	20	-	-	2.0	15
45.28	20.6	12.9	-	1.0	4.7	5.7	3	silty CLAY to CLAY	115	1.5	9	14	-	-	1.4	15
45.44	26.7	16.6	-	0.9	5.5	3.6	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.8	15
45.61	28.7	17.8	-	1.0	4.0	3.8	3	silty CLAY to CLAY	115	1.5	12	19	-	-	1.9	15
45.77	32.1	19.9	-	1.0	2.8	3.2	4	clayy SILT to silty CLAY	115	2.0	10	16	-	-	2.2	15
45.93	51.6	31.9	-	1.5	3.4	3.1	4	clayy SILT to silty CLAY	115	2.0	16	26	-	-	3.6	15
46.10	77.7	59.2	135.3	2.1	0.1	2.8	5	silty SAND to sandy SILT	120	4.0	15	19	50	37	-	16
46.26	153.2	116.6	167.2	3.1	-5.2	2.1	5	silty SAND to sandy SILT	120	4.0	29	38	72	41	-	16
46.43	213.1	161.9	203.3	4.0	-8.3	1.9	6	clean SAND to silty SAND	125	5.0	32	43	83	43	-	16
46.59	238.4	180.9	223.7	4.7	-5.3	2.0	6	clean SAND to silty SAND	125	5.0	36	48	87	43	-	16
46.75	258.1	195.6	238.5	5.2	-6.4	2.0	6	clean SAND to silty SAND	125	5.0	39	52	89	44	-	16
46.92	283.9	214.7	253.9	5.5	-7.3	1.9	6	clean SAND to silty SAND	125	5.0	43	57	92	44	-	16
47.08	294.9	222.7	257.2	5.3	-8.4	1.8	6	clean SAND to silty SAND	125	5.0	45	59	93	44	-	16
47.25	283.0	213.4	247.6	5.1	-8.8	1.8	6	clean SAND to silty SAND	125	5.0	43	57	92	44	-	16
47.41	252.9	190.4	224.7	4.4	-5.7	1.8	6	clean SAND to silty SAND	125	5.0	38	51	88	44	-	16
47.57	241.4	181.4	216.2	4.2	-5.7	1.8	6	clean SAND to silty SAND	125	5.0	36	48	87	43	-	16
47.74	230.4	172.9	208.6	4.0	-5.5	1.8	6	clean SAND to silty SAND	125	5.0	35	46	85	43	-	16
47.90	220.7	165.4	201.3	3.8	-5.2	1.7	6	clean SAND to silty SAND	125	5.0	33	44	84	43	-	16
48.07	212.9	159.3	197.6	3.8	-5.0	1.8	6	clean SAND to silty SAND	125	5.0	32	43	82	43	-	16
48.23	208.0	155.4	196.4	3.9	-4.7	1.9	6	clean SAND to silty SAND	125	5.0	31	42	82	43	-	16
48.39	210.0	156.7	200.3	4.1	-4.4	2.0	6	clean SAND to silty SAND	125	5.0	31	42	82	43	-	16
48.56	215.9	160.8	203.0	4.1	-4.1	1.9	6	clean SAND to silty SAND	125	5.0	32	43	83	43	-	16
48.72	226.4	168.4	208.6	4.2	-3.8	1.9	6	clean SAND to silty SAND	125	5.0	34	45	84	43	-	16
48.89	232.1	172.3	212.1	4.3	-3.5	1.9	6	clean SAND to silty SAND	125	5.0	34	46	85	43	-	16
49.05	218.9	162.3	203.2	4.1	-3.2	1.9	6	clean SAND to silty SAND	125	5.0	32	44	83	43	-	16
49.22	218.5	161.8	201.7	4.0	-3.0	1.9	6	clean SAND to silty SAND	125	5.0	32	44	83	43	-	16
49.38	220.6	163.1	203.6	4.1	-2.7	1.9	6	clean SAND to silty SAND	125	5.0	33	44	83	43	-	16
49.54	215.9	159.3	199.2	4.0	-2.3	1.9	6	clean SAND to silty SAND	125	5.0	32	43	82	43	-	16
49.71	218.0	160.7	197.6	3.8	-2.0	1.8	6	clean SAND to silty SAND	125	5.0	32	44	83	43	-	16
49.87	218.9	161.1	193.2	3.5	-1.6	1.6	6	clean SAND to silty SAND	125	5.0	32	44	83	43	-	16
50.04	217.8	160.1	190.6	3.4	-1.1	1.6	6	clean SAND to silty SAND	125	5.0	32	44	83	43	-	16
50.20	208.5	153.0	188.0	3.5	-0.7	1.7	6	clean SAND to silty SAND	125	5.0	31	42	81	42	-	16
50.36	200.2	146.7	184.6	3.5	7.7	1.8	6	clean SAND to silty SAND	125	5.0	29	40	80	42	-	16
50.53	213.4	156.1	190.2	3.5	7.8	1.7	6	clean SAND to silty SAND	125	5.0	31	43	82	42	-	16
50.69	242.2	177.0	207.3	3.8	8.2	1.6	6	clean SAND to silty SAND	125	5.0	35	48	86	43	-	16
50.86	270.1	197.1	225.3	4.2	8.3	1.6	6	clean SAND to silty SAND	125	5.0	39	54	89	44	-	16
51.02	289.0	210.6	238.3	4.6	8.3	1.6	6	clean SAND to silty SAND	125	5.0	42	58	92	44	-	16
51.18	282.1	205.2	239.5	5.0	7.9	1.8	6	clean SAND to silty SAND	125	5.0	41	56	91	44	-	16
51.35	277.7	201.8	243.7	5.5	7.7	2.0	6	clean SAND to silty SAND	125	5.0	40	56	90	44	-	16
51.51	257.7	186.9	239.7	5.8	7.3	2.3	5	silty SAND to sandy SILT	120	4.0	47	64	88	43	-	16
51.68	247.1	179.0	234.9	5.8	7.2	2.4	5	silty SAND to sandy SILT	120	4.0	45	62	86	43	-	16
51.84	240.0	173.7	234.3	5.9	6.8	2.5	5	silty SAND to sandy SILT	120	4.0	43	60	85	43	-	16
52.00	216.4	156.3	223.7	5.7	6.4	2.7	5	silty SAND to sandy SILT	120	4.0	39	54	82	42	-	16
52.17	181.1	130.7	203.7	5.0	6.3	2.8	5	silty SAND to sandy SILT	120	4.0	33	45	76	41	-	16
52.33	141.7	102.1	182.8	4.2	6.2	3.0	5	silty SAND to sandy SILT	120	4.0	26	35	68	40	-	16
52.50	113.3	81.6	166.2	3.5	10.1	3.1	5	silty SAND to sandy SILT	120	4.0	20	28	60	39	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(476).cpt
CPT Date: 12/9/2008 7:20:34 AM
GW During Test: 12 ft

Sounding ID: CPT-08-62
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	98.2	70.6	163.7	3.3	9.4	3.5	4	clayy SILT to silty CLAY	115	2.0	35	49	-	-	6.8	15
52.82	82.2	59.0	161.8	3.1	7.6	3.9	4	clayy SILT to silty CLAY	115	2.0	30	41	-	-	5.7	15
52.99	67.2	36.6	-	2.6	5.5	4.0	4	clayy SILT to silty CLAY	115	2.0	18	34	-	-	4.6	15
53.15	35.1	19.1	-	1.6	-1.8	5.1	3	silty CLAY to CLAY	115	1.5	13	23	-	-	2.4	15
53.32	22.4	12.2	-	0.7	-3.4	3.8	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
53.48	17.7	9.6	-	0.4	-2.3	2.7	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
53.64	15.7	8.5	-	0.3	-1.4	2.7	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
53.81	14.3	7.7	-	0.4	25.3	3.2	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
53.97	13.6	7.3	-	0.4	29.9	4.0	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
54.14	18.4	9.9	-	0.6	37.6	4.2	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
54.30	36.1	19.3	-	1.1	22.4	3.3	3	silty CLAY to CLAY	115	1.5	13	24	-	-	2.4	15
54.46	23.7	12.6	-	1.2	23.2	6.0	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.6	15
54.63	25.6	13.6	-	1.5	33.6	6.6	3	silty CLAY to CLAY	115	1.5	9	17	-	-	1.7	15
54.79	82.5	58.4	127.7	2.0	15.5	2.6	5	silty SAND to sandy SILT	120	4.0	15	21	49	37	-	16
54.96	86.7	61.3	142.0	2.5	10.2	3.0	4	clayy SILT to silty CLAY	115	2.0	31	43	-	-	6.0	15
55.12	91.8	64.9	139.9	2.5	9.2	2.8	5	silty SAND to sandy SILT	120	4.0	16	23	53	37	-	16
55.28	105.6	74.5	143.3	2.6	8.8	2.6	5	silty SAND to sandy SILT	120	4.0	19	26	57	38	-	16
55.45	124.3	87.6	155.0	3.1	0.7	2.6	5	silty SAND to sandy SILT	120	4.0	22	31	63	39	-	16
55.61	108.2	76.1	153.6	3.0	1.2	2.9	5	silty SAND to sandy SILT	120	4.0	19	27	58	38	-	16
55.78	73.0	51.3	141.4	2.4	1.9	3.4	4	clayy SILT to silty CLAY	115	2.0	26	36	-	-	5.0	15
55.94	66.5	46.7	123.9	1.8	2.7	2.9	4	clayy SILT to silty CLAY	115	2.0	23	33	-	-	4.6	15
56.11	95.2	66.8	132.6	2.2	3.8	2.4	5	silty SAND to sandy SILT	120	4.0	17	24	54	37	-	16
56.27	108.8	76.2	148.2	2.8	4.8	2.7	5	silty SAND to sandy SILT	120	4.0	19	27	58	38	-	16
56.43	96.1	67.2	141.5	2.6	5.4	2.8	5	silty SAND to sandy SILT	120	4.0	17	24	54	37	-	16
56.60	99.4	69.4	125.5	2.0	6.2	2.1	5	silty SAND to sandy SILT	120	4.0	17	25	55	38	-	16
56.76	115.7	80.7	127.9	2.1	-3.3	1.8	5	silty SAND to sandy SILT	120	4.0	20	29	60	39	-	16
56.93	108.6	75.7	136.5	2.4	-6.9	2.3	5	silty SAND to sandy SILT	120	4.0	19	27	58	38	-	16
57.09	99.6	69.3	139.9	2.5	1.8	2.6	5	silty SAND to sandy SILT	120	4.0	17	25	55	38	-	16
57.25	94.2	65.5	140.7	2.5	2.5	2.8	5	silty SAND to sandy SILT	120	4.0	16	24	53	37	-	16
57.42	120.9	83.9	157.3	3.2	3.2	2.7	5	silty SAND to sandy SILT	120	4.0	21	30	61	39	-	16
57.58	139.8	97.0	168.9	3.7	0.5	2.7	5	silty SAND to sandy SILT	120	4.0	24	35	66	39	-	16
57.75	101.9	70.6	176.0	3.9	0.6	3.9	4	clayy SILT to silty CLAY	115	2.0	35	51	-	-	7.1	15
57.91	51.1	25.9	-	2.9	0.9	6.0	3	silty CLAY to CLAY	115	1.5	17	34	-	-	3.5	15
58.07	25.2	12.8	-	1.4	1.5	6.4	3	silty CLAY to CLAY	115	1.5	9	17	-	-	1.7	15
58.24	16.1	8.1	-	0.6	2.8	4.5	3	silty CLAY to CLAY	115	1.5	5	11	-	-	1.0	15
58.40	16.5	8.3	-	0.5	6.7	3.5	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
58.57	26.6	13.4	-	0.6	11.7	2.7	3	silty CLAY to CLAY	115	1.5	9	18	-	-	1.8	15
58.73	20.6	10.4	-	0.6	14.6	3.4	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.3	15
58.89	15.0	7.5	-	0.4	17.6	3.8	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
59.06	15.1	7.6	-	0.4	22.5	3.6	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
59.22	15.1	7.5	-	0.6	27.8	5.5	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
59.39	14.9	7.4	-	0.9	31.9	7.8	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
59.55	14.4	7.2	-	1.0	34.1	9.0	2	Organic SOILS - Peats	100	1.0	7	14	-	-	1.3	10
59.71	40.1	19.9	-	1.1	38.7	3.0	4	clayy SILT to silty CLAY	115	2.0	10	20	-	-	2.7	15
59.88	76.6	52.3	107.7	1.4	5.9	2.0	5	silty SAND to sandy SILT	120	4.0	13	19	46	36	-	16
60.04	92.0	62.8	106.8	1.4	6.5	1.6	5	silty SAND to sandy SILT	120	4.0	16	23	52	37	-	16
60.21	108.2	73.8	115.0	1.7	7.8	1.6	5	silty SAND to sandy SILT	120	4.0	18	27	57	38	-	16
60.37	124.7	84.9	122.2	1.8	12.8	1.5	5	silty SAND to sandy SILT	120	4.0	21	31	62	39	-	16
60.53	136.0	92.5	129.1	2.0	12.8	1.5	5	silty SAND to sandy SILT	120	4.0	23	34	64	39	-	16
60.70	158.9	108.0	141.5	2.3	12.5	1.5	6	clean SAND to silty SAND	125	5.0	22	32	70	40	-	16
60.86	176.6	119.8	151.2	2.5	12.1	1.5	6	clean SAND to silty SAND	125	5.0	24	35	73	40	-	16
61.03	192.2	130.2	161.6	2.8	11.7	1.5	6	clean SAND to silty SAND	125	5.0	26	38	76	41	-	16
61.19	204.4	138.4	166.6	2.9	11.5	1.4	6	clean SAND to silty SAND	125	5.0	28	41	78	41	-	16
61.35	226.6	153.2	181.5	3.3	12.2	1.5	6	clean SAND to silty SAND	125	5.0	31	45	81	42	-	16
61.52	249.3	168.3	196.2	3.7	12.3	1.5	6	clean SAND to silty SAND	125	5.0	34	50	84	42	-	16
61.68	260.7	175.8	203.1	3.9	11.8	1.5	6	clean SAND to silty SAND	125	5.0	35	52	86	42	-	16
61.85	273.1	183.9	203.7	3.5	11.3	1.3	6	clean SAND to silty SAND	125	5.0	37	55	87	43	-	16
62.01	287.6	193.5	210.1	3.5	11.3	1.2	6	clean SAND to silty SAND	125	5.0	39	58	89	43	-	16
62.17	308.5	207.2	219.2	3.5	10.5	1.2	6	clean SAND to silty SAND	125	5.0	41	62	91	43	-	16
62.34	323.6	217.1	225.4	3.5	10.8	1.1	6	clean SAND to silty SAND	125	5.0	43	65	93	43	-	16
62.50	329.5	220.8	220.8	2.8	10.1	0.9	6	clean SAND to silty SAND	125	5.0	44	66	93	44	-	16
62.67	347.1	232.3	232.3	2.8	9.5	0.8	6	clean SAND to silty SAND	125	5.0	46	69	95	44	-	16
62.83	347.9	232.6	232.6	2.9	9.1	0.8	6	clean SAND to silty SAND	125	5.0	47	70	95	44	-	16
63.00	358.1	239.1	239.1	3.5	9.8	1.0	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(476).cpt
CPT Date: 12/9/2008 7:20:34 AM
GW During Test: 12 ft

Sounding ID: CPT-08-62
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	354.3	236.3	245.6	4.2	11.4	1.2	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
63.32	388.7	258.9	258.9	3.3	9.7	0.9	6	clean SAND to silty SAND	125	5.0	52	78	95	44	-	16
63.49	475.0	316.0	316.0	2.4	9.4	0.5	6	clean SAND to silty SAND	125	5.0	63	95	95	45	-	16
63.65	509.3	338.4	338.4	3.5	8.8	0.7	6	clean SAND to silty SAND	125	5.0	68	100	95	46	-	16
63.82	484.8	321.7	321.7	5.4	9.3	1.1	6	clean SAND to silty SAND	125	5.0	64	97	95	45	-	16
63.98	444.9	294.9	294.9	4.8	13.6	1.1	6	clean SAND to silty SAND	125	5.0	59	89	95	45	-	16
64.14	462.8	306.4	306.4	3.5	8.6	0.8	6	clean SAND to silty SAND	125	5.0	61	93	95	45	-	16
64.31	428.9	283.6	283.6	2.5	12.5	0.6	6	clean SAND to silty SAND	125	5.0	57	86	95	45	-	16
64.47	389.4	257.2	257.2	2.9	11.9	0.7	6	clean SAND to silty SAND	125	5.0	51	78	95	44	-	16
64.64	381.1	251.4	251.4	3.1	11.7	0.8	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
64.80	387.5	255.4	255.4	3.2	11.9	0.8	6	clean SAND to silty SAND	125	5.0	51	78	95	44	-	16
64.96	401.7	264.4	264.4	2.9	11.5	0.7	6	clean SAND to silty SAND	125	5.0	53	80	95	44	-	16
65.13	413.8	272.0	272.0	2.9	11.4	0.7	6	clean SAND to silty SAND	125	5.0	54	83	95	44	-	16
65.29	409.9	269.2	269.2	2.8	14.5	0.7	6	clean SAND to silty SAND	125	5.0	54	82	95	44	-	16
65.46	398.9	261.6	261.6	2.7	14.5	0.7	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
65.62	393.6	257.9	257.9	2.9	13.5	0.8	6	clean SAND to silty SAND	125	5.0	52	79	95	44	-	16
65.78	382.1	250.0	250.0	3.3	14.1	0.9	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
65.95	382.7	250.1	250.1	2.9	13.1	0.8	6	clean SAND to silty SAND	125	5.0	50	77	95	44	-	16
66.11	375.5	245.1	245.1	2.6	12.8	0.7	6	clean SAND to silty SAND	125	5.0	49	75	95	44	-	16
66.28	387.2	252.5	252.5	2.7	12.8	0.7	6	clean SAND to silty SAND	125	5.0	50	77	95	44	-	16
66.44	400.4	260.8	260.8	3.2	14.0	0.8	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
66.60	400.3	260.4	260.4	2.7	13.1	0.7	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
66.77	395.5	257.0	257.0	2.6	14.1	0.7	6	clean SAND to silty SAND	125	5.0	51	79	95	44	-	16
66.93	408.2	265.0	265.0	2.8	14.5	0.7	6	clean SAND to silty SAND	125	5.0	53	82	95	44	-	16
67.10	422.8	274.1	274.1	2.6	13.9	0.6	6	clean SAND to silty SAND	125	5.0	55	85	95	44	-	16
67.26	428.6	277.5	277.5	3.6	14.0	0.8	6	clean SAND to silty SAND	125	5.0	56	86	95	44	-	16
67.42	435.5	281.7	281.7	3.0	13.8	0.7	6	clean SAND to silty SAND	125	5.0	56	87	95	44	-	16
67.59	413.8	267.4	267.4	3.6	12.1	0.9	6	clean SAND to silty SAND	125	5.0	53	83	95	44	-	16
67.75	394.2	254.4	254.4	3.5	11.9	0.9	6	clean SAND to silty SAND	125	5.0	51	79	95	44	-	16
67.92	373.5	240.8	240.8	3.2	13.8	0.9	6	clean SAND to silty SAND	125	5.0	48	75	95	44	-	16
68.08	375.3	241.6	241.6	3.2	13.2	0.9	6	clean SAND to silty SAND	125	5.0	48	75	95	44	-	16
68.24	366.5	235.7	235.7	3.6	12.8	1.0	6	clean SAND to silty SAND	125	5.0	47	73	95	44	-	16
68.41	361.2	232.1	238.6	4.0	13.3	1.1	6	clean SAND to silty SAND	125	5.0	46	72	95	44	-	16
68.57	361.0	231.6	243.1	4.4	14.4	1.2	6	clean SAND to silty SAND	125	5.0	46	72	95	43	-	16
68.74	421.2	270.0	269.8	4.7	12.5	1.1	6	clean SAND to silty SAND	125	5.0	54	84	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(411).cpt
CPT Date: 11/18/2008 8:54:29 AM
GW During Test: 12 ft

Sounding ID: CPT-08-63
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	84.3	135.3	135.3	0.0	0.1	0.1	6	clean SAND to silty SAND	125	5.0	27	17	77	48	-	16
0.49	122.2	196.0	196.0	0.0	0.2	0.1	7	grvly SAND to dense SAND	130	6.0	33	20	89	48	-	16
0.66	163.3	261.9	261.9	0.0	0.1	0.1	7	grvly SAND to dense SAND	130	6.0	44	27	95	48	-	16
0.82	155.3	249.1	249.1	0.1	0.0	0.1	7	grvly SAND to dense SAND	130	6.0	42	26	95	48	-	16
0.98	123.7	198.4	198.4	0.1	0.1	0.1	7	grvly SAND to dense SAND	130	6.0	33	21	90	48	-	16
1.15	114.5	183.7	183.7	0.7	0.0	0.6	6	clean SAND to silty SAND	125	5.0	37	23	87	48	-	16
1.31	113.8	182.5	182.5	0.6	0.1	0.5	6	clean SAND to silty SAND	125	5.0	37	23	87	48	-	16
1.48	96.0	154.0	154.0	0.5	0.1	0.5	6	clean SAND to silty SAND	125	5.0	31	19	81	48	-	16
1.64	84.7	135.9	136.7	0.5	0.1	0.6	6	clean SAND to silty SAND	125	5.0	27	17	77	48	-	16
1.80	79.4	127.4	136.0	0.6	0.2	0.7	6	clean SAND to silty SAND	125	5.0	25	16	75	48	-	16
1.97	69.6	111.6	123.4	0.5	0.2	0.8	6	clean SAND to silty SAND	125	5.0	22	14	71	48	-	16
2.13	52.1	83.5	116.0	0.7	0.2	1.4	5	silty SAND to sandy SILT	120	4.0	21	13	61	47	-	16
2.30	37.0	59.4	105.9	0.7	0.4	1.8	5	silty SAND to sandy SILT	120	4.0	15	9	50	45	-	16
2.46	32.9	52.8	96.3	0.5	0.4	1.6	5	silty SAND to sandy SILT	120	4.0	13	8	46	44	-	16
2.62	39.7	63.7	89.8	0.4	0.4	1.0	5	silty SAND to sandy SILT	120	4.0	16	10	52	45	-	16
2.79	43.6	69.9	88.2	0.3	0.3	0.8	6	clean SAND to silty SAND	125	5.0	14	9	55	45	-	16
2.95	44.1	70.6	78.0	0.2	0.3	0.4	6	clean SAND to silty SAND	125	5.0	14	9	56	45	-	16
3.12	45.4	72.8	81.3	0.2	0.3	0.4	6	clean SAND to silty SAND	125	5.0	15	9	57	45	-	16
3.28	82.8	132.9	133.5	0.4	0.4	0.5	6	clean SAND to silty SAND	125	5.0	27	17	76	47	-	16
3.45	121.3	194.5	194.5	0.9	0.3	0.7	6	clean SAND to silty SAND	125	5.0	39	24	89	48	-	16
3.61	121.5	194.9	201.8	1.2	0.3	1.0	6	clean SAND to silty SAND	125	5.0	39	24	89	48	-	16
3.77	111.8	179.2	191.8	1.2	0.1	1.1	6	clean SAND to silty SAND	125	5.0	36	22	86	48	-	16
3.94	89.3	143.3	161.6	1.0	0.3	1.1	6	clean SAND to silty SAND	125	5.0	29	18	79	47	-	16
4.10	66.4	106.4	126.9	0.7	0.3	1.0	6	clean SAND to silty SAND	125	5.0	21	13	69	46	-	16
4.27	49.1	78.8	103.4	0.5	0.3	1.1	6	clean SAND to silty SAND	125	5.0	16	10	59	44	-	16
4.43	41.2	66.1	93.9	0.5	0.3	1.1	5	silty SAND to sandy SILT	120	4.0	17	10	53	43	-	16
4.59	41.9	67.2	95.9	0.5	0.3	1.1	5	silty SAND to sandy SILT	120	4.0	17	10	54	43	-	16
4.76	45.0	72.1	114.0	0.7	0.3	1.7	5	silty SAND to sandy SILT	120	4.0	18	11	56	44	-	16
4.92	41.9	67.2	127.3	1.0	0.3	2.3	5	silty SAND to sandy SILT	120	4.0	17	10	54	43	-	16
5.09	47.8	76.7	157.4	1.5	0.5	3.1	5	silty SAND to sandy SILT	120	4.0	19	12	58	44	-	16
5.25	68.3	109.6	201.0	2.3	0.7	3.4	5	silty SAND to sandy SILT	120	4.0	27	17	70	45	-	16
5.41	66.7	107.0	217.4	2.7	-3.6	4.0	9	very stiff fine SOIL	120	2.0	53	33	69	45	-	30
5.58	78.7	126.3	216.0	2.6	-3.2	3.3	5	silty SAND to sandy SILT	120	4.0	32	20	75	46	-	16
5.74	59.1	94.8	202.9	2.3	-3.7	4.0	4	clayy SILT to silty CLAY	115	2.0	47	30	-	-	4.2	15
5.91	52.1	83.6	194.8	2.1	-3.6	4.1	4	clayy SILT to silty CLAY	115	2.0	42	26	-	-	3.7	15
6.07	54.6	86.8	196.6	2.2	-3.6	4.1	4	clayy SILT to silty CLAY	115	2.0	43	27	-	-	3.8	15
6.23	72.0	113.0	205.6	2.5	-3.4	3.4	5	silty SAND to sandy SILT	120	4.0	28	18	71	45	-	16
6.40	73.1	113.3	208.8	2.6	-3.7	3.5	5	silty SAND to sandy SILT	120	4.0	28	18	71	45	-	16
6.56	47.5	72.7	190.0	2.1	-3.7	4.5	4	clayy SILT to silty CLAY	115	2.0	36	24	-	-	3.3	15
6.73	32.1	51.4	-	1.6	-3.2	5.0	4	clayy SILT to silty CLAY	115	2.0	26	16	-	-	2.2	15
6.89	34.6	51.8	147.8	1.3	-2.9	3.8	4	clayy SILT to silty CLAY	115	2.0	26	17	-	-	2.4	15
7.05	31.5	46.7	132.6	1.0	-2.7	3.4	4	clayy SILT to silty CLAY	115	2.0	23	16	-	-	2.2	15
7.22	27.4	43.9	141.4	1.1	-2.2	4.0	4	clayy SILT to silty CLAY	115	2.0	22	14	-	-	1.9	15
7.38	32.6	47.1	128.5	1.0	-2.1	3.2	4	clayy SILT to silty CLAY	115	2.0	24	16	-	-	2.3	15
7.55	32.0	45.8	145.5	1.3	-2.0	4.0	4	clayy SILT to silty CLAY	115	2.0	23	16	-	-	2.2	15
7.71	32.9	46.7	147.6	1.3	-2.6	4.1	4	clayy SILT to silty CLAY	115	2.0	23	16	-	-	2.3	15
7.87	28.4	45.6	-	1.3	-2.5	4.5	4	clayy SILT to silty CLAY	115	2.0	23	14	-	-	2.0	15
8.04	30.6	42.5	121.1	0.9	-2.4	3.1	4	clayy SILT to silty CLAY	115	2.0	21	15	-	-	2.1	15
8.20	34.7	47.8	126.7	1.0	-2.5	3.0	4	clayy SILT to silty CLAY	115	2.0	24	17	-	-	2.4	15
8.37	63.1	86.1	136.8	1.3	-2.4	2.0	5	silty SAND to sandy SILT	120	4.0	22	16	62	44	-	16
8.53	90.2	121.9	141.2	1.0	-3.5	1.1	6	clean SAND to silty SAND	125	5.0	24	18	74	45	-	16
8.69	90.4	121.0	152.3	1.3	-1.0	1.5	6	clean SAND to silty SAND	125	5.0	24	18	73	45	-	16
8.86	60.1	79.7	139.2	1.4	-0.1	2.3	5	silty SAND to sandy SILT	120	4.0	20	15	60	43	-	16
9.02	47.9	62.9	116.8	1.0	-0.1	2.0	5	silty SAND to sandy SILT	120	4.0	16	12	52	42	-	16
9.19	82.7	107.6	127.2	0.8	0.0	1.0	6	clean SAND to silty SAND	125	5.0	22	17	69	45	-	16
9.35	100.8	130.1	140.7	0.8	-0.2	0.8	6	clean SAND to silty SAND	125	5.0	26	20	76	45	-	16
9.51	77.2	98.8	137.6	1.3	-0.1	1.7	5	silty SAND to sandy SILT	120	4.0	25	19	67	44	-	16
9.68	52.4	66.5	118.7	1.0	-0.1	2.0	5	silty SAND to sandy SILT	120	4.0	17	13	54	42	-	16
9.84	66.1	83.1	113.2	0.8	-0.1	1.3	5	silty SAND to sandy SILT	120	4.0	21	17	61	43	-	16
10.01	70.5	88.0	127.8	1.2	-0.1	1.7	5	silty SAND to sandy SILT	120	4.0	22	18	63	44	-	16
10.17	50.3	62.2	114.6	1.0	-0.1	2.0	5	silty SAND to sandy SILT	120	4.0	16	13	51	42	-	16
10.34	27.8	37.9	118.9	0.9	-0.2	3.2	4	clayy SILT to silty CLAY	115	2.0	19	14	-	-	1.9	15
10.50	21.0	33.1	-	0.7	-0.2	3.5	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.5	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(411).cpt
CPT Date: 11/18/2008 8:54:29 AM
GW During Test: 12 ft

Sounding ID: CPT-08-63
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	20.1	26.8	-	0.5	-0.1	2.8	4	clayy SILT to silty CLAY	115	2.0	13	10	-	-	1.4	15
10.83	22.2	26.6	87.9	0.5	0.2	2.3	4	clayy SILT to silty CLAY	115	2.0	13	11	-	-	1.5	15
10.99	29.0	34.5	87.5	0.5	1.1	1.9	5	silty SAND to sandy SILT	120	4.0	9	7	32	38	-	16
11.16	25.9	30.7	93.7	0.6	0.0	2.4	4	clayy SILT to silty CLAY	115	2.0	15	13	-	-	1.8	15
11.32	18.4	27.0	-	0.7	0.2	3.8	4	clayy SILT to silty CLAY	115	2.0	13	9	-	-	1.3	15
11.48	14.4	20.8	-	0.7	0.2	4.8	3	silty CLAY to CLAY	115	1.5	14	10	-	-	1.0	15
11.65	14.7	21.0	-	0.6	0.6	4.2	3	silty CLAY to CLAY	115	1.5	14	10	-	-	1.0	15
11.81	13.5	19.0	-	0.6	0.5	4.5	3	silty CLAY to CLAY	115	1.5	13	9	-	-	0.9	15
11.98	13.1	18.2	-	0.5	0.5	4.1	3	silty CLAY to CLAY	115	1.5	12	9	-	-	0.9	15
12.14	10.3	14.3	-	0.4	0.4	4.5	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.7	15
12.30	8.4	11.5	-	0.3	0.4	4.5	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
12.47	7.5	10.2	-	0.3	0.5	3.8	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
12.63	6.9	9.3	-	0.2	0.6	3.6	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
12.80	8.1	11.0	-	0.3	0.6	3.6	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
12.96	8.5	11.4	-	0.3	0.5	4.1	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
13.12	8.0	10.7	-	0.3	0.4	3.8	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
13.29	8.2	10.8	-	0.3	0.4	4.0	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
13.45	8.1	10.7	-	0.3	0.3	4.6	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
13.62	9.2	12.0	-	0.4	0.3	4.3	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
13.78	8.7	11.3	-	0.3	0.3	4.4	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
13.94	8.7	11.3	-	0.3	0.3	4.0	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
14.11	8.7	11.2	-	0.3	0.4	4.0	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
14.27	8.1	10.4	-	0.3	0.5	4.4	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
14.44	8.2	10.4	-	0.3	0.5	4.2	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
14.60	7.9	10.0	-	0.3	0.6	4.1	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
14.76	7.8	9.8	-	0.3	0.7	4.0	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
14.93	7.4	9.2	-	0.3	0.7	4.0	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.09	6.9	8.6	-	0.2	1.9	3.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.26	7.8	9.6	-	0.4	2.0	5.6	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.42	12.5	15.4	-	0.7	2.1	5.7	3	silty CLAY to CLAY	115	1.5	10	8	-	-	0.8	15
15.58	15.5	19.0	-	0.9	1.6	6.1	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.1	15
15.75	13.6	16.6	-	1.0	1.6	7.5	3	silty CLAY to CLAY	115	1.5	11	9	-	-	0.9	15
15.91	13.6	16.5	-	0.9	1.8	7.3	3	silty CLAY to CLAY	115	1.5	11	9	-	-	0.9	15
16.08	13.5	16.2	-	1.0	1.9	7.8	3	silty CLAY to CLAY	115	1.5	11	9	-	-	0.9	15
16.24	13.5	16.2	-	0.9	1.9	7.0	3	silty CLAY to CLAY	115	1.5	11	9	-	-	0.9	15
16.40	11.8	14.1	-	0.6	1.9	5.5	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
16.57	8.8	10.4	-	0.4	1.8	5.4	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
16.73	7.8	9.2	-	0.4	2.0	6.0	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.90	7.9	9.3	-	0.4	3.3	5.8	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
17.06	7.4	8.7	-	0.5	3.4	7.2	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
17.23	8.4	9.8	-	0.5	3.5	7.2	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
17.39	9.9	11.4	-	0.6	3.6	6.6	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
17.55	8.7	10.0	-	0.6	3.6	7.6	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
17.72	7.9	9.1	-	0.5	3.7	7.7	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
17.88	7.8	8.9	-	0.6	3.8	8.5	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
18.05	8.2	9.3	-	0.6	3.9	8.7	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
18.21	9.1	10.3	-	0.7	4.0	8.2	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
18.37	9.5	10.7	-	0.7	4.0	7.8	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
18.54	9.9	11.1	-	0.7	4.2	8.4	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
18.70	10.0	11.1	-	0.7	4.3	8.1	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
18.87	10.7	11.8	-	0.6	4.7	6.8	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
19.03	9.4	10.3	-	0.6	4.8	7.1	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
19.19	8.8	9.6	-	0.5	4.9	6.6	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
19.36	8.3	9.1	-	0.4	5.0	6.0	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	15
19.52	7.3	7.9	-	0.3	5.1	5.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
19.69	6.4	6.9	-	0.3	5.1	5.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
19.85	6.1	6.6	-	0.3	5.2	6.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
20.01	15.7	16.8	-	0.4	5.3	2.4	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.1	15
20.18	18.4	19.7	-	0.4	4.0	2.2	4	clayy SILT to silty CLAY	115	2.0	10	9	-	-	1.3	15
20.34	10.9	11.6	-	0.3	1.8	3.4	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
20.51	8.2	8.7	-	0.3	1.9	4.3	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
20.67	10.8	11.3	-	0.3	4.0	3.5	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
20.83	8.4	8.8	-	0.4	4.1	5.3	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	15
21.00	7.8	8.1	-	0.4	4.3	6.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(411).cpt
CPT Date: 11/18/2008 8:54:29 AM
GW During Test: 12 ft

Sounding ID: CPT-08-63
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	7.9	8.2	-	0.4	4.5	6.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.33	8.2	8.5	-	0.5	4.6	6.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
21.49	9.3	9.6	-	0.5	4.7	6.2	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
21.65	9.5	9.7	-	0.5	4.8	6.5	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
21.82	9.4	9.6	-	0.5	5.0	6.4	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
21.98	9.1	9.2	-	0.5	5.1	6.4	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
22.15	8.5	8.6	-	0.5	5.2	6.5	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
22.31	8.6	8.6	-	0.4	5.3	6.0	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
22.47	8.4	8.4	-	0.4	5.4	5.5	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	15
22.64	8.4	8.4	-	0.4	5.5	5.2	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	15
22.80	8.5	8.5	-	0.4	5.6	5.1	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
22.97	8.8	8.7	-	0.3	5.7	3.9	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
23.13	17.6	17.3	-	0.3	5.6	1.7	4	clayy SILT to silty CLAY	115	2.0	9	9	-	-	1.2	15
23.30	22.5	21.6	67.5	0.3	5.6	1.4	4	clayy SILT to silty CLAY	115	2.0	11	11	-	-	1.5	15
23.46	32.5	31.2	66.1	0.3	5.4	1.1	5	silty SAND to sandy SILT	120	4.0	8	8	29	36	-	16
23.62	36.3	34.8	65.7	0.3	4.9	0.9	5	silty SAND to sandy SILT	120	4.0	9	9	32	36	-	16
23.79	40.2	38.4	65.5	0.3	4.9	0.8	5	silty SAND to sandy SILT	120	4.0	10	10	35	37	-	16
23.95	39.6	37.8	68.0	0.4	3.3	0.9	5	silty SAND to sandy SILT	120	4.0	9	10	35	37	-	16
24.12	45.1	42.9	72.5	0.4	3.0	1.0	5	silty SAND to sandy SILT	120	4.0	11	11	39	38	-	16
24.28	47.5	45.1	75.7	0.5	3.0	1.0	5	silty SAND to sandy SILT	120	4.0	11	12	41	38	-	16
24.44	52.3	49.5	79.5	0.5	3.0	1.0	5	silty SAND to sandy SILT	120	4.0	12	13	44	38	-	16
24.61	52.8	49.9	81.1	0.6	3.0	1.1	5	silty SAND to sandy SILT	120	4.0	12	13	44	38	-	16
24.77	53.1	50.1	84.3	0.6	3.1	1.2	5	silty SAND to sandy SILT	120	4.0	13	13	44	38	-	16
24.94	47.1	44.3	81.1	0.6	3.1	1.3	5	silty SAND to sandy SILT	120	4.0	11	12	40	38	-	16
25.10	37.3	35.0	86.0	0.6	3.4	1.8	5	silty SAND to sandy SILT	120	4.0	9	9	32	36	-	16
25.26	21.8	20.3	-	0.6	3.3	2.7	4	clayy SILT to silty CLAY	115	2.0	10	11	-	-	1.5	15
25.43	13.9	12.9	-	0.4	3.4	3.2	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
25.59	9.1	8.4	-	0.3	3.6	3.5	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
25.76	8.6	7.9	-	0.2	3.9	2.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
25.92	8.0	7.3	-	0.2	4.1	3.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.08	7.9	7.2	-	0.2	4.4	3.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.25	8.1	7.3	-	0.2	4.5	3.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.41	7.9	7.2	-	0.2	4.7	3.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.58	8.1	7.3	-	0.2	4.9	3.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.74	7.8	7.0	-	0.3	5.0	4.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.90	9.0	8.1	-	0.3	5.2	4.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
27.07	12.3	11.0	-	0.4	5.2	3.7	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
27.23	12.2	10.8	-	0.4	5.3	3.8	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
27.40	18.5	16.3	-	0.4	5.1	2.3	4	clayy SILT to silty CLAY	115	2.0	8	9	-	-	1.2	15
27.56	15.0	13.2	-	0.5	4.5	3.4	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
27.72	14.2	12.5	-	0.4	4.4	3.5	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
27.89	15.5	13.5	-	0.3	4.0	2.4	4	clayy SILT to silty CLAY	115	2.0	7	8	-	-	1.0	15
28.05	11.0	9.6	-	0.3	3.8	3.4	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
28.22	9.1	7.9	-	0.3	13.1	4.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.38	9.0	7.8	-	0.3	13.5	4.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.54	8.8	7.6	-	0.4	13.8	5.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.71	15.0	12.9	-	0.3	14.1	2.3	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
28.87	22.6	19.3	-	0.3	10.9	1.5	4	clayy SILT to silty CLAY	115	2.0	10	11	-	-	1.5	15
29.04	15.7	13.3	-	0.3	10.4	1.9	4	clayy SILT to silty CLAY	115	2.0	7	8	-	-	1.0	15
29.20	9.4	8.0	-	0.3	9.1	3.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.36	8.7	7.4	-	0.3	10.0	4.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.53	8.9	7.5	-	0.4	10.7	5.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.69	10.1	8.5	-	0.4	11.3	4.6	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
29.86	10.8	9.1	-	0.3	11.5	3.3	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
30.02	10.1	8.4	-	0.3	16.2	4.1	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
30.19	9.6	8.0	-	0.5	17.2	5.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.35	10.6	8.8	-	0.5	17.9	6.1	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
30.51	9.9	8.2	-	0.5	18.4	5.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
30.68	10.1	8.3	-	0.4	18.9	4.7	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
30.84	10.4	8.5	-	0.3	19.1	3.8	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
31.01	9.6	7.8	-	0.3	19.2	3.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.17	8.0	6.5	-	0.3	19.3	4.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.33	8.6	6.9	-	0.3	19.8	4.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
31.50	9.1	7.4	-	0.3	20.3	4.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(411).cpt
CPT Date: 11/18/2008 8:54:29 AM
GW During Test: 12 ft

Sounding ID: CPT-08-63
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	9.7	7.8	-	0.4	20.8	5.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.83	11.0	8.8	-	0.5	21.6	5.2	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
31.99	10.2	8.1	-	0.4	21.5	5.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
32.15	9.2	7.3	-	0.3	22.2	4.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
32.32	8.6	6.9	-	0.3	25.1	4.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
32.48	9.7	7.7	-	0.3	25.4	4.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
32.65	12.4	9.8	-	0.4	25.1	3.4	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
32.81	20.0	15.7	-	0.4	24.7	2.1	4	clayy SILT to silty CLAY	115	2.0	8	10	-	-	1.3	15
32.97	39.9	34.3	74.9	0.5	15.9	1.3	5	silty SAND to sandy SILT	120	4.0	9	10	32	35	-	16
33.14	33.6	28.9	74.7	0.5	12.5	1.5	5	silty SAND to sandy SILT	120	4.0	7	8	26	34	-	16
33.30	32.7	28.0	77.7	0.5	11.3	1.6	5	silty SAND to sandy SILT	120	4.0	7	8	25	34	-	16
33.47	18.3	14.2	-	0.5	8.2	3.0	3	silty CLAY to CLAY	115	1.5	9	12	-	-	1.2	15
33.63	11.2	8.6	-	0.4	9.0	4.8	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
33.79	11.8	9.1	-	0.3	9.8	3.0	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
33.96	9.1	7.0	-	0.3	10.2	4.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
34.12	9.3	7.1	-	0.3	10.9	4.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
34.29	10.6	8.0	-	0.3	11.6	4.0	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
34.45	10.9	8.3	-	0.4	12.1	4.6	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
34.61	11.2	8.5	-	0.4	12.9	4.4	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
34.78	11.5	8.7	-	0.4	13.4	4.6	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
34.94	10.4	7.8	-	0.5	14.0	5.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
35.11	9.5	7.1	-	0.4	14.3	5.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
35.27	9.5	7.1	-	0.3	20.3	3.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
35.43	9.6	7.1	-	0.3	20.8	3.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
35.60	9.8	7.3	-	0.3	21.2	3.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
35.76	9.7	7.2	-	0.3	21.5	3.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
35.93	9.9	7.3	-	0.3	21.9	4.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
36.09	11.6	8.6	-	0.4	22.4	4.7	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
36.26	20.8	15.3	-	0.6	23.1	3.1	3	silty CLAY to CLAY	115	1.5	10	14	-	-	1.4	15
36.42	43.5	36.1	85.4	0.7	12.9	1.7	5	silty SAND to sandy SILT	120	4.0	9	11	33	35	-	16
36.58	23.6	17.2	-	0.6	0.6	2.7	4	clayy SILT to silty CLAY	115	2.0	9	12	-	-	1.6	15
36.75	13.9	10.1	-	0.6	0.8	4.7	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
36.91	16.3	11.8	-	0.4	1.4	2.9	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
37.08	33.0	27.2	73.6	0.5	1.4	1.5	5	silty SAND to sandy SILT	120	4.0	7	8	24	33	-	16
37.24	35.7	29.4	74.6	0.5	1.2	1.4	5	silty SAND to sandy SILT	120	4.0	7	9	27	34	-	16
37.40	25.5	18.2	-	0.5	0.7	2.3	4	clayy SILT to silty CLAY	115	2.0	9	13	-	-	1.7	15
37.57	24.8	17.7	-	0.5	1.0	2.1	4	clayy SILT to silty CLAY	115	2.0	9	12	-	-	1.7	15
37.73	16.6	11.8	-	0.4	0.5	2.9	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
37.90	11.3	8.0	-	0.4	0.8	4.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
38.06	10.4	7.4	-	0.3	1.1	3.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.22	9.8	6.9	-	0.3	1.5	3.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
38.39	9.0	6.3	-	0.3	1.9	3.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
38.55	9.4	6.6	-	0.2	4.0	3.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
38.72	9.0	6.3	-	0.2	4.4	3.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
38.88	8.9	6.2	-	0.2	4.8	3.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
39.04	8.9	6.2	-	0.3	5.2	4.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
39.21	20.9	14.5	-	0.4	5.6	2.1	4	clayy SILT to silty CLAY	115	2.0	7	10	-	-	1.4	15
39.37	43.4	35.0	71.6	0.5	4.7	1.1	5	silty SAND to sandy SILT	120	4.0	9	11	32	35	-	16
39.54	62.7	50.5	77.6	0.6	4.0	0.9	5	silty SAND to sandy SILT	120	4.0	13	16	44	37	-	16
39.70	57.8	46.5	57.0	0.2	4.1	0.3	6	clean SAND to silty SAND	125	5.0	9	12	42	36	-	16
39.86	35.6	24.3	-	0.8	4.2	2.3	4	clayy SILT to silty CLAY	115	2.0	12	18	-	-	2.4	15
40.03	17.9	12.2	-	0.8	5.6	5.4	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
40.19	19.1	13.0	-	0.7	5.3	4.1	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
40.36	14.0	9.5	-	0.5	5.5	4.2	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
40.52	14.1	9.5	-	0.3	6.1	2.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
40.68	13.5	9.1	-	0.3	6.4	3.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
40.85	13.0	8.8	-	0.4	6.8	3.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
41.01	12.7	8.5	-	0.4	7.1	3.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
41.18	11.1	7.4	-	0.4	7.4	4.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
41.34	12.7	8.5	-	0.4	7.7	3.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
41.50	16.4	10.9	-	0.5	8.0	3.6	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
41.67	31.5	20.9	-	0.5	8.2	1.7	4	clayy SILT to silty CLAY	115	2.0	10	16	-	-	2.1	15
41.83	100.3	79.1	92.0	0.6	7.0	0.6	6	clean SAND to silty SAND	125	5.0	16	20	59	39	-	16
42.00	132.1	104.1	111.4	0.7	6.4	0.5	6	clean SAND to silty SAND	125	5.0	21	26	68	41	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(411).cpt
CPT Date: 11/18/2008 8:54:29 AM
GW During Test: 12 ft

Sounding ID: CPT-08-63
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	144.3	113.5	121.7	0.9	6.0	0.6	6	clean SAND to silty SAND	125	5.0	23	29	71	41	-	16
42.32	171.8	134.9	140.2	1.1	5.9	0.7	6	clean SAND to silty SAND	125	5.0	27	34	77	42	-	16
42.49	186.9	146.5	151.3	1.3	5.6	0.7	6	clean SAND to silty SAND	125	5.0	29	37	80	43	-	16
42.65	195.4	152.9	156.5	1.4	5.5	0.7	6	clean SAND to silty SAND	125	5.0	31	39	81	43	-	16
42.82	206.8	161.6	164.6	1.5	5.6	0.7	6	clean SAND to silty SAND	125	5.0	32	41	83	43	-	16
42.98	230.4	179.7	181.9	1.8	5.7	0.8	6	clean SAND to silty SAND	125	5.0	36	46	86	44	-	16
43.15	247.1	192.4	198.4	2.3	5.8	1.0	6	clean SAND to silty SAND	125	5.0	38	49	89	44	-	16
43.31	256.9	199.7	206.6	2.6	5.9	1.0	6	clean SAND to silty SAND	125	5.0	40	51	90	44	-	16
43.47	261.4	202.9	203.0	2.3	6.0	0.9	6	clean SAND to silty SAND	125	5.0	41	52	90	44	-	16
43.64	262.9	203.7	203.7	1.8	6.0	0.7	6	clean SAND to silty SAND	125	5.0	41	53	90	44	-	16
43.80	262.6	203.1	203.1	1.6	6.1	0.6	6	clean SAND to silty SAND	125	5.0	41	53	90	44	-	16
43.97	259.4	200.3	200.3	1.6	6.2	0.6	6	clean SAND to silty SAND	125	5.0	40	52	90	44	-	16
44.13	255.8	197.2	197.2	1.7	6.3	0.7	6	clean SAND to silty SAND	125	5.0	39	51	89	44	-	16
44.29	250.5	192.8	192.8	1.7	6.4	0.7	6	clean SAND to silty SAND	125	5.0	39	50	89	44	-	16
44.46	246.2	189.2	189.2	1.7	6.5	0.7	6	clean SAND to silty SAND	125	5.0	38	49	88	44	-	16
44.62	245.3	188.3	188.3	1.7	6.6	0.7	6	clean SAND to silty SAND	125	5.0	38	49	88	44	-	16
44.79	250.5	192.0	192.0	1.7	6.8	0.7	6	clean SAND to silty SAND	125	5.0	38	50	89	44	-	16
44.95	221.4	169.4	173.9	1.8	6.8	0.8	6	clean SAND to silty SAND	125	5.0	34	44	84	43	-	16
45.11	249.1	190.2	190.2	1.8	6.9	0.7	6	clean SAND to silty SAND	125	5.0	38	50	88	44	-	16
45.28	236.3	180.2	180.2	1.7	6.8	0.7	6	clean SAND to silty SAND	125	5.0	36	47	86	43	-	16
45.44	225.8	171.9	171.9	1.6	6.8	0.7	6	clean SAND to silty SAND	125	5.0	34	45	85	43	-	16
45.61	215.6	163.9	166.6	1.6	5.9	0.7	6	clean SAND to silty SAND	125	5.0	33	43	83	43	-	16
45.77	212.8	161.5	166.9	1.7	5.9	0.8	6	clean SAND to silty SAND	125	5.0	32	43	83	43	-	16
45.93	196.8	149.1	159.8	1.7	5.9	0.9	6	clean SAND to silty SAND	125	5.0	30	39	80	42	-	16
46.10	175.5	132.8	148.6	1.7	6.0	1.0	6	clean SAND to silty SAND	125	5.0	27	35	76	42	-	16
46.26	148.5	112.2	129.4	1.4	5.8	0.9	6	clean SAND to silty SAND	125	5.0	22	30	71	41	-	16
46.43	112.8	85.1	112.4	1.3	5.8	1.2	6	clean SAND to silty SAND	125	5.0	17	23	62	39	-	16
46.59	71.1	53.6	111.2	1.4	5.8	2.1	5	silty SAND to sandy SILT	120	4.0	13	18	46	37	-	16
46.75	38.8	23.3	-	1.3	5.8	3.6	4	clayy SILT to silty CLAY	115	2.0	12	19	-	-	2.6	15
46.92	25.3	15.1	-	1.0	6.0	4.5	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
47.08	22.2	13.2	-	0.6	6.5	3.1	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.5	15
47.25	18.5	11.0	-	0.6	7.0	3.8	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
47.41	17.8	10.6	-	0.5	7.5	3.6	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
47.57	21.0	12.5	-	0.8	8.0	4.4	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
47.74	24.3	14.3	-	1.2	8.4	5.5	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.6	15
47.90	57.5	42.8	109.9	1.3	8.9	2.4	5	silty SAND to sandy SILT	120	4.0	11	14	39	35	-	16
48.07	90.0	67.0	109.6	1.4	5.1	1.6	5	silty SAND to sandy SILT	120	4.0	17	23	54	38	-	16
48.23	109.0	81.0	118.2	1.6	4.7	1.5	5	silty SAND to sandy SILT	120	4.0	20	27	60	39	-	16
48.39	120.6	89.5	127.4	1.8	4.8	1.6	5	silty SAND to sandy SILT	120	4.0	22	30	63	40	-	16
48.56	124.6	92.3	130.8	1.9	4.9	1.6	5	silty SAND to sandy SILT	120	4.0	23	31	64	40	-	16
48.72	126.9	93.9	138.5	2.2	4.9	1.8	5	silty SAND to sandy SILT	120	4.0	23	32	65	40	-	16
48.89	111.0	82.0	138.5	2.3	5.1	2.2	5	silty SAND to sandy SILT	120	4.0	21	28	60	39	-	16
49.05	63.6	36.7	-	2.4	5.0	4.0	4	clayy SILT to silty CLAY	115	2.0	18	32	-	-	4.4	15
49.22	62.1	35.8	-	2.0	5.6	3.3	4	clayy SILT to silty CLAY	115	2.0	18	31	-	-	4.3	15
49.38	217.9	160.4	169.7	1.9	5.7	0.9	6	clean SAND to silty SAND	125	5.0	32	44	83	43	-	16
49.54	289.1	212.6	212.6	1.9	5.0	0.7	6	clean SAND to silty SAND	125	5.0	43	58	92	44	-	16
49.71	316.8	232.6	232.6	1.8	5.2	0.6	6	clean SAND to silty SAND	125	5.0	47	63	95	44	-	16
49.87	332.2	243.5	243.5	2.1	5.4	0.6	6	clean SAND to silty SAND	125	5.0	49	66	95	45	-	16
50.04	334.6	244.9	244.9	2.4	6.4	0.7	6	clean SAND to silty SAND	125	5.0	49	67	95	45	-	16
50.20	341.8	249.8	249.8	2.4	6.5	0.7	6	clean SAND to silty SAND	125	5.0	50	68	95	45	-	16
50.36	339.8	248.0	248.0	2.3	6.6	0.7	6	clean SAND to silty SAND	125	5.0	50	68	95	45	-	16
50.53	341.2	248.7	248.7	2.2	6.7	0.6	6	clean SAND to silty SAND	125	5.0	50	68	95	45	-	16
50.69	349.4	254.3	254.3	2.1	6.9	0.6	6	clean SAND to silty SAND	125	5.0	51	70	95	45	-	16
50.86	352.4	256.1	256.1	2.1	7.1	0.6	6	clean SAND to silty SAND	125	5.0	51	70	95	45	-	16
51.02	346.9	251.7	251.7	2.0	7.2	0.6	6	clean SAND to silty SAND	125	5.0	50	69	95	45	-	16
51.18	343.8	249.1	249.1	1.9	7.4	0.5	6	clean SAND to silty SAND	125	5.0	50	69	95	45	-	16
51.35	331.5	239.8	239.8	1.8	7.5	0.6	6	clean SAND to silty SAND	125	5.0	48	66	95	44	-	16
51.51	332.1	239.9	239.9	1.7	7.7	0.5	6	clean SAND to silty SAND	125	5.0	48	66	95	44	-	16
51.68	337.2	243.3	243.3	1.8	8.0	0.5	6	clean SAND to silty SAND	125	5.0	49	67	95	44	-	16
51.84	353.8	254.9	254.9	2.0	8.2	0.6	6	clean SAND to silty SAND	125	5.0	51	71	95	45	-	16
52.00	371.3	267.1	267.1	2.1	8.4	0.6	6	clean SAND to silty SAND	125	5.0	53	74	95	45	-	16
52.17	379.0	272.3	272.3	2.2	8.5	0.6	6	clean SAND to silty SAND	125	5.0	54	76	95	45	-	16
52.33	374.4	268.6	268.6	2.1	8.5	0.6	6	clean SAND to silty SAND	125	5.0	54	75	95	45	-	16
52.50	370.7	265.6	265.6	2.1	8.5	0.6	6	clean SAND to silty SAND	125	5.0	53	74	95	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(411).cpt
CPT Date: 11/18/2008 8:54:29 AM
GW During Test: 12 ft

Sounding ID: CPT-08-63
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	377.2	269.9	269.9	2.1	8.7	0.6	6	clean SAND to silty SAND	125	5.0	54	75	95	45	-	16
52.82	382.1	273.0	273.0	2.2	8.7	0.6	6	clean SAND to silty SAND	125	5.0	55	76	95	45	-	16
52.99	385.7	275.2	275.2	2.1	8.8	0.6	6	clean SAND to silty SAND	125	5.0	55	77	95	45	-	16
53.15	395.0	281.4	281.4	2.1	8.9	0.5	6	clean SAND to silty SAND	125	5.0	56	79	95	45	-	16
53.32	395.3	281.2	281.2	2.1	8.9	0.5	6	clean SAND to silty SAND	125	5.0	56	79	95	45	-	16
53.48	398.4	283.0	283.0	2.2	9.0	0.6	6	clean SAND to silty SAND	125	5.0	57	80	95	45	-	16
53.64	400.9	284.5	284.5	2.2	9.1	0.5	6	clean SAND to silty SAND	125	5.0	57	80	95	45	-	16
53.81	404.8	286.8	286.8	2.1	9.2	0.5	6	clean SAND to silty SAND	125	5.0	57	81	95	45	-	16
53.97	413.8	292.8	292.8	1.9	9.3	0.5	6	clean SAND to silty SAND	125	5.0	59	83	95	45	-	16
54.14	425.7	300.8	300.8	2.0	9.4	0.5	6	clean SAND to silty SAND	125	5.0	60	85	95	45	-	16
54.30	432.9	305.5	305.5	2.1	9.4	0.5	6	clean SAND to silty SAND	125	5.0	61	87	95	45	-	16
54.46	434.6	306.3	306.3	2.3	9.6	0.5	6	clean SAND to silty SAND	125	5.0	61	87	95	45	-	16
54.63	421.2	296.4	296.4	2.3	9.7	0.6	6	clean SAND to silty SAND	125	5.0	59	84	95	45	-	16
54.79	421.5	296.2	296.2	2.0	9.8	0.5	6	clean SAND to silty SAND	125	5.0	59	84	95	45	-	16
54.96	389.5	273.4	273.4	1.9	9.9	0.5	6	clean SAND to silty SAND	125	5.0	55	78	95	45	-	16
55.12	424.1	297.3	297.3	2.0	8.6	0.5	6	clean SAND to silty SAND	125	5.0	59	85	95	45	-	16
55.28	426.8	298.7	298.7	2.2	8.7	0.5	6	clean SAND to silty SAND	125	5.0	60	85	95	45	-	16
55.45	428.5	299.5	299.5	2.1	8.7	0.5	6	clean SAND to silty SAND	125	5.0	60	86	95	45	-	16
55.61	393.4	274.6	274.6	2.0	8.7	0.5	6	clean SAND to silty SAND	125	5.0	55	79	95	45	-	16
55.78	413.2	288.1	288.1	2.0	8.1	0.5	6	clean SAND to silty SAND	125	5.0	58	83	95	45	-	16
55.94	386.5	269.1	269.1	1.9	8.1	0.5	6	clean SAND to silty SAND	125	5.0	54	77	95	45	-	16
56.11	356.4	247.8	247.8	1.6	8.1	0.5	6	clean SAND to silty SAND	125	5.0	50	71	95	44	-	16
56.27	310.1	215.4	215.4	1.6	8.1	0.5	6	clean SAND to silty SAND	125	5.0	43	62	92	44	-	16
56.43	257.1	178.3	178.3	1.2	8.0	0.5	6	clean SAND to silty SAND	125	5.0	36	51	86	43	-	16
56.60	184.5	127.8	127.8	0.8	7.8	0.5	6	clean SAND to silty SAND	125	5.0	26	37	75	41	-	16
56.76	122.2	84.5	93.6	0.6	7.7	0.5	6	clean SAND to silty SAND	125	5.0	17	24	61	39	-	16
56.93	85.0	58.7	72.3	0.4	7.5	0.5	6	clean SAND to silty SAND	125	5.0	12	17	49	37	-	16
57.09	72.6	50.1	74.7	0.6	7.6	0.8	5	silty SAND to sandy SILT	120	4.0	13	18	44	36	-	16
57.25	76.9	53.0	80.5	0.7	7.3	1.0	5	silty SAND to sandy SILT	120	4.0	13	19	46	36	-	16
57.42	69.0	47.5	73.4	0.6	5.7	0.8	5	silty SAND to sandy SILT	120	4.0	12	17	42	35	-	16
57.58	32.7	16.4	-	0.6	4.1	2.2	4	clayy SILT to silty CLAY	115	2.0	8	16	-	-	2.2	15
57.75	19.4	9.7	-	0.6	4.5	3.8	3	silty CLAY to CLAY	115	1.5	6	13	-	-	1.3	15
57.91	10.2	5.1	-	0.3	5.2	5.0	3	silty CLAY to CLAY	115	1.5	3	7	-	-	0.6	15
58.07	8.7	4.3	-	0.2	6.1	4.2	3	silty CLAY to CLAY	115	1.5	3	6	-	-	0.5	15
58.24	7.7	3.8	-	0.1	7.5	1.4	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.4	15
58.40	6.7	3.3	-	0.0	8.8	1.1	1	sensitive fine SOIL	115	2.0	2	3	-	-	0.4	15
58.57	6.1	3.0	-	0.0	9.9	0.9	1	sensitive fine SOIL	115	2.0	2	3	-	-	0.3	15
58.73	6.2	3.1	-	0.1	10.7	2.5	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.3	15
58.89	6.8	3.3	-	0.2	11.5	6.0	2	Organic SOILS - Peats	100	1.0	3	7	-	-	0.5	10
59.06	11.7	5.8	-	0.2	18.4	2.5	3	silty CLAY to CLAY	115	1.5	4	8	-	-	0.7	15
59.22	7.1	3.5	-	0.2	16.6	6.5	2	Organic SOILS - Peats	100	1.0	3	7	-	-	0.6	10
59.39	6.6	3.3	-	0.2	17.9	7.2	2	Organic SOILS - Peats	100	1.0	3	7	-	-	0.5	10
59.55	9.5	4.7	-	0.4	19.6	6.6	2	Organic SOILS - Peats	100	1.0	5	10	-	-	0.8	10
59.71	42.2	28.6	70.0	0.5	17.2	1.2	5	silty SAND to sandy SILT	120	4.0	7	11	26	32	-	16
59.88	33.6	16.4	-	0.9	14.3	3.0	3	silty CLAY to CLAY	115	1.5	11	22	-	-	2.2	15
60.04	34.7	16.9	-	1.1	13.8	3.7	3	silty CLAY to CLAY	115	1.5	11	23	-	-	2.3	15
60.21	29.6	14.4	-	0.9	12.4	3.3	3	silty CLAY to CLAY	115	1.5	10	20	-	-	2.0	15
60.37	51.8	35.0	89.1	0.9	12.5	1.8	5	silty SAND to sandy SILT	120	4.0	9	13	32	33	-	16
60.53	53.2	35.9	94.0	1.0	8.0	2.0	5	silty SAND to sandy SILT	120	4.0	9	13	33	33	-	16
60.70	49.5	23.9	-	1.0	8.3	2.1	4	clayy SILT to silty CLAY	115	2.0	12	25	-	-	3.4	15
60.86	43.0	20.7	-	1.0	6.3	2.4	4	clayy SILT to silty CLAY	115	2.0	10	21	-	-	2.9	15
61.03	38.3	18.4	-	0.8	5.7	2.4	4	clayy SILT to silty CLAY	115	2.0	9	19	-	-	2.6	15
61.19	44.6	21.4	-	0.8	5.4	1.8	4	clayy SILT to silty CLAY	115	2.0	11	22	-	-	3.0	15
61.35	54.2	25.9	-	1.4	5.5	2.7	4	clayy SILT to silty CLAY	115	2.0	13	27	-	-	3.7	15
61.52	56.7	27.1	-	2.1	5.5	3.9	4	clayy SILT to silty CLAY	115	2.0	14	28	-	-	3.9	15
61.68	118.4	79.4	136.9	2.5	6.3	2.2	5	silty SAND to sandy SILT	120	4.0	20	30	59	38	-	16
61.85	407.5	272.8	272.8	2.8	4.1	0.7	6	clean SAND to silty SAND	125	5.0	55	81	95	45	-	16
62.01	694.3	464.3	464.3	2.5	7.7	0.4	7	grvly SAND to dense SAND	130	6.0	77	100	95	47	-	16
62.17	779.7	520.7	520.7	2.5	10.2	0.3	7	grvly SAND to dense SAND	130	6.0	87	100	95	47	-	16
62.34	780.9	520.8	520.8	5.2	13.2	0.7	7	grvly SAND to dense SAND	130	6.0	87	100	95	47	-	16
62.50	710.3	473.1	473.1	6.3	13.8	0.9	6	clean SAND to silty SAND	125	5.0	95	100	95	47	-	16
62.67	756.0	502.9	502.9	7.0	12.9	0.9	6	clean SAND to silty SAND	125	5.0	100	100	95	47	-	16
62.83	660.5	438.8	438.8	4.4	13.6	0.7	6	clean SAND to silty SAND	125	5.0	88	100	95	47	-	16
63.00	635.8	422.0	422.0	4.2	10.5	0.7	6	clean SAND to silty SAND	125	5.0	84	100	95	46	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(411).cpt
CPT Date: 11/18/2008 8:54:29 AM
GW During Test: 12 ft

Sounding ID: CPT-08-63
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	578.5	383.5	383.5	3.3	8.3	0.6	7	grvly SAND to dense SAND	130	6.0	64	96	95	46	-	16
63.32	531.2	351.7	351.7	2.9	6.3	0.5	7	grvly SAND to dense SAND	130	6.0	59	89	95	46	-	16
63.49	446.2	295.0	295.0	2.4	8.0	0.5	6	clean SAND to silty SAND	125	5.0	59	89	95	45	-	16
63.65	458.5	302.8	302.8	4.0	7.5	0.9	6	clean SAND to silty SAND	125	5.0	61	92	95	45	-	16
63.82	483.0	318.6	318.6	2.8	7.1	0.6	6	clean SAND to silty SAND	125	5.0	64	97	95	45	-	16
63.98	497.6	327.8	327.8	2.8	7.5	0.6	6	clean SAND to silty SAND	125	5.0	66	100	95	45	-	16
64.14	497.6	327.5	327.5	2.8	7.5	0.6	6	clean SAND to silty SAND	125	5.0	65	100	95	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(477).cpt
CPT Date: 12/9/2008 12:35:22 PM
GW During Test: 12 ft

Sounding ID: CPT-08-64
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	37.2	59.6	119.0	0.8	0.0	2.3	5	silty SAND to sandy SILT	120	4.0	15	9	50	48	-	16
0.49	35.8	57.5	177.8	1.7	0.0	4.8	4	clayy SILT to silty CLAY	115	2.0	29	18	-	-	2.5	15
0.66	49.5	79.4	175.5	1.8	-0.1	3.6	4	clayy SILT to silty CLAY	115	2.0	40	25	-	-	3.5	15
0.82	73.6	118.0	186.8	2.0	0.0	2.7	5	silty SAND to sandy SILT	120	4.0	29	18	72	48	-	16
0.98	73.9	118.5	169.6	1.6	0.0	2.1	5	silty SAND to sandy SILT	120	4.0	30	18	73	48	-	16
1.15	62.2	99.7	182.6	2.0	0.0	3.1	5	silty SAND to sandy SILT	120	4.0	25	16	67	48	-	16
1.31	65.7	105.3	186.4	2.0	0.0	3.1	5	silty SAND to sandy SILT	120	4.0	26	16	69	48	-	16
1.48	73.9	118.5	196.0	2.2	-0.1	3.0	5	silty SAND to sandy SILT	120	4.0	30	18	73	48	-	16
1.64	77.4	124.1	199.6	2.3	-0.1	2.9	5	silty SAND to sandy SILT	120	4.0	31	19	74	48	-	16
1.80	74.0	118.7	193.5	2.1	-0.1	2.9	5	silty SAND to sandy SILT	120	4.0	30	18	73	48	-	16
1.97	71.2	114.2	186.0	2.0	0.0	2.8	5	silty SAND to sandy SILT	120	4.0	29	18	71	48	-	16
2.13	58.4	93.7	164.7	1.6	0.0	2.7	5	silty SAND to sandy SILT	120	4.0	23	15	65	48	-	16
2.30	46.4	74.4	175.7	1.8	-0.2	3.8	4	clayy SILT to silty CLAY	115	2.0	37	23	-	-	3.3	15
2.46	51.9	83.2	218.5	2.6	-0.3	5.0	9	very stiff fine SOIL	120	2.0	42	26	61	47	-	30
2.62	61.7	99.0	251.6	3.4	-0.4	5.5	9	very stiff fine SOIL	120	2.0	50	31	67	47	-	30
2.79	57.8	92.8	257.4	3.5	-2.3	6.0	9	very stiff fine SOIL	120	2.0	46	29	65	47	-	30
2.95	55.8	89.4	262.6	3.5	-2.8	6.4	9	very stiff fine SOIL	120	2.0	45	28	63	46	-	30
3.12	86.5	138.7	306.3	4.8	-1.7	5.6	9	very stiff fine SOIL	120	2.0	69	43	78	48	-	30
3.28	140.2	224.8	350.9	5.8	-1.9	4.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	9.3	16
3.45	91.1	146.1	314.2	5.0	0.0	5.5	9	very stiff fine SOIL	120	2.0	73	46	80	48	-	30
3.61	66.6	106.9	271.1	3.8	0.0	5.8	9	very stiff fine SOIL	120	2.0	53	33	69	46	-	30
3.77	53.6	85.9	229.0	2.8	-0.1	5.3	9	very stiff fine SOIL	120	2.0	43	27	62	45	-	30
3.94	49.3	79.1	200.6	2.2	-0.1	4.6	4	clayy SILT to silty CLAY	115	2.0	40	25	-	-	3.5	15
4.10	46.5	74.6	187.7	2.0	-0.1	4.3	4	clayy SILT to silty CLAY	115	2.0	37	23	-	-	3.3	15
4.27	53.3	85.6	192.6	2.1	-0.1	4.0	4	clayy SILT to silty CLAY	115	2.0	43	27	-	-	3.8	15
4.43	57.4	92.1	203.0	2.3	-0.1	4.1	4	clayy SILT to silty CLAY	115	2.0	46	29	-	-	4.0	15
4.59	60.3	96.7	211.9	2.5	-0.1	4.2	4	clayy SILT to silty CLAY	115	2.0	48	30	-	-	4.2	15
4.76	61.3	98.3	211.8	2.5	-0.1	4.2	9	very stiff fine SOIL	120	2.0	49	31	66	45	-	30
4.92	72.5	116.3	241.2	3.2	0.0	4.4	9	very stiff fine SOIL	120	2.0	58	36	72	46	-	30
5.09	69.7	111.8	260.7	3.6	-0.1	5.2	9	very stiff fine SOIL	120	2.0	56	35	71	46	-	30
5.25	56.1	90.0	256.1	3.4	0.2	6.1	9	very stiff fine SOIL	120	2.0	45	28	64	45	-	30
5.41	54.0	86.6	240.9	3.1	0.1	5.7	9	very stiff fine SOIL	120	2.0	43	27	62	44	-	30
5.58	51.8	83.1	232.5	2.9	-0.2	5.6	9	very stiff fine SOIL	120	2.0	42	26	61	44	-	30
5.74	56.2	90.1	233.1	2.9	-0.5	5.2	9	very stiff fine SOIL	120	2.0	45	28	64	44	-	30
5.91	67.6	108.3	248.3	3.3	-1.1	5.0	9	very stiff fine SOIL	120	2.0	54	34	70	45	-	30
6.07	99.0	158.9	296.2	4.6	-1.1	4.6	9	very stiff fine SOIL	120	2.0	79	50	82	47	-	30
6.23	142.5	227.6	325.2	5.0	-1.1	3.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	9.4	16
6.40	151.8	239.4	315.2	4.5	0.1	3.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.0	16
6.56	133.5	208.0	311.4	4.9	0.1	3.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	8.8	16
6.73	102.5	157.7	260.1	3.7	0.2	3.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	6.8	16
6.89	96.2	146.3	231.3	3.1	0.1	3.2	5	silty SAND to sandy SILT	120	4.0	37	24	80	46	-	16
7.05	147.8	222.2	251.7	2.5	0.0	1.7	6	clean SAND to silty SAND	125	5.0	44	30	93	48	-	16
7.22	188.3	279.6	280.7	2.2	0.2	1.2	6	clean SAND to silty SAND	125	5.0	56	38	95	48	-	16
7.38	230.0	337.6	337.6	2.4	0.2	1.0	6	clean SAND to silty SAND	125	5.0	68	46	95	48	-	16
7.55	227.1	329.4	329.4	2.5	0.2	1.1	6	clean SAND to silty SAND	125	5.0	66	45	95	48	-	16
7.71	205.7	295.0	295.0	2.2	0.2	1.1	6	clean SAND to silty SAND	125	5.0	59	41	95	48	-	16
7.87	165.3	234.5	248.5	2.2	0.3	1.3	6	clean SAND to silty SAND	125	5.0	47	33	95	48	-	16
8.04	102.6	144.0	199.5	2.4	0.3	2.3	5	silty SAND to sandy SILT	120	4.0	36	26	79	46	-	16
8.20	59.8	83.1	194.6	2.5	0.3	4.2	4	clayy SILT to silty CLAY	115	2.0	42	30	-	-	4.2	15
8.37	42.4	58.3	190.2	2.2	0.4	5.3	4	clayy SILT to silty CLAY	115	2.0	29	21	-	-	3.0	15
8.53	38.3	52.2	172.7	1.9	0.4	4.9	4	clayy SILT to silty CLAY	115	2.0	26	19	-	-	2.7	15
8.69	29.3	47.0	-	1.5	-0.7	5.1	4	clayy SILT to silty CLAY	115	2.0	24	15	-	-	2.0	15
8.86	26.5	42.4	-	1.3	0.2	5.1	3	silty CLAY to CLAY	115	1.5	28	18	-	-	1.8	15
9.02	24.2	38.7	-	1.1	0.2	4.4	4	clayy SILT to silty CLAY	115	2.0	19	12	-	-	1.7	15
9.19	22.3	35.7	-	0.9	0.0	4.2	4	clayy SILT to silty CLAY	115	2.0	18	11	-	-	1.5	15
9.35	20.9	33.5	-	0.9	-0.3	4.2	4	clayy SILT to silty CLAY	115	2.0	17	10	-	-	1.4	15
9.51	20.6	33.0	-	0.8	-0.4	4.1	4	clayy SILT to silty CLAY	115	2.0	17	10	-	-	1.4	15
9.68	19.6	31.4	-	0.9	-0.4	4.5	3	silty CLAY to CLAY	115	1.5	21	13	-	-	1.4	15
9.84	18.6	29.8	-	0.9	-0.5	4.7	3	silty CLAY to CLAY	115	1.5	20	12	-	-	1.3	15
10.01	17.6	28.2	-	0.8	-0.3	4.6	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.2	15
10.17	15.0	24.0	-	0.7	-0.3	4.8	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
10.34	12.9	20.7	-	0.6	-0.2	5.0	3	silty CLAY to CLAY	115	1.5	14	9	-	-	0.9	15
10.50	11.5	18.5	-	0.5	-0.5	5.0	3	silty CLAY to CLAY	115	1.5	12	8	-	-	0.8	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Earth Mechanics
Data File: SDF(477).cpt
CPT Date: 12/9/2008 12:35:22 PM
GW During Test: 12 ft

Sounding ID: CPT-08-64
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	10.9	17.2	-	0.5	-0.7	5.3	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
10.83	11.6	18.1	-	0.6	-0.8	5.1	3	silty CLAY to CLAY	115	1.5	12	8	-	-	0.8	15
10.99	10.6	16.4	-	0.6	-0.9	5.7	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
11.16	10.3	15.7	-	0.6	-1.0	5.8	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.7	15
11.32	10.5	15.8	-	0.5	-1.0	5.5	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
11.48	9.9	14.6	-	0.5	-1.2	5.5	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.7	15
11.65	9.8	14.3	-	0.5	-0.8	5.1	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.7	15
11.81	10.0	14.4	-	0.4	-0.5	4.4	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.7	15
11.98	9.6	13.7	-	0.4	-0.4	4.8	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.7	15
12.14	9.6	13.6	-	0.4	-0.5	4.9	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.7	15
12.30	9.6	13.4	-	0.4	-0.5	4.9	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
12.47	9.4	13.1	-	0.4	-0.4	4.8	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.6	15
12.63	9.7	13.4	-	0.4	-0.3	4.5	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.7	15
12.80	10.4	14.2	-	0.4	-0.3	4.4	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
12.96	10.0	13.7	-	0.4	-0.4	4.0	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
13.12	10.2	13.8	-	0.4	-0.3	3.7	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
13.29	10.1	13.7	-	0.4	-0.3	3.9	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
13.45	9.1	12.3	-	0.3	-0.3	4.0	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
13.62	8.2	10.9	-	0.3	-0.3	3.7	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
13.78	7.3	9.6	-	0.3	-0.2	4.8	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
13.94	9.8	13.0	-	0.4	-0.1	4.2	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
14.11	9.5	12.5	-	0.5	-0.1	5.9	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
14.27	14.8	19.3	-	0.7	0.0	5.1	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.0	15
14.44	14.3	18.5	-	0.9	0.0	6.8	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.0	15
14.60	13.9	18.0	-	0.8	0.0	6.4	3	silty CLAY to CLAY	115	1.5	12	9	-	-	0.9	15
14.76	12.2	15.6	-	0.7	0.1	6.6	3	silty CLAY to CLAY	115	1.5	10	8	-	-	0.8	15
14.93	11.0	14.1	-	0.6	0.1	6.3	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
15.09	10.3	13.1	-	0.8	0.2	8.5	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
15.26	10.5	13.2	-	0.8	0.2	7.9	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
15.42	12.8	16.1	-	0.8	0.5	7.0	3	silty CLAY to CLAY	115	1.5	11	9	-	-	0.9	15
15.58	13.0	16.3	-	0.8	0.5	6.8	3	silty CLAY to CLAY	115	1.5	11	9	-	-	0.9	15
15.75	11.6	14.4	-	0.7	0.5	6.7	3	silty CLAY to CLAY	115	1.5	10	8	-	-	0.8	15
15.91	9.7	12.0	-	0.6	0.6	6.7	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
16.08	15.2	18.7	-	0.6	0.6	3.9	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.0	15
16.24	23.8	29.1	-	0.7	0.2	2.9	4	clayy SILT to silty CLAY	115	2.0	15	12	-	-	1.6	15
16.40	16.6	20.2	-	0.6	-3.4	4.0	3	silty CLAY to CLAY	115	1.5	13	11	-	-	1.1	15
16.57	10.8	13.1	-	0.4	-1.4	4.3	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
16.73	6.8	8.2	-	0.3	-1.2	5.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
16.90	6.4	7.6	-	0.3	-1.1	5.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.06	20.0	22.2	-	0.4	-1.1	1.9	4	clayy SILT to silty CLAY	115	2.0	11	10	-	-	1.4	15
17.23	27.7	29.3	76.7	0.4	-2.6	1.6	5	silty SAND to sandy SILT	120	4.0	7	7	27	36	-	16
17.39	21.0	24.8	-	0.5	-2.6	2.6	4	clayy SILT to silty CLAY	115	2.0	12	11	-	-	1.4	15
17.55	11.2	13.2	-	0.4	-2.1	4.2	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.8	15
17.72	7.4	8.7	-	0.3	-1.9	5.3	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
17.88	6.6	7.7	-	0.3	-1.8	5.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
18.05	7.3	8.4	-	0.3	-1.7	4.1	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
18.21	9.3	10.7	-	0.2	-1.7	2.6	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
18.37	9.3	10.6	-	0.2	-1.7	2.3	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
18.54	8.5	9.7	-	0.2	-1.6	2.2	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
18.70	7.1	8.0	-	0.4	-1.5	6.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
18.87	8.5	9.6	-	0.5	1.1	7.4	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
19.03	8.1	9.1	-	0.5	1.3	6.8	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
19.19	6.6	7.3	-	0.3	1.5	5.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
19.36	5.8	6.4	-	0.2	1.9	4.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
19.52	5.6	6.2	-	0.2	2.0	4.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
19.69	5.7	6.3	-	0.2	2.2	4.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
19.85	6.2	6.8	-	0.2	2.3	4.4	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
20.01	11.4	12.4	-	0.3	2.3	3.0	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
20.18	10.9	11.8	-	0.4	2.2	3.6	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
20.34	31.7	32.0	82.0	0.5	2.2	1.7	5	silty SAND to sandy SILT	120	4.0	8	8	29	36	-	16
20.51	48.4	48.7	85.6	0.6	-0.9	1.3	5	silty SAND to sandy SILT	120	4.0	12	12	43	39	-	16
20.67	54.5	54.7	99.6	0.9	-0.8	1.6	5	silty SAND to sandy SILT	120	4.0	14	14	47	39	-	16
20.83	53.4	53.5	109.2	1.1	-0.4	2.1	5	silty SAND to sandy SILT	120	4.0	13	13	46	39	-	16
21.00	45.0	45.0	111.9	1.1	-0.3	2.5	5	silty SAND to sandy SILT	120	4.0	11	11	41	38	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(477).cpt
CPT Date: 12/9/2008 12:35:22 PM
GW During Test: 12 ft

Sounding ID: CPT-08-64
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	47.0	46.9	107.0	1.0	-0.2	2.2	5	silty SAND to sandy SILT	120	4.0	12	12	42	39	-	16
21.33	59.9	59.6	115.8	1.2	-1.8	2.1	5	silty SAND to sandy SILT	120	4.0	15	15	50	40	-	16
21.49	64.1	63.6	124.4	1.4	-2.8	2.3	5	silty SAND to sandy SILT	120	4.0	16	16	52	40	-	16
21.65	63.0	62.3	129.1	1.5	-2.7	2.5	5	silty SAND to sandy SILT	120	4.0	16	16	51	40	-	16
21.82	62.9	62.1	126.8	1.5	-2.5	2.4	5	silty SAND to sandy SILT	120	4.0	16	16	51	40	-	16
21.98	68.9	67.8	129.4	1.6	-2.3	2.3	5	silty SAND to sandy SILT	120	4.0	17	17	54	40	-	16
22.15	71.4	70.1	130.1	1.6	-1.5	2.3	5	silty SAND to sandy SILT	120	4.0	18	18	55	41	-	16
22.31	74.3	72.8	127.9	1.5	-1.4	2.1	5	silty SAND to sandy SILT	120	4.0	18	19	57	41	-	16
22.47	78.6	76.8	130.1	1.6	-1.3	2.1	5	silty SAND to sandy SILT	120	4.0	19	20	58	41	-	16
22.64	83.5	81.4	137.0	1.8	-1.2	2.2	5	silty SAND to sandy SILT	120	4.0	20	21	60	41	-	16
22.80	82.4	80.1	131.1	1.6	-0.9	2.0	5	silty SAND to sandy SILT	120	4.0	20	21	60	41	-	16
22.97	69.5	67.5	125.1	1.5	-0.9	2.2	5	silty SAND to sandy SILT	120	4.0	17	17	54	40	-	16
23.13	49.5	47.9	112.4	1.1	2.1	2.4	5	silty SAND to sandy SILT	120	4.0	12	12	43	38	-	16
23.30	30.9	30.5	-	0.9	0.5	3.2	4	clayy SILT to silty CLAY	115	2.0	15	15	-	-	2.1	15
23.46	16.0	15.8	-	0.6	-0.1	4.4	3	silty CLAY to CLAY	115	1.5	11	11	-	-	1.1	15
23.62	9.5	9.3	-	0.3	0.8	4.1	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
23.79	7.8	7.7	-	0.2	1.3	2.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.95	7.7	7.5	-	0.1	1.8	2.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.12	7.1	6.9	-	0.2	2.2	2.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
24.28	8.0	7.7	-	0.3	2.7	4.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.44	11.1	10.7	-	0.3	3.0	2.8	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
24.61	16.6	15.9	-	0.3	3.0	2.1	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.1	15
24.77	16.0	15.2	-	0.4	2.5	2.5	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.1	15
24.94	12.5	11.9	-	0.4	2.5	3.3	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
25.10	11.6	10.9	-	0.3	2.5	2.9	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
25.26	8.6	8.1	-	0.3	2.8	3.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
25.43	7.7	7.2	-	0.2	4.5	3.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
25.59	7.4	6.9	-	0.2	4.9	3.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
25.76	7.5	7.0	-	0.3	5.1	5.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
25.92	9.2	8.5	-	0.3	5.3	4.4	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
26.08	19.7	18.2	-	0.3	5.3	1.8	4	clayy SILT to silty CLAY	115	2.0	9	10	-	-	1.3	15
26.25	23.9	22.3	73.3	0.4	3.1	1.7	4	clayy SILT to silty CLAY	115	2.0	11	12	-	-	1.6	15
26.41	19.4	17.7	-	0.5	3.4	2.6	4	clayy SILT to silty CLAY	115	2.0	9	10	-	-	1.3	15
26.58	14.9	13.6	-	0.5	2.9	3.8	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
26.74	12.4	11.2	-	0.5	2.9	5.0	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
26.90	12.8	11.6	-	0.4	3.1	3.8	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.8	15
27.07	9.6	8.6	-	0.3	3.1	3.6	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
27.23	8.1	7.2	-	0.3	3.6	4.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.40	9.0	8.1	-	0.4	3.9	5.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
27.56	10.3	9.1	-	0.4	4.1	4.6	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
27.72	17.8	15.7	-	0.3	4.3	2.0	4	clayy SILT to silty CLAY	115	2.0	8	9	-	-	1.2	15
27.89	33.0	30.1	60.2	0.3	2.8	0.8	5	silty SAND to sandy SILT	120	4.0	8	8	27	35	-	16
28.05	29.6	27.0	75.4	0.4	1.3	1.6	5	silty SAND to sandy SILT	120	4.0	7	7	24	34	-	16
28.22	15.9	13.9	-	0.4	1.8	2.5	4	clayy SILT to silty CLAY	115	2.0	7	8	-	-	1.1	15
28.38	24.3	21.2	-	0.4	2.4	1.7	4	clayy SILT to silty CLAY	115	2.0	11	12	-	-	1.7	15
28.54	35.8	32.4	67.8	0.4	1.7	1.1	5	silty SAND to sandy SILT	120	4.0	8	9	30	35	-	16
28.71	45.7	41.3	72.0	0.4	2.9	1.0	5	silty SAND to sandy SILT	120	4.0	10	11	38	37	-	16
28.87	46.9	42.3	74.8	0.5	1.2	1.1	5	silty SAND to sandy SILT	120	4.0	11	12	39	37	-	16
29.04	42.5	38.2	73.6	0.5	0.3	1.1	5	silty SAND to sandy SILT	120	4.0	10	11	35	36	-	16
29.20	37.6	33.8	89.6	0.7	-1.5	2.0	5	silty SAND to sandy SILT	120	4.0	8	9	31	36	-	16
29.36	21.1	17.9	-	0.7	-0.6	3.7	3	silty CLAY to CLAY	115	1.5	12	14	-	-	1.4	15
29.53	12.1	10.3	-	0.5	-2.1	4.4	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
29.69	8.2	6.9	-	0.2	-1.8	3.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
29.86	7.9	6.6	-	0.1	-1.3	1.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.02	8.2	6.9	-	0.2	-0.9	2.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
30.19	8.7	7.3	-	0.2	-0.5	3.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.35	25.4	22.5	68.9	0.3	0.0	1.4	4	clayy SILT to silty CLAY	115	2.0	11	13	-	-	1.7	15
30.51	36.6	32.4	74.9	0.5	-0.2	1.4	5	silty SAND to sandy SILT	120	4.0	8	9	30	35	-	16
30.68	40.9	36.1	70.2	0.4	0.1	1.1	5	silty SAND to sandy SILT	120	4.0	9	10	33	36	-	16
30.84	52.6	46.4	75.9	0.5	-0.8	1.0	5	silty SAND to sandy SILT	120	4.0	12	13	42	37	-	16
31.01	54.0	47.6	89.3	0.8	-2.5	1.5	5	silty SAND to sandy SILT	120	4.0	12	14	42	37	-	16
31.17	54.1	47.5	98.1	0.9	-2.1	1.8	5	silty SAND to sandy SILT	120	4.0	12	14	42	37	-	16
31.33	51.3	45.0	106.1	1.1	-1.8	2.2	5	silty SAND to sandy SILT	120	4.0	11	13	41	37	-	16
31.50	43.1	37.7	106.5	1.1	-1.5	2.6	4	clayy SILT to silty CLAY	115	2.0	19	22	-	-	3.0	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(477).cpt
CPT Date: 12/9/2008 12:35:22 PM
GW During Test: 12 ft

Sounding ID: CPT-08-64
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	39.0	34.1	102.1	0.9	-1.2	2.5	4	clayy SILT to silty CLAY	115	2.0	17	19	-	-	2.7	15
31.83	34.3	27.6	-	0.9	-1.1	2.8	4	clayy SILT to silty CLAY	115	2.0	14	17	-	-	2.4	15
31.99	23.6	18.9	-	0.6	-1.0	3.0	4	clayy SILT to silty CLAY	115	2.0	9	12	-	-	1.6	15
32.15	12.5	10.0	-	0.3	0.3	3.1	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
32.32	7.0	5.6	-	0.2	-0.1	3.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
32.48	7.1	5.6	-	0.1	0.9	2.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
32.65	7.4	5.9	-	0.1	1.6	2.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.81	7.4	5.9	-	0.2	2.3	2.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.97	8.1	6.4	-	0.1	3.1	2.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
33.14	7.3	5.7	-	0.1	3.8	2.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
33.30	7.3	5.7	-	0.1	5.0	2.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
33.47	7.9	6.2	-	0.2	5.9	3.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
33.63	11.1	8.6	-	0.2	6.8	2.5	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
33.79	18.7	14.5	-	0.3	7.1	2.1	4	clayy SILT to silty CLAY	115	2.0	7	9	-	-	1.3	15
33.96	46.2	39.4	67.7	0.4	5.0	0.9	5	silty SAND to sandy SILT	120	4.0	10	12	36	36	-	16
34.12	61.5	52.4	78.0	0.5	0.7	0.9	5	silty SAND to sandy SILT	120	4.0	13	15	46	38	-	16
34.29	66.1	56.1	83.1	0.6	-3.7	1.0	5	silty SAND to sandy SILT	120	4.0	14	17	48	38	-	16
34.45	56.9	48.2	92.9	0.9	-7.5	1.6	5	silty SAND to sandy SILT	120	4.0	12	14	43	37	-	16
34.61	34.7	26.4	-	0.8	-8.4	2.5	4	clayy SILT to silty CLAY	115	2.0	13	17	-	-	2.4	15
34.78	19.8	15.0	-	0.7	-8.3	4.0	3	silty CLAY to CLAY	115	1.5	10	13	-	-	1.3	15
34.94	24.7	18.6	-	0.8	-7.8	3.6	3	silty CLAY to CLAY	115	1.5	12	16	-	-	1.7	15
35.11	51.3	43.2	103.4	1.1	-7.3	2.2	5	silty SAND to sandy SILT	120	4.0	11	13	39	36	-	16
35.27	57.3	48.2	107.9	1.2	-7.2	2.2	5	silty SAND to sandy SILT	120	4.0	12	14	43	37	-	16
35.43	47.5	39.9	107.4	1.1	-7.0	2.5	4	clayy SILT to silty CLAY	115	2.0	20	24	-	-	3.3	15
35.60	45.0	37.7	87.0	0.7	-6.8	1.7	5	silty SAND to sandy SILT	120	4.0	9	11	35	36	-	16
35.76	31.1	23.1	-	0.8	-7.6	2.7	4	clayy SILT to silty CLAY	115	2.0	12	16	-	-	2.1	15
35.93	16.5	12.2	-	0.5	-7.5	3.6	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
36.09	11.3	8.3	-	0.3	-7.3	3.4	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
36.26	10.8	8.0	-	0.2	-7.0	2.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
36.42	10.2	7.4	-	0.2	-6.8	2.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
36.58	10.3	7.5	-	0.3	-6.6	3.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
36.75	11.3	8.2	-	0.5	-6.4	5.0	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
36.91	16.9	12.3	-	0.4	-6.2	2.9	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
37.08	33.5	27.7	67.3	0.4	-6.1	1.2	5	silty SAND to sandy SILT	120	4.0	7	8	25	33	-	16
37.24	38.3	31.6	75.1	0.5	-6.4	1.4	5	silty SAND to sandy SILT	120	4.0	8	10	29	34	-	16
37.40	22.7	16.3	-	0.4	-6.2	2.2	4	clayy SILT to silty CLAY	115	2.0	8	11	-	-	1.5	15
37.57	13.7	9.8	-	0.3	-6.0	2.2	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
37.73	9.8	7.0	-	0.2	-5.7	2.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
37.90	9.1	6.5	-	0.1	-5.4	1.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
38.06	9.3	6.6	-	0.2	-5.2	3.0	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
38.22	10.5	7.5	-	0.3	-5.0	3.3	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
38.39	16.0	11.3	-	0.2	-3.9	1.6	4	clayy SILT to silty CLAY	115	2.0	6	8	-	-	1.1	15
38.55	11.8	8.3	-	0.3	-3.8	3.0	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.72	13.5	9.4	-	0.4	-3.5	3.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
38.88	20.6	14.4	-	0.4	-3.4	2.1	4	clayy SILT to silty CLAY	115	2.0	7	10	-	-	1.4	15
39.04	18.3	12.7	-	0.4	-3.6	2.3	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
39.21	12.5	8.7	-	0.4	-3.5	3.5	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
39.37	12.5	8.7	-	0.5	-3.2	4.5	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
39.54	14.6	10.1	-	0.8	-2.9	6.7	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.9	15
39.70	21.4	14.7	-	1.0	-2.8	5.3	3	silty CLAY to CLAY	115	1.5	10	14	-	-	1.4	15
39.86	78.7	63.3	111.6	1.4	-2.7	1.8	5	silty SAND to sandy SILT	120	4.0	16	20	52	38	-	16
40.03	117.2	94.2	137.8	2.1	-4.7	1.8	5	silty SAND to sandy SILT	120	4.0	24	29	65	40	-	16
40.19	124.2	99.7	152.3	2.6	-4.6	2.1	5	silty SAND to sandy SILT	120	4.0	25	31	67	41	-	16
40.36	126.4	101.3	161.8	2.9	-4.3	2.4	5	silty SAND to sandy SILT	120	4.0	25	32	67	41	-	16
40.52	129.4	103.5	170.7	3.3	-4.1	2.6	5	silty SAND to sandy SILT	120	4.0	26	32	68	41	-	16
40.68	133.9	106.9	178.1	3.6	-2.4	2.7	5	silty SAND to sandy SILT	120	4.0	27	33	69	41	-	16
40.85	138.3	110.2	184.1	3.8	-2.2	2.8	5	silty SAND to sandy SILT	120	4.0	28	35	70	41	-	16
41.01	130.3	103.7	178.6	3.6	-2.0	2.8	5	silty SAND to sandy SILT	120	4.0	26	33	68	41	-	16
41.18	119.2	94.8	170.4	3.3	-1.9	2.8	5	silty SAND to sandy SILT	120	4.0	24	30	65	40	-	16
41.34	111.6	88.5	165.6	3.2	-1.7	2.9	5	silty SAND to sandy SILT	120	4.0	22	28	63	40	-	16
41.50	103.2	81.7	130.6	1.9	-1.6	1.9	5	silty SAND to sandy SILT	120	4.0	20	26	60	40	-	16
41.67	92.4	73.0	127.4	1.9	-1.4	2.1	5	silty SAND to sandy SILT	120	4.0	18	23	57	39	-	16
41.83	28.4	18.8	-	1.4	3.1	5.2	3	silty CLAY to CLAY	115	1.5	13	19	-	-	1.9	15
42.00	23.2	15.3	-	0.9	3.7	4.3	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.5	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(477).cpt
CPT Date: 12/9/2008 12:35:22 PM
GW During Test: 12 ft

Sounding ID: CPT-08-64
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	19.9	13.1	-	0.6	4.6	3.5	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
42.32	15.9	10.4	-	0.6	5.3	4.1	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
42.49	18.0	11.8	-	0.7	6.3	4.7	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
42.65	28.8	18.8	-	0.7	6.5	2.7	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.9	15
42.82	28.9	18.8	-	0.6	4.3	2.2	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.9	15
42.98	17.5	11.3	-	0.7	3.5	4.8	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.1	15
43.15	17.4	11.2	-	0.9	4.6	5.9	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.1	15
43.31	58.0	45.3	105.4	1.2	5.2	2.2	5	silty SAND to sandy SILT	120	4.0	11	15	41	36	-	16
43.47	132.2	102.9	137.7	2.0	-1.5	1.5	5	silty SAND to sandy SILT	120	4.0	26	33	68	41	-	16
43.64	169.9	132.1	170.1	2.9	-6.0	1.7	6	clean SAND to silty SAND	125	5.0	26	34	76	42	-	16
43.80	180.1	139.8	187.7	3.7	-7.6	2.1	5	silty SAND to sandy SILT	120	4.0	35	45	78	42	-	16
43.97	198.4	153.8	198.5	3.9	-9.8	2.0	5	silty SAND to sandy SILT	120	4.0	38	50	81	43	-	16
44.13	214.1	165.7	200.2	3.6	-11.1	1.7	6	clean SAND to silty SAND	125	5.0	33	43	84	43	-	16
44.29	209.3	161.7	199.1	3.7	-11.6	1.8	6	clean SAND to silty SAND	125	5.0	32	42	83	43	-	16
44.46	195.9	151.1	196.5	3.9	-11.6	2.0	5	silty SAND to sandy SILT	120	4.0	38	49	81	43	-	16
44.62	187.8	144.6	186.4	3.5	-11.4	1.9	6	clean SAND to silty SAND	125	5.0	29	38	79	42	-	16
44.79	155.0	119.2	172.0	3.3	-11.2	2.2	5	silty SAND to sandy SILT	120	4.0	30	39	73	41	-	16
44.95	169.0	129.8	170.4	3.0	-11.1	1.8	5	silty SAND to sandy SILT	120	4.0	32	42	76	42	-	16
45.11	151.1	115.8	160.8	2.8	-11.0	1.9	5	silty SAND to sandy SILT	120	4.0	29	38	72	41	-	16
45.28	138.1	105.7	150.0	2.5	-10.6	1.8	5	silty SAND to sandy SILT	120	4.0	26	35	69	41	-	16
45.44	134.2	102.6	147.0	2.4	-10.5	1.8	5	silty SAND to sandy SILT	120	4.0	26	34	68	41	-	16
45.61	136.1	103.8	151.7	2.6	-10.4	2.0	5	silty SAND to sandy SILT	120	4.0	26	34	68	41	-	16
45.77	143.9	109.7	162.3	3.0	-10.3	2.1	5	silty SAND to sandy SILT	120	4.0	27	36	70	41	-	16
45.93	165.4	125.9	172.4	3.2	-10.2	2.0	5	silty SAND to sandy SILT	120	4.0	31	41	75	42	-	16
46.10	172.7	131.2	171.3	3.0	-10.1	1.8	5	silty SAND to sandy SILT	120	4.0	33	43	76	42	-	16
46.26	167.2	126.9	165.1	2.8	-10.0	1.7	6	clean SAND to silty SAND	125	5.0	25	33	75	42	-	16
46.43	160.9	121.9	164.9	2.9	-10.0	1.9	5	silty SAND to sandy SILT	120	4.0	30	40	74	41	-	16
46.59	160.5	121.4	168.4	3.1	-9.9	2.0	5	silty SAND to sandy SILT	120	4.0	30	40	73	41	-	16
46.75	161.8	122.2	165.8	3.0	-9.8	1.9	5	silty SAND to sandy SILT	120	4.0	31	40	74	41	-	16
46.92	162.5	122.6	161.3	2.7	-9.7	1.7	6	clean SAND to silty SAND	125	5.0	25	32	74	41	-	16
47.08	163.6	123.2	161.5	2.7	-9.6	1.7	6	clean SAND to silty SAND	125	5.0	25	33	74	41	-	16
47.25	167.6	126.0	162.7	2.7	-9.6	1.7	6	clean SAND to silty SAND	125	5.0	25	34	75	41	-	16
47.41	180.1	135.2	166.7	2.7	-9.5	1.5	6	clean SAND to silty SAND	125	5.0	27	36	77	42	-	16
47.57	192.3	144.2	168.3	2.5	-9.4	1.3	6	clean SAND to silty SAND	125	5.0	29	38	79	42	-	16
47.74	201.6	150.9	170.3	2.3	-9.3	1.2	6	clean SAND to silty SAND	125	5.0	30	40	81	42	-	16
47.90	200.6	149.9	167.1	2.2	-8.7	1.1	6	clean SAND to silty SAND	125	5.0	30	40	80	42	-	16
48.07	197.9	147.7	164.1	2.1	-8.6	1.1	6	clean SAND to silty SAND	125	5.0	30	40	80	42	-	16
48.23	198.5	147.9	167.8	2.3	-8.5	1.2	6	clean SAND to silty SAND	125	5.0	30	40	80	42	-	16
48.39	204.6	152.3	176.0	2.7	-8.4	1.3	6	clean SAND to silty SAND	125	5.0	30	41	81	42	-	16
48.56	207.1	153.9	181.3	3.0	-8.2	1.4	6	clean SAND to silty SAND	125	5.0	31	41	81	42	-	16
48.72	198.9	147.6	178.3	3.0	-8.1	1.5	6	clean SAND to silty SAND	125	5.0	30	40	80	42	-	16
48.89	177.0	131.1	166.2	2.8	-8.0	1.6	6	clean SAND to silty SAND	125	5.0	26	35	76	42	-	16
49.05	170.7	126.3	163.1	2.8	-7.9	1.7	6	clean SAND to silty SAND	125	5.0	25	34	75	41	-	16
49.22	185.5	137.0	177.0	3.3	-7.7	1.8	6	clean SAND to silty SAND	125	5.0	27	37	77	42	-	16
49.38	196.4	144.9	188.5	3.8	-7.6	1.9	5	silty SAND to sandy SILT	120	4.0	36	49	79	42	-	16
49.54	189.6	139.6	180.2	3.4	-7.4	1.8	6	clean SAND to silty SAND	125	5.0	28	38	78	42	-	16
49.71	184.1	135.4	171.0	3.0	-7.3	1.7	6	clean SAND to silty SAND	125	5.0	27	37	77	42	-	16
49.87	177.1	130.1	164.8	2.8	-7.2	1.6	6	clean SAND to silty SAND	125	5.0	26	35	76	41	-	16
50.04	157.2	115.3	155.4	2.7	-7.0	1.7	5	silty SAND to sandy SILT	120	4.0	29	39	72	41	-	16
50.20	132.1	96.7	153.6	2.9	-6.9	2.2	5	silty SAND to sandy SILT	120	4.0	24	33	66	40	-	16
50.36	111.0	81.1	163.9	3.3	-6.8	3.1	5	silty SAND to sandy SILT	120	4.0	20	28	60	39	-	16
50.53	65.5	37.0	-	2.8	-6.6	4.5	4	clayy SILT to silty CLAY	115	2.0	19	33	-	-	4.5	15
50.69	32.8	18.5	-	0.8	-6.5	2.6	4	clayy SILT to silty CLAY	115	2.0	9	16	-	-	2.2	15
50.86	23.0	13.0	-	0.4	-6.4	1.9	4	clayy SILT to silty CLAY	115	2.0	6	12	-	-	1.5	15
51.02	16.4	9.2	-	0.4	3.8	3.1	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
51.18	18.4	10.3	-	0.4	5.1	2.5	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
51.35	26.8	15.0	-	0.4	7.5	1.8	4	clayy SILT to silty CLAY	115	2.0	7	13	-	-	1.8	15
51.51	19.1	10.6	-	0.5	7.7	3.1	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.2	15
51.68	16.6	9.2	-	0.5	9.7	3.8	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
51.84	30.7	17.0	-	0.7	12.0	2.4	4	clayy SILT to silty CLAY	115	2.0	9	15	-	-	2.1	15
52.00	26.7	14.8	-	0.9	9.8	3.7	3	silty CLAY to CLAY	115	1.5	10	18	-	-	1.8	15
52.17	18.4	10.2	-	1.1	12.1	6.9	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
52.33	66.0	47.6	113.4	1.5	15.1	2.4	5	silty SAND to sandy SILT	120	4.0	12	16	42	36	-	16
52.50	82.5	59.4	122.7	1.8	8.4	2.3	5	silty SAND to sandy SILT	120	4.0	15	21	50	37	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(477).cpt
CPT Date: 12/9/2008 12:35:22 PM
GW During Test: 12 ft

Sounding ID: CPT-08-64
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	84.2	60.5	123.8	1.9	8.1	2.3	5	silty SAND to sandy SILT	120	4.0	15	21	50	37	-	16
52.82	94.8	68.0	126.4	2.0	6.5	2.2	5	silty SAND to sandy SILT	120	4.0	17	24	54	38	-	16
52.99	113.6	81.4	139.9	2.5	1.1	2.2	5	silty SAND to sandy SILT	120	4.0	20	28	60	39	-	16
53.15	156.3	111.9	169.3	3.5	0.7	2.3	5	silty SAND to sandy SILT	120	4.0	28	39	71	41	-	16
53.32	184.2	131.7	193.9	4.5	5.4	2.5	5	silty SAND to sandy SILT	120	4.0	33	46	76	41	-	16
53.48	198.3	141.6	208.6	5.1	6.2	2.6	5	silty SAND to sandy SILT	120	4.0	35	50	78	42	-	16
53.64	211.7	151.0	213.7	5.3	6.7	2.5	5	silty SAND to sandy SILT	120	4.0	38	53	81	42	-	16
53.81	227.5	162.0	224.6	5.7	6.9	2.5	5	silty SAND to sandy SILT	120	4.0	41	57	83	42	-	16
53.97	241.7	172.0	233.0	6.0	8.8	2.5	5	silty SAND to sandy SILT	120	4.0	43	60	85	43	-	16
54.14	252.9	179.7	239.8	6.2	8.7	2.5	5	silty SAND to sandy SILT	120	4.0	45	63	86	43	-	16
54.30	263.1	186.7	244.2	6.3	8.4	2.4	5	silty SAND to sandy SILT	120	4.0	47	66	88	43	-	16
54.46	266.7	189.0	240.5	5.9	7.7	2.3	5	silty SAND to sandy SILT	120	4.0	47	67	88	43	-	16
54.63	260.9	184.7	230.0	5.3	6.3	2.1	6	clean SAND to silty SAND	125	5.0	37	52	87	43	-	16
54.79	250.7	177.3	221.1	5.0	5.8	2.0	6	clean SAND to silty SAND	125	5.0	35	50	86	43	-	16
54.96	236.8	167.1	212.7	4.8	5.8	2.0	6	clean SAND to silty SAND	125	5.0	33	47	84	42	-	16
55.12	216.6	152.7	196.9	4.2	6.0	2.0	5	silty SAND to sandy SILT	120	4.0	38	54	81	42	-	16
55.28	194.3	136.8	170.5	3.1	6.3	1.6	6	clean SAND to silty SAND	125	5.0	27	39	77	41	-	16
55.45	158.0	111.1	146.4	2.4	5.7	1.6	6	clean SAND to silty SAND	125	5.0	22	32	70	40	-	16
55.61	139.2	97.7	146.1	2.7	5.9	2.0	5	silty SAND to sandy SILT	120	4.0	24	35	66	40	-	16
55.78	146.4	102.7	162.3	3.3	6.7	2.3	5	silty SAND to sandy SILT	120	4.0	26	37	68	40	-	16
55.94	159.7	111.9	174.4	3.8	7.8	2.5	5	silty SAND to sandy SILT	120	4.0	28	40	71	40	-	16
56.11	181.8	127.2	188.7	4.4	8.4	2.4	5	silty SAND to sandy SILT	120	4.0	32	45	75	41	-	16
56.27	214.9	150.2	208.0	5.0	8.8	2.4	5	silty SAND to sandy SILT	120	4.0	38	54	80	42	-	16
56.43	238.4	166.4	225.2	5.7	9.0	2.4	5	silty SAND to sandy SILT	120	4.0	42	60	84	42	-	16
56.60	251.5	175.3	237.8	6.3	8.9	2.5	5	silty SAND to sandy SILT	120	4.0	44	63	86	43	-	16
56.76	253.7	176.6	240.2	6.5	8.6	2.6	5	silty SAND to sandy SILT	120	4.0	44	63	86	43	-	16
56.93	247.2	171.9	236.1	6.3	8.1	2.6	5	silty SAND to sandy SILT	120	4.0	43	62	85	43	-	16
57.09	240.2	166.9	227.8	5.9	7.8	2.5	5	silty SAND to sandy SILT	120	4.0	42	60	84	42	-	16
57.25	227.4	157.7	217.7	5.5	7.7	2.5	5	silty SAND to sandy SILT	120	4.0	39	57	82	42	-	16
57.42	196.7	136.3	202.4	5.0	8.9	2.6	5	silty SAND to sandy SILT	120	4.0	34	49	77	41	-	16
57.58	181.6	125.7	189.5	4.5	8.7	2.5	5	silty SAND to sandy SILT	120	4.0	31	45	75	41	-	16
57.75	170.2	117.7	179.8	4.1	8.6	2.4	5	silty SAND to sandy SILT	120	4.0	29	43	72	41	-	16
57.91	160.3	110.7	173.8	3.9	8.7	2.5	5	silty SAND to sandy SILT	120	4.0	28	40	70	40	-	16
58.07	146.8	101.3	168.5	3.7	8.8	2.6	5	silty SAND to sandy SILT	120	4.0	25	37	67	40	-	16
58.24	127.9	88.1	157.0	3.2	9.0	2.6	5	silty SAND to sandy SILT	120	4.0	22	32	63	39	-	16
58.40	107.1	73.7	144.1	2.7	8.9	2.6	5	silty SAND to sandy SILT	120	4.0	18	27	57	38	-	16
58.57	88.9	61.1	139.2	2.5	9.1	2.9	5	silty SAND to sandy SILT	120	4.0	15	22	51	37	-	16
58.73	77.3	53.1	127.7	2.0	9.5	2.7	5	silty SAND to sandy SILT	120	4.0	13	19	46	36	-	16
58.89	86.3	59.2	101.3	1.3	7.5	1.5	5	silty SAND to sandy SILT	120	4.0	15	22	50	37	-	16
59.06	90.5	62.0	108.3	1.5	-2.4	1.7	5	silty SAND to sandy SILT	120	4.0	15	23	51	37	-	16
59.22	81.9	56.0	124.0	2.0	-3.3	2.5	5	silty SAND to sandy SILT	120	4.0	14	20	48	36	-	16
59.39	66.9	33.1	-	2.1	-2.8	3.3	4	clayy SILT to silty CLAY	115	2.0	17	33	-	-	4.6	15
59.55	47.2	23.3	-	1.5	-2.2	3.5	4	clayy SILT to silty CLAY	115	2.0	12	24	-	-	3.2	15
59.71	56.9	38.8	99.9	1.1	-1.5	2.1	5	silty SAND to sandy SILT	120	4.0	10	14	36	34	-	16
59.88	74.6	50.8	115.7	1.7	-0.9	2.3	5	silty SAND to sandy SILT	120	4.0	13	19	45	36	-	16
60.04	95.7	65.1	140.9	2.6	-0.5	2.8	5	silty SAND to sandy SILT	120	4.0	16	24	53	37	-	16
60.21	121.6	82.6	157.9	3.3	0.1	2.8	5	silty SAND to sandy SILT	120	4.0	21	30	61	38	-	16
60.37	131.0	88.9	157.1	3.3	0.5	2.6	5	silty SAND to sandy SILT	120	4.0	22	33	63	39	-	16
60.53	161.0	109.1	165.7	3.5	1.0	2.3	5	silty SAND to sandy SILT	120	4.0	27	40	70	40	-	16
60.70	182.7	123.7	183.6	4.3	4.7	2.4	5	silty SAND to sandy SILT	120	4.0	31	46	74	41	-	16
60.86	219.4	148.4	205.1	5.1	3.8	2.3	5	silty SAND to sandy SILT	120	4.0	37	55	80	42	-	16
61.03	233.9	158.0	216.4	5.5	3.0	2.4	5	silty SAND to sandy SILT	120	4.0	39	58	82	42	-	16
61.19	238.8	161.1	220.2	5.7	3.2	2.4	5	silty SAND to sandy SILT	120	4.0	40	60	83	42	-	16
61.35	244.7	164.9	221.0	5.7	3.2	2.4	5	silty SAND to sandy SILT	120	4.0	41	61	84	42	-	16
61.52	258.4	174.0	227.0	5.8	3.0	2.3	5	silty SAND to sandy SILT	120	4.0	43	65	85	42	-	16
61.68	252.1	169.5	220.7	5.5	2.0	2.2	5	silty SAND to sandy SILT	120	4.0	42	63	84	42	-	16
61.85	220.4	148.0	203.7	5.0	1.2	2.3	5	silty SAND to sandy SILT	120	4.0	37	55	80	42	-	16
62.01	205.6	137.9	185.7	4.1	0.7	2.0	5	silty SAND to sandy SILT	120	4.0	34	51	78	41	-	16
62.17	196.5	131.7	175.8	3.7	0.8	1.9	5	silty SAND to sandy SILT	120	4.0	33	49	76	41	-	16
62.34	197.5	132.2	167.3	3.2	0.8	1.6	6	clean SAND to silty SAND	125	5.0	26	39	76	41	-	16
62.50	215.9	144.3	166.3	2.6	1.1	1.2	6	clean SAND to silty SAND	125	5.0	29	43	79	41	-	16
62.67	252.9	168.9	181.4	2.6	0.8	1.0	6	clean SAND to silty SAND	125	5.0	34	51	84	42	-	16
62.83	287.2	191.5	191.5	2.0	-1.2	0.7	6	clean SAND to silty SAND	125	5.0	38	57	88	43	-	16
63.00	354.1	235.9	235.9	1.7	-2.5	0.5	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(477).cpt
CPT Date: 12/9/2008 12:35:22 PM
GW During Test: 12 ft

Sounding ID: CPT-08-64
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	413.4	275.0	275.0	2.5	-3.7	0.6	6	clean SAND to silty SAND	125	5.0	55	83	95	45	-	16
63.32	443.9	295.0	295.0	3.1	-3.7	0.7	6	clean SAND to silty SAND	125	5.0	59	89	95	45	-	16
63.49	485.0	321.9	321.9	3.1	-4.9	0.6	6	clean SAND to silty SAND	125	5.0	64	97	95	45	-	16
63.65	512.3	339.6	339.6	2.6	-5.4	0.5	7	grvly SAND to dense SAND	130	6.0	57	85	95	46	-	16
63.82	507.2	335.8	335.8	3.1	-5.1	0.6	6	clean SAND to silty SAND	125	5.0	67	100	95	45	-	16
63.98	480.6	317.8	317.8	3.2	-1.1	0.7	6	clean SAND to silty SAND	125	5.0	64	96	95	45	-	16
64.14	471.9	311.7	311.7	2.9	-0.5	0.6	6	clean SAND to silty SAND	125	5.0	62	94	95	45	-	16
64.31	499.7	329.7	329.7	4.0	0.0	0.8	6	clean SAND to silty SAND	125	5.0	66	100	95	45	-	16
64.47	486.7	320.7	320.7	4.8	0.5	1.0	6	clean SAND to silty SAND	125	5.0	64	97	95	45	-	16
64.64	458.3	301.6	301.6	3.6	1.3	0.8	6	clean SAND to silty SAND	125	5.0	60	92	95	45	-	16
64.80	450.0	295.8	295.8	3.2	2.2	0.7	6	clean SAND to silty SAND	125	5.0	59	90	95	45	-	16
64.96	430.8	282.8	282.8	3.1	2.8	0.7	6	clean SAND to silty SAND	125	5.0	57	86	95	45	-	16
65.13	416.0	272.8	272.8	3.2	3.4	0.8	6	clean SAND to silty SAND	125	5.0	55	83	95	44	-	16
65.29	398.3	260.9	260.9	3.2	4.0	0.8	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
65.46	386.9	253.1	253.1	3.2	4.4	0.8	6	clean SAND to silty SAND	125	5.0	51	77	95	44	-	16
65.62	374.2	244.5	244.5	3.4	5.3	0.9	6	clean SAND to silty SAND	125	5.0	49	75	95	44	-	16
65.78	374.6	244.5	244.5	3.7	6.1	1.0	6	clean SAND to silty SAND	125	5.0	49	75	95	44	-	16
65.95	375.3	244.7	247.0	4.0	6.8	1.1	6	clean SAND to silty SAND	125	5.0	49	75	95	44	-	16
66.11	378.5	246.5	253.2	4.4	7.6	1.2	6	clean SAND to silty SAND	125	5.0	49	76	95	44	-	16
66.28	385.2	250.6	259.6	4.7	8.3	1.2	6	clean SAND to silty SAND	125	5.0	50	77	95	44	-	16
66.44	405.9	263.8	267.4	4.7	9.0	1.2	6	clean SAND to silty SAND	125	5.0	53	81	95	44	-	16
66.60	438.5	284.6	284.6	4.8	9.7	1.1	6	clean SAND to silty SAND	125	5.0	57	88	95	45	-	16
66.77	450.4	292.0	292.0	5.2	11.1	1.2	6	clean SAND to silty SAND	125	5.0	58	90	95	45	-	16
66.93	463.5	300.1	300.1	4.2	10.8	0.9	6	clean SAND to silty SAND	125	5.0	60	93	95	45	-	16
67.10	440.1	284.6	284.6	3.4	12.1	0.8	6	clean SAND to silty SAND	125	5.0	57	88	95	45	-	16
67.26	426.9	275.8	275.8	3.8	14.3	0.9	6	clean SAND to silty SAND	125	5.0	55	85	95	44	-	16
67.42	441.7	285.0	285.0	2.9	10.6	0.7	6	clean SAND to silty SAND	125	5.0	57	88	95	45	-	16
67.59	404.2	260.5	260.5	2.1	9.3	0.5	6	clean SAND to silty SAND	125	5.0	52	81	95	44	-	16
67.75	421.3	271.3	271.3	1.5	9.3	0.4	7	grvly SAND to dense SAND	130	6.0	45	70	95	44	-	16
67.92	422.3	271.6	271.6	1.5	8.8	0.4	7	grvly SAND to dense SAND	130	6.0	45	70	95	44	-	16
68.08	417.9	268.4	268.4	1.8	15.8	0.4	6	clean SAND to silty SAND	125	5.0	54	84	95	44	-	16
68.24	417.0	267.6	267.6	2.1	14.2	0.5	6	clean SAND to silty SAND	125	5.0	54	83	95	44	-	16
68.41	413.5	265.0	265.0	2.0	12.8	0.5	6	clean SAND to silty SAND	125	5.0	53	83	95	44	-	16
68.57	439.4	281.3	281.3	3.2	13.8	0.7	6	clean SAND to silty SAND	125	5.0	56	88	95	44	-	16
68.74	448.3	286.7	318.4	8.3	14.0	1.9	6	clean SAND to silty SAND	125	5.0	57	90	95	45	-	16
68.90	439.2	280.5	287.9	5.7	13.6	1.3	6	clean SAND to silty SAND	125	5.0	56	88	95	44	-	16
69.07	389.5	248.5	248.5	3.5	7.1	0.9	6	clean SAND to silty SAND	125	5.0	50	78	95	44	-	16
69.23	403.2	256.9	256.9	2.8	10.1	0.7	6	clean SAND to silty SAND	125	5.0	51	81	95	44	-	16
69.39	408.2	259.8	259.8	2.6	10.9	0.6	6	clean SAND to silty SAND	125	5.0	52	82	95	44	-	16
69.56	464.4	295.3	295.3	2.1	11.5	0.5	7	grvly SAND to dense SAND	130	6.0	49	77	95	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(410).cpt
CPT Date: 11/18/2008 7:47:58 AM
GW During Test: 12 ft

Sounding ID: CPT-08-65
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	287.9	461.7	461.7	3.4	0.0	1.2	6	clean SAND to silty SAND	125	5.0	92	58	95	48	-	16
0.49	254.3	407.8	407.8	3.3	0.0	1.3	6	clean SAND to silty SAND	125	5.0	82	51	95	48	-	16
0.66	241.5	387.3	397.4	3.9	-0.1	1.6	6	clean SAND to silty SAND	125	5.0	77	48	95	48	-	16
0.82	418.4	671.0	671.0	3.6	0.1	0.9	6	clean SAND to silty SAND	125	5.0	100	84	95	48	-	16
0.98	480.8	771.1	771.1	3.6	-0.1	0.7	7	grvly SAND to dense SAND	130	6.0	100	80	95	48	-	16
1.15	299.8	480.8	480.8	1.6	0.0	0.5	7	grvly SAND to dense SAND	130	6.0	80	50	95	48	-	16
1.31	192.4	308.6	308.6	1.4	0.1	0.7	6	clean SAND to silty SAND	125	5.0	62	38	95	48	-	16
1.48	141.4	226.8	243.3	1.9	0.3	1.4	6	clean SAND to silty SAND	125	5.0	45	28	94	48	-	16
1.64	116.1	186.2	241.9	2.8	1.1	2.4	5	silty SAND to sandy SILT	120	4.0	47	29	88	48	-	16
1.80	105.2	168.7	251.0	3.3	1.1	3.1	5	silty SAND to sandy SILT	120	4.0	42	26	84	48	-	16
1.97	82.9	133.0	238.2	3.1	0.5	3.8	8	stiff SAND to clayy SAND	115	1.0	100	83	-	-	5.5	16
2.13	67.5	108.3	218.4	2.7	-0.2	4.0	9	very stiff fine SOIL	120	2.0	54	34	70	48	-	30
2.30	65.7	105.3	204.1	2.4	-0.1	3.7	5	silty SAND to sandy SILT	120	4.0	26	16	69	48	-	16
2.46	55.9	89.7	192.2	2.1	-0.7	3.8	4	clayy SILT to silty CLAY	115	2.0	45	28	-	-	3.9	15
2.62	46.0	73.8	171.0	1.7	0.7	3.7	4	clayy SILT to silty CLAY	115	2.0	37	23	-	-	3.2	15
2.79	50.8	81.5	165.2	1.6	0.7	3.2	5	silty SAND to sandy SILT	120	4.0	20	13	60	46	-	16
2.95	43.4	69.5	165.9	1.6	0.2	3.7	4	clayy SILT to silty CLAY	115	2.0	35	22	-	-	3.1	15
3.12	38.9	62.3	160.6	1.5	0.7	3.8	4	clayy SILT to silty CLAY	115	2.0	31	19	-	-	2.7	15
3.28	50.6	81.2	159.1	1.5	1.0	3.0	5	silty SAND to sandy SILT	120	4.0	20	13	60	45	-	16
3.45	52.5	84.2	171.9	1.7	1.0	3.3	5	silty SAND to sandy SILT	120	4.0	21	13	61	45	-	16
3.61	45.9	73.6	171.9	1.7	-0.6	3.7	4	clayy SILT to silty CLAY	115	2.0	37	23	-	-	3.2	15
3.77	45.1	72.3	167.0	1.6	-0.8	3.6	4	clayy SILT to silty CLAY	115	2.0	36	23	-	-	3.2	15
3.94	45.7	73.3	178.3	1.8	-1.2	4.0	4	clayy SILT to silty CLAY	115	2.0	37	23	-	-	3.2	15
4.10	49.9	80.1	194.5	2.1	-1.7	4.3	4	clayy SILT to silty CLAY	115	2.0	40	25	-	-	3.5	15
4.27	54.0	86.5	202.6	2.3	-2.5	4.3	4	clayy SILT to silty CLAY	115	2.0	43	27	-	-	3.8	15
4.43	50.3	80.6	214.7	2.5	-3.4	5.0	4	clayy SILT to silty CLAY	115	2.0	40	25	-	-	3.5	15
4.59	52.0	83.5	201.3	2.3	-3.7	4.4	4	clayy SILT to silty CLAY	115	2.0	42	26	-	-	3.7	15
4.76	50.5	81.0	202.6	2.3	-3.9	4.5	4	clayy SILT to silty CLAY	115	2.0	41	25	-	-	3.6	15
4.92	70.1	112.5	188.3	2.0	-4.0	2.9	5	silty SAND to sandy SILT	120	4.0	28	18	71	46	-	16
5.09	75.7	121.4	209.3	2.5	-0.3	3.3	5	silty SAND to sandy SILT	120	4.0	30	19	73	46	-	16
5.25	63.3	101.5	211.5	2.5	-0.3	4.0	9	very stiff fine SOIL	120	2.0	51	32	68	45	-	30
5.41	52.7	84.5	205.2	2.3	-0.4	4.5	4	clayy SILT to silty CLAY	115	2.0	42	26	-	-	3.7	15
5.58	53.3	85.5	188.9	2.0	-0.1	3.9	4	clayy SILT to silty CLAY	115	2.0	43	27	-	-	3.8	15
5.74	45.7	73.3	180.1	1.8	0.2	4.0	4	clayy SILT to silty CLAY	115	2.0	37	23	-	-	3.2	15
5.91	60.9	97.6	184.9	2.0	0.5	3.3	5	silty SAND to sandy SILT	120	4.0	24	15	66	45	-	16
6.07	40.1	64.4	181.7	1.8	-0.2	4.6	4	clayy SILT to silty CLAY	115	2.0	32	20	-	-	2.8	15
6.23	39.1	62.3	167.4	1.6	-0.1	4.1	4	clayy SILT to silty CLAY	115	2.0	31	20	-	-	2.7	15
6.40	36.8	57.9	166.7	1.6	-0.4	4.3	4	clayy SILT to silty CLAY	115	2.0	29	18	-	-	2.6	15
6.56	41.7	64.9	159.4	1.5	-0.4	3.6	4	clayy SILT to silty CLAY	115	2.0	32	21	-	-	2.9	15
6.73	34.7	53.3	175.2	1.7	-0.5	5.0	4	clayy SILT to silty CLAY	115	2.0	27	17	-	-	2.4	15
6.89	60.8	92.3	176.9	1.9	-0.8	3.2	5	silty SAND to sandy SILT	120	4.0	23	15	64	44	-	16
7.05	42.6	63.9	179.3	1.9	-5.1	4.5	4	clayy SILT to silty CLAY	115	2.0	32	21	-	-	3.0	15
7.22	32.2	51.6	-	1.8	-5.8	5.7	3	silty CLAY to CLAY	115	1.5	34	21	-	-	2.3	15
7.38	48.0	70.5	198.9	2.3	-5.8	4.9	4	clayy SILT to silty CLAY	115	2.0	35	24	-	-	3.4	15
7.55	63.6	92.4	193.4	2.4	-5.7	3.7	4	clayy SILT to silty CLAY	115	2.0	46	32	-	-	4.5	15
7.71	46.9	67.4	192.9	2.3	-5.8	4.9	4	clayy SILT to silty CLAY	115	2.0	34	23	-	-	3.3	15
7.87	58.4	83.1	179.2	2.1	-5.4	3.6	4	clayy SILT to silty CLAY	115	2.0	42	29	-	-	4.1	15
8.04	51.0	71.9	164.1	1.8	-0.5	3.5	4	clayy SILT to silty CLAY	115	2.0	36	26	-	-	3.6	15
8.20	59.6	83.1	143.3	1.4	-0.2	2.3	5	silty SAND to sandy SILT	120	4.0	21	15	61	44	-	16
8.37	129.9	179.5	205.6	1.9	-1.3	1.5	6	clean SAND to silty SAND	125	5.0	36	26	86	47	-	16
8.53	123.9	169.3	195.2	1.8	-0.6	1.5	6	clean SAND to silty SAND	125	5.0	34	25	84	47	-	16
8.69	181.9	246.1	246.1	1.8	-1.0	1.0	6	clean SAND to silty SAND	125	5.0	49	36	95	48	-	16
8.86	162.2	217.3	217.3	1.2	-0.7	0.7	6	clean SAND to silty SAND	125	5.0	43	32	93	48	-	16
9.02	114.9	152.5	162.3	1.0	-0.6	0.9	6	clean SAND to silty SAND	125	5.0	31	23	81	46	-	16
9.19	69.4	91.3	124.8	1.0	-0.6	1.4	5	silty SAND to sandy SILT	120	4.0	23	17	64	44	-	16
9.35	39.1	51.0	125.5	1.1	-0.6	2.8	4	clayy SILT to silty CLAY	115	2.0	26	20	-	-	2.7	15
9.51	21.0	33.7	-	1.2	-0.6	6.1	3	silty CLAY to CLAY	115	1.5	22	14	-	-	1.5	15
9.68	16.4	26.3	-	1.0	-0.6	6.6	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.1	15
9.84	12.6	20.2	-	0.8	-0.4	6.3	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
10.01	12.6	20.2	-	0.5	-0.3	4.2	3	silty CLAY to CLAY	115	1.5	13	8	-	-	0.9	15
10.17	22.9	28.7	94.7	0.6	0.0	2.5	4	clayy SILT to silty CLAY	115	2.0	14	11	-	-	1.6	15
10.34	53.9	66.9	111.3	0.9	-0.5	1.7	5	silty SAND to sandy SILT	120	4.0	17	13	54	42	-	16
10.50	34.7	42.7	117.6	1.0	-0.4	2.9	4	clayy SILT to silty CLAY	115	2.0	21	17	-	-	2.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(410).cpt
CPT Date: 11/18/2008 7:47:58 AM
GW During Test: 12 ft

Sounding ID: CPT-08-65
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	26.8	36.3	-	1.0	-0.4	3.9	4	clayy SILT to silty CLAY	115	2.0	18	13	-	-	1.9	15
10.83	21.2	33.0	-	0.7	-0.5	3.6	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.5	15
10.99	16.6	25.6	-	0.9	-0.5	5.9	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.1	15
11.16	28.8	43.7	-	1.3	-0.3	4.6	4	clayy SILT to silty CLAY	115	2.0	22	14	-	-	2.0	15
11.32	32.4	48.4	-	1.5	-0.4	4.9	4	clayy SILT to silty CLAY	115	2.0	24	16	-	-	2.3	15
11.48	26.4	38.9	-	1.4	-0.8	5.6	3	silty CLAY to CLAY	115	1.5	26	18	-	-	1.8	15
11.65	22.5	32.7	-	1.3	-0.7	6.1	3	silty CLAY to CLAY	115	1.5	22	15	-	-	1.6	15
11.81	22.8	32.6	-	1.3	-0.7	5.8	3	silty CLAY to CLAY	115	1.5	22	15	-	-	1.6	15
11.98	19.6	27.7	-	1.1	-0.4	5.9	3	silty CLAY to CLAY	115	1.5	18	13	-	-	1.4	15
12.14	13.4	18.8	-	0.8	-0.5	6.4	3	silty CLAY to CLAY	115	1.5	13	9	-	-	0.9	15
12.30	8.8	12.3	-	0.5	-4.6	6.6	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
12.47	7.8	10.9	-	0.5	-4.2	6.7	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
12.63	8.2	11.3	-	0.5	-4.1	6.3	3	silty CLAY to CLAY	115	1.5	8	5	-	-	0.5	15
12.80	7.6	10.5	-	0.3	-3.9	5.0	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
12.96	7.2	9.8	-	0.3	-3.8	4.3	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
13.12	6.6	9.0	-	0.3	-3.7	5.3	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
13.29	8.5	11.5	-	0.5	-3.6	6.1	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
13.45	9.3	12.4	-	0.5	-3.6	6.5	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
13.62	8.3	11.1	-	0.4	-3.5	6.0	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
13.78	8.3	11.0	-	0.5	-3.4	6.4	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
13.94	10.2	13.4	-	0.8	-3.3	8.1	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
14.11	12.9	16.9	-	0.9	-3.1	7.8	3	silty CLAY to CLAY	115	1.5	11	9	-	-	0.9	15
14.27	12.3	16.0	-	0.8	-3.1	7.3	3	silty CLAY to CLAY	115	1.5	11	8	-	-	0.8	15
14.44	9.3	12.0	-	0.6	-3.0	6.8	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
14.60	7.5	9.6	-	0.4	-2.8	5.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
14.76	7.3	9.3	-	0.4	-2.6	5.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
14.93	7.5	9.6	-	0.5	-2.4	7.1	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.09	8.3	10.5	-	0.5	-2.3	7.4	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
15.26	9.3	11.7	-	0.7	-1.5	8.9	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
15.42	10.5	13.1	-	0.8	-1.4	8.4	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
15.58	9.6	12.0	-	0.7	-1.4	8.1	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
15.75	7.5	9.2	-	0.6	-1.2	8.6	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.91	6.6	8.1	-	0.4	-1.1	7.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.08	8.6	10.6	-	0.3	-0.9	4.3	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
16.24	10.9	13.4	-	0.3	-0.9	2.9	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
16.40	10.2	12.4	-	0.3	-1.0	3.2	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
16.57	7.3	8.8	-	0.4	-1.0	5.7	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.73	6.6	7.9	-	0.4	-0.7	6.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.90	8.3	9.9	-	0.4	-0.5	5.5	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.5	15
17.06	7.9	9.4	-	0.5	-0.3	7.7	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
17.23	38.7	40.9	88.0	0.6	0.1	1.7	5	silty SAND to sandy SILT	120	4.0	10	10	38	38	-	16
17.39	22.3	26.2	-	0.5	-1.9	2.3	4	clayy SILT to silty CLAY	115	2.0	13	11	-	-	1.5	15
17.55	8.4	9.9	-	0.3	-3.7	3.9	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
17.72	5.3	6.2	-	0.2	-3.7	5.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
17.88	4.7	5.5	-	0.2	-3.1	5.8	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
18.05	4.7	5.4	-	0.3	-2.7	7.0	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.4	10
18.21	5.5	6.4	-	0.3	-2.5	7.7	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.5	10
18.37	10.5	12.0	-	0.3	-2.2	2.9	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
18.54	15.3	17.4	-	0.4	-1.7	2.8	4	clayy SILT to silty CLAY	115	2.0	9	8	-	-	1.0	15
18.70	9.8	11.1	-	0.5	-1.4	5.6	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
18.87	7.5	8.4	-	0.5	-1.0	7.5	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
19.03	6.4	7.2	-	0.4	-0.7	6.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
19.19	5.7	6.3	-	0.3	-0.4	5.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
19.36	6.1	6.8	-	0.2	-0.1	4.6	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
19.52	5.7	6.4	-	0.2	0.1	5.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
19.69	5.6	6.2	-	0.2	0.3	5.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
19.85	5.6	6.1	-	0.2	0.5	5.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
20.01	9.9	10.8	-	0.2	0.6	2.3	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
20.18	21.3	21.6	66.4	0.3	0.2	1.4	4	clayy SILT to silty CLAY	115	2.0	11	11	-	-	1.5	15
20.34	19.4	21.0	-	0.5	0.6	2.5	4	clayy SILT to silty CLAY	115	2.0	11	10	-	-	1.3	15
20.51	20.8	22.3	-	0.4	1.1	2.0	4	clayy SILT to silty CLAY	115	2.0	11	10	-	-	1.4	15
20.67	37.9	38.1	75.6	0.5	-2.6	1.2	5	silty SAND to sandy SILT	120	4.0	10	9	35	37	-	16
20.83	35.6	35.7	81.3	0.5	-2.7	1.5	5	silty SAND to sandy SILT	120	4.0	9	9	33	37	-	16
21.00	34.9	34.9	83.6	0.6	-2.2	1.7	5	silty SAND to sandy SILT	120	4.0	9	9	32	37	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(410).cpt
CPT Date: 11/18/2008 7:47:58 AM
GW During Test: 12 ft

Sounding ID: CPT-08-65
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	35.9	35.8	87.6	0.6	-1.7	1.8	5	silty SAND to sandy SILT	120	4.0	9	9	33	37	-	16
21.33	37.6	37.4	90.7	0.7	-1.5	1.9	5	silty SAND to sandy SILT	120	4.0	9	9	35	37	-	16
21.49	41.9	41.6	91.5	0.7	-1.2	1.8	5	silty SAND to sandy SILT	120	4.0	10	10	38	38	-	16
21.65	44.7	44.2	95.7	0.8	-1.0	1.8	5	silty SAND to sandy SILT	120	4.0	11	11	40	38	-	16
21.82	39.2	38.8	103.0	0.9	0.1	2.4	4	clayy SILT to silty CLAY	115	2.0	19	20	-	-	2.7	15
21.98	32.6	32.2	97.6	0.8	0.4	2.4	4	clayy SILT to silty CLAY	115	2.0	16	16	-	-	2.3	15
22.15	49.5	48.6	88.7	0.7	-1.9	1.4	5	silty SAND to sandy SILT	120	4.0	12	12	43	39	-	16
22.31	65.0	63.8	100.4	0.9	-5.7	1.4	5	silty SAND to sandy SILT	120	4.0	16	16	52	40	-	16
22.47	70.9	69.4	113.0	1.2	-5.5	1.7	5	silty SAND to sandy SILT	120	4.0	17	18	55	41	-	16
22.64	75.0	73.3	116.8	1.3	-5.2	1.7	5	silty SAND to sandy SILT	120	4.0	18	19	57	41	-	16
22.80	80.7	78.6	119.7	1.3	-4.8	1.6	5	silty SAND to sandy SILT	120	4.0	20	20	59	41	-	16
22.97	80.6	78.3	120.6	1.3	-4.6	1.7	5	silty SAND to sandy SILT	120	4.0	20	20	59	41	-	16
23.13	78.6	76.2	117.0	1.2	-4.3	1.6	5	silty SAND to sandy SILT	120	4.0	19	20	58	41	-	16
23.30	73.6	71.2	109.7	1.1	-4.1	1.5	5	silty SAND to sandy SILT	120	4.0	18	18	56	41	-	16
23.46	62.3	60.1	101.5	0.9	-3.9	1.5	5	silty SAND to sandy SILT	120	4.0	15	16	50	40	-	16
23.62	41.2	39.7	103.1	0.9	-3.8	2.3	5	silty SAND to sandy SILT	120	4.0	10	10	37	37	-	16
23.79	22.0	21.5	-	0.8	-3.6	3.8	3	silty CLAY to CLAY	115	1.5	14	15	-	-	1.5	15
23.95	12.3	12.0	-	0.6	-3.2	5.0	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
24.12	9.2	9.0	-	0.3	-2.7	4.4	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
24.28	9.7	9.4	-	0.3	-2.2	3.2	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
24.44	8.0	7.7	-	0.4	-1.9	5.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.61	9.4	9.0	-	0.3	-1.4	4.2	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
24.77	15.6	14.9	-	0.3	-1.4	2.3	4	clayy SILT to silty CLAY	115	2.0	7	8	-	-	1.1	15
24.94	17.8	16.9	-	0.4	-1.4	2.5	4	clayy SILT to silty CLAY	115	2.0	8	9	-	-	1.2	15
25.10	13.7	13.0	-	0.4	0.9	3.4	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
25.26	12.7	12.0	-	0.4	1.2	4.0	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
25.43	11.4	10.7	-	0.5	1.5	4.6	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.7	15
25.59	15.0	14.0	-	0.4	1.8	2.7	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
25.76	11.3	10.5	-	0.3	0.6	2.9	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.7	15
25.92	7.2	6.7	-	0.3	1.0	4.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
26.08	7.3	6.8	-	0.3	1.6	5.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.25	17.7	16.3	-	0.3	1.9	2.1	4	clayy SILT to silty CLAY	115	2.0	8	9	-	-	1.2	15
26.41	24.0	22.0	-	0.5	0.4	2.1	4	clayy SILT to silty CLAY	115	2.0	11	12	-	-	1.6	15
26.58	18.9	17.3	-	0.4	0.7	2.1	4	clayy SILT to silty CLAY	115	2.0	9	9	-	-	1.3	15
26.74	23.4	21.2	-	0.4	-0.3	1.7	4	clayy SILT to silty CLAY	115	2.0	11	12	-	-	1.6	15
26.90	21.8	19.7	-	0.4	-0.7	1.9	4	clayy SILT to silty CLAY	115	2.0	10	11	-	-	1.5	15
27.07	18.1	16.4	-	0.4	-1.9	2.5	4	clayy SILT to silty CLAY	115	2.0	8	9	-	-	1.2	15
27.23	11.8	10.6	-	0.3	-3.0	3.4	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
27.40	8.3	7.4	-	0.3	-2.8	4.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
27.56	6.8	6.1	-	0.2	-2.3	4.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
27.72	6.9	6.1	-	0.3	-2.0	5.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
27.89	8.1	7.2	-	0.3	-1.8	4.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
28.05	9.0	8.0	-	0.4	-1.6	4.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.22	15.0	13.2	-	0.3	1.1	2.5	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
28.38	19.0	16.6	-	0.3	-0.1	1.6	4	clayy SILT to silty CLAY	115	2.0	8	10	-	-	1.3	15
28.54	12.0	10.5	-	0.3	-0.3	2.6	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
28.71	7.0	6.0	-	0.3	0.4	6.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
28.87	11.7	10.1	-	0.3	1.2	3.1	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
29.04	32.8	29.6	69.4	0.4	0.3	1.2	5	silty SAND to sandy SILT	120	4.0	7	8	27	35	-	16
29.20	39.2	35.2	71.4	0.4	0.6	1.1	5	silty SAND to sandy SILT	120	4.0	9	10	33	36	-	16
29.36	32.3	29.0	78.5	0.5	1.0	1.6	5	silty SAND to sandy SILT	120	4.0	7	8	26	35	-	16
29.53	15.9	13.5	-	0.5	1.6	3.5	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
29.69	9.2	7.8	-	0.4	2.2	5.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.86	7.3	6.2	-	0.3	3.1	5.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.02	7.5	6.3	-	0.3	4.0	5.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.19	7.8	6.6	-	0.3	4.8	5.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.35	8.6	7.2	-	0.3	5.7	4.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
30.51	8.2	6.9	-	0.3	6.6	5.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
30.68	8.1	6.7	-	0.4	7.5	6.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.84	12.5	10.3	-	0.4	8.6	3.5	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
31.01	31.6	27.9	74.3	0.4	5.9	1.5	5	silty SAND to sandy SILT	120	4.0	7	8	25	34	-	16
31.17	39.5	34.7	75.0	0.5	5.6	1.3	5	silty SAND to sandy SILT	120	4.0	9	10	32	36	-	16
31.33	39.6	34.8	75.0	0.5	6.0	1.3	5	silty SAND to sandy SILT	120	4.0	9	10	32	36	-	16
31.50	35.2	30.9	73.0	0.4	6.3	1.3	5	silty SAND to sandy SILT	120	4.0	8	9	28	35	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(410).cpt
CPT Date: 11/18/2008 7:47:58 AM
GW During Test: 12 ft

Sounding ID: CPT-08-65
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	29.0	25.3	79.4	0.5	3.6	1.8	4	clayy SILT to silty CLAY	115	2.0	13	14	-	-	2.0	15
31.83	15.8	12.8	-	0.4	3.6	2.8	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
31.99	8.5	6.9	-	0.3	4.5	5.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
32.15	7.9	6.3	-	0.3	6.0	4.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.32	7.9	6.4	-	0.3	6.8	5.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
32.48	9.8	7.8	-	0.5	7.7	5.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
32.65	11.2	8.9	-	0.6	8.5	6.2	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.81	11.7	9.3	-	0.6	9.4	5.7	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
32.97	11.1	8.8	-	0.5	10.2	5.5	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
33.14	11.7	9.2	-	0.5	11.3	5.6	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
33.30	12.0	9.4	-	0.6	11.9	6.2	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
33.47	10.8	8.4	-	0.6	11.8	6.5	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
33.63	11.2	8.7	-	0.6	12.8	6.2	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
33.79	18.7	14.5	-	0.5	12.9	2.7	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.3	15
33.96	41.6	35.5	77.9	0.5	8.5	1.4	5	silty SAND to sandy SILT	120	4.0	9	10	33	35	-	16
34.12	42.5	36.3	83.1	0.6	3.0	1.6	5	silty SAND to sandy SILT	120	4.0	9	11	34	35	-	16
34.29	44.2	37.6	81.5	0.6	2.6	1.5	5	silty SAND to sandy SILT	120	4.0	9	11	35	36	-	16
34.45	54.6	46.4	78.8	0.6	-0.9	1.1	5	silty SAND to sandy SILT	120	4.0	12	14	42	37	-	16
34.61	60.7	51.5	89.3	0.8	-3.4	1.3	5	silty SAND to sandy SILT	120	4.0	13	15	45	38	-	16
34.78	40.4	34.2	94.7	0.8	-1.1	2.2	4	clayy SILT to silty CLAY	115	2.0	17	20	-	-	2.8	15
34.94	26.3	19.9	-	0.7	-1.0	3.1	4	clayy SILT to silty CLAY	115	2.0	10	13	-	-	1.8	15
35.11	29.2	22.0	-	0.6	-0.8	2.2	4	clayy SILT to silty CLAY	115	2.0	11	15	-	-	2.0	15
35.27	17.4	13.1	-	0.6	-1.3	4.0	3	silty CLAY to CLAY	115	1.5	9	12	-	-	1.2	15
35.43	51.7	43.5	89.5	0.8	-0.4	1.6	5	silty SAND to sandy SILT	120	4.0	11	13	39	36	-	16
35.60	41.7	31.2	-	1.1	-1.5	2.8	4	clayy SILT to silty CLAY	115	2.0	16	21	-	-	2.9	15
35.76	20.8	15.5	-	1.0	-1.0	5.3	3	silty CLAY to CLAY	115	1.5	10	14	-	-	1.4	15
35.93	13.7	10.2	-	0.7	-0.3	5.7	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
36.09	11.6	8.6	-	0.4	1.0	4.0	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
36.26	11.3	8.3	-	0.4	2.2	4.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
36.42	11.0	8.1	-	0.4	3.4	4.3	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
36.58	11.3	8.3	-	0.4	4.9	4.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
36.75	11.3	8.2	-	0.5	6.2	5.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
36.91	16.8	12.2	-	0.5	7.9	3.2	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
37.08	39.1	32.4	82.6	0.6	7.0	1.7	5	silty SAND to sandy SILT	120	4.0	8	10	30	34	-	16
37.24	39.5	32.6	82.1	0.6	7.7	1.6	5	silty SAND to sandy SILT	120	4.0	8	10	30	35	-	16
37.40	42.5	35.0	72.8	0.5	8.0	1.2	5	silty SAND to sandy SILT	120	4.0	9	11	32	35	-	16
37.57	44.0	36.2	71.1	0.5	-0.3	1.1	5	silty SAND to sandy SILT	120	4.0	9	11	33	35	-	16
37.73	37.4	30.8	81.4	0.6	-0.9	1.7	5	silty SAND to sandy SILT	120	4.0	8	9	28	34	-	16
37.90	20.9	14.9	-	0.7	-0.5	3.9	3	silty CLAY to CLAY	115	1.5	10	14	-	-	1.4	15
38.06	12.9	9.2	-	0.7	0.1	6.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
38.22	12.1	8.6	-	0.5	7.2	5.2	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.39	17.7	12.5	-	0.5	7.8	3.2	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
38.55	18.9	13.3	-	0.4	6.7	2.5	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
38.72	12.1	8.5	-	0.5	7.8	4.8	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.88	12.6	8.8	-	0.4	9.0	4.2	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
39.04	12.3	8.6	-	0.5	9.7	5.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
39.21	13.7	9.5	-	0.7	10.5	5.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
39.37	17.8	12.4	-	0.8	11.1	5.0	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
39.54	59.9	48.4	96.5	1.0	11.7	1.7	5	silty SAND to sandy SILT	120	4.0	12	15	43	37	-	16
39.70	116.2	93.8	116.2	1.2	3.1	1.0	6	clean SAND to silty SAND	125	5.0	19	23	65	40	-	16
39.86	134.1	108.0	125.8	1.2	3.1	0.9	6	clean SAND to silty SAND	125	5.0	22	27	70	41	-	16
40.03	150.2	120.7	135.3	1.3	3.8	0.9	6	clean SAND to silty SAND	125	5.0	24	30	73	42	-	16
40.19	160.4	128.8	143.0	1.4	4.4	0.9	6	clean SAND to silty SAND	125	5.0	26	32	75	42	-	16
40.36	163.0	130.6	145.8	1.5	4.6	1.0	6	clean SAND to silty SAND	125	5.0	26	33	76	42	-	16
40.52	161.1	128.8	144.6	1.5	4.7	1.0	6	clean SAND to silty SAND	125	5.0	26	32	75	42	-	16
40.68	162.7	129.9	146.1	1.6	4.8	1.0	6	clean SAND to silty SAND	125	5.0	26	33	76	42	-	16
40.85	167.9	133.8	150.0	1.7	5.1	1.0	6	clean SAND to silty SAND	125	5.0	27	34	77	42	-	16
41.01	178.3	141.9	156.5	1.7	5.1	1.0	6	clean SAND to silty SAND	125	5.0	28	36	79	43	-	16
41.18	195.8	155.5	164.8	1.7	5.1	0.9	6	clean SAND to silty SAND	125	5.0	31	39	82	43	-	16
41.34	210.1	166.6	169.3	1.6	5.0	0.8	6	clean SAND to silty SAND	125	5.0	33	42	84	43	-	16
41.50	212.9	168.6	168.6	1.4	5.6	0.7	6	clean SAND to silty SAND	125	5.0	34	43	84	43	-	16
41.67	204.0	161.3	161.3	1.1	5.6	0.6	6	clean SAND to silty SAND	125	5.0	32	41	83	43	-	16
41.83	198.5	156.6	157.3	1.3	5.6	0.7	6	clean SAND to silty SAND	125	5.0	31	40	82	43	-	16
42.00	202.8	159.7	164.8	1.6	5.5	0.8	6	clean SAND to silty SAND	125	5.0	32	41	82	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(410).cpt
CPT Date: 11/18/2008 7:47:58 AM
GW During Test: 12 ft

Sounding ID: CPT-08-65
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	201.2	158.2	167.1	1.8	5.7	0.9	6	clean SAND to silty SAND	125	5.0	32	40	82	43	-	16
42.32	203.5	159.7	172.7	2.0	5.7	1.0	6	clean SAND to silty SAND	125	5.0	32	41	82	43	-	16
42.49	222.7	174.6	186.3	2.3	5.8	1.0	6	clean SAND to silty SAND	125	5.0	35	45	85	43	-	16
42.65	234.6	183.6	196.5	2.5	6.1	1.1	6	clean SAND to silty SAND	125	5.0	37	47	87	44	-	16
42.82	243.3	190.0	198.0	2.4	6.0	1.0	6	clean SAND to silty SAND	125	5.0	38	49	88	44	-	16
42.98	242.7	189.3	197.1	2.4	6.0	1.0	6	clean SAND to silty SAND	125	5.0	38	49	88	44	-	16
43.15	236.4	184.1	191.3	2.2	6.1	0.9	6	clean SAND to silty SAND	125	5.0	37	47	87	44	-	16
43.31	208.4	161.9	175.6	2.1	6.1	1.0	6	clean SAND to silty SAND	125	5.0	32	42	83	43	-	16
43.47	180.8	140.3	155.6	1.8	6.1	1.0	6	clean SAND to silty SAND	125	5.0	28	36	78	42	-	16
43.64	157.6	122.1	140.0	1.6	6.5	1.0	6	clean SAND to silty SAND	125	5.0	24	32	74	42	-	16
43.80	127.1	98.3	127.0	1.6	6.5	1.3	6	clean SAND to silty SAND	125	5.0	20	25	66	40	-	16
43.97	105.5	81.5	129.7	1.9	6.5	1.9	5	silty SAND to sandy SILT	120	4.0	20	26	60	39	-	16
44.13	67.9	52.3	138.6	2.1	4.2	3.3	4	clayy SILT to silty CLAY	115	2.0	26	34	-	-	4.7	15
44.29	39.7	24.9	-	1.4	4.7	3.9	4	clayy SILT to silty CLAY	115	2.0	12	20	-	-	2.7	15
44.46	23.7	14.9	-	1.2	5.1	5.7	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.6	15
44.62	18.2	11.4	-	0.7	7.1	4.8	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
44.79	17.6	11.0	-	0.5	14.5	3.6	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
44.95	17.0	10.6	-	0.5	16.1	3.7	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
45.11	18.8	11.7	-	0.5	17.0	3.4	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.2	15
45.28	20.4	12.6	-	0.8	17.6	4.6	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.3	15
45.44	68.1	51.9	109.5	1.4	16.5	2.1	5	silty SAND to sandy SILT	120	4.0	13	17	45	37	-	16
45.61	101.7	77.5	121.2	1.7	12.4	1.7	5	silty SAND to sandy SILT	120	4.0	19	25	59	39	-	16
45.77	120.6	91.7	130.1	1.9	11.6	1.6	5	silty SAND to sandy SILT	120	4.0	23	30	64	40	-	16
45.93	127.1	96.5	134.6	2.0	10.3	1.6	5	silty SAND to sandy SILT	120	4.0	24	32	66	40	-	16
46.10	116.5	88.3	135.2	2.1	7.5	1.9	5	silty SAND to sandy SILT	120	4.0	22	29	63	40	-	16
46.26	79.0	59.8	137.5	2.2	7.5	2.9	5	silty SAND to sandy SILT	120	4.0	15	20	50	37	-	16
46.43	53.2	32.3	-	1.6	7.8	3.2	4	clayy SILT to silty CLAY	115	2.0	16	27	-	-	3.7	15
46.59	39.3	23.8	-	1.0	7.5	2.8	4	clayy SILT to silty CLAY	115	2.0	12	20	-	-	2.7	15
46.75	31.9	19.2	-	1.0	7.9	3.4	3	silty CLAY to CLAY	115	1.5	13	21	-	-	2.2	15
46.92	34.0	20.4	-	0.7	9.2	2.4	4	clayy SILT to silty CLAY	115	2.0	10	17	-	-	2.3	15
47.08	46.7	35.2	82.6	0.7	6.4	1.6	5	silty SAND to sandy SILT	120	4.0	9	12	33	34	-	16
47.25	27.7	16.6	-	0.9	4.1	3.4	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.9	15
47.41	19.3	11.5	-	0.9	5.7	5.5	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
47.57	91.0	68.2	96.0	1.0	7.2	1.1	5	silty SAND to sandy SILT	120	4.0	17	23	54	38	-	16
47.74	199.5	149.3	153.2	1.4	1.9	0.7	6	clean SAND to silty SAND	125	5.0	30	40	80	42	-	16
47.90	248.7	185.8	185.8	1.6	4.3	0.7	6	clean SAND to silty SAND	125	5.0	37	50	87	43	-	16
48.07	278.4	207.7	207.7	1.8	4.7	0.7	6	clean SAND to silty SAND	125	5.0	42	56	91	44	-	16
48.23	305.8	227.8	227.8	2.1	5.2	0.7	6	clean SAND to silty SAND	125	5.0	46	61	94	44	-	16
48.39	328.7	244.4	244.4	2.4	5.6	0.7	6	clean SAND to silty SAND	125	5.0	49	66	95	45	-	16
48.56	344.9	256.1	256.1	2.7	6.0	0.8	6	clean SAND to silty SAND	125	5.0	51	69	95	45	-	16
48.72	365.0	270.6	270.6	3.0	6.3	0.8	6	clean SAND to silty SAND	125	5.0	54	73	95	45	-	16
48.89	368.4	272.7	272.7	2.7	6.6	0.7	6	clean SAND to silty SAND	125	5.0	55	74	95	45	-	16
49.05	339.6	251.0	251.0	2.6	6.9	0.8	6	clean SAND to silty SAND	125	5.0	50	68	95	45	-	16
49.22	357.3	263.7	263.7	2.6	7.1	0.7	6	clean SAND to silty SAND	125	5.0	53	71	95	45	-	16
49.38	365.3	269.2	269.2	2.8	7.4	0.8	6	clean SAND to silty SAND	125	5.0	54	73	95	45	-	16
49.54	373.0	274.5	274.5	2.7	7.6	0.7	6	clean SAND to silty SAND	125	5.0	55	75	95	45	-	16
49.71	359.3	264.1	264.1	2.7	7.9	0.8	6	clean SAND to silty SAND	125	5.0	53	72	95	45	-	16
49.87	354.1	259.9	259.9	2.8	7.8	0.8	6	clean SAND to silty SAND	125	5.0	52	71	95	45	-	16
50.04	359.7	263.5	263.5	2.5	8.0	0.7	6	clean SAND to silty SAND	125	5.0	53	72	95	45	-	16
50.20	361.0	264.1	264.1	2.6	7.5	0.7	6	clean SAND to silty SAND	125	5.0	53	72	95	45	-	16
50.36	401.4	293.3	293.3	2.9	7.6	0.7	6	clean SAND to silty SAND	125	5.0	59	80	95	45	-	16
50.53	419.8	306.3	306.3	3.1	7.9	0.7	6	clean SAND to silty SAND	125	5.0	61	84	95	46	-	16
50.69	431.2	314.1	314.1	3.3	8.3	0.8	6	clean SAND to silty SAND	125	5.0	63	86	95	46	-	16
50.86	434.6	316.2	316.2	3.4	8.7	0.8	6	clean SAND to silty SAND	125	5.0	63	87	95	46	-	16
51.02	433.0	314.5	314.5	3.4	8.7	0.8	6	clean SAND to silty SAND	125	5.0	63	87	95	46	-	16
51.18	426.3	309.2	309.2	3.2	9.0	0.8	6	clean SAND to silty SAND	125	5.0	62	85	95	46	-	16
51.35	412.5	298.8	298.8	2.9	8.8	0.7	6	clean SAND to silty SAND	125	5.0	60	83	95	45	-	16
51.51	415.4	300.4	300.4	2.6	8.9	0.6	6	clean SAND to silty SAND	125	5.0	60	83	95	45	-	16
51.68	405.5	292.8	292.8	2.4	8.8	0.6	6	clean SAND to silty SAND	125	5.0	59	81	95	45	-	16
51.84	402.1	290.0	290.0	2.4	8.9	0.6	6	clean SAND to silty SAND	125	5.0	58	80	95	45	-	16
52.00	420.1	302.6	302.6	2.4	8.9	0.6	6	clean SAND to silty SAND	125	5.0	61	84	95	45	-	16
52.17	437.8	314.8	314.8	2.5	9.3	0.6	6	clean SAND to silty SAND	125	5.0	63	88	95	46	-	16
52.33	439.7	315.8	315.8	2.6	9.2	0.6	6	clean SAND to silty SAND	125	5.0	63	88	95	46	-	16
52.50	442.2	317.1	317.1	2.2	8.9	0.5	6	clean SAND to silty SAND	125	5.0	63	88	95	46	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(410).cpt
CPT Date: 11/18/2008 7:47:58 AM
GW During Test: 12 ft

Sounding ID: CPT-08-65
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	447.0	320.2	320.2	2.1	8.6	0.5	7	grvly SAND to dense SAND	130	6.0	53	75	95	46	-	16
52.82	452.0	323.2	323.2	1.9	8.5	0.4	7	grvly SAND to dense SAND	130	6.0	54	75	95	46	-	16
52.99	442.3	315.8	315.8	2.0	8.7	0.5	7	grvly SAND to dense SAND	130	6.0	53	74	95	46	-	16
53.15	439.0	313.0	313.0	1.8	8.7	0.4	7	grvly SAND to dense SAND	130	6.0	52	73	95	46	-	16
53.32	447.0	318.2	318.2	1.5	8.8	0.3	7	grvly SAND to dense SAND	130	6.0	53	75	95	46	-	16
53.48	449.0	319.2	319.2	1.6	9.1	0.4	7	grvly SAND to dense SAND	130	6.0	53	75	95	46	-	16
53.64	435.2	308.9	308.9	1.6	8.1	0.4	7	grvly SAND to dense SAND	130	6.0	51	73	95	45	-	16
53.81	423.6	300.2	300.2	1.9	8.1	0.4	7	grvly SAND to dense SAND	130	6.0	50	71	95	45	-	16
53.97	413.4	292.6	292.6	1.9	8.3	0.5	6	clean SAND to silty SAND	125	5.0	59	83	95	45	-	16
54.14	389.1	275.0	275.0	1.9	8.5	0.5	6	clean SAND to silty SAND	125	5.0	55	78	95	45	-	16
54.30	373.3	263.4	263.4	2.1	8.9	0.6	6	clean SAND to silty SAND	125	5.0	53	75	95	45	-	16
54.46	376.4	265.3	265.3	2.5	9.2	0.7	6	clean SAND to silty SAND	125	5.0	53	75	95	45	-	16
54.63	377.9	266.0	266.0	2.7	9.2	0.7	6	clean SAND to silty SAND	125	5.0	53	76	95	45	-	16
54.79	367.2	258.1	258.1	2.8	9.4	0.8	6	clean SAND to silty SAND	125	5.0	52	73	95	45	-	16
54.96	365.5	256.6	256.6	2.8	9.4	0.8	6	clean SAND to silty SAND	125	5.0	51	73	95	45	-	16
55.12	365.6	256.3	256.3	2.5	9.3	0.7	6	clean SAND to silty SAND	125	5.0	51	73	95	45	-	16
55.28	367.0	256.9	256.9	2.4	9.5	0.7	6	clean SAND to silty SAND	125	5.0	51	73	95	45	-	16
55.45	370.4	258.9	258.9	2.4	9.3	0.7	6	clean SAND to silty SAND	125	5.0	52	74	95	45	-	16
55.61	374.3	261.3	261.3	2.5	9.4	0.7	6	clean SAND to silty SAND	125	5.0	52	75	95	45	-	16
55.78	370.4	258.3	258.3	2.5	9.5	0.7	6	clean SAND to silty SAND	125	5.0	52	74	95	45	-	16
55.94	365.7	254.6	254.6	2.7	9.6	0.7	6	clean SAND to silty SAND	125	5.0	51	73	95	44	-	16
56.11	365.3	254.1	254.1	2.8	10.0	0.8	6	clean SAND to silty SAND	125	5.0	51	73	95	44	-	16
56.27	387.9	269.4	269.4	2.7	10.2	0.7	6	clean SAND to silty SAND	125	5.0	54	78	95	45	-	16
56.43	398.7	276.6	276.6	2.8	10.2	0.7	6	clean SAND to silty SAND	125	5.0	55	80	95	45	-	16
56.60	400.3	277.3	277.3	2.8	10.4	0.7	6	clean SAND to silty SAND	125	5.0	55	80	95	45	-	16
56.76	391.0	270.5	270.5	2.6	10.1	0.7	6	clean SAND to silty SAND	125	5.0	54	78	95	45	-	16
56.93	387.3	267.6	267.6	2.6	10.2	0.7	6	clean SAND to silty SAND	125	5.0	54	77	95	45	-	16
57.09	380.7	262.7	262.7	2.9	10.3	0.8	6	clean SAND to silty SAND	125	5.0	53	76	95	45	-	16
57.25	372.4	256.6	256.6	3.3	10.7	0.9	6	clean SAND to silty SAND	125	5.0	51	74	95	44	-	16
57.42	378.5	260.5	260.5	3.6	11.0	1.0	6	clean SAND to silty SAND	125	5.0	52	76	95	44	-	16
57.58	394.9	271.5	271.5	3.6	11.2	0.9	6	clean SAND to silty SAND	125	5.0	54	79	95	45	-	16
57.75	376.5	258.5	258.5	3.5	11.1	0.9	6	clean SAND to silty SAND	125	5.0	52	75	95	44	-	16
57.91	405.5	278.0	278.0	3.5	11.1	0.9	6	clean SAND to silty SAND	125	5.0	56	81	95	45	-	16
58.07	403.7	276.4	276.4	3.4	10.3	0.8	6	clean SAND to silty SAND	125	5.0	55	81	95	45	-	16
58.24	411.3	281.3	281.3	3.4	10.3	0.8	6	clean SAND to silty SAND	125	5.0	56	82	95	45	-	16
58.40	416.2	284.3	284.3	3.4	10.4	0.8	6	clean SAND to silty SAND	125	5.0	57	83	95	45	-	16
58.57	412.5	281.4	281.4	3.4	10.5	0.8	6	clean SAND to silty SAND	125	5.0	56	83	95	45	-	16
58.73	404.6	275.6	275.6	3.2	10.6	0.8	6	clean SAND to silty SAND	125	5.0	55	81	95	45	-	16
58.89	400.3	272.4	272.4	3.1	10.7	0.8	6	clean SAND to silty SAND	125	5.0	54	80	95	45	-	16
59.06	397.7	270.2	270.2	2.9	10.5	0.7	6	clean SAND to silty SAND	125	5.0	54	80	95	45	-	16
59.22	395.1	268.2	268.2	3.0	10.8	0.8	6	clean SAND to silty SAND	125	5.0	54	79	95	45	-	16
59.39	391.4	265.3	265.3	2.9	10.9	0.8	6	clean SAND to silty SAND	125	5.0	53	78	95	44	-	16
59.55	386.0	261.3	261.3	2.8	11.1	0.7	6	clean SAND to silty SAND	125	5.0	52	77	95	44	-	16
59.71	386.7	261.5	261.5	2.9	11.4	0.7	6	clean SAND to silty SAND	125	5.0	52	77	95	44	-	16
59.88	383.5	259.0	259.0	2.9	11.5	0.8	6	clean SAND to silty SAND	125	5.0	52	77	95	44	-	16
60.04	394.7	266.2	266.2	2.8	11.5	0.7	6	clean SAND to silty SAND	125	5.0	53	79	95	44	-	16
60.21	402.6	271.2	271.2	2.8	11.6	0.7	6	clean SAND to silty SAND	125	5.0	54	81	95	45	-	16
60.37	404.0	271.8	271.8	2.7	11.6	0.7	6	clean SAND to silty SAND	125	5.0	54	81	95	45	-	16
60.53	406.0	272.8	272.8	2.7	11.6	0.7	6	clean SAND to silty SAND	125	5.0	55	81	95	45	-	16
60.70	410.1	275.3	275.3	2.7	11.9	0.7	6	clean SAND to silty SAND	125	5.0	55	82	95	45	-	16
60.86	414.5	277.8	277.8	2.7	12.1	0.7	6	clean SAND to silty SAND	125	5.0	56	83	95	45	-	16
61.03	424.8	284.4	284.4	2.7	12.1	0.6	6	clean SAND to silty SAND	125	5.0	57	85	95	45	-	16
61.19	428.1	286.3	286.3	2.7	11.2	0.6	6	clean SAND to silty SAND	125	5.0	57	86	95	45	-	16
61.35	433.1	289.2	289.2	2.6	10.7	0.6	6	clean SAND to silty SAND	125	5.0	58	87	95	45	-	16
61.52	428.6	285.9	285.9	2.3	11.0	0.5	6	clean SAND to silty SAND	125	5.0	57	86	95	45	-	16
61.68	432.2	288.0	288.0	2.3	11.2	0.5	6	clean SAND to silty SAND	125	5.0	58	86	95	45	-	16
61.85	427.2	284.3	284.3	2.3	11.3	0.5	6	clean SAND to silty SAND	125	5.0	57	85	95	45	-	16
62.01	423.7	281.7	281.7	2.3	11.5	0.6	6	clean SAND to silty SAND	125	5.0	56	85	95	45	-	16
62.17	418.7	278.0	278.0	2.1	11.7	0.5	6	clean SAND to silty SAND	125	5.0	56	84	95	45	-	16
62.34	415.6	275.6	275.6	2.0	11.7	0.5	6	clean SAND to silty SAND	125	5.0	55	83	95	45	-	16
62.50	419.4	277.8	277.8	2.0	11.7	0.5	6	clean SAND to silty SAND	125	5.0	56	84	95	45	-	16
62.67	412.9	273.1	273.1	1.7	11.3	0.4	6	clean SAND to silty SAND	125	5.0	55	83	95	44	-	16
62.83	411.9	272.2	272.2	1.9	11.7	0.5	6	clean SAND to silty SAND	125	5.0	54	82	95	44	-	16
63.00	406.1	268.0	268.0	2.6	11.7	0.6	6	clean SAND to silty SAND	125	5.0	54	81	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(410).cpt
CPT Date: 11/18/2008 7:47:58 AM
GW During Test: 12 ft

Sounding ID: CPT-08-65
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	397.5	262.0	262.0	2.0	11.7	0.5	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
63.32	369.4	243.2	243.2	2.2	11.7	0.6	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
63.49	337.3	221.8	221.8	1.0	11.3	0.3	6	clean SAND to silty SAND	125	5.0	44	67	93	43	-	16
63.65	172.6	113.3	113.3	0.0	10.4	0.1	6	clean SAND to silty SAND	125	5.0	23	35	71	40	-	16
63.82	150.4	98.7	98.7	0.0	10.5	0.1	6	clean SAND to silty SAND	125	5.0	20	30	67	39	-	16
63.98	112.8	73.9	73.9	0.0	10.0	0.1	6	clean SAND to silty SAND	125	5.0	15	23	57	38	-	16
64.14	134.4	87.9	96.9	0.7	10.6	0.5	6	clean SAND to silty SAND	125	5.0	18	27	63	39	-	16
64.31	230.3	150.5	165.4	2.3	11.8	1.0	6	clean SAND to silty SAND	125	5.0	30	46	81	41	-	16
64.47	403.4	263.4	263.4	2.9	14.1	0.7	6	clean SAND to silty SAND	125	5.0	53	81	95	44	-	16
64.64	486.4	317.3	317.3	3.3	13.2	0.7	6	clean SAND to silty SAND	125	5.0	63	97	95	45	-	16
64.80	526.1	342.7	342.7	3.0	12.0	0.6	6	clean SAND to silty SAND	125	5.0	69	100	95	45	-	16
64.96	540.4	351.7	351.7	3.8	13.9	0.7	6	clean SAND to silty SAND	125	5.0	70	100	95	46	-	16
65.13	529.8	344.4	344.4	3.3	10.8	0.6	6	clean SAND to silty SAND	125	5.0	69	100	95	45	-	16
65.29	534.5	347.0	347.0	1.7	9.9	0.3	7	grvly SAND to dense SAND	130	6.0	58	89	95	45	-	16
65.46	477.5	309.6	309.6	1.7	9.6	0.4	7	grvly SAND to dense SAND	130	6.0	52	80	95	45	-	16
65.62	427.7	277.0	277.0	2.1	9.4	0.5	6	clean SAND to silty SAND	125	5.0	55	86	95	44	-	16
65.78	380.3	246.0	246.0	2.1	9.5	0.6	6	clean SAND to silty SAND	125	5.0	49	76	95	44	-	16
65.95	366.5	236.8	236.8	2.0	9.7	0.6	6	clean SAND to silty SAND	125	5.0	47	73	95	44	-	16
66.11	346.8	223.8	223.8	2.0	9.9	0.6	6	clean SAND to silty SAND	125	5.0	45	69	94	43	-	16
66.28	327.7	211.3	211.3	2.0	10.3	0.6	6	clean SAND to silty SAND	125	5.0	42	66	92	43	-	16
66.44	313.5	201.9	201.9	1.8	10.4	0.6	6	clean SAND to silty SAND	125	5.0	40	63	90	43	-	16
66.60	317.2	204.0	204.0	1.6	10.3	0.5	6	clean SAND to silty SAND	125	5.0	41	63	91	43	-	16
66.77	328.3	211.0	211.0	1.4	10.4	0.4	6	clean SAND to silty SAND	125	5.0	42	66	92	43	-	16
66.93	346.3	222.2	222.2	1.4	10.5	0.4	6	clean SAND to silty SAND	125	5.0	44	69	93	43	-	16
67.10	353.0	226.3	226.3	1.5	10.6	0.4	6	clean SAND to silty SAND	125	5.0	45	71	94	43	-	16
67.26	359.0	229.9	229.9	2.2	11.3	0.6	6	clean SAND to silty SAND	125	5.0	46	72	94	43	-	16
67.42	349.9	223.8	223.8	2.0	11.4	0.6	6	clean SAND to silty SAND	125	5.0	45	70	94	43	-	16
67.59	320.1	204.6	204.6	1.6	11.7	0.5	6	clean SAND to silty SAND	125	5.0	41	64	91	43	-	16
67.75	337.0	215.1	215.1	1.4	11.7	0.4	6	clean SAND to silty SAND	125	5.0	43	67	92	43	-	16
67.92	356.0	227.0	227.0	1.1	11.8	0.3	6	clean SAND to silty SAND	125	5.0	45	71	94	43	-	16
68.08	360.7	229.7	229.7	1.3	12.0	0.4	6	clean SAND to silty SAND	125	5.0	46	72	94	43	-	16
68.24	366.1	232.9	232.9	1.7	12.3	0.5	6	clean SAND to silty SAND	125	5.0	47	73	95	43	-	16
68.41	369.6	234.9	234.9	1.5	12.8	0.4	6	clean SAND to silty SAND	125	5.0	47	74	95	44	-	16
68.57	358.3	227.5	227.5	1.6	12.3	0.4	6	clean SAND to silty SAND	125	5.0	45	72	94	43	-	16
68.74	340.0	215.6	215.6	2.2	12.5	0.7	6	clean SAND to silty SAND	125	5.0	43	68	92	43	-	16
68.90	328.8	208.2	210.5	3.0	13.0	0.9	6	clean SAND to silty SAND	125	5.0	42	66	91	43	-	16
69.07	315.9	199.8	200.2	2.7	11.8	0.9	6	clean SAND to silty SAND	125	5.0	40	63	90	43	-	16
69.23	325.9	206.0	206.0	2.1	12.7	0.7	6	clean SAND to silty SAND	125	5.0	41	65	91	43	-	16
69.39	328.8	207.6	207.6	2.0	13.0	0.6	6	clean SAND to silty SAND	125	5.0	42	66	91	43	-	16
69.56	336.3	212.1	212.1	1.7	0.5	0.5	6	clean SAND to silty SAND	125	5.0	42	67	92	43	-	16
69.72	330.9	208.5	208.5	1.1	-1.4	0.3	6	clean SAND to silty SAND	125	5.0	42	66	91	43	-	16
69.89	332.8	209.4	209.4	1.2	-1.6	0.4	6	clean SAND to silty SAND	125	5.0	42	67	91	43	-	16
70.05	331.9	208.6	208.6	1.3	-1.3	0.4	6	clean SAND to silty SAND	125	5.0	42	66	91	43	-	16
70.21	319.5	200.6	200.6	1.3	-0.7	0.4	6	clean SAND to silty SAND	125	5.0	40	64	90	43	-	16
70.38	321.4	201.6	201.6	1.3	-0.3	0.4	6	clean SAND to silty SAND	125	5.0	40	64	90	43	-	16
70.54	322.5	202.1	202.1	1.3	4.0	0.4	6	clean SAND to silty SAND	125	5.0	40	65	90	43	-	16
70.71	339.9	212.8	212.8	1.3	4.5	0.4	6	clean SAND to silty SAND	125	5.0	43	68	92	43	-	16
70.87	378.6	236.7	236.7	1.1	5.1	0.3	7	grvly SAND to dense SAND	130	6.0	39	63	95	43	-	16
71.03	390.7	244.0	244.0	1.3	5.6	0.3	7	grvly SAND to dense SAND	130	6.0	41	65	95	44	-	16
71.20	375.4	234.2	234.2	0.9	6.2	0.2	7	grvly SAND to dense SAND	130	6.0	39	63	95	43	-	16
71.36	356.6	222.2	222.2	1.1	7.0	0.3	6	clean SAND to silty SAND	125	5.0	44	71	93	43	-	16
71.53	351.1	218.5	218.5	1.3	7.7	0.4	6	clean SAND to silty SAND	125	5.0	44	70	93	43	-	16
71.69	331.3	206.0	206.0	1.5	9.1	0.5	6	clean SAND to silty SAND	125	5.0	41	66	91	43	-	16
71.85	319.1	198.2	198.2	1.3	8.9	0.4	6	clean SAND to silty SAND	125	5.0	40	64	90	43	-	16
72.02	316.7	196.5	196.5	1.1	9.8	0.4	6	clean SAND to silty SAND	125	5.0	39	63	89	42	-	16
72.18	320.0	198.3	198.3	0.7	10.3	0.2	6	clean SAND to silty SAND	125	5.0	40	64	90	43	-	16
72.35	306.6	189.8	189.8	0.6	10.6	0.2	6	clean SAND to silty SAND	125	5.0	38	61	88	42	-	16
72.51	279.6	172.9	172.9	0.8	10.7	0.3	6	clean SAND to silty SAND	125	5.0	35	56	85	42	-	16
72.67	256.9	158.7	158.7	1.2	11.8	0.5	6	clean SAND to silty SAND	125	5.0	32	51	82	41	-	16
72.84	262.6	162.1	162.8	1.8	13.4	0.7	6	clean SAND to silty SAND	125	5.0	32	53	83	41	-	16
73.00	268.6	165.6	171.0	2.2	13.7	0.8	6	clean SAND to silty SAND	125	5.0	33	54	84	42	-	16
73.17	268.4	165.3	172.0	2.2	13.8	0.8	6	clean SAND to silty SAND	125	5.0	33	54	84	42	-	16
73.33	264.1	162.5	169.7	2.2	14.1	0.8	6	clean SAND to silty SAND	125	5.0	33	53	83	41	-	16
73.49	276.4	169.9	170.2	2.0	14.2	0.7	6	clean SAND to silty SAND	125	5.0	34	55	84	42	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(410).cpt
CPT Date: 11/18/2008 7:47:58 AM
GW During Test: 12 ft

Sounding ID: CPT-08-65
Project No: 08-156
Cone/Rig: DSG1047

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
73.66	307.6	188.9	188.9	1.8	14.4	0.6	6	clean SAND to silty SAND	125	5.0	38	62	88	42	-	16
73.82	339.5	208.3	208.3	1.4	14.4	0.4	6	clean SAND to silty SAND	125	5.0	42	68	91	43	-	16
73.99	396.8	243.2	243.2	1.0	16.3	0.2	7	grvly SAND to dense SAND	130	6.0	41	66	95	43	-	16
74.15	436.5	267.2	267.2	1.4	15.3	0.3	7	grvly SAND to dense SAND	130	6.0	45	73	95	44	-	16
74.31	405.0	247.6	247.6	1.7	9.4	0.4	6	clean SAND to silty SAND	125	5.0	50	81	95	44	-	16
74.48	370.1	226.1	226.1	1.2	7.0	0.3	6	clean SAND to silty SAND	125	5.0	45	74	94	43	-	16
74.64	325.8	198.8	198.8	1.3	6.2	0.4	6	clean SAND to silty SAND	125	5.0	40	65	90	42	-	16
74.81	295.6	180.2	180.2	1.0	6.3	0.4	6	clean SAND to silty SAND	125	5.0	36	59	86	42	-	16
74.97	269.9	164.3	164.3	1.1	7.2	0.4	6	clean SAND to silty SAND	125	5.0	33	54	83	41	-	16
75.13	253.2	154.0	154.0	1.2	7.8	0.5	6	clean SAND to silty SAND	125	5.0	31	51	81	41	-	16
75.30	260.6	158.4	158.4	1.1	8.5	0.4	6	clean SAND to silty SAND	125	5.0	32	52	82	41	-	16
75.46	266.3	161.7	161.7	0.6	9.2	0.2	6	clean SAND to silty SAND	125	5.0	32	53	83	41	-	16
75.63	284.0	172.3	172.3	0.7	10.6	0.3	6	clean SAND to silty SAND	125	5.0	34	57	85	42	-	16
75.79	317.8	192.6	192.6	1.1	10.5	0.4	6	clean SAND to silty SAND	125	5.0	39	64	89	42	-	16
75.96	356.8	216.0	216.0	0.9	10.7	0.2	7	grvly SAND to dense SAND	130	6.0	36	59	92	43	-	16
76.12	349.8	211.5	211.5	2.4	12.4	0.7	6	clean SAND to silty SAND	125	5.0	42	70	92	43	-	16
76.28	422.9	255.4	255.4	4.0	13.3	1.0	6	clean SAND to silty SAND	125	5.0	51	85	95	44	-	16
76.45	524.6	316.6	316.6	4.6	13.5	0.9	6	clean SAND to silty SAND	125	5.0	63	100	95	45	-	16
76.61	424.0	255.6	263.5	5.2	10.2	1.2	6	clean SAND to silty SAND	125	5.0	51	85	95	44	-	16
76.78	380.8	229.3	240.6	4.6	12.5	1.2	6	clean SAND to silty SAND	125	5.0	46	76	94	43	-	16
76.94	389.2	234.1	238.2	4.1	13.3	1.1	6	clean SAND to silty SAND	125	5.0	47	78	95	43	-	16
77.10	454.0	272.9	272.9	4.8	13.8	1.1	6	clean SAND to silty SAND	125	5.0	55	91	95	44	-	16
77.27	411.8	247.3	247.3	4.0	12.7	1.0	6	clean SAND to silty SAND	125	5.0	49	82	95	43	-	16
77.43	464.8	278.8	278.8	3.9	12.8	0.8	6	clean SAND to silty SAND	125	5.0	56	93	95	44	-	16
77.60	442.4	265.2	265.2	4.3	12.5	1.0	6	clean SAND to silty SAND	125	5.0	53	88	95	44	-	16
77.76	441.0	264.0	276.1	5.9	14.6	1.3	6	clean SAND to silty SAND	125	5.0	53	88	95	44	-	16
77.92	474.5	283.8	290.4	6.1	15.8	1.3	6	clean SAND to silty SAND	125	5.0	57	95	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(478).cpt
CPT Date: 12/9/2008 2:10:52 PM
GW During Test: 12 ft

Sounding ID: CPT-08-66
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	97.6	156.6	194.9	1.8	0.0	1.8	6	clean SAND to silty SAND	125	5.0	31	20	82	48	-	16
0.49	121.0	194.0	240.3	2.6	-0.2	2.1	6	clean SAND to silty SAND	125	5.0	39	24	89	48	-	16
0.66	102.7	164.7	220.8	2.4	-0.1	2.4	5	silty SAND to sandy SILT	120	4.0	41	26	83	48	-	16
0.82	94.3	151.2	197.6	1.9	0.0	2.1	5	silty SAND to sandy SILT	120	4.0	38	24	81	48	-	16
0.98	92.8	148.9	205.4	2.2	-0.1	2.4	5	silty SAND to sandy SILT	120	4.0	37	23	80	48	-	16
1.15	80.3	128.8	185.7	1.9	0.0	2.3	5	silty SAND to sandy SILT	120	4.0	32	20	75	48	-	16
1.31	64.4	103.3	153.0	1.3	0.0	2.1	5	silty SAND to sandy SILT	120	4.0	26	16	68	48	-	16
1.48	59.5	95.4	132.4	0.9	0.0	1.6	5	silty SAND to sandy SILT	120	4.0	24	15	65	48	-	16
1.64	58.9	94.5	133.4	1.0	0.1	1.7	5	silty SAND to sandy SILT	120	4.0	24	15	65	48	-	16
1.80	54.0	86.6	130.1	1.0	0.1	1.8	5	silty SAND to sandy SILT	120	4.0	22	14	62	48	-	16
1.97	50.7	81.3	135.2	1.1	0.1	2.1	5	silty SAND to sandy SILT	120	4.0	20	13	60	47	-	16
2.13	49.5	79.4	149.0	1.3	0.1	2.7	5	silty SAND to sandy SILT	120	4.0	20	12	59	47	-	16
2.30	45.7	73.3	167.6	1.6	0.1	3.6	4	clayy SILT to silty CLAY	115	2.0	37	23	-	-	3.2	15
2.46	53.4	85.6	169.6	1.7	0.1	3.2	5	silty SAND to sandy SILT	120	4.0	21	13	62	47	-	16
2.62	78.9	126.5	196.4	2.2	-0.1	2.7	5	silty SAND to sandy SILT	120	4.0	32	20	75	48	-	16
2.79	75.7	121.3	224.3	2.8	0.1	3.7	8	stiff SAND to clayy SAND	115	1.0	100	76	-	-	5.0	16
2.95	61.2	98.2	247.3	3.3	0.0	5.4	9	very stiff fine SOIL	120	2.0	49	31	66	47	-	30
3.12	48.7	78.0	234.0	2.9	-0.8	5.9	9	very stiff fine SOIL	120	2.0	39	24	59	45	-	30
3.28	43.7	70.2	205.8	2.3	-1.3	5.3	4	clayy SILT to silty CLAY	115	2.0	35	22	-	-	3.1	15
3.45	35.8	57.3	190.0	1.9	-1.4	5.4	4	clayy SILT to silty CLAY	115	2.0	29	18	-	-	2.5	15
3.61	34.9	55.9	179.4	1.7	-1.3	5.0	4	clayy SILT to silty CLAY	115	2.0	28	17	-	-	2.5	15
3.77	43.2	69.3	187.0	1.9	-0.9	4.5	4	clayy SILT to silty CLAY	115	2.0	35	22	-	-	3.0	15
3.94	42.7	68.5	199.7	2.2	-1.3	5.1	4	clayy SILT to silty CLAY	115	2.0	34	21	-	-	3.0	15
4.10	44.1	70.7	211.7	2.4	-1.3	5.5	4	clayy SILT to silty CLAY	115	2.0	35	22	-	-	3.1	15
4.27	52.2	83.7	217.2	2.6	-0.9	5.0	9	very stiff fine SOIL	120	2.0	42	26	61	45	-	30
4.43	50.6	81.2	225.4	2.7	-1.3	5.4	9	very stiff fine SOIL	120	2.0	41	25	60	45	-	30
4.59	49.7	79.7	225.0	2.7	-1.3	5.5	9	very stiff fine SOIL	120	2.0	40	25	60	44	-	30
4.76	59.4	95.2	246.3	3.2	-1.3	5.5	9	very stiff fine SOIL	120	2.0	48	30	65	45	-	30
4.92	57.1	91.5	255.7	3.4	-1.7	6.0	9	very stiff fine SOIL	120	2.0	46	29	64	45	-	30
5.09	61.5	98.6	244.6	3.2	-1.1	5.3	9	very stiff fine SOIL	120	2.0	49	31	67	45	-	30
5.25	49.1	78.7	245.1	3.1	-2.6	6.3	9	very stiff fine SOIL	120	2.0	39	25	59	44	-	30
5.41	47.1	75.5	227.6	2.7	-3.1	5.8	9	very stiff fine SOIL	120	2.0	38	24	58	44	-	30
5.58	56.3	90.2	230.0	2.9	-2.9	5.1	9	very stiff fine SOIL	120	2.0	45	28	64	44	-	30
5.74	53.2	85.2	230.3	2.8	-3.1	5.4	9	very stiff fine SOIL	120	2.0	43	27	62	44	-	30
5.91	44.3	71.1	223.2	2.6	-3.3	5.9	9	very stiff fine SOIL	120	2.0	36	22	56	43	-	30
6.07	52.6	84.3	210.5	2.4	-3.0	4.7	4	clayy SILT to silty CLAY	115	2.0	42	26	-	-	3.7	15
6.23	55.3	88.1	228.6	2.8	-2.7	5.2	9	very stiff fine SOIL	120	2.0	44	28	63	44	-	30
6.40	49.5	78.0	255.2	3.3	-2.7	6.8	9	very stiff fine SOIL	120	2.0	39	25	59	43	-	30
6.56	94.1	146.2	237.1	3.1	-2.3	3.4	5	silty SAND to sandy SILT	120	4.0	37	24	80	46	-	16
6.73	150.8	231.3	271.1	3.0	-2.3	2.0	6	clean SAND to silty SAND	125	5.0	46	30	95	48	-	16
6.89	127.0	192.4	235.6	2.6	-2.4	2.0	6	clean SAND to silty SAND	125	5.0	38	25	89	48	-	16
7.05	107.8	161.3	212.9	2.4	-1.8	2.2	5	silty SAND to sandy SILT	120	4.0	40	27	83	47	-	16
7.22	77.5	114.6	210.8	2.7	-1.9	3.5	5	silty SAND to sandy SILT	120	4.0	29	19	71	45	-	16
7.38	59.9	87.7	202.3	2.5	-1.9	4.2	4	clayy SILT to silty CLAY	115	2.0	44	30	-	-	4.2	15
7.55	44.7	64.8	188.6	2.1	-1.3	4.8	4	clayy SILT to silty CLAY	115	2.0	32	22	-	-	3.1	15
7.71	33.8	54.3	172.3	1.6	-0.4	4.7	4	clayy SILT to silty CLAY	115	2.0	27	17	-	-	2.4	15
7.87	25.2	40.4	-	1.5	0.1	5.9	3	silty CLAY to CLAY	115	1.5	27	17	-	-	1.8	15
8.04	37.3	52.4	161.4	1.6	-0.1	4.4	4	clayy SILT to silty CLAY	115	2.0	26	19	-	-	2.6	15
8.20	54.4	75.6	173.9	2.0	-0.1	3.7	4	clayy SILT to silty CLAY	115	2.0	38	27	-	-	3.8	15
8.37	42.4	58.4	193.5	2.3	-0.4	5.5	4	clayy SILT to silty CLAY	115	2.0	29	21	-	-	3.0	15
8.53	34.2	54.9	-	1.9	-0.5	5.7	3	silty CLAY to CLAY	115	1.5	37	23	-	-	2.4	15
8.69	23.8	38.2	-	1.4	-1.4	5.8	3	silty CLAY to CLAY	115	1.5	25	16	-	-	1.7	15
8.86	23.7	38.1	-	1.1	-1.5	4.9	3	silty CLAY to CLAY	115	1.5	25	16	-	-	1.7	15
9.02	19.4	31.0	-	1.1	-0.9	5.6	3	silty CLAY to CLAY	115	1.5	21	13	-	-	1.3	15
9.19	16.9	27.1	-	1.0	-0.9	6.3	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.2	15
9.35	16.2	26.1	-	0.9	-1.7	5.6	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.1	15
9.51	16.1	25.8	-	0.6	-1.7	4.1	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.1	15
9.68	25.8	33.1	93.4	0.6	-1.5	2.2	4	clayy SILT to silty CLAY	115	2.0	17	13	-	-	1.8	15
9.84	21.6	31.0	98.2	0.5	-0.6	2.6	4	clayy SILT to silty CLAY	115	2.0	16	11	-	-	1.5	15
10.01	14.2	22.8	-	0.6	-0.2	4.6	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
10.17	10.7	17.2	-	0.8	0.0	7.6	3	silty CLAY to CLAY	115	1.5	11	7	-	-	0.7	15
10.34	16.3	26.1	-	0.9	0.4	5.9	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.1	15
10.50	22.0	35.3	-	1.1	-2.0	4.9	3	silty CLAY to CLAY	115	1.5	24	15	-	-	1.5	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(478).cpt
CPT Date: 12/9/2008 2:10:52 PM
GW During Test: 12 ft

Sounding ID: CPT-08-66
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	20.7	32.9	-	1.0	-1.6	5.0	3	silty CLAY to CLAY	115	1.5	22	14	-	-	1.4	15
10.83	18.2	28.5	-	0.9	-1.5	5.3	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.3	15
10.99	17.7	27.2	-	1.0	-1.6	5.7	3	silty CLAY to CLAY	115	1.5	18	12	-	-	1.2	15
11.16	17.5	26.6	-	0.9	-1.6	5.5	3	silty CLAY to CLAY	115	1.5	18	12	-	-	1.2	15
11.32	17.2	25.8	-	1.2	-1.5	7.3	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.2	15
11.48	23.5	34.8	-	1.5	-1.3	6.4	3	silty CLAY to CLAY	115	1.5	23	16	-	-	1.6	15
11.65	24.2	35.3	-	1.7	-1.7	7.3	3	silty CLAY to CLAY	115	1.5	24	16	-	-	1.7	15
11.81	23.3	33.5	-	1.7	-2.2	7.6	3	silty CLAY to CLAY	115	1.5	22	16	-	-	1.6	15
11.98	21.4	30.3	-	1.5	-2.2	7.2	3	silty CLAY to CLAY	115	1.5	20	14	-	-	1.5	15
12.14	17.1	24.2	-	1.1	-2.4	6.6	3	silty CLAY to CLAY	115	1.5	16	11	-	-	1.2	15
12.30	10.5	14.7	-	0.9	-2.7	8.7	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.7	15
12.47	12.0	16.7	-	0.7	-2.6	6.0	3	silty CLAY to CLAY	115	1.5	11	8	-	-	0.8	15
12.63	9.8	13.6	-	0.6	-0.8	6.1	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
12.80	7.4	10.2	-	0.3	-0.4	5.2	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
12.96	6.2	8.5	-	0.4	-0.3	7.3	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
13.12	8.9	12.2	-	0.5	-0.1	6.7	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
13.29	10.1	13.6	-	0.5	0.1	5.9	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
13.45	7.5	10.1	-	0.5	0.2	7.9	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
13.62	12.1	16.2	-	0.4	0.4	3.3	3	silty CLAY to CLAY	115	1.5	11	8	-	-	0.8	15
13.78	8.2	10.9	-	0.5	0.4	6.9	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
13.94	7.7	10.2	-	0.6	0.7	9.3	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
14.11	9.6	12.6	-	0.8	1.0	8.8	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
14.27	9.1	11.8	-	0.7	1.1	8.0	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
14.44	7.6	9.9	-	0.5	1.4	7.7	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
14.60	6.2	8.0	-	0.4	1.9	7.4	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.76	6.6	8.4	-	0.4	2.2	6.5	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
14.93	6.0	7.6	-	0.4	4.9	8.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.09	6.4	8.1	-	0.6	5.2	10.0	2	Organic SOILS - Peats	100	1.0	8	6	-	-	0.6	10
15.26	7.3	9.2	-	0.7	5.6	9.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.42	6.7	8.4	-	0.6	5.8	9.9	2	Organic SOILS - Peats	100	1.0	8	7	-	-	0.7	10
15.58	8.8	11.0	-	0.4	7.0	5.6	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
15.75	11.7	14.6	-	0.4	6.0	3.3	3	silty CLAY to CLAY	115	1.5	10	8	-	-	0.8	15
15.91	9.6	11.9	-	0.3	4.0	3.8	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
16.08	6.1	7.5	-	0.3	3.6	5.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.24	4.9	6.1	-	0.2	3.9	6.2	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
16.40	6.4	7.8	-	0.3	4.5	5.7	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.57	20.9	23.6	77.4	0.4	3.9	1.9	4	clayy SILT to silty CLAY	115	2.0	12	10	-	-	1.4	15
16.73	27.5	29.4	73.5	0.4	2.5	1.4	5	silty SAND to sandy SILT	120	4.0	7	7	27	37	-	16
16.90	27.7	29.5	85.6	0.5	2.0	2.0	4	clayy SILT to silty CLAY	115	2.0	15	14	-	-	1.9	15
17.06	15.5	18.5	-	0.6	1.8	3.8	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.1	15
17.23	8.6	10.2	-	0.4	2.1	5.2	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
17.39	6.1	7.2	-	0.2	2.7	4.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.55	6.0	7.0	-	0.3	3.4	6.2	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.72	14.1	16.5	-	0.3	3.9	2.6	4	clayy SILT to silty CLAY	115	2.0	8	7	-	-	1.0	15
17.88	30.0	31.4	79.9	0.5	3.4	1.6	5	silty SAND to sandy SILT	120	4.0	8	7	29	37	-	16
18.05	30.7	32.1	68.7	0.3	3.4	1.1	5	silty SAND to sandy SILT	120	4.0	8	8	29	37	-	16
18.21	29.9	31.2	75.6	0.4	2.3	1.5	5	silty SAND to sandy SILT	120	4.0	8	7	29	37	-	16
18.37	26.9	28.0	72.3	0.4	0.0	1.4	5	silty SAND to sandy SILT	120	4.0	7	7	25	36	-	16
18.54	27.9	29.0	68.9	0.3	-0.5	1.3	5	silty SAND to sandy SILT	120	4.0	7	7	26	36	-	16
18.70	28.3	29.3	70.2	0.4	-1.1	1.3	5	silty SAND to sandy SILT	120	4.0	7	7	26	36	-	16
18.87	30.8	31.8	73.0	0.4	-1.2	1.3	5	silty SAND to sandy SILT	120	4.0	8	8	29	37	-	16
19.03	30.6	31.5	82.1	0.5	-1.3	1.7	5	silty SAND to sandy SILT	120	4.0	8	8	29	37	-	16
19.19	20.2	22.5	-	0.5	-1.2	2.7	4	clayy SILT to silty CLAY	115	2.0	11	10	-	-	1.4	15
19.36	11.7	13.0	-	0.4	-0.9	3.5	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
19.52	6.8	7.5	-	0.2	-0.4	4.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
19.69	6.0	6.6	-	0.2	0.4	5.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
19.85	5.7	6.2	-	0.2	1.0	5.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
20.01	5.8	6.3	-	0.2	7.2	5.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
20.18	5.5	6.0	-	0.3	7.7	6.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
20.34	5.7	6.2	-	0.3	8.1	7.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
20.51	8.0	8.6	-	0.3	8.6	4.2	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
20.67	16.5	17.6	-	0.4	5.8	2.5	4	clayy SILT to silty CLAY	115	2.0	9	8	-	-	1.1	15
20.83	14.3	15.3	-	0.4	5.2	3.1	3	silty CLAY to CLAY	115	1.5	10	10	-	-	1.0	15
21.00	18.1	19.2	-	0.4	4.6	2.5	4	clayy SILT to silty CLAY	115	2.0	10	9	-	-	1.2	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(478).cpt
CPT Date: 12/9/2008 2:10:52 PM
GW During Test: 12 ft

Sounding ID: CPT-08-66
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	29.5	29.4	82.2	0.5	1.4	1.8	5	silty SAND to sandy SILT	120	4.0	7	7	27	36	-	16
21.33	32.0	31.8	88.2	0.6	0.4	2.0	4	clayy SILT to silty CLAY	115	2.0	16	16	-	-	2.2	15
21.49	39.7	39.4	90.8	0.7	0.9	1.8	5	silty SAND to sandy SILT	120	4.0	10	10	36	37	-	16
21.65	38.9	38.5	103.6	0.9	0.1	2.4	4	clayy SILT to silty CLAY	115	2.0	19	19	-	-	2.7	15
21.82	40.9	40.4	110.5	1.0	2.0	2.6	4	clayy SILT to silty CLAY	115	2.0	20	20	-	-	2.8	15
21.98	41.8	41.2	108.8	1.0	1.3	2.5	4	clayy SILT to silty CLAY	115	2.0	21	21	-	-	2.9	15
22.15	43.1	42.4	107.7	1.0	1.1	2.4	5	silty SAND to sandy SILT	120	4.0	11	11	39	38	-	16
22.31	45.5	44.7	107.9	1.0	0.8	2.3	5	silty SAND to sandy SILT	120	4.0	11	11	40	38	-	16
22.47	42.2	41.3	105.1	1.0	0.2	2.4	5	silty SAND to sandy SILT	120	4.0	10	11	38	38	-	16
22.64	34.2	33.4	106.9	0.9	0.3	2.8	4	clayy SILT to silty CLAY	115	2.0	17	17	-	-	2.4	15
22.80	24.7	24.8	-	0.8	0.6	3.4	4	clayy SILT to silty CLAY	115	2.0	12	12	-	-	1.7	15
22.97	21.1	21.1	-	0.7	0.7	3.7	3	silty CLAY to CLAY	115	1.5	14	14	-	-	1.4	15
23.13	18.5	18.5	-	0.7	-0.6	3.8	3	silty CLAY to CLAY	115	1.5	12	12	-	-	1.3	15
23.30	11.8	11.8	-	0.5	-1.4	4.6	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
23.46	7.9	7.8	-	0.4	-1.4	6.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.62	6.8	6.7	-	0.4	-0.3	6.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
23.79	7.0	6.9	-	0.3	0.9	6.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
23.95	7.1	6.9	-	0.4	1.9	6.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
24.12	7.8	7.6	-	0.4	2.7	6.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.28	7.4	7.2	-	0.2	3.4	3.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.44	6.6	6.3	-	0.1	4.1	2.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
24.61	6.8	6.6	-	0.2	5.3	4.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
24.77	8.0	7.6	-	0.3	6.3	4.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.94	8.9	8.5	-	0.4	14.2	5.0	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
25.10	9.8	9.3	-	0.5	14.9	6.5	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
25.26	14.3	13.5	-	0.5	15.1	4.2	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
25.43	21.4	20.2	-	0.5	7.5	2.7	4	clayy SILT to silty CLAY	115	2.0	10	11	-	-	1.5	15
25.59	20.7	19.4	-	0.7	1.8	3.6	3	silty CLAY to CLAY	115	1.5	13	14	-	-	1.4	15
25.76	17.6	16.5	-	0.7	0.0	4.3	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.2	15
25.92	25.9	24.1	-	0.6	-0.2	2.7	4	clayy SILT to silty CLAY	115	2.0	12	13	-	-	1.8	15
26.08	38.6	36.0	88.8	0.7	-1.7	1.8	5	silty SAND to sandy SILT	120	4.0	9	10	33	36	-	16
26.25	46.9	43.8	95.7	0.8	-3.3	1.8	5	silty SAND to sandy SILT	120	4.0	11	12	40	37	-	16
26.41	46.6	43.4	104.5	1.0	-3.3	2.2	5	silty SAND to sandy SILT	120	4.0	11	12	39	37	-	16
26.58	42.2	39.2	114.8	1.2	-2.9	2.9	4	clayy SILT to silty CLAY	115	2.0	20	21	-	-	2.9	15
26.74	30.4	27.6	-	1.2	-2.5	4.1	4	clayy SILT to silty CLAY	115	2.0	14	15	-	-	2.1	15
26.90	20.1	18.2	-	1.0	-2.0	5.4	3	silty CLAY to CLAY	115	1.5	12	13	-	-	1.4	15
27.07	12.3	11.1	-	0.7	-2.4	6.5	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
27.23	9.3	8.4	-	0.4	-2.7	5.7	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
27.40	8.3	7.4	-	0.4	-1.9	5.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
27.56	8.4	7.5	-	0.4	-0.7	5.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
27.72	9.7	8.6	-	0.4	0.8	5.6	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
27.89	9.4	8.4	-	0.5	1.6	5.9	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
28.05	24.1	21.3	-	0.4	3.0	1.9	4	clayy SILT to silty CLAY	115	2.0	11	12	-	-	1.6	15
28.22	30.3	27.6	82.0	0.5	2.2	1.9	4	clayy SILT to silty CLAY	115	2.0	14	15	-	-	2.1	15
28.38	26.2	23.0	-	0.8	6.4	3.4	4	clayy SILT to silty CLAY	115	2.0	11	13	-	-	1.8	15
28.54	17.6	15.4	-	0.8	7.4	4.9	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.2	15
28.71	22.0	19.1	-	0.7	8.4	3.5	3	silty CLAY to CLAY	115	1.5	13	15	-	-	1.5	15
28.87	32.5	29.4	87.8	0.6	3.2	2.1	4	clayy SILT to silty CLAY	115	2.0	15	16	-	-	2.2	15
29.04	36.5	33.0	95.1	0.8	1.1	2.3	4	clayy SILT to silty CLAY	115	2.0	16	18	-	-	2.5	15
29.20	29.7	25.6	-	0.9	1.5	3.3	4	clayy SILT to silty CLAY	115	2.0	13	15	-	-	2.0	15
29.36	23.6	20.2	-	0.8	2.0	3.7	3	silty CLAY to CLAY	115	1.5	13	16	-	-	1.6	15
29.53	21.3	18.2	-	0.7	0.4	3.5	3	silty CLAY to CLAY	115	1.5	12	14	-	-	1.4	15
29.69	13.1	11.1	-	0.5	-1.0	4.3	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
29.86	8.8	7.5	-	0.3	-1.0	4.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.02	7.1	6.0	-	0.3	0.1	4.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
30.19	7.2	6.0	-	0.3	1.2	5.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
30.35	7.4	6.2	-	0.4	2.2	6.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.51	7.8	6.5	-	0.4	3.2	7.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.68	15.5	12.9	-	0.6	4.7	4.5	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
30.84	40.6	35.9	101.0	0.9	2.3	2.4	4	clayy SILT to silty CLAY	115	2.0	18	20	-	-	2.8	15
31.01	53.5	47.2	110.6	1.2	1.8	2.3	5	silty SAND to sandy SILT	120	4.0	12	13	42	37	-	16
31.17	56.8	50.1	119.2	1.4	1.9	2.6	5	silty SAND to sandy SILT	120	4.0	13	14	44	38	-	16
31.33	58.4	51.3	118.9	1.4	2.3	2.5	5	silty SAND to sandy SILT	120	4.0	13	15	45	38	-	16
31.50	54.5	47.8	124.1	1.5	2.8	2.9	4	clayy SILT to silty CLAY	115	2.0	24	27	-	-	3.8	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(478).cpt
CPT Date: 12/9/2008 2:10:52 PM
GW During Test: 12 ft

Sounding ID: CPT-08-66
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	52.8	46.2	121.0	1.4	5.8	2.8	4	clayy SILT to silty CLAY	115	2.0	23	26	-	-	3.7	15
31.83	49.1	43.0	115.0	1.3	6.2	2.7	4	clayy SILT to silty CLAY	115	2.0	21	25	-	-	3.4	15
31.99	47.2	41.2	110.3	1.2	5.7	2.6	4	clayy SILT to silty CLAY	115	2.0	21	24	-	-	3.3	15
32.15	47.2	41.2	105.5	1.1	4.4	2.3	5	silty SAND to sandy SILT	120	4.0	10	12	38	36	-	16
32.32	43.6	37.9	104.7	1.0	4.6	2.5	4	clayy SILT to silty CLAY	115	2.0	19	22	-	-	3.0	15
32.48	36.2	29.0	-	1.1	2.1	3.3	4	clayy SILT to silty CLAY	115	2.0	14	18	-	-	2.5	15
32.65	19.4	15.5	-	0.9	2.4	5.1	3	silty CLAY to CLAY	115	1.5	10	13	-	-	1.3	15
32.81	13.1	10.4	-	0.5	3.5	4.2	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
32.97	10.1	8.0	-	0.2	5.5	3.0	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
33.14	10.4	8.2	-	0.2	8.0	2.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
33.30	12.0	9.4	-	0.3	10.5	2.6	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
33.47	11.1	8.7	-	0.3	12.7	3.7	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
33.63	10.9	8.5	-	0.4	16.1	4.3	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
33.79	12.2	9.5	-	0.4	19.8	4.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
33.96	22.4	17.4	-	0.5	17.5	2.6	4	clayy SILT to silty CLAY	115	2.0	9	11	-	-	1.5	15
34.12	22.9	17.7	-	0.5	15.9	2.4	4	clayy SILT to silty CLAY	115	2.0	9	11	-	-	1.5	15
34.29	57.1	48.7	79.9	0.6	5.7	1.1	5	silty SAND to sandy SILT	120	4.0	12	14	43	37	-	16
34.45	64.4	54.8	85.8	0.7	1.0	1.1	5	silty SAND to sandy SILT	120	4.0	14	16	47	38	-	16
34.61	69.0	58.6	87.0	0.7	0.8	1.0	5	silty SAND to sandy SILT	120	4.0	15	17	49	38	-	16
34.78	55.2	46.8	98.1	1.0	-1.8	1.8	5	silty SAND to sandy SILT	120	4.0	12	14	42	37	-	16
34.94	53.9	45.6	96.0	0.9	5.8	1.8	5	silty SAND to sandy SILT	120	4.0	11	13	41	37	-	16
35.11	44.6	37.7	103.0	1.0	-3.4	2.4	4	clayy SILT to silty CLAY	115	2.0	19	22	-	-	3.1	15
35.27	26.4	19.9	-	0.7	-4.5	2.9	4	clayy SILT to silty CLAY	115	2.0	10	13	-	-	1.8	15
35.43	21.5	16.1	-	0.4	-4.4	1.8	4	clayy SILT to silty CLAY	115	2.0	8	11	-	-	1.4	15
35.60	14.9	11.2	-	0.3	-4.4	2.5	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
35.76	19.9	14.9	-	0.3	-3.7	1.9	4	clayy SILT to silty CLAY	115	2.0	7	10	-	-	1.3	15
35.93	63.9	53.6	86.5	0.7	-3.7	1.2	5	silty SAND to sandy SILT	120	4.0	13	16	46	38	-	16
36.09	82.5	69.0	114.1	1.4	-4.2	1.7	5	silty SAND to sandy SILT	120	4.0	17	21	55	39	-	16
36.26	92.2	77.0	131.4	1.9	-4.0	2.1	5	silty SAND to sandy SILT	120	4.0	19	23	58	40	-	16
36.42	100.8	84.0	139.2	2.1	-3.6	2.1	5	silty SAND to sandy SILT	120	4.0	21	25	61	40	-	16
36.58	85.9	71.5	142.9	2.2	-3.2	2.7	5	silty SAND to sandy SILT	120	4.0	18	21	56	39	-	16
36.75	59.4	49.3	140.5	2.0	-2.7	3.5	4	clayy SILT to silty CLAY	115	2.0	25	30	-	-	4.1	15
36.91	30.3	22.1	-	1.3	-2.3	4.7	3	silty CLAY to CLAY	115	1.5	15	20	-	-	2.1	15
37.08	16.2	11.8	-	0.7	-1.8	4.7	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
37.24	12.5	9.1	-	0.3	-0.9	2.6	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
37.40	12.0	8.6	-	0.2	0.2	2.2	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
37.57	11.9	8.6	-	0.2	1.0	2.5	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
37.73	12.0	8.6	-	0.2	1.6	2.4	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
37.90	11.4	8.1	-	0.3	2.3	2.8	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
38.06	12.0	8.5	-	0.3	3.2	3.4	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.22	12.9	9.2	-	0.5	7.2	4.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
38.39	17.7	12.6	-	0.6	8.3	3.6	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
38.55	28.1	19.9	-	0.5	6.7	1.8	4	clayy SILT to silty CLAY	115	2.0	10	14	-	-	1.9	15
38.72	18.9	13.3	-	0.4	-0.6	2.3	4	clayy SILT to silty CLAY	115	2.0	7	9	-	-	1.3	15
38.88	12.0	8.4	-	0.4	0.2	3.7	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
39.04	13.0	9.1	-	0.4	1.7	4.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
39.21	14.9	10.4	-	0.4	2.3	3.2	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
39.37	11.7	8.2	-	0.4	2.8	4.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
39.54	11.7	8.1	-	0.4	3.9	3.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
39.70	11.3	7.8	-	0.4	4.5	4.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
39.86	12.1	8.4	-	0.5	5.2	5.0	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
40.03	14.1	9.7	-	0.6	11.8	5.5	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
40.19	31.3	21.5	-	0.9	13.2	3.1	4	clayy SILT to silty CLAY	115	2.0	11	16	-	-	2.1	15
40.36	84.3	67.8	116.1	1.5	5.2	1.8	5	silty SAND to sandy SILT	120	4.0	17	21	54	39	-	16
40.52	107.7	86.4	140.3	2.2	2.7	2.1	5	silty SAND to sandy SILT	120	4.0	22	27	62	40	-	16
40.68	117.1	93.8	158.1	2.8	2.8	2.5	5	silty SAND to sandy SILT	120	4.0	23	29	65	40	-	16
40.85	121.7	97.3	165.5	3.1	3.2	2.6	5	silty SAND to sandy SILT	120	4.0	24	30	66	41	-	16
41.01	126.6	101.0	170.7	3.3	3.5	2.7	5	silty SAND to sandy SILT	120	4.0	25	32	67	41	-	16
41.18	126.9	101.1	173.8	3.4	3.6	2.8	5	silty SAND to sandy SILT	120	4.0	25	32	67	41	-	16
41.34	123.7	98.5	173.4	3.4	3.8	2.8	5	silty SAND to sandy SILT	120	4.0	25	31	66	41	-	16
41.50	116.0	92.2	170.9	3.4	5.1	3.0	5	silty SAND to sandy SILT	120	4.0	23	29	64	40	-	16
41.67	114.7	90.9	167.9	3.2	5.1	2.9	5	silty SAND to sandy SILT	120	4.0	23	29	64	40	-	16
41.83	113.9	90.2	158.1	2.9	4.9	2.6	5	silty SAND to sandy SILT	120	4.0	23	28	64	40	-	16
42.00	115.7	91.5	161.7	3.0	4.8	2.7	5	silty SAND to sandy SILT	120	4.0	23	29	64	40	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(478).cpt
CPT Date: 12/9/2008 2:10:52 PM
GW During Test: 12 ft

Sounding ID: CPT-08-66
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	106.4	84.0	158.9	2.9	3.7	2.8	5	silty SAND to sandy SILT	120	4.0	21	27	61	40	-	16
42.32	101.9	80.3	158.6	2.9	3.6	2.9	5	silty SAND to sandy SILT	120	4.0	20	25	60	39	-	16
42.49	86.6	68.2	156.4	2.8	3.8	3.3	4	clayy SILT to silty CLAY	115	2.0	34	43	-	-	6.0	15
42.65	64.6	50.8	150.0	2.4	4.0	3.8	4	clayy SILT to silty CLAY	115	2.0	25	32	-	-	4.5	15
42.82	46.4	30.3	-	1.8	3.6	4.0	4	clayy SILT to silty CLAY	115	2.0	15	23	-	-	3.2	15
42.98	31.2	20.3	-	1.0	0.8	3.4	3	silty CLAY to CLAY	115	1.5	14	21	-	-	2.1	15
43.15	25.7	16.7	-	0.7	1.4	2.9	3	silty CLAY to CLAY	115	1.5	11	17	-	-	1.7	15
43.31	17.0	11.0	-	0.4	1.8	3.0	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
43.47	14.0	9.0	-	0.3	3.2	2.2	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
43.64	14.2	9.1	-	0.3	5.3	3.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
43.80	15.1	9.7	-	0.5	7.3	4.2	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
43.97	19.0	12.2	-	0.7	9.0	4.3	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
44.13	30.4	19.4	-	0.7	8.6	2.4	4	clayy SILT to silty CLAY	115	2.0	10	15	-	-	2.1	15
44.29	26.6	17.0	-	0.7	5.6	3.0	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.8	15
44.46	18.5	11.7	-	0.9	6.5	6.0	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
44.62	33.6	21.3	-	0.9	8.8	2.8	4	clayy SILT to silty CLAY	115	2.0	11	17	-	-	2.3	15
44.79	61.9	47.7	103.8	1.2	3.3	2.0	5	silty SAND to sandy SILT	120	4.0	12	15	43	36	-	16
44.95	116.3	89.6	122.3	1.6	0.6	1.4	5	silty SAND to sandy SILT	120	4.0	22	29	63	40	-	16
45.11	149.2	114.8	148.8	2.3	-3.8	1.5	6	clean SAND to silty SAND	125	5.0	23	30	72	41	-	16
45.28	158.0	121.4	162.6	2.8	-5.1	1.8	5	silty SAND to sandy SILT	120	4.0	30	39	73	41	-	16
45.44	161.5	123.9	174.0	3.3	-5.2	2.1	5	silty SAND to sandy SILT	120	4.0	31	40	74	42	-	16
45.61	151.6	116.2	178.3	3.7	-5.1	2.5	5	silty SAND to sandy SILT	120	4.0	29	38	72	41	-	16
45.77	148.9	113.9	173.4	3.5	-4.8	2.4	5	silty SAND to sandy SILT	120	4.0	28	37	71	41	-	16
45.93	173.3	132.4	181.9	3.6	-4.7	2.1	5	silty SAND to sandy SILT	120	4.0	33	43	76	42	-	16
46.10	201.7	153.9	199.2	4.0	-4.9	2.0	5	silty SAND to sandy SILT	120	4.0	38	50	81	43	-	16
46.26	219.7	167.3	215.0	4.6	-4.9	2.1	5	silty SAND to sandy SILT	120	4.0	42	55	84	43	-	16
46.43	224.3	170.6	223.3	5.0	-4.6	2.3	5	silty SAND to sandy SILT	120	4.0	43	56	85	43	-	16
46.59	221.1	167.9	223.8	5.1	-4.4	2.4	5	silty SAND to sandy SILT	120	4.0	42	55	84	43	-	16
46.75	206.0	156.2	213.0	4.8	-4.1	2.4	5	silty SAND to sandy SILT	120	4.0	39	51	82	43	-	16
46.92	178.2	135.0	187.9	3.9	-4.0	2.2	5	silty SAND to sandy SILT	120	4.0	34	45	77	42	-	16
47.08	155.9	117.9	163.2	2.9	-3.8	1.9	5	silty SAND to sandy SILT	120	4.0	29	39	72	41	-	16
47.25	139.8	105.6	150.1	2.5	-3.6	1.9	5	silty SAND to sandy SILT	120	4.0	26	35	69	41	-	16
47.41	129.7	97.8	139.6	2.2	-3.4	1.7	5	silty SAND to sandy SILT	120	4.0	24	32	66	40	-	16
47.57	123.9	93.3	134.1	2.0	-3.2	1.7	5	silty SAND to sandy SILT	120	4.0	23	31	65	40	-	16
47.74	126.7	95.3	136.6	2.1	-3.0	1.7	5	silty SAND to sandy SILT	120	4.0	24	32	65	40	-	16
47.90	131.3	98.6	136.3	2.1	-1.6	1.6	5	silty SAND to sandy SILT	120	4.0	25	33	67	40	-	16
48.07	146.3	109.7	142.3	2.1	-1.4	1.5	6	clean SAND to silty SAND	125	5.0	22	29	70	41	-	16
48.23	159.1	119.1	147.3	2.1	-1.1	1.4	6	clean SAND to silty SAND	125	5.0	24	32	73	41	-	16
48.39	172.5	128.9	154.6	2.2	-0.8	1.3	6	clean SAND to silty SAND	125	5.0	26	34	75	42	-	16
48.56	176.8	131.9	156.2	2.2	-0.6	1.3	6	clean SAND to silty SAND	125	5.0	26	35	76	42	-	16
48.72	178.3	132.9	157.7	2.3	-0.2	1.3	6	clean SAND to silty SAND	125	5.0	27	36	76	42	-	16
48.89	182.7	135.9	162.3	2.4	0.1	1.4	6	clean SAND to silty SAND	125	5.0	27	37	77	42	-	16
49.05	191.5	142.3	166.9	2.5	0.5	1.3	6	clean SAND to silty SAND	125	5.0	28	38	79	42	-	16
49.22	200.5	148.7	172.8	2.6	0.9	1.3	6	clean SAND to silty SAND	125	5.0	30	40	80	42	-	16
49.38	202.6	150.1	174.4	2.7	1.2	1.3	6	clean SAND to silty SAND	125	5.0	30	41	80	42	-	16
49.54	213.1	157.6	179.2	2.7	1.5	1.3	6	clean SAND to silty SAND	125	5.0	32	43	82	43	-	16
49.71	225.0	166.2	181.5	2.4	1.9	1.1	6	clean SAND to silty SAND	125	5.0	33	45	84	43	-	16
49.87	231.4	170.7	187.2	2.6	2.2	1.2	6	clean SAND to silty SAND	125	5.0	34	46	85	43	-	16
50.04	220.4	162.3	187.1	3.0	5.8	1.4	6	clean SAND to silty SAND	125	5.0	32	44	83	43	-	16
50.20	211.4	155.4	194.4	3.8	6.2	1.8	6	clean SAND to silty SAND	125	5.0	31	42	82	42	-	16
50.36	198.4	145.7	199.5	4.4	6.5	2.3	5	silty SAND to sandy SILT	120	4.0	36	50	79	42	-	16
50.53	196.6	144.1	202.2	4.6	6.7	2.4	5	silty SAND to sandy SILT	120	4.0	36	49	79	42	-	16
50.69	191.2	140.0	200.3	4.6	6.8	2.4	5	silty SAND to sandy SILT	120	4.0	35	48	78	42	-	16
50.86	187.1	136.8	201.2	4.7	6.9	2.6	5	silty SAND to sandy SILT	120	4.0	34	47	77	42	-	16
51.02	181.1	132.2	198.3	4.6	7.0	2.6	5	silty SAND to sandy SILT	120	4.0	33	45	76	42	-	16
51.18	169.0	123.2	197.5	4.7	8.4	2.8	5	silty SAND to sandy SILT	120	4.0	31	42	74	41	-	16
51.35	155.8	113.5	193.9	4.6	8.1	3.0	5	silty SAND to sandy SILT	120	4.0	28	39	71	41	-	16
51.51	133.1	96.8	179.6	4.0	7.9	3.1	5	silty SAND to sandy SILT	120	4.0	24	33	66	40	-	16
51.68	114.0	82.8	162.9	3.3	7.8	3.0	5	silty SAND to sandy SILT	120	4.0	21	29	61	39	-	16
51.84	99.2	71.9	152.2	2.9	7.6	3.0	5	silty SAND to sandy SILT	120	4.0	18	25	56	38	-	16
52.00	74.2	53.8	133.3	2.1	3.1	3.0	4	clayy SILT to silty CLAY	115	2.0	27	37	-	-	5.1	15
52.17	35.2	19.6	-	1.2	-0.6	3.8	3	silty CLAY to CLAY	115	1.5	13	23	-	-	2.4	15
52.33	24.3	13.4	-	0.6	-0.3	2.7	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
52.50	19.2	10.6	-	0.4	0.8	2.3	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.2	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(478).cpt
CPT Date: 12/9/2008 2:10:52 PM
GW During Test: 12 ft

Sounding ID: CPT-08-66
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	15.9	8.8	-	0.3	2.5	2.4	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
52.82	17.0	9.3	-	0.3	4.5	2.0	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
52.99	17.2	9.4	-	0.4	6.1	2.9	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
53.15	18.5	10.1	-	0.5	8.1	3.3	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
53.32	38.5	21.0	-	0.9	9.3	2.5	4	clayy SILT to silty CLAY	115	2.0	11	19	-	-	2.6	15
53.48	26.3	14.3	-	1.6	9.6	6.9	3	silty CLAY to CLAY	115	1.5	10	18	-	-	1.7	15
53.64	98.3	70.4	124.7	1.9	11.0	2.0	5	silty SAND to sandy SILT	120	4.0	18	25	55	38	-	16
53.81	140.2	100.2	151.5	2.8	0.4	2.1	5	silty SAND to sandy SILT	120	4.0	25	35	67	40	-	16
53.97	153.1	109.3	167.3	3.4	10.3	2.3	5	silty SAND to sandy SILT	120	4.0	27	38	70	40	-	16
54.14	171.6	122.4	183.4	4.1	9.9	2.4	5	silty SAND to sandy SILT	120	4.0	31	43	74	41	-	16
54.30	152.6	108.7	175.5	3.9	9.5	2.6	5	silty SAND to sandy SILT	120	4.0	27	38	70	40	-	16
54.46	111.6	79.4	152.5	3.0	9.9	2.7	5	silty SAND to sandy SILT	120	4.0	20	28	59	39	-	16
54.63	87.3	62.0	129.2	2.1	9.7	2.5	5	silty SAND to sandy SILT	120	4.0	16	22	51	37	-	16
54.79	70.8	50.2	121.3	1.8	9.8	2.6	5	silty SAND to sandy SILT	120	4.0	13	18	44	36	-	16
54.96	57.0	30.3	-	1.4	11.1	2.7	4	clayy SILT to silty CLAY	115	2.0	15	28	-	-	3.9	15
55.12	70.7	50.0	101.2	1.2	6.6	1.8	5	silty SAND to sandy SILT	120	4.0	13	18	44	36	-	16
55.28	121.4	85.8	111.7	1.3	0.6	1.1	6	clean SAND to silty SAND	125	5.0	17	24	62	39	-	16
55.45	130.1	91.8	125.5	1.8	-2.8	1.4	5	silty SAND to sandy SILT	120	4.0	23	33	64	39	-	16
55.61	110.8	78.1	145.2	2.7	-3.2	2.5	5	silty SAND to sandy SILT	120	4.0	20	28	59	38	-	16
55.78	74.7	39.3	-	2.9	-2.8	4.1	4	clayy SILT to silty CLAY	115	2.0	20	37	-	-	5.2	15
55.94	39.2	20.6	-	2.1	-2.5	5.8	3	silty CLAY to CLAY	115	1.5	14	26	-	-	2.7	15
56.11	25.3	13.2	-	1.2	-1.9	5.5	3	silty CLAY to CLAY	115	1.5	9	17	-	-	1.7	15
56.27	42.1	22.0	-	1.0	-0.6	2.5	4	clayy SILT to silty CLAY	115	2.0	11	21	-	-	2.9	15
56.43	75.9	53.2	103.2	1.3	-0.8	1.8	5	silty SAND to sandy SILT	120	4.0	13	19	46	36	-	16
56.60	89.1	62.4	116.5	1.7	-1.3	2.0	5	silty SAND to sandy SILT	120	4.0	16	22	51	37	-	16
56.76	90.1	63.0	121.2	1.9	-2.0	2.1	5	silty SAND to sandy SILT	120	4.0	16	23	52	37	-	16
56.93	96.1	67.1	120.0	1.8	-2.7	2.0	5	silty SAND to sandy SILT	120	4.0	17	24	54	37	-	16
57.09	97.4	68.0	129.7	2.2	-3.4	2.3	5	silty SAND to sandy SILT	120	4.0	17	24	54	38	-	16
57.25	77.6	54.1	144.3	2.5	-3.3	3.4	4	clayy SILT to silty CLAY	115	2.0	27	39	-	-	5.4	15
57.42	54.2	27.9	-	2.1	-3.0	4.0	4	clayy SILT to silty CLAY	115	2.0	14	27	-	-	3.7	15
57.58	57.5	40.0	100.7	1.2	-1.3	2.1	5	silty SAND to sandy SILT	120	4.0	10	14	37	34	-	16
57.75	61.2	42.5	87.0	0.9	-2.4	1.5	5	silty SAND to sandy SILT	120	4.0	11	15	39	35	-	16
57.91	41.9	21.4	-	1.0	-3.3	2.5	4	clayy SILT to silty CLAY	115	2.0	11	21	-	-	2.8	15
58.07	23.7	12.1	-	0.6	-2.9	2.8	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.6	15
58.24	17.1	8.7	-	0.2	-2.1	1.8	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
58.40	17.5	8.8	-	0.2	-1.1	1.7	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
58.57	17.0	8.6	-	0.5	-0.3	3.9	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
58.73	18.8	9.5	-	0.6	0.3	3.9	3	silty CLAY to CLAY	115	1.5	6	13	-	-	1.2	15
58.89	51.4	35.4	87.4	0.8	0.7	1.7	5	silty SAND to sandy SILT	120	4.0	9	13	33	33	-	16
59.06	92.5	63.7	92.7	1.0	-0.8	1.1	5	silty SAND to sandy SILT	120	4.0	16	23	52	37	-	16
59.22	145.3	99.9	119.9	1.4	-0.1	1.0	6	clean SAND to silty SAND	125	5.0	20	29	67	40	-	16
59.39	176.6	121.2	141.0	1.8	0.5	1.1	6	clean SAND to silty SAND	125	5.0	24	35	73	41	-	16
59.55	196.3	134.6	152.4	2.0	1.0	1.1	6	clean SAND to silty SAND	125	5.0	27	39	77	41	-	16
59.71	219.1	150.0	163.2	2.1	1.4	1.0	6	clean SAND to silty SAND	125	5.0	30	44	80	42	-	16
59.88	224.8	153.7	171.5	2.5	1.8	1.1	6	clean SAND to silty SAND	125	5.0	31	45	81	42	-	16
60.04	226.1	154.4	177.7	2.9	7.9	1.3	6	clean SAND to silty SAND	125	5.0	31	45	81	42	-	16
60.21	222.5	151.8	176.0	2.9	8.2	1.3	6	clean SAND to silty SAND	125	5.0	30	45	81	42	-	16
60.37	224.3	152.8	175.9	2.9	8.6	1.3	6	clean SAND to silty SAND	125	5.0	31	45	81	42	-	16
60.53	239.9	163.2	173.0	2.2	8.9	0.9	6	clean SAND to silty SAND	125	5.0	33	48	83	42	-	16
60.70	258.3	175.5	185.0	2.5	8.7	1.0	6	clean SAND to silty SAND	125	5.0	35	52	86	42	-	16
60.86	267.4	181.5	181.5	1.8	9.3	0.7	6	clean SAND to silty SAND	125	5.0	36	53	87	43	-	16
61.03	255.3	173.1	181.5	2.3	10.3	0.9	6	clean SAND to silty SAND	125	5.0	35	51	85	42	-	16
61.19	259.8	175.9	192.8	3.0	12.8	1.2	6	clean SAND to silty SAND	125	5.0	35	52	86	42	-	16
61.35	292.3	197.6	220.2	4.1	11.9	1.4	6	clean SAND to silty SAND	125	5.0	40	58	89	43	-	16
61.52	328.3	221.7	232.7	3.8	11.5	1.2	6	clean SAND to silty SAND	125	5.0	44	66	93	44	-	16
61.68	321.3	216.7	217.5	3.0	9.1	0.9	6	clean SAND to silty SAND	125	5.0	43	64	93	43	-	16
61.85	326.3	219.8	228.8	3.6	10.8	1.1	6	clean SAND to silty SAND	125	5.0	44	65	93	44	-	16
62.01	342.5	230.4	230.4	2.5	10.9	0.7	6	clean SAND to silty SAND	125	5.0	46	68	95	44	-	16
62.17	357.5	240.2	240.2	2.6	10.6	0.7	6	clean SAND to silty SAND	125	5.0	48	71	95	44	-	16
62.34	382.6	256.8	256.8	2.1	9.6	0.6	6	clean SAND to silty SAND	125	5.0	51	77	95	44	-	16
62.50	388.3	260.3	260.3	2.4	9.0	0.6	6	clean SAND to silty SAND	125	5.0	52	78	95	44	-	16
62.67	398.1	266.6	266.6	2.7	9.8	0.7	6	clean SAND to silty SAND	125	5.0	53	80	95	44	-	16
62.83	367.9	246.0	246.0	2.5	10.8	0.7	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
63.00	352.1	235.2	235.2	2.7	10.0	0.8	6	clean SAND to silty SAND	125	5.0	47	70	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(478).cpt
CPT Date: 12/9/2008 2:10:52 PM
GW During Test: 12 ft

Sounding ID: CPT-08-66
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	336.4	224.4	224.4	2.8	9.8	0.8	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
63.32	338.4	225.5	225.5	2.9	9.5	0.9	6	clean SAND to silty SAND	125	5.0	45	68	94	44	-	16
63.49	343.1	228.4	234.4	3.7	11.9	1.1	6	clean SAND to silty SAND	125	5.0	46	69	94	44	-	16
63.65	332.7	221.2	234.2	4.1	12.1	1.2	6	clean SAND to silty SAND	125	5.0	44	67	93	43	-	16
63.82	326.1	216.5	234.7	4.4	12.8	1.4	6	clean SAND to silty SAND	125	5.0	43	65	92	43	-	16
63.98	326.7	216.7	233.7	4.3	12.7	1.3	6	clean SAND to silty SAND	125	5.0	43	65	93	43	-	16
64.14	330.5	218.9	237.4	4.5	12.6	1.4	6	clean SAND to silty SAND	125	5.0	44	66	93	43	-	16
64.31	340.6	225.3	248.4	5.1	14.3	1.5	6	clean SAND to silty SAND	125	5.0	45	68	94	44	-	16
64.47	341.0	225.4	253.3	5.6	14.0	1.7	6	clean SAND to silty SAND	125	5.0	45	68	94	44	-	16
64.64	347.3	229.2	255.5	5.5	14.0	1.6	6	clean SAND to silty SAND	125	5.0	46	69	94	44	-	16
64.80	356.9	235.3	267.0	6.3	13.6	1.8	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
64.96	374.6	246.6	275.2	6.4	15.7	1.7	6	clean SAND to silty SAND	125	5.0	49	75	95	44	-	16
65.13	436.7	287.2	287.2	3.5	11.4	0.8	6	clean SAND to silty SAND	125	5.0	57	87	95	45	-	16
65.29	389.7	256.0	256.0	3.1	9.8	0.8	6	clean SAND to silty SAND	125	5.0	51	78	95	44	-	16
65.46	360.9	236.8	236.8	2.5	10.2	0.7	6	clean SAND to silty SAND	125	5.0	47	72	95	44	-	16
65.62	358.7	235.1	235.1	2.9	11.0	0.8	6	clean SAND to silty SAND	125	5.0	47	72	95	44	-	16
65.78	359.3	235.2	235.2	2.6	11.6	0.7	6	clean SAND to silty SAND	125	5.0	47	72	95	44	-	16
65.95	371.1	242.7	242.7	2.2	11.6	0.6	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
66.11	386.3	252.3	252.3	1.0	11.8	0.3	7	grvly SAND to dense SAND	130	6.0	42	64	95	44	-	16
66.28	398.4	259.9	259.9	1.4	10.8	0.4	7	grvly SAND to dense SAND	130	6.0	43	66	95	44	-	16
66.44	405.8	264.4	264.4	1.3	9.9	0.3	7	grvly SAND to dense SAND	130	6.0	44	68	95	44	-	16
66.60	386.0	251.1	251.1	1.7	11.0	0.5	6	clean SAND to silty SAND	125	5.0	50	77	95	44	-	16
66.77	380.9	247.5	247.5	2.0	11.5	0.5	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
66.93	419.2	272.1	272.1	3.8	10.5	0.9	6	clean SAND to silty SAND	125	5.0	54	84	95	44	-	16
67.10	473.9	307.3	307.3	1.6	12.3	0.3	7	grvly SAND to dense SAND	130	6.0	51	79	95	45	-	16
67.26	482.9	312.7	312.7	2.6	12.1	0.6	6	clean SAND to silty SAND	125	5.0	63	97	95	45	-	16
67.42	296.1	191.5	208.6	3.6	1.5	1.2	6	clean SAND to silty SAND	125	5.0	38	59	88	43	-	16
67.59	362.3	234.1	240.1	4.0	2.5	1.1	6	clean SAND to silty SAND	125	5.0	47	72	95	44	-	16
67.75	400.6	258.5	258.5	3.9	4.5	1.0	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
67.92	449.2	289.6	289.6	3.1	4.3	0.7	6	clean SAND to silty SAND	125	5.0	58	90	95	45	-	16
68.08	495.8	319.3	319.3	2.3	3.9	0.5	7	grvly SAND to dense SAND	130	6.0	53	83	95	45	-	16
68.24	483.2	310.7	310.7	1.7	9.3	0.4	7	grvly SAND to dense SAND	130	6.0	52	81	95	45	-	16
68.41	429.0	275.5	275.5	1.8	11.3	0.4	6	clean SAND to silty SAND	125	5.0	55	86	95	44	-	16
68.57	425.0	272.7	272.7	1.9	10.7	0.5	6	clean SAND to silty SAND	125	5.0	55	85	95	44	-	16
68.74	419.8	269.1	269.1	3.9	9.4	0.9	6	clean SAND to silty SAND	125	5.0	54	84	95	44	-	16
68.90	439.4	281.3	281.3	3.4	9.8	0.8	6	clean SAND to silty SAND	125	5.0	56	88	95	44	-	16
69.07	408.2	261.1	261.1	1.6	7.8	0.4	6	clean SAND to silty SAND	125	5.0	52	82	95	44	-	16
69.23	410.7	262.4	262.4	2.9	8.5	0.7	6	clean SAND to silty SAND	125	5.0	52	82	95	44	-	16
69.39	384.0	245.0	245.0	3.1	9.2	0.8	6	clean SAND to silty SAND	125	5.0	49	77	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(408).cpt
CPT Date: 11/17/2008 2:46:35 PM
GW During Test: 12 ft

Sounding ID: CPT-08-67
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	119.9	192.4	192.4	0.8	-0.1	0.7	6	clean SAND to silty SAND	125	5.0	38	24	89	48	-	16
0.49	160.8	257.9	258.0	1.8	-0.1	1.1	6	clean SAND to silty SAND	125	5.0	52	32	95	48	-	16
0.66	147.2	236.1	260.4	2.3	-0.1	1.6	6	clean SAND to silty SAND	125	5.0	47	29	95	48	-	16
0.82	118.8	190.5	238.2	2.6	-0.1	2.2	6	clean SAND to silty SAND	125	5.0	38	24	88	48	-	16
0.98	90.6	145.4	212.4	2.4	0.0	2.7	5	silty SAND to sandy SILT	120	4.0	36	23	79	48	-	16
1.15	76.5	122.7	188.0	2.0	0.1	2.6	5	silty SAND to sandy SILT	120	4.0	31	19	74	48	-	16
1.31	73.8	118.4	168.9	1.6	0.0	2.1	5	silty SAND to sandy SILT	120	4.0	30	18	73	48	-	16
1.48	74.9	120.2	158.2	1.3	-0.1	1.7	6	clean SAND to silty SAND	125	5.0	24	15	73	48	-	16
1.64	102.0	163.6	189.1	1.5	0.1	1.4	6	clean SAND to silty SAND	125	5.0	33	20	83	48	-	16
1.80	154.0	246.9	259.3	2.0	0.1	1.3	6	clean SAND to silty SAND	125	5.0	49	31	95	48	-	16
1.97	183.5	294.3	301.1	2.5	0.1	1.3	6	clean SAND to silty SAND	125	5.0	59	37	95	48	-	16
2.13	165.1	264.8	287.8	2.7	0.2	1.6	6	clean SAND to silty SAND	125	5.0	53	33	95	48	-	16
2.30	143.5	230.1	267.3	2.8	0.2	1.9	6	clean SAND to silty SAND	125	5.0	46	29	95	48	-	16
2.46	121.2	194.3	236.9	2.5	0.2	2.0	6	clean SAND to silty SAND	125	5.0	39	24	89	48	-	16
2.62	96.3	154.5	208.1	2.2	0.2	2.3	5	silty SAND to sandy SILT	120	4.0	39	24	81	48	-	16
2.79	69.7	111.8	189.5	2.1	0.3	3.0	5	silty SAND to sandy SILT	120	4.0	28	17	71	47	-	16
2.95	64.6	103.7	213.3	2.6	0.3	4.0	9	very stiff fine SOIL	120	2.0	52	32	68	47	-	30
3.12	69.2	111.0	217.9	2.7	0.5	3.9	8	stiff SAND to clayy SAND	115	1.0	100	69	-	-	4.6	16
3.28	64.8	103.9	227.4	2.9	-0.3	4.5	9	very stiff fine SOIL	120	2.0	52	32	68	46	-	30
3.45	54.5	87.4	198.5	2.2	-0.1	4.1	4	clayy SILT to silty CLAY	115	2.0	44	27	-	-	3.8	15
3.61	52.1	83.5	195.6	2.2	0.4	4.2	4	clayy SILT to silty CLAY	115	2.0	42	26	-	-	3.7	15
3.77	70.8	113.5	209.1	2.5	0.7	3.5	5	silty SAND to sandy SILT	120	4.0	28	18	71	46	-	16
3.94	78.2	125.3	255.5	3.5	0.4	4.6	9	very stiff fine SOIL	120	2.0	63	39	74	47	-	30
4.10	90.0	144.4	281.6	4.2	-3.2	4.7	9	very stiff fine SOIL	120	2.0	72	45	79	47	-	30
4.27	71.3	114.3	274.9	4.0	-4.7	5.6	9	very stiff fine SOIL	120	2.0	57	36	71	46	-	30
4.43	61.7	99.0	260.6	3.6	-5.1	5.8	9	very stiff fine SOIL	120	2.0	49	31	67	45	-	30
4.59	64.6	103.5	223.7	2.8	-6.2	4.3	9	very stiff fine SOIL	120	2.0	52	32	68	46	-	30
4.76	70.1	112.4	225.8	2.9	-6.3	4.1	9	very stiff fine SOIL	120	2.0	56	35	71	46	-	30
4.92	67.1	107.6	224.3	2.8	-5.4	4.2	9	very stiff fine SOIL	120	2.0	54	34	69	46	-	30
5.09	55.5	88.9	230.6	2.9	-5.2	5.2	9	very stiff fine SOIL	120	2.0	44	28	63	45	-	30
5.25	68.1	109.3	223.3	2.8	-5.1	4.1	9	very stiff fine SOIL	120	2.0	55	34	70	45	-	30
5.41	76.6	122.8	209.2	2.5	-4.9	3.2	5	silty SAND to sandy SILT	120	4.0	31	19	74	46	-	16
5.58	51.7	82.9	199.2	2.2	-1.7	4.3	4	clayy SILT to silty CLAY	115	2.0	41	26	-	-	3.6	15
5.74	59.1	94.8	200.1	2.3	0.3	3.9	4	clayy SILT to silty CLAY	115	2.0	47	30	-	-	4.2	15
5.91	106.5	170.8	238.9	2.9	1.1	2.7	5	silty SAND to sandy SILT	120	4.0	43	27	85	47	-	16
6.07	77.0	123.5	251.4	3.4	0.2	4.5	9	very stiff fine SOIL	120	2.0	62	38	74	46	-	30
6.23	60.5	95.8	253.4	3.4	0.0	5.7	9	very stiff fine SOIL	120	2.0	48	30	66	44	-	30
6.40	51.9	81.0	231.1	2.9	-0.1	5.6	9	very stiff fine SOIL	120	2.0	41	26	60	44	-	30
6.56	51.1	78.9	209.3	2.5	0.2	4.9	4	clayy SILT to silty CLAY	115	2.0	39	26	-	-	3.6	15
6.73	54.4	82.9	204.6	2.4	-0.2	4.5	4	clayy SILT to silty CLAY	115	2.0	41	27	-	-	3.8	15
6.89	56.1	84.6	220.2	2.8	-2.7	5.0	9	very stiff fine SOIL	120	2.0	42	28	61	44	-	30
7.05	79.7	118.7	224.9	3.0	-3.5	3.8	8	stiff SAND to clayy SAND	115	1.0	100	80	-	-	5.3	16
7.22	79.6	117.3	243.3	3.5	-4.1	4.5	9	very stiff fine SOIL	120	2.0	59	40	72	45	-	30
7.38	68.5	99.8	219.8	3.0	-4.1	4.4	9	very stiff fine SOIL	120	2.0	50	34	67	44	-	30
7.55	58.0	83.6	180.5	2.1	-4.4	3.6	4	clayy SILT to silty CLAY	115	2.0	42	29	-	-	4.1	15
7.71	155.6	222.1	234.9	1.9	-3.8	1.2	6	clean SAND to silty SAND	125	5.0	44	31	93	48	-	16
7.87	171.1	241.5	254.5	2.2	0.0	1.3	6	clean SAND to silty SAND	125	5.0	48	34	95	48	-	16
8.04	160.1	223.6	248.8	2.5	0.3	1.6	6	clean SAND to silty SAND	125	5.0	45	32	94	48	-	16
8.20	125.4	173.3	213.4	2.4	0.3	1.9	6	clean SAND to silty SAND	125	5.0	35	25	85	47	-	16
8.37	110.6	151.3	216.1	2.9	-0.6	2.6	5	silty SAND to sandy SILT	120	4.0	38	28	81	46	-	16
8.53	78.2	105.9	174.0	2.1	-0.9	2.7	5	silty SAND to sandy SILT	120	4.0	26	20	69	45	-	16
8.69	74.3	99.7	181.6	2.3	-0.3	3.1	5	silty SAND to sandy SILT	120	4.0	25	19	67	44	-	16
8.86	83.4	110.8	177.4	2.2	-0.2	2.6	5	silty SAND to sandy SILT	120	4.0	28	21	70	45	-	16
9.02	53.7	70.8	165.9	1.9	-0.1	3.6	4	clayy SILT to silty CLAY	115	2.0	35	27	-	-	3.8	15
9.19	34.8	51.8	164.3	1.6	0.2	4.5	4	clayy SILT to silty CLAY	115	2.0	26	17	-	-	2.4	15
9.35	42.8	55.4	133.8	1.3	0.4	3.0	4	clayy SILT to silty CLAY	115	2.0	28	21	-	-	3.0	15
9.51	41.6	53.5	150.9	1.6	0.1	3.8	4	clayy SILT to silty CLAY	115	2.0	27	21	-	-	2.9	15
9.68	43.4	55.3	151.0	1.6	-2.6	3.7	4	clayy SILT to silty CLAY	115	2.0	28	22	-	-	3.0	15
9.84	41.1	51.9	150.8	1.6	-1.9	3.9	4	clayy SILT to silty CLAY	115	2.0	26	21	-	-	2.9	15
10.01	27.9	44.7	-	1.3	-1.1	4.6	4	clayy SILT to silty CLAY	115	2.0	22	14	-	-	1.9	15
10.17	21.1	33.8	-	1.0	-0.3	5.0	3	silty CLAY to CLAY	115	1.5	23	14	-	-	1.5	15
10.34	26.2	36.0	-	1.0	0.1	3.9	4	clayy SILT to silty CLAY	115	2.0	18	13	-	-	1.8	15
10.50	34.6	42.4	137.8	1.3	-0.1	3.9	4	clayy SILT to silty CLAY	115	2.0	21	17	-	-	2.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(408).cpt
CPT Date: 11/17/2008 2:46:35 PM
GW During Test: 12 ft

Sounding ID: CPT-08-67
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	36.0	43.8	135.1	1.3	-0.1	3.7	4	clayy SILT to silty CLAY	115	2.0	22	18	-	-	2.5	15
10.83	59.5	71.9	141.1	1.6	-0.6	2.6	5	silty SAND to sandy SILT	120	4.0	18	15	56	42	-	16
10.99	44.1	52.8	145.1	1.6	-0.7	3.6	4	clayy SILT to silty CLAY	115	2.0	26	22	-	-	3.1	15
11.16	28.6	42.9	-	1.5	-0.6	5.3	3	silty CLAY to CLAY	115	1.5	29	19	-	-	2.0	15
11.32	27.7	40.9	-	1.4	-0.3	5.3	3	silty CLAY to CLAY	115	1.5	27	18	-	-	1.9	15
11.48	28.6	41.7	-	1.4	-0.4	5.0	3	silty CLAY to CLAY	115	1.5	28	19	-	-	2.0	15
11.65	25.2	36.3	-	1.4	-0.5	5.5	3	silty CLAY to CLAY	115	1.5	24	17	-	-	1.8	15
11.81	18.7	26.5	-	1.0	-0.6	5.7	3	silty CLAY to CLAY	115	1.5	18	12	-	-	1.3	15
11.98	14.0	19.6	-	0.8	-0.6	6.4	3	silty CLAY to CLAY	115	1.5	13	9	-	-	1.0	15
12.14	13.8	19.2	-	0.8	-0.6	5.8	3	silty CLAY to CLAY	115	1.5	13	9	-	-	0.9	15
12.30	16.0	22.1	-	0.7	-0.6	4.5	3	silty CLAY to CLAY	115	1.5	15	11	-	-	1.1	15
12.47	10.6	14.6	-	0.5	-0.7	5.1	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.7	15
12.63	7.6	10.4	-	0.4	-0.5	6.0	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
12.80	8.9	12.1	-	0.4	-0.4	4.7	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
12.96	7.1	9.6	-	0.4	-0.4	6.3	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
13.12	6.7	9.0	-	0.3	-0.4	5.6	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
13.29	12.5	16.7	-	0.3	-1.1	2.7	4	clayy SILT to silty CLAY	115	2.0	8	6	-	-	0.9	15
13.45	8.9	11.8	-	0.3	-1.0	3.3	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
13.62	4.5	5.9	-	0.2	-0.9	5.5	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
13.78	2.1	2.8	-	0.2	-0.9	9.9	2	Organic SOILS - Peats	100	1.0	3	2	-	-	0.2	10
13.94	1.1	1.4	-	0.2	-0.9	9.9	2	Organic SOILS - Peats	100	1.0	1	1	-	-	0.1	10
14.11	1.6	2.1	-	0.2	-1.0	9.9	2	Organic SOILS - Peats	100	1.0	2	2	-	-	0.1	10
14.27	3.1	4.1	-	0.2	-0.6	8.9	2	Organic SOILS - Peats	100	1.0	4	3	-	-	0.3	10
14.44	3.5	4.5	-	0.2	-0.6	6.2	2	Organic SOILS - Peats	100	1.0	5	4	-	-	0.3	10
14.60	4.5	5.8	-	0.2	-0.4	5.1	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
14.76	5.6	7.2	-	0.3	-0.2	5.4	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.93	5.9	7.5	-	0.3	-0.1	6.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.09	6.8	8.6	-	0.5	-0.1	8.8	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.4	15
15.26	7.5	9.4	-	0.6	0.0	8.4	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.42	7.0	8.7	-	0.5	-0.1	8.1	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.58	11.2	14.0	-	0.4	0.2	3.9	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.8	15
15.75	16.5	20.4	-	0.4	0.3	2.7	4	clayy SILT to silty CLAY	115	2.0	10	8	-	-	1.1	15
15.91	12.1	14.9	-	0.3	0.1	3.1	3	silty CLAY to CLAY	115	1.5	10	8	-	-	0.8	15
16.08	7.3	9.0	-	0.3	0.0	5.3	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.24	8.9	10.8	-	0.3	0.2	3.2	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
16.40	11.3	13.8	-	0.4	0.1	3.5	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
16.57	8.0	9.6	-	0.4	0.2	6.2	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.73	29.1	31.0	77.1	0.4	-0.3	1.5	5	silty SAND to sandy SILT	120	4.0	8	7	28	37	-	16
16.90	41.1	43.6	75.5	0.4	-1.6	1.1	5	silty SAND to sandy SILT	120	4.0	11	10	40	39	-	16
17.06	36.6	38.8	75.3	0.4	-1.5	1.2	5	silty SAND to sandy SILT	120	4.0	10	9	36	38	-	16
17.23	23.2	25.6	83.2	0.5	-1.5	2.1	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.6	15
17.39	12.1	14.2	-	0.4	-1.4	3.5	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
17.55	7.4	8.6	-	0.3	-1.2	4.8	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
17.72	5.7	6.6	-	0.3	-1.0	6.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
17.88	6.1	7.1	-	0.3	-0.7	5.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
18.05	6.0	6.9	-	0.3	-0.6	5.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
18.21	5.5	6.3	-	0.3	-0.4	5.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
18.37	5.6	6.3	-	0.4	-0.3	8.0	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.5	10
18.54	16.9	19.2	-	0.4	-0.1	2.6	4	clayy SILT to silty CLAY	115	2.0	10	8	-	-	1.1	15
18.70	40.5	41.9	78.8	0.5	-0.8	1.2	5	silty SAND to sandy SILT	120	4.0	10	10	38	38	-	16
18.87	50.6	52.1	81.8	0.5	-1.3	1.1	5	silty SAND to sandy SILT	120	4.0	13	13	46	39	-	16
19.03	38.9	40.0	80.9	0.5	-1.4	1.4	5	silty SAND to sandy SILT	120	4.0	10	10	37	38	-	16
19.19	20.2	22.4	-	0.5	-1.3	2.4	4	clayy SILT to silty CLAY	115	2.0	11	10	-	-	1.4	15
19.36	9.9	11.0	-	0.3	-1.2	3.7	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
19.52	6.4	7.1	-	0.2	-0.9	3.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
19.69	5.1	5.6	-	0.2	-0.7	4.5	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
19.85	5.1	5.6	-	0.2	-0.5	4.9	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
20.01	5.1	5.5	-	0.2	-0.3	5.6	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
20.18	5.4	5.8	-	0.3	-0.2	6.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.3	15
20.34	7.7	8.3	-	0.4	-0.1	6.1	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
20.51	15.6	16.7	-	0.4	-0.2	3.1	3	silty CLAY to CLAY	115	1.5	11	10	-	-	1.1	15
20.67	20.8	22.2	-	0.4	0.5	1.8	4	clayy SILT to silty CLAY	115	2.0	11	10	-	-	1.4	15
20.83	31.1	31.2	78.5	0.5	-0.9	1.6	5	silty SAND to sandy SILT	120	4.0	8	8	29	36	-	16
21.00	29.2	29.1	83.3	0.5	-0.7	1.9	4	clayy SILT to silty CLAY	115	2.0	15	15	-	-	2.0	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(408).cpt
CPT Date: 11/17/2008 2:46:35 PM
GW During Test: 12 ft

Sounding ID: CPT-08-67
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	33.9	33.8	85.6	0.6	-1.3	1.8	5	silty SAND to sandy SILT	120	4.0	8	8	31	37	-	16
21.33	45.7	45.4	86.4	0.6	-2.0	1.4	5	silty SAND to sandy SILT	120	4.0	11	11	41	38	-	16
21.49	57.6	57.1	95.2	0.8	-4.1	1.4	5	silty SAND to sandy SILT	120	4.0	14	14	49	40	-	16
21.65	62.5	61.8	100.2	0.9	-3.9	1.4	5	silty SAND to sandy SILT	120	4.0	15	16	51	40	-	16
21.82	74.2	73.2	108.9	1.0	-3.7	1.4	5	silty SAND to sandy SILT	120	4.0	18	19	57	41	-	16
21.98	85.3	84.0	119.0	1.2	-2.8	1.5	5	silty SAND to sandy SILT	120	4.0	21	21	61	42	-	16
22.15	89.8	88.1	122.1	1.3	-2.8	1.4	5	silty SAND to sandy SILT	120	4.0	22	22	63	42	-	16
22.31	86.4	84.6	120.6	1.3	-2.7	1.5	5	silty SAND to sandy SILT	120	4.0	21	22	61	42	-	16
22.47	72.5	70.8	114.3	1.2	-2.6	1.7	5	silty SAND to sandy SILT	120	4.0	18	18	56	41	-	16
22.64	47.8	46.6	108.2	1.1	-2.5	2.3	5	silty SAND to sandy SILT	120	4.0	12	12	42	38	-	16
22.80	21.5	21.5	-	0.8	-2.4	4.1	3	silty CLAY to CLAY	115	1.5	14	14	-	-	1.5	15
22.97	12.9	12.8	-	0.5	-2.3	4.7	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
23.13	9.1	9.0	-	0.3	-2.1	3.6	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
23.30	8.3	8.2	-	0.2	-1.7	2.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
23.46	7.7	7.5	-	0.2	-1.3	2.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.62	7.2	7.1	-	0.2	-1.1	2.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.79	7.4	7.2	-	0.2	-0.8	2.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.95	7.9	7.7	-	0.2	-0.5	2.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.12	8.4	8.1	-	0.2	-0.1	2.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
24.28	9.0	8.7	-	0.2	0.2	3.2	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
24.44	9.5	9.1	-	0.3	0.5	3.9	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
24.61	10.5	10.0	-	0.4	0.8	4.3	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
24.77	12.0	11.4	-	0.4	1.0	3.8	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
24.94	12.9	12.3	-	0.5	1.1	4.3	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
25.10	16.7	15.8	-	0.5	1.3	3.0	3	silty CLAY to CLAY	115	1.5	11	11	-	-	1.1	15
25.26	26.7	25.1	72.1	0.4	1.4	1.5	5	silty SAND to sandy SILT	120	4.0	6	7	21	34	-	16
25.43	36.8	34.6	73.1	0.4	0.1	1.2	5	silty SAND to sandy SILT	120	4.0	9	9	32	36	-	16
25.59	43.7	41.0	79.7	0.5	-0.4	1.3	5	silty SAND to sandy SILT	120	4.0	10	11	38	37	-	16
25.76	49.0	45.9	87.2	0.7	-0.3	1.4	5	silty SAND to sandy SILT	120	4.0	11	12	41	38	-	16
25.92	53.2	49.7	94.1	0.8	-0.2	1.6	5	silty SAND to sandy SILT	120	4.0	12	13	44	38	-	16
26.08	55.9	52.1	95.6	0.9	-0.1	1.6	5	silty SAND to sandy SILT	120	4.0	13	14	45	38	-	16
26.25	55.5	51.6	97.4	0.9	-0.1	1.7	5	silty SAND to sandy SILT	120	4.0	13	14	45	38	-	16
26.41	48.5	45.0	99.2	0.9	0.0	1.9	5	silty SAND to sandy SILT	120	4.0	11	12	41	38	-	16
26.58	41.8	38.7	96.6	0.8	0.2	2.1	5	silty SAND to sandy SILT	120	4.0	10	10	36	37	-	16
26.74	45.1	41.6	93.3	0.8	0.3	1.8	5	silty SAND to sandy SILT	120	4.0	10	11	38	37	-	16
26.90	47.5	43.8	92.7	0.8	0.5	1.7	5	silty SAND to sandy SILT	120	4.0	11	12	40	37	-	16
27.07	47.8	43.9	92.4	0.8	0.6	1.7	5	silty SAND to sandy SILT	120	4.0	11	12	40	37	-	16
27.23	38.9	35.7	97.9	0.8	0.7	2.3	4	clayy SILT to silty CLAY	115	2.0	18	19	-	-	2.7	15
27.40	26.3	23.4	-	0.8	0.8	3.2	4	clayy SILT to silty CLAY	115	2.0	12	13	-	-	1.8	15
27.56	18.1	16.0	-	0.7	0.8	4.0	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.2	15
27.72	12.0	10.6	-	0.5	0.9	5.0	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
27.89	10.2	9.0	-	0.4	1.0	4.2	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
28.05	9.3	8.1	-	0.3	1.3	4.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.22	8.4	7.3	-	0.4	1.9	5.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
28.38	9.0	7.8	-	0.4	2.3	5.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.54	9.6	8.3	-	0.4	3.7	4.9	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
28.71	9.1	7.9	-	0.4	4.0	5.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.87	12.6	10.8	-	0.3	4.3	3.2	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
29.04	20.8	17.8	-	0.4	3.8	1.9	4	clayy SILT to silty CLAY	115	2.0	9	10	-	-	1.4	15
29.20	12.8	10.9	-	0.5	4.0	4.2	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.8	15
29.36	11.7	9.9	-	0.3	4.5	3.5	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
29.53	31.7	28.4	62.5	0.3	3.7	1.0	5	silty SAND to sandy SILT	120	4.0	7	8	25	34	-	16
29.69	20.8	17.6	-	0.4	3.3	1.9	4	clayy SILT to silty CLAY	115	2.0	9	10	-	-	1.4	15
29.86	10.2	8.6	-	0.3	3.6	3.7	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
30.02	8.2	6.9	-	0.3	4.0	4.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
30.19	7.9	6.6	-	0.3	4.6	4.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.35	8.6	7.2	-	0.3	5.3	4.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
30.51	7.5	6.2	-	0.3	5.7	5.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.68	7.2	6.0	-	0.3	6.1	5.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
30.84	7.6	6.3	-	0.3	6.5	6.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.01	8.7	7.1	-	0.5	7.1	7.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
31.17	24.1	19.7	-	0.5	8.0	2.4	4	clayy SILT to silty CLAY	115	2.0	10	12	-	-	1.6	15
31.33	59.0	51.7	85.7	0.7	3.9	1.2	5	silty SAND to sandy SILT	120	4.0	13	15	45	38	-	16
31.50	66.8	58.5	94.8	0.9	3.6	1.3	5	silty SAND to sandy SILT	120	4.0	15	17	49	39	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(408).cpt
CPT Date: 11/17/2008 2:46:35 PM
GW During Test: 12 ft

Sounding ID: CPT-08-67
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	64.7	56.5	97.3	0.9	3.8	1.5	5	silty SAND to sandy SILT	120	4.0	14	16	48	38	-	16
31.83	61.3	53.4	98.9	1.0	5.0	1.6	5	silty SAND to sandy SILT	120	4.0	13	15	46	38	-	16
31.99	55.7	48.4	92.0	0.8	5.0	1.5	5	silty SAND to sandy SILT	120	4.0	12	14	43	37	-	16
32.15	51.2	44.5	82.6	0.6	3.0	1.3	5	silty SAND to sandy SILT	120	4.0	11	13	40	37	-	16
32.32	35.0	30.3	86.4	0.6	-0.8	1.9	4	clayy SILT to silty CLAY	115	2.0	15	18	-	-	2.4	15
32.48	17.2	13.6	-	0.6	-0.6	3.7	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
32.65	11.9	9.4	-	0.4	-0.1	3.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
32.81	9.6	7.5	-	0.2	0.6	3.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
32.97	10.2	8.0	-	0.3	1.2	3.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
33.14	9.7	7.6	-	0.3	1.9	3.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
33.30	10.4	8.1	-	0.3	2.5	4.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
33.47	10.8	8.4	-	0.4	3.3	5.0	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
33.63	12.3	9.5	-	0.6	4.3	5.5	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
33.79	12.0	9.3	-	0.5	5.2	5.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
33.96	24.9	19.1	-	0.5	6.0	2.0	4	clayy SILT to silty CLAY	115	2.0	10	12	-	-	1.7	15
34.12	22.8	17.5	-	0.5	3.3	2.5	4	clayy SILT to silty CLAY	115	2.0	9	11	-	-	1.5	15
34.29	15.1	11.5	-	0.5	3.8	4.2	3	silty CLAY to CLAY	115	1.5	8	10	-	-	1.0	15
34.45	32.0	24.4	-	0.6	4.4	2.2	4	clayy SILT to silty CLAY	115	2.0	12	16	-	-	2.2	15
34.61	41.7	35.3	88.3	0.7	-0.3	1.8	5	silty SAND to sandy SILT	120	4.0	9	10	33	35	-	16
34.78	40.7	34.4	93.5	0.8	-0.4	2.1	5	silty SAND to sandy SILT	120	4.0	9	10	32	35	-	16
34.94	41.3	34.8	89.8	0.7	-3.1	1.9	5	silty SAND to sandy SILT	120	4.0	9	10	32	35	-	16
35.11	34.5	29.0	79.9	0.5	0.9	1.7	5	silty SAND to sandy SILT	120	4.0	7	9	26	34	-	16
35.27	27.3	20.4	-	0.6	-1.3	2.3	4	clayy SILT to silty CLAY	115	2.0	10	14	-	-	1.9	15
35.43	15.8	11.8	-	0.6	-0.9	4.3	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.0	15
35.60	43.7	36.6	83.1	0.6	-0.4	1.6	5	silty SAND to sandy SILT	120	4.0	9	11	34	35	-	16
35.76	57.0	47.6	81.7	0.6	-0.7	1.2	5	silty SAND to sandy SILT	120	4.0	12	14	43	37	-	16
35.93	67.9	56.7	80.5	0.6	-0.5	0.9	5	silty SAND to sandy SILT	120	4.0	14	17	48	38	-	16
36.09	65.1	54.3	83.3	0.7	-0.3	1.0	5	silty SAND to sandy SILT	120	4.0	14	16	47	38	-	16
36.26	47.1	39.2	95.1	0.9	-0.2	2.0	5	silty SAND to sandy SILT	120	4.0	10	12	36	36	-	16
36.42	24.7	18.1	-	0.9	0.1	3.8	3	silty CLAY to CLAY	115	1.5	12	16	-	-	1.7	15
36.58	16.2	11.8	-	0.6	0.4	4.3	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
36.75	12.5	9.1	-	0.3	1.0	3.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
36.91	11.4	8.2	-	0.3	1.6	3.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
37.08	10.9	7.9	-	0.3	2.1	3.7	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.24	11.3	8.2	-	0.3	2.6	3.8	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
37.40	12.4	8.9	-	0.4	3.1	4.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
37.57	15.2	10.9	-	0.5	3.6	4.0	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
37.73	32.9	27.0	81.6	0.6	4.0	1.8	4	clayy SILT to silty CLAY	115	2.0	13	16	-	-	2.2	15
37.90	56.5	46.3	84.8	0.7	3.2	1.3	5	silty SAND to sandy SILT	120	4.0	12	14	42	37	-	16
38.06	62.7	51.3	99.2	1.0	3.4	1.7	5	silty SAND to sandy SILT	120	4.0	13	16	45	37	-	16
38.22	59.1	48.2	102.7	1.1	3.7	2.0	5	silty SAND to sandy SILT	120	4.0	12	15	43	37	-	16
38.39	60.4	49.2	102.3	1.1	5.4	1.9	5	silty SAND to sandy SILT	120	4.0	12	15	44	37	-	16
38.55	53.1	43.2	100.1	1.0	5.4	2.0	5	silty SAND to sandy SILT	120	4.0	11	13	39	36	-	16
38.72	45.4	36.9	103.1	1.0	5.5	2.4	4	clayy SILT to silty CLAY	115	2.0	18	23	-	-	3.1	15
38.88	39.4	32.0	90.0	0.8	5.4	2.0	4	clayy SILT to silty CLAY	115	2.0	16	20	-	-	2.7	15
39.04	40.0	32.4	84.1	0.7	2.3	1.7	5	silty SAND to sandy SILT	120	4.0	8	10	30	34	-	16
39.21	26.6	18.4	-	0.6	-0.6	2.5	4	clayy SILT to silty CLAY	115	2.0	9	13	-	-	1.8	15
39.37	15.9	10.9	-	0.6	-0.8	4.5	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
39.54	13.2	9.1	-	0.5	-0.1	4.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
39.70	21.8	14.9	-	0.5	0.5	2.5	4	clayy SILT to silty CLAY	115	2.0	7	11	-	-	1.5	15
39.86	16.7	11.4	-	0.6	0.2	4.5	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
40.03	19.9	13.6	-	0.6	0.8	3.3	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
40.19	16.3	11.1	-	0.6	0.3	4.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
40.36	15.9	10.8	-	0.6	0.8	4.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
40.52	17.6	11.9	-	0.7	1.1	4.3	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
40.68	21.2	14.3	-	0.9	1.3	4.7	3	silty CLAY to CLAY	115	1.5	10	14	-	-	1.4	15
40.85	25.6	17.2	-	1.0	1.6	4.1	3	silty CLAY to CLAY	115	1.5	11	17	-	-	1.7	15
41.01	100.3	79.8	105.2	1.1	1.4	1.1	6	clean SAND to silty SAND	125	5.0	16	20	60	39	-	16
41.18	151.2	120.0	131.9	1.2	0.7	0.8	6	clean SAND to silty SAND	125	5.0	24	30	73	42	-	16
41.34	177.1	140.4	150.2	1.4	1.0	0.8	6	clean SAND to silty SAND	125	5.0	28	35	78	42	-	16
41.50	192.2	152.1	164.1	1.8	1.3	0.9	6	clean SAND to silty SAND	125	5.0	30	38	81	43	-	16
41.67	207.2	163.7	175.9	2.0	3.0	1.0	6	clean SAND to silty SAND	125	5.0	33	41	83	43	-	16
41.83	216.6	170.8	181.3	2.1	3.1	1.0	6	clean SAND to silty SAND	125	5.0	34	43	85	43	-	16
42.00	219.8	173.0	180.2	2.0	3.3	0.9	6	clean SAND to silty SAND	125	5.0	35	44	85	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(408).cpt
CPT Date: 11/17/2008 2:46:35 PM
GW During Test: 12 ft

Sounding ID: CPT-08-67
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	212.4	167.0	172.8	1.8	3.4	0.8	6	clean SAND to silty SAND	125	5.0	33	42	84	43	-	16
42.32	197.8	155.2	160.4	1.5	3.6	0.8	6	clean SAND to silty SAND	125	5.0	31	40	82	43	-	16
42.49	182.0	142.6	144.5	1.1	3.7	0.6	6	clean SAND to silty SAND	125	5.0	29	36	79	42	-	16
42.65	168.2	131.5	136.7	1.1	3.9	0.6	6	clean SAND to silty SAND	125	5.0	26	34	76	42	-	16
42.82	138.6	108.2	121.6	1.1	4.1	0.8	6	clean SAND to silty SAND	125	5.0	22	28	70	41	-	16
42.98	118.6	92.4	113.9	1.2	4.3	1.0	6	clean SAND to silty SAND	125	5.0	18	24	64	40	-	16
43.15	103.3	80.3	115.5	1.4	4.4	1.4	5	silty SAND to sandy SILT	120	4.0	20	26	60	39	-	16
43.31	81.1	63.0	116.6	1.6	4.3	2.0	5	silty SAND to sandy SILT	120	4.0	16	20	52	38	-	16
43.47	56.2	43.6	119.3	1.5	3.8	2.8	4	clayy SILT to silty CLAY	115	2.0	22	28	-	-	3.9	15
43.64	35.7	22.7	-	1.0	2.4	3.0	4	clayy SILT to silty CLAY	115	2.0	11	18	-	-	2.4	15
43.80	24.4	15.5	-	0.7	1.9	3.1	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.6	15
43.97	19.3	12.2	-	0.5	2.7	3.1	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
44.13	15.6	9.9	-	0.4	3.3	3.2	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
44.29	13.8	8.7	-	0.4	3.9	3.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
44.46	15.6	9.8	-	0.4	4.4	3.4	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
44.62	17.6	11.0	-	0.4	4.7	3.0	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
44.79	36.3	27.8	74.9	0.5	4.8	1.5	5	silty SAND to sandy SILT	120	4.0	7	9	25	33	-	16
44.95	33.0	20.5	-	0.6	6.6	2.1	4	clayy SILT to silty CLAY	115	2.0	10	16	-	-	2.2	15
45.11	21.8	13.6	-	0.7	7.0	3.7	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.4	15
45.28	17.2	10.7	-	0.6	7.9	4.0	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
45.44	26.4	16.3	-	0.5	8.3	1.9	4	clayy SILT to silty CLAY	115	2.0	8	13	-	-	1.8	15
45.61	22.7	14.0	-	0.4	6.4	2.0	4	clayy SILT to silty CLAY	115	2.0	7	11	-	-	1.5	15
45.77	13.6	8.4	-	0.4	6.8	3.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
45.93	11.3	6.9	-	0.3	7.8	3.5	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
46.10	11.6	7.1	-	0.4	8.6	4.7	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
46.26	13.3	8.1	-	0.5	9.4	4.4	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
46.43	33.9	25.7	73.5	0.5	10.0	1.5	5	silty SAND to sandy SILT	120	4.0	6	8	22	32	-	16
46.59	49.8	37.7	82.4	0.7	8.8	1.5	5	silty SAND to sandy SILT	120	4.0	9	12	35	35	-	16
46.75	50.2	37.9	89.7	0.8	9.5	1.8	5	silty SAND to sandy SILT	120	4.0	9	13	35	35	-	16
46.92	63.1	47.6	87.2	0.8	10.5	1.4	5	silty SAND to sandy SILT	120	4.0	12	16	42	36	-	16
47.08	69.2	52.1	97.6	1.1	6.2	1.6	5	silty SAND to sandy SILT	120	4.0	13	17	45	37	-	16
47.25	62.0	46.6	103.4	1.2	4.8	2.0	5	silty SAND to sandy SILT	120	4.0	12	16	42	36	-	16
47.41	82.9	62.2	88.1	0.8	3.7	1.0	5	silty SAND to sandy SILT	120	4.0	16	21	51	38	-	16
47.57	83.4	62.5	92.4	0.9	-1.4	1.1	5	silty SAND to sandy SILT	120	4.0	16	21	51	38	-	16
47.74	68.9	51.6	99.6	1.1	-1.4	1.7	5	silty SAND to sandy SILT	120	4.0	13	17	45	36	-	16
47.90	69.6	52.1	99.4	1.1	-1.1	1.7	5	silty SAND to sandy SILT	120	4.0	13	17	45	36	-	16
48.07	69.6	52.0	103.7	1.2	-1.4	1.9	5	silty SAND to sandy SILT	120	4.0	13	17	45	36	-	16
48.23	68.8	51.3	87.6	0.8	-1.3	1.3	5	silty SAND to sandy SILT	120	4.0	13	17	45	36	-	16
48.39	49.8	37.1	99.0	1.0	-1.0	2.2	5	silty SAND to sandy SILT	120	4.0	9	12	34	34	-	16
48.56	28.1	16.5	-	1.0	-1.3	3.9	3	silty CLAY to CLAY	115	1.5	11	19	-	-	1.9	15
48.72	25.2	14.7	-	0.7	-0.8	3.2	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
48.89	61.1	45.3	77.9	0.6	-0.4	1.1	5	silty SAND to sandy SILT	120	4.0	11	15	41	36	-	16
49.05	50.5	29.4	-	1.3	-1.8	2.7	4	clayy SILT to silty CLAY	115	2.0	15	25	-	-	3.5	15
49.22	41.5	24.1	-	1.5	-1.4	3.8	3	silty CLAY to CLAY	115	1.5	16	28	-	-	2.8	15
49.38	65.2	48.1	106.3	1.3	-1.1	2.1	5	silty SAND to sandy SILT	120	4.0	12	16	43	36	-	16
49.54	102.6	75.7	108.5	1.3	-2.4	1.3	5	silty SAND to sandy SILT	120	4.0	19	26	58	39	-	16
49.71	131.1	96.6	112.6	1.0	-3.1	0.8	6	clean SAND to silty SAND	125	5.0	19	26	66	40	-	16
49.87	131.2	96.5	118.1	1.3	-4.3	1.0	6	clean SAND to silty SAND	125	5.0	19	26	66	40	-	16
50.04	118.4	87.0	118.5	1.5	-4.1	1.3	5	silty SAND to sandy SILT	120	4.0	22	30	62	39	-	16
50.20	117.3	86.0	123.4	1.7	-3.9	1.5	5	silty SAND to sandy SILT	120	4.0	22	29	62	39	-	16
50.36	118.7	87.0	119.0	1.6	-3.8	1.3	5	silty SAND to sandy SILT	120	4.0	22	30	62	39	-	16
50.53	113.1	82.8	118.6	1.6	-4.0	1.5	5	silty SAND to sandy SILT	120	4.0	21	28	61	39	-	16
50.69	97.2	71.0	117.3	1.7	-4.0	1.8	5	silty SAND to sandy SILT	120	4.0	18	24	56	38	-	16
50.86	75.9	55.3	119.7	1.7	-3.8	2.4	5	silty SAND to sandy SILT	120	4.0	14	19	47	37	-	16
51.02	38.6	21.7	-	1.5	-3.8	4.3	3	silty CLAY to CLAY	115	1.5	14	26	-	-	2.6	15
51.18	20.4	11.4	-	1.0	-3.6	5.8	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.3	15
51.35	14.4	8.0	-	0.5	-2.3	4.6	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
51.51	12.5	7.0	-	0.3	-2.0	3.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
51.68	12.8	7.2	-	0.3	-1.8	2.6	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
51.84	13.1	7.3	-	0.3	-1.5	2.6	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
52.00	12.0	6.7	-	0.3	-1.2	3.8	3	silty CLAY to CLAY	115	1.5	4	8	-	-	0.7	15
52.17	13.5	7.5	-	0.5	-0.9	5.1	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
52.33	23.6	13.0	-	0.7	-0.5	3.3	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
52.50	28.3	15.6	-	0.7	-0.4	2.9	3	silty CLAY to CLAY	115	1.5	10	19	-	-	1.9	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(408).cpt
CPT Date: 11/17/2008 2:46:35 PM
GW During Test: 12 ft

Sounding ID: CPT-08-67
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	63.8	45.9	94.9	1.0	-0.8	1.7	5	silty SAND to sandy SILT	120	4.0	11	16	41	35	-	16
52.82	73.0	52.5	97.3	1.1	-0.8	1.6	5	silty SAND to sandy SILT	120	4.0	13	18	46	36	-	16
52.99	87.9	63.1	91.8	0.9	-0.7	1.1	5	silty SAND to sandy SILT	120	4.0	16	22	52	37	-	16
53.15	88.9	63.8	90.3	0.9	-1.3	1.0	5	silty SAND to sandy SILT	120	4.0	16	22	52	37	-	16
53.32	81.8	58.6	90.8	0.9	-1.2	1.2	5	silty SAND to sandy SILT	120	4.0	15	20	49	37	-	16
53.48	76.2	54.5	91.9	1.0	-1.1	1.3	5	silty SAND to sandy SILT	120	4.0	14	19	47	36	-	16
53.64	78.8	56.3	93.1	1.0	-0.9	1.3	5	silty SAND to sandy SILT	120	4.0	14	20	48	37	-	16
53.81	89.6	63.9	102.9	1.3	-0.8	1.5	5	silty SAND to sandy SILT	120	4.0	16	22	52	37	-	16
53.97	78.0	55.6	113.5	1.6	-0.5	2.1	5	silty SAND to sandy SILT	120	4.0	14	20	48	37	-	16
54.14	64.9	46.2	115.0	1.5	-0.4	2.5	5	silty SAND to sandy SILT	120	4.0	12	16	41	35	-	16
54.30	60.7	43.2	115.6	1.5	-0.3	2.7	4	clayy SILT to silty CLAY	115	2.0	22	30	-	-	4.2	15
54.46	55.2	29.5	-	1.6	-0.1	3.1	4	clayy SILT to silty CLAY	115	2.0	15	28	-	-	3.8	15
54.63	57.7	40.9	104.9	1.2	-0.1	2.3	5	silty SAND to sandy SILT	120	4.0	10	14	37	35	-	16
54.79	66.2	46.9	94.9	1.1	0.0	1.7	5	silty SAND to sandy SILT	120	4.0	12	17	42	35	-	16
54.96	63.9	45.2	103.3	1.2	-0.4	2.1	5	silty SAND to sandy SILT	120	4.0	11	16	41	35	-	16
55.12	33.9	17.9	-	1.3	-0.2	4.2	3	silty CLAY to CLAY	115	1.5	12	23	-	-	2.3	15
55.28	20.5	10.8	-	0.9	0.1	5.4	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.3	15
55.45	16.6	8.7	-	0.7	0.5	5.4	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
55.61	29.3	15.4	-	0.5	0.9	2.0	4	clayy SILT to silty CLAY	115	2.0	8	15	-	-	2.0	15
55.78	55.9	39.3	83.2	0.8	1.0	1.4	5	silty SAND to sandy SILT	120	4.0	10	14	36	34	-	16
55.94	49.9	26.1	-	1.1	1.2	2.4	4	clayy SILT to silty CLAY	115	2.0	13	25	-	-	3.4	15
56.11	41.9	21.9	-	0.8	1.3	2.1	4	clayy SILT to silty CLAY	115	2.0	11	21	-	-	2.8	15
56.27	40.2	20.9	-	0.6	0.7	1.7	4	clayy SILT to silty CLAY	115	2.0	10	20	-	-	2.7	15
56.43	22.5	11.7	-	0.5	0.2	2.5	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
56.60	13.6	7.0	-	0.4	0.6	3.7	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
56.76	12.4	6.4	-	0.3	1.1	3.2	3	silty CLAY to CLAY	115	1.5	4	8	-	-	0.8	15
56.93	12.4	6.4	-	0.3	1.4	3.0	3	silty CLAY to CLAY	115	1.5	4	8	-	-	0.8	15
57.09	12.2	6.3	-	0.3	1.8	3.1	3	silty CLAY to CLAY	115	1.5	4	8	-	-	0.7	15
57.25	12.7	6.5	-	0.3	2.2	3.5	3	silty CLAY to CLAY	115	1.5	4	8	-	-	0.8	15
57.42	13.6	7.0	-	0.3	2.6	3.4	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
57.58	15.8	8.1	-	0.5	2.9	4.0	3	silty CLAY to CLAY	115	1.5	5	11	-	-	1.0	15
57.75	25.6	13.1	-	0.6	3.4	2.5	3	silty CLAY to CLAY	115	1.5	9	17	-	-	1.7	15
57.91	39.4	20.0	-	0.7	3.4	2.1	4	clayy SILT to silty CLAY	115	2.0	10	20	-	-	2.7	15
58.07	66.6	46.1	83.9	0.8	3.8	1.3	5	silty SAND to sandy SILT	120	4.0	12	17	41	35	-	16
58.24	73.8	51.0	114.4	1.6	4.1	2.3	5	silty SAND to sandy SILT	120	4.0	13	18	45	36	-	16
58.40	49.4	25.0	-	1.5	4.0	3.2	4	clayy SILT to silty CLAY	115	2.0	12	25	-	-	3.4	15
58.57	60.2	41.5	107.0	1.3	5.0	2.3	5	silty SAND to sandy SILT	120	4.0	10	15	38	34	-	16
58.73	164.7	113.5	127.4	1.3	5.2	0.8	6	clean SAND to silty SAND	125	5.0	23	33	71	40	-	16
58.89	195.0	134.2	139.8	1.3	5.5	0.7	6	clean SAND to silty SAND	125	5.0	27	39	77	41	-	16
59.06	205.2	141.0	147.8	1.5	6.0	0.7	6	clean SAND to silty SAND	125	5.0	28	41	78	41	-	16
59.22	222.5	152.7	159.8	1.8	6.5	0.8	6	clean SAND to silty SAND	125	5.0	31	44	81	42	-	16
59.39	239.8	164.4	171.3	2.0	6.9	0.9	6	clean SAND to silty SAND	125	5.0	33	48	83	42	-	16
59.55	253.5	173.5	177.7	2.1	7.3	0.8	6	clean SAND to silty SAND	125	5.0	35	51	85	42	-	16
59.71	258.7	176.9	180.1	2.1	8.0	0.8	6	clean SAND to silty SAND	125	5.0	35	52	86	43	-	16
59.88	262.1	179.0	181.7	2.1	8.3	0.8	6	clean SAND to silty SAND	125	5.0	36	52	86	43	-	16
60.04	275.0	187.6	190.1	2.3	8.8	0.9	6	clean SAND to silty SAND	125	5.0	38	55	88	43	-	16
60.21	289.4	197.1	197.1	2.3	8.9	0.8	6	clean SAND to silty SAND	125	5.0	39	58	89	43	-	16
60.37	296.8	201.9	202.1	2.5	8.5	0.9	6	clean SAND to silty SAND	125	5.0	40	59	90	43	-	16
60.53	309.3	210.2	213.9	3.0	8.5	1.0	6	clean SAND to silty SAND	125	5.0	42	62	92	43	-	16
60.70	347.1	235.5	237.1	3.5	8.5	1.0	6	clean SAND to silty SAND	125	5.0	47	69	95	44	-	16
60.86	352.7	239.1	239.1	2.9	9.7	0.8	6	clean SAND to silty SAND	125	5.0	48	71	95	44	-	16
61.03	358.9	243.0	243.0	2.9	8.9	0.8	6	clean SAND to silty SAND	125	5.0	49	72	95	44	-	16
61.19	400.2	270.6	270.6	2.6	9.3	0.7	6	clean SAND to silty SAND	125	5.0	54	80	95	45	-	16
61.35	436.2	294.6	294.6	2.2	8.9	0.5	6	clean SAND to silty SAND	125	5.0	59	87	95	45	-	16
61.52	394.9	266.3	266.3	2.4	9.9	0.6	6	clean SAND to silty SAND	125	5.0	53	79	95	44	-	16
61.68	374.5	252.3	252.3	2.2	11.3	0.6	6	clean SAND to silty SAND	125	5.0	50	75	95	44	-	16
61.85	358.8	241.4	241.4	1.9	11.7	0.5	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
62.01	339.6	228.2	228.2	1.6	11.8	0.5	6	clean SAND to silty SAND	125	5.0	46	68	94	44	-	16
62.17	336.4	225.8	225.8	1.7	12.2	0.5	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
62.34	347.8	233.1	233.1	1.7	12.2	0.5	6	clean SAND to silty SAND	125	5.0	47	70	95	44	-	16
62.50	367.4	246.0	246.0	1.9	12.2	0.5	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
62.67	390.7	261.2	261.2	2.0	12.5	0.5	6	clean SAND to silty SAND	125	5.0	52	78	95	44	-	16
62.83	432.3	288.7	288.7	2.2	12.6	0.5	6	clean SAND to silty SAND	125	5.0	58	86	95	45	-	16
63.00	461.9	308.1	308.1	2.6	12.4	0.6	6	clean SAND to silty SAND	125	5.0	62	92	95	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(408).cpt
CPT Date: 11/17/2008 2:46:35 PM
GW During Test: 12 ft

Sounding ID: CPT-08-67
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	460.6	306.9	306.9	2.5	12.1	0.6	6	clean SAND to silty SAND	125	5.0	61	92	95	45	-	16
63.32	477.8	317.9	317.9	2.3	10.3	0.5	7	grvly SAND to dense SAND	130	6.0	53	80	95	45	-	16
63.49	460.9	306.3	306.3	2.2	8.7	0.5	7	grvly SAND to dense SAND	130	6.0	51	77	95	45	-	16
63.65	482.6	320.3	320.3	2.5	8.3	0.5	6	clean SAND to silty SAND	125	5.0	64	97	95	45	-	16
63.82	489.5	324.5	324.5	2.3	8.4	0.5	7	grvly SAND to dense SAND	130	6.0	54	82	95	45	-	16
63.98	487.1	322.5	322.5	2.5	7.5	0.5	6	clean SAND to silty SAND	125	5.0	64	97	95	45	-	16
64.14	465.2	307.6	307.6	2.8	8.1	0.6	6	clean SAND to silty SAND	125	5.0	62	93	95	45	-	16
64.31	429.4	283.6	283.6	2.6	11.3	0.6	6	clean SAND to silty SAND	125	5.0	57	86	95	45	-	16
64.47	430.0	283.7	283.7	2.5	11.6	0.6	6	clean SAND to silty SAND	125	5.0	57	86	95	45	-	16
64.64	427.4	281.6	281.6	2.2	11.0	0.5	6	clean SAND to silty SAND	125	5.0	56	85	95	45	-	16
64.80	424.4	279.3	279.3	2.1	11.2	0.5	6	clean SAND to silty SAND	125	5.0	56	85	95	45	-	16
64.96	424.2	278.9	278.9	2.8	9.4	0.7	6	clean SAND to silty SAND	125	5.0	56	85	95	45	-	16
65.13	417.5	274.1	274.1	2.7	9.6	0.6	6	clean SAND to silty SAND	125	5.0	55	84	95	44	-	16
65.29	432.2	283.5	283.5	2.7	9.2	0.6	6	clean SAND to silty SAND	125	5.0	57	86	95	45	-	16
65.46	430.8	282.2	282.2	2.7	11.9	0.6	6	clean SAND to silty SAND	125	5.0	56	86	95	45	-	16
65.62	432.3	282.8	282.8	3.0	11.7	0.7	6	clean SAND to silty SAND	125	5.0	57	86	95	45	-	16
65.78	419.6	274.2	274.2	2.6	11.3	0.6	6	clean SAND to silty SAND	125	5.0	55	84	95	44	-	16
65.95	401.3	262.0	262.0	2.3	12.4	0.6	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
66.11	400.3	261.0	261.0	2.3	11.9	0.6	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
66.28	390.3	254.2	254.2	2.6	11.0	0.7	6	clean SAND to silty SAND	125	5.0	51	78	95	44	-	16
66.44	381.8	248.4	248.4	2.8	11.7	0.7	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
66.60	378.3	245.8	245.8	2.8	11.8	0.8	6	clean SAND to silty SAND	125	5.0	49	76	95	44	-	16
66.77	379.2	246.1	246.1	2.7	11.4	0.7	6	clean SAND to silty SAND	125	5.0	49	76	95	44	-	16
66.93	374.9	243.0	243.0	2.5	11.7	0.7	6	clean SAND to silty SAND	125	5.0	49	75	95	44	-	16
67.10	378.2	244.9	244.9	2.3	11.4	0.6	6	clean SAND to silty SAND	125	5.0	49	76	95	44	-	16
67.26	377.1	243.9	243.9	2.2	11.5	0.6	6	clean SAND to silty SAND	125	5.0	49	75	95	44	-	16
67.42	378.6	244.6	244.6	2.5	11.3	0.7	6	clean SAND to silty SAND	125	5.0	49	76	95	44	-	16
67.59	383.4	247.4	247.4	2.4	10.4	0.6	6	clean SAND to silty SAND	125	5.0	49	77	95	44	-	16
67.75	373.9	241.0	241.0	2.7	10.8	0.7	6	clean SAND to silty SAND	125	5.0	48	75	95	44	-	16
67.92	371.9	239.4	239.4	2.8	10.9	0.8	6	clean SAND to silty SAND	125	5.0	48	74	95	44	-	16
68.08	370.0	237.9	237.9	3.0	11.1	0.8	6	clean SAND to silty SAND	125	5.0	48	74	95	44	-	16
68.24	375.4	241.2	241.2	3.0	11.0	0.8	6	clean SAND to silty SAND	125	5.0	48	75	95	44	-	16
68.41	372.1	238.8	238.8	2.9	11.1	0.8	6	clean SAND to silty SAND	125	5.0	48	74	95	44	-	16
68.57	369.8	237.0	237.0	2.8	10.9	0.8	6	clean SAND to silty SAND	125	5.0	47	74	95	44	-	16
68.74	366.6	234.8	234.8	2.6	10.6	0.7	6	clean SAND to silty SAND	125	5.0	47	73	95	44	-	16
68.90	369.0	236.0	236.0	2.6	11.0	0.7	6	clean SAND to silty SAND	125	5.0	47	74	95	44	-	16
69.07	370.4	236.6	236.6	2.4	10.6	0.7	6	clean SAND to silty SAND	125	5.0	47	74	95	44	-	16
69.23	356.1	227.2	227.2	2.9	10.0	0.8	6	clean SAND to silty SAND	125	5.0	45	71	94	43	-	16
69.39	344.7	219.7	227.2	3.7	9.9	1.1	6	clean SAND to silty SAND	125	5.0	44	69	93	43	-	16
69.56	331.8	211.2	217.6	3.4	10.2	1.0	6	clean SAND to silty SAND	125	5.0	42	66	92	43	-	16
69.72	330.5	210.2	209.5	2.9	10.1	0.9	6	clean SAND to silty SAND	125	5.0	42	66	92	43	-	16
69.89	320.3	203.5	211.6	3.3	9.8	1.0	6	clean SAND to silty SAND	125	5.0	41	64	90	43	-	16
70.05	328.3	208.3	208.3	2.5	9.9	0.8	6	clean SAND to silty SAND	125	5.0	42	66	91	43	-	16
70.21	346.2	219.5	219.5	2.4	8.9	0.7	6	clean SAND to silty SAND	125	5.0	44	69	93	43	-	16
70.38	332.6	210.6	210.6	2.1	9.5	0.6	6	clean SAND to silty SAND	125	5.0	42	67	92	43	-	16
70.54	341.8	216.2	216.2	2.7	9.5	0.8	6	clean SAND to silty SAND	125	5.0	43	68	92	43	-	16
70.71	354.8	224.2	229.1	3.7	10.0	1.1	6	clean SAND to silty SAND	125	5.0	45	71	94	43	-	16
70.87	361.6	228.3	234.1	3.9	10.7	1.1	6	clean SAND to silty SAND	125	5.0	46	72	94	43	-	16
71.03	381.4	240.5	240.0	3.8	11.3	1.0	6	clean SAND to silty SAND	125	5.0	48	76	95	44	-	16
71.20	438.6	276.2	276.2	3.4	10.2	0.8	6	clean SAND to silty SAND	125	5.0	55	88	95	44	-	16
71.36	495.5	311.8	311.8	3.2	9.1	0.7	6	clean SAND to silty SAND	125	5.0	62	99	95	45	-	16
71.53	511.8	321.7	321.7	2.7	9.3	0.5	6	clean SAND to silty SAND	125	5.0	64	100	95	45	-	16
71.69	529.8	332.6	332.6	3.2	8.2	0.6	6	clean SAND to silty SAND	125	5.0	67	100	95	45	-	16
71.85	552.8	346.7	346.7	2.9	7.4	0.5	7	grvly SAND to dense SAND	130	6.0	58	92	95	45	-	16
72.02	539.6	338.0	338.0	4.4	7.9	0.8	6	clean SAND to silty SAND	125	5.0	68	100	95	45	-	16
72.18	539.9	337.8	337.8	3.4	7.9	0.6	6	clean SAND to silty SAND	125	5.0	68	100	95	45	-	16
72.35	557.2	348.3	348.3	3.8	9.2	0.7	6	clean SAND to silty SAND	125	5.0	70	100	95	45	-	16
72.51	612.9	382.7	382.7	3.8	10.4	0.6	6	clean SAND to silty SAND	125	5.0	77	100	95	46	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(479).cpt
CPT Date: 12/10/2008 7:19:53 AM
GW During Test: 12 ft

Sounding ID: CPT-08-68
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	32.4	52.0	130.1	1.0	0.2	3.0	4	clayy SILT to silty CLAY	115	2.0	26	16	-	-	2.3	15
0.49	38.0	61.0	157.7	1.4	0.2	3.8	4	clayy SILT to silty CLAY	115	2.0	30	19	-	-	2.7	15
0.66	67.6	108.4	158.8	1.4	-0.1	2.1	5	silty SAND to sandy SILT	120	4.0	27	17	70	48	-	16
0.82	98.9	158.6	164.8	0.8	0.0	0.8	6	clean SAND to silty SAND	125	5.0	32	20	82	48	-	16
0.98	88.0	141.1	143.9	0.6	0.0	0.6	6	clean SAND to silty SAND	125	5.0	28	18	78	48	-	16
1.15	39.3	63.0	85.3	0.3	-0.1	0.9	6	clean SAND to silty SAND	125	5.0	13	8	52	48	-	16
1.31	32.6	52.3	74.7	0.3	-0.1	0.8	5	silty SAND to sandy SILT	120	4.0	13	8	46	47	-	16
1.48	26.9	43.1	64.6	0.2	-0.1	0.7	5	silty SAND to sandy SILT	120	4.0	11	7	39	46	-	16
1.64	24.6	39.5	68.6	0.2	-0.1	1.0	5	silty SAND to sandy SILT	120	4.0	10	6	36	45	-	16
1.80	26.9	43.1	65.7	0.2	0.1	0.7	5	silty SAND to sandy SILT	120	4.0	11	7	39	45	-	16
1.97	26.6	42.7	66.4	0.2	0.1	0.8	5	silty SAND to sandy SILT	120	4.0	11	7	39	45	-	16
2.13	22.1	35.4	60.0	0.2	0.0	0.7	5	silty SAND to sandy SILT	120	4.0	9	6	33	43	-	16
2.30	14.1	22.6	56.3	0.1	0.4	1.0	5	silty SAND to sandy SILT	120	4.0	6	4	18	41	-	16
2.46	17.0	27.2	47.7	0.1	0.4	0.5	5	silty SAND to sandy SILT	120	4.0	7	4	24	41	-	16
2.62	21.0	33.7	63.8	0.2	0.3	0.9	5	silty SAND to sandy SILT	120	4.0	8	5	31	42	-	16
2.79	65.3	104.8	115.8	0.5	0.3	0.7	6	clean SAND to silty SAND	125	5.0	21	13	69	47	-	16
2.95	104.5	167.5	173.5	0.9	0.4	0.9	6	clean SAND to silty SAND	125	5.0	34	21	84	48	-	16
3.12	111.6	179.0	192.3	1.2	0.4	1.1	6	clean SAND to silty SAND	125	5.0	36	22	86	48	-	16
3.28	111.5	178.8	200.4	1.5	0.3	1.4	6	clean SAND to silty SAND	125	5.0	36	22	86	48	-	16
3.45	102.6	164.5	204.3	1.9	0.2	1.9	6	clean SAND to silty SAND	125	5.0	33	21	83	48	-	16
3.61	77.6	124.5	207.2	2.4	0.1	3.1	5	silty SAND to sandy SILT	120	4.0	31	19	74	47	-	16
3.77	61.3	98.4	227.9	2.9	0.1	4.7	9	very stiff fine SOIL	120	2.0	49	31	66	46	-	30
3.94	62.9	100.8	230.0	2.9	0.4	4.7	9	very stiff fine SOIL	120	2.0	50	31	67	46	-	30
4.10	64.9	104.1	228.5	2.9	1.8	4.5	9	very stiff fine SOIL	120	2.0	52	32	68	46	-	30
4.27	67.1	107.6	223.4	2.8	0.9	4.2	9	very stiff fine SOIL	120	2.0	54	34	69	46	-	30
4.43	52.2	83.6	236.7	3.0	-1.0	5.7	9	very stiff fine SOIL	120	2.0	42	26	61	45	-	30
4.59	47.3	75.8	233.8	2.8	-1.0	6.1	9	very stiff fine SOIL	120	2.0	38	24	58	44	-	30
4.76	44.0	70.6	221.5	2.6	-1.3	5.9	9	very stiff fine SOIL	120	2.0	35	22	56	44	-	30
4.92	43.7	70.1	207.7	2.3	-1.1	5.3	4	clayy SILT to silty CLAY	115	2.0	35	22	-	-	3.1	15
5.09	51.5	82.6	239.9	3.0	-0.7	5.9	9	very stiff fine SOIL	120	2.0	41	26	61	44	-	30
5.25	66.3	106.3	245.0	3.3	0.2	4.9	9	very stiff fine SOIL	120	2.0	53	33	69	45	-	30
5.41	60.4	96.9	247.3	3.3	0.5	5.4	9	very stiff fine SOIL	120	2.0	48	30	66	45	-	30
5.58	71.4	114.5	213.6	2.6	0.7	3.6	5	silty SAND to sandy SILT	120	4.0	29	18	71	46	-	16
5.74	93.6	150.1	228.9	2.8	0.9	3.0	5	silty SAND to sandy SILT	120	4.0	38	23	80	47	-	16
5.91	70.8	113.5	229.1	2.9	0.7	4.2	9	very stiff fine SOIL	120	2.0	57	35	71	45	-	30
6.07	62.1	99.6	230.8	2.9	0.8	4.7	9	very stiff fine SOIL	120	2.0	50	31	67	45	-	30
6.23	61.4	97.3	237.8	3.1	1.2	5.1	9	very stiff fine SOIL	120	2.0	49	31	66	44	-	30
6.40	70.5	110.3	225.4	2.9	1.6	4.1	9	very stiff fine SOIL	120	2.0	55	35	70	45	-	30
6.56	63.9	98.8	218.8	2.8	1.3	4.4	9	very stiff fine SOIL	120	2.0	49	32	67	45	-	30
6.73	44.1	67.4	199.7	2.2	0.6	5.1	4	clayy SILT to silty CLAY	115	2.0	34	22	-	-	3.1	15
6.89	39.4	63.2	204.5	2.2	0.0	5.6	4	clayy SILT to silty CLAY	115	2.0	32	20	-	-	2.8	15
7.05	68.9	102.8	189.8	2.2	0.9	3.3	5	silty SAND to sandy SILT	120	4.0	26	17	68	45	-	16
7.22	78.9	116.4	210.3	2.7	1.0	3.5	5	silty SAND to sandy SILT	120	4.0	29	20	72	45	-	16
7.38	79.2	115.6	214.2	2.8	0.7	3.6	5	silty SAND to sandy SILT	120	4.0	29	20	72	45	-	16
7.55	62.6	90.3	221.2	3.0	0.4	4.8	9	very stiff fine SOIL	120	2.0	45	31	64	44	-	30
7.71	91.7	130.9	214.4	2.9	0.7	3.1	5	silty SAND to sandy SILT	120	4.0	33	23	76	46	-	16
7.87	89.5	126.5	208.7	2.8	0.9	3.1	5	silty SAND to sandy SILT	120	4.0	32	22	75	46	-	16
8.04	63.4	88.6	195.1	2.5	0.9	3.9	4	clayy SILT to silty CLAY	115	2.0	44	32	-	-	4.5	15
8.20	47.1	65.2	174.9	2.0	0.7	4.2	4	clayy SILT to silty CLAY	115	2.0	33	24	-	-	3.3	15
8.37	39.3	53.9	148.2	1.4	1.0	3.7	4	clayy SILT to silty CLAY	115	2.0	27	20	-	-	2.8	15
8.53	31.7	43.0	136.5	1.2	1.0	3.8	4	clayy SILT to silty CLAY	115	2.0	22	16	-	-	2.2	15
8.69	24.8	39.8	-	1.1	1.5	4.5	4	clayy SILT to silty CLAY	115	2.0	20	12	-	-	1.7	15
8.86	27.7	42.5	139.8	1.1	1.6	4.0	4	clayy SILT to silty CLAY	115	2.0	21	14	-	-	1.9	15
9.02	23.2	37.1	-	1.3	1.5	5.6	3	silty CLAY to CLAY	115	1.5	25	15	-	-	1.6	15
9.19	28.5	45.8	-	1.4	1.7	4.9	4	clayy SILT to silty CLAY	115	2.0	23	14	-	-	2.0	15
9.35	27.5	44.2	-	1.4	1.6	5.0	4	clayy SILT to silty CLAY	115	2.0	22	14	-	-	1.9	15
9.51	30.5	44.5	-	1.3	1.7	4.4	4	clayy SILT to silty CLAY	115	2.0	22	15	-	-	2.1	15
9.68	41.3	52.8	134.9	1.3	2.0	3.2	4	clayy SILT to silty CLAY	115	2.0	26	21	-	-	2.9	15
9.84	44.3	56.2	128.3	1.2	2.0	2.7	5	silty SAND to sandy SILT	120	4.0	14	11	48	41	-	16
10.01	64.3	80.9	126.4	1.2	2.4	1.8	5	silty SAND to sandy SILT	120	4.0	20	16	60	43	-	16
10.17	84.0	104.8	142.6	1.4	2.1	1.6	5	silty SAND to sandy SILT	120	4.0	26	21	69	44	-	16
10.34	68.4	84.7	146.6	1.6	1.4	2.4	5	silty SAND to sandy SILT	120	4.0	21	17	62	43	-	16
10.50	44.3	54.4	148.1	1.6	1.0	3.6	4	clayy SILT to silty CLAY	115	2.0	27	22	-	-	3.1	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Earth Mechanics
Data File: SDF(479).cpt
CPT Date: 12/10/2008 7:19:53 AM
GW During Test: 12 ft

Sounding ID: CPT-08-68
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	30.7	48.4	-	1.4	0.8	4.7	4	clayy SILT to silty CLAY	115	2.0	24	15	-	-	2.1	15
10.83	26.7	41.4	-	1.3	1.1	4.9	3	silty CLAY to CLAY	115	1.5	28	18	-	-	1.9	15
10.99	23.2	35.4	-	1.1	1.2	5.0	3	silty CLAY to CLAY	115	1.5	24	15	-	-	1.6	15
11.16	19.7	29.7	-	0.9	1.0	4.7	3	silty CLAY to CLAY	115	1.5	20	13	-	-	1.4	15
11.32	15.7	23.4	-	0.7	1.1	4.9	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.1	15
11.48	15.2	22.2	-	0.8	1.4	5.6	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.0	15
11.65	23.2	33.5	-	1.1	1.9	5.0	3	silty CLAY to CLAY	115	1.5	22	15	-	-	1.6	15
11.81	26.7	38.0	-	1.5	2.3	5.6	3	silty CLAY to CLAY	115	1.5	25	18	-	-	1.9	15
11.98	26.2	36.9	-	1.5	2.3	6.0	3	silty CLAY to CLAY	115	1.5	25	17	-	-	1.8	15
12.14	26.8	37.5	-	1.5	2.4	5.7	3	silty CLAY to CLAY	115	1.5	25	18	-	-	1.9	15
12.30	26.5	36.9	-	1.4	2.7	5.4	3	silty CLAY to CLAY	115	1.5	25	18	-	-	1.8	15
12.47	23.3	32.1	-	1.2	2.6	5.3	3	silty CLAY to CLAY	115	1.5	21	16	-	-	1.6	15
12.63	17.6	24.2	-	0.5	2.2	3.1	4	clayy SILT to silty CLAY	115	2.0	12	9	-	-	1.2	15
12.80	11.1	15.2	-	0.4	1.6	3.7	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.8	15
12.96	9.9	13.4	-	0.4	4.6	4.4	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
13.12	8.0	10.8	-	0.4	5.8	5.2	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
13.29	6.9	9.2	-	0.4	3.5	5.8	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
13.45	15.7	20.9	-	0.3	4.1	2.0	4	clayy SILT to silty CLAY	115	2.0	10	8	-	-	1.1	15
13.62	23.6	26.4	68.9	0.3	1.9	1.4	5	silty SAND to sandy SILT	120	4.0	7	6	23	37	-	16
13.78	20.8	23.2	74.8	0.4	0.4	1.8	4	clayy SILT to silty CLAY	115	2.0	12	10	-	-	1.4	15
13.94	12.7	16.7	-	0.3	-0.3	2.1	4	clayy SILT to silty CLAY	115	2.0	8	6	-	-	0.9	15
14.11	7.8	10.1	-	0.4	-0.2	5.3	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
14.27	10.3	13.4	-	0.4	0.8	4.4	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
14.44	7.7	9.9	-	0.4	0.3	5.4	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
14.60	6.4	8.2	-	0.2	-0.2	3.0	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.76	7.0	8.9	-	0.2	0.2	3.5	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
14.93	8.1	10.3	-	0.3	0.5	3.7	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
15.09	7.7	9.8	-	0.3	0.9	4.3	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
15.26	7.5	9.4	-	0.3	1.1	5.2	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.42	7.2	9.0	-	0.3	1.3	4.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.58	8.0	10.0	-	0.3	4.8	4.7	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
15.75	28.3	30.5	74.1	0.4	5.1	1.4	5	silty SAND to sandy SILT	120	4.0	8	7	28	37	-	16
15.91	47.3	50.9	77.5	0.4	2.5	0.9	5	silty SAND to sandy SILT	120	4.0	13	12	45	40	-	16
16.08	50.4	54.1	85.3	0.6	1.7	1.1	5	silty SAND to sandy SILT	120	4.0	14	13	47	40	-	16
16.24	54.3	58.1	89.6	0.6	1.6	1.2	5	silty SAND to sandy SILT	120	4.0	15	14	49	40	-	16
16.40	54.5	58.1	90.0	0.6	1.4	1.2	5	silty SAND to sandy SILT	120	4.0	15	14	49	40	-	16
16.57	57.3	61.0	88.7	0.6	1.4	1.1	5	silty SAND to sandy SILT	120	4.0	15	14	51	41	-	16
16.73	58.2	61.7	89.4	0.6	1.3	1.1	5	silty SAND to sandy SILT	120	4.0	15	15	51	41	-	16
16.90	57.7	61.0	89.0	0.6	1.3	1.1	5	silty SAND to sandy SILT	120	4.0	15	14	51	41	-	16
17.06	55.3	58.3	89.9	0.6	1.5	1.2	5	silty SAND to sandy SILT	120	4.0	15	14	49	40	-	16
17.23	66.7	70.2	92.3	0.6	1.4	0.9	6	clean SAND to silty SAND	125	5.0	14	13	55	41	-	16
17.39	87.1	91.3	107.0	0.7	-1.2	0.8	6	clean SAND to silty SAND	125	5.0	18	17	64	43	-	16
17.55	94.0	98.3	112.1	0.7	-3.2	0.8	6	clean SAND to silty SAND	125	5.0	20	19	66	43	-	16
17.72	95.8	99.8	113.5	0.7	-3.2	0.8	6	clean SAND to silty SAND	125	5.0	20	19	67	43	-	16
17.88	92.3	95.9	111.3	0.7	0.1	0.8	6	clean SAND to silty SAND	125	5.0	19	18	66	43	-	16
18.05	85.6	88.7	110.2	0.8	-0.5	1.0	6	clean SAND to silty SAND	125	5.0	18	17	63	42	-	16
18.21	77.7	80.3	101.9	0.7	-0.4	0.9	6	clean SAND to silty SAND	125	5.0	16	16	60	42	-	16
18.37	65.7	67.7	91.4	0.6	-1.4	1.0	6	clean SAND to silty SAND	125	5.0	14	13	54	41	-	16
18.54	37.7	38.7	90.1	0.7	-3.4	1.8	5	silty SAND to sandy SILT	120	4.0	10	9	36	38	-	16
18.70	18.8	20.9	-	0.4	-3.0	2.3	4	clayy SILT to silty CLAY	115	2.0	10	9	-	-	1.3	15
18.87	11.4	12.6	-	0.2	3.8	1.7	4	clayy SILT to silty CLAY	115	2.0	6	6	-	-	0.8	15
19.03	9.5	10.4	-	0.1	5.7	1.4	4	clayy SILT to silty CLAY	115	2.0	5	5	-	-	0.6	15
19.19	9.9	10.8	-	0.2	7.1	2.7	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
19.36	28.6	29.0	70.3	0.4	8.5	1.3	5	silty SAND to sandy SILT	120	4.0	7	7	26	36	-	16
19.52	51.4	52.1	79.7	0.5	3.9	1.0	5	silty SAND to sandy SILT	120	4.0	13	13	45	39	-	16
19.69	64.5	65.1	84.1	0.5	2.0	0.8	6	clean SAND to silty SAND	125	5.0	13	13	53	40	-	16
19.85	67.9	68.4	87.9	0.5	0.2	0.8	6	clean SAND to silty SAND	125	5.0	14	14	54	41	-	16
20.01	48.7	48.9	87.8	0.7	0.5	1.4	5	silty SAND to sandy SILT	120	4.0	12	12	43	39	-	16
20.18	23.8	25.3	-	0.5	1.1	2.4	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.6	15
20.34	12.5	13.3	-	0.3	2.3	3.1	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
20.51	8.6	9.1	-	0.1	5.0	1.3	4	clayy SILT to silty CLAY	115	2.0	5	4	-	-	0.6	15
20.67	7.7	8.1	-	0.0	8.2	0.1	1	sensitive fine SOIL	115	2.0	4	4	-	-	0.5	15
20.83	7.1	7.4	-	0.0	10.0	0.6	4	clayy SILT to silty CLAY	115	2.0	4	4	-	-	0.5	15
21.00	6.9	7.1	-	0.1	11.4	1.0	4	clayy SILT to silty CLAY	115	2.0	4	3	-	-	0.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(479).cpt
CPT Date: 12/10/2008 7:19:53 AM
GW During Test: 12 ft

Sounding ID: CPT-08-68
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	7.0	7.2	-	0.1	12.6	2.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
21.33	7.5	7.7	-	0.2	13.5	3.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.49	16.0	16.4	-	0.2	14.4	1.6	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.1	15
21.65	31.8	31.2	61.2	0.3	8.7	0.9	5	silty SAND to sandy SILT	120	4.0	8	8	29	36	-	16
21.82	38.2	37.4	65.0	0.3	3.8	0.8	5	silty SAND to sandy SILT	120	4.0	9	10	35	37	-	16
21.98	44.5	43.5	66.9	0.3	1.2	0.7	5	silty SAND to sandy SILT	120	4.0	11	11	40	38	-	16
22.15	49.5	48.2	70.7	0.4	-3.2	0.8	5	silty SAND to sandy SILT	120	4.0	12	12	43	38	-	16
22.31	54.0	52.5	77.1	0.5	-2.9	0.9	5	silty SAND to sandy SILT	120	4.0	13	13	46	39	-	16
22.47	52.5	51.0	80.6	0.5	-2.4	1.0	5	silty SAND to sandy SILT	120	4.0	13	13	45	39	-	16
22.64	51.9	50.2	77.6	0.5	-1.8	1.0	5	silty SAND to sandy SILT	120	4.0	13	13	44	39	-	16
22.80	55.2	53.2	76.9	0.5	-1.5	0.8	5	silty SAND to sandy SILT	120	4.0	13	14	46	39	-	16
22.97	58.0	55.9	76.4	0.4	-1.8	0.7	6	clean SAND to silty SAND	125	5.0	11	12	48	39	-	16
23.13	60.0	57.6	81.4	0.5	-1.4	0.9	5	silty SAND to sandy SILT	120	4.0	14	15	49	39	-	16
23.30	63.0	60.4	83.3	0.5	-1.0	0.9	6	clean SAND to silty SAND	125	5.0	12	13	50	40	-	16
23.46	66.7	63.8	86.6	0.6	-0.5	0.9	6	clean SAND to silty SAND	125	5.0	13	13	52	40	-	16
23.62	64.8	61.8	87.3	0.6	-0.5	1.0	5	silty SAND to sandy SILT	120	4.0	15	16	51	40	-	16
23.79	58.5	55.7	88.6	0.7	0.2	1.2	5	silty SAND to sandy SILT	120	4.0	14	15	48	39	-	16
23.95	41.7	39.5	89.9	0.7	0.9	1.8	5	silty SAND to sandy SILT	120	4.0	10	10	36	37	-	16
24.12	20.9	19.8	-	0.7	1.6	3.4	3	silty CLAY to CLAY	115	1.5	13	14	-	-	1.4	15
24.28	12.6	12.0	-	0.5	2.8	4.1	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
24.44	9.1	8.6	-	0.1	6.0	1.8	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
24.61	8.4	7.9	-	0.0	10.3	0.5	1	sensitive fine SOIL	115	2.0	4	4	-	-	0.5	15
24.77	8.3	7.8	-	0.0	18.2	0.7	4	clayy SILT to silty CLAY	115	2.0	4	4	-	-	0.5	15
24.94	8.6	8.0	-	0.1	22.5	1.1	4	clayy SILT to silty CLAY	115	2.0	4	4	-	-	0.5	15
25.10	8.6	8.0	-	0.1	23.8	1.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
25.26	8.8	8.1	-	0.0	28.0	0.1	1	sensitive fine SOIL	115	2.0	4	4	-	-	0.6	15
25.43	9.5	8.7	-	0.1	32.2	1.4	4	clayy SILT to silty CLAY	115	2.0	4	5	-	-	0.6	15
25.59	7.2	6.6	-	0.2	30.8	3.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
25.76	11.7	10.7	-	0.2	24.5	2.2	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
25.92	12.6	11.5	-	0.4	25.7	3.5	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
26.08	16.3	14.8	-	0.2	22.5	1.5	4	clayy SILT to silty CLAY	115	2.0	7	8	-	-	1.1	15
26.25	21.7	20.0	62.1	0.2	13.1	1.2	4	clayy SILT to silty CLAY	115	2.0	10	11	-	-	1.5	15
26.41	23.1	21.3	63.4	0.3	6.8	1.3	5	silty SAND to sandy SILT	120	4.0	5	6	16	33	-	16
26.58	26.6	24.4	54.7	0.2	4.3	0.8	5	silty SAND to sandy SILT	120	4.0	6	7	20	34	-	16
26.74	33.7	30.9	52.1	0.2	1.0	0.5	5	silty SAND to sandy SILT	120	4.0	8	8	28	35	-	16
26.90	29.5	27.0	55.9	0.2	1.0	0.8	5	silty SAND to sandy SILT	120	4.0	7	7	24	34	-	16
27.07	20.7	18.3	-	0.3	2.6	1.6	4	clayy SILT to silty CLAY	115	2.0	9	10	-	-	1.4	15
27.23	14.5	12.8	-	0.3	4.4	2.6	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
27.40	11.5	10.1	-	0.4	7.1	3.7	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
27.56	13.5	11.8	-	0.2	10.0	1.8	4	clayy SILT to silty CLAY	115	2.0	6	7	-	-	0.9	15
27.72	13.6	11.8	-	0.2	5.4	1.4	4	clayy SILT to silty CLAY	115	2.0	6	7	-	-	0.9	15
27.89	10.1	8.8	-	0.1	6.5	1.7	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
28.05	8.5	7.3	-	0.2	9.7	2.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
28.22	8.6	7.4	-	0.2	12.0	3.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
28.38	9.2	7.9	-	0.3	27.8	3.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.54	11.0	9.4	-	0.3	31.0	3.0	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
28.71	12.8	10.9	-	0.3	29.8	3.0	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.8	15
28.87	29.0	26.0	62.7	0.3	21.6	1.1	5	silty SAND to sandy SILT	120	4.0	6	7	23	34	-	16
29.04	51.0	45.6	61.7	0.2	3.7	0.5	6	clean SAND to silty SAND	125	5.0	9	10	41	37	-	16
29.20	49.1	43.8	71.3	0.4	-0.8	0.9	5	silty SAND to sandy SILT	120	4.0	11	12	40	37	-	16
29.36	26.8	22.5	-	0.8	0.3	3.0	4	clayy SILT to silty CLAY	115	2.0	11	13	-	-	1.8	15
29.53	21.2	17.7	-	0.6	2.6	2.9	4	clayy SILT to silty CLAY	115	2.0	9	11	-	-	1.4	15
29.69	39.4	34.9	65.2	0.3	3.2	0.9	5	silty SAND to sandy SILT	120	4.0	9	10	32	36	-	16
29.86	40.1	35.5	58.6	0.2	-2.0	0.6	5	silty SAND to sandy SILT	120	4.0	9	10	33	36	-	16
30.02	36.9	32.5	55.5	0.2	-1.0	0.6	5	silty SAND to sandy SILT	120	4.0	8	9	30	35	-	16
30.19	31.5	27.8	59.9	0.3	-1.8	0.9	5	silty SAND to sandy SILT	120	4.0	7	8	25	34	-	16
30.35	16.4	13.5	-	0.3	-1.5	2.0	4	clayy SILT to silty CLAY	115	2.0	7	8	-	-	1.1	15
30.51	12.2	10.0	-	0.2	-1.3	1.5	4	clayy SILT to silty CLAY	115	2.0	5	6	-	-	0.8	15
30.68	10.5	8.5	-	0.1	0.4	1.2	4	clayy SILT to silty CLAY	115	2.0	4	5	-	-	0.7	15
30.84	10.6	8.6	-	0.2	3.2	1.8	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
31.01	12.5	10.1	-	0.2	5.4	1.8	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
31.17	10.0	8.1	-	0.2	5.4	1.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
31.33	9.3	7.4	-	0.1	8.5	1.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.50	10.2	8.1	-	0.2	11.2	2.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(479).cpt
CPT Date: 12/10/2008 7:19:53 AM
GW During Test: 12 ft

Sounding ID: CPT-08-68
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	12.5	9.9	-	0.2	13.9	2.3	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
31.83	33.4	28.9	49.1	0.1	12.1	0.4	5	silty SAND to sandy SILT	120	4.0	7	8	26	34	-	16
31.99	41.1	35.5	48.4	0.1	0.0	0.3	6	clean SAND to silty SAND	125	5.0	7	8	33	35	-	16
32.15	31.4	27.1	60.1	0.3	0.2	0.9	5	silty SAND to sandy SILT	120	4.0	7	8	24	34	-	16
32.32	17.9	14.0	-	0.2	0.6	1.4	4	clayy SILT to silty CLAY	115	2.0	7	9	-	-	1.2	15
32.48	10.8	8.4	-	0.1	2.0	1.6	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.65	9.8	7.7	-	0.1	5.5	1.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
32.81	10.7	8.3	-	0.2	8.1	2.3	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
32.97	12.2	9.5	-	0.2	10.5	1.8	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
33.14	11.9	9.2	-	0.3	12.4	2.6	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
33.30	20.8	16.0	-	0.2	18.2	1.3	4	clayy SILT to silty CLAY	115	2.0	8	10	-	-	1.4	15
33.47	51.3	43.7	67.0	0.4	7.7	0.7	5	silty SAND to sandy SILT	120	4.0	11	13	40	37	-	16
33.63	56.1	47.6	79.0	0.6	6.4	1.1	5	silty SAND to sandy SILT	120	4.0	12	14	43	37	-	16
33.79	45.4	38.5	77.1	0.5	6.1	1.3	5	silty SAND to sandy SILT	120	4.0	10	11	35	36	-	16
33.96	44.5	37.7	68.5	0.4	2.4	0.9	5	silty SAND to sandy SILT	120	4.0	9	11	35	36	-	16
34.12	59.9	50.6	77.2	0.5	-3.4	0.9	5	silty SAND to sandy SILT	120	4.0	13	15	44	37	-	16
34.29	70.1	59.1	80.3	0.5	-5.5	0.8	6	clean SAND to silty SAND	125	5.0	12	14	50	38	-	16
34.45	80.1	67.4	83.9	0.5	-5.8	0.7	6	clean SAND to silty SAND	125	5.0	13	16	54	39	-	16
34.61	81.1	68.1	87.9	0.6	-5.2	0.8	6	clean SAND to silty SAND	125	5.0	14	16	54	39	-	16
34.78	88.4	74.1	97.3	0.8	-4.3	1.0	6	clean SAND to silty SAND	125	5.0	15	18	57	39	-	16
34.94	97.3	81.4	102.7	0.9	2.5	0.9	6	clean SAND to silty SAND	125	5.0	16	19	60	40	-	16
35.11	107.9	90.1	112.9	1.1	2.0	1.0	6	clean SAND to silty SAND	125	5.0	18	22	64	41	-	16
35.27	114.2	95.2	118.3	1.2	0.3	1.1	6	clean SAND to silty SAND	125	5.0	19	23	65	41	-	16
35.43	116.1	96.6	123.7	1.4	1.6	1.2	6	clean SAND to silty SAND	125	5.0	19	23	66	41	-	16
35.60	110.3	91.6	124.9	1.5	3.5	1.4	5	silty SAND to sandy SILT	120	4.0	23	28	64	41	-	16
35.76	96.0	79.5	124.9	1.7	4.5	1.8	5	silty SAND to sandy SILT	120	4.0	20	24	59	40	-	16
35.93	74.7	61.8	138.8	2.1	5.5	2.9	5	silty SAND to sandy SILT	120	4.0	15	19	51	38	-	16
36.09	50.7	41.8	124.6	1.5	6.9	3.2	4	clayy SILT to silty CLAY	115	2.0	21	25	-	-	3.5	15
36.26	85.9	70.8	113.8	1.4	6.8	1.7	5	silty SAND to sandy SILT	120	4.0	18	21	56	39	-	16
36.42	131.0	107.8	129.4	1.4	5.0	1.1	6	clean SAND to silty SAND	125	5.0	22	26	69	41	-	16
36.58	150.5	123.7	143.4	1.6	4.9	1.1	6	clean SAND to silty SAND	125	5.0	25	30	74	42	-	16
36.75	147.4	120.9	143.3	1.7	5.2	1.2	6	clean SAND to silty SAND	125	5.0	24	29	73	42	-	16
36.91	143.0	117.1	139.4	1.6	5.4	1.1	6	clean SAND to silty SAND	125	5.0	23	29	72	42	-	16
37.08	140.0	114.4	133.6	1.4	5.6	1.0	6	clean SAND to silty SAND	125	5.0	23	28	71	42	-	16
37.24	118.3	96.5	122.8	1.4	5.5	1.2	6	clean SAND to silty SAND	125	5.0	19	24	66	41	-	16
37.40	94.4	76.9	116.0	1.4	5.7	1.5	5	silty SAND to sandy SILT	120	4.0	19	24	58	39	-	16
37.57	62.9	51.1	112.9	1.4	5.7	2.3	5	silty SAND to sandy SILT	120	4.0	13	16	45	37	-	16
37.73	30.1	21.0	-	1.1	6.0	3.8	3	silty CLAY to CLAY	115	1.5	14	20	-	-	2.0	15
37.90	19.0	13.2	-	0.6	10.2	3.6	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
38.06	14.4	10.0	-	0.3	16.7	2.5	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.9	15
38.22	13.5	9.3	-	0.2	21.9	1.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
38.39	13.2	9.1	-	0.2	25.5	2.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
38.55	14.0	9.6	-	0.3	45.2	2.2	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
38.72	16.7	11.5	-	0.5	51.5	3.8	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
38.88	38.0	30.5	67.7	0.4	36.3	1.1	5	silty SAND to sandy SILT	120	4.0	8	9	28	34	-	16
39.04	52.1	41.8	57.8	0.2	1.0	0.4	6	clean SAND to silty SAND	125	5.0	8	10	38	36	-	16
39.21	29.1	19.7	-	0.4	-4.3	1.5	4	clayy SILT to silty CLAY	115	2.0	10	15	-	-	2.0	15
39.37	13.4	9.1	-	0.4	20.7	3.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
39.54	13.9	9.4	-	0.2	23.5	1.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
39.70	13.5	9.1	-	0.2	23.7	1.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
39.86	13.2	8.8	-	0.2	26.4	2.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
40.03	15.1	10.1	-	0.3	30.5	2.0	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
40.19	14.0	9.4	-	0.3	31.4	2.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
40.36	13.9	9.3	-	0.4	35.7	3.5	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
40.52	14.9	9.9	-	0.6	36.0	4.5	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
40.68	18.9	12.5	-	0.6	37.7	3.9	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.2	15
40.85	27.7	18.3	-	0.6	39.1	2.5	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.9	15
41.01	150.7	118.7	124.5	0.9	10.7	0.6	6	clean SAND to silty SAND	125	5.0	24	30	73	42	-	16
41.18	176.1	138.5	142.3	1.1	5.4	0.6	6	clean SAND to silty SAND	125	5.0	28	35	78	42	-	16
41.34	191.0	150.0	152.1	1.2	5.4	0.7	6	clean SAND to silty SAND	125	5.0	30	38	80	43	-	16
41.50	193.6	151.8	156.4	1.4	5.2	0.7	6	clean SAND to silty SAND	125	5.0	30	39	81	43	-	16
41.67	195.1	152.7	160.4	1.6	5.3	0.8	6	clean SAND to silty SAND	125	5.0	31	39	81	43	-	16
41.83	194.9	152.3	160.4	1.6	5.4	0.8	6	clean SAND to silty SAND	125	5.0	30	39	81	43	-	16
42.00	194.6	151.8	159.9	1.6	6.0	0.8	6	clean SAND to silty SAND	125	5.0	30	39	81	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(479).cpt
CPT Date: 12/10/2008 7:19:53 AM
GW During Test: 12 ft

Sounding ID: CPT-08-68
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	204.4	159.2	164.0	1.6	5.6	0.8	6	clean SAND to silty SAND	125	5.0	32	41	82	43	-	16
42.32	207.8	161.5	164.3	1.5	5.5	0.7	6	clean SAND to silty SAND	125	5.0	32	42	83	43	-	16
42.49	207.6	161.1	161.9	1.4	5.6	0.7	6	clean SAND to silty SAND	125	5.0	32	42	83	43	-	16
42.65	204.1	158.2	158.2	1.3	5.7	0.7	6	clean SAND to silty SAND	125	5.0	32	41	82	43	-	16
42.82	197.4	152.7	152.7	1.0	5.9	0.5	6	clean SAND to silty SAND	125	5.0	31	39	81	43	-	16
42.98	187.3	144.7	144.7	0.9	6.4	0.5	6	clean SAND to silty SAND	125	5.0	29	37	79	42	-	16
43.15	184.8	142.5	142.5	0.9	6.2	0.5	6	clean SAND to silty SAND	125	5.0	29	37	79	42	-	16
43.31	187.1	144.1	144.1	0.9	6.2	0.5	6	clean SAND to silty SAND	125	5.0	29	37	79	42	-	16
43.47	180.1	138.4	140.7	1.1	6.3	0.6	6	clean SAND to silty SAND	125	5.0	28	36	78	42	-	16
43.64	169.0	129.7	138.1	1.2	6.4	0.7	6	clean SAND to silty SAND	125	5.0	26	34	76	42	-	16
43.80	154.7	118.6	133.1	1.3	6.7	0.9	6	clean SAND to silty SAND	125	5.0	24	31	73	41	-	16
43.97	150.5	115.1	135.5	1.6	6.9	1.1	6	clean SAND to silty SAND	125	5.0	23	30	72	41	-	16
44.13	149.2	114.0	138.0	1.7	6.6	1.2	6	clean SAND to silty SAND	125	5.0	23	30	71	41	-	16
44.29	144.3	110.1	136.3	1.8	6.6	1.2	6	clean SAND to silty SAND	125	5.0	22	29	70	41	-	16
44.46	130.6	99.4	129.7	1.7	6.3	1.3	6	clean SAND to silty SAND	125	5.0	20	26	67	40	-	16
44.62	102.3	77.8	119.3	1.6	6.8	1.6	5	silty SAND to sandy SILT	120	4.0	19	26	59	39	-	16
44.79	67.6	51.3	115.4	1.5	6.8	2.3	5	silty SAND to sandy SILT	120	4.0	13	17	45	37	-	16
44.95	42.5	25.9	-	1.2	6.6	2.9	4	clayy SILT to silty CLAY	115	2.0	13	21	-	-	2.9	15
45.11	23.4	14.2	-	0.6	6.2	2.8	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
45.28	16.8	10.2	-	0.3	10.4	2.1	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
45.44	14.9	9.0	-	0.3	14.2	2.2	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
45.61	20.5	12.3	-	0.3	19.5	1.5	4	clayy SILT to silty CLAY	115	2.0	6	10	-	-	1.3	15
45.77	31.9	24.0	61.2	0.3	22.1	1.0	5	silty SAND to sandy SILT	120	4.0	6	8	20	32	-	16
45.93	24.8	14.9	-	0.3	6.9	1.2	4	clayy SILT to silty CLAY	115	2.0	7	12	-	-	1.7	15
46.10	15.3	9.2	-	0.1	7.1	0.4	4	clayy SILT to silty CLAY	115	2.0	5	8	-	-	1.0	15
46.26	10.7	6.4	-	0.0	11.0	0.1	1	sensitive fine SOIL	115	2.0	3	5	-	-	0.7	15
46.43	9.8	5.8	-	0.1	15.0	1.7	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
46.59	19.4	11.5	-	0.3	18.9	1.6	4	clayy SILT to silty CLAY	115	2.0	6	10	-	-	1.3	15
46.75	66.2	49.5	68.2	0.4	19.3	0.6	6	clean SAND to silty SAND	125	5.0	10	13	44	36	-	16
46.92	95.4	71.2	82.5	0.5	2.9	0.5	6	clean SAND to silty SAND	125	5.0	14	19	56	38	-	16
47.08	90.6	67.5	84.0	0.6	5.5	0.7	6	clean SAND to silty SAND	125	5.0	13	18	54	38	-	16
47.25	83.8	62.3	81.6	0.6	7.4	0.7	6	clean SAND to silty SAND	125	5.0	12	17	51	38	-	16
47.41	76.3	56.7	103.8	1.3	9.0	1.7	5	silty SAND to sandy SILT	120	4.0	14	19	48	37	-	16
47.57	70.6	52.4	110.2	1.4	12.1	2.1	5	silty SAND to sandy SILT	120	4.0	13	18	46	36	-	16
47.74	133.4	98.8	119.8	1.3	12.3	1.0	6	clean SAND to silty SAND	125	5.0	20	27	67	40	-	16
47.90	193.6	143.2	149.8	1.4	0.0	0.7	6	clean SAND to silty SAND	125	5.0	29	39	79	42	-	16
48.07	199.7	147.4	155.8	1.6	0.4	0.8	6	clean SAND to silty SAND	125	5.0	29	40	80	42	-	16
48.23	192.5	142.0	152.6	1.6	1.4	0.9	6	clean SAND to silty SAND	125	5.0	28	39	79	42	-	16
48.39	174.8	128.7	143.6	1.6	2.3	0.9	6	clean SAND to silty SAND	125	5.0	26	35	75	41	-	16
48.56	151.9	111.7	131.4	1.5	3.2	1.0	6	clean SAND to silty SAND	125	5.0	22	30	71	41	-	16
48.72	130.9	96.1	128.8	1.8	4.2	1.4	5	silty SAND to sandy SILT	120	4.0	24	33	66	40	-	16
48.89	130.4	95.6	135.5	2.1	5.4	1.7	5	silty SAND to sandy SILT	120	4.0	24	33	66	40	-	16
49.05	176.6	129.3	146.9	1.8	-1.8	1.0	6	clean SAND to silty SAND	125	5.0	26	35	75	41	-	16
49.22	187.8	137.3	152.8	1.8	-6.6	1.0	6	clean SAND to silty SAND	125	5.0	27	38	77	42	-	16
49.38	180.0	131.4	149.6	1.9	-6.7	1.1	6	clean SAND to silty SAND	125	5.0	26	36	76	41	-	16
49.54	170.4	124.2	144.3	1.8	-6.1	1.1	6	clean SAND to silty SAND	125	5.0	25	34	74	41	-	16
49.71	155.9	113.5	135.6	1.7	5.5	1.1	6	clean SAND to silty SAND	125	5.0	23	31	71	41	-	16
49.87	146.9	106.8	133.5	1.8	6.5	1.3	6	clean SAND to silty SAND	125	5.0	21	29	69	40	-	16
50.04	144.0	104.5	133.5	1.9	7.3	1.3	6	clean SAND to silty SAND	125	5.0	21	29	68	40	-	16
50.20	161.8	117.3	138.5	1.7	7.8	1.1	6	clean SAND to silty SAND	125	5.0	23	32	72	41	-	16
50.36	164.5	119.1	142.6	1.9	-2.2	1.2	6	clean SAND to silty SAND	125	5.0	24	33	73	41	-	16
50.53	162.4	117.4	143.0	2.0	-2.6	1.3	6	clean SAND to silty SAND	125	5.0	23	32	72	41	-	16
50.69	158.6	114.5	144.5	2.2	-1.9	1.4	6	clean SAND to silty SAND	125	5.0	23	32	71	41	-	16
50.86	144.0	103.8	138.1	2.1	-1.1	1.5	5	silty SAND to sandy SILT	120	4.0	26	36	68	40	-	16
51.02	117.3	84.4	125.6	1.9	-0.5	1.7	5	silty SAND to sandy SILT	120	4.0	21	29	61	39	-	16
51.18	117.1	84.2	110.4	1.3	0.1	1.1	6	clean SAND to silty SAND	125	5.0	17	23	61	39	-	16
51.35	103.6	74.4	103.1	1.2	-3.6	1.2	5	silty SAND to sandy SILT	120	4.0	19	26	57	38	-	16
51.51	99.7	71.5	100.5	1.1	-4.9	1.1	5	silty SAND to sandy SILT	120	4.0	18	25	56	38	-	16
51.68	97.8	70.0	110.8	1.5	-5.4	1.6	5	silty SAND to sandy SILT	120	4.0	18	24	55	38	-	16
51.84	76.7	54.8	115.6	1.6	-5.8	2.2	5	silty SAND to sandy SILT	120	4.0	14	19	47	36	-	16
52.00	69.5	49.6	90.2	0.9	-4.1	1.4	5	silty SAND to sandy SILT	120	4.0	12	17	44	36	-	16
52.17	45.9	32.8	87.3	0.8	-6.4	1.8	5	silty SAND to sandy SILT	120	4.0	8	11	30	33	-	16
52.33	26.6	14.3	-	0.6	-6.5	2.7	3	silty CLAY to CLAY	115	1.5	10	18	-	-	1.8	15
52.50	18.8	10.1	-	0.4	-6.0	2.4	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.2	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(479).cpt
CPT Date: 12/10/2008 7:19:53 AM
GW During Test: 12 ft

Sounding ID: CPT-08-68
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	20.3	10.9	-	0.1	-5.4	0.7	4	clayy SILT to silty CLAY	115	2.0	5	10	-	-	1.3	15
52.82	20.4	10.9	-	0.3	-5.1	1.8	4	clayy SILT to silty CLAY	115	2.0	5	10	-	-	1.3	15
52.99	22.1	11.8	-	0.5	-4.7	2.4	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.4	15
53.15	56.1	39.7	105.0	1.2	-4.7	2.3	5	silty SAND to sandy SILT	120	4.0	10	14	37	34	-	16
53.32	34.9	18.5	-	1.2	-4.6	3.7	3	silty CLAY to CLAY	115	1.5	12	23	-	-	2.4	15
53.48	55.2	39.0	105.3	1.2	-3.8	2.4	4	clayy SILT to silty CLAY	115	2.0	19	28	-	-	3.8	15
53.64	133.5	94.2	116.9	1.4	-3.9	1.0	6	clean SAND to silty SAND	125	5.0	19	27	65	39	-	16
53.81	162.7	114.7	132.1	1.5	-3.7	1.0	6	clean SAND to silty SAND	125	5.0	23	33	72	41	-	16
53.97	170.0	119.7	136.4	1.6	-3.4	1.0	6	clean SAND to silty SAND	125	5.0	24	34	73	41	-	16
54.14	176.5	124.0	142.7	1.8	-3.0	1.0	6	clean SAND to silty SAND	125	5.0	25	35	74	41	-	16
54.30	188.5	132.3	153.5	2.2	-2.6	1.2	6	clean SAND to silty SAND	125	5.0	26	38	76	41	-	16
54.46	197.7	138.6	159.0	2.3	-2.3	1.2	6	clean SAND to silty SAND	125	5.0	28	40	78	41	-	16
54.63	199.3	139.5	160.9	2.3	8.6	1.2	6	clean SAND to silty SAND	125	5.0	28	40	78	42	-	16
54.79	196.1	137.1	161.9	2.5	8.3	1.3	6	clean SAND to silty SAND	125	5.0	27	39	77	41	-	16
54.96	184.9	129.1	153.6	2.3	8.3	1.3	6	clean SAND to silty SAND	125	5.0	26	37	75	41	-	16
55.12	180.2	125.7	147.9	2.1	8.3	1.2	6	clean SAND to silty SAND	125	5.0	25	36	75	41	-	16
55.28	194.6	135.5	148.4	1.7	8.6	0.9	6	clean SAND to silty SAND	125	5.0	27	39	77	41	-	16
55.45	206.5	143.6	143.6	1.1	7.4	0.6	6	clean SAND to silty SAND	125	5.0	29	41	79	42	-	16
55.61	215.8	149.9	157.9	1.7	7.1	0.8	6	clean SAND to silty SAND	125	5.0	30	43	80	42	-	16
55.78	212.2	147.2	147.2	1.2	7.0	0.6	6	clean SAND to silty SAND	125	5.0	29	42	80	42	-	16
55.94	171.9	119.1	136.0	1.6	7.5	1.0	6	clean SAND to silty SAND	125	5.0	24	34	73	41	-	16
56.11	144.6	100.0	123.9	1.6	8.2	1.1	6	clean SAND to silty SAND	125	5.0	20	29	67	40	-	16
56.27	116.8	80.7	115.4	1.6	9.5	1.4	5	silty SAND to sandy SILT	120	4.0	20	29	60	38	-	16
56.43	110.7	76.4	112.8	1.5	10.6	1.4	5	silty SAND to sandy SILT	120	4.0	19	28	58	38	-	16
56.60	130.6	90.0	118.1	1.5	11.4	1.2	6	clean SAND to silty SAND	125	5.0	18	26	64	39	-	16
56.76	127.6	87.8	123.0	1.8	9.5	1.5	5	silty SAND to sandy SILT	120	4.0	22	32	63	39	-	16
56.93	75.5	51.9	122.7	1.9	6.4	2.6	5	silty SAND to sandy SILT	120	4.0	13	19	45	36	-	16
57.09	43.2	21.6	-	1.8	8.9	4.6	3	silty CLAY to CLAY	115	1.5	14	29	-	-	2.9	15
57.25	34.7	17.3	-	1.3	15.7	4.3	3	silty CLAY to CLAY	115	1.5	12	23	-	-	2.3	15
57.42	30.3	15.1	-	1.1	31.1	4.2	3	silty CLAY to CLAY	115	1.5	10	20	-	-	2.0	15
57.58	72.2	49.4	95.5	1.1	33.4	1.6	5	silty SAND to sandy SILT	120	4.0	12	18	44	35	-	16
57.75	96.2	65.8	98.0	1.1	11.6	1.2	5	silty SAND to sandy SILT	120	4.0	16	24	53	37	-	16
57.91	114.2	78.0	93.9	0.8	4.6	0.7	6	clean SAND to silty SAND	125	5.0	16	23	59	38	-	16
58.07	117.2	79.9	99.9	1.0	-2.2	0.9	6	clean SAND to silty SAND	125	5.0	16	23	60	38	-	16
58.24	87.3	59.5	100.5	1.3	-3.7	1.5	5	silty SAND to sandy SILT	120	4.0	15	22	50	37	-	16
58.40	51.4	25.2	-	1.3	-3.3	2.7	4	clayy SILT to silty CLAY	115	2.0	13	26	-	-	3.5	15
58.57	31.8	15.6	-	0.9	-2.5	3.1	3	silty CLAY to CLAY	115	1.5	10	21	-	-	2.1	15
58.73	26.2	12.8	-	0.5	-1.5	2.1	4	clayy SILT to silty CLAY	115	2.0	6	13	-	-	1.7	15
58.89	22.9	11.2	-	0.4	0.0	2.2	3	silty CLAY to CLAY	115	1.5	7	15	-	-	1.5	15
59.06	20.9	10.2	-	0.5	1.1	2.8	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.4	15
59.22	61.1	41.3	69.1	0.5	2.4	0.8	5	silty SAND to sandy SILT	120	4.0	10	15	38	34	-	16
59.39	160.0	108.1	108.1	0.5	2.2	0.3	6	clean SAND to silty SAND	125	5.0	22	32	70	40	-	16
59.55	199.9	135.0	135.0	0.7	3.3	0.4	6	clean SAND to silty SAND	125	5.0	27	40	77	41	-	16
59.71	227.6	153.5	153.5	0.8	4.6	0.4	6	clean SAND to silty SAND	125	5.0	31	46	81	42	-	16
59.88	251.1	169.1	169.1	1.1	5.9	0.4	6	clean SAND to silty SAND	125	5.0	34	50	84	42	-	16
60.04	273.6	184.0	184.0	1.4	7.0	0.5	6	clean SAND to silty SAND	125	5.0	37	55	87	43	-	16
60.21	281.5	189.1	189.1	1.6	8.0	0.6	6	clean SAND to silty SAND	125	5.0	38	56	88	43	-	16
60.37	294.0	197.3	197.3	1.8	8.9	0.6	6	clean SAND to silty SAND	125	5.0	39	59	89	43	-	16
60.53	316.9	212.4	212.4	1.7	9.8	0.5	6	clean SAND to silty SAND	125	5.0	42	63	92	43	-	16
60.70	337.1	225.7	225.7	1.6	10.4	0.5	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
60.86	346.8	231.9	231.9	1.3	11.4	0.4	6	clean SAND to silty SAND	125	5.0	46	69	95	44	-	16
61.03	347.2	231.9	231.9	1.5	12.4	0.4	6	clean SAND to silty SAND	125	5.0	46	69	95	44	-	16
61.19	360.9	240.7	240.7	1.9	14.0	0.5	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
61.35	376.0	250.4	250.4	2.3	13.4	0.6	6	clean SAND to silty SAND	125	5.0	50	75	95	44	-	16
61.52	393.5	261.8	261.8	2.3	13.5	0.6	6	clean SAND to silty SAND	125	5.0	52	79	95	44	-	16
61.68	418.8	278.3	278.3	2.5	13.4	0.6	6	clean SAND to silty SAND	125	5.0	56	84	95	45	-	16
61.85	402.7	267.3	267.3	2.1	12.2	0.5	6	clean SAND to silty SAND	125	5.0	53	81	95	44	-	16
62.01	388.8	257.7	257.7	2.0	11.2	0.5	6	clean SAND to silty SAND	125	5.0	52	78	95	44	-	16
62.17	386.1	255.7	255.7	2.2	10.9	0.6	6	clean SAND to silty SAND	125	5.0	51	77	95	44	-	16
62.34	400.1	264.6	264.6	1.9	11.3	0.5	6	clean SAND to silty SAND	125	5.0	53	80	95	44	-	16
62.50	398.1	263.0	263.0	1.8	11.9	0.4	6	clean SAND to silty SAND	125	5.0	53	80	95	44	-	16
62.67	387.4	255.6	255.6	1.2	11.9	0.3	7	grvly SAND to dense SAND	130	6.0	43	65	95	44	-	16
62.83	371.6	244.9	244.9	0.8	11.7	0.2	7	grvly SAND to dense SAND	130	6.0	41	62	95	44	-	16
63.00	379.0	249.4	249.4	1.3	12.3	0.3	7	grvly SAND to dense SAND	130	6.0	42	63	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
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Project ID: Earth Mechanics
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Sounding ID: CPT-08-68
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	394.0	259.0	259.0	1.5	11.6	0.4	6	clean SAND to silty SAND	125	5.0	52	79	95	44	-	16
63.32	389.3	255.6	255.6	1.9	11.8	0.5	6	clean SAND to silty SAND	125	5.0	51	78	95	44	-	16
63.49	397.1	260.4	260.4	2.0	12.1	0.5	6	clean SAND to silty SAND	125	5.0	52	79	95	44	-	16
63.65	426.0	279.0	279.0	1.4	12.3	0.3	7	grvly SAND to dense SAND	130	6.0	47	71	95	45	-	16
63.82	418.4	273.7	273.7	1.4	13.0	0.3	7	grvly SAND to dense SAND	130	6.0	46	70	95	44	-	16
63.98	418.8	273.6	273.6	1.3	12.1	0.3	7	grvly SAND to dense SAND	130	6.0	46	70	95	44	-	16
64.14	418.5	273.1	273.1	1.2	12.4	0.3	7	grvly SAND to dense SAND	130	6.0	46	70	95	44	-	16
64.31	427.9	278.9	278.9	1.2	12.5	0.3	7	grvly SAND to dense SAND	130	6.0	46	71	95	44	-	16
64.47	433.0	281.9	281.9	1.4	15.5	0.3	7	grvly SAND to dense SAND	130	6.0	47	72	95	45	-	16
64.64	428.8	278.8	278.8	1.3	14.0	0.3	7	grvly SAND to dense SAND	130	6.0	46	71	95	44	-	16
64.80	427.9	277.8	277.8	1.1	15.5	0.3	7	grvly SAND to dense SAND	130	6.0	46	71	95	44	-	16
64.96	411.9	267.1	267.1	0.8	12.5	0.2	7	grvly SAND to dense SAND	130	6.0	45	69	95	44	-	16
65.13	397.8	257.7	257.7	1.0	12.8	0.3	7	grvly SAND to dense SAND	130	6.0	43	66	95	44	-	16
65.29	383.0	247.8	247.8	1.0	12.2	0.3	7	grvly SAND to dense SAND	130	6.0	41	64	95	44	-	16
65.46	359.4	232.2	232.2	1.0	15.1	0.3	7	grvly SAND to dense SAND	130	6.0	39	60	95	44	-	16
65.62	348.2	224.7	224.7	2.0	14.8	0.6	6	clean SAND to silty SAND	125	5.0	45	70	94	43	-	16
65.78	344.6	222.1	222.1	1.6	14.6	0.5	6	clean SAND to silty SAND	125	5.0	44	69	93	43	-	16
65.95	353.8	227.8	227.8	2.0	11.9	0.6	6	clean SAND to silty SAND	125	5.0	46	71	94	43	-	16
66.11	363.0	233.4	233.4	2.4	13.0	0.7	6	clean SAND to silty SAND	125	5.0	47	73	95	44	-	16
66.28	374.3	240.5	240.5	1.4	12.7	0.4	6	clean SAND to silty SAND	125	5.0	48	75	95	44	-	16
66.44	400.8	257.2	257.2	1.8	12.6	0.4	6	clean SAND to silty SAND	125	5.0	51	80	95	44	-	16
66.60	403.8	258.8	258.8	1.4	15.0	0.4	7	grvly SAND to dense SAND	130	6.0	43	67	95	44	-	16
66.77	381.7	244.3	244.3	1.4	15.8	0.4	6	clean SAND to silty SAND	125	5.0	49	76	95	44	-	16
66.93	383.5	245.3	245.3	1.1	15.3	0.3	7	grvly SAND to dense SAND	130	6.0	41	64	95	44	-	16
67.10	364.9	233.0	233.0	1.0	14.9	0.3	7	grvly SAND to dense SAND	130	6.0	39	61	95	43	-	16
67.26	362.4	231.2	231.2	0.9	15.3	0.2	7	grvly SAND to dense SAND	130	6.0	39	60	95	43	-	16
67.42	350.9	223.6	223.6	1.0	15.5	0.3	6	clean SAND to silty SAND	125	5.0	45	70	94	43	-	16
67.59	333.4	212.2	212.2	0.8	16.9	0.3	6	clean SAND to silty SAND	125	5.0	42	67	92	43	-	16
67.75	336.0	213.6	213.6	1.1	16.3	0.3	6	clean SAND to silty SAND	125	5.0	43	67	92	43	-	16
67.92	391.7	248.8	248.8	1.7	14.9	0.4	6	clean SAND to silty SAND	125	5.0	50	78	95	44	-	16
68.08	494.9	314.0	314.0	1.2	16.1	0.3	7	grvly SAND to dense SAND	130	6.0	52	82	95	45	-	16
68.24	481.7	305.2	305.2	1.3	15.2	0.3	7	grvly SAND to dense SAND	130	6.0	51	80	95	45	-	16
68.41	477.1	301.9	301.9	1.1	14.6	0.2	7	grvly SAND to dense SAND	130	6.0	50	80	95	45	-	16
68.57	529.7	334.9	334.9	0.8	14.3	0.2	7	grvly SAND to dense SAND	130	6.0	56	88	95	45	-	16
68.74	536.8	339.0	339.0	1.2	13.6	0.2	7	grvly SAND to dense SAND	130	6.0	56	89	95	45	-	16
68.90	499.7	315.2	315.2	1.2	12.3	0.2	7	grvly SAND to dense SAND	130	6.0	53	83	95	45	-	16
69.07	449.2	283.0	283.0	1.3	12.0	0.3	7	grvly SAND to dense SAND	130	6.0	47	75	95	44	-	16
69.23	397.2	249.9	249.9	1.8	12.9	0.5	6	clean SAND to silty SAND	125	5.0	50	79	95	44	-	16
69.39	386.4	242.8	242.8	1.3	12.6	0.3	6	clean SAND to silty SAND	125	5.0	49	77	95	44	-	16
69.56	366.4	230.1	230.1	1.3	12.4	0.3	6	clean SAND to silty SAND	125	5.0	46	73	95	43	-	16
69.72	362.5	227.4	227.4	1.0	13.7	0.3	7	grvly SAND to dense SAND	130	6.0	38	60	94	43	-	16
69.89	353.7	221.6	221.6	0.8	12.5	0.2	7	grvly SAND to dense SAND	130	6.0	37	59	93	43	-	16
70.05	376.0	235.3	235.3	0.9	13.2	0.3	7	grvly SAND to dense SAND	130	6.0	39	63	95	43	-	16
70.21	391.4	244.6	244.6	0.9	13.5	0.2	7	grvly SAND to dense SAND	130	6.0	41	65	95	44	-	16
70.38	394.9	246.5	246.5	1.3	12.8	0.3	7	grvly SAND to dense SAND	130	6.0	41	66	95	44	-	16
70.54	367.0	228.9	228.9	1.4	12.0	0.4	6	clean SAND to silty SAND	125	5.0	46	73	94	43	-	16
70.71	338.4	210.8	210.8	1.3	14.3	0.4	6	clean SAND to silty SAND	125	5.0	42	68	92	43	-	16
70.87	321.8	200.2	200.2	1.5	18.1	0.5	6	clean SAND to silty SAND	125	5.0	40	64	90	43	-	16
71.03	363.1	225.7	225.7	2.6	17.8	0.7	6	clean SAND to silty SAND	125	5.0	45	73	94	43	-	16
71.20	383.5	238.1	238.1	2.6	15.8	0.7	6	clean SAND to silty SAND	125	5.0	48	77	95	43	-	16
71.36	345.4	214.2	214.2	1.5	16.3	0.4	6	clean SAND to silty SAND	125	5.0	43	69	92	43	-	16
71.53	340.2	210.8	210.8	1.0	16.3	0.3	6	clean SAND to silty SAND	125	5.0	42	68	92	43	-	16
71.69	304.6	188.6	188.6	1.1	16.5	0.4	6	clean SAND to silty SAND	125	5.0	38	61	88	42	-	16
71.85	281.3	174.0	174.0	0.8	15.9	0.3	6	clean SAND to silty SAND	125	5.0	35	56	85	42	-	16
72.02	250.5	154.8	169.9	2.6	15.7	1.0	6	clean SAND to silty SAND	125	5.0	31	50	81	41	-	16
72.18	266.5	164.4	178.7	2.8	15.5	1.1	6	clean SAND to silty SAND	125	5.0	33	53	83	42	-	16
72.35	314.2	193.7	195.2	2.7	13.2	0.9	6	clean SAND to silty SAND	125	5.0	39	63	89	42	-	16
72.51	301.4	185.6	185.7	2.4	16.7	0.8	6	clean SAND to silty SAND	125	5.0	37	60	87	42	-	16
72.67	330.6	203.4	203.4	1.5	17.7	0.5	6	clean SAND to silty SAND	125	5.0	41	66	90	43	-	16
72.84	340.7	209.4	209.4	1.3	15.5	0.4	6	clean SAND to silty SAND	125	5.0	42	68	91	43	-	16
73.00	363.9	223.4	223.4	1.5	15.3	0.4	6	clean SAND to silty SAND	125	5.0	45	73	94	43	-	16
73.17	374.2	229.5	229.5	2.1	11.9	0.6	6	clean SAND to silty SAND	125	5.0	46	75	94	43	-	16
73.33	304.6	186.6	194.2	2.9	13.5	1.0	6	clean SAND to silty SAND	125	5.0	37	61	88	42	-	16
73.49	270.8	165.7	171.7	2.2	18.6	0.8	6	clean SAND to silty SAND	125	5.0	33	54	84	42	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(479).cpt
CPT Date: 12/10/2008 7:19:53 AM
GW During Test: 12 ft

Sounding ID: CPT-08-68
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
73.66	244.4	149.4	157.6	1.9	20.7	0.8	6	clean SAND to silty SAND	125	5.0	30	49	80	41	-	16
73.82	241.6	147.6	156.1	1.9	18.4	0.8	6	clean SAND to silty SAND	125	5.0	30	48	80	41	-	16
73.99	243.5	148.6	155.1	1.8	17.3	0.8	6	clean SAND to silty SAND	125	5.0	30	49	80	41	-	16
74.15	245.5	149.6	158.6	2.0	16.5	0.8	6	clean SAND to silty SAND	125	5.0	30	49	80	41	-	16
74.31	245.4	149.5	158.1	2.0	16.3	0.8	6	clean SAND to silty SAND	125	5.0	30	49	80	41	-	16
74.48	246.7	150.1	169.3	2.8	16.2	1.2	6	clean SAND to silty SAND	125	5.0	30	49	80	41	-	16
74.64	263.8	160.3	171.1	2.4	16.0	0.9	6	clean SAND to silty SAND	125	5.0	32	53	83	41	-	16
74.81	339.5	206.1	211.8	3.4	14.8	1.0	6	clean SAND to silty SAND	125	5.0	41	68	91	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(407).cpt
CPT Date: 11/17/2008 1:30:14 PM
GW During Test: 12 ft

Sounding ID: CPT-08-69
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	263.3	422.3	422.3	0.8	0.0	0.3	7	grvly SAND to dense SAND	130	6.0	70	44	95	48	-	16
0.49	162.6	260.7	260.7	1.2	-0.1	0.8	6	clean SAND to silty SAND	125	5.0	52	33	95	48	-	16
0.66	177.4	284.5	283.8	2.1	-0.1	1.2	6	clean SAND to silty SAND	125	5.0	57	35	95	48	-	16
0.82	169.1	271.1	294.9	2.8	0.0	1.7	6	clean SAND to silty SAND	125	5.0	54	34	95	48	-	16
0.98	157.0	251.8	292.8	3.2	0.1	2.1	6	clean SAND to silty SAND	125	5.0	50	31	95	48	-	16
1.15	151.7	243.2	289.5	3.3	0.0	2.2	6	clean SAND to silty SAND	125	5.0	49	30	95	48	-	16
1.31	167.3	268.3	301.8	3.2	0.1	1.9	6	clean SAND to silty SAND	125	5.0	54	33	95	48	-	16
1.48	199.2	319.5	353.8	4.0	0.1	2.0	6	clean SAND to silty SAND	125	5.0	64	40	95	48	-	16
1.64	267.7	429.3	461.7	5.6	0.4	2.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	17.7	16
1.80	261.2	418.9	470.3	6.4	0.7	2.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	17.3	16
1.97	208.2	333.9	400.7	5.7	0.5	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.8	16
2.13	198.6	318.5	380.7	5.3	0.4	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.1	16
2.30	202.6	324.9	379.0	5.0	0.7	2.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.4	16
2.46	165.6	265.6	359.3	5.6	0.6	3.4	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.0	16
2.62	130.7	209.7	334.4	5.4	1.2	4.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	8.7	16
2.79	116.9	187.4	327.2	5.4	1.0	4.6	9	very stiff fine SOIL	120	2.0	94	58	88	48	-	30
2.95	87.0	139.5	291.5	4.5	0.7	5.1	9	very stiff fine SOIL	120	2.0	70	44	78	48	-	30
3.12	83.1	133.3	255.7	3.6	1.3	4.3	9	very stiff fine SOIL	120	2.0	67	42	76	48	-	30
3.28	86.5	138.8	245.8	3.3	2.1	3.8	8	stiff SAND to clayy SAND	115	1.0	100	87	-	-	5.7	16
3.45	85.7	137.5	272.6	4.0	0.9	4.6	9	very stiff fine SOIL	120	2.0	69	43	78	48	-	30
3.61	102.5	164.4	275.1	4.0	0.8	3.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	6.8	16
3.77	88.3	141.6	253.3	3.5	1.3	4.0	8	stiff SAND to clayy SAND	115	1.0	100	88	-	-	5.8	16
3.94	63.9	102.5	228.4	2.9	1.2	4.5	9	very stiff fine SOIL	120	2.0	51	32	68	46	-	30
4.10	53.7	86.1	245.0	3.2	2.7	5.9	9	very stiff fine SOIL	120	2.0	43	27	62	45	-	30
4.27	97.5	156.4	252.2	3.4	3.6	3.5	8	stiff SAND to clayy SAND	115	1.0	100	98	-	-	6.4	16
4.43	84.5	135.5	260.2	3.7	4.3	4.4	9	very stiff fine SOIL	120	2.0	68	42	77	47	-	30
4.59	78.0	125.1	253.4	3.5	4.2	4.5	9	very stiff fine SOIL	120	2.0	63	39	74	46	-	30
4.76	85.7	137.5	257.3	3.6	3.9	4.2	9	very stiff fine SOIL	120	2.0	69	43	78	47	-	30
4.92	107.5	172.3	309.8	4.9	4.0	4.6	9	very stiff fine SOIL	120	2.0	86	54	85	48	-	30
5.09	162.2	260.1	367.8	6.0	-1.4	3.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.7	16
5.25	148.4	238.0	364.2	6.1	-1.8	4.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	9.8	16
5.41	110.5	177.3	327.4	5.4	-1.9	4.9	9	very stiff fine SOIL	120	2.0	89	55	86	48	-	30
5.58	79.7	127.8	263.1	3.7	-1.2	4.7	9	very stiff fine SOIL	120	2.0	64	40	75	46	-	30
5.74	61.1	98.0	212.5	2.5	-1.5	4.2	9	very stiff fine SOIL	120	2.0	49	31	66	45	-	30
5.91	60.2	96.6	206.7	2.4	-1.7	4.0	4	clayy SILT to silty CLAY	115	2.0	48	30	-	-	4.2	15
6.07	77.1	123.7	249.5	3.4	-1.6	4.4	9	very stiff fine SOIL	120	2.0	62	39	74	46	-	30
6.23	133.5	212.5	315.8	4.8	-1.5	3.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	8.8	16
6.40	109.9	172.7	298.0	4.7	-1.8	4.3	9	very stiff fine SOIL	120	2.0	86	55	85	47	-	30
6.56	109.4	169.8	251.9	3.4	-1.0	3.1	5	silty SAND to sandy SILT	120	4.0	42	27	84	47	-	16
6.73	223.8	343.1	348.5	3.2	0.9	1.4	6	clean SAND to silty SAND	125	5.0	69	45	95	48	-	16
6.89	255.2	386.3	399.5	4.3	-0.3	1.7	6	clean SAND to silty SAND	125	5.0	77	51	95	48	-	16
7.05	199.8	298.7	337.6	4.1	0.0	2.1	6	clean SAND to silty SAND	125	5.0	60	40	95	48	-	16
7.22	152.2	224.9	294.8	4.3	0.2	2.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.1	16
7.38	152.0	222.1	282.9	3.9	0.6	2.6	5	silty SAND to sandy SILT	120	4.0	56	38	93	48	-	16
7.55	122.3	176.8	244.3	3.3	0.4	2.7	5	silty SAND to sandy SILT	120	4.0	44	31	86	47	-	16
7.71	83.8	119.8	215.0	2.9	0.2	3.5	5	silty SAND to sandy SILT	120	4.0	30	21	73	45	-	16
7.87	58.2	82.4	207.0	2.7	-0.1	4.6	4	clayy SILT to silty CLAY	115	2.0	41	29	-	-	4.1	15
8.04	50.9	71.3	186.5	2.2	0.3	4.4	4	clayy SILT to silty CLAY	115	2.0	36	25	-	-	3.6	15
8.20	54.7	75.9	165.1	1.8	0.8	3.4	4	clayy SILT to silty CLAY	115	2.0	38	27	-	-	3.8	15
8.37	70.8	97.3	161.5	1.8	-0.3	2.5	5	silty SAND to sandy SILT	120	4.0	24	18	66	44	-	16
8.53	52.7	71.8	129.8	1.2	-0.1	2.2	5	silty SAND to sandy SILT	120	4.0	18	13	56	43	-	16
8.69	39.6	53.3	146.3	1.4	0.1	3.6	4	clayy SILT to silty CLAY	115	2.0	27	20	-	-	2.8	15
8.86	37.7	50.3	149.4	1.5	-1.3	3.9	4	clayy SILT to silty CLAY	115	2.0	25	19	-	-	2.6	15
9.02	32.6	49.4	157.3	1.4	-1.9	4.4	4	clayy SILT to silty CLAY	115	2.0	25	16	-	-	2.3	15
9.19	28.9	46.3	-	1.3	-2.5	4.5	4	clayy SILT to silty CLAY	115	2.0	23	14	-	-	2.0	15
9.35	25.9	41.5	-	1.2	-1.5	4.8	4	clayy SILT to silty CLAY	115	2.0	21	13	-	-	1.8	15
9.51	28.2	41.2	-	1.2	-1.4	4.2	4	clayy SILT to silty CLAY	115	2.0	21	14	-	-	2.0	15
9.68	29.3	42.3	139.9	1.1	-1.3	4.0	4	clayy SILT to silty CLAY	115	2.0	21	15	-	-	2.0	15
9.84	34.0	43.1	129.9	1.1	-1.3	3.4	4	clayy SILT to silty CLAY	115	2.0	22	17	-	-	2.4	15
10.01	43.9	55.2	133.0	1.3	-1.0	3.0	4	clayy SILT to silty CLAY	115	2.0	28	22	-	-	3.1	15
10.17	39.0	48.7	133.6	1.3	-0.3	3.3	4	clayy SILT to silty CLAY	115	2.0	24	19	-	-	2.7	15
10.34	27.8	44.6	-	1.3	-0.3	4.6	4	clayy SILT to silty CLAY	115	2.0	22	14	-	-	1.9	15
10.50	24.4	39.1	-	1.2	0.5	5.3	3	silty CLAY to CLAY	115	1.5	26	16	-	-	1.7	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Earth Mechanics
Data File: SDF(407).cpt
CPT Date: 11/17/2008 1:30:14 PM
GW During Test: 12 ft

Sounding ID: CPT-08-69
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	26.1	41.2	-	1.3	0.8	5.1	3	silty CLAY to CLAY	115	1.5	27	17	-	-	1.8	15
10.83	31.2	41.9	-	1.4	1.1	4.5	4	clayy SILT to silty CLAY	115	2.0	21	16	-	-	2.2	15
10.99	29.1	44.7	-	1.5	1.1	5.3	3	silty CLAY to CLAY	115	1.5	30	19	-	-	2.0	15
11.16	27.0	40.9	-	1.4	1.0	5.2	3	silty CLAY to CLAY	115	1.5	27	18	-	-	1.9	15
11.32	22.1	33.0	-	1.2	0.7	5.6	3	silty CLAY to CLAY	115	1.5	22	15	-	-	1.5	15
11.48	15.1	22.2	-	1.0	0.4	6.7	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.0	15
11.65	16.6	24.1	-	0.8	0.5	5.3	3	silty CLAY to CLAY	115	1.5	16	11	-	-	1.1	15
11.81	19.5	28.0	-	0.9	-0.3	4.7	3	silty CLAY to CLAY	115	1.5	19	13	-	-	1.4	15
11.98	17.0	24.0	-	0.8	-1.2	4.9	3	silty CLAY to CLAY	115	1.5	16	11	-	-	1.2	15
12.14	11.0	15.5	-	0.6	-1.3	6.1	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.7	15
12.30	8.8	12.3	-	0.5	-1.1	6.4	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
12.47	8.8	12.2	-	0.5	-1.0	5.6	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
12.63	7.6	10.4	-	0.5	-0.9	6.9	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
12.80	21.1	25.8	-	0.5	-0.7	2.6	4	clayy SILT to silty CLAY	115	2.0	13	11	-	-	1.5	15
12.96	17.7	24.1	-	0.5	-1.2	2.7	4	clayy SILT to silty CLAY	115	2.0	12	9	-	-	1.2	15
13.12	9.9	13.5	-	0.5	-1.4	5.4	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
13.29	8.8	11.9	-	0.6	-0.9	6.8	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
13.45	7.6	10.2	-	0.4	-0.8	6.3	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
13.62	6.0	8.0	-	0.4	-0.5	8.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
13.78	6.1	8.1	-	0.4	-0.3	8.2	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
13.94	6.1	8.0	-	0.5	-0.2	8.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.11	6.2	8.1	-	0.5	-0.1	9.8	2	Organic SOILS - Peats	100	1.0	8	6	-	-	0.6	10
14.27	14.5	19.0	-	0.4	-0.1	3.2	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.0	15
14.44	15.5	20.1	-	0.4	-0.7	2.9	4	clayy SILT to silty CLAY	115	2.0	10	8	-	-	1.1	15
14.60	34.5	38.1	79.1	0.5	-1.1	1.4	5	silty SAND to sandy SILT	120	4.0	10	9	35	38	-	16
14.76	50.7	55.8	81.6	0.5	-2.7	0.9	5	silty SAND to sandy SILT	120	4.0	14	13	48	41	-	16
14.93	59.1	64.7	89.7	0.6	-2.5	1.0	5	silty SAND to sandy SILT	120	4.0	16	15	53	41	-	16
15.09	60.9	66.6	98.7	0.8	-0.8	1.3	5	silty SAND to sandy SILT	120	4.0	17	15	54	41	-	16
15.26	68.0	74.1	104.4	0.8	-0.9	1.2	5	silty SAND to sandy SILT	120	4.0	19	17	57	42	-	16
15.42	69.4	75.4	107.8	0.9	-0.8	1.3	5	silty SAND to sandy SILT	120	4.0	19	17	58	42	-	16
15.58	67.4	73.0	108.1	0.9	-0.4	1.4	5	silty SAND to sandy SILT	120	4.0	18	17	57	42	-	16
15.75	61.4	66.3	105.6	0.9	-0.4	1.5	5	silty SAND to sandy SILT	120	4.0	17	15	53	41	-	16
15.91	57.8	62.2	99.3	0.8	-0.3	1.4	5	silty SAND to sandy SILT	120	4.0	16	14	51	41	-	16
16.08	56.5	60.7	96.6	0.8	-0.4	1.4	5	silty SAND to sandy SILT	120	4.0	15	14	50	41	-	16
16.24	56.3	60.3	95.4	0.7	-0.5	1.3	5	silty SAND to sandy SILT	120	4.0	15	14	50	41	-	16
16.40	60.6	64.7	99.0	0.8	-1.0	1.3	5	silty SAND to sandy SILT	120	4.0	16	15	53	41	-	16
16.57	58.9	62.7	96.5	0.7	-1.4	1.3	5	silty SAND to sandy SILT	120	4.0	16	15	52	41	-	16
16.73	55.7	59.2	93.9	0.7	-1.7	1.3	5	silty SAND to sandy SILT	120	4.0	15	14	50	40	-	16
16.90	45.0	47.7	80.7	0.5	-4.6	1.2	5	silty SAND to sandy SILT	120	4.0	12	11	43	39	-	16
17.06	27.1	28.6	83.1	0.5	-5.4	1.9	4	clayy SILT to silty CLAY	115	2.0	14	14	-	-	1.9	15
17.23	12.8	15.1	-	0.3	-6.1	2.9	3	silty CLAY to CLAY	115	1.5	10	9	-	-	0.9	15
17.39	8.4	9.8	-	0.3	-5.9	3.4	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
17.55	6.0	7.0	-	0.2	-5.6	3.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.72	6.0	7.0	-	0.2	-5.1	3.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.88	6.3	7.2	-	0.3	-4.7	5.2	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
18.05	10.1	11.6	-	0.4	-4.3	4.0	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
18.21	42.4	43.9	80.2	0.5	-4.0	1.2	5	silty SAND to sandy SILT	120	4.0	11	11	40	39	-	16
18.37	59.7	61.8	92.6	0.7	-4.0	1.2	5	silty SAND to sandy SILT	120	4.0	15	15	51	40	-	16
18.54	67.3	69.4	99.7	0.8	-3.7	1.2	5	silty SAND to sandy SILT	120	4.0	17	17	55	41	-	16
18.70	70.3	72.3	107.9	1.0	-3.6	1.4	5	silty SAND to sandy SILT	120	4.0	18	18	56	41	-	16
18.87	70.8	72.7	110.3	1.0	-2.2	1.5	5	silty SAND to sandy SILT	120	4.0	18	18	56	41	-	16
19.03	63.1	64.6	104.7	0.9	-2.1	1.5	5	silty SAND to sandy SILT	120	4.0	16	16	53	41	-	16
19.19	43.7	44.6	97.5	0.8	-2.0	1.9	5	silty SAND to sandy SILT	120	4.0	11	11	40	38	-	16
19.36	20.6	22.6	-	0.6	-1.9	3.0	4	clayy SILT to silty CLAY	115	2.0	11	10	-	-	1.4	15
19.52	10.1	11.1	-	0.4	-1.5	4.2	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
19.69	6.9	7.6	-	0.2	-0.6	2.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
19.85	5.9	6.4	-	0.2	0.5	4.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
20.01	5.8	6.3	-	0.2	1.3	5.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
20.18	4.5	4.8	-	0.3	5.2	7.9	2	Organic SOILS - Peats	100	1.0	5	4	-	-	0.4	10
20.34	6.1	6.5	-	0.3	5.8	6.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
20.51	6.6	7.0	-	0.4	6.2	7.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
20.67	11.8	12.5	-	0.4	6.9	3.8	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
20.83	29.0	29.0	76.8	0.4	2.9	1.6	5	silty SAND to sandy SILT	120	4.0	7	7	26	36	-	16
21.00	42.4	42.2	79.5	0.5	0.6	1.3	5	silty SAND to sandy SILT	120	4.0	11	11	39	38	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(407).cpt
CPT Date: 11/17/2008 1:30:14 PM
GW During Test: 12 ft

Sounding ID: CPT-08-69
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	52.6	52.3	85.2	0.6	-1.8	1.2	5	silty SAND to sandy SILT	120	4.0	13	13	46	39	-	16
21.33	56.4	55.9	95.0	0.8	-2.1	1.4	5	silty SAND to sandy SILT	120	4.0	14	14	48	39	-	16
21.49	59.4	58.7	102.1	0.9	-1.7	1.6	5	silty SAND to sandy SILT	120	4.0	15	15	49	40	-	16
21.65	63.1	62.2	106.7	1.0	-1.3	1.7	5	silty SAND to sandy SILT	120	4.0	16	16	51	40	-	16
21.82	65.4	64.3	108.5	1.1	-1.0	1.7	5	silty SAND to sandy SILT	120	4.0	16	16	52	40	-	16
21.98	69.4	68.0	107.4	1.0	-0.7	1.5	5	silty SAND to sandy SILT	120	4.0	17	17	54	40	-	16
22.15	72.4	70.9	107.8	1.0	-0.5	1.4	5	silty SAND to sandy SILT	120	4.0	18	18	56	41	-	16
22.31	63.7	62.2	102.1	0.9	1.2	1.5	5	silty SAND to sandy SILT	120	4.0	16	16	51	40	-	16
22.47	52.1	50.7	96.9	0.8	1.2	1.7	5	silty SAND to sandy SILT	120	4.0	13	13	45	39	-	16
22.64	30.6	30.6	-	0.9	1.1	3.0	4	clayy SILT to silty CLAY	115	2.0	15	15	-	-	2.1	15
22.80	14.8	14.7	-	0.7	1.6	5.1	3	silty CLAY to CLAY	115	1.5	10	10	-	-	1.0	15
22.97	9.6	9.5	-	0.4	2.4	5.4	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
23.13	8.3	8.2	-	0.2	3.9	3.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
23.30	7.4	7.3	-	0.2	5.7	3.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.46	7.1	7.0	-	0.2	7.4	3.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
23.62	7.0	6.8	-	0.2	8.8	4.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
23.79	7.3	7.1	-	0.3	10.3	5.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.95	9.3	9.0	-	0.5	11.7	5.9	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
24.12	13.7	13.2	-	0.6	12.6	5.0	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
24.28	19.3	18.5	-	0.6	10.8	3.4	3	silty CLAY to CLAY	115	1.5	12	13	-	-	1.3	15
24.44	22.9	21.8	-	0.6	5.0	2.7	4	clayy SILT to silty CLAY	115	2.0	11	11	-	-	1.6	15
24.61	24.8	23.6	-	0.6	1.3	2.7	4	clayy SILT to silty CLAY	115	2.0	12	12	-	-	1.7	15
24.77	25.0	23.7	-	0.7	0.0	2.8	4	clayy SILT to silty CLAY	115	2.0	12	13	-	-	1.7	15
24.94	25.0	23.6	-	0.7	-1.6	3.1	4	clayy SILT to silty CLAY	115	2.0	12	12	-	-	1.7	15
25.10	25.6	24.1	-	0.7	-0.5	3.0	4	clayy SILT to silty CLAY	115	2.0	12	13	-	-	1.8	15
25.26	21.1	19.7	-	0.8	-3.9	3.9	3	silty CLAY to CLAY	115	1.5	13	14	-	-	1.4	15
25.43	19.6	18.3	-	0.8	0.3	4.4	3	silty CLAY to CLAY	115	1.5	12	13	-	-	1.3	15
25.59	20.4	18.9	-	0.7	-0.5	3.5	3	silty CLAY to CLAY	115	1.5	13	14	-	-	1.4	15
25.76	30.3	28.3	81.5	0.5	-0.7	1.8	4	clayy SILT to silty CLAY	115	2.0	14	15	-	-	2.1	15
25.92	41.8	39.0	80.0	0.6	-2.5	1.4	5	silty SAND to sandy SILT	120	4.0	10	10	36	37	-	16
26.08	42.8	39.8	84.0	0.6	-2.6	1.5	5	silty SAND to sandy SILT	120	4.0	10	11	37	37	-	16
26.25	36.7	34.1	89.3	0.7	-1.9	1.9	5	silty SAND to sandy SILT	120	4.0	9	9	31	36	-	16
26.41	30.6	27.8	-	0.7	-1.0	2.5	4	clayy SILT to silty CLAY	115	2.0	14	15	-	-	2.1	15
26.58	24.3	22.0	-	0.9	-0.3	3.9	3	silty CLAY to CLAY	115	1.5	15	16	-	-	1.7	15
26.74	21.4	19.3	-	0.8	0.1	4.2	3	silty CLAY to CLAY	115	1.5	13	14	-	-	1.5	15
26.90	17.5	15.7	-	0.7	-0.4	4.7	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.2	15
27.07	11.0	9.9	-	0.5	-1.8	5.4	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
27.23	7.9	7.0	-	0.4	-1.1	5.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.40	7.9	7.0	-	0.4	0.3	6.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.56	9.4	8.4	-	0.5	1.0	6.2	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
27.72	11.3	9.9	-	0.6	2.2	6.0	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.7	15
27.89	34.9	31.8	91.2	0.7	2.7	2.1	4	clayy SILT to silty CLAY	115	2.0	16	17	-	-	2.4	15
28.05	62.5	56.8	96.5	0.9	-0.3	1.5	5	silty SAND to sandy SILT	120	4.0	14	16	48	39	-	16
28.22	74.4	67.5	104.7	1.0	0.0	1.4	5	silty SAND to sandy SILT	120	4.0	17	19	54	40	-	16
28.38	77.0	69.7	107.5	1.1	0.5	1.5	5	silty SAND to sandy SILT	120	4.0	17	19	55	40	-	16
28.54	65.8	59.5	105.9	1.1	0.7	1.7	5	silty SAND to sandy SILT	120	4.0	15	16	50	39	-	16
28.71	28.9	24.9	-	1.0	4.8	3.5	4	clayy SILT to silty CLAY	115	2.0	12	14	-	-	2.0	15
28.87	14.5	12.4	-	0.8	5.9	5.9	3	silty CLAY to CLAY	115	1.5	8	10	-	-	1.0	15
29.04	11.0	9.4	-	0.5	8.1	5.5	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
29.20	13.1	11.2	-	0.4	12.6	3.7	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
29.36	11.6	9.8	-	0.4	15.7	4.4	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
29.53	8.4	7.1	-	0.4	16.7	5.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
29.69	7.6	6.4	-	0.3	19.4	5.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
29.86	7.6	6.4	-	0.4	20.2	6.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
30.02	8.5	7.1	-	0.4	22.1	6.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
30.19	9.6	8.0	-	0.4	28.2	5.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.35	25.3	21.0	-	0.5	19.8	1.9	4	clayy SILT to silty CLAY	115	2.0	11	13	-	-	1.7	15
30.51	16.3	13.5	-	0.4	-0.1	3.0	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
30.68	9.3	7.7	-	0.4	1.0	5.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.84	7.8	6.4	-	0.3	3.2	5.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.01	8.2	6.7	-	0.3	5.1	5.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.17	8.8	7.1	-	0.4	7.2	5.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.33	12.5	10.1	-	0.4	9.4	3.5	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
31.50	9.2	7.5	-	0.4	9.5	5.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(407).cpt
CPT Date: 11/17/2008 1:30:14 PM
GW During Test: 12 ft

Sounding ID: CPT-08-69
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	16.6	13.4	-	0.6	15.3	4.0	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
31.83	47.4	41.3	87.2	0.7	6.9	1.6	5	silty SAND to sandy SILT	120	4.0	10	12	38	36	-	16
31.99	58.6	51.0	91.4	0.8	3.7	1.4	5	silty SAND to sandy SILT	120	4.0	13	15	45	38	-	16
32.15	54.8	47.6	104.5	1.1	3.8	2.1	5	silty SAND to sandy SILT	120	4.0	12	14	42	37	-	16
32.32	51.2	44.3	103.0	1.0	3.5	2.1	5	silty SAND to sandy SILT	120	4.0	11	13	40	37	-	16
32.48	60.9	52.6	100.4	1.0	-1.6	1.7	5	silty SAND to sandy SILT	120	4.0	13	15	46	38	-	16
32.65	66.8	57.6	97.5	0.9	-2.6	1.5	5	silty SAND to sandy SILT	120	4.0	14	17	49	38	-	16
32.81	75.3	64.8	99.3	1.0	-3.3	1.3	5	silty SAND to sandy SILT	120	4.0	16	19	53	39	-	16
32.97	84.3	72.5	100.5	0.9	-3.5	1.1	5	silty SAND to sandy SILT	120	4.0	18	21	56	40	-	16
33.14	96.6	82.9	112.8	1.2	-3.4	1.3	5	silty SAND to sandy SILT	120	4.0	21	24	61	40	-	16
33.30	111.2	95.2	127.2	1.5	-3.1	1.4	5	silty SAND to sandy SILT	120	4.0	24	28	65	41	-	16
33.47	114.1	97.5	133.4	1.7	-2.4	1.5	5	silty SAND to sandy SILT	120	4.0	24	29	66	41	-	16
33.63	113.8	97.1	135.3	1.8	-1.6	1.6	5	silty SAND to sandy SILT	120	4.0	24	28	66	41	-	16
33.79	106.5	90.7	133.1	1.8	-0.8	1.7	5	silty SAND to sandy SILT	120	4.0	23	27	64	41	-	16
33.96	95.8	81.5	135.1	2.0	-0.1	2.1	5	silty SAND to sandy SILT	120	4.0	20	24	60	40	-	16
34.12	84.9	72.1	127.7	1.8	0.7	2.1	5	silty SAND to sandy SILT	120	4.0	18	21	56	39	-	16
34.29	101.6	86.1	128.8	1.7	-1.1	1.7	5	silty SAND to sandy SILT	120	4.0	22	25	62	40	-	16
34.45	107.5	90.9	133.6	1.8	-5.0	1.7	5	silty SAND to sandy SILT	120	4.0	23	27	64	41	-	16
34.61	125.5	105.9	144.2	2.0	-5.1	1.7	5	silty SAND to sandy SILT	120	4.0	26	31	69	41	-	16
34.78	135.4	114.1	147.1	2.0	-4.9	1.5	6	clean SAND to silty SAND	125	5.0	23	27	71	42	-	16
34.94	139.8	117.6	149.4	2.0	-4.5	1.5	6	clean SAND to silty SAND	125	5.0	24	28	72	42	-	16
35.11	143.5	120.4	150.6	2.0	4.1	1.4	6	clean SAND to silty SAND	125	5.0	24	29	73	42	-	16
35.27	138.0	115.6	151.1	2.2	4.4	1.6	6	clean SAND to silty SAND	125	5.0	23	28	72	42	-	16
35.43	125.3	104.8	147.8	2.2	4.8	1.8	5	silty SAND to sandy SILT	120	4.0	26	31	69	41	-	16
35.60	104.9	87.6	141.8	2.2	4.9	2.1	5	silty SAND to sandy SILT	120	4.0	22	26	63	40	-	16
35.76	75.8	63.1	134.5	2.0	4.9	2.7	5	silty SAND to sandy SILT	120	4.0	16	19	52	39	-	16
35.93	38.1	27.9	-	1.5	4.9	4.3	3	silty CLAY to CLAY	115	1.5	19	25	-	-	2.6	15
36.09	21.7	15.8	-	1.0	5.4	4.9	3	silty CLAY to CLAY	115	1.5	11	14	-	-	1.5	15
36.26	14.9	10.9	-	0.5	7.9	4.0	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
36.42	14.2	10.3	-	0.4	13.2	3.2	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
36.58	13.1	9.5	-	0.4	18.6	3.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
36.75	12.5	9.0	-	0.4	23.2	4.0	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
36.91	12.7	9.1	-	0.5	27.7	4.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
37.08	12.8	9.2	-	0.5	31.8	5.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
37.24	13.5	9.7	-	0.7	33.6	5.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
37.40	35.6	25.4	-	0.8	38.9	2.3	4	clayy SILT to silty CLAY	115	2.0	13	18	-	-	2.4	15
37.57	28.5	20.3	-	0.5	-3.4	1.9	4	clayy SILT to silty CLAY	115	2.0	10	14	-	-	1.9	15
37.73	15.2	10.7	-	0.5	-5.5	3.9	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
37.90	12.0	8.5	-	0.5	-5.6	4.8	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.06	11.9	8.4	-	0.5	-5.2	5.2	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.22	13.0	9.2	-	0.6	-5.0	5.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
38.39	19.8	13.9	-	0.6	-3.8	3.5	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
38.55	33.3	23.2	-	0.7	-4.3	2.3	4	clayy SILT to silty CLAY	115	2.0	12	17	-	-	2.3	15
38.72	19.6	13.6	-	0.6	-5.1	3.5	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
38.88	14.3	9.9	-	0.6	-4.8	4.7	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.9	15
39.04	14.0	9.7	-	0.5	-4.1	4.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
39.21	12.6	8.7	-	0.6	-3.8	6.0	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
39.37	14.2	9.8	-	0.7	-3.4	5.5	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
39.54	15.6	10.7	-	0.8	-3.2	6.2	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
39.70	21.6	14.8	-	1.1	-3.0	5.5	3	silty CLAY to CLAY	115	1.5	10	14	-	-	1.4	15
39.86	29.2	19.9	-	0.5	-3.0	2.0	4	clayy SILT to silty CLAY	115	2.0	10	15	-	-	2.0	15
40.03	105.9	84.8	108.3	1.1	-3.3	1.0	6	clean SAND to silty SAND	125	5.0	17	21	62	40	-	16
40.19	65.8	52.6	102.2	1.1	0.8	1.8	5	silty SAND to sandy SILT	120	4.0	13	16	46	37	-	16
40.36	140.5	112.1	128.0	1.2	0.0	0.9	6	clean SAND to silty SAND	125	5.0	22	28	71	41	-	16
40.52	153.4	122.2	137.2	1.4	0.8	0.9	6	clean SAND to silty SAND	125	5.0	24	31	74	42	-	16
40.68	162.1	128.9	143.4	1.5	1.9	0.9	6	clean SAND to silty SAND	125	5.0	26	32	75	42	-	16
40.85	167.6	133.0	147.5	1.5	2.6	0.9	6	clean SAND to silty SAND	125	5.0	27	34	76	42	-	16
41.01	171.4	135.8	146.2	1.4	3.2	0.8	6	clean SAND to silty SAND	125	5.0	27	34	77	42	-	16
41.18	176.0	139.3	145.4	1.2	4.1	0.7	6	clean SAND to silty SAND	125	5.0	28	35	78	42	-	16
41.34	183.2	144.7	149.6	1.3	4.4	0.7	6	clean SAND to silty SAND	125	5.0	29	37	79	43	-	16
41.50	187.5	147.8	153.8	1.4	4.7	0.7	6	clean SAND to silty SAND	125	5.0	30	37	80	43	-	16
41.67	192.7	151.7	156.8	1.4	4.9	0.7	6	clean SAND to silty SAND	125	5.0	30	39	81	43	-	16
41.83	192.4	151.2	157.7	1.5	6.0	0.8	6	clean SAND to silty SAND	125	5.0	30	38	81	43	-	16
42.00	189.7	148.8	156.8	1.5	5.8	0.8	6	clean SAND to silty SAND	125	5.0	30	38	80	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(407).cpt
CPT Date: 11/17/2008 1:30:14 PM
GW During Test: 12 ft

Sounding ID: CPT-08-69
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	179.8	140.8	149.6	1.4	5.8	0.8	6	clean SAND to silty SAND	125	5.0	28	36	78	42	-	16
42.32	165.3	129.3	137.8	1.2	5.7	0.7	6	clean SAND to silty SAND	125	5.0	26	33	75	42	-	16
42.49	143.0	111.6	127.9	1.3	5.8	0.9	6	clean SAND to silty SAND	125	5.0	22	29	71	41	-	16
42.65	126.3	98.4	115.0	1.1	5.8	0.8	6	clean SAND to silty SAND	125	5.0	20	25	66	40	-	16
42.82	126.8	98.6	120.1	1.3	6.2	1.0	6	clean SAND to silty SAND	125	5.0	20	25	67	40	-	16
42.98	123.6	96.0	128.1	1.7	6.3	1.4	5	silty SAND to sandy SILT	120	4.0	24	31	66	40	-	16
43.15	107.3	83.2	132.0	2.0	6.3	1.9	5	silty SAND to sandy SILT	120	4.0	21	27	61	39	-	16
43.31	70.4	54.5	137.0	2.1	6.2	3.1	4	clayy SILT to silty CLAY	115	2.0	27	35	-	-	4.9	15
43.47	53.4	33.9	-	1.8	5.5	3.5	4	clayy SILT to silty CLAY	115	2.0	17	27	-	-	3.7	15
43.64	35.9	22.7	-	1.4	3.1	4.2	3	silty CLAY to CLAY	115	1.5	15	24	-	-	2.4	15
43.80	23.0	14.5	-	1.2	3.1	5.6	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.5	15
43.97	23.1	14.5	-	0.7	5.6	3.5	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.5	15
44.13	34.0	21.4	-	0.8	6.6	2.5	4	clayy SILT to silty CLAY	115	2.0	11	17	-	-	2.3	15
44.29	31.8	19.9	-	0.8	6.7	2.6	4	clayy SILT to silty CLAY	115	2.0	10	16	-	-	2.2	15
44.46	37.4	23.3	-	0.7	7.8	2.0	4	clayy SILT to silty CLAY	115	2.0	12	19	-	-	2.5	15
44.62	39.2	30.0	87.1	0.7	6.4	2.0	4	clayy SILT to silty CLAY	115	2.0	15	20	-	-	2.7	15
44.79	25.6	15.9	-	0.9	6.5	4.0	3	silty CLAY to CLAY	115	1.5	11	17	-	-	1.7	15
44.95	24.4	15.1	-	1.1	9.6	4.9	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.6	15
45.11	41.4	25.5	-	1.1	17.6	2.9	4	clayy SILT to silty CLAY	115	2.0	13	21	-	-	2.8	15
45.28	58.2	44.3	95.8	1.0	4.4	1.8	5	silty SAND to sandy SILT	120	4.0	11	15	40	36	-	16
45.44	85.6	65.1	101.0	1.1	-0.9	1.4	5	silty SAND to sandy SILT	120	4.0	16	21	53	38	-	16
45.61	73.4	55.8	120.1	1.7	-1.1	2.4	5	silty SAND to sandy SILT	120	4.0	14	18	48	37	-	16
45.77	55.1	41.8	119.8	1.5	-0.2	2.9	4	clayy SILT to silty CLAY	115	2.0	21	28	-	-	3.8	15
45.93	55.5	42.1	106.9	1.2	0.3	2.3	5	silty SAND to sandy SILT	120	4.0	11	14	38	35	-	16
46.10	72.9	55.2	109.0	1.4	-1.0	2.0	5	silty SAND to sandy SILT	120	4.0	14	18	47	37	-	16
46.26	90.7	68.5	113.0	1.5	-3.1	1.7	5	silty SAND to sandy SILT	120	4.0	17	23	55	38	-	16
46.43	128.1	96.6	129.2	1.8	-4.3	1.4	5	silty SAND to sandy SILT	120	4.0	24	32	66	40	-	16
46.59	152.3	114.7	142.8	2.0	-6.1	1.3	6	clean SAND to silty SAND	125	5.0	23	30	72	41	-	16
46.75	170.3	128.1	156.4	2.3	-6.4	1.4	6	clean SAND to silty SAND	125	5.0	26	34	75	42	-	16
46.92	179.5	134.8	164.2	2.6	-6.2	1.4	6	clean SAND to silty SAND	125	5.0	27	36	77	42	-	16
47.08	171.4	128.6	164.3	2.8	-6.0	1.6	6	clean SAND to silty SAND	125	5.0	26	34	75	42	-	16
47.25	157.3	117.8	159.7	2.8	-5.7	1.8	5	silty SAND to sandy SILT	120	4.0	29	39	72	41	-	16
47.41	134.1	100.2	151.3	2.7	-5.4	2.0	5	silty SAND to sandy SILT	120	4.0	25	34	67	40	-	16
47.57	103.0	76.9	147.1	2.6	-5.1	2.6	5	silty SAND to sandy SILT	120	4.0	19	26	58	39	-	16
47.74	64.4	37.9	-	3.0	-4.9	4.8	3	silty CLAY to CLAY	115	1.5	25	43	-	-	4.4	15
47.90	44.5	26.2	-	2.0	-4.6	4.8	3	silty CLAY to CLAY	115	1.5	17	30	-	-	3.0	15
48.07	86.4	64.3	118.7	1.7	-4.0	2.0	5	silty SAND to sandy SILT	120	4.0	16	22	52	38	-	16
48.23	140.0	104.0	133.6	1.8	-4.6	1.3	6	clean SAND to silty SAND	125	5.0	21	28	68	40	-	16
48.39	159.3	118.2	145.7	2.1	-4.9	1.3	6	clean SAND to silty SAND	125	5.0	24	32	73	41	-	16
48.56	164.9	122.1	156.0	2.5	-2.5	1.6	6	clean SAND to silty SAND	125	5.0	24	33	74	41	-	16
48.72	159.3	117.8	158.8	2.8	-2.1	1.8	5	silty SAND to sandy SILT	120	4.0	29	40	72	41	-	16
48.89	154.0	113.7	157.0	2.8	-1.8	1.8	5	silty SAND to sandy SILT	120	4.0	28	39	71	41	-	16
49.05	145.2	107.0	153.4	2.7	-1.4	1.9	5	silty SAND to sandy SILT	120	4.0	27	36	69	40	-	16
49.22	138.5	102.0	149.5	2.6	-1.2	1.9	5	silty SAND to sandy SILT	120	4.0	26	35	68	40	-	16
49.38	130.9	96.3	144.6	2.5	-0.9	1.9	5	silty SAND to sandy SILT	120	4.0	24	33	66	40	-	16
49.54	121.9	89.5	138.9	2.3	-0.6	2.0	5	silty SAND to sandy SILT	120	4.0	22	30	63	39	-	16
49.71	121.2	88.9	138.4	2.3	-0.4	2.0	5	silty SAND to sandy SILT	120	4.0	22	30	63	39	-	16
49.87	116.4	85.3	134.9	2.2	-0.2	1.9	5	silty SAND to sandy SILT	120	4.0	21	29	62	39	-	16
50.04	101.0	73.9	134.1	2.2	-0.1	2.3	5	silty SAND to sandy SILT	120	4.0	18	25	57	38	-	16
50.20	87.5	63.9	123.7	1.9	2.1	2.2	5	silty SAND to sandy SILT	120	4.0	16	22	52	38	-	16
50.36	61.5	44.8	121.0	1.7	1.1	2.8	4	clayy SILT to silty CLAY	115	2.0	22	31	-	-	4.2	15
50.53	32.1	18.1	-	1.1	-3.1	3.8	3	silty CLAY to CLAY	115	1.5	12	21	-	-	2.2	15
50.69	20.1	11.3	-	0.8	-2.7	4.4	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
50.86	17.6	9.9	-	0.4	-2.0	2.9	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.1	15
51.02	16.5	9.2	-	0.4	-1.1	3.2	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
51.18	16.9	9.4	-	0.4	-0.5	3.1	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
51.35	15.5	8.6	-	0.7	0.1	5.3	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
51.51	44.4	24.6	-	0.8	0.6	2.0	4	clayy SILT to silty CLAY	115	2.0	12	22	-	-	3.0	15
51.68	41.9	23.2	-	1.3	1.1	3.4	4	clayy SILT to silty CLAY	115	2.0	12	21	-	-	2.9	15
51.84	25.7	14.2	-	1.3	1.8	5.7	3	silty CLAY to CLAY	115	1.5	9	17	-	-	1.7	15
52.00	76.3	55.0	110.2	1.5	3.4	2.0	5	silty SAND to sandy SILT	120	4.0	14	19	47	37	-	16
52.17	124.8	89.8	124.7	1.8	0.6	1.5	5	silty SAND to sandy SILT	120	4.0	22	31	63	39	-	16
52.33	161.6	116.1	145.0	2.2	0.9	1.4	6	clean SAND to silty SAND	125	5.0	23	32	72	41	-	16
52.50	185.2	132.9	164.4	2.8	1.5	1.5	6	clean SAND to silty SAND	125	5.0	27	37	76	41	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(407).cpt
CPT Date: 11/17/2008 1:30:14 PM
GW During Test: 12 ft

Sounding ID: CPT-08-69
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	198.2	142.1	176.4	3.2	2.0	1.6	6	clean SAND to silty SAND	125	5.0	28	40	79	42	-	16
52.82	194.5	139.3	178.9	3.4	2.4	1.8	6	clean SAND to silty SAND	125	5.0	28	39	78	42	-	16
52.99	193.4	138.2	172.8	3.1	2.9	1.6	6	clean SAND to silty SAND	125	5.0	28	39	78	42	-	16
53.15	205.4	146.6	161.4	2.0	3.0	1.0	6	clean SAND to silty SAND	125	5.0	29	41	80	42	-	16
53.32	231.0	164.7	164.7	1.1	2.7	0.5	6	clean SAND to silty SAND	125	5.0	33	46	83	42	-	16
53.48	215.9	153.7	153.7	1.0	1.9	0.5	6	clean SAND to silty SAND	125	5.0	31	43	81	42	-	16
53.64	174.2	123.8	131.3	1.1	1.1	0.7	6	clean SAND to silty SAND	125	5.0	25	35	74	41	-	16
53.81	111.5	79.2	117.6	1.7	3.2	1.5	5	silty SAND to sandy SILT	120	4.0	20	28	59	39	-	16
53.97	69.4	49.2	119.0	1.7	5.2	2.6	5	silty SAND to sandy SILT	120	4.0	12	17	44	36	-	16
54.14	36.4	19.4	-	1.5	6.0	4.6	3	silty CLAY to CLAY	115	1.5	13	24	-	-	2.5	15
54.30	22.3	11.8	-	0.8	7.6	4.2	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
54.46	15.5	8.2	-	0.5	11.3	4.0	3	silty CLAY to CLAY	115	1.5	5	10	-	-	1.0	15
54.63	14.9	7.9	-	0.3	16.3	3.0	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
54.79	15.6	8.2	-	0.2	20.8	1.9	3	silty CLAY to CLAY	115	1.5	5	10	-	-	1.0	15
54.96	19.7	10.4	-	0.7	26.8	4.3	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
55.12	15.7	8.2	-	0.8	44.8	6.6	3	silty CLAY to CLAY	115	1.5	5	10	-	-	1.0	15
55.28	33.7	17.7	-	1.1	37.4	3.5	3	silty CLAY to CLAY	115	1.5	12	22	-	-	2.3	15
55.45	39.8	20.8	-	0.9	27.5	2.5	4	clayy SILT to silty CLAY	115	2.0	10	20	-	-	2.7	15
55.61	42.9	22.3	-	1.0	8.8	2.5	4	clayy SILT to silty CLAY	115	2.0	11	21	-	-	2.9	15
55.78	34.1	17.7	-	1.0	6.5	3.3	3	silty CLAY to CLAY	115	1.5	12	23	-	-	2.3	15
55.94	41.1	21.3	-	1.2	10.2	3.1	4	clayy SILT to silty CLAY	115	2.0	11	21	-	-	2.8	15
56.11	49.9	25.8	-	1.5	11.5	3.2	4	clayy SILT to silty CLAY	115	2.0	13	25	-	-	3.4	15
56.27	66.5	46.4	117.4	1.6	8.2	2.6	5	silty SAND to sandy SILT	120	4.0	12	17	42	35	-	16
56.43	89.9	62.7	112.6	1.6	1.4	1.8	5	silty SAND to sandy SILT	120	4.0	16	22	52	37	-	16
56.60	116.5	81.1	111.2	1.4	-4.2	1.2	5	silty SAND to sandy SILT	120	4.0	20	29	60	39	-	16
56.76	140.9	98.0	119.0	1.4	-6.7	1.0	6	clean SAND to silty SAND	125	5.0	20	28	66	40	-	16
56.93	169.8	117.9	129.8	1.3	-8.2	0.8	6	clean SAND to silty SAND	125	5.0	24	34	72	41	-	16
57.09	189.4	131.4	135.6	1.1	-9.1	0.6	6	clean SAND to silty SAND	125	5.0	26	38	76	41	-	16
57.25	204.3	141.5	141.5	1.1	-9.7	0.6	6	clean SAND to silty SAND	125	5.0	28	41	78	42	-	16
57.42	217.1	150.1	150.1	1.3	-9.8	0.6	6	clean SAND to silty SAND	125	5.0	30	43	80	42	-	16
57.58	228.1	157.6	157.6	1.4	-9.6	0.6	6	clean SAND to silty SAND	125	5.0	32	46	82	42	-	16
57.75	242.4	167.2	167.2	1.6	-9.3	0.7	6	clean SAND to silty SAND	125	5.0	33	48	84	42	-	16
57.91	272.5	187.8	187.8	1.9	-9.0	0.7	6	clean SAND to silty SAND	125	5.0	38	55	88	43	-	16
58.07	294.8	202.9	202.9	2.1	-8.7	0.7	6	clean SAND to silty SAND	125	5.0	41	59	90	43	-	16
58.24	299.5	205.8	205.8	2.0	-8.5	0.7	6	clean SAND to silty SAND	125	5.0	41	60	91	43	-	16
58.40	304.5	209.0	209.0	1.9	-8.2	0.6	6	clean SAND to silty SAND	125	5.0	42	61	91	43	-	16
58.57	309.0	211.8	211.8	2.2	-7.9	0.7	6	clean SAND to silty SAND	125	5.0	42	62	92	43	-	16
58.73	309.8	212.1	212.1	2.0	-7.6	0.6	6	clean SAND to silty SAND	125	5.0	42	62	92	43	-	16
58.89	307.3	210.1	210.1	2.2	-7.3	0.7	6	clean SAND to silty SAND	125	5.0	42	61	92	43	-	16
59.06	315.3	215.3	215.3	2.2	-6.2	0.7	6	clean SAND to silty SAND	125	5.0	43	63	92	44	-	16
59.22	326.9	223.0	223.0	2.3	-5.9	0.7	6	clean SAND to silty SAND	125	5.0	45	65	93	44	-	16
59.39	331.6	225.8	225.8	2.4	-5.6	0.7	6	clean SAND to silty SAND	125	5.0	45	66	94	44	-	16
59.55	335.5	228.3	228.3	3.0	-5.3	0.9	6	clean SAND to silty SAND	125	5.0	46	67	94	44	-	16
59.71	345.5	234.8	234.8	3.1	-5.1	0.9	6	clean SAND to silty SAND	125	5.0	47	69	95	44	-	16
59.88	348.9	236.8	236.8	3.1	-4.7	0.9	6	clean SAND to silty SAND	125	5.0	47	70	95	44	-	16
60.04	351.6	238.3	238.3	3.2	-4.4	0.9	6	clean SAND to silty SAND	125	5.0	48	70	95	44	-	16
60.21	349.0	236.2	236.5	3.5	-4.1	1.0	6	clean SAND to silty SAND	125	5.0	47	70	95	44	-	16
60.37	342.0	231.2	231.9	3.4	-3.9	1.0	6	clean SAND to silty SAND	125	5.0	46	68	95	44	-	16
60.53	334.9	226.1	229.5	3.4	-3.4	1.0	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
60.70	335.1	226.0	226.0	2.8	-3.1	0.8	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
60.86	334.7	225.4	225.4	2.5	-2.7	0.8	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
61.03	333.1	224.1	224.1	2.4	1.5	0.7	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
61.19	333.7	224.2	224.2	2.3	1.8	0.7	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
61.35	330.2	221.6	221.6	2.2	2.3	0.7	6	clean SAND to silty SAND	125	5.0	44	66	93	44	-	16
61.52	339.2	227.4	227.4	2.2	2.6	0.7	6	clean SAND to silty SAND	125	5.0	45	68	94	44	-	16
61.68	342.4	229.2	229.2	2.2	5.5	0.7	6	clean SAND to silty SAND	125	5.0	46	68	94	44	-	16
61.85	396.2	264.9	264.9	2.5	5.9	0.6	6	clean SAND to silty SAND	125	5.0	53	79	95	44	-	16
62.01	405.1	270.5	270.5	2.5	3.6	0.6	6	clean SAND to silty SAND	125	5.0	54	81	95	44	-	16
62.17	384.7	256.6	256.6	2.6	8.9	0.7	6	clean SAND to silty SAND	125	5.0	51	77	95	44	-	16
62.34	381.7	254.3	254.3	2.8	9.7	0.7	6	clean SAND to silty SAND	125	5.0	51	76	95	44	-	16
62.50	380.7	253.3	253.3	2.4	9.6	0.6	6	clean SAND to silty SAND	125	5.0	51	76	95	44	-	16
62.67	382.8	254.4	254.4	2.3	10.1	0.6	6	clean SAND to silty SAND	125	5.0	51	77	95	44	-	16
62.83	392.4	260.4	260.4	2.2	10.5	0.6	6	clean SAND to silty SAND	125	5.0	52	78	95	44	-	16
63.00	401.6	266.3	266.3	2.2	10.9	0.5	6	clean SAND to silty SAND	125	5.0	53	80	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(407).cpt
CPT Date: 11/17/2008 1:30:14 PM
GW During Test: 12 ft

Sounding ID: CPT-08-69
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	408.9	270.7	270.7	2.7	11.4	0.7	6	clean SAND to silty SAND	125	5.0	54	82	95	44	-	16
63.32	410.4	271.5	271.5	2.5	11.2	0.6	6	clean SAND to silty SAND	125	5.0	54	82	95	44	-	16
63.49	396.9	262.2	262.2	2.6	12.4	0.7	6	clean SAND to silty SAND	125	5.0	52	79	95	44	-	16
63.65	393.9	259.9	259.9	2.6	11.8	0.7	6	clean SAND to silty SAND	125	5.0	52	79	95	44	-	16
63.82	404.0	266.3	266.3	2.8	12.3	0.7	6	clean SAND to silty SAND	125	5.0	53	81	95	44	-	16
63.98	417.1	274.6	274.6	3.0	12.1	0.7	6	clean SAND to silty SAND	125	5.0	55	83	95	44	-	16
64.14	423.5	278.4	278.4	3.4	12.5	0.8	6	clean SAND to silty SAND	125	5.0	56	85	95	45	-	16
64.31	435.9	286.2	286.2	2.7	11.9	0.6	6	clean SAND to silty SAND	125	5.0	57	87	95	45	-	16
64.47	451.7	296.3	296.3	3.2	10.7	0.7	6	clean SAND to silty SAND	125	5.0	59	90	95	45	-	16
64.64	472.9	309.8	309.8	4.7	14.2	1.0	6	clean SAND to silty SAND	125	5.0	62	95	95	45	-	16
64.80	336.4	220.1	240.6	4.7	16.2	1.4	6	clean SAND to silty SAND	125	5.0	44	67	93	43	-	16
64.96	486.8	318.2	318.2	3.7	12.1	0.8	6	clean SAND to silty SAND	125	5.0	64	97	95	45	-	16
65.13	465.3	303.8	303.8	3.3	13.2	0.7	6	clean SAND to silty SAND	125	5.0	61	93	95	45	-	16
65.29	407.9	266.0	265.2	4.5	9.1	1.1	6	clean SAND to silty SAND	125	5.0	53	82	95	44	-	16
65.46	394.8	257.2	257.1	4.2	13.4	1.1	6	clean SAND to silty SAND	125	5.0	51	79	95	44	-	16
65.62	386.3	251.4	260.6	4.8	14.7	1.2	6	clean SAND to silty SAND	125	5.0	50	77	95	44	-	16
65.78	378.0	245.6	261.2	5.1	16.1	1.4	6	clean SAND to silty SAND	125	5.0	49	76	95	44	-	16
65.95	376.4	244.3	260.5	5.2	15.4	1.4	6	clean SAND to silty SAND	125	5.0	49	75	95	44	-	16
66.11	373.7	242.3	261.2	5.4	14.3	1.4	6	clean SAND to silty SAND	125	5.0	48	75	95	44	-	16
66.28	372.7	241.4	257.2	5.0	13.3	1.4	6	clean SAND to silty SAND	125	5.0	48	75	95	44	-	16
66.44	374.6	242.3	257.7	5.0	13.8	1.4	6	clean SAND to silty SAND	125	5.0	48	75	95	44	-	16
66.60	369.2	238.6	251.5	4.7	12.8	1.3	6	clean SAND to silty SAND	125	5.0	48	74	95	44	-	16
66.77	371.5	239.8	253.6	4.8	12.5	1.3	6	clean SAND to silty SAND	125	5.0	48	74	95	44	-	16
66.93	374.2	241.3	256.7	5.0	13.0	1.4	6	clean SAND to silty SAND	125	5.0	48	75	95	44	-	16
67.10	378.5	243.7	255.8	4.8	12.8	1.3	6	clean SAND to silty SAND	125	5.0	49	76	95	44	-	16
67.26	380.0	244.4	253.5	4.6	12.8	1.2	6	clean SAND to silty SAND	125	5.0	49	76	95	44	-	16
67.42	381.0	244.8	251.1	4.4	12.4	1.2	6	clean SAND to silty SAND	125	5.0	49	76	95	44	-	16
67.59	370.6	237.8	246.7	4.4	11.9	1.2	6	clean SAND to silty SAND	125	5.0	48	74	95	44	-	16
67.75	359.8	230.7	250.2	5.1	13.2	1.4	6	clean SAND to silty SAND	125	5.0	46	72	95	43	-	16
67.92	342.6	219.4	238.7	4.7	12.2	1.4	6	clean SAND to silty SAND	125	5.0	44	69	93	43	-	16
68.08	317.2	202.9	223.0	4.3	13.7	1.4	6	clean SAND to silty SAND	125	5.0	41	63	90	43	-	16
68.24	316.7	202.4	215.6	3.7	12.3	1.2	6	clean SAND to silty SAND	125	5.0	40	63	90	43	-	16
68.41	314.6	200.8	204.8	2.9	10.9	0.9	6	clean SAND to silty SAND	125	5.0	40	63	90	43	-	16
68.57	313.7	200.0	200.0	2.6	10.7	0.8	6	clean SAND to silty SAND	125	5.0	40	63	90	43	-	16
68.74	308.8	196.6	196.6	2.3	10.4	0.7	6	clean SAND to silty SAND	125	5.0	39	62	89	43	-	16
68.90	306.3	194.8	194.8	2.2	10.5	0.7	6	clean SAND to silty SAND	125	5.0	39	61	89	43	-	16
69.07	303.7	193.0	193.0	2.2	10.7	0.7	6	clean SAND to silty SAND	125	5.0	39	61	89	43	-	16
69.23	303.9	192.9	192.9	2.2	10.8	0.7	6	clean SAND to silty SAND	125	5.0	39	61	89	43	-	16
69.39	309.1	196.0	224.9	4.9	11.2	1.6	6	clean SAND to silty SAND	125	5.0	39	62	89	43	-	16
69.56	331.5	209.9	285.3	9.6	11.8	2.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	21.8	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(480).cpt
CPT Date: 12/10/2008 8:56:37 AM
GW During Test: 12 ft

Sounding ID: CPT-08-70
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	58.1	93.1	128.9	0.9	0.0	1.5	5	silty SAND to sandy SILT	120	4.0	23	15	65	48	-	16
0.49	73.8	118.3	149.2	1.1	-0.4	1.5	6	clean SAND to silty SAND	125	5.0	24	15	73	48	-	16
0.66	84.8	136.0	154.3	0.9	-0.4	1.1	6	clean SAND to silty SAND	125	5.0	27	17	77	48	-	16
0.82	71.6	114.8	133.1	0.7	0.0	1.0	6	clean SAND to silty SAND	125	5.0	23	14	72	48	-	16
0.98	52.9	84.8	106.3	0.5	0.0	1.0	6	clean SAND to silty SAND	125	5.0	17	11	62	48	-	16
1.15	38.2	61.3	92.8	0.5	0.0	1.2	5	silty SAND to sandy SILT	120	4.0	15	10	51	48	-	16
1.31	33.0	52.9	78.2	0.3	0.0	0.9	5	silty SAND to sandy SILT	120	4.0	13	8	46	47	-	16
1.48	31.5	50.5	76.9	0.3	0.0	0.9	5	silty SAND to sandy SILT	120	4.0	13	8	44	47	-	16
1.64	30.5	48.9	83.7	0.4	0.0	1.3	5	silty SAND to sandy SILT	120	4.0	12	8	43	46	-	16
1.80	32.8	52.7	113.1	0.8	0.0	2.3	5	silty SAND to sandy SILT	120	4.0	13	8	46	46	-	16
1.97	60.0	96.2	124.5	0.8	0.0	1.3	6	clean SAND to silty SAND	125	5.0	19	12	66	48	-	16
2.13	49.5	79.4	107.3	0.6	-0.1	1.2	6	clean SAND to silty SAND	125	5.0	16	10	59	47	-	16
2.30	59.6	95.5	112.7	0.5	-0.1	0.9	6	clean SAND to silty SAND	125	5.0	19	12	65	47	-	16
2.46	54.9	88.0	110.8	0.6	0.1	1.0	6	clean SAND to silty SAND	125	5.0	18	11	63	47	-	16
2.62	70.5	113.1	129.3	0.6	0.1	0.9	6	clean SAND to silty SAND	125	5.0	23	14	71	48	-	16
2.79	87.6	140.5	154.2	0.8	0.1	1.0	6	clean SAND to silty SAND	125	5.0	28	18	78	48	-	16
2.95	75.1	120.5	154.2	1.2	0.1	1.6	6	clean SAND to silty SAND	125	5.0	24	15	73	47	-	16
3.12	56.4	90.5	160.0	1.5	0.1	2.7	5	silty SAND to sandy SILT	120	4.0	23	14	64	46	-	16
3.28	44.9	72.1	190.8	2.0	0.2	4.5	4	clayy SILT to silty CLAY	115	2.0	36	22	-	-	3.2	15
3.45	57.9	92.8	205.8	2.4	0.3	4.2	4	clayy SILT to silty CLAY	115	2.0	46	29	-	-	4.1	15
3.61	66.7	107.0	206.4	2.4	0.5	3.7	5	silty SAND to sandy SILT	120	4.0	27	17	69	46	-	16
3.77	54.2	86.9	198.2	2.2	0.1	4.1	4	clayy SILT to silty CLAY	115	2.0	43	27	-	-	3.8	15
3.94	42.6	68.3	182.6	1.9	-0.1	4.4	4	clayy SILT to silty CLAY	115	2.0	34	21	-	-	3.0	15
4.10	44.7	71.7	181.6	1.9	0.0	4.2	4	clayy SILT to silty CLAY	115	2.0	36	22	-	-	3.1	15
4.27	57.2	91.7	185.7	2.0	0.1	3.5	5	silty SAND to sandy SILT	120	4.0	23	14	64	45	-	16
4.43	53.2	85.3	182.4	1.9	0.2	3.6	4	clayy SILT to silty CLAY	115	2.0	43	27	-	-	3.7	15
4.59	45.8	73.4	173.5	1.7	0.1	3.8	4	clayy SILT to silty CLAY	115	2.0	37	23	-	-	3.2	15
4.76	46.5	74.5	165.3	1.6	0.1	3.4	4	clayy SILT to silty CLAY	115	2.0	37	23	-	-	3.3	15
4.92	38.9	62.4	169.5	1.6	-0.2	4.2	4	clayy SILT to silty CLAY	115	2.0	31	19	-	-	2.7	15
5.09	37.9	60.7	132.3	1.0	-0.7	2.7	5	silty SAND to sandy SILT	120	4.0	15	9	51	43	-	16
5.25	46.9	75.2	151.6	1.4	-0.7	2.9	5	silty SAND to sandy SILT	120	4.0	19	12	58	44	-	16
5.41	50.9	81.6	175.3	1.8	-0.4	3.5	4	clayy SILT to silty CLAY	115	2.0	41	25	-	-	3.6	15
5.58	51.5	82.6	184.2	1.9	-0.6	3.8	4	clayy SILT to silty CLAY	115	2.0	41	26	-	-	3.6	15
5.74	75.0	120.3	193.3	2.1	-0.6	2.8	5	silty SAND to sandy SILT	120	4.0	30	19	73	46	-	16
5.91	62.2	99.8	192.2	2.1	-1.4	3.4	5	silty SAND to sandy SILT	120	4.0	25	16	67	45	-	16
6.07	65.2	104.6	200.0	2.3	-1.0	3.5	5	silty SAND to sandy SILT	120	4.0	26	16	68	45	-	16
6.23	70.9	112.7	209.0	2.5	-1.3	3.5	5	silty SAND to sandy SILT	120	4.0	28	18	71	45	-	16
6.40	78.4	122.9	193.7	2.2	-1.6	2.8	5	silty SAND to sandy SILT	120	4.0	31	20	74	46	-	16
6.56	159.6	247.2	247.2	1.6	-2.0	1.0	6	clean SAND to silty SAND	125	5.0	49	32	95	48	-	16
6.73	117.3	179.3	201.8	1.6	-0.1	1.4	6	clean SAND to silty SAND	125	5.0	36	23	86	47	-	16
6.89	72.7	109.7	179.0	1.9	0.2	2.7	5	silty SAND to sandy SILT	120	4.0	27	18	70	45	-	16
7.05	49.9	74.5	174.8	1.9	0.4	3.8	4	clayy SILT to silty CLAY	115	2.0	37	25	-	-	3.5	15
7.22	99.7	147.2	193.1	2.0	0.6	2.0	5	silty SAND to sandy SILT	120	4.0	37	25	80	46	-	16
7.38	114.4	166.9	213.1	2.4	0.5	2.1	5	silty SAND to sandy SILT	120	4.0	42	29	84	47	-	16
7.55	121.0	174.6	227.9	2.8	0.6	2.3	5	silty SAND to sandy SILT	120	4.0	44	30	85	47	-	16
7.71	76.3	108.9	198.2	2.5	0.6	3.3	5	silty SAND to sandy SILT	120	4.0	27	19	70	45	-	16
7.87	47.0	66.4	200.3	2.4	0.6	5.2	4	clayy SILT to silty CLAY	115	2.0	33	23	-	-	3.3	15
8.04	75.7	106.0	168.0	1.8	0.6	2.5	5	silty SAND to sandy SILT	120	4.0	26	19	69	45	-	16
8.20	45.1	62.5	166.2	1.8	0.8	4.0	4	clayy SILT to silty CLAY	115	2.0	31	23	-	-	3.2	15
8.37	42.4	58.2	126.9	1.1	0.9	2.6	5	silty SAND to sandy SILT	120	4.0	15	11	49	42	-	16
8.53	57.1	77.6	104.9	0.7	0.9	1.2	6	clean SAND to silty SAND	125	5.0	16	11	59	43	-	16
8.69	80.5	108.3	125.0	0.7	0.7	0.9	6	clean SAND to silty SAND	125	5.0	22	16	70	45	-	16
8.86	68.9	91.8	130.7	1.1	0.3	1.6	5	silty SAND to sandy SILT	120	4.0	23	17	64	44	-	16
9.02	48.6	64.2	143.6	1.5	0.4	3.0	5	silty SAND to sandy SILT	120	4.0	16	12	52	42	-	16
9.19	42.2	55.3	143.8	1.4	0.5	3.4	4	clayy SILT to silty CLAY	115	2.0	28	21	-	-	3.0	15
9.35	34.2	44.4	128.2	1.1	0.5	3.3	4	clayy SILT to silty CLAY	115	2.0	22	17	-	-	2.4	15
9.51	27.6	35.5	116.0	0.9	0.5	3.2	4	clayy SILT to silty CLAY	115	2.0	18	14	-	-	1.9	15
9.68	22.7	32.6	-	0.7	0.5	3.4	4	clayy SILT to silty CLAY	115	2.0	16	11	-	-	1.6	15
9.84	24.8	35.3	112.5	0.7	0.5	3.0	4	clayy SILT to silty CLAY	115	2.0	18	12	-	-	1.7	15
10.01	24.8	34.9	-	0.8	0.5	3.3	4	clayy SILT to silty CLAY	115	2.0	17	12	-	-	1.7	15
10.17	23.3	32.4	-	0.7	0.6	3.3	4	clayy SILT to silty CLAY	115	2.0	16	12	-	-	1.6	15
10.34	21.1	33.8	-	0.7	0.3	3.2	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.5	15
10.50	19.5	31.1	-	0.6	0.4	2.9	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.3	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(480).cpt
CPT Date: 12/10/2008 8:56:37 AM
GW During Test: 12 ft

Sounding ID: CPT-08-70
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	19.4	30.6	-	0.8	0.4	4.4	3	silty CLAY to CLAY	115	1.5	20	13	-	-	1.3	15
10.83	26.9	41.7	-	1.1	0.5	4.3	4	clayy SILT to silty CLAY	115	2.0	21	13	-	-	1.9	15
10.99	25.7	39.3	-	1.3	0.5	5.3	3	silty CLAY to CLAY	115	1.5	26	17	-	-	1.8	15
11.16	22.8	34.4	-	1.2	0.4	5.6	3	silty CLAY to CLAY	115	1.5	23	15	-	-	1.6	15
11.32	21.8	32.4	-	1.1	0.5	5.3	3	silty CLAY to CLAY	115	1.5	22	15	-	-	1.5	15
11.48	19.0	27.8	-	1.0	0.5	5.5	3	silty CLAY to CLAY	115	1.5	19	13	-	-	1.3	15
11.65	16.8	24.3	-	0.9	0.5	5.3	3	silty CLAY to CLAY	115	1.5	16	11	-	-	1.2	15
11.81	16.9	24.1	-	0.7	0.8	4.2	3	silty CLAY to CLAY	115	1.5	16	11	-	-	1.2	15
11.98	14.0	19.6	-	0.5	0.6	4.1	3	silty CLAY to CLAY	115	1.5	13	9	-	-	1.0	15
12.14	11.3	15.8	-	0.4	0.7	3.6	3	silty CLAY to CLAY	115	1.5	11	8	-	-	0.8	15
12.30	12.1	16.8	-	0.4	0.8	3.5	3	silty CLAY to CLAY	115	1.5	11	8	-	-	0.8	15
12.47	10.6	14.6	-	0.4	0.8	3.7	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.7	15
12.63	8.2	11.3	-	0.4	0.8	5.0	3	silty CLAY to CLAY	115	1.5	8	5	-	-	0.6	15
12.80	14.7	20.1	-	0.5	0.8	3.4	4	clayy SILT to silty CLAY	115	2.0	10	7	-	-	1.0	15
12.96	15.3	20.8	-	0.6	0.8	4.1	3	silty CLAY to CLAY	115	1.5	14	10	-	-	1.1	15
13.12	14.5	19.6	-	0.6	0.9	4.6	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.0	15
13.29	11.8	15.9	-	0.5	0.8	4.9	3	silty CLAY to CLAY	115	1.5	11	8	-	-	0.8	15
13.45	10.4	13.8	-	0.4	0.9	3.9	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
13.62	10.3	13.7	-	0.3	0.9	3.3	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
13.78	9.7	12.8	-	0.3	0.9	3.5	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.7	15
13.94	9.6	12.6	-	0.3	1.0	4.0	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
14.11	10.8	14.1	-	0.4	1.0	4.5	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
14.27	16.2	21.1	-	0.3	1.0	2.2	4	clayy SILT to silty CLAY	115	2.0	11	8	-	-	1.1	15
14.44	34.9	38.5	66.0	0.3	0.9	0.9	5	silty SAND to sandy SILT	120	4.0	10	9	36	39	-	16
14.60	34.2	37.6	75.9	0.4	0.4	1.3	5	silty SAND to sandy SILT	120	4.0	9	9	35	38	-	16
14.76	23.6	25.8	79.5	0.4	0.4	1.9	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.6	15
14.93	17.7	22.5	-	0.4	0.4	2.1	4	clayy SILT to silty CLAY	115	2.0	11	9	-	-	1.2	15
15.09	46.1	50.2	76.0	0.4	0.3	0.9	5	silty SAND to sandy SILT	120	4.0	13	12	44	40	-	16
15.26	66.9	72.7	89.9	0.5	-1.2	0.7	6	clean SAND to silty SAND	125	5.0	15	13	56	42	-	16
15.42	68.3	74.0	92.1	0.5	-0.9	0.8	6	clean SAND to silty SAND	125	5.0	15	14	57	42	-	16
15.58	76.9	83.0	99.3	0.6	-0.9	0.8	6	clean SAND to silty SAND	125	5.0	17	15	61	42	-	16
15.75	86.7	93.3	104.6	0.5	-1.3	0.6	6	clean SAND to silty SAND	125	5.0	19	17	65	43	-	16
15.91	93.2	100.0	110.2	0.6	-1.4	0.6	6	clean SAND to silty SAND	125	5.0	20	19	67	43	-	16
16.08	100.7	107.7	116.6	0.6	-1.4	0.6	6	clean SAND to silty SAND	125	5.0	22	20	69	44	-	16
16.24	92.5	98.6	112.8	0.7	-1.5	0.8	6	clean SAND to silty SAND	125	5.0	20	18	67	43	-	16
16.40	79.4	84.4	106.4	0.8	-1.4	1.0	6	clean SAND to silty SAND	125	5.0	17	16	61	42	-	16
16.57	69.1	73.2	95.0	0.6	-1.4	0.9	6	clean SAND to silty SAND	125	5.0	15	14	57	42	-	16
16.73	54.7	57.8	79.4	0.4	-2.6	0.8	6	clean SAND to silty SAND	125	5.0	12	11	49	40	-	16
16.90	27.2	28.7	76.8	0.4	-4.0	1.6	5	silty SAND to sandy SILT	120	4.0	7	7	26	36	-	16
17.06	13.4	15.6	-	0.3	-3.9	2.2	4	clayy SILT to silty CLAY	115	2.0	8	7	-	-	0.9	15
17.23	8.8	10.2	-	0.2	-2.2	2.2	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
17.39	6.8	7.9	-	0.1	-2.0	1.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
17.55	6.5	7.5	-	0.1	-1.8	2.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.72	7.8	9.0	-	0.2	-1.7	3.4	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
17.88	23.5	24.3	64.6	0.3	-1.6	1.2	5	silty SAND to sandy SILT	120	4.0	6	6	20	35	-	16
18.05	47.9	49.5	69.7	0.3	-1.7	0.7	6	clean SAND to silty SAND	125	5.0	10	10	44	39	-	16
18.21	42.3	43.6	76.8	0.5	-1.7	1.1	5	silty SAND to sandy SILT	120	4.0	11	11	40	38	-	16
18.37	39.6	40.7	74.8	0.4	-1.6	1.1	5	silty SAND to sandy SILT	120	4.0	10	10	37	38	-	16
18.54	53.8	55.2	79.8	0.5	-1.7	0.9	5	silty SAND to sandy SILT	120	4.0	14	13	47	40	-	16
18.70	69.6	71.3	89.6	0.5	0.2	0.8	6	clean SAND to silty SAND	125	5.0	14	14	56	41	-	16
18.87	65.8	67.1	88.6	0.6	0.0	0.9	6	clean SAND to silty SAND	125	5.0	13	13	54	41	-	16
19.03	59.1	60.1	86.9	0.6	0.0	1.0	5	silty SAND to sandy SILT	120	4.0	15	15	50	40	-	16
19.19	57.0	57.8	86.4	0.6	0.0	1.1	5	silty SAND to sandy SILT	120	4.0	14	14	49	40	-	16
19.36	59.9	60.7	84.7	0.5	-0.3	0.9	5	silty SAND to sandy SILT	120	4.0	15	15	51	40	-	16
19.52	61.6	62.2	90.8	0.7	2.2	1.1	5	silty SAND to sandy SILT	120	4.0	16	15	51	40	-	16
19.69	58.6	59.0	90.6	0.7	1.7	1.2	5	silty SAND to sandy SILT	120	4.0	15	15	50	40	-	16
19.85	53.3	53.5	85.8	0.6	1.4	1.2	5	silty SAND to sandy SILT	120	4.0	13	13	46	39	-	16
20.01	43.2	43.3	83.0	0.6	0.8	1.4	5	silty SAND to sandy SILT	120	4.0	11	11	39	38	-	16
20.18	23.1	24.5	-	0.5	0.7	2.2	4	clayy SILT to silty CLAY	115	2.0	12	12	-	-	1.6	15
20.34	12.6	13.2	-	0.3	0.9	3.0	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
20.51	8.7	9.2	-	0.1	1.2	1.9	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
20.67	7.4	7.8	-	0.1	1.6	1.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
20.83	7.2	7.5	-	0.1	1.8	2.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.00	7.4	7.7	-	0.2	2.0	3.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(480).cpt
CPT Date: 12/10/2008 8:56:37 AM
GW During Test: 12 ft

Sounding ID: CPT-08-70
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	7.5	7.7	-	0.2	2.2	2.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.33	7.6	7.8	-	0.2	2.4	3.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.49	10.3	10.6	-	0.3	2.6	2.8	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
21.65	32.6	31.9	56.9	0.2	2.6	0.7	5	silty SAND to sandy SILT	120	4.0	8	8	29	36	-	16
21.82	38.9	38.0	57.5	0.2	2.4	0.5	5	silty SAND to sandy SILT	120	4.0	10	10	35	37	-	16
21.98	43.1	42.0	65.0	0.3	1.5	0.7	5	silty SAND to sandy SILT	120	4.0	11	11	38	38	-	16
22.15	34.1	33.2	78.2	0.5	-0.2	1.5	5	silty SAND to sandy SILT	120	4.0	8	9	31	36	-	16
22.31	26.5	25.7	81.4	0.5	-0.6	2.0	4	clayy SILT to silty CLAY	115	2.0	13	13	-	-	1.8	15
22.47	16.6	16.5	-	0.3	-1.5	1.9	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.1	15
22.64	10.5	10.4	-	0.3	-1.5	2.9	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
22.80	9.5	9.3	-	0.2	-1.2	2.6	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
22.97	11.1	10.9	-	0.2	-0.9	1.9	4	clayy SILT to silty CLAY	115	2.0	5	6	-	-	0.7	15
23.13	10.2	10.0	-	0.1	-0.7	1.6	4	clayy SILT to silty CLAY	115	2.0	5	5	-	-	0.7	15
23.30	8.6	8.3	-	0.1	-0.5	1.3	4	clayy SILT to silty CLAY	115	2.0	4	4	-	-	0.6	15
23.46	8.4	8.1	-	0.1	-0.2	1.3	4	clayy SILT to silty CLAY	115	2.0	4	4	-	-	0.5	15
23.62	8.5	8.2	-	0.1	0.0	1.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
23.79	8.7	8.4	-	0.1	0.2	1.6	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
23.95	8.4	8.1	-	0.1	0.4	1.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
24.12	8.4	8.0	-	0.1	0.6	1.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
24.28	8.7	8.3	-	0.1	0.8	1.9	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
24.44	9.3	8.8	-	0.2	1.0	2.8	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
24.61	9.5	9.0	-	0.1	1.2	1.8	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
24.77	10.5	9.9	-	0.2	1.4	2.0	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
24.94	11.7	10.9	-	0.3	1.6	2.8	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
25.10	12.3	11.5	-	0.5	1.9	4.9	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
25.26	16.5	15.2	-	0.8	9.2	5.1	3	silty CLAY to CLAY	115	1.5	10	11	-	-	1.1	15
25.43	24.4	22.5	-	0.5	9.3	2.2	4	clayy SILT to silty CLAY	115	2.0	11	12	-	-	1.7	15
25.59	30.1	27.7	-	0.9	8.0	3.1	4	clayy SILT to silty CLAY	115	2.0	14	15	-	-	2.1	15
25.76	32.3	29.6	-	1.1	9.1	3.5	4	clayy SILT to silty CLAY	115	2.0	15	16	-	-	2.2	15
25.92	35.6	33.0	103.5	0.9	5.4	2.7	4	clayy SILT to silty CLAY	115	2.0	16	18	-	-	2.5	15
26.08	49.3	45.6	74.9	0.5	2.9	1.0	5	silty SAND to sandy SILT	120	4.0	11	12	41	38	-	16
26.25	58.7	54.3	76.2	0.4	-0.4	0.8	6	clean SAND to silty SAND	125	5.0	11	12	47	39	-	16
26.41	61.7	56.9	78.7	0.5	-0.8	0.8	6	clean SAND to silty SAND	125	5.0	11	12	48	39	-	16
26.58	61.4	56.4	82.5	0.6	-0.6	0.9	5	silty SAND to sandy SILT	120	4.0	14	15	48	39	-	16
26.74	56.8	52.2	83.1	0.6	-0.3	1.1	5	silty SAND to sandy SILT	120	4.0	13	14	46	38	-	16
26.90	56.2	51.5	85.7	0.7	-0.2	1.2	5	silty SAND to sandy SILT	120	4.0	13	14	45	38	-	16
27.07	46.8	42.8	82.5	0.6	-0.9	1.4	5	silty SAND to sandy SILT	120	4.0	11	12	39	37	-	16
27.23	26.5	23.3	-	0.6	5.0	2.3	4	clayy SILT to silty CLAY	115	2.0	12	13	-	-	1.8	15
27.40	16.3	14.4	-	0.5	5.4	3.5	3	silty CLAY to CLAY	115	1.5	10	11	-	-	1.1	15
27.56	11.9	10.4	-	0.3	4.8	3.0	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
27.72	9.8	8.6	-	0.3	5.3	3.7	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
27.89	10.1	8.8	-	0.3	6.7	3.8	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
28.05	11.2	9.7	-	0.4	7.9	3.7	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
28.22	13.1	11.2	-	0.4	9.2	3.2	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
28.38	31.7	28.5	70.8	0.4	9.6	1.3	5	silty SAND to sandy SILT	120	4.0	7	8	26	34	-	16
28.54	43.4	39.0	69.6	0.4	6.4	1.0	5	silty SAND to sandy SILT	120	4.0	10	11	36	36	-	16
28.71	53.1	47.6	66.7	0.3	5.9	0.6	6	clean SAND to silty SAND	125	5.0	10	11	42	38	-	16
28.87	46.8	41.9	71.9	0.4	2.3	1.0	5	silty SAND to sandy SILT	120	4.0	10	12	38	37	-	16
29.04	25.2	21.2	-	0.5	2.4	2.3	4	clayy SILT to silty CLAY	115	2.0	11	13	-	-	1.7	15
29.20	14.5	12.2	-	0.4	3.0	3.1	3	silty CLAY to CLAY	115	1.5	8	10	-	-	1.0	15
29.36	12.1	10.2	-	0.3	3.2	3.2	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
29.53	12.0	10.0	-	0.2	4.1	1.8	4	clayy SILT to silty CLAY	115	2.0	5	6	-	-	0.8	15
29.69	12.0	10.0	-	0.2	4.9	1.9	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
29.86	10.0	8.3	-	0.2	4.6	2.3	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
30.02	9.1	7.5	-	0.2	5.5	2.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.19	8.9	7.3	-	0.2	6.6	2.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.35	8.9	7.3	-	0.2	7.6	2.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.51	9.2	7.5	-	0.2	8.9	2.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.68	9.6	7.8	-	0.2	10.3	2.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.84	10.6	8.6	-	0.3	11.8	2.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
31.01	27.0	23.6	56.7	0.2	13.1	0.9	5	silty SAND to sandy SILT	120	4.0	6	7	19	33	-	16
31.17	45.1	39.3	60.8	0.3	9.7	0.6	5	silty SAND to sandy SILT	120	4.0	10	11	36	36	-	16
31.33	58.1	50.5	69.6	0.4	6.9	0.6	6	clean SAND to silty SAND	125	5.0	10	12	44	38	-	16
31.50	67.3	58.4	77.1	0.4	6.3	0.7	6	clean SAND to silty SAND	125	5.0	12	13	49	38	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(480).cpt
CPT Date: 12/10/2008 8:56:37 AM
GW During Test: 12 ft

Sounding ID: CPT-08-70
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	73.1	63.4	85.3	0.6	5.7	0.8	6	clean SAND to silty SAND	125	5.0	13	15	52	39	-	16
31.83	83.4	72.1	89.4	0.6	2.4	0.7	6	clean SAND to silty SAND	125	5.0	14	17	56	40	-	16
31.99	88.4	76.3	94.8	0.7	-0.8	0.8	6	clean SAND to silty SAND	125	5.0	15	18	58	40	-	16
32.15	88.1	75.9	99.0	0.8	-1.3	1.0	6	clean SAND to silty SAND	125	5.0	15	18	58	40	-	16
32.32	84.8	72.9	100.9	0.9	-0.9	1.1	5	silty SAND to sandy SILT	120	4.0	18	21	57	40	-	16
32.48	83.2	71.4	100.1	0.9	-0.7	1.1	5	silty SAND to sandy SILT	120	4.0	18	21	56	39	-	16
32.65	86.1	73.8	100.8	0.9	-0.7	1.1	5	silty SAND to sandy SILT	120	4.0	18	22	57	40	-	16
32.81	90.7	77.6	105.3	1.0	-0.6	1.2	5	silty SAND to sandy SILT	120	4.0	19	23	59	40	-	16
32.97	92.4	78.8	102.2	0.9	-0.4	1.0	6	clean SAND to silty SAND	125	5.0	16	18	59	40	-	16
33.14	100.4	85.5	104.2	0.8	-0.3	0.9	6	clean SAND to silty SAND	125	5.0	17	20	62	40	-	16
33.30	101.8	86.5	105.8	0.9	-1.0	0.9	6	clean SAND to silty SAND	125	5.0	17	20	62	40	-	16
33.47	100.7	85.4	107.5	1.0	-0.8	1.0	6	clean SAND to silty SAND	125	5.0	17	20	62	40	-	16
33.63	95.6	81.0	107.7	1.1	-0.5	1.1	6	clean SAND to silty SAND	125	5.0	16	19	60	40	-	16
33.79	91.5	77.4	106.8	1.1	-0.2	1.2	5	silty SAND to sandy SILT	120	4.0	19	23	59	40	-	16
33.96	89.3	75.3	105.9	1.1	0.0	1.2	5	silty SAND to sandy SILT	120	4.0	19	22	58	40	-	16
34.12	87.7	73.9	105.9	1.1	0.2	1.3	5	silty SAND to sandy SILT	120	4.0	18	22	57	40	-	16
34.29	88.7	74.5	105.9	1.1	0.4	1.3	5	silty SAND to sandy SILT	120	4.0	19	22	57	40	-	16
34.45	88.7	74.5	107.0	1.1	0.5	1.3	5	silty SAND to sandy SILT	120	4.0	19	22	57	40	-	16
34.61	82.3	68.9	106.9	1.2	0.6	1.5	5	silty SAND to sandy SILT	120	4.0	17	21	55	39	-	16
34.78	73.1	61.1	102.9	1.1	0.8	1.6	5	silty SAND to sandy SILT	120	4.0	15	18	51	38	-	16
34.94	73.3	61.2	92.3	0.8	0.4	1.2	5	silty SAND to sandy SILT	120	4.0	15	18	51	38	-	16
35.11	84.3	70.3	91.4	0.7	-1.8	0.9	6	clean SAND to silty SAND	125	5.0	14	17	55	39	-	16
35.27	83.7	69.6	93.2	0.8	-2.4	0.9	6	clean SAND to silty SAND	125	5.0	14	17	55	39	-	16
35.43	86.9	72.1	96.9	0.9	-1.1	1.0	6	clean SAND to silty SAND	125	5.0	14	17	56	39	-	16
35.60	91.2	75.6	102.5	1.0	-1.2	1.1	6	clean SAND to silty SAND	125	5.0	15	18	58	40	-	16
35.76	92.1	76.2	104.1	1.0	-1.3	1.1	5	silty SAND to sandy SILT	120	4.0	19	23	58	40	-	16
35.93	83.6	69.0	105.3	1.1	-1.1	1.4	5	silty SAND to sandy SILT	120	4.0	17	21	55	39	-	16
36.09	59.8	49.3	105.3	1.2	-1.0	2.0	5	silty SAND to sandy SILT	120	4.0	12	15	44	37	-	16
36.26	32.2	23.1	-	1.0	-0.8	3.4	4	clayy SILT to silty CLAY	115	2.0	12	16	-	-	2.2	15
36.42	21.3	15.2	-	0.8	-0.5	4.0	3	silty CLAY to CLAY	115	1.5	10	14	-	-	1.4	15
36.58	16.3	11.6	-	0.5	-0.3	3.2	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
36.75	13.6	9.7	-	0.3	0.3	2.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
36.91	12.5	8.9	-	0.3	0.8	2.5	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
37.08	12.5	8.8	-	0.2	1.2	2.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
37.24	12.2	8.6	-	0.2	1.6	2.5	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
37.40	12.8	9.0	-	0.5	1.9	4.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
37.57	23.5	16.4	-	0.5	2.4	2.6	4	clayy SILT to silty CLAY	115	2.0	8	12	-	-	1.6	15
37.73	70.7	57.4	83.8	0.7	2.1	1.0	5	silty SAND to sandy SILT	120	4.0	14	18	49	38	-	16
37.90	94.7	76.7	93.7	0.7	1.0	0.7	6	clean SAND to silty SAND	125	5.0	15	19	58	39	-	16
38.06	88.4	71.5	98.7	0.9	0.6	1.1	5	silty SAND to sandy SILT	120	4.0	18	22	56	39	-	16
38.22	54.9	44.4	97.8	1.0	0.3	1.9	5	silty SAND to sandy SILT	120	4.0	11	14	40	36	-	16
38.39	29.5	20.3	-	0.9	4.6	3.4	3	silty CLAY to CLAY	115	1.5	14	20	-	-	2.0	15
38.55	19.0	13.0	-	0.6	4.9	3.8	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
38.72	15.6	10.7	-	0.4	5.2	3.2	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
38.88	15.1	10.3	-	0.4	5.9	2.7	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
39.04	13.7	9.3	-	0.3	6.6	2.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
39.21	13.4	9.1	-	0.4	7.2	3.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
39.37	14.0	9.5	-	0.5	8.1	4.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
39.54	15.7	10.6	-	0.6	8.7	4.8	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
39.70	16.9	11.4	-	0.8	8.7	5.3	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
39.86	19.0	12.8	-	0.9	10.0	5.5	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
40.03	29.0	19.4	-	1.0	11.4	3.6	3	silty CLAY to CLAY	115	1.5	13	19	-	-	2.0	15
40.19	86.5	68.6	95.5	0.9	11.5	1.1	5	silty SAND to sandy SILT	120	4.0	17	22	55	39	-	16
40.36	159.4	126.3	132.1	1.0	3.8	0.6	6	clean SAND to silty SAND	125	5.0	25	32	75	42	-	16
40.52	193.1	152.7	152.7	1.1	3.1	0.6	6	clean SAND to silty SAND	125	5.0	31	39	81	43	-	16
40.68	207.8	164.1	164.3	1.4	3.2	0.7	6	clean SAND to silty SAND	125	5.0	33	42	83	43	-	16
40.85	213.9	168.5	170.9	1.6	3.3	0.8	6	clean SAND to silty SAND	125	5.0	34	43	84	43	-	16
41.01	213.2	167.7	170.4	1.6	3.5	0.8	6	clean SAND to silty SAND	125	5.0	34	43	84	43	-	16
41.18	195.0	153.2	161.9	1.6	3.5	0.9	6	clean SAND to silty SAND	125	5.0	31	39	81	43	-	16
41.34	180.7	141.6	150.6	1.4	3.6	0.8	6	clean SAND to silty SAND	125	5.0	28	36	78	42	-	16
41.50	172.1	134.7	142.4	1.2	3.8	0.7	6	clean SAND to silty SAND	125	5.0	27	34	77	42	-	16
41.67	170.4	133.1	139.2	1.1	4.0	0.7	6	clean SAND to silty SAND	125	5.0	27	34	76	42	-	16
41.83	172.6	134.6	138.7	1.1	5.1	0.6	6	clean SAND to silty SAND	125	5.0	27	35	77	42	-	16
42.00	170.9	133.1	137.1	1.0	5.1	0.6	6	clean SAND to silty SAND	125	5.0	27	34	76	42	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(480).cpt
CPT Date: 12/10/2008 8:56:37 AM
GW During Test: 12 ft

Sounding ID: CPT-08-70
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	160.7	125.0	130.1	1.0	5.2	0.6	6	clean SAND to silty SAND	125	5.0	25	32	74	42	-	16
42.32	151.3	117.5	124.7	0.9	5.3	0.6	6	clean SAND to silty SAND	125	5.0	23	30	72	41	-	16
42.49	141.6	109.7	121.2	1.0	5.5	0.7	6	clean SAND to silty SAND	125	5.0	22	28	70	41	-	16
42.65	132.4	102.4	119.1	1.1	5.6	0.9	6	clean SAND to silty SAND	125	5.0	20	26	68	41	-	16
42.82	120.8	93.3	116.9	1.3	5.7	1.1	6	clean SAND to silty SAND	125	5.0	19	24	65	40	-	16
42.98	110.4	85.1	116.8	1.4	5.8	1.3	5	silty SAND to sandy SILT	120	4.0	21	28	62	40	-	16
43.15	106.6	82.1	116.0	1.4	5.8	1.4	5	silty SAND to sandy SILT	120	4.0	21	27	60	39	-	16
43.31	109.5	84.2	116.2	1.4	5.8	1.3	5	silty SAND to sandy SILT	120	4.0	21	27	61	39	-	16
43.47	109.4	84.0	114.2	1.4	5.9	1.3	5	silty SAND to sandy SILT	120	4.0	21	27	61	39	-	16
43.64	113.5	87.0	113.2	1.3	5.9	1.1	6	clean SAND to silty SAND	125	5.0	17	23	62	40	-	16
43.80	107.3	82.1	109.6	1.2	6.0	1.2	6	clean SAND to silty SAND	125	5.0	16	21	60	39	-	16
43.97	98.9	75.6	105.9	1.2	6.1	1.2	5	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
44.13	94.4	72.0	106.6	1.2	6.2	1.4	5	silty SAND to sandy SILT	120	4.0	18	24	56	39	-	16
44.29	94.0	71.7	104.5	1.2	6.2	1.3	5	silty SAND to sandy SILT	120	4.0	18	24	56	39	-	16
44.46	97.9	74.5	102.8	1.1	6.1	1.1	5	silty SAND to sandy SILT	120	4.0	19	24	57	39	-	16
44.62	97.5	74.1	104.9	1.2	5.4	1.2	5	silty SAND to sandy SILT	120	4.0	19	24	57	39	-	16
44.79	83.7	63.5	108.6	1.4	6.0	1.7	5	silty SAND to sandy SILT	120	4.0	16	21	52	38	-	16
44.95	47.4	28.8	-	1.4	5.9	3.1	4	clayy SILT to silty CLAY	115	2.0	14	24	-	-	3.3	15
45.11	32.3	19.6	-	1.2	6.2	4.0	3	silty CLAY to CLAY	115	1.5	13	22	-	-	2.2	15
45.28	29.7	18.0	-	0.8	6.8	3.0	3	silty CLAY to CLAY	115	1.5	12	20	-	-	2.0	15
45.44	21.3	12.9	-	0.5	6.3	2.4	3	silty CLAY to CLAY	115	1.5	9	14	-	-	1.4	15
45.61	16.0	9.6	-	0.4	7.4	3.0	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
45.77	17.1	10.3	-	0.4	9.3	2.8	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
45.93	28.8	17.2	-	0.5	11.0	2.1	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.9	15
46.10	25.2	15.1	-	0.6	10.7	2.5	4	clayy SILT to silty CLAY	115	2.0	8	13	-	-	1.7	15
46.26	39.9	29.9	73.4	0.5	10.8	1.3	5	silty SAND to sandy SILT	120	4.0	7	10	27	33	-	16
46.43	30.5	18.1	-	0.4	8.4	1.6	4	clayy SILT to silty CLAY	115	2.0	9	15	-	-	2.1	15
46.59	19.2	11.4	-	0.5	8.9	2.8	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
46.75	16.2	9.6	-	0.5	10.5	3.4	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
46.92	24.3	14.3	-	0.5	12.1	2.1	4	clayy SILT to silty CLAY	115	2.0	7	12	-	-	1.6	15
47.08	37.1	27.7	73.9	0.5	12.4	1.4	5	silty SAND to sandy SILT	120	4.0	7	9	25	32	-	16
47.25	49.3	36.7	84.7	0.7	11.0	1.6	5	silty SAND to sandy SILT	120	4.0	9	12	34	34	-	16
47.41	48.4	36.0	81.8	0.7	9.9	1.5	5	silty SAND to sandy SILT	120	4.0	9	12	33	34	-	16
47.57	48.8	36.2	87.2	0.8	7.0	1.7	5	silty SAND to sandy SILT	120	4.0	9	12	33	34	-	16
47.74	33.7	19.6	-	1.1	6.5	3.7	3	silty CLAY to CLAY	115	1.5	13	22	-	-	2.3	15
47.90	31.3	18.2	-	1.0	7.7	3.3	3	silty CLAY to CLAY	115	1.5	12	21	-	-	2.1	15
48.07	140.3	103.7	116.6	1.0	8.7	0.7	6	clean SAND to silty SAND	125	5.0	21	28	68	40	-	16
48.23	175.1	129.2	139.6	1.4	3.0	0.8	6	clean SAND to silty SAND	125	5.0	26	35	75	41	-	16
48.39	176.7	130.2	148.1	1.8	3.3	1.0	6	clean SAND to silty SAND	125	5.0	26	35	76	42	-	16
48.56	174.6	128.4	154.5	2.3	3.4	1.3	6	clean SAND to silty SAND	125	5.0	26	35	75	41	-	16
48.72	157.4	115.6	148.9	2.3	3.5	1.5	6	clean SAND to silty SAND	125	5.0	23	31	72	41	-	16
48.89	132.1	96.9	135.9	2.1	3.5	1.6	5	silty SAND to sandy SILT	120	4.0	24	33	66	40	-	16
49.05	109.1	80.0	123.2	1.8	3.6	1.7	5	silty SAND to sandy SILT	120	4.0	20	27	60	39	-	16
49.22	96.9	70.9	122.1	1.8	3.7	1.9	5	silty SAND to sandy SILT	120	4.0	18	24	56	38	-	16
49.38	69.1	50.5	140.0	2.2	3.8	3.4	4	clayy SILT to silty CLAY	115	2.0	25	35	-	-	4.8	15
49.54	41.3	23.3	-	1.9	3.9	4.9	3	silty CLAY to CLAY	115	1.5	16	28	-	-	2.8	15
49.71	45.2	25.5	-	1.3	4.3	3.1	4	clayy SILT to silty CLAY	115	2.0	13	23	-	-	3.1	15
49.87	129.3	94.1	115.7	1.3	4.6	1.0	6	clean SAND to silty SAND	125	5.0	19	26	65	40	-	16
50.04	140.6	102.2	119.0	1.2	3.2	0.9	6	clean SAND to silty SAND	125	5.0	20	28	68	40	-	16
50.20	124.6	90.4	117.2	1.4	3.3	1.2	6	clean SAND to silty SAND	125	5.0	18	25	64	39	-	16
50.36	115.8	83.9	109.5	1.2	3.4	1.1	6	clean SAND to silty SAND	125	5.0	17	23	61	39	-	16
50.53	117.2	84.8	112.2	1.3	2.2	1.2	6	clean SAND to silty SAND	125	5.0	17	23	62	39	-	16
50.69	90.2	65.2	117.0	1.7	0.4	1.9	5	silty SAND to sandy SILT	120	4.0	16	23	53	38	-	16
50.86	52.4	28.9	-	1.7	0.7	3.3	4	clayy SILT to silty CLAY	115	2.0	14	26	-	-	3.6	15
51.02	35.8	19.7	-	1.2	1.0	3.8	3	silty CLAY to CLAY	115	1.5	13	24	-	-	2.4	15
51.18	30.7	16.8	-	0.7	1.4	2.6	4	clayy SILT to silty CLAY	115	2.0	8	15	-	-	2.1	15
51.35	23.8	13.0	-	0.5	1.6	2.5	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
51.51	15.3	8.4	-	0.4	6.0	3.3	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
51.68	14.0	7.7	-	0.3	7.1	2.8	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
51.84	14.6	8.0	-	0.4	8.2	3.4	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
52.00	20.2	11.0	-	0.3	9.3	1.9	4	clayy SILT to silty CLAY	115	2.0	5	10	-	-	1.3	15
52.17	14.9	8.1	-	0.4	9.7	3.4	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
52.33	20.0	10.8	-	0.5	11.1	2.7	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
52.50	23.8	12.8	-	0.7	11.8	3.2	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(480).cpt
CPT Date: 12/10/2008 8:56:37 AM
GW During Test: 12 ft

Sounding ID: CPT-08-70
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	18.3	9.8	-	1.0	12.8	6.7	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
52.82	89.1	63.4	110.2	1.5	14.3	1.7	5	silty SAND to sandy SILT	120	4.0	16	22	52	37	-	16
52.99	162.0	115.2	144.7	2.2	11.5	1.4	6	clean SAND to silty SAND	125	5.0	23	32	72	41	-	16
53.15	211.3	150.0	164.8	2.1	6.6	1.0	6	clean SAND to silty SAND	125	5.0	30	42	80	42	-	16
53.32	210.0	148.8	156.0	1.6	4.4	0.8	6	clean SAND to silty SAND	125	5.0	30	42	80	42	-	16
53.48	212.2	150.2	150.2	1.2	4.2	0.6	6	clean SAND to silty SAND	125	5.0	30	42	80	42	-	16
53.64	172.1	121.6	126.6	1.0	2.8	0.6	6	clean SAND to silty SAND	125	5.0	24	34	73	41	-	16
53.81	130.1	91.8	106.1	0.9	2.9	0.7	6	clean SAND to silty SAND	125	5.0	18	26	64	39	-	16
53.97	107.7	75.9	97.0	0.9	3.0	0.9	6	clean SAND to silty SAND	125	5.0	15	22	58	38	-	16
54.14	88.0	61.9	89.2	0.9	3.3	1.0	5	silty SAND to sandy SILT	120	4.0	15	22	51	37	-	16
54.30	57.3	40.3	90.1	0.9	3.6	1.7	5	silty SAND to sandy SILT	120	4.0	10	14	37	34	-	16
54.46	43.8	22.9	-	0.9	3.8	2.1	4	clayy SILT to silty CLAY	115	2.0	11	22	-	-	3.0	15
54.63	40.0	20.9	-	0.7	3.8	2.0	4	clayy SILT to silty CLAY	115	2.0	10	20	-	-	2.7	15
54.79	27.7	14.4	-	0.6	3.7	2.4	4	clayy SILT to silty CLAY	115	2.0	7	14	-	-	1.8	15
54.96	16.8	8.7	-	0.5	4.4	3.8	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
55.12	16.1	8.3	-	0.5	5.7	3.7	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
55.28	20.8	10.7	-	0.4	8.9	2.6	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.4	15
55.45	17.7	9.1	-	0.5	9.5	3.6	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
55.61	23.1	11.9	-	0.4	10.6	2.0	4	clayy SILT to silty CLAY	115	2.0	6	12	-	-	1.5	15
55.78	31.6	16.2	-	0.5	10.7	1.8	4	clayy SILT to silty CLAY	115	2.0	8	16	-	-	2.1	15
55.94	34.5	17.7	-	0.5	11.2	1.7	4	clayy SILT to silty CLAY	115	2.0	9	17	-	-	2.3	15
56.11	45.5	31.6	74.9	0.6	11.2	1.3	5	silty SAND to sandy SILT	120	4.0	8	11	29	33	-	16
56.27	49.0	34.0	78.5	0.6	10.6	1.4	5	silty SAND to sandy SILT	120	4.0	8	12	31	33	-	16
56.43	55.9	38.7	82.1	0.7	9.7	1.4	5	silty SAND to sandy SILT	120	4.0	10	14	36	34	-	16
56.60	42.9	21.8	-	1.1	9.0	2.7	4	clayy SILT to silty CLAY	115	2.0	11	21	-	-	2.9	15
56.76	27.9	14.1	-	0.9	9.8	3.7	3	silty CLAY to CLAY	115	1.5	9	19	-	-	1.9	15
56.93	20.3	10.3	-	0.8	10.6	4.7	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.3	15
57.09	23.5	11.9	-	0.9	11.6	4.4	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.5	15
57.25	27.6	13.9	-	0.7	12.1	2.7	3	silty CLAY to CLAY	115	1.5	9	18	-	-	1.8	15
57.42	47.4	32.6	76.2	0.6	12.2	1.4	5	silty SAND to sandy SILT	120	4.0	8	12	30	33	-	16
57.58	38.4	19.2	-	0.9	9.7	2.5	4	clayy SILT to silty CLAY	115	2.0	10	19	-	-	2.6	15
57.75	20.2	10.1	-	0.8	10.6	4.8	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
57.91	16.6	8.3	-	0.5	18.1	4.2	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
58.07	16.8	8.4	-	0.5	19.6	3.4	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
58.24	16.2	8.0	-	0.9	20.0	6.8	3	silty CLAY to CLAY	115	1.5	5	11	-	-	1.0	15
58.40	26.4	13.1	-	0.8	21.4	3.6	3	silty CLAY to CLAY	115	1.5	9	18	-	-	1.7	15
58.57	88.4	60.4	84.7	0.8	19.9	0.9	5	silty SAND to sandy SILT	120	4.0	15	22	50	37	-	16
58.73	127.9	87.3	98.8	0.7	13.8	0.6	6	clean SAND to silty SAND	125	5.0	17	26	63	39	-	16
58.89	159.2	108.5	115.0	0.8	13.0	0.5	6	clean SAND to silty SAND	125	5.0	22	32	70	40	-	16
59.06	183.7	125.0	127.9	1.0	13.0	0.5	6	clean SAND to silty SAND	125	5.0	25	37	74	41	-	16
59.22	202.4	137.6	139.8	1.2	12.8	0.6	6	clean SAND to silty SAND	125	5.0	28	40	78	41	-	16
59.39	214.3	145.5	146.4	1.3	12.6	0.6	6	clean SAND to silty SAND	125	5.0	29	43	79	42	-	16
59.55	228.5	154.9	154.9	1.4	12.6	0.6	6	clean SAND to silty SAND	125	5.0	31	46	81	42	-	16
59.71	246.8	167.1	167.1	1.5	12.6	0.6	6	clean SAND to silty SAND	125	5.0	33	49	84	42	-	16
59.88	253.6	171.5	171.5	1.1	12.4	0.5	6	clean SAND to silty SAND	125	5.0	34	51	85	42	-	16
60.04	264.8	178.8	178.8	1.1	12.6	0.4	6	clean SAND to silty SAND	125	5.0	36	53	86	43	-	16
60.21	287.4	193.9	193.9	1.1	12.1	0.4	6	clean SAND to silty SAND	125	5.0	39	57	89	43	-	16
60.37	325.3	219.1	219.1	1.1	12.2	0.4	6	clean SAND to silty SAND	125	5.0	44	65	93	44	-	16
60.53	325.7	219.1	219.1	1.6	10.0	0.5	6	clean SAND to silty SAND	125	5.0	44	65	93	44	-	16
60.70	329.3	221.3	221.3	1.9	11.7	0.6	6	clean SAND to silty SAND	125	5.0	44	66	93	44	-	16
60.86	327.7	220.0	220.0	1.8	10.7	0.5	6	clean SAND to silty SAND	125	5.0	44	66	93	44	-	16
61.03	330.9	221.8	221.8	1.2	10.6	0.4	6	clean SAND to silty SAND	125	5.0	44	66	93	44	-	16
61.19	348.1	233.1	233.1	1.5	10.8	0.4	6	clean SAND to silty SAND	125	5.0	47	70	95	44	-	16
61.35	348.0	232.8	232.8	2.0	12.7	0.6	6	clean SAND to silty SAND	125	5.0	47	70	95	44	-	16
61.52	341.5	228.1	228.1	1.8	12.5	0.5	6	clean SAND to silty SAND	125	5.0	46	68	94	44	-	16
61.68	344.8	230.0	230.0	1.6	12.0	0.5	6	clean SAND to silty SAND	125	5.0	46	69	94	44	-	16
61.85	342.5	228.2	228.2	1.1	12.1	0.3	6	clean SAND to silty SAND	125	5.0	46	69	94	44	-	16
62.01	335.3	223.2	223.2	1.1	12.2	0.3	6	clean SAND to silty SAND	125	5.0	45	67	93	44	-	16
62.17	343.4	228.3	228.3	1.1	12.2	0.3	6	clean SAND to silty SAND	125	5.0	46	69	94	44	-	16
62.34	346.7	230.2	230.2	1.3	12.8	0.4	6	clean SAND to silty SAND	125	5.0	46	69	95	44	-	16
62.50	359.4	238.3	238.3	1.4	12.8	0.4	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
62.67	369.3	244.6	244.6	1.4	12.8	0.4	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
62.83	387.7	256.5	256.5	1.4	12.8	0.4	6	clean SAND to silty SAND	125	5.0	51	78	95	44	-	16
63.00	397.0	262.4	262.4	1.9	13.0	0.5	6	clean SAND to silty SAND	125	5.0	52	79	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(480).cpt
CPT Date: 12/10/2008 8:56:37 AM
GW During Test: 12 ft

Sounding ID: CPT-08-70
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	398.7	263.2	263.2	1.6	13.0	0.4	6	clean SAND to silty SAND	125	5.0	53	80	95	44	-	16
63.32	403.5	266.0	266.0	2.3	11.6	0.6	6	clean SAND to silty SAND	125	5.0	53	81	95	44	-	16
63.49	423.8	279.0	279.0	1.8	12.2	0.4	6	clean SAND to silty SAND	125	5.0	56	85	95	45	-	16
63.65	433.3	285.0	285.0	1.8	13.0	0.4	7	grvly SAND to dense SAND	130	6.0	47	72	95	45	-	16
63.82	431.9	283.7	283.7	1.6	12.3	0.4	7	grvly SAND to dense SAND	130	6.0	47	72	95	45	-	16
63.98	416.9	273.5	273.5	1.4	12.4	0.3	7	grvly SAND to dense SAND	130	6.0	46	69	95	44	-	16
64.14	423.5	277.5	277.5	1.6	12.6	0.4	7	grvly SAND to dense SAND	130	6.0	46	71	95	44	-	16
64.31	423.1	276.8	276.8	1.2	12.7	0.3	7	grvly SAND to dense SAND	130	6.0	46	71	95	44	-	16
64.47	445.1	290.9	290.9	1.8	12.8	0.4	7	grvly SAND to dense SAND	130	6.0	48	74	95	45	-	16
64.64	444.6	290.2	290.2	1.5	13.2	0.3	7	grvly SAND to dense SAND	130	6.0	48	74	95	45	-	16
64.80	413.8	269.8	269.8	1.6	13.3	0.4	7	grvly SAND to dense SAND	130	6.0	45	69	95	44	-	16
64.96	408.3	265.8	265.8	1.6	13.0	0.4	6	clean SAND to silty SAND	125	5.0	53	82	95	44	-	16
65.13	406.9	264.7	264.7	1.8	12.7	0.5	6	clean SAND to silty SAND	125	5.0	53	81	95	44	-	16
65.29	397.5	258.2	258.2	1.4	12.7	0.4	7	grvly SAND to dense SAND	130	6.0	43	66	95	44	-	16
65.46	405.5	263.1	263.1	1.6	12.7	0.4	6	clean SAND to silty SAND	125	5.0	53	81	95	44	-	16
65.62	423.1	274.2	274.2	2.2	12.5	0.5	6	clean SAND to silty SAND	125	5.0	55	85	95	44	-	16
65.78	414.6	268.4	268.4	2.0	12.3	0.5	6	clean SAND to silty SAND	125	5.0	54	83	95	44	-	16
65.95	391.6	253.2	253.2	2.4	13.0	0.6	6	clean SAND to silty SAND	125	5.0	51	78	95	44	-	16
66.11	429.3	277.3	277.3	2.1	13.4	0.5	6	clean SAND to silty SAND	125	5.0	55	86	95	44	-	16
66.28	485.7	313.4	313.4	1.9	13.1	0.4	7	grvly SAND to dense SAND	130	6.0	52	81	95	45	-	16
66.44	502.8	324.0	324.0	1.2	12.5	0.2	7	grvly SAND to dense SAND	130	6.0	54	84	95	45	-	16
66.60	558.9	359.7	359.7	2.1	11.8	0.4	7	grvly SAND to dense SAND	130	6.0	60	93	95	46	-	16
66.77	548.7	352.7	352.7	3.0	11.9	0.6	6	clean SAND to silty SAND	125	5.0	71	100	95	45	-	16
66.93	522.5	335.5	335.5	5.5	11.2	1.1	6	clean SAND to silty SAND	125	5.0	67	100	95	45	-	16
67.10	477.5	306.3	306.3	3.2	11.2	0.7	6	clean SAND to silty SAND	125	5.0	61	96	95	45	-	16
67.26	455.0	291.5	291.5	1.9	12.3	0.4	7	grvly SAND to dense SAND	130	6.0	49	76	95	45	-	16
67.42	428.1	273.9	273.9	1.3	12.3	0.3	7	grvly SAND to dense SAND	130	6.0	46	71	95	44	-	16
67.59	397.4	253.9	253.9	1.3	12.1	0.3	7	grvly SAND to dense SAND	130	6.0	42	66	95	44	-	16
67.75	379.7	242.4	245.8	4.1	15.7	1.1	6	clean SAND to silty SAND	125	5.0	48	76	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(406).cpt
CPT Date: 11/17/2008 12:19:58 PM
GW During Test: 12 ft

Sounding ID: CPT-08-71
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	22.7	36.5	55.1	0.1	0.0	0.5	5	silty SAND to sandy SILT	120	4.0	9	6	34	48	-	16
0.49	13.1	21.0	33.2	0.0	0.0	0.1	5	silty SAND to sandy SILT	120	4.0	5	3	15	48	-	16
0.66	15.1	24.3	35.4	0.0	0.0	0.1	5	silty SAND to sandy SILT	120	4.0	6	4	20	47	-	16
0.82	18.7	29.9	56.1	0.1	0.0	0.7	5	silty SAND to sandy SILT	120	4.0	7	5	27	47	-	16
0.98	30.7	49.2	78.5	0.3	0.1	1.1	5	silty SAND to sandy SILT	120	4.0	12	8	44	48	-	16
1.15	39.3	63.1	87.5	0.4	0.1	1.0	5	silty SAND to sandy SILT	120	4.0	16	10	52	48	-	16
1.31	35.4	56.8	87.1	0.4	0.1	1.1	5	silty SAND to sandy SILT	120	4.0	14	9	48	48	-	16
1.48	27.3	43.7	78.9	0.3	0.1	1.2	5	silty SAND to sandy SILT	120	4.0	11	7	40	46	-	16
1.64	26.0	41.6	80.8	0.4	0.1	1.4	5	silty SAND to sandy SILT	120	4.0	10	6	38	45	-	16
1.80	55.3	88.6	123.8	0.8	0.1	1.5	5	silty SAND to sandy SILT	120	4.0	22	14	63	48	-	16
1.97	149.2	239.3	239.3	1.5	0.1	1.0	6	clean SAND to silty SAND	125	5.0	48	30	95	48	-	16
2.13	141.2	226.4	226.4	1.3	0.0	0.9	6	clean SAND to silty SAND	125	5.0	45	28	94	48	-	16
2.30	99.8	160.0	172.9	1.0	0.1	1.0	6	clean SAND to silty SAND	125	5.0	32	20	83	48	-	16
2.46	105.2	168.8	179.5	1.0	0.1	1.0	6	clean SAND to silty SAND	125	5.0	34	21	84	48	-	16
2.62	102.9	165.1	179.3	1.1	0.1	1.1	6	clean SAND to silty SAND	125	5.0	33	21	84	48	-	16
2.79	103.0	165.2	180.7	1.1	0.1	1.1	6	clean SAND to silty SAND	125	5.0	33	21	84	48	-	16
2.95	94.5	151.5	172.4	1.2	0.1	1.2	6	clean SAND to silty SAND	125	5.0	30	19	81	48	-	16
3.12	73.3	117.6	158.9	1.3	0.1	1.8	5	silty SAND to sandy SILT	120	4.0	29	18	72	47	-	16
3.28	49.7	79.8	161.3	1.5	0.1	3.1	5	silty SAND to sandy SILT	120	4.0	20	12	60	45	-	16
3.45	39.0	62.5	167.2	1.6	0.2	4.1	4	clayy SILT to silty CLAY	115	2.0	31	20	-	-	2.7	15
3.61	39.4	63.1	153.3	1.4	0.2	3.5	4	clayy SILT to silty CLAY	115	2.0	32	20	-	-	2.8	15
3.77	40.1	64.4	143.0	1.2	0.1	3.0	5	silty SAND to sandy SILT	120	4.0	16	10	52	44	-	16
3.94	42.0	67.3	149.5	1.3	-0.3	3.1	4	clayy SILT to silty CLAY	115	2.0	34	21	-	-	3.0	15
4.10	46.2	74.1	160.4	1.5	-0.4	3.3	5	silty SAND to sandy SILT	120	4.0	19	12	57	44	-	16
4.27	39.3	63.1	183.0	1.8	-0.3	4.7	4	clayy SILT to silty CLAY	115	2.0	32	20	-	-	2.8	15
4.43	57.1	91.5	187.3	2.0	-0.2	3.6	5	silty SAND to sandy SILT	120	4.0	23	14	64	45	-	16
4.59	67.7	108.6	215.5	2.6	-0.4	3.9	8	stiff SAND to clayy SAND	115	1.0	100	68	-	-	4.5	16
4.76	69.2	111.0	199.8	2.3	-0.3	3.3	5	silty SAND to sandy SILT	120	4.0	28	17	70	46	-	16
4.92	59.8	95.9	209.5	2.5	0.2	4.2	4	clayy SILT to silty CLAY	115	2.0	48	30	-	-	4.2	15
5.09	54.8	87.8	205.7	2.4	0.4	4.4	4	clayy SILT to silty CLAY	115	2.0	44	27	-	-	3.9	15
5.25	55.4	88.8	208.2	2.4	0.4	4.4	4	clayy SILT to silty CLAY	115	2.0	44	28	-	-	3.9	15
5.41	55.2	88.6	204.5	2.4	0.5	4.3	4	clayy SILT to silty CLAY	115	2.0	44	28	-	-	3.9	15
5.58	55.4	88.8	211.4	2.5	0.4	4.5	4	clayy SILT to silty CLAY	115	2.0	44	28	-	-	3.9	15
5.74	63.6	102.0	221.6	2.7	0.4	4.3	9	very stiff fine SOIL	120	2.0	51	32	68	45	-	30
5.91	69.5	111.4	238.1	3.1	-3.0	4.5	9	very stiff fine SOIL	120	2.0	56	35	71	45	-	30
6.07	69.8	111.9	243.8	3.2	-4.2	4.7	9	very stiff fine SOIL	120	2.0	56	35	71	45	-	30
6.23	61.9	98.6	224.2	2.8	-5.0	4.6	9	very stiff fine SOIL	120	2.0	49	31	67	45	-	30
6.40	64.4	101.2	206.2	2.5	-4.8	3.9	5	silty SAND to sandy SILT	120	4.0	25	16	67	45	-	16
6.56	57.8	89.7	196.0	2.3	-4.5	3.9	4	clayy SILT to silty CLAY	115	2.0	45	29	-	-	4.1	15
6.73	52.8	81.0	179.0	1.9	-4.3	3.7	4	clayy SILT to silty CLAY	115	2.0	40	26	-	-	3.7	15
6.89	43.0	65.1	175.9	1.8	-4.1	4.3	4	clayy SILT to silty CLAY	115	2.0	33	21	-	-	3.0	15
7.05	45.1	67.6	190.3	2.1	-4.1	4.7	4	clayy SILT to silty CLAY	115	2.0	34	23	-	-	3.2	15
7.22	80.0	118.5	199.4	2.4	-4.1	3.1	5	silty SAND to sandy SILT	120	4.0	30	20	73	45	-	16
7.38	112.9	165.4	215.4	2.5	-3.6	2.2	5	silty SAND to sandy SILT	120	4.0	41	28	84	47	-	16
7.55	202.2	292.9	292.9	2.1	-3.1	1.0	6	clean SAND to silty SAND	125	5.0	59	40	95	48	-	16
7.71	300.2	430.0	430.0	1.9	-1.1	0.6	7	grvly SAND to dense SAND	130	6.0	72	50	95	48	-	16
7.87	276.5	391.5	391.5	2.0	-0.3	0.7	6	clean SAND to silty SAND	125	5.0	78	55	95	48	-	16
8.04	207.9	291.3	291.3	1.7	0.0	0.8	6	clean SAND to silty SAND	125	5.0	58	42	95	48	-	16
8.20	149.2	206.8	221.3	1.8	0.1	1.2	6	clean SAND to silty SAND	125	5.0	41	30	91	48	-	16
8.37	91.5	125.5	178.0	2.0	0.2	2.2	5	silty SAND to sandy SILT	120	4.0	31	23	74	45	-	16
8.53	49.6	67.5	164.3	1.8	0.2	3.7	4	clayy SILT to silty CLAY	115	2.0	34	25	-	-	3.5	15
8.69	35.2	56.4	-	2.2	0.2	6.2	3	silty CLAY to CLAY	115	1.5	38	23	-	-	2.5	15
8.86	46.8	62.4	168.6	1.9	-0.2	4.1	4	clayy SILT to silty CLAY	115	2.0	31	23	-	-	3.3	15
9.02	40.9	54.1	157.9	1.7	-0.1	4.1	4	clayy SILT to silty CLAY	115	2.0	27	20	-	-	2.9	15
9.19	36.6	48.0	141.0	1.3	0.2	3.7	4	clayy SILT to silty CLAY	115	2.0	24	18	-	-	2.6	15
9.35	36.9	47.9	141.2	1.3	0.1	3.7	4	clayy SILT to silty CLAY	115	2.0	24	18	-	-	2.6	15
9.51	30.3	44.3	140.9	1.2	0.0	3.9	4	clayy SILT to silty CLAY	115	2.0	22	15	-	-	2.1	15
9.68	23.5	37.7	-	1.0	-0.1	4.3	4	clayy SILT to silty CLAY	115	2.0	19	12	-	-	1.6	15
9.84	21.1	33.9	-	0.8	-0.1	4.0	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.5	15
10.01	17.9	28.7	-	0.7	-0.4	4.3	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.2	15
10.17	14.6	23.5	-	0.6	-0.4	4.0	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.0	15
10.34	14.1	22.6	-	0.6	-0.4	4.7	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.0	15
10.50	19.4	31.0	-	0.8	-1.5	4.1	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.3	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(406).cpt
CPT Date: 11/17/2008 12:19:58 PM
GW During Test: 12 ft

Sounding ID: CPT-08-71
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	19.4	30.6	-	1.1	-5.4	5.9	3	silty CLAY to CLAY	115	1.5	20	13	-	-	1.3	15
10.83	26.8	41.6	-	1.5	-5.3	5.6	3	silty CLAY to CLAY	115	1.5	28	18	-	-	1.9	15
10.99	32.9	50.5	-	1.8	-5.2	5.7	3	silty CLAY to CLAY	115	1.5	34	22	-	-	2.3	15
11.16	37.4	56.5	-	1.9	-5.0	5.3	4	clayy SILT to silty CLAY	115	2.0	28	19	-	-	2.6	15
11.32	35.2	52.5	-	1.9	-5.0	5.4	4	clayy SILT to silty CLAY	115	2.0	26	18	-	-	2.5	15
11.48	31.4	46.1	-	1.7	-5.0	5.6	3	silty CLAY to CLAY	115	1.5	31	21	-	-	2.2	15
11.65	28.7	41.5	-	1.5	-5.0	5.5	3	silty CLAY to CLAY	115	1.5	28	19	-	-	2.0	15
11.81	26.0	37.2	-	1.4	-4.9	5.6	3	silty CLAY to CLAY	115	1.5	25	17	-	-	1.8	15
11.98	22.9	32.2	-	1.3	-4.9	5.8	3	silty CLAY to CLAY	115	1.5	21	15	-	-	1.6	15
12.14	19.8	27.8	-	1.1	-4.9	6.0	3	silty CLAY to CLAY	115	1.5	19	13	-	-	1.4	15
12.30	18.6	25.9	-	1.1	-4.9	6.4	3	silty CLAY to CLAY	115	1.5	17	12	-	-	1.3	15
12.47	16.7	23.1	-	1.1	-4.7	6.6	3	silty CLAY to CLAY	115	1.5	15	11	-	-	1.1	15
12.63	18.3	25.2	-	1.0	-4.7	5.5	3	silty CLAY to CLAY	115	1.5	17	12	-	-	1.3	15
12.80	17.1	23.4	-	1.0	-4.7	6.0	3	silty CLAY to CLAY	115	1.5	16	11	-	-	1.2	15
12.96	19.2	26.1	-	0.8	-4.6	4.5	3	silty CLAY to CLAY	115	1.5	17	13	-	-	1.3	15
13.12	19.9	26.9	-	0.7	-4.7	3.9	4	clayy SILT to silty CLAY	115	2.0	13	10	-	-	1.4	15
13.29	10.3	13.8	-	0.6	-4.7	6.4	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
13.45	6.9	9.2	-	0.5	-4.7	8.4	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
13.62	8.5	11.3	-	0.6	-4.7	7.4	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
13.78	7.0	9.3	-	0.7	-4.8	9.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
13.94	7.3	9.6	-	0.7	-4.7	9.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
14.11	9.2	12.0	-	0.8	-4.8	9.2	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
14.27	7.8	10.1	-	0.8	-4.7	9.9	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
14.44	6.1	7.9	-	0.6	-4.7	9.9	2	Organic SOILS - Peats	100	1.0	8	6	-	-	0.6	10
14.60	5.3	6.8	-	0.6	-4.7	9.9	2	Organic SOILS - Peats	100	1.0	7	5	-	-	0.5	10
14.76	6.6	8.4	-	0.5	-4.7	9.3	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
14.93	6.9	8.8	-	0.5	-4.7	8.6	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.4	15
15.09	5.7	7.2	-	0.5	-4.7	9.4	2	Organic SOILS - Peats	100	1.0	7	6	-	-	0.5	10
15.26	34.7	37.9	85.8	0.6	-4.7	1.7	5	silty SAND to sandy SILT	120	4.0	9	9	35	38	-	16
15.42	67.9	73.9	101.0	0.7	-4.6	1.1	5	silty SAND to sandy SILT	120	4.0	18	17	57	42	-	16
15.58	83.5	90.6	115.4	0.9	-4.6	1.1	6	clean SAND to silty SAND	125	5.0	18	17	64	43	-	16
15.75	81.7	88.3	118.0	1.0	-4.6	1.3	6	clean SAND to silty SAND	125	5.0	18	16	63	43	-	16
15.91	80.9	87.2	117.5	1.0	-4.5	1.3	5	silty SAND to sandy SILT	120	4.0	22	20	62	43	-	16
16.08	87.5	94.1	121.3	1.1	-4.5	1.2	6	clean SAND to silty SAND	125	5.0	19	18	65	43	-	16
16.24	92.0	98.6	126.7	1.2	-4.9	1.3	6	clean SAND to silty SAND	125	5.0	20	18	67	43	-	16
16.40	96.5	103.1	131.2	1.2	-4.9	1.3	6	clean SAND to silty SAND	125	5.0	21	19	68	43	-	16
16.57	98.3	104.7	133.5	1.3	-4.9	1.3	6	clean SAND to silty SAND	125	5.0	21	20	69	43	-	16
16.73	92.2	97.9	131.2	1.3	-4.8	1.5	5	silty SAND to sandy SILT	120	4.0	24	23	66	43	-	16
16.90	88.0	93.1	128.6	1.3	-4.7	1.5	5	silty SAND to sandy SILT	120	4.0	23	22	65	43	-	16
17.06	88.2	93.2	129.2	1.3	-4.7	1.5	5	silty SAND to sandy SILT	120	4.0	23	22	65	43	-	16
17.23	92.9	97.8	130.0	1.3	-4.6	1.4	6	clean SAND to silty SAND	125	5.0	20	19	66	43	-	16
17.39	92.8	97.4	126.7	1.2	-4.6	1.3	6	clean SAND to silty SAND	125	5.0	19	19	66	43	-	16
17.55	90.6	94.9	122.4	1.1	-4.5	1.2	6	clean SAND to silty SAND	125	5.0	19	18	65	43	-	16
17.72	83.1	86.8	119.1	1.1	-4.5	1.4	5	silty SAND to sandy SILT	120	4.0	22	21	62	42	-	16
17.88	75.9	79.0	112.2	1.0	-4.5	1.4	5	silty SAND to sandy SILT	120	4.0	20	19	59	42	-	16
18.05	65.9	68.4	97.7	0.8	-4.6	1.2	5	silty SAND to sandy SILT	120	4.0	17	16	54	41	-	16
18.21	35.8	37.0	89.3	0.6	-6.0	1.8	5	silty SAND to sandy SILT	120	4.0	9	9	34	38	-	16
18.37	16.2	18.3	-	0.5	-6.5	3.4	3	silty CLAY to CLAY	115	1.5	12	11	-	-	1.1	15
18.54	9.4	10.5	-	0.4	-6.5	4.9	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
18.70	14.8	16.5	-	0.3	-5.6	2.3	4	clayy SILT to silty CLAY	115	2.0	8	7	-	-	1.0	15
18.87	30.7	31.4	75.5	0.4	-5.6	1.5	5	silty SAND to sandy SILT	120	4.0	8	8	29	36	-	16
19.03	38.6	39.5	81.0	0.5	-5.6	1.4	5	silty SAND to sandy SILT	120	4.0	10	10	36	38	-	16
19.19	38.0	38.8	81.5	0.5	-5.6	1.5	5	silty SAND to sandy SILT	120	4.0	10	10	36	38	-	16
19.36	33.9	34.5	89.1	0.6	-5.6	1.9	5	silty SAND to sandy SILT	120	4.0	9	8	32	37	-	16
19.52	32.7	33.2	76.2	0.4	-5.6	1.4	5	silty SAND to sandy SILT	120	4.0	8	8	31	37	-	16
19.69	39.5	40.0	75.4	0.4	-5.6	1.2	5	silty SAND to sandy SILT	120	4.0	10	10	37	38	-	16
19.85	32.5	32.8	87.5	0.6	-5.7	1.9	5	silty SAND to sandy SILT	120	4.0	8	8	30	37	-	16
20.01	27.2	27.4	82.6	0.5	-5.7	1.9	4	clayy SILT to silty CLAY	115	2.0	14	14	-	-	1.9	15
20.18	38.0	38.1	74.8	0.4	-5.7	1.2	5	silty SAND to sandy SILT	120	4.0	10	9	35	37	-	16
20.34	36.4	36.5	68.6	0.4	-6.2	1.0	5	silty SAND to sandy SILT	120	4.0	9	9	34	37	-	16
20.51	28.3	28.3	77.7	0.5	-6.3	1.7	5	silty SAND to sandy SILT	120	4.0	7	7	25	36	-	16
20.67	13.5	14.2	-	0.4	-6.3	2.9	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
20.83	7.3	7.6	-	0.3	-6.3	4.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.00	6.2	6.5	-	0.2	-6.2	4.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(406).cpt
CPT Date: 11/17/2008 12:19:58 PM
GW During Test: 12 ft

Sounding ID: CPT-08-71
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	6.5	6.7	-	0.2	-6.0	4.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.33	6.4	6.6	-	0.2	-6.0	4.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.49	6.5	6.7	-	0.3	-5.9	5.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.65	6.4	6.6	-	0.3	-5.7	6.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.82	16.4	16.8	-	0.4	-3.9	2.4	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.1	15
21.98	31.7	31.0	75.4	0.4	-3.9	1.5	5	silty SAND to sandy SILT	120	4.0	8	8	28	36	-	16
22.15	29.8	29.1	85.9	0.6	-3.9	2.0	4	clayy SILT to silty CLAY	115	2.0	15	15	-	-	2.1	15
22.31	22.1	22.3	-	0.4	-3.9	2.2	4	clayy SILT to silty CLAY	115	2.0	11	11	-	-	1.5	15
22.47	11.4	11.4	-	0.4	-4.2	3.5	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
22.64	6.9	6.9	-	0.3	-4.1	4.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
22.80	6.3	6.3	-	0.2	-3.7	4.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.97	6.4	6.3	-	0.2	-3.2	4.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.13	7.0	6.9	-	0.2	-2.7	4.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
23.30	6.4	6.2	-	0.3	-2.2	5.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.46	7.3	7.1	-	0.3	-1.6	5.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.62	7.5	7.2	-	0.3	-1.1	5.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.79	7.4	7.2	-	0.3	-0.7	5.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.95	7.5	7.2	-	0.3	-0.3	4.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.12	7.1	6.8	-	0.3	0.2	5.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
24.28	6.5	6.3	-	0.3	0.7	6.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
24.44	6.6	6.3	-	0.5	1.3	9.2	2	Organic SOILS - Peats	100	1.0	6	7	-	-	0.6	10
24.61	10.3	9.8	-	0.5	1.8	5.6	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
24.77	12.5	11.8	-	0.6	1.8	5.2	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
24.94	11.7	11.0	-	0.8	1.9	7.4	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
25.10	19.9	18.7	-	1.0	2.1	5.4	3	silty CLAY to CLAY	115	1.5	12	13	-	-	1.4	15
25.26	29.3	27.4	-	1.1	2.5	4.1	4	clayy SILT to silty CLAY	115	2.0	14	15	-	-	2.0	15
25.43	35.1	32.9	95.4	0.8	-0.5	2.3	4	clayy SILT to silty CLAY	115	2.0	16	18	-	-	2.4	15
25.59	29.0	26.9	-	0.8	-2.3	3.0	4	clayy SILT to silty CLAY	115	2.0	13	14	-	-	2.0	15
25.76	22.2	20.5	-	0.8	-2.9	3.8	3	silty CLAY to CLAY	115	1.5	14	15	-	-	1.5	15
25.92	23.7	21.8	-	0.8	-3.1	3.6	3	silty CLAY to CLAY	115	1.5	15	16	-	-	1.6	15
26.08	23.0	21.0	-	0.8	-3.1	3.6	3	silty CLAY to CLAY	115	1.5	14	15	-	-	1.6	15
26.25	29.0	26.4	-	0.7	-3.2	2.4	4	clayy SILT to silty CLAY	115	2.0	13	14	-	-	2.0	15
26.41	51.4	47.6	87.6	0.7	-3.3	1.4	5	silty SAND to sandy SILT	120	4.0	12	13	43	38	-	16
26.58	61.2	56.6	93.0	0.8	-3.8	1.3	5	silty SAND to sandy SILT	120	4.0	14	15	48	39	-	16
26.74	62.8	57.9	93.1	0.8	-3.8	1.3	5	silty SAND to sandy SILT	120	4.0	14	16	49	39	-	16
26.90	53.6	49.4	92.0	0.8	-3.6	1.5	5	silty SAND to sandy SILT	120	4.0	12	13	44	38	-	16
27.07	30.1	26.9	-	0.8	-3.4	2.7	4	clayy SILT to silty CLAY	115	2.0	13	15	-	-	2.1	15
27.23	14.2	12.7	-	0.5	-3.2	4.3	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
27.40	9.7	8.6	-	0.3	-3.0	3.4	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
27.56	7.6	6.8	-	0.2	-2.7	3.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.72	7.1	6.2	-	0.3	-2.3	5.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
27.89	10.3	9.0	-	0.2	-1.8	2.7	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
28.05	19.7	17.2	-	0.4	-1.6	2.2	4	clayy SILT to silty CLAY	115	2.0	9	10	-	-	1.3	15
28.22	12.4	10.8	-	0.4	-1.5	3.4	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
28.38	8.2	7.1	-	0.4	7.4	5.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
28.54	7.8	6.7	-	0.3	8.2	4.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
28.71	7.9	6.8	-	0.3	8.9	4.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
28.87	7.9	6.8	-	0.3	9.9	5.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
29.04	8.7	7.5	-	0.3	10.8	4.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.20	9.2	7.8	-	0.3	11.6	4.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.36	8.2	7.0	-	0.3	12.5	5.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
29.53	8.8	7.4	-	0.4	13.8	5.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.69	8.7	7.3	-	0.4	14.9	6.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.86	9.4	7.9	-	0.5	16.3	6.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.02	13.4	11.2	-	0.4	17.7	3.6	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
30.19	39.4	34.9	74.5	0.5	6.9	1.3	5	silty SAND to sandy SILT	120	4.0	9	10	32	36	-	16
30.35	56.4	49.9	81.3	0.6	5.1	1.1	5	silty SAND to sandy SILT	120	4.0	12	14	44	38	-	16
30.51	67.0	59.2	88.2	0.7	3.4	1.1	5	silty SAND to sandy SILT	120	4.0	15	17	50	39	-	16
30.68	66.2	58.3	96.6	0.9	3.1	1.4	5	silty SAND to sandy SILT	120	4.0	15	17	49	39	-	16
30.84	56.4	49.6	103.7	1.1	2.8	2.0	5	silty SAND to sandy SILT	120	4.0	12	14	44	38	-	16
31.01	53.1	46.6	100.1	1.0	2.8	1.9	5	silty SAND to sandy SILT	120	4.0	12	13	42	37	-	16
31.17	69.1	60.6	100.5	1.0	-1.2	1.5	5	silty SAND to sandy SILT	120	4.0	15	17	50	39	-	16
31.33	77.9	68.1	103.6	1.0	-3.8	1.4	5	silty SAND to sandy SILT	120	4.0	17	19	54	39	-	16
31.50	83.3	72.7	110.9	1.2	-3.6	1.5	5	silty SAND to sandy SILT	120	4.0	18	21	56	40	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(406).cpt
CPT Date: 11/17/2008 12:19:58 PM
GW During Test: 12 ft

Sounding ID: CPT-08-71
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	88.2	76.8	114.8	1.3	-3.1	1.5	5	silty SAND to sandy SILT	120	4.0	19	22	58	40	-	16
31.83	88.1	76.6	115.2	1.3	-1.5	1.5	5	silty SAND to sandy SILT	120	4.0	19	22	58	40	-	16
31.99	88.9	77.2	116.9	1.4	-1.3	1.6	5	silty SAND to sandy SILT	120	4.0	19	22	58	40	-	16
32.15	89.9	77.9	117.9	1.4	-1.1	1.6	5	silty SAND to sandy SILT	120	4.0	19	22	59	40	-	16
32.32	89.9	77.7	121.9	1.5	-0.9	1.7	5	silty SAND to sandy SILT	120	4.0	19	22	59	40	-	16
32.48	96.7	83.5	126.9	1.6	-0.7	1.7	5	silty SAND to sandy SILT	120	4.0	21	24	61	40	-	16
32.65	104.6	90.1	130.4	1.7	-0.6	1.7	5	silty SAND to sandy SILT	120	4.0	23	26	64	41	-	16
32.81	106.1	91.2	131.3	1.7	-0.5	1.7	5	silty SAND to sandy SILT	120	4.0	23	27	64	41	-	16
32.97	105.4	90.4	132.3	1.8	-0.3	1.7	5	silty SAND to sandy SILT	120	4.0	23	26	64	41	-	16
33.14	108.0	92.5	133.8	1.8	-0.2	1.7	5	silty SAND to sandy SILT	120	4.0	23	27	64	41	-	16
33.30	106.2	90.8	134.0	1.8	0.0	1.8	5	silty SAND to sandy SILT	120	4.0	23	27	64	41	-	16
33.47	105.7	90.2	133.2	1.8	0.1	1.8	5	silty SAND to sandy SILT	120	4.0	23	26	64	41	-	16
33.63	99.9	85.1	129.7	1.7	0.2	1.8	5	silty SAND to sandy SILT	120	4.0	21	25	62	40	-	16
33.79	91.2	77.6	122.2	1.6	0.3	1.7	5	silty SAND to sandy SILT	120	4.0	19	23	59	40	-	16
33.96	78.3	66.5	113.6	1.4	0.4	1.8	5	silty SAND to sandy SILT	120	4.0	17	20	54	39	-	16
34.12	72.3	61.2	107.0	1.2	0.5	1.7	5	silty SAND to sandy SILT	120	4.0	15	18	51	39	-	16
34.29	59.2	50.1	111.6	1.3	0.4	2.3	5	silty SAND to sandy SILT	120	4.0	13	15	44	37	-	16
34.45	36.8	27.8	-	1.2	0.5	3.5	4	clayy SILT to silty CLAY	115	2.0	14	18	-	-	2.5	15
34.61	25.8	19.4	-	1.1	1.2	4.5	3	silty CLAY to CLAY	115	1.5	13	17	-	-	1.7	15
34.78	42.7	32.0	-	1.2	2.0	2.9	4	clayy SILT to silty CLAY	115	2.0	16	21	-	-	2.9	15
34.94	96.2	80.8	115.6	1.3	2.6	1.4	5	silty SAND to sandy SILT	120	4.0	20	24	60	40	-	16
35.11	120.2	100.8	128.8	1.5	2.6	1.3	6	clean SAND to silty SAND	125	5.0	20	24	67	41	-	16
35.27	105.0	87.9	126.3	1.6	2.5	1.6	5	silty SAND to sandy SILT	120	4.0	22	26	63	40	-	16
35.43	61.8	51.6	129.5	1.7	2.5	2.9	4	clayy SILT to silty CLAY	115	2.0	26	31	-	-	4.3	15
35.60	28.8	21.2	-	1.4	2.5	5.1	3	silty CLAY to CLAY	115	1.5	14	19	-	-	2.0	15
35.76	19.1	14.0	-	0.7	2.7	4.2	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
35.93	16.6	12.2	-	0.3	3.7	2.0	4	clayy SILT to silty CLAY	115	2.0	6	8	-	-	1.1	15
36.09	14.5	10.6	-	0.3	5.8	2.7	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.9	15
36.26	13.8	10.1	-	0.3	7.6	2.3	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
36.42	13.6	9.9	-	0.5	9.5	4.4	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
36.58	18.8	13.6	-	0.8	11.6	5.0	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
36.75	60.9	50.3	87.4	0.8	13.3	1.3	5	silty SAND to sandy SILT	120	4.0	13	15	44	37	-	16
36.91	91.7	75.5	98.9	0.9	3.8	1.0	6	clean SAND to silty SAND	125	5.0	15	18	58	39	-	16
37.08	74.1	60.9	101.1	1.1	2.2	1.5	5	silty SAND to sandy SILT	120	4.0	15	19	51	38	-	16
37.24	55.8	45.8	105.2	1.1	6.7	2.1	5	silty SAND to sandy SILT	120	4.0	11	14	41	37	-	16
37.40	38.3	27.3	-	1.1	3.0	3.0	4	clayy SILT to silty CLAY	115	2.0	14	19	-	-	2.6	15
37.57	23.0	16.3	-	0.9	0.5	4.3	3	silty CLAY to CLAY	115	1.5	11	15	-	-	1.5	15
37.73	15.8	11.2	-	0.6	0.8	4.6	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
37.90	12.9	9.1	-	0.5	11.6	5.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
38.06	12.6	8.8	-	0.5	13.6	5.0	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.22	12.2	8.5	-	0.5	14.4	5.2	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.39	12.8	9.0	-	0.5	15.9	4.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
38.55	13.3	9.3	-	0.5	17.4	4.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
38.72	13.5	9.4	-	0.6	18.9	5.5	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
38.88	15.3	10.6	-	0.7	20.9	5.6	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
39.04	17.3	11.9	-	1.0	21.6	6.9	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.1	15
39.21	26.8	18.5	-	0.9	23.5	3.5	3	silty CLAY to CLAY	115	1.5	12	18	-	-	1.8	15
39.37	131.3	105.7	121.9	1.1	16.0	0.9	6	clean SAND to silty SAND	125	5.0	21	26	69	41	-	16
39.54	167.9	134.9	142.5	1.2	6.6	0.7	6	clean SAND to silty SAND	125	5.0	27	34	77	42	-	16
39.70	191.9	153.9	163.0	1.6	5.9	0.9	6	clean SAND to silty SAND	125	5.0	31	38	81	43	-	16
39.86	193.6	155.0	167.4	1.9	4.4	1.0	6	clean SAND to silty SAND	125	5.0	31	39	81	43	-	16
40.03	188.6	150.7	166.8	2.0	4.2	1.1	6	clean SAND to silty SAND	125	5.0	30	38	81	43	-	16
40.19	189.2	150.9	165.4	1.9	4.2	1.0	6	clean SAND to silty SAND	125	5.0	30	38	81	43	-	16
40.36	183.0	145.8	160.5	1.8	4.2	1.0	6	clean SAND to silty SAND	125	5.0	29	37	79	43	-	16
40.52	178.5	141.9	153.1	1.5	4.2	0.9	6	clean SAND to silty SAND	125	5.0	28	36	79	43	-	16
40.68	178.7	141.8	151.8	1.5	4.4	0.8	6	clean SAND to silty SAND	125	5.0	28	36	79	42	-	16
40.85	183.4	145.3	153.0	1.4	4.5	0.8	6	clean SAND to silty SAND	125	5.0	29	37	79	43	-	16
41.01	181.2	143.3	150.8	1.4	4.7	0.8	6	clean SAND to silty SAND	125	5.0	29	36	79	43	-	16
41.18	182.3	143.9	149.7	1.3	4.8	0.7	6	clean SAND to silty SAND	125	5.0	29	36	79	43	-	16
41.34	181.4	143.0	148.5	1.3	4.8	0.7	6	clean SAND to silty SAND	125	5.0	29	36	79	42	-	16
41.50	179.8	141.5	147.2	1.3	5.6	0.7	6	clean SAND to silty SAND	125	5.0	28	36	78	42	-	16
41.67	182.0	143.0	146.6	1.2	5.4	0.7	6	clean SAND to silty SAND	125	5.0	29	36	79	42	-	16
41.83	184.6	144.8	145.1	1.1	5.3	0.6	6	clean SAND to silty SAND	125	5.0	29	37	79	43	-	16
42.00	183.2	143.4	143.4	0.9	5.4	0.5	6	clean SAND to silty SAND	125	5.0	29	37	79	42	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
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Project ID: Earth Mechanics
Data File: SDF(406).cpt
CPT Date: 11/17/2008 12:19:58 PM
GW During Test: 12 ft

Sounding ID: CPT-08-71
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	178.2	139.3	139.3	0.8	5.5	0.5	6	clean SAND to silty SAND	125	5.0	28	36	78	42	-	16
42.32	186.4	145.4	145.4	0.8	5.6	0.5	6	clean SAND to silty SAND	125	5.0	29	37	79	42	-	16
42.49	199.5	155.5	155.5	1.1	5.6	0.6	6	clean SAND to silty SAND	125	5.0	31	40	82	43	-	16
42.65	200.5	155.9	155.9	1.2	5.7	0.6	6	clean SAND to silty SAND	125	5.0	31	40	82	43	-	16
42.82	185.2	143.8	149.6	1.3	5.8	0.7	6	clean SAND to silty SAND	125	5.0	29	37	79	42	-	16
42.98	169.5	131.4	143.4	1.4	5.8	0.8	6	clean SAND to silty SAND	125	5.0	26	34	76	42	-	16
43.15	148.5	114.9	132.4	1.4	5.9	1.0	6	clean SAND to silty SAND	125	5.0	23	30	72	41	-	16
43.31	128.1	99.0	123.4	1.4	5.9	1.1	6	clean SAND to silty SAND	125	5.0	20	26	67	40	-	16
43.47	116.5	89.9	117.7	1.4	6.0	1.2	6	clean SAND to silty SAND	125	5.0	18	23	63	40	-	16
43.64	123.0	94.7	125.0	1.6	6.1	1.3	6	clean SAND to silty SAND	125	5.0	19	25	65	40	-	16
43.80	117.8	90.6	132.8	2.0	3.1	1.7	5	silty SAND to sandy SILT	120	4.0	23	29	64	40	-	16
43.97	83.6	64.2	139.4	2.3	2.4	2.8	5	silty SAND to sandy SILT	120	4.0	16	21	52	38	-	16
44.13	45.0	28.0	-	1.7	2.4	4.1	4	clayy SILT to silty CLAY	115	2.0	14	22	-	-	3.1	15
44.29	31.1	19.4	-	1.2	2.6	4.1	3	silty CLAY to CLAY	115	1.5	13	21	-	-	2.1	15
44.46	22.0	13.6	-	0.9	3.6	4.5	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.5	15
44.62	20.2	12.5	-	0.8	5.6	4.8	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
44.79	25.1	15.5	-	0.7	35.0	3.2	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
44.95	36.7	27.9	79.2	0.6	28.4	1.7	5	silty SAND to sandy SILT	120	4.0	7	9	25	33	-	16
45.11	44.2	33.6	80.1	0.6	18.0	1.5	5	silty SAND to sandy SILT	120	4.0	8	11	31	34	-	16
45.28	28.3	17.3	-	0.7	9.4	2.6	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.9	15
45.44	17.7	10.8	-	0.6	10.3	4.3	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
45.61	16.8	10.2	-	0.7	15.1	4.7	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
45.77	21.7	13.2	-	0.7	19.6	3.9	3	silty CLAY to CLAY	115	1.5	9	14	-	-	1.4	15
45.93	38.2	28.9	75.2	0.5	22.0	1.5	5	silty SAND to sandy SILT	120	4.0	7	10	26	33	-	16
46.10	59.8	45.1	91.8	0.9	14.9	1.6	5	silty SAND to sandy SILT	120	4.0	11	15	41	36	-	16
46.26	52.3	39.4	110.1	1.3	14.1	2.6	4	clayy SILT to silty CLAY	115	2.0	20	26	-	-	3.6	15
46.43	65.1	49.0	110.0	1.4	17.4	2.2	5	silty SAND to sandy SILT	120	4.0	12	16	43	36	-	16
46.59	111.9	84.1	115.7	1.4	7.4	1.3	5	silty SAND to sandy SILT	120	4.0	21	28	61	39	-	16
46.75	162.3	121.7	142.3	1.8	3.3	1.1	6	clean SAND to silty SAND	125	5.0	24	32	73	41	-	16
46.92	188.9	141.5	161.2	2.1	2.1	1.1	6	clean SAND to silty SAND	125	5.0	28	38	78	42	-	16
47.08	192.3	143.8	166.6	2.4	2.4	1.3	6	clean SAND to silty SAND	125	5.0	29	38	79	42	-	16
47.25	174.5	130.3	159.9	2.5	2.6	1.4	6	clean SAND to silty SAND	125	5.0	26	35	76	42	-	16
47.41	147.1	109.7	146.8	2.3	2.9	1.6	5	silty SAND to sandy SILT	120	4.0	27	37	70	41	-	16
47.57	123.4	91.9	138.7	2.3	3.3	1.9	5	silty SAND to sandy SILT	120	4.0	23	31	64	40	-	16
47.74	115.1	85.6	138.7	2.3	3.8	2.1	5	silty SAND to sandy SILT	120	4.0	21	29	62	39	-	16
47.90	127.5	94.6	145.7	2.5	3.9	2.0	5	silty SAND to sandy SILT	120	4.0	24	32	65	40	-	16
48.07	144.1	106.8	146.3	2.4	5.3	1.7	5	silty SAND to sandy SILT	120	4.0	27	36	69	41	-	16
48.23	155.0	114.8	151.9	2.5	2.4	1.6	6	clean SAND to silty SAND	125	5.0	23	31	72	41	-	16
48.39	169.6	125.4	158.7	2.6	1.5	1.5	6	clean SAND to silty SAND	125	5.0	25	34	74	41	-	16
48.56	175.8	129.8	166.2	2.9	1.8	1.7	6	clean SAND to silty SAND	125	5.0	26	35	76	42	-	16
48.72	177.1	130.6	166.6	2.9	2.2	1.7	6	clean SAND to silty SAND	125	5.0	26	35	76	42	-	16
48.89	165.8	122.0	160.3	2.8	2.5	1.7	6	clean SAND to silty SAND	125	5.0	24	33	74	41	-	16
49.05	150.6	110.7	153.0	2.7	2.8	1.8	5	silty SAND to sandy SILT	120	4.0	28	38	70	41	-	16
49.22	138.0	101.3	147.1	2.5	3.2	1.9	5	silty SAND to sandy SILT	120	4.0	25	34	67	40	-	16
49.38	130.3	95.5	141.5	2.4	3.5	1.9	5	silty SAND to sandy SILT	120	4.0	24	33	65	40	-	16
49.54	119.6	87.6	136.1	2.2	3.8	1.9	5	silty SAND to sandy SILT	120	4.0	22	30	63	39	-	16
49.71	109.1	79.7	128.6	2.0	3.9	1.9	5	silty SAND to sandy SILT	120	4.0	20	27	60	39	-	16
49.87	100.2	73.2	131.0	2.1	4.1	2.2	5	silty SAND to sandy SILT	120	4.0	18	25	57	38	-	16
50.04	81.4	59.4	125.6	1.9	4.2	2.4	5	silty SAND to sandy SILT	120	4.0	15	20	50	37	-	16
50.20	64.8	47.2	116.8	1.6	3.6	2.5	5	silty SAND to sandy SILT	120	4.0	12	16	42	36	-	16
50.36	33.5	18.8	-	1.2	1.2	4.1	3	silty CLAY to CLAY	115	1.5	13	22	-	-	2.3	15
50.53	24.4	13.6	-	0.7	0.6	3.5	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
50.69	15.5	8.6	-	0.6	1.2	4.7	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
50.86	15.8	8.8	-	0.5	2.7	3.7	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
51.02	14.4	8.0	-	0.5	3.8	4.5	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
51.18	13.9	7.7	-	0.6	5.3	5.8	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
51.35	13.7	7.6	-	0.8	19.4	7.2	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
51.51	20.9	11.5	-	0.7	23.3	4.0	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
51.68	24.5	13.5	-	1.0	22.0	4.6	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
51.84	18.3	10.0	-	1.3	24.8	8.3	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
52.00	83.5	60.0	114.6	1.6	30.2	2.0	5	silty SAND to sandy SILT	120	4.0	15	21	50	37	-	16
52.17	144.6	103.8	138.9	2.2	14.8	1.5	5	silty SAND to sandy SILT	120	4.0	26	36	68	40	-	16
52.33	173.6	124.4	154.5	2.4	13.1	1.4	6	clean SAND to silty SAND	125	5.0	25	35	74	41	-	16
52.50	192.3	137.7	169.3	2.9	12.4	1.5	6	clean SAND to silty SAND	125	5.0	28	38	78	42	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(406).cpt
CPT Date: 11/17/2008 12:19:58 PM
GW During Test: 12 ft

Sounding ID: CPT-08-71
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	201.5	144.0	178.0	3.2	11.3	1.6	6	clean SAND to silty SAND	125	5.0	29	40	79	42	-	16
52.82	196.9	140.5	181.0	3.5	10.8	1.8	6	clean SAND to silty SAND	125	5.0	28	39	78	42	-	16
52.99	199.0	141.9	181.9	3.6	10.4	1.8	6	clean SAND to silty SAND	125	5.0	28	40	79	42	-	16
53.15	222.3	158.2	185.3	3.2	10.1	1.4	6	clean SAND to silty SAND	125	5.0	32	44	82	42	-	16
53.32	232.5	165.3	178.7	2.4	9.2	1.0	6	clean SAND to silty SAND	125	5.0	33	47	84	42	-	16
53.48	249.7	177.3	177.3	1.5	7.9	0.6	6	clean SAND to silty SAND	125	5.0	35	50	86	43	-	16
53.64	270.2	191.5	191.5	1.1	6.9	0.4	6	clean SAND to silty SAND	125	5.0	38	54	88	43	-	16
53.81	275.5	195.0	195.0	1.0	7.0	0.4	6	clean SAND to silty SAND	125	5.0	39	55	89	43	-	16
53.97	252.1	178.2	178.2	1.3	7.4	0.5	6	clean SAND to silty SAND	125	5.0	36	50	86	43	-	16
54.14	187.9	132.6	153.4	2.1	7.4	1.1	6	clean SAND to silty SAND	125	5.0	27	38	76	41	-	16
54.30	101.9	71.9	146.6	2.7	7.8	2.8	5	silty SAND to sandy SILT	120	4.0	18	25	56	38	-	16
54.46	46.7	24.5	-	1.9	7.8	4.4	3	silty CLAY to CLAY	115	1.5	16	31	-	-	3.2	15
54.63	30.4	15.9	-	1.2	8.5	4.5	3	silty CLAY to CLAY	115	1.5	11	20	-	-	2.0	15
54.79	31.9	16.7	-	1.1	21.8	3.9	3	silty CLAY to CLAY	115	1.5	11	21	-	-	2.1	15
54.96	39.1	20.4	-	1.4	25.9	4.0	3	silty CLAY to CLAY	115	1.5	14	26	-	-	2.6	15
55.12	43.8	22.8	-	1.8	28.2	4.6	3	silty CLAY to CLAY	115	1.5	15	29	-	-	3.0	15
55.28	47.1	24.5	-	1.8	28.2	4.2	3	silty CLAY to CLAY	115	1.5	16	31	-	-	3.2	15
55.45	52.8	27.4	-	1.6	24.4	3.3	4	clayy SILT to silty CLAY	115	2.0	14	26	-	-	3.6	15
55.61	56.6	29.3	-	1.4	16.5	2.7	4	clayy SILT to silty CLAY	115	2.0	15	28	-	-	3.9	15
55.78	42.1	21.7	-	1.7	9.9	4.3	3	silty CLAY to CLAY	115	1.5	14	28	-	-	2.9	15
55.94	38.2	19.7	-	1.5	11.8	4.3	3	silty CLAY to CLAY	115	1.5	13	25	-	-	2.6	15
56.11	51.7	26.6	-	1.7	13.9	3.5	4	clayy SILT to silty CLAY	115	2.0	13	26	-	-	3.5	15
56.27	60.0	30.8	-	2.0	13.9	3.6	4	clayy SILT to silty CLAY	115	2.0	15	30	-	-	4.1	15
56.43	69.8	48.5	129.6	2.0	12.8	3.0	4	clayy SILT to silty CLAY	115	2.0	24	35	-	-	4.8	15
56.60	99.0	68.7	119.2	1.8	8.0	1.9	5	silty SAND to sandy SILT	120	4.0	17	25	55	38	-	16
56.76	147.6	102.3	113.6	1.0	0.8	0.7	6	clean SAND to silty SAND	125	5.0	20	30	68	40	-	16
56.93	149.3	103.3	106.4	0.6	-3.7	0.4	6	clean SAND to silty SAND	125	5.0	21	30	68	40	-	16
57.09	137.2	94.8	98.0	0.5	-3.1	0.4	6	clean SAND to silty SAND	125	5.0	19	27	65	39	-	16
57.25	117.7	81.3	91.8	0.6	-2.6	0.5	6	clean SAND to silty SAND	125	5.0	16	24	60	38	-	16
57.42	100.4	69.2	100.5	1.2	-2.1	1.2	5	silty SAND to sandy SILT	120	4.0	17	25	55	38	-	16
57.58	112.1	77.2	116.5	1.7	-1.7	1.5	5	silty SAND to sandy SILT	120	4.0	19	28	58	38	-	16
57.75	163.9	112.8	125.1	1.2	-2.0	0.8	6	clean SAND to silty SAND	125	5.0	23	33	71	40	-	16
57.91	215.5	148.1	148.1	1.1	-3.9	0.5	6	clean SAND to silty SAND	125	5.0	30	43	80	42	-	16
58.07	253.9	174.2	174.2	1.3	0.0	0.5	6	clean SAND to silty SAND	125	5.0	35	51	85	43	-	16
58.24	261.9	179.4	179.4	1.2	0.3	0.5	6	clean SAND to silty SAND	125	5.0	36	52	86	43	-	16
58.40	262.1	179.4	179.4	1.4	0.7	0.5	6	clean SAND to silty SAND	125	5.0	36	52	86	43	-	16
58.57	261.8	178.9	178.9	1.3	0.8	0.5	6	clean SAND to silty SAND	125	5.0	36	52	86	43	-	16
58.73	256.2	174.9	174.9	1.5	1.2	0.6	6	clean SAND to silty SAND	125	5.0	35	51	85	42	-	16
58.89	242.1	165.1	165.1	1.3	1.3	0.6	6	clean SAND to silty SAND	125	5.0	33	48	84	42	-	16
59.06	234.0	159.3	159.3	1.2	1.9	0.5	6	clean SAND to silty SAND	125	5.0	32	47	82	42	-	16
59.22	257.0	174.7	174.7	1.2	2.0	0.5	6	clean SAND to silty SAND	125	5.0	35	51	85	42	-	16
59.39	280.6	190.6	190.6	1.5	2.4	0.5	6	clean SAND to silty SAND	125	5.0	38	56	88	43	-	16
59.55	291.4	197.7	198.5	2.5	2.7	0.9	6	clean SAND to silty SAND	125	5.0	40	58	89	43	-	16
59.71	361.4	244.8	244.8	3.2	3.1	0.9	6	clean SAND to silty SAND	125	5.0	49	72	95	44	-	16
59.88	459.9	311.2	311.2	3.1	3.4	0.7	6	clean SAND to silty SAND	125	5.0	62	92	95	45	-	16
60.04	501.8	339.2	339.2	2.9	2.7	0.6	6	clean SAND to silty SAND	125	5.0	68	100	95	46	-	16
60.21	511.9	345.5	345.5	2.3	2.9	0.5	7	grvly SAND to dense SAND	130	6.0	58	85	95	46	-	16
60.37	508.8	343.0	343.0	2.6	3.2	0.5	7	grvly SAND to dense SAND	130	6.0	57	85	95	46	-	16
60.53	503.7	339.1	339.1	3.3	2.3	0.7	6	clean SAND to silty SAND	125	5.0	68	100	95	46	-	16
60.70	534.7	359.5	359.5	2.4	1.5	0.4	7	grvly SAND to dense SAND	130	6.0	60	89	95	46	-	16
60.86	545.4	366.2	366.2	2.3	1.7	0.4	7	grvly SAND to dense SAND	130	6.0	61	91	95	46	-	16
61.03	496.1	332.7	332.7	1.8	1.2	0.4	7	grvly SAND to dense SAND	130	6.0	55	83	95	45	-	16
61.19	396.8	265.7	265.7	2.1	5.0	0.5	6	clean SAND to silty SAND	125	5.0	53	79	95	44	-	16
61.35	374.3	250.3	250.3	2.7	4.8	0.7	6	clean SAND to silty SAND	125	5.0	50	75	95	44	-	16
61.52	415.0	277.2	277.0	4.7	5.1	1.1	6	clean SAND to silty SAND	125	5.0	55	83	95	45	-	16
61.68	463.1	309.0	309.0	3.7	4.9	0.8	6	clean SAND to silty SAND	125	5.0	62	93	95	45	-	16
61.85	468.7	312.4	312.4	2.4	5.4	0.5	6	clean SAND to silty SAND	125	5.0	62	94	95	45	-	16
62.01	474.8	316.0	316.0	1.4	5.3	0.3	7	grvly SAND to dense SAND	130	6.0	53	79	95	45	-	16
62.17	469.0	311.8	311.8	1.6	4.8	0.3	7	grvly SAND to dense SAND	130	6.0	52	78	95	45	-	16
62.34	443.3	294.3	294.3	2.2	4.8	0.5	6	clean SAND to silty SAND	125	5.0	59	89	95	45	-	16
62.50	424.1	281.2	281.2	2.2	5.2	0.5	6	clean SAND to silty SAND	125	5.0	56	85	95	45	-	16
62.67	410.8	272.1	272.1	1.6	4.9	0.4	7	grvly SAND to dense SAND	130	6.0	45	68	95	44	-	16
62.83	408.9	270.5	270.5	1.5	4.7	0.4	7	grvly SAND to dense SAND	130	6.0	45	68	95	44	-	16
63.00	405.9	268.2	268.2	1.4	4.9	0.4	7	grvly SAND to dense SAND	130	6.0	45	68	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(406).cpt
CPT Date: 11/17/2008 12:19:58 PM
GW During Test: 12 ft

Sounding ID: CPT-08-71
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	422.1	278.5	278.5	3.0	5.1	0.7	6	clean SAND to silty SAND	125	5.0	56	84	95	45	-	16
63.32	446.8	294.5	294.5	4.0	5.2	0.9	6	clean SAND to silty SAND	125	5.0	59	89	95	45	-	16
63.49	404.8	266.4	266.4	2.2	5.3	0.6	6	clean SAND to silty SAND	125	5.0	53	81	95	44	-	16
63.65	401.0	263.6	263.6	2.9	5.5	0.7	6	clean SAND to silty SAND	125	5.0	53	80	95	44	-	16
63.82	412.2	270.7	270.7	2.0	5.6	0.5	6	clean SAND to silty SAND	125	5.0	54	82	95	44	-	16
63.98	345.1	226.4	226.4	2.1	5.5	0.6	6	clean SAND to silty SAND	125	5.0	45	69	94	44	-	16
64.14	381.9	250.2	250.2	2.4	5.8	0.6	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
64.31	456.2	298.5	298.5	5.0	5.7	1.1	6	clean SAND to silty SAND	125	5.0	60	91	95	45	-	16
64.47	482.5	315.4	315.4	5.0	5.9	1.0	6	clean SAND to silty SAND	125	5.0	63	96	95	45	-	16
64.64	419.6	273.9	273.9	4.5	6.5	1.1	6	clean SAND to silty SAND	125	5.0	55	84	95	44	-	16
64.80	390.6	254.7	254.7	2.5	7.2	0.6	6	clean SAND to silty SAND	125	5.0	51	78	95	44	-	16
64.96	357.9	233.1	233.1	1.9	6.8	0.6	6	clean SAND to silty SAND	125	5.0	47	72	95	44	-	16
65.13	326.1	212.1	212.1	1.6	7.1	0.5	6	clean SAND to silty SAND	125	5.0	42	65	92	43	-	16
65.29	322.6	209.7	209.7	1.5	7.2	0.5	6	clean SAND to silty SAND	125	5.0	42	65	91	43	-	16
65.46	323.7	210.1	210.1	1.4	7.3	0.4	6	clean SAND to silty SAND	125	5.0	42	65	92	43	-	16
65.62	324.7	210.5	210.5	1.4	7.4	0.5	6	clean SAND to silty SAND	125	5.0	42	65	92	43	-	16
65.78	319.7	207.0	207.0	1.4	7.4	0.4	6	clean SAND to silty SAND	125	5.0	41	64	91	43	-	16
65.95	321.2	207.8	207.8	1.4	7.4	0.5	6	clean SAND to silty SAND	125	5.0	42	64	91	43	-	16
66.11	329.6	213.0	213.0	1.4	7.5	0.4	6	clean SAND to silty SAND	125	5.0	43	66	92	43	-	16
66.28	335.9	216.8	216.8	2.0	7.6	0.6	6	clean SAND to silty SAND	125	5.0	43	67	93	43	-	16
66.44	350.2	225.8	225.8	1.8	7.7	0.5	6	clean SAND to silty SAND	125	5.0	45	70	94	43	-	16
66.60	392.9	253.0	253.0	1.4	7.8	0.4	6	clean SAND to silty SAND	125	5.0	51	79	95	44	-	16
66.77	421.5	271.1	271.1	2.5	8.5	0.6	6	clean SAND to silty SAND	125	5.0	54	84	95	44	-	16
66.93	470.3	302.2	302.2	2.8	8.7	0.6	6	clean SAND to silty SAND	125	5.0	60	94	95	45	-	16
67.10	457.7	293.8	293.8	3.0	9.9	0.7	6	clean SAND to silty SAND	125	5.0	59	92	95	45	-	16
67.26	393.6	252.3	252.3	0.9	9.6	0.2	7	grvly SAND to dense SAND	130	6.0	42	66	95	44	-	16
67.42	357.6	228.9	228.9	1.0	9.7	0.3	7	grvly SAND to dense SAND	130	6.0	38	60	94	43	-	16
67.59	316.3	202.3	202.3	0.8	9.1	0.3	6	clean SAND to silty SAND	125	5.0	40	63	90	43	-	16
67.75	278.8	178.1	179.8	2.2	9.2	0.8	6	clean SAND to silty SAND	125	5.0	36	56	86	42	-	16
67.92	231.1	147.5	154.8	1.8	9.0	0.8	6	clean SAND to silty SAND	125	5.0	29	46	80	41	-	16
68.08	177.5	113.1	131.1	1.7	8.7	1.0	6	clean SAND to silty SAND	125	5.0	23	35	71	40	-	16
68.24	165.9	105.6	126.5	1.7	9.5	1.0	6	clean SAND to silty SAND	125	5.0	21	33	69	39	-	16
68.41	168.4	107.1	142.3	2.5	9.8	1.5	6	clean SAND to silty SAND	125	5.0	21	34	69	39	-	16
68.57	178.3	113.2	148.2	2.7	9.9	1.6	6	clean SAND to silty SAND	125	5.0	23	36	71	40	-	16
68.74	219.2	139.1	154.4	2.1	9.6	1.0	6	clean SAND to silty SAND	125	5.0	28	44	78	41	-	16
68.90	260.1	164.9	168.3	2.0	7.4	0.8	6	clean SAND to silty SAND	125	5.0	33	52	84	42	-	16
69.07	274.2	173.6	173.6	1.7	6.4	0.6	6	clean SAND to silty SAND	125	5.0	35	55	85	42	-	16
69.23	258.3	163.4	163.4	1.3	6.2	0.5	6	clean SAND to silty SAND	125	5.0	33	52	83	42	-	16
69.39	265.8	168.0	168.0	1.1	6.5	0.4	6	clean SAND to silty SAND	125	5.0	34	53	84	42	-	16
69.56	274.1	173.0	173.0	1.6	7.8	0.6	6	clean SAND to silty SAND	125	5.0	35	55	85	42	-	16
69.72	304.9	192.2	200.8	3.0	8.3	1.0	6	clean SAND to silty SAND	125	5.0	38	61	89	42	-	16
69.89	337.4	212.5	212.1	3.0	8.7	0.9	6	clean SAND to silty SAND	125	5.0	42	67	92	43	-	16
70.05	334.5	210.5	211.3	3.0	10.0	0.9	6	clean SAND to silty SAND	125	5.0	42	67	92	43	-	16
70.21	397.2	249.6	249.6	2.5	10.7	0.6	6	clean SAND to silty SAND	125	5.0	50	79	95	44	-	16
70.38	495.0	310.7	310.7	3.2	11.6	0.7	6	clean SAND to silty SAND	125	5.0	62	99	95	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(481).cpt
CPT Date: 12/10/2008 10:38:47 AM
GW During Test: 12 ft

Sounding ID: CPT-08-72
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	38.1	61.0	165.6	1.6	0.0	4.1	4	clayy SILT to silty CLAY	115	2.0	31	19	-	-	2.7	15
0.49	43.8	70.2	218.3	2.5	0.1	5.8	9	very stiff fine SOIL	120	2.0	35	22	55	48	-	30
0.66	47.5	76.2	195.4	2.1	0.0	4.5	4	clayy SILT to silty CLAY	115	2.0	38	24	-	-	3.4	15
0.82	52.4	84.0	159.7	1.5	-0.1	2.9	5	silty SAND to sandy SILT	120	4.0	21	13	61	48	-	16
0.98	82.1	131.6	165.2	1.3	-0.1	1.6	6	clean SAND to silty SAND	125	5.0	26	16	76	48	-	16
1.15	100.3	160.9	181.0	1.3	-0.2	1.2	6	clean SAND to silty SAND	125	5.0	32	20	83	48	-	16
1.31	87.0	139.6	159.5	1.0	-0.1	1.2	6	clean SAND to silty SAND	125	5.0	28	17	78	48	-	16
1.48	69.6	111.7	134.5	0.8	0.0	1.2	6	clean SAND to silty SAND	125	5.0	22	14	71	48	-	16
1.64	55.5	89.0	117.1	0.7	-0.1	1.2	6	clean SAND to silty SAND	125	5.0	18	11	63	48	-	16
1.80	45.7	73.2	110.0	0.7	-0.1	1.5	5	silty SAND to sandy SILT	120	4.0	18	11	57	47	-	16
1.97	50.7	81.3	116.0	0.7	-0.1	1.4	5	silty SAND to sandy SILT	120	4.0	20	13	60	47	-	16
2.13	64.1	102.8	156.4	1.4	0.0	2.2	5	silty SAND to sandy SILT	120	4.0	26	16	68	48	-	16
2.30	72.6	116.4	166.9	1.5	-0.1	2.1	5	silty SAND to sandy SILT	120	4.0	29	18	72	48	-	16
2.46	95.3	152.9	202.1	2.0	-0.2	2.2	5	silty SAND to sandy SILT	120	4.0	38	24	81	48	-	16
2.62	122.8	197.0	231.4	2.2	-0.4	1.8	6	clean SAND to silty SAND	125	5.0	39	25	89	48	-	16
2.79	153.9	246.8	263.1	2.2	-0.9	1.4	6	clean SAND to silty SAND	125	5.0	49	31	95	48	-	16
2.95	142.2	228.1	272.5	3.0	-0.1	2.1	6	clean SAND to silty SAND	125	5.0	46	28	94	48	-	16
3.12	124.0	198.9	276.3	3.7	-0.1	3.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	8.2	16
3.28	119.7	192.0	298.6	4.5	-0.2	3.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	7.9	16
3.45	124.9	200.3	292.5	4.2	-1.0	3.4	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	8.3	16
3.61	115.5	185.2	279.1	3.9	-1.1	3.4	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	7.6	16
3.77	101.1	162.1	254.5	3.4	-1.9	3.4	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	6.7	16
3.94	88.0	141.2	241.1	3.2	-2.2	3.6	8	stiff SAND to clayy SAND	115	1.0	100	88	-	-	5.8	16
4.10	66.7	107.0	223.6	2.8	-2.3	4.2	9	very stiff fine SOIL	120	2.0	53	33	69	46	-	30
4.27	57.2	91.8	233.0	2.9	-1.7	5.2	9	very stiff fine SOIL	120	2.0	46	29	64	45	-	30
4.43	63.1	101.1	231.0	2.9	-1.5	4.7	9	very stiff fine SOIL	120	2.0	51	32	67	46	-	30
4.59	53.1	85.1	235.0	2.9	-1.6	5.6	9	very stiff fine SOIL	120	2.0	43	27	62	45	-	30
4.76	62.3	100.0	228.8	2.9	-1.5	4.7	9	very stiff fine SOIL	120	2.0	50	31	67	45	-	30
4.92	68.7	110.3	224.2	2.8	-1.4	4.1	9	very stiff fine SOIL	120	2.0	55	34	70	46	-	30
5.09	58.0	93.0	220.5	2.7	-1.6	4.7	9	very stiff fine SOIL	120	2.0	46	29	65	45	-	30
5.25	60.4	96.8	219.2	2.7	-1.4	4.5	9	very stiff fine SOIL	120	2.0	48	30	66	45	-	30
5.41	70.3	112.7	210.6	2.5	-1.3	3.6	5	silty SAND to sandy SILT	120	4.0	28	18	71	46	-	16
5.58	106.5	170.9	248.3	3.2	-1.3	3.0	5	silty SAND to sandy SILT	120	4.0	43	27	85	47	-	16
5.74	119.2	191.1	263.7	3.4	-2.0	2.9	5	silty SAND to sandy SILT	120	4.0	48	30	88	48	-	16
5.91	110.2	176.7	235.3	2.7	-2.6	2.5	5	silty SAND to sandy SILT	120	4.0	44	28	86	47	-	16
6.07	94.3	151.3	209.9	2.3	0.0	2.4	5	silty SAND to sandy SILT	120	4.0	38	24	81	47	-	16
6.23	71.1	113.1	212.8	2.6	0.1	3.7	5	silty SAND to sandy SILT	120	4.0	28	18	71	45	-	16
6.40	71.4	112.0	246.2	3.4	0.0	4.7	9	very stiff fine SOIL	120	2.0	56	36	71	45	-	30
6.56	106.6	165.2	283.2	4.3	0.1	4.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	7.0	16
6.73	164.8	252.4	312.0	4.2	-3.1	2.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	10.9	16
6.89	224.2	339.4	358.8	3.8	-4.3	1.7	6	clean SAND to silty SAND	125	5.0	68	45	95	48	-	16
7.05	241.8	361.5	376.6	4.0	-2.4	1.7	6	clean SAND to silty SAND	125	5.0	72	48	95	48	-	16
7.22	190.8	281.9	325.1	4.1	-1.3	2.2	6	clean SAND to silty SAND	125	5.0	56	38	95	48	-	16
7.38	169.9	248.1	297.8	3.9	-0.1	2.3	6	clean SAND to silty SAND	125	5.0	50	34	95	48	-	16
7.55	181.7	262.3	300.2	3.6	-0.2	2.0	6	clean SAND to silty SAND	125	5.0	52	36	95	48	-	16
7.71	151.3	216.0	255.5	3.0	0.1	2.0	6	clean SAND to silty SAND	125	5.0	43	30	92	48	-	16
7.87	142.9	201.8	250.2	3.1	0.1	2.2	6	clean SAND to silty SAND	125	5.0	40	29	90	48	-	16
8.04	105.0	146.7	245.1	3.7	0.0	3.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	6.9	16
8.20	81.2	112.4	230.7	3.4	-0.1	4.2	9	very stiff fine SOIL	120	2.0	56	41	71	45	-	30
8.37	77.0	105.4	208.3	2.9	-0.2	3.8	5	silty SAND to sandy SILT	120	4.0	26	19	69	45	-	16
8.53	77.1	104.6	184.4	2.3	0.4	3.0	5	silty SAND to sandy SILT	120	4.0	26	19	68	45	-	16
8.69	57.9	77.7	171.9	2.0	0.4	3.5	4	clayy SILT to silty CLAY	115	2.0	39	29	-	-	4.1	15
8.86	43.1	57.4	170.6	1.9	0.2	4.5	4	clayy SILT to silty CLAY	115	2.0	29	22	-	-	3.0	15
9.02	43.4	57.3	167.1	1.9	0.1	4.3	4	clayy SILT to silty CLAY	115	2.0	29	22	-	-	3.0	15
9.19	43.3	56.7	171.7	2.0	0.1	4.6	4	clayy SILT to silty CLAY	115	2.0	28	22	-	-	3.0	15
9.35	43.6	56.6	167.0	1.9	0.1	4.4	4	clayy SILT to silty CLAY	115	2.0	28	22	-	-	3.1	15
9.51	38.9	50.0	161.9	1.7	0.0	4.5	4	clayy SILT to silty CLAY	115	2.0	25	19	-	-	2.7	15
9.68	31.4	45.2	-	1.4	0.0	4.6	4	clayy SILT to silty CLAY	115	2.0	23	16	-	-	2.2	15
9.84	33.6	42.5	89.2	0.5	0.1	1.7	5	silty SAND to sandy SILT	120	4.0	11	8	39	40	-	16
10.01	47.4	59.6	98.6	0.7	0.1	1.5	5	silty SAND to sandy SILT	120	4.0	15	12	50	42	-	16
10.17	41.2	51.3	111.6	0.9	0.3	2.3	5	silty SAND to sandy SILT	120	4.0	13	10	45	41	-	16
10.34	32.7	40.4	119.2	1.0	0.1	3.1	4	clayy SILT to silty CLAY	115	2.0	20	16	-	-	2.3	15
10.50	29.8	36.5	113.1	0.9	0.0	3.0	4	clayy SILT to silty CLAY	115	2.0	18	15	-	-	2.1	15

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Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(481).cpt
CPT Date: 12/10/2008 10:38:47 AM
GW During Test: 12 ft

Sounding ID: CPT-08-72
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	32.1	39.1	108.0	0.8	0.1	2.6	4	clayy SILT to silty CLAY	115	2.0	20	16	-	-	2.2	15
10.83	27.3	36.4	121.0	0.9	0.2	3.4	4	clayy SILT to silty CLAY	115	2.0	18	14	-	-	1.9	15
10.99	23.6	36.0	-	1.1	0.2	4.6	3	silty CLAY to CLAY	115	1.5	24	16	-	-	1.6	15
11.16	22.6	34.0	-	1.0	0.8	4.6	3	silty CLAY to CLAY	115	1.5	23	15	-	-	1.6	15
11.32	26.9	39.9	-	1.1	0.7	4.0	4	clayy SILT to silty CLAY	115	2.0	20	13	-	-	1.9	15
11.48	22.6	33.1	-	1.1	0.5	4.9	3	silty CLAY to CLAY	115	1.5	22	15	-	-	1.6	15
11.65	23.6	34.1	-	1.2	0.6	5.2	3	silty CLAY to CLAY	115	1.5	23	16	-	-	1.6	15
11.81	26.7	38.1	-	1.2	0.6	4.7	3	silty CLAY to CLAY	115	1.5	25	18	-	-	1.9	15
11.98	28.5	40.0	-	1.5	0.6	5.2	3	silty CLAY to CLAY	115	1.5	27	19	-	-	2.0	15
12.14	31.4	43.8	-	1.7	0.7	5.4	3	silty CLAY to CLAY	115	1.5	29	21	-	-	2.2	15
12.30	33.6	46.6	-	1.7	0.8	5.2	3	silty CLAY to CLAY	115	1.5	31	22	-	-	2.3	15
12.47	31.3	43.1	-	1.7	0.8	5.6	3	silty CLAY to CLAY	115	1.5	29	21	-	-	2.2	15
12.63	28.2	38.6	-	1.6	0.7	5.9	3	silty CLAY to CLAY	115	1.5	26	19	-	-	2.0	15
12.80	24.3	33.1	-	1.4	0.7	5.9	3	silty CLAY to CLAY	115	1.5	22	16	-	-	1.7	15
12.96	20.5	27.7	-	1.2	0.6	5.9	3	silty CLAY to CLAY	115	1.5	18	14	-	-	1.4	15
13.12	16.2	21.9	-	1.0	0.6	6.6	3	silty CLAY to CLAY	115	1.5	15	11	-	-	1.1	15
13.29	14.9	20.0	-	0.8	0.6	5.9	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.0	15
13.45	14.6	19.5	-	0.8	0.6	5.5	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.0	15
13.62	13.3	17.6	-	0.7	0.6	5.5	3	silty CLAY to CLAY	115	1.5	12	9	-	-	0.9	15
13.78	10.8	14.2	-	0.6	0.6	5.6	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
13.94	8.5	11.2	-	0.4	0.6	5.3	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
14.11	6.8	8.8	-	0.3	0.6	5.7	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.4	15
14.27	8.0	10.4	-	0.6	0.6	7.8	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
14.44	14.5	18.7	-	0.9	0.5	6.8	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.0	15
14.60	15.4	19.7	-	1.2	-0.7	8.5	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.1	15
14.76	14.7	18.6	-	1.3	-0.8	9.2	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.0	15
14.93	12.2	15.5	-	0.9	-0.9	8.3	3	silty CLAY to CLAY	115	1.5	10	8	-	-	0.8	15
15.09	8.3	10.4	-	0.6	-0.7	8.2	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.5	15
15.26	5.9	7.4	-	0.4	-0.7	7.4	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.42	5.1	6.3	-	0.3	-0.7	7.7	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.58	5.7	7.1	-	0.4	-0.6	8.8	2	Organic SOILS - Peats	100	1.0	7	6	-	-	0.6	10
15.75	23.6	25.5	76.7	0.4	-0.5	1.8	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.6	15
15.91	48.8	52.6	81.3	0.5	-0.6	1.0	5	silty SAND to sandy SILT	120	4.0	13	12	46	40	-	16
16.08	65.5	70.3	88.9	0.5	-0.5	0.8	6	clean SAND to silty SAND	125	5.0	14	13	55	41	-	16
16.24	68.7	73.5	93.4	0.6	-0.5	0.8	6	clean SAND to silty SAND	125	5.0	15	14	57	42	-	16
16.40	64.6	68.9	94.5	0.7	-0.5	1.0	6	clean SAND to silty SAND	125	5.0	14	13	55	41	-	16
16.57	59.8	63.6	93.3	0.7	-0.5	1.1	5	silty SAND to sandy SILT	120	4.0	16	15	52	41	-	16
16.73	52.3	55.5	89.3	0.6	-0.5	1.2	5	silty SAND to sandy SILT	120	4.0	14	13	48	40	-	16
16.90	71.9	76.0	95.5	0.6	-0.4	0.8	6	clean SAND to silty SAND	125	5.0	15	14	58	42	-	16
17.06	88.0	92.8	108.1	0.7	-0.5	0.8	6	clean SAND to silty SAND	125	5.0	19	18	65	43	-	16
17.23	92.1	96.8	114.6	0.8	-0.5	0.9	6	clean SAND to silty SAND	125	5.0	19	18	66	43	-	16
17.39	98.1	102.8	121.3	0.9	-0.4	1.0	6	clean SAND to silty SAND	125	5.0	21	20	68	43	-	16
17.55	107.2	112.0	129.9	1.0	-0.4	1.0	6	clean SAND to silty SAND	125	5.0	22	21	71	44	-	16
17.72	110.1	114.6	135.5	1.2	-0.3	1.1	6	clean SAND to silty SAND	125	5.0	23	22	72	44	-	16
17.88	105.9	109.9	134.9	1.3	-0.3	1.2	6	clean SAND to silty SAND	125	5.0	22	21	70	43	-	16
18.05	102.2	105.8	134.8	1.4	-0.2	1.3	6	clean SAND to silty SAND	125	5.0	21	20	69	43	-	16
18.21	102.4	105.7	134.5	1.4	-0.2	1.3	6	clean SAND to silty SAND	125	5.0	21	20	69	43	-	16
18.37	98.4	101.2	126.5	1.2	-0.1	1.2	6	clean SAND to silty SAND	125	5.0	20	20	67	43	-	16
18.54	94.7	97.2	120.6	1.0	-0.1	1.1	6	clean SAND to silty SAND	125	5.0	19	19	66	43	-	16
18.70	85.5	87.5	108.3	0.8	-0.2	1.0	6	clean SAND to silty SAND	125	5.0	17	17	63	42	-	16
18.87	79.4	81.1	101.9	0.7	-0.2	0.9	6	clean SAND to silty SAND	125	5.0	16	16	60	42	-	16
19.03	75.5	76.8	97.8	0.7	-0.1	0.9	6	clean SAND to silty SAND	125	5.0	15	15	58	41	-	16
19.19	66.3	67.2	88.1	0.5	-1.4	0.8	6	clean SAND to silty SAND	125	5.0	13	13	54	41	-	16
19.36	41.2	41.7	77.0	0.5	-3.7	1.2	5	silty SAND to sandy SILT	120	4.0	10	10	38	38	-	16
19.52	18.9	20.4	-	0.4	-3.9	2.2	4	clayy SILT to silty CLAY	115	2.0	10	9	-	-	1.3	15
19.69	10.1	10.9	-	0.3	-3.8	3.7	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
19.85	8.5	9.1	-	0.4	-3.7	5.7	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
20.01	11.1	11.9	-	0.4	-3.6	3.9	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
20.18	16.9	17.9	-	0.5	-1.9	3.0	4	clayy SILT to silty CLAY	115	2.0	9	8	-	-	1.1	15
20.34	21.1	22.3	-	0.4	-1.9	2.2	4	clayy SILT to silty CLAY	115	2.0	11	11	-	-	1.4	15
20.51	21.3	22.4	-	0.5	-3.3	2.6	4	clayy SILT to silty CLAY	115	2.0	11	11	-	-	1.5	15
20.67	20.5	21.4	-	0.4	-0.8	1.8	4	clayy SILT to silty CLAY	115	2.0	11	10	-	-	1.4	15
20.83	21.2	21.4	-	0.3	-1.5	1.7	4	clayy SILT to silty CLAY	115	2.0	11	11	-	-	1.4	15
21.00	14.8	15.4	-	0.3	-1.0	2.1	4	clayy SILT to silty CLAY	115	2.0	8	7	-	-	1.0	15

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A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(481).cpt
CPT Date: 12/10/2008 10:38:47 AM
GW During Test: 12 ft

Sounding ID: CPT-08-72
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	8.2	8.4	-	0.3	-0.9	4.3	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
21.33	7.9	8.1	-	0.2	-0.6	3.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.49	8.3	8.5	-	0.3	-0.4	4.2	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	15
21.65	8.4	8.5	-	0.4	-0.2	5.6	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	15
21.82	9.1	9.2	-	0.5	0.0	6.1	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
21.98	9.3	9.4	-	0.5	0.1	6.0	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
22.15	8.3	8.4	-	0.4	0.3	5.6	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	15
22.31	7.1	7.1	-	0.3	1.2	5.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.47	6.2	6.2	-	0.2	1.3	4.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.64	6.6	6.5	-	0.3	1.4	4.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.80	6.8	6.8	-	0.3	1.5	4.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
22.97	6.5	6.4	-	0.3	1.6	5.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.13	7.1	7.0	-	0.3	1.7	5.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.30	14.9	14.6	-	0.3	1.8	2.0	4	clayy SILT to silty CLAY	115	2.0	7	7	-	-	1.0	15
23.46	7.7	7.5	-	0.3	0.5	4.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.62	6.4	6.2	-	0.2	0.8	4.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.79	6.9	6.7	-	0.3	1.0	4.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
23.95	7.4	7.1	-	0.3	1.1	4.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.12	7.0	6.7	-	0.2	1.3	4.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
24.28	6.5	6.1	-	0.2	1.4	4.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
24.44	5.5	5.2	-	0.2	1.6	4.9	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	15
24.61	6.0	5.7	-	0.2	1.8	5.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
24.77	6.6	6.2	-	0.1	2.0	2.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
24.94	6.9	6.4	-	0.3	2.2	6.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
25.10	3.5	3.3	-	0.4	4.0	9.9	2	Organic SOILS - Peats	100	1.0	3	4	-	-	0.3	10
25.26	8.7	8.1	-	0.5	4.1	6.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
25.43	14.8	13.7	-	0.4	4.3	3.2	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
25.59	26.0	24.3	72.3	0.4	3.7	1.6	4	clayy SILT to silty CLAY	115	2.0	12	13	-	-	1.8	15
25.76	32.8	30.6	73.3	0.4	3.2	1.4	5	silty SAND to sandy SILT	120	4.0	8	8	28	35	-	16
25.92	33.9	31.5	74.8	0.5	2.2	1.4	5	silty SAND to sandy SILT	120	4.0	8	8	29	35	-	16
26.08	33.0	30.6	80.3	0.5	2.4	1.7	5	silty SAND to sandy SILT	120	4.0	8	8	28	35	-	16
26.25	30.3	28.0	88.6	0.6	2.4	2.2	4	clayy SILT to silty CLAY	115	2.0	14	15	-	-	2.1	15
26.41	26.2	23.7	-	0.5	1.4	2.2	4	clayy SILT to silty CLAY	115	2.0	12	13	-	-	1.8	15
26.58	29.9	27.5	77.3	0.5	0.7	1.7	5	silty SAND to sandy SILT	120	4.0	7	7	24	35	-	16
26.74	32.5	29.8	80.6	0.5	0.0	1.7	5	silty SAND to sandy SILT	120	4.0	7	8	27	35	-	16
26.90	22.4	19.9	-	0.6	0.1	2.7	4	clayy SILT to silty CLAY	115	2.0	10	11	-	-	1.5	15
27.07	12.8	11.4	-	0.5	0.4	4.6	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.8	15
27.23	11.7	10.4	-	0.5	0.7	5.0	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
27.40	10.0	8.8	-	0.5	1.1	6.3	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
27.56	9.6	8.4	-	0.6	1.5	7.7	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
27.72	9.5	8.4	-	0.6	1.8	7.1	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
27.89	13.8	12.0	-	0.4	2.0	3.5	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
28.05	17.6	15.2	-	0.4	2.0	2.6	4	clayy SILT to silty CLAY	115	2.0	8	9	-	-	1.2	15
28.22	10.2	8.9	-	0.5	2.2	5.2	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
28.38	9.3	8.0	-	0.4	2.6	5.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.54	10.0	8.6	-	0.7	2.9	8.4	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
28.71	9.8	8.4	-	0.7	3.2	8.8	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
28.87	10.8	9.2	-	0.6	11.1	6.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
29.04	9.0	7.6	-	0.5	11.3	7.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.20	8.7	7.3	-	0.4	11.6	6.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
29.36	8.3	7.0	-	0.4	11.9	6.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
29.53	9.5	8.0	-	0.5	12.3	6.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.69	12.1	10.1	-	0.6	12.6	6.0	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
29.86	42.9	38.1	80.8	0.6	12.1	1.4	5	silty SAND to sandy SILT	120	4.0	10	11	35	36	-	16
30.02	66.7	59.1	86.3	0.7	4.4	1.0	5	silty SAND to sandy SILT	120	4.0	15	17	50	39	-	16
30.19	82.3	72.8	94.9	0.7	1.5	0.9	6	clean SAND to silty SAND	125	5.0	15	16	56	40	-	16
30.35	87.3	77.0	100.3	0.8	1.4	1.0	6	clean SAND to silty SAND	125	5.0	15	17	58	40	-	16
30.51	95.6	84.1	111.1	1.1	1.4	1.2	6	clean SAND to silty SAND	125	5.0	17	19	61	41	-	16
30.68	96.2	84.4	116.7	1.3	1.5	1.4	5	silty SAND to sandy SILT	120	4.0	21	24	61	41	-	16
30.84	84.3	73.9	113.9	1.3	1.5	1.6	5	silty SAND to sandy SILT	120	4.0	18	21	57	40	-	16
31.01	114.2	99.9	119.7	1.1	1.6	1.0	6	clean SAND to silty SAND	125	5.0	20	23	67	41	-	16
31.17	134.6	117.5	133.4	1.2	-1.1	0.9	6	clean SAND to silty SAND	125	5.0	23	27	72	42	-	16
31.33	143.0	124.6	140.7	1.4	1.9	1.0	6	clean SAND to silty SAND	125	5.0	25	29	74	43	-	16
31.50	160.0	139.0	153.5	1.5	1.9	1.0	6	clean SAND to silty SAND	125	5.0	28	32	78	43	-	16

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Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	170.4	147.9	161.8	1.7	1.9	1.0	6	clean SAND to silty SAND	125	5.0	30	34	80	43	-	16
31.83	175.9	152.3	163.3	1.6	1.9	0.9	6	clean SAND to silty SAND	125	5.0	30	35	81	43	-	16
31.99	177.0	152.9	163.6	1.6	1.9	0.9	6	clean SAND to silty SAND	125	5.0	31	35	81	43	-	16
32.15	180.0	155.2	166.8	1.7	2.3	0.9	6	clean SAND to silty SAND	125	5.0	31	36	82	44	-	16
32.32	188.0	161.8	172.3	1.8	2.3	0.9	6	clean SAND to silty SAND	125	5.0	32	38	83	44	-	16
32.48	194.1	166.7	175.6	1.8	2.3	0.9	6	clean SAND to silty SAND	125	5.0	33	39	84	44	-	16
32.65	200.0	171.4	179.6	1.8	2.4	0.9	6	clean SAND to silty SAND	125	5.0	34	40	85	44	-	16
32.81	205.5	175.8	185.1	2.0	2.4	1.0	6	clean SAND to silty SAND	125	5.0	35	41	86	44	-	16
32.97	210.5	179.7	189.3	2.1	2.3	1.0	6	clean SAND to silty SAND	125	5.0	36	42	86	44	-	16
33.14	217.5	185.3	193.7	2.1	2.3	1.0	6	clean SAND to silty SAND	125	5.0	37	43	87	44	-	16
33.30	229.1	194.8	198.8	2.1	2.2	0.9	6	clean SAND to silty SAND	125	5.0	39	46	89	45	-	16
33.47	245.0	207.9	207.9	2.0	2.1	0.8	6	clean SAND to silty SAND	125	5.0	42	49	91	45	-	16
33.63	249.1	211.0	211.0	1.9	2.0	0.8	6	clean SAND to silty SAND	125	5.0	42	50	92	45	-	16
33.79	249.5	210.9	210.9	1.8	2.1	0.7	6	clean SAND to silty SAND	125	5.0	42	50	92	45	-	16
33.96	249.2	210.3	210.3	1.7	2.1	0.7	6	clean SAND to silty SAND	125	5.0	42	50	92	45	-	16
34.12	254.0	213.9	213.9	1.9	2.3	0.7	6	clean SAND to silty SAND	125	5.0	43	51	92	45	-	16
34.29	253.4	213.0	213.0	2.1	2.3	0.8	6	clean SAND to silty SAND	125	5.0	43	51	92	45	-	16
34.45	256.8	215.4	215.4	2.1	2.3	0.8	6	clean SAND to silty SAND	125	5.0	43	51	92	45	-	16
34.61	253.4	212.1	212.1	2.1	2.3	0.8	6	clean SAND to silty SAND	125	5.0	42	51	92	45	-	16
34.78	261.5	218.5	218.5	2.1	2.4	0.8	6	clean SAND to silty SAND	125	5.0	44	52	93	45	-	16
34.94	267.4	223.0	223.0	2.5	2.6	0.9	6	clean SAND to silty SAND	125	5.0	45	53	93	45	-	16
35.11	280.0	233.1	234.0	2.8	3.0	1.0	6	clean SAND to silty SAND	125	5.0	47	56	95	45	-	16
35.27	288.7	239.8	246.6	3.3	2.9	1.2	6	clean SAND to silty SAND	125	5.0	48	58	95	45	-	16
35.43	293.6	243.5	253.6	3.6	2.8	1.2	6	clean SAND to silty SAND	125	5.0	49	59	95	45	-	16
35.60	292.5	242.1	254.8	3.8	2.7	1.3	6	clean SAND to silty SAND	125	5.0	48	58	95	45	-	16
35.76	293.3	242.3	254.8	3.8	2.6	1.3	6	clean SAND to silty SAND	125	5.0	48	59	95	45	-	16
35.93	291.8	240.7	256.4	4.0	2.5	1.4	6	clean SAND to silty SAND	125	5.0	48	58	95	45	-	16
36.09	289.0	237.9	254.2	3.9	2.4	1.4	6	clean SAND to silty SAND	125	5.0	48	58	95	45	-	16
36.26	282.7	232.3	250.1	3.9	2.5	1.4	6	clean SAND to silty SAND	125	5.0	46	57	95	45	-	16
36.42	286.6	235.1	251.7	3.9	2.5	1.4	6	clean SAND to silty SAND	125	5.0	47	57	95	45	-	16
36.58	286.7	234.7	250.5	3.8	2.4	1.4	6	clean SAND to silty SAND	125	5.0	47	57	95	45	-	16
36.75	282.2	230.6	248.2	3.9	2.5	1.4	6	clean SAND to silty SAND	125	5.0	46	56	95	45	-	16
36.91	281.2	229.4	246.8	3.8	2.4	1.4	6	clean SAND to silty SAND	125	5.0	46	56	94	45	-	16
37.08	279.2	227.3	244.8	3.8	2.4	1.4	6	clean SAND to silty SAND	125	5.0	45	56	94	45	-	16
37.24	279.4	227.1	243.6	3.7	2.5	1.3	6	clean SAND to silty SAND	125	5.0	45	56	94	45	-	16
37.40	285.1	231.3	245.7	3.7	2.5	1.3	6	clean SAND to silty SAND	125	5.0	46	57	95	45	-	16
37.57	284.9	230.7	244.3	3.6	2.5	1.3	6	clean SAND to silty SAND	125	5.0	46	57	95	45	-	16
37.73	293.2	237.1	247.2	3.6	2.5	1.2	6	clean SAND to silty SAND	125	5.0	47	59	95	45	-	16
37.90	301.5	243.3	249.8	3.5	2.6	1.2	6	clean SAND to silty SAND	125	5.0	49	60	95	45	-	16
38.06	295.3	237.8	246.3	3.5	2.6	1.2	6	clean SAND to silty SAND	125	5.0	48	59	95	45	-	16
38.22	277.1	222.8	239.3	3.7	2.7	1.3	6	clean SAND to silty SAND	125	5.0	45	55	93	45	-	16
38.39	269.1	216.0	230.9	3.4	2.7	1.3	6	clean SAND to silty SAND	125	5.0	43	54	92	45	-	16
38.55	242.6	194.4	225.0	4.0	2.7	1.7	6	clean SAND to silty SAND	125	5.0	39	49	89	44	-	16
38.72	271.5	217.2	234.5	3.6	2.8	1.3	6	clean SAND to silty SAND	125	5.0	43	54	93	45	-	16
38.88	240.9	192.4	221.5	3.8	2.8	1.6	6	clean SAND to silty SAND	125	5.0	38	48	89	44	-	16
39.04	293.1	233.7	253.3	4.2	2.7	1.4	6	clean SAND to silty SAND	125	5.0	47	59	95	45	-	16
39.21	304.0	242.0	261.8	4.4	2.7	1.5	6	clean SAND to silty SAND	125	5.0	48	61	95	45	-	16
39.37	305.5	242.7	262.6	4.5	2.7	1.5	6	clean SAND to silty SAND	125	5.0	49	61	95	45	-	16
39.54	304.1	241.2	260.6	4.4	2.6	1.5	6	clean SAND to silty SAND	125	5.0	48	61	95	45	-	16
39.70	298.8	236.5	256.4	4.3	2.6	1.5	6	clean SAND to silty SAND	125	5.0	47	60	95	45	-	16
39.86	290.4	229.5	246.8	4.0	2.6	1.4	6	clean SAND to silty SAND	125	5.0	46	58	94	45	-	16
40.03	284.5	224.5	242.4	3.9	2.6	1.4	6	clean SAND to silty SAND	125	5.0	45	57	94	45	-	16
40.19	266.6	210.0	232.0	3.8	2.5	1.4	6	clean SAND to silty SAND	125	5.0	42	53	91	44	-	16
40.36	254.9	200.5	226.7	3.9	2.5	1.5	6	clean SAND to silty SAND	125	5.0	40	51	90	44	-	16
40.52	242.4	190.3	218.3	3.8	2.4	1.6	6	clean SAND to silty SAND	125	5.0	38	48	88	44	-	16
40.68	228.2	178.9	206.5	3.5	2.5	1.5	6	clean SAND to silty SAND	125	5.0	36	46	86	44	-	16
40.85	195.7	153.1	182.6	2.9	2.5	1.5	6	clean SAND to silty SAND	125	5.0	31	39	81	43	-	16
41.01	168.3	131.4	157.9	2.2	2.6	1.3	6	clean SAND to silty SAND	125	5.0	26	34	76	42	-	16
41.18	137.1	106.9	132.5	1.6	2.6	1.2	6	clean SAND to silty SAND	125	5.0	21	27	69	41	-	16
41.34	98.4	76.6	105.5	1.1	2.6	1.2	5	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
41.50	75.4	58.6	88.5	0.8	2.6	1.1	5	silty SAND to sandy SILT	120	4.0	15	19	49	38	-	16
41.67	73.9	57.4	87.8	0.8	2.6	1.1	5	silty SAND to sandy SILT	120	4.0	14	18	49	37	-	16
41.83	92.8	71.9	90.7	0.7	3.0	0.8	6	clean SAND to silty SAND	125	5.0	14	19	56	39	-	16
42.00	98.2	76.0	97.4	0.9	-1.6	0.9	6	clean SAND to silty SAND	125	5.0	15	20	58	39	-	16

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Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	75.1	58.0	98.8	1.1	-2.1	1.5	5	silty SAND to sandy SILT	120	4.0	14	19	49	37	-	16
42.32	54.4	42.0	107.7	1.2	-2.0	2.4	5	silty SAND to sandy SILT	120	4.0	10	14	38	35	-	16
42.49	51.1	39.4	103.9	1.1	-1.9	2.3	5	silty SAND to sandy SILT	120	4.0	10	13	36	35	-	16
42.65	69.2	53.3	96.2	1.0	-2.5	1.5	5	silty SAND to sandy SILT	120	4.0	13	17	46	37	-	16
42.82	82.8	63.6	99.5	1.1	-3.2	1.3	5	silty SAND to sandy SILT	120	4.0	16	21	52	38	-	16
42.98	94.8	72.7	100.0	1.0	-3.2	1.1	5	silty SAND to sandy SILT	120	4.0	18	24	56	39	-	16
43.15	85.4	65.4	96.8	1.0	-3.9	1.2	5	silty SAND to sandy SILT	120	4.0	16	21	53	38	-	16
43.31	83.2	63.6	103.5	1.2	-3.9	1.5	5	silty SAND to sandy SILT	120	4.0	16	21	52	38	-	16
43.47	83.6	63.8	103.2	1.2	-3.8	1.5	5	silty SAND to sandy SILT	120	4.0	16	21	52	38	-	16
43.64	94.7	72.2	105.5	1.2	-3.7	1.3	5	silty SAND to sandy SILT	120	4.0	18	24	56	39	-	16
43.80	93.8	71.4	106.9	1.3	-3.8	1.4	5	silty SAND to sandy SILT	120	4.0	18	23	56	38	-	16
43.97	94.4	71.7	111.5	1.4	-3.7	1.5	5	silty SAND to sandy SILT	120	4.0	18	24	56	39	-	16
44.13	78.6	59.7	115.1	1.6	-3.4	2.0	5	silty SAND to sandy SILT	120	4.0	15	20	50	37	-	16
44.29	50.2	30.6	-	1.6	-3.3	3.3	4	clayy SILT to silty CLAY	115	2.0	15	25	-	-	3.5	15
44.46	29.5	17.9	-	1.4	-2.8	5.3	3	silty CLAY to CLAY	115	1.5	12	20	-	-	2.0	15
44.62	21.8	13.2	-	1.1	-2.7	5.6	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.4	15
44.79	14.7	8.9	-	0.7	-2.6	5.6	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
44.95	8.8	5.3	-	0.6	-2.5	9.8	2	Organic SOILS - Peats	100	1.0	5	9	-	-	0.8	10
45.11	10.5	6.3	-	0.6	4.2	7.3	2	Organic SOILS - Peats	100	1.0	6	10	-	-	1.0	10
45.28	14.3	8.6	-	0.6	4.6	5.0	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
45.44	30.7	18.4	-	0.6	4.7	2.1	4	clayy SILT to silty CLAY	115	2.0	9	15	-	-	2.1	15
45.61	32.5	19.4	-	0.7	3.9	2.4	4	clayy SILT to silty CLAY	115	2.0	10	16	-	-	2.2	15
45.77	35.3	21.0	-	0.7	3.5	2.2	4	clayy SILT to silty CLAY	115	2.0	11	18	-	-	2.4	15
45.93	45.3	33.9	78.8	0.6	1.4	1.4	5	silty SAND to sandy SILT	120	4.0	8	11	31	34	-	16
46.10	25.9	15.3	-	0.6	-0.6	2.5	4	clayy SILT to silty CLAY	115	2.0	8	13	-	-	1.7	15
46.26	13.5	8.0	-	0.5	-0.5	4.8	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
46.43	9.3	5.5	-	0.5	0.1	7.6	2	Organic SOILS - Peats	100	1.0	6	9	-	-	0.8	10
46.59	12.0	7.0	-	0.6	0.8	6.5	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
46.75	16.9	9.9	-	0.6	1.3	4.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
46.92	42.4	31.5	77.8	0.6	1.6	1.5	5	silty SAND to sandy SILT	120	4.0	8	11	29	33	-	16
47.08	51.1	37.9	83.8	0.7	0.9	1.5	5	silty SAND to sandy SILT	120	4.0	9	13	35	34	-	16
47.25	35.0	20.4	-	1.1	1.2	3.3	4	clayy SILT to silty CLAY	115	2.0	10	18	-	-	2.4	15
47.41	23.4	13.6	-	0.9	1.8	4.2	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
47.57	27.1	15.7	-	0.9	2.9	3.7	3	silty CLAY to CLAY	115	1.5	10	18	-	-	1.8	15
47.74	23.9	13.8	-	0.7	3.1	3.4	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
47.90	37.7	21.7	-	1.0	3.3	2.9	4	clayy SILT to silty CLAY	115	2.0	11	19	-	-	2.6	15
48.07	57.1	42.1	81.7	0.7	3.4	1.3	5	silty SAND to sandy SILT	120	4.0	11	14	38	35	-	16
48.23	108.6	79.9	108.0	1.2	1.8	1.2	6	clean SAND to silty SAND	125	5.0	16	22	60	39	-	16
48.39	65.2	47.9	108.7	1.4	3.5	2.2	5	silty SAND to sandy SILT	120	4.0	12	16	43	36	-	16
48.56	111.2	81.6	115.5	1.5	3.8	1.4	5	silty SAND to sandy SILT	120	4.0	20	28	60	39	-	16
48.72	114.0	83.5	119.9	1.6	4.0	1.5	5	silty SAND to sandy SILT	120	4.0	21	29	61	39	-	16
48.89	112.4	82.3	122.4	1.8	9.2	1.6	5	silty SAND to sandy SILT	120	4.0	21	28	61	39	-	16
49.05	98.2	71.7	119.2	1.7	9.1	1.8	5	silty SAND to sandy SILT	120	4.0	18	25	56	38	-	16
49.22	80.6	58.8	122.2	1.8	9.1	2.3	5	silty SAND to sandy SILT	120	4.0	15	20	49	37	-	16
49.38	57.7	32.5	-	1.7	9.0	3.0	4	clayy SILT to silty CLAY	115	2.0	16	29	-	-	4.0	15
49.54	56.5	41.1	99.1	1.1	8.9	2.0	5	silty SAND to sandy SILT	120	4.0	10	14	38	35	-	16
49.71	64.0	46.5	96.0	1.1	5.9	1.7	5	silty SAND to sandy SILT	120	4.0	12	16	42	36	-	16
49.87	41.7	23.3	-	1.2	4.8	3.1	4	clayy SILT to silty CLAY	115	2.0	12	21	-	-	2.8	15
50.04	30.0	16.7	-	1.1	5.5	4.0	3	silty CLAY to CLAY	115	1.5	11	20	-	-	2.0	15
50.20	26.2	14.6	-	0.8	12.1	3.5	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
50.36	20.8	11.5	-	0.7	12.2	4.2	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
50.53	16.3	9.0	-	0.6	13.9	4.8	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
50.69	15.5	8.6	-	0.6	15.6	4.5	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
50.86	13.6	7.5	-	0.6	16.7	5.8	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
51.02	19.7	10.8	-	0.6	18.1	3.3	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
51.18	17.8	9.7	-	0.6	16.6	4.4	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
51.35	15.5	8.5	-	0.7	18.8	5.8	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
51.51	32.3	17.6	-	0.9	20.9	2.9	4	clayy SILT to silty CLAY	115	2.0	9	16	-	-	2.2	15
51.68	40.4	22.0	-	1.3	15.7	3.5	4	clayy SILT to silty CLAY	115	2.0	11	20	-	-	2.7	15
51.84	23.7	12.9	-	1.3	16.4	6.2	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
52.00	57.0	40.7	99.2	1.1	19.0	2.1	5	silty SAND to sandy SILT	120	4.0	10	14	37	35	-	16
52.17	101.5	72.5	106.1	1.3	14.3	1.3	5	silty SAND to sandy SILT	120	4.0	18	25	56	38	-	16
52.33	111.1	79.2	110.7	1.4	12.1	1.3	5	silty SAND to sandy SILT	120	4.0	20	28	59	39	-	16
52.50	122.1	86.9	119.7	1.6	9.5	1.4	5	silty SAND to sandy SILT	120	4.0	22	31	62	39	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(481).cpt
CPT Date: 12/10/2008 10:38:47 AM
GW During Test: 12 ft

Sounding ID: CPT-08-72
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	144.9	103.1	150.4	2.7	8.6	1.9	5	silty SAND to sandy SILT	120	4.0	26	36	68	40	-	16
52.82	187.3	133.0	170.3	3.1	8.0	1.7	6	clean SAND to silty SAND	125	5.0	27	37	76	41	-	16
52.99	200.9	142.5	163.1	2.3	6.0	1.2	6	clean SAND to silty SAND	125	5.0	28	40	79	42	-	16
53.15	151.0	106.9	134.9	1.9	4.6	1.3	6	clean SAND to silty SAND	125	5.0	21	30	69	40	-	16
53.32	78.0	41.4	-	3.0	3.2	4.0	4	clayy SILT to silty CLAY	115	2.0	21	39	-	-	5.4	15
53.48	65.0	34.4	-	2.0	4.5	3.3	4	clayy SILT to silty CLAY	115	2.0	17	32	-	-	4.5	15
53.64	105.3	74.3	118.9	1.8	12.3	1.7	5	silty SAND to sandy SILT	120	4.0	19	26	57	38	-	16
53.81	196.6	138.5	147.8	1.5	11.1	0.8	6	clean SAND to silty SAND	125	5.0	28	39	78	42	-	16
53.97	230.2	162.0	168.0	1.9	10.4	0.8	6	clean SAND to silty SAND	125	5.0	32	46	83	42	-	16
54.14	232.5	163.4	169.1	1.9	9.8	0.8	6	clean SAND to silty SAND	125	5.0	33	46	83	42	-	16
54.30	218.3	153.2	161.5	1.8	9.0	0.8	6	clean SAND to silty SAND	125	5.0	31	44	81	42	-	16
54.46	190.6	133.6	149.2	1.8	8.5	1.0	6	clean SAND to silty SAND	125	5.0	27	38	77	41	-	16
54.63	151.9	106.3	128.3	1.6	8.4	1.1	6	clean SAND to silty SAND	125	5.0	21	30	69	40	-	16
54.79	119.6	83.6	119.9	1.7	8.6	1.5	5	silty SAND to sandy SILT	120	4.0	21	30	61	39	-	16
54.96	89.4	62.5	121.2	1.9	8.7	2.2	5	silty SAND to sandy SILT	120	4.0	16	22	51	37	-	16
55.12	57.4	29.6	-	2.2	10.6	4.1	4	clayy SILT to silty CLAY	115	2.0	15	29	-	-	3.9	15
55.28	32.4	16.7	-	1.7	10.6	5.7	3	silty CLAY to CLAY	115	1.5	11	22	-	-	2.2	15
55.45	20.8	10.7	-	1.2	11.6	6.8	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.3	15
55.61	21.3	10.9	-	0.9	13.3	5.1	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.4	15
55.78	26.0	13.3	-	1.1	14.3	4.9	3	silty CLAY to CLAY	115	1.5	9	17	-	-	1.7	15
55.94	57.7	40.0	97.5	1.1	14.4	2.0	5	silty SAND to sandy SILT	120	4.0	10	14	37	34	-	16
56.11	98.3	68.1	101.0	1.2	11.1	1.3	5	silty SAND to sandy SILT	120	4.0	17	25	54	37	-	16
56.27	93.6	64.8	111.8	1.6	8.5	1.7	5	silty SAND to sandy SILT	120	4.0	16	23	53	37	-	16
56.43	70.7	35.8	-	2.2	8.9	3.3	4	clayy SILT to silty CLAY	115	2.0	18	35	-	-	4.9	15
56.60	55.6	28.1	-	1.7	9.5	3.2	4	clayy SILT to silty CLAY	115	2.0	14	28	-	-	3.8	15
56.76	79.4	54.7	118.8	1.8	10.3	2.3	5	silty SAND to sandy SILT	120	4.0	14	20	47	36	-	16
56.93	44.1	22.2	-	1.9	9.6	4.6	3	silty CLAY to CLAY	115	1.5	15	29	-	-	3.0	15
57.09	27.3	13.7	-	1.5	10.4	6.4	3	silty CLAY to CLAY	115	1.5	9	18	-	-	1.8	15
57.25	20.5	10.3	-	0.8	11.7	4.5	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.3	15
57.42	18.3	9.1	-	1.0	13.0	6.6	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.2	15
57.58	17.9	8.9	-	1.1	13.6	7.5	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
57.75	77.6	53.1	91.8	1.0	15.3	1.4	5	silty SAND to sandy SILT	120	4.0	13	19	46	36	-	16
57.91	151.1	103.4	117.4	1.1	14.1	0.8	6	clean SAND to silty SAND	125	5.0	21	30	68	40	-	16
58.07	186.2	127.2	134.1	1.2	13.1	0.7	6	clean SAND to silty SAND	125	5.0	25	37	75	41	-	16
58.24	202.7	138.4	142.2	1.3	12.6	0.6	6	clean SAND to silty SAND	125	5.0	28	41	78	41	-	16
58.40	231.6	157.8	157.8	1.5	12.3	0.6	6	clean SAND to silty SAND	125	5.0	32	46	82	42	-	16
58.57	276.1	188.0	188.0	1.7	12.3	0.6	6	clean SAND to silty SAND	125	5.0	38	55	88	43	-	16
58.73	289.0	196.5	196.5	1.8	12.1	0.6	6	clean SAND to silty SAND	125	5.0	39	58	89	43	-	16
58.89	301.8	204.9	204.9	1.8	11.7	0.6	6	clean SAND to silty SAND	125	5.0	41	60	91	43	-	16
59.06	304.3	206.4	206.4	2.0	11.7	0.7	6	clean SAND to silty SAND	125	5.0	41	61	91	43	-	16
59.22	329.1	222.9	222.9	2.3	11.7	0.7	6	clean SAND to silty SAND	125	5.0	45	66	93	44	-	16
59.39	345.1	233.5	233.5	1.8	11.6	0.5	6	clean SAND to silty SAND	125	5.0	47	69	95	44	-	16
59.55	336.0	227.0	227.0	2.1	11.5	0.6	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
59.71	330.8	223.2	223.2	1.7	10.2	0.5	6	clean SAND to silty SAND	125	5.0	45	66	94	44	-	16
59.88	322.5	217.3	217.3	2.0	9.3	0.6	6	clean SAND to silty SAND	125	5.0	43	64	93	43	-	16
60.04	318.8	214.6	214.6	1.7	9.2	0.5	6	clean SAND to silty SAND	125	5.0	43	64	92	43	-	16
60.21	324.0	217.8	217.8	1.5	11.7	0.5	6	clean SAND to silty SAND	125	5.0	44	65	93	43	-	16
60.37	320.9	215.5	215.5	1.7	11.5	0.5	6	clean SAND to silty SAND	125	5.0	43	64	92	43	-	16
60.53	320.3	214.8	214.8	1.8	11.3	0.6	6	clean SAND to silty SAND	125	5.0	43	64	92	43	-	16
60.70	327.8	219.6	219.6	2.0	11.7	0.6	6	clean SAND to silty SAND	125	5.0	44	66	93	44	-	16
60.86	325.6	217.9	219.8	3.1	11.5	1.0	6	clean SAND to silty SAND	125	5.0	44	65	93	43	-	16
61.03	330.0	220.5	224.2	3.3	11.1	1.0	6	clean SAND to silty SAND	125	5.0	44	66	93	44	-	16
61.19	327.9	218.8	218.8	2.8	10.6	0.9	6	clean SAND to silty SAND	125	5.0	44	66	93	43	-	16
61.35	336.4	224.2	224.2	3.1	10.3	0.9	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
61.52	366.5	244.0	244.0	2.5	10.3	0.7	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
61.68	362.8	241.3	241.3	2.3	11.1	0.6	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
61.85	371.8	247.0	247.0	1.5	11.4	0.4	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
62.01	370.4	245.7	245.7	1.4	11.4	0.4	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
62.17	366.6	242.9	242.9	1.5	11.3	0.4	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
62.34	343.2	227.1	227.1	1.7	11.5	0.5	6	clean SAND to silty SAND	125	5.0	45	69	94	44	-	16
62.50	338.9	224.0	224.0	1.6	11.5	0.5	6	clean SAND to silty SAND	125	5.0	45	68	94	44	-	16
62.67	355.5	234.7	234.7	2.0	11.5	0.6	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
62.83	371.5	245.0	245.0	1.7	11.2	0.5	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
63.00	373.2	245.8	245.8	1.8	11.5	0.5	6	clean SAND to silty SAND	125	5.0	49	75	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(481).cpt
CPT Date: 12/10/2008 10:38:47 AM
GW During Test: 12 ft

Sounding ID: CPT-08-72
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	378.6	249.1	249.1	2.1	11.4	0.6	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
63.32	381.4	250.6	250.6	1.7	11.8	0.5	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
63.49	380.9	250.0	250.0	2.1	11.8	0.6	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
63.65	387.8	254.3	254.3	2.0	12.0	0.5	6	clean SAND to silty SAND	125	5.0	51	78	95	44	-	16
63.82	405.8	265.8	265.8	1.8	11.9	0.4	6	clean SAND to silty SAND	125	5.0	53	81	95	44	-	16
63.98	429.9	281.2	281.2	1.7	12.0	0.4	7	grvly SAND to dense SAND	130	6.0	47	72	95	45	-	16
64.14	441.4	288.4	288.4	2.5	11.0	0.6	6	clean SAND to silty SAND	125	5.0	58	88	95	45	-	16
64.31	400.7	261.4	261.4	2.7	11.1	0.7	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
64.47	399.2	260.2	262.2	4.5	11.3	1.1	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
64.64	466.8	303.9	303.9	4.5	11.4	1.0	6	clean SAND to silty SAND	125	5.0	61	93	95	45	-	16
64.80	354.9	230.8	230.8	2.3	11.8	0.7	6	clean SAND to silty SAND	125	5.0	46	71	95	44	-	16
64.96	338.6	220.0	220.0	2.1	11.4	0.6	6	clean SAND to silty SAND	125	5.0	44	68	93	43	-	16
65.13	315.3	204.5	204.5	1.8	12.2	0.6	6	clean SAND to silty SAND	125	5.0	41	63	91	43	-	16
65.29	313.8	203.3	203.3	1.7	12.3	0.5	6	clean SAND to silty SAND	125	5.0	41	63	90	43	-	16
65.46	316.0	204.5	204.5	1.7	12.0	0.6	6	clean SAND to silty SAND	125	5.0	41	63	91	43	-	16
65.62	328.8	212.6	212.6	1.7	12.1	0.5	6	clean SAND to silty SAND	125	5.0	43	66	92	43	-	16
65.78	325.2	210.0	210.0	1.8	12.9	0.6	6	clean SAND to silty SAND	125	5.0	42	65	91	43	-	16
65.95	365.0	235.5	253.6	5.1	13.1	1.4	6	clean SAND to silty SAND	125	5.0	47	73	95	44	-	16
66.11	423.8	273.1	273.1	2.0	13.1	0.5	6	clean SAND to silty SAND	125	5.0	55	85	95	44	-	16
66.28	383.2	246.7	246.7	2.6	10.7	0.7	6	clean SAND to silty SAND	125	5.0	49	77	95	44	-	16
66.44	355.8	228.7	228.7	1.7	12.1	0.5	6	clean SAND to silty SAND	125	5.0	46	71	94	43	-	16
66.60	332.3	213.4	213.4	1.7	12.6	0.5	6	clean SAND to silty SAND	125	5.0	43	66	92	43	-	16
66.77	321.2	206.0	206.0	1.9	12.5	0.6	6	clean SAND to silty SAND	125	5.0	41	64	91	43	-	16
66.93	304.0	194.8	237.7	6.1	12.6	2.0	6	clean SAND to silty SAND	125	5.0	39	61	89	43	-	16
67.10	304.5	194.9	208.9	3.5	12.4	1.2	6	clean SAND to silty SAND	125	5.0	39	61	89	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(405).cpt
CPT Date: 11/17/2008 10:26:59 AM
GW During Test: 12 ft

Sounding ID: CPT-08-73
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	239.1	383.4	383.4	1.2	0.0	0.5	7	grvly SAND to dense SAND	130	6.0	64	40	95	48	-	16
0.49	208.5	334.4	334.4	1.7	0.1	0.8	6	clean SAND to silty SAND	125	5.0	67	42	95	48	-	16
0.66	184.5	295.9	295.9	1.1	0.1	0.6	6	clean SAND to silty SAND	125	5.0	59	37	95	48	-	16
0.82	153.0	245.4	271.7	2.5	0.0	1.7	6	clean SAND to silty SAND	125	5.0	49	31	95	48	-	16
0.98	78.3	125.5	257.5	3.6	0.0	4.6	9	very stiff fine SOIL	120	2.0	63	39	75	48	-	30
1.15	166.0	266.2	307.0	3.5	0.1	2.1	6	clean SAND to silty SAND	125	5.0	53	33	95	48	-	16
1.31	204.0	327.2	348.0	3.5	0.0	1.7	6	clean SAND to silty SAND	125	5.0	65	41	95	48	-	16
1.48	208.6	334.6	353.3	3.5	-0.3	1.7	6	clean SAND to silty SAND	125	5.0	67	42	95	48	-	16
1.64	189.4	303.7	319.2	2.9	-0.1	1.5	6	clean SAND to silty SAND	125	5.0	61	38	95	48	-	16
1.80	121.5	194.8	226.6	2.1	0.1	1.7	6	clean SAND to silty SAND	125	5.0	39	24	89	48	-	16
1.97	92.3	148.0	169.2	1.1	0.1	1.2	6	clean SAND to silty SAND	125	5.0	30	18	80	48	-	16
2.13	81.6	130.8	175.7	1.6	0.2	2.0	5	silty SAND to sandy SILT	120	4.0	33	20	76	48	-	16
2.30	133.7	214.4	239.7	2.1	0.2	1.6	6	clean SAND to silty SAND	125	5.0	43	27	92	48	-	16
2.46	232.5	372.9	393.9	4.2	0.3	1.8	6	clean SAND to silty SAND	125	5.0	75	47	95	48	-	16
2.62	329.9	529.1	529.1	4.7	0.2	1.4	6	clean SAND to silty SAND	125	5.0	100	66	95	48	-	16
2.79	339.3	544.2	544.2	5.9	0.4	1.7	6	clean SAND to silty SAND	125	5.0	100	68	95	48	-	16
2.95	302.4	484.9	503.0	5.9	0.4	1.9	6	clean SAND to silty SAND	125	5.0	97	60	95	48	-	16
3.12	237.9	381.6	419.3	5.1	0.4	2.2	6	clean SAND to silty SAND	125	5.0	76	48	95	48	-	16
3.28	183.0	293.5	332.4	3.8	0.4	2.1	6	clean SAND to silty SAND	125	5.0	59	37	95	48	-	16
3.45	120.6	193.4	238.4	2.5	0.3	2.1	6	clean SAND to silty SAND	125	5.0	39	24	89	48	-	16
3.61	83.1	133.3	177.2	1.6	0.4	1.9	5	silty SAND to sandy SILT	120	4.0	33	21	76	47	-	16
3.77	64.8	103.9	136.9	1.0	0.5	1.5	6	clean SAND to silty SAND	125	5.0	21	13	68	46	-	16
3.94	52.8	84.8	107.9	0.5	0.5	1.0	6	clean SAND to silty SAND	125	5.0	17	11	62	45	-	16
4.10	49.2	79.0	102.2	0.5	0.5	1.0	6	clean SAND to silty SAND	125	5.0	16	10	59	44	-	16
4.27	57.0	91.4	118.7	0.7	0.6	1.2	6	clean SAND to silty SAND	125	5.0	18	11	64	45	-	16
4.43	76.5	122.7	158.6	1.3	0.6	1.6	6	clean SAND to silty SAND	125	5.0	25	15	74	46	-	16
4.59	104.9	168.2	206.5	1.9	0.6	1.8	6	clean SAND to silty SAND	125	5.0	34	21	84	48	-	16
4.76	104.5	167.6	233.1	2.8	0.6	2.6	5	silty SAND to sandy SILT	120	4.0	42	26	84	47	-	16
4.92	92.4	148.1	248.5	3.3	0.1	3.6	8	stiff SAND to clayy SAND	115	1.0	100	92	-	-	6.1	16
5.09	89.9	144.1	263.4	3.7	-0.5	4.2	9	very stiff fine SOIL	120	2.0	72	45	79	47	-	30
5.25	91.2	146.2	230.7	2.9	-0.4	3.2	5	silty SAND to sandy SILT	120	4.0	37	23	80	47	-	16
5.41	84.7	135.8	219.7	2.7	-0.1	3.2	5	silty SAND to sandy SILT	120	4.0	34	21	77	46	-	16
5.58	78.7	126.2	208.4	2.4	0.1	3.1	5	silty SAND to sandy SILT	120	4.0	32	20	75	46	-	16
5.74	78.5	125.9	231.9	3.0	0.0	3.8	8	stiff SAND to clayy SAND	115	1.0	100	79	-	-	5.2	16
5.91	78.6	126.1	244.9	3.3	0.5	4.2	9	very stiff fine SOIL	120	2.0	63	39	75	46	-	30
6.07	74.5	118.4	263.2	3.7	0.3	5.0	9	very stiff fine SOIL	120	2.0	59	37	73	45	-	30
6.23	94.4	148.0	256.5	3.6	0.3	3.9	8	stiff SAND to clayy SAND	115	1.0	100	94	-	-	6.2	16
6.40	83.7	129.6	252.9	3.6	0.3	4.3	9	very stiff fine SOIL	120	2.0	65	42	76	46	-	30
6.56	89.6	137.0	249.7	3.6	0.2	4.0	8	stiff SAND to clayy SAND	115	1.0	100	90	-	-	5.9	16
6.73	68.2	103.1	239.8	3.3	0.1	4.9	9	very stiff fine SOIL	120	2.0	52	34	68	45	-	30
6.89	59.1	88.4	213.8	2.7	-0.1	4.6	4	clayy SILT to silty CLAY	115	2.0	44	30	-	-	4.2	15
7.05	71.2	105.2	227.0	3.1	0.0	4.4	9	very stiff fine SOIL	120	2.0	53	36	69	45	-	30
7.22	94.3	137.9	269.4	4.3	0.3	4.5	9	very stiff fine SOIL	120	2.0	69	47	78	46	-	30
7.38	117.8	170.3	280.2	4.5	0.5	3.9	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	7.8	16
7.55	87.3	124.9	273.2	4.4	-1.0	5.1	9	very stiff fine SOIL	120	2.0	62	44	74	45	-	30
7.71	79.7	112.8	255.0	4.0	-0.9	5.0	9	very stiff fine SOIL	120	2.0	56	40	71	45	-	30
7.87	77.4	108.5	243.2	3.7	-1.0	4.8	9	very stiff fine SOIL	120	2.0	54	39	70	45	-	30
8.04	76.3	105.8	251.0	3.9	-1.0	5.1	9	very stiff fine SOIL	120	2.0	53	38	69	45	-	30
8.20	89.5	122.9	252.3	4.0	-0.9	4.5	9	very stiff fine SOIL	120	2.0	61	45	74	45	-	30
8.37	93.2	126.8	280.3	4.9	-0.8	5.2	9	very stiff fine SOIL	120	2.0	63	47	75	45	-	30
8.53	107.4	144.7	297.7	5.5	-1.1	5.1	9	very stiff fine SOIL	120	2.0	72	54	79	46	-	30
8.69	141.4	188.7	310.2	5.8	-1.0	4.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	9.3	16
8.86	389.7	515.4	515.4	5.7	-0.6	1.5	6	clean SAND to silty SAND	125	5.0	100	78	95	48	-	16
9.02	449.7	589.2	589.2	5.0	-0.4	1.1	6	clean SAND to silty SAND	125	5.0	100	90	95	48	-	16
9.19	450.1	584.3	584.3	4.2	0.1	0.9	6	clean SAND to silty SAND	125	5.0	100	90	95	48	-	16
9.35	407.0	523.5	523.5	3.7	0.2	0.9	6	clean SAND to silty SAND	125	5.0	100	81	95	48	-	16
9.51	348.1	443.8	443.8	3.1	0.3	0.9	6	clean SAND to silty SAND	125	5.0	89	70	95	48	-	16
9.68	295.8	373.8	373.8	2.2	0.3	0.8	6	clean SAND to silty SAND	125	5.0	75	59	95	48	-	16
9.84	236.9	296.9	296.9	1.8	0.4	0.8	6	clean SAND to silty SAND	125	5.0	59	47	95	48	-	16
10.01	167.5	208.1	210.3	1.6	0.3	0.9	6	clean SAND to silty SAND	125	5.0	42	33	91	47	-	16
10.17	101.6	125.2	167.2	1.9	0.4	1.9	5	silty SAND to sandy SILT	120	4.0	31	25	74	45	-	16
10.34	58.9	72.1	155.7	1.8	0.3	3.2	5	silty SAND to sandy SILT	120	4.0	18	15	56	42	-	16
10.50	34.6	46.4	153.3	1.5	0.1	4.4	4	clayy SILT to silty CLAY	115	2.0	23	17	-	-	2.4	15

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The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	25.6	39.3	-	1.0	0.3	3.9	4	clayy SILT to silty CLAY	115	2.0	20	13	-	-	1.8	15
10.83	24.0	36.4	-	0.9	-0.1	3.7	4	clayy SILT to silty CLAY	115	2.0	18	12	-	-	1.7	15
10.99	28.8	34.2	112.9	0.9	0.1	3.1	4	clayy SILT to silty CLAY	115	2.0	17	14	-	-	2.0	15
11.16	31.8	37.5	106.9	0.8	0.5	2.6	4	clayy SILT to silty CLAY	115	2.0	19	16	-	-	2.2	15
11.32	27.2	34.7	111.3	0.8	0.5	3.0	4	clayy SILT to silty CLAY	115	2.0	17	14	-	-	1.9	15
11.48	24.1	30.5	-	0.7	0.5	3.2	4	clayy SILT to silty CLAY	115	2.0	15	12	-	-	1.7	15
11.65	24.1	30.2	-	0.7	0.1	3.0	4	clayy SILT to silty CLAY	115	2.0	15	12	-	-	1.7	15
11.81	18.9	21.6	40.6	0.1	-0.9	0.3	5	silty SAND to sandy SILT	120	4.0	5	5	16	36	-	16
11.98	13.8	15.7	42.1	0.1	-1.1	0.5	5	silty SAND to sandy SILT	120	4.0	4	3	6	34	-	16
12.14	13.5	18.4	-	0.2	-2.8	1.3	4	clayy SILT to silty CLAY	115	2.0	9	7	-	-	0.9	15
12.30	11.9	16.2	-	0.2	-2.8	1.6	4	clayy SILT to silty CLAY	115	2.0	8	6	-	-	0.8	15
12.47	10.7	14.5	-	0.2	-2.9	1.9	4	clayy SILT to silty CLAY	115	2.0	7	5	-	-	0.7	15
12.63	10.3	13.9	-	0.3	-2.9	2.8	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
12.80	12.4	16.6	-	0.3	-2.8	2.9	4	clayy SILT to silty CLAY	115	2.0	8	6	-	-	0.8	15
12.96	18.0	23.9	-	0.5	-2.7	3.1	4	clayy SILT to silty CLAY	115	2.0	12	9	-	-	1.2	15
13.12	22.7	30.0	-	0.7	-3.3	3.3	4	clayy SILT to silty CLAY	115	2.0	15	11	-	-	1.6	15
13.29	23.9	31.4	-	0.9	-3.9	4.1	4	clayy SILT to silty CLAY	115	2.0	16	12	-	-	1.7	15
13.45	28.7	37.5	-	1.1	-4.8	3.8	4	clayy SILT to silty CLAY	115	2.0	19	14	-	-	2.0	15
13.62	26.2	34.1	-	1.1	-5.3	4.4	4	clayy SILT to silty CLAY	115	2.0	17	13	-	-	1.8	15
13.78	32.7	36.1	112.8	1.0	-5.2	3.0	4	clayy SILT to silty CLAY	115	2.0	18	16	-	-	2.3	15
13.94	26.5	34.0	-	1.0	-4.8	3.9	4	clayy SILT to silty CLAY	115	2.0	17	13	-	-	1.8	15
14.11	24.0	30.7	-	1.0	-4.3	4.4	3	silty CLAY to CLAY	115	1.5	20	16	-	-	1.7	15
14.27	20.7	26.3	-	0.9	-4.0	4.8	3	silty CLAY to CLAY	115	1.5	18	14	-	-	1.4	15
14.44	19.6	24.8	-	1.1	-4.0	5.8	3	silty CLAY to CLAY	115	1.5	17	13	-	-	1.3	15
14.60	18.8	23.6	-	1.0	-4.0	5.7	3	silty CLAY to CLAY	115	1.5	16	13	-	-	1.3	15
14.76	17.9	22.4	-	1.0	-3.9	5.9	3	silty CLAY to CLAY	115	1.5	15	12	-	-	1.2	15
14.93	20.0	24.8	-	1.1	-3.9	5.9	3	silty CLAY to CLAY	115	1.5	17	13	-	-	1.4	15
15.09	24.1	29.8	-	1.2	-3.8	5.1	3	silty CLAY to CLAY	115	1.5	20	16	-	-	1.7	15
15.26	20.6	25.3	-	1.1	-3.8	5.4	3	silty CLAY to CLAY	115	1.5	17	14	-	-	1.4	15
15.42	16.4	20.0	-	0.8	-3.8	5.2	3	silty CLAY to CLAY	115	1.5	13	11	-	-	1.1	15
15.58	13.8	16.7	-	0.7	-3.7	5.3	3	silty CLAY to CLAY	115	1.5	11	9	-	-	0.9	15
15.75	11.8	14.3	-	0.6	-3.6	5.9	3	silty CLAY to CLAY	115	1.5	10	8	-	-	0.8	15
15.91	10.3	12.5	-	0.5	-3.6	5.8	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
16.08	9.1	10.9	-	0.5	-3.5	6.0	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
16.24	7.7	9.2	-	0.4	-3.5	6.4	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.40	6.8	8.1	-	0.5	-3.5	7.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
16.57	7.9	9.4	-	0.6	-3.4	9.3	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
16.73	12.7	14.9	-	0.9	-3.3	7.4	3	silty CLAY to CLAY	115	1.5	10	8	-	-	0.9	15
16.90	13.3	15.6	-	1.0	-3.4	7.8	3	silty CLAY to CLAY	115	1.5	10	9	-	-	0.9	15
17.06	12.8	14.9	-	0.8	-3.4	6.9	3	silty CLAY to CLAY	115	1.5	10	9	-	-	0.9	15
17.23	10.9	12.6	-	0.8	-3.5	8.0	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
17.39	9.3	10.8	-	0.9	-3.4	9.9	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
17.55	10.7	12.2	-	1.0	-3.4	9.9	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
17.72	11.9	13.5	-	1.1	-3.4	9.9	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
17.88	12.8	14.5	-	1.2	-3.3	9.9	3	silty CLAY to CLAY	115	1.5	10	9	-	-	0.9	15
18.05	13.3	15.0	-	1.2	-3.2	9.9	3	silty CLAY to CLAY	115	1.5	10	9	-	-	0.9	15
18.21	13.2	14.8	-	1.2	-3.2	9.8	3	silty CLAY to CLAY	115	1.5	10	9	-	-	0.9	15
18.37	12.3	13.7	-	1.2	-3.1	9.9	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
18.54	10.9	12.2	-	1.2	-3.1	9.9	3	silty CLAY to CLAY	115	1.5	8	7	-	-	0.7	15
18.70	12.1	13.3	-	1.0	-2.6	9.3	3	silty CLAY to CLAY	115	1.5	9	8	-	-	0.8	15
18.87	9.4	10.3	-	0.8	-2.5	9.9	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
19.03	7.3	8.0	-	0.6	-2.5	9.9	2	Organic SOILS - Peats	100	1.0	8	7	-	-	0.7	10
19.19	7.0	7.7	-	0.5	-2.4	9.0	2	Organic SOILS - Peats	100	1.0	8	7	-	-	0.7	10
19.36	5.8	6.3	-	0.6	-2.3	9.9	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.5	10
19.52	13.7	14.9	-	0.6	-2.2	4.5	3	silty CLAY to CLAY	115	1.5	10	9	-	-	0.9	15
19.69	35.3	35.6	78.2	0.5	-2.3	1.4	5	silty SAND to sandy SILT	120	4.0	9	9	33	37	-	16
19.85	43.8	44.1	69.4	0.4	-2.8	0.8	5	silty SAND to sandy SILT	120	4.0	11	11	40	38	-	16
20.01	47.0	47.2	76.8	0.5	-3.0	1.0	5	silty SAND to sandy SILT	120	4.0	12	12	42	39	-	16
20.18	42.3	42.4	82.1	0.6	-3.0	1.4	5	silty SAND to sandy SILT	120	4.0	11	11	39	38	-	16
20.34	57.0	56.9	81.1	0.5	-2.9	0.9	5	silty SAND to sandy SILT	120	4.0	14	14	48	40	-	16
20.51	61.0	60.8	85.2	0.6	-3.1	0.9	5	silty SAND to sandy SILT	120	4.0	15	15	51	40	-	16
20.67	58.2	57.8	86.3	0.6	-3.1	1.1	5	silty SAND to sandy SILT	120	4.0	14	15	49	40	-	16
20.83	53.6	53.1	82.7	0.6	-3.1	1.1	5	silty SAND to sandy SILT	120	4.0	13	13	46	39	-	16
21.00	51.7	51.1	81.0	0.5	-3.1	1.1	5	silty SAND to sandy SILT	120	4.0	13	13	45	39	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(405).cpt
CPT Date: 11/17/2008 10:26:59 AM
GW During Test: 12 ft

Sounding ID: CPT-08-73
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	48.4	47.8	80.1	0.5	-3.1	1.1	5	silty SAND to sandy SILT	120	4.0	12	12	43	39	-	16
21.33	47.2	46.5	77.3	0.5	-3.0	1.0	5	silty SAND to sandy SILT	120	4.0	12	12	42	38	-	16
21.49	50.3	49.4	77.2	0.5	-3.2	1.0	5	silty SAND to sandy SILT	120	4.0	12	13	44	39	-	16
21.65	50.2	49.2	77.8	0.5	-3.3	1.0	5	silty SAND to sandy SILT	120	4.0	12	13	44	39	-	16
21.82	53.5	52.3	73.9	0.4	-3.4	0.8	5	silty SAND to sandy SILT	120	4.0	13	13	46	39	-	16
21.98	52.5	51.2	76.9	0.5	-3.6	0.9	5	silty SAND to sandy SILT	120	4.0	13	13	45	39	-	16
22.15	45.8	44.5	73.7	0.4	-2.1	1.0	5	silty SAND to sandy SILT	120	4.0	11	11	40	38	-	16
22.31	36.6	35.5	66.3	0.3	-2.5	0.9	5	silty SAND to sandy SILT	120	4.0	9	9	33	37	-	16
22.47	24.9	24.1	66.7	0.3	-2.8	1.3	5	silty SAND to sandy SILT	120	4.0	6	6	20	34	-	16
22.64	12.4	12.3	-	0.2	-2.8	2.1	4	clayy SILT to silty CLAY	115	2.0	6	6	-	-	0.8	15
22.80	6.4	6.3	-	0.3	-2.7	6.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.97	6.2	6.1	-	0.4	-2.4	8.6	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
23.13	6.0	5.9	-	0.5	-2.1	9.9	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
23.30	6.1	5.9	-	0.5	-1.9	9.9	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
23.46	6.3	6.1	-	0.6	-1.7	9.9	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
23.62	7.0	6.8	-	0.7	-1.5	9.9	2	Organic SOILS - Peats	100	1.0	7	7	-	-	0.7	10
23.79	7.4	7.1	-	0.7	-1.3	9.9	2	Organic SOILS - Peats	100	1.0	7	7	-	-	0.7	10
23.95	7.3	7.1	-	0.7	-1.1	9.9	2	Organic SOILS - Peats	100	1.0	7	7	-	-	0.7	10
24.12	7.3	7.0	-	0.7	-0.9	9.9	2	Organic SOILS - Peats	100	1.0	7	7	-	-	0.7	10
24.28	7.5	7.2	-	0.7	-0.7	9.9	2	Organic SOILS - Peats	100	1.0	7	8	-	-	0.7	10
24.44	8.2	7.9	-	0.7	-0.5	9.7	2	Organic SOILS - Peats	100	1.0	8	8	-	-	0.8	10
24.61	7.4	7.1	-	0.6	-0.4	9.9	2	Organic SOILS - Peats	100	1.0	7	7	-	-	0.7	10
24.77	7.3	7.0	-	0.5	-0.2	8.8	2	Organic SOILS - Peats	100	1.0	7	7	-	-	0.7	10
24.94	6.5	6.2	-	0.4	0.1	7.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
25.10	5.6	5.3	-	0.3	0.2	8.2	2	Organic SOILS - Peats	100	1.0	5	6	-	-	0.5	10
25.26	6.2	5.8	-	0.3	2.6	6.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
25.43	5.8	5.4	-	0.3	2.8	6.9	2	Organic SOILS - Peats	100	1.0	5	6	-	-	0.5	10
25.59	5.3	5.0	-	0.4	2.9	9.9	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
25.76	6.4	5.9	-	0.3	3.1	6.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
25.92	6.4	5.9	-	0.3	3.1	6.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
26.08	5.7	5.3	-	0.3	3.5	7.8	2	Organic SOILS - Peats	100	1.0	5	6	-	-	0.5	10
26.25	5.4	4.9	-	0.3	3.6	8.7	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.5	10
26.41	5.9	5.4	-	0.3	3.9	7.9	2	Organic SOILS - Peats	100	1.0	5	6	-	-	0.5	10
26.58	6.4	5.9	-	0.4	4.1	8.1	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
26.74	6.1	5.6	-	0.4	4.4	9.0	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
26.90	6.3	5.7	-	0.5	4.6	9.6	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
27.07	6.5	5.9	-	0.6	4.8	9.9	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
27.23	7.7	7.0	-	0.8	4.9	9.9	2	Organic SOILS - Peats	100	1.0	7	8	-	-	0.7	10
27.40	8.6	7.7	-	0.8	5.1	9.9	2	Organic SOILS - Peats	100	1.0	8	9	-	-	0.8	10
27.56	8.3	7.5	-	0.8	5.2	9.9	2	Organic SOILS - Peats	100	1.0	7	8	-	-	0.8	10
27.72	8.2	7.4	-	0.8	5.3	9.9	2	Organic SOILS - Peats	100	1.0	7	8	-	-	0.8	10
27.89	8.3	7.4	-	0.8	5.5	9.9	2	Organic SOILS - Peats	100	1.0	7	8	-	-	0.8	10
28.05	8.5	7.6	-	0.9	5.7	9.9	2	Organic SOILS - Peats	100	1.0	8	8	-	-	0.8	10
28.22	9.0	8.0	-	1.0	5.9	9.9	2	Organic SOILS - Peats	100	1.0	8	9	-	-	0.9	10
28.38	10.2	9.1	-	0.9	6.9	9.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
28.54	9.5	8.4	-	0.9	7.2	9.9	2	Organic SOILS - Peats	100	1.0	8	10	-	-	0.9	10
28.71	9.3	8.2	-	0.7	7.4	9.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.87	9.3	8.2	-	0.8	7.8	9.9	2	Organic SOILS - Peats	100	1.0	8	9	-	-	0.9	10
29.04	10.0	8.8	-	0.8	8.2	9.9	2	Organic SOILS - Peats	100	1.0	9	10	-	-	1.0	10
29.20	10.9	9.5	-	1.0	8.5	9.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
29.36	47.0	42.6	102.7	1.0	8.9	2.2	5	silty SAND to sandy SILT	120	4.0	11	12	39	37	-	16
29.53	85.1	77.0	99.7	0.8	7.2	1.0	6	clean SAND to silty SAND	125	5.0	15	17	58	40	-	16
29.69	88.7	80.1	108.6	1.0	2.4	1.2	5	silty SAND to sandy SILT	120	4.0	20	22	60	41	-	16
29.86	103.5	93.2	119.4	1.2	2.2	1.2	6	clean SAND to silty SAND	125	5.0	19	21	65	41	-	16
30.02	127.4	114.5	131.4	1.2	1.6	0.9	6	clean SAND to silty SAND	125	5.0	23	25	71	42	-	16
30.19	136.9	122.8	136.9	1.2	0.2	0.9	6	clean SAND to silty SAND	125	5.0	25	27	74	43	-	16
30.35	138.3	123.7	139.8	1.3	-0.4	1.0	6	clean SAND to silty SAND	125	5.0	25	28	74	43	-	16
30.51	143.0	127.7	145.4	1.5	-0.3	1.0	6	clean SAND to silty SAND	125	5.0	26	29	75	43	-	16
30.68	150.0	133.6	150.8	1.5	-0.2	1.0	6	clean SAND to silty SAND	125	5.0	27	30	77	43	-	16
30.84	155.8	138.5	155.8	1.6	0.0	1.1	6	clean SAND to silty SAND	125	5.0	28	31	78	43	-	16
31.01	169.3	150.2	166.3	1.8	0.2	1.1	6	clean SAND to silty SAND	125	5.0	30	34	80	44	-	16
31.17	185.0	163.8	178.0	1.9	0.3	1.1	6	clean SAND to silty SAND	125	5.0	33	37	83	44	-	16
31.33	197.2	174.2	189.1	2.2	0.5	1.1	6	clean SAND to silty SAND	125	5.0	35	39	85	44	-	16
31.50	206.3	181.8	193.4	2.2	0.7	1.1	6	clean SAND to silty SAND	125	5.0	36	41	87	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(405).cpt
CPT Date: 11/17/2008 10:26:59 AM
GW During Test: 12 ft

Sounding ID: CPT-08-73
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	209.7	184.5	198.4	2.4	0.8	1.1	6	clean SAND to silty SAND	125	5.0	37	42	87	45	-	16
31.83	210.3	184.6	201.6	2.5	1.4	1.2	6	clean SAND to silty SAND	125	5.0	37	42	87	45	-	16
31.99	215.6	188.8	204.9	2.6	1.5	1.2	6	clean SAND to silty SAND	125	5.0	38	43	88	45	-	16
32.15	214.1	187.1	202.6	2.5	1.6	1.2	6	clean SAND to silty SAND	125	5.0	37	43	88	45	-	16
32.32	201.9	176.1	190.2	2.2	1.6	1.1	6	clean SAND to silty SAND	125	5.0	35	40	86	44	-	16
32.48	202.7	176.5	186.3	2.0	1.6	1.0	6	clean SAND to silty SAND	125	5.0	35	41	86	44	-	16
32.65	216.0	187.6	195.4	2.1	1.7	1.0	6	clean SAND to silty SAND	125	5.0	38	43	88	45	-	16
32.81	235.9	204.5	210.8	2.4	1.8	1.0	6	clean SAND to silty SAND	125	5.0	41	47	91	45	-	16
32.97	243.2	210.4	218.2	2.6	2.0	1.1	6	clean SAND to silty SAND	125	5.0	42	49	92	45	-	16
33.14	247.2	213.4	220.5	2.6	2.1	1.1	6	clean SAND to silty SAND	125	5.0	43	49	92	45	-	16
33.30	246.8	212.6	216.3	2.4	2.1	1.0	6	clean SAND to silty SAND	125	5.0	43	49	92	45	-	16
33.47	242.1	208.1	208.1	2.1	2.1	0.9	6	clean SAND to silty SAND	125	5.0	42	48	91	45	-	16
33.63	232.7	199.7	199.7	1.9	2.1	0.8	6	clean SAND to silty SAND	125	5.0	40	47	90	45	-	16
33.79	218.9	187.5	193.4	2.0	2.1	0.9	6	clean SAND to silty SAND	125	5.0	37	44	88	44	-	16
33.96	204.1	174.5	186.5	2.1	2.1	1.0	6	clean SAND to silty SAND	125	5.0	35	41	85	44	-	16
34.12	203.9	174.0	191.1	2.4	2.2	1.2	6	clean SAND to silty SAND	125	5.0	35	41	85	44	-	16
34.29	211.9	180.4	201.0	2.8	2.3	1.3	6	clean SAND to silty SAND	125	5.0	36	42	86	44	-	16
34.45	214.6	182.3	204.4	2.9	2.4	1.4	6	clean SAND to silty SAND	125	5.0	36	43	87	44	-	16
34.61	213.2	180.8	204.1	3.0	2.4	1.4	6	clean SAND to silty SAND	125	5.0	36	43	87	44	-	16
34.78	206.8	175.0	199.8	2.9	2.3	1.4	6	clean SAND to silty SAND	125	5.0	35	41	85	44	-	16
34.94	199.2	168.2	193.7	2.8	2.3	1.4	6	clean SAND to silty SAND	125	5.0	34	40	84	44	-	16
35.11	193.9	163.5	184.8	2.5	2.3	1.3	6	clean SAND to silty SAND	125	5.0	33	39	83	44	-	16
35.27	207.5	174.6	189.7	2.3	2.3	1.1	6	clean SAND to silty SAND	125	5.0	35	42	85	44	-	16
35.43	238.7	200.5	208.1	2.4	2.3	1.0	6	clean SAND to silty SAND	125	5.0	40	48	90	45	-	16
35.60	240.4	201.5	211.8	2.6	2.4	1.1	6	clean SAND to silty SAND	125	5.0	40	48	90	45	-	16
35.76	240.0	200.8	209.6	2.5	2.4	1.1	6	clean SAND to silty SAND	125	5.0	40	48	90	45	-	16
35.93	238.2	198.9	206.4	2.4	2.4	1.0	6	clean SAND to silty SAND	125	5.0	40	48	90	45	-	16
36.09	236.1	196.8	201.4	2.2	2.5	0.9	6	clean SAND to silty SAND	125	5.0	39	47	89	44	-	16
36.26	235.7	196.1	196.7	2.0	2.5	0.9	6	clean SAND to silty SAND	125	5.0	39	47	89	44	-	16
36.42	237.7	197.4	197.4	1.8	2.5	0.8	6	clean SAND to silty SAND	125	5.0	39	48	89	44	-	16
36.58	239.7	198.6	198.6	1.9	2.5	0.8	6	clean SAND to silty SAND	125	5.0	40	48	90	44	-	16
36.75	239.3	198.0	202.2	2.2	2.6	0.9	6	clean SAND to silty SAND	125	5.0	40	48	90	44	-	16
36.91	238.7	197.1	202.7	2.3	2.7	1.0	6	clean SAND to silty SAND	125	5.0	39	48	89	44	-	16
37.08	232.5	191.7	202.5	2.5	2.8	1.1	6	clean SAND to silty SAND	125	5.0	38	47	88	44	-	16
37.24	224.8	184.9	199.4	2.6	2.8	1.1	6	clean SAND to silty SAND	125	5.0	37	45	87	44	-	16
37.40	218.1	179.1	198.8	2.8	2.9	1.3	6	clean SAND to silty SAND	125	5.0	36	44	86	44	-	16
37.57	220.5	180.7	201.3	2.9	2.9	1.3	6	clean SAND to silty SAND	125	5.0	36	44	87	44	-	16
37.73	220.4	180.3	202.3	3.0	2.9	1.4	6	clean SAND to silty SAND	125	5.0	36	44	86	44	-	16
37.90	216.9	177.1	199.3	2.9	2.9	1.4	6	clean SAND to silty SAND	125	5.0	35	43	86	44	-	16
38.06	213.8	174.3	196.9	2.9	3.0	1.4	6	clean SAND to silty SAND	125	5.0	35	43	85	44	-	16
38.22	206.6	168.1	191.7	2.8	2.8	1.4	6	clean SAND to silty SAND	125	5.0	34	41	84	44	-	16
38.39	208.5	169.4	193.6	2.9	2.8	1.4	6	clean SAND to silty SAND	125	5.0	34	42	84	44	-	16
38.55	217.0	175.9	199.3	3.0	2.9	1.4	6	clean SAND to silty SAND	125	5.0	35	43	86	44	-	16
38.72	225.3	182.4	205.4	3.1	2.9	1.4	6	clean SAND to silty SAND	125	5.0	36	45	87	44	-	16
38.88	232.5	187.8	211.9	3.3	2.9	1.4	6	clean SAND to silty SAND	125	5.0	38	47	88	44	-	16
39.04	234.3	188.9	213.7	3.4	2.9	1.5	6	clean SAND to silty SAND	125	5.0	38	47	88	44	-	16
39.21	232.8	187.4	211.8	3.3	3.0	1.5	6	clean SAND to silty SAND	125	5.0	37	47	88	44	-	16
39.37	236.9	190.4	212.9	3.3	3.0	1.4	6	clean SAND to silty SAND	125	5.0	38	47	88	44	-	16
39.54	241.1	193.4	216.3	3.4	3.0	1.4	6	clean SAND to silty SAND	125	5.0	39	48	89	44	-	16
39.70	244.9	196.1	220.0	3.5	3.1	1.5	6	clean SAND to silty SAND	125	5.0	39	49	89	44	-	16
39.86	245.6	196.3	220.1	3.5	3.1	1.5	6	clean SAND to silty SAND	125	5.0	39	49	89	44	-	16
40.03	243.4	194.3	218.7	3.6	3.1	1.5	6	clean SAND to silty SAND	125	5.0	39	49	89	44	-	16
40.19	252.0	200.7	223.0	3.6	3.2	1.4	6	clean SAND to silty SAND	125	5.0	40	50	90	44	-	16
40.36	255.2	202.9	226.1	3.7	3.2	1.5	6	clean SAND to silty SAND	125	5.0	41	51	90	44	-	16
40.52	269.3	213.8	234.2	3.8	3.3	1.4	6	clean SAND to silty SAND	125	5.0	43	54	92	44	-	16
40.68	277.6	220.0	240.2	3.9	3.3	1.4	6	clean SAND to silty SAND	125	5.0	44	56	93	45	-	16
40.85	277.1	219.3	238.4	3.8	3.3	1.4	6	clean SAND to silty SAND	125	5.0	44	55	93	45	-	16
41.01	274.4	216.7	235.8	3.8	3.4	1.4	6	clean SAND to silty SAND	125	5.0	43	55	93	45	-	16
41.18	268.3	211.5	228.9	3.5	3.4	1.3	6	clean SAND to silty SAND	125	5.0	42	54	92	44	-	16
41.34	262.7	206.8	222.0	3.2	3.5	1.2	6	clean SAND to silty SAND	125	5.0	41	53	91	44	-	16
41.50	258.5	203.2	215.5	3.0	3.5	1.2	6	clean SAND to silty SAND	125	5.0	41	52	90	44	-	16
41.67	255.4	200.4	213.0	2.9	3.4	1.2	6	clean SAND to silty SAND	125	5.0	40	51	90	44	-	16
41.83	259.3	203.1	216.1	3.0	3.4	1.2	6	clean SAND to silty SAND	125	5.0	41	52	90	44	-	16
42.00	263.9	206.4	220.1	3.2	3.5	1.2	6	clean SAND to silty SAND	125	5.0	41	53	91	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(405).cpt
CPT Date: 11/17/2008 10:26:59 AM
GW During Test: 12 ft

Sounding ID: CPT-08-73
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	266.5	208.1	222.2	3.2	3.5	1.2	6	clean SAND to silty SAND	125	5.0	42	53	91	44	-	16
42.32	270.0	210.4	224.5	3.3	3.5	1.2	6	clean SAND to silty SAND	125	5.0	42	54	92	44	-	16
42.49	271.4	211.1	226.5	3.4	3.6	1.3	6	clean SAND to silty SAND	125	5.0	42	54	92	44	-	16
42.65	277.5	215.5	228.8	3.4	3.6	1.2	6	clean SAND to silty SAND	125	5.0	43	55	92	44	-	16
42.82	283.5	219.9	231.2	3.3	3.7	1.2	6	clean SAND to silty SAND	125	5.0	44	57	93	44	-	16
42.98	284.9	220.6	227.0	3.0	3.7	1.1	6	clean SAND to silty SAND	125	5.0	44	57	93	44	-	16
43.15	287.9	222.5	223.0	2.7	3.6	1.0	6	clean SAND to silty SAND	125	5.0	45	58	93	45	-	16
43.31	281.3	217.1	217.1	2.3	3.6	0.8	6	clean SAND to silty SAND	125	5.0	43	56	93	44	-	16
43.47	259.1	199.6	199.6	2.0	3.6	0.8	6	clean SAND to silty SAND	125	5.0	40	52	90	44	-	16
43.64	250.3	192.5	192.5	1.7	3.5	0.7	6	clean SAND to silty SAND	125	5.0	39	50	89	44	-	16
43.80	253.9	195.0	195.0	1.7	3.5	0.7	6	clean SAND to silty SAND	125	5.0	39	51	89	44	-	16
43.97	245.9	188.6	188.6	1.7	3.5	0.7	6	clean SAND to silty SAND	125	5.0	38	49	88	44	-	16
44.13	274.8	210.4	210.4	1.7	3.5	0.6	6	clean SAND to silty SAND	125	5.0	42	55	92	44	-	16
44.29	307.9	235.3	235.3	1.9	3.5	0.6	6	clean SAND to silty SAND	125	5.0	47	62	95	45	-	16
44.46	316.2	241.3	241.3	2.1	3.4	0.7	6	clean SAND to silty SAND	125	5.0	48	63	95	45	-	16
44.62	316.1	240.9	240.9	2.1	3.3	0.7	6	clean SAND to silty SAND	125	5.0	48	63	95	45	-	16
44.79	308.4	234.6	234.6	2.0	3.3	0.6	6	clean SAND to silty SAND	125	5.0	47	62	95	45	-	16
44.95	304.9	231.5	231.5	1.8	3.3	0.6	6	clean SAND to silty SAND	125	5.0	46	61	95	45	-	16
45.11	303.7	230.3	230.3	1.7	3.3	0.6	6	clean SAND to silty SAND	125	5.0	46	61	95	45	-	16
45.28	294.9	223.3	223.3	1.8	3.3	0.6	6	clean SAND to silty SAND	125	5.0	45	59	94	44	-	16
45.44	279.2	211.0	211.0	1.8	3.4	0.6	6	clean SAND to silty SAND	125	5.0	42	56	92	44	-	16
45.61	263.2	198.6	198.6	1.7	3.5	0.7	6	clean SAND to silty SAND	125	5.0	40	53	90	44	-	16
45.77	245.4	184.9	184.9	1.5	3.5	0.6	6	clean SAND to silty SAND	125	5.0	37	49	87	43	-	16
45.93	232.0	174.5	174.5	1.3	3.4	0.6	6	clean SAND to silty SAND	125	5.0	35	46	85	43	-	16
46.10	215.1	161.6	161.6	1.1	3.5	0.5	6	clean SAND to silty SAND	125	5.0	32	43	83	43	-	16
46.26	192.8	144.6	144.6	1.0	3.5	0.5	6	clean SAND to silty SAND	125	5.0	29	39	79	42	-	16
46.43	158.9	119.0	127.3	1.0	3.5	0.7	6	clean SAND to silty SAND	125	5.0	24	32	73	41	-	16
46.59	119.2	89.1	108.3	1.0	3.5	0.9	6	clean SAND to silty SAND	125	5.0	18	24	63	40	-	16
46.75	71.1	53.1	93.0	1.0	3.5	1.4	5	silty SAND to sandy SILT	120	4.0	13	18	46	37	-	16
46.92	40.7	24.0	-	1.1	3.5	2.9	4	clayy SILT to silty CLAY	115	2.0	12	20	-	-	2.8	15
47.08	25.2	14.8	-	0.9	3.7	4.0	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
47.25	91.9	68.4	96.0	1.0	4.2	1.1	5	silty SAND to sandy SILT	120	4.0	17	23	54	38	-	16
47.41	150.1	111.5	125.0	1.2	2.8	0.8	6	clean SAND to silty SAND	125	5.0	22	30	71	41	-	16
47.57	197.2	146.3	156.9	1.7	2.9	0.9	6	clean SAND to silty SAND	125	5.0	29	39	80	42	-	16
47.74	242.2	179.3	190.2	2.4	3.2	1.0	6	clean SAND to silty SAND	125	5.0	36	48	86	43	-	16
47.90	257.4	190.3	206.6	3.1	3.8	1.2	6	clean SAND to silty SAND	125	5.0	38	51	88	43	-	16
48.07	263.8	194.8	215.7	3.6	3.9	1.4	6	clean SAND to silty SAND	125	5.0	39	53	89	44	-	16
48.23	246.3	181.6	203.9	3.3	3.9	1.4	6	clean SAND to silty SAND	125	5.0	36	49	87	43	-	16
48.39	207.2	152.5	174.8	2.6	3.9	1.3	6	clean SAND to silty SAND	125	5.0	31	41	81	42	-	16
48.56	188.8	138.8	150.1	1.6	3.7	0.9	6	clean SAND to silty SAND	125	5.0	28	38	78	42	-	16
48.72	153.2	112.4	130.6	1.5	4.4	1.0	6	clean SAND to silty SAND	125	5.0	22	31	71	41	-	16
48.89	94.0	68.9	125.9	1.9	4.3	2.1	5	silty SAND to sandy SILT	120	4.0	17	23	55	38	-	16
49.05	46.3	26.3	-	1.6	4.3	3.7	4	clayy SILT to silty CLAY	115	2.0	13	23	-	-	3.2	15
49.22	26.7	15.1	-	1.3	4.6	5.3	3	silty CLAY to CLAY	115	1.5	10	18	-	-	1.8	15
49.38	35.8	20.2	-	0.9	6.0	2.8	4	clayy SILT to silty CLAY	115	2.0	10	18	-	-	2.4	15
49.54	56.2	41.0	101.2	1.1	6.4	2.1	5	silty SAND to sandy SILT	120	4.0	10	14	38	35	-	16
49.71	40.4	22.7	-	1.2	5.6	3.1	4	clayy SILT to silty CLAY	115	2.0	11	20	-	-	2.7	15
49.87	24.3	13.6	-	0.9	4.2	4.2	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
50.04	16.9	9.5	-	0.6	4.3	4.5	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
50.20	14.0	7.8	-	0.6	5.3	5.0	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
50.36	13.3	7.4	-	0.5	6.4	4.9	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
50.53	14.4	8.0	-	0.6	7.5	5.0	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
50.69	15.2	8.4	-	0.7	8.5	5.7	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
50.86	32.2	17.8	-	1.1	10.2	3.6	3	silty CLAY to CLAY	115	1.5	12	21	-	-	2.2	15
51.02	38.7	21.3	-	1.5	9.8	4.2	3	silty CLAY to CLAY	115	1.5	14	26	-	-	2.6	15
51.18	61.4	44.2	125.2	1.8	10.9	3.0	4	clayy SILT to silty CLAY	115	2.0	22	31	-	-	4.2	15
51.35	155.7	112.1	143.9	2.2	10.3	1.4	6	clean SAND to silty SAND	125	5.0	22	31	71	41	-	16
51.51	179.8	129.2	162.0	2.7	9.0	1.5	6	clean SAND to silty SAND	125	5.0	26	36	75	41	-	16
51.68	203.4	146.0	179.9	3.3	8.9	1.6	6	clean SAND to silty SAND	125	5.0	29	41	79	42	-	16
51.84	216.8	155.4	190.1	3.6	8.8	1.7	6	clean SAND to silty SAND	125	5.0	31	43	82	42	-	16
52.00	223.0	159.6	196.9	3.9	8.6	1.8	6	clean SAND to silty SAND	125	5.0	32	45	82	42	-	16
52.17	226.1	161.6	198.1	3.9	8.4	1.8	6	clean SAND to silty SAND	125	5.0	32	45	83	42	-	16
52.33	228.6	163.1	198.6	3.9	8.3	1.7	6	clean SAND to silty SAND	125	5.0	33	46	83	42	-	16
52.50	231.5	165.0	199.5	3.9	8.3	1.7	6	clean SAND to silty SAND	125	5.0	33	46	84	42	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(405).cpt
CPT Date: 11/17/2008 10:26:59 AM
GW During Test: 12 ft

Sounding ID: CPT-08-73
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	243.4	173.2	208.4	4.2	8.4	1.7	6	clean SAND to silty SAND	125	5.0	35	49	85	43	-	16
52.82	267.2	189.9	204.8	3.1	8.2	1.2	6	clean SAND to silty SAND	125	5.0	38	53	88	43	-	16
52.99	286.4	203.2	203.2	2.4	7.4	0.8	6	clean SAND to silty SAND	125	5.0	41	57	90	44	-	16
53.15	308.0	218.3	218.3	1.8	6.8	0.6	6	clean SAND to silty SAND	125	5.0	44	62	93	44	-	16
53.32	313.6	222.0	222.0	2.7	6.2	0.9	6	clean SAND to silty SAND	125	5.0	44	63	93	44	-	16
53.48	316.3	223.6	223.6	1.6	6.3	0.5	6	clean SAND to silty SAND	125	5.0	45	63	94	44	-	16
53.64	297.1	209.7	209.7	1.9	6.5	0.6	6	clean SAND to silty SAND	125	5.0	42	59	91	44	-	16
53.81	299.9	211.4	211.4	1.8	7.6	0.6	6	clean SAND to silty SAND	125	5.0	42	60	92	44	-	16
53.97	294.1	207.1	207.1	1.1	6.4	0.4	6	clean SAND to silty SAND	125	5.0	41	59	91	44	-	16
54.14	276.2	194.2	194.2	1.1	5.7	0.4	6	clean SAND to silty SAND	125	5.0	39	55	89	43	-	16
54.30	284.9	200.0	200.0	1.9	5.7	0.7	6	clean SAND to silty SAND	125	5.0	40	57	90	43	-	16
54.46	272.5	191.1	191.1	1.7	5.4	0.6	6	clean SAND to silty SAND	125	5.0	38	55	88	43	-	16
54.63	204.3	143.0	143.0	1.1	7.7	0.6	6	clean SAND to silty SAND	125	5.0	29	41	79	42	-	16
54.79	156.3	109.3	122.3	1.2	6.8	0.8	6	clean SAND to silty SAND	125	5.0	22	31	70	40	-	16
54.96	83.9	58.6	114.5	1.6	6.9	2.0	5	silty SAND to sandy SILT	120	4.0	15	21	49	37	-	16
55.12	40.4	20.8	-	1.6	7.0	4.3	3	silty CLAY to CLAY	115	1.5	14	27	-	-	2.7	15
55.28	24.3	12.5	-	1.1	7.5	5.0	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.6	15
55.45	22.6	11.6	-	0.5	8.3	2.3	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
55.61	18.8	9.6	-	0.6	9.8	3.6	3	silty CLAY to CLAY	115	1.5	6	13	-	-	1.2	15
55.78	16.8	8.6	-	0.4	11.5	3.2	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
55.94	30.5	15.6	-	0.5	13.1	2.0	4	clayy SILT to silty CLAY	115	2.0	8	15	-	-	2.0	15
56.11	17.5	8.9	-	0.5	13.3	3.3	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.1	15
56.27	11.3	5.8	-	0.3	13.9	4.3	3	silty CLAY to CLAY	115	1.5	4	8	-	-	0.7	15
56.43	10.4	5.2	-	0.3	15.3	3.7	3	silty CLAY to CLAY	115	1.5	3	7	-	-	0.6	15
56.60	10.7	5.4	-	0.2	16.8	3.2	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.6	15
56.76	9.4	4.7	-	0.3	18.7	4.5	3	silty CLAY to CLAY	115	1.5	3	6	-	-	0.5	15
56.93	9.6	4.8	-	0.3	20.7	5.0	3	silty CLAY to CLAY	115	1.5	3	6	-	-	0.6	15
57.09	10.4	5.2	-	0.5	22.4	6.6	2	Organic SOILS - Peats	100	1.0	5	10	-	-	0.9	10
57.25	11.5	5.8	-	0.8	24.1	9.9	2	Organic SOILS - Peats	100	1.0	6	11	-	-	1.0	10
57.42	35.3	17.7	-	1.1	26.0	3.3	3	silty CLAY to CLAY	115	1.5	12	24	-	-	2.4	15
57.58	52.4	26.2	-	1.5	21.2	3.1	4	clayy SILT to silty CLAY	115	2.0	13	26	-	-	3.6	15
57.75	125.2	85.9	114.4	1.5	8.4	1.2	6	clean SAND to silty SAND	125	5.0	17	25	62	39	-	16
57.91	169.0	115.7	136.8	1.8	8.3	1.1	6	clean SAND to silty SAND	125	5.0	23	34	72	40	-	16
58.07	200.1	136.9	147.1	1.6	8.4	0.8	6	clean SAND to silty SAND	125	5.0	27	40	77	41	-	16
58.24	223.6	152.8	157.5	1.6	9.1	0.7	6	clean SAND to silty SAND	125	5.0	31	45	81	42	-	16
58.40	284.6	194.2	206.0	3.1	9.5	1.1	6	clean SAND to silty SAND	125	5.0	39	57	89	43	-	16
58.57	327.0	222.8	222.8	2.9	10.2	0.9	6	clean SAND to silty SAND	125	5.0	45	65	93	44	-	16
58.73	468.8	319.0	319.0	5.5	9.7	1.2	6	clean SAND to silty SAND	125	5.0	64	94	95	45	-	16
58.89	578.3	393.1	393.1	6.1	12.0	1.1	6	clean SAND to silty SAND	125	5.0	79	100	95	46	-	16
59.06	713.3	484.2	484.2	7.8	9.8	1.1	6	clean SAND to silty SAND	125	5.0	97	100	95	47	-	16
59.22	631.9	428.5	428.5	7.3	8.5	1.2	6	clean SAND to silty SAND	125	5.0	86	100	95	47	-	16
59.39	643.1	435.5	435.5	8.9	16.0	1.4	6	clean SAND to silty SAND	125	5.0	87	100	95	47	-	16
59.55	555.5	375.7	375.7	7.6	12.3	1.4	6	clean SAND to silty SAND	125	5.0	75	100	95	46	-	16
59.71	566.9	382.9	382.9	5.4	8.7	1.0	6	clean SAND to silty SAND	125	5.0	77	100	95	46	-	16
59.88	441.2	297.6	319.0	7.2	11.1	1.6	6	clean SAND to silty SAND	125	5.0	60	88	95	45	-	16
60.04	457.1	308.0	308.0	5.3	14.0	1.2	6	clean SAND to silty SAND	125	5.0	62	91	95	45	-	16
60.21	377.8	254.3	254.3	3.7	15.7	1.0	6	clean SAND to silty SAND	125	5.0	51	76	95	44	-	16
60.37	382.8	257.3	257.3	3.2	11.8	0.9	6	clean SAND to silty SAND	125	5.0	51	77	95	44	-	16
60.53	390.6	262.2	262.2	2.3	11.7	0.6	6	clean SAND to silty SAND	125	5.0	52	78	95	44	-	16
60.70	487.1	326.6	326.6	2.3	11.7	0.5	7	grvly SAND to dense SAND	130	6.0	54	81	95	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(482).cpt
CPT Date: 12/10/2008 1:01:40 PM
GW During Test: 12 ft

Sounding ID: CPT-08-74
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	161.3	258.7	258.7	1.2	0.0	0.8	6	clean SAND to silty SAND	125	5.0	52	32	95	48	-	16
0.49	161.7	259.3	262.4	1.9	-0.1	1.2	6	clean SAND to silty SAND	125	5.0	52	32	95	48	-	16
0.66	136.9	219.6	231.6	1.7	0.0	1.2	6	clean SAND to silty SAND	125	5.0	44	27	93	48	-	16
0.82	106.1	170.2	193.9	1.5	0.0	1.4	6	clean SAND to silty SAND	125	5.0	34	21	85	48	-	16
0.98	98.6	158.1	181.4	1.3	0.0	1.3	6	clean SAND to silty SAND	125	5.0	32	20	82	48	-	16
1.15	95.4	153.0	182.3	1.5	0.0	1.5	6	clean SAND to silty SAND	125	5.0	31	19	81	48	-	16
1.31	82.3	132.1	162.6	1.2	-0.1	1.5	6	clean SAND to silty SAND	125	5.0	26	16	76	48	-	16
1.48	62.0	99.4	133.1	0.9	-0.1	1.5	5	silty SAND to sandy SILT	120	4.0	25	16	67	48	-	16
1.64	45.2	72.6	124.1	0.9	0.0	2.0	5	silty SAND to sandy SILT	120	4.0	18	11	56	48	-	16
1.80	33.4	53.6	117.9	0.8	-0.1	2.4	5	silty SAND to sandy SILT	120	4.0	13	8	46	46	-	16
1.97	24.2	38.8	118.8	0.8	-0.1	3.2	4	clayy SILT to silty CLAY	115	2.0	19	12	-	-	1.7	15
2.13	19.7	31.6	-	0.8	-0.1	4.1	4	clayy SILT to silty CLAY	115	2.0	16	10	-	-	1.4	15
2.30	20.1	32.3	-	1.2	-0.1	5.8	3	silty CLAY to CLAY	115	1.5	22	13	-	-	1.4	15
2.46	55.3	88.6	156.5	1.4	0.1	2.6	5	silty SAND to sandy SILT	120	4.0	22	14	63	47	-	16
2.62	110.5	177.2	204.9	1.7	-0.3	1.5	6	clean SAND to silty SAND	125	5.0	35	22	86	48	-	16
2.79	122.4	196.3	222.3	1.9	-0.5	1.5	6	clean SAND to silty SAND	125	5.0	39	24	89	48	-	16
2.95	123.9	198.7	225.3	1.9	-0.6	1.6	6	clean SAND to silty SAND	125	5.0	40	25	90	48	-	16
3.12	116.9	187.5	222.1	2.1	-0.7	1.8	6	clean SAND to silty SAND	125	5.0	38	23	88	48	-	16
3.28	91.1	146.1	209.9	2.3	-0.7	2.6	5	silty SAND to sandy SILT	120	4.0	37	23	80	48	-	16
3.45	70.0	112.2	204.5	2.4	-0.1	3.4	5	silty SAND to sandy SILT	120	4.0	28	17	71	47	-	16
3.61	88.1	141.3	204.0	2.2	0.5	2.5	5	silty SAND to sandy SILT	120	4.0	35	22	78	47	-	16
3.77	103.8	166.5	227.6	2.6	-0.1	2.5	5	silty SAND to sandy SILT	120	4.0	42	26	84	48	-	16
3.94	91.6	146.8	232.7	2.9	-0.6	3.2	5	silty SAND to sandy SILT	120	4.0	37	23	80	47	-	16
4.10	81.8	131.2	239.5	3.2	-1.9	3.9	8	stiff SAND to clayy SAND	115	1.0	100	82	-	-	5.4	16
4.27	89.2	143.0	250.0	3.4	-0.4	3.8	8	stiff SAND to clayy SAND	115	1.0	100	89	-	-	5.9	16
4.43	98.0	157.2	269.1	3.8	-0.5	3.9	8	stiff SAND to clayy SAND	115	1.0	100	98	-	-	6.5	16
4.59	96.8	155.2	290.2	4.4	-0.7	4.6	9	very stiff fine SOIL	120	2.0	78	48	82	47	-	30
4.76	81.2	130.2	249.5	3.4	-0.6	4.2	9	very stiff fine SOIL	120	2.0	65	41	76	47	-	30
4.92	70.1	112.5	248.3	3.4	-0.5	4.8	9	very stiff fine SOIL	120	2.0	56	35	71	46	-	30
5.09	61.6	98.8	247.2	3.3	-0.5	5.3	9	very stiff fine SOIL	120	2.0	49	31	67	45	-	30
5.25	56.9	91.3	228.2	2.8	-0.9	5.0	9	very stiff fine SOIL	120	2.0	46	28	64	45	-	30
5.41	64.0	102.7	226.0	2.8	0.9	4.5	9	very stiff fine SOIL	120	2.0	51	32	68	45	-	30
5.58	60.6	97.2	227.6	2.8	2.0	4.7	9	very stiff fine SOIL	120	2.0	49	30	66	45	-	30
5.74	64.2	103.0	236.8	3.1	1.9	4.8	9	very stiff fine SOIL	120	2.0	52	32	68	45	-	30
5.91	48.3	77.5	237.0	2.9	-1.8	6.1	9	very stiff fine SOIL	120	2.0	39	24	59	43	-	30
6.07	49.1	78.8	209.3	2.4	-2.9	4.9	4	clayy SILT to silty CLAY	115	2.0	39	25	-	-	3.5	15
6.23	47.1	74.6	200.1	2.2	-3.0	4.8	4	clayy SILT to silty CLAY	115	2.0	37	24	-	-	3.3	15
6.40	35.4	55.4	177.8	1.7	-1.8	4.9	4	clayy SILT to silty CLAY	115	2.0	28	18	-	-	2.5	15
6.56	34.7	53.7	169.3	1.6	-1.0	4.7	4	clayy SILT to silty CLAY	115	2.0	27	17	-	-	2.4	15
6.73	55.1	84.1	183.9	2.0	-0.7	3.7	4	clayy SILT to silty CLAY	115	2.0	42	28	-	-	3.9	15
6.89	96.6	145.9	238.0	3.3	-0.3	3.4	5	silty SAND to sandy SILT	120	4.0	36	24	79	46	-	16
7.05	76.0	113.5	236.5	3.3	-1.4	4.4	9	very stiff fine SOIL	120	2.0	57	38	71	45	-	30
7.22	66.8	98.5	229.8	3.1	-1.4	4.7	9	very stiff fine SOIL	120	2.0	49	33	67	44	-	30
7.38	76.2	111.2	217.1	2.9	-1.1	3.9	8	stiff SAND to clayy SAND	115	1.0	100	76	-	-	5.0	16
7.55	65.0	93.9	235.0	3.3	-0.7	5.1	9	very stiff fine SOIL	120	2.0	47	33	65	44	-	30
7.71	82.0	117.2	232.1	3.4	0.8	4.1	9	very stiff fine SOIL	120	2.0	59	41	72	45	-	30
7.87	79.3	112.0	227.0	3.3	0.7	4.1	9	very stiff fine SOIL	120	2.0	56	40	71	45	-	30
8.04	60.8	85.1	225.8	3.1	0.3	5.2	9	very stiff fine SOIL	120	2.0	43	30	62	44	-	30
8.20	89.5	123.9	221.6	3.2	1.3	3.6	5	silty SAND to sandy SILT	120	4.0	31	22	74	45	-	16
8.37	119.0	163.2	263.7	4.3	0.4	3.6	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	7.9	16
8.53	95.6	129.9	260.1	4.3	-3.1	4.5	9	very stiff fine SOIL	120	2.0	65	48	76	46	-	30
8.69	107.4	144.5	227.3	3.3	-3.9	3.1	5	silty SAND to sandy SILT	120	4.0	36	27	79	46	-	16
8.86	153.3	204.4	246.2	3.1	-3.5	2.0	6	clean SAND to silty SAND	125	5.0	41	31	91	48	-	16
9.02	97.1	128.3	211.0	3.0	-0.1	3.1	5	silty SAND to sandy SILT	120	4.0	32	24	75	45	-	16
9.19	64.7	84.7	192.0	2.6	-0.3	4.0	4	clayy SILT to silty CLAY	115	2.0	42	32	-	-	4.6	15
9.35	47.3	61.4	164.3	1.9	-0.3	4.0	4	clayy SILT to silty CLAY	115	2.0	31	24	-	-	3.3	15
9.51	45.0	57.9	141.4	1.4	0.2	3.2	4	clayy SILT to silty CLAY	115	2.0	29	22	-	-	3.2	15
9.68	48.5	61.9	134.0	1.3	0.4	2.7	5	silty SAND to sandy SILT	120	4.0	15	12	51	42	-	16
9.84	49.0	62.1	130.9	1.3	0.6	2.6	5	silty SAND to sandy SILT	120	4.0	16	12	51	42	-	16
10.01	40.7	51.1	126.2	1.1	0.6	2.9	4	clayy SILT to silty CLAY	115	2.0	26	20	-	-	2.9	15
10.17	27.8	38.7	124.7	0.9	0.5	3.5	4	clayy SILT to silty CLAY	115	2.0	19	14	-	-	1.9	15
10.34	22.5	31.0	-	0.7	0.7	3.3	4	clayy SILT to silty CLAY	115	2.0	16	11	-	-	1.6	15
10.50	22.0	30.0	99.4	0.6	0.8	2.7	4	clayy SILT to silty CLAY	115	2.0	15	11	-	-	1.5	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Earth Mechanics
Data File: SDF(482).cpt
CPT Date: 12/10/2008 1:01:40 PM
GW During Test: 12 ft

Sounding ID: CPT-08-74
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	22.9	30.9	-	0.6	0.9	2.8	4	clayy SILT to silty CLAY	115	2.0	15	11	-	-	1.6	15
10.83	23.2	31.0	101.3	0.6	0.9	2.7	4	clayy SILT to silty CLAY	115	2.0	15	12	-	-	1.6	15
10.99	18.7	28.6	-	0.6	0.7	3.1	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.3	15
11.16	17.7	26.7	-	0.5	0.5	3.1	4	clayy SILT to silty CLAY	115	2.0	13	9	-	-	1.2	15
11.32	23.6	30.6	-	0.7	0.6	3.1	4	clayy SILT to silty CLAY	115	2.0	15	12	-	-	1.6	15
11.48	25.9	37.9	-	1.0	0.6	3.8	4	clayy SILT to silty CLAY	115	2.0	19	13	-	-	1.8	15
11.65	28.0	35.6	115.4	0.9	0.6	3.2	4	clayy SILT to silty CLAY	115	2.0	18	14	-	-	1.9	15
11.81	36.5	42.3	124.8	1.2	1.0	3.2	4	clayy SILT to silty CLAY	115	2.0	21	18	-	-	2.6	15
11.98	35.6	44.4	146.2	1.4	0.8	4.1	4	clayy SILT to silty CLAY	115	2.0	22	18	-	-	2.5	15
12.14	32.1	39.8	-	1.2	-2.1	3.9	4	clayy SILT to silty CLAY	115	2.0	20	16	-	-	2.2	15
12.30	25.9	36.0	-	1.2	-2.5	4.9	3	silty CLAY to CLAY	115	1.5	24	17	-	-	1.8	15
12.47	26.8	37.0	-	1.3	-2.6	5.1	3	silty CLAY to CLAY	115	1.5	25	18	-	-	1.9	15
12.63	28.8	39.5	-	1.4	-2.4	4.9	3	silty CLAY to CLAY	115	1.5	26	19	-	-	2.0	15
12.80	26.9	36.7	-	1.4	-2.4	5.3	3	silty CLAY to CLAY	115	1.5	24	18	-	-	1.9	15
12.96	24.7	33.5	-	1.4	-2.2	5.7	3	silty CLAY to CLAY	115	1.5	22	16	-	-	1.7	15
13.12	21.6	29.1	-	1.2	-2.0	5.7	3	silty CLAY to CLAY	115	1.5	19	14	-	-	1.5	15
13.29	18.3	24.6	-	1.0	-1.9	5.9	3	silty CLAY to CLAY	115	1.5	16	12	-	-	1.3	15
13.45	16.6	22.2	-	0.9	-1.7	5.8	3	silty CLAY to CLAY	115	1.5	15	11	-	-	1.1	15
13.62	16.2	21.5	-	0.9	-1.6	5.5	3	silty CLAY to CLAY	115	1.5	14	11	-	-	1.1	15
13.78	16.5	21.7	-	0.9	-1.5	5.6	3	silty CLAY to CLAY	115	1.5	14	11	-	-	1.1	15
13.94	17.0	22.3	-	0.9	-1.3	5.5	3	silty CLAY to CLAY	115	1.5	15	11	-	-	1.2	15
14.11	18.0	23.5	-	1.0	-0.5	5.6	3	silty CLAY to CLAY	115	1.5	16	12	-	-	1.2	15
14.27	18.0	23.3	-	1.0	0.1	5.6	3	silty CLAY to CLAY	115	1.5	16	12	-	-	1.2	15
14.44	14.5	18.6	-	0.8	0.6	6.0	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.0	15
14.60	9.7	12.4	-	0.5	0.6	5.5	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
14.76	6.1	7.8	-	0.3	1.4	6.5	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.93	7.5	9.5	-	0.4	3.7	5.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.09	6.5	8.2	-	0.4	-0.5	6.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.26	5.6	7.0	-	0.3	-1.3	7.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.42	5.4	6.7	-	0.7	-1.1	9.9	2	Organic SOILS - Peats	100	1.0	7	5	-	-	0.5	10
15.58	13.7	17.0	-	0.8	-1.0	6.6	3	silty CLAY to CLAY	115	1.5	11	9	-	-	0.9	15
15.75	10.6	13.1	-	0.7	-2.0	7.3	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
15.91	5.9	7.3	-	0.4	-2.0	7.3	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.08	4.3	5.3	-	0.2	1.0	6.6	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
16.24	3.1	3.7	-	0.2	0.3	8.1	2	Organic SOILS - Peats	100	1.0	4	3	-	-	0.3	10
16.40	3.2	3.9	-	0.2	0.4	7.2	2	Organic SOILS - Peats	100	1.0	4	3	-	-	0.3	10
16.57	3.6	4.4	-	0.2	0.6	7.2	2	Organic SOILS - Peats	100	1.0	4	4	-	-	0.3	10
16.73	4.1	5.0	-	0.3	0.7	9.9	2	Organic SOILS - Peats	100	1.0	5	4	-	-	0.4	10
16.90	7.3	8.7	-	0.3	0.8	4.7	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
17.06	5.8	6.9	-	0.2	0.6	4.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
17.23	4.8	5.7	-	0.3	0.6	7.6	2	Organic SOILS - Peats	100	1.0	6	5	-	-	0.5	10
17.39	31.5	33.2	75.5	0.4	0.7	1.4	5	silty SAND to sandy SILT	120	4.0	8	8	31	37	-	16
17.55	62.0	65.2	89.9	0.6	-1.6	1.0	6	clean SAND to silty SAND	125	5.0	13	12	53	41	-	16
17.72	78.1	82.0	105.8	0.8	-1.5	1.0	6	clean SAND to silty SAND	125	5.0	16	16	60	42	-	16
17.88	88.2	92.2	116.5	1.0	-1.3	1.1	6	clean SAND to silty SAND	125	5.0	18	18	64	43	-	16
18.05	91.8	95.7	120.4	1.0	-1.2	1.1	6	clean SAND to silty SAND	125	5.0	19	18	66	43	-	16
18.21	92.7	96.4	124.6	1.2	0.2	1.3	6	clean SAND to silty SAND	125	5.0	19	19	66	43	-	16
18.37	94.4	97.9	126.0	1.2	0.4	1.3	6	clean SAND to silty SAND	125	5.0	20	19	66	43	-	16
18.54	97.7	101.0	129.5	1.3	0.7	1.3	6	clean SAND to silty SAND	125	5.0	20	20	67	43	-	16
18.70	97.5	100.5	128.3	1.2	0.9	1.3	6	clean SAND to silty SAND	125	5.0	20	20	67	43	-	16
18.87	95.5	98.1	125.4	1.2	1.1	1.2	6	clean SAND to silty SAND	125	5.0	20	19	66	43	-	16
19.03	92.2	94.5	123.1	1.2	1.3	1.3	6	clean SAND to silty SAND	125	5.0	19	18	65	43	-	16
19.19	82.9	84.7	119.0	1.2	1.5	1.4	5	silty SAND to sandy SILT	120	4.0	21	21	62	42	-	16
19.36	74.2	75.6	114.1	1.1	1.7	1.5	5	silty SAND to sandy SILT	120	4.0	19	19	58	41	-	16
19.52	71.4	72.5	110.8	1.1	1.9	1.5	5	silty SAND to sandy SILT	120	4.0	18	18	56	41	-	16
19.69	72.0	73.0	109.4	1.0	-1.7	1.4	5	silty SAND to sandy SILT	120	4.0	18	18	57	41	-	16
19.85	71.3	72.1	106.1	0.9	-5.2	1.4	5	silty SAND to sandy SILT	120	4.0	18	18	56	41	-	16
20.01	73.9	74.6	106.2	0.9	-6.7	1.3	5	silty SAND to sandy SILT	120	4.0	19	18	57	41	-	16
20.18	76.1	76.6	105.0	0.9	-7.2	1.2	5	silty SAND to sandy SILT	120	4.0	19	19	58	41	-	16
20.34	75.7	76.0	99.6	0.7	-7.4	1.0	6	clean SAND to silty SAND	125	5.0	15	15	58	41	-	16
20.51	71.0	71.1	94.1	0.7	-7.5	0.9	6	clean SAND to silty SAND	125	5.0	14	14	56	41	-	16
20.67	69.4	69.3	91.8	0.6	-7.8	0.9	6	clean SAND to silty SAND	125	5.0	14	14	55	41	-	16
20.83	65.1	64.9	86.4	0.5	-8.0	0.8	6	clean SAND to silty SAND	125	5.0	13	13	53	40	-	16
21.00	54.0	53.6	88.4	0.7	2.1	1.3	5	silty SAND to sandy SILT	120	4.0	13	14	46	39	-	16

* Indicates the parameter was calculated using the normalized point stress.
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A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(482).cpt
CPT Date: 12/10/2008 1:01:40 PM
GW During Test: 12 ft

Sounding ID: CPT-08-74
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	51.0	50.5	80.4	0.5	-3.9	1.1	5	silty SAND to sandy SILT	120	4.0	13	13	44	39	-	16
21.33	42.2	41.7	74.5	0.4	-7.0	1.1	5	silty SAND to sandy SILT	120	4.0	10	11	38	38	-	16
21.49	20.5	21.2	-	0.4	-8.0	2.3	4	clayy SILT to silty CLAY	115	2.0	11	10	-	-	1.4	15
21.65	10.6	10.9	-	0.3	1.4	3.1	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
21.82	6.8	7.0	-	0.2	3.1	3.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
21.98	5.9	6.0	-	0.2	7.4	3.6	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.15	6.0	6.1	-	0.2	9.3	4.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.31	6.2	6.3	-	0.4	10.8	7.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.47	7.2	7.2	-	0.6	11.8	9.9	2	Organic SOILS - Peats	100	1.0	7	7	-	-	0.7	10
22.64	8.9	8.9	-	0.7	12.9	9.8	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
22.80	9.2	9.2	-	0.7	13.4	9.5	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
22.97	8.8	8.7	-	0.7	13.3	9.0	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
23.13	8.2	8.1	-	0.6	13.9	8.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.30	8.3	8.2	-	0.5	14.0	7.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
23.46	7.8	7.6	-	0.5	14.4	7.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.62	7.7	7.5	-	0.4	15.0	5.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.79	7.2	7.0	-	0.3	11.8	4.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.95	5.9	5.7	-	0.2	8.4	4.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
24.12	5.3	5.1	-	0.2	8.6	4.0	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	15
24.28	5.4	5.2	-	0.2	9.5	3.8	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	15
24.44	6.1	5.8	-	0.2	10.7	3.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
24.61	5.9	5.6	-	0.3	11.7	7.8	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.5	10
24.77	6.2	5.9	-	0.3	12.7	6.7	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
24.94	14.5	13.7	-	0.4	11.9	2.8	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
25.10	16.1	15.1	-	0.3	-0.5	2.1	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.1	15
25.26	8.2	7.7	-	0.3	-0.5	4.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
25.43	6.3	5.9	-	0.3	1.3	6.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
25.59	6.5	6.1	-	0.3	1.6	6.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
25.76	6.5	6.0	-	0.3	1.7	6.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
25.92	6.5	6.0	-	0.3	1.7	6.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
26.08	6.5	5.9	-	0.3	1.7	6.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
26.25	6.9	6.3	-	0.3	1.8	5.7	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
26.41	7.0	6.4	-	0.3	1.9	5.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
26.58	6.6	6.0	-	0.3	2.2	5.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
26.74	6.2	5.6	-	0.2	2.7	5.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
26.90	6.1	5.5	-	0.3	3.3	6.1	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
27.07	6.1	5.5	-	0.3	3.6	5.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
27.23	6.4	5.7	-	0.3	3.9	6.0	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
27.40	6.9	6.1	-	0.3	4.4	5.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
27.56	7.7	6.8	-	0.4	4.9	6.0	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.72	8.2	7.3	-	0.5	5.7	7.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.89	8.5	7.5	-	0.7	6.5	9.9	2	Organic SOILS - Peats	100	1.0	8	9	-	-	0.8	10
28.05	8.2	7.2	-	0.6	7.1	8.5	2	Organic SOILS - Peats	100	1.0	7	8	-	-	0.8	10
28.22	10.9	9.5	-	0.5	11.4	5.8	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
28.38	9.0	7.8	-	0.5	13.8	6.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.54	8.7	7.5	-	0.5	15.6	6.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.71	8.8	7.6	-	0.5	13.8	6.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
28.87	9.2	8.0	-	0.5	15.1	7.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.04	9.4	8.1	-	0.5	11.7	6.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.20	9.0	7.7	-	0.4	12.7	5.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.36	9.4	8.0	-	0.4	14.2	5.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.53	10.4	8.8	-	0.5	14.8	5.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
29.69	15.5	13.1	-	0.6	14.5	4.4	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
29.86	51.2	45.6	82.1	0.6	5.9	1.2	5	silty SAND to sandy SILT	120	4.0	11	13	41	37	-	16
30.02	71.7	63.8	91.5	0.7	1.8	1.1	5	silty SAND to sandy SILT	120	4.0	16	18	52	39	-	16
30.19	77.1	68.5	97.4	0.9	1.6	1.1	5	silty SAND to sandy SILT	120	4.0	17	19	55	40	-	16
30.35	75.6	67.0	100.5	1.0	2.5	1.3	5	silty SAND to sandy SILT	120	4.0	17	19	54	39	-	16
30.51	75.7	67.0	101.8	1.0	-0.1	1.3	5	silty SAND to sandy SILT	120	4.0	17	19	54	39	-	16
30.68	72.0	63.6	103.5	1.1	-0.2	1.5	5	silty SAND to sandy SILT	120	4.0	16	18	52	39	-	16
30.84	66.5	58.6	101.1	1.0	-0.7	1.6	5	silty SAND to sandy SILT	120	4.0	15	17	49	39	-	16
31.01	82.2	72.3	102.2	1.0	-1.6	1.2	5	silty SAND to sandy SILT	120	4.0	18	21	56	40	-	16
31.17	106.8	93.7	118.7	1.2	-3.7	1.1	6	clean SAND to silty SAND	125	5.0	19	21	65	41	-	16
31.33	115.2	101.0	131.4	1.5	1.0	1.4	6	clean SAND to silty SAND	125	5.0	20	23	67	42	-	16
31.50	122.4	107.0	138.1	1.7	-0.9	1.4	6	clean SAND to silty SAND	125	5.0	21	24	69	42	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
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Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	133.1	116.1	149.0	2.0	-1.0	1.5	6	clean SAND to silty SAND	125	5.0	23	27	72	42	-	16
31.83	144.3	125.7	156.4	2.1	-1.1	1.5	6	clean SAND to silty SAND	125	5.0	25	29	75	43	-	16
31.99	156.6	136.1	168.2	2.4	-0.9	1.6	6	clean SAND to silty SAND	125	5.0	27	31	77	43	-	16
32.15	168.0	145.7	177.8	2.6	-1.6	1.6	6	clean SAND to silty SAND	125	5.0	29	34	79	43	-	16
32.32	167.7	145.1	178.2	2.7	-0.9	1.6	6	clean SAND to silty SAND	125	5.0	29	34	79	43	-	16
32.48	165.5	142.9	175.7	2.6	-0.3	1.6	6	clean SAND to silty SAND	125	5.0	29	33	79	43	-	16
32.65	151.2	130.3	169.9	2.7	0.2	1.8	6	clean SAND to silty SAND	125	5.0	26	30	76	43	-	16
32.81	141.6	121.8	164.9	2.6	0.8	1.9	5	silty SAND to sandy SILT	120	4.0	30	35	73	42	-	16
32.97	144.0	123.6	163.1	2.5	1.0	1.8	5	silty SAND to sandy SILT	120	4.0	31	36	74	42	-	16
33.14	145.6	124.8	161.4	2.4	0.7	1.7	6	clean SAND to silty SAND	125	5.0	25	29	74	42	-	16
33.30	128.7	110.1	149.8	2.2	-0.1	1.7	5	silty SAND to sandy SILT	120	4.0	28	32	70	42	-	16
33.47	120.2	102.6	142.8	2.0	0.4	1.7	5	silty SAND to sandy SILT	120	4.0	26	30	68	41	-	16
33.63	119.7	102.0	142.8	2.0	0.5	1.7	5	silty SAND to sandy SILT	120	4.0	26	30	68	41	-	16
33.79	118.3	100.7	140.4	2.0	-1.4	1.7	5	silty SAND to sandy SILT	120	4.0	25	30	67	41	-	16
33.96	103.6	87.9	139.8	2.1	0.2	2.0	5	silty SAND to sandy SILT	120	4.0	22	26	63	41	-	16
34.12	107.1	90.8	139.7	2.1	0.8	2.0	5	silty SAND to sandy SILT	120	4.0	23	27	64	41	-	16
34.29	135.9	114.9	144.8	1.9	-1.9	1.4	6	clean SAND to silty SAND	125	5.0	23	27	72	42	-	16
34.45	169.4	143.1	161.3	1.9	-4.3	1.1	6	clean SAND to silty SAND	125	5.0	29	34	79	43	-	16
34.61	175.2	147.7	165.9	2.0	-2.6	1.1	6	clean SAND to silty SAND	125	5.0	30	35	80	43	-	16
34.78	152.9	128.6	153.2	1.9	-3.2	1.3	6	clean SAND to silty SAND	125	5.0	26	31	75	42	-	16
34.94	130.6	109.6	139.8	1.8	-2.7	1.4	6	clean SAND to silty SAND	125	5.0	22	26	70	42	-	16
35.11	106.1	88.9	126.9	1.6	-2.1	1.6	5	silty SAND to sandy SILT	120	4.0	22	27	63	40	-	16
35.27	63.4	53.0	121.3	1.6	-1.5	2.5	5	silty SAND to sandy SILT	120	4.0	13	16	46	38	-	16
35.43	29.9	22.1	-	1.3	-1.0	4.7	3	silty CLAY to CLAY	115	1.5	15	20	-	-	2.0	15
35.60	18.7	13.7	-	0.8	-0.3	4.7	3	silty CLAY to CLAY	115	1.5	9	12	-	-	1.2	15
35.76	14.8	10.8	-	0.4	1.4	3.2	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
35.93	12.4	9.1	-	0.3	2.9	3.4	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
36.09	11.8	8.6	-	0.4	3.6	4.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
36.26	13.7	10.0	-	0.6	3.9	5.1	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
36.42	34.9	28.9	81.4	0.6	4.2	1.8	5	silty SAND to sandy SILT	120	4.0	7	9	26	34	-	16
36.58	82.5	68.1	91.1	0.7	-1.6	0.9	6	clean SAND to silty SAND	125	5.0	14	17	54	39	-	16
36.75	99.9	82.3	104.0	0.9	-3.0	1.0	6	clean SAND to silty SAND	125	5.0	16	20	61	40	-	16
36.91	98.2	80.8	109.0	1.1	-2.4	1.2	6	clean SAND to silty SAND	125	5.0	16	20	60	40	-	16
37.08	81.0	66.5	109.1	1.3	-2.1	1.6	5	silty SAND to sandy SILT	120	4.0	17	20	54	39	-	16
37.24	46.9	38.4	116.7	1.3	-1.7	3.0	4	clayy SILT to silty CLAY	115	2.0	19	23	-	-	3.2	15
37.40	23.7	16.8	-	1.1	-1.4	5.0	3	silty CLAY to CLAY	115	1.5	11	16	-	-	1.6	15
37.57	16.3	11.6	-	0.6	-0.8	4.5	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
37.73	13.9	9.8	-	0.8	0.0	6.9	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
37.90	12.2	8.6	-	0.5	0.8	5.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.06	11.5	8.0	-	0.7	6.2	7.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
38.22	10.5	7.4	-	0.8	5.7	9.7	2	Organic SOILS - Peats	100	1.0	7	11	-	-	1.0	10
38.39	11.4	7.9	-	0.7	6.1	8.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
38.55	11.8	8.2	-	0.7	6.6	7.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
38.72	11.4	7.9	-	0.6	6.5	7.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
38.88	10.9	7.5	-	0.6	6.3	7.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
39.04	11.4	7.9	-	0.7	6.2	7.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
39.21	17.5	12.0	-	0.7	6.2	4.3	3	silty CLAY to CLAY	115	1.5	8	12	-	-	1.2	15
39.37	19.1	13.1	-	0.9	5.6	5.2	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
39.54	25.5	17.5	-	1.2	5.4	5.0	3	silty CLAY to CLAY	115	1.5	12	17	-	-	1.7	15
39.70	63.9	51.3	106.4	1.2	3.5	2.0	5	silty SAND to sandy SILT	120	4.0	13	16	45	37	-	16
39.86	157.5	126.0	137.9	1.3	-2.7	0.8	6	clean SAND to silty SAND	125	5.0	25	31	75	42	-	16
40.03	203.9	163.0	164.0	1.4	-5.9	0.7	6	clean SAND to silty SAND	125	5.0	33	41	83	43	-	16
40.19	210.6	168.0	169.1	1.5	-5.4	0.7	6	clean SAND to silty SAND	125	5.0	34	42	84	43	-	16
40.36	209.0	166.5	169.3	1.6	-4.8	0.8	6	clean SAND to silty SAND	125	5.0	33	42	84	43	-	16
40.52	216.7	172.3	172.3	1.5	-4.3	0.7	6	clean SAND to silty SAND	125	5.0	34	43	85	43	-	16
40.68	234.3	185.9	185.9	1.4	-3.9	0.6	6	clean SAND to silty SAND	125	5.0	37	47	87	44	-	16
40.85	237.9	188.5	188.5	1.4	-4.6	0.6	6	clean SAND to silty SAND	125	5.0	38	48	88	44	-	16
41.01	219.2	173.4	173.4	1.3	-4.3	0.6	6	clean SAND to silty SAND	125	5.0	35	44	85	43	-	16
41.18	206.7	163.2	163.2	1.3	-3.8	0.6	6	clean SAND to silty SAND	125	5.0	33	41	83	43	-	16
41.34	203.8	160.6	160.1	1.3	4.3	0.7	6	clean SAND to silty SAND	125	5.0	32	41	83	43	-	16
41.50	209.4	164.8	164.8	1.4	4.2	0.7	6	clean SAND to silty SAND	125	5.0	33	42	83	43	-	16
41.67	200.7	157.7	159.5	1.4	4.3	0.7	6	clean SAND to silty SAND	125	5.0	32	40	82	43	-	16
41.83	192.1	150.7	154.3	1.3	4.4	0.7	6	clean SAND to silty SAND	125	5.0	30	38	81	43	-	16
42.00	189.9	148.7	153.9	1.4	5.0	0.7	6	clean SAND to silty SAND	125	5.0	30	38	80	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
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Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	185.5	145.0	153.4	1.5	5.6	0.8	6	clean SAND to silty SAND	125	5.0	29	37	79	42	-	16
42.32	190.8	148.9	162.8	1.9	5.8	1.0	6	clean SAND to silty SAND	125	5.0	30	38	80	43	-	16
42.49	199.7	155.6	168.3	1.9	6.0	1.0	6	clean SAND to silty SAND	125	5.0	31	40	82	43	-	16
42.65	203.2	158.0	171.7	2.0	6.4	1.0	6	clean SAND to silty SAND	125	5.0	32	41	82	43	-	16
42.82	214.4	166.5	178.9	2.2	6.7	1.0	6	clean SAND to silty SAND	125	5.0	33	43	84	43	-	16
42.98	215.8	167.3	181.2	2.3	6.9	1.1	6	clean SAND to silty SAND	125	5.0	33	43	84	43	-	16
43.15	197.4	152.8	173.0	2.4	6.6	1.2	6	clean SAND to silty SAND	125	5.0	31	39	81	43	-	16
43.31	177.6	137.3	160.7	2.2	6.5	1.3	6	clean SAND to silty SAND	125	5.0	27	36	77	42	-	16
43.47	168.6	130.1	152.3	2.0	6.7	1.2	6	clean SAND to silty SAND	125	5.0	26	34	76	42	-	16
43.64	153.1	118.0	142.0	1.8	7.1	1.2	6	clean SAND to silty SAND	125	5.0	24	31	72	41	-	16
43.80	149.9	115.3	138.8	1.7	7.3	1.2	6	clean SAND to silty SAND	125	5.0	23	30	72	41	-	16
43.97	151.2	116.1	142.5	1.9	7.6	1.3	6	clean SAND to silty SAND	125	5.0	23	30	72	41	-	16
44.13	148.7	114.0	142.9	2.0	7.5	1.4	6	clean SAND to silty SAND	125	5.0	23	30	71	41	-	16
44.29	148.7	113.8	147.9	2.2	7.9	1.5	6	clean SAND to silty SAND	125	5.0	23	30	71	41	-	16
44.46	146.7	112.1	142.3	2.0	7.7	1.4	6	clean SAND to silty SAND	125	5.0	22	29	71	41	-	16
44.62	133.6	101.9	133.2	1.8	8.1	1.4	6	clean SAND to silty SAND	125	5.0	20	27	68	40	-	16
44.79	119.7	91.2	127.1	1.8	8.1	1.5	5	silty SAND to sandy SILT	120	4.0	23	30	64	40	-	16
44.95	90.6	68.9	127.1	1.9	7.8	2.2	5	silty SAND to sandy SILT	120	4.0	17	23	55	38	-	16
45.11	64.7	49.2	130.3	1.9	7.5	3.0	4	clayy SILT to silty CLAY	115	2.0	25	32	-	-	4.5	15
45.28	45.0	27.4	-	1.5	2.4	3.6	4	clayy SILT to silty CLAY	115	2.0	14	23	-	-	3.1	15
45.44	30.2	18.4	-	1.1	0.2	4.2	3	silty CLAY to CLAY	115	1.5	12	20	-	-	2.0	15
45.61	23.1	14.0	-	0.8	1.8	4.2	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.5	15
45.77	23.7	14.3	-	0.5	1.9	2.5	4	clayy SILT to silty CLAY	115	2.0	7	12	-	-	1.6	15
45.93	15.0	9.0	-	0.6	2.8	4.8	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
46.10	15.5	9.3	-	0.5	3.7	4.2	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
46.26	29.8	17.9	-	0.5	3.4	1.9	4	clayy SILT to silty CLAY	115	2.0	9	15	-	-	2.0	15
46.43	57.1	42.9	79.8	0.7	0.9	1.2	5	silty SAND to sandy SILT	120	4.0	11	14	39	35	-	16
46.59	71.5	53.6	88.7	0.9	1.6	1.2	5	silty SAND to sandy SILT	120	4.0	13	18	46	37	-	16
46.75	76.8	57.6	95.8	1.0	2.5	1.4	5	silty SAND to sandy SILT	120	4.0	14	19	49	37	-	16
46.92	73.2	54.8	103.8	1.2	2.9	1.8	5	silty SAND to sandy SILT	120	4.0	14	18	47	37	-	16
47.08	59.3	44.4	107.1	1.3	3.0	2.3	5	silty SAND to sandy SILT	120	4.0	11	15	40	36	-	16
47.25	32.2	19.0	-	1.1	2.7	3.8	3	silty CLAY to CLAY	115	1.5	13	21	-	-	2.2	15
47.41	16.9	10.0	-	0.7	3.1	5.2	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
47.57	14.2	8.3	-	0.6	3.9	5.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
47.74	17.0	10.0	-	0.5	5.3	3.4	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
47.90	28.4	16.6	-	0.4	6.2	1.7	4	clayy SILT to silty CLAY	115	2.0	8	14	-	-	1.9	15
48.07	28.9	16.8	-	0.5	3.9	2.0	4	clayy SILT to silty CLAY	115	2.0	8	14	-	-	1.9	15
48.23	18.4	10.7	-	0.7	3.7	4.6	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
48.39	17.4	10.1	-	0.8	4.9	5.7	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.1	15
48.56	77.0	56.9	98.0	1.1	4.0	1.5	5	silty SAND to sandy SILT	120	4.0	14	19	48	37	-	16
48.72	110.1	81.2	111.7	1.4	1.2	1.3	5	silty SAND to sandy SILT	120	4.0	20	28	60	39	-	16
48.89	119.9	88.4	120.8	1.6	1.6	1.4	5	silty SAND to sandy SILT	120	4.0	22	30	63	39	-	16
49.05	114.0	83.9	125.6	1.9	2.4	1.7	5	silty SAND to sandy SILT	120	4.0	21	28	61	39	-	16
49.22	113.6	83.5	126.8	1.9	2.9	1.7	5	silty SAND to sandy SILT	120	4.0	21	28	61	39	-	16
49.38	108.8	79.9	127.2	2.0	3.1	1.8	5	silty SAND to sandy SILT	120	4.0	20	27	60	39	-	16
49.54	96.9	71.0	124.2	1.9	3.2	2.0	5	silty SAND to sandy SILT	120	4.0	18	24	56	38	-	16
49.71	80.0	58.6	124.3	1.9	3.2	2.4	5	silty SAND to sandy SILT	120	4.0	15	20	49	37	-	16
49.87	45.1	25.6	-	1.7	3.2	4.0	3	silty CLAY to CLAY	115	1.5	17	30	-	-	3.1	15
50.04	26.7	15.1	-	1.3	3.3	5.4	3	silty CLAY to CLAY	115	1.5	10	18	-	-	1.8	15
50.20	20.3	11.4	-	0.8	4.0	4.9	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.3	15
50.36	14.6	8.2	-	0.6	4.9	5.5	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
50.53	12.0	6.7	-	0.4	5.1	4.6	3	silty CLAY to CLAY	115	1.5	4	8	-	-	0.7	15
50.69	11.1	6.2	-	0.3	5.4	4.2	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.7	15
50.86	11.4	6.4	-	0.3	5.4	3.7	3	silty CLAY to CLAY	115	1.5	4	8	-	-	0.7	15
51.02	13.7	7.6	-	0.3	5.2	2.6	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
51.18	11.6	6.4	-	0.2	3.6	2.8	3	silty CLAY to CLAY	115	1.5	4	8	-	-	0.7	15
51.35	12.1	6.7	-	0.3	3.8	3.8	3	silty CLAY to CLAY	115	1.5	4	8	-	-	0.7	15
51.51	14.9	8.3	-	0.3	3.7	2.8	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
51.68	40.4	29.1	68.0	0.4	2.8	1.1	5	silty SAND to sandy SILT	120	4.0	7	10	26	33	-	16
51.84	33.0	18.1	-	0.7	2.9	2.4	4	clayy SILT to silty CLAY	115	2.0	9	16	-	-	2.2	15
52.00	19.0	10.4	-	1.1	3.5	6.9	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.2	15
52.17	43.4	23.8	-	1.4	4.3	3.6	4	clayy SILT to silty CLAY	115	2.0	12	22	-	-	3.0	15
52.33	187.7	134.7	157.3	2.2	3.8	1.2	6	clean SAND to silty SAND	125	5.0	27	38	77	42	-	16
52.50	237.8	170.4	189.4	2.9	4.0	1.2	6	clean SAND to silty SAND	125	5.0	34	48	85	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(482).cpt
CPT Date: 12/10/2008 1:01:40 PM
GW During Test: 12 ft

Sounding ID: CPT-08-74
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	248.1	177.6	199.6	3.3	4.3	1.3	6	clean SAND to silty SAND	125	5.0	36	50	86	43	-	16
52.82	257.6	184.1	205.6	3.4	4.6	1.4	6	clean SAND to silty SAND	125	5.0	37	52	87	43	-	16
52.99	277.6	198.1	217.8	3.7	4.8	1.3	6	clean SAND to silty SAND	125	5.0	40	56	90	43	-	16
53.15	295.7	210.8	229.0	3.9	4.8	1.3	6	clean SAND to silty SAND	125	5.0	42	59	92	44	-	16
53.32	311.8	222.0	240.4	4.3	4.6	1.4	6	clean SAND to silty SAND	125	5.0	44	62	93	44	-	16
53.48	344.2	244.6	244.6	3.1	4.3	0.9	6	clean SAND to silty SAND	125	5.0	49	69	95	44	-	16
53.64	403.6	286.5	286.5	3.0	2.5	0.7	6	clean SAND to silty SAND	125	5.0	57	81	95	45	-	16
53.81	412.7	292.6	292.6	2.5	-0.2	0.6	6	clean SAND to silty SAND	125	5.0	59	83	95	45	-	16
53.97	357.3	252.9	252.9	2.7	-1.3	0.8	6	clean SAND to silty SAND	125	5.0	51	71	95	45	-	16
54.14	345.7	244.4	244.4	1.9	-2.0	0.6	6	clean SAND to silty SAND	125	5.0	49	69	95	44	-	16
54.30	343.0	242.1	242.1	1.7	-2.3	0.5	6	clean SAND to silty SAND	125	5.0	48	69	95	44	-	16
54.46	348.3	245.6	245.6	1.5	2.7	0.4	6	clean SAND to silty SAND	125	5.0	49	70	95	44	-	16
54.63	356.1	250.7	250.7	1.4	-0.9	0.4	6	clean SAND to silty SAND	125	5.0	50	71	95	44	-	16
54.79	312.6	219.8	219.8	0.9	2.2	0.3	6	clean SAND to silty SAND	125	5.0	44	63	93	44	-	16
54.96	267.8	188.1	188.1	1.1	0.1	0.4	6	clean SAND to silty SAND	125	5.0	38	54	88	43	-	16
55.12	229.2	160.7	160.7	1.1	0.7	0.5	6	clean SAND to silty SAND	125	5.0	32	46	83	42	-	16
55.28	158.8	111.2	124.0	1.2	1.7	0.8	6	clean SAND to silty SAND	125	5.0	22	32	71	40	-	16
55.45	90.0	63.0	110.3	1.5	1.8	1.7	5	silty SAND to sandy SILT	120	4.0	16	23	52	37	-	16
55.61	60.2	31.1	-	2.1	2.5	3.6	4	clayy SILT to silty CLAY	115	2.0	16	30	-	-	4.1	15
55.78	38.2	19.7	-	1.9	5.6	5.3	3	silty CLAY to CLAY	115	1.5	13	25	-	-	2.6	15
55.94	24.0	12.3	-	1.2	11.8	5.8	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.6	15
56.11	35.4	18.2	-	0.7	18.0	2.1	4	clayy SILT to silty CLAY	115	2.0	9	18	-	-	2.4	15
56.27	56.3	39.1	87.4	0.9	13.3	1.6	5	silty SAND to sandy SILT	120	4.0	10	14	36	34	-	16
56.43	42.3	21.6	-	1.2	13.0	3.2	4	clayy SILT to silty CLAY	115	2.0	11	21	-	-	2.9	15
56.60	44.5	22.7	-	0.9	14.0	2.2	4	clayy SILT to silty CLAY	115	2.0	11	22	-	-	3.0	15
56.76	52.3	36.2	75.5	0.6	7.1	1.2	5	silty SAND to sandy SILT	120	4.0	9	13	33	34	-	16
56.93	49.2	34.1	69.6	0.5	1.6	1.1	5	silty SAND to sandy SILT	120	4.0	9	12	31	33	-	16
57.09	31.4	15.9	-	0.6	0.4	2.1	4	clayy SILT to silty CLAY	115	2.0	8	16	-	-	2.1	15
57.25	18.8	9.5	-	0.6	1.4	3.7	3	silty CLAY to CLAY	115	1.5	6	13	-	-	1.2	15
57.42	15.6	7.9	-	0.7	3.1	5.9	3	silty CLAY to CLAY	115	1.5	5	10	-	-	1.0	15
57.58	16.9	8.5	-	0.7	4.4	5.5	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
57.75	15.7	7.9	-	0.8	7.9	6.6	3	silty CLAY to CLAY	115	1.5	5	10	-	-	1.0	15
57.91	14.4	7.2	-	0.8	8.8	7.1	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
58.07	14.6	7.3	-	0.9	9.9	8.0	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
58.24	21.9	10.9	-	1.0	11.2	5.2	3	silty CLAY to CLAY	115	1.5	7	15	-	-	1.4	15
58.40	141.2	96.8	113.6	1.2	10.4	0.8	6	clean SAND to silty SAND	125	5.0	19	28	66	39	-	16
58.57	228.4	156.3	156.3	1.4	11.8	0.6	6	clean SAND to silty SAND	125	5.0	31	46	82	42	-	16
58.73	274.6	187.7	187.7	1.6	12.2	0.6	6	clean SAND to silty SAND	125	5.0	38	55	88	43	-	16
58.89	294.6	201.2	201.2	1.7	12.0	0.6	6	clean SAND to silty SAND	125	5.0	40	59	90	43	-	16
59.06	305.5	208.3	208.3	1.8	11.9	0.6	6	clean SAND to silty SAND	125	5.0	42	61	91	43	-	16
59.22	321.7	219.1	219.1	1.9	12.1	0.6	6	clean SAND to silty SAND	125	5.0	44	64	93	44	-	16
59.39	333.0	226.5	226.5	2.0	11.9	0.6	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
59.55	348.8	237.0	237.0	2.0	12.0	0.6	6	clean SAND to silty SAND	125	5.0	47	70	95	44	-	16
59.71	357.8	242.8	242.8	2.1	12.2	0.6	6	clean SAND to silty SAND	125	5.0	49	72	95	44	-	16
59.88	364.7	247.2	247.2	2.0	12.0	0.6	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
60.04	371.1	251.2	251.2	1.9	12.0	0.5	6	clean SAND to silty SAND	125	5.0	50	74	95	44	-	16
60.21	369.4	249.7	249.7	2.0	11.8	0.5	6	clean SAND to silty SAND	125	5.0	50	74	95	44	-	16
60.37	377.1	254.6	254.6	1.9	11.7	0.5	6	clean SAND to silty SAND	125	5.0	51	75	95	44	-	16
60.53	380.5	256.6	256.6	1.6	12.0	0.4	6	clean SAND to silty SAND	125	5.0	51	76	95	44	-	16
60.70	377.9	254.5	254.5	1.9	11.9	0.5	6	clean SAND to silty SAND	125	5.0	51	76	95	44	-	16
60.86	382.4	257.2	257.2	2.1	12.9	0.5	6	clean SAND to silty SAND	125	5.0	51	76	95	44	-	16
61.03	383.2	257.4	257.4	1.9	11.5	0.5	6	clean SAND to silty SAND	125	5.0	51	77	95	44	-	16
61.19	388.4	260.6	260.6	1.9	12.4	0.5	6	clean SAND to silty SAND	125	5.0	52	78	95	44	-	16
61.35	380.1	254.7	254.7	1.9	11.5	0.5	6	clean SAND to silty SAND	125	5.0	51	76	95	44	-	16
61.52	370.4	247.9	247.9	1.8	11.5	0.5	6	clean SAND to silty SAND	125	5.0	50	74	95	44	-	16
61.68	362.0	242.0	242.0	1.6	11.7	0.4	6	clean SAND to silty SAND	125	5.0	48	72	95	44	-	16
61.85	347.9	232.3	232.3	1.6	11.7	0.5	6	clean SAND to silty SAND	125	5.0	46	70	95	44	-	16
62.01	336.5	224.4	224.4	1.6	11.4	0.5	6	clean SAND to silty SAND	125	5.0	45	67	94	44	-	16
62.17	323.6	215.6	215.6	1.3	11.7	0.4	6	clean SAND to silty SAND	125	5.0	43	65	92	43	-	16
62.34	325.5	216.6	216.6	1.4	11.9	0.4	6	clean SAND to silty SAND	125	5.0	43	65	93	43	-	16
62.50	315.4	209.6	209.6	1.6	11.5	0.5	6	clean SAND to silty SAND	125	5.0	42	63	91	43	-	16
62.67	315.6	209.5	209.5	1.5	12.3	0.5	6	clean SAND to silty SAND	125	5.0	42	63	91	43	-	16
62.83	318.4	211.1	211.1	1.4	11.5	0.5	6	clean SAND to silty SAND	125	5.0	42	64	92	43	-	16
63.00	311.2	206.1	206.1	1.4	12.3	0.5	6	clean SAND to silty SAND	125	5.0	41	62	91	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(482).cpt
CPT Date: 12/10/2008 1:01:40 PM
GW During Test: 12 ft

Sounding ID: CPT-08-74
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	312.7	206.8	206.8	1.3	13.3	0.4	6	clean SAND to silty SAND	125	5.0	41	63	91	43	-	16
63.32	314.9	208.0	208.0	1.8	13.9	0.6	6	clean SAND to silty SAND	125	5.0	42	63	91	43	-	16
63.49	320.9	211.7	211.7	1.6	13.4	0.5	6	clean SAND to silty SAND	125	5.0	42	64	92	43	-	16
63.65	327.6	215.9	215.9	1.4	13.4	0.4	6	clean SAND to silty SAND	125	5.0	43	66	92	43	-	16
63.82	311.5	205.1	205.1	1.3	13.1	0.4	6	clean SAND to silty SAND	125	5.0	41	62	91	43	-	16
63.98	317.1	208.5	208.5	1.3	13.5	0.4	6	clean SAND to silty SAND	125	5.0	42	63	91	43	-	16
64.14	312.4	205.1	205.1	1.6	13.4	0.5	6	clean SAND to silty SAND	125	5.0	41	62	91	43	-	16
64.31	306.4	201.0	201.0	1.4	15.2	0.5	6	clean SAND to silty SAND	125	5.0	40	61	90	43	-	16
64.47	292.5	191.6	191.6	1.4	14.8	0.5	6	clean SAND to silty SAND	125	5.0	38	59	88	43	-	16
64.64	276.7	181.0	181.0	1.8	14.4	0.6	6	clean SAND to silty SAND	125	5.0	36	55	87	42	-	16
64.80	261.1	170.6	172.9	2.0	14.0	0.8	6	clean SAND to silty SAND	125	5.0	34	52	85	42	-	16
64.96	290.3	189.5	189.5	1.7	13.8	0.6	6	clean SAND to silty SAND	125	5.0	38	58	88	43	-	16
65.13	366.7	239.2	239.2	2.3	12.7	0.6	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
65.29	390.9	254.6	254.6	1.5	11.5	0.4	6	clean SAND to silty SAND	125	5.0	51	78	95	44	-	16
65.46	373.6	243.1	243.1	1.9	11.7	0.5	6	clean SAND to silty SAND	125	5.0	49	75	95	44	-	16
65.62	397.9	258.5	258.5	1.9	11.8	0.5	6	clean SAND to silty SAND	125	5.0	52	80	95	44	-	16
65.78	382.4	248.2	248.2	1.7	11.3	0.5	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
65.95	354.4	229.8	229.8	1.2	11.0	0.3	6	clean SAND to silty SAND	125	5.0	46	71	94	44	-	16
66.11	337.6	218.7	218.7	1.3	13.6	0.4	6	clean SAND to silty SAND	125	5.0	44	68	93	43	-	16
66.28	323.2	209.0	209.0	1.4	14.3	0.4	6	clean SAND to silty SAND	125	5.0	42	65	91	43	-	16
66.44	314.5	203.2	203.2	1.5	14.7	0.5	6	clean SAND to silty SAND	125	5.0	41	63	90	43	-	16
66.60	317.5	204.9	204.9	1.5	14.7	0.5	6	clean SAND to silty SAND	125	5.0	41	64	91	43	-	16
66.77	321.8	207.5	207.5	1.5	14.4	0.5	6	clean SAND to silty SAND	125	5.0	41	64	91	43	-	16
66.93	324.8	209.2	209.2	1.6	14.0	0.5	6	clean SAND to silty SAND	125	5.0	42	65	91	43	-	16
67.10	329.4	211.9	211.9	1.7	14.2	0.5	6	clean SAND to silty SAND	125	5.0	42	66	92	43	-	16
67.26	341.5	219.4	219.4	1.3	14.2	0.4	6	clean SAND to silty SAND	125	5.0	44	68	93	43	-	16
67.42	359.1	230.4	230.4	1.3	14.5	0.4	6	clean SAND to silty SAND	125	5.0	46	72	95	43	-	16
67.59	375.0	240.4	240.4	1.8	15.9	0.5	6	clean SAND to silty SAND	125	5.0	48	75	95	44	-	16
67.75	384.3	246.1	246.1	1.4	15.3	0.4	6	clean SAND to silty SAND	125	5.0	49	77	95	44	-	16
67.92	394.1	252.1	252.1	1.4	15.0	0.4	7	grvly SAND to dense SAND	130	6.0	42	66	95	44	-	16
68.08	419.1	267.7	267.7	0.9	14.6	0.2	7	grvly SAND to dense SAND	130	6.0	45	70	95	44	-	16
68.24	427.1	272.5	272.5	1.5	14.0	0.4	7	grvly SAND to dense SAND	130	6.0	45	71	95	44	-	16
68.41	433.4	276.2	276.2	1.6	14.2	0.4	7	grvly SAND to dense SAND	130	6.0	46	72	95	44	-	16
68.57	445.9	283.8	283.8	1.5	13.1	0.3	7	grvly SAND to dense SAND	130	6.0	47	74	95	44	-	16
68.74	458.2	291.3	291.3	1.3	13.2	0.3	7	grvly SAND to dense SAND	130	6.0	49	76	95	45	-	16
68.90	451.7	286.9	286.9	2.1	12.1	0.5	6	clean SAND to silty SAND	125	5.0	57	90	95	44	-	16
69.07	459.9	291.7	291.7	3.9	12.6	0.9	6	clean SAND to silty SAND	125	5.0	58	92	95	45	-	16
69.23	479.6	303.9	303.9	2.7	12.2	0.6	6	clean SAND to silty SAND	125	5.0	61	96	95	45	-	16
69.39	453.2	286.9	286.9	2.4	9.2	0.5	6	clean SAND to silty SAND	125	5.0	57	91	95	44	-	16
69.56	403.4	255.1	255.1	1.9	17.7	0.5	6	clean SAND to silty SAND	125	5.0	51	81	95	44	-	16
69.72	399.4	252.2	252.2	1.9	16.7	0.5	6	clean SAND to silty SAND	125	5.0	50	80	95	44	-	16
69.89	413.7	261.0	261.0	2.5	16.3	0.6	6	clean SAND to silty SAND	125	5.0	52	83	95	44	-	16
70.05	421.3	265.5	265.5	1.9	15.9	0.5	6	clean SAND to silty SAND	125	5.0	53	84	95	44	-	16
70.21	413.7	260.4	260.4	1.2	15.2	0.3	7	grvly SAND to dense SAND	130	6.0	43	69	95	44	-	16
70.38	432.5	272.0	272.0	1.3	14.5	0.3	7	grvly SAND to dense SAND	130	6.0	45	72	95	44	-	16
70.54	425.8	267.4	267.4	1.5	14.6	0.4	7	grvly SAND to dense SAND	130	6.0	45	71	95	44	-	16
70.71	423.0	265.4	265.4	1.4	16.0	0.3	7	grvly SAND to dense SAND	130	6.0	44	70	95	44	-	16
70.87	432.1	270.7	270.7	1.3	13.9	0.3	7	grvly SAND to dense SAND	130	6.0	45	72	95	44	-	16
71.03	443.0	277.3	277.3	1.5	13.0	0.3	7	grvly SAND to dense SAND	130	6.0	46	74	95	44	-	16
71.20	459.0	287.0	287.0	2.3	13.7	0.5	6	clean SAND to silty SAND	125	5.0	57	92	95	44	-	16
71.36	485.4	303.2	303.2	1.6	13.5	0.3	7	grvly SAND to dense SAND	130	6.0	51	81	95	45	-	16
71.53	485.1	302.6	302.6	2.0	11.8	0.4	7	grvly SAND to dense SAND	130	6.0	50	81	95	45	-	16
71.69	493.3	307.4	307.4	1.9	14.1	0.4	7	grvly SAND to dense SAND	130	6.0	51	82	95	45	-	16
71.85	466.4	290.3	290.3	1.8	15.8	0.4	7	grvly SAND to dense SAND	130	6.0	48	78	95	44	-	16
72.02	440.9	274.1	274.1	3.1	14.4	0.7	6	clean SAND to silty SAND	125	5.0	55	88	95	44	-	16
72.18	449.0	278.8	278.8	3.2	14.1	0.7	6	clean SAND to silty SAND	125	5.0	56	90	95	44	-	16
72.35	395.3	245.2	245.2	2.4	11.2	0.6	6	clean SAND to silty SAND	125	5.0	49	79	95	44	-	16
72.51	403.3	249.9	249.9	1.8	9.9	0.5	6	clean SAND to silty SAND	125	5.0	50	81	95	44	-	16
72.67	408.5	252.9	252.9	1.2	11.0	0.3	7	grvly SAND to dense SAND	130	6.0	42	68	95	44	-	16
72.84	401.1	248.0	248.0	1.2	11.0	0.3	7	grvly SAND to dense SAND	130	6.0	41	67	95	44	-	16
73.00	389.6	240.6	240.6	1.0	11.7	0.3	7	grvly SAND to dense SAND	130	6.0	40	65	95	43	-	16
73.17	376.8	232.5	232.5	1.0	12.0	0.3	7	grvly SAND to dense SAND	130	6.0	39	63	95	43	-	16
73.33	355.1	218.9	218.9	0.8	15.9	0.2	7	grvly SAND to dense SAND	130	6.0	36	59	93	43	-	16
73.49	357.4	220.0	220.0	1.1	16.5	0.3	6	clean SAND to silty SAND	125	5.0	44	71	93	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(482).cpt
CPT Date: 12/10/2008 1:01:40 PM
GW During Test: 12 ft

Sounding ID: CPT-08-74
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
73.66	360.8	221.9	221.9	0.7	15.1	0.2	7	grvly SAND to dense SAND	130	6.0	37	60	93	43	-	16
73.82	342.9	210.6	210.6	1.1	14.1	0.3	6	clean SAND to silty SAND	125	5.0	42	69	92	43	-	16
73.99	319.4	196.0	196.0	0.7	13.6	0.2	6	clean SAND to silty SAND	125	5.0	39	64	89	42	-	16
74.15	266.3	163.3	163.3	0.4	12.8	0.1	6	clean SAND to silty SAND	125	5.0	33	53	83	41	-	16
74.31	222.7	136.4	136.4	0.3	10.0	0.1	6	clean SAND to silty SAND	125	5.0	27	45	77	40	-	16
74.48	164.0	100.3	120.0	1.5	13.7	1.0	6	clean SAND to silty SAND	125	5.0	20	33	67	39	-	16
74.64	78.1	47.7	112.0	1.7	15.5	2.3	5	silty SAND to sandy SILT	120	4.0	12	20	43	34	-	16
74.81	26.2	10.4	-	1.1	19.5	4.8	3	silty CLAY to CLAY	115	1.5	7	17	-	-	1.7	15
74.97	14.6	5.7	-	0.4	30.3	4.2	3	silty CLAY to CLAY	115	1.5	4	10	-	-	0.9	15
75.13	18.1	7.1	-	0.4	41.5	2.8	3	silty CLAY to CLAY	115	1.5	5	12	-	-	1.1	15
75.30	19.4	7.6	-	0.5	56.6	3.2	3	silty CLAY to CLAY	115	1.5	5	13	-	-	1.2	15
75.46	19.5	7.7	-	0.4	70.4	2.9	3	silty CLAY to CLAY	115	1.5	5	13	-	-	1.2	15
75.63	19.6	7.7	-	0.6	87.0	3.9	3	silty CLAY to CLAY	115	1.5	5	13	-	-	1.2	15
75.79	24.8	9.7	-	1.4	112.2	6.7	3	silty CLAY to CLAY	115	1.5	6	17	-	-	1.6	15
75.96	26.6	10.4	-	2.3	99.5	9.9	3	silty CLAY to CLAY	115	1.5	7	18	-	-	1.7	15
76.12	28.5	11.1	-	2.9	72.8	9.9	3	silty CLAY to CLAY	115	1.5	7	19	-	-	1.9	15
76.28	27.5	10.7	-	2.8	86.8	9.9	3	silty CLAY to CLAY	115	1.5	7	18	-	-	1.8	15
76.45	24.8	9.7	-	1.9	76.5	9.4	3	silty CLAY to CLAY	115	1.5	6	17	-	-	1.6	15
76.61	23.0	8.9	-	1.9	94.9	9.9	2	Organic SOILS - Peats	100	1.0	9	23	-	-	2.2	10
76.78	20.9	8.1	-	1.8	95.2	9.9	2	Organic SOILS - Peats	100	1.0	8	21	-	-	2.0	10
76.94	16.0	6.2	-	1.4	39.8	9.9	2	Organic SOILS - Peats	100	1.0	6	16	-	-	1.5	10
77.10	13.8	5.4	-	1.0	38.0	9.9	2	Organic SOILS - Peats	100	1.0	5	14	-	-	1.2	10
77.27	12.3	4.8	-	1.9	25.6	9.9	2	Organic SOILS - Peats	100	1.0	5	12	-	-	1.1	10
77.43	138.8	83.8	114.6	1.7	18.2	1.3	5	silty SAND to sandy SILT	120	4.0	21	35	61	38	-	16
77.60	89.6	54.0	119.4	2.0	11.0	2.4	5	silty SAND to sandy SILT	120	4.0	14	22	47	35	-	16
77.76	42.9	16.5	-	1.9	2.8	5.0	3	silty CLAY to CLAY	115	1.5	11	29	-	-	2.9	15
77.92	29.4	11.3	-	1.8	8.1	7.5	3	silty CLAY to CLAY	115	1.5	8	20	-	-	1.9	15
78.09	141.8	85.2	132.9	2.6	8.9	1.9	5	silty SAND to sandy SILT	120	4.0	21	35	62	38	-	16
78.25	200.2	120.2	139.0	2.0	7.5	1.0	6	clean SAND to silty SAND	125	5.0	24	40	73	40	-	16
78.42	237.0	142.2	177.6	3.9	7.8	1.7	6	clean SAND to silty SAND	125	5.0	28	47	79	41	-	16
78.58	386.4	231.6	231.6	2.2	4.1	0.6	6	clean SAND to silty SAND	125	5.0	46	77	95	43	-	16
78.74	393.6	235.7	235.7	2.4	4.7	0.6	6	clean SAND to silty SAND	125	5.0	47	79	95	43	-	16
78.91	432.2	258.5	258.5	2.2	12.7	0.5	6	clean SAND to silty SAND	125	5.0	52	86	95	44	-	16
79.07	421.0	251.6	251.6	2.2	13.1	0.5	6	clean SAND to silty SAND	125	5.0	50	84	95	43	-	16
79.24	392.9	234.6	234.6	2.0	8.9	0.5	6	clean SAND to silty SAND	125	5.0	47	79	95	43	-	16
79.40	401.6	239.6	239.6	1.9	6.9	0.5	6	clean SAND to silty SAND	125	5.0	48	80	95	43	-	16
79.56	414.3	246.9	246.9	1.8	1.5	0.4	6	clean SAND to silty SAND	125	5.0	49	83	95	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(404).cpt
CPT Date: 11/17/2008 9:12:03 AM
GW During Test: 12 ft

Sounding ID: CPT-08-75
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	130.7	209.6	223.4	1.6	0.6	1.2	6	clean SAND to silty SAND	125	5.0	42	26	91	48	-	16
0.49	98.9	158.7	207.2	2.1	1.1	2.1	5	silty SAND to sandy SILT	120	4.0	40	25	82	48	-	16
0.66	107.1	171.8	241.2	3.0	2.4	2.8	5	silty SAND to sandy SILT	120	4.0	43	27	85	48	-	16
0.82	85.6	137.2	234.8	3.1	3.1	3.6	8	stiff SAND to clayy SAND	115	1.0	100	86	-	-	5.7	16
0.98	92.9	148.9	214.0	2.4	4.0	2.6	5	silty SAND to sandy SILT	120	4.0	37	23	80	48	-	16
1.15	117.2	187.9	209.4	1.6	4.1	1.4	6	clean SAND to silty SAND	125	5.0	38	23	88	48	-	16
1.31	110.5	177.1	194.8	1.4	3.7	1.2	6	clean SAND to silty SAND	125	5.0	35	22	86	48	-	16
1.48	96.2	154.3	172.5	1.1	3.3	1.2	6	clean SAND to silty SAND	125	5.0	31	19	81	48	-	16
1.64	95.2	152.8	174.3	1.2	3.2	1.3	6	clean SAND to silty SAND	125	5.0	31	19	81	48	-	16
1.80	114.8	184.2	196.2	1.2	3.2	1.1	6	clean SAND to silty SAND	125	5.0	37	23	87	48	-	16
1.97	162.8	261.1	261.1	1.6	3.5	1.0	6	clean SAND to silty SAND	125	5.0	52	33	95	48	-	16
2.13	149.8	240.2	253.2	2.0	3.8	1.3	6	clean SAND to silty SAND	125	5.0	48	30	95	48	-	16
2.30	109.2	175.1	220.8	2.3	3.8	2.1	6	clean SAND to silty SAND	125	5.0	35	22	85	48	-	16
2.46	64.2	102.9	193.5	2.2	3.6	3.4	5	silty SAND to sandy SILT	120	4.0	26	16	68	47	-	16
2.62	64.9	104.0	160.7	1.5	4.2	2.3	5	silty SAND to sandy SILT	120	4.0	26	16	68	47	-	16
2.79	77.2	123.9	152.9	1.1	4.1	1.4	6	clean SAND to silty SAND	125	5.0	25	15	74	48	-	16
2.95	68.9	110.5	129.6	0.7	3.4	1.0	6	clean SAND to silty SAND	125	5.0	22	14	70	47	-	16
3.12	52.1	83.6	104.9	0.5	3.1	1.0	6	clean SAND to silty SAND	125	5.0	17	10	61	45	-	16
3.28	40.8	65.5	86.8	0.3	2.8	0.9	6	clean SAND to silty SAND	125	5.0	13	8	53	44	-	16
3.45	31.6	50.8	71.8	0.2	2.6	0.7	5	silty SAND to sandy SILT	120	4.0	13	8	45	43	-	16
3.61	28.1	45.1	88.4	0.4	2.4	1.6	5	silty SAND to sandy SILT	120	4.0	11	7	41	42	-	16
3.77	38.4	61.6	143.0	1.2	2.4	3.1	4	clayy SILT to silty CLAY	115	2.0	31	19	-	-	2.7	15
3.94	46.8	75.0	179.4	1.8	2.7	4.0	4	clayy SILT to silty CLAY	115	2.0	38	23	-	-	3.3	15
4.10	38.2	61.3	188.1	1.9	2.6	5.0	4	clayy SILT to silty CLAY	115	2.0	31	19	-	-	2.7	15
4.27	33.2	53.2	176.1	1.7	2.6	5.0	4	clayy SILT to silty CLAY	115	2.0	27	17	-	-	2.3	15
4.43	41.2	66.1	164.2	1.5	2.5	3.8	4	clayy SILT to silty CLAY	115	2.0	33	21	-	-	2.9	15
4.59	42.9	68.8	170.2	1.7	2.6	3.9	4	clayy SILT to silty CLAY	115	2.0	34	21	-	-	3.0	15
4.76	40.2	64.5	159.9	1.5	3.1	3.7	4	clayy SILT to silty CLAY	115	2.0	32	20	-	-	2.8	15
4.92	40.7	65.2	169.6	1.6	3.1	4.0	4	clayy SILT to silty CLAY	115	2.0	33	20	-	-	2.9	15
5.09	57.7	92.5	179.9	1.9	2.8	3.3	5	silty SAND to sandy SILT	120	4.0	23	14	64	45	-	16
5.25	54.3	87.1	183.0	1.9	2.3	3.6	4	clayy SILT to silty CLAY	115	2.0	44	27	-	-	3.8	15
5.41	37.8	60.6	176.6	1.7	2.7	4.6	4	clayy SILT to silty CLAY	115	2.0	30	19	-	-	2.7	15
5.58	36.9	59.2	162.2	1.5	3.0	4.0	4	clayy SILT to silty CLAY	115	2.0	30	18	-	-	2.6	15
5.74	34.7	55.7	158.0	1.4	3.4	4.0	4	clayy SILT to silty CLAY	115	2.0	28	17	-	-	2.4	15
5.91	34.6	55.6	179.2	1.7	3.3	5.0	4	clayy SILT to silty CLAY	115	2.0	28	17	-	-	2.4	15
6.07	57.2	91.7	182.0	1.9	3.9	3.4	5	silty SAND to sandy SILT	120	4.0	23	14	64	44	-	16
6.23	59.9	95.2	195.7	2.2	4.4	3.7	5	silty SAND to sandy SILT	120	4.0	24	15	65	44	-	16
6.40	48.7	76.4	204.1	2.3	5.2	4.8	4	clayy SILT to silty CLAY	115	2.0	38	24	-	-	3.4	15
6.56	49.7	77.0	206.3	2.4	5.5	4.9	4	clayy SILT to silty CLAY	115	2.0	38	25	-	-	3.5	15
6.73	52.2	79.9	225.4	2.8	5.7	5.5	9	very stiff fine SOIL	120	2.0	40	26	60	44	-	30
6.89	101.3	153.2	265.8	4.0	6.8	4.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	6.7	16
7.05	107.8	161.2	268.4	4.1	5.9	3.8	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	7.1	16
7.22	180.9	267.6	318.9	4.2	8.1	2.4	6	clean SAND to silty SAND	125	5.0	54	36	95	48	-	16
7.38	333.5	487.6	487.6	4.1	9.5	1.2	6	clean SAND to silty SAND	125	5.0	98	67	95	48	-	16
7.55	345.4	499.3	499.3	4.2	8.7	1.2	6	clean SAND to silty SAND	125	5.0	100	69	95	48	-	16
7.71	291.7	416.9	416.9	3.4	8.6	1.2	6	clean SAND to silty SAND	125	5.0	83	58	95	48	-	16
7.87	275.7	389.7	392.2	4.2	9.1	1.5	6	clean SAND to silty SAND	125	5.0	78	55	95	48	-	16
8.04	187.2	261.9	293.3	3.4	7.8	1.8	6	clean SAND to silty SAND	125	5.0	52	37	95	48	-	16
8.20	163.2	225.8	264.9	3.2	7.3	2.0	6	clean SAND to silty SAND	125	5.0	45	33	94	48	-	16
8.37	96.7	132.4	205.0	2.7	5.8	2.8	5	silty SAND to sandy SILT	120	4.0	33	24	76	46	-	16
8.53	67.1	91.1	187.1	2.4	5.6	3.6	5	silty SAND to sandy SILT	120	4.0	23	17	64	44	-	16
8.69	45.5	61.1	162.5	1.8	5.4	3.9	4	clayy SILT to silty CLAY	115	2.0	31	23	-	-	3.2	15
8.86	35.4	47.2	136.5	1.2	5.4	3.5	4	clayy SILT to silty CLAY	115	2.0	24	18	-	-	2.5	15
9.02	32.7	43.1	124.3	1.0	5.5	3.2	4	clayy SILT to silty CLAY	115	2.0	22	16	-	-	2.3	15
9.19	33.4	43.8	122.1	1.0	5.6	3.0	4	clayy SILT to silty CLAY	115	2.0	22	17	-	-	2.3	15
9.35	34.0	44.2	126.3	1.1	5.7	3.2	4	clayy SILT to silty CLAY	115	2.0	22	17	-	-	2.4	15
9.51	34.2	44.0	133.4	1.2	6.0	3.6	4	clayy SILT to silty CLAY	115	2.0	22	17	-	-	2.4	15
9.68	39.5	50.4	141.1	1.4	6.2	3.6	4	clayy SILT to silty CLAY	115	2.0	25	20	-	-	2.8	15
9.84	42.2	53.5	143.6	1.5	6.1	3.5	4	clayy SILT to silty CLAY	115	2.0	27	21	-	-	3.0	15
10.01	40.1	50.4	150.6	1.6	5.7	4.0	4	clayy SILT to silty CLAY	115	2.0	25	20	-	-	2.8	15
10.17	39.6	49.4	147.8	1.5	5.1	3.9	4	clayy SILT to silty CLAY	115	2.0	25	20	-	-	2.8	15
10.34	41.6	51.5	149.4	1.6	5.4	3.9	4	clayy SILT to silty CLAY	115	2.0	26	21	-	-	2.9	15
10.50	46.3	56.9	147.7	1.6	4.3	3.5	4	clayy SILT to silty CLAY	115	2.0	28	23	-	-	3.2	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Project ID: Earth Mechanics
Data File: SDF(404).cpt
CPT Date: 11/17/2008 9:12:03 AM
GW During Test: 12 ft

Sounding ID: CPT-08-75
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	32.2	43.5	-	1.4	4.6	4.6	4	clayy SILT to silty CLAY	115	2.0	22	16	-	-	2.2	15
10.83	27.8	43.0	-	1.3	4.9	4.8	4	clayy SILT to silty CLAY	115	2.0	22	14	-	-	1.9	15
10.99	22.8	34.8	-	1.3	4.8	5.7	3	silty CLAY to CLAY	115	1.5	23	15	-	-	1.6	15
11.16	21.0	31.6	-	1.1	4.4	5.6	3	silty CLAY to CLAY	115	1.5	21	14	-	-	1.5	15
11.32	20.9	31.1	-	1.2	4.7	5.9	3	silty CLAY to CLAY	115	1.5	21	14	-	-	1.5	15
11.48	24.2	35.5	-	1.2	5.0	5.3	3	silty CLAY to CLAY	115	1.5	24	16	-	-	1.7	15
11.65	24.5	35.4	-	1.3	5.9	5.3	3	silty CLAY to CLAY	115	1.5	24	16	-	-	1.7	15
11.81	22.2	31.7	-	1.2	5.9	5.6	3	silty CLAY to CLAY	115	1.5	21	15	-	-	1.5	15
11.98	20.7	29.1	-	1.1	5.7	5.4	3	silty CLAY to CLAY	115	1.5	19	14	-	-	1.4	15
12.14	18.2	25.4	-	0.9	5.5	5.4	3	silty CLAY to CLAY	115	1.5	17	12	-	-	1.3	15
12.30	14.4	20.0	-	0.9	5.1	6.3	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.0	15
12.47	17.6	24.3	-	0.9	5.4	5.4	3	silty CLAY to CLAY	115	1.5	16	12	-	-	1.2	15
12.63	23.9	32.8	-	1.1	6.0	4.7	3	silty CLAY to CLAY	115	1.5	22	16	-	-	1.7	15
12.80	25.5	34.8	-	1.2	6.1	4.9	3	silty CLAY to CLAY	115	1.5	23	17	-	-	1.8	15
12.96	23.9	32.5	-	1.2	5.9	5.2	3	silty CLAY to CLAY	115	1.5	22	16	-	-	1.7	15
13.12	20.9	28.1	-	1.1	5.6	5.5	3	silty CLAY to CLAY	115	1.5	19	14	-	-	1.4	15
13.29	19.2	25.8	-	1.0	5.3	5.4	3	silty CLAY to CLAY	115	1.5	17	13	-	-	1.3	15
13.45	17.6	23.4	-	0.9	5.2	5.4	3	silty CLAY to CLAY	115	1.5	16	12	-	-	1.2	15
13.62	15.7	20.7	-	0.8	5.2	5.6	3	silty CLAY to CLAY	115	1.5	14	10	-	-	1.1	15
13.78	15.2	20.0	-	0.8	5.3	5.3	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.0	15
13.94	13.8	18.0	-	0.7	5.3	5.3	3	silty CLAY to CLAY	115	1.5	12	9	-	-	0.9	15
14.11	12.1	15.7	-	0.6	5.6	5.5	3	silty CLAY to CLAY	115	1.5	10	8	-	-	0.8	15
14.27	10.3	13.3	-	0.6	5.6	5.9	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
14.44	8.5	11.0	-	0.5	5.5	6.4	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
14.60	6.6	8.5	-	0.5	5.3	7.8	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
14.76	7.8	10.0	-	0.6	5.3	8.7	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
14.93	8.6	10.9	-	1.0	5.2	9.9	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
15.09	12.3	15.5	-	1.4	2.1	9.9	3	silty CLAY to CLAY	115	1.5	10	8	-	-	0.8	15
15.26	19.4	24.3	-	1.6	2.3	8.9	3	silty CLAY to CLAY	115	1.5	16	13	-	-	1.3	15
15.42	16.8	21.0	-	1.6	2.3	9.9	3	silty CLAY to CLAY	115	1.5	14	11	-	-	1.2	15
15.58	16.7	20.7	-	1.4	2.4	8.9	3	silty CLAY to CLAY	115	1.5	14	11	-	-	1.1	15
15.75	15.3	18.8	-	1.4	2.7	9.9	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.0	15
15.91	14.4	17.7	-	1.4	2.7	9.9	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.0	15
16.08	13.8	16.8	-	1.1	3.8	8.7	3	silty CLAY to CLAY	115	1.5	11	9	-	-	0.9	15
16.24	9.5	11.5	-	0.7	3.0	7.6	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
16.40	6.1	7.4	-	0.4	2.9	6.8	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
16.57	5.2	6.3	-	0.2	3.2	4.0	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
16.73	4.6	5.4	-	0.4	3.5	9.9	2	Organic SOILS - Peats	100	1.0	5	5	-	-	0.4	10
16.90	11.0	13.1	-	0.4	3.8	4.1	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
17.06	58.2	61.6	86.8	0.6	3.8	1.0	5	silty SAND to sandy SILT	120	4.0	15	15	51	41	-	16
17.23	86.7	91.4	106.7	0.7	3.7	0.8	6	clean SAND to silty SAND	125	5.0	18	17	64	43	-	16
17.39	98.7	103.8	121.1	0.9	3.6	0.9	6	clean SAND to silty SAND	125	5.0	21	20	68	43	-	16
17.55	102.7	107.7	126.8	1.0	3.6	1.0	6	clean SAND to silty SAND	125	5.0	22	21	69	43	-	16
17.72	103.5	108.2	128.8	1.1	3.5	1.1	6	clean SAND to silty SAND	125	5.0	22	21	70	43	-	16
17.88	101.5	105.7	123.3	0.9	3.3	0.9	6	clean SAND to silty SAND	125	5.0	21	20	69	43	-	16
18.05	97.7	101.5	117.5	0.8	3.1	0.8	6	clean SAND to silty SAND	125	5.0	20	20	67	43	-	16
18.21	89.5	92.7	113.3	0.9	2.8	1.0	6	clean SAND to silty SAND	125	5.0	19	18	65	43	-	16
18.37	93.6	96.7	114.4	0.8	2.8	0.9	6	clean SAND to silty SAND	125	5.0	19	19	66	43	-	16
18.54	107.0	110.2	124.5	0.9	2.8	0.8	6	clean SAND to silty SAND	125	5.0	22	21	70	43	-	16
18.70	102.7	105.5	121.2	0.9	2.2	0.9	6	clean SAND to silty SAND	125	5.0	21	21	69	43	-	16
18.87	93.2	95.4	115.2	0.9	2.2	1.0	6	clean SAND to silty SAND	125	5.0	19	19	65	43	-	16
19.03	79.9	81.6	107.8	0.9	2.2	1.1	6	clean SAND to silty SAND	125	5.0	16	16	60	42	-	16
19.19	59.4	60.5	105.9	1.0	2.1	1.7	5	silty SAND to sandy SILT	120	4.0	15	15	50	40	-	16
19.36	37.3	37.9	101.3	0.8	2.1	2.3	4	clayy SILT to silty CLAY	115	2.0	19	19	-	-	2.6	15
19.52	54.1	54.8	85.0	0.6	2.3	1.1	5	silty SAND to sandy SILT	120	4.0	14	14	47	40	-	16
19.69	55.0	55.6	81.7	0.5	1.9	1.0	5	silty SAND to sandy SILT	120	4.0	14	14	48	40	-	16
19.85	54.7	55.2	80.2	0.5	1.7	0.9	5	silty SAND to sandy SILT	120	4.0	14	14	47	40	-	16
20.01	58.1	58.4	81.5	0.5	1.5	0.9	5	silty SAND to sandy SILT	120	4.0	15	15	49	40	-	16
20.18	58.6	58.8	81.6	0.5	2.7	0.9	6	clean SAND to silty SAND	125	5.0	12	12	49	40	-	16
20.34	62.3	62.3	82.8	0.5	2.1	0.8	6	clean SAND to silty SAND	125	5.0	12	12	51	40	-	16
20.51	63.7	63.5	84.9	0.5	1.6	0.8	6	clean SAND to silty SAND	125	5.0	13	13	52	40	-	16
20.67	64.1	63.8	85.2	0.5	1.4	0.8	6	clean SAND to silty SAND	125	5.0	13	13	52	40	-	16
20.83	67.2	66.7	87.0	0.5	1.2	0.8	6	clean SAND to silty SAND	125	5.0	13	13	54	40	-	16
21.00	69.0	68.3	88.3	0.6	1.0	0.8	6	clean SAND to silty SAND	125	5.0	14	14	54	41	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(404).cpt
CPT Date: 11/17/2008 9:12:03 AM
GW During Test: 12 ft

Sounding ID: CPT-08-75
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	71.0	70.0	88.3	0.5	0.9	0.8	6	clean SAND to silty SAND	125	5.0	14	14	55	41	-	16
21.33	68.4	67.3	89.1	0.6	0.7	0.9	6	clean SAND to silty SAND	125	5.0	13	14	54	40	-	16
21.49	64.2	63.1	87.3	0.6	0.6	0.9	5	silty SAND to sandy SILT	120	4.0	16	16	52	40	-	16
21.65	56.1	54.9	76.1	0.4	2.2	0.8	6	clean SAND to silty SAND	125	5.0	11	11	47	39	-	16
21.82	35.5	34.7	70.2	0.4	1.3	1.1	5	silty SAND to sandy SILT	120	4.0	9	9	32	37	-	16
21.98	16.5	16.6	-	0.4	0.7	2.4	4	clayy SILT to silty CLAY	115	2.0	8	8	-	-	1.1	15
22.15	10.4	10.4	-	0.3	0.4	3.2	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
22.31	7.8	7.8	-	0.2	0.9	3.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.47	6.8	6.8	-	0.2	1.7	4.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
22.64	7.0	7.0	-	0.3	2.3	5.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
22.80	11.9	11.7	-	0.3	3.0	2.9	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
22.97	13.0	12.8	-	0.2	2.5	2.1	4	clayy SILT to silty CLAY	115	2.0	6	7	-	-	0.9	15
23.13	7.1	6.9	-	0.3	2.1	5.5	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
23.30	6.9	6.7	-	0.4	3.1	7.2	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
23.46	7.4	7.2	-	0.6	3.9	9.6	2	Organic SOILS - Peats	100	1.0	7	7	-	-	0.7	10
23.62	8.5	8.2	-	0.7	4.8	9.9	2	Organic SOILS - Peats	100	1.0	8	9	-	-	0.8	10
23.79	8.8	8.4	-	0.7	5.4	9.9	2	Organic SOILS - Peats	100	1.0	8	9	-	-	0.8	10
23.95	9.9	9.5	-	0.8	6.2	9.1	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
24.12	10.7	10.2	-	0.7	7.2	7.7	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
24.28	9.2	8.7	-	0.6	7.8	7.2	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
24.44	8.4	7.9	-	0.4	8.7	5.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
24.61	7.7	7.2	-	0.3	10.1	4.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.77	6.7	6.3	-	0.2	11.0	4.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
24.94	6.4	6.0	-	0.2	11.6	4.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
25.10	5.6	5.2	-	0.2	12.1	5.2	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	15
25.26	5.6	5.2	-	0.2	15.4	5.3	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	15
25.43	6.2	5.8	-	0.3	16.0	6.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
25.59	5.7	5.3	-	0.3	16.4	8.0	2	Organic SOILS - Peats	100	1.0	5	6	-	-	0.5	10
25.76	5.5	5.1	-	0.3	16.8	7.9	2	Organic SOILS - Peats	100	1.0	5	6	-	-	0.5	10
25.92	5.6	5.2	-	0.3	18.2	7.6	2	Organic SOILS - Peats	100	1.0	5	6	-	-	0.5	10
26.08	6.0	5.5	-	0.4	18.8	7.8	2	Organic SOILS - Peats	100	1.0	6	6	-	-	0.6	10
26.25	6.9	6.2	-	0.5	19.4	9.9	2	Organic SOILS - Peats	100	1.0	6	7	-	-	0.6	10
26.41	26.2	23.8	-	0.7	20.7	2.8	4	clayy SILT to silty CLAY	115	2.0	12	13	-	-	1.8	15
26.58	25.6	23.2	-	0.8	5.9	3.2	4	clayy SILT to silty CLAY	115	2.0	12	13	-	-	1.8	15
26.74	12.9	11.6	-	0.5	3.4	4.7	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.8	15
26.90	7.6	6.8	-	0.4	2.7	6.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.07	7.2	6.4	-	0.3	4.2	5.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
27.23	6.9	6.1	-	0.3	5.3	5.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
27.40	6.6	5.9	-	0.3	6.0	6.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
27.56	6.8	6.0	-	0.3	6.8	6.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
27.72	6.6	5.8	-	0.3	7.5	6.5	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
27.89	6.8	6.0	-	0.3	8.2	6.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
28.05	7.1	6.2	-	0.3	9.4	6.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
28.22	7.0	6.1	-	0.3	21.9	5.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
28.38	6.9	6.0	-	0.3	21.0	6.3	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
28.54	7.5	6.5	-	0.4	22.7	7.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
28.71	8.3	7.1	-	0.6	24.5	8.7	2	Organic SOILS - Peats	100	1.0	7	8	-	-	0.8	10
28.87	8.0	6.9	-	0.6	27.2	9.4	2	Organic SOILS - Peats	100	1.0	7	8	-	-	0.8	10
29.04	8.8	7.5	-	0.6	29.1	8.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.20	9.3	7.9	-	0.6	31.7	8.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.36	9.6	8.2	-	0.6	33.6	7.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.53	8.6	7.3	-	0.5	35.3	7.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
29.69	8.7	7.4	-	0.5	36.9	7.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
29.86	8.4	7.0	-	0.4	38.7	6.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
30.02	8.3	7.0	-	0.4	39.5	5.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
30.19	8.7	7.3	-	0.5	46.7	6.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.35	10.1	8.4	-	0.8	49.2	9.6	2	Organic SOILS - Peats	100	1.0	8	10	-	-	1.0	10
30.51	11.4	9.5	-	0.7	47.5	7.4	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
30.68	43.7	38.6	94.7	0.8	47.0	2.0	5	silty SAND to sandy SILT	120	4.0	10	11	36	36	-	16
30.84	43.7	38.6	103.4	1.0	12.0	2.4	4	clayy SILT to silty CLAY	115	2.0	19	22	-	-	3.0	15
31.01	34.2	28.1	-	0.8	9.1	2.4	4	clayy SILT to silty CLAY	115	2.0	14	17	-	-	2.3	15
31.17	53.3	46.9	88.4	0.7	6.7	1.5	5	silty SAND to sandy SILT	120	4.0	12	13	42	37	-	16
31.33	60.4	53.0	90.2	0.8	4.8	1.3	5	silty SAND to sandy SILT	120	4.0	13	15	46	38	-	16
31.50	57.3	50.1	99.6	1.0	3.7	1.8	5	silty SAND to sandy SILT	120	4.0	13	14	44	38	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(404).cpt
CPT Date: 11/17/2008 9:12:03 AM
GW During Test: 12 ft

Sounding ID: CPT-08-75
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	79.7	69.6	109.6	1.2	3.1	1.5	5	silty SAND to sandy SILT	120	4.0	17	20	55	39	-	16
31.83	116.6	101.7	129.9	1.5	2.6	1.3	6	clean SAND to silty SAND	125	5.0	20	23	68	42	-	16
31.99	124.5	108.3	141.2	1.8	2.2	1.5	6	clean SAND to silty SAND	125	5.0	22	25	70	42	-	16
32.15	134.4	116.7	145.4	1.8	2.1	1.4	6	clean SAND to silty SAND	125	5.0	23	27	72	42	-	16
32.32	148.3	128.5	154.7	1.9	2.1	1.3	6	clean SAND to silty SAND	125	5.0	26	30	75	43	-	16
32.48	150.3	130.0	157.2	2.0	1.9	1.4	6	clean SAND to silty SAND	125	5.0	26	30	76	43	-	16
32.65	143.5	123.8	155.6	2.1	2.1	1.5	6	clean SAND to silty SAND	125	5.0	25	29	74	42	-	16
32.81	134.6	115.9	151.6	2.1	2.2	1.6	6	clean SAND to silty SAND	125	5.0	23	27	72	42	-	16
32.97	131.2	112.7	148.0	2.0	2.3	1.6	6	clean SAND to silty SAND	125	5.0	23	26	71	42	-	16
33.14	126.9	108.9	146.0	2.0	2.4	1.6	5	silty SAND to sandy SILT	120	4.0	27	32	70	42	-	16
33.30	109.4	93.7	136.0	1.9	2.3	1.7	5	silty SAND to sandy SILT	120	4.0	23	27	65	41	-	16
33.47	103.6	88.5	127.5	1.6	2.4	1.6	5	silty SAND to sandy SILT	120	4.0	22	26	63	41	-	16
33.63	108.1	92.2	125.3	1.5	2.4	1.4	5	silty SAND to sandy SILT	120	4.0	23	27	64	41	-	16
33.79	98.1	83.6	120.7	1.5	2.3	1.5	5	silty SAND to sandy SILT	120	4.0	21	25	61	40	-	16
33.96	79.7	67.8	115.3	1.4	2.2	1.8	5	silty SAND to sandy SILT	120	4.0	17	20	54	39	-	16
34.12	62.9	53.3	95.6	0.9	2.5	1.5	5	silty SAND to sandy SILT	120	4.0	13	16	46	38	-	16
34.29	66.8	56.6	84.8	0.7	1.8	1.0	5	silty SAND to sandy SILT	120	4.0	14	17	48	38	-	16
34.45	77.5	65.5	78.2	0.4	1.2	0.5	6	clean SAND to silty SAND	125	5.0	13	16	53	39	-	16
34.61	62.2	52.5	85.9	0.7	0.6	1.2	5	silty SAND to sandy SILT	120	4.0	13	16	46	38	-	16
34.78	74.1	62.4	92.3	0.8	0.3	1.1	5	silty SAND to sandy SILT	120	4.0	16	19	51	39	-	16
34.94	120.4	101.3	114.4	0.9	0.4	0.7	6	clean SAND to silty SAND	125	5.0	20	24	67	41	-	16
35.11	103.9	87.2	111.2	1.1	-0.1	1.1	6	clean SAND to silty SAND	125	5.0	17	21	62	40	-	16
35.27	57.2	47.9	107.8	1.2	1.6	2.2	5	silty SAND to sandy SILT	120	4.0	12	14	43	37	-	16
35.43	24.9	18.4	-	0.9	1.5	3.8	3	silty CLAY to CLAY	115	1.5	12	17	-	-	1.7	15
35.60	15.1	11.2	-	0.5	1.6	3.9	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
35.76	15.7	11.6	-	0.1	2.7	1.0	4	clayy SILT to silty CLAY	115	2.0	6	8	-	-	1.0	15
35.93	13.3	9.8	-	0.3	6.1	2.4	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
36.09	10.7	7.9	-	0.2	9.3	2.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
36.26	11.7	8.5	-	0.3	11.2	2.8	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
36.42	12.9	9.4	-	0.4	13.8	4.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
36.58	17.7	12.8	-	0.4	16.1	2.8	3	silty CLAY to CLAY	115	1.5	9	12	-	-	1.2	15
36.75	28.8	20.8	-	0.4	13.8	1.6	4	clayy SILT to silty CLAY	115	2.0	10	14	-	-	2.0	15
36.91	16.0	11.5	-	0.3	7.2	2.4	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
37.08	11.1	8.0	-	0.3	7.3	2.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.24	10.2	7.3	-	0.3	8.9	3.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
37.40	10.5	7.5	-	0.3	9.8	3.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.7	15
37.57	9.8	7.0	-	0.3	10.0	3.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
37.73	9.4	6.7	-	0.2	11.4	2.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
37.90	8.7	6.2	-	0.2	12.6	2.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
38.06	8.4	5.9	-	0.2	25.4	2.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
38.22	8.4	5.9	-	0.2	26.6	2.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
38.39	8.5	5.9	-	0.2	29.2	3.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.5	15
38.55	9.2	6.4	-	0.4	32.5	6.0	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.6	15
38.72	12.3	8.5	-	0.5	35.4	4.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.88	22.5	15.6	-	0.5	29.2	2.7	4	clayy SILT to silty CLAY	115	2.0	8	11	-	-	1.5	15
39.04	24.9	17.2	-	0.6	15.9	2.7	4	clayy SILT to silty CLAY	115	2.0	9	12	-	-	1.7	15
39.21	21.0	14.5	-	0.6	15.3	3.2	3	silty CLAY to CLAY	115	1.5	10	14	-	-	1.4	15
39.37	19.8	13.6	-	0.7	14.6	4.1	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
39.54	19.4	13.3	-	1.0	16.0	5.7	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
39.70	33.4	22.9	-	0.9	17.9	2.9	4	clayy SILT to silty CLAY	115	2.0	11	17	-	-	2.3	15
39.86	116.9	93.8	105.7	0.7	8.9	0.7	6	clean SAND to silty SAND	125	5.0	19	23	65	40	-	16
40.03	170.1	136.2	136.2	0.6	3.0	0.4	6	clean SAND to silty SAND	125	5.0	27	34	77	42	-	16
40.19	171.1	136.8	136.8	0.8	5.0	0.5	6	clean SAND to silty SAND	125	5.0	27	34	77	42	-	16
40.36	168.2	134.3	136.2	0.9	4.1	0.6	6	clean SAND to silty SAND	125	5.0	27	34	77	42	-	16
40.52	168.3	134.1	136.8	1.0	3.6	0.6	6	clean SAND to silty SAND	125	5.0	27	34	77	42	-	16
40.68	163.6	130.1	136.2	1.1	3.0	0.7	6	clean SAND to silty SAND	125	5.0	26	33	76	42	-	16
40.85	171.0	135.8	142.9	1.2	3.1	0.7	6	clean SAND to silty SAND	125	5.0	27	34	77	42	-	16
41.01	181.7	144.0	151.2	1.4	3.5	0.8	6	clean SAND to silty SAND	125	5.0	29	36	79	43	-	16
41.18	190.7	150.9	158.0	1.5	3.9	0.8	6	clean SAND to silty SAND	125	5.0	30	38	81	43	-	16
41.34	189.4	149.6	156.6	1.5	5.1	0.8	6	clean SAND to silty SAND	125	5.0	30	38	80	43	-	16
41.50	194.0	153.0	156.5	1.4	5.1	0.7	6	clean SAND to silty SAND	125	5.0	31	39	81	43	-	16
41.67	193.1	152.0	152.6	1.2	5.3	0.6	6	clean SAND to silty SAND	125	5.0	30	39	81	43	-	16
41.83	190.8	149.9	161.9	1.8	5.3	0.9	6	clean SAND to silty SAND	125	5.0	30	38	80	43	-	16
42.00	187.2	146.8	166.4	2.2	5.6	1.2	6	clean SAND to silty SAND	125	5.0	29	37	80	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(404).cpt
CPT Date: 11/17/2008 9:12:03 AM
GW During Test: 12 ft

Sounding ID: CPT-08-75
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n * PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk * -
42.16	171.3	134.2	148.9	1.6	5.6	1.0	6	clean SAND to silty SAND	125	5.0	27	34	77	42	-	16
42.32	153.3	119.9	134.6	1.3	5.5	0.9	6	clean SAND to silty SAND	125	5.0	24	31	73	42	-	16
42.49	136.9	106.9	125.5	1.3	6.0	1.0	6	clean SAND to silty SAND	125	5.0	21	27	69	41	-	16
42.65	120.1	93.6	119.6	1.4	6.0	1.2	6	clean SAND to silty SAND	125	5.0	19	24	65	40	-	16
42.82	119.0	92.6	124.0	1.6	6.2	1.4	5	silty SAND to sandy SILT	120	4.0	23	30	64	40	-	16
42.98	136.8	106.3	138.0	1.9	6.3	1.4	6	clean SAND to silty SAND	125	5.0	21	27	69	41	-	16
43.15	151.7	117.7	150.2	2.2	6.5	1.5	6	clean SAND to silty SAND	125	5.0	24	30	72	41	-	16
43.31	166.1	128.6	157.9	2.3	6.6	1.4	6	clean SAND to silty SAND	125	5.0	26	33	75	42	-	16
43.47	183.4	141.8	166.9	2.4	6.6	1.3	6	clean SAND to silty SAND	125	5.0	28	37	79	42	-	16
43.64	189.0	145.9	170.9	2.5	6.8	1.3	6	clean SAND to silty SAND	125	5.0	29	38	79	42	-	16
43.80	186.7	143.8	168.4	2.4	6.8	1.3	6	clean SAND to silty SAND	125	5.0	29	37	79	42	-	16
43.97	174.4	134.2	161.3	2.4	6.8	1.4	6	clean SAND to silty SAND	125	5.0	27	35	77	42	-	16
44.13	154.2	118.4	152.1	2.3	6.9	1.5	6	clean SAND to silty SAND	125	5.0	24	31	73	41	-	16
44.29	133.1	102.1	141.4	2.2	6.7	1.7	5	silty SAND to sandy SILT	120	4.0	26	33	68	41	-	16
44.46	111.5	85.4	125.0	1.7	6.6	1.6	5	silty SAND to sandy SILT	120	4.0	21	28	62	40	-	16
44.62	95.5	73.0	114.8	1.5	6.4	1.6	5	silty SAND to sandy SILT	120	4.0	18	24	57	39	-	16
44.79	78.8	60.2	114.8	1.5	5.8	2.0	5	silty SAND to sandy SILT	120	4.0	15	20	50	38	-	16
44.95	62.4	47.6	123.6	1.7	5.5	2.8	4	clayy SILT to silty CLAY	115	2.0	24	31	-	-	4.3	15
45.11	47.3	29.1	-	1.3	4.8	2.9	4	clayy SILT to silty CLAY	115	2.0	15	24	-	-	3.2	15
45.28	28.4	17.4	-	0.9	6.5	3.6	3	silty CLAY to CLAY	115	1.5	12	19	-	-	1.9	15
45.44	27.1	16.6	-	0.7	7.1	2.7	4	clayy SILT to silty CLAY	115	2.0	8	14	-	-	1.8	15
45.61	19.1	11.6	-	0.5	7.5	2.8	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
45.77	13.3	8.1	-	0.4	9.0	3.3	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
45.93	12.6	7.6	-	0.4	11.3	3.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
46.10	19.1	11.6	-	0.6	14.1	3.7	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
46.26	24.6	14.9	-	0.6	14.7	2.9	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.6	15
46.43	34.8	21.0	-	0.7	16.7	2.3	4	clayy SILT to silty CLAY	115	2.0	10	17	-	-	2.4	15
46.59	44.3	33.4	88.1	0.8	13.9	1.9	5	silty SAND to sandy SILT	120	4.0	8	11	31	34	-	16
46.75	44.1	33.2	79.6	0.6	14.3	1.5	5	silty SAND to sandy SILT	120	4.0	8	11	31	34	-	16
46.92	56.8	42.6	84.3	0.8	11.2	1.4	5	silty SAND to sandy SILT	120	4.0	11	14	39	35	-	16
47.08	34.6	20.6	-	0.8	6.3	2.6	4	clayy SILT to silty CLAY	115	2.0	10	17	-	-	2.3	15
47.25	19.9	11.8	-	0.6	7.3	3.7	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
47.41	13.2	7.8	-	0.6	9.0	5.4	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
47.57	15.3	9.0	-	0.8	11.9	6.3	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
47.74	25.6	15.1	-	0.7	14.0	3.0	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
47.90	51.6	38.4	90.5	0.9	13.4	1.8	5	silty SAND to sandy SILT	120	4.0	10	13	35	35	-	16
48.07	39.4	23.1	-	1.2	7.6	3.2	4	clayy SILT to silty CLAY	115	2.0	12	20	-	-	2.7	15
48.23	28.7	16.8	-	1.3	14.3	4.9	3	silty CLAY to CLAY	115	1.5	11	19	-	-	1.9	15
48.39	36.1	21.1	-	1.0	15.3	3.0	4	clayy SILT to silty CLAY	115	2.0	11	18	-	-	2.5	15
48.56	80.3	59.5	97.2	1.1	13.5	1.4	5	silty SAND to sandy SILT	120	4.0	15	20	50	37	-	16
48.72	108.0	79.8	110.5	1.3	7.3	1.3	5	silty SAND to sandy SILT	120	4.0	20	27	60	39	-	16
48.89	111.2	82.1	119.9	1.6	6.8	1.5	5	silty SAND to sandy SILT	120	4.0	21	28	60	39	-	16
49.05	108.7	80.2	122.4	1.8	7.0	1.7	5	silty SAND to sandy SILT	120	4.0	20	27	60	39	-	16
49.22	102.6	75.6	122.0	1.8	7.1	1.8	5	silty SAND to sandy SILT	120	4.0	19	26	58	39	-	16
49.38	85.3	62.8	128.4	2.0	7.2	2.4	5	silty SAND to sandy SILT	120	4.0	16	21	52	37	-	16
49.54	60.7	44.6	127.3	1.8	7.1	3.1	4	clayy SILT to silty CLAY	115	2.0	22	30	-	-	4.2	15
49.71	59.0	43.3	103.4	1.2	6.3	2.1	5	silty SAND to sandy SILT	120	4.0	11	15	39	35	-	16
49.87	46.7	26.6	-	1.3	3.6	2.9	4	clayy SILT to silty CLAY	115	2.0	13	23	-	-	3.2	15
50.04	33.1	18.8	-	1.0	3.4	3.3	3	silty CLAY to CLAY	115	1.5	13	22	-	-	2.2	15
50.20	23.6	13.4	-	0.6	13.2	3.1	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
50.36	14.3	8.1	-	0.5	14.3	4.2	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
50.53	12.1	6.8	-	0.4	21.0	4.8	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
50.69	11.8	6.6	-	0.6	27.8	6.6	3	silty CLAY to CLAY	115	1.5	4	8	-	-	0.7	15
50.86	19.3	10.8	-	0.4	64.1	2.6	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
51.02	14.5	8.1	-	0.5	44.4	4.1	3	silty CLAY to CLAY	115	1.5	5	10	-	-	0.9	15
51.18	12.4	6.9	-	0.6	60.8	6.4	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
51.35	14.9	8.3	-	0.7	74.7	5.8	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
51.51	53.1	38.5	95.4	1.0	31.8	2.0	5	silty SAND to sandy SILT	120	4.0	10	13	35	34	-	16
51.68	39.8	22.0	-	1.2	23.4	3.4	4	clayy SILT to silty CLAY	115	2.0	11	20	-	-	2.7	15
51.84	24.2	13.4	-	1.5	24.9	7.3	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
52.00	27.0	14.9	-	1.6	33.9	6.5	3	silty CLAY to CLAY	115	1.5	10	18	-	-	1.8	15
52.17	156.0	112.4	139.3	2.0	47.0	1.3	6	clean SAND to silty SAND	125	5.0	22	31	71	41	-	16
52.33	217.9	156.8	176.4	2.6	17.0	1.2	6	clean SAND to silty SAND	125	5.0	31	44	82	42	-	16
52.50	245.8	176.6	194.0	2.9	13.4	1.2	6	clean SAND to silty SAND	125	5.0	35	49	86	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(404).cpt
CPT Date: 11/17/2008 9:12:03 AM
GW During Test: 12 ft

Sounding ID: CPT-08-75
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	267.5	191.9	210.9	3.4	12.9	1.3	6	clean SAND to silty SAND	125	5.0	38	53	89	43	-	16
52.82	276.5	198.1	219.8	3.8	12.2	1.4	6	clean SAND to silty SAND	125	5.0	40	55	90	43	-	16
52.99	279.2	199.7	233.6	4.9	11.7	1.8	6	clean SAND to silty SAND	125	5.0	40	56	90	43	-	16
53.15	301.6	215.4	242.1	4.7	11.9	1.6	6	clean SAND to silty SAND	125	5.0	43	60	92	44	-	16
53.32	345.1	246.2	246.2	2.2	9.3	0.7	6	clean SAND to silty SAND	125	5.0	49	69	95	44	-	16
53.48	389.5	277.5	277.5	1.9	6.1	0.5	6	clean SAND to silty SAND	125	5.0	55	78	95	45	-	16
53.64	437.7	311.4	311.4	1.5	4.7	0.3	7	grvly SAND to dense SAND	130	6.0	52	73	95	46	-	16
53.81	347.3	246.7	246.7	1.8	0.3	0.5	6	clean SAND to silty SAND	125	5.0	49	69	95	44	-	16
53.97	258.4	183.3	183.3	1.4	0.2	0.6	6	clean SAND to silty SAND	125	5.0	37	52	87	43	-	16
54.14	176.5	125.1	139.0	1.5	3.2	0.9	6	clean SAND to silty SAND	125	5.0	25	35	74	41	-	16
54.30	148.5	105.1	120.1	1.2	3.9	0.8	6	clean SAND to silty SAND	125	5.0	21	30	69	40	-	16
54.46	130.4	92.1	112.9	1.2	4.5	1.0	6	clean SAND to silty SAND	125	5.0	18	26	64	39	-	16
54.63	118.0	83.3	109.2	1.3	4.6	1.1	6	clean SAND to silty SAND	125	5.0	17	24	61	39	-	16
54.79	103.7	73.0	106.7	1.3	4.5	1.3	5	silty SAND to sandy SILT	120	4.0	18	26	57	38	-	16
54.96	82.7	58.2	109.3	1.5	4.3	1.9	5	silty SAND to sandy SILT	120	4.0	15	21	49	37	-	16
55.12	46.0	24.1	-	1.3	4.1	3.1	4	clayy SILT to silty CLAY	115	2.0	12	23	-	-	3.1	15
55.28	23.3	12.2	-	0.9	6.4	4.5	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.5	15
55.45	19.7	10.3	-	0.7	8.0	4.0	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
55.61	20.9	10.9	-	0.6	10.5	3.4	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.4	15
55.78	71.7	50.2	84.0	0.8	11.0	1.2	5	silty SAND to sandy SILT	120	4.0	13	18	44	36	-	16
55.94	77.1	53.8	102.6	1.3	10.1	1.7	5	silty SAND to sandy SILT	120	4.0	13	19	47	36	-	16
56.11	53.0	27.4	-	1.6	10.3	3.2	4	clayy SILT to silty CLAY	115	2.0	14	27	-	-	3.6	15
56.27	29.3	15.1	-	1.2	10.7	4.5	3	silty CLAY to CLAY	115	1.5	10	20	-	-	1.9	15
56.43	21.9	11.3	-	0.7	12.7	3.5	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.4	15
56.60	19.1	9.8	-	0.9	16.2	5.4	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.2	15
56.76	18.5	9.5	-	0.8	18.4	5.5	3	silty CLAY to CLAY	115	1.5	6	12	-	-	1.2	15
56.93	65.2	45.3	77.7	0.7	22.0	1.1	5	silty SAND to sandy SILT	120	4.0	11	16	41	35	-	16
57.09	117.0	81.1	91.5	0.6	12.7	0.5	6	clean SAND to silty SAND	125	5.0	16	23	60	38	-	16
57.25	146.4	101.4	107.8	0.7	12.1	0.5	6	clean SAND to silty SAND	125	5.0	20	29	67	40	-	16
57.42	173.0	119.6	121.3	0.8	11.2	0.5	6	clean SAND to silty SAND	125	5.0	24	35	73	41	-	16
57.58	195.2	134.8	134.8	0.9	11.1	0.5	6	clean SAND to silty SAND	125	5.0	27	39	77	41	-	16
57.75	205.7	141.8	141.8	0.9	10.9	0.5	6	clean SAND to silty SAND	125	5.0	28	41	79	41	-	16
57.91	220.6	151.9	160.9	1.8	11.2	0.8	6	clean SAND to silty SAND	125	5.0	30	44	81	42	-	16
58.07	235.7	162.1	170.6	2.1	11.2	0.9	6	clean SAND to silty SAND	125	5.0	32	47	83	42	-	16
58.24	254.4	174.8	174.8	1.6	12.2	0.6	6	clean SAND to silty SAND	125	5.0	35	51	85	43	-	16
58.40	275.9	189.3	189.3	1.4	12.0	0.5	6	clean SAND to silty SAND	125	5.0	38	55	88	43	-	16
58.57	294.2	201.6	201.6	1.7	11.8	0.6	6	clean SAND to silty SAND	125	5.0	40	59	90	43	-	16
58.73	311.0	212.8	212.8	1.5	11.7	0.5	6	clean SAND to silty SAND	125	5.0	43	62	92	43	-	16
58.89	312.2	213.4	213.4	1.4	11.7	0.4	6	clean SAND to silty SAND	125	5.0	43	62	92	43	-	16
59.06	328.1	224.0	224.0	1.3	11.6	0.4	6	clean SAND to silty SAND	125	5.0	45	66	94	44	-	16
59.22	333.9	227.7	227.7	1.4	12.2	0.4	6	clean SAND to silty SAND	125	5.0	46	67	94	44	-	16
59.39	343.5	233.9	233.9	1.6	12.2	0.5	6	clean SAND to silty SAND	125	5.0	47	69	95	44	-	16
59.55	362.9	246.8	246.8	1.6	12.1	0.4	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
59.71	410.2	278.6	278.6	2.1	12.1	0.5	6	clean SAND to silty SAND	125	5.0	56	82	95	45	-	16
59.88	420.9	285.5	285.5	1.5	11.5	0.4	7	grvly SAND to dense SAND	130	6.0	48	70	95	45	-	16
60.04	408.9	277.0	277.0	1.5	10.3	0.4	7	grvly SAND to dense SAND	130	6.0	46	68	95	45	-	16
60.21	370.4	250.6	250.6	1.4	14.3	0.4	6	clean SAND to silty SAND	125	5.0	50	74	95	44	-	16
60.37	363.0	245.2	245.2	1.4	13.2	0.4	6	clean SAND to silty SAND	125	5.0	49	73	95	44	-	16
60.53	369.8	249.6	249.6	2.5	13.1	0.7	6	clean SAND to silty SAND	125	5.0	50	74	95	44	-	16
60.70	398.9	268.9	268.9	2.3	13.1	0.6	6	clean SAND to silty SAND	125	5.0	54	80	95	45	-	16
60.86	455.6	306.7	306.7	1.6	13.0	0.4	7	grvly SAND to dense SAND	130	6.0	51	76	95	45	-	16
61.03	459.3	308.8	308.8	1.8	11.2	0.4	7	grvly SAND to dense SAND	130	6.0	51	77	95	45	-	16
61.19	435.7	292.5	292.5	1.8	10.8	0.4	7	grvly SAND to dense SAND	130	6.0	49	73	95	45	-	16
61.35	430.9	288.9	288.9	1.7	10.4	0.4	7	grvly SAND to dense SAND	130	6.0	48	72	95	45	-	16
61.52	422.5	282.9	282.9	1.3	10.3	0.3	7	grvly SAND to dense SAND	130	6.0	47	70	95	45	-	16
61.68	427.3	285.8	285.8	1.5	10.9	0.4	7	grvly SAND to dense SAND	130	6.0	48	71	95	45	-	16
61.85	425.9	284.5	284.5	1.4	10.0	0.3	7	grvly SAND to dense SAND	130	6.0	47	71	95	45	-	16
62.01	436.8	291.3	291.3	1.4	10.1	0.3	7	grvly SAND to dense SAND	130	6.0	49	73	95	45	-	16
62.17	413.6	275.5	275.5	1.6	9.5	0.4	7	grvly SAND to dense SAND	130	6.0	46	69	95	45	-	16
62.34	376.1	250.2	250.2	2.1	10.2	0.6	6	clean SAND to silty SAND	125	5.0	50	75	95	44	-	16
62.50	370.0	245.8	245.8	2.3	10.2	0.6	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
62.67	372.5	247.2	247.2	2.2	11.5	0.6	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
62.83	392.9	260.5	259.5	4.2	11.6	1.1	6	clean SAND to silty SAND	125	5.0	52	79	95	44	-	16
63.00	428.1	283.4	287.6	5.3	11.7	1.2	6	clean SAND to silty SAND	125	5.0	57	86	95	45	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(404).cpt
CPT Date: 11/17/2008 9:12:03 AM
GW During Test: 12 ft

Sounding ID: CPT-08-75
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS - *	q1ncs PS - *	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60% *	SPT R-N 60% *	Rel Den % *	Ftn Ang deg *	Und Shr tsf	Nk - *
63.16	490.6	324.4	324.4	4.7	11.0	1.0	6	clean SAND to silty SAND	125	5.0	65	98	95	45	-	16
63.32	484.5	320.0	320.0	4.0	10.4	0.8	6	clean SAND to silty SAND	125	5.0	64	97	95	45	-	16
63.49	450.3	297.0	297.0	2.8	13.3	0.6	6	clean SAND to silty SAND	125	5.0	59	90	95	45	-	16
63.65	418.6	275.9	275.9	2.3	13.0	0.6	6	clean SAND to silty SAND	125	5.0	55	84	95	45	-	16
63.82	410.7	270.3	270.3	1.7	13.8	0.4	6	clean SAND to silty SAND	125	5.0	54	82	95	44	-	16
63.98	428.5	281.7	281.7	1.7	12.4	0.4	7	grvly SAND to dense SAND	130	6.0	47	71	95	45	-	16
64.14	476.7	313.0	313.0	2.2	11.8	0.5	7	grvly SAND to dense SAND	130	6.0	52	79	95	45	-	16
64.31	524.4	343.9	343.9	4.2	9.9	0.8	6	clean SAND to silty SAND	125	5.0	69	100	95	45	-	16
64.47	444.0	290.8	292.2	5.4	9.0	1.2	6	clean SAND to silty SAND	125	5.0	58	89	95	45	-	16
64.64	470.7	307.9	307.9	2.9	15.6	0.6	6	clean SAND to silty SAND	125	5.0	62	94	95	45	-	16
64.80	414.2	270.7	270.7	1.7	14.7	0.4	6	clean SAND to silty SAND	125	5.0	54	83	95	44	-	16
64.96	420.2	274.2	274.2	1.6	15.3	0.4	7	grvly SAND to dense SAND	130	6.0	46	70	95	44	-	16
65.13	416.1	271.2	271.2	2.5	15.7	0.6	6	clean SAND to silty SAND	125	5.0	54	83	95	44	-	16
65.29	407.3	265.2	309.4	8.7	14.7	2.2	6	clean SAND to silty SAND	125	5.0	53	81	95	44	-	16
65.46	443.3	288.3	321.6	8.4	14.1	1.9	6	clean SAND to silty SAND	125	5.0	58	89	95	45	-	16
65.62	557.9	362.4	369.1	8.4	14.7	1.5	6	clean SAND to silty SAND	125	5.0	72	100	95	46	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(483).cpt
CPT Date: 12/10/2008 2:21:23 PM
GW During Test: 12 ft

Sounding ID: CPT-08-76
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	150.6	241.6	241.6	0.9	0.0	0.6	6	clean SAND to silty SAND	125	5.0	48	30	95	48	-	16
0.49	100.8	161.6	193.5	1.6	0.0	1.6	6	clean SAND to silty SAND	125	5.0	32	20	83	48	-	16
0.66	54.4	87.2	190.7	2.1	0.0	3.9	4	clayy SILT to silty CLAY	115	2.0	44	27	-	-	3.8	15
0.82	103.4	165.8	227.2	2.6	-0.5	2.5	5	silty SAND to sandy SILT	120	4.0	41	26	84	48	-	16
0.98	145.0	232.5	253.1	2.1	-0.5	1.5	6	clean SAND to silty SAND	125	5.0	47	29	95	48	-	16
1.15	133.0	213.2	226.1	1.6	0.0	1.2	6	clean SAND to silty SAND	125	5.0	43	27	92	48	-	16
1.31	126.4	202.7	212.0	1.4	0.0	1.1	6	clean SAND to silty SAND	125	5.0	41	25	90	48	-	16
1.48	100.4	160.9	186.8	1.4	0.0	1.4	6	clean SAND to silty SAND	125	5.0	32	20	83	48	-	16
1.64	65.9	105.7	183.4	2.0	-0.1	3.0	5	silty SAND to sandy SILT	120	4.0	26	16	69	48	-	16
1.80	48.5	77.8	189.2	2.0	0.1	4.2	4	clayy SILT to silty CLAY	115	2.0	39	24	-	-	3.4	15
1.97	47.9	76.8	192.3	2.1	0.2	4.4	4	clayy SILT to silty CLAY	115	2.0	38	24	-	-	3.4	15
2.13	55.1	88.3	157.7	1.5	0.3	2.7	5	silty SAND to sandy SILT	120	4.0	22	14	63	47	-	16
2.30	59.0	94.7	146.2	1.2	-0.1	2.1	5	silty SAND to sandy SILT	120	4.0	24	15	65	47	-	16
2.46	33.0	52.9	114.9	0.8	0.0	2.4	5	silty SAND to sandy SILT	120	4.0	13	8	46	45	-	16
2.62	27.9	44.7	107.1	0.7	0.0	2.4	5	silty SAND to sandy SILT	120	4.0	11	7	40	43	-	16
2.79	21.7	34.8	-	0.8	0.0	3.6	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.5	15
2.95	19.2	30.8	-	0.6	0.0	3.1	4	clayy SILT to silty CLAY	115	2.0	15	10	-	-	1.3	15
3.12	31.2	50.1	133.1	1.0	0.0	3.2	4	clayy SILT to silty CLAY	115	2.0	25	16	-	-	2.2	15
3.28	62.1	99.5	158.4	1.4	0.0	2.3	5	silty SAND to sandy SILT	120	4.0	25	16	67	46	-	16
3.45	48.0	77.0	162.2	1.5	-0.3	3.2	5	silty SAND to sandy SILT	120	4.0	19	12	58	45	-	16
3.61	33.6	53.9	171.6	1.6	-0.7	4.8	4	clayy SILT to silty CLAY	115	2.0	27	17	-	-	2.4	15
3.77	30.7	49.3	-	1.8	-1.0	5.9	3	silty CLAY to CLAY	115	1.5	33	20	-	-	2.2	15
3.94	40.2	64.5	180.1	1.8	-0.5	4.5	4	clayy SILT to silty CLAY	115	2.0	32	20	-	-	2.8	15
4.10	47.0	75.4	199.6	2.2	-0.2	4.7	4	clayy SILT to silty CLAY	115	2.0	38	24	-	-	3.3	15
4.27	59.8	95.8	211.3	2.5	-0.1	4.2	4	clayy SILT to silty CLAY	115	2.0	48	30	-	-	4.2	15
4.43	52.9	84.8	221.5	2.7	-0.6	5.1	9	very stiff fine SOIL	120	2.0	42	26	62	45	-	30
4.59	44.8	71.8	206.6	2.3	-0.6	5.2	4	clayy SILT to silty CLAY	115	2.0	36	22	-	-	3.1	15
4.76	46.9	75.2	197.2	2.2	-0.4	4.6	4	clayy SILT to silty CLAY	115	2.0	38	23	-	-	3.3	15
4.92	51.5	82.6	187.9	2.0	-0.2	3.9	4	clayy SILT to silty CLAY	115	2.0	41	26	-	-	3.6	15
5.09	36.5	58.6	-	2.1	-1.2	5.8	4	clayy SILT to silty CLAY	115	2.0	29	18	-	-	2.6	15
5.25	32.2	51.6	-	1.8	-1.4	5.5	3	silty CLAY to CLAY	115	1.5	34	21	-	-	2.3	15
5.41	44.4	71.2	205.3	2.3	-1.1	5.2	4	clayy SILT to silty CLAY	115	2.0	36	22	-	-	3.1	15
5.58	140.0	224.6	290.7	3.8	-0.8	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	9.3	16
5.74	221.4	355.1	398.1	4.9	-2.1	2.2	6	clean SAND to silty SAND	125	5.0	71	44	95	48	-	16
5.91	207.5	332.8	380.1	4.8	-1.0	2.3	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.7	16
6.07	184.6	296.1	344.7	4.3	-2.8	2.3	6	clean SAND to silty SAND	125	5.0	59	37	95	48	-	16
6.23	141.8	226.6	283.8	3.5	-1.5	2.5	6	clean SAND to silty SAND	125	5.0	45	28	94	48	-	16
6.40	87.1	137.2	232.4	3.0	-0.5	3.5	5	silty SAND to sandy SILT	120	4.0	34	22	77	46	-	16
6.56	58.5	91.0	224.3	2.8	-1.2	4.9	9	very stiff fine SOIL	120	2.0	46	29	64	44	-	30
6.73	49.2	75.7	209.6	2.5	-2.2	5.1	4	clayy SILT to silty CLAY	115	2.0	38	25	-	-	3.5	15
6.89	48.6	73.8	198.1	2.3	-2.0	4.7	4	clayy SILT to silty CLAY	115	2.0	37	24	-	-	3.4	15
7.05	99.1	148.9	219.7	2.7	-1.7	2.8	5	silty SAND to sandy SILT	120	4.0	37	25	80	46	-	16
7.22	136.7	202.9	241.5	2.6	-2.5	1.9	6	clean SAND to silty SAND	125	5.0	41	27	90	48	-	16
7.38	195.8	287.2	289.7	2.4	-2.0	1.2	6	clean SAND to silty SAND	125	5.0	57	39	95	48	-	16
7.55	132.0	191.3	214.8	1.9	0.3	1.4	6	clean SAND to silty SAND	125	5.0	38	26	88	47	-	16
7.71	79.3	113.7	164.7	1.7	0.4	2.1	5	silty SAND to sandy SILT	120	4.0	28	20	71	45	-	16
7.87	75.6	107.3	158.4	1.6	0.3	2.1	5	silty SAND to sandy SILT	120	4.0	27	19	69	45	-	16
8.04	55.7	78.1	129.4	1.1	0.5	2.0	5	silty SAND to sandy SILT	120	4.0	20	14	59	43	-	16
8.20	32.5	45.1	128.0	1.0	0.5	3.2	4	clayy SILT to silty CLAY	115	2.0	23	16	-	-	2.3	15
8.37	27.1	37.3	116.7	0.8	0.5	3.2	4	clayy SILT to silty CLAY	115	2.0	19	14	-	-	1.9	15
8.53	23.8	32.5	100.7	0.6	0.7	2.6	4	clayy SILT to silty CLAY	115	2.0	16	12	-	-	1.7	15
8.69	23.3	36.4	117.9	0.7	0.9	3.3	4	clayy SILT to silty CLAY	115	2.0	18	12	-	-	1.6	15
8.86	34.7	46.5	113.8	0.9	1.2	2.5	5	silty SAND to sandy SILT	120	4.0	12	9	42	41	-	16
9.02	33.8	44.8	124.2	1.0	1.1	3.1	4	clayy SILT to silty CLAY	115	2.0	22	17	-	-	2.4	15
9.19	32.4	42.6	137.9	1.2	1.2	3.9	4	clayy SILT to silty CLAY	115	2.0	21	16	-	-	2.3	15
9.35	37.6	49.1	147.7	1.5	1.3	3.9	4	clayy SILT to silty CLAY	115	2.0	25	19	-	-	2.6	15
9.51	33.6	49.4	-	1.6	1.1	4.9	4	clayy SILT to silty CLAY	115	2.0	25	17	-	-	2.4	15
9.68	43.9	56.3	153.4	1.6	1.3	3.8	4	clayy SILT to silty CLAY	115	2.0	28	22	-	-	3.1	15
9.84	58.8	74.8	157.3	1.8	1.1	3.1	5	silty SAND to sandy SILT	120	4.0	19	15	57	43	-	16
10.01	55.2	69.6	164.2	2.0	-2.6	3.6	4	clayy SILT to silty CLAY	115	2.0	35	28	-	-	3.9	15
10.17	36.4	51.0	167.6	1.7	-3.3	4.7	4	clayy SILT to silty CLAY	115	2.0	25	18	-	-	2.5	15
10.34	31.0	49.8	-	1.5	-3.0	4.9	4	clayy SILT to silty CLAY	115	2.0	25	16	-	-	2.2	15
10.50	28.4	45.5	-	1.3	-3.0	4.8	4	clayy SILT to silty CLAY	115	2.0	23	14	-	-	2.0	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(483).cpt
CPT Date: 12/10/2008 2:21:23 PM
GW During Test: 12 ft

Sounding ID: CPT-08-76
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	24.7	39.1	-	1.1	-3.0	4.7	4	clayy SILT to silty CLAY	115	2.0	20	12	-	-	1.7	15
10.83	21.5	33.6	-	1.0	-3.0	4.7	3	silty CLAY to CLAY	115	1.5	22	14	-	-	1.5	15
10.99	21.8	33.6	-	0.8	-3.0	3.8	4	clayy SILT to silty CLAY	115	2.0	17	11	-	-	1.5	15
11.16	24.7	37.4	-	0.9	-3.0	3.6	4	clayy SILT to silty CLAY	115	2.0	19	12	-	-	1.7	15
11.32	33.4	39.6	123.8	1.1	-3.0	3.4	4	clayy SILT to silty CLAY	115	2.0	20	17	-	-	2.3	15
11.48	27.2	35.1	-	0.9	-3.2	3.6	4	clayy SILT to silty CLAY	115	2.0	18	14	-	-	1.9	15
11.65	20.1	29.2	-	1.0	-3.1	4.9	3	silty CLAY to CLAY	115	1.5	19	13	-	-	1.4	15
11.81	23.6	33.8	-	1.0	-3.0	4.4	4	clayy SILT to silty CLAY	115	2.0	17	12	-	-	1.6	15
11.98	21.8	30.8	-	1.0	-3.0	5.0	3	silty CLAY to CLAY	115	1.5	21	15	-	-	1.5	15
12.14	20.7	29.2	-	0.9	-2.9	4.7	3	silty CLAY to CLAY	115	1.5	19	14	-	-	1.4	15
12.30	19.4	27.1	-	0.9	-3.0	5.1	3	silty CLAY to CLAY	115	1.5	18	13	-	-	1.3	15
12.47	19.9	27.6	-	0.6	-2.9	3.3	4	clayy SILT to silty CLAY	115	2.0	14	10	-	-	1.4	15
12.63	19.1	26.4	-	0.6	-2.9	3.5	4	clayy SILT to silty CLAY	115	2.0	13	10	-	-	1.3	15
12.80	15.6	21.4	-	0.7	0.5	5.0	3	silty CLAY to CLAY	115	1.5	14	10	-	-	1.1	15
12.96	15.4	21.1	-	0.7	0.2	5.1	3	silty CLAY to CLAY	115	1.5	14	10	-	-	1.1	15
13.12	12.4	16.8	-	0.6	0.3	5.1	3	silty CLAY to CLAY	115	1.5	11	8	-	-	0.8	15
13.29	11.0	14.8	-	0.5	0.3	4.6	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.7	15
13.45	9.1	12.2	-	0.4	0.3	4.8	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
13.62	8.0	10.7	-	0.4	0.4	4.9	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
13.78	6.9	9.2	-	0.3	0.4	4.3	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
13.94	6.0	7.9	-	0.2	0.5	4.0	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.11	6.2	8.1	-	0.2	0.6	4.1	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.27	6.7	8.8	-	0.3	0.7	4.4	3	silty CLAY to CLAY	115	1.5	6	4	-	-	0.4	15
14.44	6.8	8.8	-	0.3	0.9	5.2	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.4	15
14.60	6.1	7.8	-	0.2	1.0	4.6	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
14.76	4.8	6.1	-	0.1	1.0	3.4	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
14.93	4.5	5.8	-	0.1	1.1	2.8	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.09	5.0	6.4	-	0.1	1.2	2.2	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.26	4.7	5.9	-	0.1	1.3	3.9	3	silty CLAY to CLAY	115	1.5	4	3	-	-	0.3	15
15.42	6.3	7.9	-	0.1	1.4	1.9	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
15.58	32.6	35.4	58.2	0.2	1.0	0.6	5	silty SAND to sandy SILT	120	4.0	9	8	33	38	-	16
15.75	53.7	58.1	75.7	0.3	0.8	0.7	6	clean SAND to silty SAND	125	5.0	12	11	49	41	-	16
15.91	75.5	81.4	94.6	0.5	0.8	0.6	6	clean SAND to silty SAND	125	5.0	16	15	60	42	-	16
16.08	84.0	90.3	103.8	0.6	0.9	0.7	6	clean SAND to silty SAND	125	5.0	18	17	64	43	-	16
16.24	76.7	82.2	100.4	0.6	0.9	0.8	6	clean SAND to silty SAND	125	5.0	16	15	61	42	-	16
16.40	78.1	83.4	101.5	0.6	1.0	0.8	6	clean SAND to silty SAND	125	5.0	17	16	61	42	-	16
16.57	99.8	106.3	117.8	0.7	1.0	0.7	6	clean SAND to silty SAND	125	5.0	21	20	69	44	-	16
16.73	111.5	118.4	130.2	0.9	-1.6	0.8	6	clean SAND to silty SAND	125	5.0	24	22	73	44	-	16
16.90	111.6	118.1	132.6	1.0	-1.2	0.9	6	clean SAND to silty SAND	125	5.0	24	22	72	44	-	16
17.06	111.6	117.8	134.9	1.1	-0.9	1.0	6	clean SAND to silty SAND	125	5.0	24	22	72	44	-	16
17.23	106.2	111.7	133.6	1.2	-0.6	1.1	6	clean SAND to silty SAND	125	5.0	22	21	71	44	-	16
17.39	96.0	100.7	124.1	1.1	-0.4	1.1	6	clean SAND to silty SAND	125	5.0	20	19	67	43	-	16
17.55	95.9	100.3	120.8	1.0	-0.2	1.0	6	clean SAND to silty SAND	125	5.0	20	19	67	43	-	16
17.72	88.8	92.6	115.6	0.9	-0.1	1.1	6	clean SAND to silty SAND	125	5.0	19	18	64	43	-	16
17.88	78.5	81.7	110.1	0.9	0.1	1.2	6	clean SAND to silty SAND	125	5.0	16	16	60	42	-	16
18.05	67.4	69.8	101.0	0.8	0.3	1.2	5	silty SAND to sandy SILT	120	4.0	17	17	55	41	-	16
18.21	66.0	68.3	93.4	0.7	0.2	1.0	6	clean SAND to silty SAND	125	5.0	14	13	54	41	-	16
18.37	63.4	65.4	88.9	0.6	-1.9	0.9	6	clean SAND to silty SAND	125	5.0	13	13	53	41	-	16
18.54	62.2	64.0	86.6	0.5	-2.0	0.9	6	clean SAND to silty SAND	125	5.0	13	12	52	41	-	16
18.70	67.1	68.8	89.7	0.6	-2.3	0.9	6	clean SAND to silty SAND	125	5.0	14	13	55	41	-	16
18.87	69.1	70.7	88.3	0.5	-0.9	0.7	6	clean SAND to silty SAND	125	5.0	14	14	56	41	-	16
19.03	75.8	77.3	93.6	0.5	-2.3	0.7	6	clean SAND to silty SAND	125	5.0	15	15	58	41	-	16
19.19	78.7	80.0	96.3	0.6	-2.8	0.7	6	clean SAND to silty SAND	125	5.0	16	16	60	42	-	16
19.36	83.1	84.2	100.4	0.6	-3.0	0.8	6	clean SAND to silty SAND	125	5.0	17	17	61	42	-	16
19.52	83.9	84.8	100.5	0.6	-3.4	0.8	6	clean SAND to silty SAND	125	5.0	17	17	62	42	-	16
19.69	79.7	80.3	99.3	0.7	-3.5	0.8	6	clean SAND to silty SAND	125	5.0	16	16	60	42	-	16
19.85	75.7	76.1	105.5	0.9	-3.5	1.2	5	silty SAND to sandy SILT	120	4.0	19	19	58	41	-	16
20.01	70.8	71.0	99.5	0.8	-3.6	1.1	5	silty SAND to sandy SILT	120	4.0	18	18	56	41	-	16
20.18	34.5	34.5	94.3	0.7	-3.3	2.2	4	clayy SILT to silty CLAY	115	2.0	17	17	-	-	2.4	15
20.34	17.3	18.2	-	0.7	-5.2	4.3	3	silty CLAY to CLAY	115	1.5	12	12	-	-	1.2	15
20.51	9.7	10.1	-	0.4	-5.3	5.3	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
20.67	7.5	7.8	-	0.5	-4.7	7.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
20.83	7.3	7.6	-	0.4	-3.9	6.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.00	6.7	7.0	-	0.4	-3.4	8.0	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(483).cpt
CPT Date: 12/10/2008 2:21:23 PM
GW During Test: 12 ft

Sounding ID: CPT-08-76
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	8.4	8.6	-	0.6	-2.9	8.7	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	15
21.33	16.0	16.4	-	0.6	-2.3	3.9	3	silty CLAY to CLAY	115	1.5	11	11	-	-	1.1	15
21.49	12.2	12.5	-	0.5	-3.5	4.9	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
21.65	7.3	7.5	-	0.2	-3.3	3.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.82	6.6	6.7	-	0.2	-2.9	3.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.98	6.6	6.7	-	0.2	-2.5	3.4	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.15	6.8	6.9	-	0.2	1.5	4.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
22.31	7.3	7.3	-	0.4	1.7	6.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.47	10.2	10.2	-	0.5	1.9	5.7	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
22.64	10.2	10.1	-	0.5	2.1	5.8	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
22.80	9.7	9.6	-	0.4	2.4	5.0	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
22.97	9.3	9.1	-	0.3	2.8	3.4	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
23.13	7.9	7.7	-	0.2	2.9	3.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.30	7.5	7.3	-	0.2	2.9	2.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.46	7.3	7.0	-	0.2	2.9	2.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.62	7.3	7.0	-	0.2	2.9	2.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.79	7.5	7.3	-	0.2	2.9	3.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.95	6.9	6.7	-	0.2	2.9	4.4	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
24.12	7.0	6.7	-	0.3	2.9	5.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
24.28	7.4	7.1	-	0.3	2.9	4.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.44	7.9	7.5	-	0.3	2.9	4.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.61	8.2	7.7	-	0.3	2.9	3.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.77	8.1	7.6	-	0.4	2.9	5.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.94	14.8	13.8	-	0.5	3.0	3.8	3	silty CLAY to CLAY	115	1.5	9	10	-	-	1.0	15
25.10	8.4	7.8	-	0.5	0.3	7.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
25.26	9.0	8.3	-	0.5	3.2	6.5	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
25.43	9.1	8.4	-	0.5	3.3	6.2	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
25.59	8.8	8.1	-	0.5	3.5	6.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
25.76	8.8	8.1	-	0.4	3.6	5.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
25.92	8.7	7.9	-	0.4	3.7	5.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
26.08	8.7	7.9	-	0.3	3.8	4.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
26.25	8.7	7.9	-	0.3	3.9	4.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
26.41	8.9	8.0	-	0.3	4.0	4.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
26.58	8.4	7.6	-	0.3	4.0	3.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
26.74	8.0	7.2	-	0.2	4.1	2.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.90	7.9	7.1	-	0.2	4.3	3.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.07	7.8	6.9	-	0.3	4.4	4.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.23	8.1	7.2	-	0.3	4.5	5.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.40	8.3	7.3	-	0.3	4.4	4.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
27.56	8.8	7.8	-	0.4	4.6	5.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
27.72	22.0	19.3	-	0.4	4.8	1.9	4	clayy SILT to silty CLAY	115	2.0	10	11	-	-	1.5	15
27.89	43.5	39.4	71.6	0.4	2.3	1.0	5	silty SAND to sandy SILT	120	4.0	10	11	36	37	-	16
28.05	53.4	48.4	74.5	0.5	-1.2	0.9	5	silty SAND to sandy SILT	120	4.0	12	13	43	38	-	16
28.22	46.3	41.8	80.6	0.6	-2.4	1.3	5	silty SAND to sandy SILT	120	4.0	10	12	38	37	-	16
28.38	26.3	22.7	-	0.7	-2.8	2.7	4	clayy SILT to silty CLAY	115	2.0	11	13	-	-	1.8	15
28.54	13.9	11.9	-	0.6	1.7	5.1	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
28.71	9.8	8.4	-	0.4	3.2	5.6	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
28.87	17.1	14.5	-	0.4	5.0	2.4	4	clayy SILT to silty CLAY	115	2.0	7	9	-	-	1.1	15
29.04	30.1	27.0	68.0	0.4	3.5	1.2	5	silty SAND to sandy SILT	120	4.0	7	8	24	34	-	16
29.20	42.0	37.5	64.6	0.3	0.0	0.8	5	silty SAND to sandy SILT	120	4.0	9	11	35	36	-	16
29.36	50.0	44.6	69.9	0.4	-0.5	0.8	5	silty SAND to sandy SILT	120	4.0	11	13	40	37	-	16
29.53	46.0	40.9	79.7	0.6	-1.3	1.3	5	silty SAND to sandy SILT	120	4.0	10	12	38	37	-	16
29.69	33.3	29.5	87.3	0.6	-0.3	2.0	4	clayy SILT to silty CLAY	115	2.0	15	17	-	-	2.3	15
29.86	18.8	15.6	-	0.5	0.0	2.9	3	silty CLAY to CLAY	115	1.5	10	13	-	-	1.3	15
30.02	11.1	9.2	-	0.3	0.8	3.5	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.7	15
30.19	9.9	8.2	-	0.2	2.5	2.7	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.6	15
30.35	10.1	8.3	-	0.3	3.9	3.6	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	15
30.51	11.6	9.6	-	0.4	4.9	3.8	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
30.68	12.0	9.8	-	0.5	5.7	4.5	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
30.84	12.0	9.8	-	0.5	6.7	4.5	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
31.01	17.9	14.6	-	0.5	7.8	3.3	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.2	15
31.17	19.4	15.7	-	0.6	5.9	3.4	3	silty CLAY to CLAY	115	1.5	10	13	-	-	1.3	15
31.33	52.1	45.5	82.2	0.6	5.5	1.3	5	silty SAND to sandy SILT	120	4.0	11	13	41	37	-	16
31.50	73.8	64.3	88.8	0.7	2.8	0.9	5	silty SAND to sandy SILT	120	4.0	16	18	52	39	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(483).cpt
CPT Date: 12/10/2008 2:21:23 PM
GW During Test: 12 ft

Sounding ID: CPT-08-76
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	85.4	74.2	102.9	1.0	-1.2	1.2	5	silty SAND to sandy SILT	120	4.0	19	21	57	40	-	16
31.83	90.0	78.1	111.2	1.2	-0.8	1.3	5	silty SAND to sandy SILT	120	4.0	20	23	59	40	-	16
31.99	96.8	83.8	112.2	1.1	0.0	1.2	6	clean SAND to silty SAND	125	5.0	17	19	61	40	-	16
32.15	105.8	91.4	117.5	1.2	0.4	1.2	6	clean SAND to silty SAND	125	5.0	18	21	64	41	-	16
32.32	109.6	94.5	124.1	1.4	0.1	1.3	6	clean SAND to silty SAND	125	5.0	19	22	65	41	-	16
32.48	105.4	90.7	118.4	1.3	0.7	1.2	6	clean SAND to silty SAND	125	5.0	18	21	64	41	-	16
32.65	99.4	85.4	116.4	1.3	1.4	1.3	5	silty SAND to sandy SILT	120	4.0	21	25	62	40	-	16
32.81	96.1	82.4	113.6	1.2	1.8	1.3	5	silty SAND to sandy SILT	120	4.0	21	24	61	40	-	16
32.97	85.4	73.1	110.4	1.2	1.9	1.5	5	silty SAND to sandy SILT	120	4.0	18	21	57	40	-	16
33.14	71.3	60.9	118.1	1.5	2.1	2.1	5	silty SAND to sandy SILT	120	4.0	15	18	51	39	-	16
33.30	54.3	46.3	126.9	1.6	2.2	3.1	4	clayy SILT to silty CLAY	115	2.0	23	27	-	-	3.8	15
33.47	46.2	39.4	111.7	1.2	2.2	2.7	4	clayy SILT to silty CLAY	115	2.0	20	23	-	-	3.2	15
33.63	101.1	85.9	123.3	1.5	2.4	1.5	5	silty SAND to sandy SILT	120	4.0	21	25	62	40	-	16
33.79	121.2	102.8	124.5	1.3	2.1	1.1	6	clean SAND to silty SAND	125	5.0	21	24	68	41	-	16
33.96	131.6	111.4	135.0	1.5	2.4	1.2	6	clean SAND to silty SAND	125	5.0	22	26	71	42	-	16
34.12	148.4	125.4	151.5	1.9	2.4	1.3	6	clean SAND to silty SAND	125	5.0	25	30	74	42	-	16
34.29	148.4	125.1	153.6	2.0	1.9	1.4	6	clean SAND to silty SAND	125	5.0	25	30	74	42	-	16
34.45	143.0	120.3	150.4	2.0	2.1	1.4	6	clean SAND to silty SAND	125	5.0	24	29	73	42	-	16
34.61	134.7	113.2	141.8	1.8	2.2	1.3	6	clean SAND to silty SAND	125	5.0	23	27	71	42	-	16
34.78	111.5	93.5	130.0	1.7	2.4	1.5	5	silty SAND to sandy SILT	120	4.0	23	28	65	41	-	16
34.94	86.1	72.0	118.8	1.5	2.6	1.8	5	silty SAND to sandy SILT	120	4.0	18	22	56	39	-	16
35.11	49.9	41.7	111.6	1.2	2.5	2.6	4	clayy SILT to silty CLAY	115	2.0	21	25	-	-	3.4	15
35.27	19.4	14.3	-	0.7	3.2	4.3	3	silty CLAY to CLAY	115	1.5	10	13	-	-	1.3	15
35.43	15.5	11.4	-	0.3	4.0	1.9	4	clayy SILT to silty CLAY	115	2.0	6	8	-	-	1.0	15
35.60	14.8	10.8	-	0.1	5.0	1.1	4	clayy SILT to silty CLAY	115	2.0	5	7	-	-	1.0	15
35.76	13.7	10.0	-	0.2	7.2	1.6	4	clayy SILT to silty CLAY	115	2.0	5	7	-	-	0.9	15
35.93	12.6	9.2	-	0.2	8.2	2.0	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
36.09	12.5	9.1	-	0.3	9.5	3.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
36.26	22.7	16.4	-	0.3	10.9	1.6	4	clayy SILT to silty CLAY	115	2.0	8	11	-	-	1.5	15
36.42	55.2	45.5	76.0	0.5	5.0	1.0	5	silty SAND to sandy SILT	120	4.0	11	14	41	37	-	16
36.58	70.8	58.3	86.7	0.7	2.9	1.0	5	silty SAND to sandy SILT	120	4.0	15	18	49	38	-	16
36.75	67.4	55.4	91.1	0.8	3.4	1.3	5	silty SAND to sandy SILT	120	4.0	14	17	48	38	-	16
36.91	54.1	44.4	96.2	0.9	3.8	1.8	5	silty SAND to sandy SILT	120	4.0	11	14	40	36	-	16
37.08	34.7	24.7	-	1.0	4.1	2.9	4	clayy SILT to silty CLAY	115	2.0	12	17	-	-	2.4	15
37.24	21.9	15.6	-	1.0	3.8	5.2	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.5	15
37.40	17.1	12.1	-	0.8	2.6	5.6	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
37.57	13.5	9.5	-	0.5	3.9	4.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
37.73	15.3	10.8	-	0.4	4.9	3.2	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
37.90	13.9	9.8	-	0.5	5.0	4.2	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
38.06	15.4	10.8	-	0.7	4.8	5.6	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
38.22	12.6	8.8	-	0.8	4.8	7.5	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.39	11.6	8.1	-	0.8	4.9	8.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
38.55	12.4	8.6	-	0.6	4.8	5.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.72	12.3	8.5	-	0.6	4.9	6.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
38.88	12.3	8.5	-	0.7	5.1	6.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
39.04	12.0	8.2	-	0.6	5.3	6.7	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
39.21	13.3	9.1	-	0.7	5.5	6.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
39.37	14.2	9.7	-	0.6	5.6	5.5	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
39.54	24.8	16.9	-	0.8	5.7	3.5	3	silty CLAY to CLAY	115	1.5	11	17	-	-	1.7	15
39.70	40.9	32.7	95.1	0.9	4.3	2.2	4	clayy SILT to silty CLAY	115	2.0	16	20	-	-	2.8	15
39.86	41.5	33.1	97.3	0.9	4.5	2.3	4	clayy SILT to silty CLAY	115	2.0	17	21	-	-	2.8	15
40.03	69.5	55.4	87.1	0.8	1.8	1.1	5	silty SAND to sandy SILT	120	4.0	14	17	48	37	-	16
40.19	95.0	75.7	100.3	0.9	-1.3	1.0	6	clean SAND to silty SAND	125	5.0	15	19	58	39	-	16
40.36	103.2	82.1	106.7	1.1	-0.9	1.1	6	clean SAND to silty SAND	125	5.0	16	21	60	40	-	16
40.52	111.3	88.3	112.3	1.2	-0.2	1.1	6	clean SAND to silty SAND	125	5.0	18	22	63	40	-	16
40.68	101.4	80.3	112.1	1.3	0.0	1.3	5	silty SAND to sandy SILT	120	4.0	20	25	60	39	-	16
40.85	92.2	73.0	110.2	1.3	0.4	1.5	5	silty SAND to sandy SILT	120	4.0	18	23	57	39	-	16
41.01	96.9	76.5	105.9	1.1	-0.5	1.2	5	silty SAND to sandy SILT	120	4.0	19	24	58	39	-	16
41.18	90.4	71.3	112.0	1.4	-5.7	1.6	5	silty SAND to sandy SILT	120	4.0	18	23	56	39	-	16
41.34	88.4	69.6	114.2	1.5	-5.9	1.7	5	silty SAND to sandy SILT	120	4.0	17	22	55	39	-	16
41.50	98.1	77.1	112.9	1.4	-5.6	1.4	5	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
41.67	108.8	85.4	116.3	1.4	-0.3	1.3	5	silty SAND to sandy SILT	120	4.0	21	27	62	40	-	16
41.83	100.4	78.7	113.8	1.4	-0.8	1.4	5	silty SAND to sandy SILT	120	4.0	20	25	59	39	-	16
42.00	84.9	66.5	120.4	1.7	-0.5	2.0	5	silty SAND to sandy SILT	120	4.0	17	21	54	38	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(483).cpt
CPT Date: 12/10/2008 2:21:23 PM
GW During Test: 12 ft

Sounding ID: CPT-08-76
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	54.1	35.0	-	1.7	0.1	3.2	4	clayy SILT to silty CLAY	115	2.0	18	27	-	-	3.7	15
42.32	41.5	26.8	-	1.3	0.6	3.2	4	clayy SILT to silty CLAY	115	2.0	13	21	-	-	2.8	15
42.49	32.7	21.0	-	1.0	0.3	3.3	4	clayy SILT to silty CLAY	115	2.0	11	16	-	-	2.2	15
42.65	24.6	15.8	-	1.0	0.9	4.7	3	silty CLAY to CLAY	115	1.5	11	16	-	-	1.7	15
42.82	35.7	22.8	-	0.8	2.3	2.5	4	clayy SILT to silty CLAY	115	2.0	11	18	-	-	2.4	15
42.98	94.4	73.3	98.5	0.9	2.2	1.0	6	clean SAND to silty SAND	125	5.0	15	19	57	39	-	16
43.15	99.2	76.9	103.8	1.1	0.5	1.1	6	clean SAND to silty SAND	125	5.0	15	20	58	39	-	16
43.31	88.9	68.8	99.7	1.0	0.9	1.2	5	silty SAND to sandy SILT	120	4.0	17	22	55	38	-	16
43.47	96.5	74.5	101.3	1.0	1.3	1.1	6	clean SAND to silty SAND	125	5.0	15	19	57	39	-	16
43.64	96.7	74.6	104.3	1.1	0.6	1.2	5	silty SAND to sandy SILT	120	4.0	19	24	57	39	-	16
43.80	86.7	66.7	98.3	1.0	0.9	1.2	5	silty SAND to sandy SILT	120	4.0	17	22	54	38	-	16
43.97	79.9	61.4	93.7	0.9	1.3	1.2	5	silty SAND to sandy SILT	120	4.0	15	20	51	38	-	16
44.13	73.5	56.4	89.2	0.8	1.7	1.2	5	silty SAND to sandy SILT	120	4.0	14	18	48	37	-	16
44.29	71.5	54.8	97.8	1.1	0.3	1.5	5	silty SAND to sandy SILT	120	4.0	14	18	47	37	-	16
44.46	44.7	27.8	-	1.2	-0.9	2.9	4	clayy SILT to silty CLAY	115	2.0	14	22	-	-	3.1	15
44.62	27.6	17.1	-	0.9	0.0	3.4	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.9	15
44.79	59.7	45.6	90.8	0.9	1.6	1.6	5	silty SAND to sandy SILT	120	4.0	11	15	41	36	-	16
44.95	102.2	77.9	102.9	1.0	1.5	1.0	6	clean SAND to silty SAND	125	5.0	16	20	59	39	-	16
45.11	104.8	79.8	113.7	1.4	1.9	1.4	5	silty SAND to sandy SILT	120	4.0	20	26	60	39	-	16
45.28	109.3	83.1	119.6	1.6	2.4	1.5	5	silty SAND to sandy SILT	120	4.0	21	27	61	39	-	16
45.44	118.6	90.0	125.7	1.7	1.2	1.5	5	silty SAND to sandy SILT	120	4.0	22	30	64	40	-	16
45.61	112.2	85.0	129.0	1.9	0.6	1.8	5	silty SAND to sandy SILT	120	4.0	21	28	62	39	-	16
45.77	83.6	63.2	127.2	1.9	2.8	2.4	5	silty SAND to sandy SILT	120	4.0	16	21	52	38	-	16
45.93	50.2	30.4	-	1.7	2.6	3.6	4	clayy SILT to silty CLAY	115	2.0	15	25	-	-	3.5	15
46.10	27.8	16.8	-	1.2	3.1	4.9	3	silty CLAY to CLAY	115	1.5	11	19	-	-	1.9	15
46.26	21.7	13.1	-	0.5	4.4	2.7	3	silty CLAY to CLAY	115	1.5	9	14	-	-	1.4	15
46.43	44.9	33.8	85.9	0.7	6.5	1.8	5	silty SAND to sandy SILT	120	4.0	8	11	31	34	-	16
46.59	45.6	27.3	-	1.1	4.7	2.5	4	clayy SILT to silty CLAY	115	2.0	14	23	-	-	3.1	15
46.75	34.8	20.8	-	0.8	5.1	2.6	4	clayy SILT to silty CLAY	115	2.0	10	17	-	-	2.4	15
46.92	72.3	54.2	85.9	0.8	5.1	1.1	5	silty SAND to sandy SILT	120	4.0	14	18	47	37	-	16
47.08	76.1	57.0	87.9	0.8	4.4	1.1	5	silty SAND to sandy SILT	120	4.0	14	19	48	37	-	16
47.25	62.0	46.3	89.2	0.9	4.7	1.5	5	silty SAND to sandy SILT	120	4.0	12	15	42	36	-	16
47.41	44.6	26.3	-	0.9	4.4	2.3	4	clayy SILT to silty CLAY	115	2.0	13	22	-	-	3.0	15
47.57	23.6	13.9	-	0.8	4.5	3.8	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
47.74	17.7	10.4	-	0.4	5.1	2.8	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
47.90	16.0	9.4	-	0.4	6.3	2.8	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
48.07	16.9	9.9	-	0.5	14.6	3.4	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.1	15
48.23	15.0	8.7	-	0.3	14.3	2.7	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
48.39	34.0	25.2	65.0	0.4	15.2	1.1	5	silty SAND to sandy SILT	120	4.0	6	8	21	32	-	16
48.56	38.3	22.2	-	0.7	8.6	1.9	4	clayy SILT to silty CLAY	115	2.0	11	19	-	-	2.6	15
48.72	25.8	14.9	-	0.6	9.4	2.6	4	clayy SILT to silty CLAY	115	2.0	7	13	-	-	1.7	15
48.89	20.2	11.6	-	0.4	10.3	2.3	3	silty CLAY to CLAY	115	1.5	8	13	-	-	1.3	15
49.05	15.2	8.8	-	0.2	10.6	2.0	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
49.22	11.3	6.5	-	0.3	12.6	3.4	3	silty CLAY to CLAY	115	1.5	4	8	-	-	0.7	15
49.38	8.2	4.7	-	0.4	15.3	6.9	2	Organic SOILS - Peats	100	1.0	5	8	-	-	0.7	10
49.54	15.5	8.9	-	0.3	16.0	2.6	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
49.71	17.4	9.9	-	0.3	13.5	2.3	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.1	15
49.87	13.9	7.9	-	0.4	14.5	3.9	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
50.04	14.6	8.3	-	0.4	16.0	3.3	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
50.20	36.1	20.4	-	0.6	15.2	1.7	4	clayy SILT to silty CLAY	115	2.0	10	18	-	-	2.4	15
50.36	38.6	21.8	-	0.9	8.6	2.4	4	clayy SILT to silty CLAY	115	2.0	11	19	-	-	2.6	15
50.53	23.6	13.3	-	1.0	9.1	4.7	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
50.69	34.7	19.5	-	1.3	11.5	4.2	3	silty CLAY to CLAY	115	1.5	13	23	-	-	2.3	15
50.86	110.3	80.2	115.5	1.5	7.5	1.4	5	silty SAND to sandy SILT	120	4.0	20	28	60	39	-	16
51.02	153.9	111.8	135.4	1.8	8.2	1.2	6	clean SAND to silty SAND	125	5.0	22	31	71	41	-	16
51.18	188.2	136.5	154.5	2.0	6.6	1.1	6	clean SAND to silty SAND	125	5.0	27	38	77	42	-	16
51.35	212.2	153.7	168.7	2.2	6.6	1.0	6	clean SAND to silty SAND	125	5.0	31	42	81	42	-	16
51.51	233.2	168.7	178.1	2.2	6.8	0.9	6	clean SAND to silty SAND	125	5.0	34	47	84	43	-	16
51.68	246.1	177.7	185.9	2.3	7.0	0.9	6	clean SAND to silty SAND	125	5.0	36	49	86	43	-	16
51.84	242.2	174.7	189.9	2.7	7.2	1.1	6	clean SAND to silty SAND	125	5.0	35	48	85	43	-	16
52.00	234.1	168.6	189.0	2.9	7.9	1.3	6	clean SAND to silty SAND	125	5.0	34	47	84	43	-	16
52.17	236.8	170.3	191.1	3.0	7.9	1.3	6	clean SAND to silty SAND	125	5.0	34	47	85	43	-	16
52.33	238.0	170.9	185.7	2.6	7.2	1.1	6	clean SAND to silty SAND	125	5.0	34	48	85	43	-	16
52.50	230.5	165.3	183.2	2.7	7.4	1.2	6	clean SAND to silty SAND	125	5.0	33	46	84	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(483).cpt
CPT Date: 12/10/2008 2:21:23 PM
GW During Test: 12 ft

Sounding ID: CPT-08-76
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	237.5	170.1	186.0	2.7	7.6	1.1	6	clean SAND to silty SAND	125	5.0	34	47	85	43	-	16
52.82	239.3	171.2	188.4	2.8	7.4	1.2	6	clean SAND to silty SAND	125	5.0	34	48	85	43	-	16
52.99	235.5	168.2	187.3	2.8	7.5	1.2	6	clean SAND to silty SAND	125	5.0	34	47	84	43	-	16
53.15	228.6	163.1	183.6	2.8	7.6	1.3	6	clean SAND to silty SAND	125	5.0	33	46	83	42	-	16
53.32	231.2	164.7	180.0	2.5	7.7	1.1	6	clean SAND to silty SAND	125	5.0	33	46	83	42	-	16
53.48	279.7	199.0	200.4	2.4	7.9	0.9	6	clean SAND to silty SAND	125	5.0	40	56	90	43	-	16
53.64	291.2	206.8	206.8	1.9	6.4	0.7	6	clean SAND to silty SAND	125	5.0	41	58	91	44	-	16
53.81	261.9	185.8	185.8	0.1	3.6	0.1	7	grvly SAND to dense SAND	130	6.0	31	44	87	43	-	16
53.97	236.7	167.6	167.6	0.2	-1.8	0.1	7	grvly SAND to dense SAND	130	6.0	28	39	84	43	-	16
54.14	86.4	61.1	83.0	0.7	7.4	0.8	6	clean SAND to silty SAND	125	5.0	12	17	51	37	-	16
54.30	85.4	60.3	91.8	0.9	9.1	1.2	5	silty SAND to sandy SILT	120	4.0	15	21	50	37	-	16
54.46	133.6	94.2	117.3	1.4	9.1	1.1	6	clean SAND to silty SAND	125	5.0	19	27	65	39	-	16
54.63	65.0	45.8	123.7	1.8	8.6	2.9	4	clayy SILT to silty CLAY	115	2.0	23	32	-	-	4.5	15
54.79	33.6	17.6	-	1.2	8.4	3.9	3	silty CLAY to CLAY	115	1.5	12	22	-	-	2.3	15
54.96	22.2	11.6	-	0.8	9.4	4.1	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.5	15
55.12	21.2	11.1	-	0.5	12.4	2.7	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.4	15
55.28	29.9	15.6	-	0.6	17.8	2.1	4	clayy SILT to silty CLAY	115	2.0	8	15	-	-	2.0	15
55.45	56.1	39.3	79.2	0.7	21.2	1.3	5	silty SAND to sandy SILT	120	4.0	10	14	36	34	-	16
55.61	68.3	47.8	83.4	0.8	12.5	1.2	5	silty SAND to sandy SILT	120	4.0	12	17	43	35	-	16
55.78	54.8	28.4	-	1.4	12.0	2.7	4	clayy SILT to silty CLAY	115	2.0	14	27	-	-	3.8	15
55.94	41.5	21.4	-	1.1	12.9	2.9	4	clayy SILT to silty CLAY	115	2.0	11	21	-	-	2.8	15
56.11	40.3	20.8	-	0.7	13.3	1.8	4	clayy SILT to silty CLAY	115	2.0	10	20	-	-	2.7	15
56.27	43.3	22.2	-	0.7	9.6	1.8	4	clayy SILT to silty CLAY	115	2.0	11	22	-	-	2.9	15
56.43	24.4	12.5	-	1.0	10.1	4.9	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.6	15
56.60	22.1	11.3	-	1.2	12.7	6.3	3	silty CLAY to CLAY	115	1.5	8	15	-	-	1.4	15
56.76	23.4	11.9	-	1.1	11.3	5.4	3	silty CLAY to CLAY	115	1.5	8	16	-	-	1.5	15
56.93	20.0	10.2	-	0.7	12.5	4.3	3	silty CLAY to CLAY	115	1.5	7	13	-	-	1.3	15
57.09	21.2	10.8	-	0.6	13.9	3.3	3	silty CLAY to CLAY	115	1.5	7	14	-	-	1.4	15
57.25	22.0	11.2	-	0.5	15.2	2.6	3	silty CLAY to CLAY	115	1.5	7	15	-	-	1.4	15
57.42	26.6	13.5	-	0.7	16.1	3.0	3	silty CLAY to CLAY	115	1.5	9	18	-	-	1.8	15
57.58	27.0	13.6	-	0.7	15.0	3.0	3	silty CLAY to CLAY	115	1.5	9	18	-	-	1.8	15
57.75	32.0	16.1	-	0.4	16.4	1.3	4	clayy SILT to silty CLAY	115	2.0	8	16	-	-	2.1	15
57.91	70.1	48.3	71.6	0.5	7.8	0.8	5	silty SAND to sandy SILT	120	4.0	12	18	43	35	-	16
58.07	87.6	60.3	77.5	0.5	6.1	0.6	6	clean SAND to silty SAND	125	5.0	12	18	50	37	-	16
58.24	133.5	91.7	97.8	0.6	5.2	0.4	6	clean SAND to silty SAND	125	5.0	18	27	64	39	-	16
58.40	193.5	132.8	132.8	0.7	-0.4	0.4	6	clean SAND to silty SAND	125	5.0	27	39	76	41	-	16
58.57	237.7	162.9	162.9	0.7	0.7	0.3	6	clean SAND to silty SAND	125	5.0	33	48	83	42	-	16
58.73	269.7	184.6	184.6	0.9	1.6	0.4	6	clean SAND to silty SAND	125	5.0	37	54	87	43	-	16
58.89	286.7	196.0	196.0	1.1	2.4	0.4	6	clean SAND to silty SAND	125	5.0	39	57	89	43	-	16
59.06	296.3	202.3	202.3	1.2	3.2	0.4	6	clean SAND to silty SAND	125	5.0	40	59	90	43	-	16
59.22	294.5	200.8	200.8	1.4	3.8	0.5	6	clean SAND to silty SAND	125	5.0	40	59	90	43	-	16
59.39	283.3	193.0	193.0	1.5	4.4	0.5	6	clean SAND to silty SAND	125	5.0	39	57	89	43	-	16
59.55	275.6	187.5	187.5	1.4	4.9	0.5	6	clean SAND to silty SAND	125	5.0	37	55	88	43	-	16
59.71	265.5	180.4	180.4	1.2	5.3	0.5	6	clean SAND to silty SAND	125	5.0	36	53	86	43	-	16
59.88	255.9	173.6	173.6	1.1	5.8	0.4	6	clean SAND to silty SAND	125	5.0	35	51	85	42	-	16
60.04	251.5	170.5	170.5	1.1	6.3	0.4	6	clean SAND to silty SAND	125	5.0	34	50	85	42	-	16
60.21	245.9	166.4	166.4	1.2	6.9	0.5	6	clean SAND to silty SAND	125	5.0	33	49	84	42	-	16
60.37	229.6	155.2	155.2	1.1	7.2	0.5	6	clean SAND to silty SAND	125	5.0	31	46	82	42	-	16
60.53	198.9	134.3	134.3	1.0	7.4	0.5	6	clean SAND to silty SAND	125	5.0	27	40	77	41	-	16
60.70	155.5	104.8	114.9	1.0	7.5	0.6	6	clean SAND to silty SAND	125	5.0	21	31	69	40	-	16
60.86	114.9	77.4	90.4	0.7	7.6	0.6	6	clean SAND to silty SAND	125	5.0	15	23	59	38	-	16
61.03	96.1	64.6	77.8	0.5	10.3	0.5	6	clean SAND to silty SAND	125	5.0	13	19	53	37	-	16
61.19	77.0	51.7	73.1	0.5	9.8	0.7	5	silty SAND to sandy SILT	120	4.0	13	19	45	36	-	16
61.35	61.7	41.4	71.4	0.5	9.7	0.9	5	silty SAND to sandy SILT	120	4.0	10	15	38	34	-	16
61.52	59.9	40.1	80.5	0.7	9.4	1.3	5	silty SAND to sandy SILT	120	4.0	10	15	37	34	-	16
61.68	81.7	54.7	82.0	0.7	0.4	1.0	5	silty SAND to sandy SILT	120	4.0	14	20	47	36	-	16
61.85	109.6	73.3	89.6	0.7	-2.6	0.7	6	clean SAND to silty SAND	125	5.0	15	22	57	38	-	16
62.01	167.3	111.8	144.5	2.4	-2.9	1.5	6	clean SAND to silty SAND	125	5.0	22	33	71	40	-	16
62.17	284.5	189.8	195.7	2.6	0.6	0.9	6	clean SAND to silty SAND	125	5.0	38	57	88	43	-	16
62.34	314.3	209.4	209.4	2.3	1.0	0.7	6	clean SAND to silty SAND	125	5.0	42	63	91	43	-	16
62.50	301.6	200.7	201.7	2.6	1.1	0.9	6	clean SAND to silty SAND	125	5.0	40	60	90	43	-	16
62.67	303.3	201.6	201.6	2.4	1.3	0.8	6	clean SAND to silty SAND	125	5.0	40	61	90	43	-	16
62.83	279.9	185.8	203.7	3.4	1.2	1.2	6	clean SAND to silty SAND	125	5.0	37	56	87	43	-	16
63.00	260.4	172.7	181.2	2.4	2.1	0.9	6	clean SAND to silty SAND	125	5.0	35	52	85	42	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(483).cpt
CPT Date: 12/10/2008 2:21:23 PM
GW During Test: 12 ft

Sounding ID: CPT-08-76
Project No: 08-156
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	290.9	192.7	192.7	2.0	2.9	0.7	6	clean SAND to silty SAND	125	5.0	39	58	89	43	-	16
63.32	267.6	177.0	177.0	1.9	4.1	0.7	6	clean SAND to silty SAND	125	5.0	35	54	86	42	-	16
63.49	292.6	193.3	193.3	1.1	6.3	0.4	6	clean SAND to silty SAND	125	5.0	39	59	89	43	-	16
63.65	315.1	207.9	207.9	1.4	7.3	0.4	6	clean SAND to silty SAND	125	5.0	42	63	91	43	-	16
63.82	330.2	217.7	217.7	1.7	7.6	0.5	6	clean SAND to silty SAND	125	5.0	44	66	93	43	-	16
63.98	348.5	229.5	229.5	1.5	8.5	0.4	6	clean SAND to silty SAND	125	5.0	46	70	94	44	-	16
64.14	366.3	240.9	240.9	2.2	8.8	0.6	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
64.31	392.1	257.5	257.5	1.9	12.1	0.5	6	clean SAND to silty SAND	125	5.0	52	78	95	44	-	16
64.47	355.5	233.2	233.2	2.0	10.6	0.6	6	clean SAND to silty SAND	125	5.0	47	71	95	44	-	16
64.64	353.5	231.6	231.6	1.4	10.6	0.4	6	clean SAND to silty SAND	125	5.0	46	71	95	44	-	16
64.80	359.8	235.5	235.5	1.6	11.0	0.4	6	clean SAND to silty SAND	125	5.0	47	72	95	44	-	16
64.96	380.5	248.8	248.8	1.5	11.5	0.4	6	clean SAND to silty SAND	125	5.0	50	76	95	44	-	16
65.13	372.3	243.1	243.1	1.5	12.0	0.4	6	clean SAND to silty SAND	125	5.0	49	74	95	44	-	16
65.29	377.1	246.0	246.0	1.5	12.0	0.4	6	clean SAND to silty SAND	125	5.0	49	75	95	44	-	16
65.46	369.5	240.7	240.7	1.4	12.3	0.4	6	clean SAND to silty SAND	125	5.0	48	74	95	44	-	16
65.62	366.2	238.3	238.3	1.2	12.3	0.3	6	clean SAND to silty SAND	125	5.0	48	73	95	44	-	16
65.78	354.8	230.6	230.6	1.3	12.1	0.4	6	clean SAND to silty SAND	125	5.0	46	71	95	44	-	16
65.95	348.8	226.5	226.5	1.4	12.0	0.4	6	clean SAND to silty SAND	125	5.0	45	70	94	43	-	16
66.11	348.5	226.0	226.0	1.4	12.0	0.4	6	clean SAND to silty SAND	125	5.0	45	70	94	43	-	16
66.28	342.4	221.8	221.8	1.5	13.7	0.4	6	clean SAND to silty SAND	125	5.0	44	68	93	43	-	16
66.44	342.2	221.5	221.5	2.6	13.4	0.8	6	clean SAND to silty SAND	125	5.0	44	68	93	43	-	16
66.60	375.2	242.5	242.5	3.3	13.3	0.9	6	clean SAND to silty SAND	125	5.0	48	75	95	44	-	16
66.77	481.0	310.6	310.6	4.2	10.9	0.9	6	clean SAND to silty SAND	125	5.0	62	96	95	45	-	16
66.93	469.7	302.9	302.9	2.4	11.8	0.5	6	clean SAND to silty SAND	125	5.0	61	94	95	45	-	16
67.10	404.6	260.6	260.6	2.1	12.8	0.5	6	clean SAND to silty SAND	125	5.0	52	81	95	44	-	16
67.26	414.3	266.6	266.6	1.6	14.4	0.4	7	grvly SAND to dense SAND	130	6.0	44	69	95	44	-	16
67.42	388.4	249.6	249.6	2.8	14.0	0.7	6	clean SAND to silty SAND	125	5.0	50	78	95	44	-	16
67.59	408.8	262.4	262.4	3.6	13.9	0.9	6	clean SAND to silty SAND	125	5.0	52	82	95	44	-	16
67.75	379.6	243.4	243.4	2.9	16.3	0.8	6	clean SAND to silty SAND	125	5.0	49	76	95	44	-	16
67.92	391.7	250.9	250.9	2.3	11.9	0.6	6	clean SAND to silty SAND	125	5.0	50	78	95	44	-	16
68.08	398.5	254.9	254.9	1.2	15.1	0.3	7	grvly SAND to dense SAND	130	6.0	42	66	95	44	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(402).cpt
CPT Date: 11/17/2008 7:51:07 AM
GW During Test: 12 ft

Sounding ID: CPT-08-77
Project No: 08-156
Cone/Rig: DSG1023

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	160.0	256.6	256.6	1.7	0.4	1.0	6	clean SAND to silty SAND	125	5.0	51	32	95	48	-	16
0.49	242.5	389.0	389.0	2.9	0.5	1.2	6	clean SAND to silty SAND	125	5.0	78	49	95	48	-	16
0.66	300.0	481.2	481.2	3.8	0.6	1.3	6	clean SAND to silty SAND	125	5.0	96	60	95	48	-	16
0.82	330.0	529.3	529.3	5.1	0.7	1.5	6	clean SAND to silty SAND	125	5.0	100	66	95	48	-	16
0.98	355.3	569.8	569.8	4.0	0.3	1.1	6	clean SAND to silty SAND	125	5.0	100	71	95	48	-	16
1.15	304.0	487.6	487.6	3.5	0.9	1.2	6	clean SAND to silty SAND	125	5.0	98	61	95	48	-	16
1.31	279.3	447.9	473.0	5.6	1.0	2.0	6	clean SAND to silty SAND	125	5.0	90	56	95	48	-	16
1.48	254.6	408.3	446.6	5.6	0.5	2.2	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	16.9	16
1.64	174.0	279.0	344.5	4.7	1.2	2.7	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.5	16
1.80	148.7	238.5	293.1	3.6	1.8	2.4	6	clean SAND to silty SAND	125	5.0	48	30	95	48	-	16
1.97	149.9	240.4	285.0	3.2	2.2	2.1	6	clean SAND to silty SAND	125	5.0	48	30	95	48	-	16
2.13	142.7	228.8	269.7	2.9	1.7	2.0	6	clean SAND to silty SAND	125	5.0	46	29	94	48	-	16
2.30	116.5	186.8	234.2	2.5	1.4	2.2	6	clean SAND to silty SAND	125	5.0	37	23	88	48	-	16
2.46	86.3	138.3	210.4	2.4	1.2	2.8	5	silty SAND to sandy SILT	120	4.0	35	22	78	48	-	16
2.62	83.4	133.7	215.1	2.6	1.0	3.1	5	silty SAND to sandy SILT	120	4.0	33	21	77	48	-	16
2.79	85.6	137.2	238.0	3.1	0.9	3.7	8	stiff SAND to clayy SAND	115	1.0	100	86	-	-	5.7	16
2.95	82.7	132.6	264.9	3.8	0.9	4.6	9	very stiff fine SOIL	120	2.0	66	41	76	48	-	30
3.12	90.1	144.5	246.7	3.3	1.2	3.7	8	stiff SAND to clayy SAND	115	1.0	100	90	-	-	6.0	16
3.28	88.8	142.4	251.2	3.4	1.2	3.9	8	stiff SAND to clayy SAND	115	1.0	100	89	-	-	5.9	16
3.45	95.4	152.9	238.2	3.0	1.0	3.2	5	silty SAND to sandy SILT	120	4.0	38	24	81	48	-	16
3.61	89.3	143.1	247.3	3.3	0.8	3.7	8	stiff SAND to clayy SAND	115	1.0	100	89	-	-	5.9	16
3.77	85.5	137.1	244.5	3.3	0.6	3.8	8	stiff SAND to clayy SAND	115	1.0	100	85	-	-	5.6	16
3.94	79.6	127.7	253.9	3.5	0.8	4.4	9	very stiff fine SOIL	120	2.0	64	40	75	47	-	30
4.10	102.0	163.6	217.5	2.3	0.8	2.3	5	silty SAND to sandy SILT	120	4.0	41	26	83	48	-	16
4.27	85.7	137.5	207.5	2.4	0.6	2.8	5	silty SAND to sandy SILT	120	4.0	34	21	78	47	-	16
4.43	103.9	166.6	262.7	3.6	0.4	3.5	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	6.9	16
4.59	147.6	236.8	272.9	2.8	0.4	1.9	6	clean SAND to silty SAND	125	5.0	47	30	95	48	-	16
4.76	124.4	199.5	250.9	2.8	0.6	2.3	6	clean SAND to silty SAND	125	5.0	40	25	90	48	-	16
4.92	109.2	175.2	206.7	1.8	0.5	1.6	6	clean SAND to silty SAND	125	5.0	35	22	86	48	-	16
5.09	80.0	128.4	190.3	2.0	0.6	2.5	5	silty SAND to sandy SILT	120	4.0	32	20	75	46	-	16
5.25	67.1	107.7	177.4	1.8	0.5	2.7	5	silty SAND to sandy SILT	120	4.0	27	17	69	45	-	16
5.41	60.3	96.7	201.1	2.3	0.5	3.8	4	clayy SILT to silty CLAY	115	2.0	48	30	-	-	4.2	15
5.58	95.9	153.8	257.6	3.6	-0.4	3.7	8	stiff SAND to clayy SAND	115	1.0	100	96	-	-	6.3	16
5.74	109.1	175.0	303.9	4.7	-0.3	4.3	9	very stiff fine SOIL	120	2.0	88	55	85	47	-	30
5.91	126.5	202.9	332.8	5.4	0.0	4.3	9	very stiff fine SOIL	120	2.0	100	63	90	48	-	30
6.07	117.7	188.7	343.3	5.8	0.3	5.0	9	very stiff fine SOIL	120	2.0	94	59	88	47	-	30
6.23	88.8	140.7	333.8	5.6	0.3	6.3	9	very stiff fine SOIL	120	2.0	70	44	78	46	-	30
6.40	115.7	181.1	297.0	4.6	0.4	4.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	7.6	16
6.56	225.9	349.1	372.9	4.1	1.1	1.8	6	clean SAND to silty SAND	125	5.0	70	45	95	48	-	16
6.73	282.5	431.0	431.0	3.2	0.7	1.1	6	clean SAND to silty SAND	125	5.0	86	56	95	48	-	16
6.89	361.7	545.0	545.0	2.7	0.5	0.7	7	grvly SAND to dense SAND	130	6.0	91	60	95	48	-	16
7.05	353.2	525.6	525.6	2.6	0.2	0.7	7	grvly SAND to dense SAND	130	6.0	88	59	95	48	-	16
7.22	258.8	380.4	380.4	2.4	-0.2	0.9	6	clean SAND to silty SAND	125	5.0	76	52	95	48	-	16
7.38	159.7	232.1	256.2	2.5	-0.5	1.6	6	clean SAND to silty SAND	125	5.0	46	32	95	48	-	16
7.55	106.6	153.1	212.9	2.6	-0.6	2.5	5	silty SAND to sandy SILT	120	4.0	38	27	81	46	-	16
7.71	65.7	93.3	199.7	2.6	-0.6	3.9	4	clayy SILT to silty CLAY	115	2.0	47	33	-	-	4.6	15
7.87	51.6	72.6	182.9	2.1	-0.6	4.2	4	clayy SILT to silty CLAY	115	2.0	36	26	-	-	3.6	15
8.04	38.8	54.0	168.6	1.8	-0.7	4.6	4	clayy SILT to silty CLAY	115	2.0	27	19	-	-	2.7	15
8.20	31.2	50.1	-	1.5	-0.2	4.9	4	clayy SILT to silty CLAY	115	2.0	25	16	-	-	2.2	15
8.37	31.5	43.1	141.9	1.3	-0.1	4.0	4	clayy SILT to silty CLAY	115	2.0	22	16	-	-	2.2	15
8.53	27.6	44.3	-	1.2	0.0	4.2	4	clayy SILT to silty CLAY	115	2.0	22	14	-	-	1.9	15
8.69	26.3	42.1	-	1.2	-0.2	4.7	4	clayy SILT to silty CLAY	115	2.0	21	13	-	-	1.8	15
8.86	32.4	43.0	138.1	1.2	-0.1	3.9	4	clayy SILT to silty CLAY	115	2.0	22	16	-	-	2.3	15
9.02	35.9	47.3	141.6	1.3	-0.2	3.8	4	clayy SILT to silty CLAY	115	2.0	24	18	-	-	2.5	15
9.19	35.8	46.8	146.0	1.4	-0.3	4.0	4	clayy SILT to silty CLAY	115	2.0	23	18	-	-	2.5	15
9.35	41.5	53.8	146.9	1.5	-0.2	3.6	4	clayy SILT to silty CLAY	115	2.0	27	21	-	-	2.9	15
9.51	37.8	48.6	159.6	1.7	0.2	4.5	4	clayy SILT to silty CLAY	115	2.0	24	19	-	-	2.6	15
9.68	54.5	69.5	165.7	2.0	-0.1	3.7	4	clayy SILT to silty CLAY	115	2.0	35	27	-	-	3.8	15
9.84	41.1	51.9	163.3	1.8	-1.3	4.5	4	clayy SILT to silty CLAY	115	2.0	26	21	-	-	2.9	15
10.01	26.2	42.1	-	1.6	-1.0	6.1	3	silty CLAY to CLAY	115	1.5	28	17	-	-	1.8	15
10.17	23.2	37.2	-	1.3	-0.7	5.6	3	silty CLAY to CLAY	115	1.5	25	15	-	-	1.6	15
10.34	30.6	42.1	140.0	1.2	-0.6	4.0	4	clayy SILT to silty CLAY	115	2.0	21	15	-	-	2.1	15
10.50	25.9	41.2	-	1.3	-0.5	5.0	3	silty CLAY to CLAY	115	1.5	27	17	-	-	1.8	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(402).cpt
CPT Date: 11/17/2008 7:51:07 AM
GW During Test: 12 ft

Sounding ID: CPT-08-77
Project No: 08-156
Cone/Rig: DSG1023

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.66	23.4	36.7	-	1.3	-0.5	5.5	3	silty CLAY to CLAY	115	1.5	24	16	-	-	1.6	15
10.83	23.2	35.9	-	1.3	-0.4	5.6	3	silty CLAY to CLAY	115	1.5	24	15	-	-	1.6	15
10.99	21.3	32.4	-	1.2	-0.4	5.8	3	silty CLAY to CLAY	115	1.5	22	14	-	-	1.5	15
11.16	19.3	29.0	-	1.2	-0.4	6.3	3	silty CLAY to CLAY	115	1.5	19	13	-	-	1.3	15
11.32	22.8	33.8	-	1.3	-0.4	5.9	3	silty CLAY to CLAY	115	1.5	23	15	-	-	1.6	15
11.48	35.0	41.1	129.5	1.2	-0.4	3.5	4	clayy SILT to silty CLAY	115	2.0	21	17	-	-	2.4	15
11.65	21.2	30.5	-	0.9	-2.0	4.6	3	silty CLAY to CLAY	115	1.5	20	14	-	-	1.5	15
11.81	15.5	22.1	-	0.7	-2.1	4.9	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.1	15
11.98	14.3	20.1	-	0.8	-1.1	5.5	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.0	15
12.14	16.0	22.3	-	0.8	-0.9	5.4	3	silty CLAY to CLAY	115	1.5	15	11	-	-	1.1	15
12.30	18.7	25.9	-	1.0	-0.7	5.6	3	silty CLAY to CLAY	115	1.5	17	12	-	-	1.3	15
12.47	16.0	22.1	-	1.1	-0.8	7.2	3	silty CLAY to CLAY	115	1.5	15	11	-	-	1.1	15
12.63	13.3	18.2	-	1.0	-0.9	8.1	3	silty CLAY to CLAY	115	1.5	12	9	-	-	0.9	15
12.80	12.4	17.0	-	0.9	-0.9	7.8	3	silty CLAY to CLAY	115	1.5	11	8	-	-	0.8	15
12.96	12.2	16.5	-	0.9	-0.8	7.9	3	silty CLAY to CLAY	115	1.5	11	8	-	-	0.8	15
13.12	12.4	16.7	-	0.9	-0.8	7.9	3	silty CLAY to CLAY	115	1.5	11	8	-	-	0.8	15
13.29	13.4	18.0	-	0.9	-0.7	7.3	3	silty CLAY to CLAY	115	1.5	12	9	-	-	0.9	15
13.45	11.8	15.7	-	0.9	-0.6	8.2	3	silty CLAY to CLAY	115	1.5	10	8	-	-	0.8	15
13.62	9.4	12.4	-	0.8	-1.0	9.1	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
13.78	9.6	12.7	-	0.8	-1.3	8.9	3	silty CLAY to CLAY	115	1.5	8	6	-	-	0.6	15
13.94	10.6	13.8	-	1.3	1.9	9.9	3	silty CLAY to CLAY	115	1.5	9	7	-	-	0.7	15
14.11	25.5	33.2	-	1.6	-0.4	6.6	3	silty CLAY to CLAY	115	1.5	22	17	-	-	1.8	15
14.27	20.6	26.6	-	1.8	-1.5	9.0	3	silty CLAY to CLAY	115	1.5	18	14	-	-	1.4	15
14.44	18.2	23.4	-	1.7	-1.9	9.7	3	silty CLAY to CLAY	115	1.5	16	12	-	-	1.2	15
14.60	19.1	24.4	-	1.5	-2.3	8.4	3	silty CLAY to CLAY	115	1.5	16	13	-	-	1.3	15
14.76	13.8	17.5	-	1.2	-2.6	9.5	3	silty CLAY to CLAY	115	1.5	12	9	-	-	0.9	15
14.93	8.1	10.2	-	0.9	-3.1	9.9	3	silty CLAY to CLAY	115	1.5	7	5	-	-	0.5	15
15.09	7.4	9.3	-	0.7	-3.5	9.9	3	silty CLAY to CLAY	115	1.5	6	5	-	-	0.5	15
15.26	8.3	10.4	-	0.6	-4.1	8.2	3	silty CLAY to CLAY	115	1.5	7	6	-	-	0.6	15
15.42	24.3	26.4	84.6	0.5	-4.0	2.1	4	clayy SILT to silty CLAY	115	2.0	13	12	-	-	1.7	15
15.58	34.2	37.0	81.6	0.5	-4.1	1.5	5	silty SAND to sandy SILT	120	4.0	9	9	34	38	-	16
15.75	42.2	45.5	83.0	0.5	-4.1	1.3	5	silty SAND to sandy SILT	120	4.0	11	11	41	39	-	16
15.91	51.3	55.1	88.1	0.6	-4.0	1.2	5	silty SAND to sandy SILT	120	4.0	14	13	47	40	-	16
16.08	59.4	63.6	96.2	0.7	-4.0	1.3	5	silty SAND to sandy SILT	120	4.0	16	15	52	41	-	16
16.24	60.2	64.4	102.2	0.9	-3.9	1.5	5	silty SAND to sandy SILT	120	4.0	16	15	52	41	-	16
16.40	65.0	69.2	107.8	1.0	-3.8	1.5	5	silty SAND to sandy SILT	120	4.0	17	16	55	41	-	16
16.57	71.2	75.6	114.2	1.1	-3.7	1.5	5	silty SAND to sandy SILT	120	4.0	19	18	58	42	-	16
16.73	78.7	83.4	115.1	1.0	-3.6	1.3	5	silty SAND to sandy SILT	120	4.0	21	20	61	42	-	16
16.90	86.6	91.5	118.5	1.0	-3.4	1.2	6	clean SAND to silty SAND	125	5.0	18	17	64	43	-	16
17.06	81.8	86.1	115.0	1.0	-3.2	1.2	6	clean SAND to silty SAND	125	5.0	17	16	62	42	-	16
17.23	77.0	80.8	111.5	1.0	-3.0	1.3	5	silty SAND to sandy SILT	120	4.0	20	19	60	42	-	16
17.39	71.9	75.3	111.9	1.0	-2.8	1.5	5	silty SAND to sandy SILT	120	4.0	19	18	58	42	-	16
17.55	70.1	73.2	111.0	1.0	-2.5	1.5	5	silty SAND to sandy SILT	120	4.0	18	18	57	41	-	16
17.72	63.6	66.2	108.1	1.0	-2.2	1.6	5	silty SAND to sandy SILT	120	4.0	17	16	53	41	-	16
17.88	64.0	66.4	101.5	0.9	-2.1	1.4	5	silty SAND to sandy SILT	120	4.0	17	16	54	41	-	16
18.05	59.4	61.5	99.0	0.8	-2.0	1.4	5	silty SAND to sandy SILT	120	4.0	15	15	51	40	-	16
18.21	57.6	59.5	96.8	0.8	-1.9	1.4	5	silty SAND to sandy SILT	120	4.0	15	14	50	40	-	16
18.37	59.2	61.0	95.9	0.8	-1.8	1.3	5	silty SAND to sandy SILT	120	4.0	15	15	51	40	-	16
18.54	63.1	64.8	96.9	0.8	-1.8	1.2	5	silty SAND to sandy SILT	120	4.0	16	16	53	41	-	16
18.70	66.4	68.1	97.4	0.8	-0.4	1.2	5	silty SAND to sandy SILT	120	4.0	17	17	54	41	-	16
18.87	67.6	69.2	98.4	0.8	-1.3	1.2	5	silty SAND to sandy SILT	120	4.0	17	17	55	41	-	16
19.03	68.9	70.2	97.5	0.7	-1.7	1.1	5	silty SAND to sandy SILT	120	4.0	18	17	55	41	-	16
19.19	71.4	72.6	95.9	0.7	-2.0	1.0	6	clean SAND to silty SAND	125	5.0	15	14	56	41	-	16
19.36	70.1	71.1	95.6	0.7	-2.3	1.0	6	clean SAND to silty SAND	125	5.0	14	14	56	41	-	16
19.52	65.9	66.7	94.3	0.7	-2.6	1.1	5	silty SAND to sandy SILT	120	4.0	17	16	54	41	-	16
19.69	62.7	63.3	96.8	0.8	-2.9	1.3	5	silty SAND to sandy SILT	120	4.0	16	16	52	40	-	16
19.85	66.4	66.9	98.4	0.8	-3.3	1.2	5	silty SAND to sandy SILT	120	4.0	17	17	54	41	-	16
20.01	62.3	62.5	90.1	0.6	-4.1	1.1	5	silty SAND to sandy SILT	120	4.0	16	16	51	40	-	16
20.18	43.0	43.0	79.0	0.5	-5.0	1.2	5	silty SAND to sandy SILT	120	4.0	11	11	39	38	-	16
20.34	22.5	23.7	-	0.5	-5.3	2.1	4	clayy SILT to silty CLAY	115	2.0	12	11	-	-	1.5	15
20.51	11.6	12.2	-	0.4	-5.5	3.4	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
20.67	7.1	7.5	-	0.3	-5.6	4.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
20.83	6.6	6.9	-	0.2	-5.6	4.2	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15
21.00	6.6	6.8	-	0.2	-5.7	4.4	3	silty CLAY to CLAY	115	1.5	5	4	-	-	0.4	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(402).cpt
CPT Date: 11/17/2008 7:51:07 AM
GW During Test: 12 ft

Sounding ID: CPT-08-77
Project No: 08-156
Cone/Rig: DSG1023

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
21.16	6.4	6.6	-	0.3	-5.7	5.3	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
21.33	7.1	7.3	-	0.4	-5.6	7.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.49	11.5	11.8	-	0.4	-5.3	4.1	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	15
21.65	12.9	13.2	-	0.3	-5.1	2.9	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	15
21.82	7.2	7.3	-	0.3	-5.0	5.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
21.98	6.3	6.4	-	0.3	-3.4	5.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.15	6.1	6.1	-	0.3	-3.0	5.8	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.31	6.3	6.3	-	0.3	-2.7	6.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
22.47	7.1	7.0	-	0.4	-2.4	6.7	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
22.64	7.5	7.5	-	0.5	-2.1	8.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
22.80	8.7	8.6	-	0.7	-1.8	9.7	2	Organic SOILS - Peats	100	1.0	9	9	-	-	0.8	10
22.97	10.4	10.2	-	0.8	-1.4	8.4	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
23.13	10.1	9.9	-	0.7	-1.0	7.7	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	15
23.30	9.1	8.9	-	0.5	-0.3	6.2	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
23.46	7.5	7.3	-	0.4	0.2	6.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
23.62	7.0	6.8	-	0.3	0.6	5.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
23.79	6.5	6.3	-	0.3	0.9	5.9	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	15
23.95	6.9	6.7	-	0.3	1.3	5.5	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
24.12	6.9	6.6	-	0.3	1.6	5.9	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	15
24.28	7.1	6.8	-	0.4	1.9	6.3	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	15
24.44	7.7	7.3	-	0.4	2.3	6.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.61	7.9	7.5	-	0.4	2.6	5.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
24.77	8.3	7.8	-	0.4	2.9	5.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
24.94	9.2	8.6	-	0.4	3.2	5.1	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
25.10	8.7	8.2	-	0.4	3.5	5.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
25.26	7.8	7.3	-	0.5	4.3	7.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
25.43	8.7	8.1	-	0.5	7.3	6.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
25.59	9.0	8.3	-	0.5	7.6	6.8	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
25.76	8.5	7.8	-	0.5	7.9	7.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
25.92	8.3	7.6	-	0.5	8.2	7.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
26.08	8.3	7.6	-	0.5	8.6	7.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
26.25	8.3	7.5	-	0.5	9.0	7.4	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
26.41	8.5	7.7	-	0.5	9.5	6.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
26.58	7.8	7.0	-	0.4	10.0	7.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.74	7.8	7.0	-	0.5	10.7	7.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
26.90	8.2	7.3	-	0.5	11.3	7.6	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.07	8.4	7.4	-	0.5	11.8	7.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
27.23	8.0	7.1	-	0.4	12.0	6.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.40	7.4	6.6	-	0.4	12.3	7.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
27.56	7.9	7.0	-	0.4	13.4	6.8	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	15
27.72	7.8	6.9	-	0.5	14.0	8.6	2	Organic SOILS - Peats	100	1.0	7	8	-	-	0.7	10
27.89	9.7	8.5	-	0.7	14.8	8.1	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
28.05	19.7	17.2	-	0.6	15.7	3.4	3	silty CLAY to CLAY	115	1.5	11	13	-	-	1.3	15
28.22	41.2	37.3	80.9	0.6	6.6	1.5	5	silty SAND to sandy SILT	120	4.0	9	10	34	36	-	16
28.38	27.9	24.2	-	0.8	4.9	3.0	4	clayy SILT to silty CLAY	115	2.0	12	14	-	-	1.9	15
28.54	13.6	11.8	-	0.6	4.8	4.7	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.9	15
28.71	9.6	8.3	-	0.5	7.2	6.4	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.6	15
28.87	8.6	7.4	-	0.5	9.3	7.9	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
29.04	17.3	14.8	-	0.6	12.6	3.5	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.2	15
29.20	34.2	30.6	84.9	0.6	7.3	1.9	5	silty SAND to sandy SILT	120	4.0	8	9	28	35	-	16
29.36	37.8	33.7	87.1	0.7	5.2	1.8	5	silty SAND to sandy SILT	120	4.0	8	9	31	35	-	16
29.53	36.8	32.8	90.0	0.7	5.1	2.0	5	silty SAND to sandy SILT	120	4.0	8	9	30	35	-	16
29.69	36.6	32.6	90.2	0.7	5.4	2.0	4	clayy SILT to silty CLAY	115	2.0	16	18	-	-	2.5	15
29.86	35.6	31.7	89.3	0.7	5.3	2.0	4	clayy SILT to silty CLAY	115	2.0	16	18	-	-	2.5	15
30.02	33.0	29.2	84.9	0.6	4.8	1.9	4	clayy SILT to silty CLAY	115	2.0	15	16	-	-	2.3	15
30.19	25.9	21.5	-	0.7	4.6	2.8	4	clayy SILT to silty CLAY	115	2.0	11	13	-	-	1.8	15
30.35	16.7	13.8	-	0.6	4.9	4.0	3	silty CLAY to CLAY	115	1.5	9	11	-	-	1.1	15
30.51	11.8	9.8	-	0.5	4.9	5.3	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
30.68	9.4	7.8	-	0.5	5.0	7.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
30.84	12.3	10.0	-	0.4	7.5	4.1	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.8	15
31.01	8.7	7.1	-	0.4	7.8	6.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
31.17	8.5	6.9	-	0.4	11.1	5.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	15
31.33	8.2	6.7	-	0.4	13.6	6.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.5	15
31.50	9.2	7.4	-	0.4	16.8	5.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(402).cpt
CPT Date: 11/17/2008 7:51:07 AM
GW During Test: 12 ft

Sounding ID: CPT-08-77
Project No: 08-156
Cone/Rig: DSG1023

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
31.66	9.6	7.7	-	0.4	20.8	5.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.83	9.7	7.7	-	0.5	25.9	6.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
31.99	9.5	7.6	-	0.6	48.1	8.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.6	15
32.15	19.7	15.7	-	0.7	58.1	3.9	3	silty CLAY to CLAY	115	1.5	10	13	-	-	1.3	15
32.32	60.5	52.3	104.9	1.1	12.8	1.9	5	silty SAND to sandy SILT	120	4.0	13	15	46	38	-	16
32.48	54.8	47.3	109.5	1.2	7.3	2.3	5	silty SAND to sandy SILT	120	4.0	12	14	42	37	-	16
32.65	67.0	57.7	108.2	1.2	4.8	1.9	5	silty SAND to sandy SILT	120	4.0	14	17	49	38	-	16
32.81	87.8	75.6	113.9	1.3	2.1	1.5	5	silty SAND to sandy SILT	120	4.0	19	22	58	40	-	16
32.97	95.4	82.0	117.3	1.4	0.7	1.4	5	silty SAND to sandy SILT	120	4.0	20	24	60	40	-	16
33.14	97.6	83.7	123.2	1.5	1.2	1.6	5	silty SAND to sandy SILT	120	4.0	21	24	61	40	-	16
33.30	110.0	94.1	133.6	1.8	1.4	1.6	5	silty SAND to sandy SILT	120	4.0	24	28	65	41	-	16
33.47	119.4	101.9	146.0	2.1	0.1	1.8	5	silty SAND to sandy SILT	120	4.0	25	30	68	41	-	16
33.63	129.3	110.2	156.0	2.4	-0.2	1.9	5	silty SAND to sandy SILT	120	4.0	28	32	70	42	-	16
33.79	142.4	121.2	165.2	2.7	0.0	1.9	5	silty SAND to sandy SILT	120	4.0	30	36	73	42	-	16
33.96	149.9	127.3	169.5	2.7	0.2	1.9	5	silty SAND to sandy SILT	120	4.0	32	37	75	42	-	16
34.12	152.3	129.1	171.2	2.8	0.5	1.9	5	silty SAND to sandy SILT	120	4.0	32	38	75	43	-	16
34.29	148.5	125.7	171.3	2.9	0.7	2.0	5	silty SAND to sandy SILT	120	4.0	31	37	75	42	-	16
34.45	156.1	131.9	173.0	2.8	0.9	1.8	5	silty SAND to sandy SILT	120	4.0	33	39	76	43	-	16
34.61	175.4	148.0	184.7	3.0	1.3	1.7	6	clean SAND to silty SAND	125	5.0	30	35	80	43	-	16
34.78	182.6	153.7	190.3	3.2	0.3	1.7	6	clean SAND to silty SAND	125	5.0	31	37	81	43	-	16
34.94	183.7	154.3	187.8	3.0	0.2	1.6	6	clean SAND to silty SAND	125	5.0	31	37	81	43	-	16
35.11	183.1	153.5	186.2	2.9	0.4	1.6	6	clean SAND to silty SAND	125	5.0	31	37	81	43	-	16
35.27	172.7	144.5	178.2	2.8	2.5	1.6	6	clean SAND to silty SAND	125	5.0	29	35	79	43	-	16
35.43	164.7	137.6	172.6	2.7	2.6	1.6	6	clean SAND to silty SAND	125	5.0	28	33	78	43	-	16
35.60	158.6	132.2	169.4	2.7	2.9	1.7	6	clean SAND to silty SAND	125	5.0	26	32	76	43	-	16
35.76	156.3	130.1	167.7	2.6	2.9	1.7	6	clean SAND to silty SAND	125	5.0	26	31	76	42	-	16
35.93	150.6	125.1	162.9	2.5	2.8	1.7	6	clean SAND to silty SAND	125	5.0	25	30	74	42	-	16
36.09	141.0	116.9	156.1	2.4	2.8	1.7	5	silty SAND to sandy SILT	120	4.0	29	35	72	42	-	16
36.26	129.4	107.1	148.9	2.3	2.9	1.8	5	silty SAND to sandy SILT	120	4.0	27	32	69	41	-	16
36.42	116.0	95.8	142.6	2.2	2.9	1.9	5	silty SAND to sandy SILT	120	4.0	24	29	66	41	-	16
36.58	94.3	77.8	134.3	2.0	2.5	2.2	5	silty SAND to sandy SILT	120	4.0	19	24	59	40	-	16
36.75	57.2	47.1	130.4	1.7	2.3	3.2	4	clayy SILT to silty CLAY	115	2.0	24	29	-	-	4.0	15
36.91	29.7	21.3	-	1.3	2.5	4.9	3	silty CLAY to CLAY	115	1.5	14	20	-	-	2.0	15
37.08	34.1	24.3	-	0.9	2.9	2.9	4	clayy SILT to silty CLAY	115	2.0	12	17	-	-	2.3	15
37.24	19.2	13.7	-	0.6	3.1	3.4	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
37.40	12.3	8.7	-	0.5	4.1	5.0	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
37.57	11.7	8.3	-	0.4	6.5	4.5	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.7	15
37.73	15.2	10.7	-	0.4	9.2	3.2	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
37.90	15.9	11.2	-	0.5	10.5	3.4	3	silty CLAY to CLAY	115	1.5	7	11	-	-	1.0	15
38.06	14.1	9.9	-	0.5	13.1	4.5	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.9	15
38.22	15.6	10.9	-	0.6	16.3	4.1	3	silty CLAY to CLAY	115	1.5	7	10	-	-	1.0	15
38.39	16.3	11.4	-	0.6	17.7	4.1	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
38.55	13.3	9.3	-	0.6	19.8	5.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
38.72	11.7	8.1	-	0.6	30.2	6.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.7	15
38.88	12.2	8.4	-	0.7	34.3	6.8	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.8	15
39.04	20.5	14.1	-	0.8	38.8	4.2	3	silty CLAY to CLAY	115	1.5	9	14	-	-	1.4	15
39.21	19.2	13.2	-	0.7	12.4	3.9	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
39.37	12.8	8.7	-	0.6	5.8	5.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.8	15
39.54	13.5	9.2	-	0.6	7.7	5.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.9	15
39.70	16.7	11.3	-	0.8	9.6	5.7	3	silty CLAY to CLAY	115	1.5	8	11	-	-	1.1	15
39.86	19.8	13.4	-	1.0	11.2	6.0	3	silty CLAY to CLAY	115	1.5	9	13	-	-	1.3	15
40.03	22.0	14.9	-	1.1	12.2	5.6	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.5	15
40.19	20.5	13.8	-	1.1	12.4	6.3	3	silty CLAY to CLAY	115	1.5	9	14	-	-	1.4	15
40.36	22.1	14.9	-	1.2	14.2	6.0	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.5	15
40.52	34.6	23.2	-	1.4	16.0	4.2	3	silty CLAY to CLAY	115	1.5	15	23	-	-	2.4	15
40.68	64.9	51.5	109.9	1.3	6.6	2.1	5	silty SAND to sandy SILT	120	4.0	13	16	45	37	-	16
40.85	62.1	49.3	129.6	1.8	3.0	3.0	4	clayy SILT to silty CLAY	115	2.0	25	31	-	-	4.3	15
41.01	61.1	48.4	134.1	1.9	1.3	3.3	4	clayy SILT to silty CLAY	115	2.0	24	31	-	-	4.2	15
41.18	101.3	80.1	130.2	1.9	0.8	1.9	5	silty SAND to sandy SILT	120	4.0	20	25	60	39	-	16
41.34	91.8	72.5	138.1	2.2	-0.1	2.5	5	silty SAND to sandy SILT	120	4.0	18	23	56	39	-	16
41.50	83.4	65.7	135.2	2.1	-0.5	2.6	5	silty SAND to sandy SILT	120	4.0	16	21	53	38	-	16
41.67	110.7	87.1	132.5	2.0	-0.7	1.8	5	silty SAND to sandy SILT	120	4.0	22	28	62	40	-	16
41.83	113.1	88.9	130.3	1.9	0.6	1.7	5	silty SAND to sandy SILT	120	4.0	22	28	63	40	-	16
42.00	101.9	80.0	132.2	2.0	0.6	2.0	5	silty SAND to sandy SILT	120	4.0	20	25	60	39	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(402).cpt
CPT Date: 11/17/2008 7:51:07 AM
GW During Test: 12 ft

Sounding ID: CPT-08-77
Project No: 08-156
Cone/Rig: DSG1023

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.16	84.9	66.6	140.0	2.3	0.8	2.7	5	silty SAND to sandy SILT	120	4.0	17	21	54	38	-	16
42.32	76.6	59.9	131.0	2.0	1.1	2.6	5	silty SAND to sandy SILT	120	4.0	15	19	50	38	-	16
42.49	80.6	63.0	120.8	1.7	-0.3	2.1	5	silty SAND to sandy SILT	120	4.0	16	20	52	38	-	16
42.65	71.5	55.8	123.3	1.7	-1.9	2.5	5	silty SAND to sandy SILT	120	4.0	14	18	48	37	-	16
42.82	48.1	30.9	-	2.0	-2.2	4.4	3	silty CLAY to CLAY	115	1.5	21	32	-	-	3.3	15
42.98	33.7	21.6	-	1.9	-2.2	6.1	3	silty CLAY to CLAY	115	1.5	14	22	-	-	2.3	15
43.15	43.7	27.9	-	1.5	2.3	3.7	4	clayy SILT to silty CLAY	115	2.0	14	22	-	-	3.0	15
43.31	53.1	41.2	111.4	1.3	1.2	2.6	4	clayy SILT to silty CLAY	115	2.0	21	27	-	-	3.7	15
43.47	57.2	44.3	101.9	1.1	-0.3	2.1	5	silty SAND to sandy SILT	120	4.0	11	14	40	36	-	16
43.64	44.8	28.4	-	1.4	-1.8	3.4	4	clayy SILT to silty CLAY	115	2.0	14	22	-	-	3.1	15
43.80	31.9	20.1	-	1.4	-2.1	4.7	3	silty CLAY to CLAY	115	1.5	13	21	-	-	2.2	15
43.97	81.0	62.5	116.3	1.6	-1.7	2.0	5	silty SAND to sandy SILT	120	4.0	16	20	51	38	-	16
44.13	121.4	93.5	130.3	1.8	-1.9	1.5	5	silty SAND to sandy SILT	120	4.0	23	30	65	40	-	16
44.29	133.8	102.9	140.9	2.1	-1.7	1.6	5	silty SAND to sandy SILT	120	4.0	26	33	68	41	-	16
44.46	131.7	101.1	142.4	2.2	-1.5	1.7	5	silty SAND to sandy SILT	120	4.0	25	33	67	40	-	16
44.62	132.7	101.7	144.6	2.3	-1.2	1.8	5	silty SAND to sandy SILT	120	4.0	25	33	68	41	-	16
44.79	123.8	94.8	142.6	2.3	-1.1	1.9	5	silty SAND to sandy SILT	120	4.0	24	31	65	40	-	16
44.95	115.3	88.1	140.4	2.3	-0.9	2.0	5	silty SAND to sandy SILT	120	4.0	22	29	63	40	-	16
45.11	106.9	81.6	137.0	2.2	-0.7	2.1	5	silty SAND to sandy SILT	120	4.0	20	27	60	39	-	16
45.28	97.2	74.1	131.9	2.1	0.6	2.2	5	silty SAND to sandy SILT	120	4.0	19	24	57	39	-	16
45.44	88.7	67.5	124.3	1.8	0.7	2.1	5	silty SAND to sandy SILT	120	4.0	17	22	54	38	-	16
45.61	80.8	61.4	113.6	1.5	0.8	1.9	5	silty SAND to sandy SILT	120	4.0	15	20	51	38	-	16
45.77	72.5	55.0	107.7	1.3	0.8	1.9	5	silty SAND to sandy SILT	120	4.0	14	18	47	37	-	16
45.93	59.9	45.4	103.2	1.2	0.4	2.1	5	silty SAND to sandy SILT	120	4.0	11	15	41	36	-	16
46.10	36.0	21.8	-	1.3	-0.8	3.8	3	silty CLAY to CLAY	115	1.5	15	24	-	-	2.4	15
46.26	22.5	13.6	-	0.9	-1.0	4.5	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.5	15
46.43	27.2	16.4	-	0.8	-0.1	3.2	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.8	15
46.59	23.9	14.4	-	0.7	0.1	3.3	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.6	15
46.75	32.5	19.5	-	0.6	0.5	2.0	4	clayy SILT to silty CLAY	115	2.0	10	16	-	-	2.2	15
46.92	41.2	31.0	78.9	0.6	0.8	1.5	5	silty SAND to sandy SILT	120	4.0	8	10	28	33	-	16
47.08	42.7	32.0	87.6	0.8	0.6	1.9	5	silty SAND to sandy SILT	120	4.0	8	11	29	34	-	16
47.25	34.5	20.5	-	0.8	1.0	2.5	4	clayy SILT to silty CLAY	115	2.0	10	17	-	-	2.3	15
47.41	28.3	16.8	-	0.9	1.2	3.4	3	silty CLAY to CLAY	115	1.5	11	19	-	-	1.9	15
47.57	27.9	16.6	-	0.7	1.5	2.6	4	clayy SILT to silty CLAY	115	2.0	8	14	-	-	1.9	15
47.74	37.8	22.4	-	0.6	1.3	1.8	4	clayy SILT to silty CLAY	115	2.0	11	19	-	-	2.6	15
47.90	21.2	12.5	-	0.6	0.0	3.2	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
48.07	14.5	8.5	-	0.6	0.8	5.4	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.9	15
48.23	13.8	8.1	-	0.6	1.8	5.9	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
48.39	17.3	10.1	-	0.7	7.6	4.7	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.1	15
48.56	30.3	17.7	-	0.7	7.7	2.6	4	clayy SILT to silty CLAY	115	2.0	9	15	-	-	2.0	15
48.72	21.9	12.8	-	0.7	6.8	3.9	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.4	15
48.89	18.2	10.6	-	0.8	8.7	5.4	3	silty CLAY to CLAY	115	1.5	7	12	-	-	1.2	15
49.05	25.2	14.6	-	0.7	10.2	3.2	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.7	15
49.22	40.5	23.4	-	0.7	9.7	1.9	4	clayy SILT to silty CLAY	115	2.0	12	20	-	-	2.8	15
49.38	39.7	22.9	-	0.8	2.9	2.2	4	clayy SILT to silty CLAY	115	2.0	11	20	-	-	2.7	15
49.54	30.9	17.7	-	0.8	2.1	2.8	4	clayy SILT to silty CLAY	115	2.0	9	15	-	-	2.1	15
49.71	24.0	13.8	-	0.6	2.1	3.0	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
49.87	16.8	9.6	-	0.6	2.5	4.0	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
50.04	12.7	7.2	-	0.5	3.7	5.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.8	15
50.20	13.1	7.5	-	0.5	5.4	5.2	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.8	15
50.36	13.9	7.9	-	0.6	6.7	5.5	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
50.53	16.9	9.6	-	0.5	8.1	3.8	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.1	15
50.69	15.7	8.9	-	0.5	9.3	4.3	3	silty CLAY to CLAY	115	1.5	6	10	-	-	1.0	15
50.86	13.9	7.8	-	0.7	11.8	6.8	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.9	15
51.02	16.1	9.0	-	0.8	14.4	5.9	3	silty CLAY to CLAY	115	1.5	6	11	-	-	1.0	15
51.18	38.4	21.5	-	0.7	14.5	2.0	4	clayy SILT to silty CLAY	115	2.0	11	19	-	-	2.6	15
51.35	38.1	21.3	-	0.8	11.3	2.2	4	clayy SILT to silty CLAY	115	2.0	11	19	-	-	2.6	15
51.51	24.7	13.8	-	1.2	13.1	5.7	3	silty CLAY to CLAY	115	1.5	9	16	-	-	1.6	15
51.68	21.6	12.0	-	1.3	13.1	7.1	3	silty CLAY to CLAY	115	1.5	8	14	-	-	1.4	15
51.84	39.7	22.1	-	1.2	18.4	3.4	4	clayy SILT to silty CLAY	115	2.0	11	20	-	-	2.7	15
52.00	87.5	63.3	112.6	1.5	6.7	1.8	5	silty SAND to sandy SILT	120	4.0	16	22	52	37	-	16
52.17	87.2	63.0	114.1	1.6	6.2	1.9	5	silty SAND to sandy SILT	120	4.0	16	22	52	37	-	16
52.33	104.3	75.2	114.7	1.6	5.9	1.5	5	silty SAND to sandy SILT	120	4.0	19	26	58	38	-	16
52.50	119.6	86.2	120.7	1.7	0.1	1.4	5	silty SAND to sandy SILT	120	4.0	22	30	62	39	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

EGG-WC Warner/Edwards

Project ID: Earth Mechanics
Data File: SDF(402).cpt
CPT Date: 11/17/2008 7:51:07 AM
GW During Test: 12 ft

Sounding ID: CPT-08-77
Project No: 08-156
Cone/Rig: DSG1023

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
52.66	127.5	91.7	127.1	1.8	-1.1	1.5	5	silty SAND to sandy SILT	120	4.0	23	32	64	39	-	16
52.82	129.3	92.9	126.9	1.8	-1.4	1.4	5	silty SAND to sandy SILT	120	4.0	23	32	65	40	-	16
52.99	122.0	87.5	122.3	1.7	-1.3	1.4	5	silty SAND to sandy SILT	120	4.0	22	30	63	39	-	16
53.15	104.1	74.6	115.5	1.6	-0.9	1.6	5	silty SAND to sandy SILT	120	4.0	19	26	57	38	-	16
53.32	82.0	58.7	110.3	1.5	-0.5	1.9	5	silty SAND to sandy SILT	120	4.0	15	20	49	37	-	16
53.48	63.4	45.3	102.5	1.2	-0.1	2.0	5	silty SAND to sandy SILT	120	4.0	11	16	41	35	-	16
53.64	59.4	42.4	89.8	0.9	0.4	1.6	5	silty SAND to sandy SILT	120	4.0	11	15	39	35	-	16
53.81	50.1	35.7	85.0	0.8	0.1	1.6	5	silty SAND to sandy SILT	120	4.0	9	13	33	34	-	16
53.97	37.9	20.4	-	0.7	0.6	1.9	4	clayy SILT to silty CLAY	115	2.0	10	19	-	-	2.6	15
54.14	34.9	18.7	-	0.7	1.1	2.1	4	clayy SILT to silty CLAY	115	2.0	9	17	-	-	2.4	15
54.30	34.2	18.3	-	0.7	1.8	2.3	4	clayy SILT to silty CLAY	115	2.0	9	17	-	-	2.3	15
54.46	57.0	40.5	109.4	1.3	1.8	2.5	4	clayy SILT to silty CLAY	115	2.0	20	29	-	-	3.9	15
54.63	98.3	69.6	120.9	1.8	0.9	1.9	5	silty SAND to sandy SILT	120	4.0	17	25	55	38	-	16
54.79	194.2	137.5	150.9	1.8	-0.7	0.9	6	clean SAND to silty SAND	125	5.0	27	39	78	42	-	16
54.96	314.9	222.6	222.6	2.8	-2.9	0.9	6	clean SAND to silty SAND	125	5.0	45	63	93	44	-	16
55.12	334.1	235.9	235.9	1.9	5.3	0.6	6	clean SAND to silty SAND	125	5.0	47	67	95	44	-	16
55.28	282.6	199.3	199.3	1.4	4.5	0.5	6	clean SAND to silty SAND	125	5.0	40	57	90	43	-	16
55.45	201.5	141.9	141.9	0.7	3.8	0.3	6	clean SAND to silty SAND	125	5.0	28	40	79	42	-	16
55.61	160.0	112.5	118.2	0.9	4.6	0.5	6	clean SAND to silty SAND	125	5.0	23	32	71	40	-	16
55.78	126.9	89.1	112.1	1.3	4.8	1.0	6	clean SAND to silty SAND	125	5.0	18	25	63	39	-	16
55.94	114.1	80.0	132.8	2.2	7.0	2.0	5	silty SAND to sandy SILT	120	4.0	20	29	60	38	-	16
56.11	157.4	110.3	140.9	2.2	7.4	1.4	6	clean SAND to silty SAND	125	5.0	22	31	70	40	-	16
56.27	352.4	246.5	253.1	4.1	4.2	1.2	6	clean SAND to silty SAND	125	5.0	49	70	95	44	-	16
56.43	516.3	360.7	360.7	2.8	-1.8	0.5	7	grvly SAND to dense SAND	130	6.0	60	86	95	46	-	16
56.60	425.8	297.0	297.0	2.4	-1.3	0.6	6	clean SAND to silty SAND	125	5.0	59	85	95	45	-	16
56.76	324.2	225.8	225.8	2.4	-2.2	0.8	6	clean SAND to silty SAND	125	5.0	45	65	94	44	-	16
56.93	206.2	143.5	166.3	2.5	-0.5	1.3	6	clean SAND to silty SAND	125	5.0	29	41	79	42	-	16
57.09	165.4	114.9	136.1	1.8	0.4	1.1	6	clean SAND to silty SAND	125	5.0	23	33	72	40	-	16
57.25	150.5	104.4	123.6	1.4	1.0	1.0	6	clean SAND to silty SAND	125	5.0	21	30	68	40	-	16
57.42	140.9	97.7	117.3	1.3	0.6	1.0	6	clean SAND to silty SAND	125	5.0	20	28	66	40	-	16
57.58	120.5	83.4	112.9	1.4	-0.1	1.2	5	silty SAND to sandy SILT	120	4.0	21	30	61	39	-	16
57.75	101.9	70.5	109.3	1.5	0.1	1.5	5	silty SAND to sandy SILT	120	4.0	18	25	55	38	-	16
57.91	85.8	59.2	112.3	1.6	0.5	1.9	5	silty SAND to sandy SILT	120	4.0	15	21	50	37	-	16
58.07	82.9	57.2	101.3	1.3	0.4	1.6	5	silty SAND to sandy SILT	120	4.0	14	21	49	36	-	16
58.24	82.8	57.0	98.6	1.2	-0.9	1.5	5	silty SAND to sandy SILT	120	4.0	14	21	48	36	-	16
58.40	72.2	49.6	98.6	1.2	-0.4	1.7	5	silty SAND to sandy SILT	120	4.0	12	18	44	36	-	16
58.57	71.4	49.0	101.7	1.3	-0.7	1.9	5	silty SAND to sandy SILT	120	4.0	12	18	43	35	-	16
58.73	67.8	46.5	109.2	1.4	-2.0	2.2	5	silty SAND to sandy SILT	120	4.0	12	17	42	35	-	16
58.89	77.5	53.1	114.5	1.6	-2.2	2.2	5	silty SAND to sandy SILT	120	4.0	13	19	46	36	-	16
59.06	131.4	90.0	125.6	1.9	-2.0	1.5	5	silty SAND to sandy SILT	120	4.0	22	33	64	39	-	16
59.22	166.9	114.1	143.8	2.3	-2.3	1.4	6	clean SAND to silty SAND	125	5.0	23	33	71	40	-	16
59.39	175.8	120.1	149.0	2.4	-2.1	1.4	6	clean SAND to silty SAND	125	5.0	24	35	73	41	-	16
59.55	164.9	112.5	145.9	2.4	-1.9	1.5	6	clean SAND to silty SAND	125	5.0	22	33	71	40	-	16
59.71	122.3	83.3	130.2	2.2	-1.8	1.8	5	silty SAND to sandy SILT	120	4.0	21	31	61	39	-	16
59.88	88.6	60.3	117.6	1.8	-1.7	2.1	5	silty SAND to sandy SILT	120	4.0	15	22	50	37	-	16
60.04	84.8	57.6	108.7	1.5	-1.7	1.9	5	silty SAND to sandy SILT	120	4.0	14	21	49	36	-	16
60.21	87.0	59.0	104.7	1.4	-2.3	1.7	5	silty SAND to sandy SILT	120	4.0	15	22	50	36	-	16
60.37	94.8	64.3	102.2	1.3	-2.8	1.4	5	silty SAND to sandy SILT	120	4.0	16	24	52	37	-	16
60.53	129.0	87.4	112.0	1.4	-3.2	1.1	6	clean SAND to silty SAND	125	5.0	17	26	63	39	-	16
60.70	142.4	96.4	116.6	1.3	-2.6	1.0	6	clean SAND to silty SAND	125	5.0	19	28	66	39	-	16
60.86	132.1	89.3	112.0	1.3	-2.4	1.0	6	clean SAND to silty SAND	125	5.0	18	26	63	39	-	16
61.03	117.2	79.1	107.1	1.3	-2.1	1.2	6	clean SAND to silty SAND	125	5.0	16	23	59	38	-	16
61.19	88.2	59.5	101.1	1.3	-2.0	1.5	5	silty SAND to sandy SILT	120	4.0	15	22	50	36	-	16
61.35	58.4	28.1	-	1.3	-1.9	2.4	4	clayy SILT to silty CLAY	115	2.0	14	29	-	-	4.0	15
61.52	33.5	16.1	-	1.3	-1.8	4.2	3	silty CLAY to CLAY	115	1.5	11	22	-	-	2.2	15
61.68	19.2	9.2	-	1.2	0.4	7.6	3	silty CLAY to CLAY	115	1.5	6	13	-	-	1.2	15
61.85	14.9	7.1	-	1.1	1.1	9.4	2	Organic SOILS - Peats	100	1.0	7	15	-	-	1.4	10
62.01	47.2	22.5	-	1.3	2.6	3.0	4	clayy SILT to silty CLAY	115	2.0	11	24	-	-	3.2	15
62.17	76.1	51.0	98.7	1.2	2.2	1.7	5	silty SAND to sandy SILT	120	4.0	13	19	45	35	-	16
62.34	158.5	106.1	120.8	1.3	0.2	0.8	6	clean SAND to silty SAND	125	5.0	21	32	69	40	-	16
62.50	250.1	167.2	167.2	1.3	-0.5	0.5	6	clean SAND to silty SAND	125	5.0	33	50	84	42	-	16
62.67	286.5	191.3	191.3	1.6	-0.3	0.6	6	clean SAND to silty SAND	125	5.0	38	57	88	43	-	16
62.83	311.3	207.6	207.6	1.9	0.2	0.6	6	clean SAND to silty SAND	125	5.0	42	62	91	43	-	16
63.00	324.7	216.2	216.2	2.4	1.5	0.7	6	clean SAND to silty SAND	125	5.0	43	65	92	43	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: Earth Mechanics
Data File: SDF(402).cpt
CPT Date: 11/17/2008 7:51:07 AM
GW During Test: 12 ft

Sounding ID: CPT-08-77
Project No: 08-156
Cone/Rig: DSG1023

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
63.16	290.9	193.5	193.5	1.8	2.4	0.6	6	clean SAND to silty SAND	125	5.0	39	58	89	43	-	16
63.32	290.0	192.7	192.7	1.5	2.6	0.5	6	clean SAND to silty SAND	125	5.0	39	58	89	43	-	16
63.49	274.0	181.8	181.8	1.5	2.6	0.6	6	clean SAND to silty SAND	125	5.0	36	55	87	43	-	16
63.65	278.4	184.6	184.6	1.3	3.2	0.5	6	clean SAND to silty SAND	125	5.0	37	56	87	43	-	16
63.82	269.6	178.5	178.5	1.8	4.0	0.7	6	clean SAND to silty SAND	125	5.0	36	54	86	42	-	16
63.98	269.0	177.9	177.9	1.6	4.5	0.6	6	clean SAND to silty SAND	125	5.0	36	54	86	42	-	16
64.14	250.2	165.3	165.3	1.2	4.9	0.5	6	clean SAND to silty SAND	125	5.0	33	50	84	42	-	16
64.31	239.6	158.1	158.1	1.3	5.3	0.5	6	clean SAND to silty SAND	125	5.0	32	48	82	42	-	16
64.47	231.4	152.5	152.5	1.3	5.9	0.5	6	clean SAND to silty SAND	125	5.0	31	46	81	42	-	16
64.64	225.0	148.1	148.1	1.2	6.1	0.5	6	clean SAND to silty SAND	125	5.0	30	45	80	41	-	16
64.80	224.0	147.3	147.3	1.2	7.3	0.6	6	clean SAND to silty SAND	125	5.0	29	45	80	41	-	16
64.96	231.3	151.8	151.8	1.0	12.3	0.4	6	clean SAND to silty SAND	125	5.0	30	46	81	42	-	16
65.13	227.2	149.0	150.6	1.4	12.9	0.6	6	clean SAND to silty SAND	125	5.0	30	45	80	41	-	16
65.29	220.2	144.2	163.1	2.4	12.4	1.1	6	clean SAND to silty SAND	125	5.0	29	44	79	41	-	16
65.46	222.4	145.5	145.4	1.3	12.0	0.6	6	clean SAND to silty SAND	125	5.0	29	44	79	41	-	16
65.62	184.7	120.7	125.9	1.0	12.8	0.6	6	clean SAND to silty SAND	125	5.0	24	37	73	40	-	16
65.78	182.9	119.4	131.6	1.4	13.1	0.8	6	clean SAND to silty SAND	125	5.0	24	37	73	40	-	16
65.95	183.2	119.4	123.1	0.9	12.9	0.5	6	clean SAND to silty SAND	125	5.0	24	37	73	40	-	16
66.11	182.3	118.8	121.7	0.9	12.3	0.5	6	clean SAND to silty SAND	125	5.0	24	36	73	40	-	16
66.28	181.5	118.0	129.1	1.3	13.2	0.7	6	clean SAND to silty SAND	125	5.0	24	36	72	40	-	16
66.44	198.5	129.0	143.5	1.8	13.3	0.9	6	clean SAND to silty SAND	125	5.0	26	40	75	41	-	16
66.60	233.0	151.2	151.0	1.4	13.6	0.6	6	clean SAND to silty SAND	125	5.0	30	47	81	41	-	16
66.77	207.6	134.6	138.8	1.3	14.8	0.6	6	clean SAND to silty SAND	125	5.0	27	42	77	41	-	16
66.93	205.7	133.2	140.0	1.4	13.8	0.7	6	clean SAND to silty SAND	125	5.0	27	41	76	41	-	16
67.10	219.3	141.8	147.2	1.5	14.3	0.7	6	clean SAND to silty SAND	125	5.0	28	44	79	41	-	16
67.26	224.0	144.7	154.0	1.8	12.3	0.8	6	clean SAND to silty SAND	125	5.0	29	45	79	41	-	16
67.42	216.5	139.7	152.4	1.9	13.4	0.9	6	clean SAND to silty SAND	125	5.0	28	43	78	41	-	16
67.59	239.2	154.2	163.3	2.0	14.4	0.9	6	clean SAND to silty SAND	125	5.0	31	48	81	41	-	16
67.75	234.9	151.2	151.2	1.4	15.2	0.6	6	clean SAND to silty SAND	125	5.0	30	47	81	41	-	16
67.92	228.1	146.7	146.7	0.8	13.1	0.4	6	clean SAND to silty SAND	125	5.0	29	46	80	41	-	16
68.08	225.0	144.5	174.7	3.3	14.4	1.5	6	clean SAND to silty SAND	125	5.0	29	45	79	41	-	16
68.24	224.1	143.8	182.8	3.9	13.3	1.8	6	clean SAND to silty SAND	125	5.0	29	45	79	41	-	16
68.41	197.5	126.6	150.3	2.4	10.5	1.2	6	clean SAND to silty SAND	125	5.0	25	39	75	40	-	16
68.57	101.7	65.1	133.0	2.4	15.3	2.5	5	silty SAND to sandy SILT	120	4.0	16	25	53	37	-	16
68.74	45.1	19.5	-	1.7	15.2	4.2	3	silty CLAY to CLAY	115	1.5	13	30	-	-	3.0	15
68.90	23.1	10.0	-	1.4	24.4	7.5	3	silty CLAY to CLAY	115	1.5	7	15	-	-	1.5	15
69.07	183.3	117.0	159.3	3.2	15.8	1.8	5	silty SAND to sandy SILT	120	4.0	29	46	72	40	-	16
69.23	353.1	225.2	225.2	2.1	15.9	0.6	6	clean SAND to silty SAND	125	5.0	45	71	94	43	-	16
69.39	425.4	271.0	271.0	3.0	15.8	0.7	6	clean SAND to silty SAND	125	5.0	54	85	95	44	-	16
69.56	576.9	367.1	367.1	3.6	15.6	0.6	6	clean SAND to silty SAND	125	5.0	73	100	95	46	-	16
69.72	652.2	414.6	414.6	5.1	15.8	0.8	6	clean SAND to silty SAND	125	5.0	83	100	95	46	-	16
69.89	703.3	446.6	446.6	5.8	18.7	0.8	6	clean SAND to silty SAND	125	5.0	89	100	95	46	-	16
70.05	757.3	480.3	480.3	7.5	11.6	1.0	6	clean SAND to silty SAND	125	5.0	96	100	95	47	-	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

APPENDIX C. LABORATORY SOIL TEST RESULTS

TABLE 1 SUMMARY OF LABORATORY TEST RESULTS

Project No. : *08-156* **Project Name :** OCPW EGG-Wintersburg Channel, Warner to Edwards

Boring No.	Sample No.	Sample Depth (ft)	Soil Identification (group symbol) ASTM D2488/D2487	Moisture Content ASTM D2216 (%)	Total Unit Weight ASTM D2937 (pcf)	Pocket Penetrometer (tsf)	Torvane Shear (Kg/cm2)	Grain Size Distribution GR:SA:FI (%)	Sand Equivalent (CT-217)	Atterberg Limits ASTM D4318 (LL/PL/PI)	Soil-Minimum Resisivity CT-532 (ohm-cm)	Soil- pH CT-532	Soil-Soluble Sulfate Content CT-417 (ppm)	Soil-Moisture Free Chloride Content CT-422 (ppm)
B-08-05	*S-1*	5	CL	19.2						33/18/15	400	7.7	2050	1064
B-08-05	*D-2*	10	CL	23.6	110.2	1.25								
B-08-05	*S-3*	15	OH	88.7				0:10:90						
B-08-05	*D-4*	20	ML	31.7	119.6									
B-08-05	*S-5*	25	ML	37.9						37/31/6				
B-08-05	*D-6*	30	CL	63.4	102.3	0.25								
B-08-05	*S-7*	35	ML	39.4				0:19:81						
B-08-05	*D-8*	40	CL	41.8										
B-08-05	*S-9*	45	SP	22.3										
B-08-05	*D-10*	50	OL	35.1	103.5	1.5								
B-08-05	*S-11*	55	OL	67.7										
B-08-05	*D-12*	60	SM	24.1	126.9									
B-08-05	*S-13*	65	SP-SM	14.5				27:62:11						
B-08-05	*D-14*	70	SP	15.8	135.1									
B-08-05	*S-15*	75	SP	19.1										
B-08-05	*D-16*	80	SP	16.1										
B-08-06	*S-1*	5	CL	22.9										
B-08-06	*D-2*	10	ML	21.0	118.4	1.0								
B-08-06	*S-3*	15	MH	42.7				2:22:76		55/37/18				
B-08-06	*D-4*	20	MH	41.8	114.4	0.5								
B-08-06	*S-5*	25	PT	354.3										
B-08-06	*D-6*	30	OL	47.5	107.2	<0.25								
B-08-06	*S-7*	35	SM	25.6										
B-08-06	*D-8*	40	SP-SM	25.1	128.3									
B-08-06	*S-9*	45	SP-SM	27.2				0:90:10						
B-08-06	*D-10*	50	SP-SM	21.8	128.1									
B-08-06	*S-11-1*	55	ML	29.3										
B-08-06	*S-11-2*	55.1	SM	16.2										
B-08-06	*D-12*	60	SP	11.5	138.7									
B-08-06	*D-14*	70	SP-SM	25.2	123.0									
B-08-06	*S-15*	75	SP-SM	17.4				1:93:6						
B-08-06	*D-16*	80	SP-SM	17.9	131.8									
B-08-07	*S-1*	6.5	CH	45.7						52/24/28				
B-08-07	*D-2*	10	SM	11.4	109.1									
B-08-07	*S-3*	15	CL	40.8							290	8.2	350	3462
B-08-07	*D-4*	20	CL	59.7	102.6	<0.25				89/35/54				
B-08-07	*S-5*	25	SM	34.5				0:56:44		N.P.				
B-08-07	*D-6*	30	ML to CL	36.6	116.0	1.0								
B-08-07	*S-7*	35	OL	84.1										
B-08-07	*D-8*	40	ML	28.5	118.2	4.0		0:20:80						

TABLE 1 SUMMARY OF LABORATORY TEST RESULTS

Project No. : *08-156* **Project Name :** OCPW EGG-Wintersburg Channel, Warner to Edwards

Boring No.	Sample No.	Sample Depth (ft)	Soil Identification (group symbol) ASTM D2488/D2487	Moisture Content ASTM D2216 (%)	Total Unit Weight ASTM D2937 (pcf)	Pocket Penetrometer (tsf)	Torvane Shear (Kg/cm2)	Grain Size Distribution GR:SA:FI (%)	Sand Equivalent (CT-217)	Atterberg Limits ASTM D4318 (LL/PL/PI)	Soil-Minimum Resisivity CT-532 (ohm-cm)	Soil- pH CT-532	Soil-Soluble Sulfate Content CT-417 (ppm)	Soil-Moisture Free Chloride Content CT-422 (ppm)
B-08-07	*S-9-1*	45	CL	43.4										
B-08-07	*S-9-2*	46.3	SM	28.0										
B-08-07	*D-10*	50	SM	23.7	129.0									
B-08-07	*S-11*	55	SM	31.7				0:58:42						
B-08-07	*D-12*	60	SP	14.6	138.9									
B-08-07	*S-13*	65	SP-SM	15.6				15:78:7			2600	8.5	150	218
B-08-07	*D-14*	70	GP	8.3										
B-08-07	*S-15*	75	SP	20.7										
B-08-07	*D-16*	80	SP	17.0										
B-08-08	*S-1*	5	ML	29.0				0:15:85						
B-08-08	*D-2*	10	OL	50.5	105.2	0.75								
B-08-08	*S-3*	15	SM	32.6				15:49:36		N.P.				
B-08-08	*D-4*	20	ML	20.6	121.9					N.P.				
B-08-08	*S-5*	25	ML	32.6										
B-08-08	*D-6*	30	CL	36.2	115.8	2.0		0:2:98						
B-08-08	*S-7-1*	35	SM	32.0										
B-08-08	*S-7-2*	35.6	ML	40.1										
B-08-08	*D-8*	40	CH	65.9	106.8	0.5		0:4:96		88/40/48				
B-08-08	*S-9-1*	45	CL	38.2										
B-08-08	*S-9-2*	46.1	SP	24.1										
B-08-08	*D-10*	50	CL	45.0	111.6	1.25								
B-08-08	*S-11*	55	SP-SM	22.7				0:92:8						
B-08-08	*D-12*	60	CL	44.0	112.4	1.25								
B-08-08	*S-13*	65	SP	17.6										
B-08-08	*D-14*	70	SP	9.0	144.3									
B-08-08	*S-15*	75	GP	9.5										
B-08-08	*D-16*	80	SP	11.7	141.8									
B-08-09	*S-1*	5	SM	21.6				0:80:20	20					
B-08-09	*D-2*	10	SM	8.1	106.0									
B-08-09	*S-3*	15	ML	46.6				0:8:92		39/37/2				
B-08-09	*D-4*	20	OL	39.3	111.8	1.0								
B-08-09	*S-5*	25	SP-SM	32.6				0:93:7						
B-08-09	*D-6*	30	MH	38.0	116.7	0.5				50/32/18	1100	7.7	150	670
B-08-09	*S-7*	35	CL	54.6										
B-08-09	*D-8*	40	MH	42.1	113.3					57/33/24				
B-08-09	*S-9-1*	45	ML	30.5										
B-08-09	*S-9-2*	46	SM	26.8										
B-08-09	*D-10*	50	SP	12.5	134.8									
B-08-09	*S-11*	55	ML	34.7						36/26/10				
B-08-09	*D-12*	60	SM	25.9	126.4									

TABLE 1 SUMMARY OF LABORATORY TEST RESULTS

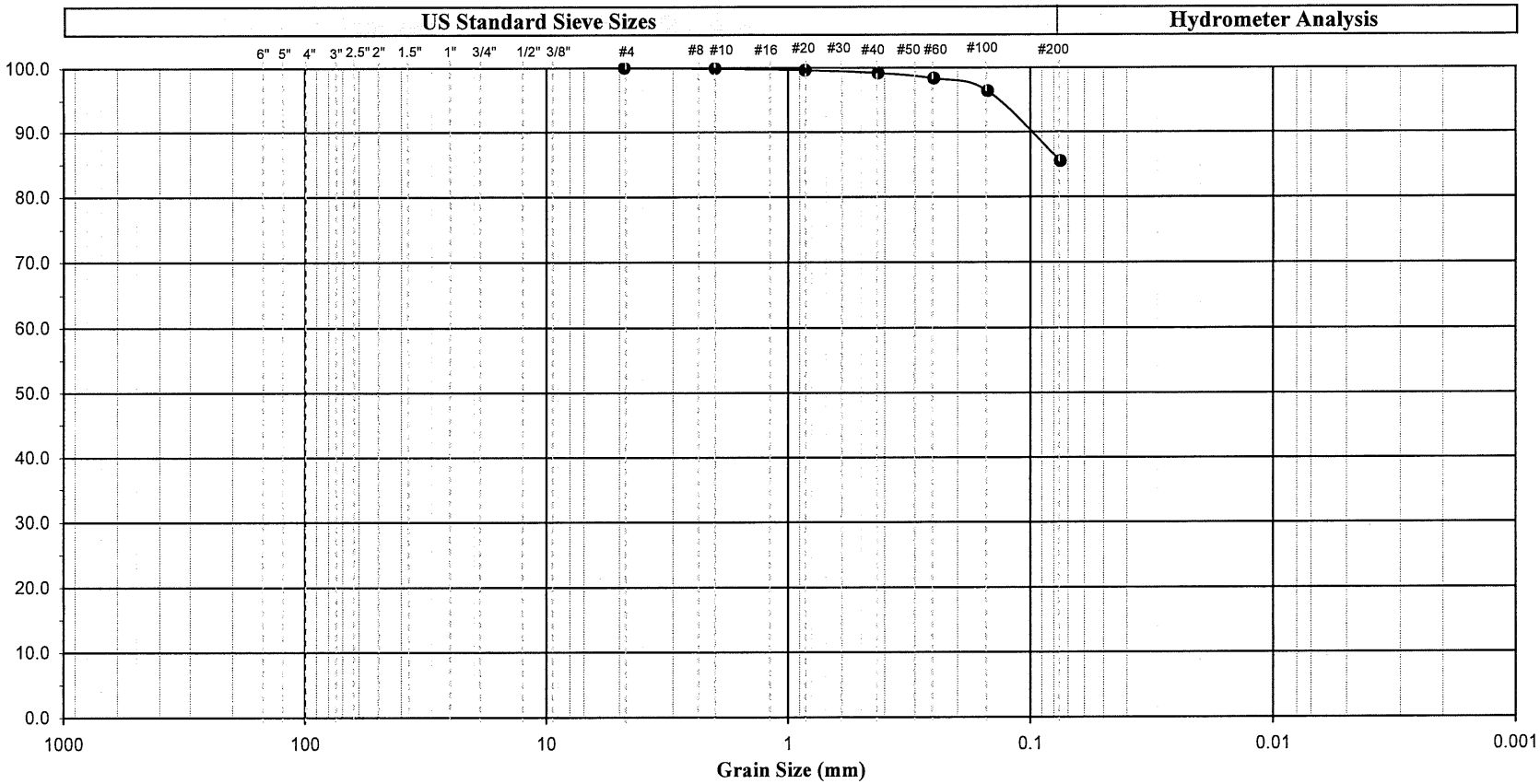
Project No. : *08-156* **Project Name :** OCPW EGG-Wintersburg Channel, Warner to Edwards

Boring No .	Sample No.	Sample Depth (ft)	Soil Identification (group symbol) ASTM D2488/D2487	Moisture Content ASTM D2216 (%)	Total Unit Weight ASTM D2937 (pcf)	Pocket Penetrometer (tsf)	Torvane Shear (Kg/cm2)	Grain Size Distribution GR:SA:FI (%)	Sand Equivalent (CT-217)	Atterberg Limits ASTM D4318 (LL/PL/PI)	Soil-Minimum Resisivity CT-532 (ohm-cm)	Soil- pH CT-532	Soil-Soluble Sulfate Content CT-417 (ppm)	Soil-Moisture Free Chloride Content CT-422 (ppm)
B-08-09	*S-13*	65	SP-SM	18.5				12:81:7						
B-08-09	*D-14*	70	SP-SM	13.6	144.5									
B-08-09	*S-15*	75	SP-SM	9.6										
B-08-09	*D-16*	80	CL	16.3	136.2	4.5								
B-08-10	*S-1-1*	5	ML	18.2										
B-08-10	*S-1-2*	5.8	SM	17.1										
B-08-10	*D-2*	10	OH	30.0	115.8	2.75				59/33/26				
B-08-10	*S-3*	15	PT	254.6										
B-08-10	*D-4*	20	OL	49.2	94.7	0.25								
B-08-10	*S-5*	25	ML	38.6				0:38:62						
B-08-10	*D-6*	30	PT	237.4	84.4	0.5								
B-08-10	*S-7*	35	MH	38.8						52/34/18				
B-08-10	*D-8*	40	SP	20.9	126.7									
B-08-10	*S-9-1*	45	SM	28.4										
B-08-10	*S-9-2*	45.7	ML	31.4										
B-08-10	*D-10*	50	SP	19.5	129.0									
B-08-10	*S-11-1*	55	SP	22.4										
B-08-10	*S-11-2*	56	CL	44.7										
B-08-10	*D-12*	60	SP	18.7	130.5									
B-08-10	*S-13*	65	SP-SM	16.4				12:82:6						
B-08-10	*D-14*	70	SP	32.9	134.4									
B-08-10	*S-15-1*	75	SP	9.9										
B-08-10	*S-15-2*	75.6	SM	27.7										
B-08-10	*D-16*	80	SP-SM	20.3	129.5									
B-08-11	*S-1*	5	CL	15.7		>4.5		0:43:57	5					
B-08-11	*D-2*	10	CL	15.0	128.0						800	7.5	1300	570
B-08-11	*S-3*	15	SM	30.5				0:75:25						
B-08-11	*D-4*	20	OL	127.5	110.4	<0.25								
B-08-11	*S-5*	25	ML	33.3						34/31/3				
B-08-11	*D-6*	30	OL	66.9	96.9	0.5								
B-08-11	*S-7*	35	ML	32.3				0:23:77						
B-08-11	*D-8*	40	SP-SM	21.2	126.8									
B-08-11	*S-9*	45	MH	41.1						50/32/18				
B-08-11	*D-10*	50	ML to OL	29.3	118.9	0.5								
B-08-11	*S-11*	55	OL	104.5										
B-08-11	*D-12*	60	SP	12.8	136.2									
B-08-11	*S-13*	65	SW-SM	11.3				37:57:6						
B-08-11	*D-14*	70	SP-SM	10.9	139.1									
B-08-11	*S-15*	75	SP-SM	8.3										
B-08-11	*D-16*	80	SP-SM	10.9	142.2									

TABLE 1 SUMMARY OF LABORATORY TEST RESULTS

Project No. : *08-156* **Project Name :** OCPW EGG-Wintersburg Channel, Warner to Edwards

Boring No.	Sample No.	Sample Depth (ft)	Soil Identification (group symbol) ASTM D2488/D2487	Moisture Content ASTM D2216 (%)	Total Unit Weight ASTM D2937 (pcf)	Pocket Penetrometer (tsf)	Torvane Shear (Kg/cm2)	Grain Size Distribution GR:SA:FI (%)	Sand Equivalent (CT-217)	Atterberg Limits ASTM D4318 (LL/PL/PI)	Soil-Minimum Resisivity CT-532 (ohm-cm)	Soil- pH CT-532	Soil-Soluble Sulfate Content CT-417 (ppm)	Soil-Moisture Free Chloride Content CT-422 (ppm)
B-08-12	*S-1*	5	CL to SM	12.0										
B-08-12	*D-2*	10	CL	29.6	115.1	2.0								
B-08-12	*S-3*	15	SM	31.9				0:75:25						
B-08-12	*D-4*	20	CL/OL	55.7	102.3	0.25		0:2:98						
B-08-12	*S-5*	25	CH	56.6						79/36/43	650	7.7	250	807
B-08-12	*D-6*	30	ML to OL	43.5	113.3	0.75 to 0.25								
B-08-12	*S-7*	35	ML to CL	38.9										
B-08-12	*D-8*	40	ML	25.3	121.6	3.5								
B-08-12	*S-9*	45	ML	32.9				0:25:75						
B-08-12	*D-10*	50	CL	36.6	102.3	0.75								
B-08-12	*S-11*	55	SP-SM	14.4										
B-08-12	*D-12*	60	SM	27.2	124.1			0:67:33						
B-08-12	*D-14*	70	SP-SM	14.1	141.6									
B-08-12	*S-15*	75	SP-SM	10.3										
B-08-12	*D-16*	80	SM	28.5	120.3									



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

Symbol	Boring Number	Sample Number	Depth (ft)	Depth (m)	Soil Color	Soil Description	U.S.C.S.
●	B-08-08	S-1	5		Dark olive-brown	Silt with sand	ML
Remark	0.00						

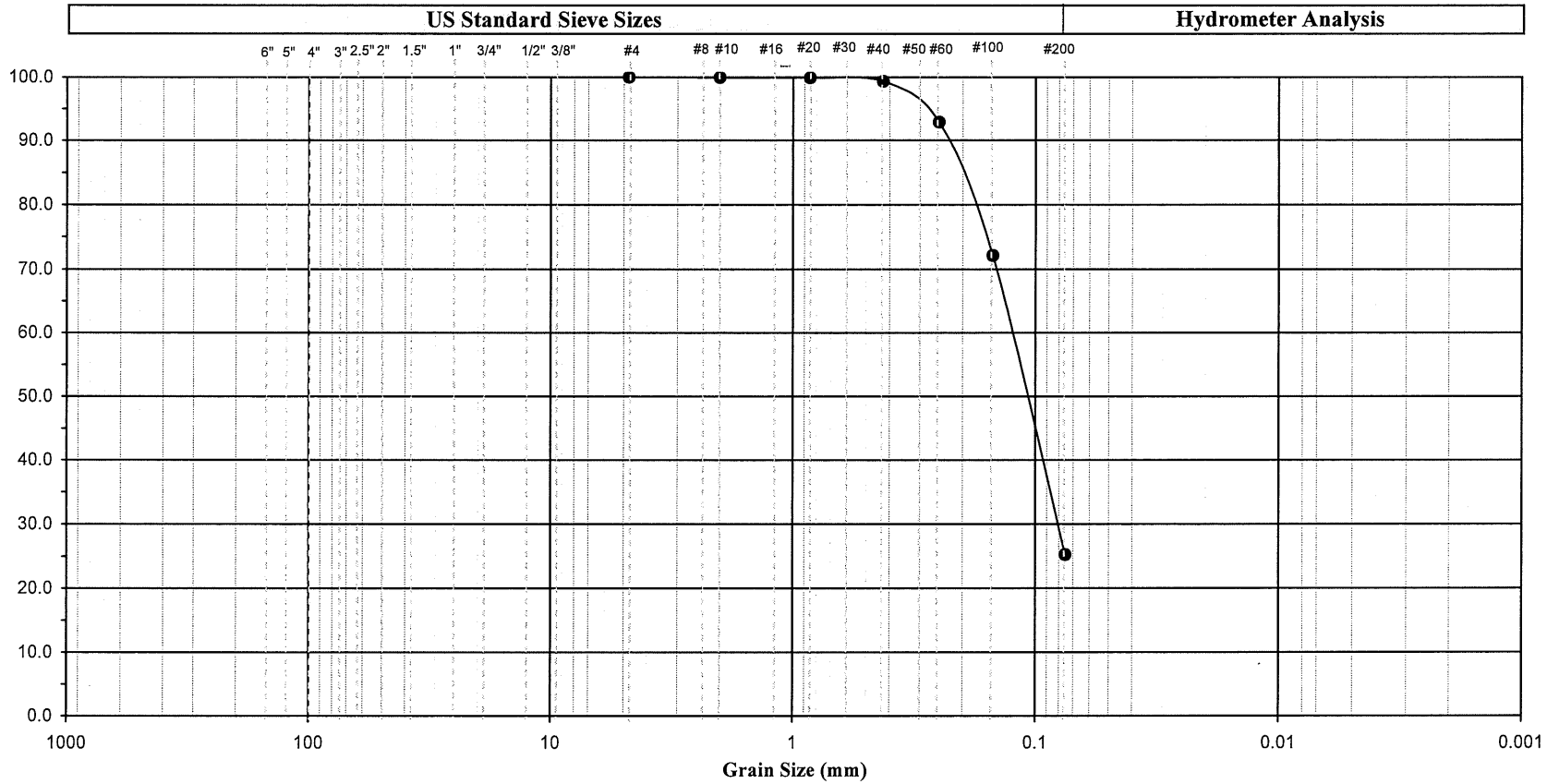
Earth Mechanics, Inc.
Geotechnical and Earthquake Engineering

OCPW EGG-Wintersburg Channel, Warner to Edwards

Project No. : *08-156* **Date :** *01/07/09*

GRAIN SIZE ANALYSIS
(ASTM D-422-63)

Figure No. :



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

Symbol	Boring Number	Sample Number	Depth (ft)		Depth (m)		Soil Color	Soil Description	U.S.C.S.
●	B-08-11	S-3	15				Gray	Silty sand	SM
Remark									

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Project No. : 08-156 Date : 01/07/09

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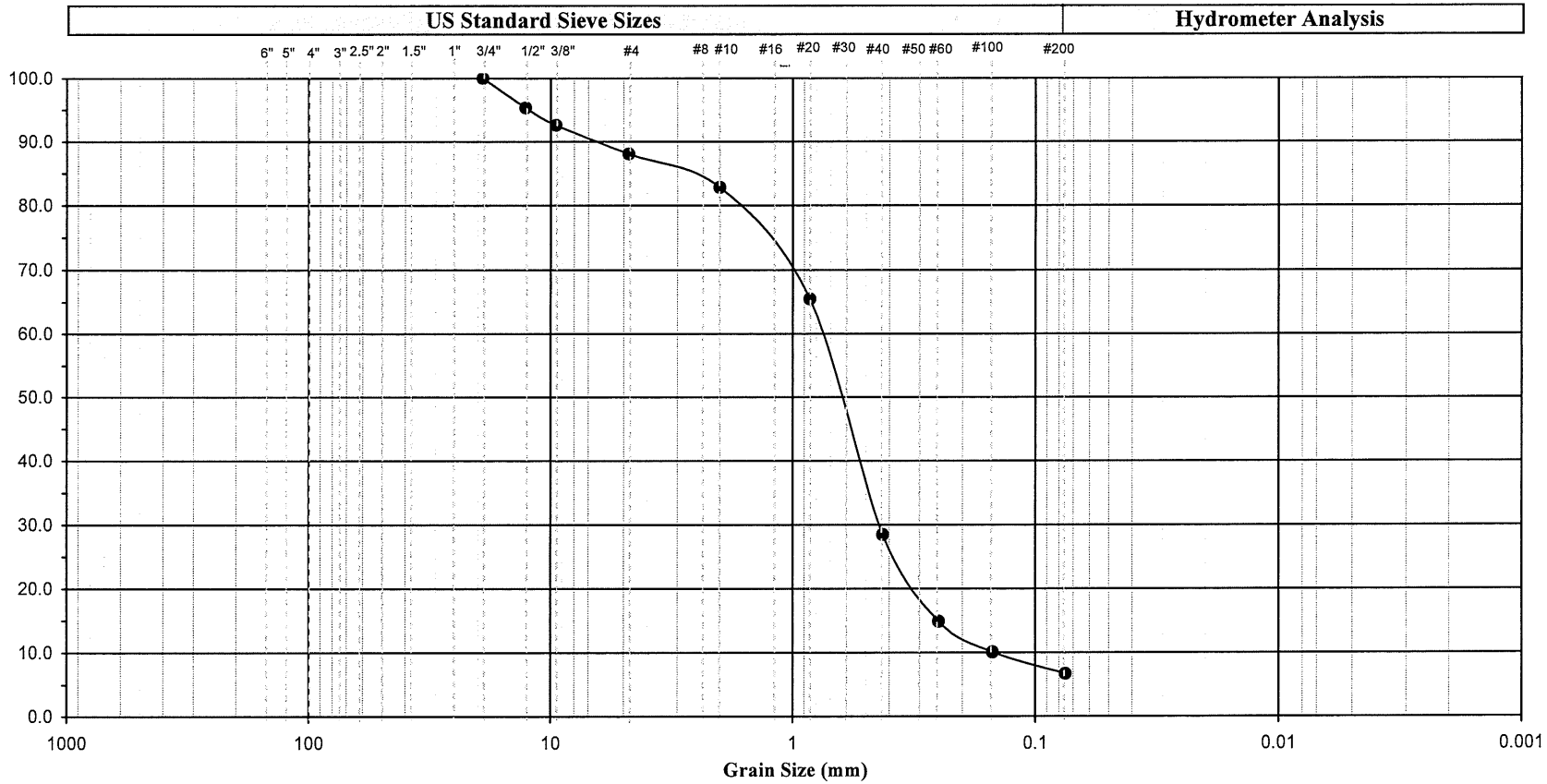
(ASTM D-422-63)

Figure No. :



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

Symbol	Boring Number	Sample Number	Depth (ft)	Depth (m)	Soil Color	Soil Description	U.S.C.S.
●	B-08-09	S-13	65		Dark gray with yellow	Poorly graded sand with silt	SP-SM
Remark							

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Project No. : *08-156* **Date :** *01/07/09*

GRAIN SIZE ANALYSIS
(ASTM D-422-63)

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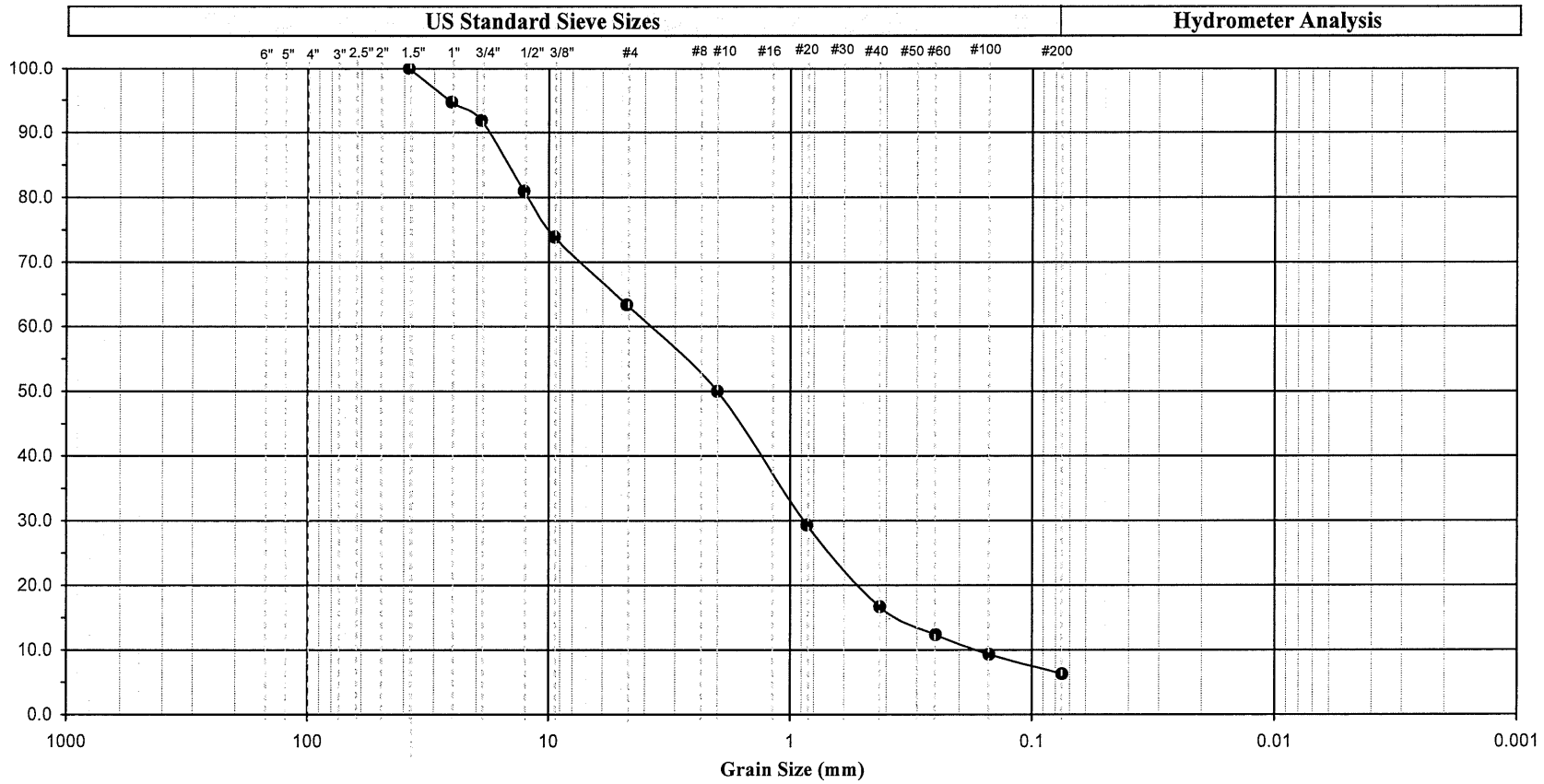

Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

Symbol	Boring Number	Sample Number	Depth (ft)	Depth (m)	Soil Color	Soil Description	U.S.C.S.
●	B-11	S-13	65.0		Light olive-gray	Well graded sand with silt with gravel	SW-SM
Remark							

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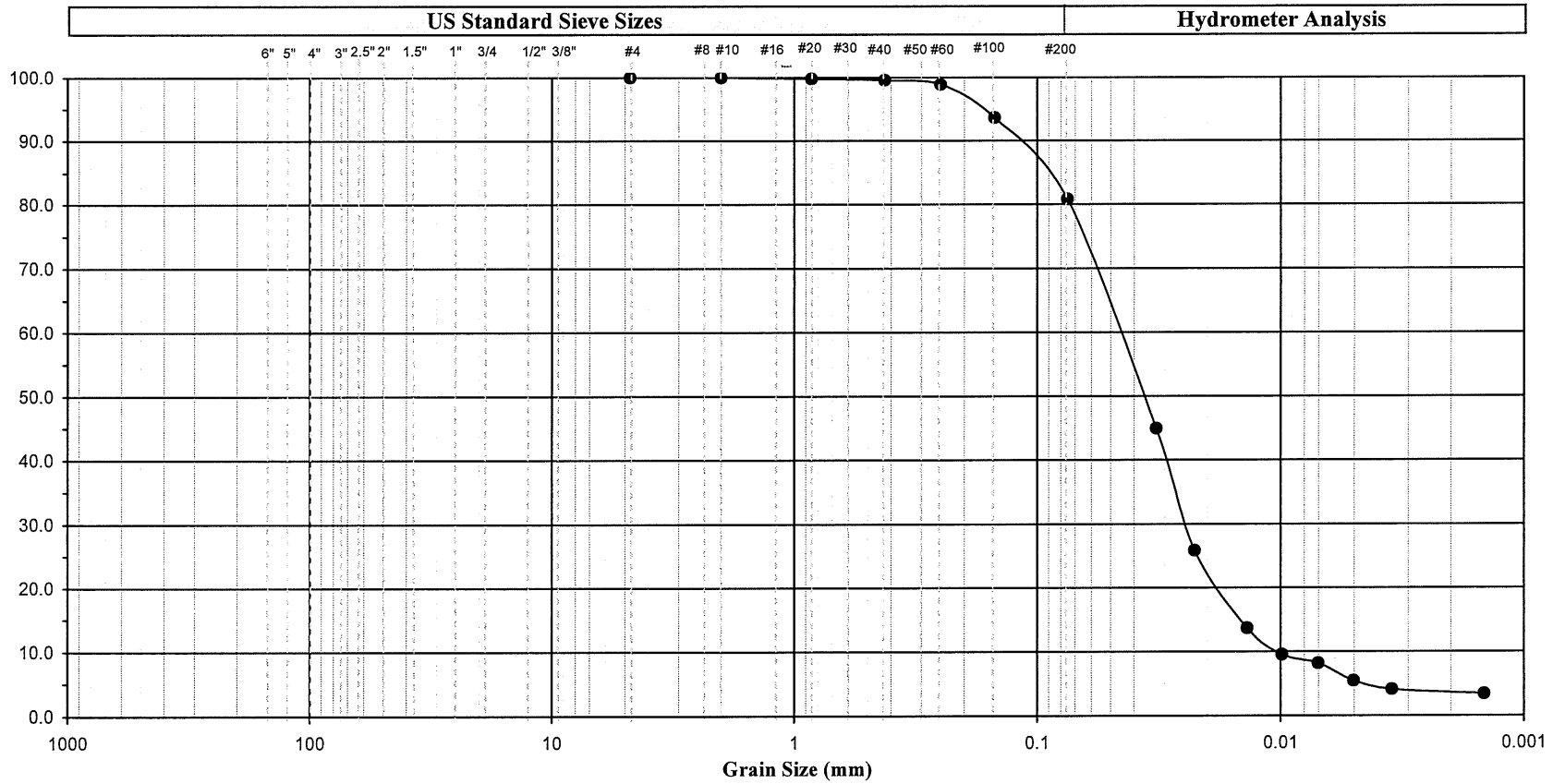
Project No. : *08-156* **Date :** *01/07/09*

GRAIN SIZE ANALYSIS
(ASTM D-422-63)

Figure No. :



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

Symbol	Boring Number	Sample Number	Depth (ft)		Depth (m)		Soil Color	Soil Description	U.S.C.S.
●	B-08-05	S-7	35.0	1.0	10.68	0.31	Gray	Silt with sand	ML
Remark	0.00								

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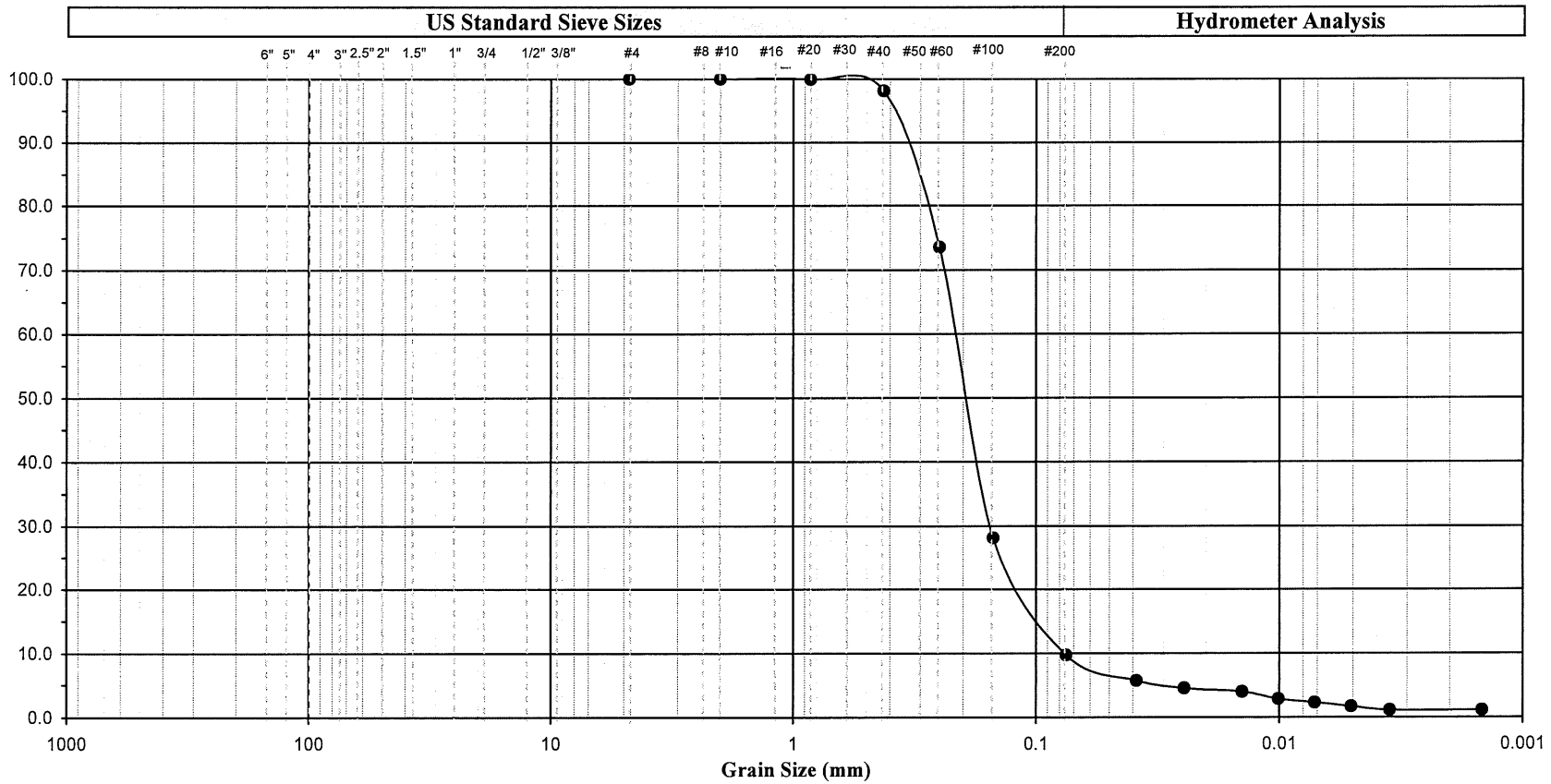
Geotechnical and Earthquake Engineering

OCPW EGG-Wintersburg Channel, Warner to Edwards

Project No. : 08-156 Date : 01/17/09

GRAIN SIZE ANALYSIS
(ASTM D-422-63)

Figure No. :



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

Symbol	Boring Number	Sample Number	Depth (ft)		Depth (m)		Soil Color	Soil Description	U.S.C.S.
●	B-08-06	S-9	45.0	1.0	13.73	0.31	Olive-gray	Poorly graded sand with silt	SP-SM
Remark	0.00								

Earth Mechanics, Inc.
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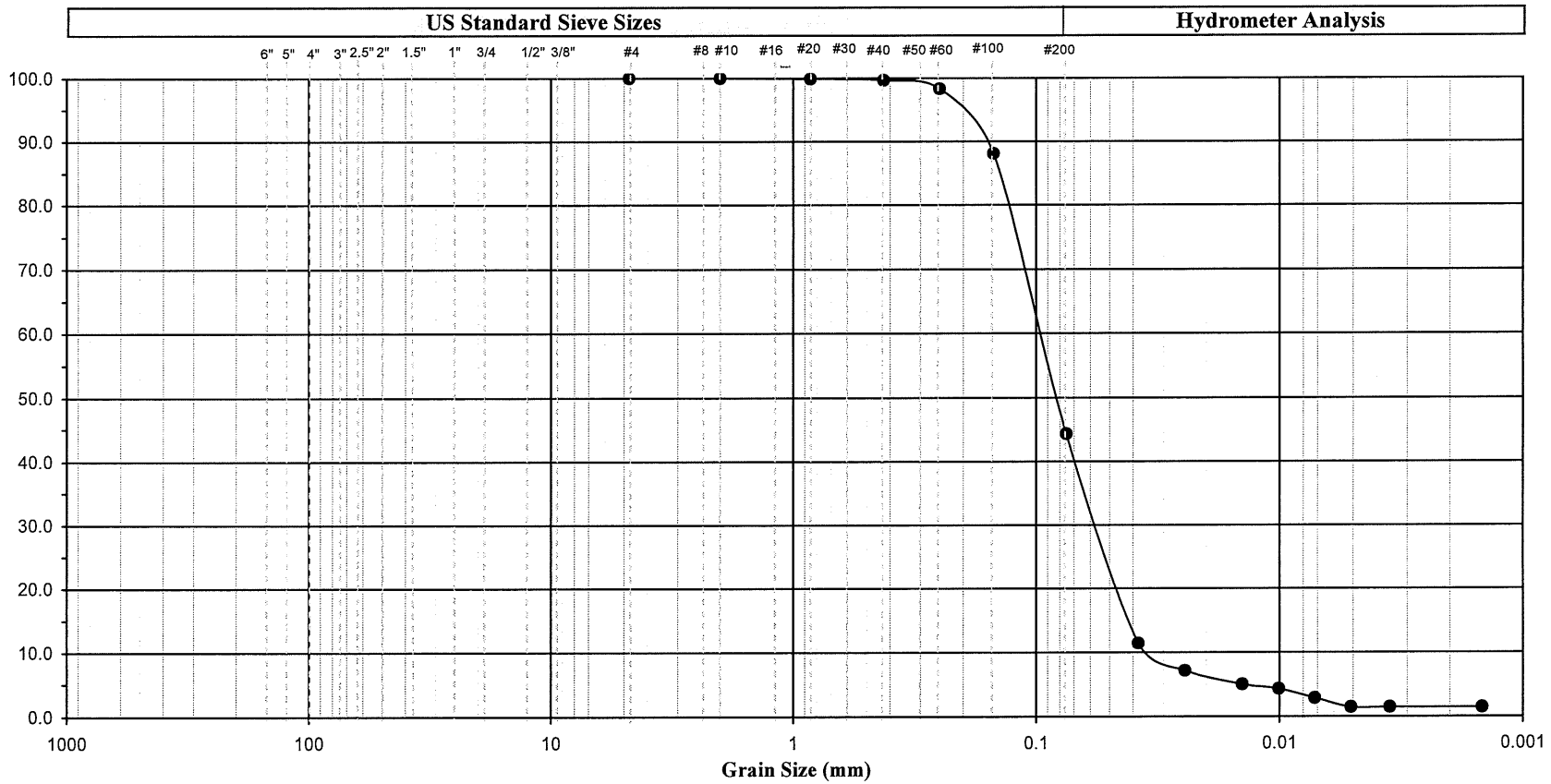
Project No. : 08-156 Date : 01/17/09

GRAIN SIZE ANALYSIS
(ASTM D-422-63)

Figure No. :



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

Symbol	Boring Number	Sample Number	Depth (ft)		Depth (m)		Soil Color	Soil Description	U.S.C.S.
●	B-08-07	S-5	25.0	1.0	7.63	0.31	Gray	Silty sand	SM
Remark	0.00								

Earth Mechanics, Inc.
Geotechnical and Earthquake Engineering

OCPW EGG-Wintersburg Channel, Warner to Edwards

Project No. : 08-156 Date : 01/17/09

GRAIN SIZE ANALYSIS
(ASTM D-422-63)

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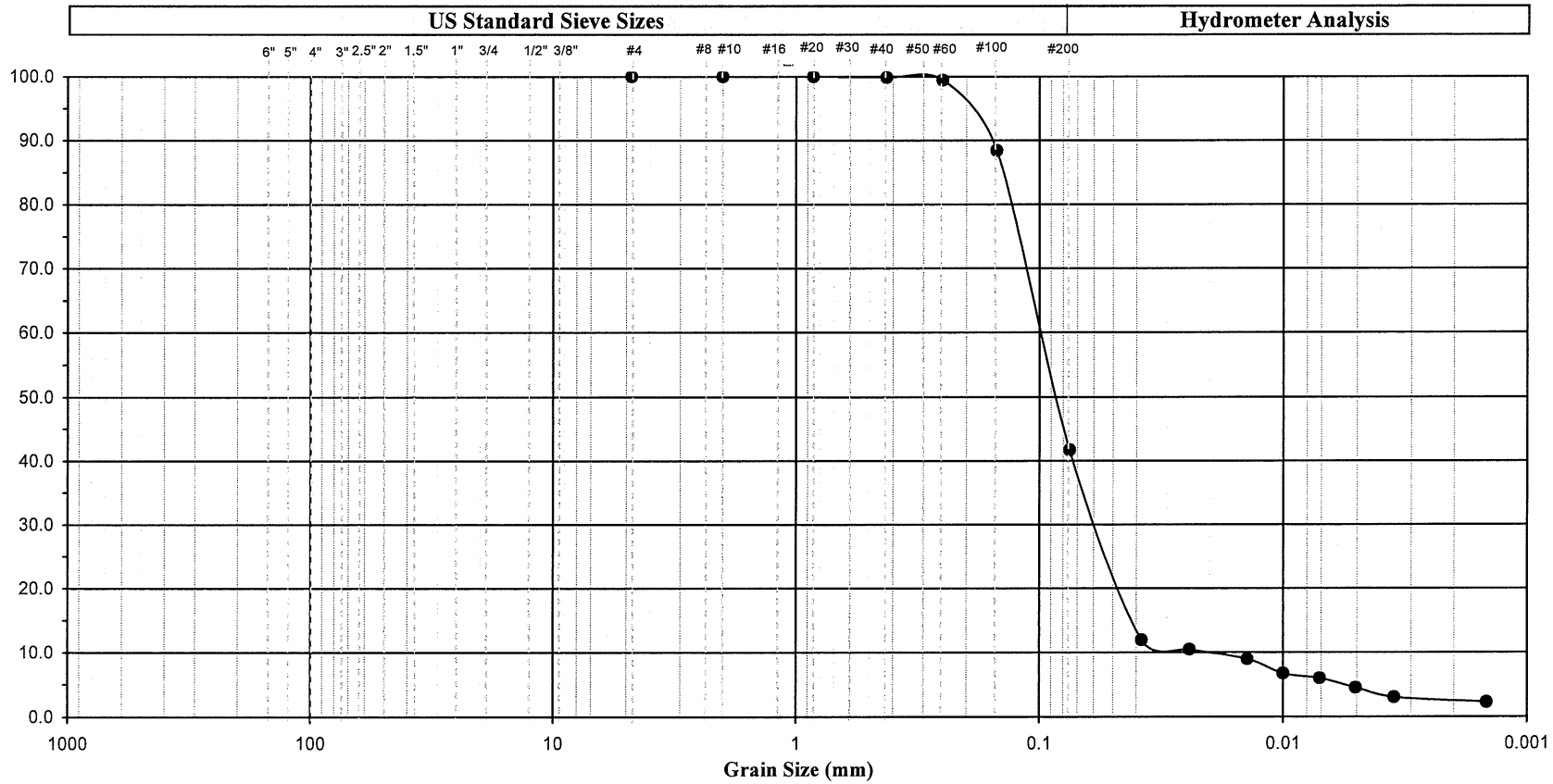

Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

Symbol	Boring Number	Sample Number	Depth (ft)		Depth (m)		Soil Color	Soil Description	U.S.C.S.
●	B-08-07	S-11	55.0	1.0	16.78	0.31	dark gray	Silty sand	SM
Remark	0.00								

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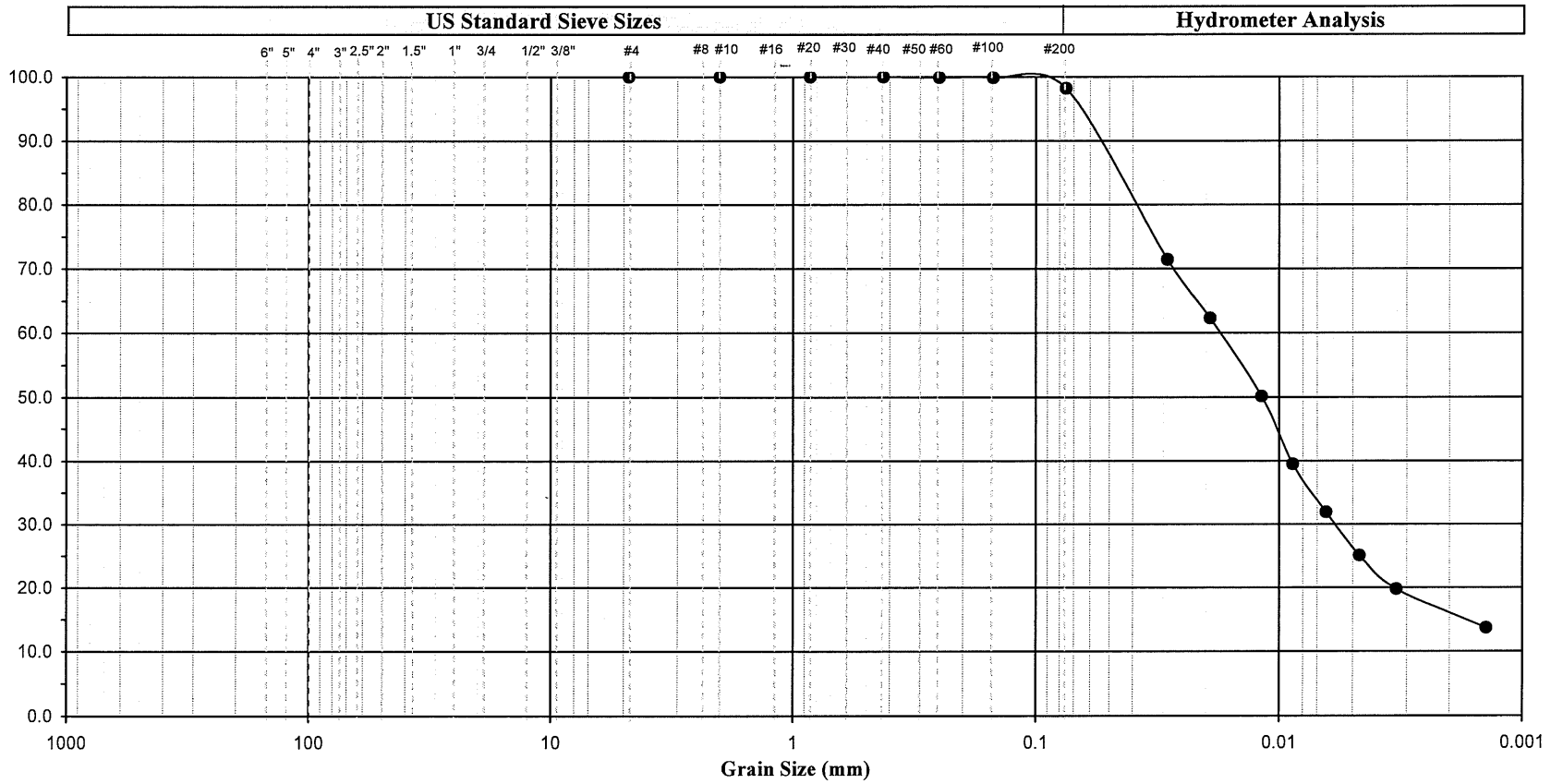

Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

Symbol	Boring Number	Sample Number	Depth (ft)		Depth (m)		Soil Color	Soil Description	U.S.C.S.
●	B-08-08	D-6	30.0	1.0	9.15	0.31	Dark greenish gray	Lean clay	CL
Remark	0.00								

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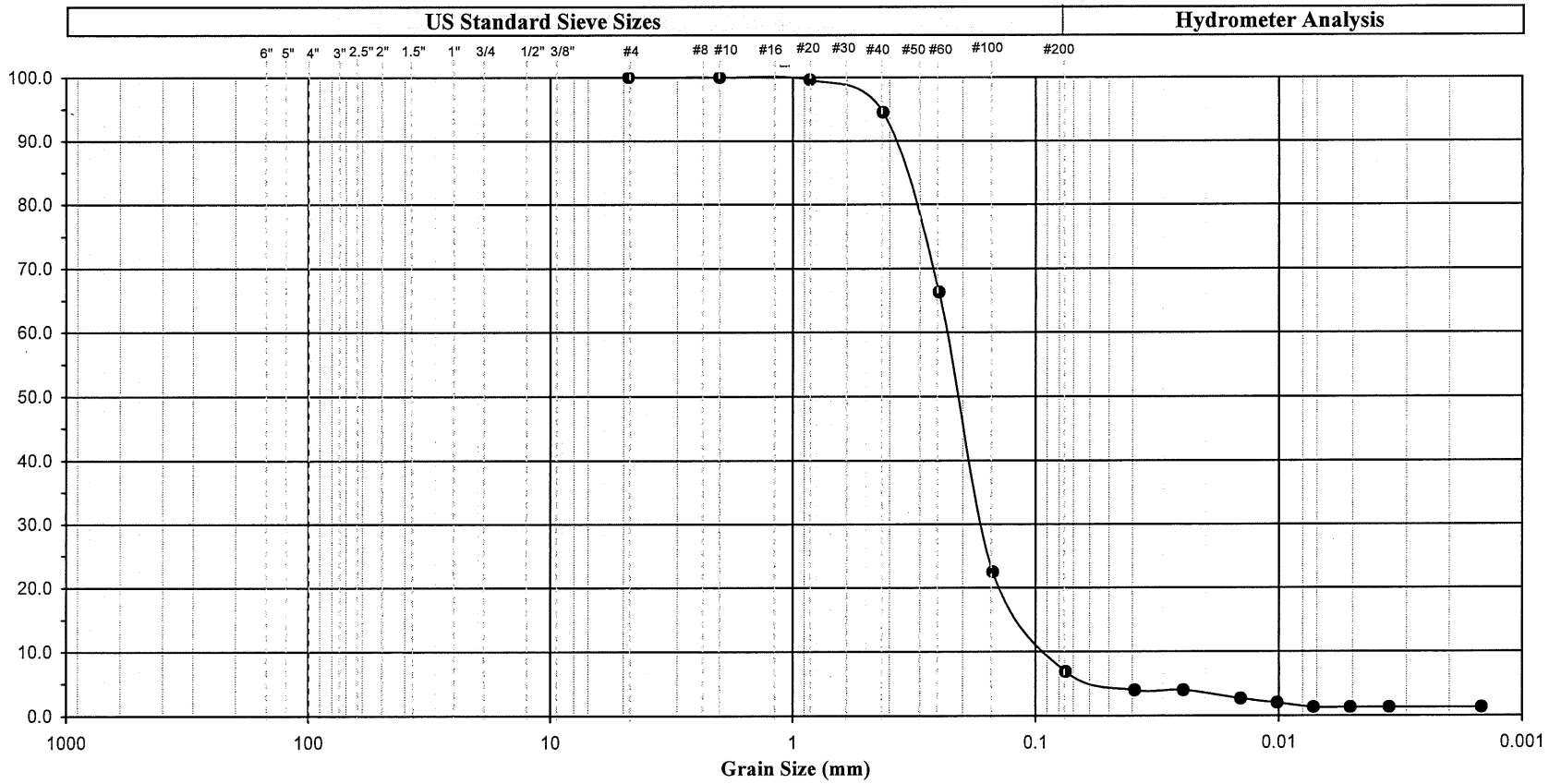
GRAIN SIZE ANALYSIS
(ASTM D-422-63)

Figure No. :



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

Symbol	Boring Number	Sample Number	Depth (ft)		Depth (m)		Soil Color	Soil Description	U.S.C.S.
●	B-08-09	S-5	25.0	1.0	7.63	0.31	Dark gray	Poorly graded sand with silt	SP-SM
Remark	0.00								

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GRAIN SIZE ANALYSIS
(ASTM D-422-63)

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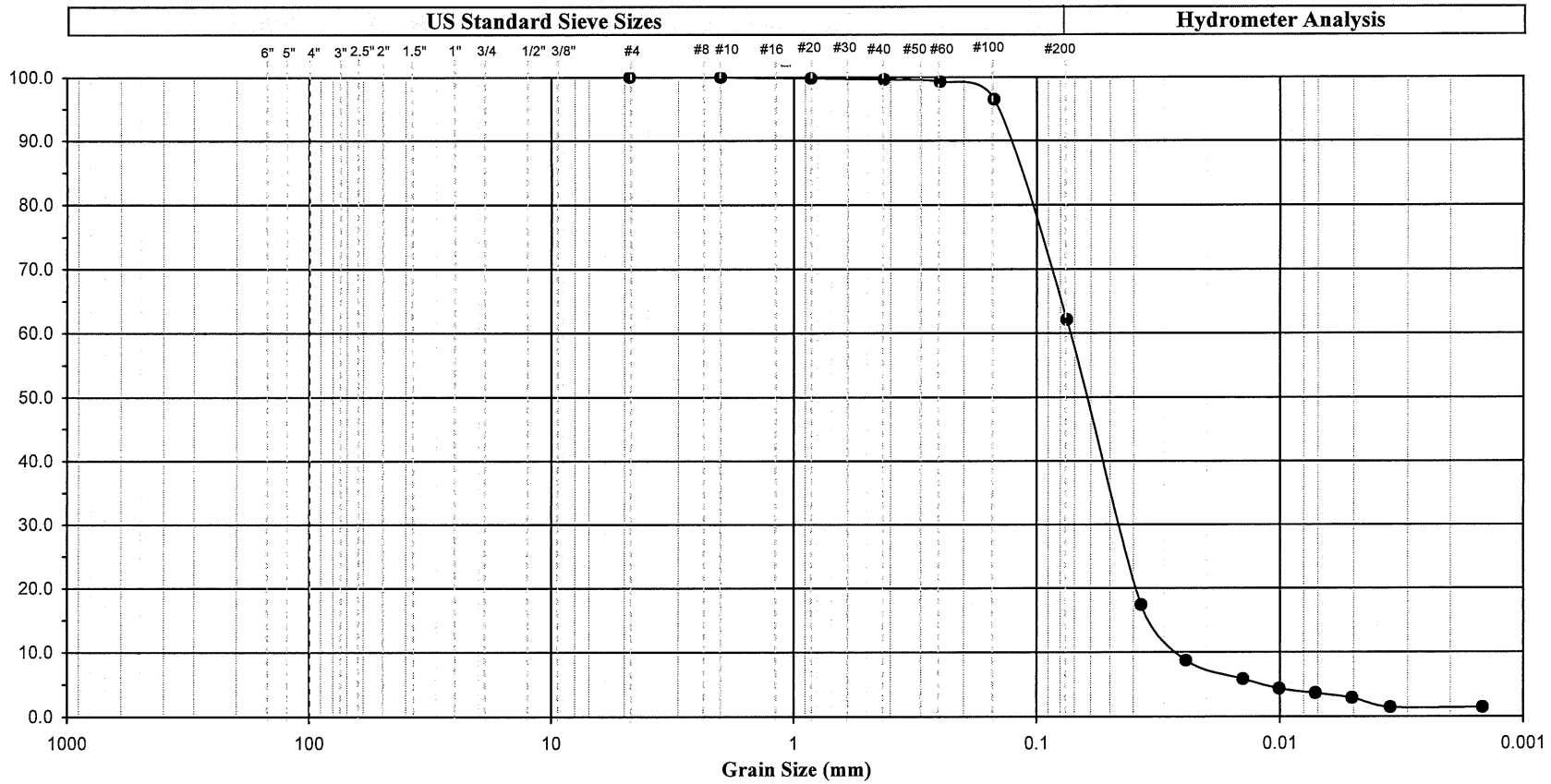

Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

Symbol	Boring Number	Sample Number	Depth (ft)		Depth (m)		Soil Color	Soil Description	U.S.C.S.
●	B-08-10	S-5	25.0	1.0	7.63	0.31	Olive-brown	Sandy silt	ML
Remark	0.00								

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GRAIN SIZE ANALYSIS
(ASTM D-422-63)

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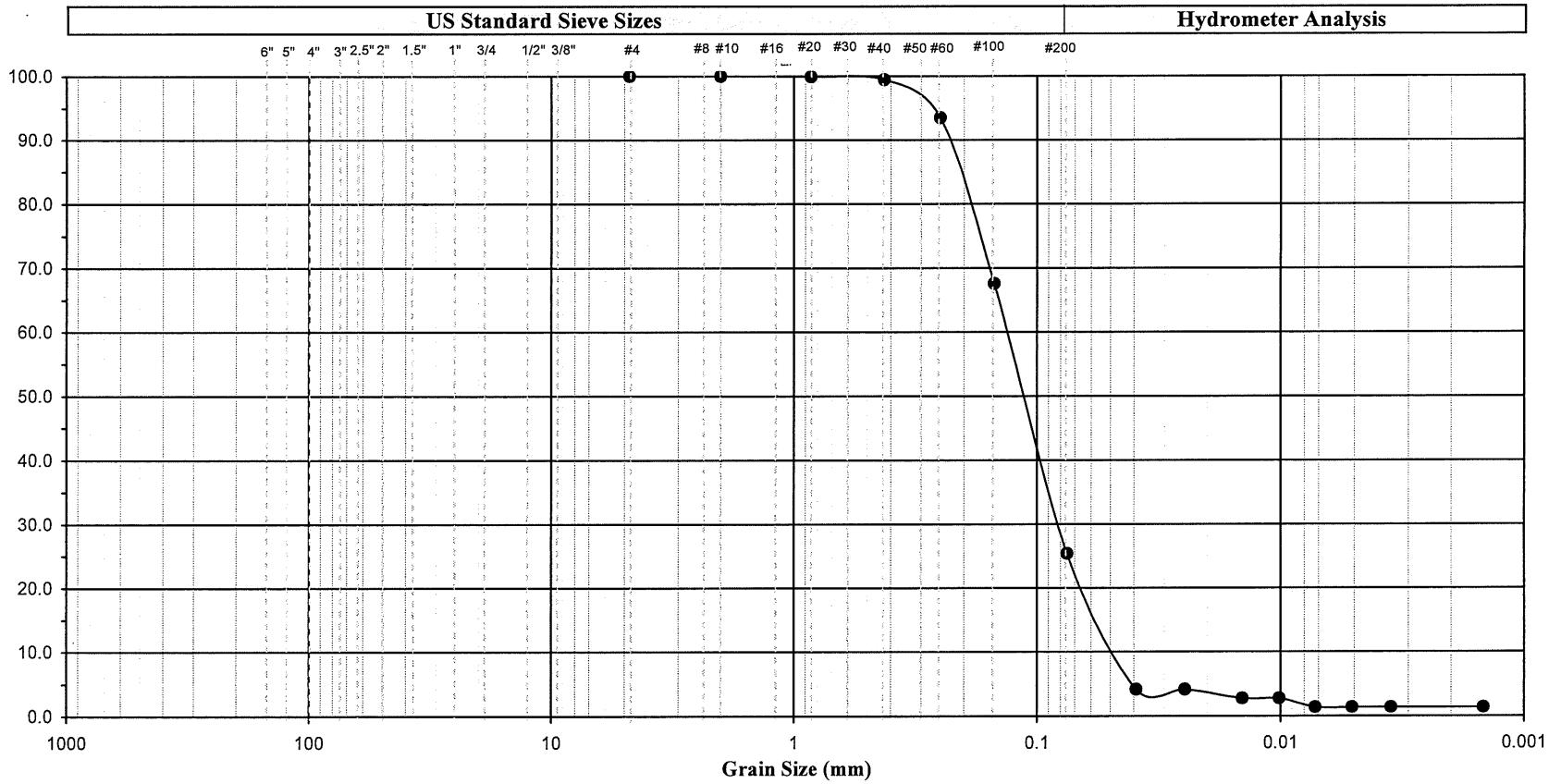

Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

Symbol	Boring Number	Sample Number	Depth (ft)		Depth (m)		Soil Color	Soil Description	U.S.C.S.
●	B-08-12	S-3	15.0	1.0	4.58	0.31	Gray	Silty sand	SM
Remark	0.00								

Earth Mechanics, Inc.
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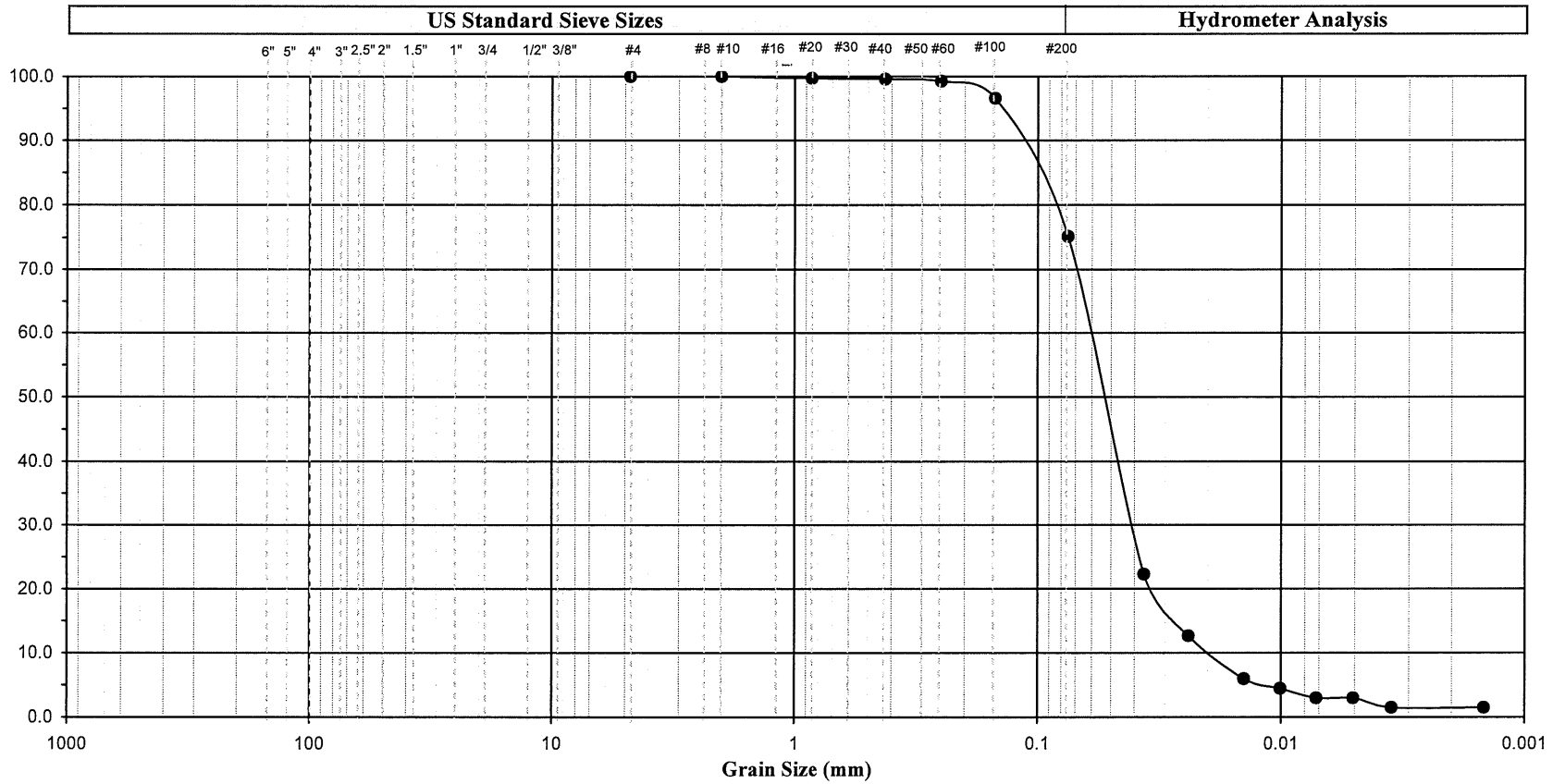
GRAIN SIZE ANALYSIS
(ASTM D-422-63)

Figure No. :



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

Symbol	Boring Number	Sample Number	Depth (ft)		Depth (m)		Soil Color	Soil Description	U.S.C.S.
●	B-08-12	S-9	45.0	1.0	13.73	0.31	Dark gray	Silt with sand	ML
Remark	0.00								

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Project No. : 08-156 Date : 01/17/09

GRAIN SIZE ANALYSIS
(ASTM D-422-63)

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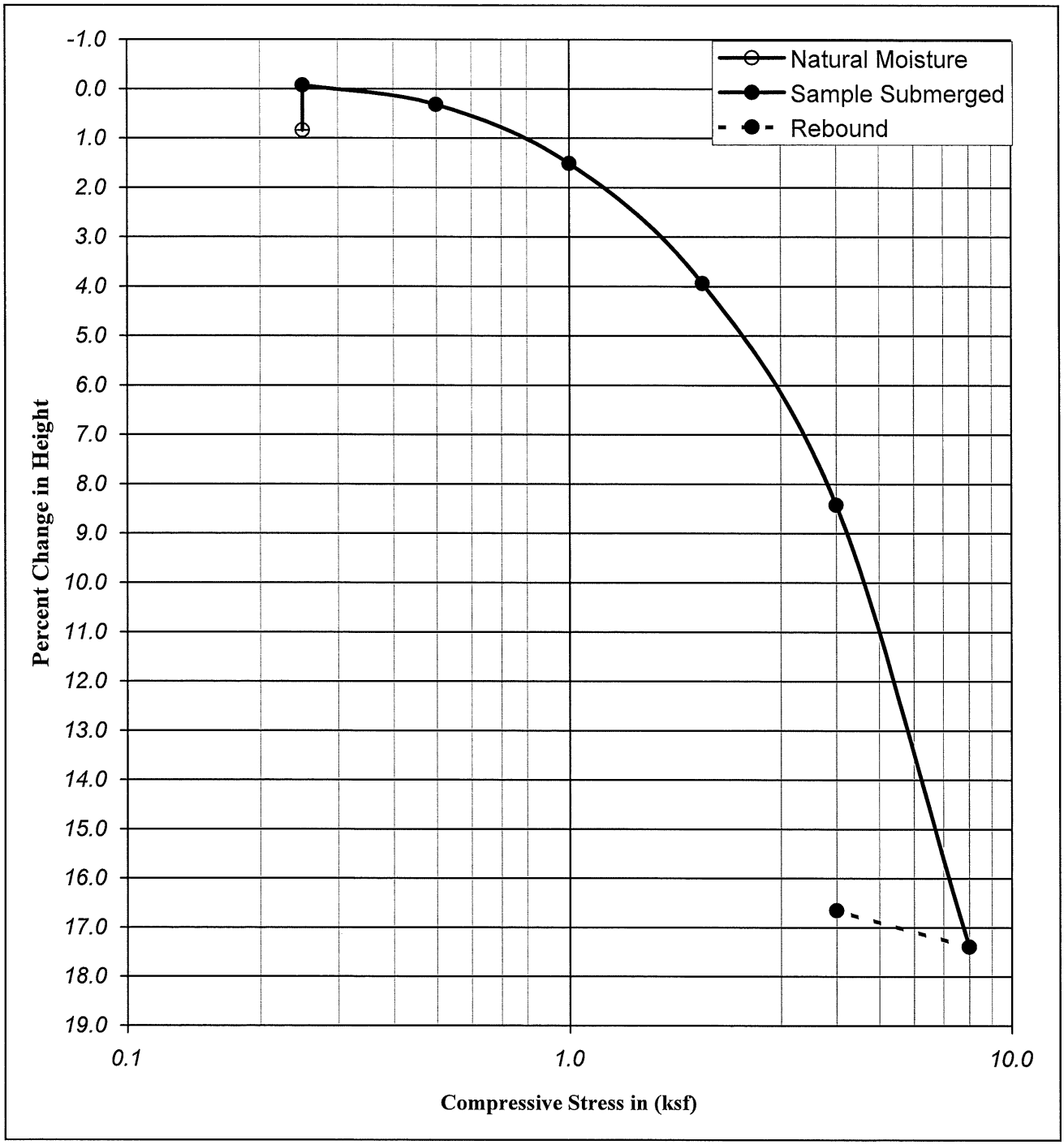


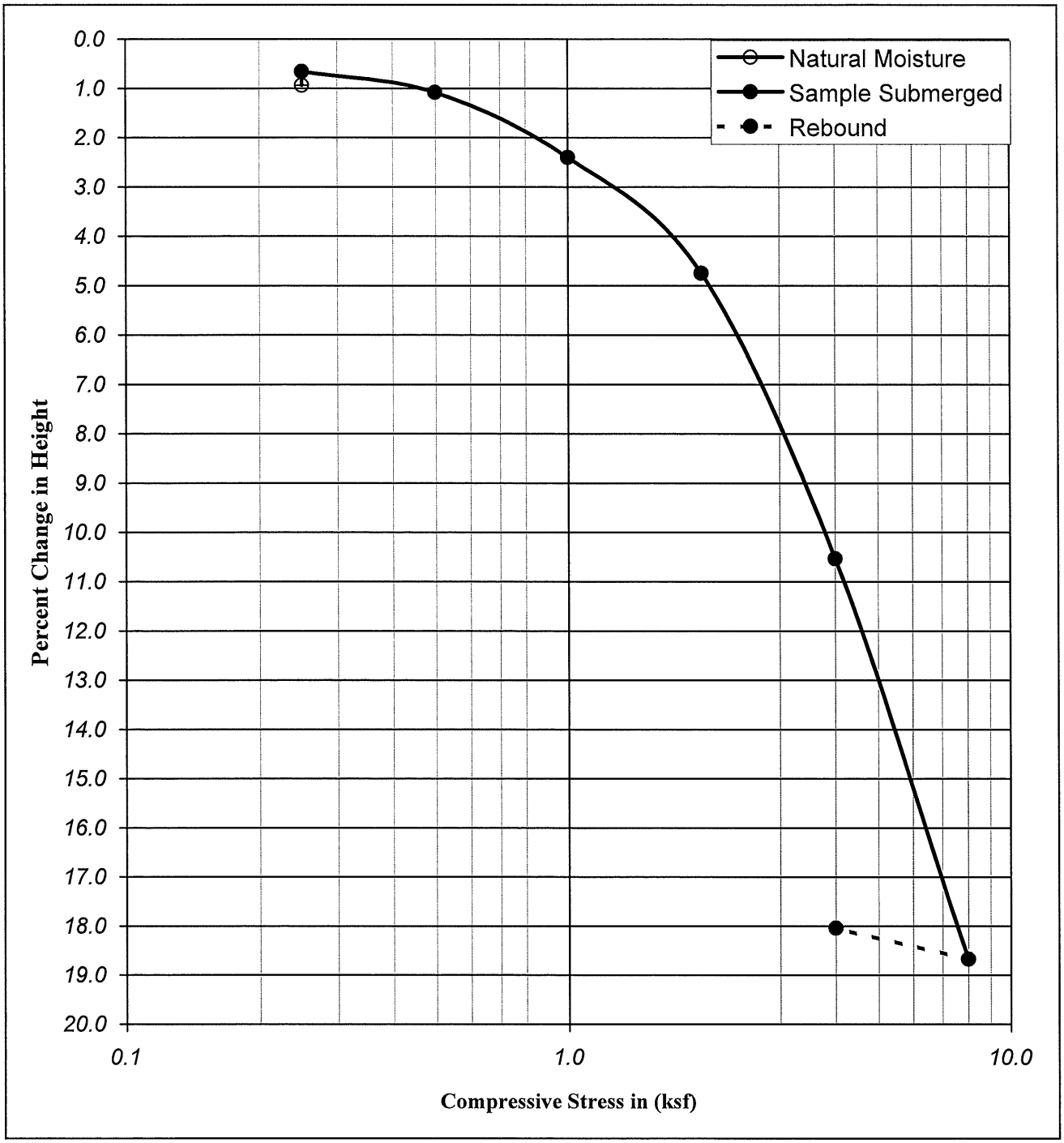
Boring No.	: B-08-05			Liquid Limit :	-		Moisture Content (%)	Dry Density		Percent Saturation	Void Ratio
Sample No.	: D-6-1			Plastic Limit :	-			(pcf)	(kN/m³)		
Depth	(ft) : 30.5		32.0	Plastic Index :	-	Initial	63.56	61.93	9.75	99.68	1.72
	(m) : 9.30		9.76	Specific Gravity :	2.70	Final	51.51	74.49	11.73	110.14	1.26
Description	: Dark greenish gray, lean CLAY (CL)										

Earth Mechanics, Inc.
Geotechnical and Earthquake Engineering

OCPW EGG-Wintersburg Channel, Warner to Edwards

Project No. : 08-156 01/21/09

CONSOLIDATION TEST
(ASTM D-2435 / CT-219)



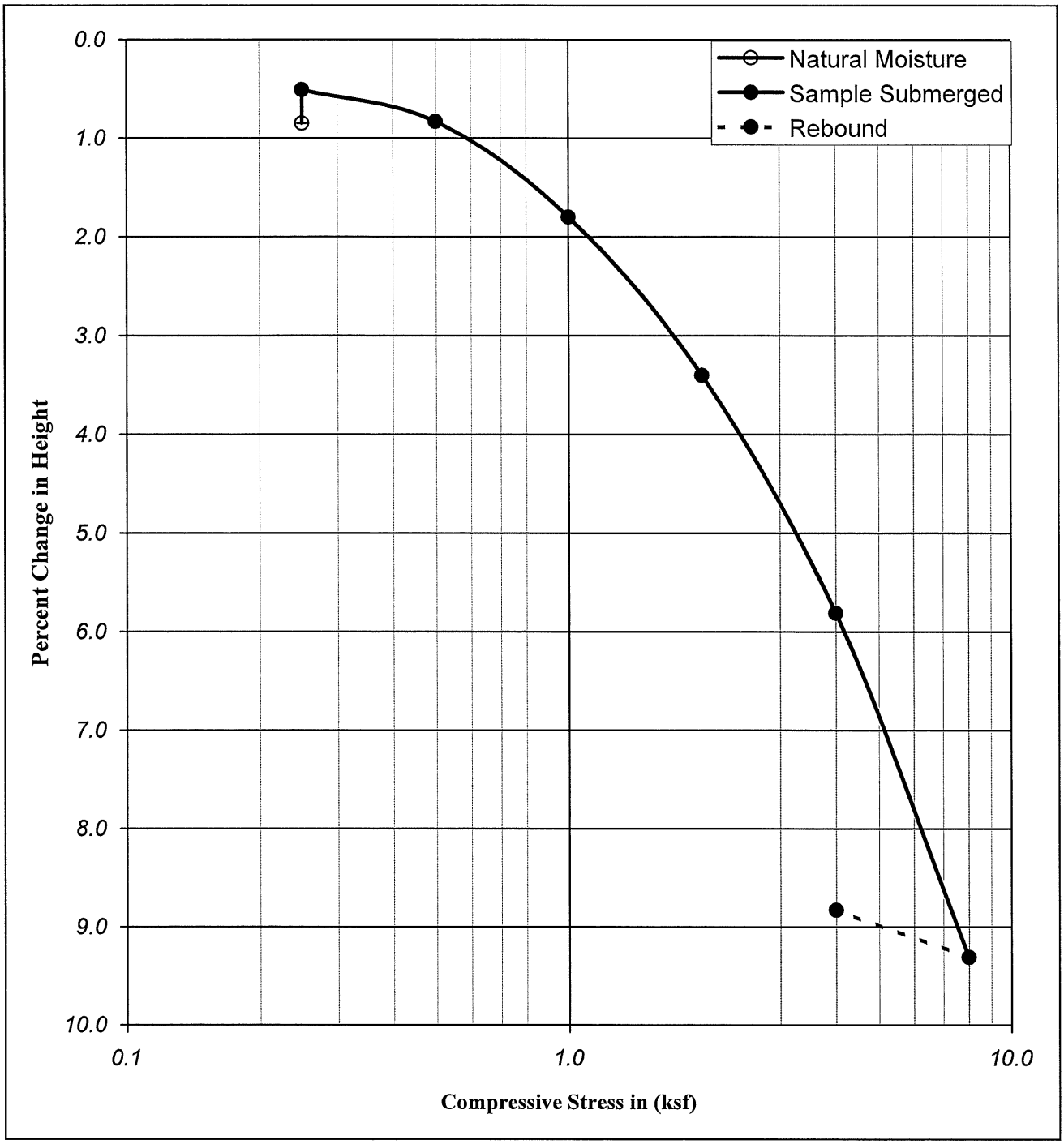
Boring No. : B-08-07			Liquid Limit :	-		Moisture Content (%)	Dry Density		Percent Saturation	Void Ratio
Sample No. : D-4-1			Plastic Limit :	-			(pcf)	(kN/m³)		
Depth	(ft) : 20.0	21.5	Plastic Index :	-	Initial	64.82	61.37	9.66	100.20	1.75
	(m) : 6.10	6.56	Specific Gravity :	2.70	Final	49.87	75.06	11.81	108.09	1.25
Description : Dark greenish gray, lean CLAY (CL)										

Earth Mechanics, Inc.
Geotechnical and Earthquake Engineering

OCPW EGG-Wintersburg Channel, Warner to Edwards

Project No. : 08-156 01/21/09

CONSOLIDATION TEST
(ASTM D-2435 / CT-219)



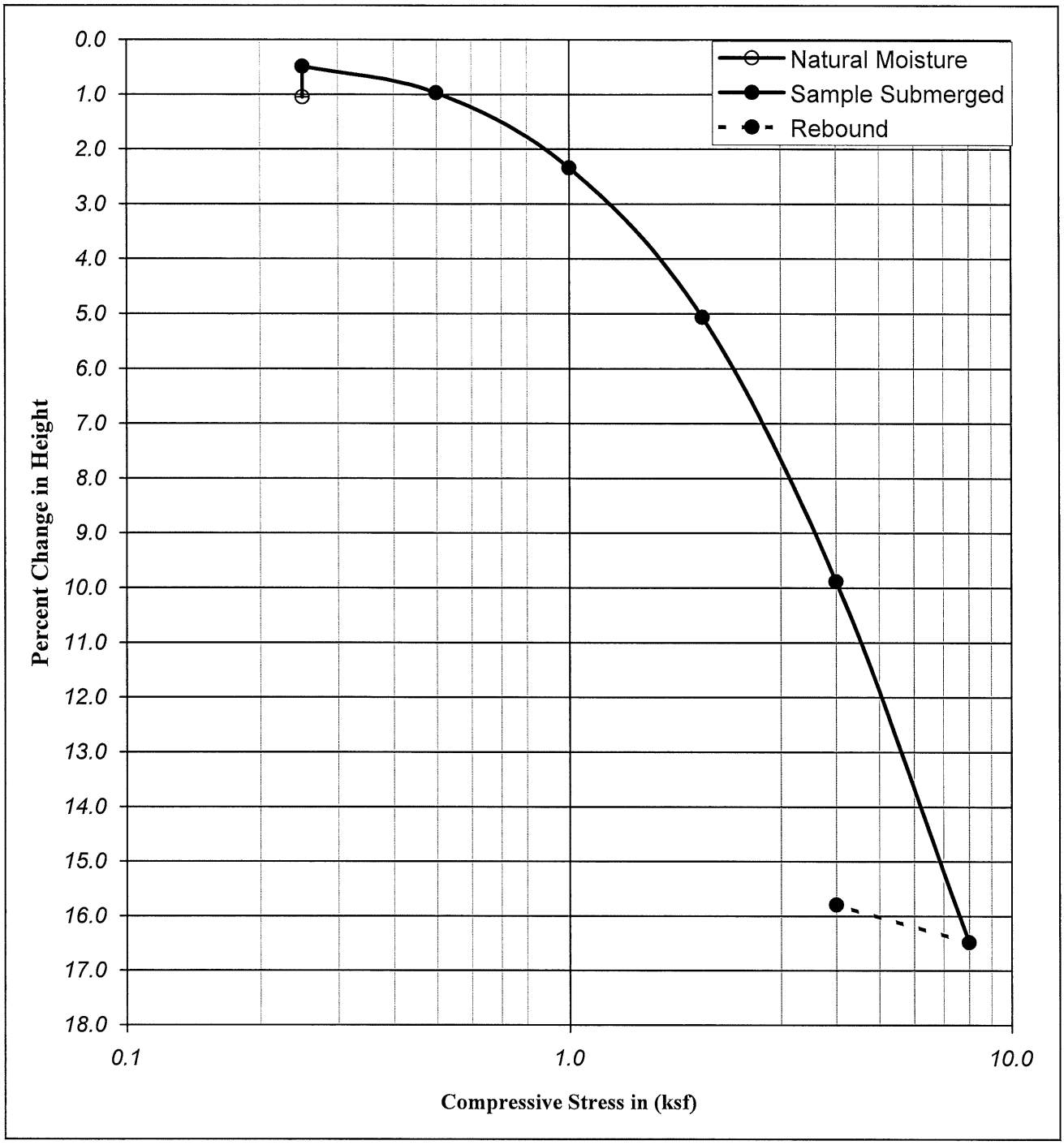
Boring No.	: B-08-09		Liquid Limit :	-		Moisture Content (%)	Dry Density (pcf)	Dry Density (kN/m³)	Percent Saturation	Void Ratio
Sample No.	: D-8-1		Plastic Limit :	-						
Depth (ft)	: 40.0	41.5	Plastic Index :	-	Initial	41.18	80.18	12.62	100.88	1.10
Depth (m)	: 12.20	12.66	Specific Gravity :	2.70	Final	37.90	88.13	13.87	112.12	0.91
Description	: Dark greenish gray, lean CLAY (CL)									

Earth Mechanics, Inc.
Geotechnical and Earthquake Engineering

OCPW EGG-Wintersburg Channel, Warner to Edwards

Project No. : 08-156 01/21/09

CONSOLIDATION TEST
(ASTM D-2435 / CT-219)



Boring No.	: B-08-12		Liquid Limit :	-		Moisture Content (%)	Dry Density (pcf)	Dry Density (kN/m³)	Percent Saturation	Void Ratio
Sample No.	: D-4-2		Plastic Limit :	-						
Depth (ft)	: 20.5	22.0	Plastic Index :	-	Initial	75.87	54.43	8.57	97.69	2.10
Depth (m)	: 6.25	6.71	Specific Gravity :	2.70	Final	64.59	64.76	10.19	108.81	1.60
Description	: Dark greenish gray with black, lean CLAY with ORGANIC (CL)									

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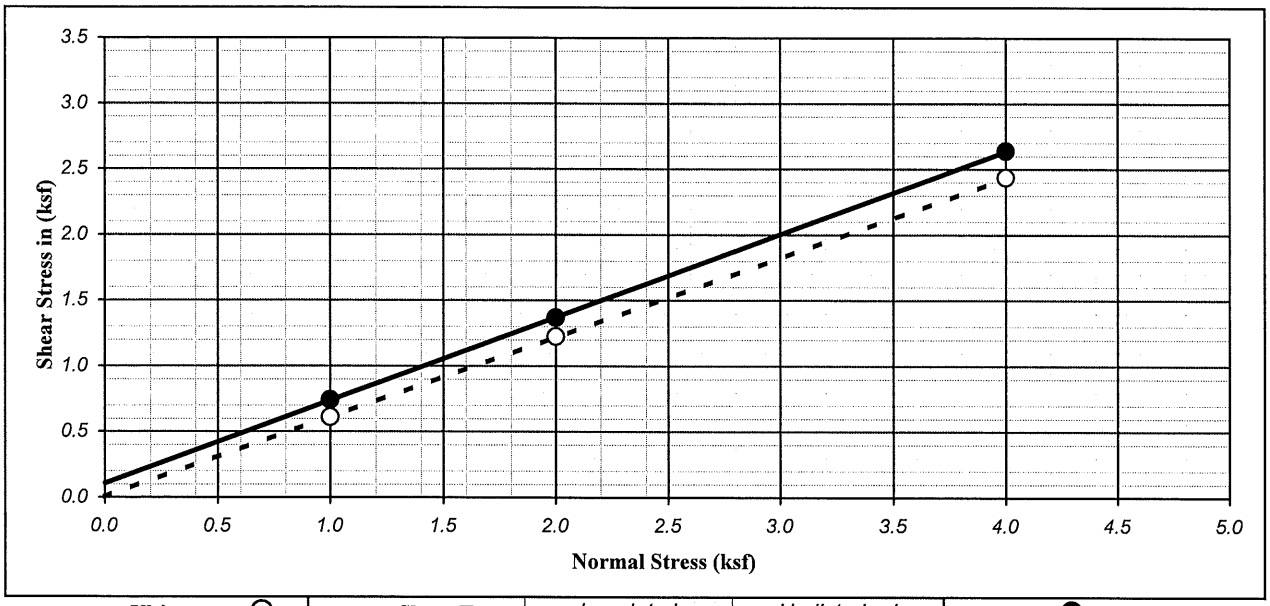
Geotechnical and Earthquake Engineering

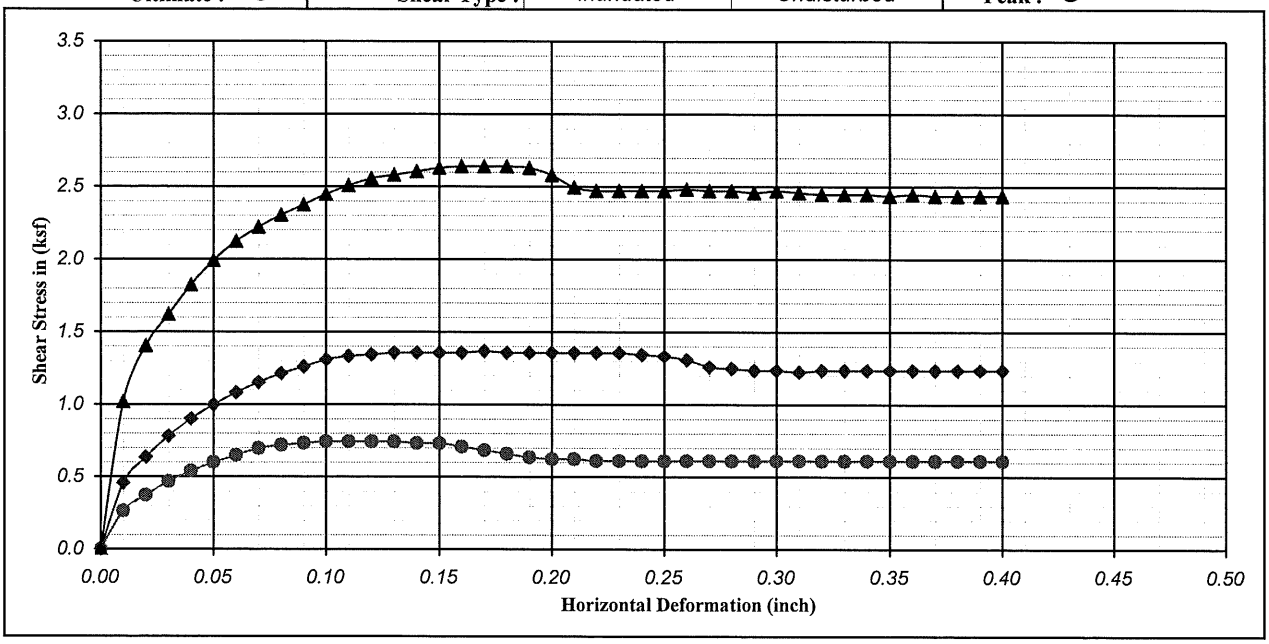
OCPW EGG-Wintersburg Channel, Warner to Edwards

Project No. : 08-156 01/21/09

CONSOLIDATION TEST
(ASTM D-2435 / CT-219)



Ultimate : ○	Shear Type :	Inundated	Undisturbed	Peak : ●



Boring No. : B-08-05		**Strength Intercept (C) :**	0.11	(ksf)	**Peak**	0.01	(ksf)	**Ultimate**
Sample No. : D-4			5.17	(kPa)		0.29	(kPa)	
Depth (ft/m) : 20.0	0.00	**Friction Angle (ϕ) :**	32.32	Degree		31.29	Degree	
Description : Dark gray, SILT with SAND (ML)						**Shear Rate** (inch/minute) :		0.02

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	DRY DENSITY (kN/m^3)	VOID RATIO	NORMAL STRESS (ksf)	NORMAL STRESS (kPa)	PEAK STRESS (ksf)	PEAK STRESS (kPa)	ULTIMATE STRESS (ksf)	ULTIMATE STRESS (kPa)
●	36.42	86.91	13.68	0.94	1.00	47.88	0.74	35.62	0.61	29.30
◆	40.30	84.18	13.25	1.00	2.00	95.76	1.37	65.50	1.22	58.61
▲	33.97	90.54	14.25	0.86	4.00	191.52	2.64	126.40	2.44	116.64

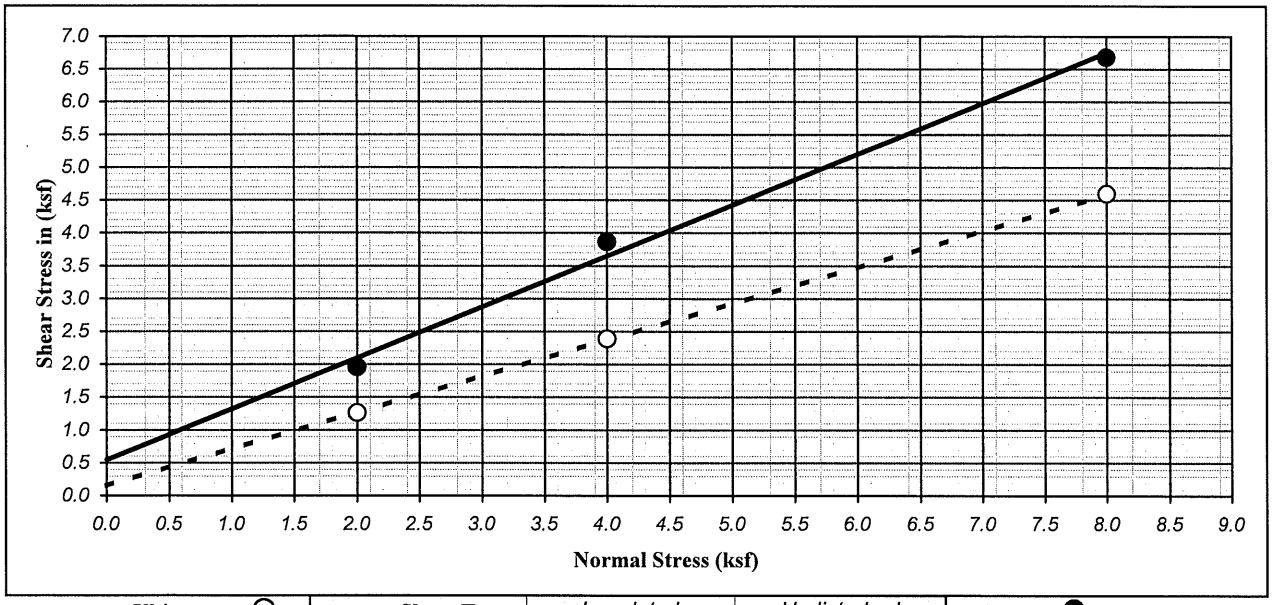
Earth Mechanics, Inc.
Geotechnical and Earthquake Engineering

OCPW EGG-Wintersburg Channel, Warner to Edwards

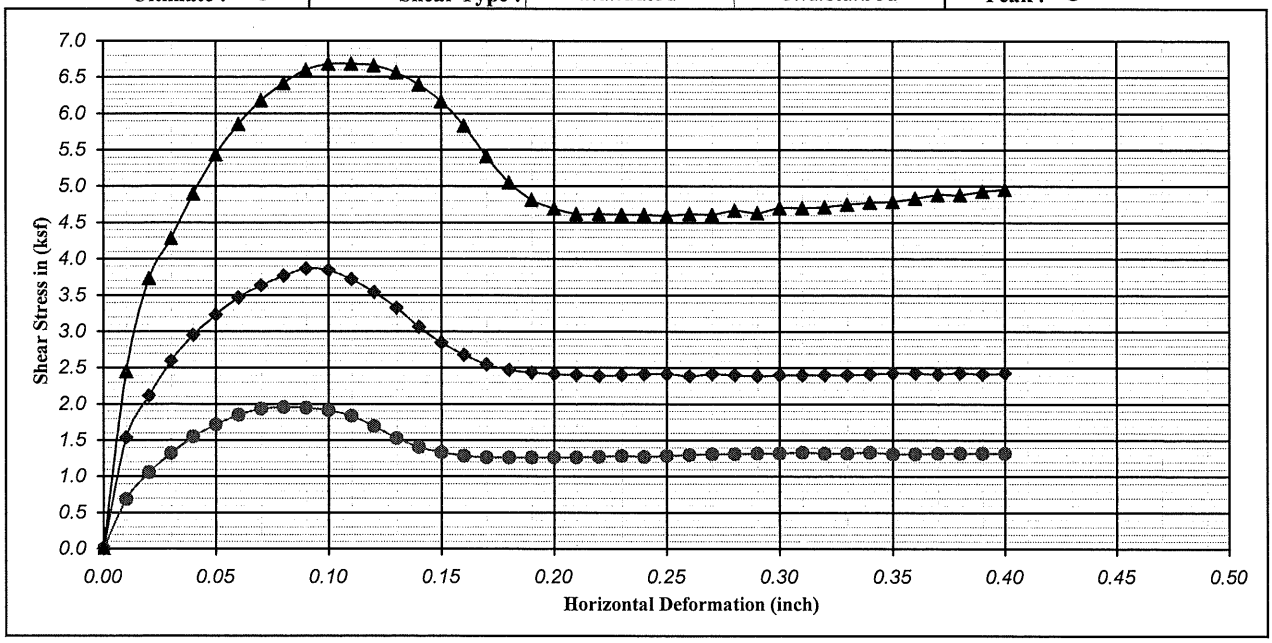
DIRECT SHEAR TEST (ASTM D-3080)

Project No. : 08-156 **Date :** 01/12/09

Figure No. :



Ultimate : ○	Shear Type :	Inundated	Undisturbed	Peak : ●



Boring No.	: B-08-06	**Strength Intercept (C) :**	0.55	(ksf)	**Peak**	0.16	(ksf)	**Ultimate**
Sample No.	: D-8		26.17	(kPa)		7.47	(kPa)	
Depth (ft/m)	: 40.0 0.00	**Friction Angle (ϕ) :**	37.81	Degree		29.05	Degree	
Description	: Dark gray, poorly graded SAND with SILT (SP-SM)					**Shear Rate** (inch/minute) :		0.02

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	DRY DENSITY (kN/m^3)	VOID RATIO	NORMAL STRESS (ksf)	NORMAL STRESS (kPa)	PEAK STRESS (ksf)	PEAK STRESS (kPa)	ULTIMATE STRESS (ksf)	ULTIMATE STRESS (kPa)
●	25.24	103.36	16.27	0.63	2.00	95.76	1.96	93.65	1.26	60.33
◆	25.14	98.21	15.46	0.72	4.00	191.52	3.86	185.01	2.39	114.34
▲	25.20	103.13	16.23	0.63	8.00	383.04	6.68	319.98	4.60	220.06

Earth Mechanics, Inc.
Geotechnical and Earthquake Engineering

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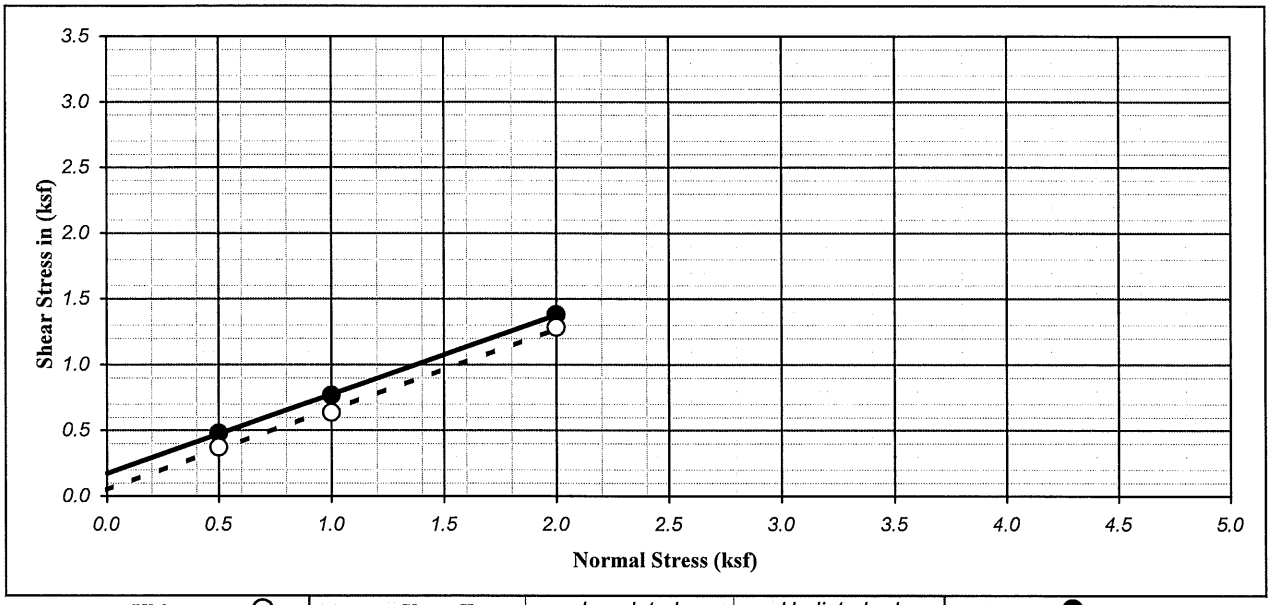
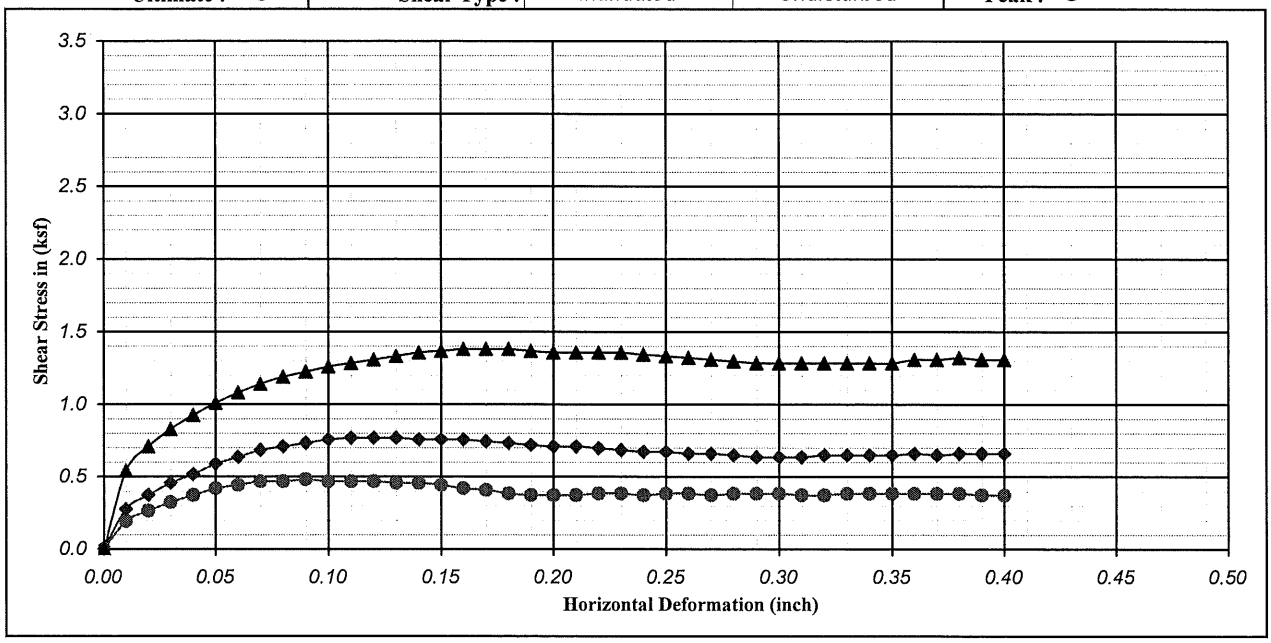
DIRECT SHEAR TEST (ASTM D-3080)

Project No. : 08-156 **Date :** 01/12/09

Figure No. :



Ultimate : ○	Shear Type :	Inundated	Undisturbed	Peak : ●



Boring No.	: B-08-07	**Strength Intercept (C) :**	0.17	(ksf)	**Peak**	0.05	(ksf)	**Ultimate**
Sample No.	: D-2		8.33	(kPa)		2.30	(kPa)	
Depth (ft/m)	: 10.0 | 0.00	**Friction Angle (ϕ) :**	31.04	Degree		31.54	Degree	
Description	: Dark brownish gray, SILTY SAND (SM)						**Shear Rate** (inch/minute) :	0.02	

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	DRY DENSITY (kN/m^3)	VOID RATIO	NORMAL STRESS (ksf)	NORMAL STRESS (kPa)	PEAK STRESS (ksf)	PEAK STRESS (kPa)	ULTIMATE STRESS (ksf)	ULTIMATE STRESS (kPa)
●	27.97	85.14	13.40	0.98	0.50	23.94	0.48	22.98	0.37	17.81
◆	27.67	87.33	13.75	0.93	1.00	47.88	0.77	36.77	0.64	30.45
▲	29.16	85.96	13.53	0.96	2.00	95.76	1.38	66.07	1.28	61.48

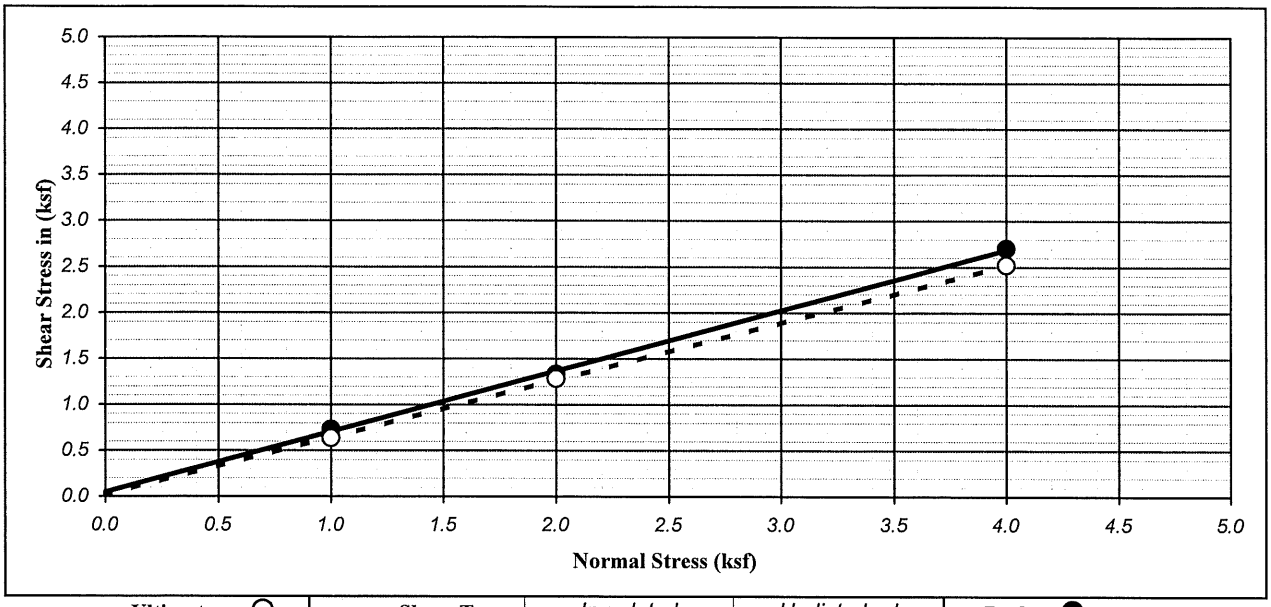
Earth Mechanics, Inc.
Geotechnical and Earthquake Engineering

OCPW EGG-Wintersburg Channel, Warner to Edwards

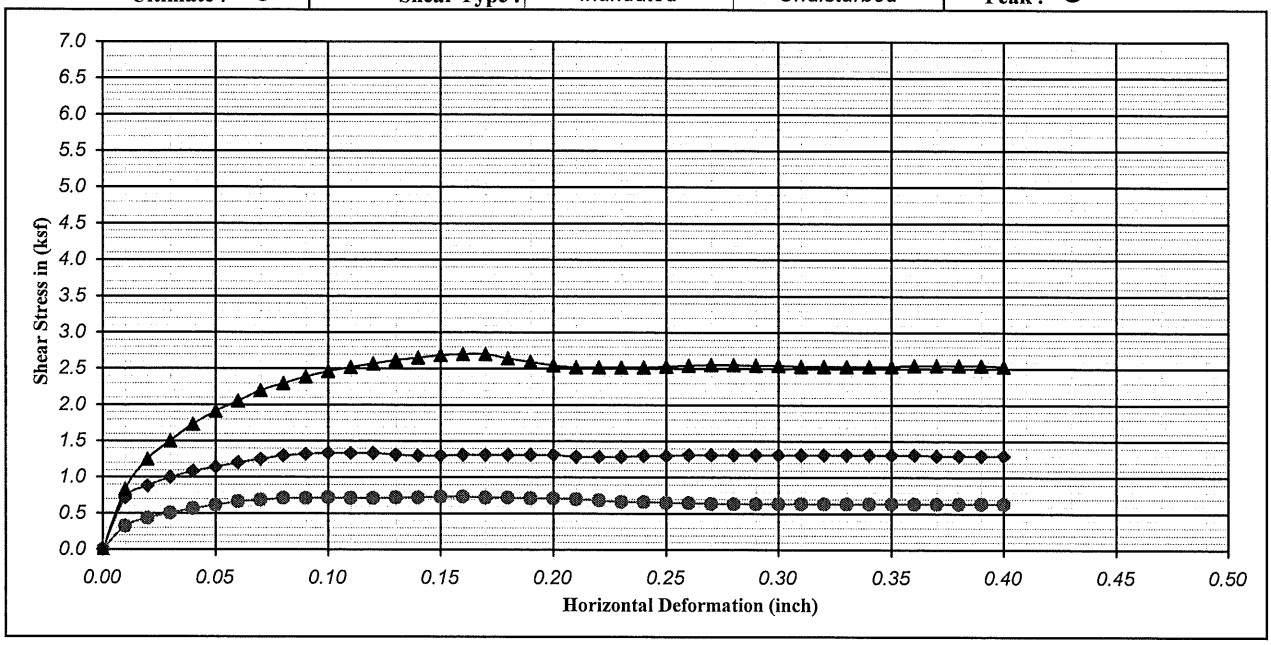
DIRECT SHEAR TEST (ASTM D-3080)

Project No. : 08-156 | **Date :** 01/12/09

Figure No. :



Ultimate : ○	Shear Type :	Inundated	Undisturbed	Peak : ●



Boring No.	: *B-08-08*	**Strength Intercept (C) :**	*0.05*	(ksf)	**Peak**	*0.02*	(ksf)	**Ultimate**
Sample No.	: *D-4*		*2.30*	(kPa)		*0.86*	(kPa)	
Depth (ft/m)	: *20.0* *0.00*	**Friction Angle (ϕ) :**	*33.42*	Degree		*32.07*	Degree	
Description	: *Dark gray, SILT with SAND (ML)*						**Shear Rate** (inch/minute) :	*0.02*	

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	DRY DENSITY (kN/m^3)	VOID RATIO	NORMAL STRESS (ksf)	NORMAL STRESS (kPa)	PEAK STRESS (ksf)	PEAK STRESS (kPa)	ULTIMATE STRESS (ksf)	ULTIMATE STRESS (kPa)
●	*37.08*	*85.30*	*13.43*	*0.98*	*1.00*	*47.88*	*0.73*	*35.05*	*0.64*	*30.45*
◆	*31.89*	*91.59*	*14.42*	*0.84*	*2.00*	*95.76*	*1.33*	*63.78*	*1.28*	*61.48*
▲	*30.27*	*95.93*	*15.10*	*0.76*	*4.00*	*191.52*	*2.70*	*129.28*	*2.52*	*120.66*

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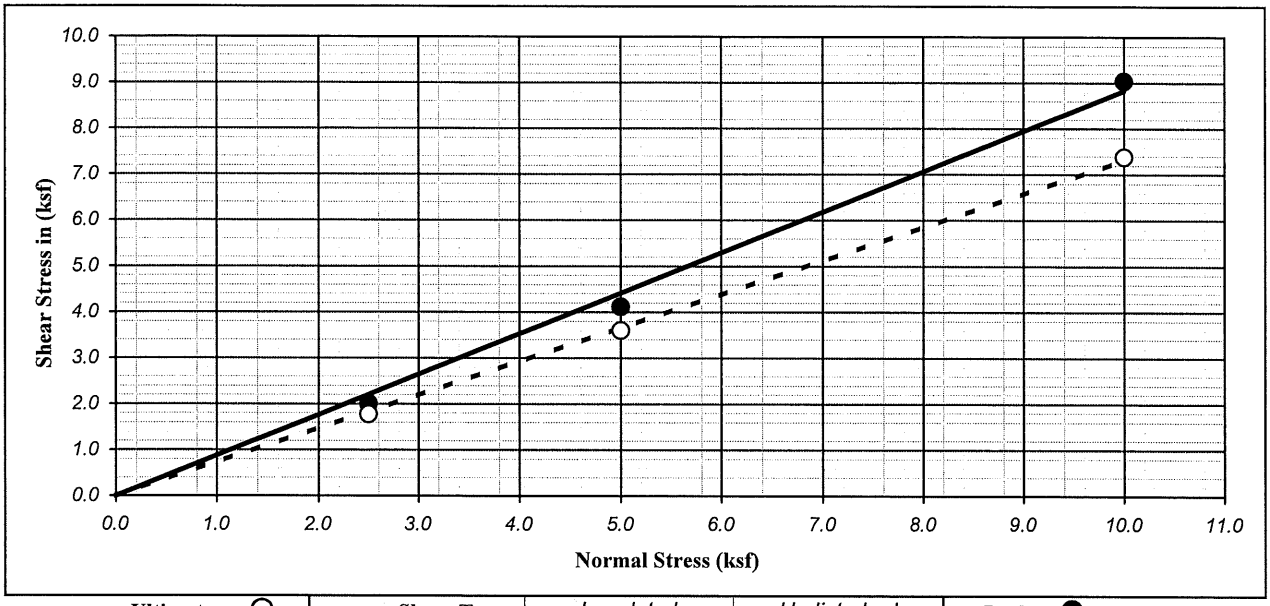
Geotechnical and Earthquake Engineering

OCPW EGG-Wintersburg Channel, Warner to Edwards

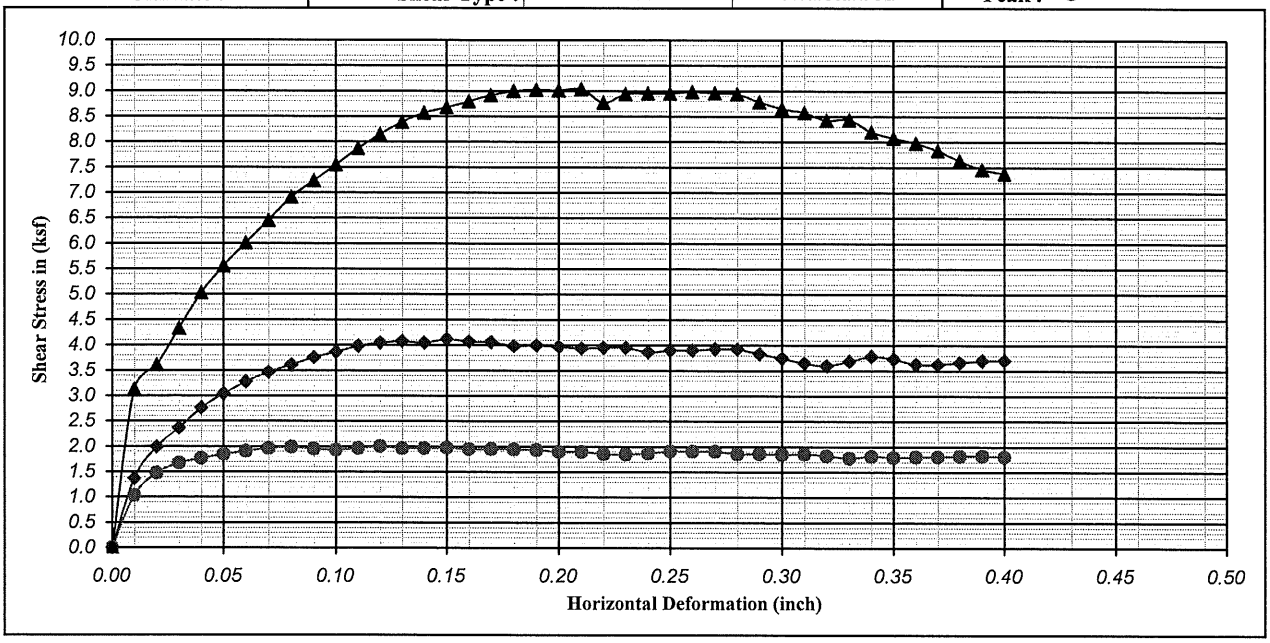
DIRECT SHEAR TEST (ASTM D-3080)

Project No. : *08-156* **Date :** *01/12/09*

Figure No. :



Ultimate : ○	Shear Type :	Inundated	Undisturbed	Peak : ●



Boring No. : B-08-08		**Strength Intercept (C) :**	0.00	(ksf)	**Peak**	0.00	(ksf)	**Ultimate**
Sample No. : D-14			0.00	(kPa)		0.00	(kPa)	
Depth (ft/m) : 70.0	0.00	**Friction Angle (ϕ) :**	41.46	Degree		36.25	Degree	

Description : Olive-brown, poorly graded SAND with GRAVEL (SP) **Shear Rate** (inch/minute) : 0.02

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	DRY DENSITY (kN/m^3)	VOID RATIO	NORMAL STRESS (ksf)	NORMAL STRESS (kPa)	PEAK STRESS (ksf)	PEAK STRESS (kPa)	ULTIMATE STRESS (ksf)	ULTIMATE STRESS (kPa)
●	13.46	122.27	19.25	0.38	2.50	119.70	2.00	95.95	1.78	85.03
◆	14.16	121.92	19.19	0.38	5.00	239.40	4.12	197.07	3.60	172.37
▲	13.88	125.73	19.79	0.34	10.00	478.80	9.04	432.60	7.38	353.31

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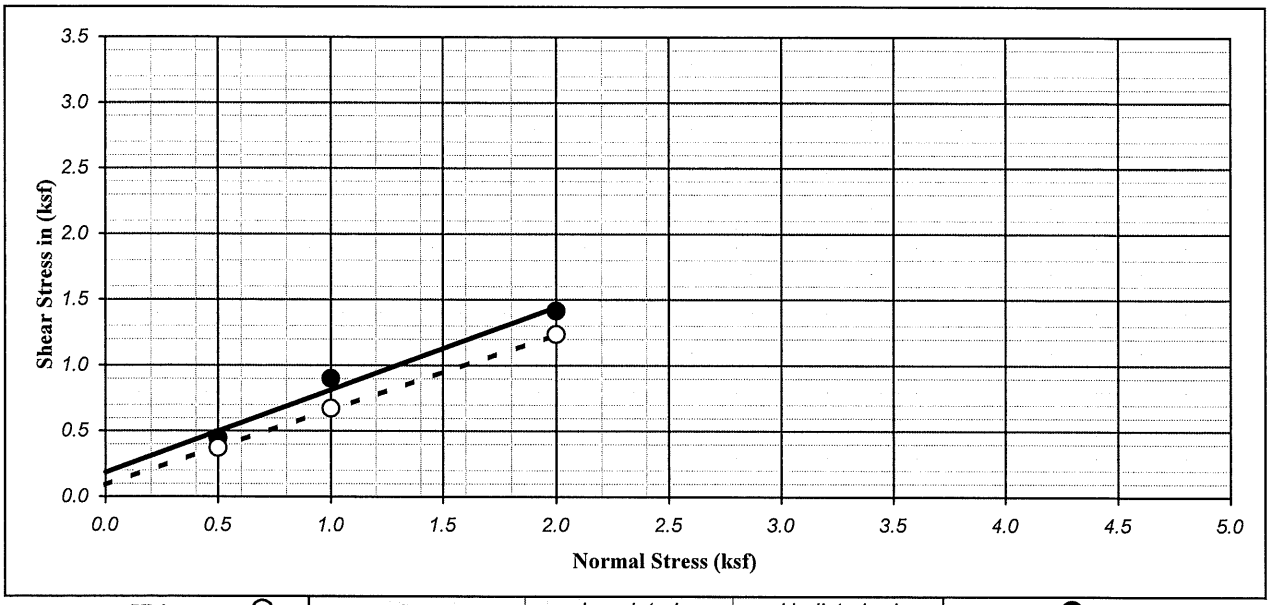
OCPW EGG-Wintersburg Channel, Warner to Edwards

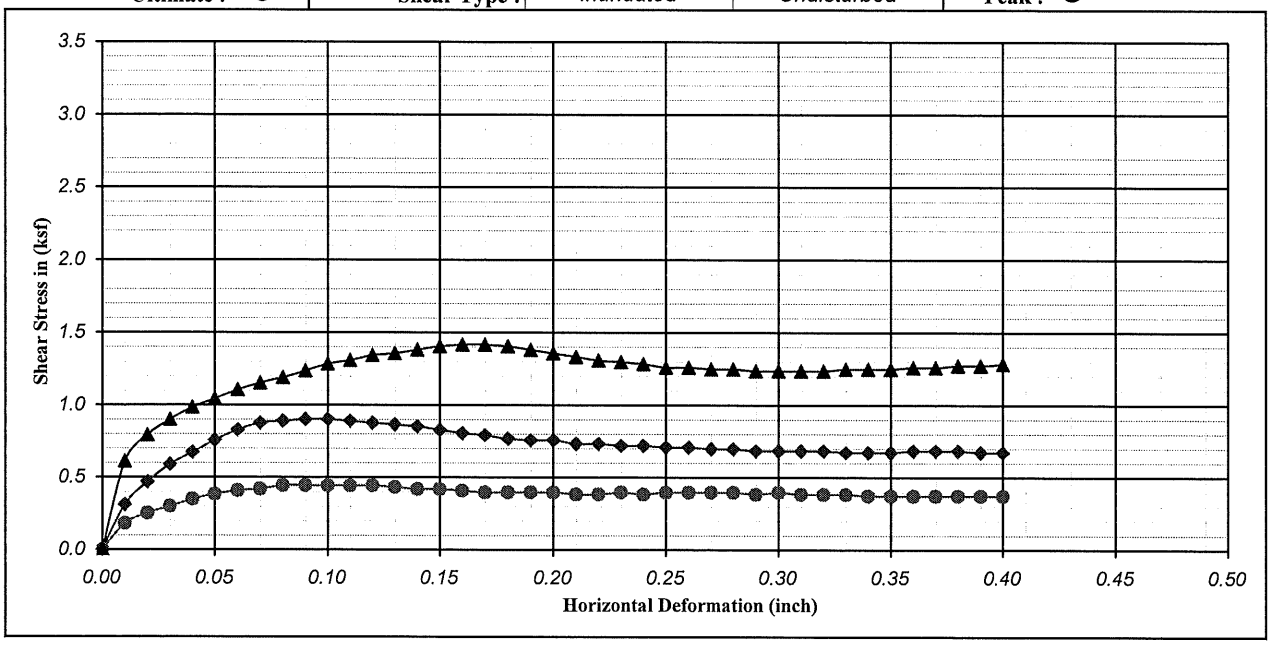
DIRECT SHEAR TEST (ASTM D-3080)

Project No. : 08-156 **Date :** 01/12/09

Figure No. :



Ultimate : ○	Shear Type :	Inundated	Undisturbed	Peak : ●



Boring No. : B-08-09		**Strength Intercept (C) :**	0.19	(ksf)	**Peak**	0.09	(ksf)	**Ultimate**
Sample No. : D-2			8.91	(kPa)		4.31	(kPa)	
Depth (ft/m) : 10.0	0.00	**Friction Angle (ϕ) :**	32.18	Degree		29.87	Degree	

Description : *Mottled olive-yellow, gray, yellowish brown, SILTY SAND (SM)* **Shear Rate** (inch/minute) : 0.02

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	DRY DENSITY (kN/m^3)	VOID RATIO	NORMAL STRESS (ksf)	NORMAL STRESS (kPa)	PEAK STRESS (ksf)	PEAK STRESS (kPa)	ULTIMATE STRESS (ksf)	ULTIMATE STRESS (kPa)
●	26.35	82.39	12.97	1.05	0.50	23.94	0.44	21.26	0.37	17.81
◆	24.42	81.87	12.89	1.06	1.00	47.88	0.90	43.09	0.67	32.18
▲	26.94	83.44	13.13	1.02	2.00	95.76	1.42	67.80	1.24	59.18

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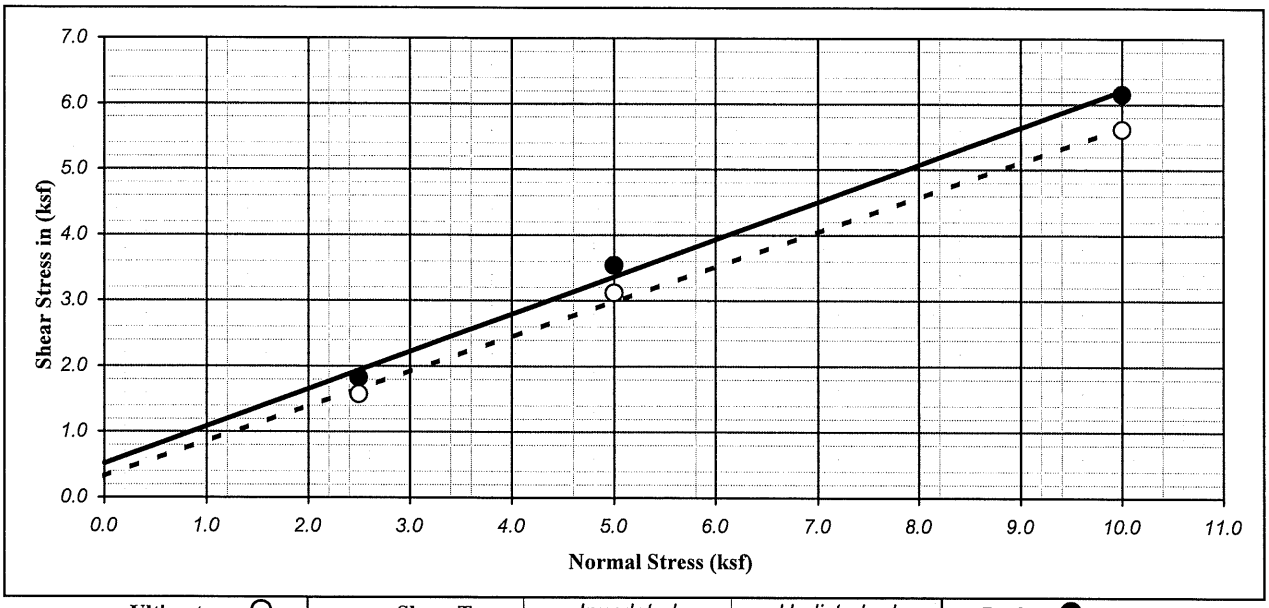
OCPW EGG-Wintersburg Channel, Warner to Edwards

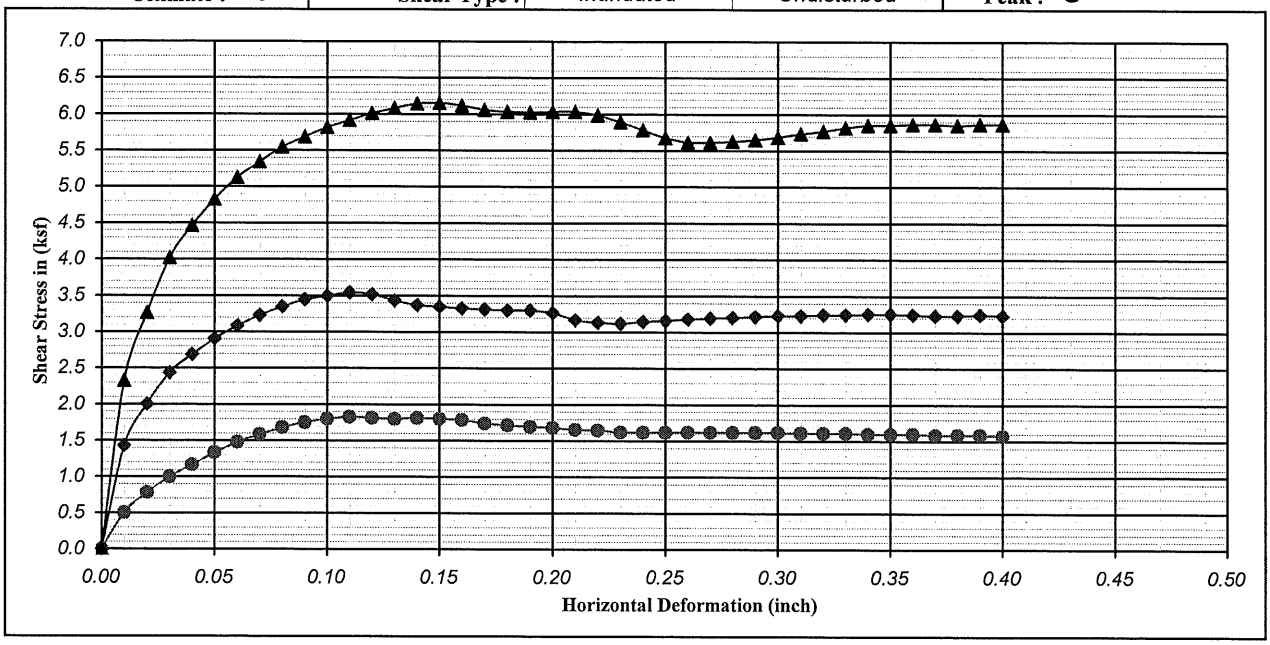
DIRECT SHEAR TEST (ASTM D-3080)

Project No. : 08-156 **Date :** 01/12/09

Figure No. :



Ultimate : ○	Shear Type :	Inundated	Undisturbed	Peak : ●



Boring No. : B-08-09		**Strength Intercept (C) :**	0.52	(ksf)	**Peak**	0.32	(ksf)	**Ultimate**
Sample No. : D-12			24.73	(kPa)		15.54	(kPa)	
Depth (ft/m) : 60.0	0.00	**Friction Angle (ϕ) :**	29.67	Degree		28.07	Degree	
Description : Dark gray, SILTY SAND (SM)						**Shear Rate** (inch/minute) :		0.02

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	DRY DENSITY (kN/m^3)	VOID RATIO	NORMAL STRESS (ksf)	NORMAL STRESS (kPa)	PEAK STRESS (ksf)	PEAK STRESS (kPa)	ULTIMATE STRESS (ksf)	ULTIMATE STRESS (kPa)
●	30.01	95.75	15.07	0.76	2.50	119.70	1.82	87.33	1.57	75.27
◆	29.82	94.61	14.89	0.78	5.00	239.40	3.54	169.50	3.12	149.39
▲	29.96	94.92	14.94	0.78	10.00	478.80	6.16	294.70	5.62	268.85

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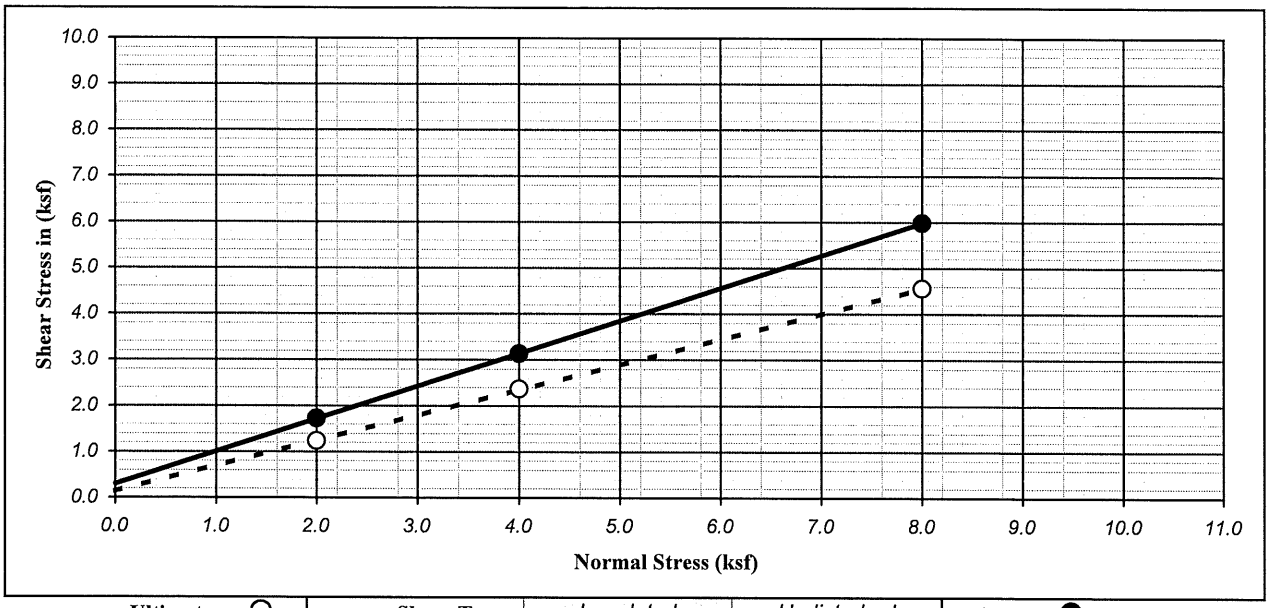
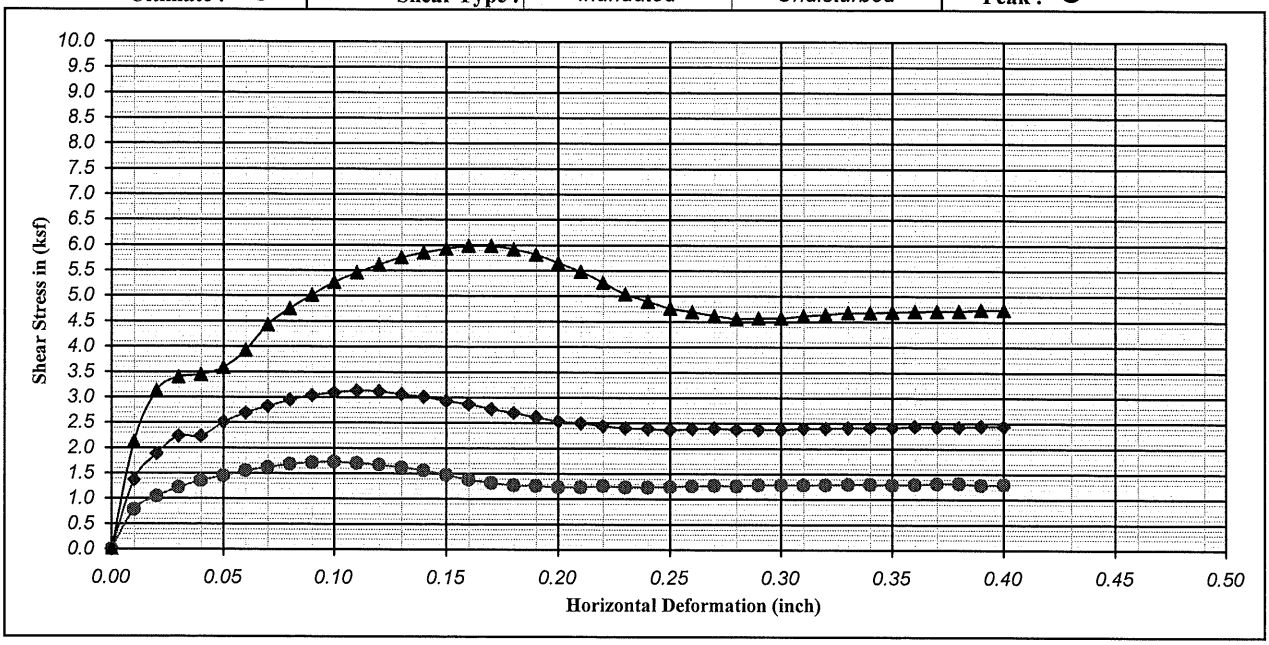
Figure No. :



Ultimate : ○	Shear Type :	Inundated	Undisturbed	Peak : ●



Boring No. : B-08-10		**Strength Intercept (C) :**	0.30	(ksf)	**Peak**	0.14	(ksf)	**Ultimate**
Sample No. : D-8			14.39	(kPa)		6.61	(kPa)	
Depth (ft/m) : 40.0	0.00	**Friction Angle (ϕ) :**	35.39	Degree		28.96	Degree	
Description : Dark gray, poorly graded SAND (SP)						**Shear Rate** (inch/minute) :		0.02

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	DRY DENSITY (kN/m^3)	VOID RATIO	NORMAL STRESS (ksf)	NORMAL STRESS (kPa)	PEAK STRESS (ksf)	PEAK STRESS (kPa)	ULTIMATE STRESS (ksf)	ULTIMATE STRESS (kPa)
●	25.18	99.39	15.64	0.70	2.00	95.76	1.73	82.74	1.24	59.18
◆	26.09	99.73	15.70	0.69	4.00	191.52	3.13	149.96	2.36	113.19
▲	25.25	100.20	15.77	0.68	8.00	383.04	5.99	286.66	4.56	218.33

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DIRECT SHEAR TEST (ASTM D-3080)

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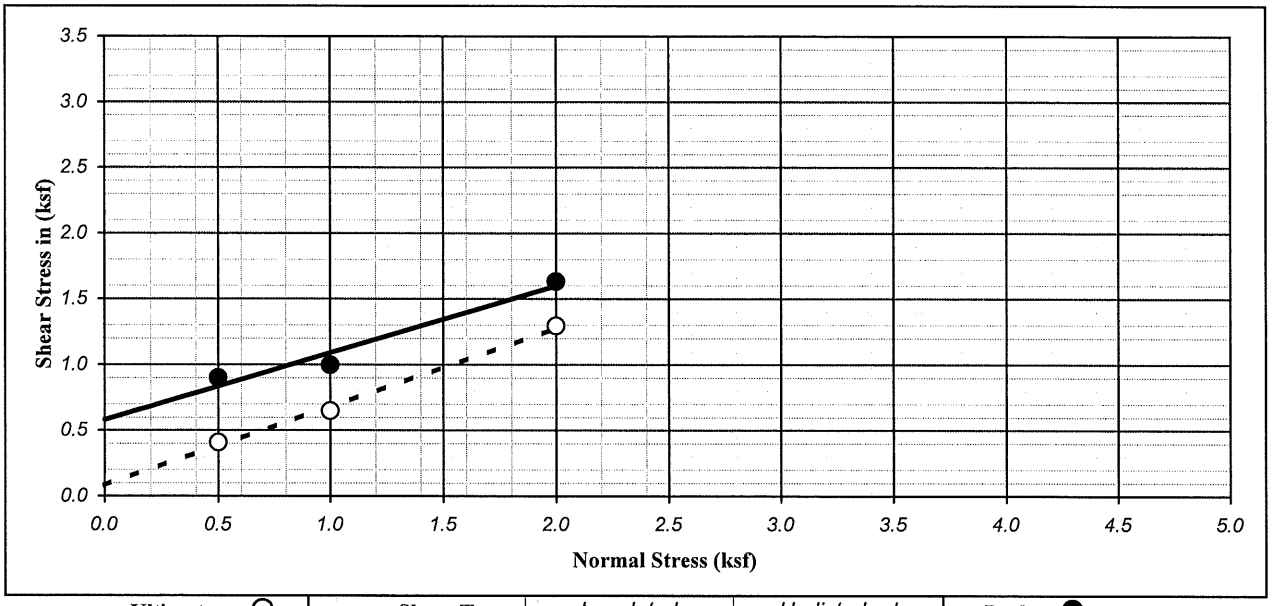
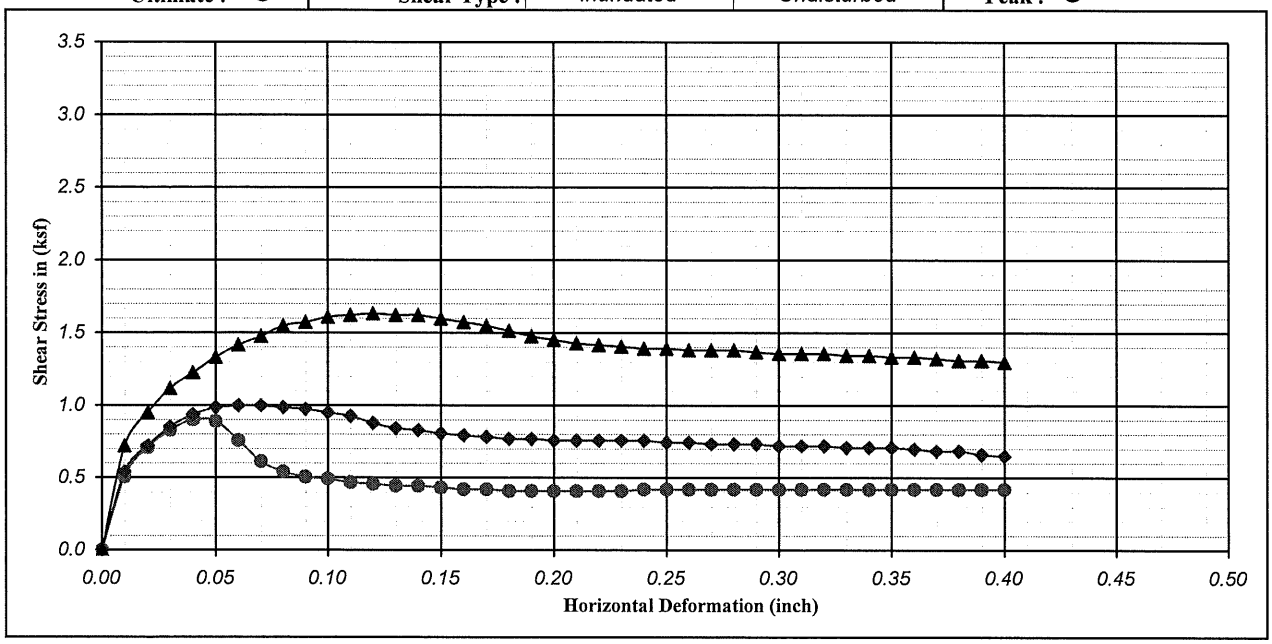
Figure No. :



Ultimate : ○	Shear Type :	Inundated	Undisturbed	Peak : ●



Boring No. : B-08-12		**Strength Intercept (C) :**	0.58	(ksf)	**Peak**	0.08	(ksf)	**Ultimate**
Sample No. : D-2			27.87	(kPa)		4.02	(kPa)	
Depth (ft/m) : 10.0	0.00	**Friction Angle (ϕ) :**	26.98	Degree		30.96	Degree	

Description : Dark greenish gray, lean CLAY with SAND and ORGANIC (CL) **Shear Rate** (inch/minute) : 0.02

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	DRY DENSITY (kN/m^3)	VOID RATIO	NORMAL STRESS (ksf)	NORMAL STRESS (kPa)	PEAK STRESS (ksf)	PEAK STRESS (kPa)	ULTIMATE STRESS (ksf)	ULTIMATE STRESS (kPa)
●	28.19	94.00	14.80	0.79	0.50	23.94	0.90	43.09	0.41	19.54
◆	36.30	85.75	13.50	0.97	1.00	47.88	1.00	47.69	0.65	31.03
▲	36.14	89.28	14.05	0.89	2.00	95.76	1.63	78.14	1.30	62.05

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OCPW EGG-Wintersburg Channel, Warner to Edwards

DIRECT SHEAR TEST (ASTM D-3080)

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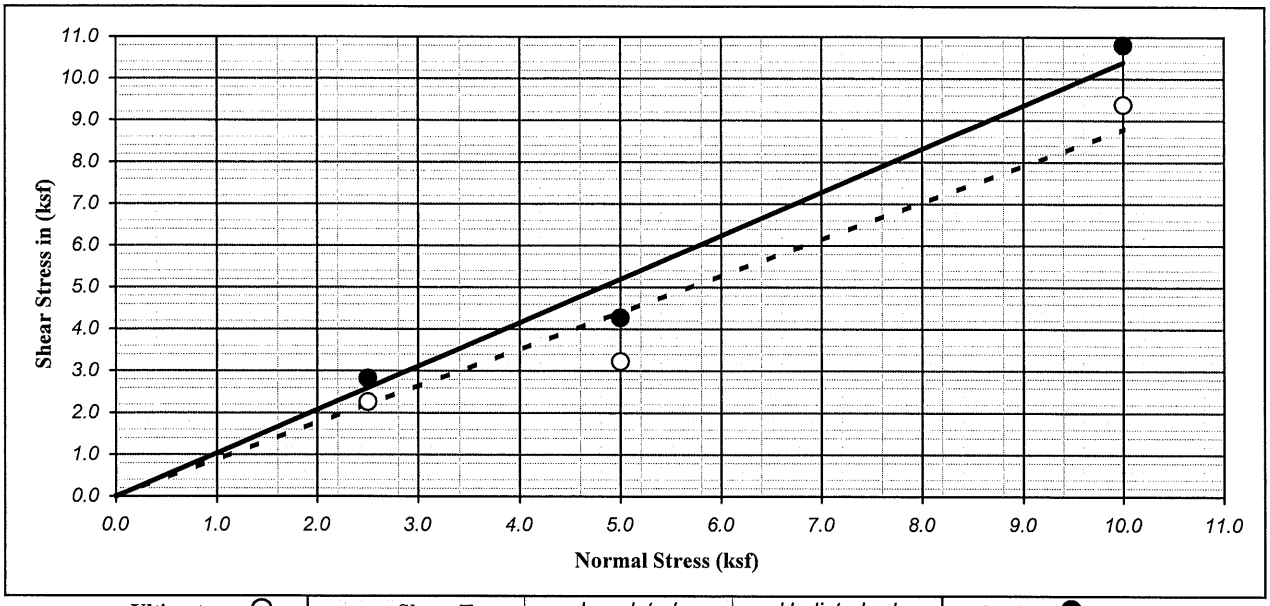
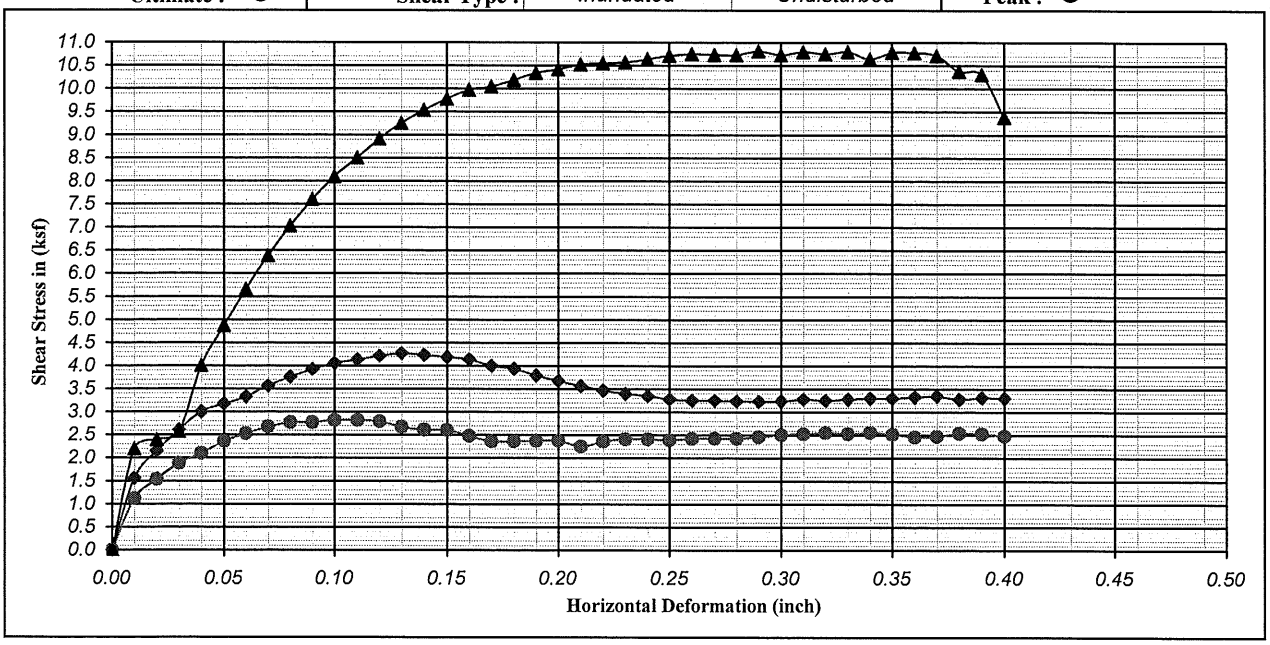
Figure No. :



Ultimate : ○	Shear Type :	Inundated	Undisturbed	Peak : ●



Boring No. : B-08-12		**Strength Intercept (C) :**	0.00	(ksf)	**Peak**	0.00	(ksf)	**Ultimate**
Sample No. : D-14			0.00	(kPa)		0.00	(kPa)	
Depth (ft/m) : 70.0	0.00	**Friction Angle (ϕ) :**	46.13	Degree		41.37	Degree	
Description : Olive-brown, poorly graded SAND (SP)						**Shear Rate** (inch/minute) :		0.02

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	DRY DENSITY (kN/m^3)	VOID RATIO	NORMAL STRESS (ksf)	NORMAL STRESS (kPa)	PEAK STRESS (ksf)	PEAK STRESS (kPa)	ULTIMATE STRESS (ksf)	ULTIMATE STRESS (kPa)
●	13.25	123.13	19.38	0.37	2.50	119.70	2.82	135.02	2.26	108.02
◆	20.16	109.94	17.30	0.53	5.00	239.40	4.27	204.54	3.23	154.56
▲	14.85	116.08	18.27	0.45	10.00	478.80	10.81	517.63	9.38	449.26

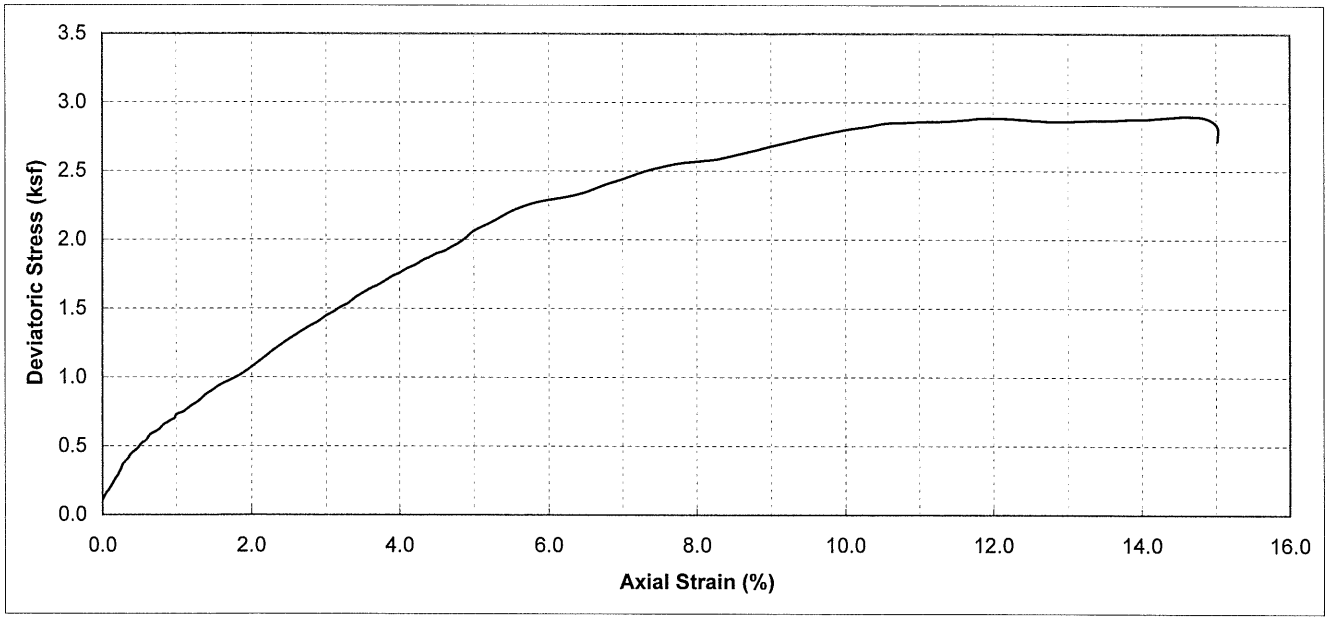
Earth Mechanics, Inc.
Geotechnical and Earthquake Engineering

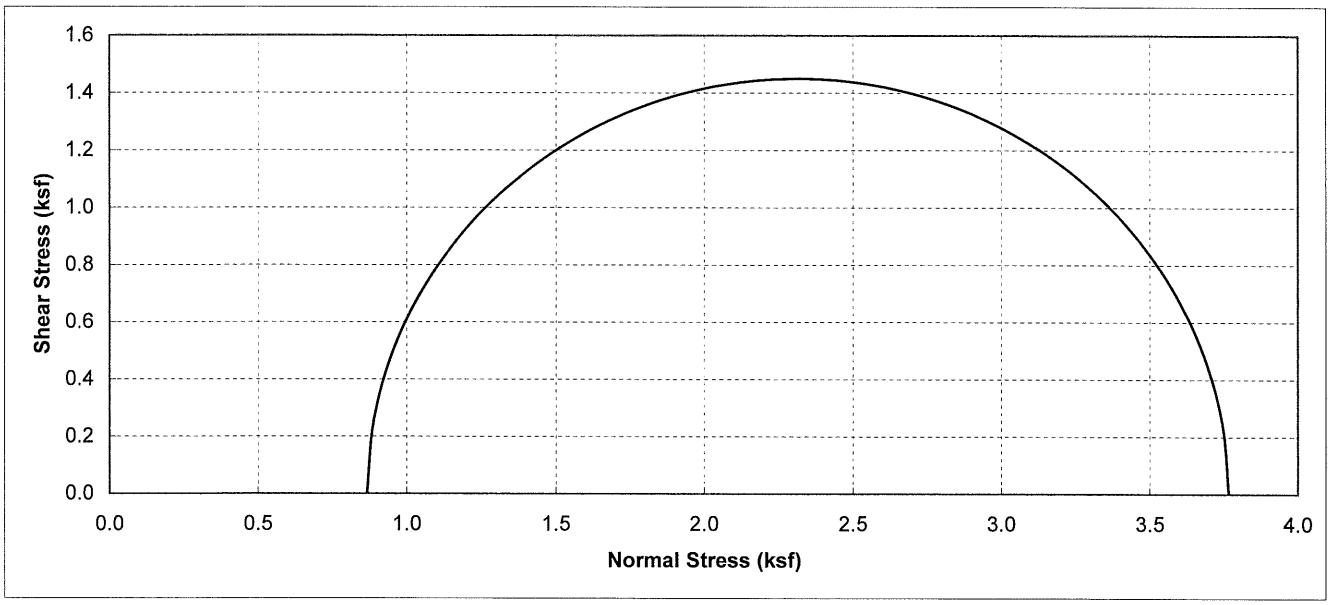
OCPW EGG-Wintersburg Channel, Warner to Edwards

DIRECT SHEAR TEST (ASTM D-3080)

Project No. : 08-156 **Date :** 01/12/09

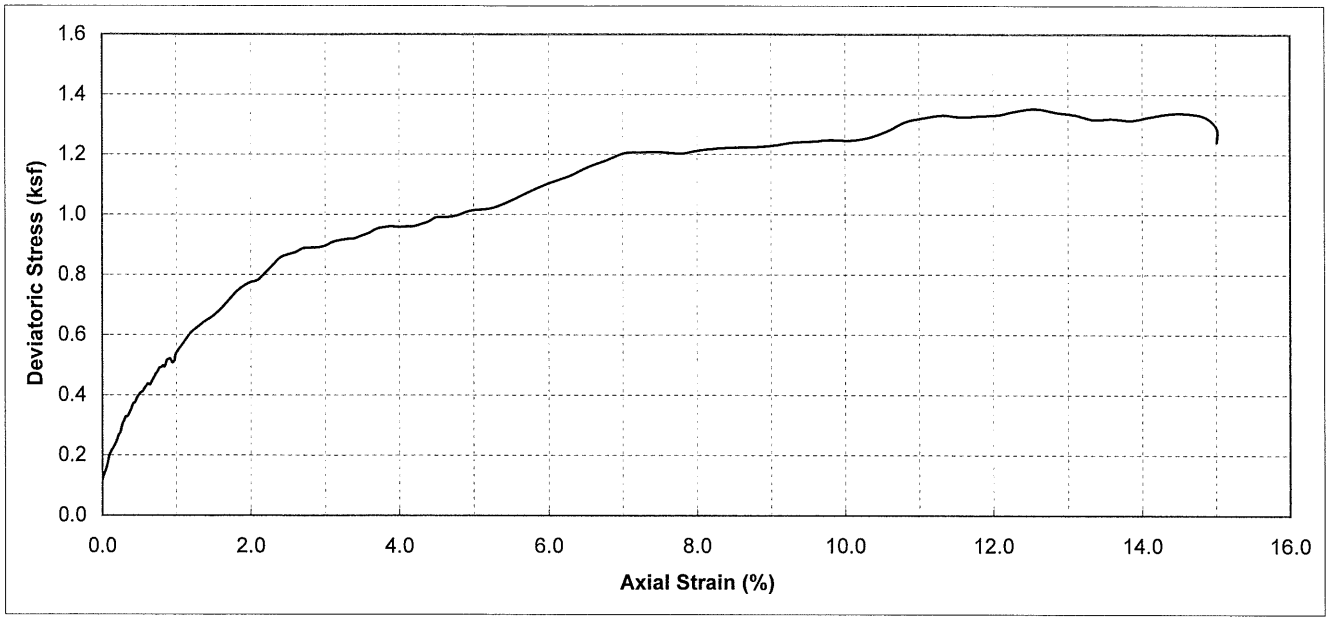
Figure No. :

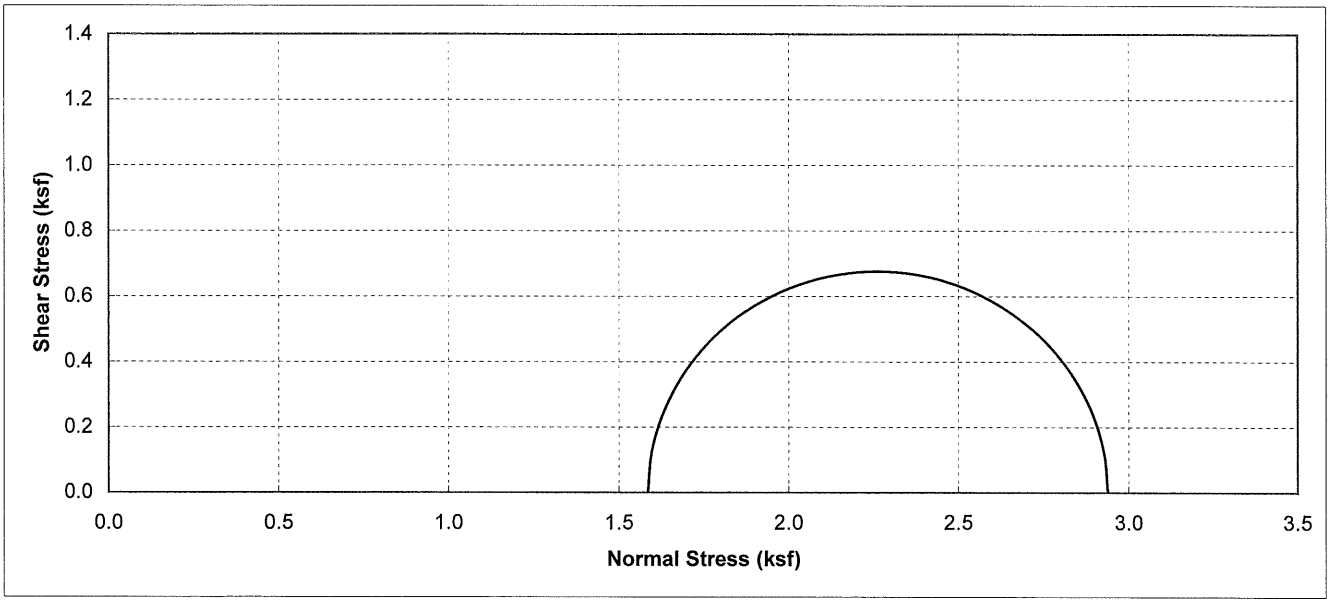




Boring No.	Sample No.	Depth (ft)	Soil Type	Dry Density (pcf)	Moisture Content (%)	Conf. Stress (ksf)	Max. Dev. Stress (ksf)	Initial Saturation (%)
B-08-06	D-2	10	Dark Olive Brown, SANDY SILT (ML)	98.7	21.02	0.87	2.90	80.2

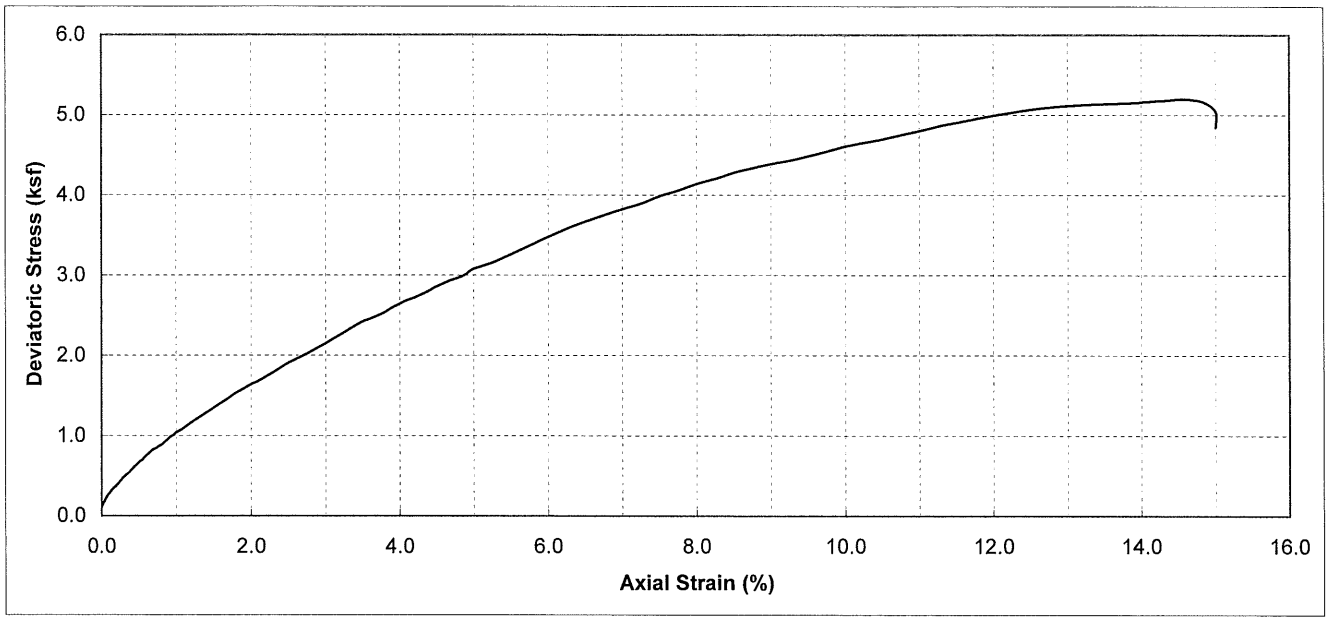
Earth Mechanics, Inc. Geotechnical and Earthquake Engineering	**OCPW EGG-Wintersburg Channel, Warner to Edwards**
	UNCONSOLIDATED UNDRAINED TEST
Project No. : 08-156 **Date :** 01/12/09	**(ASTM D2850)** Figure No. :

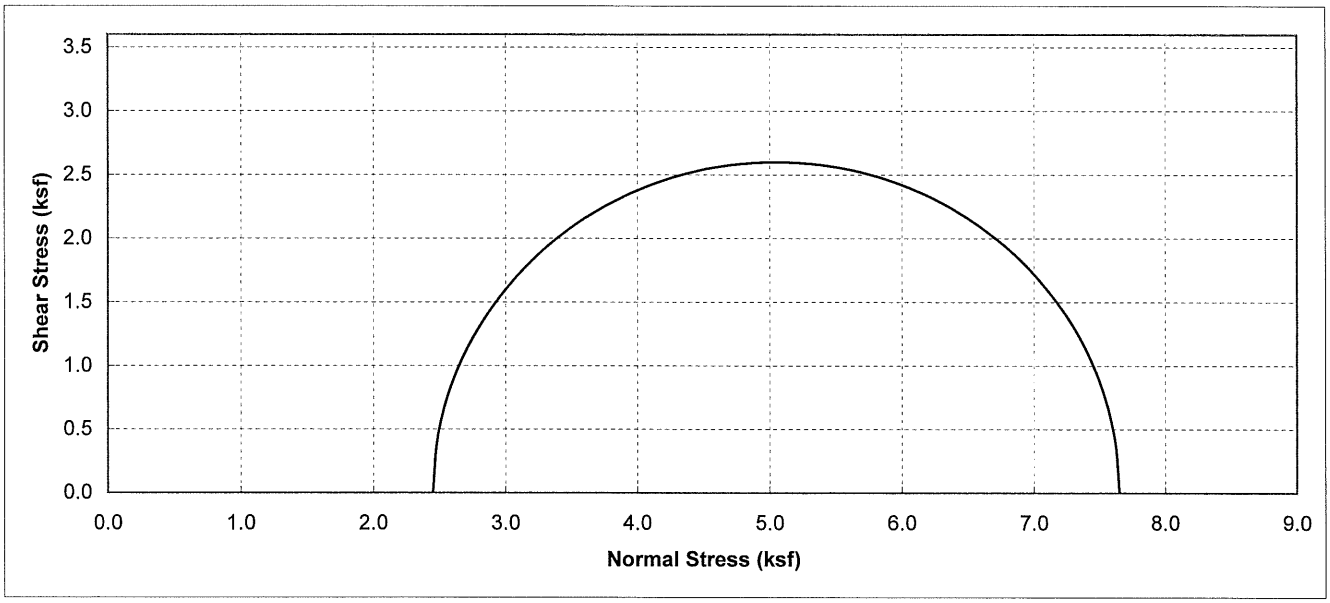




Boring No.	Sample No.	Depth (ft)	Soil Type	Dry Density (pcf)	Moisture Content (%)	Conf. Stress (ksf)	Max. Dev. Stress (ksf)	Initial Saturation (%)
B-08-07	D-4-2	20.5	Dark Greenish Gray, LEAN CLAY (CL)	69.9	54.36	1.59	1.35	103.9

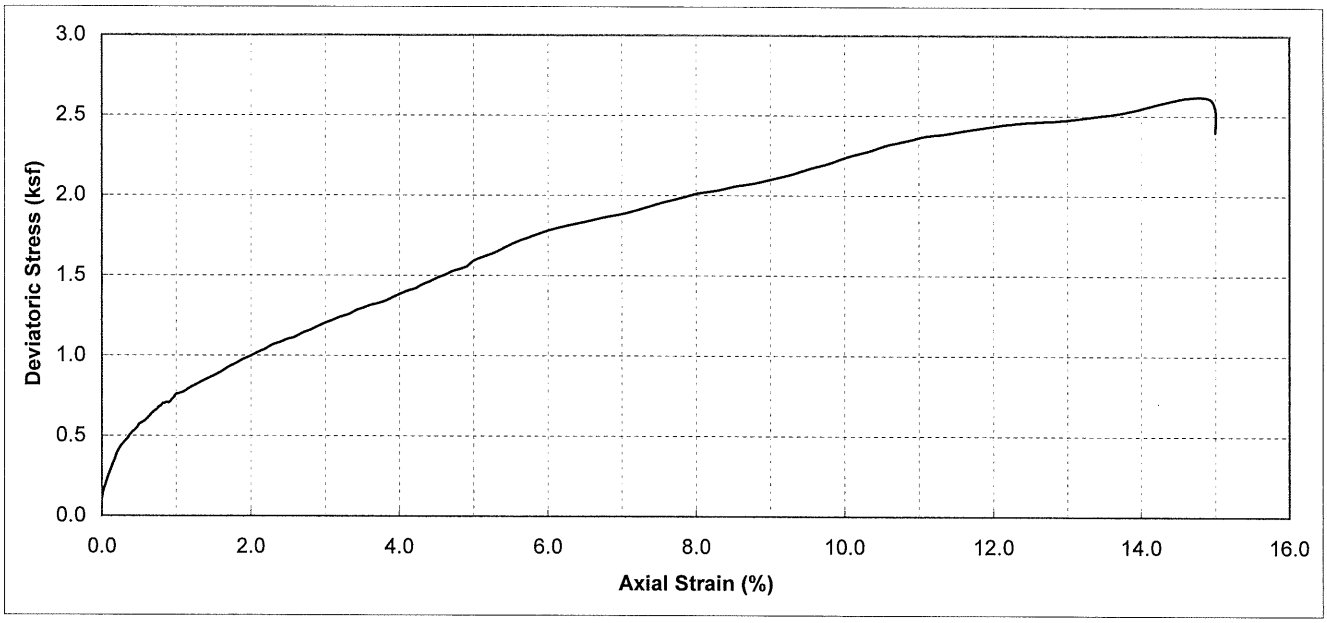
Earth Mechanics, Inc. Geotechnical and Earthquake Engineering	**OCPW EGG-Wintersburg Channel, Warner to Edwards**
	UNCONSOLIDATED UNDRAINED TEST
Project No. : 08-156 **Date :** 01/12/09	**(ASTM D2850)** Figure No. :

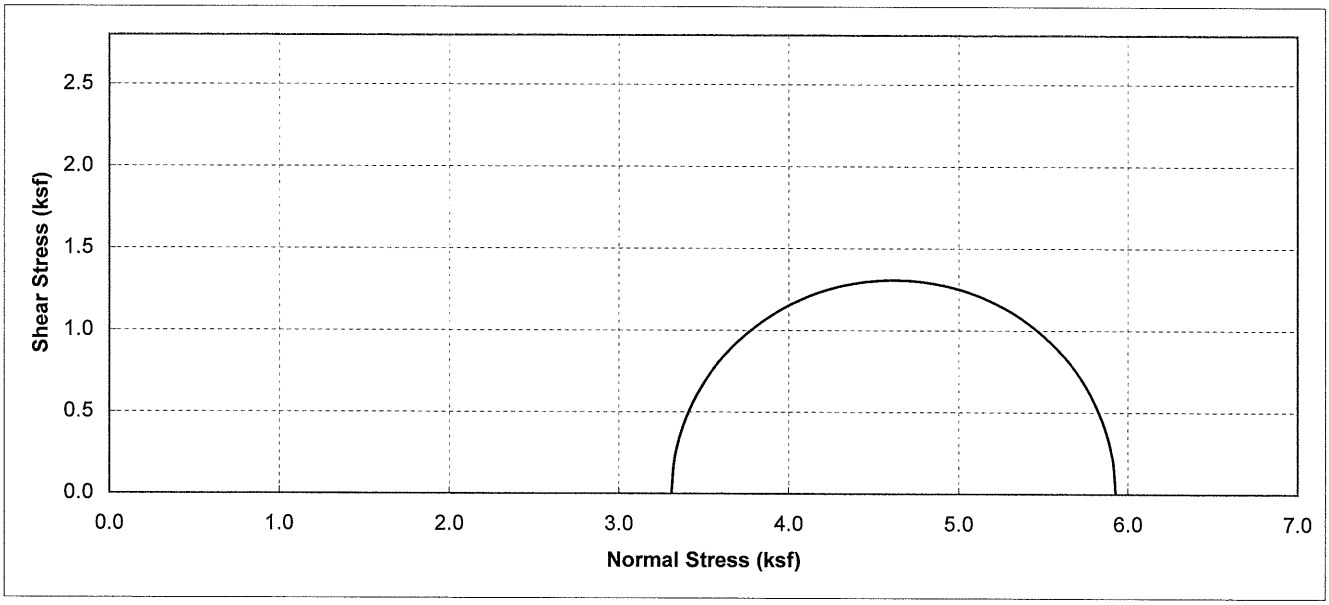




Boring No.	Sample No.	Depth (ft)	Soil Type	Dry Density (pcf)	Moisture Content (%)	Conf. Stress (ksf)	Max. Dev. Stress (ksf)	Initial Saturation (%)
B-08-08	D-6-2	30.5	Dark Greenish Gray, SILT With SAND (ML)	87.6	32.63	2.45	5.20	95.4

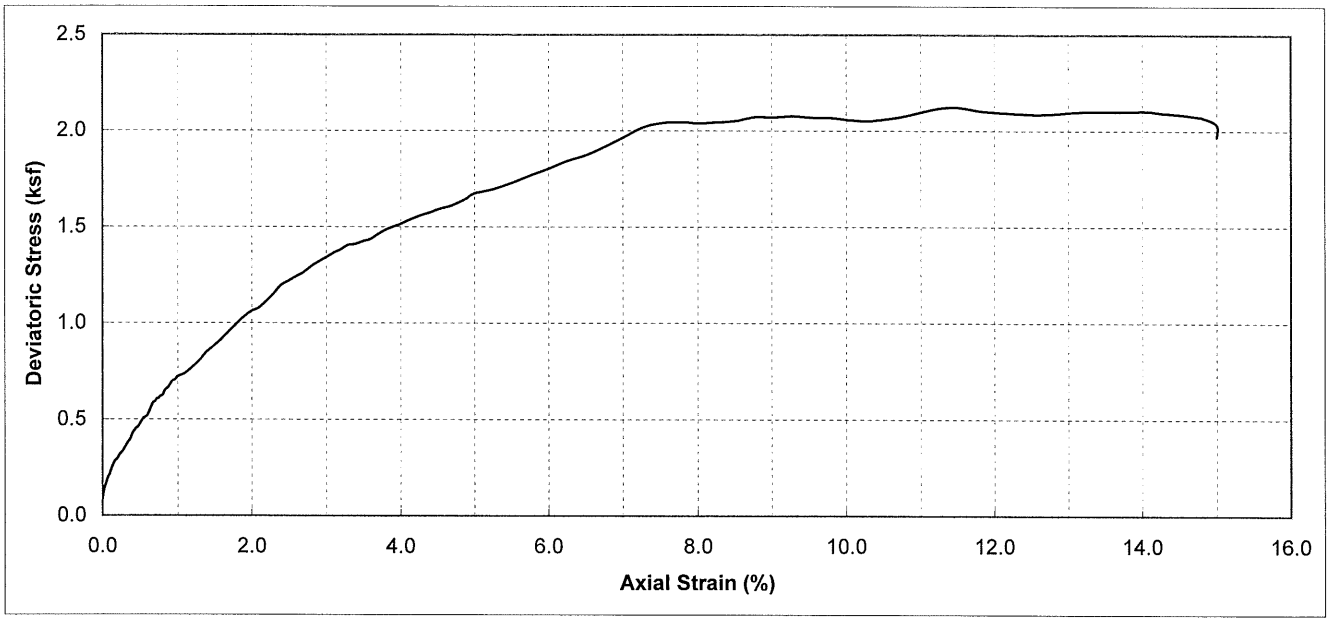
Earth Mechanics, Inc. Geotechnical and Earthquake Engineering	**OCPW EGG-Wintersburg Channel, Warner to Edwards**
	UNCONSOLIDATED UNDRAINED TEST
Project No. : 08-156 **Date :** 01/12/09	**(ASTM D2850)** Figure No. :

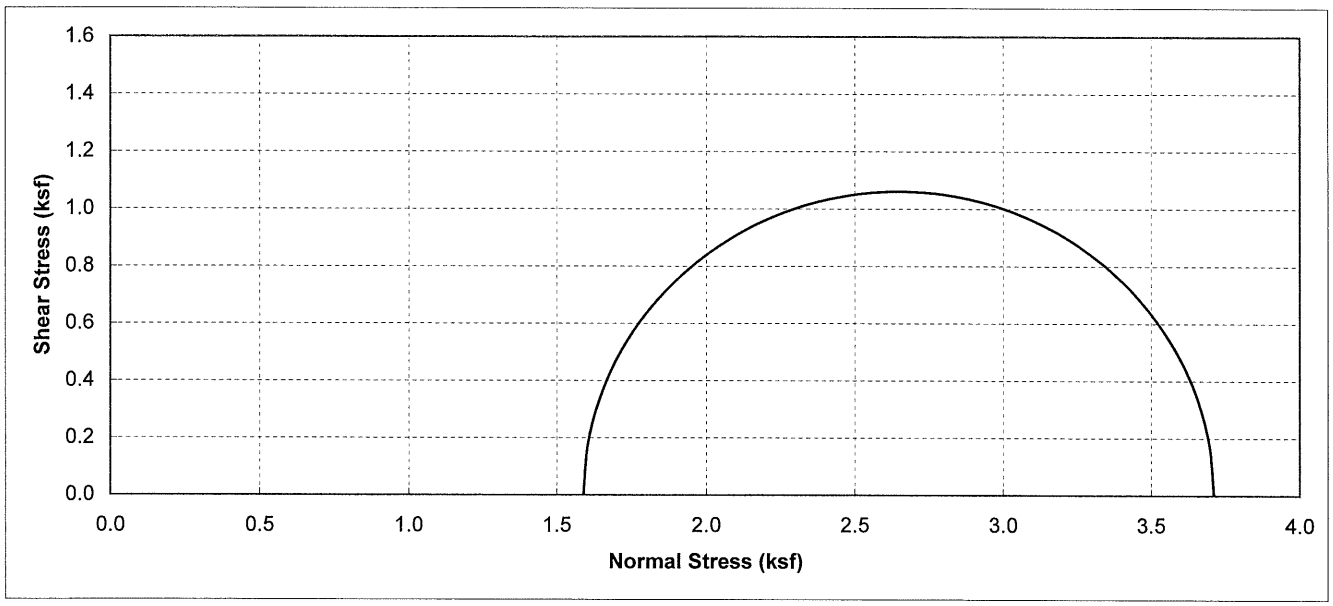




Boring No.	Sample No.	Depth (ft)	Soil Type	Dry Density (pcf)	Moisture Content (%)	Conf. Stress (ksf)	Max. Dev. Stress (ksf)	Initial Saturation (%)
B-08-09	D-8-2	40.5	Dark Greenish Gray, LEAN CLAY (CL/CH)	81.6	43.01	3.31	2.62	108.9

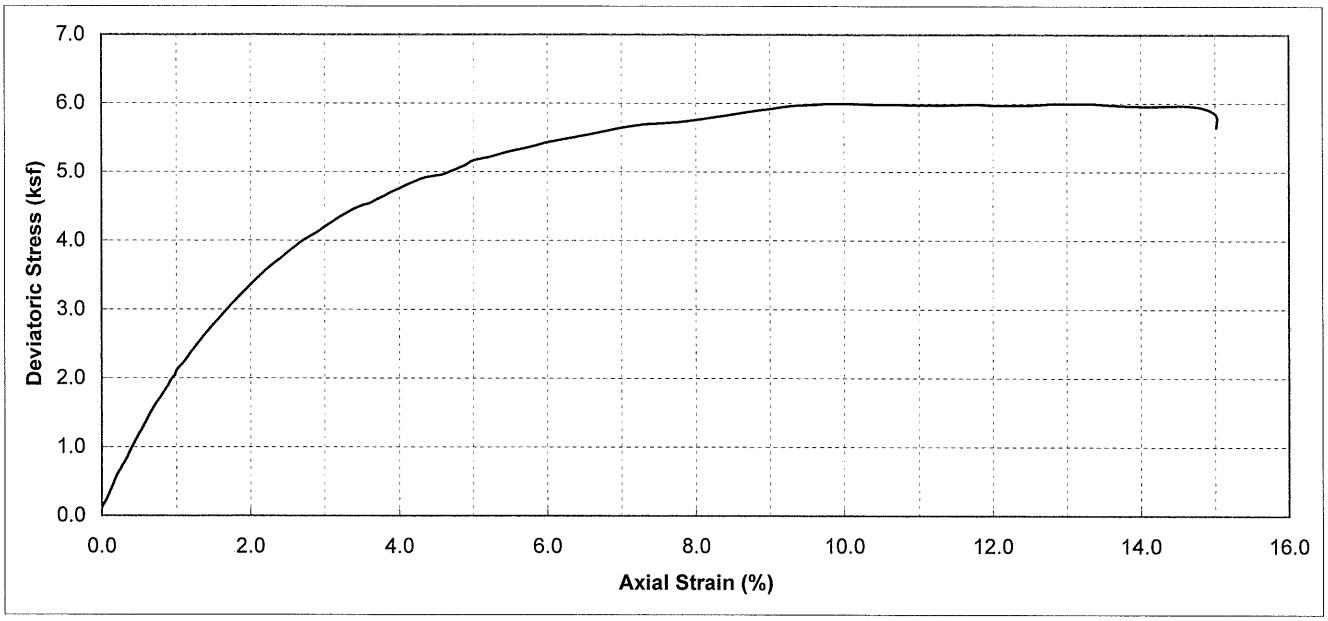
Earth Mechanics, Inc. Geotechnical and Earthquake Engineering	**OCPW EGG-Wintersburg Channel, Warner to Edwards**
	UNCONSOLIDATED UNDRAINED TEST
Project No. : 08-156 **Date :** 01/12/09	**(ASTM D2850)** Figure No. :

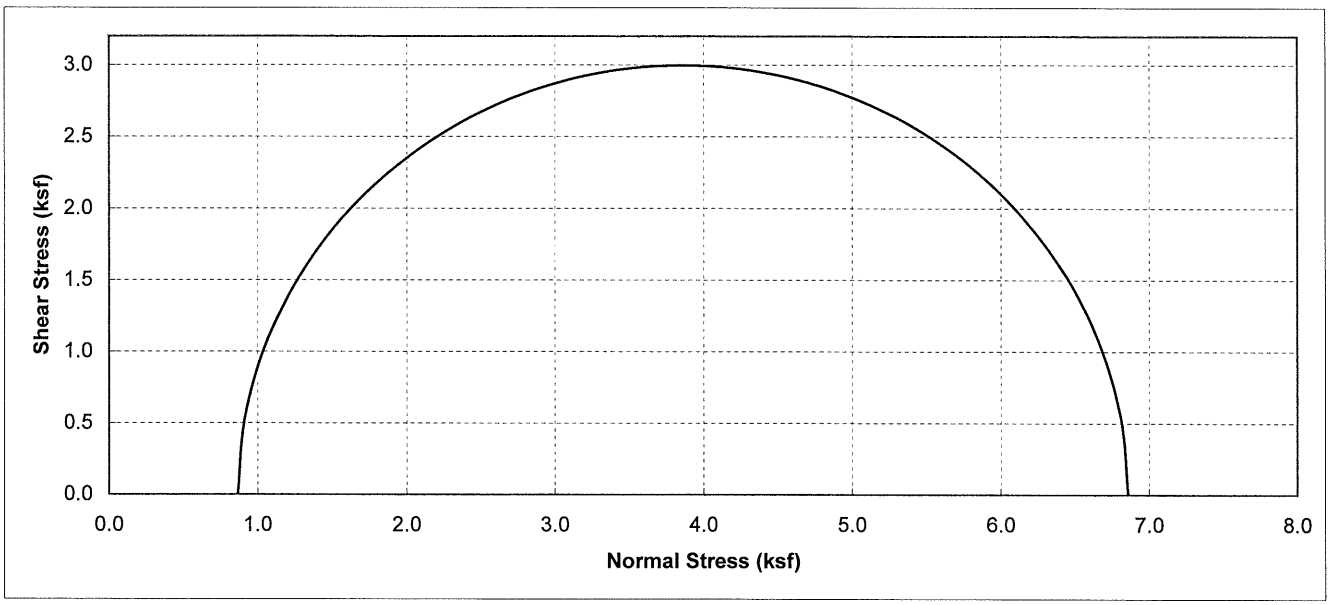




Boring No.	Sample No.	Depth (ft)	Soil Type	Dry Density (pcf)	Moisture Content (%)	Conf. Stress (ksf)	Max. Dev. Stress (ksf)	Initial Saturation (%)
B-08-10	D-4	20	Dark Gray, ORGANIC SILT (OL)	60.2	49.19	1.59	2.12	73.9

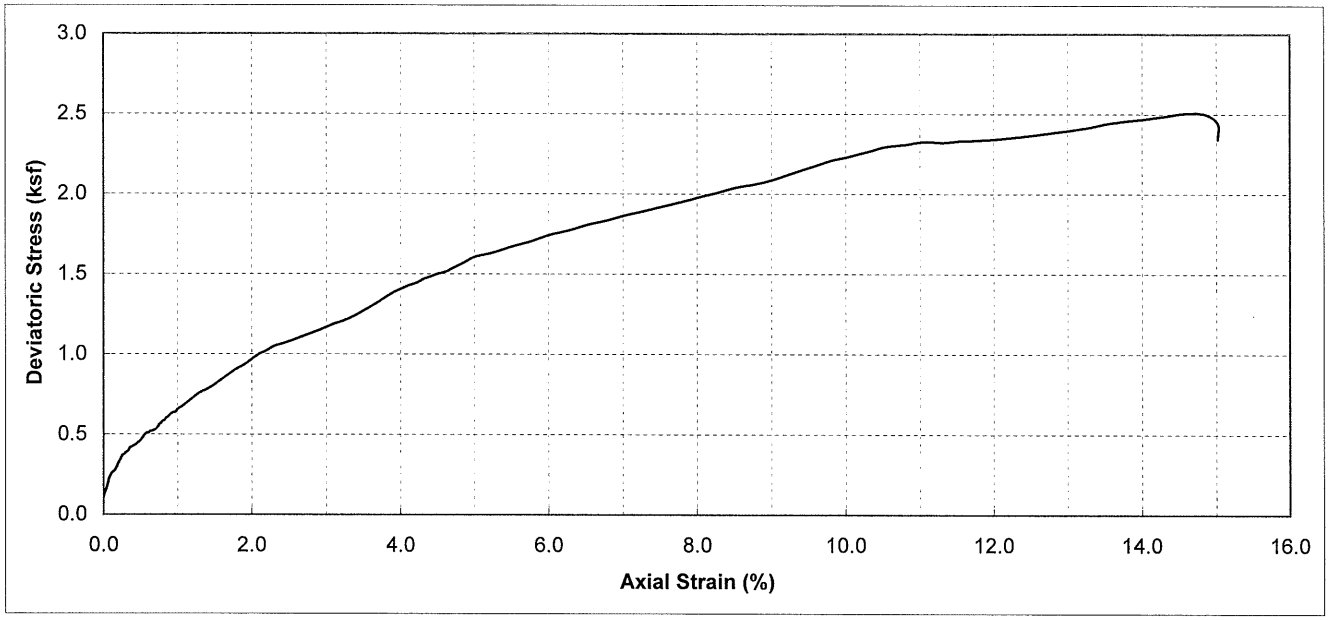
Earth Mechanics, Inc. Geotechnical and Earthquake Engineering	**OCPW EGG-Wintersburg Channel, Warner to Edwards**
	UNCONSOLIDATED UNDRAINED TEST
Project No. : 08-156 **Date :** 01/13/09	**(ASTM D2850)** Figure No. :

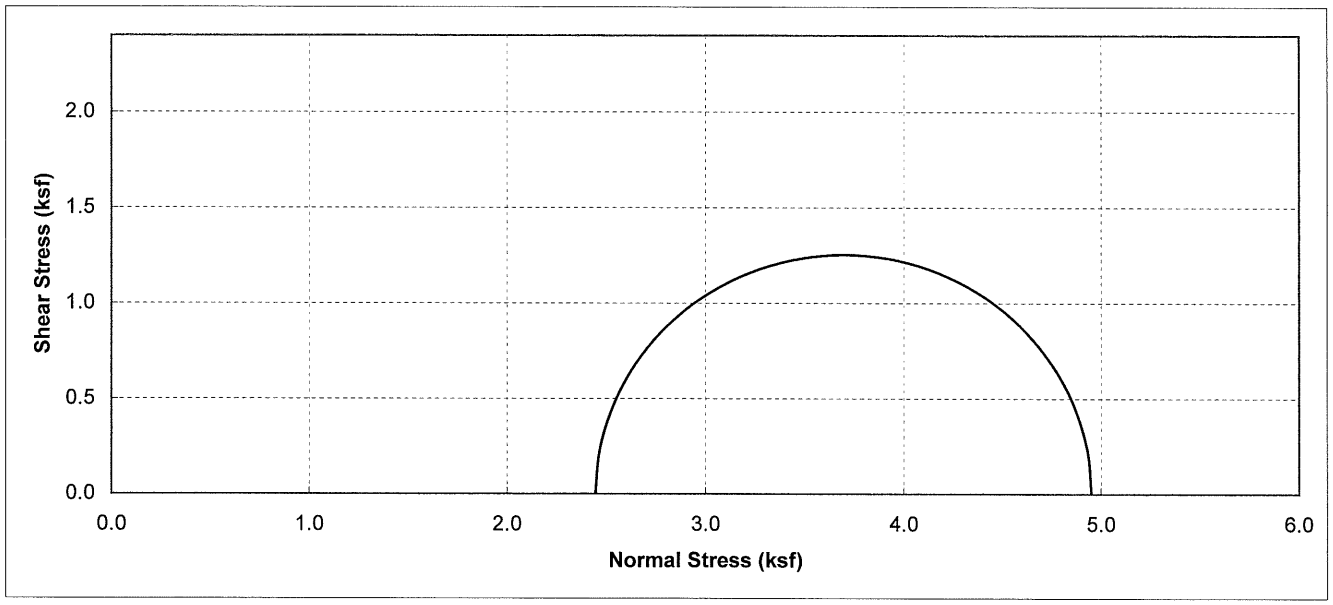




Boring No.	Sample No.	Depth (ft)	Soil Type	Dry Density (pcf)	Moisture Content (%)	Conf. Stress (ksf)	Max. Dev. Stress (ksf)	Initial Saturation (%)
B-08-11	D-2	10	Olive Brown, SANDY LEAN CLAY (CL)	111.0	14.96	0.86	6.00	78.0

Earth Mechanics, Inc. Geotechnical and Earthquake Engineering	**OCPW EGG-Wintersburg Channel, Warner to Edwards**
	UNCONSOLIDATED UNDRAINED TEST
Project No. : 08-156 **Date :** 01/13/09	**(ASTM D2850)** Figure No. :





Boring No.	Sample No.	Depth (ft)	Soil Type	Dry Density (pcf)	Moisture Content (%)	Conf. Stress (ksf)	Max. Dev. Stress (ksf)	Initial Saturation (%)
B-08-12	D-6-2	30.5	top Lt. Olve Gray, SILT With SAND (ML) bot. Dk. Greenish Gray, ORGANIC	76.6	43.52	2.45	2.51	97.9

Earth Mechanics, Inc. Geotechnical and Earthquake Engineering	**OCPW EGG-Wintersburg Channel, Warner to Edwards**
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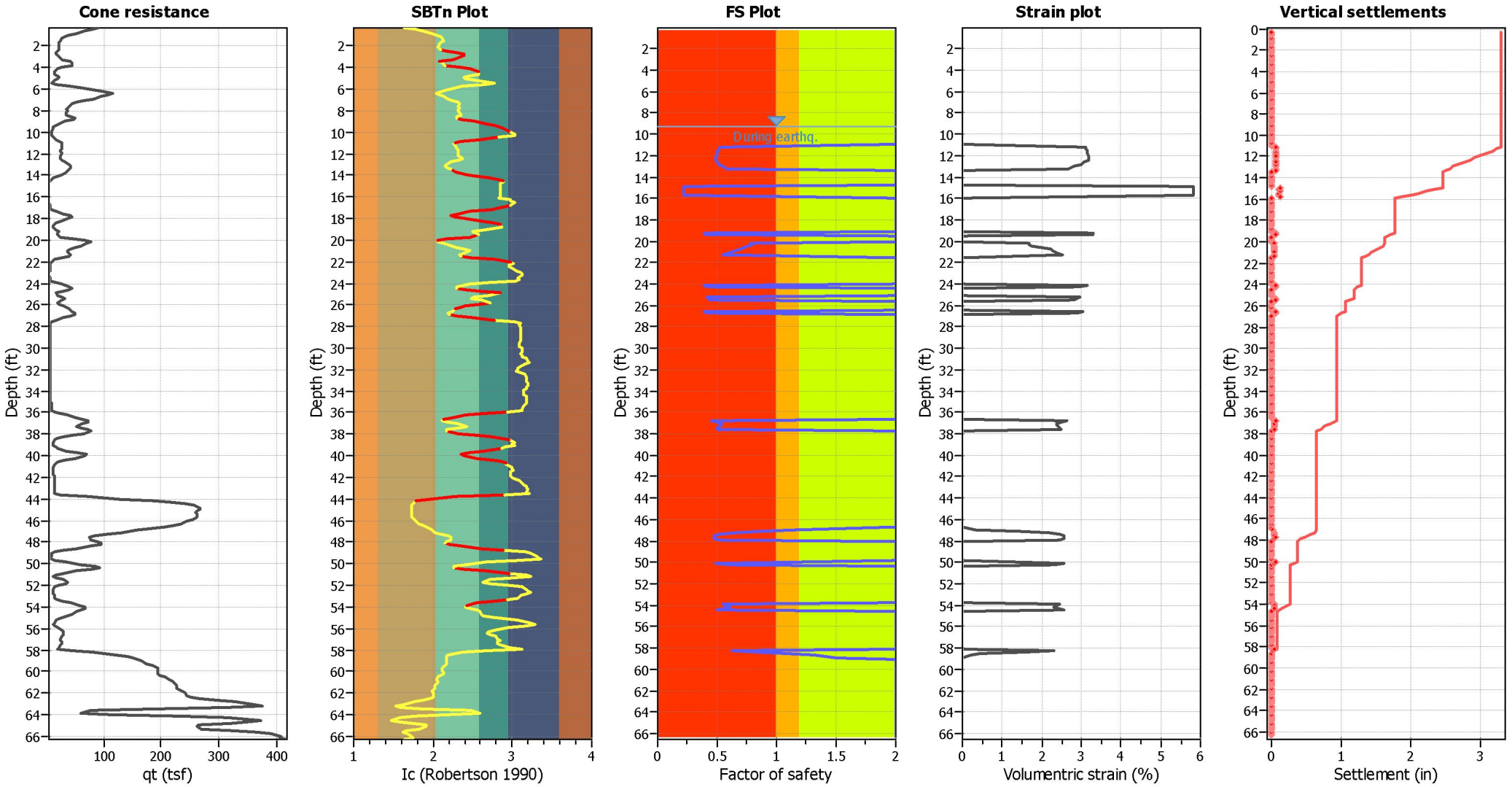
Project No. : 08-156 **Date :** 01/13/09	**(ASTM D2850)** Figure No. :

APPENDIX D. LIQUEFACTION POTENTIAL AND SEISMICALLY-INDUCED SETTLEMENT (GRAPHICAL RESULTS OF CPT ANALYSIS)

Estimation of liquefaction-induced ground settlements



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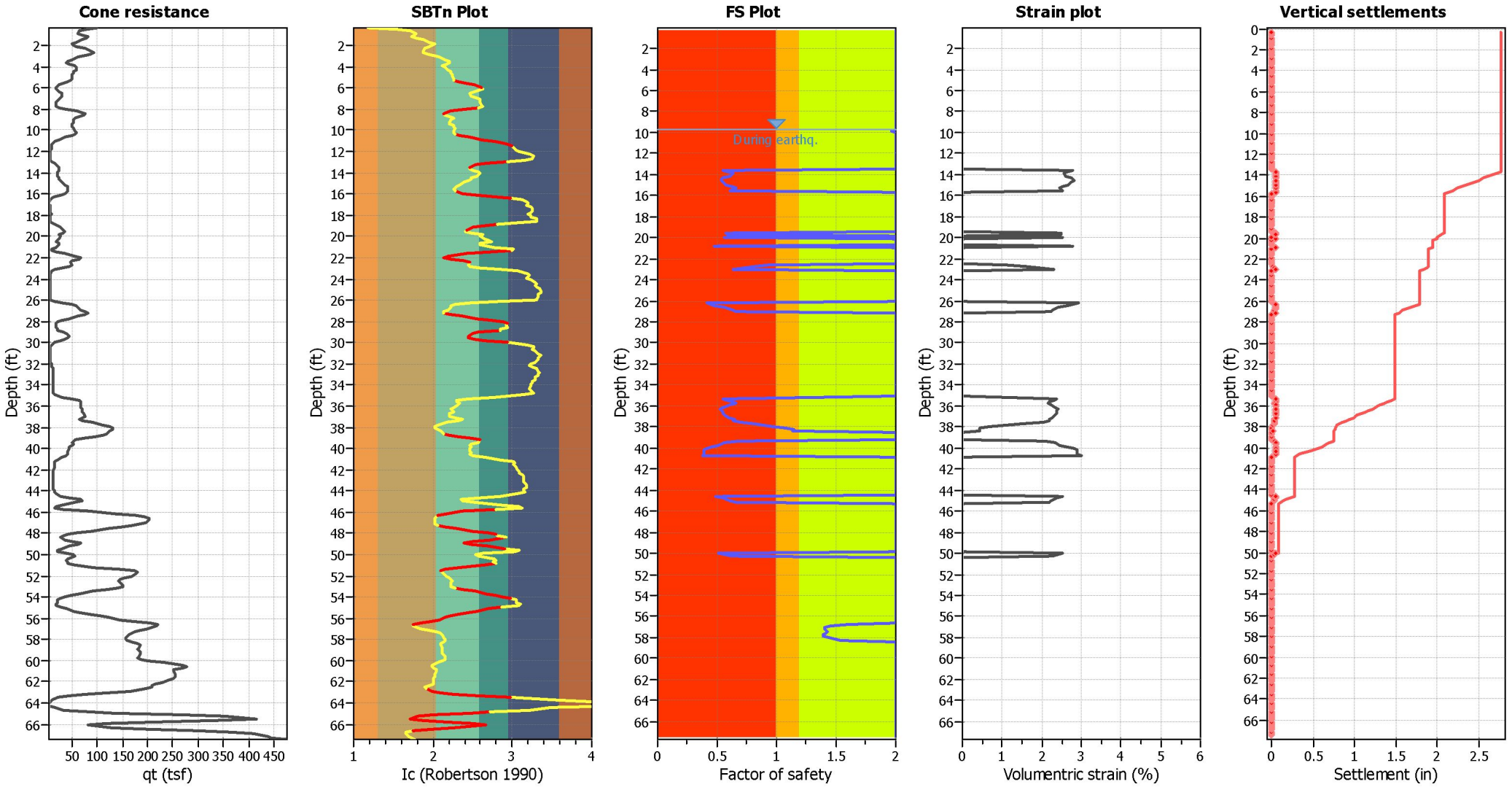

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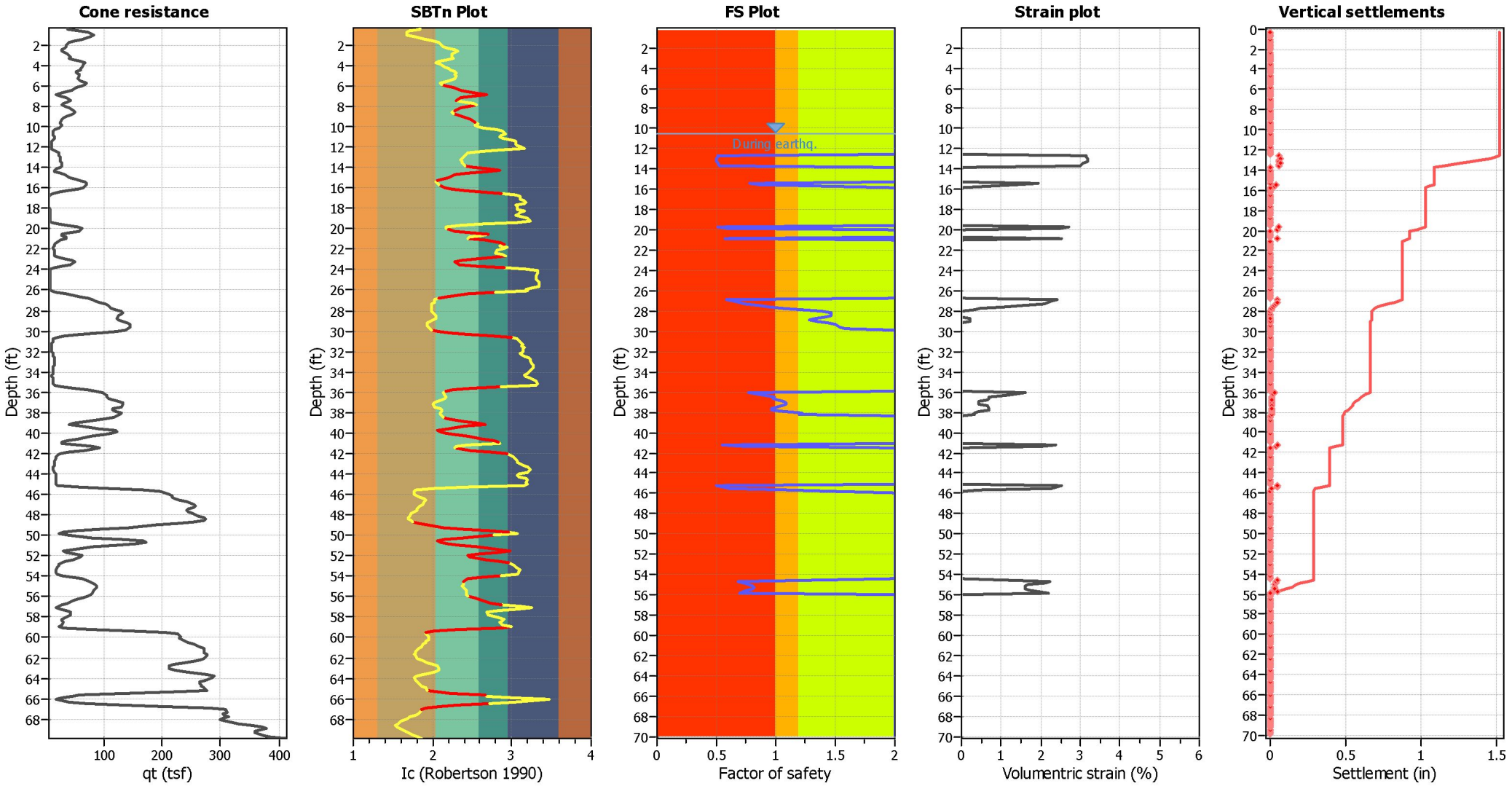

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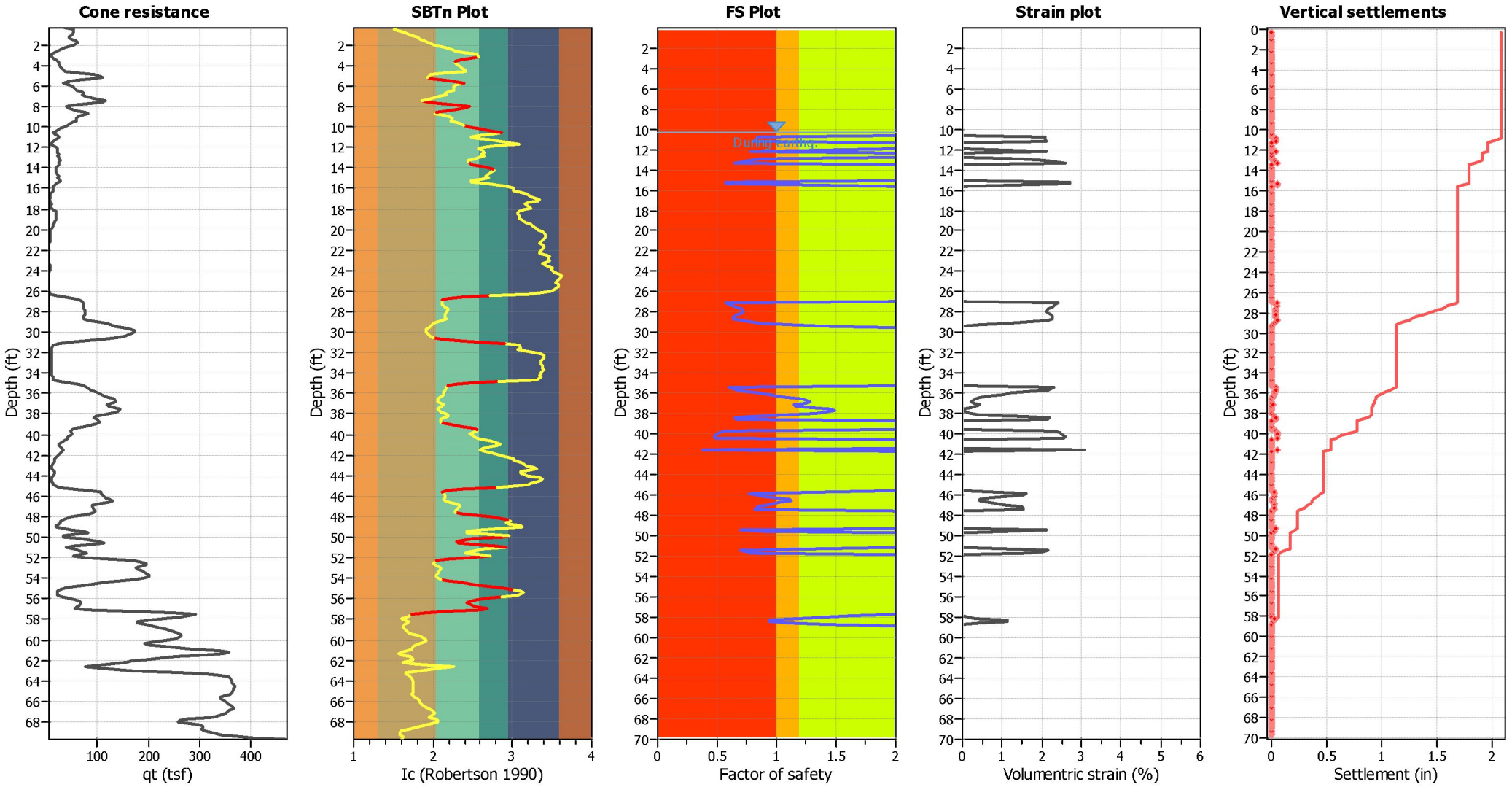

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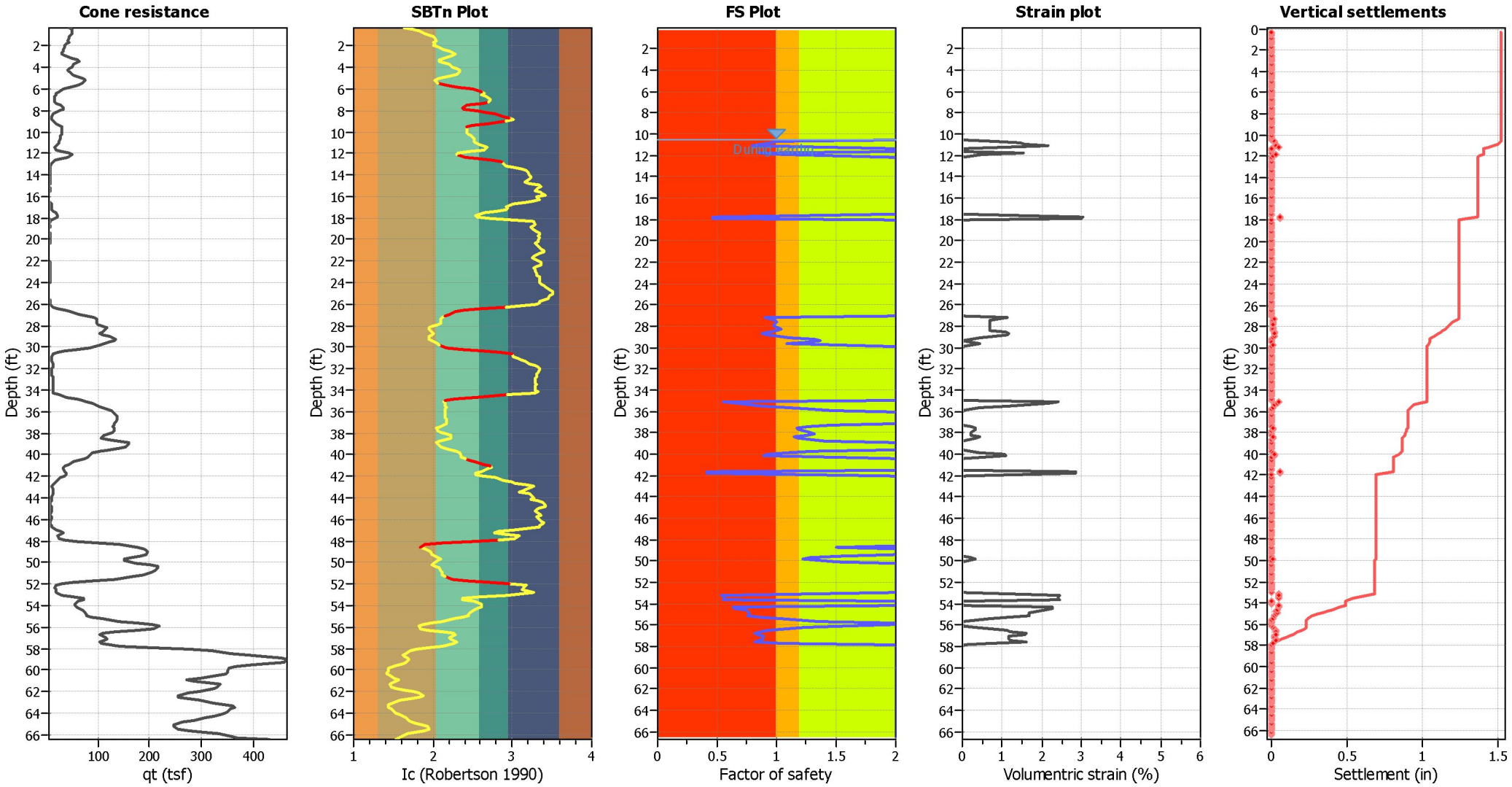

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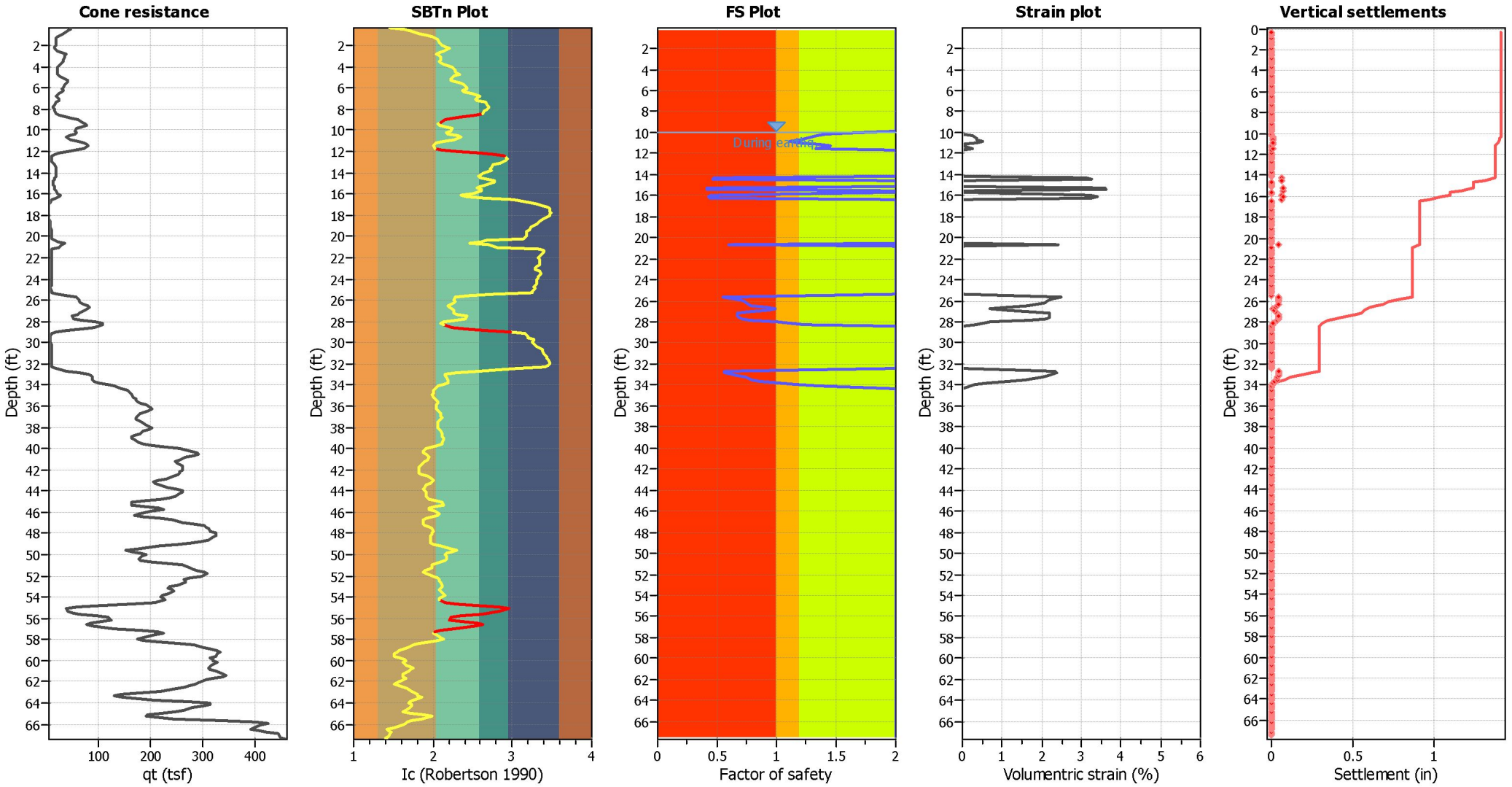

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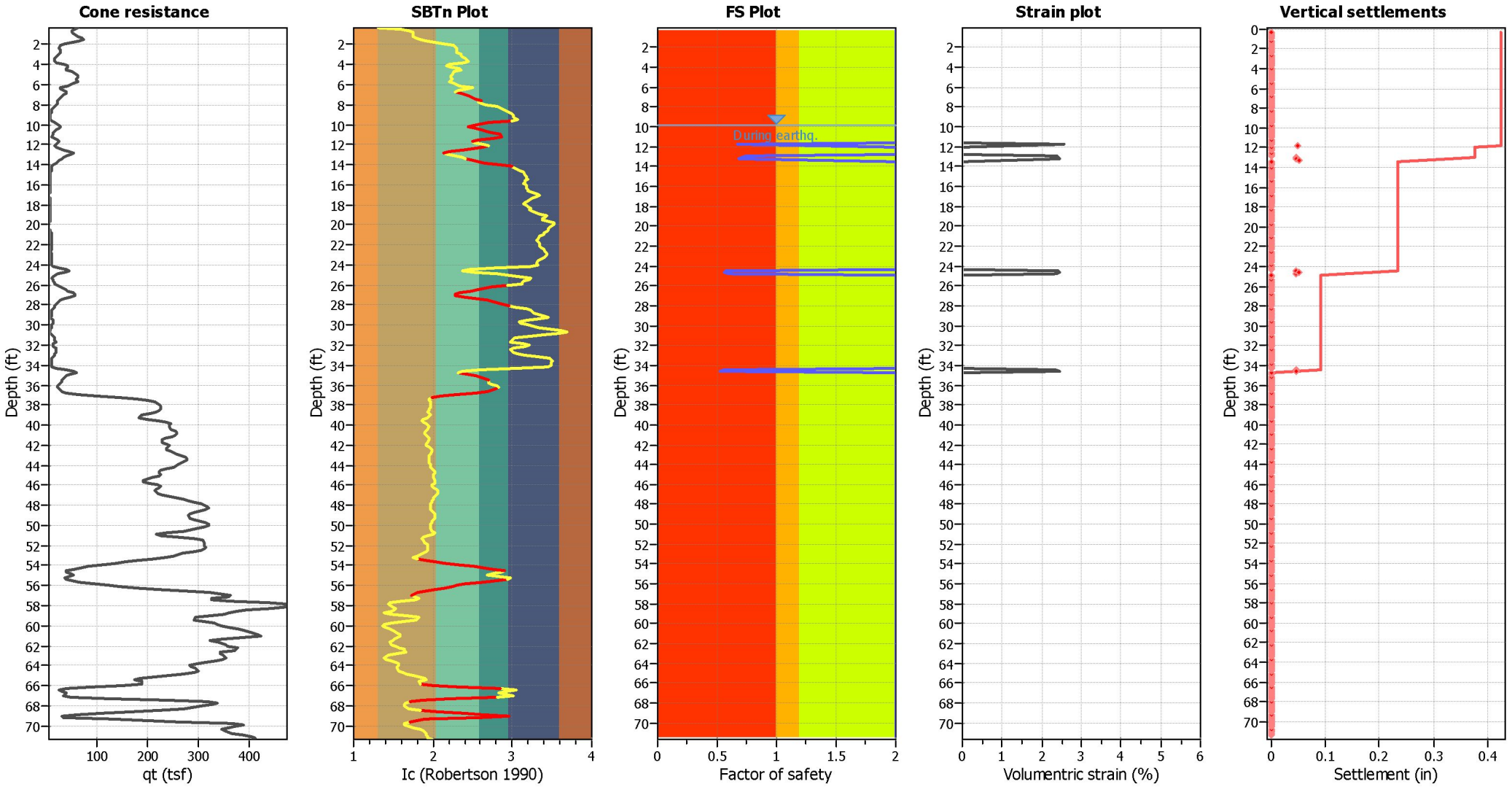

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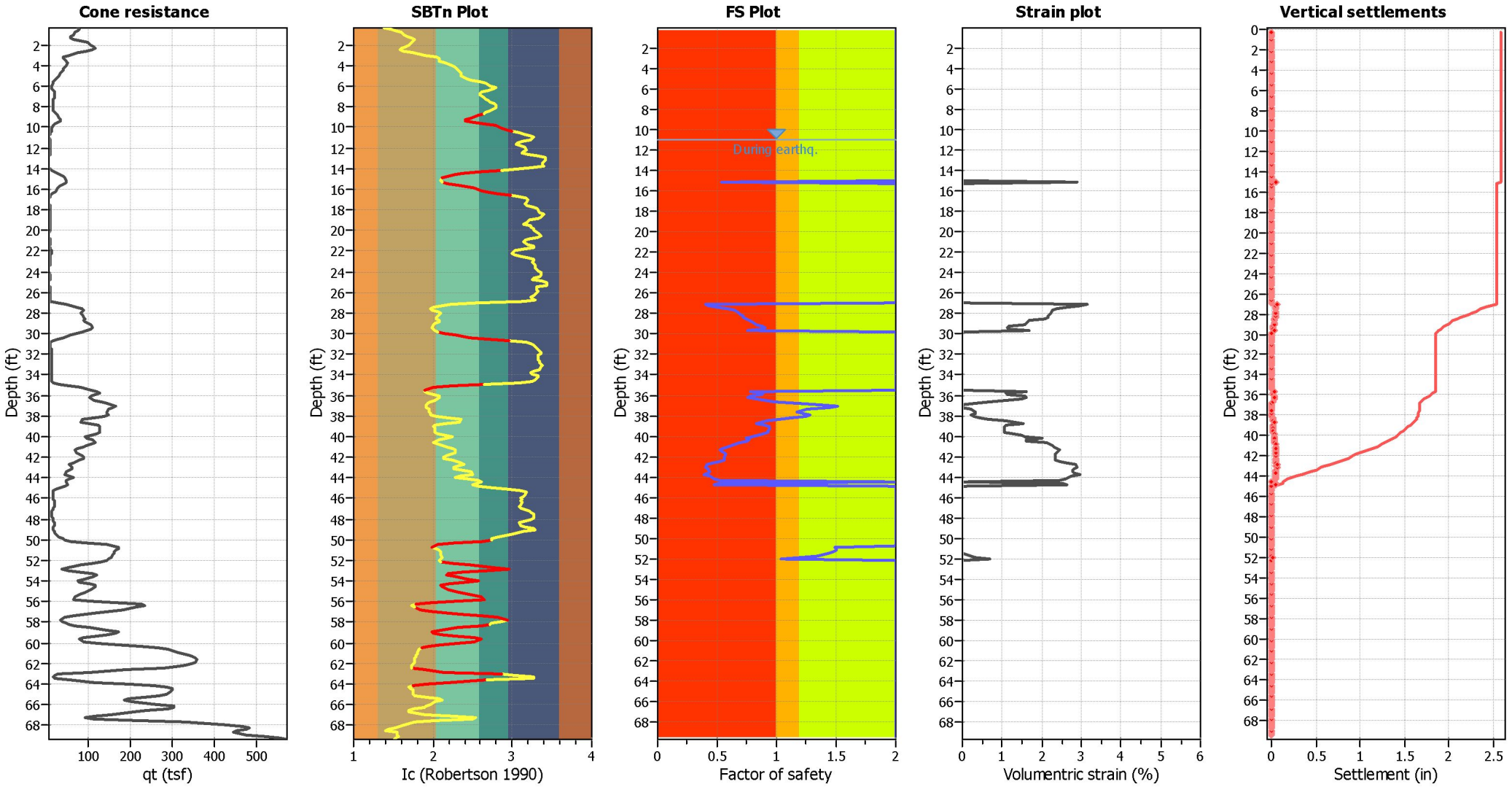

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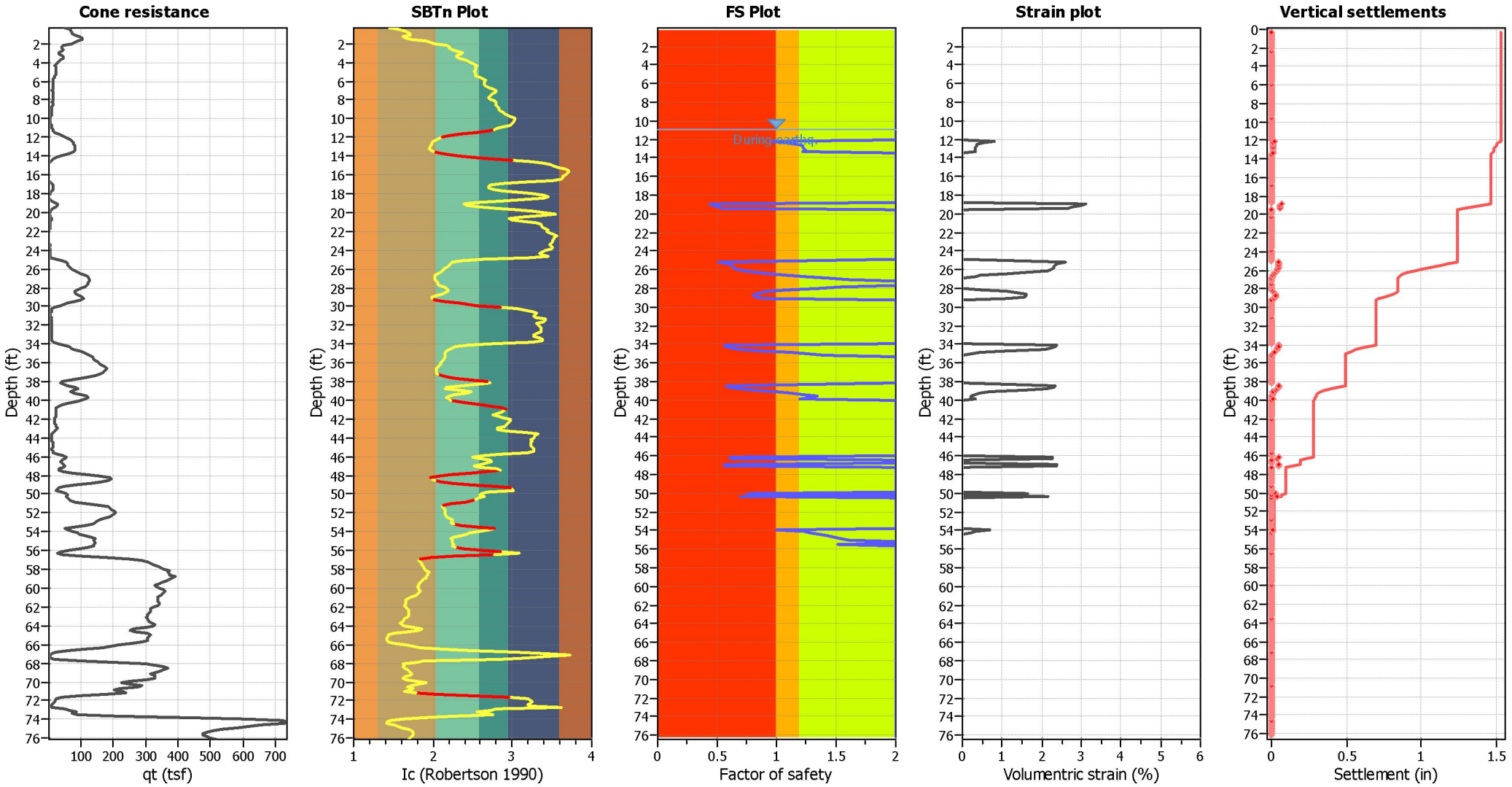

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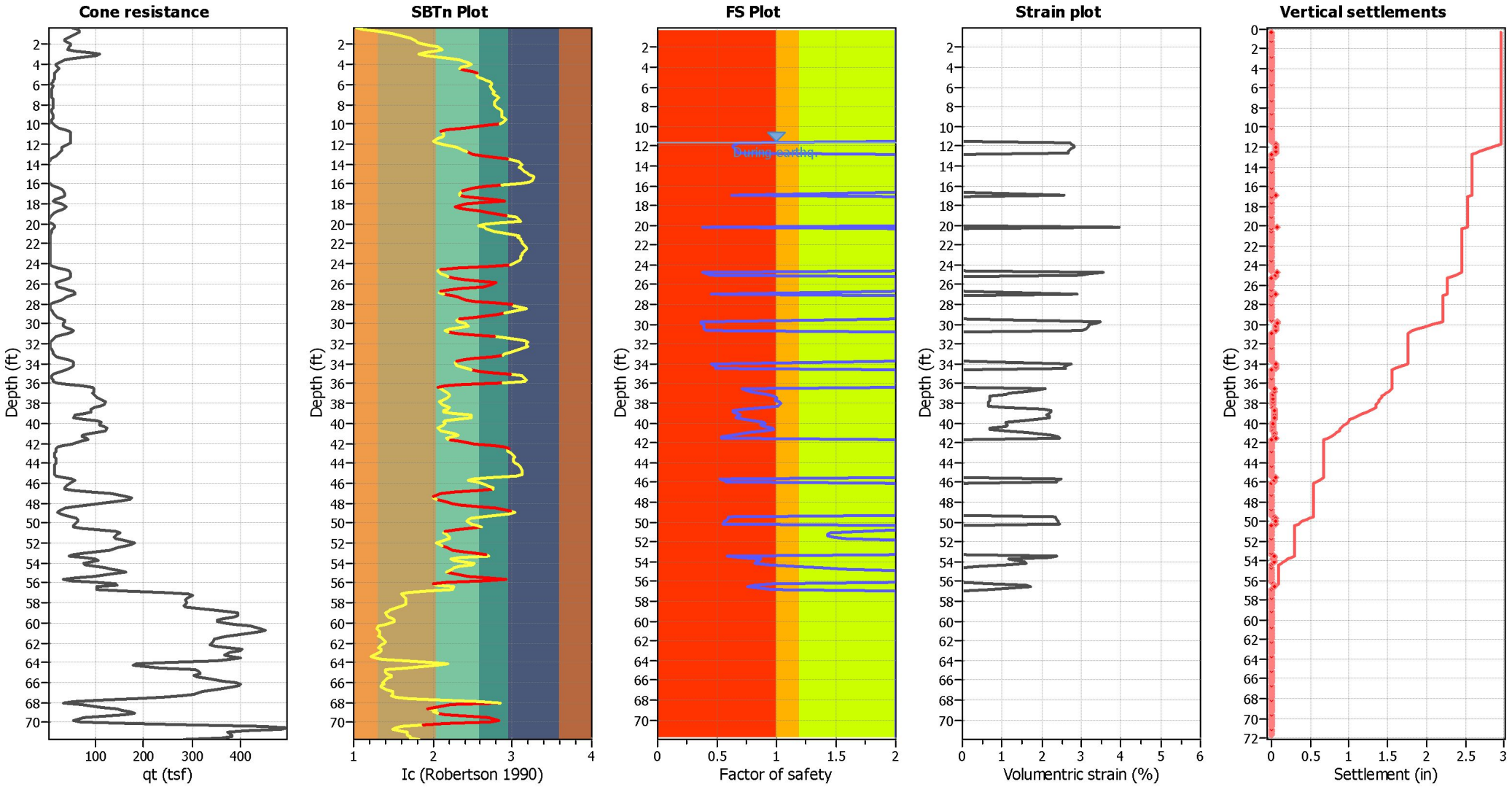

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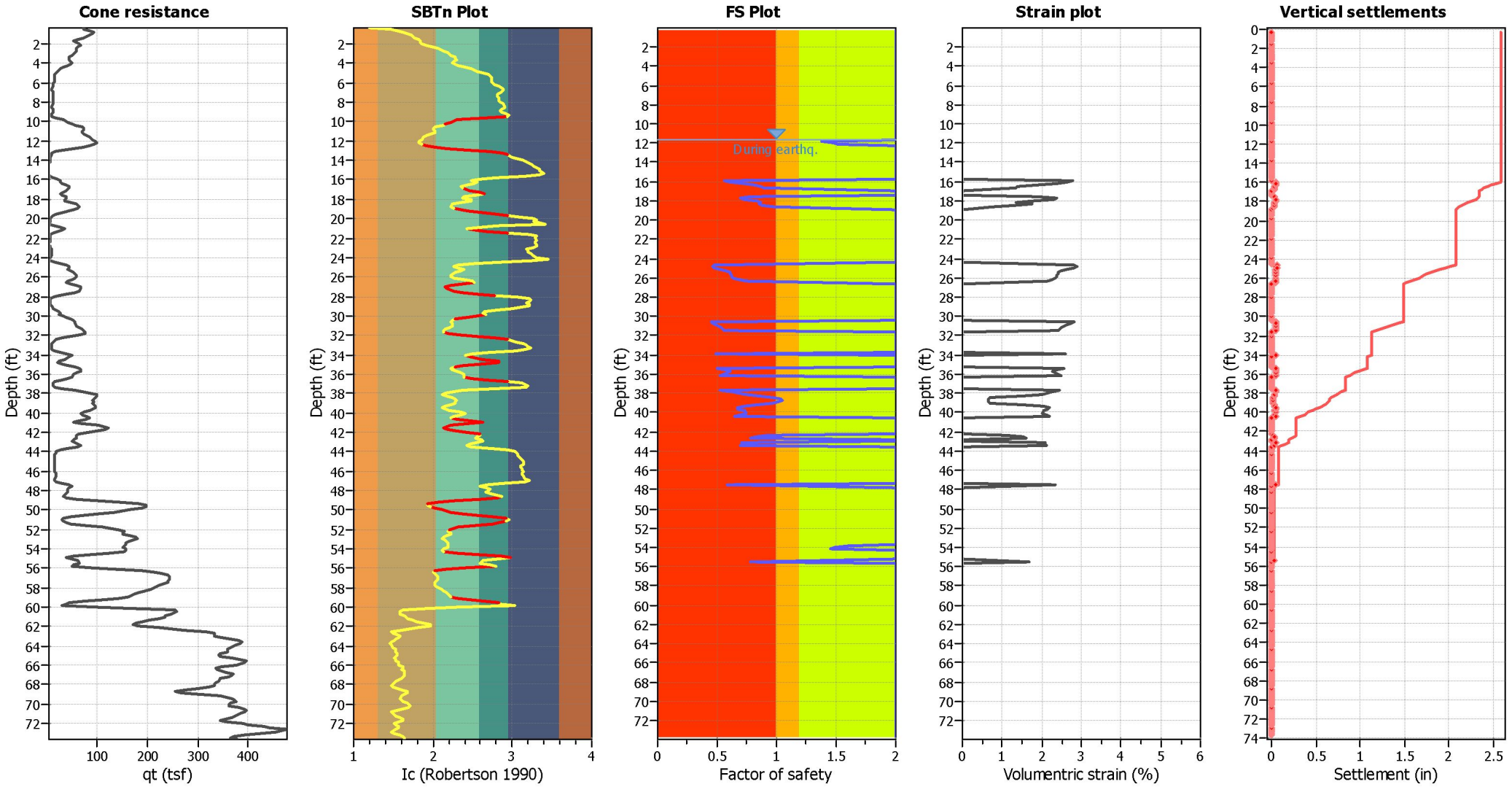

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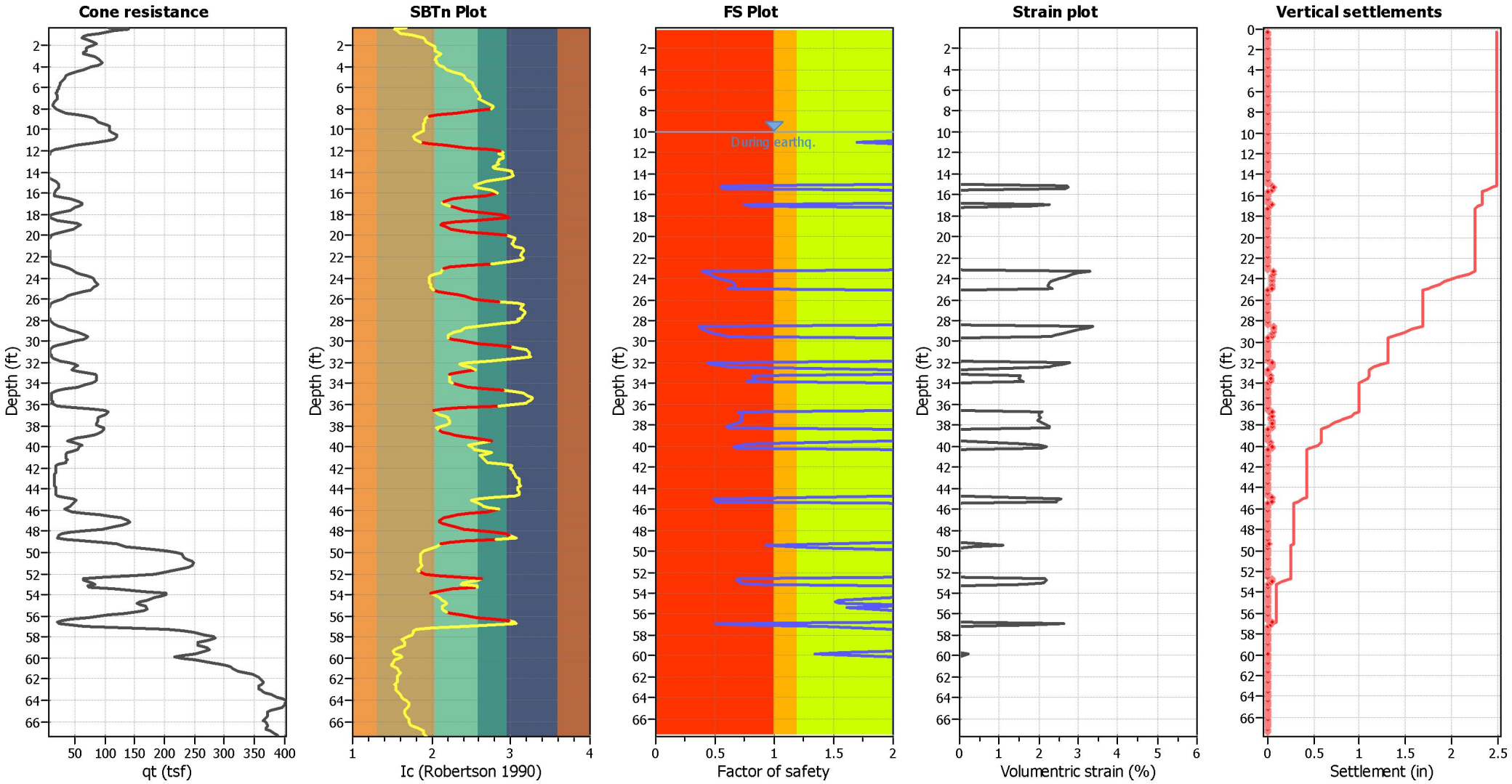

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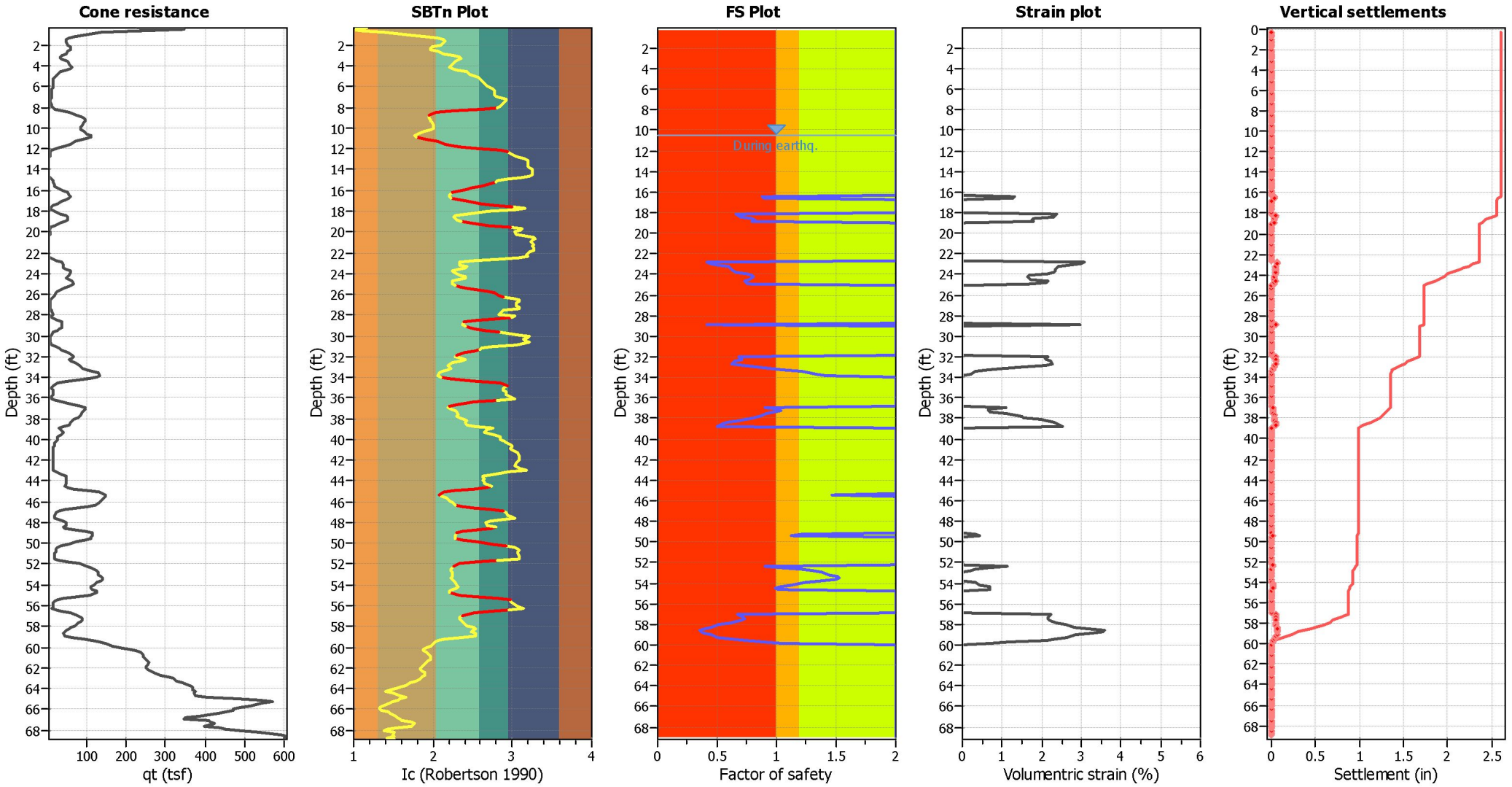

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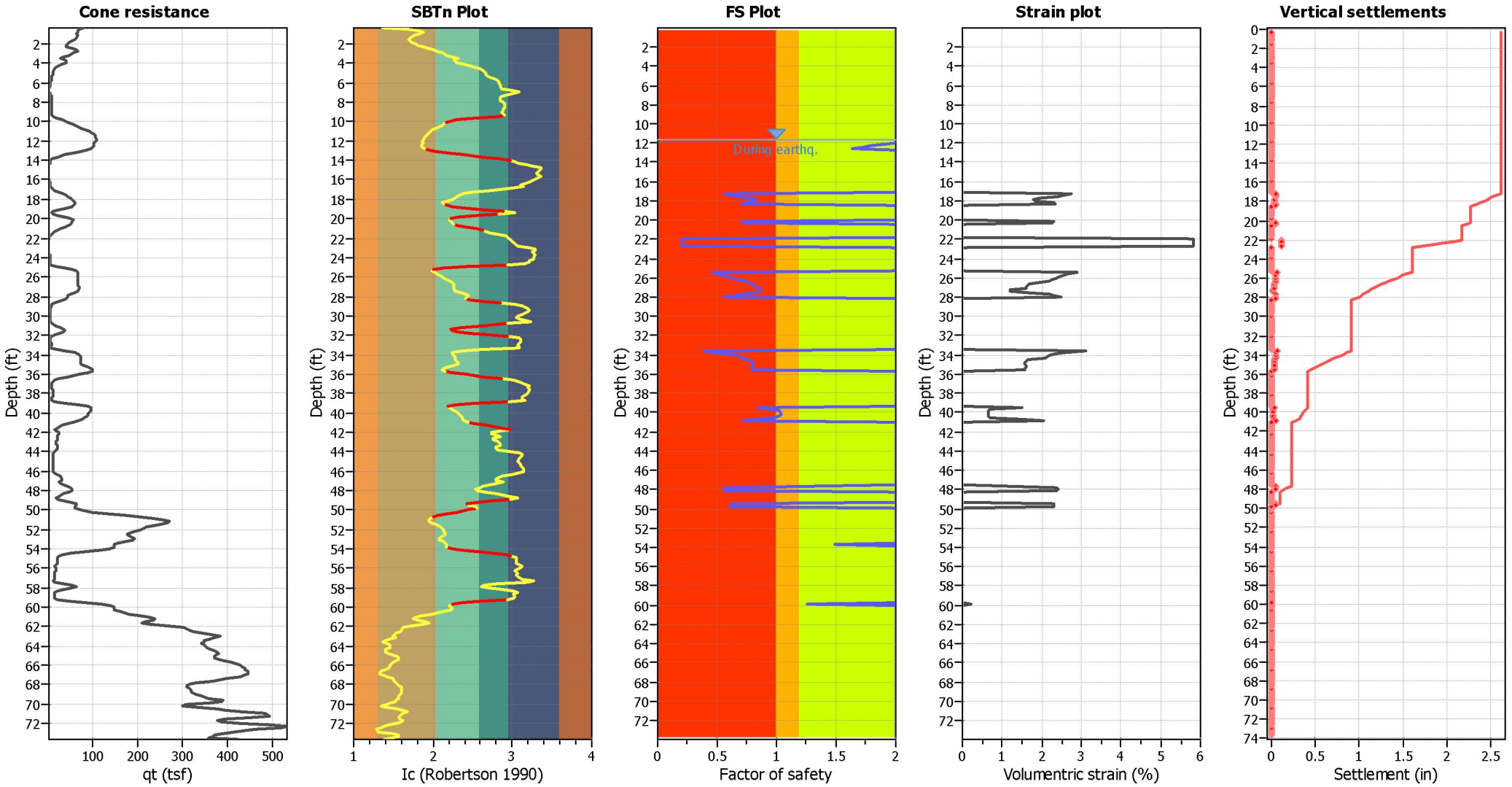

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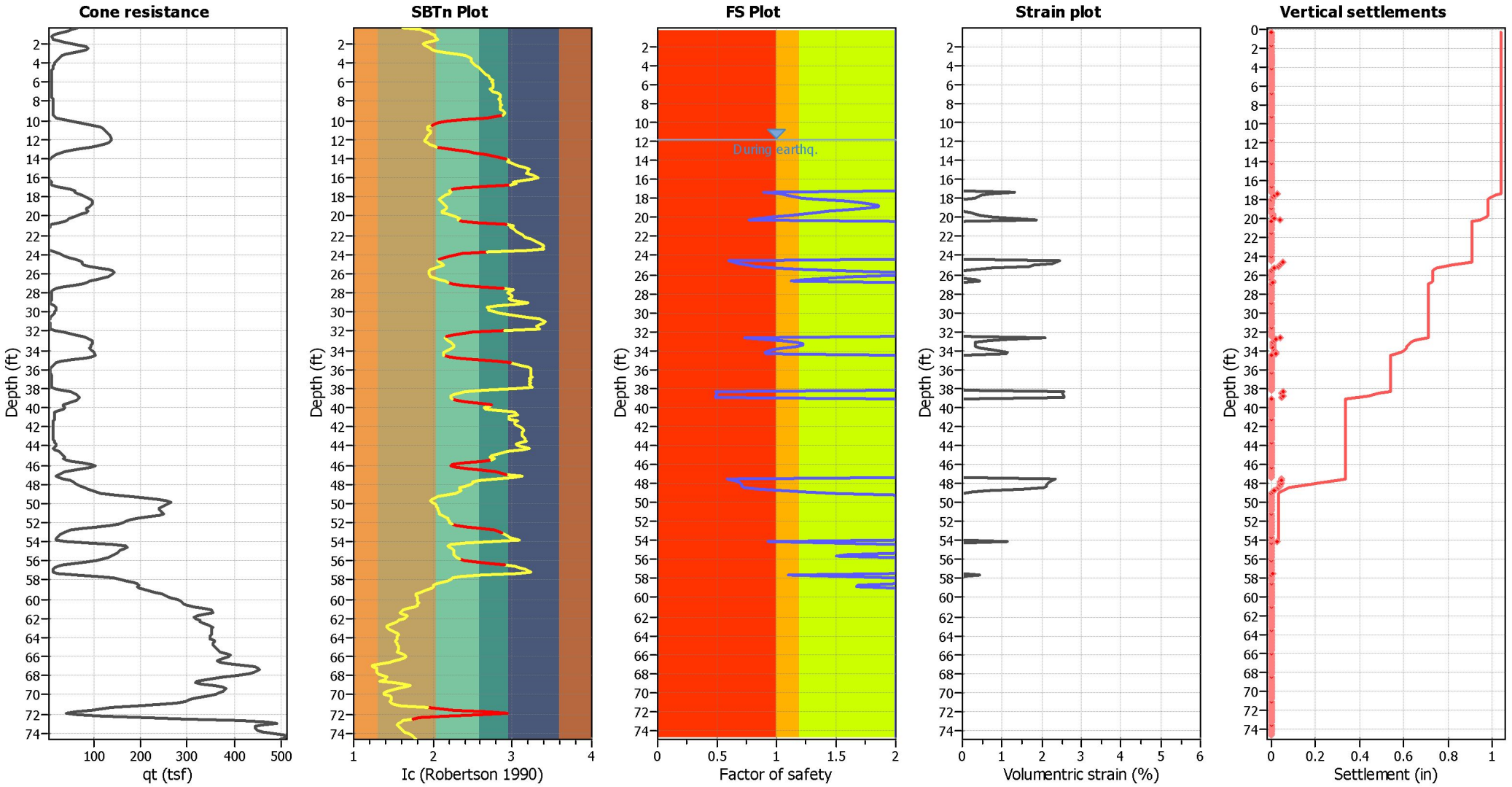

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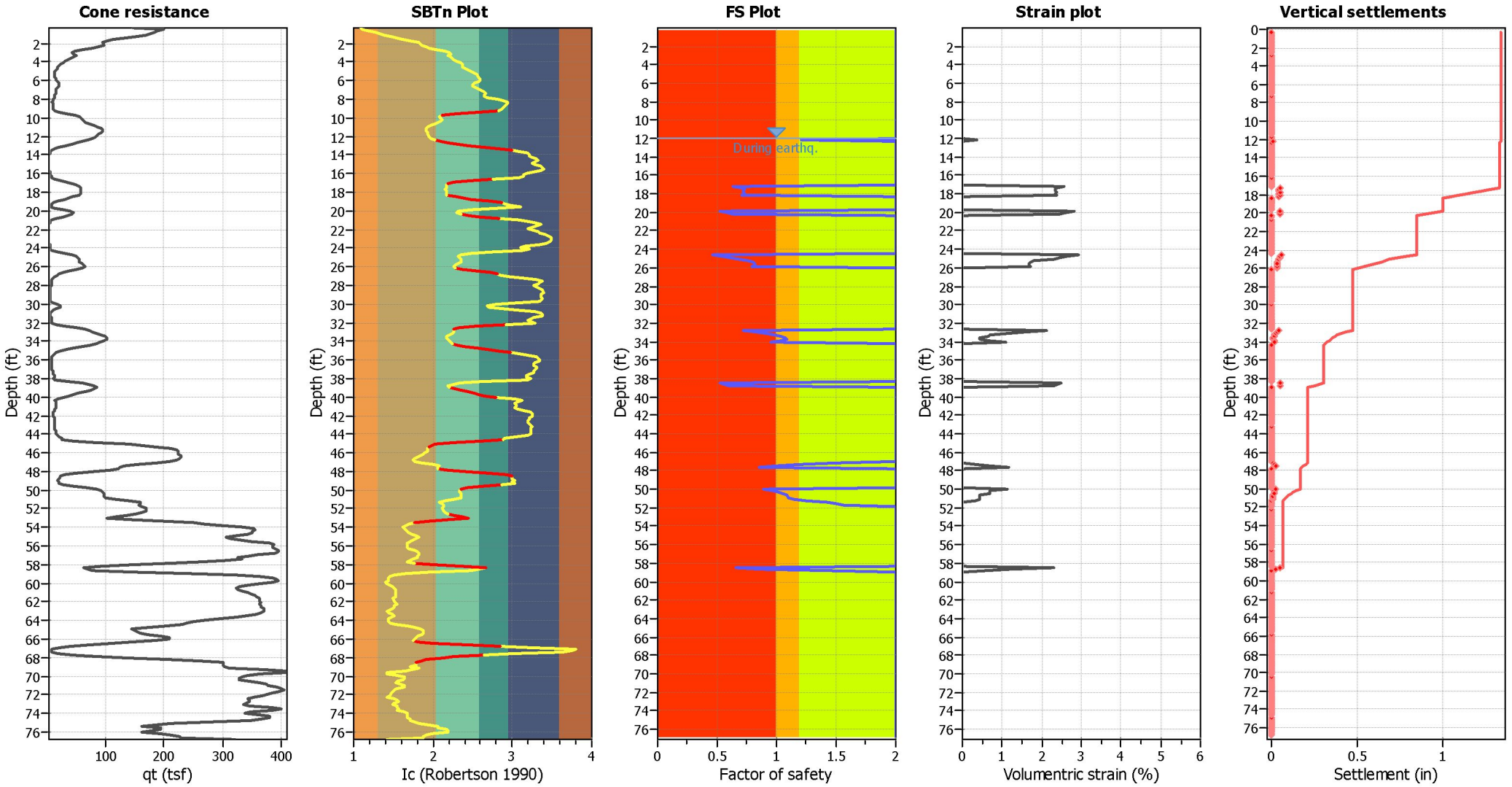

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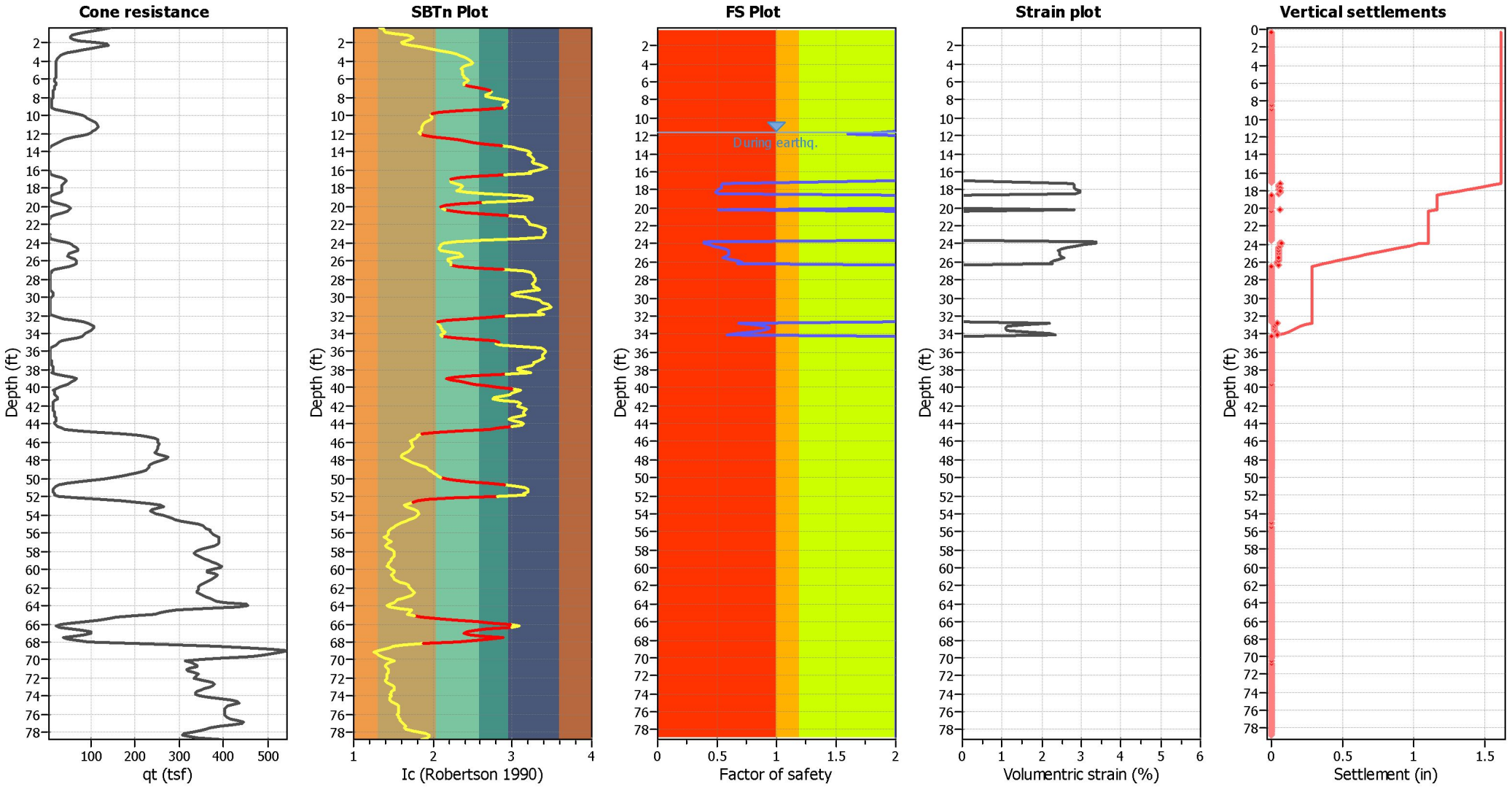

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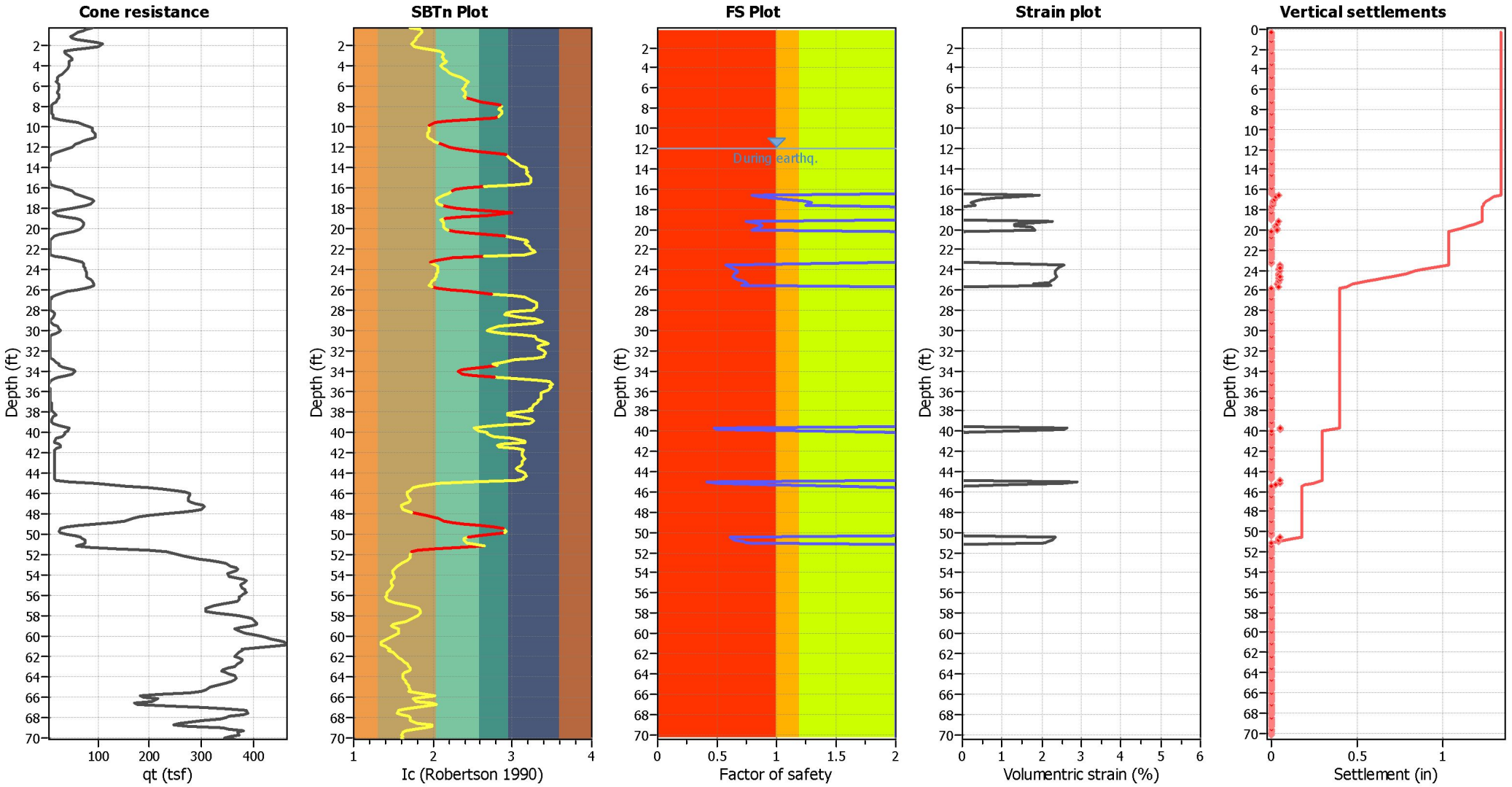

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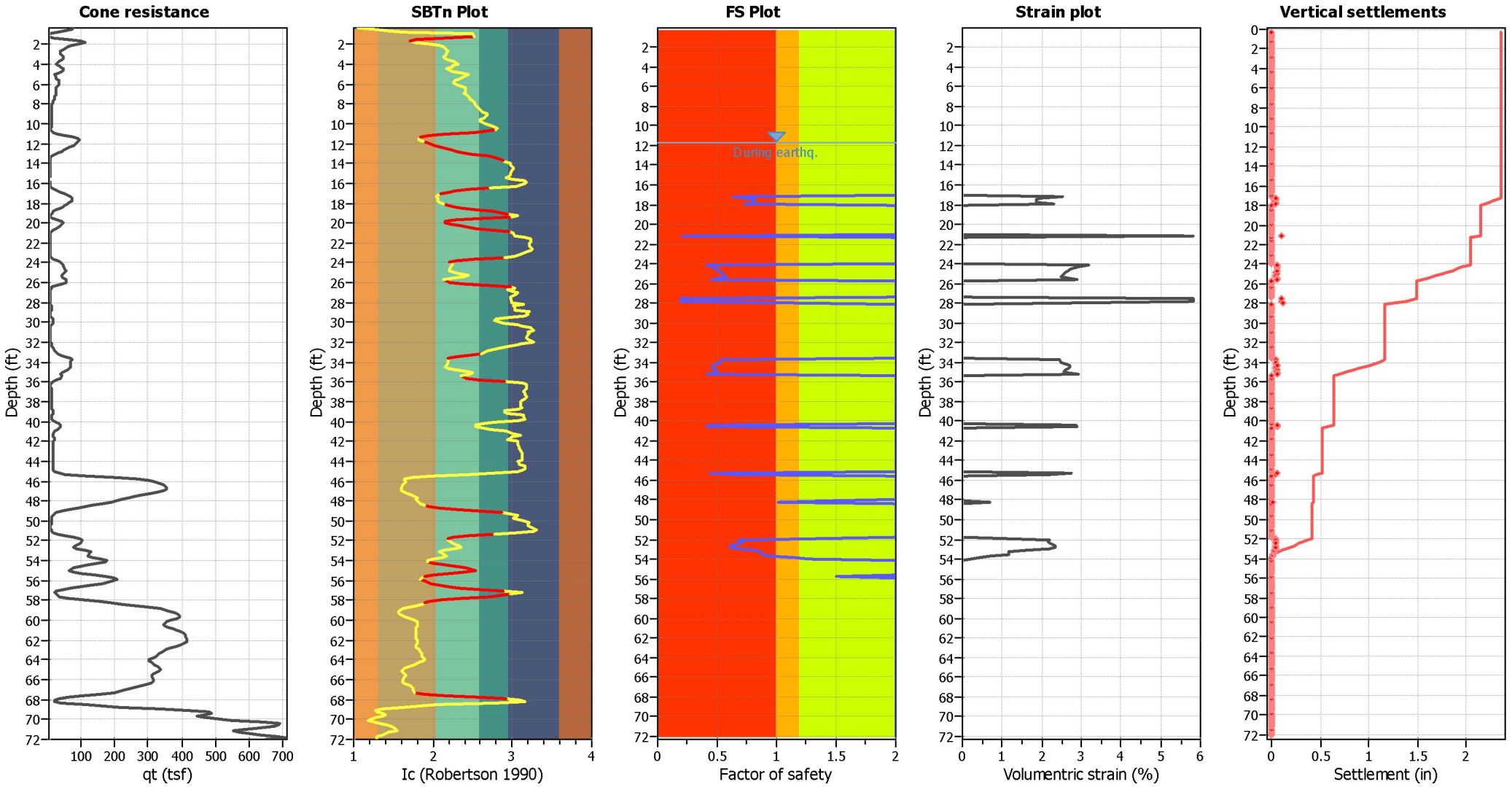

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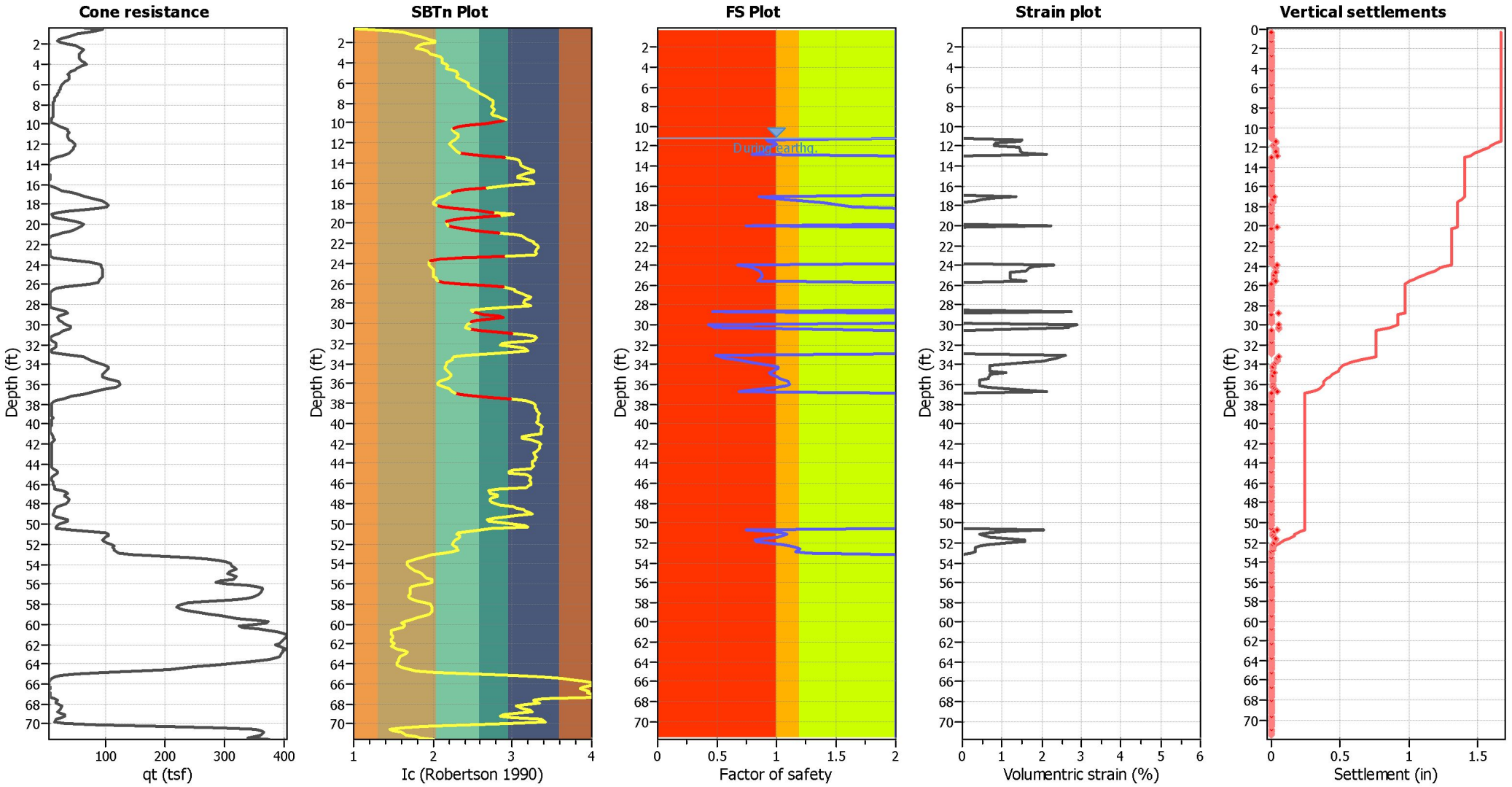

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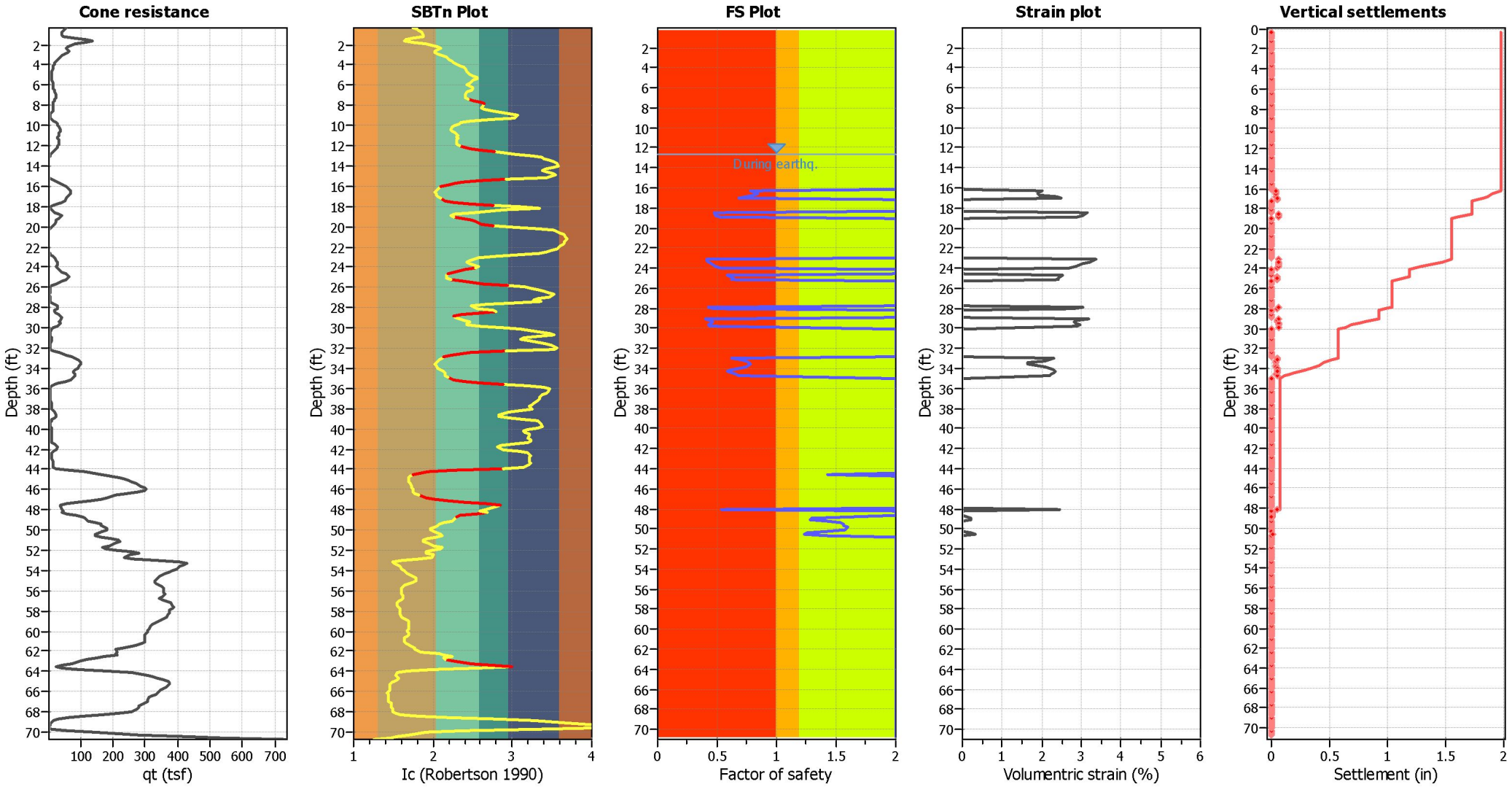

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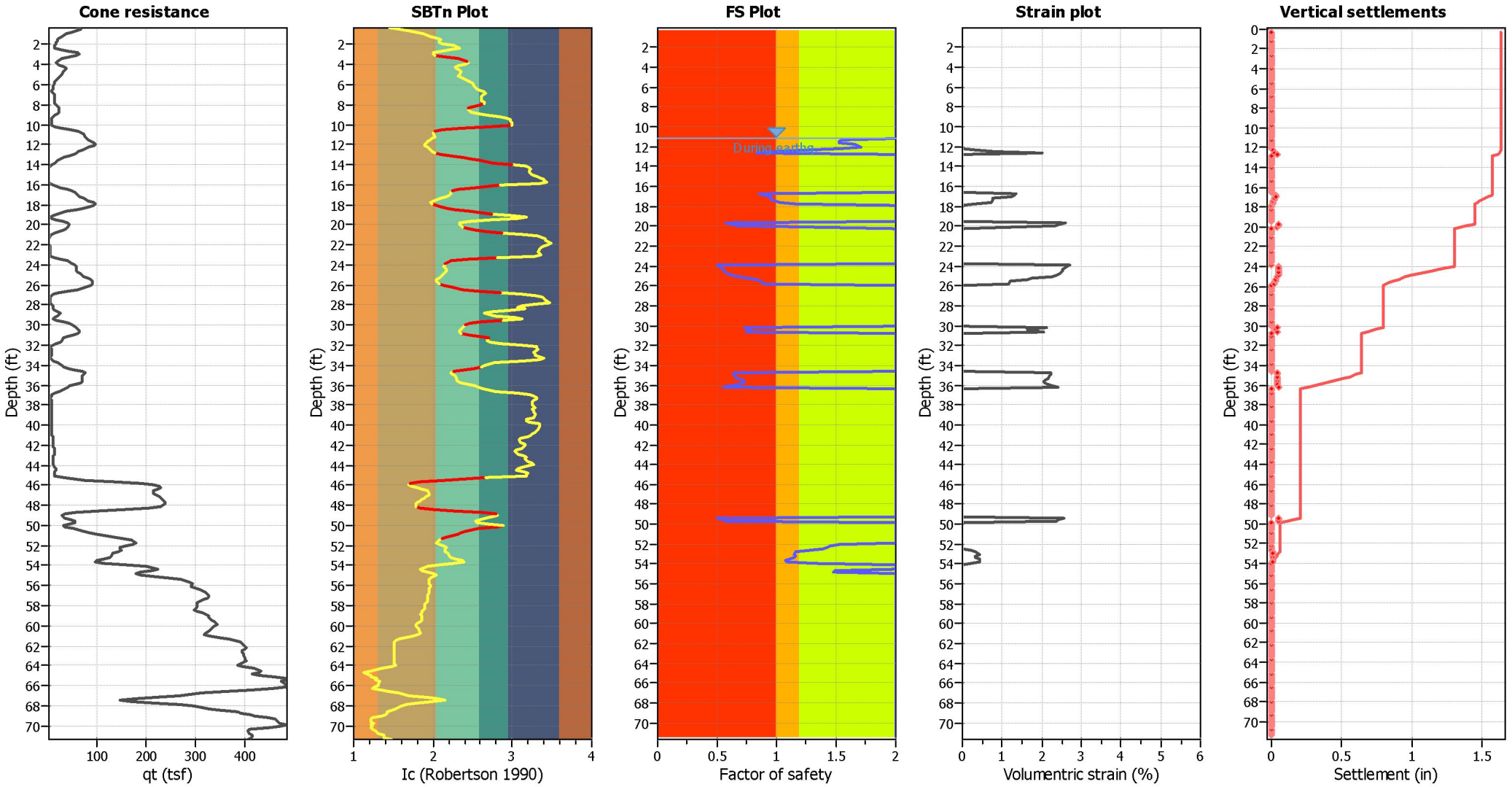

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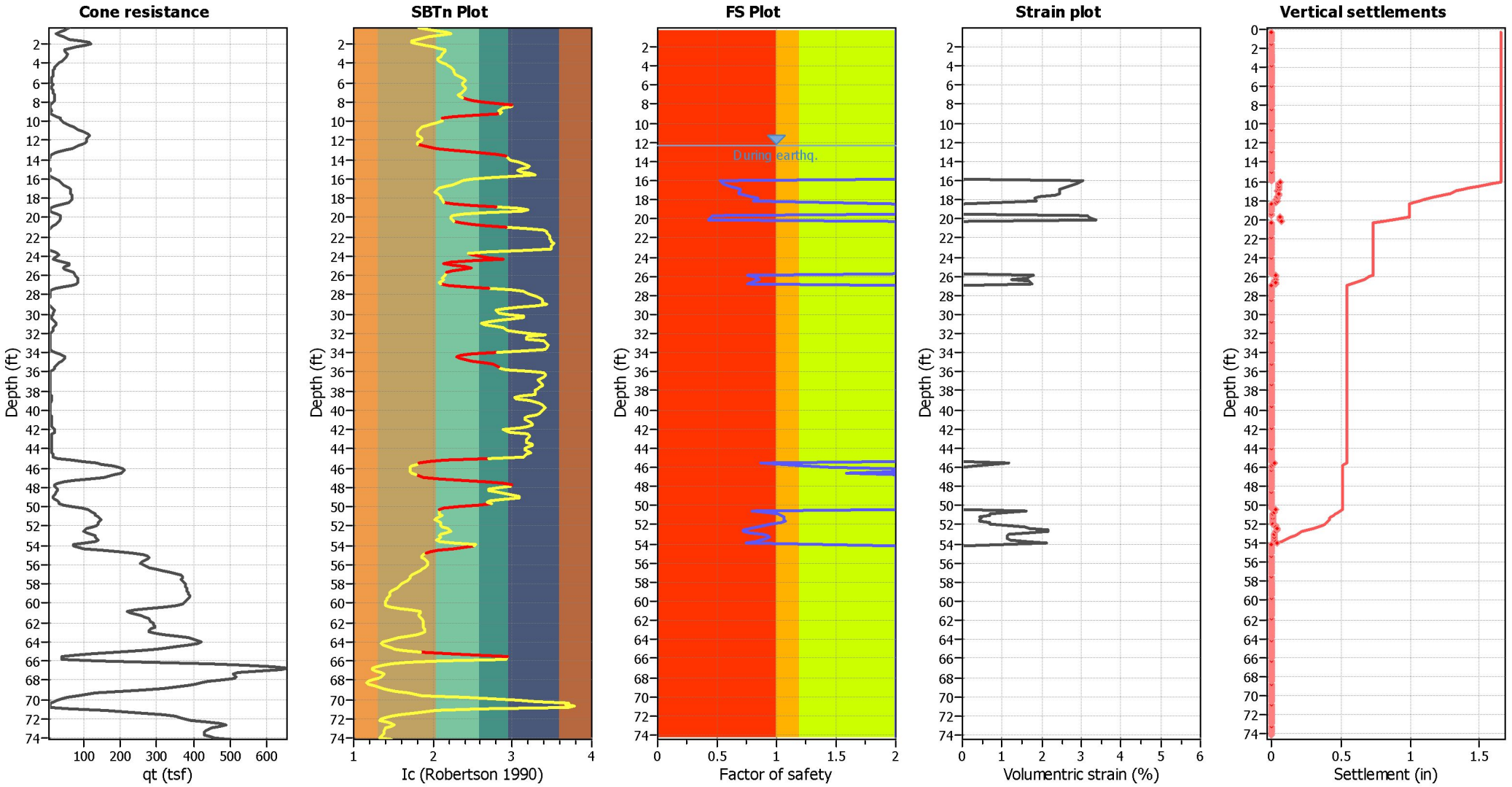

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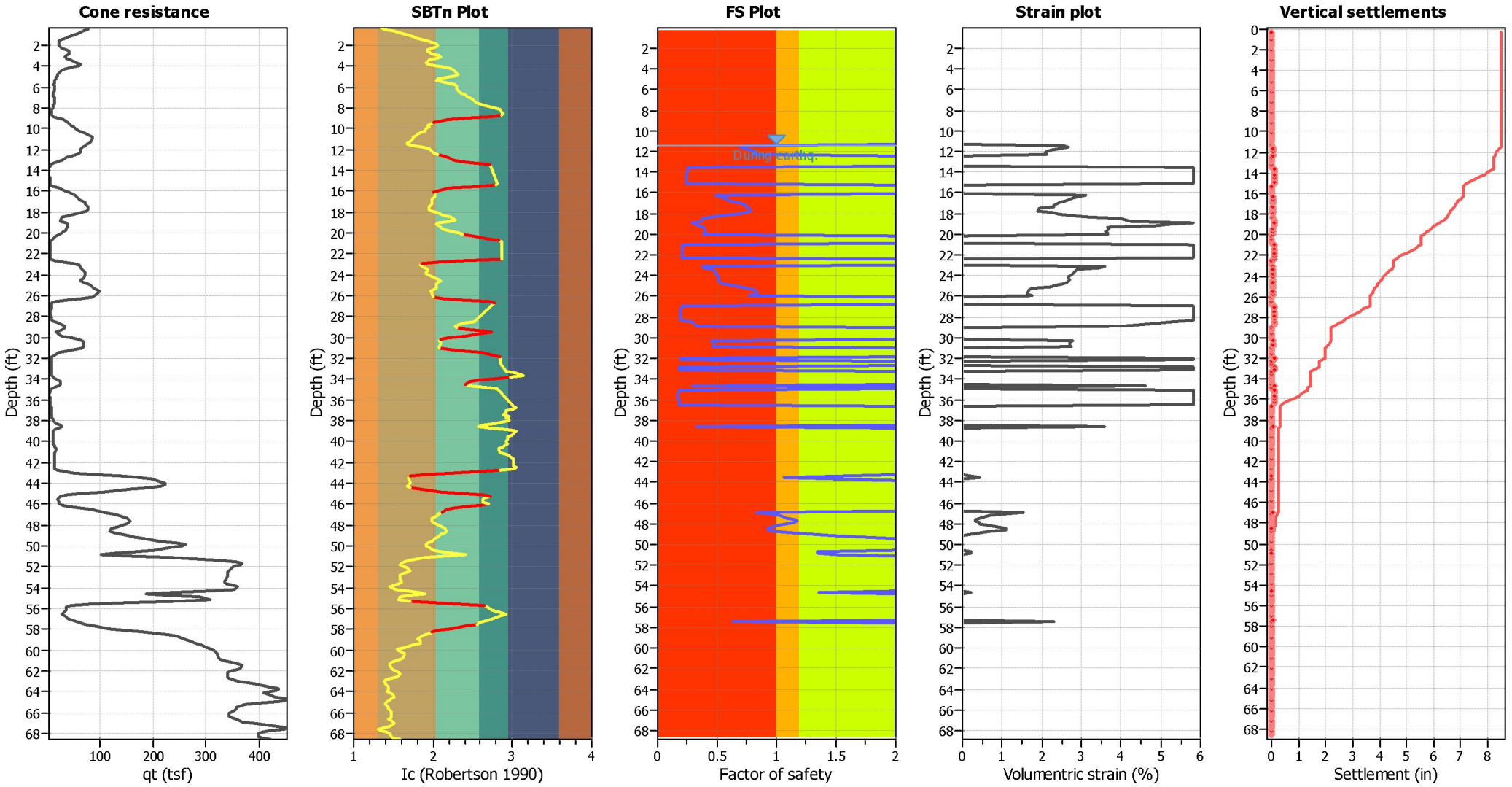

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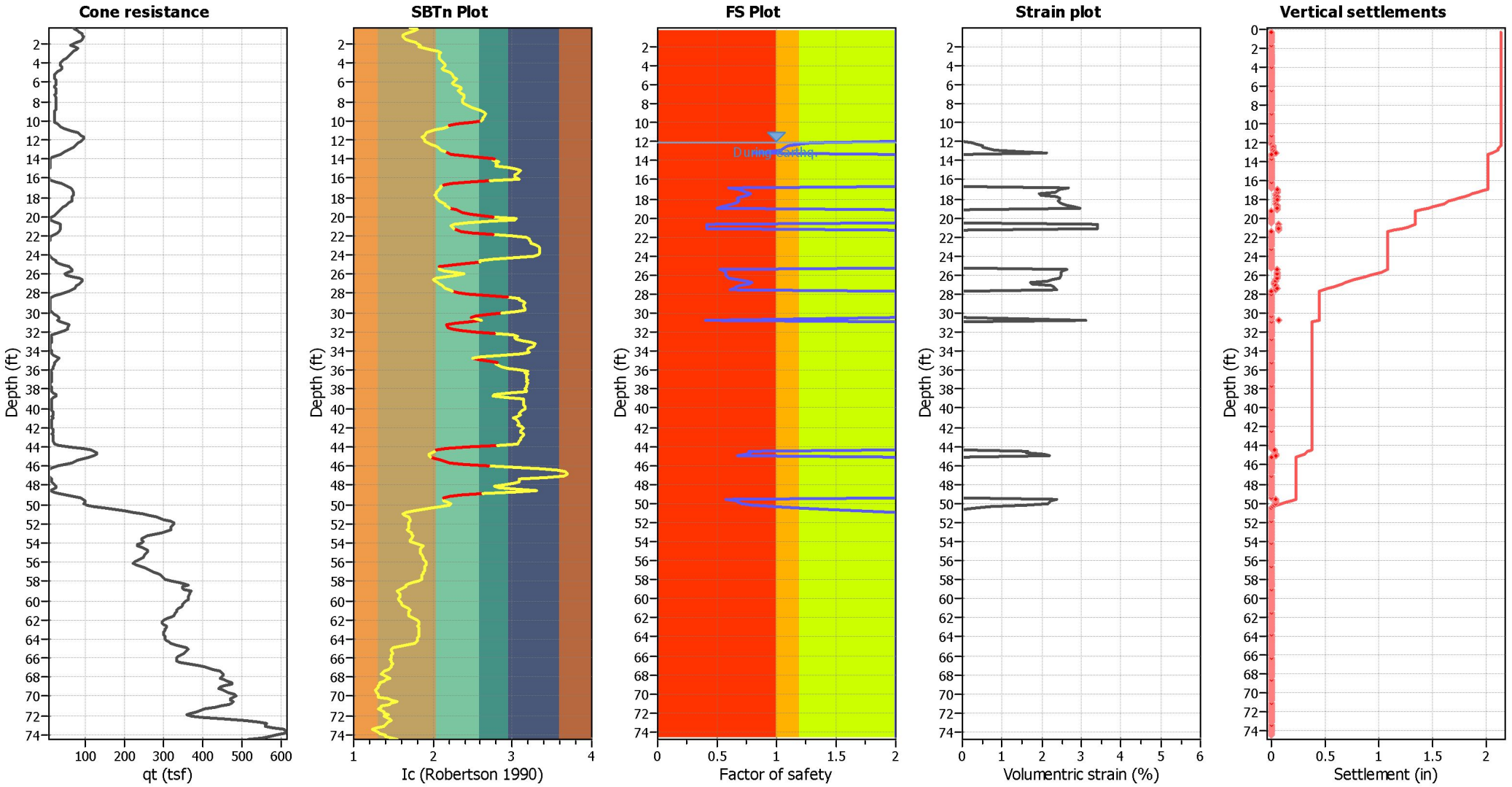

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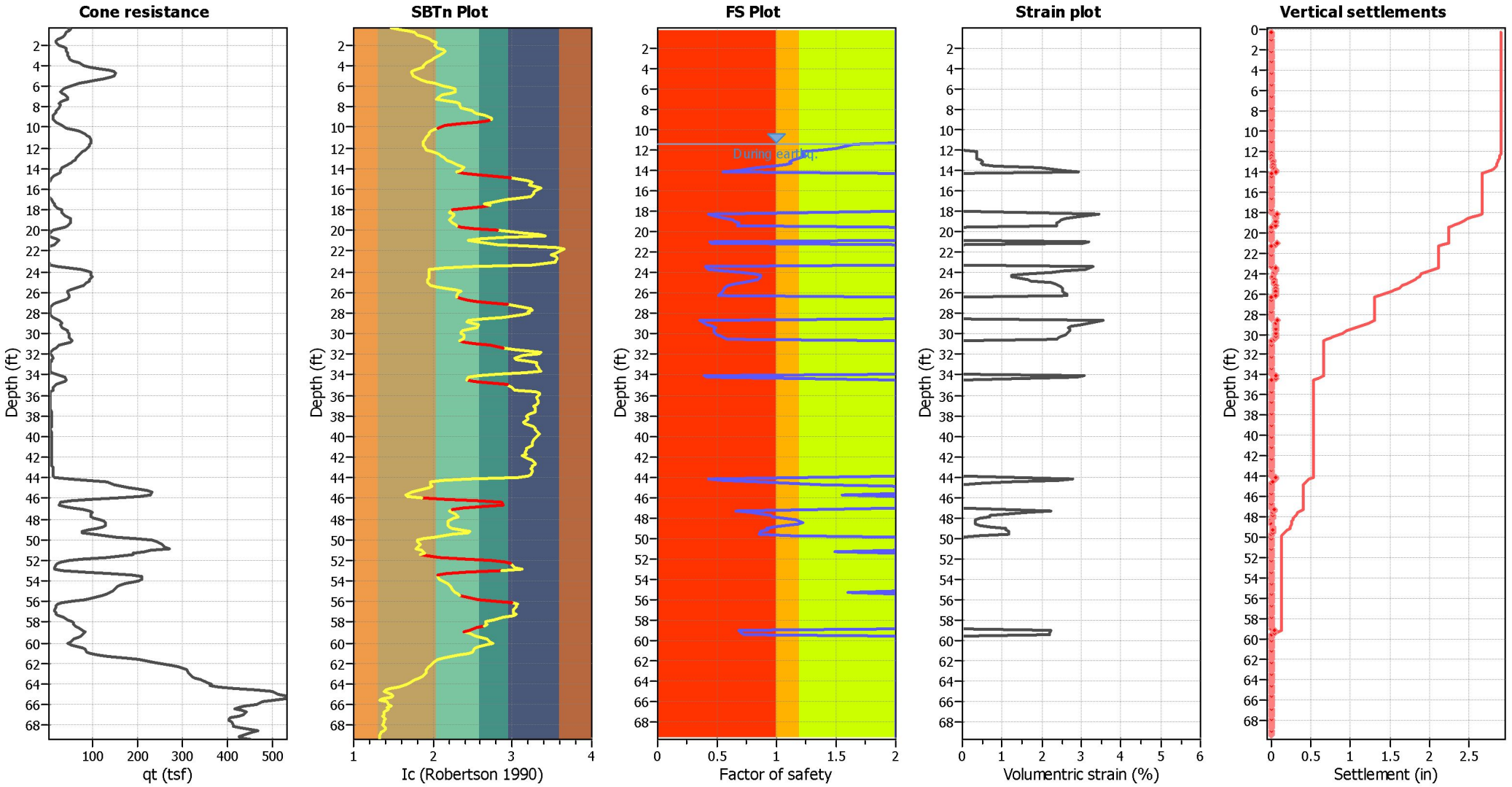

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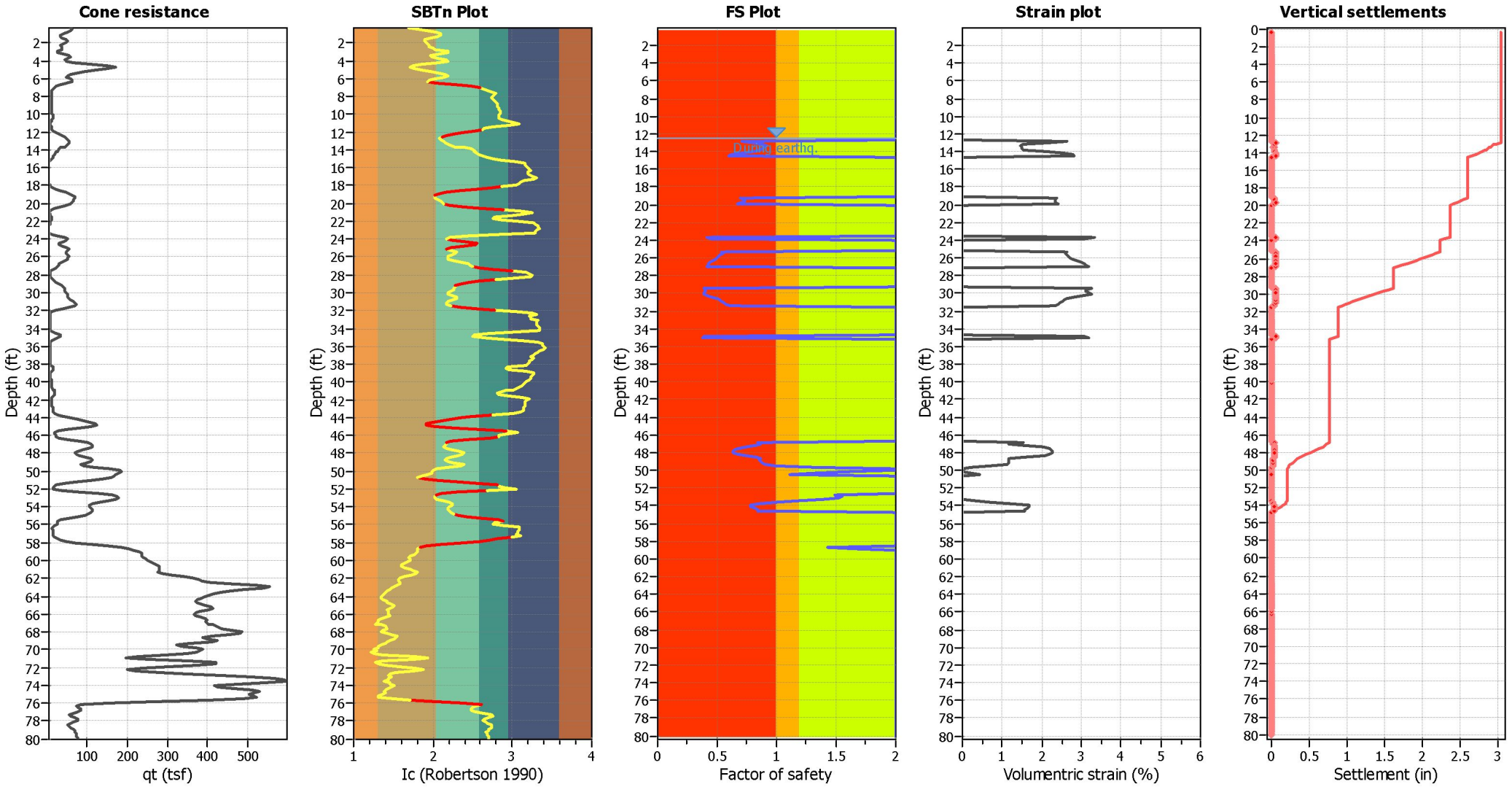

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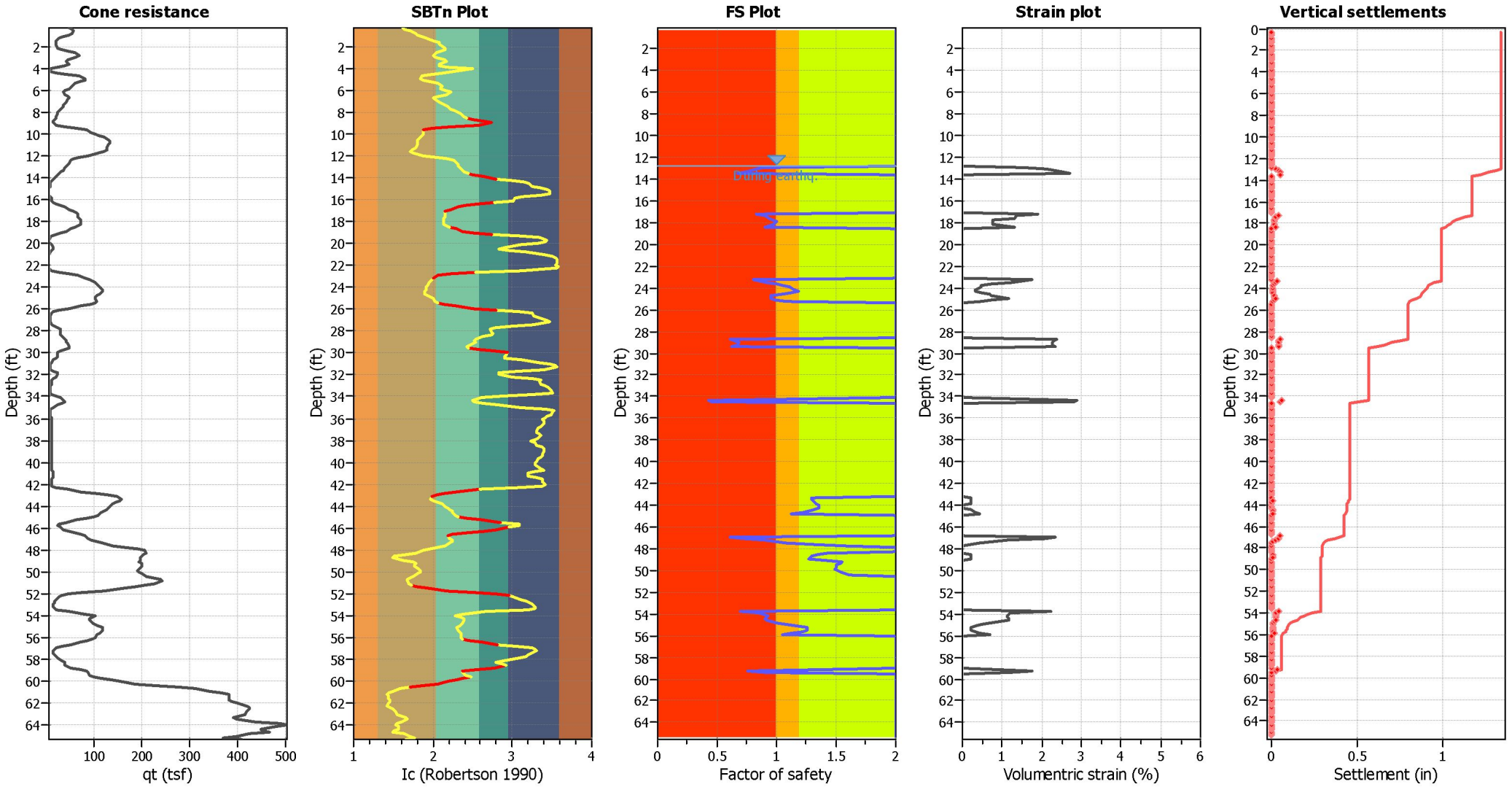

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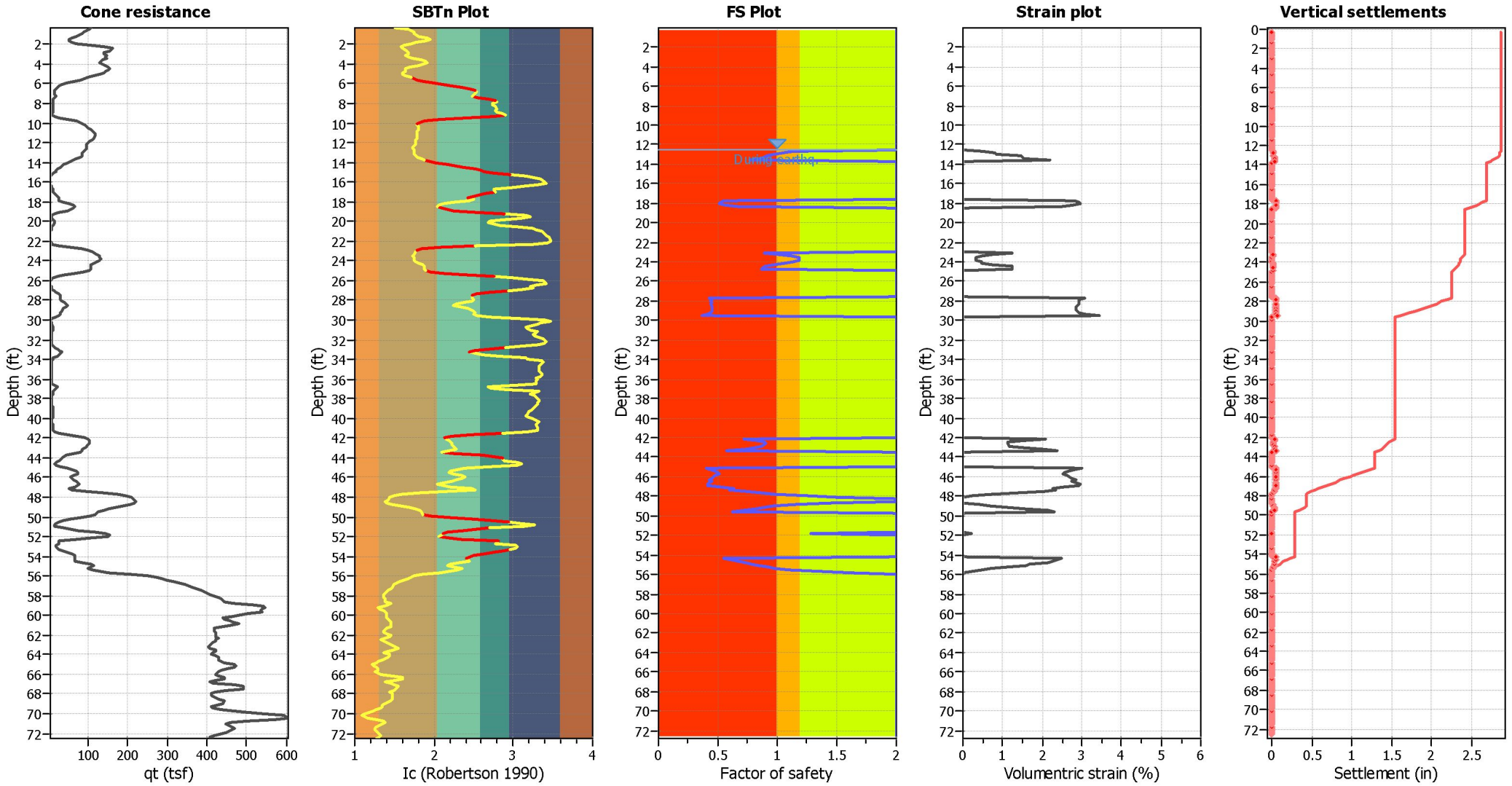

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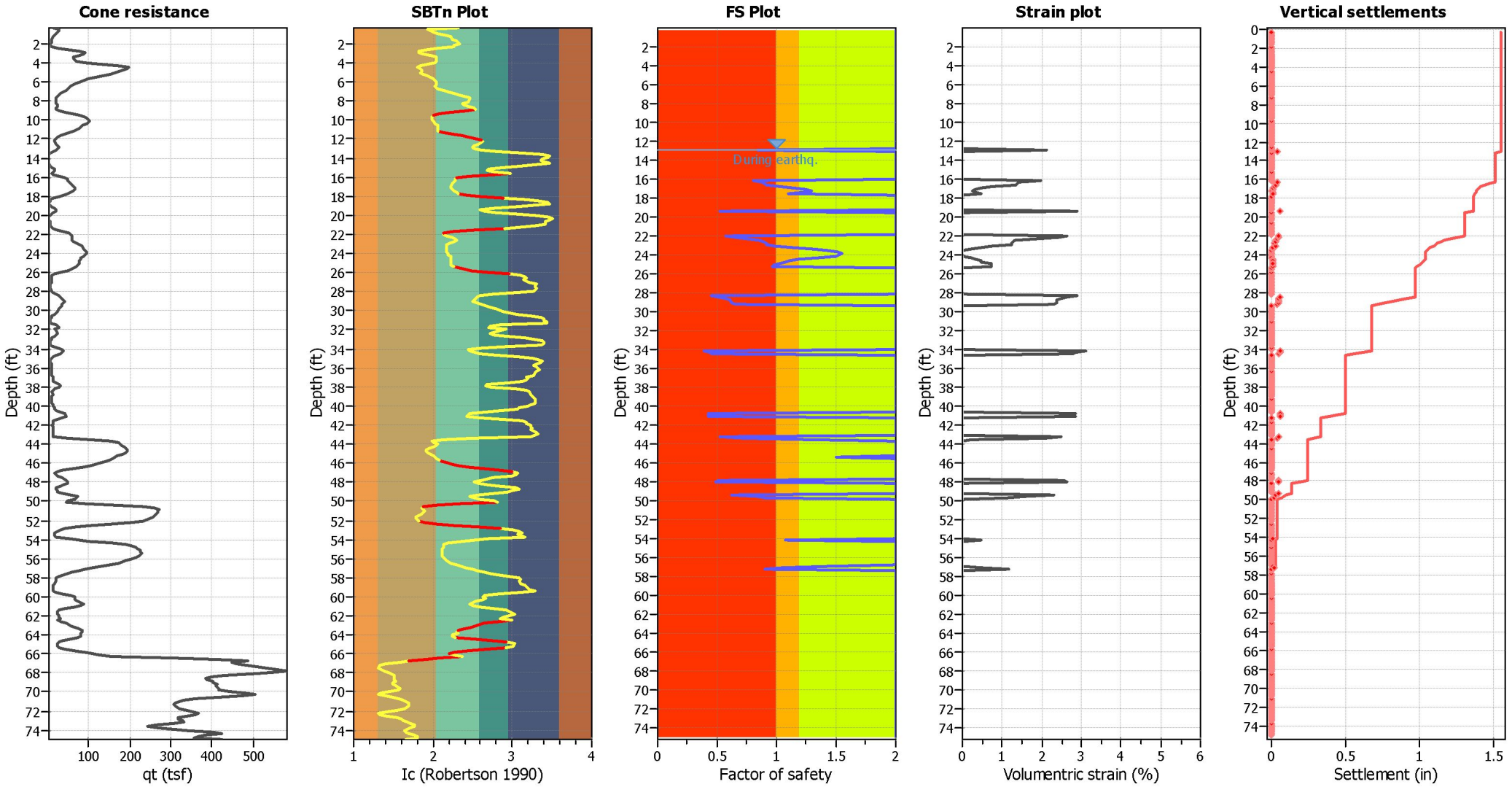

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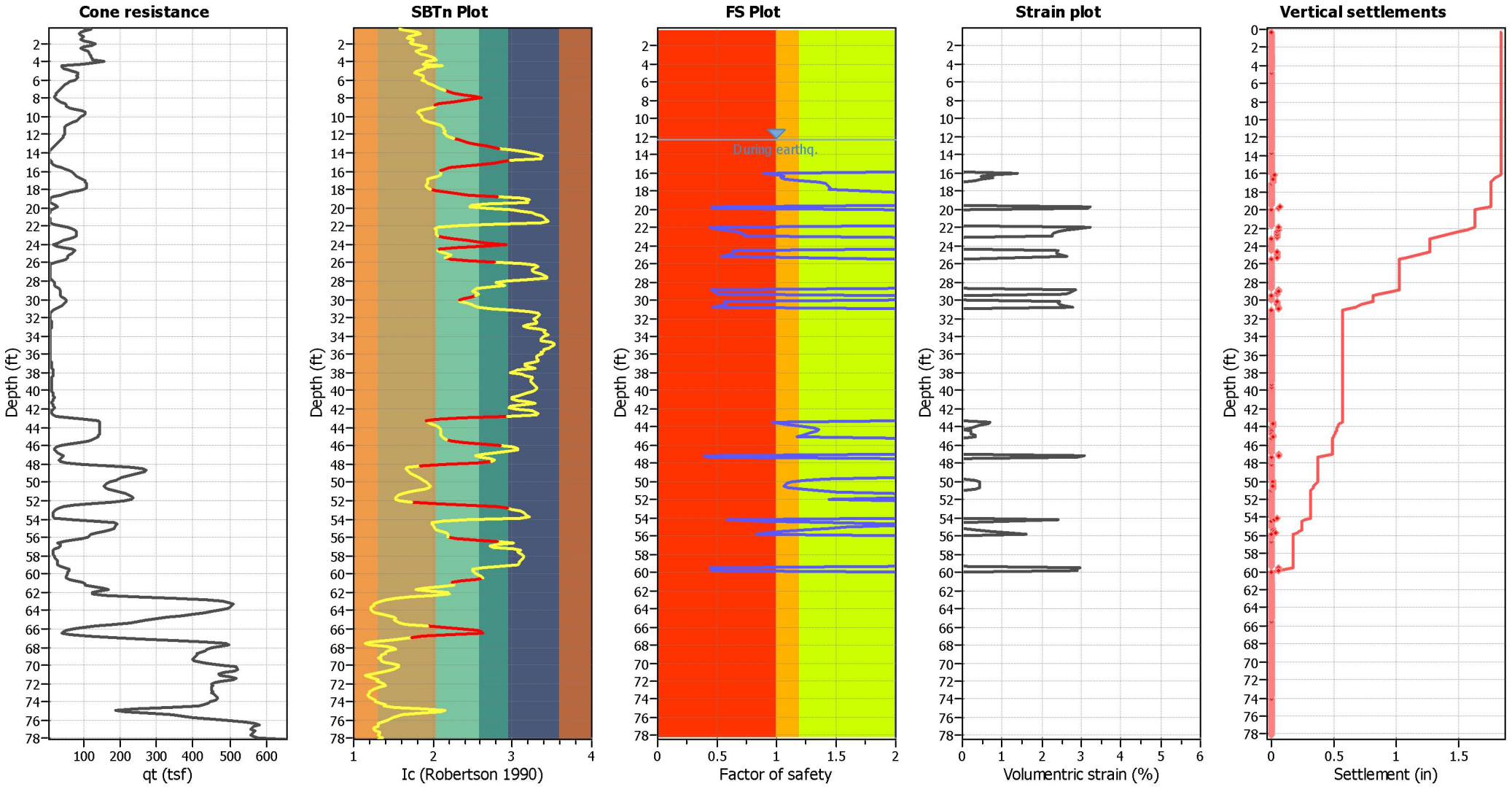

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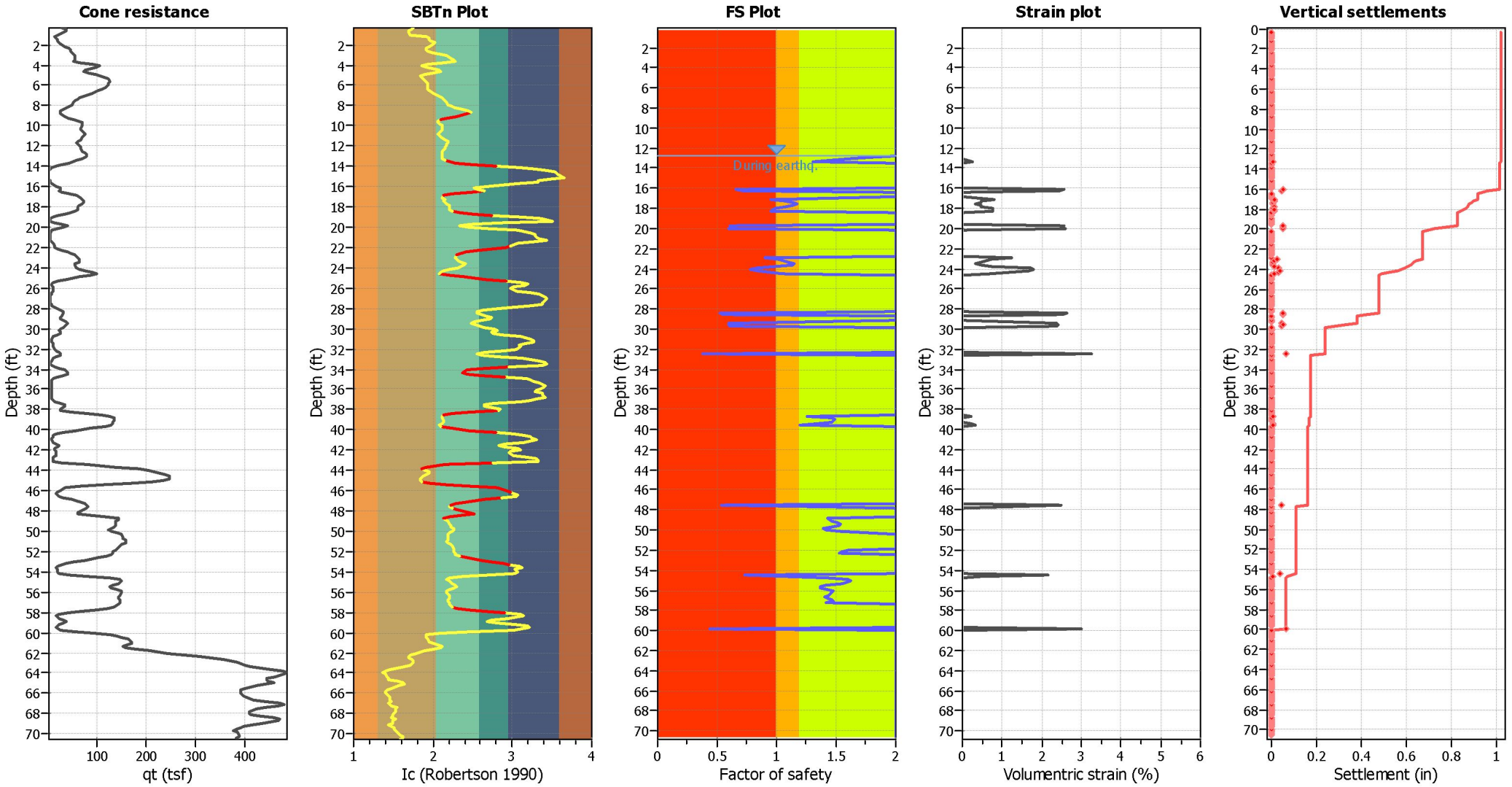

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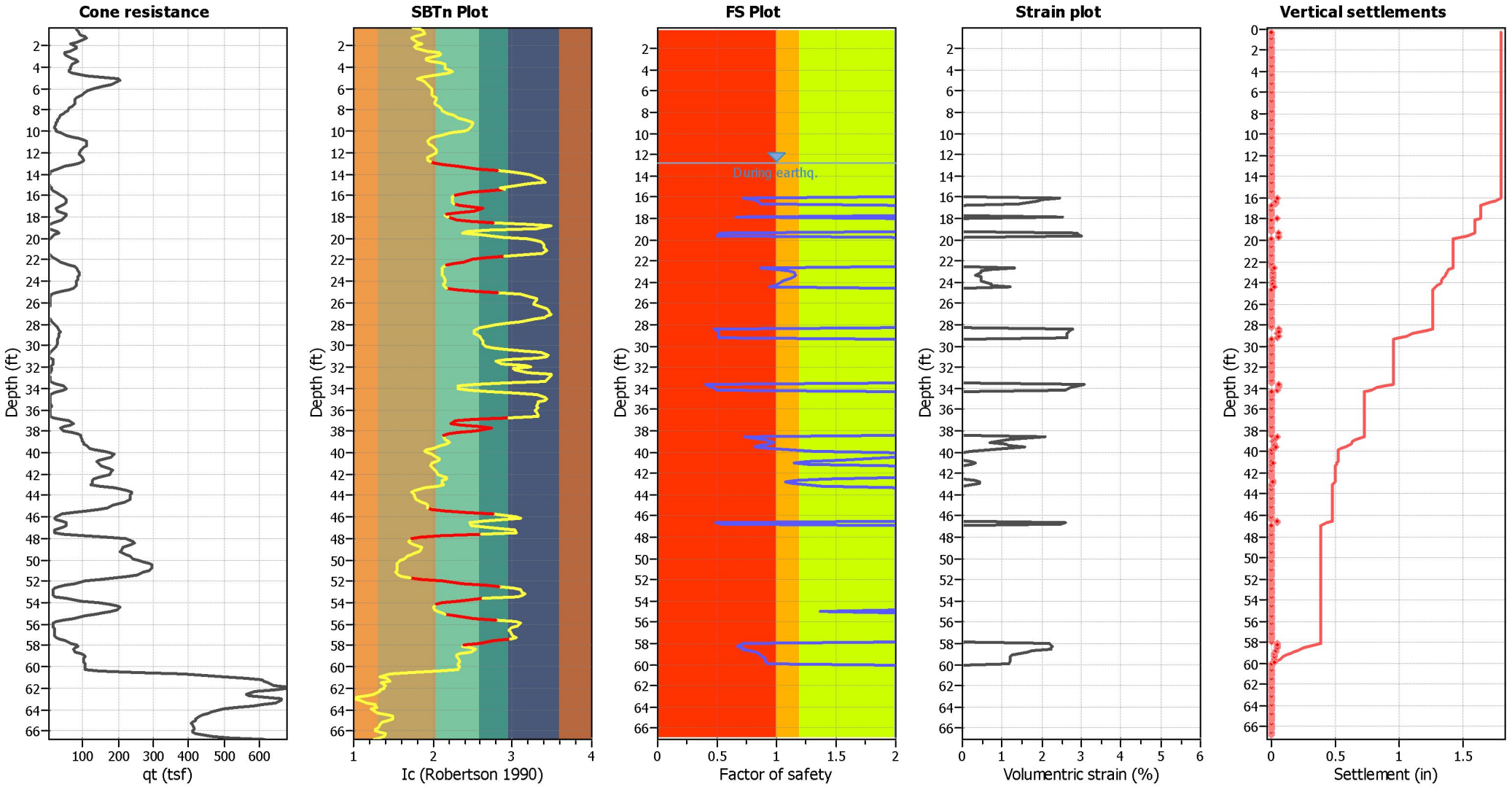

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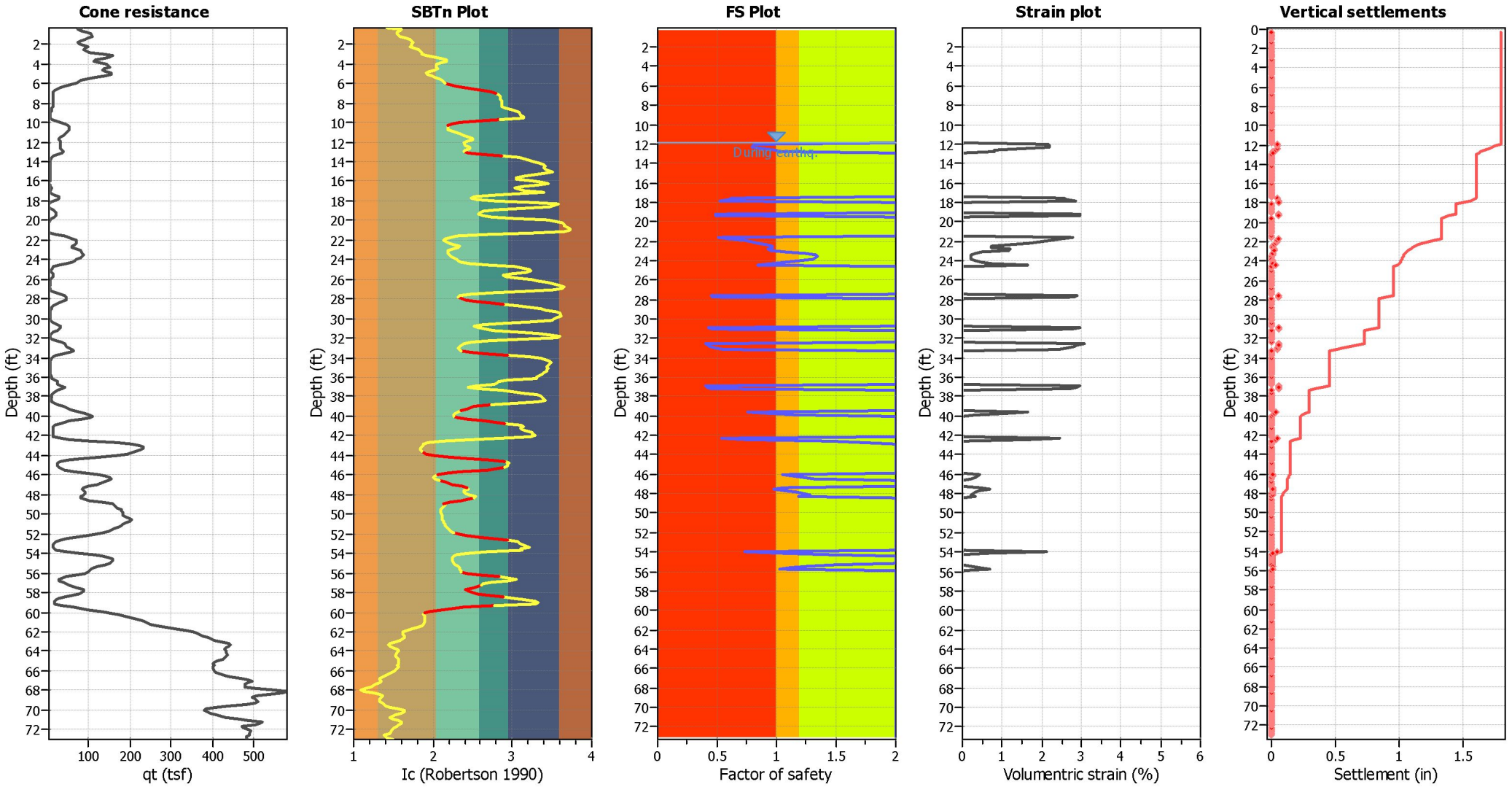

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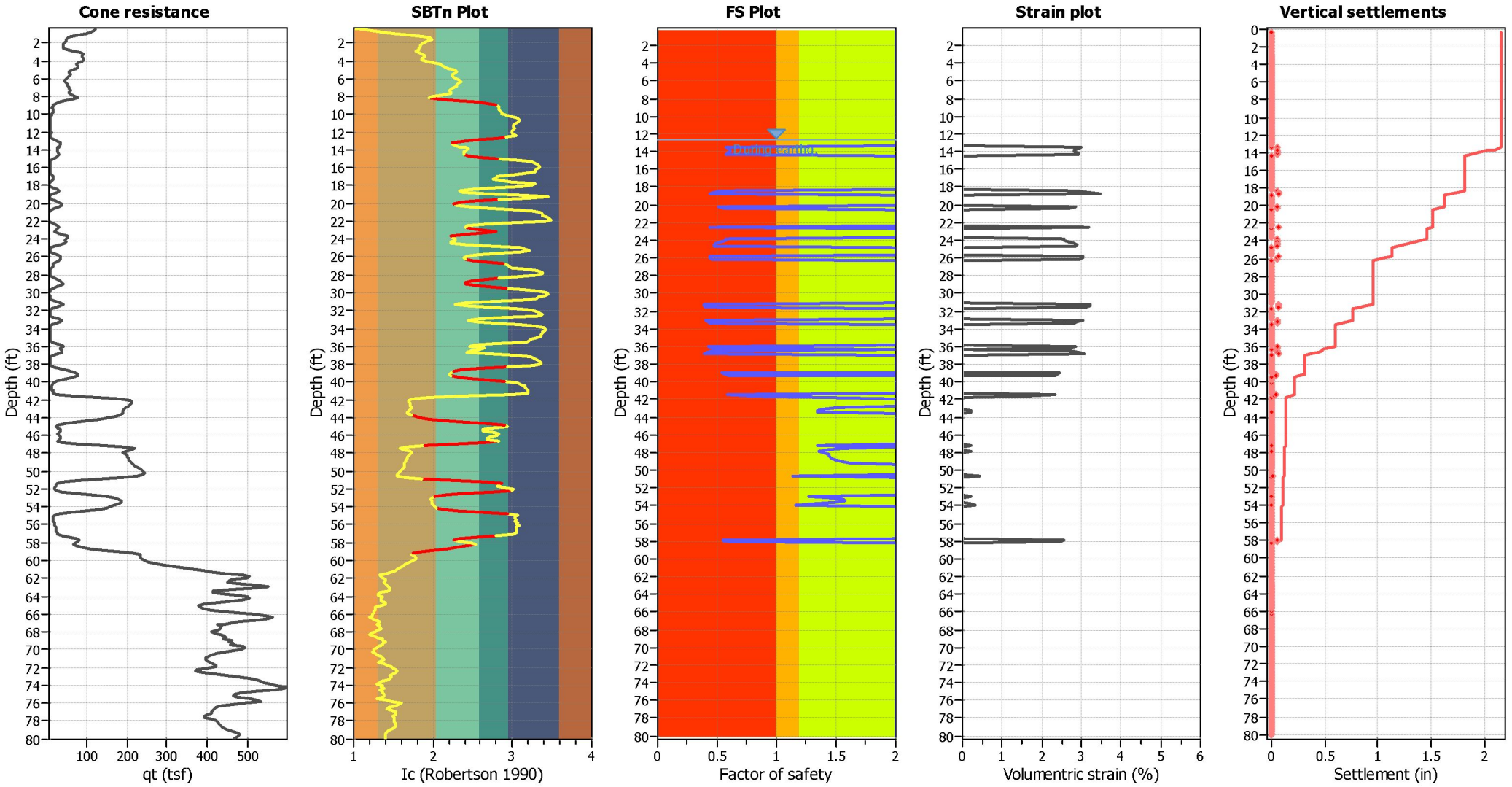

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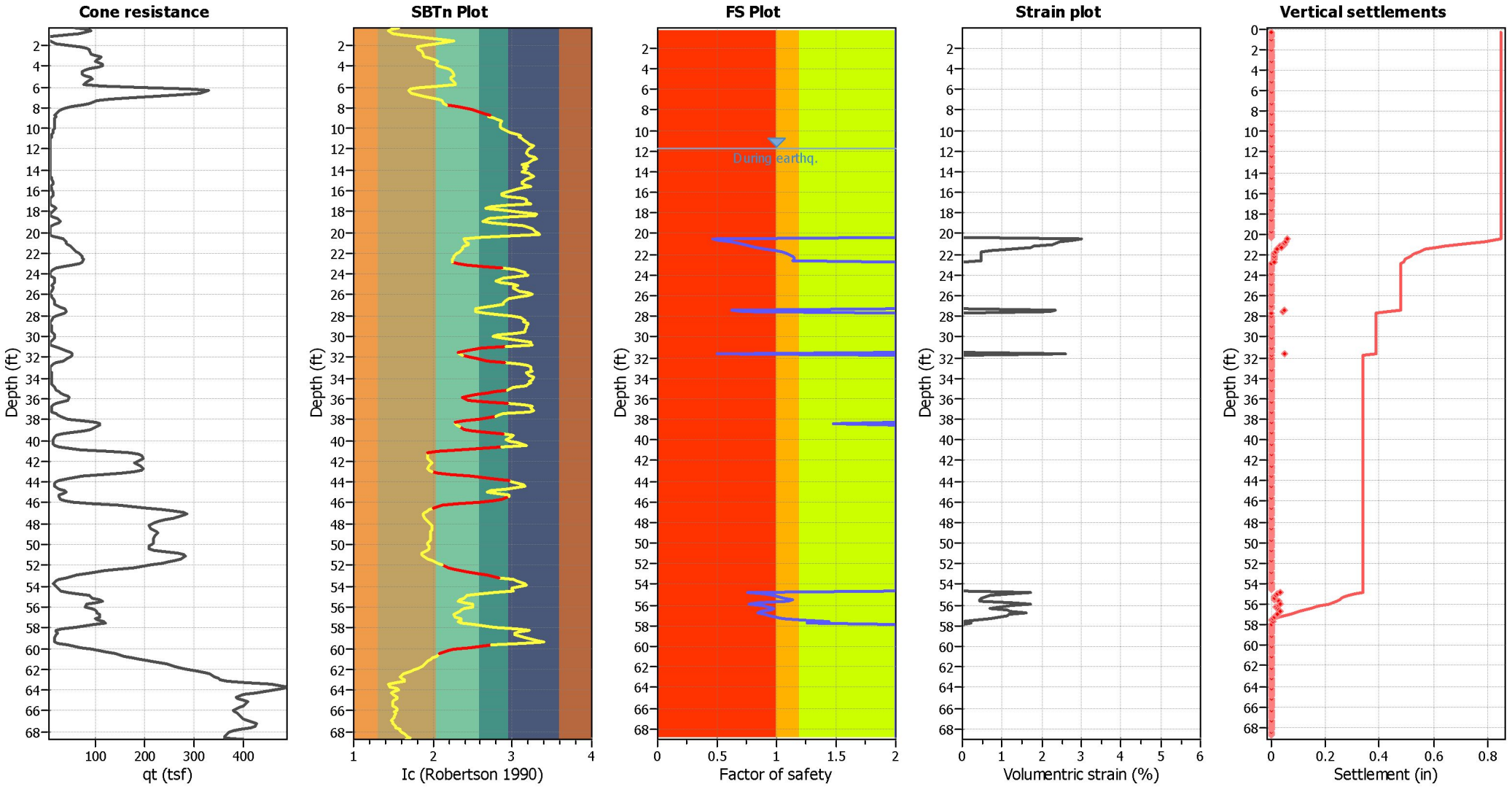

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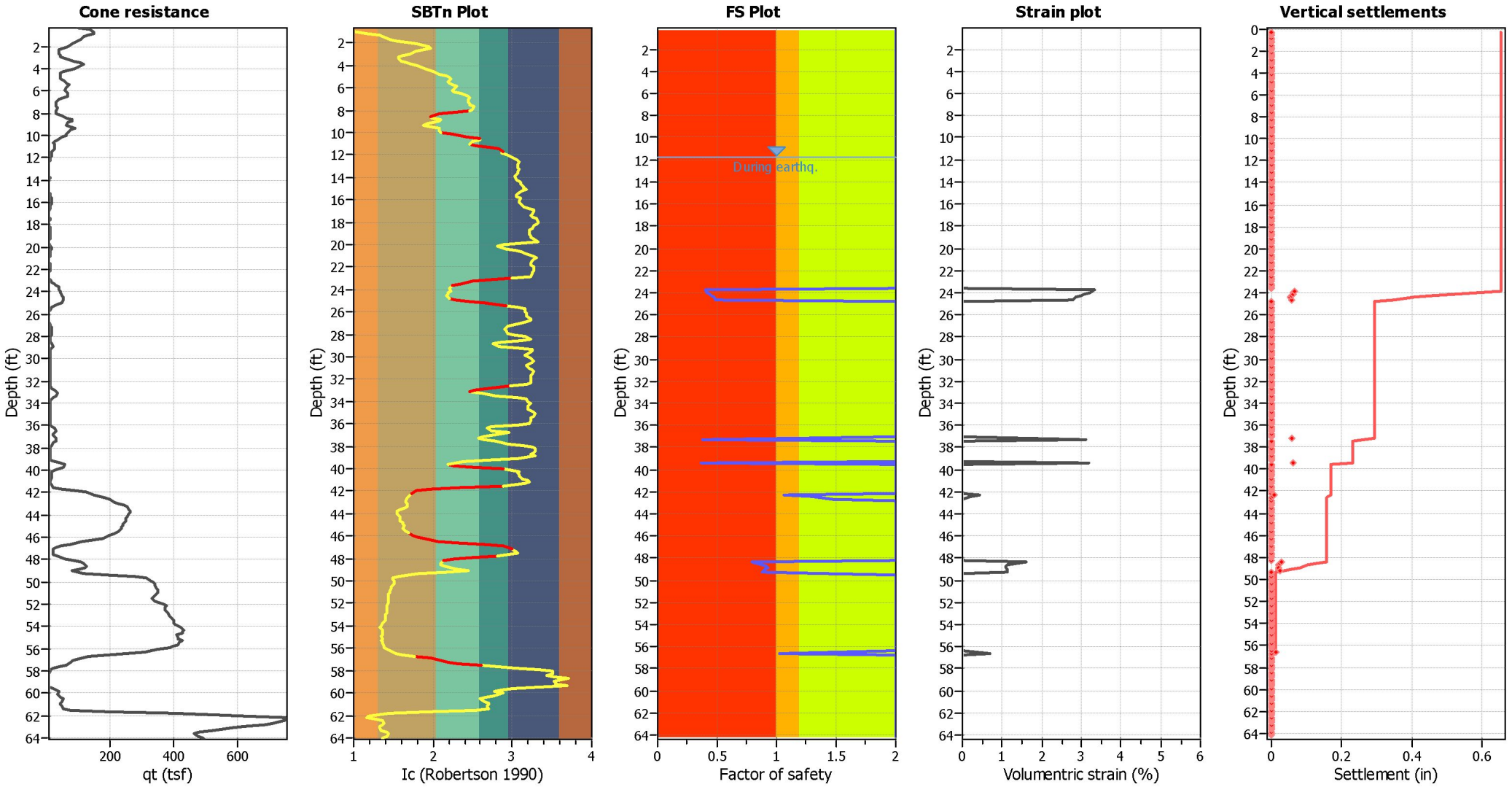

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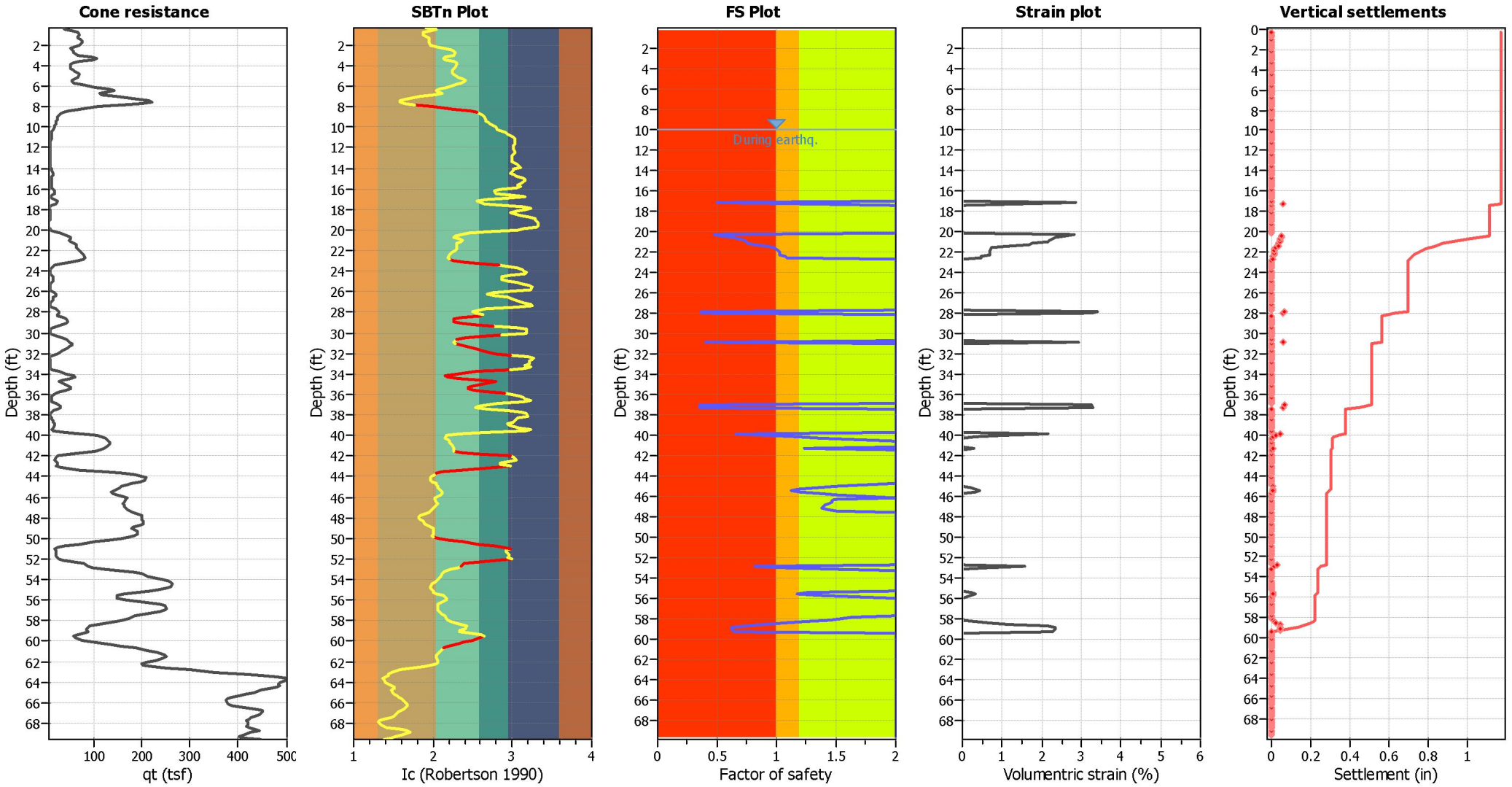

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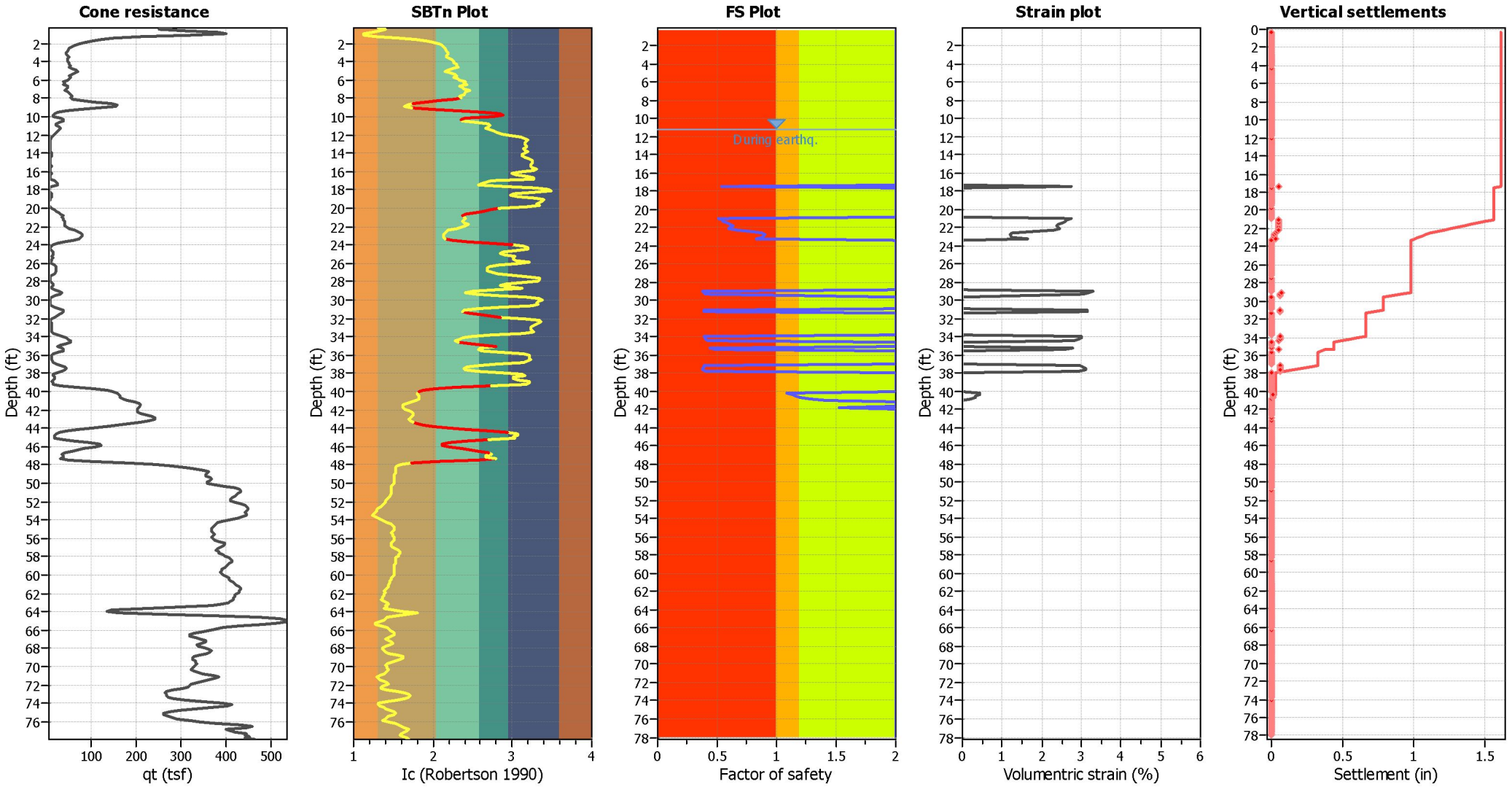

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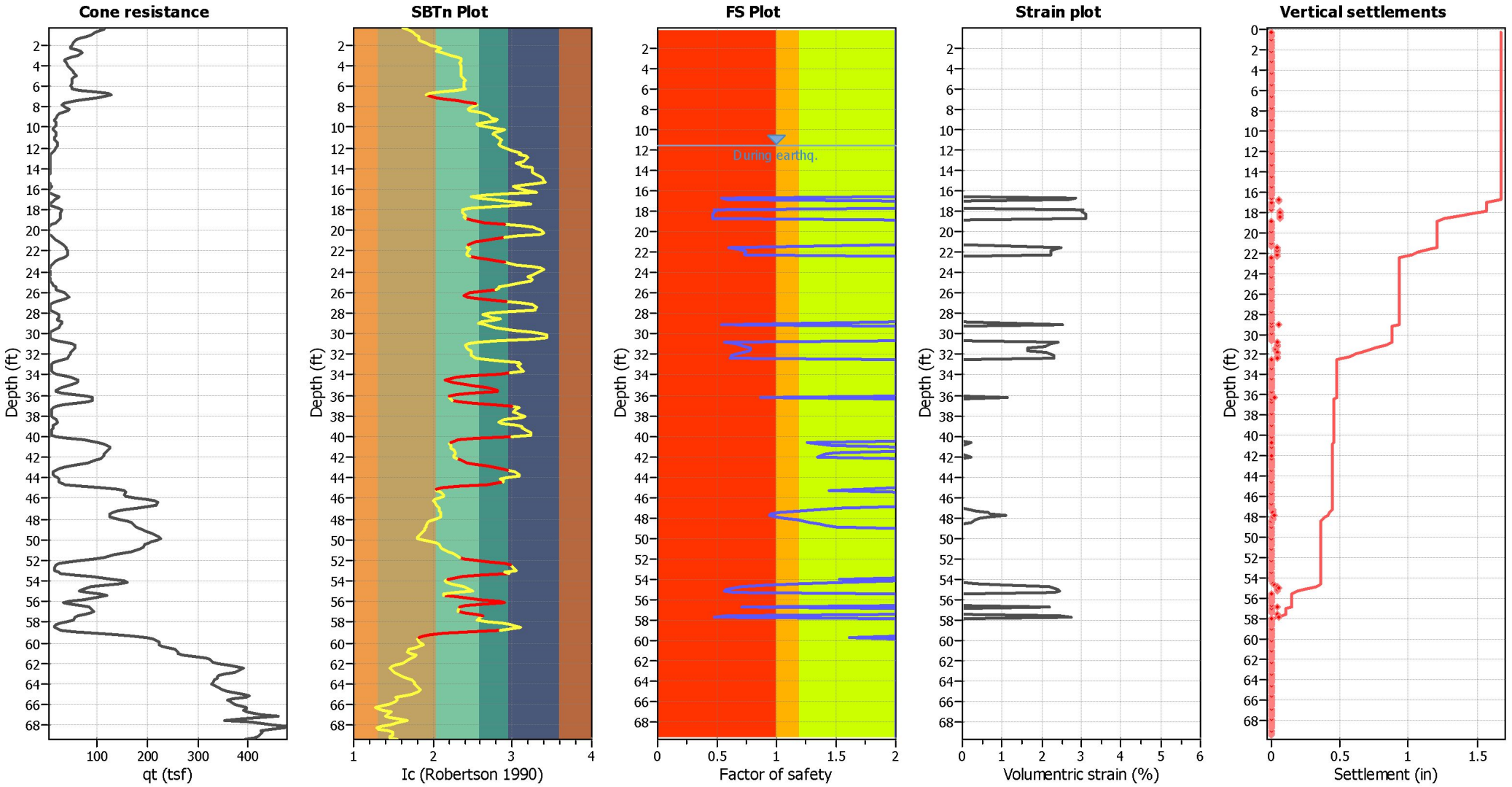

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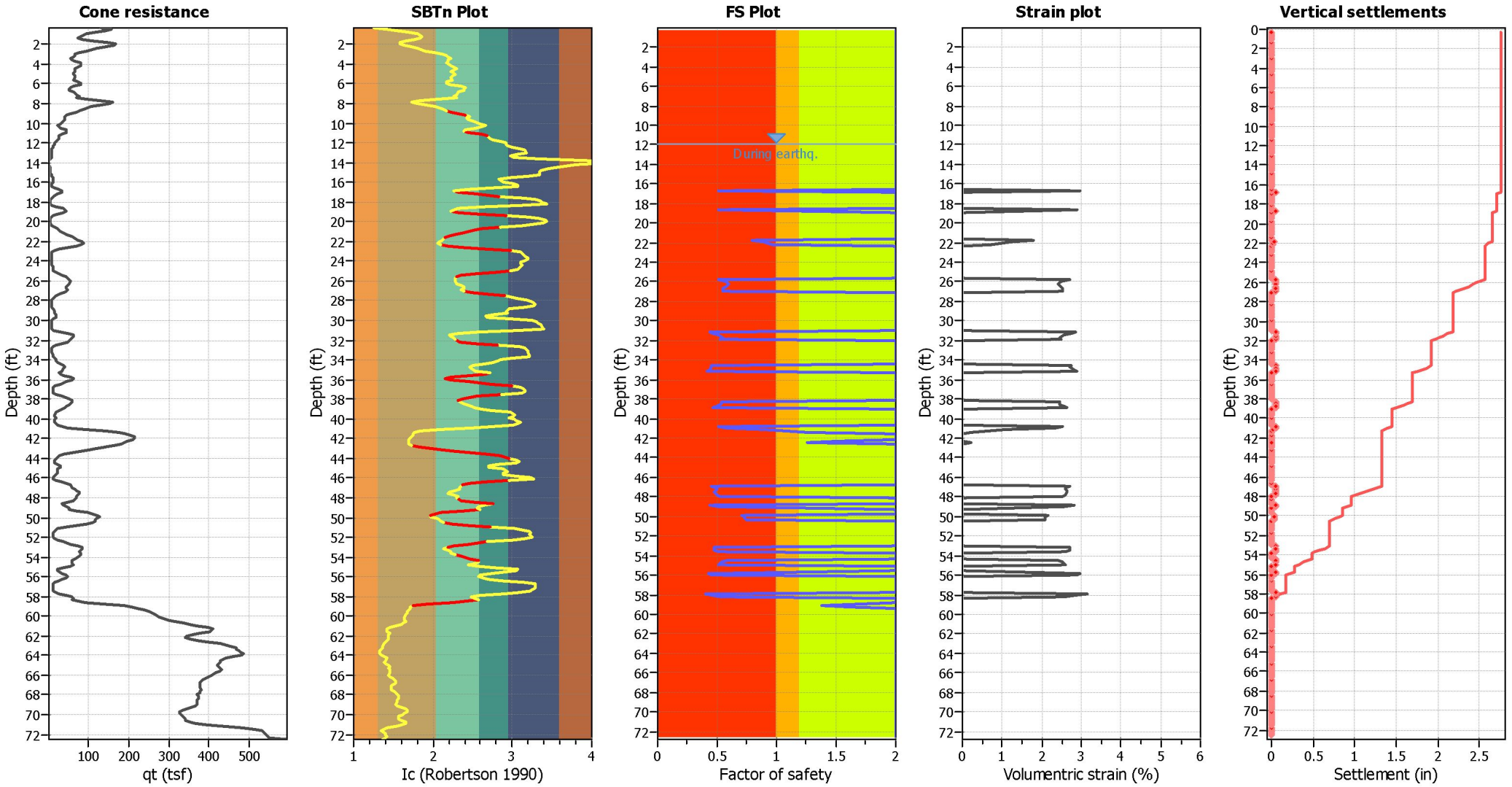

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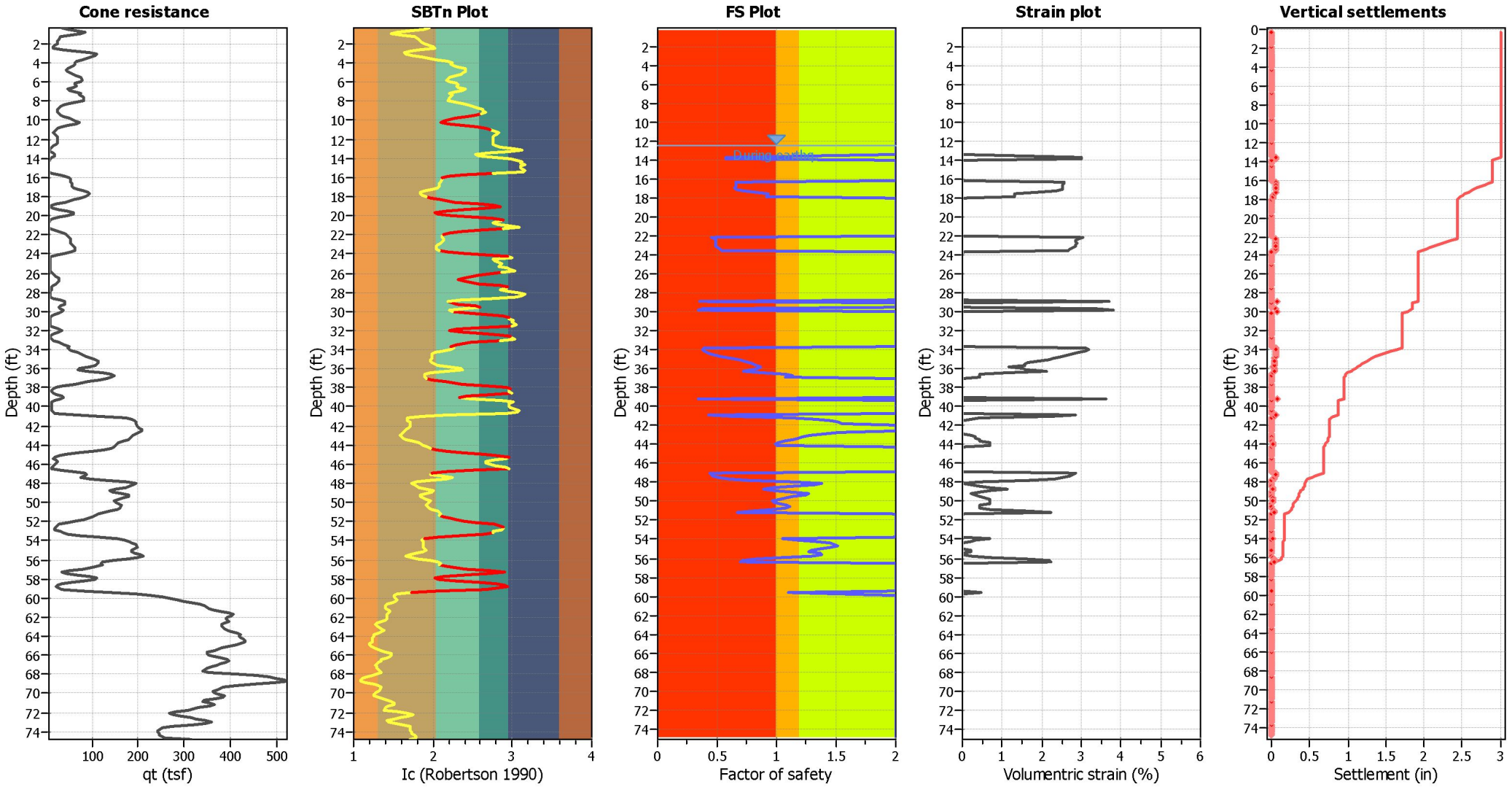

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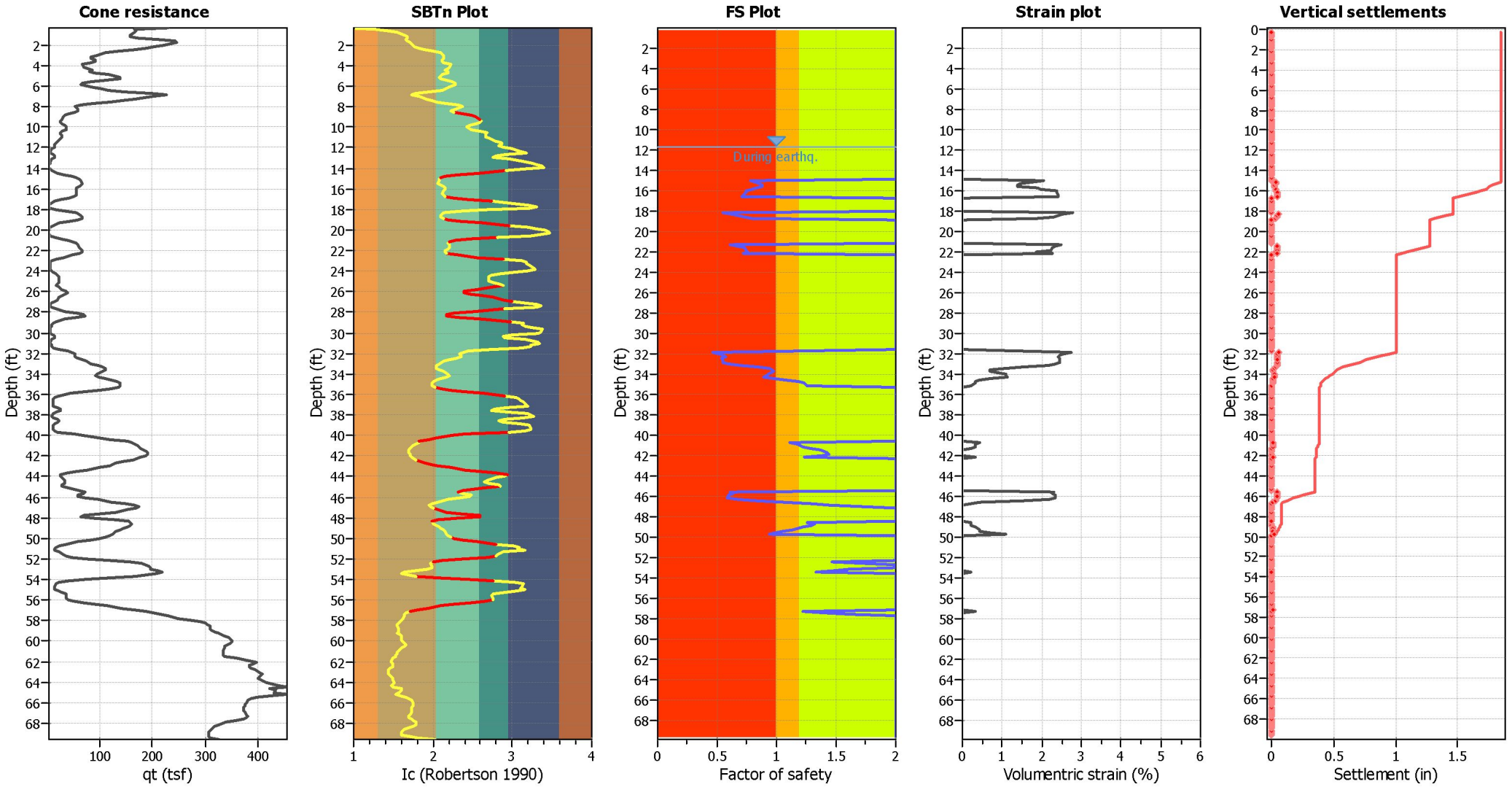

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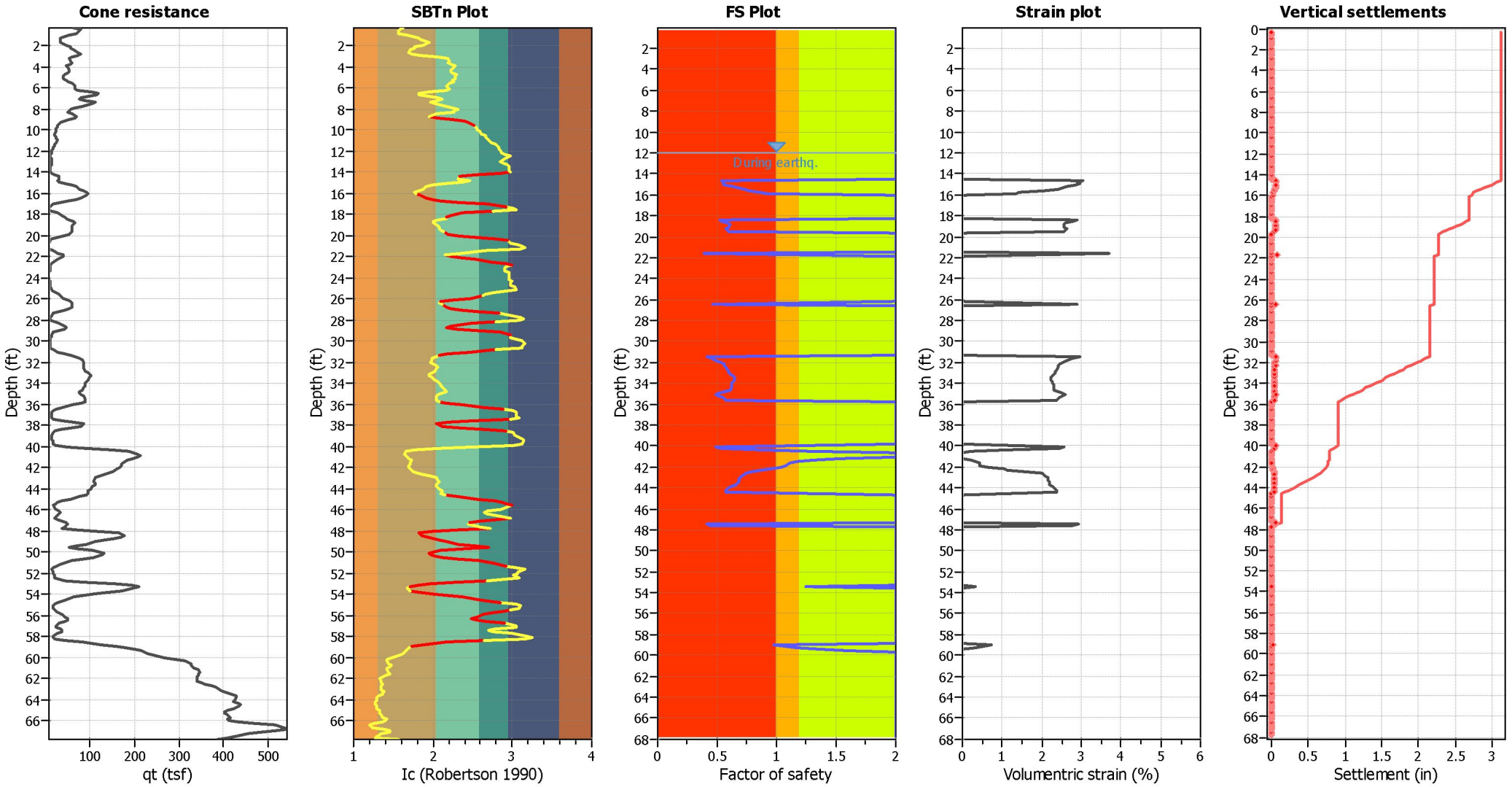

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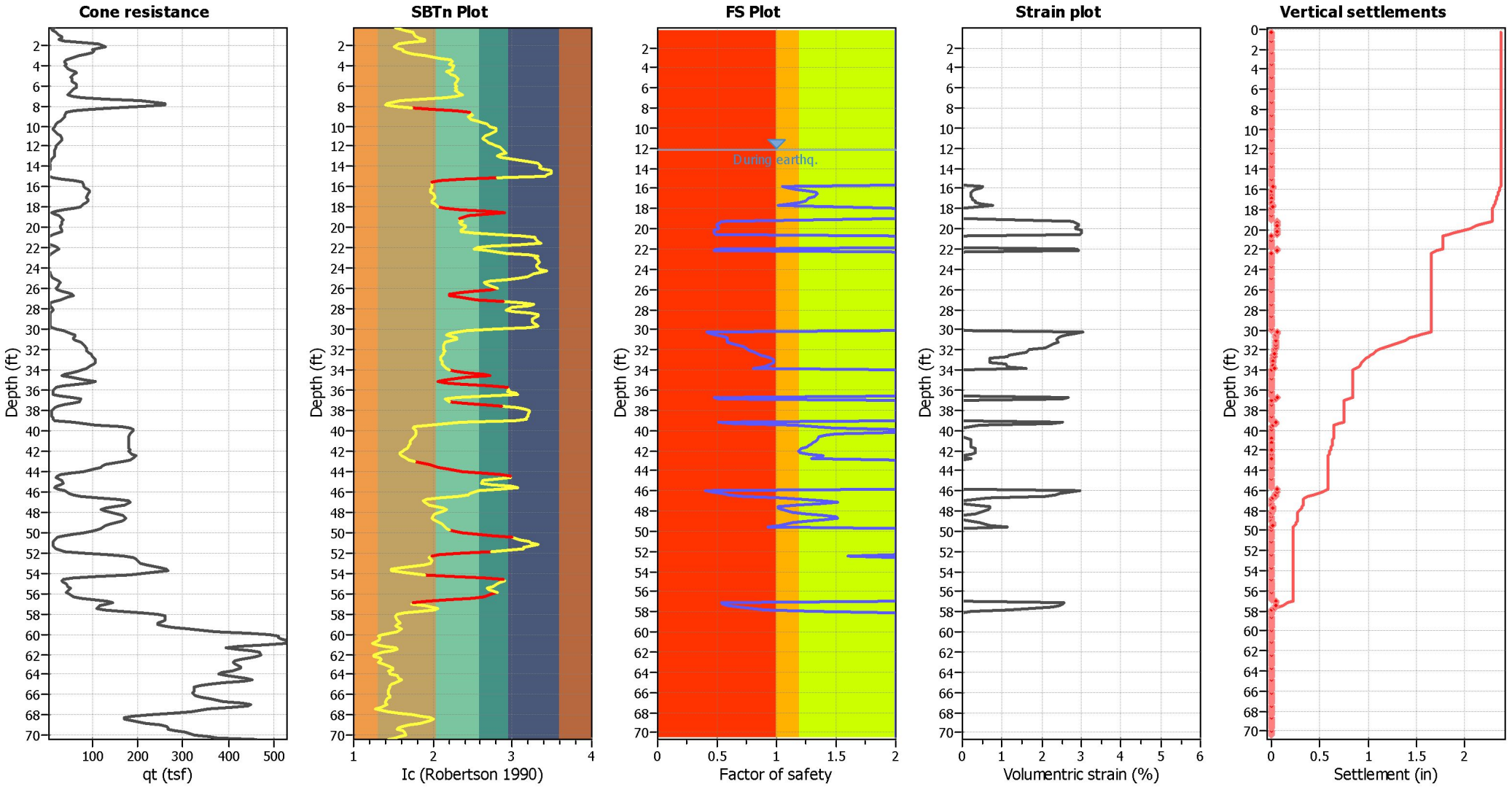

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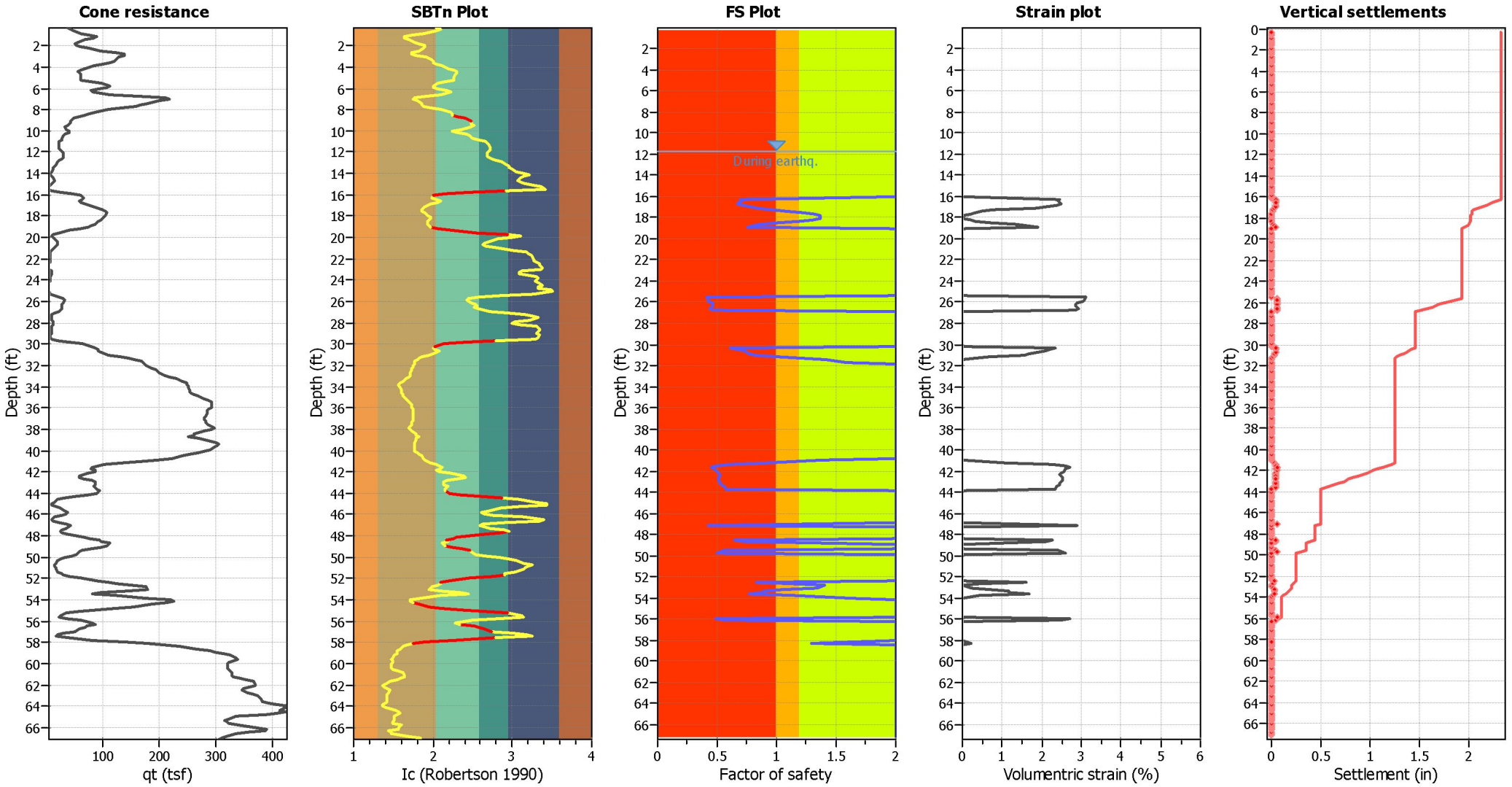

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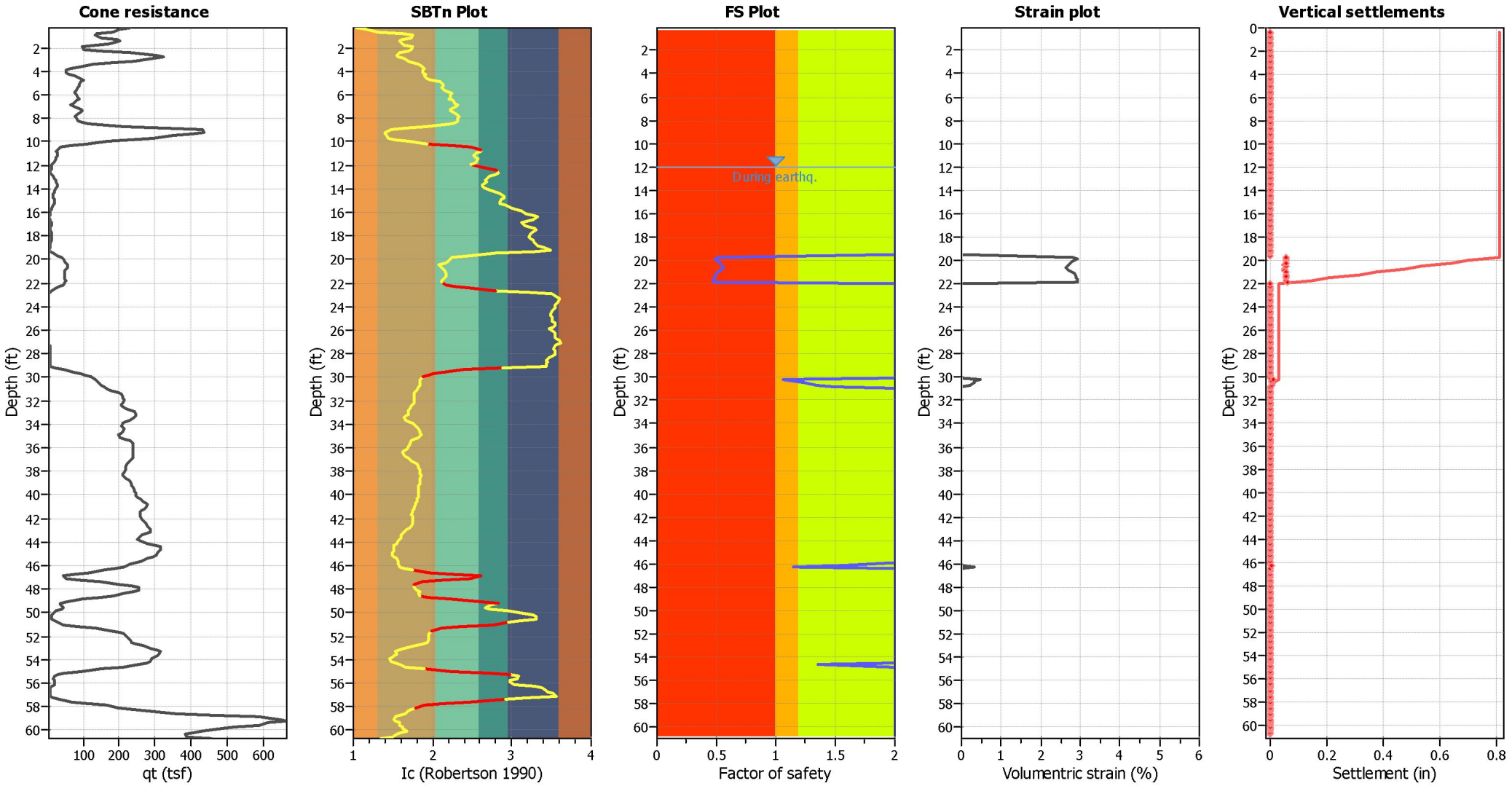

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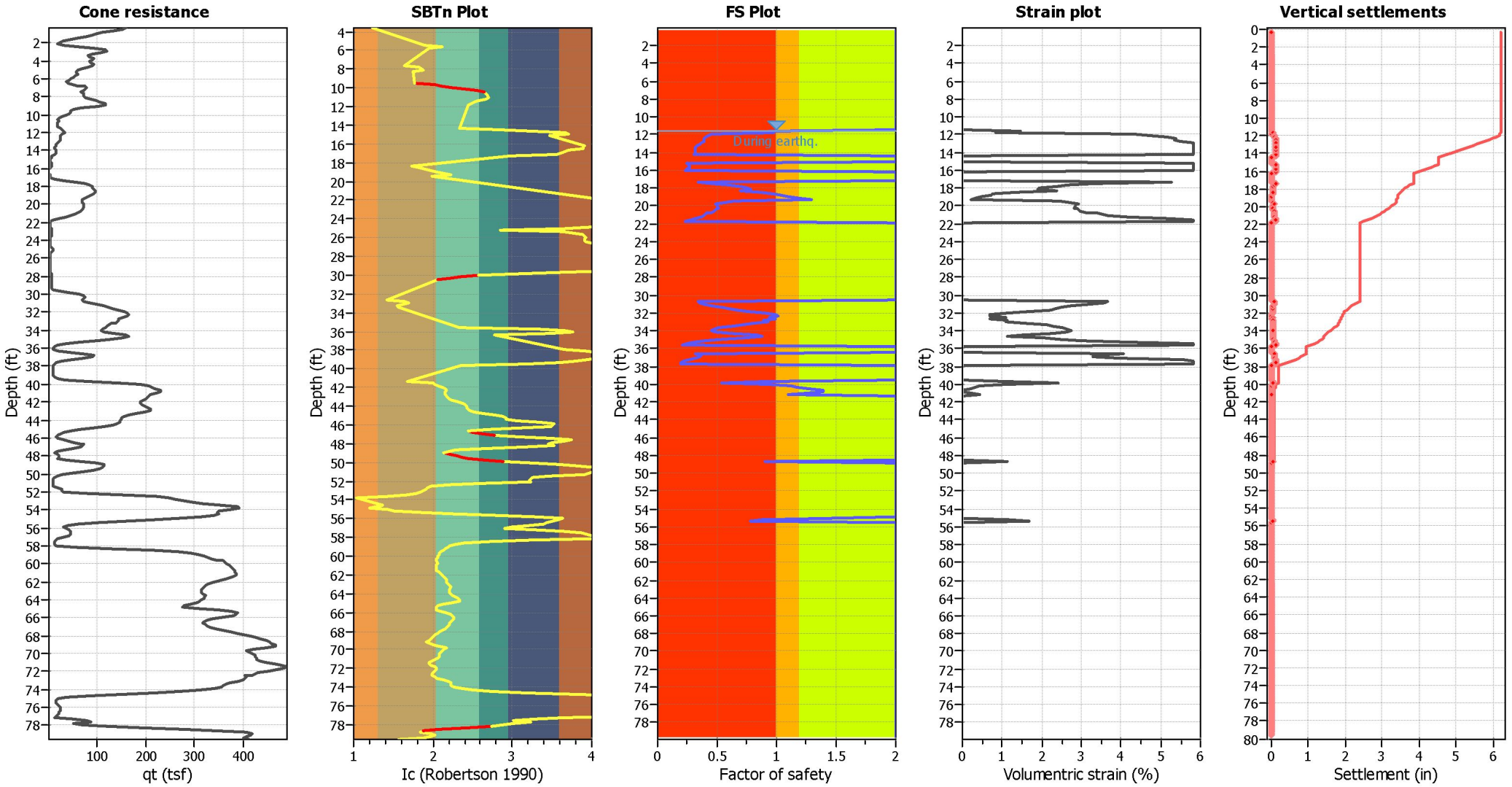

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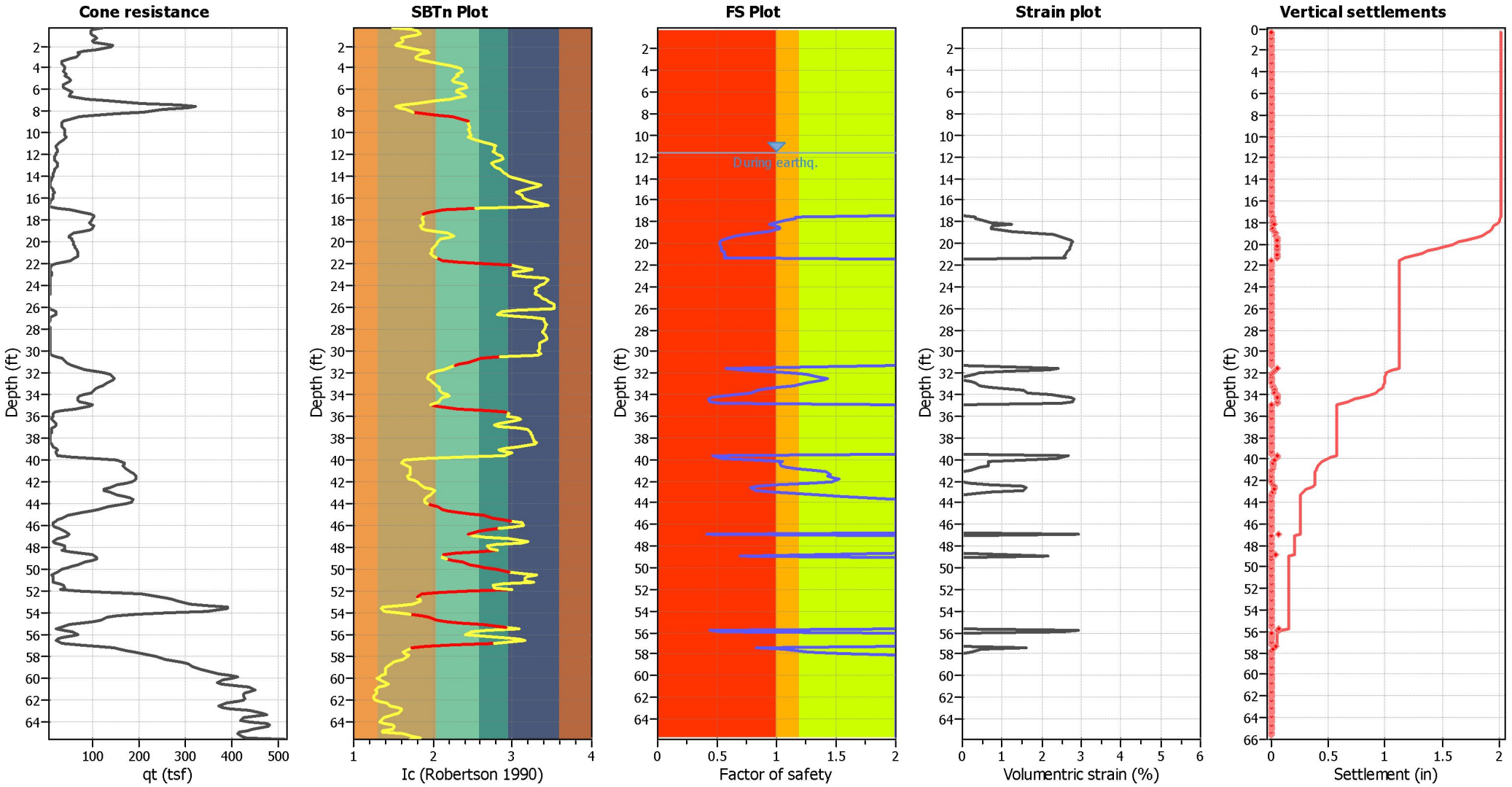

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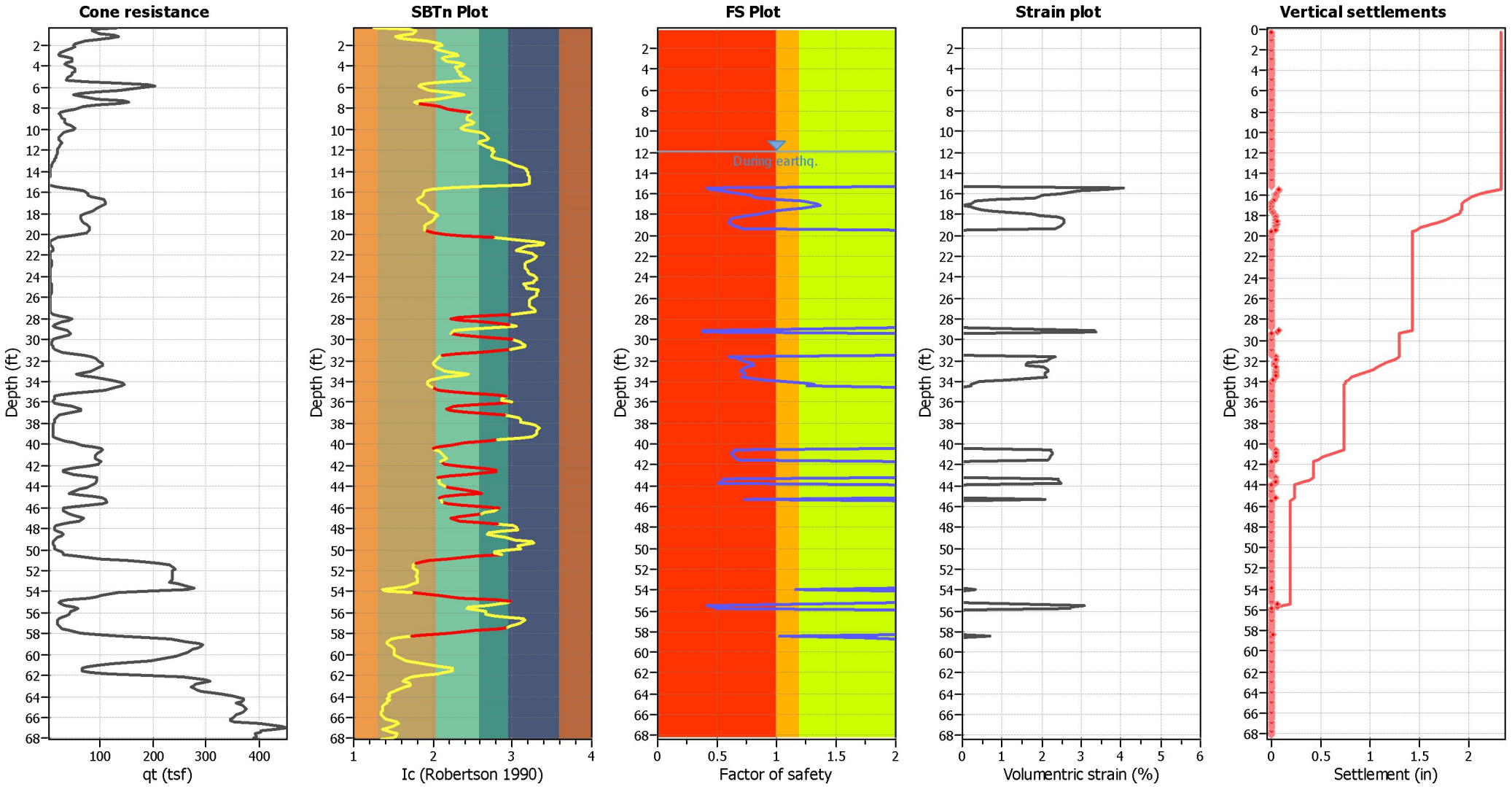

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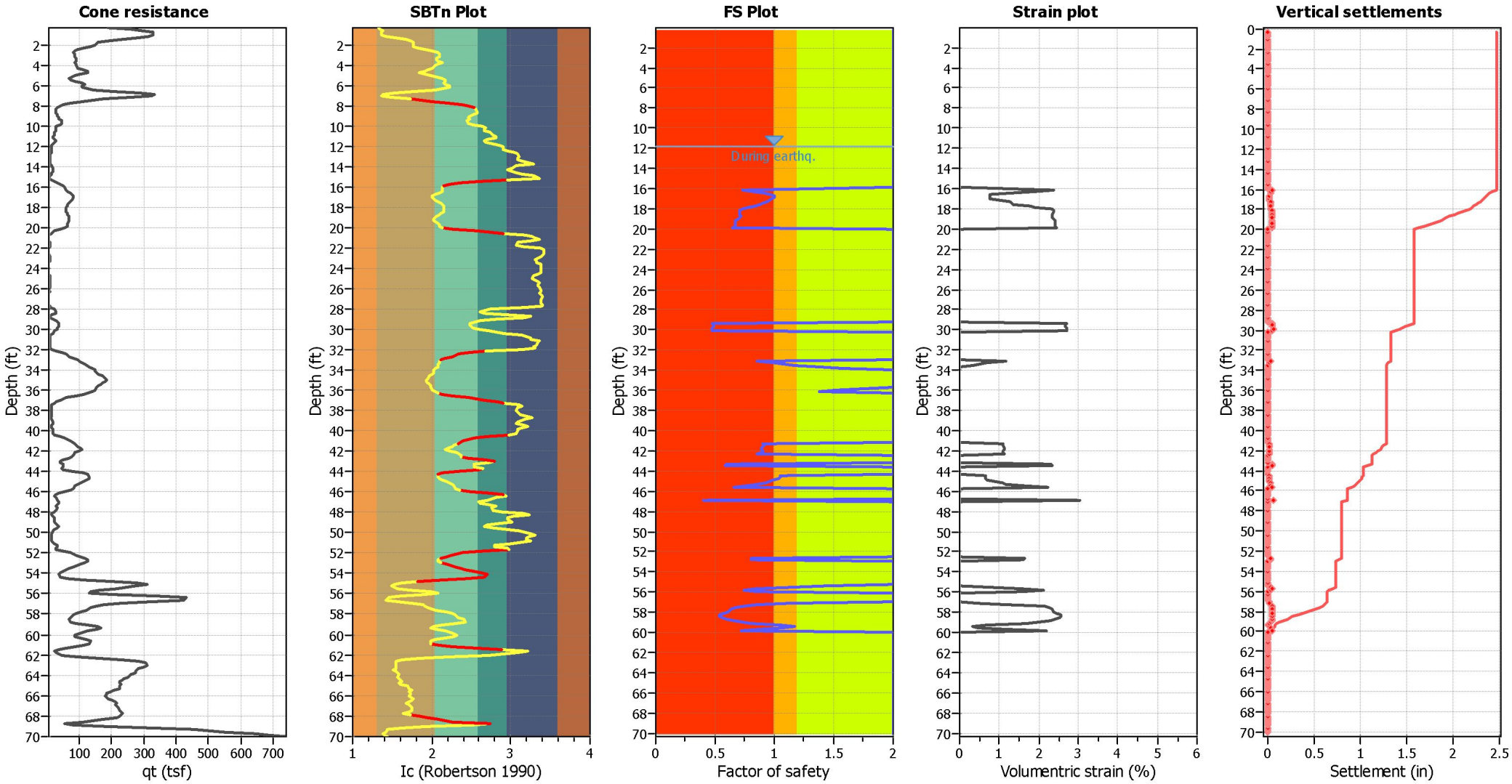

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East Garden Grove Wintersburg Channel (Warner to Edwards) : Preliminary Liquefaction Potential Evaluation

08-156

LIQUEFACTION ANALYSIS UNDER MCE; ACC. = 0.36 g

3/27/2009

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CSR = Resisting Cyclic Stress Ratio. It is a function of the content of fines
(Figure 2, NCEER Workshop, after Seed et al 1985))

Factor of Safety, F sub L is:

F sub L = CSR r / CSR i

B-08-05

Emean (%)	60			Ground El.	10	Borehole Diameter	5		Tot. Unit Weight	10.0	=Design Water Table Depth.	24.5	=Field Water Table Depth.		acc. max =	0.360	g		Earthq. M=	7		
C_E	1.00			Sur.=	0	psf	C_B	1.00		110	0	=Design Water El.	-14.5	=Field Water El.					Cm=	1.19	COMMENTS	

MID DEPTH OF SOIL SAMPLE (ft.)	EL. (ft.)	FIELD BLOW COUNT N	SOIL TYPE	EST. PERCENT OF FINES (%)	TOTAL OVERBUR. PRESS. (tsf)	EFFEC. OVERBUR. PRESS. (tsf)	C_N	C_R	C_S	C_{ST}	SAMPLER TYPE 1=SPT 2=CA.MOD.	SAMPLER LINED 1=UNLINED 2=LINED	STRESS REDUC. COEFF. rd	DESIGN EFFEC. OVERBUR. PRESS. (tsf)	INDUCED CYCLIC STRESS RATIO	CORRECT BLOW COUNT N_{160}	(N1)60cs	K sigma	RESIST. CYCLIC STRESS RATIO M=7.5	RESIST. CYCLIC STRESS RATIO Overburd Corr Mag Corr	FACTOR OF SAFETY (F sub L)	WILL IT LIQUEFY?
-		-		-	-	-	-				-		-	-	-	-		-	-		-	-
6	4	12	CL	80.0	0.33	0.33	1.70	0.75	1.00	1.00	1	2	0.99	0.33	0.23	15	23	1.00	0.26	0.31	1.36	AboveWT
11	-1	12	CL	80.0	0.61	0.61	1.31	0.80	1.00	0.67	2	2	0.97	0.57	0.24	8	15	1.00	0.16	0.19	0.80	fines
16	-6	0	OH	90.0	0.88	0.88	1.09	0.85	1.00	1.00	1	2	0.96	0.69	0.29	-	5	1.00	0.07	0.09	0.30	fines
21	-11	24	ML	80.0	1.16	1.16	0.95	0.95	1.00	0.67	2	2	0.95	0.81	0.32	14	22	1.00	0.25	0.29	0.93	fines
26	-16	4	ML	80.0	1.43	1.38	0.87	0.95	1.00	1.00	1	2	0.94	0.93	0.34	3	9	1.00	0.10	0.12	0.37	fines
31	-21	5	CL	80.0	1.71	1.50	0.83	1.00	1.00	0.67	2	2	0.92	1.05	0.35	3	8	0.99	0.10	0.12	0.33	fines
36	-26	18	ML	80.0	1.98	1.62	0.80	1.00	1.00	1.00	1	2	0.88	1.17	0.35	14	22	0.98	0.25	0.29	0.82	fines
41	-31	29	ML	80.0	2.26	1.74	0.77	1.00	1.00	0.67	2	2	0.84	1.29	0.34	15	23	0.96	0.26	0.29	0.85	fines
46	-36	36	SP	5.0	2.53	1.86	0.75	1.00	1.00	1.00	1	2	0.80	1.41	0.34	27	27	0.94	0.34	0.38	1.13	no
51	-41	33	ML/OL	80.0	2.81	1.98	0.73	1.00	1.00	0.67	2	2	0.76	1.53	0.33	16	24	0.93	0.28	0.31	0.93	fines
56	-46	12	ML	80.0	3.08	2.10	0.71	1.00	1.00	1.00	1	2	0.72	1.64	0.31	8	15	0.91	0.16	0.18	0.56	fines
61	-51	91	SM	12.0	3.36	2.22	0.69	1.00	1.00	0.67	2	2	0.68	1.76	0.30	42	44	0.89	High N	0.00	LARGE	high N
66	-56	79	SP	5.0	3.63	2.34	0.67	1.00	1.00	1.00	1	2	0.64	1.88	0.29	53	53	0.88	High N	0.00	LARGE	high N
71	-61	120	SP	5.0	3.91	2.45	0.65	1.00	1.00	0.67	2	2	0.60	2.00	0.27	52	52	0.88	High N	0.00	LARGE	high N
76	-66	72	SP-SM	10.0	4.18	2.57	0.64	1.00	1.00	1.00	1	2	0.56	2.12	0.26	46	48	0.87	High N	0.00	LARGE	high N
81	-71	120	SP	5.0	4.46	2.69	0.62	1.00	1.00	0.67	2	2	0.55	2.24	0.25	50	50	0.86	High N	0.00	LARGE	high N

East Garden Grove Wintersburg Channel (Warner to Edwards) : Preliminary Liquefaction Potential Evaluation

08-156

LIQUEFACTION ANALYSIS UNDER MCE; ACC. = 0.36 g

3/27/2009

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CSR = Resisting Cyclic Stress Ratio. It is a function of the content of fines
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Factor of Safety, F sub L is:

F sub L = CSR r / CSR i

B-08-06

Emean (%)	60			Ground El.	9.7	Borehole Diameter	5		Tot. Unit Weight	9.7	=Design Water Table Depth.	30.0	=Field Water Table Depth.		acc. max =	0.360	g		Earthq. M=	7		
C_E	1.00			Sur.=	0	psf	C_B	1.00		120	0	=Design Water El.	-20.3	=Field Water El.					Cm=	1.19	COMMENTS	

MID DEPTH OF SOIL SAMPLE (ft.)	EL. (ft.)	FIELD BLOW COUNT N	SOIL TYPE	EST. PERCENT OF FINES (%)	TOTAL OVERBUR. PRESS. (tsf)	EFFEC. OVERBUR. PRESS. (tsf)	C_N	C_R	C_S	C_{ST}	SAMPLER TYPE 1=SPT 2=CA.MOD.	SAMPLER LINED 1=UNLINED 2=LINED	STRESS REDUC. COEFF. rd	DESIGN EFFEC. OVERBUR. PRESS. (tsf)	INDUCED CYCLIC STRESS RATIO	CORRECT BLOW COUNT N_{160}	(N1)60cs	K sigma	RESIST. CYCLIC STRESS RATIO M=7.5	RESIST. CYCLIC STRESS RATIO Overburd Corr Mag Corr	FACTOR OF SAFETY (F sub L)	WILL IT LIQUEFY?
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6	3.7	17	SM	12.0	0.36	0.36	1.70	0.75	1.00	1.00	1	2	0.99	0.36	0.23	22	24	1.00	0.27	0.32	1.41	AboveWT
11	-1.3	10	ML	70.0	0.66	0.66	1.26	0.80	1.00	0.67	2	2	0.97	0.62	0.24	7	13	1.00	0.14	0.17	0.69	fines
16	-6.3	0	MH	70.0	0.96	0.96	1.04	0.85	1.00	1.00	1	2	0.96	0.76	0.28	-	5	1.00	0.07	0.09	0.30	fines
21	-11.3	7	MH	70.0	1.26	1.26	0.91	0.95	1.00	0.67	2	2	0.95	0.91	0.31	4	10	1.00	0.11	0.13	0.43	fines
26	-16.3	4	PT	70.0	1.56	1.56	0.82	0.95	1.00	1.00	1	2	0.94	1.05	0.33	3	9	0.99	0.10	0.12	0.37	fines
31	-21.3	13	ML/OL	70.0	1.86	1.83	0.76	1.00	1.00	0.67	2	2	0.92	1.20	0.34	7	13	0.97	0.14	0.16	0.48	fines
36	-26.3	35	SM	12.0	2.16	1.97	0.73	1.00	1.00	1.00	1	2	0.88	1.34	0.33	25	28	0.95	0.36	0.41	1.24	no
41	-31.3	100	SP-SM	10.0	2.46	2.12	0.70	1.00	1.00	0.67	2	2	0.84	1.48	0.33	47	49	0.93	High N	0.00	LARGE	high N
46	-36.3	42	SP-SM	10.0	2.76	2.26	0.68	1.00	1.00	1.00	1	2	0.80	1.63	0.32	29	30	0.91	High N	0.00	LARGE	high N
51	-41.3	120	SP-SM	10.0	3.06	2.40	0.66	1.00	1.00	0.67	2	2	0.76	1.77	0.31	53	55	0.89	High N	0.00	LARGE	high N
56	-46.3	62	SP-SM	10.0	3.36	2.55	0.64	1.00	1.00	1.00	1	2	0.72	1.92	0.29	40	41	0.87	High N	0.00	LARGE	high N
61	-51.3	84	SP	5.0	3.66	2.69	0.62	1.00	1.00	0.67	2	2	0.68	2.06	0.28	35	35	0.88	High N	0.00	LARGE	high N
66	-56.3	48	SP	5.0	3.96	2.84	0.61	1.00	1.00	1.00	1	2	0.64	2.20	0.27	29	29	0.86	0.42	0.43	1.60	no
71	-61.3	107	SP	5.0	4.26	2.98	0.59	1.00	1.00	0.67	2	2	0.60	2.35	0.25	42	42	0.85	High N	0.00	LARGE	high N
76	-66.3	79	SP	5.0	4.56	3.12	0.58	1.00	1.00	1.00	1	2	0.56	2.49	0.24	46	46	0.84	High N	0.00	LARGE	high N
81	-71.3	120	SP	5.0	4.86	3.27	0.57	1.00	1.00	0.67	2	2	0.55	2.64	0.24	45	45	0.83	High N	0.00	LARGE	high N

East Garden Grove Wintersburg Channel (Warner to Edwards) : Preliminary Liquefaction Potential Evaluation

08-156

LIQUEFACTION ANALYSIS UNDER MCE; ACC. = 0.36 g

3/27/2009

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CSR r = CSR x Cm x K sigma

where: Cm = Earthquake Magnitude Correction Factor (Blake, NCEER Table 3, Eq.4)
K sigma = Normalized resistance factor (Fig. 14 from NCEER Liquefaction workshop, Harder Boulanger)
CSR = Resisting Cyclic Stress Ratio. It is a function of the content of fines
(Figure 2, NCEER Workshop, after Seed et al 1985))

Factor of Safety, F sub L is:

F sub L = CSR r / CSR i

B-08-07

Emean (%)	60			Ground El.	10.5	Borehole Diameter	5		Tot. Unit Weight	10.5	=Design Water Table Depth.	12.5	=Field Water Table Depth.		acc. max =	0.360	g		Earthq. M=	7			
C_E	1.00			Sur.=	0	psf	C_B	1.00		115	0 =Design Water El.	-2	=Field Water El.						Cm=	1.19	COMMENTS		

MID DEPTH OF SOIL SAMPLE (ft.)	EL. (ft.)	FIELD BLOW COUNT N	SOIL TYPE	EST. PERCENT OF FINES (%)	TOTAL OVERBUR. PRESS. (tsf)	EFFEC. OVERBUR. PRESS. (tsf)	C_N	C_R	C_S	C_{ST}	SAMPLER TYPE 1=SPT 2=CA.MOD.	SAMPLER LINED 1=UNLINED 2=LINED	STRESS REDUC. COEFF. rd	DESIGN EFFEC. OVERBUR. PRESS. (tsf)	INDUCED CYCLIC STRESS RATIO	CORRECT BLOW COUNT N_{160}	(N1)60cs	K sigma	RESIST. CYCLIC STRESS RATIO M=7.5	RESIST. CYCLIC STRESS RATIO Overburd Corr Mag Corr	FACTOR OF SAFETY (F sub L)	WILL IT LIQUEFY?
-		-		-	-	-	-				-		-	-	-	-		-	-		-	-
6	4.5	5	CH	80.0	0.35	0.35	1.70	0.75	1.00	1.00	1	2	0.99	0.35	0.23	6	13	1.00	0.14	0.16	0.71	AboveWT
7.5	3	6	CH	80.0	0.43	0.43	1.56	0.75	1.00	1.00	1	2	0.98	0.43	0.23	7	13	1.00	0.14	0.17	0.75	AboveWT
11	-0.5	25	SM	40.0	0.63	0.63	1.28	0.80	1.00	0.67	2	2	0.97	0.62	0.23	17	26	1.00	0.30	0.36	1.55	no
16	-5.5	8	CL/ML	80.0	0.92	0.81	1.13	0.85	1.00	1.00	1	2	0.96	0.75	0.28	8	14	1.00	0.15	0.18	0.66	fines
21	-10.5	2	CL	80.0	1.21	0.94	1.05	0.95	1.00	0.67	2	2	0.95	0.88	0.31	1	7	1.00	0.08	0.10	0.33	fines
26	-15.5	18	SM	12.0	1.50	1.07	0.99	0.95	1.00	1.00	1	2	0.94	1.01	0.32	17	19	1.00	0.20	0.24	0.74	yes
31	-20.5	20	SM/CL	12.0	1.78	1.21	0.93	1.00	1.00	0.67	2	2	0.92	1.14	0.34	12	14	0.98	0.15	0.18	0.53	yes
36	-25.5	6	CL	80.0	2.07	1.34	0.88	1.00	1.00	1.00	1	2	0.88	1.27	0.33	5	11	0.96	0.13	0.14	0.43	fines
41	-30.5	25	ML	80.0	2.36	1.47	0.84	1.00	1.00	0.67	2	2	0.84	1.41	0.33	14	22	0.94	0.24	0.27	0.82	fines
46	-35.5	20	SM	12.0	2.65	1.60	0.81	1.00	1.00	1.00	1	2	0.80	1.54	0.32	16	18	0.92	0.19	0.21	0.67	yes
51	-40.5	89	SM	12.0	2.93	1.73	0.78	1.00	1.00	0.67	2	2	0.76	1.67	0.31	46	49	0.91	High N	0.00	LARGE	high N
56	-45.5	27	SM	40.0	3.22	1.86	0.75	1.00	1.00	1.00	1	2	0.72	1.80	0.30	20	29	0.89	0.42	0.45	1.49	no
61	-50.5	120	SP	5.0	3.51	1.99	0.72	1.00	1.00	0.67	2	2	0.68	1.93	0.29	58	58	0.87	High N	0.00	LARGE	high N
66	-55.5	48	SP	5.0	3.80	2.13	0.70	1.00	1.00	1.00	1	2	0.64	2.06	0.27	34	34	0.87	High N	0.00	LARGE	high N
71	-60.5	122	GP	5.0	4.08	2.26	0.68	1.00	1.00	0.67	2	2	0.60	2.19	0.26	55	55	0.86	High N	0.00	LARGE	high N
76	-65.5	100	SP	5.0	4.37	2.39	0.66	1.00	1.00	1.00	1	2	0.56	2.33	0.25	66	66	0.85	High N	0.00	LARGE	high N
81	-70.5	120	SP	5.0	4.66	2.52	0.64	1.00	1.00	0.67	2	2	0.55	2.46	0.24	51	51	0.84	High N	0.00	LARGE	high N

East Garden Grove Wintersburg Channel (Warner to Edwards) : Preliminary Liquefaction Potential Evaluation 08-156

LIQUEFACTION ANALYSIS UNDER MCE; ACC. = 0.36 g 3/27/2009

Liquefaction analysis is performed following Seed's Procedure, outlined by Seed et al. (1985), Seed and Harder (1990), updated NCEER (1997), Martin et al. (1999) and Youd et al. (2001)

Emean/E60 = Energy Ratio to correct to standard 60% Energy
Surcharge = Any surcharge on top of the ground (psf)
acc. max = maximum peak acceleration at the ground surface (g's)
[1]C_N = square root of (100 kPa or 1.04427 tsf/effective overburden)
The induced cyclic stress ratio (CSR i) by a given peak ground acceleration (acc. max) is:

CSR i = 0.65 x acc max. x total normal stress x rd / (effective normal stress x g)

where:

The resisting cyclic stress ratio (CSR r) is equal to:
CSR r = CSR x Cm x K sigma

where: Cm = Earthquake Magnitude Correction Factor (Blake, NCEER Table 3, Eq.4)
K sigma = Normalized resistance factor (Fig. 14 from NCEER Liquefaction workshop, Harder Boulanger)
CSR = Resisting Cyclic Stress Ratio. It is a function of the content of fines
(Figure 2, NCEER Workshop, after Seed et al 1985))

Factor of Safety, F sub L is:

F sub L = CSR r / CSR i

B-08-08

Emean (%)	60			Ground El.	11	Borehole Diameter	5		Tot. Unit Weight	11.0	=Design Water Table Depth.	14.3	=Field Water Table Depth.		acc. max =	0.360	g		Earthq. M=	7		
C_E	1.00			Sur.=	0	psf	C_B	1.00		110	0 =Design Water El.	-3.3	=Field Water El.						Cm=	1.19	COMMENTS	

MID DEPTH OF SOIL SAMPLE (ft.)	EL. (ft.)	FIELD BLOW COUNT N	SOIL TYPE	EST. PERCENT OF FINES (%)	TOTAL OVERBUR. PRESS. (tsf)	EFFEC. OVERBUR. PRESS. (tsf)	C_N	C_R	C_S	C_{ST}	SAMPLER TYPE 1=SPT 2=CA.MOD.	SAMPLER LINED 1=UNLINED 2=LINED	STRESS REDUC. COEFF. rd	DESIGN EFFEC. OVERBUR. PRESS. (tsf)	INDUCED CYCLIC STRESS RATIO	CORRECT BLOW COUNT N_{160}	(N1)60cs	K sigma	RESIST. CYCLIC STRESS RATIO M=7.5	RESIST. CYCLIC STRESS RATIO Overburd Corr Mag Corr	FACTOR OF SAFETY (F sub L)	WILL IT LIQUEFY?
-		-		-	-	-	-				-		-	-	-	-		-	-		-	-
6	5	6	ML	80.0	0.33	0.33	1.70	0.75	1.00	1.00	1	2	0.99	0.33	0.23	8	14	1.00	0.15	0.18	0.79	AboveWT
11	0	7	OL/ML	80.0	0.61	0.61	1.31	0.80	1.00	0.67	2	2	0.97	0.61	0.23	5	11	1.00	0.12	0.14	0.63	fines
16	-5	9	SM	30.0	0.88	0.83	1.12	0.85	1.00	1.00	1	2	0.96	0.72	0.27	9	15	1.00	0.16	0.19	0.68	yes
21	-10	21	SM	30.0	1.16	0.95	1.05	0.95	1.00	0.67	2	2	0.95	0.84	0.30	14	21	1.00	0.23	0.27	0.88	yes
26	-15	14	SM	30.0	1.43	1.06	0.99	0.95	1.00	1.00	1	2	0.94	0.96	0.33	13	20	1.00	0.21	0.26	0.78	yes
31	-20	17	SM	30.0	1.71	1.18	0.94	1.00	1.00	0.67	2	2	0.92	1.08	0.34	11	17	0.99	0.18	0.21	0.63	yes
36	-25	12	SM/ML	30.0	1.98	1.30	0.90	1.00	1.00	1.00	1	2	0.88	1.20	0.34	11	17	0.97	0.18	0.21	0.62	yes
41	-30	18	CH	90.0	2.26	1.42	0.86	1.00	1.00	0.67	2	2	0.84	1.32	0.34	10	17	0.96	0.18	0.21	0.62	fines
46	-35	23	SP	5.0	2.53	1.54	0.82	1.00	1.00	1.00	1	2	0.80	1.44	0.33	19	19	0.94	0.20	0.23	0.69	yes
51	-40	26	CL	80.0	2.81	1.66	0.79	1.00	1.00	0.67	2	2	0.76	1.56	0.32	14	21	0.92	0.23	0.26	0.81	fines
56	-45	50	SP-SM	8.0	3.08	1.78	0.77	1.00	1.00	1.00	1	2	0.72	1.68	0.31	38	39	0.91	High N	0.00	LARGE	high N
61	-50	29	CL	80.0	3.36	1.90	0.74	1.00	1.00	0.67	2	2	0.68	1.80	0.30	14	22	0.89	0.24	0.26	0.88	fines
66	-55	54	SP	5.0	3.63	2.02	0.72	1.00	1.00	1.00	1	2	0.64	1.91	0.28	39	39	0.87	High N	0.00	LARGE	high N
71	-60	85	SP	5.0	3.91	2.14	0.70	1.00	1.00	0.67	2	2	0.60	2.03	0.27	40	40	0.88	High N	0.00	LARGE	high N
76	-65	52	SP	5.0	4.18	2.25	0.68	1.00	1.00	1.00	1	2	0.56	2.15	0.25	35	35	0.87	High N	0.00	LARGE	high N
81	-70	102	SP	5.0	4.46	2.37	0.66	1.00	1.00	0.67	2	2	0.55	2.27	0.25	45	45	0.86	High N	0.00	LARGE	high N

East Garden Grove Wintersburg Channel (Warner to Edwards) : Preliminary Liquefaction Potential Evaluation

08-156

LIQUEFACTION ANALYSIS UNDER MCE; ACC. = 0.36 g

3/27/2009

Liquefaction analysis is performed following Seed's Procedure, outlined by Seed et al. (1985), Seed and Harder (1990), updated NCEER (1997), Martin et al. (1999) and Youd et al. (2001)

Emean/E60 = Energy Ratio to correct to standard 60% Energy
Surcharge = Any surcharge on top of the ground (psf)
acc. max = maximum peak acceleration at the ground surface (g's)
[1]C_N = square root of (100 kPa or 1.04427 tsf/effective overburden)
The induced cyclic stress ratio (CSR i) by a given peak ground acceleration (acc. max) is:

CSR i = 0.65 x acc max. x total normal stress x rd / (effective normal stress x g)

where:

The resisting cyclic stress ratio (CSR r) is equal to:
CSR r = CSR x Cm x K sigma

where: Cm = Earthquake Magnitude Correction Factor (Blake, NCEER Table 3, Eq.4)
K sigma = Normalized resistance factor (Fig. 14 from NCEER Liquefaction workshop, Harder Boulanger)
CSR = Resisting Cyclic Stress Ratio. It is a function of the content of fines
(Figure 2, NCEER Workshop, after Seed et al 1985))

Factor of Safety, F sub L is:

F sub L = CSR r / CSR i

B-08-09

Emean (%)	60			Ground El.	12.8	Borehole Diameter	5		Tot. Unit Weight	12.8	=Design Water Table Depth.	12.3	=Field Water Table Depth.		acc. max =	0.360	g		Earthq. M=	7		
C_E	1.00			Sur.=	0	psf	C_B	1.00		115	0	=Design Water El.	0.5	=Field Water El.					Cm=	1.19	COMMENTS	

MID DEPTH OF SOIL SAMPLE (ft.)	EL. (ft.)	FIELD BLOW COUNT N	SOIL TYPE	EST. PERCENT OF FINES (%)	TOTAL OVERBUR. PRESS. (tsf)	EFFEC. OVERBUR. PRESS. (tsf)	C_N	C_R	C_S	C_{ST}	SAMPLER TYPE 1=SPT 2=CA.MOD.	SAMPLER LINED 1=UNLINED 2=LINED	STRESS REDUC. COEFF. rd	DESIGN EFFEC. OVERBUR. PRESS. (tsf)	INDUCED CYCLIC STRESS RATIO	CORRECT BLOW COUNT N_{160}	(N1)60cs	K sigma	RESIST. CYCLIC STRESS RATIO M=7.5	RESIST. CYCLIC STRESS RATIO Overburd Corr Mag Corr	FACTOR OF SAFETY (F sub L)	WILL IT LIQUEFY?
-		-		-	-	-	-				-		-	-	-	-		-	-		-	-
6	6.8	13	SM	20.0	0.35	0.35	1.70	0.75	1.00	1.00	1	2	0.99	0.35	0.23	17	22	1.00	0.24	0.28	1.22	AboveWT
11	1.8	28	SM	20.0	0.63	0.63	1.28	0.80	1.00	0.67	2	2	0.97	0.63	0.23	19	24	1.00	0.28	0.33	1.46	AboveWT
16	-3.2	6	ML	80.0	0.92	0.80	1.14	0.85	1.00	1.00	1	2	0.96	0.82	0.25	6	12	1.00	0.13	0.16	0.62	fines
21	-8.2	6	OL/ML	80.0	1.21	0.94	1.06	0.95	1.00	0.67	2	2	0.95	0.95	0.28	4	10	1.00	0.11	0.13	0.47	fines
26	-13.2	16	SP-SM	10.0	1.50	1.07	0.99	0.95	1.00	1.00	1	2	0.94	1.08	0.30	15	16	0.99	0.17	0.20	0.67	yes
31	-18.2	20	MH	80.0	1.78	1.20	0.93	1.00	1.00	0.67	2	2	0.92	1.21	0.32	12	20	0.97	0.21	0.25	0.78	fines
36	-23.2	3	CL	80.0	2.07	1.33	0.89	1.00	1.00	1.00	1	2	0.88	1.35	0.32	3	8	0.95	0.10	0.11	0.35	fines
41	-28.2	16	MH	80.0	2.36	1.46	0.85	1.00	1.00	0.67	2	2	0.84	1.48	0.31	9	16	0.93	0.17	0.19	0.60	fines
46	-33.2	23	ML	80.0	2.65	1.59	0.81	1.00	1.00	1.00	1	2	0.80	1.61	0.31	19	27	0.91	0.35	0.38	1.24	fines
51	-38.2	106	SP	5.0	2.93	1.73	0.78	1.00	1.00	0.67	2	2	0.76	1.74	0.30	55	55	0.90	High N	0.00	LARGE	high N
56	-43.2	20	ML	80.0	3.22	1.86	0.75	1.00	1.00	1.00	1	2	0.72	1.87	0.29	15	23	0.88	0.26	0.27	0.93	fines
61	-48.2	87	SM	12.0	3.51	1.99	0.72	1.00	1.00	0.67	2	2	0.68	2.00	0.28	42	45	0.88	High N	0.00	LARGE	high N
66	-53.2	54	SP	5.0	3.80	2.12	0.70	1.00	1.00	1.00	1	2	0.64	2.14	0.26	38	38	0.87	High N	0.00	LARGE	high N
71	-58.2	79	SP	5.0	4.08	2.25	0.68	1.00	1.00	0.67	2	2	0.60	2.27	0.25	36	36	0.86	High N	0.00	LARGE	high N
76	-63.2	61	SP	5.0	4.37	2.38	0.66	1.00	1.00	1.00	1	2	0.56	2.40	0.24	40	40	0.85	High N	0.00	LARGE	high N
81	-68.2	120	CL	80.0	4.66	2.51	0.64	1.00	1.00	0.67	2	2	0.55	2.53	0.24	52	67	0.84	High N	0.00	LARGE	high N

East Garden Grove Wintersburg Channel (Warner to Edwards) : Preliminary Liquefaction Potential Evaluation

08-156

LIQUEFACTION ANALYSIS UNDER MCE; ACC. = 0.36 g

3/27/2009

Liquefaction analysis is performed following Seed's Procedure, outlined by Seed et al. (1985), Seed and Harder (1990), updated NCEER (1997), Martin et al. (1999) and Youd et al. (2001)

Emean/E60 = Energy Ratio to correct to standard 60% Energy
Surcharge = Any surcharge on top of the ground (psf)
acc. max = maximum peak acceleration at the ground surface (g's)
[1]C_N = square root of (100 kPa or 1.04427 tsf/effective overburden)
The induced cyclic stress ratio (CSR i) by a given peak ground acceleration (acc. max) is:

CSR i = 0.65 x acc max. x total normal stress x rd / (effective normal stress x g)

where:

The resisting cyclic stress ratio (CSR r) is equal to:
CSR r = CSR x Cm x K sigma

where: Cm = Earthquake Magnitude Correction Factor (Blake, NCEER Table 3, Eq.4)
K sigma = Normalized resistance factor (Fig. 14 from NCEER Liquefaction workshop, Harder Boulanger)
CSR = Resisting Cyclic Stress Ratio. It is a function of the content of fines
(Figure 2, NCEER Workshop, after Seed et al 1985))

Factor of Safety, F sub L is:

F sub L = CSR r / CSR i

B-08-10

Emean (%)	60			Ground El.	11	Borehole Diameter	5		Tot. Unit Weight	11.0	=Design Water Table Depth.	29.0	=Field Water Table Depth.		acc. max =	0.360	g		Earthq. M=	7			
C_E	1.00			Sur.=	0	psf	C_B	1.00		110	0 =Design Water El.	-18	=Field Water El.						Cm=	1.19	COMMENTS		

MID DEPTH OF SOIL SAMPLE (ft.)	EL. (ft.)	FIELD BLOW COUNT N	SOIL TYPE	EST. PERCENT OF FINES (%)	TOTAL OVERBUR. PRESS. (tsf)	EFFEC. OVERBUR. PRESS. (tsf)	C_N	C_R	C_S	C_{ST}	SAMPLER TYPE 1=SPT 2=CA.MOD.	SAMPLER LINED 1=UNLINED 2=LINED	STRESS REDUC. COEFF. rd	DESIGN EFFEC. OVERBUR. PRESS. (tsf)	INDUCED CYCLIC STRESS RATIO	CORRECT BLOW COUNT N_{160}	(N1)60cs	K sigma	RESIST. CYCLIC STRESS RATIO M=7.5	RESIST. CYCLIC STRESS RATIO Overburd Corr Mag Corr	FACTOR OF SAFETY (F sub L)	WILL IT LIQUEFY?
-		-		-	-	-	-				-		-	-	-	-		-	-		-	-
6	5	17	ML	60.0	0.33	0.33	1.70	0.75	1.00	1.00	1	2	0.99	0.33	0.23	22	31	1.00	High N	0.00	LARGE	AboveWT
11	0	15	CL	60.0	0.61	0.61	1.31	0.80	1.00	0.67	2	2	0.97	0.61	0.23	10	18	1.00	0.19	0.22	0.98	fines
16	-5	5	PT	60.0	0.88	0.88	1.09	0.85	1.00	1.00	1	2	0.96	0.72	0.27	5	11	1.00	0.12	0.14	0.51	fines
21	-10	16	OL	60.0	1.16	1.16	0.95	0.95	1.00	0.67	2	2	0.95	0.84	0.30	10	17	1.00	0.18	0.21	0.69	fines
26	-15	15	ML	60.0	1.43	1.43	0.85	0.95	1.00	1.00	1	2	0.94	0.96	0.33	12	20	1.00	0.21	0.25	0.77	fines
31	-20	11	PT	60.0	1.71	1.64	0.80	1.00	1.00	0.67	2	2	0.92	1.08	0.34	6	12	0.99	0.13	0.15	0.46	fines
36	-25	5	MH	60.0	1.98	1.76	0.77	1.00	1.00	1.00	1	2	0.88	1.20	0.34	4	10	0.97	0.11	0.13	0.37	fines
41	-30	71	SP	5.0	2.26	1.88	0.75	1.00	1.00	0.67	2	2	0.84	1.32	0.34	35	35	0.96	High N	0.00	LARGE	high N
46	-35	17	SM/ML	12.0	2.53	2.00	0.72	1.00	1.00	1.00	1	2	0.80	1.44	0.33	12	14	0.94	0.15	0.17	0.52	yes
51	-40	150	SP	5.0	2.81	2.12	0.70	1.00	1.00	0.67	2	2	0.76	1.56	0.32	70	70	0.92	High N	0.00	LARGE	high N
56	-45	5	SP-SM/CL	10.0	3.08	2.24	0.68	1.00	1.00	1.00	1	2	0.72	1.68	0.31	3	4	0.91	0.07	0.07	0.24	yes
61	-50	150	SP	5.0	3.36	2.36	0.67	1.00	1.00	0.67	2	2	0.68	1.80	0.30	66	66	0.89	High N	0.00	LARGE	high N
66	-55	59	SP	5.0	3.63	2.48	0.65	1.00	1.00	1.00	1	2	0.64	1.91	0.28	38	38	0.87	High N	0.00	LARGE	high N
71	-60	67	SP	5.0	3.91	2.59	0.63	1.00	1.00	0.67	2	2	0.60	2.03	0.27	28	28	0.88	0.38	0.40	1.49	no
76	-65	60	SM	12.0	4.18	2.71	0.62	1.00	1.00	1.00	1	2	0.56	2.15	0.25	37	40	0.87	High N	0.00	LARGE	high N
81	-70	150	SP-SM	10.0	4.46	2.83	0.61	1.00	1.00	0.67	2	2	0.55	2.27	0.25	61	63	0.86	High N	0.00	LARGE	high N

East Garden Grove Wintersburg Channel (Warner to Edwards) : Preliminary Liquefaction Potential Evaluation

08-156

LIQUEFACTION ANALYSIS UNDER MCE; ACC. = 0.36 g

3/27/2009

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Emean/E60 = Energy Ratio to correct to standard 60% Energy

Surcharge = Any surcharge on top of the ground (psf)

acc. max = maximum peak acceleration at the ground surface (g's)

$^{1}C_N$ = square root of (100 kPa or 1.04427 tsf/effective overburden)

The induced cyclic stress ratio (CSR i) by a given peak ground acceleration (acc. max) is:

CSR i = 0.65 x acc max. x total normal stress x rd / (effective normal stress x g)

where:

The resisting cyclic stress ratio (CSR r) is equal to:

CSR r = CSR x Cm x K sigma

where: Cm = Earthquake Magnitude Correction Factor (Blake, NCEER Table 3, Eq.4)

K sigma = Normalized resistance factor (Fig. 14 from NCEER Liquefaction workshop, Harder Boulanger)

CSR = Resisting Cyclic Stress Ratio. It is a function of the content of fines (Figure 2, NCEER Workshop, after Seed et al 1985))

Factor of Safety, F sub L is:

F sub L = CSR r / CSR i

B-08-11

Emean (%)	60			Ground El.	11.9	Borehole Diameter	5		Tot. Unit Weight	11.9	=Design Water Table Depth.	16.0	=Field Water Table Depth.		acc. max =	0.360	g		Earthq. M=	7		
C_E	1.00			Sur.=	0	psf	C_B	1.00		115	=Design Water El.	-4.1	=Field Water El.						Cm=	1.19	COMMENTS	

MID DEPTH OF SOIL SAMPLE (ft.)	EL. (ft.)	FIELD BLOW COUNT N	SOIL TYPE	EST. PERCENT OF FINES (%)	TOTAL OVERBUR. PRESS. (tsf)	EFFEC. OVERBUR. PRESS. (tsf)	C_N	C_R	C_S	C_{ST}	SAMPLER TYPE 1=SPT 2=CA.MOD.	SAMPLER LINED 1=UNLINED 2=LINED	STRESS REDUC. COEFF. rd	DESIGN EFFEC. OVERBUR. PRESS. (tsf)	INDUCED CYCLIC STRESS RATIO	CORRECT BLOW COUNT N_{160}	(N1)60cs	K sigma	RESIST. CYCLIC STRESS RATIO M=7.5	RESIST. CYCLIC STRESS RATIO Overburd Corr Mag Corr	FACTOR OF SAFETY (F sub L)	WILL IT LIQUEFY?
-		-		-	-	-	-				-		-	-	-	-		-	-		-	-
6	5.9	23	CL	55.0	0.35	0.35	1.70	0.75	1.00	1.00	1	2	0.99	0.35	0.23	29	40	1.00	High N	0.00	LARGE	AboveWT
11	0.9	20	CL	55.0	0.63	0.63	1.28	0.80	1.00	0.67	2	2	0.97	0.63	0.23	14	21	1.00	0.23	0.28	1.22	AboveWT
16	-4.1	15	SM	20.0	0.92	0.92	1.07	0.85	1.00	1.00	1	2	0.96	0.79	0.26	14	18	1.00	0.19	0.23	0.89	yes
21	-9.1	6	ML/OL	70.0	1.21	1.05	1.00	0.95	1.00	0.67	2	2	0.95	0.92	0.29	4	10	1.00	0.11	0.13	0.45	fines
26	-14.1	9	ML	70.0	1.50	1.18	0.94	0.95	1.00	1.00	1	2	0.94	1.06	0.31	8	15	0.99	0.16	0.19	0.59	fines
31	-19.1	25	SM	20.0	1.78	1.31	0.89	1.00	1.00	0.67	2	2	0.92	1.19	0.32	15	20	0.97	0.21	0.24	0.76	yes
36	-24.1	11	CL/ML	70.0	2.07	1.45	0.85	1.00	1.00	1.00	1	2	0.88	1.32	0.32	9	16	0.96	0.17	0.20	0.61	fines
41	-29.1	69	SP-SM	10.0	2.36	1.58	0.81	1.00	1.00	0.67	2	2	0.84	1.45	0.32	37	39	0.94	High N	0.00	LARGE	high N
46	-34.1	15	MH/CL	70.0	2.65	1.71	0.78	1.00	1.00	1.00	1	2	0.80	1.58	0.31	12	19	0.92	0.20	0.22	0.71	fines
51	-39.1	28	ML/OL	70.0	2.93	1.84	0.75	1.00	1.00	0.67	2	2	0.76	1.71	0.30	14	22	0.90	0.24	0.26	0.85	fines
56	-44.1	15	OL	70.0	3.22	1.97	0.73	1.00	1.00	1.00	1	2	0.72	1.84	0.29	11	18	0.88	0.19	0.20	0.69	fines
61	-49.1	93	SP-SM	7.0	3.51	2.10	0.70	1.00	1.00	0.67	2	2	0.68	1.98	0.28	44	44	0.86	High N	0.00	LARGE	high N
66	-54.1	52	SP-SM	7.0	3.80	2.24	0.68	1.00	1.00	1.00	1	2	0.64	2.11	0.27	36	36	0.87	High N	0.00	LARGE	high N
71	-59.1	76	SP-SM	7.0	4.08	2.37	0.66	1.00	1.00	0.67	2	2	0.60	2.24	0.25	34	34	0.86	High N	0.00	LARGE	high N
76	-64.1	52	SP-SM	7.0	4.37	2.50	0.65	1.00	1.00	1.00	1	2	0.56	2.37	0.24	34	34	0.85	High N	0.00	LARGE	high N
81	-69.1	81	SP-SM	7.0	4.66	2.63	0.63	1.00	1.00	0.67	2	2	0.55	2.50	0.24	34	34	0.84	High N	0.00	LARGE	high N

East Garden Grove Wintersburg Channel (Warner to Edwards) : Preliminary Liquefaction Potential Evaluation

08-156

LIQUEFACTION ANALYSIS UNDER MCE; ACC. = 0.36 g

3/27/2009

Liquefaction analysis is performed following Seed's Procedure, outlined by Seed et al. (1985), Seed and Harder (1990), updated NCEER (1997), Martin et al. (1999) and Youd et al. (2001)

Emean/E60 = Energy Ratio to correct to standard 60% Energy
Surcharge = Any surcharge on top of the ground (psf)
acc. max = maximum peak acceleration at the ground surface (g's)
[1]C_N = square root of (100 kPa or 1.04427 tsf/effective overburden)
The induced cyclic stress ratio (CSR i) by a given peak ground acceleration (acc. max) is:

CSR i = 0.65 x acc max. x total normal stress x rd / (effective normal stress x g)

where:

The resisting cyclic stress ratio (CSR r) is equal to:
CSR r = CSR x Cm x K sigma

where: Cm = Earthquake Magnitude Correction Factor (Blake, NCEER Table 3, Eq.4)
K sigma = Normalized resistance factor (Fig. 14 from NCEER Liquefaction workshop, Harder Boulanger)
CSR = Resisting Cyclic Stress Ratio. It is a function of the content of fines
(Figure 2, NCEER Workshop, after Seed et al 1985))

Factor of Safety, F sub L is:

F sub L = CSR r / CSR i

B-08-12

Emean (%)	60			Ground El.	11.9	Borehole Diameter	5		Tot. Unit Weight	11.9	=Design Water Table Depth.	15.3	=Field Water Table Depth.		acc. max =	0.360	g		Earthq. M=	7			
C_E	1.00			Sur.=	0	psf	C_B	1.00		110	0 =Design Water El.	-3.4	=Field Water El.						Cm=	1.19	COMMENTS		
MID DEPTH OF SOIL SAMPLE (ft.)	EL. (ft.)	FIELD BLOW COUNT N	SOIL TYPE	EST. PERCENT OF FINES (%)	TOTAL OVERBUR. PRESS. (tsf)	EFFEC. OVERBUR. PRESS. (tsf)	C_N	C_R	C_S	C_{ST}	SAMPLER TYPE 1=SPT 2=CA.MOD.	SAMPLER LINED 1=UNLINED 2=LINED	STRESS REDUC. COEFF. rd	DESIGN EFFEC. OVERBUR. PRESS. (tsf)	INDUCED CYCLIC STRESS RATIO	CORRECT BLOW COUNT N_{160}	(N1)60cs	K sigma	RESIST. CYCLIC STRESS RATIO M=7.5	RESIST. CYCLIC STRESS RATIO Overburd Corr Mag Corr	FACTOR OF SAFETY (F sub L)	WILL IT LIQUEFY?	
-		-		-	-	-	-				-		-	-	-	-		-	-	-	-	-	
6	5.9	23	SM	20.0	0.33	0.33	1.70	0.75	1.00	1.00	1	2	0.99	0.33	0.23	29	35	1.00	High N	0.00	LARGE	AboveWT	
11	0.9	20	CL	60.0	0.61	0.61	1.31	0.80	1.00	0.67	2	2	0.97	0.61	0.23	14	22	1.00	0.24	0.29	1.25	AboveWT	
16	-4.1	15	SM	20.0	0.88	0.86	1.10	0.85	1.00	1.00	1	2	0.96	0.75	0.26	14	19	1.00	0.20	0.24	0.91	yes	
21	-9.1	6	CL/OL	80.0	1.16	0.98	1.03	0.95	1.00	0.67	2	2	0.95	0.87	0.30	4	10	1.00	0.11	0.13	0.45	fines	
26	-14.1	9	CH	80.0	1.43	1.10	0.98	0.95	1.00	1.00	1	2	0.94	0.99	0.32	8	15	1.00	0.16	0.19	0.60	fines	
31	-19.1	25	ML/OL	80.0	1.71	1.22	0.93	1.00	1.00	0.67	2	2	0.92	1.11	0.33	15	24	0.98	0.27	0.31	0.94	fines	
36	-24.1	11	ML/CL	80.0	1.98	1.33	0.88	1.00	1.00	1.00	1	2	0.88	1.23	0.33	10	17	0.97	0.18	0.20	0.62	fines	
41	-29.1	69	ML	70.0	2.26	1.45	0.85	1.00	1.00	0.67	2	2	0.84	1.35	0.33	39	52	0.95	High N	0.00	LARGE	high N	
46	-34.1	15	ML	70.0	2.53	1.57	0.81	1.00	1.00	1.00	1	2	0.80	1.47	0.32	12	20	0.93	0.21	0.24	0.73	fines	
51	-39.1	28	SM	20.0	2.81	1.69	0.79	1.00	1.00	0.67	2	2	0.76	1.59	0.31	15	19	0.92	0.21	0.23	0.73	yes	
56	-44.1	15	SP-SM	10.0	3.08	1.81	0.76	1.00	1.00	1.00	1	2	0.72	1.70	0.30	11	13	0.90	0.14	0.15	0.48	yes	
61	-49.1	93	SM	20.0	3.36	1.93	0.74	1.00	1.00	0.67	2	2	0.68	1.82	0.29	46	53	0.88	High N	0.00	LARGE	high N	
66	-54.1	52	SM	20.0	3.63	2.05	0.71	1.00	1.00	1.00	1	2	0.64	1.94	0.28	37	44	0.87	High N	0.00	LARGE	high N	
71	-59.1	76	SP	5.0	3.91	2.17	0.69	1.00	1.00	0.67	2	2	0.60	2.06	0.26	35	35	0.88	High N	0.00	LARGE	high N	
76	-64.1	52	SP	5.0	4.18	2.29	0.68	1.00	1.00	1.00	1	2	0.56	2.18	0.25	35	35	0.87	High N	0.00	LARGE	high N	
81	-69.1	81	SM	12.0	4.46	2.41	0.66	1.00	1.00	0.67	2	2	0.55	2.30	0.25	36	38	0.86	High N	0.00	LARGE	high N	

PRELIMINARY SEISMIC SETTLEMENT CALCULATIONS

East Garden Grove Wintersburg Channel (Warner to Edwards)

03/28/09

FORMULAE:

$(N_1)_{corr} = C_N * C_s * C_E * C_R * N_{field}$ for Cohesionless Behavior Soils

$(N)_{corr} = C_s * C_E * N_{field}$ for Cohesive Behavior Soils

where:

$(N_1)_{corr}$	=	Corrected blow count for 1 tsf, efficiency and sampler
$(N)_{corr}$	=	Corrected blow count for efficiency and sampler
C_N	=	Overburden correction factor (See Reference 1)
C_E	=	Energy correction (Reference 2) = (Efficiency/60%)
C_R	=	Rod Length correction
C_s	=	Sampler correction (Reference 3)

Efficiency =	60%	C_E	1.00
Borehole Diam =	5	C_B	1.00
Unit Weight =	110		

$K_o = (1-\sin(\phi))$

$\sigma_m' = (1+2K_o)/3*\sigma_{of}'$

$(K_2)_{max} = 20*(N_1)^{(1/3)}$

$G_{max} = 1000*(K_2)_{max}*(\sigma_m')^{(1/2)}$

$\gamma_{eff}*G_{eff}/G_{max} = 0.65*(a_{max}/g)*(\sigma_{of}'/G_{max})*r_d$

r_d = 1.0 at the ground surface, (Seed and Iddriss, 1971)

= 0.9 at 30 feet below the ground surface

= 0.6 at 70 feet below the ground surface

= 0.5 at 100 feet below the ground surface

$\tau_{av}/\sigma_{of}' = 0.65*(a_{max}/g)*(\sigma_{of}/\sigma_{of}')*r_d$

γ_{eff} for a given $\gamma_{eff}*G_{eff}/G_{max}$ and σ_m' is read from Figure 11 (Tokimatsu and Seed, 1987)

ε_c for a given γ_{eff} and N_1 is read from Figure 13 (Tokimatsu and Seed, 1987)

CALCULATIONS:

Boring:	**B-08-05**	**Boring Elevation (ft MLLW):**	**10.0**	**EQ Mag =**	**7**
Depth to water (ft bgs): (during drilling)	**24.5**	**Groundwater Elevation (ft MLLW):**	**-14.5**	**Mag Scale Factor=**	**1.19**
Depth to water (ft bgs): (design depth)	**10.0**	**Finished Grade Elevn. (ft MLLW):**	**10.0**	**Design Groundwater Elevation (ft MLLW): 0.0**	
				a_{max} =	**0.36**
				Height of Fill (ftl):	**0.0**

Original Depth (ft bgs)	Final Depth (ft bgs)	Elev (ft msl)	Total Stress at Mid depth (psf)	Original Effective Stress at Mid depth (psf)	Sampler SPT = 1 CDS = 2	Uncorrected Blow Count (N)*	Sampler 1=Unlined 2=Lined	Soil Type (1=fine-grained, 2=coarse-grained)	C_N	C_{ST}	C_s	C_r	$(N_1)_{corr}$ (for cohesionless behavior)	Estimated Percentage of Fines (%)	$(N1)_{60\text{-}CS}$ (NCEER - used if layer does not liquefy)	$(N1)_{60\text{-}CS}$ (Seed - used if layer liquefies)	Design Effective Stress at Mid depth (psf)	σ_m' (psf)	$(K_2)_{max}$	G_{max} (psf)	r_d	γ_{eff} G_{eff}/G_{max}	τ_{av}/σ_{of}'	Cyclic Shear Strain, γ_{eff} (%)	Volumetric Strain (Dry Sand) ε_c (%)	Volumetric Strain (Saturated Sand) ε_c (%)	$2*\varepsilon_c$ (dry); ε_c (saturtd.)	Settlement of Each Layer (inches)
0			0																									
6	6.0	4.0	660	660	1	12	2	1	1.74	1.00	1.00	0.75	-	80.0	-	-	660	440.0	-	-	0.98	-	-	-	-	-	0.00E+00	0.0000
11	11.0	-1.0	1210	1210	2	12	2	1	1.29	0.67	1.00	0.85	-	80.0	-	-	1148	765.1	-	-	0.96	-	1.99E-01	-	-	-	0.00E+00	0.0000
16	16.0	-6.0	1760	1760	1	0	2	1	1.07	1.00	1.00	0.95	-	90.0	-	-	1386	923.7	-	-	0.95	-	2.36E-01	-	-	-	0.00E+00	0.0000
21	21.0	-11.0	2310	2310	2	24	2	1	0.93	0.67	1.00	0.95	-	80.0	-	-	1624	1082.4	-	-	0.93	-	2.60E-01	-	-	-	0.00E+00	0.0000
26	26.0	-16.0	2860	2766	1	4	2	1	0.85	1.00	1.00	0.95	-	80.0	-	-	1862	1241.1	-	-	0.91	-	2.75E-01	-	-	-	0.00E+00	0.0000
31	31.0	-21.0	3410	3004	2	5	2	1	0.82	0.67	1.00	1.00	-	80.0	-	-	2100	1399.7	-	-	0.89	-	2.84E-01	-	-	-	0.00E+00	0.0000
36	36.0	-26.0	3960	3242	1	18	2	1	0.79	1.00	1.00	1.00	-	80.0	-	-	2338	1558.4	-	-	0.86	-	2.84E-01	-	-	-	0.00E+00	0.0000
41	41.0	-31.0	4510	3480	2	29	2	1	0.76	0.67	1.00	1.00	-	80.0	-	-	2576	1717.1	-	-	0.82	-	2.81E-01	-	-	-	0.00E+00	0.0000
46	46.0	-36.0	5060	3718	1	36	2	2	0.73	1.00	1.00	1.00	26.4	5.0	26.4	26.4	2814	1875.7	5.96E+01	2.58E+06	0.78	1.67E-04	2.75E-01	-	-	5.00E-01	1.00E-01	0.0600
51	51.0	-41.0	5610	3956	2	33	2	1	0.71	0.67	1.00	1.00	-	80.0	-	-	3052	2034.4	-	-	0.74	-	2.68E-01	-	-	-	0.00E+00	0.0000
56	56.0	-46.0	6160	4194	1	12	2	1	0.69	1.00	1.00	1.00	-	80.0	-	-	3290	2193.1	-	-	0.71	-	2.59E-01	-	-	-	0.00E+00	0.0000
61	61.0	-51.0	6710	4432	2	91	2	2	0.67	0.67	1.00	1.00	40.7	12.0	43.5	43.5	3528	2351.7	7.04E+01	3.41E+06	0.67	1.35E-04	2.49E-01	-	-	0.00E+00	0.00E+00	0.0000
66	66.0	-56.0	7260	4670	1	79	2	2	0.65	1.00	1.00	1.00	51.7	5.0	51.8	51.8	3766	2510.4	7.45E+01	3.73E+06	0.63	1.25E-04	2.38E-01	-	-	0.00E+00	0.00E+00	0.0000
71	71.0	-61.0	7810	4908	2	120	2	2	0.64	0.67	1.00	1.00	51.0	5.0	51.1	51.1	4004	2669.1	7.42E+01	3.83E+06	0.60	1.22E-04	2.28E-01	-	-	0.00E+00	0.00E+00	0.0000
76	76.0	-66.0	8360	5146	1	72	2	2	0.62	1.00	1.00	1.00	44.9	10.0	46.7	46.7	4242	2827.7	7.20E+01	3.83E+06	0.58	1.26E-04	2.24E-01	-	-	0.00E+00	1.00E-01	0.0600
81	81.0	-71.0	8910	5384	2	120	2	2	0.61	0.67	1.00	1.00	48.7	5.0	48.8	48.8	4480	2986.4	7.31E+01	3.99E+06	0.56	1.24E-04	2.20E-01	-	-	0.00E+00	0.00E+00	

Total: 0.1200

PRELIMINARY SEISMIC SETTLEMENT CALCULATIONS

East Garden Grove Wintersburg Channel (Warner to Edwards)

03/28/09

FORMULAE:

$(N_1)_{corr} = C_N * C_s * C_E * C_R * N_{field}$ for Cohesionless Behavior Soils

$(N)_{corr} = C_s * C_E * N_{field}$ for Cohesive Behavior Soils

where:

$(N_1)_{corr}$	=	Corrected blow count for 1 tsf, efficiency and sampler
$(N)_{corr}$	=	Corrected blow count for efficiency and sampler
C_N	=	Overburden correction factor (See Reference 1)
C_E	=	Energy correction (Reference 2) = (Efficiency/60%)
C_R	=	Rod Length correction
C_s	=	Sampler correction (Reference 3)

Efficiency =	60%	C_E	1.00
Borehole Diam =	5	C_B	1.00
Unit Weight =	120		

$K_o = (1-\sin(\phi))$

$\sigma_m' = (1+2K_o)/3*\sigma_{of}'$

$(K_2)_{max} = 20*(N_1)^{(1/3)}$

$G_{max} = 1000*(K_2)_{max}*(\sigma_m')^{(1/2)}$

$\gamma_{eff}*G_{eff}/G_{max} = 0.65*(a_{max}/g)*(\sigma_{of}'/G_{max})*r_d$

r_d = 1.0 at the ground surface, (Seed and Iddriss, 1971)

= 0.9 at 30 feet below the ground surface

= 0.6 at 70 feet below the ground surface

= 0.5 at 100 feet below the ground surface

$\tau_{av}/\sigma_{of}' = 0.65*(a_{max}/g)*(\sigma_{of}/\sigma_{of}')*r_d$

γ_{eff} for a given $\gamma_{eff}*G_{eff}/G_{max}$ and σ_m' is read from Figure 11 (Tokimatsu and Seed, 1987)

ε_c for a given γ_{eff} and N_1 is read from Figure 13 (Tokimatsu and Seed, 1987)

CALCULATIONS:

Boring:	**B-08-06**	**Boring Elevation (ft MLLW):**	**9.7**	**EQ Mag =**	**7**
Depth to water (ft bgs): (during drilling)	**30.0**	**Groundwater Elevation (ft MLLW):**	**-20.3**	**Mag Scale Factor=**	**1.19**
Depth to water (ft bgs): (design depth)	**9.7**	**Finished Grade Elevn. (ft MLLW):**	**9.7**	**Design Groundwater Elevation (ft MLLW): 0.0**	
				a_{max} =	**0.36**
				Height of Fill (ftl):	**0.0**

Original Depth (ft bgs)	Final Depth (ft bgs)	Elev (ft msl)	Total Stress at Mid depth (psf)	Original Effective Stress at Mid depth (psf)	Sampler SPT = 1 CDS = 2	Uncorrected Blow Count (N)*	Sampler 1=Unlined 2=Lined	Soil Type (1=fine-grained, 2=coarse-grained)	C_N	C_{ST}	C_s	C_r	$(N_1)_{corr}$ (for cohesionless behavior)	Estimated Percentage of Fines (%)	$(N1)_{60\text{-}CS}$ (NCEER - used if layer does not liquefy)	$(N1)_{60\text{-}CS}$ (Seed - used if layer liquefies)	Design Effective Stress at Mid depth (psf)	σ_m' (psf)	$(K_2)_{max}$	G_{max} (psf)	r_d	γ_{eff} G_{eff}/G_{max}	τ_{av}/σ_{of}'	Cyclic Shear Strain, γ_{eff} (%)	Volumetric Strain (Dry Sand) ε_c (%)	Volumetric Strain (Saturated Sand) ε_c (%)	$2*\varepsilon_c$ (dry); ε_c (saturtd.)	Settlement of Each Layer (inches)
0			0																								
6	6.0	3.7	720	720	1	17	2	2	1.67	1.00	1.00	0.75	21.3	12.0	23.5	-	720	480.0	5.73E+01	1.25E+06	0.98	1.10E-04	-	1.90E-02	1.64E-02	-	3.28E-02	0.0335
11	11.0	-1.3	1320	1320	2	10	2	1	1.23	0.67	1.00	0.85	-	70.0	-	-	1239	825.9	-	-	0.96	-	2.01E-01	-	-	-	0.00E+00	0.0000
16	16.0	-6.3	1920	1920	1	0	2	1	1.02	1.00	1.00	0.95	-	70.0	-	-	1527	1017.9	-	-	0.95	-	2.34E-01	-	-	-	0.00E+00	0.0000
21	21.0	-11.3	2520	2520	2	7	2	1	0.89	0.67	1.00	0.95	-	70.0	-	-	1815	1209.9	-	-	0.93	-	2.53E-01	-	-	-	0.00E+00	0.0000
26	26.0	-16.3	3120	3120	1	4	2	1	0.80	1.00	1.00	0.95	-	70.0	-	-	2103	1401.9	-	-	0.91	-	2.66E-01	-	-	-	0.00E+00	0.0000
31	31.0	-21.3	3720	3658	2	13	2	1	0.74	0.67	1.00	1.00	-	70.0	-	-	2391	1593.9	-	-	0.89	-	2.72E-01	-	-	-	0.00E+00	0.0000
36	36.0	-26.3	4320	3946	1	35	2	2	0.71	1.00	1.00	1.00	24.9	12.0	27.3	25.9	2679	1785.9	5.92E+01	2.50E+06	0.86	1.80E-04	2.70E-01	-	-	6.91E-01	1.00E-01	0.0600
41	41.0	-31.3	4920	4234	2	100	2	2	0.69	0.67	1.00	1.00	45.8	10.0	47.6	47.6	2967	1977.9	7.25E+01	3.22E+06	0.82	1.48E-04	2.66E-01	-	-	0.00E+00	5.00E-01	0.3000
46	46.0	-36.3	5520	4522	1	42	2	2	0.67	1.00	1.00	1.00	27.9	10.0	29.4	28.9	3255	2169.9	6.14E+01	2.86E+06	0.78	1.74E-04	2.60E-01	-	-	0.00E+00	0.00E+00	0.0000
51	51.0	-41.3	6120	4810	2	120	2	2	0.64	0.67	1.00	1.00	51.5	10.0	53.5	53.5	3543	2361.9	7.54E+01	3.66E+06	0.74	1.41E-04	2.52E-01	-	-	0.00E+00	0.00E+00	0.0000
56	56.0	-46.3	6720	5098	1	62	2	2	0.63	1.00	1.00	1.00	38.8	10.0	40.5	40.5	3831	2553.9	6.87E+01	3.47E+06	0.71	1.53E-04	2.43E-01	-	-	0.00E+00	0.00E+00	0.0000
61	61.0	-51.3	7320	5386	2	84	2	2	0.61	0.67	1.00	1.00	34.1	5.0	34.1	34.1	4119	2745.9	6.49E+01	3.40E+06	0.67	1.59E-04	2.33E-01	-	-	0.00E+00	0.00E+00	0.0000
66	66.0	-56.3	7920	5674	1	48	2	2	0.59	1.00	1.00	1.00	28.5	5.0	28.5	28.5	4407	2937.9	6.11E+01	3.31E+06	0.63	1.64E-04	2.22E-01	-	-	0.00E+00	0.00E+00	0.0000
71	71.0	-61.3	8520	5962	2	107	2	2	0.58	0.67	1.00	1.00	41.3	5.0	41.3	41.3	4695	3129.9	6.91E+01	3.87E+06	0.60	1.42E-04	2.12E-01	-	-	0.00E+00	0.00E+00	0.0000
76	76.0	-66.3	9120	6250	1	79	2	2	0.57	1.00	1.00	1.00	44.7	5.0	44.7	44.7	4983	3321.9	7.10E+01	4.09E+06	0.58	1.39E-04	2.08E-01	-	-	0.00E+00	1.00E-01	0.0600
81	81.0	-71.3	9720	6538	2	120	2	2	0.55	0.67	1.00	1.00	44.2	5.0	44.3	44.3	5271	3513.9	7.07E+01	4.19E+06	0.56	1.39E-04	2.04E-01	-	-	0.00E+00	0.00E+00	

Total: 0.4535

PRELIMINARY SEISMIC SETTLEMENT CALCULATIONS

East Garden Grove Wintersburg Channel (Warner to Edwards)

03/28/09

FORMULAE:

$(N_1)_{corr} = C_N * C_s * C_E * C_R * N_{field}$ for Cohesionless Behavior Soils

$(N)_{corr} = C_s * C_E * N_{field}$ for Cohesive Behavior Soils

where:

$(N_1)_{corr}$	=	Corrected blow count for 1 tsf, efficiency and sampler
$(N)_{corr}$	=	Corrected blow count for efficiency and sampler
C_N	=	Overburden correction factor (See Reference 1)
C_E	=	Energy correction (Reference 2) = (Efficiency/60%)
C_R	=	Rod Length correction
C_s	=	Sampler correction (Reference 3)

Efficiency =	60%	C_E	1.00
Borehole Diam =	5	C_B	1.00
Unit Weight =	115		

$K_o = (1-\sin(\phi))$

$\sigma_m' = (1+2K_o)/3*\sigma_{of}'$

$(K_2)_{max} = 20*(N_1)^{(1/3)}$

$G_{max} = 1000*(K_2)_{max}*(\sigma_m')^{(1/2)}$

$\gamma_{eff}*G_{eff}/G_{max} = 0.65*(a_{max}/g)*(\sigma_{of}'/G_{max})*r_d$

r_d = 1.0 at the ground surface, (Seed and Iddriss, 1971)

= 0.9 at 30 feet below the ground surface

= 0.6 at 70 feet below the ground surface

= 0.5 at 100 feet below the ground surface

$\tau_{av}/\sigma_{of}' = 0.65*(a_{max}/g)*(\sigma_{of}/\sigma_{of}')*r_d$

γ_{eff} for a given $\gamma_{eff}*G_{eff}/G_{max}$ and σ_m' is read from Figure 11 (Tokimatsu and Seed, 1987)

ε_c for a given γ_{eff} and N_1 is read from Figure 13 (Tokimatsu and Seed, 1987)

CALCULATIONS:

Boring:	**B-08-07**	**Boring Elevation (ft MLLW):**	**10.5**	**EQ Mag =**	**7**
Depth to water (ft bgs): (during drilling)	**12.5**	**Groundwater Elevation (ft MLLW):**	**-2.0**	**Mag Scale Factor=**	**1.19**
Depth to water (ft bgs): (design depth)	**10.5**	**Finished Grade Elevn. (ft MLLW):**	**10.5**	**Design Groundwater Elevation (ft MLLW): 0.0**	
				a_{max} =	**0.36**
				Height of Fill (ftl):	**0.0**

Original Depth (ft bgs)	Final Depth (ft bgs)	Elev (ft msl)	Total Stress at Mid depth (psf)	Original Effective Stress at Mid depth (psf)	Sampler SPT = 1 CDS = 2	Uncorrected Blow Count (N)*	Sampler 1=Unlined 2=Lined	Soil Type (1=fine-grained, 2=coarse-grained)	C_N	C_{ST}	C_s	C_r	$(N_1)_{corr}$ (for cohesionless behavior)	Estimated Percentage of Fines (%)	$(N1)_{60\text{-}CS}$ (NCEER - used if layer does not liquefy)	$(N1)_{60\text{-}CS}$ (Seed - used if layer liquefies)	Design Effective Stress at Mid depth (psf)	σ_m' (psf)	$(K_2)_{max}$	G_{max} (psf)	r_d	γ_{eff} G_{eff}/G_{max}	τ_{av}/σ_{of}'	Cyclic Shear Strain, γ_{eff} (%)	Volumetric Strain (Dry Sand) ε_c (%)	Volumetric Strain (Saturated Sand) ε_c (%)	$2*\varepsilon_c$ (dry); ε_c (saturtd.)	Settlement of Each Layer (inches)
0			0																									
6	6.0	4.5	690	690	1	5	2	1	1.70	1.00	1.00	0.75	-	80.0	-	-	690	460.0	-	-	0.98	-	-	-	-	-	0.00E+00	0.0000
7.5	7.5	3.0	862.5	863	1	6	2	1	1.52	1.00	1.00	0.75	-	80.0	-	-	863	575.0	-	-	0.98	-	-	-	-	-	0.00E+00	0.0000
11	11.0	-0.5	1265	1265	2	25	2	2	1.26	0.67	1.00	0.85	17.8	40.0	26.4	20.8	1234	822.5	5.50E+01	1.58E+06	0.96	1.48E-04	1.94E-01	-	-	1.50E-01	0.00E+00	0.0000
16	16.0	-5.5	1840	1622	1	8	2	1	1.11	1.00	1.00	0.95	-	80.0	-	-	1497	997.9	-	-	0.95	-	2.28E-01	-	-	-	0.00E+00	0.0000
21	21.0	-10.5	2415	1885	2	2	2	1	1.03	0.67	1.00	0.95	-	80.0	-	-	1760	1173.2	-	-	0.93	-	2.50E-01	-	-	-	0.00E+00	0.0000
26	26.0	-15.5	2990	2148	1	18	2	2	0.97	1.00	1.00	0.95	16.5	12.0	18.6	17.5	2023	1348.5	5.19E+01	1.91E+06	0.91	1.90E-04	2.65E-01	-	-	1.49E+00	1.49E+00	0.8956
31	31.0	-20.5	3565	2411	2	20	2	2	0.91	0.67	1.00	1.00	12.1	12.0	14.1	13.1	2286	1523.9	4.72E+01	1.84E+06	0.89	2.17E-04	2.73E-01	-	-	2.10E+00	2.10E+00	1.2600
36	36.0	-25.5	4140	2674	1	6	2	1	0.86	1.00	1.00	1.00	-	80.0	-	-	2549	1699.2	-	-	0.86	-	2.72E-01	-	-	-	0.00E+00	0.0000
41	41.0	-30.5	4715	2937	2	25	2	1	0.83	0.67	1.00	1.00	-	80.0	-	-	2812	1874.5	-	-	0.82	-	2.69E-01	-	-	-	0.00E+00	0.0000
46	46.0	-35.5	5290	3200	1	20	2	2	0.79	1.00	1.00	1.00	15.8	12.0	17.9	16.8	3075	2049.9	5.12E+01	2.32E+06	0.78	2.03E-04	2.63E-01	-	-	1.61E+00	1.61E+00	0.9667
51	51.0	-40.5	5865	3463	2	89	2	2	0.76	0.67	1.00	1.00	45.0	12.0	48.0	48.0	3338	2225.2	7.27E+01	3.43E+06	0.74	1.42E-04	2.56E-01	-	-	0.00E+00	2.00E-01	0.1200
56	56.0	-45.5	6440	3726	1	27	2	2	0.73	1.00	1.00	1.00	19.8	40.0	28.7	22.8	3601	2400.5	5.67E+01	2.78E+06	0.71	1.79E-04	2.47E-01	-	-	9.51E-01	0.00E+00	0.0000
61	61.0	-50.5	7015	3989	2	120	2	2	0.71	0.67	1.00	1.00	56.6	5.0	56.7	56.7	3864	2575.9	7.68E+01	3.90E+06	0.67	1.30E-04	2.38E-01	-	-	0.00E+00	0.00E+00	0.0000
66	66.0	-55.5	7590	4252	1	48	2	2	0.69	1.00	1.00	1.00	32.9	5.0	33.0	33.0	4127	2751.2	6.41E+01	3.36E+06	0.63	1.52E-04	2.27E-01	-	-	0.00E+00	0.00E+00	0.0000
71	71.0	-60.5	8165	4515	2	122	2	2	0.67	0.67	1.00	1.00	54.1	5.0	54.1	54.1	4390	2926.5	7.57E+01	4.09E+06	0.60	1.26E-04	2.18E-01	-	-	0.00E+00	0.00E+00	0.0000
76	76.0	-65.5	8740	4778	1	100	2	2	0.65	1.00	1.00	1.00	64.7	5.0	64.8	64.8	4653	3101.9	8.03E+01	4.47E+06	0.58	1.18E-04	2.14E-01	-	-	0.00E+00	0.00E+00	0.0000
81	81.0	-70.5	9315	5041	2	120	2	2	0.63	0.67	1.00	1.00	50.3	5.0	50.4	50.4	4916	3277.2	7.39E+01	4.23E+06	0.56	1.28E-04	2.09E-01	-	-	0.00E+00	0.00E+00	

Total: 3.2424

PRELIMINARY SEISMIC SETTLEMENT CALCULATIONS

East Garden Grove Wintersburg Channel (Warner to Edwards)

03/28/09

FORMULAE:

$(N_1)_{corr} = C_N * C_s * C_E * C_R * N_{field}$ for Cohesionless Behavior Soils

$(N)_{corr} = C_s * C_E * N_{field}$ for Cohesive Behavior Soils

where:

$(N_1)_{corr}$	=	Corrected blow count for 1 tsf, efficiency and sampler
$(N)_{corr}$	=	Corrected blow count for efficiency and sampler
C_N	=	Overburden correction factor (See Reference 1)
C_E	=	Energy correction (Reference 2) = (Efficiency/60%)
C_R	=	Rod Length correction
C_s	=	Sampler correction (Reference 3)

Efficiency =	60%	C_E	1.00
Borehole Diam =	5	C_B	1.00
Unit Weight =	110		

$K_o = (1-\sin(\phi))$

$\sigma_m' = (1+2K_o)/3*\sigma_{of}'$

$(K_2)_{max} = 20*(N_1)^{(1/3)}$

$G_{max} = 1000*(K_2)_{max}*(\sigma_m')^{(1/2)}$

$\gamma_{eff}*G_{eff}/G_{max} = 0.65*(a_{max}/g)*(\sigma_{of}'/G_{max})*r_d$

r_d = 1.0 at the ground surface, (Seed and Iddriss, 1971)

= 0.9 at 30 feet below the ground surface

= 0.6 at 70 feet below the ground surface

= 0.5 at 100 feet below the ground surface

$\tau_{av}/\sigma_{of}' = 0.65*(a_{max}/g)*(\sigma_o/\sigma_{of}')*r_d$

γ_{eff} for a given $\gamma_{eff}*G_{eff}/G_{max}$ and σ_m' is read from Figure 11 (Tokimatsu and Seed, 1987)

ε_c for a given γ_{eff} and N_1 is read from Figure 13 (Tokimatsu and Seed, 1987)

CALCULATIONS:

Boring:	**B-08-08**	**Boring Elevation (ft MLLW):**	**11.0**	**EQ Mag =**	**7**
Depth to water (ft bgs): (during drilling)	**14.3**	**Groundwater Elevation (ft MLLW):**	**-3.3**	**Mag Scale Factor=**	**1.19**
Depth to water (ft bgs): (design depth)	**11.0**	**Finished Grade Elevn. (ft MLLW):**	**11.0**	**Design Groundwater Elevation (ft MLLW): 0.0**	
				a_{max} =	**0.36**
				Height of Fill (ftl):	**0.0**

Original Depth (ft bgs)	Final Depth (ft bgs)	Elev (ft msl)	Total Stress at Mid depth (psf)	Original Effective Stress at Mid depth (psf)	Sampler SPT = 1 CDS = 2	Uncorrected Blow Count (N)*	Sampler 1=Unlined 2=Lined	Soil Type (1=fine-grained, 2=coarse-grained)	C_N	C_{ST}	C_s	C_r	$(N_1)_{corr}$ (for cohesionless behavior)	Estimated Percentage of Fines (%)	$(N1)_{60\text{-}CS}$ (NCEER - used if layer does not liquefy)	$(N1)_{60\text{-}CS}$ (Seed - used if layer liquefies)	Design Effective Stress at Mid depth (psf)	σ_m' (psf)	$(K_2)_{max}$	G_{max} (psf)	r_d	γ_{eff} G_{eff}/G_{max}	τ_{av}/σ_{of}'	Cyclic Shear Strain, γ_{eff} (%)	Volumetric Strain (Dry Sand) ε_c (%)	Volumetric Strain (Saturated Sand) ε_c (%)	$2*\varepsilon_c$ (dry); ε_c (saturtd.)	Settlement of Each Layer (inches)
0			0																									
6	6.0	5.0	660	660	1	6	2	1	1.74	1.00	1.00	0.75	-	80.0	-	-	660	440.0	-	-	0.98	-	-	-	-	-	0.00E+00	0.0000
11	11.0	0.0	1210	1210	2	7	2	1	1.29	0.67	1.00	0.85	-	80.0	-	-	1210	806.7	-	-	0.96	-	1.89E-01	-	-	-	0.00E+00	0.0000
16	16.0	-5.0	1760	1654	1	9	2	2	1.10	1.00	1.00	0.95	9.4	30.0	15.6	11.4	1448	965.3	4.50E+01	1.40E+06	0.95	1.92E-04	2.26E-01	-	-	2.34E+00	2.34E+00	1.4010
21	21.0	-10.0	2310	1892	2	21	2	2	1.03	0.67	1.00	0.95	13.7	30.0	20.5	15.7	1686	1124.0	5.00E+01	1.68E+06	0.93	1.83E-04	2.50E-01	-	-	1.79E+00	1.79E+00	1.0769
26	26.0	-15.0	2860	2130	1	14	2	2	0.97	1.00	1.00	0.95	12.9	30.0	19.6	14.9	1924	1282.7	4.92E+01	1.76E+06	0.91	1.96E-04	2.66E-01	-	-	2.00E+00	2.00E+00	1.2000
31	31.0	-20.0	3410	2368	2	17	2	2	0.92	0.67	1.00	1.00	10.4	30.0	16.7	12.4	2162	1441.3	4.63E+01	1.76E+06	0.89	2.15E-04	2.76E-01	-	-	2.20E+00	2.20E+00	1.3200
36	36.0	-25.0	3960	2606	1	12	2	2	0.88	1.00	1.00	1.00	10.5	30.0	16.8	12.5	2400	1600.0	4.64E+01	1.86E+06	0.86	2.17E-04	2.77E-01	-	-	2.20E+00	2.20E+00	1.3200
41	41.0	-30.0	4510	2844	2	18	2	1	0.84	0.67	1.00	1.00	-	90.0	-	-	2638	1758.7	-	-	0.82	-	2.74E-01	-	-	-	0.00E+00	0.0000
46	46.0	-35.0	5060	3082	1	23	2	2	0.81	1.00	1.00	1.00	18.5	5.0	18.6	18.5	2876	1917.3	5.29E+01	2.32E+06	0.78	1.90E-04	2.69E-01	-	-	1.38E+00	1.38E+00	0.8303
51	51.0	-40.0	5610	3320	2	26	2	1	0.78	0.67	1.00	1.00	-	80.0	-	-	3114	2076.0	-	-	0.74	-	2.62E-01	-	-	-	0.00E+00	0.0000
56	56.0	-45.0	6160	3558	1	50	2	2	0.75	1.00	1.00	1.00	37.5	8.0	38.3	38.3	3352	2234.7	6.74E+01	3.19E+06	0.71	1.46E-04	2.54E-01	-	-	0.00E+00	0.00E+00	0.0000
61	61.0	-50.0	6710	3796	2	29	2	1	0.73	0.67	1.00	1.00	-	80.0	-	-	3590	2393.3	-	-	0.67	-	2.45E-01	-	-	-	0.00E+00	0.0000
66	66.0	-55.0	7260	4034	1	54	2	2	0.70	1.00	1.00	1.00	38.0	5.0	38.1	38.1	3828	2552.0	6.73E+01	3.40E+06	0.63	1.39E-04	2.34E-01	-	-	0.00E+00	0.00E+00	0.0000
71	71.0	-60.0	7810	4272	2	85	2	2	0.68	0.67	1.00	1.00	38.7	5.0	38.8	38.8	4066	2710.7	6.77E+01	3.52E+06	0.60	1.35E-04	2.25E-01	-	-	0.00E+00	0.00E+00	0.0000
76	76.0	-65.0	8360	4510	1	52	2	2	0.67	1.00	1.00	1.00	34.6	5.0	34.7	34.7	4304	2869.3	6.52E+01	3.49E+06	0.58	1.40E-04	2.21E-01	-	-	0.00E+00	0.00E+00	0.0000
81	81.0	-70.0	8910	4748	2	102	2	2	0.65	0.67	1.00	1.00	44.1	5.0	44.1	44.1	4542	3028.0	7.07E+01	3.89E+06	0.56	1.29E-04	2.17E-01	-	-	0.00E+00	5.00E-01	

Total: 7.1483

PRELIMINARY SEISMIC SETTLEMENT CALCULATIONS

East Garden Grove Wintersburg Channel (Warner to Edwards)

03/28/09

FORMULAE:

$(N_1)_{corr} = C_N * C_s * C_E * C_R * N_{field}$ for Cohesionless Behavior Soils

$(N)_{corr} = C_s * C_E * N_{field}$ for Cohesive Behavior Soils

where:

$(N_1)_{corr}$	=	Corrected blow count for 1 tsf, efficiency and sampler
$(N)_{corr}$	=	Corrected blow count for efficiency and sampler
C_N	=	Overburden correction factor (See Reference 1)
C_E	=	Energy correction (Reference 2) = (Efficiency/60%)
C_R	=	Rod Length correction
C_s	=	Sampler correction (Reference 3)

Efficiency =	60%	C_E	1.00
Borehole Diam =	5	C_B	1.00
Unit Weight =	115		

$K_o = (1-\sin(\phi))$

$\sigma_m' = (1+2K_o)/3*\sigma_{of}'$

$(K_2)_{max} = 20*(N_1)^{(1/3)}$

$G_{max} = 1000*(K_2)_{max}*(\sigma_m')^{(1/2)}$

$\gamma_{eff}*G_{eff}/G_{max} = 0.65*(a_{max}/g)*(\sigma_{of}'/G_{max})*r_d$

r_d = 1.0 at the ground surface, (Seed and Iddriss, 1971)

= 0.9 at 30 feet below the ground surface

= 0.6 at 70 feet below the ground surface

= 0.5 at 100 feet below the ground surface

$\tau_{av}/\sigma_{of}' = 0.65*(a_{max}/g)*(\sigma_{of}/\sigma_{of}')*r_d$

γ_{eff} for a given $\gamma_{eff}*G_{eff}/G_{max}$ and σ_m' is read from Figure 11 (Tokimatsu and Seed, 1987)

ε_c for a given γ_{eff} and N_1 is read from Figure 13 (Tokimatsu and Seed, 1987)

CALCULATIONS:

Boring:	**B-08-09**	**Boring Elevation (ft MLLW):**	**12.8**	**EQ Mag =**	**7**
Depth to water (ft bgs): (during drilling)	**12.3**	**Groundwater Elevation (ft MLLW):**	**0.5**	**Mag Scale Factor=**	**1.19**
Depth to water (ft bgs): (design depth)	**12.8**	**Finished Grade Elevn. (ft MLLW):**	**12.8**	**Design Groundwater Elevation (ft MLLW): 0.0**	**a_{max} = 0.36**
				Height of Fill (ftl):	**0.0**

Original Depth (ft bgs)	Final Depth (ft bgs)	Elev (ft msl)	Total Stress at Mid depth (psf)	Original Effective Stress at Mid depth (psf)	Sampler SPT = 1 CDS = 2	Uncorrected Blow Count (N)*	Sampler 1=Unlined 2=Lined	Soil Type (1=fine-grained, 2=coarse-grained)	C_N	C_{ST}	C_s	C_r	$(N_1)_{corr}$ (for cohesionless behavior)	Estimated Percentage of Fines (%)	$(N1)_{60\text{-}CS}$ (NCEER - used if layer does not liquefy)	$(N1)_{60\text{-}CS}$ (Seed - used if layer liquefies)	Design Effective Stress at Mid depth (psf)	σ_m' (psf)	$(K_2)_{max}$	G_{max} (psf)	r_d	γ_{eff} G_{eff}/G_{max}	τ_{av}/σ_{of}'	Cyclic Shear Strain, γ_{eff} (%)	Volumetric Strain (Dry Sand) ε_c (%)	Volumetric Strain (Saturated Sand) ε_c (%)	$2*\varepsilon_c$ (dry); ε_c (saturtd.)	Settlement of Each Layer (inches)
0			0																								
6	6.0	6.8	690	690	1	13	2	2	1.70	1.00	1.00	0.75	16.6	20.0	21.5	-	690	460.0	5.56E+01	1.19E+06	0.98	1.11E-04	-	1.94E-02	1.86E-02	-	3.71E-02	0.0379
11	11.0	1.8	1265	1265	2	28	2	2	1.26	0.67	1.00	0.85	19.9	20.0	25.1	-	1265	843.3	5.86E+01	1.70E+06	0.96	1.41E-04	-	2.50E-02	1.94E-02	-	3.87E-02	0.0232
16	16.0	-3.2	1840	1609	1	6	2	1	1.11	1.00	1.00	0.95	-	80.0	-	-	1640	1093.5	-	-	0.95	-	2.08E-01	-	-	-	0.00E+00	0.0000
21	21.0	-8.2	2415	1872	2	6	2	1	1.03	0.67	1.00	0.95	-	80.0	-	-	1903	1268.9	-	-	0.93	-	2.32E-01	-	-	-	0.00E+00	0.0000
26	26.0	-13.2	2990	2135	1	16	2	2	0.97	1.00	1.00	0.95	14.7	10.0	15.9	15.7	2166	1444.2	5.01E+01	1.90E+06	0.91	2.04E-04	2.47E-01	-	-	1.78E+00	1.78E+00	1.0702
31	31.0	-18.2	3565	2398	2	20	2	1	0.91	0.67	1.00	1.00	-	80.0	-	-	2429	1619.5	-	-	0.89	-	2.57E-01	-	-	-	0.00E+00	0.0000
36	36.0	-23.2	4140	2661	1	3	2	1	0.87	1.00	1.00	1.00	-	80.0	-	-	2692	1794.9	-	-	0.86	-	2.58E-01	-	-	-	0.00E+00	0.0000
41	41.0	-28.2	4715	2924	2	16	2	1	0.83	0.67	1.00	1.00	-	80.0	-	-	2955	1970.2	-	-	0.82	-	2.56E-01	-	-	-	0.00E+00	0.0000
46	46.0	-33.2	5290	3187	1	23	2	1	0.79	1.00	1.00	1.00	-	80.0	-	-	3218	2145.5	-	-	0.78	-	2.52E-01	-	-	-	0.00E+00	0.0000
51	51.0	-38.2	5865	3450	2	106	2	2	0.76	0.67	1.00	1.00	53.7	5.0	53.8	53.8	3481	2320.9	7.55E+01	3.64E+06	0.74	1.39E-04	2.45E-01	-	-	0.00E+00	0.00E+00	0.0000
56	56.0	-43.2	6440	3713	1	20	2	1	0.73	1.00	1.00	1.00	-	80.0	-	-	3744	2496.2	-	-	0.71	-	2.38E-01	-	-	-	0.00E+00	0.0000
61	61.0	-48.2	7015	3976	2	87	2	2	0.71	0.67	1.00	1.00	41.1	12.0	43.9	43.9	4007	2671.5	7.06E+01	3.65E+06	0.67	1.44E-04	2.29E-01	-	-	0.00E+00	0.00E+00	0.0000
66	66.0	-53.2	7590	4239	1	54	2	2	0.69	1.00	1.00	1.00	37.1	5.0	37.1	37.1	4270	2846.9	6.67E+01	3.56E+06	0.63	1.48E-04	2.20E-01	-	-	0.00E+00	0.00E+00	0.0000
71	71.0	-58.2	8165	4502	2	79	2	2	0.67	0.67	1.00	1.00	35.1	5.0	35.1	35.1	4533	3022.2	6.55E+01	3.60E+06	0.60	1.47E-04	2.11E-01	-	-	0.00E+00	0.00E+00	0.0000
76	76.0	-63.2	8740	4765	1	61	2	2	0.65	1.00	1.00	1.00	39.5	5.0	39.6	39.6	4796	3197.5	6.82E+01	3.85E+06	0.58	1.42E-04	2.07E-01	-	-	0.00E+00	0.00E+00	0.0000
81	81.0	-68.2	9315	5028	2	120	2	1	0.63	0.67	1.00	1.00	-	80.0	-	-	5059	3372.9	-	-	0.56	-	2.03E-01	-	-	-	0.00E+00	

Total: 1.1313

PRELIMINARY SEISMIC SETTLEMENT CALCULATIONS

East Garden Grove Wintersburg Channel (Warner to Edwards)

03/28/09

FORMULAE:

$(N_1)_{corr} = C_N * C_s * C_E * C_R * N_{field}$ for Cohesionless Behavior Soils

$(N)_{corr} = C_s * C_E * N_{field}$ for Cohesive Behavior Soils

where:

$(N_1)_{corr}$	=	Corrected blow count for 1 tsf, efficiency and sampler
$(N)_{corr}$	=	Corrected blow count for efficiency and sampler
C_N	=	Overburden correction factor (See Reference 1)
C_E	=	Energy correction (Reference 2) = (Efficiency/60%)
C_R	=	Rod Length correction
C_s	=	Sampler correction (Reference 3)

Efficiency =	60%	C_E	1.00
Borehole Diam =	5	C_B	1.00
Unit Weight =	110		

$K_o = (1-\sin(\phi))$

$\sigma_m' = (1+2K_o)/3*\sigma_{of}'$

$(K_2)_{max} = 20*(N_1)^{(1/3)}$

$G_{max} = 1000*(K_2)_{max}*(\sigma_m')^{(1/2)}$

$\gamma_{eff}*G_{eff}/G_{max} = 0.65*(a_{max}/g)*(\sigma_{of}'/G_{max})*r_d$

r_d = 1.0 at the ground surface, (Seed and Iddriss, 1971)

= 0.9 at 30 feet below the ground surface

= 0.6 at 70 feet below the ground surface

= 0.5 at 100 feet below the ground surface

$\tau_{av}/\sigma_{of}' = 0.65*(a_{max}/g)*(\sigma_{of}/\sigma_{of}')*r_d$

γ_{eff} for a given $\gamma_{eff}*G_{eff}/G_{max}$ and σ_m' is read from Figure 11 (Tokimatsu and Seed, 1987)

ε_c for a given γ_{eff} and N_1 is read from Figure 13 (Tokimatsu and Seed, 1987)

CALCULATIONS:

Boring:	**B-08-10**	**Boring Elevation (ft MLLW):**	**11.0**	**EQ Mag =**	**7**
Depth to water (ft bgs): (during drilling)	**29.0**	**Groundwater Elevation (ft MLLW):**	**-18.0**	**Mag Scale Factor=**	**1.19**
Depth to water (ft bgs): (design depth)	**11.0**	**Finished Grade Elevn. (ft MLLW):**	**11.0**	**Design Groundwater Elevation (ft MLLW): 0.0**	
				a_{max} =	**0.36**
				Height of Fill (ftl):	**0.0**

Original Depth (ft bgs)	Final Depth (ft bgs)	Elev (ft msl)	Total Stress at Mid depth (psf)	Original Effective Stress at Mid depth (psf)	Sampler SPT = 1 CDS = 2	Uncorrected Blow Count (N)*	Sampler 1=Unlined 2=Lined	Soil Type (1=fine-grained, 2=coarse-grained)	C_N	C_{ST}	C_s	C_r	$(N_1)_{corr}$ (for cohesionless behavior)	Estimated Percentage of Fines (%)	$(N1)_{60\text{-}CS}$ (NCEER - used if layer does not liquefy)	$(N1)_{60\text{-}CS}$ (Seed - used if layer liquefies)	Design Effective Stress at Mid depth (psf)	σ_m' (psf)	$(K_2)_{max}$	G_{max} (psf)	r_d	γ_{eff} G_{eff}/G_{max}	τ_{av}/σ_{of}'	Cyclic Shear Strain, γ_{eff} (%)	Volumetric Strain (Dry Sand) ε_c (%)	Volumetric Strain (Saturated Sand) ε_c (%)	$2*\varepsilon_c$ (dry); ε_c (saturtd.)	Settlement of Each Layer (inches)
0			0																									
6	6.0	5.0	660	660	1	17	2	1	1.74	1.00	1.00	0.75	-	60.0	-	-	660	440.0	-	-	0.98	-	-	-	-	-	0.00E+00	0.0000
11	11.0	0.0	1210	1210	2	15	2	1	1.29	0.67	1.00	0.85	-	60.0	-	-	1210	806.7	-	-	0.96	-	1.89E-01	-	-	-	0.00E+00	0.0000
16	16.0	-5.0	1760	1760	1	5	2	1	1.07	1.00	1.00	0.95	-	60.0	-	-	1448	965.3	-	-	0.95	-	2.26E-01	-	-	-	0.00E+00	0.0000
21	21.0	-10.0	2310	2310	2	16	2	1	0.93	0.67	1.00	0.95	-	60.0	-	-	1686	1124.0	-	-	0.93	-	2.50E-01	-	-	-	0.00E+00	0.0000
26	26.0	-15.0	2860	2860	1	15	2	1	0.84	1.00	1.00	0.95	-	60.0	-	-	1924	1282.7	-	-	0.91	-	2.66E-01	-	-	-	0.00E+00	0.0000
31	31.0	-20.0	3410	3285	2	11	2	1	0.78	0.67	1.00	1.00	-	60.0	-	-	2162	1441.3	-	-	0.89	-	2.76E-01	-	-	-	0.00E+00	0.0000
36	36.0	-25.0	3960	3523	1	5	2	1	0.75	1.00	1.00	1.00	-	60.0	-	-	2400	1600.0	-	-	0.86	-	2.77E-01	-	-	-	0.00E+00	0.0000
41	41.0	-30.0	4510	3761	2	71	2	2	0.73	0.67	1.00	1.00	34.5	5.0	34.5	34.5	2638	1758.7	6.51E+01	2.73E+06	0.82	1.55E-04	2.74E-01	-	-	0.00E+00	0.00E+00	0.0000
46	46.0	-35.0	5060	3999	1	17	2	2	0.71	1.00	1.00	1.00	12.0	12.0	14.0	13.0	2876	1917.3	4.71E+01	2.06E+06	0.78	2.14E-04	2.69E-01	-	-	2.10E+00	2.10E+00	1.2600
51	51.0	-40.0	5610	4237	2	150	2	2	0.69	0.67	1.00	1.00	68.6	5.0	68.7	68.7	3114	2076.0	8.19E+01	3.73E+06	0.74	1.22E-04	2.62E-01	-	-	0.00E+00	0.00E+00	0.0000
56	56.0	-45.0	6160	4475	1	5	2	2	0.67	1.00	1.00	1.00	3.3	10.0	4.3	4.3	3352	2234.7	3.26E+01	1.54E+06	0.71	3.01E-04	2.54E-01	-	-	4.42E+00	4.42E+00	2.6520
61	61.0	-50.0	6710	4713	2	150	2	2	0.65	0.67	1.00	1.00	65.1	5.0	65.2	65.2	3590	2393.3	8.05E+01	3.94E+06	0.67	1.19E-04	2.45E-01	-	-	0.00E+00	0.00E+00	0.0000
66	66.0	-55.0	7260	4951	1	59	2	2	0.64	1.00	1.00	1.00	37.5	5.0	37.5	37.5	3828	2552.0	6.70E+01	3.38E+06	0.63	1.40E-04	2.34E-01	-	-	0.00E+00	0.00E+00	0.0000
71	71.0	-60.0	7810	5189	2	67	2	2	0.62	0.67	1.00	1.00	27.7	5.0	27.7	27.7	4066	2710.7	6.05E+01	3.15E+06	0.60	1.51E-04	2.25E-01	-	-	0.00E+00	0.00E+00	0.0000
76	76.0	-65.0	8360	5427	1	60	2	2	0.61	1.00	1.00	1.00	36.4	12.0	39.1	39.1	4304	2869.3	6.79E+01	3.64E+06	0.58	1.35E-04	2.21E-01	-	-	0.00E+00	0.00E+00	0.0000
81	81.0	-70.0	8910	5665	2	150	2	2	0.59	0.67	1.00	1.00	59.4	10.0	61.5	61.5	4542	3028.0	7.89E+01	4.34E+06	0.56	1.16E-04	2.17E-01	-	-	0.00E+00	0.00E+00	

Total: 3.9120

PRELIMINARY SEISMIC SETTLEMENT CALCULATIONS

East Garden Grove Wintersburg Channel (Warner to Edwards)

03/28/09

FORMULAE:

$(N_1)_{corr} = C_N * C_s * C_E * C_R * N_{field}$ for Cohesionless Behavior Soils

$(N)_{corr} = C_s * C_E * N_{field}$ for Cohesive Behavior Soils

where:

$(N_1)_{corr}$	=	Corrected blow count for 1 tsf, efficiency and sampler
$(N)_{corr}$	=	Corrected blow count for efficiency and sampler
C_N	=	Overburden correction factor (See Reference 1)
C_E	=	Energy correction (Reference 2) = (Efficiency/60%)
C_R	=	Rod Length correction
C_s	=	Sampler correction (Reference 3)

Efficiency =	60%	C_E	1.00
Borehole Diam =	5	C_B	1.00
Unit Weight =	115		

$K_o = (1-\sin(\phi))$

$\sigma_m' = (1+2K_o)/3*\sigma_{of}'$

$(K_2)_{max} = 20*(N_1)^{(1/3)}$

$G_{max} = 1000*(K_2)_{max}*(\sigma_m')^{(1/2)}$

$\gamma_{eff}*G_{eff}/G_{max} = 0.65*(a_{max}/g)*(\sigma_{of}'/G_{max})*r_d$

r_d = 1.0 at the ground surface, (Seed and Iddriss, 1971)

= 0.9 at 30 feet below the ground surface

= 0.6 at 70 feet below the ground surface

= 0.5 at 100 feet below the ground surface

$\tau_{av}/\sigma_{of}' = 0.65*(a_{max}/g)*(\sigma_{of}/\sigma_{of}')*r_d$

γ_{eff} for a given $\gamma_{eff}*G_{eff}/G_{max}$ and σ_m' is read from Figure 11 (Tokimatsu and Seed, 1987)

ε_c for a given γ_{eff} and N_1 is read from Figure 13 (Tokimatsu and Seed, 1987)

CALCULATIONS:

Boring:	**B-08-11**	**Boring Elevation (ft MLLW):**	**11.9**	**EQ Mag =**	**7**
Depth to water (ft bgs): (during drilling)	**16.0**	**Groundwater Elevation (ft MLLW):**	**-4.1**	**Mag Scale Factor=**	**1.19**
Depth to water (ft bgs): (design depth)	**11.9**	**Finished Grade Elevn. (ft MLLW):**	**11.9**	**Design Groundwater Elevation (ft MLLW): 0.0**	**a_{max} = 0.36**
				Height of Fill (ftl):	**0.0**

Original Depth (ft bgs)	Final Depth (ft bgs)	Elev (ft msl)	Total Stress at Mid depth (psf)	Original Effective Stress at Mid depth (psf)	Sampler SPT = 1 CDS = 2	Uncorrected Blow Count (N)*	Sampler 1=Unlined 2=Lined	Soil Type (1=fine-grained, 2=coarse-grained)	C_N	C_{ST}	C_s	C_r	$(N_1)_{corr}$ (for cohesionless behavior)	Estimated Percentage of Fines (%)	$(N1)_{60\text{-}CS}$ (NCEER - used if layer does not liquefy)	$(N1)_{60\text{-}CS}$ (Seed - used if layer liquefies)	Design Effective Stress at Mid depth (psf)	σ_m' (psf)	$(K_2)_{max}$	G_{max} (psf)	r_d	γ_{eff} G_{eff}/G_{max}	τ_{av}/σ_{of}'	Cyclic Shear Strain, γ_{eff} (%)	Volumetric Strain (Dry Sand) ε_c (%)	Volumetric Strain (Saturated Sand) ε_c (%)	$2*\varepsilon_c$ (dry); ε_c (saturtd.)	Settlement of Each Layer (inches)
0			0																								
6	6.0	5.9	690	690	1	23	2	1	1.70	1.00	1.00	0.75	-	55.0	-	-	690	460.0	-	-	0.98	-	-	-	-	-	0.00E+00	0.0000
11	11.0	0.9	1265	1265	2	20	2	1	1.26	0.67	1.00	0.85	-	55.0	-	-	1265	843.3	-	-	0.96	-	-	-	-	-	0.00E+00	0.0000
16	16.0	-4.1	1840	1840	1	15	2	2	1.04	1.00	1.00	0.95	14.9	20.0	19.7	15.9	1584	1056.1	5.02E+01	1.63E+06	0.95	1.80E-04	2.16E-01	-	-	1.66E+00	1.66E+00	0.9973
21	21.0	-9.1	2415	2103	2	6	2	1	0.98	0.67	1.00	0.95	-	70.0	-	-	1847	1231.4	-	-	0.93	-	2.39E-01	-	-	-	0.00E+00	0.0000
26	26.0	-14.1	2990	2366	1	9	2	1	0.92	1.00	1.00	0.95	-	70.0	-	-	2110	1406.8	-	-	0.91	-	2.54E-01	-	-	-	0.00E+00	0.0000
31	31.0	-19.1	3565	2629	2	25	2	2	0.87	0.67	1.00	1.00	14.5	20.0	19.3	15.5	2373	1582.1	4.99E+01	1.98E+06	0.89	2.09E-04	2.63E-01	-	-	1.81E+00	1.81E+00	1.0833
36	36.0	-24.1	4140	2892	1	11	2	1	0.83	1.00	1.00	1.00	-	70.0	-	-	2636	1757.4	-	-	0.86	-	2.63E-01	-	-	-	0.00E+00	0.0000
41	41.0	-29.1	4715	3155	2	69	2	2	0.80	0.67	1.00	1.00	36.6	10.0	38.2	38.2	2899	1932.8	6.74E+01	2.96E+06	0.82	1.57E-04	2.61E-01	-	-	0.00E+00	0.00E+00	0.0000
46	46.0	-34.1	5290	3418	1	15	2	1	0.76	1.00	1.00	1.00	-	70.0	-	-	3162	2108.1	-	-	0.78	-	2.56E-01	-	-	-	0.00E+00	0.0000
51	51.0	-39.1	5865	3681	2	28	2	1	0.74	0.67	1.00	1.00	-	70.0	-	-	3425	2283.4	-	-	0.74	-	2.49E-01	-	-	-	0.00E+00	0.0000
56	56.0	-44.1	6440	3944	1	15	2	1	0.71	1.00	1.00	1.00	-	70.0	-	-	3688	2458.8	-	-	0.71	-	2.42E-01	-	-	-	0.00E+00	0.0000
61	61.0	-49.1	7015	4207	2	93	2	2	0.69	0.67	1.00	1.00	42.7	7.0	43.2	43.2	3951	2634.1	7.02E+01	3.60E+06	0.67	1.44E-04	2.32E-01	-	-	0.00E+00	0.00E+00	0.0000
66	66.0	-54.1	7590	4470	1	52	2	2	0.67	1.00	1.00	1.00	34.8	7.0	35.2	35.2	4214	2809.4	6.55E+01	3.47E+06	0.63	1.50E-04	2.23E-01	-	-	0.00E+00	0.00E+00	0.0000
71	71.0	-59.1	8165	4733	2	76	2	2	0.65	0.67	1.00	1.00	32.9	7.0	33.3	33.3	4477	2984.8	6.43E+01	3.52E+06	0.60	1.49E-04	2.13E-01	-	-	0.00E+00	0.00E+00	0.0000
76	76.0	-64.1	8740	4996	1	52	2	2	0.63	1.00	1.00	1.00	32.9	7.0	33.3	33.3	4740	3160.1	6.43E+01	3.62E+06	0.58	1.49E-04	2.10E-01	-	-	0.00E+00	0.00E+00	0.0000
81	81.0	-69.1	9315	5259	2	81	2	2	0.62	0.67	1.00	1.00	33.3	7.0	33.7	33.7	5003	3335.4	6.46E+01	3.73E+06	0.56	1.48E-04	2.06E-01	-	-	0.00E+00	0.00E+00	

Total: 2.0805

PRELIMINARY SEISMIC SETTLEMENT CALCULATIONS

East Garden Grove Wintersburg Channel (Warner to Edwards)

03/28/09

FORMULAE:

$(N_1)_{corr} = C_N * C_s * C_E * C_R * N_{field}$ for Cohesionless Behavior Soils

$(N)_{corr} = C_s * C_E * N_{field}$ for Cohesive Behavior Soils

where:

$(N_1)_{corr}$	=	Corrected blow count for 1 tsf, efficiency and sampler
$(N)_{corr}$	=	Corrected blow count for efficiency and sampler
C_N	=	Overburden correction factor (See Reference 1)
C_E	=	Energy correction (Reference 2) = (Efficiency/60%)
C_R	=	Rod Length correction
C_s	=	Sampler correction (Reference 3)

Efficiency =	60%	C_E	1.00
Borehole Diam =	5	C_B	1.00
Unit Weight =	110		

$K_o = (1-\sin(\phi))$

$\sigma_m' = (1+2K_o)/3*\sigma_{of}'$

$(K_2)_{max} = 20*(N_1)^{(1/3)}$

$G_{max} = 1000*(K_2)_{max}*(\sigma_m')^{(1/2)}$

$\gamma_{eff}*G_{eff}/G_{max} = 0.65*(a_{max}/g)*(\sigma_{of}'/G_{max})*r_d$

r_d = 1.0 at the ground surface, (Seed and Iddriss, 1971)

= 0.9 at 30 feet below the ground surface

= 0.6 at 70 feet below the ground surface

= 0.5 at 100 feet below the ground surface

$\tau_{av}/\sigma_{of}' = 0.65*(a_{max}/g)*(\sigma_{of}/\sigma_{of}')*r_d$

γ_{eff} for a given $\gamma_{eff}*G_{eff}/G_{max}$ and σ_m' is read from Figure 11 (Tokimatsu and Seed, 1987)

ε_c for a given γ_{eff} and N_1 is read from Figure 13 (Tokimatsu and Seed, 1987)

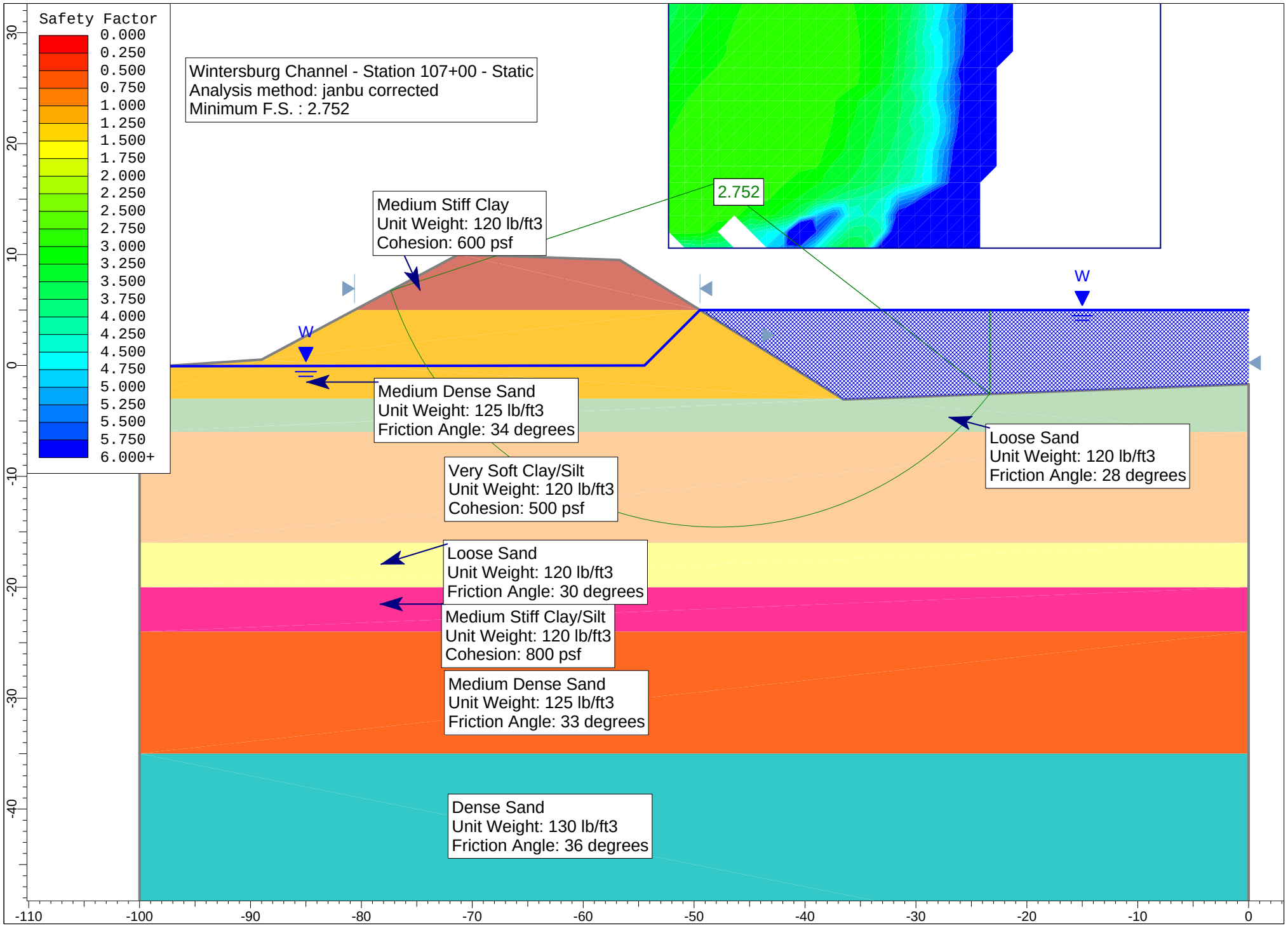
CALCULATIONS:

Boring:	**B-08-12**	**Boring Elevation (ft MLLW):**	**11.9**	**EQ Mag =**	**7**
Depth to water (ft bgs): (during drilling)	**15.3**	**Groundwater Elevation (ft MLLW):**	**-3.4**	**Mag Scale Factor=**	**1.19**
Depth to water (ft bgs): (design depth)	**11.9**	**Finished Grade Elevn. (ft MLLW):**	**11.9**	**Design Groundwater Elevation (ft MLLW): 0.0**	
				a_{max} =	**0.36**
				Height of Fill (ftl):	**0.0**

Original Depth (ft bgs)	Final Depth (ft bgs)	Elev (ft msl)	Total Stress at Mid depth (psf)	Original Effective Stress at Mid depth (psf)	Sampler SPT = 1 CDS = 2	Uncorrected Blow Count (N)*	Sampler 1=Unlined 2=Lined	Soil Type (1=fine-grained, 2=coarse-grained)	C_N	C_{ST}	C_s	C_r	$(N_1)_{corr}$ (for cohesionless behavior)	Estimated Percentage of Fines (%)	$(N1)_{60\text{-}CS}$ (NCEER - used if layer does not liquefy)	$(N1)_{60\text{-}CS}$ (Seed - used if layer liquefies)	Design Effective Stress at Mid depth (psf)	σ_m' (psf)	$(K_2)_{max}$	G_{max} (psf)	r_d	γ_{eff} G_{eff}/G_{max}	τ_{av}/σ_{of}'	Cyclic Shear Strain, γ_{eff} (%)	Volumetric Strain (Dry Sand) ε_c (%)	Volumetric Strain (Saturated Sand) ε_c (%)	$2*\varepsilon_c$ (dry); ε_c (saturtd.)	Settlement of Each Layer (inches)
0			0																								
6	6.0	5.9	660	660	1	23	2	2	1.74	1.00	1.00	0.75	30.0	20.0	36.0	-	660	440.0	6.61E+01	1.39E+06	0.98	9.16E-05	-	1.42E-02	5.68E-03	-	1.14E-02	0.0116
11	11.0	0.9	1210	1210	2	20	2	1	1.29	0.67	1.00	0.85	-	60.0	-	-	1210	806.7	-	-	0.96	-	-	-	-	-	0.00E+00	0.0000
16	16.0	-4.1	1760	1716	1	15	2	2	1.08	1.00	1.00	0.95	15.4	20.0	20.2	16.4	1504	1002.8	5.08E+01	1.61E+06	0.95	1.74E-04	2.17E-01	-	-	1.36E+00	5.00E-01	0.3000
21	21.0	-9.1	2310	1954	2	6	2	1	1.01	0.67	1.00	0.95	-	80.0	-	-	1742	1161.4	-	-	0.93	-	2.42E-01	-	-	-	0.00E+00	0.0000
26	26.0	-14.1	2860	2192	1	9	2	1	0.96	1.00	1.00	0.95	-	80.0	-	-	1980	1320.1	-	-	0.91	-	2.59E-01	-	-	-	0.00E+00	0.0000
31	31.0	-19.1	3410	2430	2	25	2	1	0.91	0.67	1.00	1.00	-	80.0	-	-	2218	1478.8	-	-	0.89	-	2.69E-01	-	-	-	0.00E+00	0.0000
36	36.0	-24.1	3960	2668	1	11	2	1	0.87	1.00	1.00	1.00	-	80.0	-	-	2456	1637.4	-	-	0.86	-	2.70E-01	-	-	-	0.00E+00	0.0000
41	41.0	-29.1	4510	2906	2	69	2	1	0.83	0.67	1.00	1.00	-	70.0	-	-	2694	1796.1	-	-	0.82	-	2.68E-01	-	-	-	0.00E+00	0.0000
46	46.0	-34.1	5060	3144	1	15	2	1	0.80	1.00	1.00	1.00	-	70.0	-	-	2932	1954.8	-	-	0.78	-	2.64E-01	-	-	-	0.00E+00	0.0000
51	51.0	-39.1	5610	3382	2	28	2	2	0.77	0.67	1.00	1.00	14.3	20.0	19.1	15.3	3170	2113.4	4.97E+01	2.28E+06	0.74	2.02E-04	2.58E-01	-	-	1.80E+00	1.80E+00	1.0807
56	56.0	-44.1	6160	3620	1	15	2	2	0.74	1.00	1.00	1.00	11.1	10.0	12.3	12.1	3408	2272.1	4.60E+01	2.19E+06	0.71	2.15E-04	2.50E-01	-	-	2.20E+00	2.20E+00	1.3200
61	61.0	-49.1	6710	3858	2	93	2	2	0.72	0.67	1.00	1.00	44.6	20.0	51.8	51.8	3646	2430.8	7.45E+01	3.67E+06	0.67	1.30E-04	2.41E-01	-	-	0.00E+00	0.00E+00	0.0000
66	66.0	-54.1	7260	4096	1	52	2	2	0.70	1.00	1.00	1.00	36.3	20.0	42.8	42.8	3884	2589.4	7.00E+01	3.56E+06	0.63	1.35E-04	2.31E-01	-	-	0.00E+00	0.00E+00	0.0000
71	71.0	-59.1	7810	4334	2	76	2	2	0.68	0.67	1.00	1.00	34.4	5.0	34.4	34.4	4122	2748.1	6.51E+01	3.41E+06	0.60	1.41E-04	2.22E-01	-	-	0.00E+00	0.00E+00	0.0000
76	76.0	-64.1	8360	4572	1	52	2	2	0.66	1.00	1.00	1.00	34.4	5.0	34.4	34.4	4360	2906.8	6.51E+01	3.51E+06	0.58	1.41E-04	2.18E-01	-	-	0.00E+00	0.00E+00	0.0000
81	81.0	-69.1	8910	4810	2	81	2	2	0.64	0.67	1.00	1.00	34.8	12.0	37.4	37.4	4598	3065.4	6.69E+01	3.70E+06	0.56	1.37E-04	2.14E-01	-	-	0.00E+00	0.00E+00	

Total: 2.7123

APPENDIX E. SLOPE STABILITY CALCULATIONS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3.250
3.500
3.750
4.000
4.250
4.500
4.750
5.000
5.250
5.500
5.750
6.000+
Wintersburg Channel - Station 107+00 - Static
Analysis method: janbu corrected
Minimum F.S. : 2.752
2.752
Medium Stiff Clay
Unit Weight: 120 lb/ft3
Cohesion: 600 psf
W
W
Medium Dense Sand
Unit Weight: 125 lb/ft3
Friction Angle: 34 degrees
Loose Sand
Unit Weight: 120 lb/ft3
Friction Angle: 28 degrees
Very Soft Clay/Silt
Unit Weight: 120 lb/ft3
Cohesion: 500 psf
Loose Sand
Unit Weight: 120 lb/ft3
Friction Angle: 30 degrees
Medium Stiff Clay/Silt
Unit Weight: 120 lb/ft3
Cohesion: 800 psf
Medium Dense Sand
Unit Weight: 125 lb/ft3
Friction Angle: 33 degrees
Dense Sand
Unit Weight: 130 lb/ft3
Friction Angle: 36 degrees
30
20
10
0
-10
-20
-30
-40
-110
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-60
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-30
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-10
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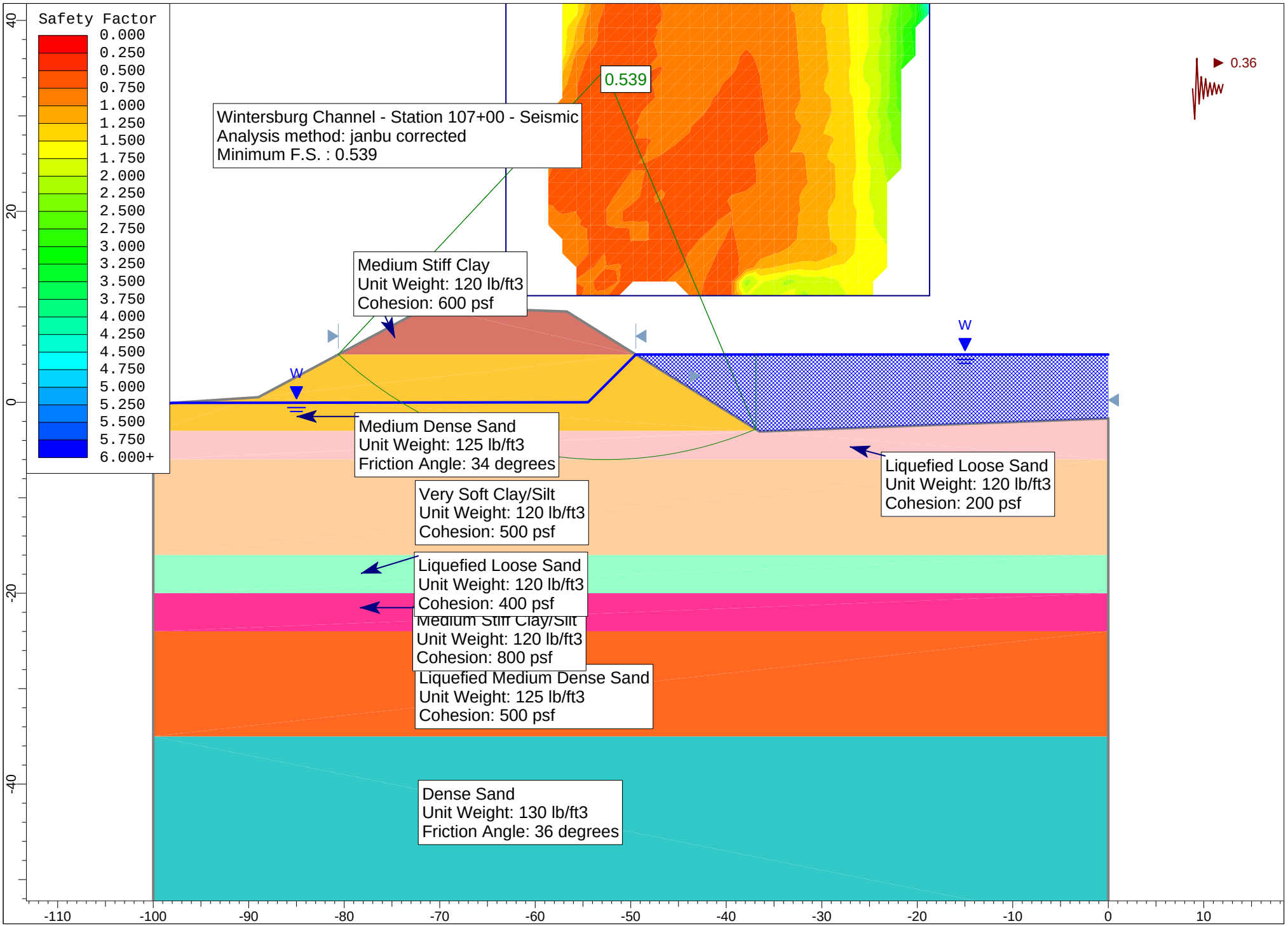
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1.250
1.500
1.750
2.000
2.250
2.500
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3.000
3.250
3.500
3.750
4.000
4.250
4.500
4.750
5.000
5.250
5.500
5.750
6.000+
0.539
Wintersburg Channel - Station 107+00 - Seismic
Analysis method: janbu corrected
Minimum F.S. : 0.539
0.36
Medium Stiff Clay
Unit Weight: 120 lb/ft3
Cohesion: 600 psf
W
W
Medium Dense Sand
Unit Weight: 125 lb/ft3
Friction Angle: 34 degrees
Liquefied Loose Sand
Unit Weight: 120 lb/ft3
Cohesion: 200 psf
Very Soft Clay/Silt
Unit Weight: 120 lb/ft3
Cohesion: 500 psf
Liquefied Loose Sand
Unit Weight: 120 lb/ft3
Cohesion: 400 psf
Medium Stiff Clay/Silt
Unit Weight: 120 lb/ft3
Cohesion: 800 psf
Liquefied Medium Dense Sand
Unit Weight: 125 lb/ft3
Cohesion: 500 psf
Dense Sand
Unit Weight: 130 lb/ft3
Friction Angle: 36 degrees
40
20
0
-20
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-70
-60
-50
-40
-30
-20
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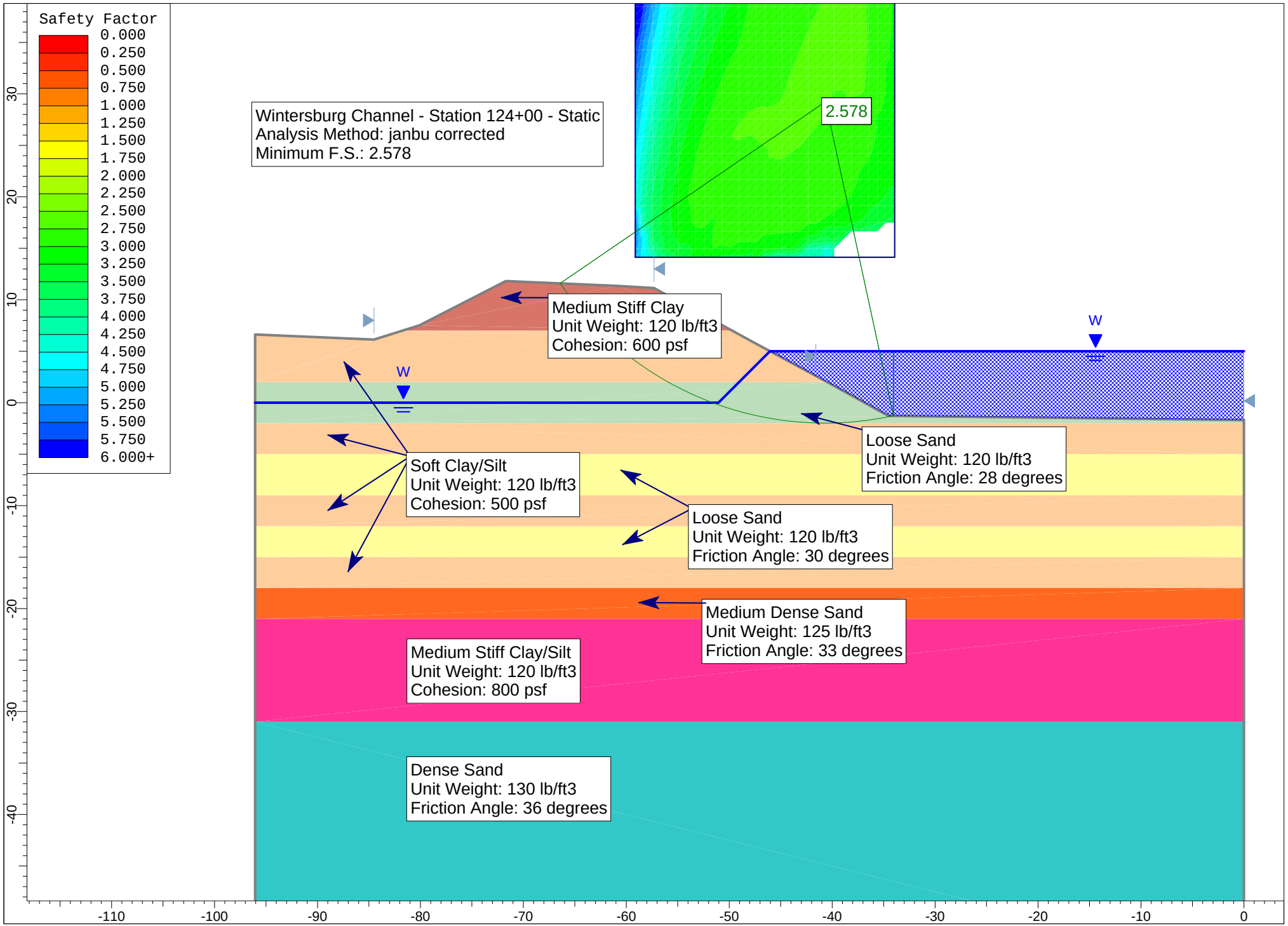
0
10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1.750
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2.250
2.500
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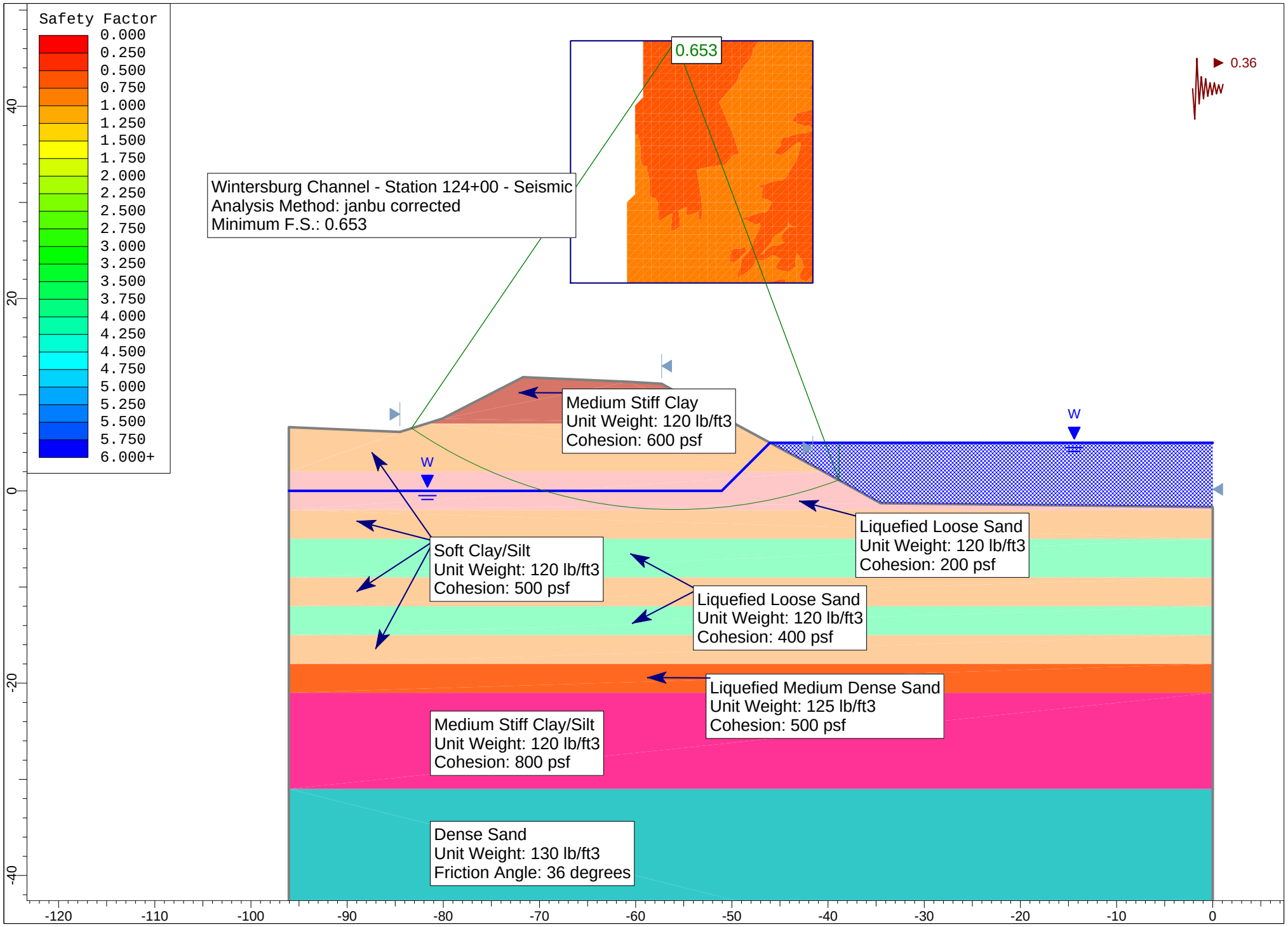
3.000
3.250
3.500
3.750
4.000
4.250
4.500
4.750
5.000
5.250
5.500
5.750
6.000+
Wintersburg Channel - Station 124+00 - Static
Analysis Method: janbu corrected
Minimum F.S.: 2.578
2.578
Medium Stiff Clay
Unit Weight: 120 lb/ft3
Cohesion: 600 psf
W
W
Soft Clay/Silt
Unit Weight: 120 lb/ft3
Cohesion: 500 psf
Loose Sand
Unit Weight: 120 lb/ft3
Friction Angle: 28 degrees
Loose Sand
Unit Weight: 120 lb/ft3
Friction Angle: 30 degrees
Medium Dense Sand
Unit Weight: 125 lb/ft3
Friction Angle: 33 degrees
Medium Stiff Clay/Silt
Unit Weight: 120 lb/ft3
Cohesion: 800 psf
Dense Sand
Unit Weight: 130 lb/ft3
Friction Angle: 36 degrees
30
20
10
0
-10
-20
-30
-40
-110
-100
-90
-80
-70
-60
-50
-40
-30
-20
-10
0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1.500
1.750
2.000
2.250
2.500
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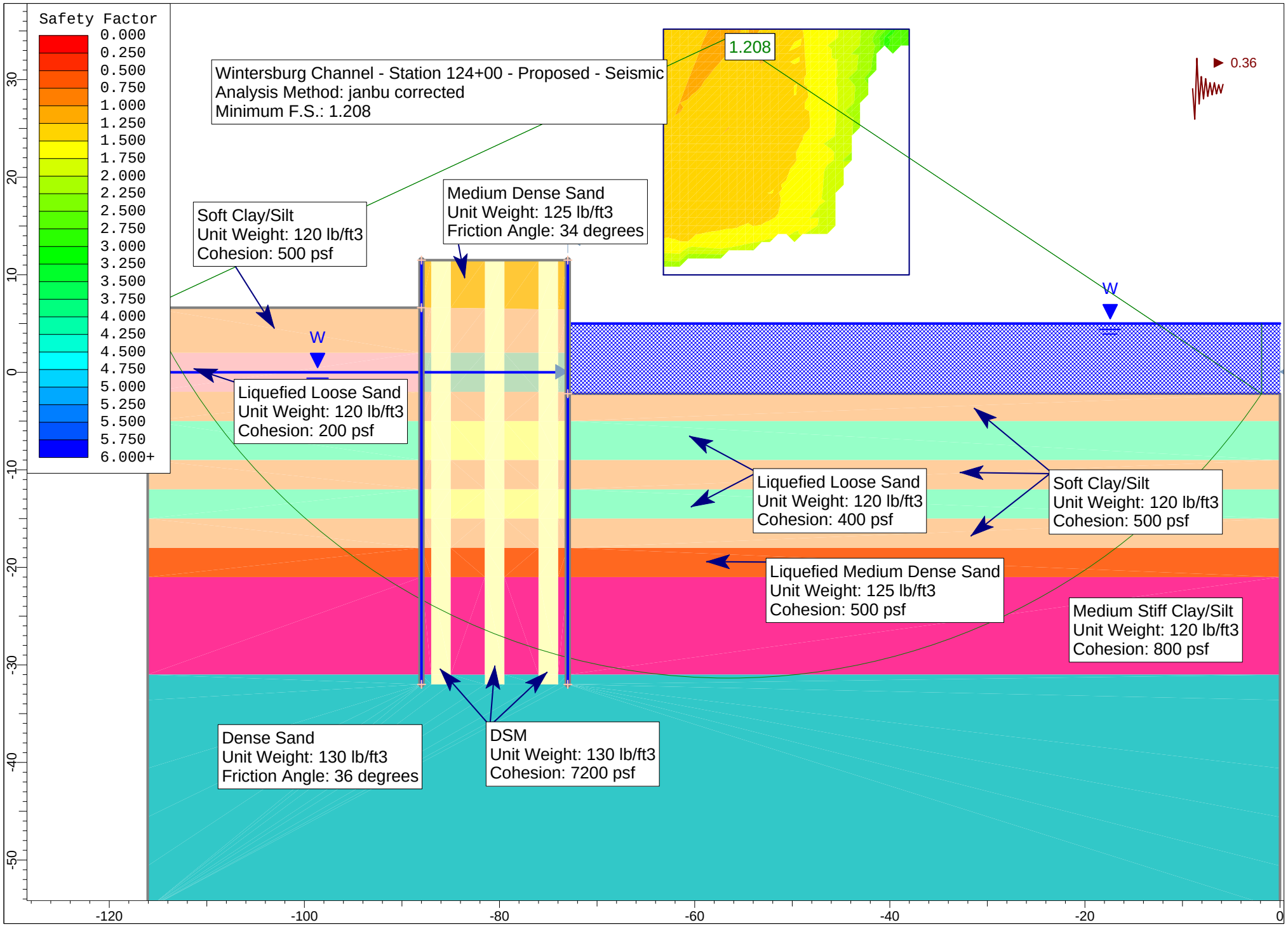
3.250
3.500
3.750
4.000
4.250
4.500
4.750
5.000
5.250
5.500
5.750
6.000+
0.653
0.36
Wintersburg Channel - Station 124+00 - Seismic
Analysis Method: janbu corrected
Minimum F.S.: 0.653
Medium Stiff Clay
Unit Weight: 120 lb/ft3
Cohesion: 600 psf
W
W
Liquefied Loose Sand
Unit Weight: 120 lb/ft3
Cohesion: 200 psf
Soft Clay/Silt
Unit Weight: 120 lb/ft3
Cohesion: 500 psf
Liquefied Loose Sand
Unit Weight: 120 lb/ft3
Cohesion: 400 psf
Liquefied Medium Dense Sand
Unit Weight: 125 lb/ft3
Cohesion: 500 psf
Medium Stiff Clay/Silt
Unit Weight: 120 lb/ft3
Cohesion: 800 psf
Dense Sand
Unit Weight: 130 lb/ft3
Friction Angle: 36 degrees
40
20
0
-20
-40
-120
-110
-100
-90
-80
-70
-60
-50
-40
-30
-20
-10
0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2.000
2.250
2.500
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3.000
3.250
3.500
3.750
4.000
4.250
4.500
4.750
5.000
5.250
5.500
5.750
6.000+
Wintersburg Channel - Station 124+00 - Proposed - Seismic
Analysis Method: janbu corrected
Minimum F.S.: 1.208
1.208
0.36
Soft Clay/Silt
Unit Weight: 120 lb/ft3
Cohesion: 500 psf
Medium Dense Sand
Unit Weight: 125 lb/ft3
Friction Angle: 34 degrees
W
W
Liquefied Loose Sand
Unit Weight: 120 lb/ft3
Cohesion: 200 psf
Liquefied Loose Sand
Unit Weight: 120 lb/ft3
Cohesion: 400 psf
Soft Clay/Silt
Unit Weight: 120 lb/ft3
Cohesion: 500 psf
Liquefied Medium Dense Sand
Unit Weight: 125 lb/ft3
Cohesion: 500 psf
Medium Stiff Clay/Silt
Unit Weight: 120 lb/ft3
Cohesion: 800 psf
Dense Sand
Unit Weight: 130 lb/ft3
Friction Angle: 36 degrees
DSM
Unit Weight: 130 lb/ft3
Cohesion: 7200 psf
30
20
10
0
-10
-20
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-40
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-100
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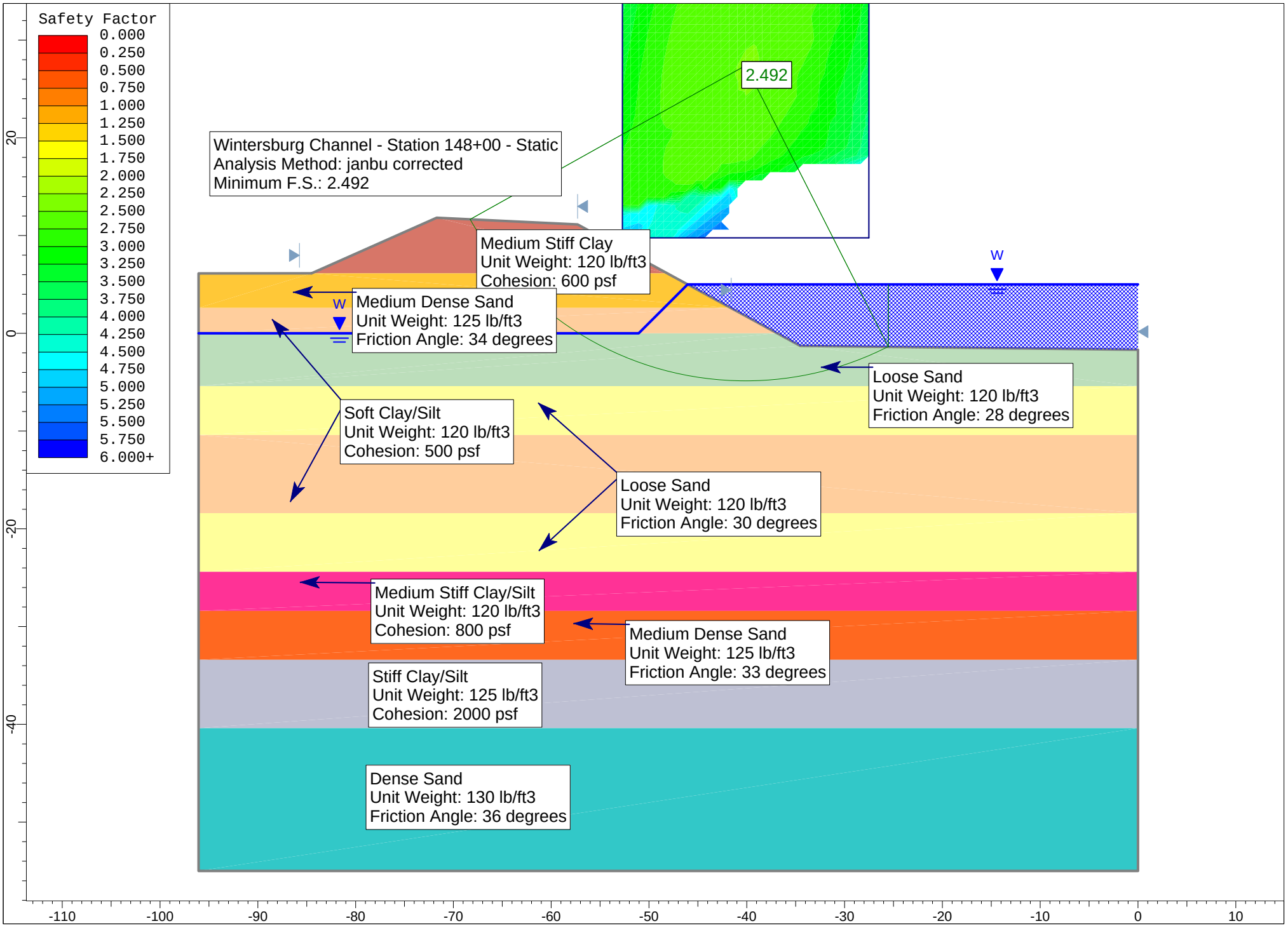
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2.250
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3.250
3.500
3.750
4.000
4.250
4.500
4.750
5.000
5.250
5.500
5.750
6.000+
2.492
Wintersburg Channel - Station 148+00 - Static
Analysis Method: janbu corrected
Minimum F.S.: 2.492
Medium Stiff Clay
Unit Weight: 120 lb/ft3
Cohesion: 600 psf
Medium Dense Sand
Unit Weight: 125 lb/ft3
Friction Angle: 34 degrees
Loose Sand
Unit Weight: 120 lb/ft3
Friction Angle: 28 degrees
Soft Clay/Silt
Unit Weight: 120 lb/ft3
Cohesion: 500 psf
Loose Sand
Unit Weight: 120 lb/ft3
Friction Angle: 30 degrees
Medium Stiff Clay/Silt
Unit Weight: 120 lb/ft3
Cohesion: 800 psf
Medium Dense Sand
Unit Weight: 125 lb/ft3
Friction Angle: 33 degrees
Stiff Clay/Silt
Unit Weight: 125 lb/ft3
Cohesion: 2000 psf
Dense Sand
Unit Weight: 130 lb/ft3
Friction Angle: 36 degrees
W
W
20
0
-20
-40
-110
-100
-90
-80
-70
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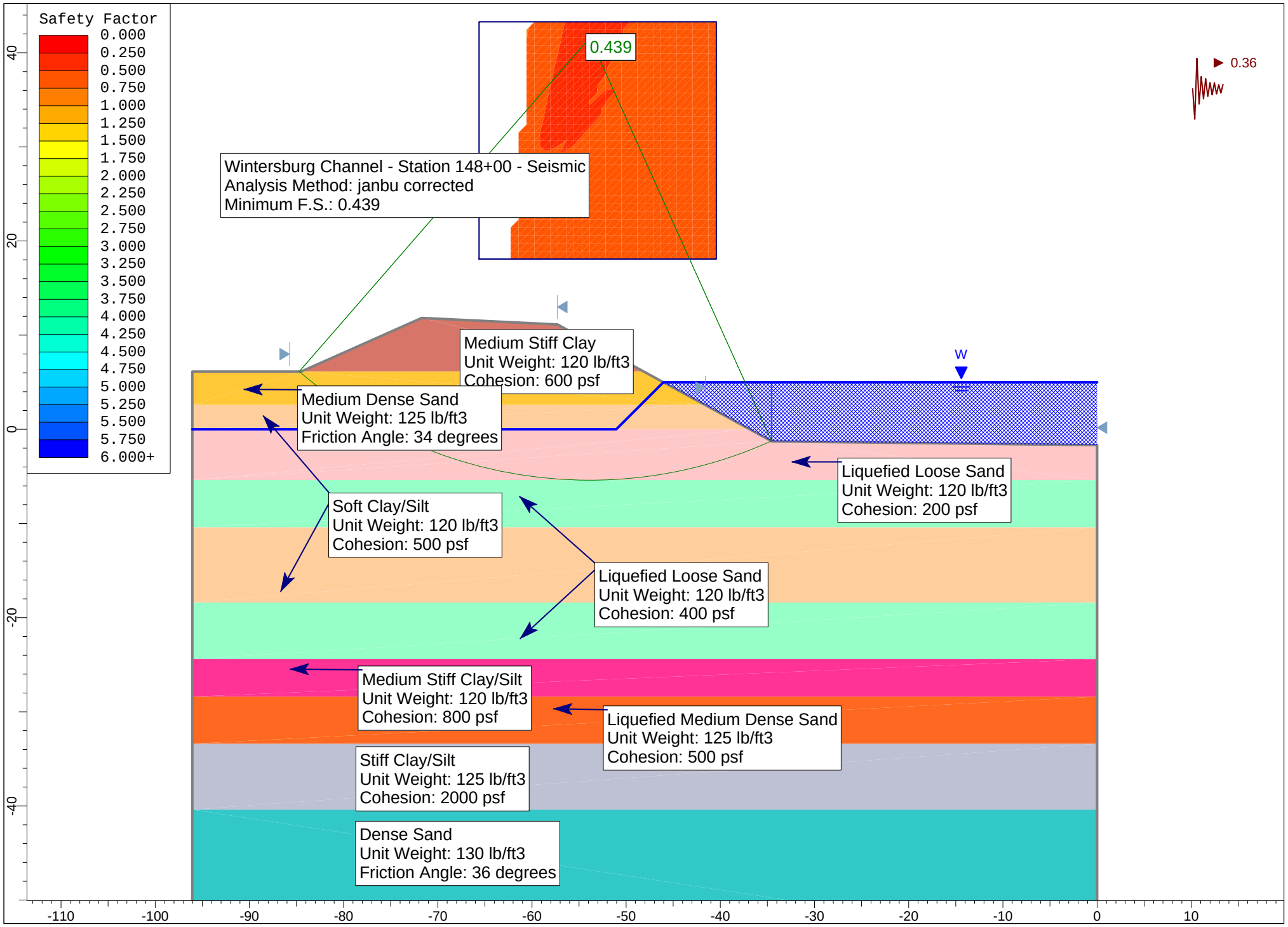
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2.250
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3.000
3.250
3.500
3.750
4.000
4.250
4.500
4.750
5.000
5.250
5.500
5.750
6.000+
0.439
0.36
Wintersburg Channel - Station 148+00 - Seismic
Analysis Method: janbu corrected
Minimum F.S.: 0.439
Medium Stiff Clay
Unit Weight: 120 lb/ft3
Cohesion: 600 psf
Medium Dense Sand
Unit Weight: 125 lb/ft3
Friction Angle: 34 degrees
W
Liquefied Loose Sand
Unit Weight: 120 lb/ft3
Cohesion: 200 psf
Soft Clay/Silt
Unit Weight: 120 lb/ft3
Cohesion: 500 psf
Liquefied Loose Sand
Unit Weight: 120 lb/ft3
Cohesion: 400 psf
Medium Stiff Clay/Silt
Unit Weight: 120 lb/ft3
Cohesion: 800 psf
Liquefied Medium Dense Sand
Unit Weight: 125 lb/ft3
Cohesion: 500 psf
Stiff Clay/Silt
Unit Weight: 125 lb/ft3
Cohesion: 2000 psf
Dense Sand
Unit Weight: 130 lb/ft3
Friction Angle: 36 degrees
40
20
0
-20
-40
-110
-100
-90
-80
-70
-60
-50
-40
-30
-20
-10
0
10

Appendix E

Native American Tribal Cultural Sources Consultation Correspondence

OC Public Works
Integrity, Accountability, Service, Trust
Shane L. Silsby, Director

December 19, 2017

Mr. Andrew Salas,Chairman
Gabrieleño Band of Mission Indians – Kizh Nation
P.O. Box 393
Covina, CA 91723

VIA CERTIFIED MAIL

RE: AB 52 Consultation for the East Garden Grove Wintersburg Channel Improvement Project

Dear Mr. Salas:

Orange County Public Works, OC Development Services/Planning provides this notice pursuant to the provisions of Assembly Bill 52 and Section 21080.3.1(d) of the Public Resources Code, requiring formal notification of projects in the geographic area that is traditionally and culturally affiliated with your tribe (see description below and attached maps). The proposed project is subject to the California Environmental Quality Act and OC Development Services will prepare an environmental document. Pursuant to Public Resources Code Section 21080.3.1, California Native American tribes have 30 days from receipt of this notification to request consultation with OC Development Services regarding possible significant effects that implementation of a proposed project may have on tribal cultural resources.

OC Public Works, Projects and Regulatory Permits Unit, proposes facilitating improvements to the C05 facility to correct erosion issues and provide additional protection from flooding. Project construction would consist of inserting two parallel sheet pile walls on both sides of the northern maintenance road and both sides of the southern maintenance road. One row of sheet piles would be inserted at the hinge point between the maintenance road and the existing top-of-channel slope and the second row would be driven 15 feet farther from the channel and parallel to the first row. The second row of sheet piles would be almost half way down the levee backslope. All four rows of sheet piles (two rows on each side of the channel) would be located outside of Waters of the U.S. and Waters of the State of California. Soil excavation between the parallel sheet pile walls to allow for the volume of cement that would be added to the soil. Total export of soil from the project site is estimated to be approximately 60,000 cubic yards. A 15-foot-wide asphalt maintenance road would be constructed on each side of the channel; however, similar to the existing condition, the maintenance roads would not be open to the public.

The proposed project is located between the upstream side of the Warner Avenue bridge and approximately 1,250 linear feet downstream of Goldenwest Street in the City of Huntington Beach, California, within the right-of-way for facility C05. Improvements would take place on a portion of the channel system known as Reach 1. A “reach” is a tributary that branches off from the larger body of water (i.e., a stream or river channel). Reach 1 consists of a 70-foot-wide soft-bottom trapezoidal section with a levee condition and 2:1 earthen side slopes and portions of the downstream reach lined

with riprap. The height of the side slopes varies from 12 feet to 15 feet. Reach 1 begins approximately 4,200 feet upstream of the Bolsa Chica tide gates, continues 14,600 feet upstream, and ends at the eastern border of the proposed project, 1,250 linear feet downstream of Goldenwest Street.

Please contact Kevin Shannon via email at Kevin.Shannon@ocpw.ocgov.com or by phone at 714.667.1632 to request consultation. Written responses can be submitted to the address below.

Sincerely,

Brian Kurnow
Land Use Manager
OC Development Services/Planning
300 N. Flower Street
Santa Ana, CA 927702-4048

Exhibits: Regional Location map
Site Location Map

K:\Projects_1\OCPW\00636_17_EastGardenGrove_Wintersburg_Improvements\Figures\Fig01_ProjectLocation.mxd Date: 11/15/2017 19316

Figure 2-1
Regional Location
East Garden Grove-Wintersburg Channel, Warner to 1,250 Feet Downstream of Goldenwest Sheet Pile Project

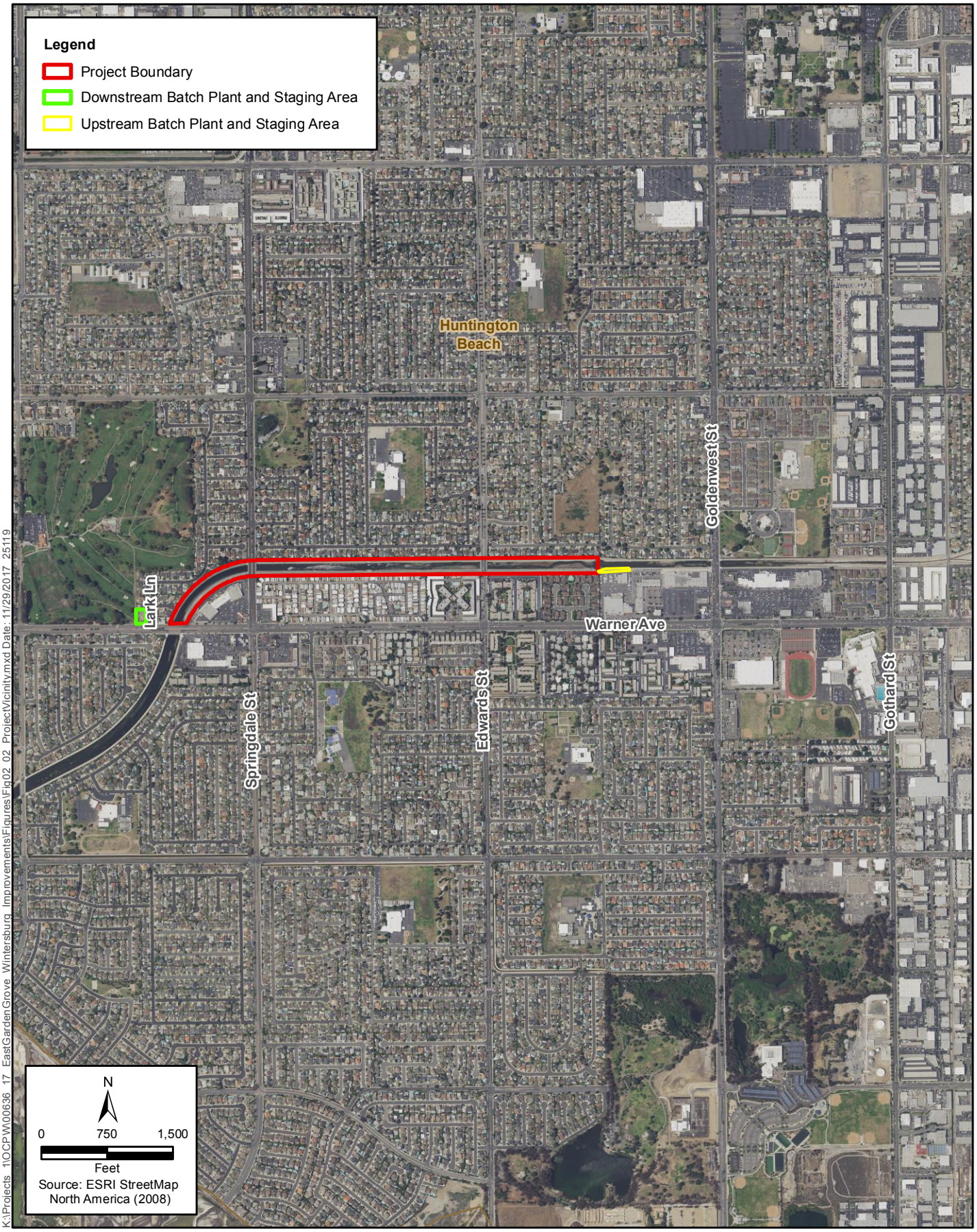

Figure 2-2
Project Vicinity
East Garden Grove-Wintersburg Channel, Warner to 1,250 Feet Downstream of Goldenwest Sheet Pile Project

GABRIELEÑO BAND OF MISSION INDIANS - KIZH NATION
Historically known as The San Gabriel Band of Mission Indians
recognized by the State of California as the aboriginal tribe of the Los Angeles basin

Public Works
300 N. Flower St.
P.O. Box 4048
Santa Ana, CA 92702-4048

December 28, 2017

Re: AB52 Consultation request for the East Garden Grove Wintersburg Channel Improvement Project

Dear Brian Kurnow,

Please find this letter as a written request for consultation regarding the above-mentioned project pursuant to Public Resources Code § 21080.3.1, subd. (d). Your project lies within our ancestral tribal territory, meaning belonging to or inherited from, which is a higher degree of kinship than traditional or cultural affiliation. Your project is located within a sensitive area and may cause a substantial adverse change in the significance of our tribal cultural resources. Most often, a records search for our tribal cultural resources will result in a "no records found" for the project area. The Native American Heritage Commission (NAHC), ethnographers, historians, and professional archaeologists can only provide limited information that has been previously documented about California Native Tribes. This is the reason the NAHC will always refer the lead agency to the respective Native American Tribe of the area because the NAHC is only aware of general information and are not the experts on each California Tribe. Our Elder Committee & tribal historians are the experts for our Tribe and are able to provide a more complete history (both written and oral) regarding the location of historic villages, trade routes, cemeteries and sacred/religious sites in the project area. Therefore, to avoid adverse effects to our tribal cultural resources, we would like to consult with you and your staff to provide you with a more complete understanding of the prehistoric use(s) of the project area and the potential risks for causing a substantial adverse change to the significance of our tribal cultural resources.

Consultation appointments are available on Wednesdays and Thursdays at our offices at 910 N. Citrus Ave. Covina, CA 91722 or over the phone. Please call toll free 1-844-390-0787 or email gabrielenoindians@yahoo.com to schedule an appointment.

** Prior to the first consultation with our Tribe, we ask all those individuals participating in the consultation to view a video produced and provided by CalEPA and the NAHC for sensitivity and understanding of AB52. You can view their videos at: http://calepa.ca.gov/Tribal/Training/ or http://nahc.ca.gov/2015/12/ab-52-tribal-training/

With Respect,

Andrew Salas, Chairman

Andrew Salas, Chairman | Nadine Salas, Vice-Chairman | Christina Swindall Martinez, secretary
Albert Perez, treasurer I | Martha Gonzalez Lemos, treasurer II | Richard Gradias, Chairman of the Council of Elders
PO Box 393, Covina, CA 91723 | www.gabrielenoindians.org | gabrielenoindians@yahoo.com

OC Public Works
Integrity, Accountability, Service, Trust
Shane L. Silsby, Director

March 27, 12018 **VIA CERTIFIED MAIL AND EMAIL**

Mr. Andrew Salas, Chairman
Gabrieleño Band of Mission Indians – Kizh Nation
P.O. Box 393
Covina, CA 91723

RE: AB 52 Continued Consultation for the East Garden Grove-Wintersburg Channel Improvement Project

Dear Chairman Salas:

Orange County Public Works, OC Development Services/Planning (OCPW) provided written notice to all applicable Native American tribes pursuant to the provisions of Assembly Bill 52 and Section 21080.3.1(d) of the Public Resources Code on December 19, 2017. On December 29, 2017, the Gabrieleño Tribe (Tribe) formally requested consultation with the County based on the project site's location within the Tribe's ancestral tribal territory.

Following this written request, representatives from the Tribe and staff from the OCPW conducted a consultation via telephone conference on January 25, 2018. Staff from ICF was also in attendance on the consultation having received prior written permission from the Tribe. OCPW staff is grateful to the Tribe for their time and valuable knowledge of Tribal Cultural Resources in the region.

During the consultation, the Tribe provided historic context regarding its long tradition in the region and a context regarding the potential for unknown discovery of Tribal Cultural Resources during construction. The Tribe stated that Tribal Cultural Resource do not exist on the project site. Specifically, the following considerations were presented:

- A historic channel of the Santa Ana River may have been located in close proximity to the existing East Garden Grove-Wintersburg Channel alignment resulting in a relatively higher potential for the discovery of tribal cultural resources including burial of deceased individuals;
- Trade was the "fabric of the tribe" with extensive trading with other tribes in present-day Southern California and extending beyond this region;
- Areas in close proximity to rivers served as transportation corridors to facilitate trade and typically artifacts were intentionally buried along these routes; and,
- The cyclical climate and corresponding floods have a tendency to wash sediments downstream along with any artifacts that may have been buried and the Tribe believes there is a potential for Native American artifacts to be buried in the project site area.

Following the consultation, the Tribe provided OCPW with a circa 1921 map entitled Ancient Indian Camp Sites and a 1937 map entitled Principal Historic Sites, Old Highways, and Battle Fields in Old Los Angeles County (Principal Historic Sites), which included a portion of northern Orange County. A standard set of mitigation measures approved by the Kizh Nation Tribal Government was also provided.

Based on the consultation and the subsequent maps and standard set of mitigation measures, OCPW has prepared the following mitigation measure to be implemented as part of the proposed project and incorporated into the Tribal Cultural Resources section of the CEQA document. This mitigation measure addresses the unknown discovery of Tribal Cultural Resources.

Mitigation Measure TCR-1: Should evidence of human remains be discovered during project construction, the Orange County Coroner (OCC) shall be immediately notified of the discovery. Evidence of human remains requires mandatory compliance with the provisions of State Health and Safety Code Section 7050.5, which restricts further disturbance in the vicinity of the discovery, defined herein as a 50-foot radius, until the OCC has made a determination within two business days of the origin and disposition pursuant to Public Resources Code Section 5097.98. If the remains are determined to be Native American, the OCC shall notify the Native American Heritage Commission (NAHC) within 24 hours that remains have been discovered. The NAHC shall determine the identity of the Most Likely Descendant (MLD). The MLD shall complete the inspection of the remains within 48 hours of notification by the NAHC.

Based on the consultation and the subsequent maps and standard set of mitigation measures, OCPW has prepared the following mitigation measure to be implemented as part of the proposed project and incorporated into the Cultural Resources section of the CEQA document. This mitigation measure addresses the unknown discovery of archaeological resources that could be Tribal Cultural Resources.

CUL-1. If unanticipated archaeological resources or deposits are discovered during earth-moving activities, OCPW will implement the following measures.

Halt Work. All work will halt within a 50-foot radius of the discovery. OCPW will have a qualified professional archaeologist assess the significance of the find. If the resources are Native American in origin, the Tribe shall coordinate with the County regarding treatment, curation and preservation of these resources. The archaeologist will have the authority to modify the no-work radius as appropriate, using professional judgment in consultation with OCPW. Work will not continue within the no-work radius until the archaeologist conducts sufficient research, evidence and data collection to establish that the resource is either: (1) not cultural in origin; or (2) not potentially eligible for listing on the California Register of Historical Resources.

Provide Treatment of Potentially Eligible Resources. If a potentially eligible resource is encountered, then the archaeologist and OCPW as lead agency will arrange for either: (1) avoidance of the resource, if possible; or (2) test excavations to evaluate eligibility, and if eligible, attempt to resolve adverse effects to determine appropriate mitigation. The assessment of eligibility will be formally documented in writing as verification that the provisions in CEQA for managing unanticipated discoveries and PRC 5024 have been met.

March 27, 2018
Andrew Salas, Chairman
Gabrieleño Band of Mission Indians – Kizh Nation

If the tribe has additional, substantial evidence identifying Tribal Cultural Resources in or adjacent to the proposed project area, we would welcome additional discussion.

Please contact Kevin Shannon via email at Kevin.Shannon@ocpw.ocgov.com or by phone at 714.667.1632 to discuss OCPW's determination. Written responses can be submitted to the address below or via email.

Sincerely,

Joanna Chang

Joanna Chang
Land Use Manager
OC Development Services/Planning
300 N. Flower Street
Santa Ana, CA 92702-4048

Cc: Richard Vuong, Planning Manager
Kevin Shannon, Contract Planner

OC Public Works
Integrity, Accountability, Service, Trust
Shane L. Silsby, Director

September 17, 2018 **VIA CERTIFIED MAIL AND EMAIL**

Mr. Andrew Salas, Chairman
Gabrieleño Band of Mission Indians – Kizh Nation
P.O. Box 393
Covina, CA 91723

RE: Conclusion of Consultation Pursuant to Public Resources Code Section 21080.3.1-21080.3.2 for the East Garden Grove-Wintersburg Channel Improvement Project

Dear Chairman Salas:

Pursuant to notice provided on December 19, 2017, in accordance with Public Resources Code (PRC) section 21080.3.1, the Gabrieleño Band of Mission Indians-Kizh Nation (Tribe) requested consultation with the County in regard to the East Garden Grove-Wintersburg Channel Improvement Project (Project), by letter dated December 28, 2017 sent via email.

Following this written request, representatives from the Tribe and staff from Orange County Public Works (OCPW) Planning and OCPW Infrastructure Programs engaged in consultation via telephone conference on January 25, 2018. The Technical Director/Cultural Resources Manager from ICF, the environmental consulting firm assisting the County in preparing the environmental documentation, also participated in the consultation (having received prior written permission from the Tribe). OCPW staff thanks the Tribe for its time and engagement in the consultation process required under the California Environmental Quality Act (CEQA).

During the consultation, the Tribe discussed historic context regarding its tradition in the region and the potential for unknown discovery of Tribal Cultural Resources during construction. The Tribe followed-up by providing maps and Tribe-approved mitigation measures. The two maps consisted of a circa 1921 map entitled *Ancient Indian Camp Sites* and a 1937 map entitled *Principal Historic Sites, Old Highways, and Battle Fields in Old Los Angeles County* ("Principal Historic Sites"), which included a portion of northern Orange County. The *Ancient Indian Camp Sites* map identifies several sites approximately one mile southwest of the southerly limit of the Project site, near present-day Bolsa Bay. The *Principal Historic Sites* map identifies an Indian Village approximately 1.5 miles south of the Project site. Neither of these maps identified any Tribal Cultural Resources on the Project site, nor were any Tribal Cultural Resources identified within or adjacent to the footprint of the Project site during consultation.

On March 27, 2018, in a continuing consultation letter, OCPW acknowledged receipt of the Tribe's information and informed of proposed mitigation measures for the Project. On May 18, 2018, the Tribe responded via email, in which the Tribe disagreed with the County's proposed measures, and again requested imposition of measures which would require, amongst other things, a Tribe-approved tribal monitor to be present on-site during construction phases that involve *any* ground disturbing activities, including (but not limited to) weed abatement.

In OCPW's assessment, the consultation process did not yield any substantial evidence that would warrant imposition of the Tribe's preferred measures. Accordingly, OCPW has determined that the parties cannot reach mutual agreement on the mitigation measures to be incorporated into the proposed Project.

As explained during consultation, OCPW will recommend imposition of the mitigation measures stated below. These measures, found in Public Resources Code section 21084.3, comport with the measures recommended by the Native American Heritage Commission (NAHC), and would mitigate potential impacts of the proposed Project on Tribal Cultural Resources in accordance with CEQA. The measures provide for the following:

Measure 1

Should evidence of human remains be discovered during project construction, the Orange County Coroner (OCC) shall be immediately notified of the discovery. Evidence of human remains requires mandatory compliance with the provisions of State Health and Safety Code Section 7050.5, which restricts further disturbance in the vicinity of the discovery, defined herein as a 50-foot radius, until the OCC has made a determination within two business days of the origin and disposition pursuant to Public Resources Code Section 5097.98. If the remains are determined to be Native American, the OCC shall notify the Native American Heritage Commission (NAHC) within 24 hours that remains have been discovered. The NAHC shall determine the identity of the Most Likely Descendant (MLD). The MLD shall complete the inspection of the remains within 48 hours of notification by the NAHC.

Measure 2

If unanticipated archaeological resources or deposits are discovered during earth-moving activities, OCPW will implement the following measures.

All work will halt within a 50-foot radius of the discovery. OCPW will have a qualified professional archaeologist assess the significance of the find. If the resources are Native American in origin, the County shall coordinate with the Tribe regarding evaluation, treatment, curation and preservation of these resources. The archaeologist will have the authority to modify the no-work radius as appropriate, using professional judgment in consultation with OCPW. Work will not continue within the no-work radius until the archaeologist conducts sufficient research, evidence and data collection to establish that the resource is either: (1) not cultural in origin; or (2) not potentially eligible for listing on the California Register of Historical Resources.

If a potentially eligible resource is encountered, then the archaeologist and OCPW as lead agency, in consultation with the Tribe, will arrange for either: (1) avoidance of the resource, if possible; or (2) test excavations to evaluate eligibility, and if eligible, attempt to resolve adverse effects to determine appropriate mitigation. The assessment of eligibility will be formally documented in writing as verification that the provisions in CEQA for managing unanticipated discoveries and PRC Section 5024 have been met.

In light of the foregoing, and in accordance with Public Resources Code section 21080.3.2(b)(2), OCPW respectfully concludes consultation.

September 17, 2018
Andrew Salas, Chairman
Gabrieleño Band of Mission Indians – Kizh Nation

Please contact Kevin Shannon via email at Kevin.Shannon@ocpw.ocgov.com or by phone at 714.667.1632 if there are any questions regarding this letter.

Sincerely,

Joanna Chang
Land Use Manager
OC Development Services/Planning
300 N. Flower Street
Santa Ana, CA 92702-4048

Cc: Richard Vuong, Planning Manager
Kevin Shannon, Contract Environmental Planner