# **Geotechnical Report Yards & Shops Segment**

(P0504-D400-RPT-DE-008, Rev.0)



## Silicon Valley Rapid Transit Project

## GEOTECHNICAL REPORT

Yard & Shops Segment

FINAL May 24, 2006

P0504-D400-RPT-DE-008

Rev. 0

### **Geotechnical Report**

## FOR PRELIMINARY DESIGN SERVICES FOR THE YARD & SHOPS SEGMENT Contract No. S04031

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#### 1.0 INTRODUCTION

#### 1.1 Purpose and Scope

The purpose of this geotechnical report, as described in our contract agreement dated August 15, 2005, is to identify geotechnical constraints for development that may affect land planning decisions and provide preliminary geotechnical recommendations for site development including discussions regarding the treatment of geotechnical constraints, remedial grading, site grading and drainage, and foundation design.

The scope of our service included a review of readily available literature and geologic maps for the project area; exploratory probing and drilling with collection of subsurface samples; laboratory testing of subsurface materials collected; analysis of the gathered geotechnical data; and preparation of this report summarizing our recommendations for site development.

This report was prepared for the exclusive use of STV Incorporated and its design team consultants. In the event that any changes are made in the character, design, or layout of the development, the conclusions and recommendations contained in this report should be reviewed by ENGEO Incorporated to determine whether modifications to the report are necessary.

#### 1.2 Site Location

The approximately 50-acre relatively level project Yard & Shops Complex is located near the eastern portion of the Union Pacific Railroad (UPRR) Newhall Yard in the City of Santa Clara and a small area east of Interstate 880 in San Jose (Figure 1).

According to a USGS topographic map, the relatively level site is situated in the Santa Clara Valley floor at an approximate elevation of 65 feet above mean sea level (msl). The study area is currently occupied by the existing UPRR rail yard and various commercial structures. At the time of our study, field services within select off-property parcels and at the planned De La Cruz undercrossing were prohibited. As such, additional subsurface exploration, lab testing, and analysis will be required for these areas before design-level geotechnical information can be prepared.

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Numerous underground utility lines and vaults are present, as well as overhead utility lines and existing railroad track.

#### 1.3 Project Description

Site development will include a mainline track alignment, tail tracks, and a maintenance, storage and service yard which will include multiple shops and operations buildings. The current location of the proposed Yard & Shops Complex improvements is shown on Figure 2. As shown on the site plan, site development will include a blowdown facility, an inspection pit, a car cleaner's facility, a revenue vehicle maintenance shop with 24 repair bays, a yard control tower, a non-revenue vehicle shop, a maintenance and engineering shop, as well as miscellaneous support structures and other site improvements. Other improvements will include a train station platform, existing roadway re-alignment, access roads, parking and support facilities.

The mixture of structures will vary in height from one to two stories, to up to four stories for the Yard Control Tower. Based on information provided to us by the Structural Engineer and the design team, building loads are expected to vary from light to heavy. In general, column loads for heavy structures will range from 100 to 500 kips per column, and light structures will have column loads ranging from 20 to 50 kips per column. As discussed with the design team in workshops, depending on the location and loading condition of each structure, the structures can be supported by conventional spread footings with slab-on-grade flooring, structural mat foundations or pile or pier foundations systems.

We understand wood-framed or steel-framed construction is anticipated for the shorter structures while steel-framed or concrete construction is anticipated for the taller structures. Building exteriors may range from sheet metal siding to architectural elements and facades.

The extent of cutting or filling required to achieve final grades is not finalized at this time. We understand that all track attached structures are tentatively designed to have a finished grade of Elevation 66.5 feet. Currently, below-grade truck/train maintenance pits are planned within the wheel truing facility, inspection pit, non-revenue vehicle maintenance shop and revenue vehicle

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maintenance shop. We have assumed that the excavations for the pits will require shoring and possibly dewatering during construction.

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#### 2.0 GEOLOGY AND SEISMICITY

#### 2.1 Site Geology

The primary geologic deposits at the Yard & Shops Complex is described by Wentworth (1999) as Quaternary basin deposits (Qhb) and older alluvial fan deposits (Qhf2), as shown on Figure 3. These deposits are typically unconsolidated and heterogeneous materials consisting of clays, silts, sands, and minor gravels. CDMG (1974) maps the site as fluvial deposits at the outer edge of alluvial fans (Qyfl) and interfluvial fresh water basin deposits (Qb).

#### 2.2 Faulting and Seismicity

The site is not located within the State of California Earthquake Fault Hazard Zone or a City of San Jose Fault Hazard Zone (1983), and no known active<sup>1</sup> faults are mapped across the property by either Bortugno (1991) or Jennings (1994). The Yard & Shops Complex, however, is located with a Seismic Hazard Zone (CDMG, 2002) for liquefaction potential, as presented in Figure 4, and as discussed in the Seismic Hazards Section of this report.

Active faults are located nearby within the seismically active San Francisco Bay Region, and may cause strong ground shaking at the site. Historically, large (>M7) earthquakes have occurred in the Bay Area and many earthquakes of low magnitude occur every year. The closest known active fault is the Monte Vista-Shannon fault, located approximately 7 miles southwest of the Yard & Shops Complex. Other nearby faults include the Hayward fault (main and south extensions), about 8.5 miles to the northeast of the site; the Calaveras fault (north and south extensions), about 9.2 miles to the northeast; and the San Andreas fault, about 10.8 miles to the southwest. Figure 5 shows the approximate locations of these and other active faults within the region.

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<sup>&</sup>lt;sup>1</sup>Faults are usually classified into several types according to their activity status. Active or Holocene faults are those that have had surface displacement within the last 11,000 years.

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#### 3.0 GEOTECHNICAL EXPLORATION

#### 3.1 Field Exploration

The field exploration for this study was conducted between August 29, 2005, and September 27, 2005, and consisted of advancing 35 cone penetrometer test (CPT) probes and drilling 32 boreholes (Borings B-1 through B-31, and B-37). Proposed Borings 32 through 36 and CPT probe 36 through 39 were not advanced because of access restrictions.

The approximate locations of the CPT probes and borings are shown on Figure 2. The actual field exploration program is summarized in the following table.

FACILITY	BORING NUMBER	DEPTH (FT)	CPT PROBE NUMBER	DEPTH (FT)
Bulk Power/Switching Station	B-1	53	CPT-1	50
			CPT-2	30
			CPT-3	30
			CPT-4	30
No Associated Building	B-2	30	CPT-5	40
	B-3	30	CPT-6	40
	B-4	33		
Turntable	B-5	40		
No Associated Building	B-6	23	CPT-7	30
	B-7	22	CPT-8	30
Train Control Station			CPT-9	30
Detention Pond	B-8 (piezo)	43		
No Associated Building			CPT-10	30
Non-Revenue Maintenance Shop	B-9	52	CPT-11	40
_			CPT-12	40
M&E Office	B-10 (piezo)	52	CPT-13	51
M&E Shop	B-11	20	CPT-14	29
-	B-12	50		
No Associated Building	B-13	31	CPT-15	30
_	B-14	50	CPT-16	40
			CPT-17	40
			CPT-18	30

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FACILITY	BORING NUMBER	DEPTH (FT)	CPT PROBE NUMBER	DEPTH (FT)
Car Wash Building	B-15	40	CPT-19	40
	B-18	30		
Maintenance of Equipment Shop	B-16	30	CPT-20	42
	B-17	50	CPT-21	40
	B-19	80	CPT-22	60
	B-20 (piezo)	80	CPT-23	80
	B-22	33		
Window Replacement Platform	B-21	40		
No Associated Building			CPT-24	30
Inspection Pit	B-23	40		
Blowdown Facility	B-24	30	CPT-26	38
Wheel Truing Facility	B-25	30	CPT-25	51
No Associated Building	B-26 (piezo)	40	CPT-28	30
Trans Building & Yard Control	B-27	61	CPT-27	56
Tower			CPT-29	40
No Associated Building			CPT-30	41
			CPT-31	40
Car Cleaner's Facility	B-29	31.5	CPT-32	47
			CPT-34	40
Santa Clara Station	B-28	71.5	CPT-33	60
	B-30 (piezo)	40.5	CPT-36*	-
No Associated Building	B-31	31.5		
	B-37	61.5	CPT-35	47
	B-32*	-	CPT-37*	-
	B-33*	-	CPT-38*	-
	B-34*	-		
	B-35 (piezo)*	-		

<sup>\*</sup> Not drilled because of access restrictions

The exploratory boring and CPT probe locations were established by utilizing Global Positioning System (GPS) or taping and visual sighting from existing features and should be considered accurately located only to the degree implied by the methods used. GPS utilized a local coordinate system established for the project with modifications due to site access or vehicle constraints. Access to off-site properties and the vicinity of De La Cruz were prohibited at the time of our field program.

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3.1.1 Cone Penetrometer Test Probe. The CPT probes were extended to a maximum depth of approximately 80 feet below the existing ground surface. The CPT logs and data sets are located in Appendix A. The CPT probes were backfilled between August 29, 2005, and September 6, 2005, after the completion of each field exploration activity using a bentonite-cement slurry.

The CPT equipment has a 20-ton compression-type cone with a 15-square-centimeter (cm²) base area, an apex angle of 60 degrees, and a friction sleeve with a surface area of 225 cm². The cone, connected with a series of rods, is pushed into the ground at a constant rate. Cone readings are taken at approximately 5-cm intervals with a penetration rate of 2 cm per second in accordance with ASTM D-3441. Measurements include the tip resistance to penetration of the cone (Qc), the resistance of the surface sleeve (Fs), and pore pressure (U) (Robertson and Campanella, 1988). The ratio of the sleeve reading to the corresponding tip reading provides the Friction Ratio (Rf). Various soil property correlations have been developed based on these relationships including equivalent standard penetration test (N) values, soil friction angle (Phi), undrained shear strength (Su), soil behavior type, and estimated soil density range (Robertson and Campenella, 1988; Olsen, 1989). The procedures used to estimate the soil properties are discussed in Appendix A.

3.1.2 Test Borings. The test borings were drilled using a CME-750 truck-mounted drill rig equipped with 8-inch-diameter hollow stem augers. The borings were dry augered; no drilling fluid was used to advance the borings. An ENGEO Geologist logged the boreholes in the field and collected soil samples using a 3-inch outside diameter (O.D.) California-type split-spoon sampler fitted with 6-inch-long brass liners, a 2-inch outside diameter (O.D.) Standard Penetration Test split-spoon sampler or a 3-inch O.D. Shelby Tube. The split spoon samplers were driven with a 140-pound above-hole safety hammer falling a distance of 30 inches. An automatic trip system was used to lift the hammer during our exploration, and drill rods were used to keep the hammer above ground. The Shelby Tubes were pushed into the soil using hydraulics of the drill rig. The borings ranged in depth between 20 and 81 feet below ground surface.

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The penetration of the split-spoon samplers into the subsurface materials was field recorded as the number of blows needed to drive the sampler 18 inches in 6-inch increments using the 140-pound hammer with a 30-inch drop. The report borelogs represent the actual field blow counts for the last one foot of penetration and have not been subjected to conversion factors to achieve representative SPT  $(N_{60})$  results.

The field logs for the borings were used to develop the report borelogs, which are located in Appendix B. The boring logs depict subsurface conditions within the borings for the date of site activities; however, subsurface conditions may vary with time. The boreholes were backfilled between September 6 and 27, 2005, after the completion of each field exploration activity, using cement slurry.

3.1.3 Groundwater Monitoring Wells. A total of 5 piezometers were installed within the project site for groundwater monitoring purposes. It should be noted that Borehole BH-35, and the associated planned piezometer, was not drilled due to UPRR railroad and off-site access restrictions. The approximate location of the piezometers were shown on Figure 2. The following table summarizes the approximate surveyed location, depth, and screen length of the monitoring wells installed.

PIEZOMETER LABEL	ELEVATION	NORTHING	EASTING	APPROXIMATE DEPTH TO BOTTOM OF CASING (BOC), FEET	SCREEN LENGTH (MEASURED FROM BOC), FEET
BH-8	63.0	1953007.8	6147007.8	39	30
BH-10	62.4	1953162.2	6146677.6	50	40
BH-20	62.2	1953838.9	6145754.1	40	30
BH-26	63.6	1954327.0	6144956.9	38	30
BH-30	64.8	1954581.3	6144154.8	39	30

The screened depth of the piezometers were selected to be located within the sand/silt stratum. The piezometers were constructed with a 2-inch O.D. screened PVC pipe. In general, the upper

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8 to 10 feet of the piezometer pipe is non-screened. Clean sand was used to backfill around the screened section and extends to 1 foot above the screen section of the piezometer pipe. A bentonite plug approximately 1 foot thick is located over the clean sand. The remaining length of the piezometer pipe was backfilled with cement grout. Each piezometer location received a flush-mounted, metal, bolted monitoring well box. The general piezometer construction method is shown on the borelogs presented in Appendix A.

#### 3.2 <u>Laboratory Testing</u>

Select samples recovered during drilling activities were tested to determine the following soil characteristics:

SOIL CHARACTERISTIC	ASTM METHOD	LOCATION OF RESULTS
Natural Unit Weight and Moisture Content	D-2216	Appendix B
Unconfined Compression	D-2166	Appendix B, C
Plasticity Index	D-4318	Appendix C
Grain Size Distribution	D-422; D-422-63	Appendix C
Consolidation (Incremental)	D-2435	Appendix C
Triaxial Compression	D-2850-87	Appendix C
Swell Test (Method A)	D4546	Appendix C

The laboratory test results are shown on the borelogs (Appendix B), with individual test results presented in Appendix C.

#### 3.3 Subsurface Stratigraphy

Ground covering at the exploration locations typically consisted of a gravel-covered surface. The alluvial soils are relatively variable, as detailed in the cross-section on Figure 2, as well as described in the boring logs in Appendix B.

3.3.1 Existing Fill. The materials sampled during our subsurface exploration indicated that the at-grade soils consisted of silty sands, sands, and gravelly sands to a depth of between 1 and 6 feet

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below grade. The soils present are typical for the site operations for the rail yard, and are considered undocumented fill, loose to dense in consistency.

3.3.2 Older Alluvium. Older alluvium consists of native clays, silty clays, clayey silts, silty sand and gravelly sands are encountered below the existing fill. In general, the alluvium deposits grades coarser and stiffer with depth. Beneath the existing fill, fine-grained deposits such as clays and silty clays were encountered which extend to a depth of approximately 20 to 25 feet below ground surface (bgs). The clay and silty clay are generally soft to medium stiff and is considered slightly compressible. The fine-grained deposits grade into interbedded sandy silt, silty sand, sand and gravelly sand layers which extend to approximately 25 to 45 feet bgs. Lenses of loose silt or sand generally ranged from ½ inch to 4 feet thick, and were present within the medium dense to dense, stiff interbedded silt/sand stratum.

It should be noted that due to the method of drilling (hollow stem auger), heaving sand problems were encountered during drilling at some borehole locations at depths in excess of 45 feet. In these cases, the recorded blow counts may not be representative due to soil disturbance effects. Data from the nearby CPT probes (which are not subject to these problems) indicate that the granular layers generally appear to be medium dense to dense in consistency. As such, based on information from the test boreholes and CPTs, the silty clay and clay deposits have been classified as medium stiff to stiff and the gravelly sand and sand deposits are considered to be dense to very dense at depths over 45 feet within the project site. Based on our interpretation of site geology, we anticipate that these dense/stiff deposits extend to below the termination depths of 80 feet bgs at our deepest borings and CPT.

It should be noted that several CPT probes describe some soil deposits between 3 to 12 feet bgs as potentially organic clay (peat). This layer ranged in thickness from less than 6 inches to as much as 9 feet (Probe CPT-7). Based on direct correlation with nearby borings, we believe that this layer is more appropriately classified as soft clay.

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#### 3.4 Groundwater

A total of five piezometers (Borings B-8, B-10, B-20, B-26, and B-30) were installed at the site for groundwater level monitoring. Construction of piezometers is discussed in Section 3.1.3. In summary, groundwater was initially encountered at depths of 19 to 25 feet below grade, depending upon location, and stabilized at roughly 4 to 15 feet below current ground surface at the time of our exploration. Fluctuations in groundwater levels may occur seasonally and over a period of years because of precipitation, temperature, changes in drainage patterns, pumping, and/or irrigation.

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#### 4.0 DISCUSSION AND CONCLUSIONS

#### 4.1 Summary

Based on our evaluation, the proposed project is feasible from a geotechnical standpoint. It is our opinion that the geotechnical concerns can be mitigated if the preliminary recommendations contained herein and those from supplemental design-level studies are incorporated in the design of the project. The primary geotechnical concerns to be considered in the design of the project include the presence of compressible soils and earthquake-induced liquefaction and densification. Secondary geotechnical concerns include the presence of expansive soils and encountering groundwater during and post-construction.

The recommendations included in this report are preliminary and are intended for preliminary design and project estimating purposes. Design-level geotechnical exploration(s) at the Yard & Shops Complex should be undertaken during latter stages of project planning once building locations, footprints, structure size and grades, and building loads are more closely defined to provide specific foundation recommendations for each of the planned structure types. The design-level explorations will include additional subsurface exploration consisting of test borings and CPT probes; laboratory testing; engineering analyses; and geotechnical document preparation.

#### 4.2 Compressible Soils

In general, the site contains a surface layer of fill over older alluvium consisting of soft to medium stiff silt and clay interbedded with layers of varying thickness of granular soils. As discussed in Section 3.3.2, soft to medium stiff clay deposits at 5 to 25 feet bgs could be subjected to long-term load-induced settlement associated with building loads and raising grades with new engineered fills.

Based on the conceptual building loads and proposed finished grades provided to us at this time, preliminary settlement analysis was performed by ENGEO for the proposed structures. The loadings provided to us are summarized in the following table.

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		CONCEPTUAL LOADINGS (PSF)				
DRAWING TITLE	STRUCTURE	STRUCTURAL	CIVIL GRADE (FILL)	EQUIP. & MISC.	TOTAL	
YB	Trans Building	50	440	250	740	
1 D	Yard Control Tower	410	450	250	1110	
YC	Car Wash Building	65	600	250	915	
YD	Blowdown Facility	65	475	250	790	
	Revenue Vehicle Maintenance Shop	235	785	270	1290	
YE	Repair Bay	80	585	65	730	
	Storage Room	219	585	1460	2265	
YF	Car Clearner's Facility	30	365	250	645	
YG	Maintenance and Engineering Shops	135	535	1360	2030	
YH	NR Maintenance Shop	50	510	300	860	
111	Mechanical and Engineering Office	250	535	250	1035	
YJ	Revenue Processing Building Opt A	80	60	350	490	
13	Revenue Processing Building Opt B	80	135	350	565	
YK	Inspection Pit	125	0	0	125	
YL	Window Replacement Platform	50	435	250	735	
YL	Turntable	25	415	35	475	
YM	Wheel Truing Facility	55	465	15	535	
OTHER	Gap Breaker, Facility Power, Yard Substation, Train Control Station, Bulk Power/Switching Substation	250	200	50	500	

Our settlement analysis incorporated the limited field and laboratory test data included in this report and the conceptual loads summarized above. Based on laboratory test data, the soft to medium stiff clays beneath the surface appear to be slightly over-consolidated to normally consolidated and are subject to settlement caused by anticipated new loads (planned engineered fills or structures). Four soil profiles (Profiles A, B, C and D), as shown on Figure 2, were identified to account for variable clay thickness and compressibility within the project area. The results of the settlement analyses are provided in Appendix E. A summary of the estimated settlements due to consolidation of soft clay soil is present in the following table:

DRAWING TITLE	STRUCTURE	ESTIMATED TOTAL SETTLEMENT (INCHES)
YB	Trans Building	8 to 9
	Yard Control Tower	12 to 13
YC	Car Wash Building	13 to 14
YD	Blowdown Facility	12 to 13

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STRUCTURE	ESTIMATED TOTAL SETTLEMENT (INCHES)
Revenue Vehicle Maintenance Shop	19 to 20
Repair Bay	10 to 11
Storage Room	27 to 28
Car Clearner's Facility	10 to 11
Maintenance and Engineering Shops	25 to 26
NR Maintenance Shop	12 to 13
Mechanical and Engineering Office	15 to 16
Revenue Processing Building Opt A	5 to 6
Revenue Processing Building Opt B	8 to 9
Inspection Pit	2 to 3
Window Replacement Platform	10 to 11
Turntable	7 to 8
Wheel Truing Facility	7 to 8
Gap Breaker, Facility Power, Yard Substation, Train Control Station, Bulk Power/Switching Substation	3 to 7
	Revenue Vehicle Maintenance Shop Repair Bay Storage Room Car Clearner's Facility Maintenance and Engineering Shops NR Maintenance Shop Mechanical and Engineering Office Revenue Processing Building Opt A Revenue Processing Building Opt B Inspection Pit Window Replacement Platform Turntable Wheel Truing Facility Gap Breaker, Facility Power, Yard

Consolidation settlement can be mitigated by various techniques including, but not limited to soft soil removal, use of deep foundations, and surcharging proposed building areas with stockpiled soil and delaying construction until after the settlement occurs. As discussed with the design team, soft soil removal is not considered economically practical at the site. A combination of deep foundations, mat foundations and/or spread footings along with surcharging is considered more practical to mitigate the impacts from consolidation settlement. The preliminary foundation system selected by the design team following our discussion of predicted settlement is provided in Section 5.10.

It should be noted that the amount of consolidation settlement provided herein is considered preliminary and should be modified during future design-level foundation explorations based upon final building locations, building loads, and proposed grading configurations.

#### 4.3 Expansive Soils

The soil samples tested at the site yielded Plasticity Indices (PI) of 22 and 40. This indicates a moderate to very high expansion potential. Expansive soils will shrink and swell as a result of moisture changes. This can cause heaving and cracking of slabs-on-grade, pavements, and structures

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founded on shallow foundations. Building damage due to volume changes associated with expansive soils can be reduced by deepening the foundations to below the zone of moisture fluctuation with deep foundations, or by using mat foundations which are designed to resist the deflections associated with the expansive soil. Preliminary recommendations that address the potentially expansive nature of the site soils are provided in subsequent sections of this report.

#### 4.4 Seismic Hazards

Potential seismic hazards resulting from a nearby moderate to major earthquake can generally be classified as primary and secondary. The primary effect is ground rupture, also called surface faulting. The common secondary seismic hazards include ground shaking, ground lurching, soil liquefaction, and lateral spreading. These hazards are discussed in the following sections.

Based on topographic and lithologic data, earthquake-induced lurch cracking, regional subsidence or uplift are unlikely to occur at the site. The risk of tsunamis and seiches does not exist.

4.4.1 Ground Rupture. The Yard & Shops Complex is not located within a City of San Jose Fault Hazard Zone Map (1983) or a State of California Earthquake Fault Hazard Zone and no known active, potentially active or inactive faults cross the site. Therefore, it is our opinion that ground rupture is not likely to occur at the site.

4.4.2 Ground Shaking. An earthquake of moderate to high magnitude generated within the San Francisco Bay Region, similar to those which have occurred in the past, could cause considerable ground shaking at the site. To mitigate the shaking effects, structures should be designed using sound engineering judgment and the latest Uniform Building Code (UBC), California Building Codes (CBC), or Bart Facility Standards (BFS) seismic design section requirements as a minimum. The SVRT should identify those critical structures may require alternate or supplement design methods.

Seismic design provisions of current building codes generally prescribe minimum lateral forces, applied statically to the structure, combined with the gravity forces of dead and live loads. The

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code-prescribed lateral forces are generally substantially smaller than the expected peak forces that would be associated with a major earthquake. Therefore, structures should be able to: (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural damage but with some nonstructural damage, and (3) resist major earthquakes without collapse but with some structural as well as nonstructural damage. Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake; however, it is reasonable to expect that a well-designed and well-constructed structure will not collapse or cause loss of life in a major earthquake (SEAOC, 1996).

<u>4.4.3 Building Code Seismic Information</u>. Based on the subsurface soil conditions encountered in the site vicinity and local seismic sources, the site may be characterized for design based on Chapter 16 of the 1997 Uniform Building Codes (UBC) using the following information.

CATEGORIZATION/COEFFICIENT	DESIGN VALUE
Soil Profile Type (Table 16-J)	$S_D$
Seismic Zone (Figure 16A-2)	4
Seismic Zone Factor, Z (Table 16-I)	0.4
Seismic Source Type (Table 16-U)*	A
Near Source Factor N <sub>a</sub> (Table 16-S)	1.0
Near Source Factor N <sub>v</sub> (Table 16-T)	1.1
Seismic Coefficient C <sub>a</sub> (Table 16-Q)	0.44*N <sub>a</sub>
Seismic Coefficient C <sub>v</sub> (Table 16-R)	0.64*N <sub>v</sub>

<sup>-</sup> Based upon the governing Type A Hayward Fault located 8.5 miles (13.6 km) from site

Additionally, seismic design ground motions have been developed for this project by others (HMM/Bechtel, December 20, 2004). This document presents seismic design criteria for permanent structures developed utilizing both probabilistic and deterministic seismic hazards analysis methods. Based on the subsurface conditions encountered, the seismic design ground motion criteria developed for the "south" reach should be utilized at the Shops and Yards Facility.

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<u>4.4.4 Liquefaction</u>. Liquefaction is a phenomenon in which saturated cohesionless soils are subject to a temporary, but essentially total, loss of shear strength because of pore pressure build-up under the reversing cyclic shear stresses associated with earthquakes.

Based upon our subsurface exploration, lenses of loose silty and sandy deposits were encountered within the interbedded stiff/dense sand/silt stratum. Liquefaction analysis were performed on test boring and CPT data based on guidelines provided in Robertson and Wride (1997), Robertson and Campanella (1988), Finn (1996), Youd et al. (2001), and Seed et al. (2003). Our analyses consider a peak ground acceleration of 0.54g, as provided by the design team seismic consultant, and groundwater levels between 4 and 15 feet below grade.

The liquefaction assessment was performed on the test boring data to determine the liquefaction potential of site soils based on the methods of Seed et al. (2003). SPT blow counts of saturated clayey silt, sandy silt and sand layers were utilized to calculate the Cyclic Resistance Ratio (CRR) and the Cyclic Stress Ratio (CSR). The scaled CRR is divided by the CSR to determine the factor of safety (F.S.) of liquefaction resistance within the given soil profile layer.

In general, potentially liquefiable sand layers (F.S.<1.2) up to a cumulative thickness of 10 feet are identified at approximately 25 to 45 feet below ground surface. According to the recent liquefaction research performed by Seed et al. (2003), silty deposits may be marginally liquefiable. Marginally liquefiable soil are defined as soil with fines content (FC) greater than 35 percent, Plasticity Index (PI) less than 12 percent, and water content (w<sub>c</sub>) is greater than 80 percent of the liquid limit (LL). Although soft/loose and saturated clayey silt and sandy silt layers up to 12 feet thick are present, based on our visual classification, these deposits are considered moderately plastic (PI>12). Therefore, we believe that the liquefaction potential of these silt layers is considered low.

Preliminary liquefaction assessment was also performed on the CPT data to determine the liquefaction potential of site soils based on the methods of Robertson and Wride (1998), Robertson and Campanella (1988), Finn (1996) and Youd et al. (2001). CPT data including tip and sleeve resistance were utilized to calculate the Cyclic Resistance Ratio (CRR) and the Cyclic Stress Ratio (CSR). To retain conservativeness, laboratory fines content of a nearby test boring is incorporated into the CPT analyses when the CPT correlated fine contents value are higher than the laboratory

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tested value. A comparison on laboratory tested and CPT correlated fines content is shown on Figure 6.

According to our liquefaction analysis, based on the CPT data, loose silt/sand lenses encountered at a depth of 25 to 45 feet bgs are considered potentially liquefiable (FS<1.2). These silt/sand lenses are generally ½ inch to 4 feet thick individually, and the cumulative thickness of the liquefiable lenses are less than 6 feet.

As such, we believe that results of the liquefaction analyses for both the test boring and CPT data are generally conforming. Zones of liquefiable sand/silt lenses are present at a depth of 25 to 45 feet bgs and have a maximum cumulative thickness of 10 feet. Tabular liquefaction calculations are included in Appendix D.

One significant hazard associated with soil liquefaction occurs when the liquefied soils vent to the ground surface causing disruption and sand boils. In order for liquefaction-induced ground surface disruption to occur, the pore water pressure generated within the liquefied strata must exert a sufficient force to break through the overlying soil and vent to the surface, resulting in sand boils or fissures. In 1985, Ishihara presented preliminary empirical criteria to assess the potential for ground surface disruption at liquefiable sites based on the relationship between thickness of liquefiable sediments and thickness of overlying non-liquefiable soil. A more recent study by Youd and Garris (1995) expanded on the work of Ishihara to include data from over 308 exploratory borings, 15 different earthquakes, and several ranges of recorded peak ground acceleration. It is generally believed that a significantly thick capping layer can reduce effects of sand boils and occurrence of fissures at the ground surface.

Currently, at least 25 feet of existing non-liquefiable soil overlays the potentially liquefiable lenses and approximately 2 to 6 feet of imported fill will be placed to achieve designed grades. We believe that the site will have a thick enough non-liquefiable surface layer to reduce the potential for ground failure (sand boils) at the surface due to liquefaction. During final design, if excavations over 5 feet are planned, such as for inspection and maintenance pits, additional review and analysis may be warranted and improvement-specific mitigation measures to address the potential effects of sand boiling may be required.

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It is important that the final grading plans and building cross-sections be reviewed by the Geotechnical Engineer to develop recommendations, as necessary, to mitigate ground disruption concerns. These measures may include grade modifications, thickened mat foundations possible with tie down anchors, deep foundations, or various soil densification methods such as subexcavation and recompaction or dynamic compaction. The Geotechnical Engineer should continue to work with the development team to identify areas that may require soil modification or grade increases to reduce the impacts of liquefaction on the proposed development.

We assume that the effects of liquefaction and/or ground rupture within parking areas or other open space areas can be tolerated.

4.4.5 Densification Due to Earthquake Shaking. Densification of the loose granular soil above and below groundwater levels can result in settlement/densification during an earthquake. Since some of the granular materials were characterized as loose to medium dense and liquefiable, we estimate that up to 3 inches of total earthquake-induced settlement may occur as a result of densification within the development area. With the exception of structures not housing sensitive equipment, we recommend that the planned buildings and train platform/overcrossing structure be designed to accommodate 1.0 inch of differential settlement over a 40-foot span or between column supports (SCEC, 1999) if supported on a structural mat or shallow foundation, unless ground improvement techniques are implemented to reduce the potential for densification due to earthquake shaking.

4.4.6 Lateral Spreading. Lateral spreading is a failure within a nearly horizontal soil zone (possibly due to liquefaction) which causes the overlying soil mass to move down a gentle slope or toward a free face. Since the site is relatively flat and the nearest open slope, main drainage course, is the Guadalupe River located approximately 0.6 mile northeast of the site, the potential for lateral spreading is low.

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#### 4.5 Groundwater

As noted above, groundwater stabilized at variable elevations of 4 to 15 feet below ground surface during field operations. We recommend that for design purposes, the groundwater is assumed to be at 4 feet below existing grade.

#### 4.6 Dewatering

Some utilities or excavations for footings and maintenance pits may encounter perched groundwater. Similarly, groundwater may be encountered during the drilling of piers. Construction dewatering may be necessary and should be assessed on a case-by-case condition.

#### 4.7 Flooding

Flood Insurance Rate Maps (FIRM) by FEMA (1982 and 1999) map the site outside the 100-year flood elevation, within Zone D. However, the project Civil Engineer should be consulted on the potential for localized flooding at the subject property. The review should also include a determination of which portions of the site fall below the 100-year flood plain elevation.

#### 4.8 Corrosive Soils

Corrosion testing is being preformed by another consultant and the results of that assessment will be provided in a separate document. Concrete mix design to mitigate the potential affects of corrosive soils on foundations should be in accordance with Table 19-A-4 Requirements for Concrete Exposed to Sulfate-Containing Solutions provided in the 1997 UBC. Alternatively, the concrete mix may be designed for the severe conditions and utilize Type V cement or modified Type II cement a maximum water cement ratio of 0.45 and a minimum compressive strength of 4,500 psi.

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#### 5.0 RECOMMENDATIONS

#### 5.1 General - Mass Grading

Based on our preliminary study and as noted above, the proposed project is feasible from a geotechnical standpoint. It is our opinion that the geotechnical concerns can be mitigated if the preliminary recommendations contained herein and those from design-level studies are incorporated in the design of the project. The primary geotechnical concerns to be considered in the design of the project include the presence of load-induced compressible soils and earthquake-induced liquefaction and densification. Secondary geotechnical concerns include the presence of expansive soils, sand boils, and encountering groundwater.

The following recommendations are for land planning and preliminary estimating purposes only. Final recommendations and work plans regarding the Yard & Shops Complex remedial grading and mass grading can occur once the final site plan has been established and grading plans are available. Additional exploration and laboratory testing will also be necessary.

We assume the initial grading activities performed will be limited to remedial and mass grading activities to establish pads for the building structures, yard tracks and rough perimeter street and parking area elevations. From that state of development, the individual building areas will be fine-graded to establish drainable building pads and interior slopes, roadways, parking areas under specific development plans.

As previously stated, provided site grades are not lowered by more than 5 feet, the site has a thick enough non-liquefiable surface layer to reduce the potential for ground failure (sand boils) at the surface due to liquefaction. If deeper excavations are planned, such as for maintenance and inspection pits, additional review and analysis may be warranted and improvement-specific mitigation measures to address the potential effects of sand boiling may be required.

Although overall site mass grading and drainage recommendations will likely be unaffected, subsequent exploration will also be necessary to provide specific foundation criteria for proposed individual structures and other site improvements. Additionally, we were not able to explore

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subsurface conditions in some areas of the proposed site because of access restrictions. These areas will require additional exploration as project planning and design continues.

It should be noted that a qualified Geotechnical Engineering firm must be identified in writing to the City of San Jose as the Geotechnical Engineer of Record and must be involved with Yard & Shops Complex demolition, preparation, remedial/corrective grading, civil mass grading, and improvement (utilities and streets) activities at the site. Operations performed without proper oversight and testing by a qualified Geotechnical Engineer or their field representatives could result in the inability to obtain Final Permit compliance or occupancy by city/county agencies and could deem work performed as inadequate.

All earthwork activities including clearing, grubbing, and site grading should be accomplished as described in this report and in general conformance with the Bart Facility Standards.

## 5.2 <u>Demolition and Grubbing</u>

Site development will commence with the excavation and removal of buried structures including abandoned utilities and other structures.

Following the demolition of existing improvements, site development should include removal of vegetation, debris, loose soil, and soft compressible materials in any location to be graded. Any soft compressible soils should be removed from areas to receive fill or structures, or those areas to serve as borrow. Subject to approval by the Landscape Architect, strippings and organically contaminated soils can be used in landscape areas. Otherwise, such soils should be removed from the project site. Any topsoil that will be retained for future use in landscape areas should be stockpiled in areas where it will not interfere with grading operations.

All excavations from demolition and stripping below design grades should be cleaned to a firm undisturbed soil surface determined by the Geotechnical Engineer. This surface should then be scarified, moisture conditioned, and backfilled with compacted engineered fill. The requirements for backfill materials and placement operations are the same as for engineered fill.

No loose or uncontrolled backfilling of depressions resulting from demolition or stripping is permitted.

### 5.3 Grading

Demolition at the site will consist of removal of the existing facilities, pavement, concrete slabs, and potentially, the pre-existing fill. A site grading plan was not available for our review at this time. However, we understand that all track-connected structures are currently planned with a finished grade at an elevation of 66.5 feet. Excavations for below-grade portions of the buildings and miscellaneous site filling to establish individual building pads will also be required. On-site soils that do not contain debris or organic material appear suitable for reuse as engineered fill. The project Geotechnical Engineer should be retained to provide detailed and site-specific grading recommendations for the project when grading plans have been finalized.

## 5.4 Existing Fill Material

At the time of the field exploration, undocumented fill was encountered at various locations across the site to depths of approximately 1 to 6 feet. In general, we recommend that existing fill located in areas to receive site improvements be overexcavated to expose native side walls and base. Any debris, such as concrete blocks, should be removed at this time. In general, the existing fill material may be suitable to use as engineered fill for the construction of the building pads and other site improvements. Depending on the location of adjacent structures that will remain, shoring of the existing improvements may be required. Areas requiring overexcavation and possible shoring should be identified on the project remedial grading plan that is typically prepared after completion of the 40-scale grading plans.

#### 5.5 Keyways

After stripping, mass grading should begin with construction of keyways and subdrains as applicable. Fills should be adequately keyed into firm natural materials. Anticipated keyway sizes and locations should be determined by the project Geotechnical Engineer after the final 40-scale grading plans become available. The actual depth of the keyways will be determined in the field

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by the Geotechnical Engineer during grading. Fills placed on slopes above keyways should be benched into firm competent soil or bedrock and drained as appropriate. Unless otherwise recommended by the Geotechnical Engineer, benches should be constructed at vertical intervals of not less than 5 feet.

### 5.6 Construction of Subsurface Drains

Subsurface drainage systems should be installed in all keyways, swales or natural drainage areas, as applicable. Swales and drainage courses should be overexcavated to a firm base as determined by the Geotechnical Engineer during grading. A trench subdrain should then be installed through the center of the subexcavation. The approximate location of the recommended subdrains should be shown on the final 40-scale grading plans prior to the beginning of the site work.

Subdrains should also be added where wet conditions are encountered during excavations. Subdrain systems should consist of a minimum 6-inch-diameter perforated pipe encased in at least 18 inches of Caltrans Class 2 permeable material or coarse drain rock wrapped in geotextile filter fabric (6 ounce minimum). For selected keyway and bench subdrains, pre-manufactured synthetic edge drains may be substituted for the perforated pipe and permeable material. The subdrain pipe should meet the requirements contained in the BFS Specifications. Discharge from the subdrains will generally be low, but in some instances may be continuous. Subdrains should outlet into open drainages or the proposed storm drain system and their locations should be documented by the project Civil Engineer for future maintenance.

Not all sources of seepage have been uncovered during our field service because of the intermittent nature of some of these conditions and their dependence on long-term climatic conditions. Furthermore, new sources of seepage may be created by a combination of changed topography, man-made irrigation patterns and potential utility leakage. Since uncontrolled water movements are one of the major causes of detrimental soil movements, it is of utmost importance that the Geotechnical Engineer be advised of any seepage conditions encountered during or after grading so that remedial action may be initiated, if necessary.

#### 5.7 Selection of Materials

With the exception of any organically-contaminated material (soil which contains more than 2 percent organics), the site soils seem to be suitable for use as engineered fill.

Oversized materials (those exceeding two-thirds of the lift thickness or 6 inches in dimension (whichever is less) should be removed from the engineered fill and broken down to satisfy this criteria prior to being reused as engineered fill or removed from the site.

If deemed suitable from an environmental standpoint, the existing asphalt concrete, underlying aggregate base, and un-reinforced curb/gutter and sidewalk concrete can be reused as engineered fill within roadway areas. The material must be broken down, but not pulverized, to less than 6 inches in dimension and should be thoroughly mixed with soil prior to reuse as engineered fill. Pending laboratory testing and approval by the Geotechnical Engineer and builder(s), and if separately stockpiled and not mixed with soil, these materials could be also be considered for reuse as low-expansive select fill under buildings.

The Geotechnical Engineer should be informed when import materials are planned for the site. Import materials should be submitted and approved by the Geotechnical Engineer prior to delivery at the site and should conform to the requirements provided in BFS Specifications.

### 5.8 Fill Placement

After removal of existing pavements, undocumented fill materials, and soft soils are completed, the exposed non-yielding surface of areas to receive fill should be scarified to a depth of 12 inches, moisture conditioned, and recompacted to provide adequate bonding with the initial lift of fill. All fills should be placed in thin lifts. The lift thickness should not exceed 8 inches or the depth of penetration of the compaction equipment used, whichever is less.

The following compaction control requirements should generally be applied to general fills:

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Fine-Grained Cohesive Deposits (PI greater than 15)

Test Procedures: ASTM D-1557-78.

Required Moisture Content: Not less than 3 percentage points above

optimum moisture content.

Minimum Relative Compaction: Not less than 90 percent.

Granular Cohesionless Deposits (PI less than 15)

Test Procedures: ASTM D-1557-78.

Required Moisture Content: Not less than 2 percentage points above

optimum moisture content.

Minimum Relative Compaction: Not less than 95 percent.

It is important that all site preparation, including demolition and stripping, is done under the observation of the Geotechnical Engineer's qualified field representative and should be carried out according to the requirements contained herein. The final grading plans should be submitted to the Geotechnical Engineer for review.

5.8.1 Site Preloading Recommendations. As discussed in Section 4.2, compressible clay is present at the site and loads from the proposed structures, equipment and additional fill will cause the compressible material to settle. As discussed with the design team, a surcharge program is planned for the site to minimize the effect of post construction consolidation settlement. The final surcharge fill heights and duration of loading will vary within the site based on location and structure loading as discussed below.

Prior to placement of surcharge fill, an additional 12 inches of engineered fill should be placed above the design building pad elevation. Engineered fill placed to achieve design pad grade and the 12-inch overbuild should be compacted and moisture conditioned in accordance to fill placement specification provided in Section 5.6. The surcharge fill may be placed by stockpiling soil in lifts ranging from 12 to 18 inches thick that is slightly compacted by track walking. Based on the proposed loads at each building location, the estimated surcharge fill required to preload the soil is presented in the following table. In track areas where grade is being raised but no buildings are

planned, we recommend a surcharge height equal to the thickness of the proposed fill but in no case less than 3 feet. For planning purposes, the minimum duration of the surcharge load should be 6 months.

DRAWING TITLE	STRUCTURE	ESTIMATED SURCHARGE HEIGHT (FEET)	ESTIMATED SURCHARGE TIME (MONTHS)
YB	Trans Building	3	7
1.0	Yard Control Tower	7	7
YC	Car Wash Building	3	6
YD	Blowdown Facility	3	8
	Revenue Vehicle Maintenance Shop	3	10
YE	Main Repair Bays	3	10
	Storage Room	3	10
YF	Car Cleaner's Facility	3	6
YG	Maintenance and Engineering Shops	4	5
YH	NR Maintenance Shop	5	8
	Mechanical and Engineering Office	6	8
YJ	Revenue Processing Building Opt A	Undetermined	Undetermined
13	Revenue Processing Building Opt B	Undetermined	Undetermined
YK	Inspection Pit	2	2
YL	Window Replacement Platform	0	0
YL	Turntable	5	6
YM	Wheel Truing Facility	2	6
	Gap Breaker, Facility Power, Yard		
OTHER	Substation, Train Control Station,	3 to 5	6
	Bulk Power/Switching Substation		

The preliminary surcharge schedule proposed above could be shortened by installing closely-spaced vertical permeable drains, or "wick drains", that extend through the compressible clay layer. Typically, the surcharge schedule could be reduced by 20 to 50 percent by installing wick drains approximately 5 to 10 feet apart in a triangular pattern. Additional design-level recommendations may be provided for the implementation of a wick-drain surcharge program as the design of improvements progresses.

5.8.2 Settlement Monitoring. The actual surcharge duration will be determined by monitoring the actual settlement over time. We recommend that a series of surveyed settlement monuments be installed at locations selected by the Geotechnical Engineer. The monitoring points should be

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surveyed periodically during the placement of surcharge grades and thereafter until the desired degree of settlement has been achieved as determined by the Geotechnical Engineer. All readings of settlement monuments should be tied to bench marks established well beyond the zone of surcharge influence. Construction of structures should be postponed until the majority of the settlement has occurred.

5.8.3 Surcharge Test Section. Because of the significant costs associated with implementing a surcharge program, we recommend that a surcharge test section be implemented. A footprint approximately 50 by 50 feet could be surcharged with and without wick drains and the time rate of settlement monitored to evaluate the effectiveness of surcharging. The fill should be placed and settlement monitored as described above. The information collected from the test program would aide in the development of the production surcharge program.

## 5.9 Graded Slopes

As stipulated in BFS, Civil, Standard Surface Parking, Section 3.2, side slopes shall be as flat as available right-of-way permits. In any case, we recommend that permanent cut or fill slopes be graded no steeper than a gradient of 2:1 (horizontal:vertical). Cut or fill slopes exceeding 10 feet should be flattened to 3:1. Cut-fill transition slopes should be overexcavated and reconstructed as engineered fill slopes.

All fill and reconstructed fill slopes should be adequately keyed into firm materials unaffected by shrinkage cracks. Remedial grading measures may include location of keyways, location of swale or keyway subdrains, and location of unsuitable soil removal.

## 5.10 Foundation Design

Based on our exploration and the proposed plans, the significant geotechnical issues are the variable expansive nature of the on-site soils, consolidation settlement associated with the underlying clayey soils, potential for earthquake-induced liquefaction and densification of sandy soils and localized perched groundwater. In order to reduce the effects of potential for differential movements, the foundations should be sufficiently stiff to move as rigid units. Considering these

conditions and building loads typical for the structures, the following foundation systems are appropriate for the proposed structures.

- Heavily loaded structures should be supported on structural mat or deep (piles or piers) foundations.
- Light to moderately loaded structures should be supported on mat foundations or conventional shallow foundations with a slab-on grade floor.

Based on discussions with the design team and with considerations on soil conditions, structural loads, equipment sensitivity to differential movement, constructability and cost, conceptual foundation types appropriate for each proposed structure are presented in the following table.

DRAWING TITLE	STRUCTURE	TOTAL CONCEPTUAL LOADING (PSF)	PRELIMINARY FOUNDATION TYPES	SURCHARGE REQUIRED (Y/N)
YB	Trans Building	740	Mat Foundation	Y
1.6	Yard Control Tower	1110	Mat Foundation	Y
YC	Car Wash Building	915	Mat Foundation	Y
YD	Blowdown Facility	790	Mat Foundation	Y
	Revenue Vehicle Maintenance Shop	1290	Pier / Pile Foundation	Y
YE	Main Repair Bays	730	Pier / Pile Foundation	Y
	Storage Room	2265	Pier / Pile Foundation	Y
YF	Car Cleaner's Facility	645	Conventional Footing Foundation	Y
YG	Maintenance and Engineering Shops	2030	Pier / Pile Foundation	Y
YH	NR Maintenance Shop	860	Pier / Pile Foundation	Y
111	Mechanical and Engineering Office	1035	Mat Foundation	Y
YJ	Revenue Processing Building Opt A	490	Mat Foundation	Y
1 J	Revenue Processing Building Opt B	565	Mat Foundation	Y
YK	Inspection Pit	125	Mat Foundation	Y
YL	Window Replacement Platform	735	Pier / Pile Foundation	N
YL	Turntable	475	Mat Foundation	Y
YM	Wheel Truing Facility	535	Pier / Pile Foundation	Y
OTHER	Gap Breaker, Facility Power, Yard Substation, Train Control Station, Bulk Power/Switching Substation	500	Mat Foundation	Y

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Pending specific design-level explorations, building loads and locations, the preliminary foundation type should be reviewed, and updated as appropriate. For preliminary design purposes, the Structural Engineer can consider designing mat foundations as a conventionally reinforced structural mat, stiffened rib mat or post-tensioned slab. In addition, drilled piers such as auger cast-in-place piers and driven piles such as precast concrete piles, steel pipe piles and H-piles can be designed for structures planned with a pier/pile foundation. Preliminary design criteria for each foundation option are discussed in the following sections.

5.10.1 Conventionally Reinforced Structural Mat Foundations. Conventionally reinforced structural mats should be designed for a 5-foot edge-cantilever distance and a 15-foot unsupported interior-span distance. The structural mat should have a minimum thickness of 10 inches and be thickened an additional 2 inches at the perimeter.

Mats should be reinforced with top and bottom steel as determined by the Structural Engineer to provide structural continuity and permit spanning of local irregularities. Structurally reinforced mats should be designed to accommodate a maximum differential movement of 1/600 of the effective span without experiencing structural distress to the slabs or excessive deflections in the framing and wall finishes. Structural mats should be designed for an allowable uniform soil pressure of 1,000 pounds per square foot (psf) dead plus real live loads. This value may be increased by 1/3 for total loads including wind and seismic. A modulus of subgrade reaction (k) of 150 pounds per cubic inch (pci) for native undisturbed soils or compacted fill can be used in the mat foundation design. The thickened edge of the mat should have a minimum width of 12 inches. The minimum backfill height of soil against the mat at the perimeter should be 6 inches. The resistance to lateral loads should be computed using a base friction factor of 0.35 acting between the bottom of the mat and subgrade.

5.10.2 Stiffened Rib Mat Foundations. Alternatively, a rib mat foundation system that utilizes a structural slab stiffened with continuous strip footings may be used. The strip footings should have a minimum width of 12 inches and extend at least 24 inches below the top of the slab. The continuous footings should be designed by a Structural Engineer to be reinforced with top and bottom steel to provide structural continuity and to permit spanning of local irregularities. Footings should be designed to form a rigid grid and be reinforced to accommodate a differential movement

of ½ inch over 20 feet. In addition, the Structural Engineer should consider designing the footing

reinforcement to limit excessive deflections in the framing and wall finishes.

Continuous footings should be designed for an allowable bearing pressure no greater than 2,000 psf

for dead plus real live loads; this value may be increased by one-third for total loads including wind

and seismic loads. A passive resistance pressure of 250 pounds per cubic foot (pcf), equivalent fluid

weight, may be used for design if the area in front of the footing is level for at least 10 feet. The

upper 1 foot of footing embedment should be neglected for passive resistance pressure. For

foundations located less than 10 feet from the edge of slopes (measured horizontally) passive

resistance should be neglected. A base friction factor of 0.35 may be used in the design. A

combination of both friction and passive pressure may be used if one of the values is reduced by

50 percent. A modulus of subgrade reaction of 150 pounds per cubic inch (pci) for native

undisturbed soils or compacted fill can be used in the mat foundation design.

Footings founded in expansive soils may be subjected to detrimental uplift forces along the sides of

the footings. To help reduce the potential for uplift pressures in expansive soils, we recommend that

all perimeter footings achieve bearing support a minimum of 24 inches below the lowest adjacent

grade and that any expansive soil in the upper 18 inches of the building pads be lime treated or

replaced with low to non-expansive soil with a Plasticity Index of 12 or less. Footing excavations

should be kept moist prior to placing foundation concrete.

5.10.3 Post-Tensioned Slab Foundations. Post-tensioned slabs should be designed according to the

method recommended in the Design and Construction of Post-Tensioned Slabs-on-Ground

(PTI, 1996). Soil design criteria for the post-tensioned slab foundations are as follows:

Center Lift Condition

Edge Moisture Variation Distance,  $e_m = 5.0$  feet

Differential Soil Movement,  $y_m = 2.9$  inches

**Edge Lift Condition** 

Edge Moisture Variation Distance,  $e_m = 4.0$  feet

Differential Soil Movement, y<sub>m</sub>= 1.3 inches

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The post-tensioned slab should be designed to impose a maximum allowable bearing pressure of 1,000 pounds per square foot (psf) for dead-plus-live loads. This value may be increased by one-third when considering total loads including wind and seismic loads. A minimum slab thickness of 10 inches is recommended. The perimeter should be thickened an additional 2 inches, and the minimum backfill height of soil against the slab at the perimeter should be 6 inches. The resistance to lateral loads should be computed using a base friction factor of 0.35 acting between the bottom of the mat and subgrade.

<u>5.10.4 Conventional Footing Foundation</u>. A shallow footing foundation system designed to accommodate the anticipated load-induced and earthquake-induced values noted above could be considered. The following provides preliminary design information:

Maximum Allowable Bearing Pressure: 2,000 pounds per square foot (psf) for

dead-plus-live loads. This value can be increased by one-third to include seismic or

wind loads.

Minimum Depth of Footing: At least 24 inches below lowest adjacent soil

subgrade.

Geopiers may be constructed in conjunction with the shallow footing foundation if additional bearing capacity is required. The following preliminary information can be used for geopiers reinforced shallow footing design:

Maximum Allowable Bearing Pressure: 4,500 pounds per square foot (psf) for

dead-plus-live loads. This value can be increased by one-third to include seismic or

wind loads.

Minimum Depth of Footing: At least 24 inches below lowest adjacent soil

subgrade.

### 5.11 <u>Lateral Resistance</u>

Resistance to lateral loads for structures supported on mat and conventional footing foundations may be provided by frictional resistance between the foundation concrete and the subgrade soils, and by passive earth pressure acting against the side of the foundation. A coefficient of friction

of 0.35 can be used between concrete and the subgrade soils. Passive pressures of competent soil

material can be taken as equivalent to the pressure developed by a fluid having a weight of

250 pounds per cubic foot (pcf). A combination of both friction and passive pressure may be used

if one of the values is reduced by 50 percent.

Further discussion about proposed building loads and layouts and additional design-level

explorations should occur prior to preparation of foundation design information for the project

improvements.

5.12 Drilled Piers

Drilled piers such as auger cast-in-place concrete piers may be used to support the proposed

structures. The piers should be interconnected by grade beams or structural slabs. The construction

of deeper and larger diameter piers with a wider spacing and stiffer grade beams is preferred. We

also recommend extending the piers into firm, natural materials as determined by the Geotechnical

Engineer from the boring data and also from pier drilling during construction.

5.12.1 Vertical Loading. Drilled pier capacity will be derived from skin friction obtained between

the soil and concrete interface. Drilled pier design and construction criteria recommended are as

follows:

Pier diameter: Minimum of 16 inches or 5 percent of pier length, whichever

is greater.

Pier depth: Not less than 25 feet but they should extend through any

potentially liquefiable zone.

Pier load capacity: The allowable pier capacity may be determined using a side

friction of 500 psf, neglecting the upper 2 feet of pier

embedment.

Pier uplift capacity: The allowable pier uplift capacity may be determined using a

side friction of 350 psf plus the weight of the pier.

Typical single drilled pier capacities with appropriate factors of safety incorporated are provided in

the following table.

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PIER DIAMETER (INCHES)	EMBEDMENT DEPTH (FEET)	ULTIMATE VERTICAL CAPACITY** (KIPS)		
(INCHES)		COMPRESSION	UPLIFT/TENSION	
18	25	55	45	
24	45	135	120	
36	45	200	195	

<sup>\*\*</sup> A Factor of Safety of 3 is incorporated

The pier spacing should be determined from the load-bearing capacity of the piers; in no case should it be less than three pier diameters on centers. Well-reinforced grade beams or a structural slab should interconnect the foundation piers supporting bearing walls. Isolated piers may be used to support floor loads and isolated point loads; however, the number of isolated piers should be kept to a minimum.

5.12.2 Lateral Loading. Lateral loads such as wind and seismic loads can be resisted by passive pressures generated below a depth of 5 feet. In general, passive resistance for drilled piers can be estimated with an equivalent fluid weight of 250 pounds per cubic foot (pcf) acting on 2 times the diameter may be used for the portions below a depth of 5 feet. The passive equivalent fluid pressure is an allowable value and includes appropriate factors of safety. Typical lateral capacities of single drilled piers with appropriate factors of safety incorporated are provided in the following table.

PIER DIAMETER	EMBEDMENT	ULTIMATE LATERAL
(INCHES)	DEPTH (FEET)	CAPACITY** (KIPS)
18	25	15
24	45	40
36	45	60

<sup>\*\*</sup> A Factor of Safety of 3 is incorporated

It should be noted that piers located on or within 15 feet of the top of slope should be designed to resist lateral creep loads using a uniform pressure of 600 psf acting on 1½ times the diameter against the upper 5 feet of the pier.

At this time, final lateral loadings for individual structures are not available, and therefore, details for pile design such as top of pier deflection, point of fixity and bending moment cannot be provided.

Instead, preliminary soil criteria for the required variables used in the applied L-Pile program for lateral pile analyses are provided based on information gathered during our exploration. A tabular summary of the L-Pile soil parameters is presented below.

DEPTH BELOW GROUND SURFACE (FT)	GENERALIZED SOIL PROFILE	L-PILE SOIL CODE NO./TYPE	SOIL STRENGTH	SOIL STRENGTH	K (PCI)	E50 (%)	EFFECTIVE UNIT WEIGHT (PCF)
0 to 5	Silty Clay to Sandy Clay	3. CLAY		2,000 psf	500	0.6	115
5 to 25	Silty Clay	1. CLAY		500 psf	30	2.0	40
25 to 45	Clayey Silt / Sandy Silt	7. SILT	20°	1,200 psf	60	1.0	45
45 to 80	Silty Clay / Gravelly Sand	4. SAND	30°	3,500 psf	125		65

The Structural Engineer should design the pier-and-grade-beam reinforcement. As a minimum, at least two No. 5 rebar should extend the full length of each pier; at least four No. 5 rebar should be used for piers located on or within 15 feet of the top of slope.

5.12.3 Pier Hole Drilling Considerations. Pier hole drilling should be done under the observation of the Geotechnical Engineer or his qualified representative to confirm that the above recommendations are being complied with and so that alternative action may be implemented when subsurface conditions vary from those encountered in the borings. If refusal to drilling is encountered, the Geotechnical Engineer, in consultation with the Structural Engineer, should determine what measures, if any, need to be taken. Moreover, due to presences of granular soil deposits below the groundwater table, casing may be required during construction to prevent caving of such soils before concrete placement.

In order to minimize potential future pier settlements, all loose soil should be removed from the bottom of pier holes prior to placing concrete. Pier holes should not be allowed to desiccate before placing concrete. Depressions at the top of the piers resulting from drilling operations or from any other cause should be backfilled to prevent ponding. Concrete collars occurring at the top of the piers as a result of placing should be removed to prevent unnecessary uplift forces against the piers.

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5.12.4 Perimeter Grade Beam. We recommend that perimeter grade beams be underlain by a 3-inch-minimum void space. This may be achieved by the use of degradable material such as Surevoid or equivalent material at least 3 inches thick provided between the bottom of the grade beams and the ground. As an alternative to the recommended void space beneath grade beams, these structural elements may rest upon grade provided they are designed to resist an upward swell pressure of at least 2,500 pounds per square foot. All grade beams and structural slabs should be reinforced to maximize their moment capacity, and designed by the Structural Engineer.

Foundation drainage should provide rapid removal of any water that may otherwise tend to flow under the building, as discussed in the subsequent sections of this report. In addition, it is recommended that at least 12 inches of soil be placed and compacted on the outside of the grade beam or structural slabs and sloped away from the foundation at right angles to provide for rapid removal of surface water runoff.

### 5.13 Driven Pile Foundations

5.13.1 Vertical Loading. As an alternative to drilled piers, the more heavily loaded structures may be supported on driven, precast, prestressed concrete piles tied together with grade-beams and/or a structural floor. The pile capacity will be derived from a combination of friction and end bearing in the underlying dense silty and clayey sand. We estimate that approximately 50- to 60-foot-long, 12- and 14-inch-square, prestressed concrete piles can achieve an ultimate capacity of 90 to 110 tons, respectively. A factor of safety of 2.0 should be used to estimate dead plus live load capacity. Similarly, a factor of safety of 1.5 should be used to estimate the pile capacity for all loads including seismic. Pile spacing should be not less than 3 times the pile diameter, center-to-center. The uplift capacity of the piles may be determined using 80 percent of the total vertical downward capacity.

5.13.2 Lateral Loading. Lateral resistance to wind and seismic loads can be developed by passive pressure on the soil against the pile caps and grade beams, as well as by bending resistance of the pile foundation. The passive resistance may be assumed as an equivalent fluid pressure of 250 pounds per cubic foot (pcf) acting on two pile widths. The passive equivalent fluid pressure is an allowable value and includes appropriate factors of safety. At this time, final lateral loadings for individual

structures are not available, and therefore, details for pile design such as top of pier deflection, point of fixity and bending moment cannot be provided. Preliminary soil criteria for the required variables used in the applied L-Pile program for lateral pile analyses were provided in Section 5.12.2. The Structural Engineer may use the L-Pile program to design lateral pile conditions.

The foundations should be designed by a licensed Structural Engineer. Once details regarding the structural designs of the buildings have been determined, the project Geotechnical Engineer should review such designs for appropriate changes and/or modifications to these preliminary foundation recommendations as deemed necessary. Since the structures that may require deep foundations are not know at this time, additional test borings may be required to evaluate subsurface conditions at pile locations.

5.13.3 Pile Driving. The design pile capacity will be achieved through a combination of adhesion between the pile and soil and end-bearing. In any case, the piles should have a minimum depth of penetration of 45 feet and terminate in the dense sandy soils as documented by driving resistance. The piles should be installed within the alignment and depth tolerances specified by the structural engineer. We recommend pre-drilling through the upper soil to aid the alignment and installation process, and to reduce the tendency to damage piles when driving from hard material into a soft layer. Pre-drilling should not extend below a depth of 5 feet. The pre-drilling hole area should not exceed 80 percent of the cross-sectional area of the pile. For 12- and 14-inch-square piles, the auger diameters should not exceed 12 inches and 14 inches in diameter, respectively. Pile driving should be continuous, as interruptions for extended periods of time may allow the pile to set up and result in harder pile driving resistance to reach design tip elevations. High driving resistance may be encountered as the pile advances through layers of dense sandy granular soil at depth. In no case should jetting be used to advance the piles since loss of frictional support would result.

The contractor should select pile driving equipment that is capable of delivering driving energy at least equivalent to that of a Delmag D-30 hammer. For this equivalent hammer energy, we anticipate a penetration resistance (blow count) of approximately 30 to 40 blows per foot for piles that achieve end bearing in the dense silty clayey sandy soils at the site. The driving resistance will vary between individual piles, and depend on many factors including the type of hammer, hammer cap, hammer efficiency and subsurface conditions. The final pile capacity will develop after driving

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as a result of soil setup and dissipation of excess pore water pressures. The gain in pile capacity as a result of these conditions may be evaluated based on re-driving the pile a minimum of 24 hours after the initial driving.

5.13.4 Indicator Piles. We recommend that indicator piles be driven to assist in establishing the final pile driving criteria, estimate final pile lengths, assist in identifying driving issues prior to ordering and casting the final production piles. The number of indicator piles and their locations should be determined in consultation with the Structural Engineer and other design team members. The use of a Pile Driving Analyzer during the indicator pile program along with re-driving the piles a minimum of 24 hours after initial driving will assist in evaluating driving stresses and the effects of soil setup on pile capacity. The indicator piles should be driven with the same equipment that will be used to drive the production piles. The indicator piles may be used as production piles if they are driven at production pile locations. We recommend that the project Geotechnical Engineer be retained to observe both the indicator and production pile driving operation and record the driving resistance and tip elevations obtained.

### 5.14 Subgrade Treatment for Slab-on Grade Floors

According to the test results, the on-site clayey soil is expected to be moderately to highly expansive. Because of this and the fact that slab-on-grade construction is desired, we recommend that the building pad and an area extending 5 feet out from the building perimeters or to the adjacent curb where walkways are planned, include a layer of low expansive fill or lime-treated soil at least 18 inches thick below slab subgrade levels. Recommendations for these two treatments are provided below.

5.14.1 Alternative I - Lime Treatment. In order to reduce the expansive nature of the site soil below the proposed building and other improvements, the subgrade soils within these areas can be lime treated to a minimum depth of 18 inches. The lime mix should consist of 3 to 5 percent lime and should be approved by the Geotechnical Engineer. Prior to lime treatment of the subgrade soils, chemical testing should be performed to determine the suitability of lime treatment and the actual percentage of lime required.

After mixing, the lime-soil mixture should be allowed to fully hydrate for a period of at least

24 hours prior to compaction. The treated subgrade should then be compacted to the compaction

requirement as listed below to create a non-yielding surface. Mixing and compaction should not

occur during a period of rain. Measures should also be taken to avoid ponding of surface water on

the building subgrade.

5.14.2 Alternative II - Low-Expansive Select Fill. Placement of an 18-inch-thick layer of a select

material consisting of low swell potential import soil is also feasible. The import soil should

comply with the specifications provided in the BFS.

The following are compaction control requirements for the lime-treated soil material or select

import material:

Test Procedures: ASTM D-1557-78.

Required Moisture Content: Not less than 2 percentage points above

optimum moisture content.

Minimum Relative Compaction: Not less than 90 percent. Not less than

95 percent in the upper 6 inches.

It is important that all site preparation, including stripping, is done under the observation of the

Geotechnical Engineer's field representative and should be carried out according to the

requirements contained in the BFS.

5.14.3 Structural Mat/Post-Tensioned Slab Subgrade Preparation. The subgrade material under

structural mats or post-tensioned slabs should be uniform and properly moisturized. The subgrade

soil should be moisture conditioned to at least 4 percentage points above optimum moisture content.

The subgrade should be thoroughly soaked prior to placing the concrete and should not be allowed

to dry prior to concrete placement.

Where floor coverings are anticipated, we recommend that the concrete be underlain by a tough,

water vapor retarding membrane that meets ASTM E 1745 - 97 Class A requirements for water

vapor permeance, tensile strength, and puncture resistance. This membrane may be protected from

damage during construction by overlying a 2-inch-thick layer of sand, if recommended by others

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(architect, structural, etc.). Foundation subgrade soils should be protected from seepage by providing impermeable plugs within utility trenches as described in the "Utilities" section of this report.

### 5.15 Slab-On-Grade Construction

It is our understanding that concrete slabs will be used for support vehicle parking and/or commercial floors above the groundwater level at street grade level. If the potential for a damp slab is undesirable, or if moisture sensitive floor coverings are proposed, it is recommended to use a vapor retarder beneath the slabs-on-grade. Accordingly, concrete slabs can be constructed on grade utilizing the following design guidelines:

- a. Concrete slabs should be at least 5 inches thick, depending on intended use, and reinforced with at least No. 4 bars spaced 18 inches on center each way. Actual slab reinforcing should be designed by the Structural Engineer. The slab-on-grade should be placed on a capillary break consisting of 6 inches of 3/4 inch clean crushed rock. Class 2 aggregate base should not be used as a capillary break. However, for slabs to receive vehicle loads, where moisture migration is not a consideration, the clean crushed rock may be replaced with Class 2 aggregate base.
- b. The Structural Engineer should consider using a tough, vapor retarding membrane that meets ASTM E 1745 97 Class A requirements for water vapor permeance, tensile strength, and puncture resistance. This membrane may be protected from damage during construction by overlying a 2-inch-thick layer of sand, if recommended by others (architect, structural, etc.).
- c. A modulus of subgrade reaction of 150 pounds per square inch (psi) per inch of deflection for site soils can be used in the slab design.

The use of high strength concrete with a low water-cement ratio will also assist in reducing the potential for vapor transmission through the slab.

Some cracking of the slabs-on-grade should be anticipated at the site as a result of concrete shrinkage. Frequent control joints should be provided to control the cracking. As a general guideline, control joints can be 20 feet apart. Added steel or slab thickness would also serve to improve the performance of the slabs.

### 5.16 Retaining and Foundation Walls

We anticipate the use of retaining walls at various locations within the site including loading docks, maintenance pits, and along the tracks where they transition from below grade to above grade. Retaining walls may be designed for the following equivalent fluid pressures (static case):

BACKFILL SLOPE	EQUIVALENT FLUID PRESSURES (PCF)			
CONDITION	ACTIVE CONDITION	RESTRAINED (FOUNDATION AT-REST)		
Level	50	70		
4:1	60	75		
3:1	70	80		
2:1	80	90		

Passive pressures acting on foundations may be assumed as 250 pounds per cubic foot (pcf) provided that the area in front of the retaining wall is level for a distance of at least 10 feet or three times the depth of foundation and keyway, whichever is greater. The upper one foot of soil should be excluded from passive pressure computations unless it is confined by pavement or concrete slab.

Retaining walls should be provided with drainage facilities to prevent the build-up of hydrostatic pressures behind the walls. Alternatively, the walls should be waterproofed and designed to resist hydrostatic pressures acting on the entire wall height.

Wall drainage may be provided using a 4-inch-diameter perforated pipe embedded in Class 2 permeable material (Caltrans Standard Specifications), or free-draining gravel surrounded by synthetic filter fabric. The width of the drain blanket should be at least 12 inches and the drain blanket should extend to about one foot below the finished grades. As an alternative, prefabricated synthetic wall drain panels can be used. The upper one foot of wall backfill should consist of compacted site soil. Drainage should be collected by pipes and directed to an outlet approved by the Civil Engineer. Synthetic filter fabric should meet the minimum requirement listed in the BFS.

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All backfill should be placed in accordance with recommendations provided above for engineered fill. Light equipment should be used during backfill compaction to minimize possible overstressing of the walls.

<u>5.16.1 Seismic Design Considerations</u>. Should the design height of a retaining or foundation wall exceed 12 feet, seismic conditions need to be considered on the design of a retaining wall (California Building Code, Section 1611A.6, 2001). Under seismic conditions, the incremental seismic force along the face of a retaining wall should be calculated as follows:

$$\Delta P = 17 \times H^2$$

H is the design height of the wall (in feet) and  $\Delta P$  is the incremental seismic force in pounds per foot of wall. This force has a horizontal direction and should be applied at 0.6 x H from the base of the wall.

Alternatively, it is acceptable to use Mononobe and Okabe relationships in the design of retaining walls to resist seismic loading. The required parameters will depend on the wall geometry and soil conditions at the wall location. The seismic input can be obtained from the HMM/Bechtel Tunnel Segment Preliminary Engineering Services Report on Seismic Ground Motions dated December 20, 2004.

5.16.2 Surcharge Considerations. The effect of any surcharge (dead or live load) should be added to the preceding lateral earth pressures. It is common to assume a minimum live load surcharge pressure equal to, but not less than, two feet of the earth when traffic can come within a horizontal distance from the top of the structure equal to one half its height. A coefficient of 0.40 may be used to determine the additional earth pressure resulting from the surcharge for the active condition. Respectively, a coefficient of 0.60 may be used to determine the additional earth pressure resulting from the surcharge for the at-rest condition. These loads should be evaluated once wall locations and heights are defined.

### 5.17 Excavations and Lateral Support Systems

Grading and construction activities will result in a retained cut structure of variable height near the portal and the mainline alignment underneath the existing UPRR near De La Cruz Boulevard. These excavations may require temporary lateral support. Based on site grades, we have assumed at this time that retained excavations up to approximately 20 feet deep may be required.

Groundwater will likely be encountered at increased depths or perched water conditions will be encountered, which may require dewatering. The contractor should be aware of such conditions and plan to mitigate them in the construction program (see "Construction Dewatering" section of this report).

For planning purposes, excavations can be made using open cuts with temporary slopes at approximately 1:1 (horizontal:vertical) provided the groundwater level is lowered to a minimum of 3 feet below the bottom of the excavation. Stockpiles of soil and equipment should be kept back from the top of the excavation slope a distance equal to the depth of the excavation but in no case closer than 5 feet. Otherwise, temporary shoring should be used for the excavation.

5.17.1 Temporary Shoring. Temporary shoring may be required to facilitate site construction. Shoring is used to protect the integrity of an excavation by keeping soil adjacent to the excavation from entering the excavation. This is commonly accomplished with a cantilever soldier pile and lagging system. Piles are installed in a row along the lateral extent of the proposed excavation to a depth below the lowest anticipated excavation depth that will provide sufficient lateral support to the pile. The piles are driven or installed in a drilled hole that is backfilled with concrete. Lagging is applied as necessary between the soldier piles to prevent soil from passing between the piles into the excavation. Depending on the design, excavations that extend deeper than about 12 feet may require tie-back anchors.

If it is preferable to install the soldier piles in drilled piers, the recommended minimum diameter of the embedded soldier piles is 18 inches. The spacing between drilled piles (center to center) should be at a minimum 3 times the shaft diameter. The design of temporary cantilever shoring should utilize lateral earth pressures presented on Figure 7. Due to the presence of existing structures that

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may be adjacent to the excavation, it is critical that the soil deformations are limited. Therefore, "at-rest" (restrained) conditions have been used for the pressure distribution presented on Figure 7. A cantilever wall system for excavations over 12 feet is generally not economical and thus not recommended. The Structural Engineer should evaluate the proposed excavation depths, make final determination of the design moment and select appropriate structural member for the wall design.

It is possible that groundwater will be encountered during construction. Due to presence of scattered sand lenses and layers, raveling or caving is expected which may require casing and/or additional drilling and cleaning effort and may increase the concrete volume for the piles.

Alternatively, driven piles or a cantilever sheet-pile wall system may be used for lateral support. If this is the preferred method, hard driving may be encountered at a shallow depth.

5.17.2 Tie-Back Anchors. Depending on the width and the height of the excavation and other factors, it may be necessary to restrain excavation walls by using a single-level or multi-level system of tie-back anchors in order to provide additional lateral support. A tie-back is an anchor member that develops its resistance by bonding and friction action with the surrounding soil. If sufficient tie-back resistance is developed, the pile shoring system can approach a restrained condition.

The following recommendations are only for the preliminary design and engineer's cost estimate of the tie-back system. The contractor should perform their tie-back design based on the performance specifications required under the contract.

The tie-backs may be installed through the soldier piles with 15- to 20-degree inclinations. The bonded zone of the tie-backs should be located behind a potential failure plane, which rises from the base of the wall at an angle of 60 degrees from the horizontal. An unbonded length of 15 feet (minimum) is recommended for the tie-backs. The horizontal and/or vertical distance between adjacent tie-backs should be large enough to avoid group effects of anchors. The spacing between the tie-backs at the beginning of bond length should be greater than 3 times the tie-back hole diameter or a minimum of 5 feet. For preliminary design purposes and engineer's cost estimate, an ultimate (unfactored) bond strength of 1.5 ksf may be assumed.

The lateral earth pressure distributions (Apparent Pressure Diagrams), which are presented in Figure 8 may be used for design of the temporary shoring that incorporates tie-back anchors.

Because of the variability in the soil materials during construction and the limitations in the exploration program, it is recommended that several cost control measures be implemented in the specifications for the tie-back system. The contractor should be advised to verify the field conditions and also verify the tie-back capacity through his own efforts. They should also verify the drilling conditions into the existing materials.

The construction sequence of an anchored sheet pile or soldier pile system must be considered when making an engineering analysis. Different loads are imposed on the system before and after the anchor tensioning sequence is completed.

5.17.3 Construction Dewatering. As previously discussed, groundwater was initially encountered at a depth of 19 to 25 feet below grade during our explorations, depending upon location, and stabilized at roughly 4 to 15 feet below current ground surface at the time of our exploration. It is recommended that the contractor be made aware of possible needs for dewatering excavations that extend below a depth of approximately 4 feet and during pier drilling.

Dewatering may be accomplished using interior well points that collect groundwater and discharge the water to the City storm drain system or other approved outlets. The water level should be maintained at least 5 feet below the bottom of the deepest excavation during construction. In general, a dewatering system should be designed to prevent pumping soil fines with the discharge water. Settling tanks are likely required in accordance with Stormwater Pollution and Prevention Plan measures. Uncontrolled dewatering may cause settlement of the general area and may affect existing structures in the vicinity of the site.

<u>5.17.4 Pre-Construction Survey</u>. Excavation and construction will take place adjacent to existing facilities/structures to remain. We recommend that a pre-construction survey (e.g. crack survey) and monitoring program be performed before and during construction for the surrounding buildings, retaining walls, bridges, roadways, pavements etc. which may be affected by construction activities.

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This will form a basis for any damage claims and also assist the contractor in assessing the performance of the shoring or excavation slopes. This survey may consist of a baseline elevation survey, photographs, video tapes, etc.

<u>5.17.5 Encroachments</u>. It will likely be necessary to encroach upon adjacent parcels which lie along property lines in order to construct the embankment, keyways, subdrains, etc. Permits and approval should be obtained from the adjacent property owners, as appropriate.

### 5.18 Soil Nail Wall

It is our understanding that a soil nail wall is being considered for construction of the abutment wall modifications at the De La Cruz Overhead Structure. The soil nail wall may be up to 20 feet in vertical height.

Soil nailing refers to reinforcing elements installed horizontally or sub-horizontally into the cut face as "top-down" staged excavation proceeds. Soil nailing strengthens the soil behind the face of the cut with grouted in-place small diameter steel bars. With proper design and installation, soil nail walls perform successfully in materials with sufficient cohesion or cementation to maintain temporary unsupported cuts. Because no import backfill materials are required and the excavation does not extend behind the wall face, substantial material and excavation cost savings can be achieved compared with conventional concrete or other wall systems. Additionally, since no additional excavation behind the facing is required, minimal environmental impact beyond the cut face occurs. The soil-nail method has been used successfully for permanent walls in recent years in soil similar to that present at the site.

The soil-nail process typically involves "top-down" excavation starting with a vertical to near-vertical cut, typically 3 to 6 feet high, depending on the vertical nail spacing. A row of borings is drilled with shallow inclinations (typically 5 to 20 degrees below the horizontal) and steel rods are inserted and grouted into the boreholes. This is followed by placement of facing (typically shotcrete with welded wire mesh), prior to excavation of the next level. The process is repeated until the excavation is complete. Drainage behind the wall is typically addressed by placing geotextile composite drainage panels against the soil before shotcreting.

Installation of nails in granular soils may be hampered by caving. Therefore, it may be necessary to case the hole in caving zones. Alternatively, the use of a hollow-stem auger with grout pumped through the stem as the auger is withdrawn is also satisfactory. The wall designer should also consider using corrosion protected nails.

We recommend the following soil parameters and factors of safety be used in the design of soil nail walls. The final plan, design calculations and stability analyses of the wall set should be submitted to the Geotechnical Engineer for review prior to wall construction.

### 5.18.1 Recommended Factors of Safety

### Internal Factor of Safety

• Adhesion: FS = 2.0

• Soil Shear Failure: FS = 1.5 (static)

FS = 1.15 (Seismic)

Steel Failure FS = 1.67
 Punching Shear FS = 1.5

External Factor of Safety (Global Slope Stability)

Static
 FS = 1.5
 Seismic
 FS = 1.15

### 5.18.2 Soil Nail Wall Design Parameters

Allowable

	Bond Stress	Cohesion (c')	Friction Angle (φ')	Unit Weight (γ)
<u>Material</u>	<u>(psi)</u>	<u>(pcf)</u>	(degrees)	<u>(pcf)</u>
Soil	6	50	18	125

All soil nails should have a minimum embedment length of at least 15 feet. Surcharge loads from any embankment fill located above the wall, foundations and vehicle loading should be included in the design.

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## 5.19 Drainage

Improper drainage may result in fill saturation with consequent loss of compaction and fill strength. It is very important that building pads be positively graded at all times to provide for rapid removal of surface water. Ponding of water under floors or seepage toward foundation systems at any time during or after construction must be prevented.

Ponding of stormwater must not be permitted on the building pads during prolonged periods of inclement weather. As a minimum requirement, finished grades should provide a slope gradient of at least 3 to 5 percent within 5 feet from exterior walls at right angles to them to allow surface water to drain positively away from the structure. For paved areas, the slope gradient can be reduced to 2 percent. Care should be exercised to ensure that landscape mounds and landscape features do not interfere with these requirements. Sufficient area drains should be provided around the proposed building to remove excess surface water.

All roof stormwater should be collected and directed to downspouts. Stormwater from roof downspouts should not be allowed to discharge directly onto the ground surface in close proximity to the foundation system. Rather, stormwater from roof downspouts should be directed to a solid pipe that discharges into the street or to an outlet approved by the Civil Engineer.

### 5.20 Preliminary Pavement Design

Based on preliminary field explorations and laboratory testing, we estimate that site soil will have a resistance (R-value) value of 5. The following preliminary pavement sections have been determined based on an assumed R-value of 5 according to the method contained in Topic 608 of California Department of Transportation Highway Design Manual (CALTRANS, 1992).

TRAFFIC	ALTERNATIVE I		ALTERNATIVE II			
INDEX	AC	AB	AC	AB	ASB	
11 (2 211	(IN.)	(IN.)	(IN.)	(IN.)	(IN.)	
4.5	3.0	8.0				
5.0	3.0	10.0	3.0	6.0	5.0	
6.0	3.5	13.0	3.5	6.0	8.0	
7.0	4.0	16.0	4.0	7.0	10.0	
8.0	4.5	19.0	4.5	8.0	12.0	
9.0	5.0	22.0	5.0	9.0	14.0	
10.0	6.0	24.0	6.0	10.0	16.0	

Notes: AC is asphalt concrete

AB is aggregate base Class 2 Material with minimum R = 78

ASB is aggregate subbase with minimum R = 50

The Traffic Index should be determined by the Civil Engineer or appropriate public agency. These sections are for estimating purposes only. Actual sections to be used should be based on R-value tests performed on samples of actual subgrade materials recovered at the time of grading. Pavement construction and all materials should comply with the requirements of the Standard Specifications of the State of California Division of Highways, City of Santa Clara, City of San Jose and BFS requirements and the following minimum requirements.

- Pavement subgrades (street and sidewalk) should be scarified to a depth of 12 inches below finished subgrade elevation, moisture conditioned to at least 3 percentage points above optimum, and compacted to at least 90 percent relative compaction and in accordance with City, County or BFS requirements assuming a clayey soil condition. Alternate placement specifications may be warranted for chemically treated materials or if granular soils are present.
- In accordance with BFS specifications, a filter course shall consist of one layer of filter fabric placed on the subgrade below the aggregate base or subbase course.
- Subgrade soils should be in a stable, non-pumping condition at the time aggregate baserock
  materials are placed and compacted. Proof-rolling with a heavy wheel-loaded piece of
  construction equipment should be implemented. Yielding materials should be appropriately
  mitigated, with suitable mitigation measures developed in coordination with the client,
  contractor and consultant.

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- Adequate provisions must be made such that the subgrade soils and aggregate baserock materials are not allowed to become saturated.
- Aggregate baserock materials should meet current BFS or Caltrans specifications for Class 2
  aggregate baserock and should be compacted to at least 95 percent of maximum dry density
  at a moisture content of at least optimum (ASTM Test Methods).
- Asphalt paving materials should meet current BFS or Caltrans specifications for asphalt concrete.
- All concrete curbs separating pavement and irrigated landscaped areas should extend into the subgrade and below the bottom of adjacent aggregate baserock materials. An undercurb drain could also be considered to help collect and transport subsurface seepage.

## 5.21 Requirements for Landscaping Irrigation

Vegetation should not be planted immediately adjacent to structures. If planting adjacent to a structure is desired, we recommend using plants that require very little moisture with drip irrigation systems. Irrigation of landscaped areas should be strictly limited to that necessary to sustain vegetation as excessive irrigation and ponding could result in saturating, weakening, and possible swelling of foundation soils. The Landscape Architect and prospective owners should be informed of the surface drainage requirements included in this report.

Sprinkler systems should not be installed where they may cause ponding or saturation of foundation soils within 3 feet of the walls or under structures.

It is recommended that utility trench backfilling be done under the observation of a Geotechnical Engineer. Ideally, pipe zone backfill (i.e. material beneath and immediately surrounding the pipe) should consist of native material less than  $^{3}/_{4}$  inch in maximum dimension compacted in accordance with recommendations provided above for engineered fill. Trench zone backfill (i.e. material placed between the pipe zone backfill and the ground surface) should also consist of native soil compacted in accordance with recommendations for engineered fill.

If required by local agencies, where import material is used for pipe zone backfill, we recommend it consist of quarry fines, fine- to medium-grained sand, or a well-graded mixture of sand and gravel and that this material not be used within 2 feet of finish subgrades. This material

should be compacted to at least 90 percent relative compaction at a moisture content of not less than optimum.

In general, uniformly graded gravel should not be used for pipe or trench zone backfill due to the potential for migration of: (1) soil into the relatively large void spaces present in this type of material, and (2) water along trenches backfilled with this type of material. If uniformly graded gravel is used, we recommend that it be encapsulated in 6-ounce filter fabric. Providing outlet locations into manholes or catch basins for water collected in granular import pipe zone trench backfill should also be considered.

All utility trenches entering buildings and paved areas should be provided with an impervious seal where the trenches pass under the building perimeter or curb lines. The impervious plug should extend at least 3 feet to either side of the crossing and should be placed below, around, and above the utility pipe such that it is entirely in contact with the trench walls and pipe. This is to prevent surface water percolation into the import sand or gravel pipe zone backfill under foundations and pavements where such water would remain trapped in a perched condition.

Care should be exercised where utility trenches are located beside foundation areas. Utility trenches constructed parallel to foundations should be located entirely above a plane extending down from the lower edge of the footing at an angle of 45 degrees. Utility companies and Landscape Architects should be made aware of this information.

Utility trenches in areas to be paved should be constructed in accordance with the City requirements or approved alternatives. Compaction of backfill by jetting should not be allowed at this site. If there appears to be a conflict between the City or other Agency requirements and the recommendations contained in this report, it should be brought to the Owner's attention for resolution prior to submitting bids.

## 5.22 Excavation Safety

All excavations including utility trenches should be properly excavated, and shored as applicable, to create a stable and safe condition. It is the responsibility of the Contractor to

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provide such stable, safe trench and construction slope conditions and to follow OSHA safety requirements. Since excavation procedures may be very dangerous, it is also the responsibility of the Contractor to provide a trained "competent person" as defined by OSHA to supervise all excavation operations, ensure that all personnel are working in safe conditions, and have thorough knowledge of OSHA excavation safety requirements.

#### 6.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

This report is issued with the understanding that it is the responsibility of the owner to transmit the information and recommendations of this report to their partners, contractors, architects, engineers, and designers for the project so that the necessary steps can be taken by the contractors and subcontractors to carry out such recommendations in the field. The conclusions and recommendations contained in this report are solely professional opinions.

The professional staff of ENGEO Incorporated strives to perform its services in a proper and professional manner with reasonable care and competence but is not infallible. There are risks of earth movement and property damages inherent in development. We are unable to eliminate all risks or provide insurance; therefore, we are unable to guarantee or warrant the results of our services.

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# 7.1 APPENDIX A

## JOHN SARMIENTO & ASSOCIATES

Cone Penetration Test Data

### FIELD EQUIPMENT & PROCEDURES

The Cone Penetration Tests (CPT) were carried out by John Sarmiento and Associates, of Menlo Park, California using an integrated electronic cone system. The CPT probes were performed in accordance with ASTM standards (D3441). A 20-ton capacity cone was used for the probes. This cone has a tip area of 15 cm<sup>2</sup> and friction sleeve area of 225 cm<sup>2</sup>. A piezometer element of 5 mm thickness is located immediately behind the cone tip. The cone used has an equal end area friction sleeve and a tip end area ratio of 0.85.

The cone used during the program was capable of recording the following parameters at 5-cm-depth intervals at a rate of 2 cm per second:

- Tip Resistance (qc)
- Sleeve Friction (fs)

The above parameters were printed simultaneously on a printer and stored on a computer diskette for future analysis and reference. CPT logs are included as well as interpreted parameters based on the CPT measurements.

It should be noted that Pore Pressure Dissipation Tests (PPDT's) were not taken at various intervals to measure hydrostatic water pressures and approximate depth to groundwater table. The groundwater levels at each CPT probe location was measured by taping after the completion of the probe advancement.

Thirty-five CPT probes were performed to a maximum depth of 80 feet below the ground surface. The CPT probes locations were established by utilizing Global Positioning System (GPS) and are shown on Figure 2.

## CONE PENETRATION TEST DATA & INTERPRETATION

The cone penetration test data is presented in graphical form. Penetration depths are referenced to existing ground surface. This data includes CPT logs of measured soil parameters and a computer tabulation of interpreted soil types along with additional geotechnical parameters and pore pressure dissipation data.

The stratigraphic interpretation is based on relationships between cone bearing (qc), sleeve friction (fs), and penetration pore pressure (U). The friction ratio (Rf), which is sleeve friction divided by cone bearing, is a calculated parameter which is used to infer soil behavior type. Generally, cohesive soils (clays) have high friction ratios, low cone bearing and generate large excess pore water pressures. Cohesionless soils (sands) have lower friction ratios, high cone bearing and generate little in the way of excess pore water pressures.

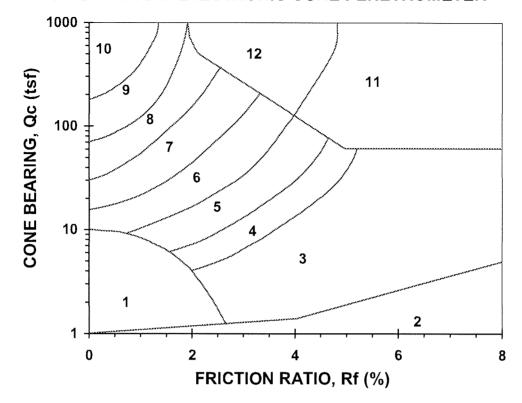
The interpretation of soils encountered on this project was carried out using recent correlations developed by Robertson et al, 1986. It should be noted that it is not always possible to clearly identify a soil type based on qc, fs and U. In these situations, experience and judgment and an assessment of the pore pressure dissipation data should be used to infer the soil behavior type.

The soil classification chart used to interpret soil types based on qc and Rf is provided on the following page.

## **REFERENCES**

Robertson, P.K. and Campanella, R.G., Gillespie, D. and Grieg, J., 1986, "Use of Piezometer Cone Data", Proceedings of In Situ 86, ASCE Specialty Conference, Blacksburg, Virginia.

## SIMPLIFIED SOIL BEHAVIOR TYPE CLASSIFICATION FOR STANDARD ELECTRONIC CONE PENETROMETER



ZONE	Qc/N <sup>1</sup>	Su Factor (Nk) <sup>2</sup>	SOIL BEHAVIOR TYPE <sup>1</sup>
4	^		Completive Fire Completed
I	<sup>2</sup> \		Sensitive Fine Grained
2	1	for Zones 1 to 6	Organic Material
3	1 \	10 for Qc <= 9 tsf	CLAY
4	1.5	12 for Qc = 9 to 12 tsf	Silty CLAY to CLAY
5	2 /	15 for Qc > 12 tsf	Clayey SILT to Silty CLAY
6	2.5		Sandy SILT to Clayey SILT
7	3		Silty SAND to Sandy SILT
8	4		SAND to Silty SAND
9	5		SAND
10	6		Gravelly SAND to SAND
11	1	15	Very Stiff Fine Grained (*)
12	2		SAND to Clayey SAND (*)
	(*) Overcon	solidated or Cemented	

Qc = Tip Bearing Fs = Sleeve Friction

Rf = Fs/Qc\*100 = Friction Ratio

References: <sup>1</sup>Robertson, 1986, Olsen, 1988

<sup>2</sup>Bonaparte & Mitchell, 1979 (young bay mud Qc <= 9)

<sup>2</sup>Estimated from local experience (fine grained soils Qc > 9)

Note: Testing performed in accordance with ASTM D3441

## John Sarmiento & Associates

Cone Penetrometer Testing Services

PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-1 Page 1 of 2

LOCATION: San Jose / Santa Clara CA PROJ. NO.: 6600.3.001.01(EGO-102)

DATE : 08-29-2005 Groundwater measured at 11.7 feet

Terminated at 50.0 feet

									20.0	
DEPTH (feet)	Qc (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT (N')	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0.52 1.04	107.50 60.10	1.930 1.140	1.8 1.9	36 20	57 32	0.06 0.13	41 38		Silty SAND to Sandy SILT	130-140
1.55	24.00	1.410	5.9	24	38	0.20		3.19	CLAY	1.1
2.02	11.20	0.880	7.9	11	18	0.26		1.85	11	120-130
2.53	9.40	0.710	7.6	9	15	0.32		1.54	1.1	11
3.06	17.10	0.720	4.2	17	27	0.39		2.25	1.1	£ 1
3.58	18.20	0.850	4.7	18	29	0.45		2.40	1.1	1.1
4.01	10.30	0.830	8.1	10	16	0.51		1.67	11	1.1
4.53	9.70	0.980	10.1	10	16	0.57		1.57	Organic Material	1.1
5.07	14.30	1.170	8.2	14	23	0.65		1.86	CLAY	130-140
5.50	12.80	1.020	8.0	13	20	0.70		1.66	11	120-130
6.04	10.30	0.890	8.6	10	16	0.77		1.65	1.1	11
6.57	9.40	0.830	8.8	9	15	0.83		1.50	1.1	1.6
7.10	9.00	0.780	8.7	9	14	0.90		1.43	1.1	1 #
7.52	8.30	0.640	7.7	8	12	0.95		1.56	1.1	1.6
8.05	9.70	0.660	6.8	10	13	1.02		1.53	1.1	1.1
8.52	11.70	0.710	6.1	12	16	1.08		1.86	1.1	1.1
9.05	10.30	0.540	5.2	10	14	1.14		1.62	11	1.1
9.59	6.90	0.300	4.3	7	9	1.20		1.26	11	100-110
10.01	8.40	0.460	5.5	8	11	1.25		1.56	1.1	110-120
10.55	7.30	0.410	5.6	7	9	1.31		1.33	11	1.1
11.08	9.20	0.410	4.5	9	11	1.37		1.42	11	11
11.50	11.10	0.420	3.8	11	13	1.42		1.73	11	1 1
12.09	10.30	0.440	4.3	10	12	1.49		1.59	11	11
12.52 13.05	11.00	0.560	5.1	11	13	1.54		1.71	1 I 1 I	120-130
13.59	11.40 13.00	0.480 0.600	4.2	11 13	13 15	1.61		1.77	11	11
14.01	18.40	0.690	4.6 3.8	12	14	1.67 1.73		1.62 2.34		11
14.54	16.70	0.700	4.2	17	19	1.79		2.11	Silty CLAY to CLAY CLAY	11
15.52	12.00	0.610	5.1	12	13	1.92		1.47	II	11
16.05	10.00	0.410	4.1	10	11	1.98		1.50	11	110-120
16.59	8.90	0.420	4.7	9	10	2.04		1.58	1.1	110 120
17.02	9.50	0.570	6.0	10	10	2.09		1.41	11	120-130
17.55	8.50	0.420	4.9	9	9	2.15		1.48	1.1	110-120
18.08	9.90	0.580	5.9	10	10	2.22		1.47	11	120-130
19.03	10.20	0.460	4.5	10	11	2.33		1.51	1.1	110-120
19.57	10.20	0.520	5.1	10	10	2.40		1.50	1.1	120-130
20.52	11.70	0.480	4.1	12	12	2.51		1.74	11	11
21.04	19.70	1.080	5.5	20	20	2.58		2.45	1.1	130-140
21.57	15.30	0.740	4.8	15	15	2.65		1.86	1.1	120-130
22.02	12.30	0.540	4.4	12	12	2.71		1.46	11	11
22.55	11.20	0.590	5.3	11	11	2.77		1.64	11	11
23.06	37.10	2.070	5.6	37	37	2.84		4.76		130-140
23.51 24.02	144.80 227.40	2.900 2.420	2.0 1.1	48 45	48 45	2.90 2.97	40 43		Silty SAND to Sandy SILT	120-130
24.54		4.250	1.0	86		3.03	46		SAND	120-130
25.05	383.80	6.230	1.6	77	76	3.10	46		1.1	130-140
25.50	334.30	4.880	1.5	67	66	3.16	45		11	11
26.01	342.10	3.570	1.0	68	68	3.22	45		1.1	120-130
26.57	265.80	3.690	1.4	53	53	3.30	44		1.1	130-140
27.06	282.50	2.560	0.9	57	56	3.36	44		1.1	120-130
27.56	283.00	5.140	1.8	57	56	3.43	44		1.1	130-140
28.09	169.60	1.910	1.1	34	34	3.50	41		1.1	120-130
28.56	169.70	1.960	1.2	34	34	3.55	41		1.1	1.1
29.03	183.00	2.110	1.2	37	36	3.61	41		1.1	11
29.50	202.60	2.840	1.4	41	39	3.68	42		11	130-140
30.04	312.80	4.450	1.4	63	60	3.75	44		11	
30.56	248.90	5.780	2.3	83	79	3.82	43		Silty SAND to Sandy SILT	
31.07	215.20	1.040	0.5	43	40	3.87	42		SAND	100-110
31.52	156.10	0.840	0.5	31 27	29 25	3.92	40 38		CAND to Cilty CAND	120-170
32.08 32.52	109.80 192.30	1.070 2.820	1.0 1.5	27 38	25 35	3.99 4.05	38 41		SAND to Silty SAND SAND	120-130 130-140
33.07	150.80	2.500	1.7	38	34	4.03	40		SAND to Silty SAND	130-140
33.53	325.40	3.820	1.2	65	58	4.19	44		SAND	11
34.08	329.40	4.950	1.5	66	58	4.26	44		11	11

PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-1 Page 2 of 2 LOCATION: San Jose / Santa Clara CA DATE: 08-29-2005

PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 11.7 feet Terminated at 50.0 feet

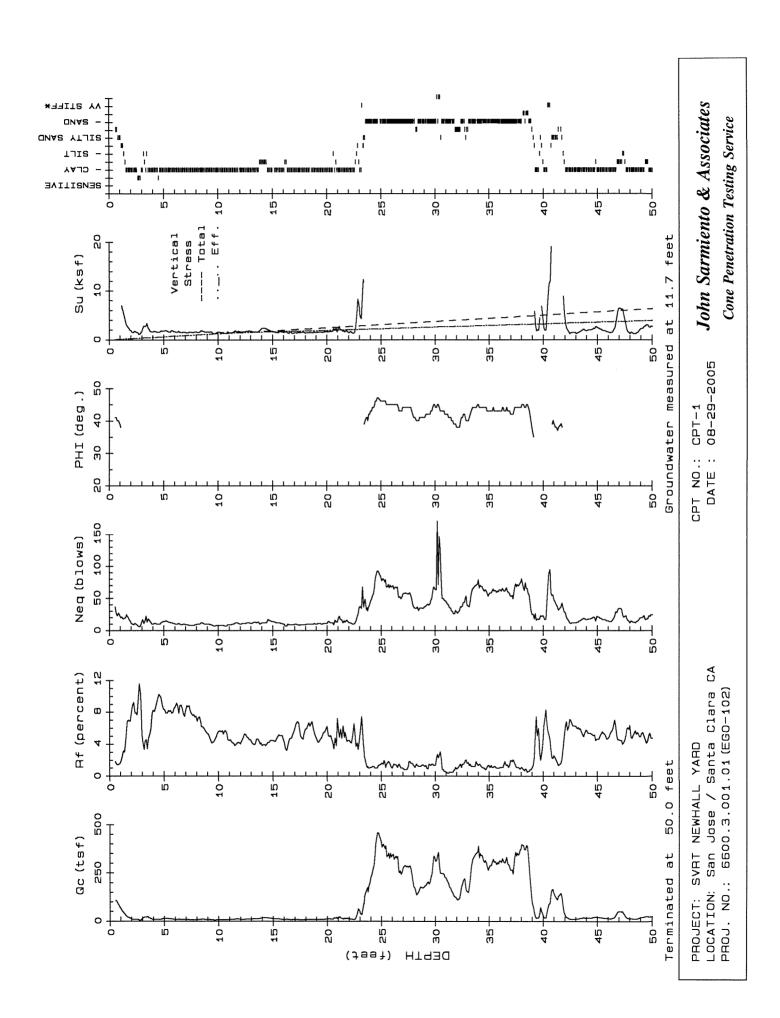
DEPTH	Qc	Fs	Rf	SPT	SPT	TotVtStr	PHI	SU	SOIL BEHAVIOR	DENSITY RANGE
(feet)	(tsf)	(tsf)	(%)	(N)	(N¹)	(ksf)	(deg.)	(ksf)	TYPE	(pcf)
34.54	306.70	3.100	1.0	61	53	4.32	44		11	120-130
35.01	278.90	3.590	1.3	56	48	4.38	43		11	130-140
35.55	310.50	3.610	1.2	62	52	4.45	44		11	1.1
36.05	313.80	3.330	1.1	63	52	4.52	44		1.0	120-130
36.55	315.00	4.870	1.5	63	52	4.58	43		11	130-140
37.06	266.00	5.150	1.9	53	44	4.65	42		1.1	1.1
37.53	339.70	3.830	1.1	68	55	4.71	44		11	120-130
38.02	397.60	4.280	1.1	80	65	4.77	45		1.1	11
38.54	391.80	2.050	0.5	65	53	4.83	45		Gravelly SAND to SAND	110-120
39.09	74.80	1.040	1.4	25	20	4.90	35		Silty SAND to Sandy SIL	T 120-130
39.57	17.20	1.010	5.9	17	14	4.97		1.96	CLAY	130-140
40.04	21.40	1.300	6.1	21	17	5.03		2.52	11	11
40.53	87.50	4.560	5.2	88	69	5.10		11.33	Very Stiff Fine Grained <sup>3</sup>	
41.01	144.60	3.670	2.5	48	38	5.16	39		Silty SAND to Sandy SIL	
42.04	27.00	1.710	6.3	27	21	5.30		3.25	CLAY	1.1
42.55	11.40	0.790	6.9	11	9	5.36		1.45	1.1	120-130
43.05	12.20	0.750	6.1	12	9	5.43		1.26	1.1	1.1
43.53	16.90	0.930	5.5	17	13	5.49		1.89	1.1	1.1
44.05	17.20	0.970	5.6	17	13	5.56		1.92	1.1	130-140
44.57	19.80	1.000	5.1	20	15	5.63		2.26	1.1	1.1
45.04	21.10	0.970	4.6	21	16	5.69		2.43	11	1.1
45.56	17.10	0.910	5.3	17	13	5.76		1.90	11	120-130
46.09	14.30	0.700	4.9	14	11	5.82		1.52	11	1.1
46.50	18.10	1.120	6.2	18	13	5.88		2.02	1.1	130-140
47.01	51.50	2.320	4.5	34	25	5.95		6.47	Silty CLAY to CLAY	1.1
47.52	33.00	1.440	4.4	22	16	6.01		4.00	11	1.1
48.60	13.80	0.720	5.2	14	10	6.15		1.43	CLAY	120-130
49.50	26.40	1.080	4.1	18	13	6.27		3.10	Silty CLAY to CLAY	130-140
50.01	24.10	1.140	4.7	24	17	6.34		2.79	CLAY	f 1

DEPTH = Sampling interval (2 inches)

Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\*

Phi = Soil friction angle\* Fs = Sleeve friction resistance

Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) SPT = Equivalent Standard Penetration Test\* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf)



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-2 Page 1 of 1 LOCATION: San Jose / Santa Clara CA DATE: 09-01-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 9.6 feet

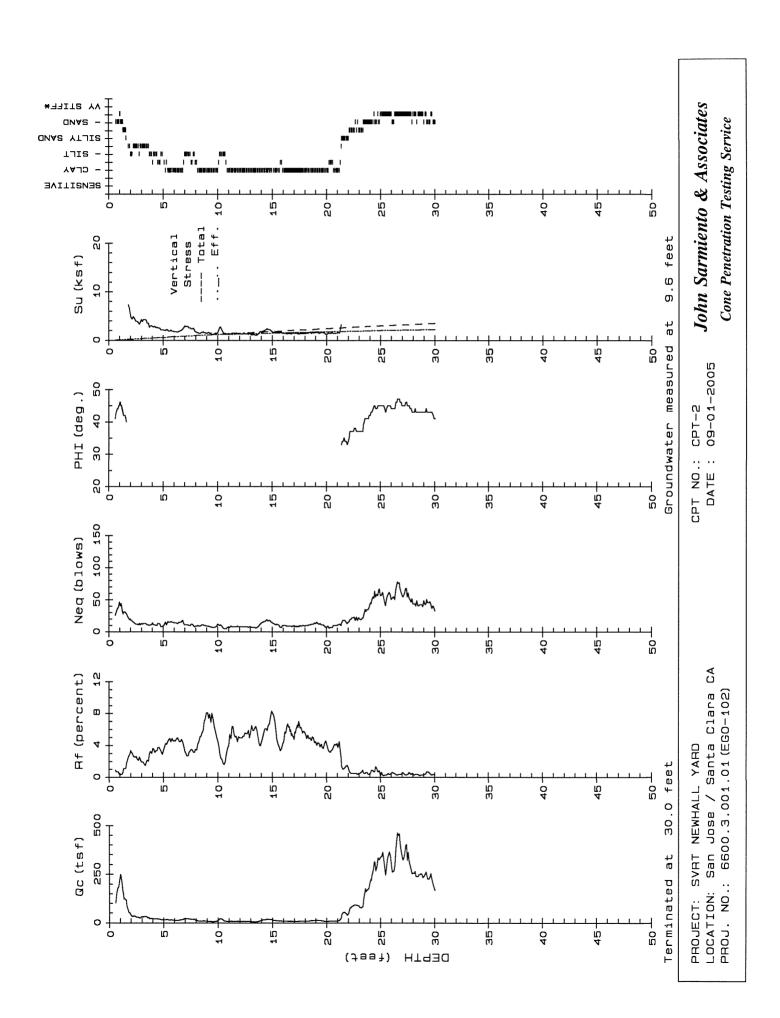
PROJ. NO.	: 6600.3	.001.01(1	= GO - TO	2)		Groundwater measured at 9.6 feet Terminated at 30.0 feet								
DEPTH	Qc	Fs	Rf	SPT	SPT	TotVtStr	PHI	SU	SOIL BEHAVIOR	DENSITY RANGE				
(feet)	(tsf)	(tsf)	(%)	(N)	(N¹)	(ksf)	(deg.)	(ksf)	TYPE	(pcf)				
0.58	104.90	0.950	0.9	26	42	0.07	41		SAND to Silty SAND	120-130				
1.01	248.50	0.850	0.3	41	66	0.11	46		Gravelly SAND to SAND	90-100				
1.53	114.10	1.420	1.2	29	46	0.17	41		SAND to Silty SAND	120-130				
2.06	35.20	1.080	3.1	18	28	0.24		4.68	Clayey SILT to Silty CLAN					
2.59	29.80	0.680	2.3	12	19	0.31		3.95	Sandy SILT to Clayey SILT					
3.07	29.30	0.550	1.9	12	19	0.37		3.88	11	11				
3.54	26.70	0.560	2.1	11	17	0.43		3.53	1.1	11				
4.03	21.50	0.770	3.6	14	23	0.49		2.83	Silty CLAY to CLAY	1.1				
4.51	19.70	0.730	3.7	13	21	0.55		2.59	1.1	1.1				
5.10	16.10	0.600	3.7	11	17	0.62		2.11	1.1	1.1				
5.60	14.90	0.710	4.8	15	24	0.69		1.94	CLAY	1.1				
6.10	13.70	0.620	4.5	14	22	0.75		1.78	11	1.1				
7.07	21.50	0.650	3.0	11	16	0.87		2.81	Clayey SILT to Silty CLAY					
7.57	18.30	0.640	3.5	12	18	0.93		2.38	Silty CLAY to CLAY	11				
8.07	13.00	0.440	3.4	9	12	1.00		1.67	11	11				
8.56	10.60	0.580	5.5	11	15	1.06		1.68	CLAY	11				
9.07 9.58	8.50 6.80	0.680	8.0	9 7	11 9	1.12		1.59	<i>t</i> 1 1 1	11				
10.09	16.10	0.480 0.630	7.1 3.9	11	14	1.18		1.24		110-120				
10.58	9.20	0.030	1.6	5	6	1.24 1.30		2.06 1.43	Silty CLAY to CLAY	120-130				
11.09	7.00	0.370	5.3	7	9	1.35		1.26	Clayey SILT to Silty CLAY CLAY	′ 100-110 110-120				
12.50	7.60	0.420	5.5	8	9	1.52		1.37	ULAT 11	110-120				
13.01	7.50	0.420	5.6	8	ý	1.57		1.34	11	11				
13.50	6.00	0.380	6.3	6	7	1.63		1.04	1.1	11				
14.01	13.70	0.600	4.4	14	16	1.70		1.71	1.1	120-130				
14.52	19.00	1.100	5.8	19	22	1.76		2.42	1.1	130-140				
15.53	11.10	0.450	4.1	11	13	1.88		1.69	11	110-120				
16.04	10.00	0.450	4.5	10	11	1.94		1.51	11	1.1				
16.55	8.80	0.550	6.3	9	10	2.00		1.56	1.1	1.1				
17.05	8.20	0.460	5.6	8	9	2.05		1.43	1.1	1.1				
17.54	9.60	0.590	6.1	10	11	2.12		1.42	1.1	120-130				
18.07	9.60	0.510	5.3	10	11	2.18		1.42	11	110-120				
18.58	12.10	0.560	4.6	12	13	2.24		1.46	11	120-130				
19.09	14.50	0.580	4.0	15	16	2.30		1.78	11	11				
19.51	11.10	0.460	4.1	11	12	2.36		1.65	11	11				
20.03	7.70	0.300	3.9	8	8	2.42		1.30	11	110-120				
20.54	10.40	0.360	3.5	7	7	2.48		1.53	Silty CLAY to CLAY	11				
21.05 21.51	11.00 52.70	0.410	3.7	11	11	2.53	 7E	1.62	CLAY	110 170				
22.01	45.50	0.550 0.540	1.0 1.2	18 15	18 16	2.59 2.65	35 34		Silty SAND to Sandy SIL1	120-130				
22.56	91.60	0.450	0.5	23	23	2.71	38		SAND to Silty SAND	100-110				
23.06	78.50	0.400	0.5	20	20	2.76	37		II	100-110				
23.52	158.60	0.740	0.5	32	32	2.81	41		SAND	11				
24.03	214.70	1.160	0.5	43	43	2.87	42		11	110-120				
24.55	268.70	3.470	1.3	54	54	2.94	44		1.1	130-140				
25.09	342.30	1.930	0.6	57	57	3.00	45		Gravelly SAND to SAND	110-120				
25.55	292.10	0.970	0.3	49	49	3.05	44		11	90-100				
26.07	261.90	1.500	0.6	52	52	3.11	44		SAND	110-120				
26.56	462.10	1.470	0.3	77	77	3.15	47		Gravelly SAND to SAND	90-100				
27.05	324.30	1.840	0.6	54	54	3.21	45		11	110-120				
27.54	362.30	1.420	0.4	60	60	3.26	45		1.1	100-110				
28.09	255.80	0.860	0.3	43	42	3.31	43		11	90-100				
28.55	248.70	0.750	0.3	41	41	3.36	43		1.1	11				
29.00	239.10	1.020	0.4	48	48	3.40	43		SAND	100-110				
29.56	235.50	1.120	0.5	47	47	3.46	43		11	11				
30.03	167.40	0.750	0.4	33	33	3.51	41		11	1.1				

DEPTH = Sampling interval (2 inches)

Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\*

Fs = Sleeve friction resistance Phi = Soil friction angle\*

Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) Rf = Tip/Sleeve ratio (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) SPT = Equivalent Standard Penetration Test\*



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-3 Page 1 of 1

LOCATION: San Jose / Santa Clara CA DATE : 09-06-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 10.6 feet

, ROUL NO	0000.3		LGO 10	_,		Terminated at 30.0 feet						
DEPTH	Qc (tof)	Fs	Rf	SPT		TotVtStr	PHI	SU	SOIL BEHAVIOR	DENSITY RANGE		
(feet)	(tsf)	(tsf)	(%)	(N)	(N')	(ksf)	(deg.)	(ksf)	TYPE	(pcf)		
0.59	63.00	0.890	1.4	21	34	0.07	38		Silty SAND to Sandy SILT			
1.08	28.90	1.150	4.0	19	31	0.14		3.84	Silty CLAY to CLAY	130-140		
1.56	19.30	0.770	4.0	13	21	0.20		2.56	1.1	120-130		
2.01	16.20	0.620	3.8	11	17	0.25		2.14	1.1	1.1		
2.58	14.20	0.620	4.4	14	23	0.32		1.87	CLAY	1.1		
3.07	26.10	0.610	2.3	10	17	0.38		3.45	Sandy SILT to Clayey SILT			
3.57	15.40	0.840	5.5	15	25	0.45		2.02	CLAY	1.1		
4.06	22.10	1.050	4.8	22	35	0.51		2.91	11	130-140		
4.55	23.40	1.340	5.7	23	37	0.58		3.08	11 11	11		
5.04 5.58	16.00	1.090	6.8	16	26 25	0.64		2.09	11	110 170		
6.07	15.70 14.20	0.960 0.950	6.1 6.7	16 14	23	0.71 0.77		2.05 1.84	11	120-130		
6.56	12.60	0.890	7.1	13	20	0.83		1.62	11	11		
7.06	9.20	0.760	8.3	9	14	0.90		1.46	11	11		
7.55	7.00	0.610	8.7	ź	10	0.95		1.30	11	110-120		
8.04	13.40	0.660	4.9	13	19	1.01		1.72	11	120-130		
8.53	10.50	0.390	3.7	11	14	1.07		1.66	1.1	110-120		
9.04	10.00	0.330	3.3	7	9	1.13		1.57	Silty CLAY to CLAY	110 120		
9.53	9.70	0.380	3.9	10	13	1.19		1.52	CLAY	1.1		
10.03	9.00	0.310	3.4	9	11	1.24		1.40	1.1	1.1		
10.53	12.60	0.300	2.4	6	8	1.30		1.59	Clayey SILT to Silty CLAY	1.1		
11.02	10.90	0.290	2.7	7	9	1.36		1.70	Silty CLAY to CLAY	1.1		
11.51	11.10	0.400	3.6	7	9	1.41		1.73	1.1	1.1		
12.01	13.40	0.370	2.8	7	8	1.47		1.69	Clayey SILT to Silty CLAY			
12.51	17.00	0.390	2.3	9	10	1.53		2.16	1.1	120-130		
13.00	18.40	0.470	2.6	9	11	1.60		2.35	11	11		
13.59	15.20	0.470	3.1	8	9	1.67		1.92	11	FI		
14.09	10.90	0.250	2.3	5	6	1.73		1.67	11	110-120		
14.58	13.10	0.440	3.4	9	10	1.79		1.63	Silty CLAY to CLAY	120-130		
15.08	9.80	0.290	3.0	7	7	1.84		1.48	11	110-120		
15.58	9.60	0.300	3.1	6	7	1.90		1.44	11	11		
16.07	10.70	0.400	3.7	11	12	1.96		1.62	CLAY	11		
16.57	7.90	0.210	2.7	5 10	6 10	2.01		1.38	Silty CLAY to CLAY	100-110		
17.06 17.56	9.60 10.70	0.350 0.340	3.6 3.2	7	8	2.07 2.12		1.43 1.61	CLAY Silty CLAY to CLAY	110-120		
18.05	9.80	0.370	3.8	10	11	2.18		1.45	CLAY	11		
18.50	10.10	0.300	3.0	7	7	2.23		1.50	Silty CLAY to CLAY	13		
19.02	10.70	0.360	3.4	7	8	2.29		1.59	STILLY CERT TO CERT	1.1		
19.50	13.40	0.430	3.2	ģ	9	2.35		1.63	(1	120-130		
20.06	28.30	0.790	2.8	14	1 <u>5</u>	2.43		3.61	Clayey SILT to Silty CLAY			
20.55	136.00	3.070	2.3	45	47	2.49	40		Silty SAND to Sandy SILT			
21.01	235.00	2.880	1.2	47	48	2.56	43		SAND	1.1		
21.56	253.30	3.570	1.4	51	51	2.63	43		1.1	1.1		
22.02	308.20	3.560	1.2	62	62	2.69	45		11	1.1		
22.53	265.40	1.970	0.7	53	53	2.75	44		1.1	110-120		
23.00	294.10	1.520	0.5	49	49	2.81	44		Gravelly SAND to SAND	1.1		
23.57	181.50	1.270	0.7	36	36	2.87	41		SAND	1.1		
24.06	215.80	1.420	0.7	43	43	2.93	42		11	1.1		
24.54	319.70	2.110	0.7	53	53	2.98	45		Gravelly SAND to SAND	11		
25.02	273.70	1.210	0.4	46	45	3.03	44		11	100-110		
25.53	352.60	2.440	0.7	59	59	3.09	45		11	110-120		
26.01	404.70	2.380	0.6	67	67	3.15	46		11	11		
26.50	346.30	1.560	0.5	58	57	3.20	45 /7		CAND	100-110		
27.08	222.20	1.580	0.7	44	44	3.27	43		SAND	110-120		
27.56	284.80	1.760	0.6	57 52	57 52	3.32	44			11		
28.04	312.50	1.800	0.6	52 / 8	52 48	3.38 3.43	45 44		Gravelly SAND to SAND	11		
28.55 29.04	288.80 240.70	1.510 1.570	0.5 0.7	48 48	48 48	3.43 3.49	44 43		SAND	11		
27.04					40		43 42		SAND	11		
20 57	חט אחכ	7 / XII										
29.53 30.03	208.90 216.50	1.480 1.750	0.7 0.8	42 43	43	3.55 3.61	42 42			120-130		

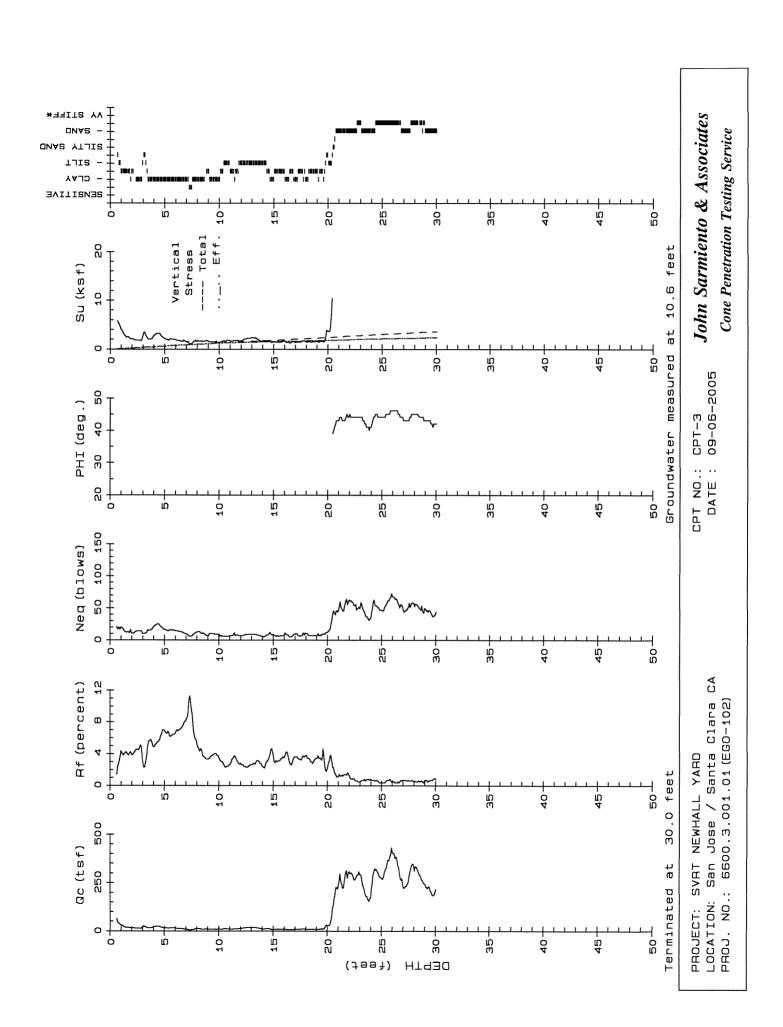
DEPTH = Sampling interval (2 inches)

Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\*

Fs = Sleeve friction resistance Phi = Soil friction angle\*

Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf)

(Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) SPT = Equivalent Standard Penetration Test\*



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-4 Page 1 of 1

LOCATION: San Jose / Santa Clara CA DATE: 09-06-2005

PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 10.3 feet

Terminated at 30.0 feet

							Termi	nated at	30.0 feet	
DEPTH (feet)	Qc (tsf)	Fs (tsf)	R f (%)	SPT	SPT (N')	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE
(1000)	((31)	((31)	(70)	(11)	(и )	(KSI)	(deg.)	(KSI)	ITPE	(pcf)
0.50	129.80	1.460	1.1	32	52	0.06	42		SAND to Silty SAND	1.1
1.06	55.30	2.000	3.6	28	44	0.13		7.36	Clayey SILT to Silty CLAY	′ 130-140
1.50	36.80	1.260	3.4	18	29	0.19		4.89	11	1.1
2.04	28.70	0.770	2.7	14	23	0.27		3.81	1 1	1.1
2.58	28.50	0.700	2.5	11	18	0.33		3.78	Sandy SILT to Clayey SILT	120-130
3.03	25.70	1.080	4.2	17	27	0.39		3.40	Silty CLAY to CLAY	130-140
3.58	18.50	1.090	5.9	19	30	0.47		2.44	CLAY	130 140
4.04	13.30	1.000	7.5	13	21	0.53		1.74	I I	
4.50				16					11	120-130
	16.20	1.190	7.3		26	0.59		2.12		130-140
5.05	11.40	0.890	7.8	11	18	0.66		1.85	11	120-130
5.51	13.00	0.860	6.6	13	21	0.71		1.69	1.1	11
6.09	9.50	0.700	7.4	10	15	0.79		1.52	1.1	1.1
6.55	9.30	0.620	6.7	9	14	0.84		1.48	11	1.1
7.01	9.80	0.580	5.9	10	15	0.90		1.56	11	1.1
7.56	12.90	0.550	4.3	13	18	0.97		1.66	E 1	11
8.02	12.20	0.440	3.6	8	11	1.03		1.56	Silty CLAY to CLAY	1.1
8.57	7.90	0.280	3.5	8	11	1.09		1.47	CLAY	100-110
9.00	9.20	0.450	4.9	9	12	1.14		1.44	11	110-120
9.56	9.00	0.370	4.1	ý	12	1.20		1.40	1.1	110 120
10.02	10.10	0.330	3.3	7	9	1.25		1.58		1.1
									Silty CLAY to CLAY	
10.57	11.90	0.300	2.5	6	7	1.32		1.87	Clayey SILT to Silty CLAY	
11.03	11.60	0.360	3.1	8	10	1.37		1.82	Silty CLAY to CLAY	11
11.57	14.20	0.410	2.9	7	9	1.44		1.80	Clayey SILT to Silty CLAY	
12.03	15.60	0.450	2.9	8	9	1.49		1.98	11	1.1
12.58	17.50	0.540	3.1	9	10	1.56		2.23	11	1.1
13.03	15.00	0.540	3.6	10	12	1.62		1.89	Silty CLAY to CLAY	4.1
13.58	11.00	0.330	3.0	7	9	1.68		1.69	11	110-120
14.04	11.10	0.310	2.8	7	9	1.73		1.71	1.1	11
14.58	10.40	0.340	3.3	7	8	1.80		1.58	11	1.1
15.04	8.90	0.320	3.6	9	10	1.85		1.60	CLAY	1.1
15.53	12.40	0.420	3.4	é	9	1.91		1.53	Silty CLAY to CLAY	120-130
16.08	8.50	0.250	2.9	6	6	1.97		1.50	SILLY CLAI TO CLAI	
										100-110
16.53	9.10	0.380	4.2	9	10	2.02		1.35	CLAY	110-120
17.08	9.70	0.390	4.0	10	11	2.08		1.44	11	11
17.53	9.70	0.320	3.3	6	7	2.14		1.44	Silty CLAY to CLAY	1.1
18.07	10.00	0.380	3.8	10	11	2.20		1.48	CLAY	11
18.53	10.90	0.460	4.2	11	12	2.25		1.63	11	120-130
19.05	8.50	0.220	2.6	6	6	2.31		1.47	Silty CLAY to CLAY	100-110
19.50	12.00	0.360	3.0	8	8	2.36		1.44	1.1	110-120
20.04	10.10	0.530	5.2	10	11	2.43		1.48	CLAY	120-130
20.58	23.90	0.860	3.6	12	12	2.50		3.02	Clayey SILT to Silty CLAY	
21.03	25.10	0.980	3.9	17	17	2.56		3.18	Silty CLAY to CLAY	11
21.55	83.60	1.030	1.2	21	21	2.63	37		SAND to Silty SAND	120-130
22.04	125.80	1.520	1.2	31	32	2.69	39		11	11
22.55	229.90	1.950	0.8	46	46	2.75	43		SAND	1.1
									SAND	11
23.06	234.30	1.820	0.8	47	47	2.82	43			
23.56	251.70	1.100	0.4	42	42	2.87	43		Gravelly SAND to SAND	100-110
24.04	226.10	1.080	0.5	45	45	2.92	43		SAND	1.1
24.53	185.00	0.780	0.4	37	37	2.97	42		11	1.1
25.02	187.60	0.570	0.3	38	37	3.02	42		11	90-100
25.55	161.00	0.440	0.3	32	32	3.07	41		1.1	11
26.03	206.10	0.980	0.5	41	41	3.12	42		1.1	100-110
26.53	276.80	0.810	0.3	46	46	3.16	44		Gravelly SAND to SAND	90-100
27.02	254.90	1.020	0.4	42	42	3.22	43		11	100-110
27.51	288.70	1.780	0.6	58	58	3.27	44		SAND	110-120
28.06	332.30	2.130	0.6	55	55	3.34	45		Gravelly SAND to SAND	110-120
								<b></b>	Gravetty SAND to SAND	
28.58	307.60	1.100	0.4	51	51	3.39	44			100-110
29.07	219.40	0.700	0.3	44	44	3.44	43		SAND	90-100
29.56	212.60	1.120	0.5	43	42	3.49	42		11	110-120
30.02	243.00	1.520	0.6	49	48	3.55	43		11	11
DEPTH = 9	Sampling	interval	(2 in	ches )	)					

DEPTH = Sampling interval (2 inches)

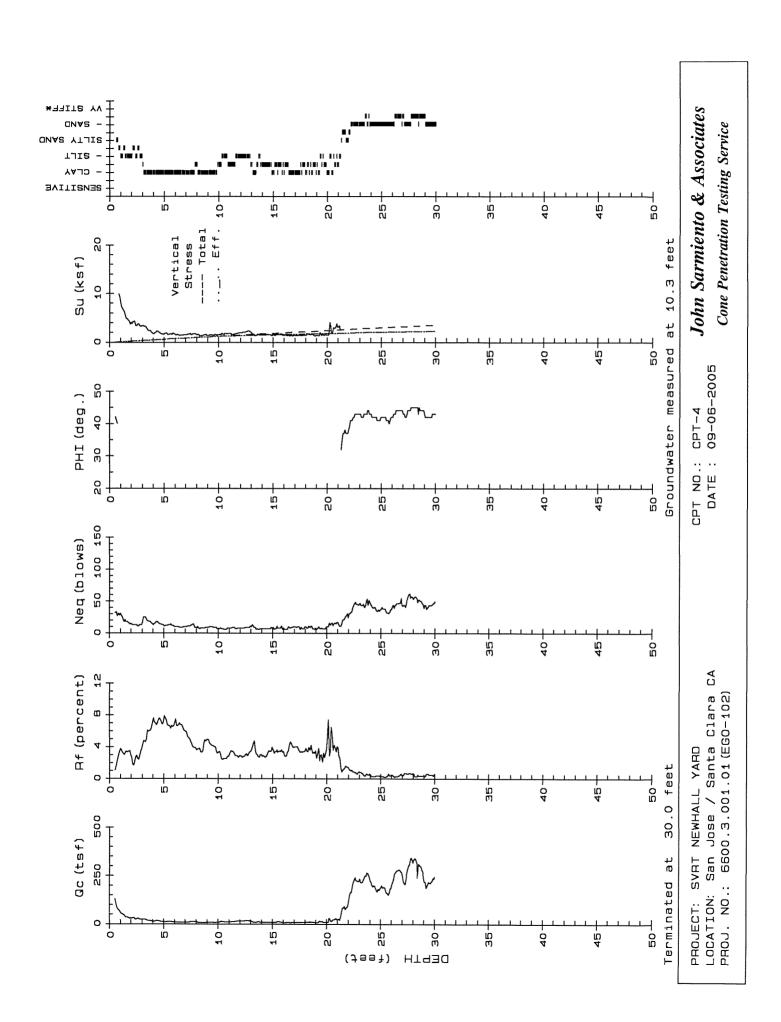
TotStr = Total Stress using est. density\*\* Qc = Tip bearing resistance

Fs = Sleeve friction resistance Phi = Soil friction angle\*

Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) Rf = Tip/Sleeve ratio

(Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) SPT = Equivalent Standard Penetration Test\*

References: \* Robertson and Campanella, 1988

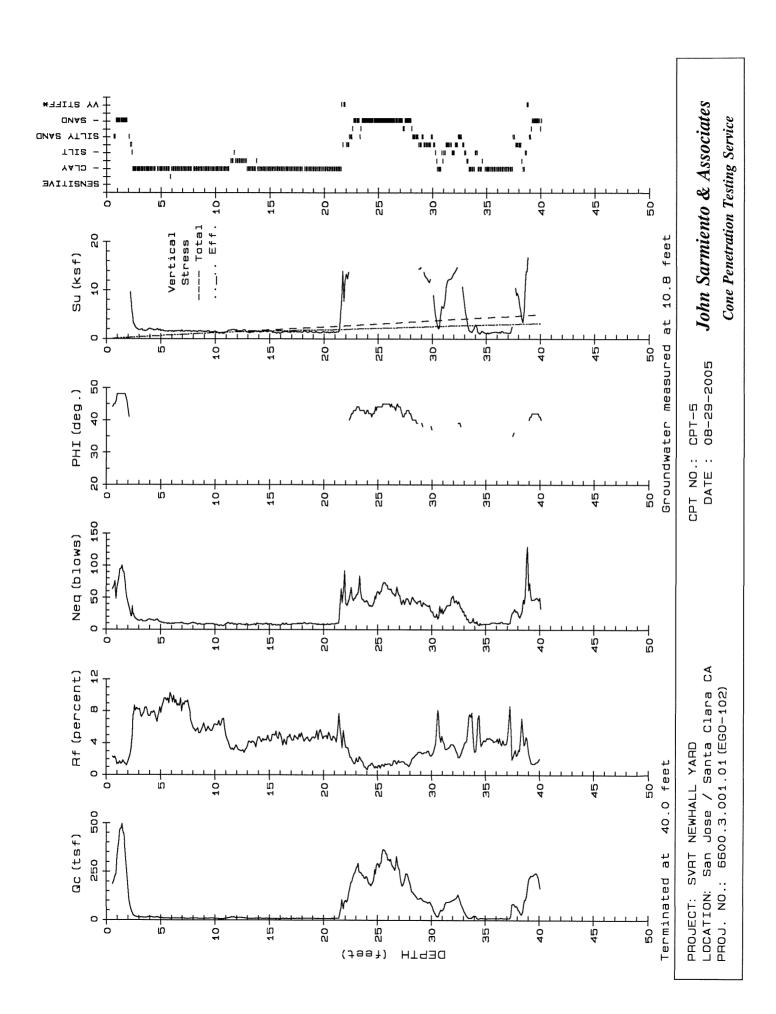


CPT NO.: CPT-5 DATE: 08-29-2005 PROJECT: SVRT NEWHALL YARD Page 1 of 2 LOCATION: San Jose / Santa Clara CA

PROJ. NO.: 6600.3.001.01(EGO-102)	Groundwater measured at 10.8 feet
	Terminated at 40 0 feet

		·		-,			Termir	nated at	40.0 feet	
DEPTH (feet)	Qc (tsf)	Fs (tsf)	Rf (%)		SPT (N')	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0.58	188.40	4.330	2.3	63	100	0.07	44		Silty SAND to Sandy SILT	1.1
1.05	358.70	5.330	1.5	72	115	0.13	>48		SAND	1.1
1.51	451.60	8.060	1.8	90	145	0.19	>48		1.1	1.1
2.10	107.00	2.130	2.0	36	57	0.27	41		Silty SAND to Sandy SILT	
2.51	23.50	1.780	7.6	24	38	0.33		3.11	CLAY	1.1
3.06	13.90	1.140	8.2	14	22	0.40		1.83	11	11
3.55 4.03	12.80 16.00	1.060 1.170	8.3	13	20	0.46		1.68	1 I 1 I	120-130
5.00	12.40	0.950	7.3 7.7	16 12	26 20	0.53 0.65		2.10 1.61	11	130-140
5.54	9.70	0.890	9.2	10	16	0.72		1.56	11	120-130
6.08	10.10	0.910	9.0	10	16	0.79		1.62	11	11
6.51	10.00	0.860	8.6	10	16	0.84		1.60	11	11
7.04	9.60	0.850	8.9	10	14	0.91		1.52	1.1	1.1
7.57	8.50	0.730	8.6	9	12	0.97		1.60	11	1.1
8.03	10.60	0.620	5.8	11	15	1.03		1.68	11	1.1
8.53	8.80	0.460	5.2	9	12	1.09		1.65	1.1	110-120
9.07	8.30	0.490	5.9	8	11	1.15		1.55	1.1	1 1
9.50	9.20	0.520	5.7	9	12	1.20		1.43	11	11
10.04	8.10	0.510	6.3	8	10	1.26		1.49	11	11
10.57 12.03	6.70 12.00	0.420 0.420	6.3 3.5	7	8	1.32		1.21		11
12.03	11.70	0.360	3.1	8 8	10 9	1.49 1.55		1.50	Silty CLAY to CLAY	11
13.01	7.90	0.290	3.7	8	9	1.60		1.82 1.42	CLAY	11
13.54	7.90	0.320	4.1	8	ģ	1.66		1.41	LI	1.1
14.08	9.20	0.430	4.7	9	11	1.72		1.39	11	11
14.50	8.70	0.370	4.3	ģ	10	1.77		1.56	1.1	I I
15.05	8.90	0.370	4.2	9	10	1.84		1.60	11	1.1
15.59	6.70	0.360	5.4	7	7	1.90		1.15	1.1	1.1
16.02	7.20	0.360	5.0	7	8	1.95		1.25	1.1	1.1
16.55	9.80	0.370	3.8	10	11	2.01		1.47	11	1.1
17.09	8.90	0.380	4.3	9	10	2.07		1.57	11	1.1
17.51	9.20	0.420	4.6	9	10	2.12		1.36	11	11
18.51	9.20	0.430	4.7	9	10	2.23		1.35	1	11
19.04 19.58	9.00 7.50	0.420 0.400	4.7 5.3	9 8	10 8	2.30 2.36		1.31 1.26	11	11
20.03	8.00	0.380	4.8	8	8	2.41		1.36	11	11
20.55	7.80	0.390	5.0	8	8	2.47		1.31	1.1	11
21.08	9.40	0.420	4.5	9	10	2.53		1.36	1.1	1.1
21.52	44.00	2.460	5.6	44	45	2.59		5.69	1.1	130-140
22.02	101.50	3.590	3.5	41	41	2.66		13.36	Sandy SILT to Clayey SILT	1.1
22.53	194.80	4.210	2.2	65	65	2.73	42		Silty SAND to Sandy SILT	1.1
23.02	268.10	5.690	2.1	54	54	2.79	44		SAND	11
23.58	234.80	3.930	1.7	47	47	2.87	43		11	11
24.04	221.20	1.640	0.7	44	44	2.92	43		11	110-120
24.58	200.20 289.40	2.360	1.2	40		2.99	42		1 1 1 1	120-130
25.06 25.51	365.40	3.610 4.520	1.2 1.2	58 73	58 73	3.05 3.11	44 45		 11	130-140
26.04	315.50	4.530	1.4	63	63	3.19	45		11	11
26.59	258.50	4.730	1.8	52	51	3.26	43		11	11
27.02	263.70	4.140	1.6	53	52	3.32	44		1.1	1.1
27.55	216.20	2.930	1.4	43	43	3.39	42		11	1.1
28.08	174.40	2.780	1.6	44	43	3.46	41		SAND to Silty SAND	1.1
28.55	125.50	3.170	2.5	42	41	3.52	39		Silty SAND to Sandy SILT	1.1
29.02	114.20	3.150	2.8	38	38	3.59	39		1.1	1.1
29.50	95.30	2.700	2.8	38	38	3.65		12.46	Sandy SILT to Clayey SILT	1 1
30.08	68.90	1.770	2.6	28	27	3.73		8.94	11	11
30.56	17.40	1.400	8.0	17	17	3.80		2.07	CLAY	# #
31.04	50.10	2.150	4.3	25 38	24 34	3.86		6.42	Clayey SILT to Silty CLAY	11
31.60 32.09	94.50 105.70	3.230 3.820	3.4 3.6	38 42	36 40	3.94 4.00		12.34 13.83	Sandy SILT to Clayey SILT	11
32.57	119.60	2.590	2.2	40	37	4.07	39		Silty SAND to Sandy SILT	£ 1
33.06	44.10	1.730	3.9	22	20	4.13		5.60	Clayey SILT to Silty CLAY	
33.55	11.10	0.830	7.5	11	10	4.19		1.50	CLAY	120-130
34.10	20.40	0.620	3.0	10	9	4.26		2.44	Clayey SILT to Silty CLAY	1 1
34.59	11.80	0.430	3.6	8	7	4.32		1.61	Silty CLAY to CLAY	1.1

PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-5 Page 2 of 2 LOCATION: San Jose / Santa Clara CA DATE: 08-29-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 10.8 feet Terminated at 40.0 feet DEPTH Qс Rf SPT SPT TotVtStr Fs PHI SU DENSITY RANGE SOIL BEHAVIOR (feet) (tsf) (tsf) (%) (N) (N') (ksf) (deg.) (ksf) TYPE (pcf) 35.06 9.00 0.390 4.3 4.38 1.14 CLAY 110-120 35.56 10.50 0.460 4.4 11 4.44 1.38 36.09 0.450 10.10 . . 4.5 Q 4.50 ----11 10 1.31 36.52 11.60 0.430 3.7 12 10 4.55 ----1.55 1.1 1 1 37.04 9.30 0.430 4.6 Q 8 \_\_\_\_ 1.1 4.61 1.17 11 37.56 84.50 1.930 2.3 23 Silty SAND to Sandy SILT 4.68 36 130-140 38.08 53.10 3.1 1.640 21 17 6.76 4.75 ----Sandy SILT to Clayey SILT 1.1 38.56 82.20 3.020 3.7 41 34 4.81 ----10.64 1.1 Clayey SILT to Silty CLAY 39.03 215.60 5.160 2.4 72 58 41 4.87 ----Silty SAND to Sandy SILT 1.1 39.52 237.40 3.390 1.1 1.4 47 38 4.94 42 SAND 40.07 166.60 0.001 0.0 27 4.98 40 ----<80 DEPTH = Sampling interval (2 inches) Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\* Fs = Sleeve friction resistance Phi = Soil friction angle\* Rf = Tip/Sleeve ratio (Nk=10 for Qc<9 tsf) Su = Undrained Soil Strength\* SPT = Equivalent Standard Penetration Test\* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) References: \* Robertson and Campanella, 1988



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-6 Page 1 of 2

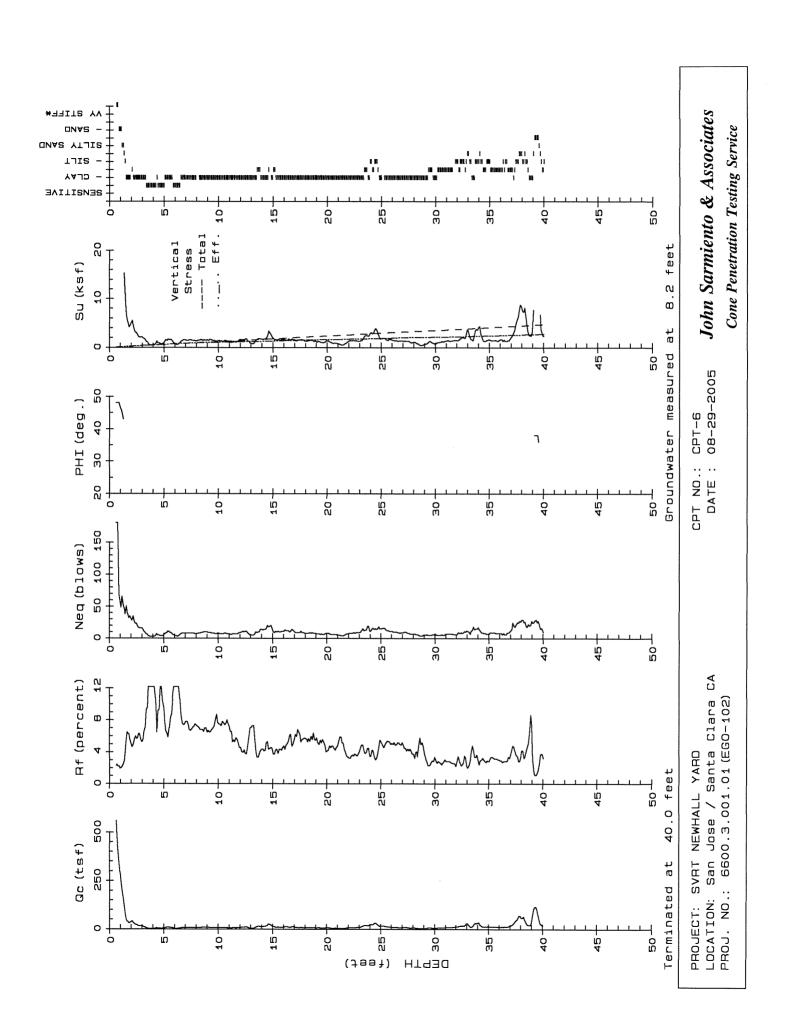
LOCATION: San Jose / Santa Clara CA DATE: 08-29-2005 PROJ. NO.: 6600.3.001.01(EGO-102)

Groundwater measured at 8.2 feet Terminated at 40.0 feet

							lermi	nated at	40.0 feet	
DEPTH (feet)		Fs (tsf)	Rf (%)	SPT (N)	SPT (N')	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0.59	559.40	12.900	2.3	280	448	0.07	>48		SAND to Clayey SAND *	130-140
1.05	237.50	4.640	2.0	48	76	0.13	46		SAND	11
1.51	50.30	2.760	5.5	50	80	0.19		6.69	CLAY	1.1
2.58	19.30	1.100	5.7	19	31	0.34		2.55	11	1.6
3.07	14.40	0.780	5.4	14	23	0.40		1.89	1.1	120-130
3.60	3.90	0.500	12.0	4	6	0.45		0.73	Organic Material	100-110
4.02		0.410	12.0	3	4	0.50		0.51	1.1	1.1
4.56		0.460	9.2	5	8	0.56		0.94	11	110-120
5.09		0.510	7.5	7	11	0.62		1.30	CLAY	1.1
6.04		0.610	12.0	4	6	0.73		0.71	Organic Material	1.1
6.58		0.550	8.5	7	10	0.79		1.22	CLAY	11
7.01	7.90	0.610	7.7	8	12	0.85		1.50	11	120-130
7.55 8.55		0.530 0.620	6.8	8 9	12 13	0.91		1.47	11	110-120
9.09		0.590	6.7 6.6	9	13	1.04 1.10		1.46 1.41	11	120-130
9.52		0.540	6.9	8	11	1.15		1.44	11	110-120
10.05		0.570	7.4	8	11	1.21		1.42	11	110-120
10.58		0.580	7.3	8	11	1.27		1.45	11	11
11.01		0.460	7.1	7	9	1.32		1.17	1.1	11
11.52		0.370	5.2	7	ý	1.38		1.28	1.1	1.1
12.06		0.400	4.5	9	12	1.44		1.62	1.1	1.1
12.59		0.410	3.7	11	14	1.51		1.72	1.1	1.1
13.02		0.350	7.0	5	6	1.55		0.84	1.1	100-110
13.56	13.40	0.440	3.3	9	11	1.62		1.68	Silty CLAY to CLAY	120-130
14.09	13.40	0.580	4.3	13	17	1.68		1.67	CLAY	1.1
14.52		1.020	5.2	20	24	1.74		2.50	1.1	130-140
15.05		0.540	3.7	10	12	1.81		1.81	Silty CLAY to CLAY	120-130
15.59		0.420	4.3	10	12	1.87		1.46	CLAY	110-120
16.02		0.510	4.7	11	13	1.92		1.64	11	120-130
16.55		0.610	6.0	10	12	1.99		1.52	11	1.1
17.08		0.560	6.1	9	11	2.06		1.36	11	110 120
17.50		0.540	6.1	9	10	2.10		1.55	11	110-120
18.03 18.53		0.440 0.490	5.6 5.9	8 8	9	2.17 2.22		1.34 1.44	11	11
19.06		0.390	5.7	7	8	2.28		1.15	11	11
20.03		0.330	4.1	8	9	2.40		1.38	1.1	1.1
20.56		0.260	4.7	6	6	2.45		0.85	1.1	100-110
21.09		0.250	5.2	5	5	2.51		0.71	11	11
21.52		0.210	5.0	4	5	2.55		0.59	11	90-100
22.05		0.260	3.2	8	9	2.60		1.36	1.1	100-110
22.58	8.20	0.300	3.7	8	9	2.66		1.37	1.1	110-120
23.01	9.40	0.380	4.0	9	10	2.71		1.34	1.1	1.1
23.54	19.40	0.740	3.8	13	14	2.78		2.40	Silty CLAY to CLAY	120-130
24.07		0.870	3.5	12	13	2.85		3.10	Clayey SILT to Silty CLA	
24.58		0.890	3.2	14	14	2.92		3.50	1.1	11
25.00		0.800	5.3	15	16	2.97		1.82	CLAY	120-130
25.60		0.650	5.3	12	12	3.05		1.42	11	1 1 1 1
26.02		0.520	5.0	11	11	3.10		1.49	11	
26.54 27.07		0.470 0.440	5.1	9	9 9	3.16 3.22		1.29 1.25	11	110-120
27.59		0.320	4.8 4.1	9 8	8	3.28		1.25	1.1	t t
28.02		0.270	3.7	7	7	3.33		1.13	11	100-110
28.60		0.210	5.7	4	4	3.38		0.40	1.1	90-100
29.02		0.200	3.8	5	5	3.43		0.70	1.1	100-110
29.56		0.190	2.4	5	5	3.48		1.21	Silty CLAY to CLAY	11
30.09		0.180	2.9	6	6	3.54		0.91	CLAY	1.1
30.51		0.200	2.6	5	5	3.58		1.16	Silty CLAY to CLAY	11
31.04		0.290	2.8	7	7	3.64		1.40	11	110-120
31.56		0.260	2.6	7	7	3.70		1.36	1.1	1.1
32.04	12.80	0.360	2.8	6	6	3.76		1.46	Clayey SILT to Silty CLA	γ ''
32.53		0.410	2.4	8	8	3.82		2.00	11	120-130
33.06		0.570	2.0	11	11	3.88		3.49	Sandy SILT to Clayey SIL	
33.59		0.770	4.3	18	18	3.95		2.11	CLAY	11
34.01		0.970	2.9	17	16	4.01		4.13	Clayey SILT to Silty CLA	
34.53	12.10	0.360	3.0	8	8	4.07		1.34	Silty CLAY to CLAY	110-120

John Sarmiento & Associates Cone Penetration Testing Service

PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-6 Page 2 of 2 LOCATION: San Jose / Santa Clara CA DATE: 08-29-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 8.2 feet Terminated at 40.0 feet DEPTH Qc Fs Rf SPT SPT TotVtStr PHI SH SOIL BEHAVIOR DENSITY RANGE (pcf) (feet) (tsf) (tsf) (%) (N) (N<sup>1</sup>) (ksf) (deg.) (ksf) TYPE 35.02 14.40 0.410 2.8 4.13 1.64 Clayey SILT to Silty CLAY 120-130 4.19 35.54 13.20 0.410 3.1 ----1.48 Silty CLAY to CLAY 36.06 11.70 0.340 2.9 8 8 4.25 ----1.60 110-120 36.59 12.30 0.340 2.8 ----6 6 4.31 Clayey SILT to Silty CLAY 1.1 1.35 37.01 Silty CLAY to CLAY 17.90 0.640 3.6 12 12 4.37 ----2.10 120-130 37.53 44.50 3.6 1.620 22 22 4.44 ----Clayey SILT to Silty CLAY 5.64 130-140 58.90 38.05 2.410 4.1 29 28 4.51 ----7.55 38.55 27.40 1.240 4.5 18 17 ----1.1 4.57 3.35 Silty CLAY to CLAY 39.06 \_\_\_\_ 60,00 1.810 3.0 24 22 4.64 7.69 Sandy SILT to Clayey SILT 1.1 39.56 79.90 1.320 1.7 27 36 ----1.1 24 4.71 Silty SAND to Sandy SILT 40.02 19.90 0.640 3.2 10 4.77 ----2.34 Clayey SILT to Silty CLAY 120-130 DEPTH = Sampling interval (2 inches) Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\* Fs = Sleeve friction resistance Phi = Soil friction angle\* Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) SPT = Equivalent Standard Penetration Test\* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) References: \* Robertson and Campanella, 1988



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-7 Page 1 of 1 LOCATION: San Jose / Santa Clara CA DATE: 08-29-2005

PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 8.8 feet

Terminated at 30.0 feet

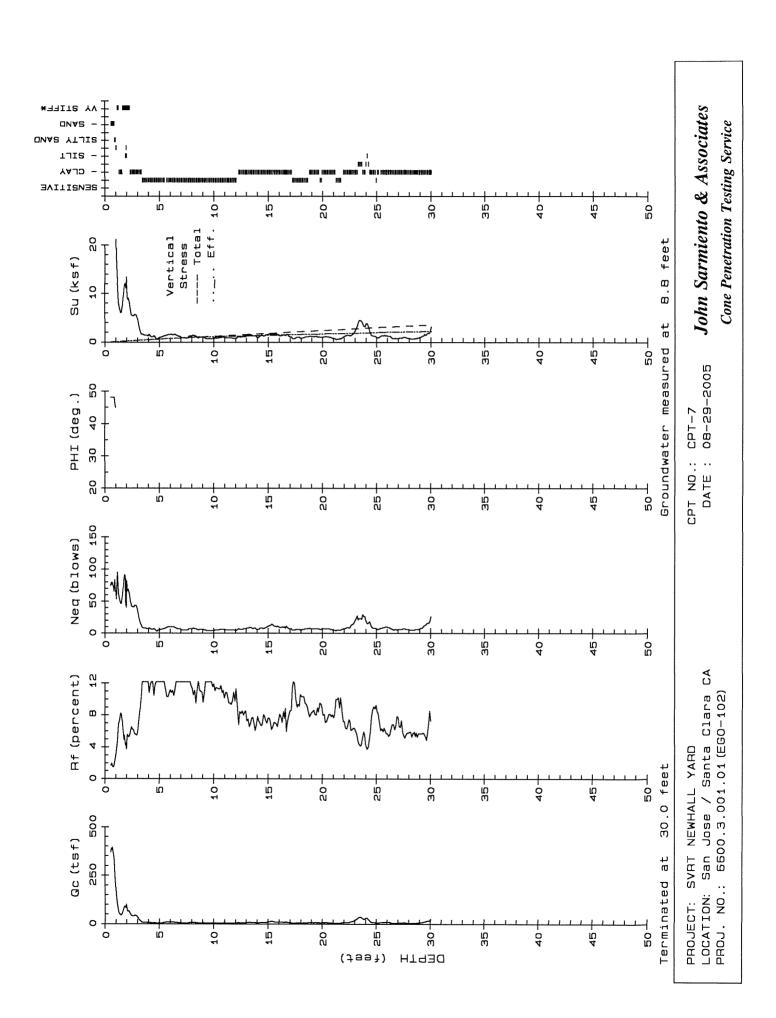
							reimii	iated at	30.0 feet	
DEPTH (feet)	Qc (tsf)	Fs (tsf)	R f (%)	SPT (N)	SPT	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0 E1	770 70	4 340	1 7	7/	110					,
0.51	370.70	6.260	1.7	74	119	0.06	>48	24.44	SAND	130-140
1.01 1.54	158.40	5.170	3.3	63	101	0.13		21.11	Sandy SILT to Clayey SILT	
	53.00	3.900	7.4	53	85 170	0.20		7.05	CLAY	
2.02	81.40	3.700	4.5	81	130	0.26		10.84	Very Stiff Fine Grained	
2.10 2.54	66.30	3.620	5.5	66	106	0.27		8.82	11	11
	40.80	2.500	6.1	41	65	0.33		5.42	CLAY	11
3.03	33.30	1.930	5.8	33	53	0.40		4.41	11	11
3.55	7.90	1.150	12.0	8	13	0.46		1.53	Organic Material	120-130
4.07 4.59	8.10	0.870 0.690	10.7 11.5	8 6	13 10	0.53		1.57	11	11
5.02	6.00 5.20	0.810	12.0	5	8	0.59		1.14	11	110-120
6.00	9.70	1.070	11.0	10	16	0.64 0.76		0.98 1.55	11	
6.54	7.70	0.930	12.0	8	12	0.78		1.46	11	120-130
7.08	4.90	0.820	12.0	5	7	0.89		0.89	11	
7.51	4.80	0.800	12.0	5	7	0.89		0.87	11	110-120
8.04	7.30	0.810	11.1	7	10	1.01		1.36	11	
8.57	4.80	0.660	12.0	5	7	1.07		0.85	11	120-130
9.03	6.20	0.590	9.5	6	8	1.12		1.13	11	110-120
9.57	4.20	0.520	12.0	4	6	1.12		0.72	11	100-110
10.01	4.20	0.490	11.7	4	6	1.22		0.72	11	100-110
10.54	5.50	0.610	11.1	6	7	1.28		0.72	11	110-120
11.08	5.40	0.580	10.7	5	7	1.35		0.97	11	110-120
11.51	5.20	0.490	9.4	5	7	1.40		0.90	11	11
12.04	4.40	0.490	11.1	4	6	1.45		0.73	11	100-110
12.52	6.20	0.500	8.1	6	8	1.51		1.09	CLAY	110-110
13.06	8.20	0.590	7.2	8	10	1.57		1.48	II	120-130
14.04	5.60	0.430	7.7	6	7	1.69		0.95	1.1	110-120
14.57	7.20	0.570	7.9	7	ģ	1.75		1.27	1.1	110 120
15.00	11.00	0.830	7.5	11	13	1.80		1.68	1.1	120-130
15.54	11.30	0.790	7.0	11	13	1.87		1.73	1.1	110
16.07	9.10	0.730	8.0	9	11	1.94		1.36	1.1	1.1
16.51	9.60	0.720	7.5	10	11	1.99		1.43	11	11
17.10	6.50	0.550	8.5	7	7	2.06		1.09	1.1	110-120
17.53	5.90	0.580	9.8	6	7	2.11		0.97	Organic Material	110 120
18.06	5.40	0.550	10.2	5	6	2.17		0.86	11	1.1
19.53	6.50	0.570	8.8	7	7	2.34		1.07	CLAY	1.1
20.07	7.00	0.550	7.9	7	8	2.40		1.16	11	11
20.50	6.90	0.520	7.5	7	7	2.45		1.14	1.1	1.1
21.04	5.10	0.390	7.6	5	5	2.51		0.77	1.1	100-110
21.57	5.20	0.460	8.8	5	6	2.57		0.78	Organic Material	110-120
22.03	7.30	0.520	7.1	7	8	2.62		1.20	CLAY	1.1
22.57	9.30	0.660	7.1	9	10	2.69		1.33	1.1	120-130
23.09	22.40	1.330	5.9	22	23	2.76		2.80	1.1	130-140
23.50	35.00	1.440	4.1	23	24	2.81		4.48	Silty CLAY to CLAY	11
24.02	30.00	1.220	4.1	20	20	2.88		3.81		1.1
24.54	9.90	0.750	7.6	10	10	2.95		1.40	CLAY	120-130
25.06	6.40	0.530	8.3	6	6	3.01		0.98	1.1	110-120
25.52	8.40	0.520	6.2	8	8	3.06		1.37	1.1	1.1
26.04	9.10	0.510	5.6	9	9	3.12		1.26	11	11
26.57	5.20	0.350	6.7	5	5	3.18		0.72	1.1	100-110
27.01	5.50	0.420	7.6	6	5	3.23		0.78	1.1	110-120
27.54	7.00	0.370	5.3	7	7	3.29		1.07	1.1	11
28.07	5.30	0.310	5.8	5	5	3.34		0.73	1.1	100-110
28.52	5.20	0.300	5.8	5	5	3.39		0.70	1.1	1.1
29.01	6.80	0.380	5.6	7	7	3.45		1.02	1.1	110-120
29.53	12.80	0.680	5.3	13	13	3.51		1.47	11	120-130
30.05	25.70	1.850	7.2	26	26	3.58		3.19	1.1	130-140

DEPTH = Sampling interval (2 inches)

Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\*

Fs = Sleeve friction resistance Phi = Soil friction angle\*

Su = Undrained Soil Strength\* Rf = Tip/Sleeve ratio (Nk=10 for Qc<9 tsf) SPT = Equivalent Standard Penetration Test\* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf)



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-8 Page 1 of 1 DATE : 08-29-2005

LOCATION: San Jose / Santa Clara CA

PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 8.3 feet

Terminated at 30.0 feet

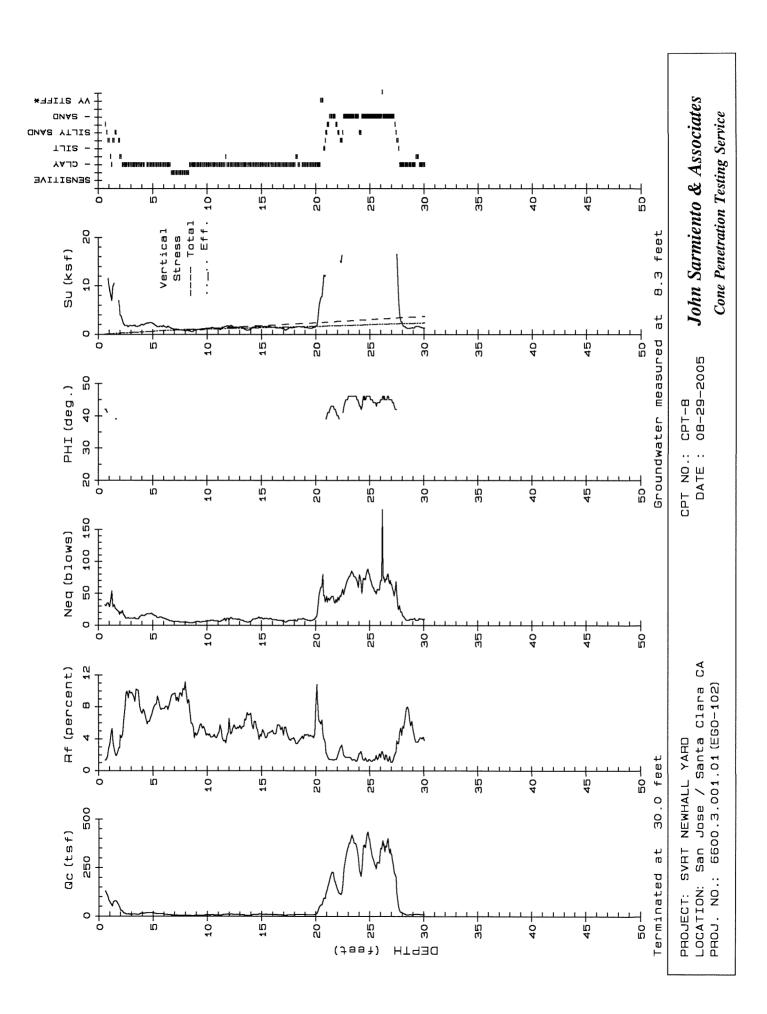
							reriiir	nated at	30.0 feet	
DEPTH (feet)	Qc (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT (N')	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0.59	129.50	1.740	1.3	32	52	0.07	42		SAND to Silty SAND	11
1.01	71.70	2.360	3.3	29	46	0.13		9.55	Sandy SILT to Clayey SILT	
1.53	78.10	1.520	1.9	26	42	0.20	39		Silty SAND to Sandy SIL	
2.01	31.00	1.350	4.4	21	33	0.26		4.12	Silty CLAY to CLAY	' 11
2.51	11.20	1.080	9.6	11	18	0.32		1.84	CLAY	120-130
3.04	10.90	1.060	9.7	11	17	0.39		1.78	11	120-130
3.57	10.20	1.020	10.0	10	16	0.46		1.66	11	11
4.57	17.60	1.070	6.1	18	28	0.59		2.31	1.1	130-140
5.54	12.30	1.070	8.7	12	20	0.71		1.59	11	120-130
6.07	10.50	0.810	7.7	11	17	0.78		1.69	1.1	120 130
6.50	8.20	0.660	8.0	8	13	0.83		1.56	1.1	11
7.04	5.70	0.550	9.6	6	9	0.89		1.05	Organic Material	110-120
7.58	5.20	0.500	9.6	5	8	0.96		0.94	11	110
8.00	4.00	0.440	11.0	4	6	1.00		0.70	1.1	100-110
8.52	3.70	0.220	5.9	4	5	1.05		0.63	CLAY	90-100
9.02	5.50	0.240	4.4	6	8	1.10		0.99	11	100-110
9.56	5.90	0.310	5.3	6	8	1.16		1.06	11	11
10.54	7.50	0.320	4.3	8	10	1.27		1.37	1.1	110-120
11.08	6.40	0.310	4.8	6	9	1.33		1.15	1.1	100-110
11.51	9.40	0.350	3.7	9	12	1.38		1.45	1.1	110-120
12.02	8.40	0.550	6.5	8	11	1.44		1.54	1.1	11
12.59	9.80	0.520	5.3	10	13	1.51		1.51	1.1	120-130
13.02	8.60	0.480	5.6	9	11	1.56		1.56	11	110-120
13.56	5.70	0.360	6.3	6	7	1.61		0.98	11	100-110
14.53	10.50	0.570	5.4	11	13	1.74		1.61	11	120-130
15.07	10.50	0.540	5.1	11	13	1.80		1.60	1.1	11
15.58	10.00	0.470	4.7	10	12	1.86		1.51	11	110-120
16.01	9.40	0.470	5.0	9	11	1.91		1.41	11	11
16.55	7.50	0.430	5.7	8	9	1.97		1.30	.,	
17.09 17.54	5.90 7.90	0.320 0.310	5.4 3.9	6 8	7 9	2.03 2.08		0.98 1.37		100-110
18.06	8.60	0.330	3.8	9	10	2.08		1.51	11	110-120
19.05	9.30	0.410	4.4	9	10	2.14		1.36	11	11
19.58	7.50	0.320	4.3	8	8	2.32		1.27	11	11
20.00	11.80	0.930	7.9	12	13	2.37		1.77	11	120-130
20.57	60.40	3.800	6.3	60	66	2.45		7.89	Very Stiff Fine Grained	
21.02	133.90	2.710	2.0	45	48	2.51	40		Silty SAND to Sandy SIL1	
21.59	226.30	2.840	1.3	45	48	2.58	43		SAND	11
22.06	131.20	2.570	2.0	44	46	2.65	40		Silty SAND to Sandy SIL1	[ 11
22.51	168.80	4.310	2.6	56	59	2.71	41		1.1	1.1
23.00	359.30	6.200	1.7	72	75	2.77	46		SAND	1.1
23.55	377.60	5.430	1.4	76	78	2.85	46		1.1	1.1
24.03	235.00	5.140	2.2	78	80	2.91	43		Silty SAND to Sandy SIL1	, II
24.50	367.30	4.830	1.3	73	74	2.98	46		SAND	1.1
24.58	354.60	5.560	1.6	71	72	2.99	45		1.1	1.1
25.05	362.40	4.860	1.3	72	73	3.05	45		11	1.1
25.51	264.60	3.850	1.5	53	53	3.11	44		1.1	1.1
26.01	351.30	5.950	1.7	70	70	3.18	45		11	1.1
26.54	357.40	6.650	1.9	71	71	3.25	45		11	11
27.01	319.70	3.490	1.1	64	64	3.31	45	0.07	11	120-130
27.59	71.20	2.410	3.4	28	28	3.39		9.27	Sandy SILT to Clayey SILT	
28.05	15.40	0.850	5.5	15	15 8	3.45		1.82	CLAY	120-130
28.51 29.08	8.00 9.90	0.630 0.460	7.9 4.6	8 10	10	3.50 3.57		1.25 1.35	11	110-120
29.08	11.20	0.460	3.9	11	11	3.63		1.56	11	110-120
30.06	9.70	0.370	3.8	10	10	3.68		1.31	1.1	11
30.00	7.10	0.570	5.0	10	10	5.00		1 1		

DEPTH = Sampling interval (2 inches)

Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\*

Fs = Sleeve friction resistance Phi = Soil friction angle\*

Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) SPT = Equivalent Standard Penetration Test\*



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-9 Page 1 of 1 LOCATION: San Jose / Santa Clara CA DATE : 08-29-2005

PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 12.3 feet

Terminated at 30.0 feet

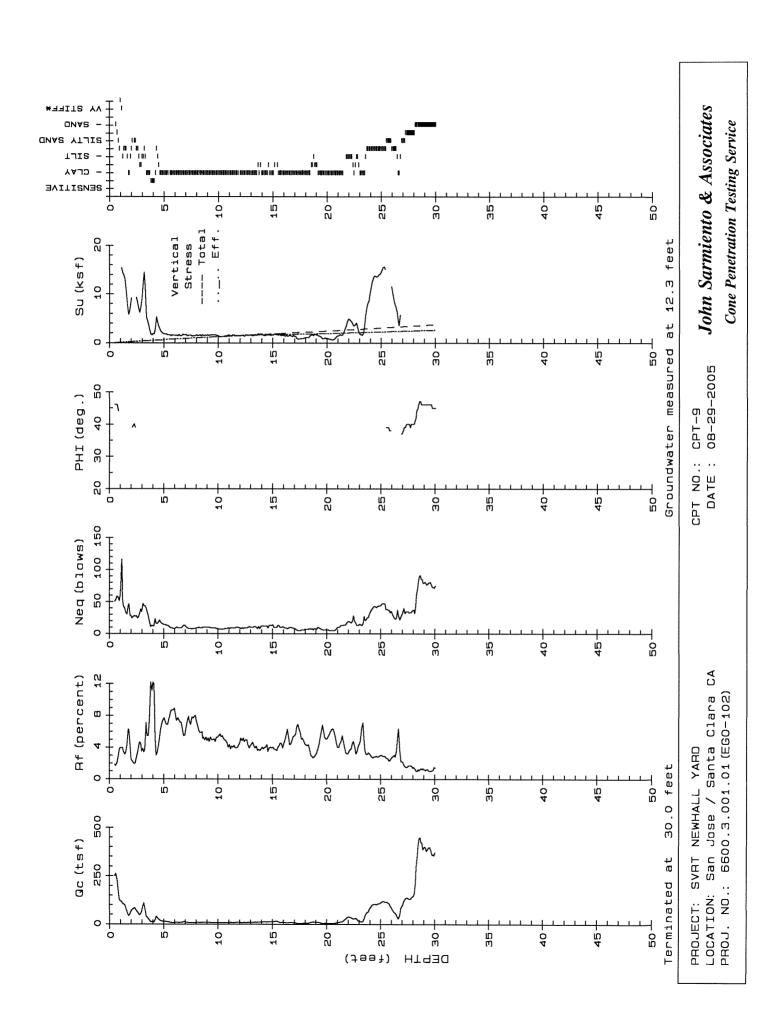
DEPTH (feet)	Qc (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT (N')	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0.50	250.30	4.540	1.8	50	80	0.06	46		SAND	130-140
1.50	83.10	2.730	3.3	33	53	0.19		11.07		
2.09	73.10	1.680	2.3	24	39	0.17	39		Sandy SILT to Clayey SILT	
2.57	60.80	2.010	3.3	24	39	0.27			Silty SAND to Sandy SILT	!
3.07	93.40	3.540	3.8	47	75			8.08	Sandy SILT to Clayey SILT	
						0.40		12.43	Clayey SILT to Silty CLAY	
3.58	27.50	1.490	5.4	28	44	0.47		3.64	CLAY	11
4.10	11.50	1.350	11.7	12	18	0.54		1.87	Organic Material	11
4.51	26.60	1.090	4.1	18	28	0.60		3.51	Silty CLAY to CLAY	11
5.04	14.00	1.060	7.6	14	22	0.66		1.82	CLAY	120-130
5.55	10.00	0.810	8.1	10	16	0.73		1.61	1.1	1.1
6.08	9.40	0.730	7.8	9	15	0.80		1.50	1.1	1.1
6.51	9.20	0.650	7.1	9	14	0.85		1.46	1.1	1.1
7.05	10.70	0.670	6.3	11	16	0.92		1.71	11	t t
7.59	7.30	0.560	7.7	7	10	0.98		1.36	1.1	110-120
8.02	8.80	0.630	7.2	9	12	1.03		1.66	1.1	120-130
8.55	8.60	0.510	5.9	9	12	1.09		1.61	1.1	110-120
9.00	10.20	0.490	4.8	10	13	1.15		1.60	1.1	120-130
9.53	8.80	0.430	4.9	9	11	1.21		1.64	11	110-120
10.08	7.40	0.400	5.4	7	9	1.27		1.35	1.1	110 120
10.51	7.40	0.380	5.1	7	ý	1.32		1.35	11	11
11.05	8.30	0.360	4.3	8	10	1.38		1.52	11	11
11.58	9.40	0.370	3.9	9					11	
				-	11	1.45		1.45		11
12.00	9.20	0.410	4.5	9	11	1.49		1.41	11	11
12.54	8.80	0.430	4.9	9	10	1.56		1.60	11	1.1
13.09	9.90	0.440	4.4	10	11	1.62		1.52	11	1 1
13.52	10.20	0.420	4.1	10	11	1.67		1.56	1.1	1.1
14.06	11.50	0.460	4.0	12	13	1.74		1.77	1.1	120-130
14.59	13.90	0.490	3.5	9	10	1.80		1.73	Silty CLAY to CLAY	1.1
15.02	13.60	0.540	4.0	14	15	1.86		1.69	CLAY	11
16.03	10.10	0.440	4.4	10	11	1.97		1.52	1.1	110-120
16.57	10.10	0.430	4.3	10	11	2.04		1.51	11	11
17.01	8.00	0.430	5.4	8	8	2.09		1.39	1.1	1.1
17.54	5.10	0.300	5.9	5	5	2.14		0.81	1.1	100-110
18.07	6.80	0.290	4.3	7	7	2.20		1.14	11	11
18.53	10.70	0.320	3.0	7	7	2.25		1.60	Silty CLAY to CLAY	110-120
19.06	11.20	0.360	3.2	7	8	2.31		1.67	11	110 120
20.04	5.90	0.300	5.1	6	6	2.41		0.94	CLAY	100-110
20.57	4.60	0.290	6.3	5	5	2.47		0.67	II	100 110
21.00	9.80	0.390	4.0	10	10	2.52		1.42	11	110-120
22.06	37.50	1.320	3.5	19	19	2.66		4.82	Clayey SILT to Silty CLAY	
22.59	29.10	1.180	4.1	19	19	2.73		3.70	City Clay to Sitty CLAY	130-140
23.02	15.30	0.670	4.4	15	15				Silty CLAY to CLAY	
						2.79		1.85	CLAY	120-130
23.55	42.10	1.520	3.6	21	21	2.86		5.42	Clayey SILT to Silty CLAY	
24.06	87.10	2.590	3.0	35	35	2.93		11.42	Sandy SILT to Clayey SILT	
24.57	102.90	3.010	2.9	41	41	3.00		13.52	11	1.1
25.09	115.20	3.440	3.0	46	46	3.07		15.16	11	1.1
25.59	114.10	2.940	2.6	38	38	3.13	39		Silty SAND to Sandy SILT	1.1
26.06	76.20	2.150	2.8	30	30	3.20		9.95	Sandy SILT to Clayey SILT	1.1
26.55	36.90	1.870	5.1	37	37	3.26		4.70	CLAY	1.1
27.04	100.70	2.070	2.1	34	33	3.33	38		Silty SAND to Sandy SILT	1.1
27.52	134.60	2.090	1.6	34	33	3.40	40		SAND to Silty SAND	1.1
28.06	146.20	2.180	1.5	37	36	3.47	40		11	1.1
28.56	445.60	4.680	1.1	89	88	3.53	47		SAND	120-130
29.07	400.60	4.950	1.2	80	78	3.60	46		I I	130-140
29.56	397.80	3.950	1.0	80	77	3.66	46		11	120-130
30.03	370.80	5.270	1.4	74	71	3.72	45		11	130-140
30.03	3,0.00	3.210	1.4	, 4	7.1	J.12	47		÷ •	130-140

DEPTH = Sampling interval (2 inches)

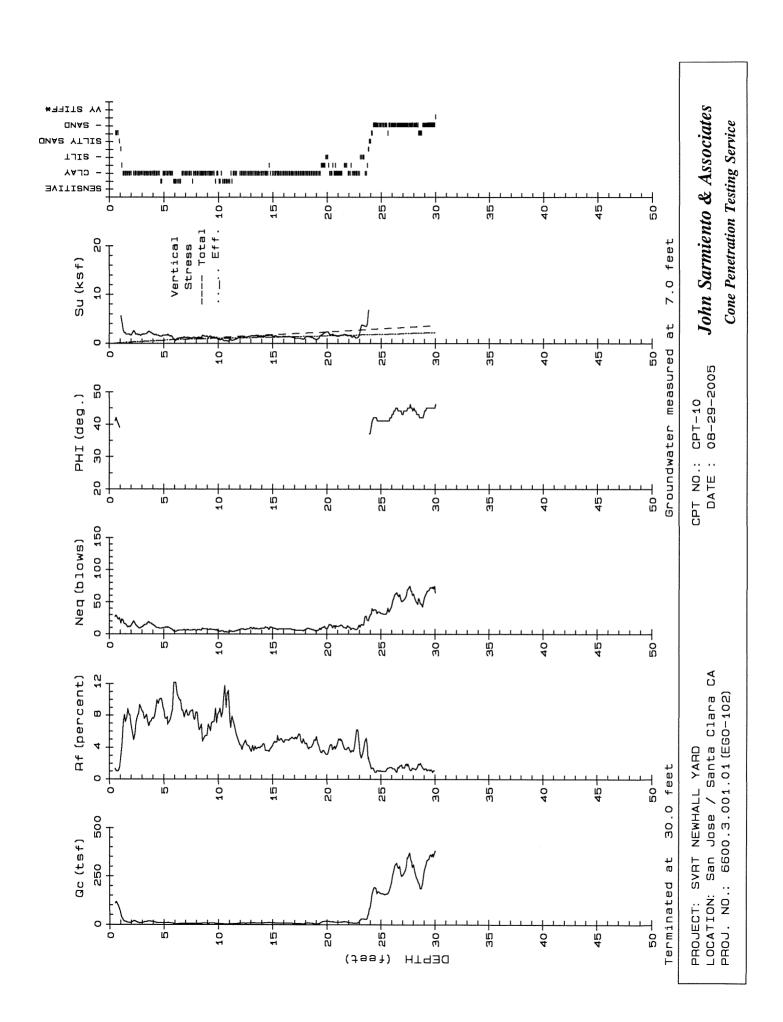
Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\*

Fs = Sleeve friction resistance Phi = Soil friction angle\*

Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) SPT = Equivalent Standard Penetration Test\*



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-10 Page 1 of 1 LOCATION: San Jose / Santa Clara CA DATE: 08-29-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 7.0 feet Terminated at 30.0 feet **DEPTH** Qc Fs Rf SPT SPT TotVtStr PHI SII SOIL BEHAVIOR DENSITY RANGE (feet) (tsf) (tsf) (%) (N) (N') (ksf) (deg.) (ksf) TYPE (pcf) 0.51 109.30 1.420 1.3 27 44 0.06 41 SAND to Silty SAND 120-130 1.03 42.20 1.280 3.0 17 27 0.13 5.62 ----Sandy SILT to Clayey SILT 130-140 1.56 13.70 1.030 7.5 22 \_\_\_\_ 14 0.20 1.81 CLAY 120-130 2.54 11.70 0.910 7.8 12 19 \_\_\_\_ 0.32 1.92 3.08 11.90 0.990 11 . . 8.3 12 19 0.39 ----1.95 3.51 17.10 1.240 7.3 17 27 \_\_\_\_ . . . 0.44 2.25 130-140 14.20 1.070 0.51 4.05 7.5 23 \_\_\_\_ . . . 14 1.86 120-130 4.58 9.40 0.930 9.9 9 15 \_\_\_\_ . . 0.58 1.52 5.01 0.880 10.20 \_\_\_\_ . . 1.1 8.6 10 16 0.63 1.65 5.58 9.20 0.680 7.4 9 15 0.70 ----1.47 1.1 1.1 6.01 3.90 0.540 12.0 Organic Material -6 0.75 0.71 100-110 6.55 5.80 0.570 9.8 9 \_\_\_\_ 0.81 1.08 1.1 110-120 7.08 6.30 0.540 8.6 6 10 \_\_\_\_ 0.87 CLAY 1.1 1.17 7.51 6.10 0.520 8.5 9 ----1.1 11 0.92 1.13 6 0.98 8.05 5.90 0.490 8.3 9 11 11 1.08 1.04 8.54 8.80 0.410 4.7 9 13 ----1.66 11 . . 9.08 6.80 7 ----1.1 11 0 460 6.8 10 1.10 1.25 7.1 9.51 7.00 0.500 10 1.15 ----1.29 1.1 11 10 05 4.60 0.380 8.3 5 6 0.80 Organic Material 1.21 100-110 10.59 3.20 0.370 11.6 1.26 ----0.51 1.1 11.02 11 11 4.00 0.310 7.8 6 1.31 0.67 11.56 4.70 0.290 6.2 5 6 1.36 ----0.80 CLAY 1.1 12.08 7.70 0.320 4.2 R 10 1.42 1.40 1.1 110-120 12.51 6.90 0.330 9 ----. . 1.1 4.8 1.47 1.23 13.05 10.00 10 ----11 11 0.350 3.5 13 1.54 1.54 13.59 8.20 8 ----11 1.1 0.320 3.9 11 1.60 1.48 14.02 9.00 0.370 4.1 Q 12 1.65 1.36 1.1 14.56 10.30 0.370 10 ----1.1 1.1 3.6 13 1.71 1.57 15.07 0.420 9 11 11 9.30 12 4.5 1.77 1.40 15.56 7.70 0.370 4.8 8 10 11 11 1.83 1.36 8 16.03 8.30 0.380 4.6 10 1.88 1.1 1.47 0.380 16.57 7.60 5.0 9 1.94 ----1.33 . . 1.1 17.08 1.99 11 6 7 100-110 0.320 5.2 ----6.10 1.02 ----1.1 18.08 8.20 0.370 4.5 10 2.11 1.43 110-120 18.50 7.50 0.300 4.0 9 8 2.16 1.28 19.02 4.50 0.240 5 5 ----11 100-110 5.3 2.21 0.68 0.470 19.51 14.30 3.3 10 11 ----Silty CLAY to CLAY 120-130 2.27 1.76 20.03 18.80 0.580 9 ----3.1 11 2.34 2.35 Clayey SILT to Silty CLAY 1 1 . . 15.70 0.580 3.7 20.53 10 12 2.40 1.93 Silty CLAY to CLAY 21.07 12.20 0.610 ----1.1 5.0 12 14 2.47 1.46 CLAY 11 0.590 ----1.86 Silty CLAY to CLAY 21.57 15.20 3.9 10 11 2.53 22.00 11.40 0.460 4.0 11 13 2.59 ----1.68 CLAY 1.1 8.30 9 ----22.53 0.320 3.9 - 8 110-120 2.65 1.40 23.07 22.80 0.730 3.2 11 12 2.71 2.86 Clayey SILT to Silty CLAY 120-130 1.390 28 ----27.50 29 3.48 23.60 5.1 2.78 CLAY 130-140 24.00 91.20 1.650 1.8 30 32 2.84 38 Silty SAND to Sandy SILT 37 39 ----120-130 24.55 186.00 1.710 0.9 2.91 42 SAND ----1.1 25.02 159.20 1.660 1.0 32 33 2.97 41 11 . . 3.03 130-140 25.52 158.90 1.960 1.2 32 33 41 ----1.1 26.08 253.60 3,420 51 52 44 1.1 1.3 3.11 11 11 ----26.54 299.70 4.570 1.5 60 61 3.17 44 1.1 27.07 260.60 3.830 1.5 52 53 3.24 . . 44 1.1 11 69 ----27.50 346.20 6.700 1.9 69 3.30 45 1.1 1 1 28.02 310.80 4.050 1.3 62 62 3.37 45 1.1 53 53 28.57 210.90 3.870 1.8 3.45 42 SAND to Silty SAND 11 29.01 273.80 3,420 1.2 55 55 3.51 44 SAND 72 71 ----120-130 29.52 357.80 3.900 1.1 3.57 45 30.04 382.70 0.001 0.0 64 3.61 46 Gravelly SAND to SAND <80 DEPTH = Sampling interval (2 inches) Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\* Phi = Soil friction angle\* Fs = Sleeve friction resistance Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) SPT = Equivalent Standard Penetration Test\* References: \* Robertson and Campanella, 1988 



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-11 Page 1 of 2 LOCATION: San Jose / Santa Clara CA DATE: 08-29-2005

PROJ. NO.: 6600.3.001.01(EGO-102)

Groundwater estimated at 6.8 feet Terminated at 40.0 feet DEPTH Rf SPT SPT TotVtStr ۵c F۵ PHI SH SOIL BEHAVIOR DENSITY RANGE (deg.) (feet) (tsf) (tsf) (%) (N) (N) (ksf) TYPE (ksf) (pcf) 0.51 308.80 4.940 1.6 62 99 0.06 47 SAND 130-140 4.8 1.02 111.30 5.300 111 178 0.13 ----14.83 Very Stiff Fine Grained \* >140 4.6 1.51 85.80 3.930 86 137 0.20 \_\_\_\_ 11.43 130-140 2.08 40.80 2.020 5.0 41 65 0.27 \_\_\_\_ CLAY 5.42 1 1 2.58 46.90 2,760 5.9 47 75 0.34 \_\_\_\_ 6.23 11 3.07 146,40 1.730 1.2 20 47 0.40 43 SAND ----120-130 0.47 3.57 72.40 1.520 24 39 39 ----2.1 Silty SAND to Sandy SILT 130-140 4.09 22.00 1.500 6.8 22 35 0.54 ----2.90 CLAY 11 4.60 18.60 1.110 19 30 ----1 1 6.0 0.61 2.44 5 01 18.30 18 29 ----11 1.130 6.2 0.66 2.40 1.1 5.58 18.20 1.120 18 29 ----11 6.2 0.74 2.38 11 6.53 10.70 1.1 0.750 11 ----7.0 16 0.86 1.71 120-130 7.07 11,10 0.790 7.1 11 17 0.93 ----1.77 ιı 11.70 0.700 0.99 7.60 17 11 6.0 12 1.87 1.1 8.02 8.30 0.630 12 1.05 ----: : 1.1 7.6 1.56 6.80 8.55 0.410 6.0 7 10 1.1 1.11 1.25 110-120 4.9 9.05 9.40 0.460 9 13 ----11 1.16 1.47 11 9.58 8.90 0.540 6.1 12 1.23 11 1.66 10.02 8.50 0.550 9 12 1.28 ----11 1 1 6.5 1.57 0.570 11 10.56 10.30 10 ----5.5 14 1.34 1.60 120-130 11.09 8.70 0.510 5.9 9 12 1.1 1.40 1.60 110-120 9 11.51 8.70 0.490 ----5.6 12 1.45 1.1 1.59 1.1 12.01 9.90 0.530 5.4 10 13 1.52 ----1.52 11 120-130 9 8.50 0.460 1.1 12.55 5.4 11 ----1.58 1.54 110-120 13.08 7.60 0.460 8 ----1.1 6.1 10 1.64 1.36 13.51 0.410 5.4 ----7.60 8 10 1.1 1.69 1.35 1.1 14.04 8.90 0.440 4.9 9 \_\_\_\_ 1.1 1.1 11 1.75 1.61 0.470 14.57 11 10.60 4.4 11 13 1.81 ----1.1 1.62 15.00 10.80 0.500 4.6 11 13 1.1 1.86 1.64 120-130 0.480 12.50 1.93 15.54 3.8 13 15 11 1.54 1.1 16.01 11.10 0.450 11 13 1.98 ----1.1 4.1 1.68 110-120 1.1 16.54 8.20 0.450 5.5 8 10 ----2.05 1.44 1.1 8.10 17.07 0.420 5.2 8 10 2.11 ----1.41 11 . . 18.03 11.10 0.520 ----4.7 11 13 2.23 11 1.66 120-130 18.56 8.30 0.450 8 9 2.29 ----11 5.4 1.43 110-120 19.09 7.70 0.360 4.7 8 9 ----11 11 2.35 1.31 19.52 7.50 0.340 4.5 8 8 ----11 . . 2.40 1.26 20.03 7.40 0.400 5.4 7 8 ----11 2.46 1.23 20.56 9.00 0.400 9 ----1.1 1 1 4.4 10 2.52 1.29 11 1.1 21.09 0.450 4.7 \_\_\_\_ 9.60 10 10 2.58 1.39 29.30 2.290 7.8 29 ----11 21.60 32 2.65 3.73 130-140 7.2 22.05 28.20 28 ----2.030 30 2.71 3.58 22.57 4.90 0.460 9.4 5 5 2.76 ----0.70 Organic Material 100-110 6.00 0.450 23.09 6 ----7.5 6 2.82 0.92 CLAY 110-120 24.10 222.60 2.420 45 43 1.1 46 2.95 ----SAND 120-130 24.55 219.20 ----44 45 1.1 2.630 1.2 3.01 43 130-140 43 ----1.1 25.01 216.10 2.190 1.0 44 3.07 43 120-130 159.20 2.150 40 40 ----SAND to Silty SAND 25.58 1.4 3.14 41 130-140 36 ----26.06 180.60 1.160 0.6 36 3.20 41 SAND 110-120 26.58 131.60 0.400 0.3 26 26 3.25 40 90-100 27.06 30.60 0.360 10 10 3.30 31 Silty SAND to Sandy SILT 110-120 1.2 0.080 8.80 27.54 0.9 4 3.35 ----1.43 Clayey SILT to Silty CLAY 90-100 28.02 4.40 0.110 2.5 3.40 0.54 CLAY 3 3 ----1.1 28.55 5.00 0.100 2.0 3.45 0.66 Silty CLAY to CLAY ----29.05 11.40 0.370 3.2 8 8 3.50 1.61 110-120 1.390 39 29.54 123.20 1.1 31 31 3.56 \_\_\_\_ SAND to Silty SAND 120-130 ----30.02 163.00 2.430 1.5 41 41 3.63 41 130-140 51 ----30.50 253.00 2.530 1.0 50 3.69 43 SAND 120-130 31.51 21.90 1.170 5.3 22 22 3.83 2.66 130-140 CLAY 32.02 122.30 1.340 1.1 31 30 3.89 39 ----SAND to Silty SAND 120-130 32.58 190.20 2.080 38 38 3.96 42 ----SAND 1.1

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41

31

27

0.6

0.6

0.9

1.0

33.06

33.55

34.03

34.54

205.90

156.20

134.80

157.60

1.320

0.980

1.190

1.600

41

31

27

4.01

4.07

4.13

4.19

42

41

40

41

John Sarmiento & Associates Cone Penetration Testing Service

110-120

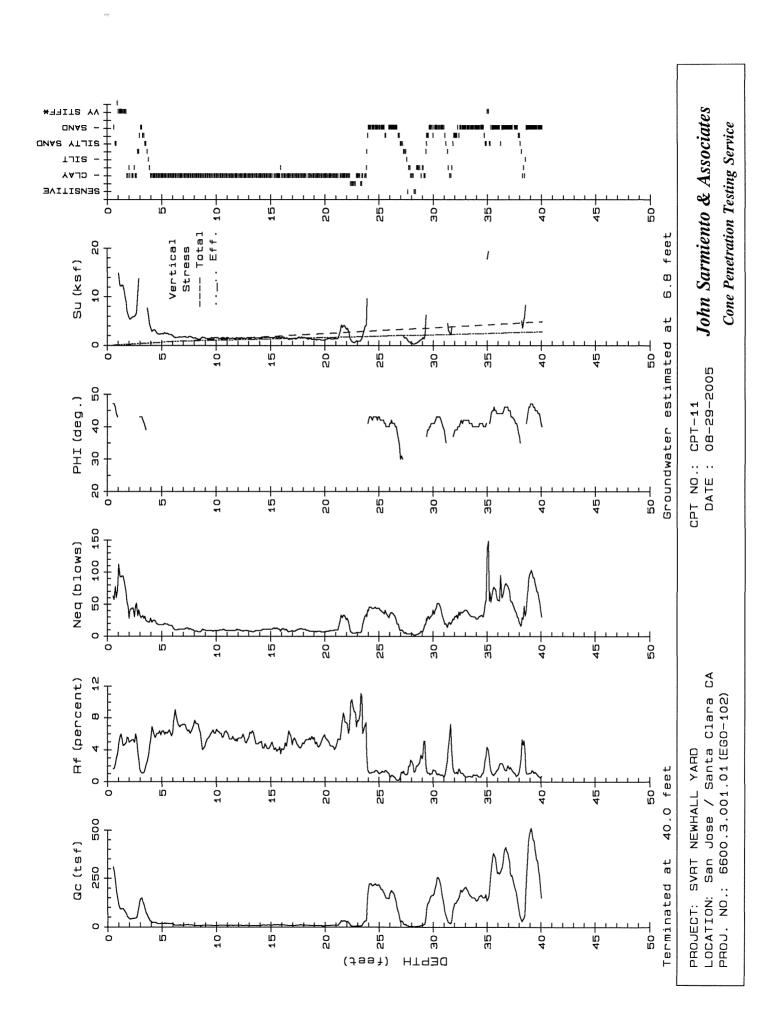
120-130

1.1

11

1.1

PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-11 Page 2 of 2 LOCATION: San Jose / Santa Clara CA DATE: 08-29-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater estimated at 6.8 feet Terminated at 40.0 feet Rf SPT SPT TotVtStr DEPTH Qс PHI Fs SU SOIL BEHAVIOR DENSITY RANGE (feet) (tsf) (tsf) (%) (N) (N') (ksf) (deg.) (ksf) TYPE (pcf) 35.01 135.70 5.830 4.3 136 134 4.26 17.81 Very Stiff Fine Grained \* >140 35.54 368.50 3.140 0.9 74 4.33 45 73 SAND 120-130 36.07 ----281.10 4.440 1.6 56 55 4.40 44 1.1 130-140 36.50 336.20 6.860 2.0 67 65 4.46 45 ----1.1 11 37.01 362.90 6.690 1.8 73 69 4.53 45 ----1.1 1.1 37.55 215.10 2.460 1.1 43 40 4.59 42 ----11 120-130 38.06 60.80 1.050 1.7 20 19 4.66 35 \_\_\_\_ Silty SAND to Sandy SILT 130-140 2.610 38.52 64.70 32 8.31 4.0 3በ 4.72 ----Clayey SILT to Silty CLAY 1.1 39.00 492.20 5.340 1.1 98 89 4.78 47 ----120-130 SAND 4.280 39.52 377.70 76 68 45 11 1.1 4.85 1.1 40.05 152.00 1.050 0.7 27 4.91 40 ----11 110-120 DEPTH = Sampling interval (2 inches) Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\* Fs = Sleeve friction resistance Phi = Soil friction angle\* Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) SPT = Equivalent Standard Penetration Test\* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf)



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-12 Page 1 of 2

LOCATION: San Jose / Santa Clara CA

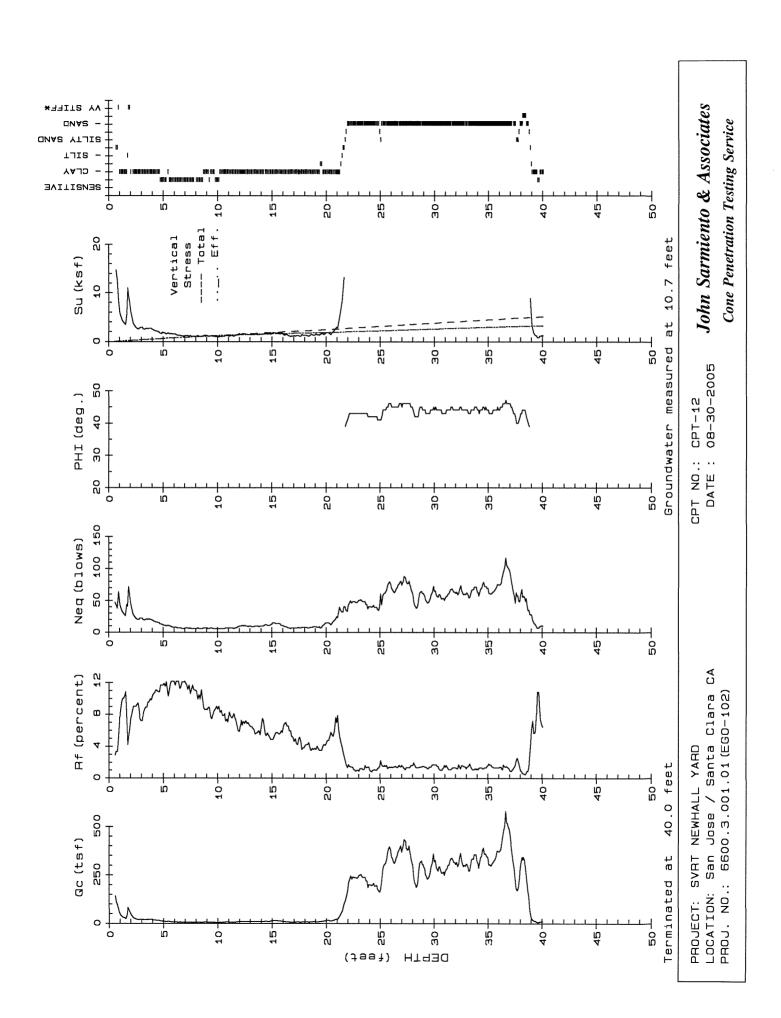
PROJ. NO.: 6600.3.001.01(EGO-102)

DATE: 08-30-2005

Groundwater measured at 10.7 feet

PROJ. NO.	.: 6600.3	.001.01(	,EGO-10	12)		Groundwater measured at 10.7 feet Terminated at 40.0 feet							
DEDTII	2-		5.6	CDT	207	7 : 1/4.01							
DEPTH (feet)	Qc (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT (N')	TotVtStr (ksf)	PHI (deg.)	ŞU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)			
0.57	141.90	4.050	2.9	47	76	0.07	43		Silty SAND to Sandy SILT	·			
1.02	43.40	3.490	8.0	43		0.13		5.78	CLAY	1 130-140			
1.52	25.90	2.780	10.7	26		0.20		3.44	II.	11			
2.02	46.40	3.450	7.4	46		0.26		6.17	11	1.8			
2.56	20.90	1.910	9.1	21	33	0.34		2.76	11	1.1			
3.07	21.80	1.550	7.1	22	35	0.40		2.88	(1	1.1			
3.59	19.90	1.880	9.4	20	32	0.48		2.62	1.1	11			
4.01	18.90	1.930	10.2	19		0.53		2.48	1.1	1.1			
4.54	15.30	1.630	10.7	15		0.60		2.00	11	T.F.			
5.06	11.00	1.290	11.7	11	18	0.67		1.78	Organic Material	120-130			
5.55	10.40	1.140	11.0	10		0.73		1.67	11	1.1			
6.08	8.20	0.940	11.5	8		0.79		1.56	11	11			
6.51	7.00	0.780	11.1	7		0.85		1.32	11	11			
7.05	6.50	0.770	11.8	7		0.92		1.21	1 1	11			
7.58 8.06	6.20	0.680	11.0	6		0.98		1.14	# 1 	110-120			
8.06 8.60	6.20	0.670	10.8	6		1.03		1.14	11	11			
8.60	6.20	0.600	9.7	6		1.09		1.13	I I	11			
9.03 0.57	6.80	0.580	8.5	7		1.14		1.25	CLAY	11			
9.57	6.10 5.80	0.490	8.0	6	_	1.21		1.10	Ormania Matarial	11			
10.00 10.54	5.80	0.500	8.6	6		1.26		1.03	Organic Material	11			
10.54 11.07	6.40 6.50	0.500	7.8	6		1.32		1.15	CLAY	11			
11.07	6.50	0.530	8.2	7		1.38		1.16	11	11			
11.58 12.01	6.90	0.520	7.5 5.8	7 10		1.44		1.24	# 1 1 1	110 170			
12.01 12.60	10.40	0.600	5.8 7.1	10		1.49		1.61	11	120-130			
12.60 13.03	9.80	0.700	7.1 6.4	10		1.56		1.50	11	11			
	9.70 9.70	0.620	6.4 5.6	10	11	1.62		1.48	11	11			
13.57 14.58	9.70 10.80	0.540 0.600	5.6 5.6	10		1.69		1.48	11	1.1			
14.58	14.50	0.690	5.6 4.8	11 15	12 16	1.81		1.65	11	11			
15.09	14.50	0.690	4.8 5.6	15	16 15	1.88 1.93		1.81 1.70	11	11			
16.06	9.70	0.770	6.5	10		2.00		1.70	11	11			
16.59	6.90	0.630	5.9	7		2.00		1.45	11				
17.02	7.10	0.410	4.6	7		2.06		1.17	11	110-120			
17.55	6.90	0.350	5.1	7		2.17		1.21	11	11			
18.06	7.80	0.320	4.1	8		2.17		1.34		11			
18.60	8.20	0.290	3.5	8		2.29		1.41	11	11			
19.03	8.80	0.320	3.6	9		2.34		1.53	11	11			
19.57	11.30	0.400	3.5	8	8	2.40		1.68	Silty CLAY to CLAY	11			
20.53	14.20	0.760	5.4	14	15	2.52		1.73	CLAY	120-130			
21.06	22.60	1.760	7.8	23	23	2.59		2.84	II	130-140			
21.55	81.20	2.720	3.3	32	33	2.66		10.65	Sandy SILT to Clayey SILT				
22.05	211.00	3.620	1.7	42	42	2.73	42		SAND	11			
22.55	239.00	2.640	1.1	48	48	2.79	43		I I	120-130			
23.03	249.40	2.360	0.9	50	50	2.85	43		11	120-130			
23.58	239.60	3.810	1.6	48	48	2.92	43		1.1	130-140			
24.04	200.00	2.050	1.0	40	40	2.98	42		1.1	120-130			
24.57	194.20	1.930	1.0	39	39	3.05	42		1.1	11			
25.04	179.60	3.870	2.2	60	60	3.11	41		Silty SAND to Sandy SILT				
25.50	309.70	4.800	1.5	62	62	3.17	44		SAND CO SUNDY STEE	130 140			
26.04	345.50	4.680	1.4	69	69	3.25	45		11	11			
26.57	351.50	4.480	1.3	70	70	3.32	45		1.1	11			
27.06	383.50	5.810	1.5	77	76	3.38	46		1.1	11			
27.52	380.30	4.920	1.3	76	75	3.45	46		· E1	1.1			
28.02	300.90	4.890	1.6	60	60	3.51	44		1.1	11			
28.51	212.80	2.710	1.3	43	42	3.58	42		11	1.1			
29.05	292.70	4.450	1.5	59	58	3.65	44		11	1.1			
29.54	243.00	3.450	1.4	49	48	3.72	43		1.1	1.1			
30.03	319.00	5.320	1.7	64	62	3.78	45		11	1.1			
30.54	293.70	3.160	1.1	59	56	3.85	44		1.1	120-130			
31.03	268.50	3.800	1.4	54	51	3.91	43		1.1	130-140			
31.56	333.40	3.530	1.1	67	62	3.98	45		11	120-130			
32.01	307.10	3.970	1.3	61	57	4.04	44		1.1	130-140			
32.54	329.50	5.110	1.6	66	60	4.11	44		1.1	11			
33.06	308.30	4.410	1.4	62	55	4.18	44		1.1	1.1			
33.57	334.50	3.800	1.1	67	59	4.25	44		1.1	120-130			

John Sarmiento & Associates Cone Penetration Testing Service PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-12 Page 2 of 2 LOCATION: San Jose / Santa Clara CA DATE: 08-30-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 10.7 feet Terminated at 40.0 feet DEPTH Qс Fs Rf SPT SPT TotVtStr PHI SH SOIL BEHAVIOR DENSITY RANGE (pcf) (feet) (tsf) (tsf) (%) (N) (N') (ksf) (deg.) (ksf) TYPE 34.07 311.00 3.460 1.1 62 55 4.31 . . . . . . 1.1 34.57 390.90 4.500 1.2 78 68 4.38 45 1 1 130-140 35.00 5.410 59 1.1 342.50 1.6 69 4.43 44 ----1.1 35.53 319.20 4.230 1.3 64 54 4.51 44 1.1 11 36.03 371.80 74 4.980 1.3 62 4.57 45 ----1.1 11 36.53 509.40 4.64 11 7.690 1.5 102 84 46 37.01 77 . . 467.60 4.710 1.0 94 4.70 46 ----120-130 37.51 1.1 232,40 3.670 46 38 4.77 42 ----1.6 130-140 38.00 287.20 47 3.300 1.1 57 4.83 43 ----1.1 120-130 38.52 265.00 1.660 0.6 53 43 4.89 42 110-120 39.02 27.50 1.660 6.0 28 22 4.96 ----3.34 CLAY 130-140 39.56 6.80 0.730 7 5 ----10.7 5.02 0.86 Organic Material 120-130 40.04 10.10 ----0.650 6.4 10 8 5.08 1.26 CLAY DEPTH = Sampling interval (2 inches) Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\* Fs = Sleeve friction resistance Phi = Soil friction angle\* Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) SPT = Equivalent Standard Penetration Test\* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) References: \* Robertson and Campanella, 1988



CPT NO.: CPT-13 DATE: 08-29-2005 PROJECT: SVRT NEWHALL YARD Page 1 of 2

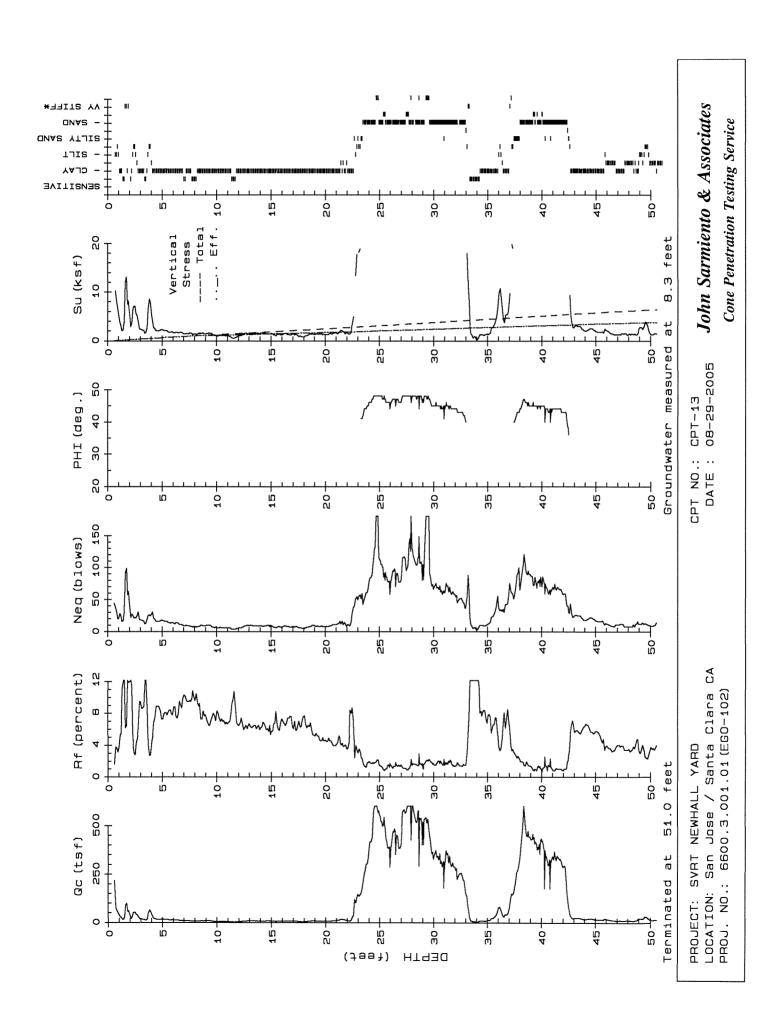
LOCATION: San Jose / Santa Clara CA

PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 8.3 feet

Terminated at 51.0 feet

							1011111	nacca ac	51.0 Teet	
DEPTH	Qc	Fs	Rf	SPT	SPT	TotVtStr	PHI	SU	SOIL BEHAVIOR	DENSITY RANGE
(feet)	(tsf)	(tsf)	(%)	(N)	(N')	(ksf)	(deg.)	(ksf)	TYPE	(pcf)
0.50	247 (0	7 780		,,	70	0.07				
0.58 1.10	217.60 28.10	3.380 1.460	1.6 5.2	44 28	70 45	0.07 0.14	45	7 7/	SAND	130-140
1.58	90.90	5.520	6.1	91	145	0.14		3.74	CLAY	11 * >1/0
2.50	53.90	1.520	2.8	22	34	0.21		12.11 7.16	Very Stiff Fine Grained 'Sandy SILT to Clayey SILT	* >140
3.00	17.70	1.650	9.3	18	28	0.40		2.33	CLAY	Т 130-140
3.51	13.00	1.650	12.0	13	21	0.47		1.70	Organic Material	11
4.02	40.20	1.780	4.4	27	43	0.53		5.32	Silty CLAY to CLAY	11
4.53	15.60	1.380	8.8	16	25	0.60		2.04	CLAY	11
5.05	17.20	1.240	7.2	17	28	0.67		2.25	II	1.1
5.56	14.40	1.160	8.1	14	23	0.74		1.87	1.1	1.1
6.06	12.70	1.110	8.7	13	20	0.81		1.64	1.1	120-130
6.59	10.60	1.000	9.4	11	16	0.87		1.69	11	11
7.01	9.20	0.940	10.2	9	14	0.92		1.46	Organic Material	1.1
7.53	8.60	0.820	9.5	9	12	0.99		1.62	CLAY	1.1
8.03	7.80	0.740	9.5	8	11	1.05		1.45	Organic Material	1.1
8.55	9.70	0.700	7.2	10	13	1.12		1.52	CLAY	1.1
9.08	9.60	0.690	7.2	10	13	1.18		1.50	11	1.1
10.03	5.60	0.460	8.2	6	7	1.29		0.99	11	110-120
10.56	6.20	0.430	6.9	6	8	1.35		1.10	11	1.1
11.08	5.90	0.400	6.8	6	8	1.41		1.04	11	1.1
11.50	3.80	0.370	9.7	4	5	1.46		0.61	Organic Material	100-110
12.04	5.90	0.380	6.4	6	7	1.52		1.03	CLAY	110-120
12.57	8.70	0.530	6.1	9	11	1.58		1.58	11	11
13.00 13.53	9.30	0.610	6.6	9	11	1.63		1.41	11	120-130
14.05	8.70 8.90	0.560 0.540	6.4 6.1	9	11 11	1.70		1.57	11	110 120
14.56	9.40	0.550	5.9	9	11	1.76 1.82		1.60 1.41	11	110-120
15.03	8.60	0.490	5.7	9	10	1.88		1.53	11	120-130
15.55	7.40	0.480	6.5	7	9	1.94		1.29	11	110-120
16.08	7.80	0.540	6.9	8	ý	2.00		1.36	11	11
16.51	7.70	0.560	7.3	8	ģ	2.05		1.34	1.1	11
17.03	8.30	0.500	6.0	8	ģ	2.11		1.45	11	FI
17.53	5.90	0.410	6.9	6	7	2.17		0.96	1.1	1.1
18.06	5.40	0.410	7.6	5	6	2.22		0.86	F 1	100-110
18.59	8.20	0.550	6.7	8	9	2.28		1.41	1.1	110-120
19.01	9.20	0.470	5.1	9	10	2.33		1.34	1.1	1.1
19.54	8.20	0.370	4.5	8	9	2.39		1.40	1.1	1.1
20.06	7.70	0.340	4.4	8	8	2.45		1.29	1 1	1 1
20.59	9.50	0.400	4.2	10	10	2.51		1.37	11	1.1
21.01	11.40	0.470	4.1	11	12	2.56		1.69	11	120-130
21.54	16.30	0.680	4.2	16	17	2.63		2.00	11	11
22.06	10.60	0.380	3.6	11	11	2.69		1.54	1.1	110-120
22.58	38.30	2.640	6.9	38	40	2.76		4.92	11	130-140
23.09	137.80	4.850	3.5	55	57	2.83		18.18	Sandy SILT to Clayey SILT	
23.58	257.30	3.360	1.3	51	52	2.90	44		SAND	11
24.02 24.53	381.80 645.90	7.390 11.610	1.9	76 120	77 129	2.95	46 >/8		11	1 1 1 1
25.00	558.40	7.560	1.8 1.4	129 112	112	3.02 3.09	>48 48		11	11
25.52	478.50	4.360	0.9	80	80	3.15	47		Gravelly SAND to SAND	120-130
25.58	436.10	4.410	1.0	87	87	3.16	46		SAND TO SAND	120-130
26.03	393.10	5.480	1.4	79	78	3.22	46		I I	130-140
26.53	451.70	6.770	1.5	90	90	3.29	47		11	130-140
27.03	439.60	6.260	1.4	88	88	3.36	47		11	11
27.53	587.90	5.120	0.9	98	98	3.42	>48		Gravelly SAND to SAND	120-130
28.05	632.80	10.070	1.6	127	126	3.49	>48		SAND	130-140
28.55	576.50	7.950	1.4	115	115	3.56	>48		I I	130 140
29.00	519.80	5.850	1.1	104	103	3.62	47		11	1.1
29.07	404.30	6.610	1.6	81	80	3.63	46		1.1	1.1
29.54	477.10	10.320	2.2	239	237	3.69	47		SAND to Clayey SAND *	1.1
30.07	347.90	5.260	1.5	70	69	3.76	45		SAND	1.1
30.53	332.20	6.170	1.9	66	66	3.82	45		1.1	11
30.60	346.20	6.100	1.8	69	69	3.83	45		t t	11
31.03	303.10	4.710	1.6	61	60	3.89	44		1.1	11
31.52	330.90	6.360	1.9	66	66	3.96	45		11	1.1
31.60	299.10	5.930	2.0	60	59	3.97	44		1.1	1.1

PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-13 Page 2 of 2 LOCATION: San Jose / Santa Clara CA DATE: 08-29-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 8.3 feet Terminated at 51.0 feet DEPTH Qc Fs Rf SPT SPT TotVtStr PHI SH SOIL BEHAVIOR DENSITY RANGE (feet) (tsf) (tsf) (%) (N) (N') (ksf) (deg.) (ksf) TYPE (pcf) 32.06 271.40 3.920 1.4 54 53 4.03 44 ----1.1 11 32.58 257.80 3.590 1.4 52 50 4.10 43 1.1 33.00 153.80 2.340 1.5 38 37 4.16 40 ----SAND to Silty SAND . . 33.56 9.30 1.820 12.0 9 9 4.23 . . 1 20 Organic Material 34.03 3.40 0.820 12.0 3 3 4.29 ----0.25 110-120 34.55 9.50 0.770 8.1 10 4.35 1.22 CLAY 120-130 0.930 35.05 12.10 7.7 12 11 4.41 ----1.32 1.1 1.1 11 35.52 23.70 1.540 6.5 24 21 4.48 2.86 130-140 36.04 75.40 2.860 3.8 38 34 4.55 ----9.75 Clayey SILT to Silty CLAY 11 36.55 30.40 2.430 8.0 30 27 1.1 4.62 3.75 CLAY 37.05 75.00 4.640 6.2 75 65 4.68 ----9.69 Very Stiff Fine Grained \* 1.1 37.57 196.30 5.560 2.8 65 56 4.75 41 11 ----Silty SAND to Sandy SILT 38.06 361.20 6.830 1.9 72 61 4.82 44 ----SAND 1.1 38.54 470.90 7.870 1.7 94 78 ----4.89 . . 46 39.06 428.90 11 5.370 1.3 86 71 4.96 45 ----11 39.56 406.30 3.230 0.8 68 55 5.02 45 \_\_\_\_ Gravelly SAND to SAND 120-130 40.03 420.20 2.700 0.6 70 57 5.07 45 ----1.1 110-120 40.52 326.10 2.590 0.8 65 53 5.13 ----44 SAND 120-130 3.010 56 41.02 343.40 0.9 69 5.19 44 \_\_\_\_ 11 11 41.56 336,40 3.350 1.0 67 54 44 ----11 1 1 5.26 42.01 289.80 2.440 0.8 58 46 5.32 43 ----1.1 1.1 42.56 72.20 2.450 3.4 29 23 9.27 5.39 ----Sandy SILT to Clayey SILT 130-140 43.02 25.40 1.410 5.6 25 20 5.46 ----3.02 CLAY 43.59 24.40 1.310 5.4 24 19 ----. . 5.53 2.88 44.08 17.70 1.170 6.6 18 14 5.60 \_\_\_\_ 1.1 11 1.99 44.58 21.70 1.210 5.6 22 17 5.67 ----. . 2.52 45.09 16.50 0.940 5.7 17 13 5.73 ----1.1 1.82 120-130 46.01 18.50 0.720 3.9 10 ----12 5.84 2.08 Silty CLAY to CLAY 1.1 46.52 13.70 0.440 3.2 9 7 5.91 ----1.43 1.1 47.04 10.80 0.430 4.0 5.97 ----110-120 11 8 1.30 CLAY 47.56 11.20 0.430 3.8 11 9 6.03 \_\_\_\_ 1.36 11 11 48.07 11.80 0.410 8 6 ----11 3.5 6.09 1.46 Silty CLAY to CLAY 48.58 11.80 0.420 3.6 8 6 6.15 ----1.45 11 49.10 23.70 0.720 3.0 9 12 6.21 2.75 Clayey SILT to Silty CLAY 120-130 ----49.50 32.20 0.800 2.5 13 10 6.26 3.88 Sandy SILT to Clayey SILT 130-140 9 ----50.02 12.90 0.480 3.7 6 6.33 1.30 120-130 Silty CLAY to CLAY 50.53 3.9 14.00 0.550 14 10 6.39 ----1.44 1.1 CLAY 51.03 16.00 0.600 3.8 11 8 6.46 1.70 Silty CLAY to CLAY DEPTH = Sampling interval (2 inches) Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\* Fs = Sleeve friction resistance Phi = Soil friction angle\* Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) SPT = Equivalent Standard Penetration Test\* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) References: \* Robertson and Campanella, 1988 



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-14 Page 1 of 1

LOCATION: San Jose / Santa Clara CA DATE: 08-29-2005 PROJ. NO.: 6600.3.001.01(EGO-102)

Groundwater estimated at 10.0 feet

Terminated at 28.5 feet

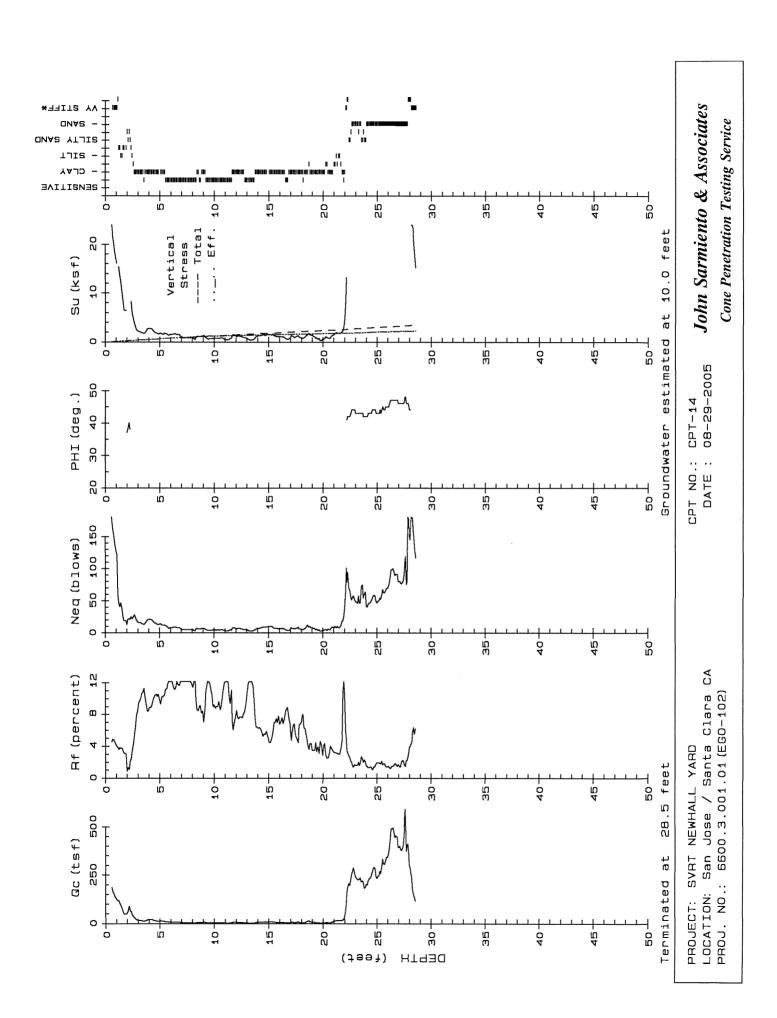
							Termi	nated at	28.5 feet	
DEPTH (feet)	Qc (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT (N¹)	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0.57	186.20	8.340	4.5	186	298	0.07		24.82	Very Stiff Fine Grained *	* >140
1.05	121.00	4.710	3.9	121	194	0.13		16.12	11	130-140
1.51	73.20	2.680	3.7	37	59	0.19		9.75	Clayey SILT to Silty CLAY	
2.01	53.10	0.460	0.9	13	21	0.25	37		SAND to Silty SAND	110-120
2.57	35.60	1.540	4.3	24	38	0.33		4.72	Silty CLAY to CLAY	130-140
3.06	16.20	1.500	9.3	16	26	0.39		2.13	CLAY	130 140
3.56	13.10	1.450	11.1	13	21	0.46		1.72	Organic Material	1.1
4.07	21.00	1.850	8.8	21	34	0.53		2.76	CLAY	1.1
4.59	14.90	1.540	10.3	15	24	0.60		1.95	II	1.1
5.53	10.60	1.170	11.0	11	17	0.72		1.71	Organic Material	120-130
6.06	8.00	1.010	12.0	8	13	0.78		1.52	il	120-130
6.58	8.00	0.980	12.0	8	12	0.85		1.52	1.1	11
7.52	5.30	0.690	12.0	5	8	0.96		0.96	1.1	110-120
8.04	4.60	0.520	11.3	5	6	1.02		0.82	1.1	110 120
8.54	6.40	0.540	8.4	6	9	1.07		1.17	CLAY	1.1
9.06	7.40	0.520	7.0	7	10	1.13		1.37	II	1.1
9.59	4.00	0.470	11.8	4	5	1.19		0.68	Organic Material	100-110
10.01	4.30	0.390	9.1	4	6	1.23		0.74	organic Material	100-110
10.54	4.70	0.400	8.5	5	6	1.29		0.74	11	11
11.06	3.30	0.410	12.0	3	4	1.34		0.53	11	11
11.59	4.30	0.470	10.9	4	5	1.40		0.72	11	11
12.05	6.30	0.530	8.4	6	8	1.45		1.11	CLAY	110-120
12.58	5.90	0.440	7.5	6	7	1.51		1.03	LI	110-120
13.00	4.60	0.460	10.0	5	6	1.56		0.76		100-110
13.53	3.40	0.390	11.5	3	4	1.61		0.78	Organic Material	100-110
		0.460	6.2	7	9					
14.05	7.40		5.5	9	10	1.67		1.31 1.55	CLAY	110-120
14.57	8.60	0.470	4.4	10		1.73		1.55	11	11
15.06	10.20	0.450		7	12 8	1.79			11	11
15.58	7.20	0.500	6.9			1.85		1.26	11	11
16.01	6.90	0.460	6.7	7 5	8 5	1.90		1.19		
16.54	4.50	0.380	8.4			1.95		0.70	Organic Material	100-110
17.06	7.50	0.350	4.7	8 7	8	2.01		1.30	CLAY	110-120
17.58	7.40	0.360	4.9		8	2.07		1.27	11	
18.00 18.56	5.50	0.380 0.520	6.9 4.2	6 12	6 14	2.12 2.19		0.89 1.51	11	100-110 120-130
	12.40		3.5	7	8	2.19		1.20	11	100-110
19.09 19.52	7.10	0.250 0.160	3.9	4	4	2.24		0.59	11	90-100
	4.10		4.0	4	4	2.20		0.57	11	90-100
20.04	4.00	0.160	3.1	5	5	2.33		0.37	11	11
20.57	4.80	0.150	3.2	8	9					
21.01	12.40	0.400		8		2.43		1.49	Silty CLAY to CLAY	110-120
21.53	15.10	0.450	3.0		8	2.50		1.85	Clayey SILT to Silty CLA	
22.01	37.90	3.890	10.3	38 56	40	2.56		4.88	CLAY	130-140
22.55	223.80	4.660	2.1		58	2.64	43		SAND to Silty SAND	11
23.01	242.50	3.870	1.6	49	50	2.70	43		SAND	
23.54	216.00	5.780	2.7	72	74	2.77	43		Silty SAND to Sandy SILT	' ''
24.09	200.80	2.950	1.5	40	41	2.84	42		SAND	
24.53	261.00	2.890	1.1	52	53	2.90	44		11	120-130
25.09	246.40	4.670	1.9	49	49	2.98	43		11	130-140
25.51	333.60	5.680	1.7	67	67	3.03	45		11	11
26.04	358.90	5.230	1.5	72	72	3.10	45		11	11
26.54	477.10	7.410	1.6	95	95	3.17	47		11	11
27.02	394.60	6.460	1.6	79	79	3.24	46		11	11
27.52	481.90	8.240	1.7	96	96	3.30	47		11	11
27.60	591.80	8.940	1.5	118	118	3.31	>48		11	11
28.06	288.90	11.540	4.0	144	144	3.38	44		SAND to Clayey SAND *	>140
28.54	116.20	7.100	6.1	116	116	3.45		15.26	Very Stiff Fine Grained *	k 11

DEPTH = Sampling interval (2 inches)

Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\*

Fs = Sleeve friction resistance Phi = Soil friction angle\*

Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf)
est\* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) Rf = Tip/Sleeve ratio SPT = Equivalent Standard Penetration Test\*



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-15 Page 1 of 1

LOCATION: San Jose / Santa Clara CA DATE: 09-01-2005

PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater estimated at 4.5 feet

Terminated at 30.0 feet

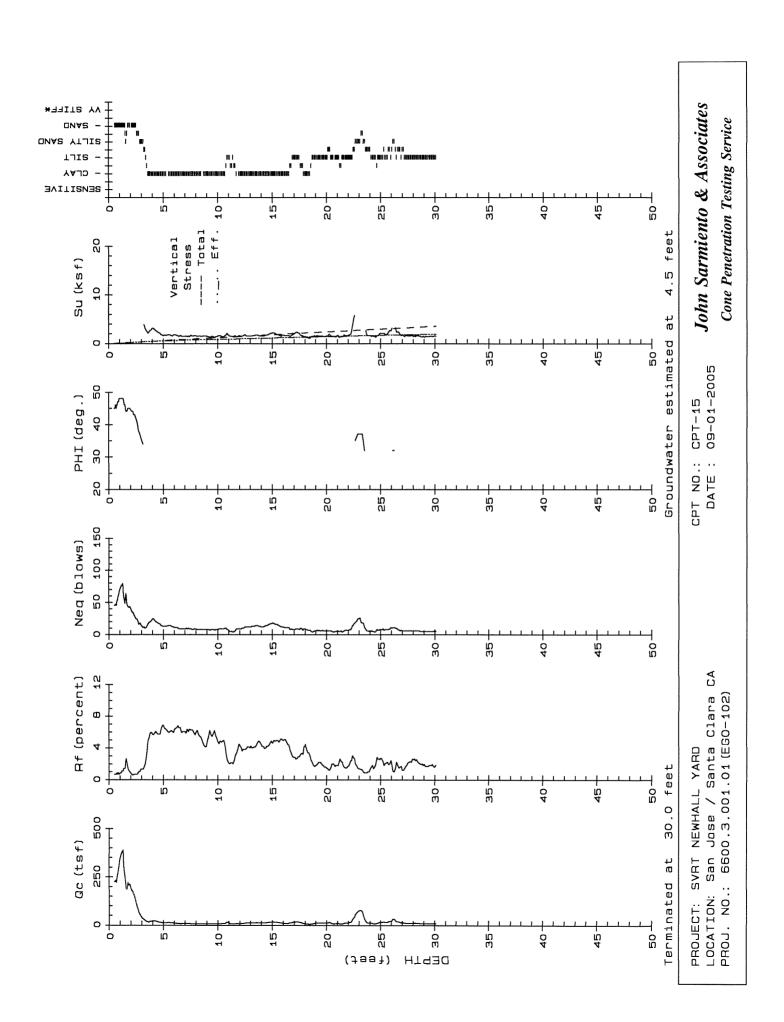
DEPTH (feet)	Qc (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT (N')	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0.50	225.20	1.490	0.7	45	72	0.06	45		1.1	110-120
1.00	346.80	2.870	0.8	69	111	0.12	48		11	120-130
1.09	371.70	3.180	0.9	74	119	0.13	>48		1.1	11
1.55	188.50	4.890	2.6	63	101	0.19	44		Silty SAND to Sandy SILT	130-140
2.07	178.20	1.230	0.7	36	57	0.25	44		SAND	110-120
2.55	97.10	0.700	0.7	24	39	0.31	41		SAND to Silty SAND	11
3.03	37.70	0.500	1.3	13	20	0.37	35		Silty SAND to Sandy SILT	120-130
3.51	19.20	0.690	3.6	13	20	0.43		2.53	Silty CLAY to CLAY	11
4.10	23.90	1.330	5.6	24	38	0.51		3.15	CLAY	130-140
5.02	12.60	0.860	6.8	13	20	0.62	,	1.64	11	120-130
5.52	14.30	0.840	5.9	14	23	0.69		1.86	11	11
6.04	11.30	0.710	6.3	11	18	0.75		1.82	11	11
6.58 7.09	8.90 9.70	0.580 0.560	6.5 5.8	9 10	14 16	0.82 0.88		1.70 1.54	11	11
7.52	8.90	0.550	6.2	9	14	0.93		1.69	f t	11
8.05	8.40	0.500	6.0	8	13	1.00		1.58	f t	110-120
9.05	7.70	0.380	4.9	8	12	1.11		1.43	11	110-120
9.58	7.70	0.440	5.7	8	12	1.17		1.42	11	11
10.01	8.40	0.400	4.8	8	13	1.22		1.56	1.1	1.1
10.55	9.10	0.450	4.9	9	14	1.28		1.41	1.1	11
11.08	9.90	0.200	2.0	5	7	1.34		1.54	Clayey SILT to Silty CLAY	100-110
11.50	8.20	0.200	2.4	5	8	1.38		1.50	Silty CLAY to CLAY	1.1
12.06	8.50	0.360	4.2	9	12	1.45		1.56	CLAY	110-120
12.51	11.80	0.450	3.8	12	17	1.50		1.84	1.1	120-130
13.04	12.40	0.520	4.2	12	17	1.57		1.55	11	11
13.55	14.00	0.600	4.3	14	19	1.63		1.76	1.1	11
14.08	12.40	0.520	4.2	12	17	1.70		1.54	11	11
15.01	18.00	0.820	4.6	18	24	1.82		2.28	1 1 1 1	11
15.59	14.40	0.670	4.7	14	19	1.89		1.79	11	11
16.01 16.52	11.60	0.570 0.470	4.9 4.3	12 11	15 14	1.94 2.01		1.77 1.67	11	11
17.05	11.00 16.70	0.460	2.8	8	11	2.07		2.09	Clayey SILT to Silty CLAY	
17.58	14.40	0.460	3.2	10	12	2.14		1.78	Silty CLAY to CLAY	11
18.03	8.00	0.350	4.4	8	10	2.19		1.38	CLAY	110-120
18.56	8.20	0.200	2.4	5	7	2.25		1.42	Silty CLAY to CLAY	100-110
19.09	13.30	0.250	1.9	7	8	2.31		1.62	Clayey SILT to Silty CLAY	
19.52	12.80	0.260	2.0	6	8	2.36		1.55	11	11
20.07	12.80	0.180	1.4	6	8	2.41		1.55	11	100-110
20.54	9.70	0.190	2.0	5	6	2.46		1.41	1.1	1.1
21.04	11.50	0.210	1.8	6	7	2.52		1.71	1.1	1.1
21.52	10.00	0.180	1.8	5	6	2.57		1.45	1.1	11
22.06	14.80	0.270	1.8	7	8	2.63		1.80	f 1	110-120
22.53	41.50	1.110	2.7	17	19	2.69		5.35	Sandy SILT to Clayey SILT	
23.08	77.70	1.030	1.3	26	29	2.76	37		Silty SAND to Sandy SILT	
23.60	21.00	0.190	0.9	8	9	2.81		2.61	Sandy SILT to Clayey SILT	
24.02	13.40	0.180	1.3	5	6	2.86		1.60	11	1 1 7 1 1
24.54	9.40 16.00	0.180	1.9	5	5	2.91		1.32	Clayey SILT to Silty CLAY	
25.52 26.05		0.330	2.1	8	9 11	3.03 3.09		1.93 3.18		110-120 120-130
26.58	25.40 19.70	0.460 0.350	1.8 1.8	10 8	8	3.16		2.42	Sandy SILT to Clayey SILT	120-130
27.52	11.20	0.230	2.1	6	6	3.26		1.60	Clayey SILT to Silty CLAY	
28.03	12.50	0.230	2.5	6	7	3.32		1.45	ii	110-120
28.53	11.10	0.230	2.1	6	6	3.37		1.57	1 1	100-110
29.03	9.50	0.180	1.9	5	5	3.42		1.30	f I	11
29.56	10.70	0.190	1.8	5	5	3.48		1.49	1.1	1.1
30.09	10.80	0.190	1.8	5	6	3.53		1.51	1.1	1.1

DEPTH = Sampling interval (2 inches)

Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\*

Fs = Sleeve friction resistance Phi = Soil friction angle\*

Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) SPT = Equivalent Standard Penetration Test\*



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-16 Page 1 of 2 LOCATION: San Jose / Santa Clara CA DATE: 09-01-2005

20.57

21.00

22.09

22.52

23.10

23.51

24.02

24.52

25.01

25.60

26.09

26.59

27,10

27.50

28.02

28.52

29.05

29.57

30.08

31.02

31.54

32.09

32.50

33.02

33.53

34.04

13.00

12.60

11.00

19.40

55.50

99.50

148.30

172.70

160.30

40.80

26,30

12.00

12.50

14.10

20.00

20.00

16.40

12.20

14.30

30.70

28.70

30.90

19.90

11.60

13.00

20.60

0.280

0.300

0.260

0.860

1.570

0.950

0.960

0.920

0.470

0.890

0.760

0.320

0.380

0.460

0.630

0.780

0.480

0.290

0.320

1.050

1.210

0.840

0.480

0.530

0.330

0.790

2.2

2.4

2.4

4.4

2.8

1.0

0.6

0.5

0.3

2.2

2.9

2.7

3.0

3.3

3.2

3.9

2.9

2.4

2.2

3.4

4.2

2.7

2.4

4.6

2.5

3.8

LOCATION:						DATE: 09-01-2005								
PROJ. NO.	: 6600.3	.001.01(	EGO-10	2)		Groundwater measured at 4.1 feet								
						Terminated at 40.0 feet								
DEPTH	Qc	Fs	Rf	SPT	SPT	TotVtStr	PHI	SU	SOIL BEHAVIOR	DENSITY RANGE				
(feet)	(tsf)	(tsf)	(%)		(N')	(ksf)	(deg.)	(ksf)	TYPE					
(1000)	((3))	((3))	(/0/	(11)	(11 )	(K31)	(deg.)	(K51)	TIPE	(pcf)				
0.52	439.20	2.120	0.5	73	117	0.06	>48		Gravelly SAND to SAND	11				
1.05	208.60	1.660	0.8	42	67	0.13	45		SAND	120-130				
1.56	60.50	0.970	1.6	20	32	0.19	38		Silty SAND to Sandy SIL1	130-140				
2.03	29.80	1.500	5.0	30	48	0.26		3.96	CLAY	11				
2.56	24.60	1.520	6.2	25	39	0.33		3.26	1.1	11				
3.06	19.10	1.300	6.8	19	31	0.40		2.52	1.1	1.1				
3.57	17.20	1.410	8.2	17	28	0.47		2.26	1.1	11				
4.10	14.10	1.280	9.1	14	23	0.54		1.84	1.1	11				
4.51	15.00	1.270	8.5	15	24	0.59		1.96	1.1	11				
5.04	13.90	1.190	8.6	14	22	0.66		1.81	1.1	1.1				
5.60	12.80	0.970	7.6	13	20	0.73		1.66	11	120-130				
6.02	12.30	0.920	7.5	12	20	0.79		1.59	1.1	11				
6.56	9.30	0.760	8.2	9	15	0.85		1.48	11	11				
7.09	7.60	0.380	5.0	8	12	0.92		1.43	1.1	110-120				
7.51	7.00	0.160	2.3	5	7	0.96		1.30	Silty CLAY to CLAY	100-110				
8.04	9.00	0,400	4.4	9	14	1.02		1.41	CLAY	110-120				
8.56	7.30	0.300	4.1	7	12	1.07		1.35	11	100-110				
9.02	8.60	0.520	6.0	9	14	1.13		1.61	1.1	110-120				
9.56	10.20	0.580	5.7	10	16	1.19		1.60	1.1	120-130				
10.09	8.70	0.590	6.8	9	13	1.26		1.61	1.1	11				
10.52	9.20	0.520	5.7	9	14	1.31		1.42	1.1	110-120				
11.05	8.70	0.610	7.0	9	13	1.38		1.60	1.1	120-130				
11.58	11.60	0.540	4.7	12	17	1.44		1.81	1.1	11				
12.04	13.20	0.870	6.6	13	18	1.50		1.66	1.1	1.1				
12.58	13.60	0.700	5.1	14	19	1.57		1.71	11	11				
13.00	14.00	0.750	5.4	14	19	1.62		1.76	t t	1.1				
13.54	13.40	0.810	6.0	13	18	1.69		1.67	11	1.1				
14.07	14.20	0.680	4.8	14	19	1.75		1.78	11	11				
14.59	16.00	0.840	5.3	16	21	1.82		2.01	1.1	11				
15.01	14.50	0.900	6.2	15	19	1.87		1.81	1.1	1.1				
15.53	14.10	0.930	6.6	14	18	1.94		1.75	1.1	11				
16.05	13.40	0.800	6.0	13	17	2.00		1.65	1.1	1.1				
16.59	11.90	0.510	4.3	12	15	2.07		1.81	1.1	11				
17.01	12.20	0.490	4.0	12	15	2.12		1.49	1 1	11				
17.54	10.10	0.390	3.9	10	12	2.18		1.50	1.1	110-120				
18.07	8.00	0.270	3.4	8	10	2.24		1.38	1.1	100-110				
19.09	10.80	0.360	3.3	7	9	2.36		1.60	Silty CLAY to CLAY	110-120				
19.51	11.20	0.350	3.1	7	9	2.40		1.67	11	11				
20.05	12.30	0.390	3.2	8	10	2.47		1.48	1.1	1.1				

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3.57

3.86

2.39

1.60

1.46

2.47

Clayey SILT to Silty CLAY

11

CLAY

SAND

1.1

Sandy SILT to Clayey SILT

Clayey SILT to Silty CLAY

Silty CLAY to CLAY

Clayey SILT to Silty CLAY

Clayey SILT to Silty CLAY

1.1

Silty CLAY to CLAY

Sandy SILT to Clayey SILT

Clayey SILT to Silty CLAY

Clayey SILT to Silty CLAY

Silty CLAY to CLAY

CLAY

Silty CLAY to CLAY

Sandy SILT to Clayey SILT

SAND to Silty SAND

1.1 11

11 120-130

130-140

120-130

110-120

90-100

130-140

110-120

1.1

120-130

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11

110-120

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130-140

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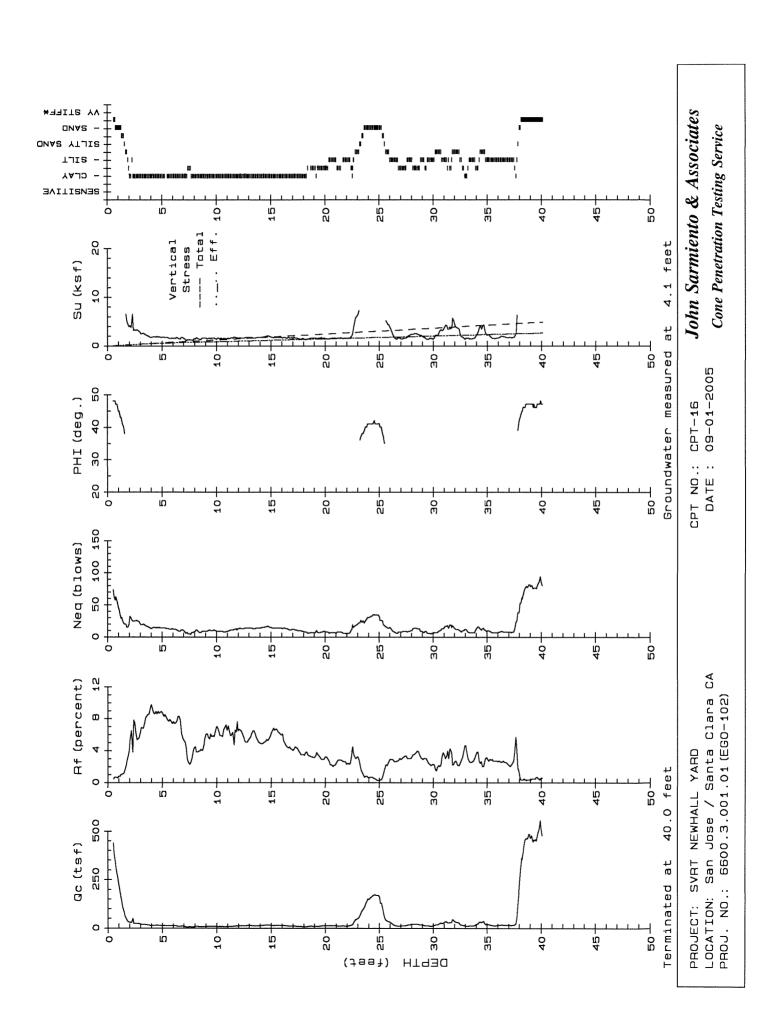
1.1

120-130

110-120

120-130

PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-16 Page 2 of 2 LOCATION: San Jose / Santa Clara CA DATE: 09-01-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 4.1 feet Terminated at 40.0 feet DEPTH Qc Fs Rf SPT SPT TotVtStr PHI SH SOIL BEHAVIOR DENSITY RANGE (feet) (tsf) (tsf) (%) (N) (N') (ksf) (deg.) (ksf) TYPE (pcf) 34.55 32.80 0.660 2.0 13 13 4.24 4.09 Sandy SILT to Clayey SILT 1.1 35.05 19.50 0.570 2.9 4.31 1.1 10 10 2.31 Clayey SILT to Silty CLAY 35.57 14.00 0.380 2.7 7 7 4.37 ----1.58 1.1 36.10 15.00 0.410 8 7 1.70 11 1.1 2.7 4 44 ----36.51 16.60 0.440 2.7 8 8 4.49 1.91 1 1 1.1 37.02 0.320 110-120 15.60 2.1 Я 8 4.55 1 78 37.54 17.30 0.650 3.8 12 11 4.61 ----2.00 Silty CLAY to CLAY 120-130 38.03 258.30 1.430 0.6 52 50 4.67 43 SAND 110-120 73 ----38.50 451.30 2.000 0.4 75 4.72 46 Gravelly SAND to SAND 100-110 39.06 468.90 2.110 78 75 ----0.4 4.78 47 39.55 451.50 3.180 0.7 75 71 4.84 ----1.1 110-120 4.89 40.07 479.70 2.920 0.6 ----1 1 75 47 DEPTH = Sampling interval (2 inches) Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\* Fs = Sleeve friction resistance Phi = Soil friction angle\* Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) SPT = Equivalent Standard Penetration Test\* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) References: \* Robertson and Campanella, 1988



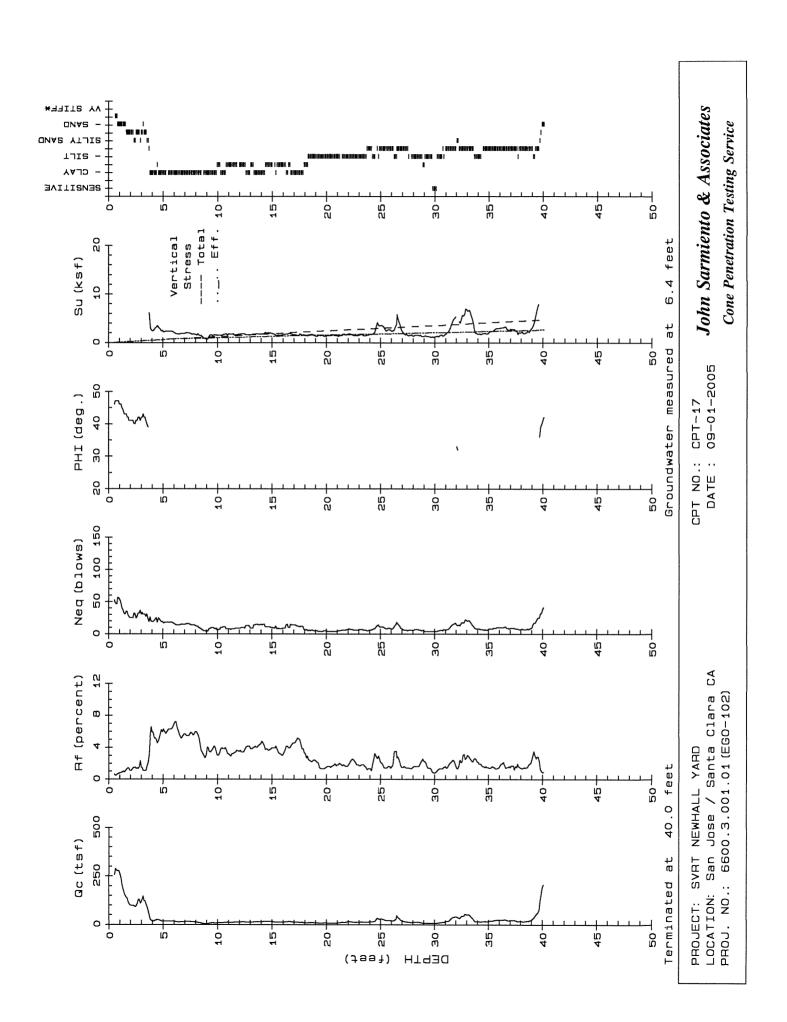
PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-17 Page 1 of 2

LOCATION: San Jose / Santa Clara CA PROJ. NO.: 6600.3.001.01(EGO-102) DATE : 09-01-2005 Groundwater measured at 6.4 feet

Terminated at 40.0 feet

DEPTH (feet)	Qc (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT ('N')	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0.52	257.80	1.420	0.6	52	82	0.06	46		SAND	1.1
1.03	252.50	1.930	8.0	51	81	0.12	46		1.1	11
1.60	140.40	1.700	1.2	35	56	0.19	43		SAND to Silty SAND	120-130
2.07 2.52	98.00	1.030 1.250	1.1	25	39	0.25	41		11	11
3.07	96.80 131.10	1.800	1.3 1.4	24 33	39 52	0.31 0.38	41 42		11	170 1/0
3.53	91.00	1.470	1.6	30	49	0.38	40		Silty SAND to Sandy SILI	130-140
4.01	18.90	1.120	5.9	19	30	0.51		2.49	CLAY	t ī
4.58	24.00	1.160	4.8	24	38	0.58		3.16	11	1.1
5.07	17.20	1.070	6.2	17	28	0.65		2.25	1.1	1.1
5.50	18.00	1.120	6.2	18	29	0.71		2.35	1 1	1.1
6.02	15.80	1.090	6.9	16	25	0.78		2.05	1.1	1.1
6.53	14.10	0.780	5.5	14	22	0.84		1.82	11	120-130
7.05	15.30	0.850	5.6	15	24	0.91		1.98	11	1.1
7.57	14.30	0.830	5.8	14	22	0.97		1.84	11	11
8.08 9.04	12.30 4.00	0.720 0.160	5.9 4.0	12 4	18 6	1.03 1.13		1.57 0.69	11	00.400
9.04	9.70	0.370	3.8	10	14	1.13		1.52	11	90-100 110-120
10.08	10.10	0.300	3.0	7	9	1.25		1.58	Silty CLAY to CLAY	110-120
10.50	10.50	0.400	3.8	11	15	1.29		1.64	CLAY	11
11.02	11.60	0.360	3.1	8	11	1.35		1.82	Silty CLAY to CLAY	1.1
11.53	12.50	0.410	3.3	8	11	1.42		1.57	11	120-130
12.09	13.70	0.490	3.6	9	12	1.49		1.73	11	1.1
12.51	13.90	0.520	3.7	9	12	1.54		1.75	1.1	1.1
13.03	13.10	0.500	3.8	9	11	1.60		1.64	11	1.1
13.55	14.70	0.590	4.0	15	19	1.67		1.85	CLAY	11
14.06	14.30	0.670	4.7	14	18	1.73		1.79	F I	11
14.58	16.10	0.600	3.7	11	14	1.80		2.03	Silty CLAY to CLAY	11
15.57 16.09	12.80 13.70	0.420 0.450	3.3 3.3	9	11 11	1.92 1.99		1.58 1.69	11	1 1 1 1
16.50	15.60	0.610	3.9	10	13	2.04		1.94	11	11
17.02	13.50	0.610	4.5	14	16	2.10		1.66	CLAY	11
17.53	11.40	0.560	4.9	11	13	2.17		1.72	11	1.1
18.05	9.70	0.310	3.2	6	8	2.23		1.43	Silty CLAY to CLAY	110-120
18.50	10.80	0.250	2.3	5	6	2.28		1.61	Clayey SILT to Silty CLAY	11
19.02	9.30	0.210	2.3	5	5	2.33		1.36	11	100-110
19.54	8.70	0.110	1.3	4	5	2.38		1.50	11	90-100
20.06	8.80	0.140	1.6	4	5	2.43		1.52	11	11
20.58	8.90	0.150	1.7	4	5	2.49		1.53	11	100-110
21.09 21.56	9.30 11.90	0.170 0.210	1.8 1.8	5 6	5 7	2.54 2.59		1.34 1.77	11	11
22.09	15.00	0.210	1.9	8	8	2.65		1.82	11	110-120
22.50	12.70	0.300	2.4	6	7	2.70		1.51	1.1	110 120
23.02	13.20	0.230	1.7	7	7	2.75		1.58	1.1	100-110
23.53	12.40	0.200	1.6	6	7	2.81		1.47	1.1	11
24.04	14.30	0.180	1.3	6	6	2.86		1.72	Sandy SILT to Clayey SILT	11
25.00	28.30	0.600	2.1	11	12	2.98		3.57	11	120-130
25.51	20.00	0.290	1.4	8	8	3.04		2.46	11	110-120
26.03	19.30	0.300	1.6	8	8	3.10		2.37	11	470.440
26.58	39.20	1.100	2.8	16	16	3.17		5.02	11	130-140
27.07 27.58	17.40 12.40	0.260 0.170	1.5 1.4	7 6	7 6	3.23 3.28		2.10 1.43		110-120 100-110
28.07	12.70	0.200	1.6	6	6	3.33		1.43	Clayey SILT to Silty CLAY	100-110
28.58	12.60	0.220	1.7	6	6	3.39		1.45	11	11
29.09	8.80	0.190	2.2	4	4	3.44		1.42	1.1	1.1
29.51	8.00	0.110	1.4	4	4	3.48		1.25	11	90-100
30.02	7.80	0.060	0.8	4	4	3.53		1.21	Sensitive Fine Grained	11
30.53	11.20	0.140	1.3	6	6	3.58		1.57	Clayey SILT to Silty CLAY	11
31.04	15.50	0.240	1.5	6	6	3.64		1.82	Sandy SILT to Clayey SILT	
31.52	29.70	0.630	2.1	12	12	3.70		3.71	0.11	120-130
32.03	41.90	0.590	1.4	14	14	3.76	33	 E 73	Silty SAND to Sandy SILT	
32.54 33.05	44.80	0.990 1.530	2.2 3.0	18 20	18 20	3.83 3.90		5.72 6.54	Sandy SILT to Clayey SILT	130-140
33.55	51.00 32.80	0.720	2.2	13	13	3.90 3.96		4.11	11	11
34.04	15.50	0.320	2.1	8	8	4.02		1.80	Clayey SILT to Silty CLAY	
51101	0	0.320	_•.	-	-				111/0, 011. to offer, CENT	120

PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-17 Page 2 of 2 LOCATION: San Jose / Santa Clara CA DATE: 09-01-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 6.4 feet Terminated at 40.0 feet Rf SPT SPT TotVtStr PHI DEPTH O٢ Fs SU SOIL BEHAVIOR DENSITY RANGE (feet) (tsf) (tsf) (%) (N) (N') (ksf) (deg.) (ksf) TYPE (pcf) 34.56 16.20 0.260 1.6 6 6 4.08 1.89 Sandy SILT to Clayey SILT 1 1 35.06 ----18.80 0.270 1.4 4.14 . . 2.23 35.56 22.00 0.320 1.5 9 4.20 ----2.65 11 1.1 36.07 24.70 10 ----. . 0.410 1.7 10 4.26 3.01 120-130 36.58 26.50 0.370 1.4 11 11 4.32 ----3.25 11 37.09 22.70 0.380 1.7 Q 9 4.39 ----1.1 1 1 2.73 37.60 19.70 0.300 1.5 4.45 ----2.33 11 110-120 38.09 18.80 0.250 7 ----1.1 1.3 R 4.50 2.21 11 38.60 19.80 0.300 8 8 4.56 ----11 11 2.34 39.01 26.10 0.650 ----1.1 10 2.5 10 4.61 3.17 120-130 39.59 61.70 1.710 2.8 4.69 ----11 130-140 7.91 40.08 205.50 1.910 39 0.9 42 4.75 SAND 120-130 DEPTH = Sampling interval (2 inches) TotStr = Total Stress using est. density\*\* Qc = Tip bearing resistance Fs = Sleeve friction resistance Phi = Soil friction angle\* Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) SPT = Equivalent Standard Penetration Test\* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) References: \* Robertson and Campanella, 1988



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-18 Page 1 of 1 LOCATION: San Jose / Santa Clara CA DATE: 09-01-2005

PROJ. NO.: 6600.3.001.01(EGO-102)

Groundwater estimated at 6.0 feet

Terminated at 30.0 feet

DEPTH	Qc	Fs	Rf	SPT	SPT	TotVtStr	PHI	SU	SOIL BEHAVIOR	DENSITY RANGE
(feet)	(tsf)	(tsf)	(%)	(N)	(N')	(ksf)	(deg.)	(ksf)	TYPE	(pcf)
0.50	1/5 20	1 1/0	0.7	77		0.07	,,			
0.58 1.09	165.20 279.10	1.140 2.320	0.7 0.8	33 56	53 89	0.07	44 47		11	110-120
2.01	58.50	2.090	3.6	29	47	0.13 0.25	47 	7.78		120-130
2.51	25.10	1.260	5.0	25	40	0.23		3.33	Clayey SILT to Silty CLA	Y 130-140
3.00	21.90	1.090	5.0	22	35	0.32		2.89	CLAY	1 1
3.50	24.80	1.080	4.4	17	26	0.46		3.28	Silty CLAY to CLAY	11
4.01	18.20	1.320	7.3	18	29	0.52		2.39	CLAY	11
4.53	17.90	1.250	7.0	18	29	0.59		2.35	11	1.1
5.06	14.70	1.100	7.5	15	24	0.67		1.92	1.1	11
5.54	13.40	0.900	6.7	13	21	0.73		1.74	1.1	120-130
6.53	11.80	0.730	6.2	12	19	0.85		1.90	1.1	11
7.07	13.30	0.720	5.4	13	21	0.92		1.71	11	1.1
7.60	10.90	0.450	4.1	11	17	0.98		1.74	1.1	110-120
8.02	9.90	0.420	4.2	10	15	1.03		1.56	1.1	1 1
8.55	9.90	0.360	3.6	10	15	1.09		1.56	1.1	11
9.07	9.50	0.450	4.7	10	14	1.15		1.49	4.1	1.1
10.04	12.10	0.560	4.6	12	17	1.27		1.53	1.1	120-130
10.58	14.50	0.600	4.1	15	20	1.34		1.84	1.1	1.1
11.00	15.00	0.740	4.9	15	21	1.39		1.91	11	11
11.53	11.50	0.530	4.6	12	16	1.46		1.80	11	1.1
12.06	10.80	0.570	5.3	11	14	1.52		1.67	11	11
12.57	9.70	0.550	5.7	10	13	1.58		1.48	11	11
13.53 14.06	9.00	0.520	5.8	9	12	1.70		1.36	1 I 1 I	110-120
14.06	9.90 8.80	0.530 0.560	5.4	10 9	13 11	1.76 1.83		1.50	11	120-130
15.01	9.10	0.440	6.4 4.8	9	11	1.88		1.58 1.36		
15.52	10.10	0.440	4.8	10	13	1.93		1.52	11	110-120
16.05	7.60	0.290	3.8	8	9	1.99		1.32	11	100-110
16.59	8.00	0.290	3.6	8	10	2.05		1.32	11	110-110
17.10	7.60	0.230	3.0	5	6	2.11		1.31	Silty CLAY to CLAY	100-110
17.52	10.40	0.260	2.5	5	6	2.15		1.55	Clayey SILT to Silty CLAN	
18.05	12.00	0.320	2.7	6	7	2.22		1.45	II	110 120
18.58	19.90	0.720	3.6	13	15	2.28		2.50	Silty CLAY to CLAY	120-130
19.00	14.70	0.480	3.3	10	11	2.33		1.80	11	11
19.53	14.80	0.540	3.6	10	11	2.40		1.81	U	1.1
20.07	14.10	0.480	3.4	9	11	2.47		1.72	1.1	1.1
20.59	20.20	0.580	2.9	10	11	2.53		2.52	Clayey SILT to Silty CLAY	γ !!
21.01	40.90	0.780	1.9	16	18	2.59		5.28	Sandy SILT to Clayey SIL1	т 130-140
21.53	22.70	0.860	3.8	15	17	2.66		2.85	Silty CLAY to CLAY	LI
22.04	50.00	0.760	1.5	17	18	2.72	34		Silty SAND to Sandy SIL1	т 120-130
22.54	66.50	1.030	1.5	22	24	2.79	36		11	130-140
23.06	87.60	1.110	1.3	22	23	2.86	38		SAND to Silty SAND	120-130
23.57	118.10	0.640	0.5	24	25	2.91	39		SAND	100-110
24.07	123.40	1.350	1.1	31	32	2.97	39		SAND to Silty SAND	120-130
24.56	183.80	0.880	0.5	37	38	3.02	42		SAND	100-110
25.04	174.20	1.290	0.7	35	36	3.08	41		11	110-120
25.59	252.50	1.050	0.4	42	43	3.14	43 75		Gravelly SAND to SAND	100-110
26.05	354.80	1.390	0.4	59	60 47	3.18	45 44		11	
26.57 27.01	379.60 461.30	2.350 2.890	0.6 0.6	63 77	64 78	3.24 3.29	46 47		11	110-120
27.51	402.10	3.650	0.9	80	81	3.29	46		SAND	120-130
28.02	251.30	1.840	0.7	50	50	3.42	43		II	110-120
28.53	237.80	1.660	0.7	48	48	3.47	43		[1]	110-120
29.08	256.50	0.990	0.4	43	43	3.53	43		Gravelly SAND to SAND	100-110
29.53	278.00	0.890	0.3	46	46	3.58	44		11	90-100
30.08	279.90	1.030	0.4	47	47	3.63	44		1.1	100-110

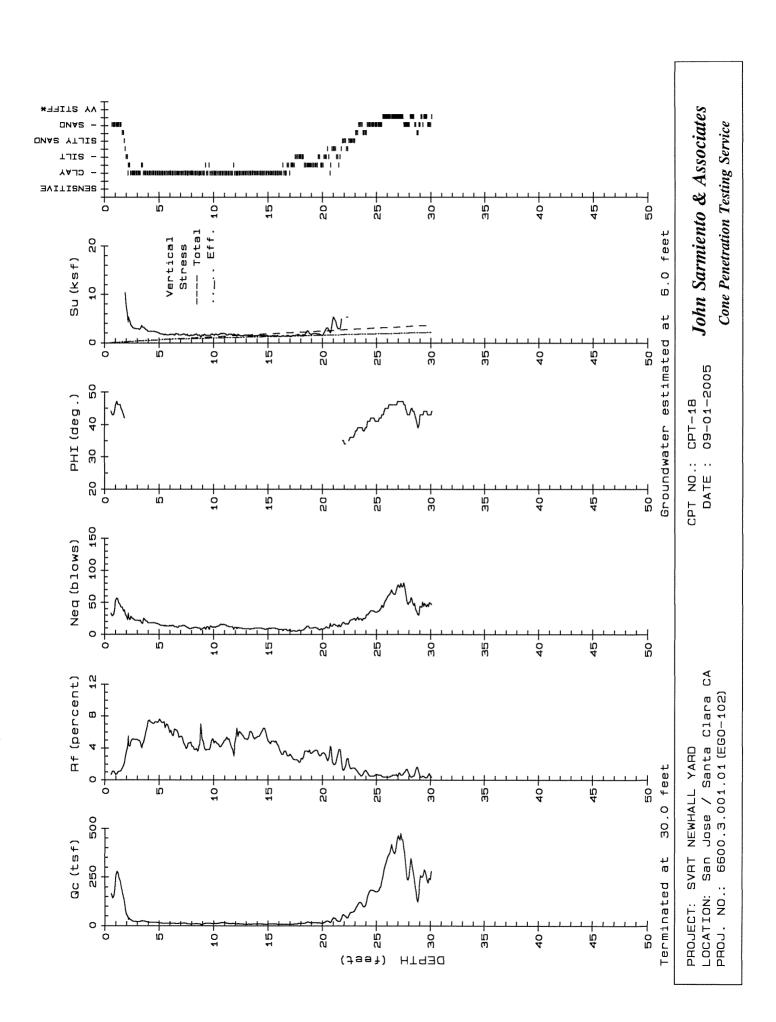
DEPTH = Sampling interval (2 inches)

Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\*

Fs = Sleeve friction resistance Phi = Soil friction angle\*

Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) SPT = Equivalent Standard Penetration Test\*

References: \* Robertson and Campanella, 1988 \*\* Olsen, 1989 \*\*\* Durgunoglu & Mitchell, 1975



PROJECT: SVRT NEWHALL YARD

CPT NO.: CPT-19
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LOCATION: San Jose / Santa Clara CA

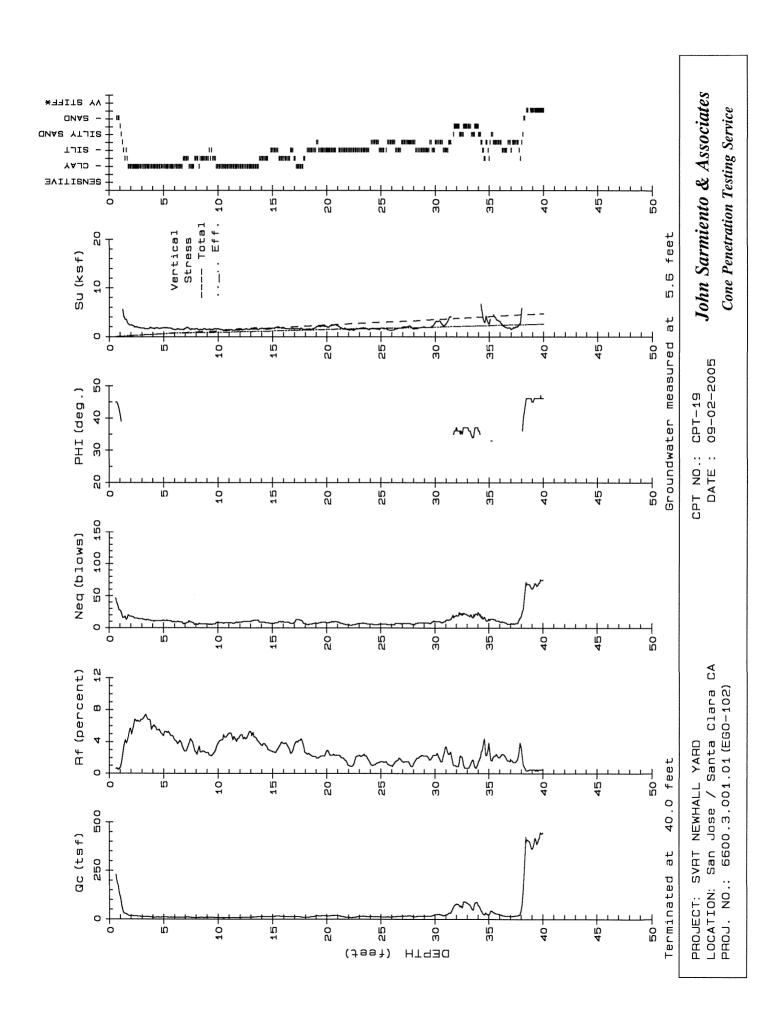
DATE: 09-02-2005

PROJ. NO.: 6600.3.001.01(EGO-102)

Groundwater measured at 5.6 feet
Terminated at 40.0 feet

							lermir	nated at	40.0 feet	
DEPTH (feet)	Qc (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT (N')	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0.59	228.20	1.440	0.6	46	73	0.07	45		SAND	110-120
1.01	109.10	0.880	0.8	27	44	0.12	41		SAND to Silty SAND	11
1.53	26.40	0.990	3.8	13	21	0.19		3.51	Clayey SILT to Silty CLAY	130-140
2.05	18.20	0.900	4.9	18	29	0.25		2.41	CLAY	120-130
2.53	15.40	1.000	6.5	15	25	0.31		2.03	1.1	11
3.03	13.70	0.920	6.7	14	22	0.37		1.80	1.1	1.1
3.56	12.60	0.850	6.7	13	20	0.44		1.65	i i	H
4.09	10.50	0.630	6.0	11	17	0.51		1.71	F 1	1.1
4.56	10.50	0.580	5.5	11	17	0.56		1.70	1.1	1.1
5.09	11.20	0.580	5.2	11	18	0.63		1.81	1.1	1.1
5.53	10.90	0.550	5.0	11	17	0.69		1.76	11	11
6.07	9.20	0.380	4.1	9	15	0.75		1.47	11	110-120
6.50	9.30	0.380	4.1	9	15	0.80		1.48	11	11
7.04	10.90	0.310	2.8	7	12	0.86		1.75	Silty CLAY to CLAY	1 1
7.56	8.70	0.360	4.1	9	14	0.92		1.65	CLAY	11
8.07	8.80	0.210	2.4	6	9	0.97		1.66	Silty CLAY to CLAY	100-110
8.58	9.00	0.250	2.8	6	9	1.03		1.41	11	11
9.10	9.60	0.250	2.6	6	10	1.08		1.51	11	11
9.53	9.00	0.220	2.4	6	9	1.13		1.41		
10.08 10.51	8.40 6.90	0.340 0.330	4.0	8 7	13	1.19		1.56	CLAY	110-120
11.04	7.80	0.390	4.8 5.0	8	10 11	1.24 1.30		1.26	1.1	11
11.57	7.70	0.330	4.3	8	11	1.36		1.43 1.40	1.1	11
12.00	8.70	0.410	4.7	9	12	1.41		1.60	1.1	11
12.54	10.40	0.450	4.3	10	14	1.47		1.61	11	11
13.01	10.40	0.530	5.1	10	14	1.53		1.61	1.1	120-130
14.03	14.20	0.490	3.5	9	13	1.66		1.78	Silty CLAY to CLAY	120 130
14.56	12.40	0.370	3.0	8	11	1.72		1.54	11	110-120
15.05	14.00	0.380	2.7	7	9	1.78		1.75	Clayey SILT to Silty CLAY	
15.59	15.50	0.520	3.4	10	13	1.85		1.94	Silty CLAY to CLAY	11
16.02	14.20	0.530	3.7	9	12	1.90		1.77	(1)	11
16.56	12.50	0.380	3.0	8	10	1.96		1.54	1.1	110-120
17.07	13.10	0.500	3.8	9	11	2.03		1.61	1.1	120 <b>-13</b> 0
17.59	11.50	0.490	4.3	12	14	2.09		1.74	CLAY	f 1
18.51	12.00	0.280	2.3	6	7	2.20		1.45	Clayey SILT to Silty CLAY	110-120
19.04	17.00	0.320	1.9	7	8	2.26		2.12	Sandy SILT to Clayey SILT	Γ 11
19.58	17.40	0.390	2.2	9	10	2.33		2.16	Clayey SILT to Silty CLAY	
20.03	15.90	0.460	2.9	8	9	2.38		1.96	11	11
20.59	18.60	0.450	2.4	9	11	2.45		2.32	11	£ 1
21.54	12.70	0.240	1.9	6	7	2.56		1.52	11	110-120
22.07	9.10	0.090	1.0	5	5	2.61		1.30	11	90-100
23.03	14.10	0.330	2.3	7	8	2.72		1.70	11	110-120
23.54 24.52	14.70	0.330	2.2	7 5	8	2.78		1.77		
25.05	13.40 11.80	0.160 0.180	1.2 1.5	6	6 6	2.89 2.94		1.59 1.72	Sandy SILT to Clayey SILT	
		- 4	1.5	-					Clayey SILT to Silty CLAY	11
25.50 26.03	11.50 11.80	0.170 0.110	0.9	6 5	6 5	2.99 3.04		1.67 1.37	Sandy SILT to Clayey SILT	
26.57	14.60	0.250	1.7	7	8	3.10		1.74	Clayey SILT to Clayey SILT	
27.52	17.20	0.250	1.5	7	7	3.10		2.08	Sandy SILT to Clayey SILT	
28.00	13.10	0.160	1.2	5	5	3.26		1.53	II	100-110
28.59	15.60	0.320	2.1	8	8	3.33		1.86	Clayey SILT to Silty CLAY	
29.51	16.30	0.270	1.7	7	7	3.43		1.94	Sandy SILT to Clayey SILT	
30.02	24.00	0.560	2.3	10	10	3.50		2.97	11	120-130
30.53	23.00	0.350	1.5	9	9	3.56		2.83	1.1	11
31.05	23.10	0.770	3.3	12	12	3.63		2.84	Clayey SILT to Silty CLAY	130-140
32.01	78.10	0.710	0.9	20	19	3.75	37		SAND to Silty SAND	120-130
32.51	59.20	1.200	2.0	20	20	3.82	35		Silty SAND to Sandy SILT	
33.04	80.20	0.550	0.7	20	20	3.88	37		SAND to Silty SAND	110-120
33.55	47.00	0.780	1.7	16	16	3.95	34		Silty SAND to Sandy SILT	
34.04	68.70	1.120	1.6	23	23	4.02	36		11	1.1
34.52	24.50	1.000	4.1	16	16	4.08		2.99	Silty CLAY to CLAY	F F
35.09	28.80	0.770	2.7	12	11	4.16		3.56	Sandy SILT to Clayey SILT	
35.58	31.60	0.680	2.2	13	13	4.22		3.93	1.1	120-130
36.10	22.70	0.510	2.2	9	9	4.28		2.74	11	
36.51	16.30	0.340	2.1	8	8	4.33		1.88	Clayey SILT to Silty CLAY	110-120

PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-19 Page 2 of 2 LOCATION: San Jose / Santa Clara CA DATE: 09-02-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 5.6 feet Terminated at 40.0 feet DEPTH Rf SPT SPT TotVtStr Qc Fs PHI SU SOIL BEHAVIOR DENSITY RANGE (feet) (tsf) (tsf) (%) (N) (N') (ksf) (deg.) TYPE (ksf) (pcf) 37.04 14.00 0.230 1.6 4.39 1.57 100-110 37.56 17.00 0.270 7 1.6 4.45 1.97 Sandy SILT to Clayey SILT 110-120 38.07 76.10 1.500 2.0 25 25 4.51 36 Silty SAND to Sandy SILT 130-140 38.53 409.00 1.630 68 67 4.56 ----0.4 46 Gravelly SAND to SAND 100-110 39.06 366.60 1.730 0.5 61 60 4.62 45 ----39.55 400.30 1.420 0.4 67 65 ----11 . . 4.67 46 40.00 443.20 1.930 0.4 4.72 ----1.1 11 46 DEPTH = Sampling interval (2 inches) Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\* Fs = Sleeve friction resistance Phi = Soil friction angle\* Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) SPT = Equivalent Standard Penetration Test\* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) References: \* Robertson and Campanella, 1988 \*\* Olsen, 1989 \*\*\* Durgunoglu & Mitchell, 1975



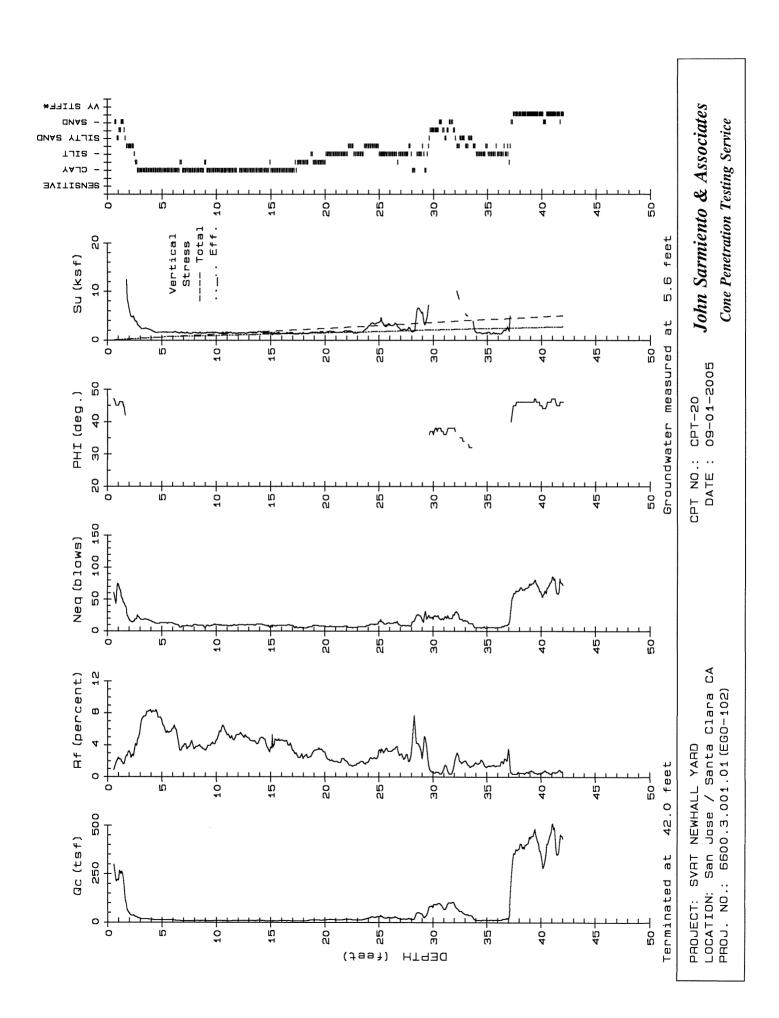
PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-20 Page 1 of 2 LOCATION: San Jose / Santa Clara CA DATE: 09-01-2005

PROJ. NO.: 6600.3.001.01(EGO-102)

Groundwater measured at 5.6 feet
Terminated at 42.0 feet

							Termi	nated at	42.0 feet	
DEPTH (feet)	Qc (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0.58	299.00	2.630	0.9	60	96	0.07	47		SAND	120-130
1.08	267.80	5.860	2.2	67	107	0.14	46		SAND to Silty SAND	130-140
1.51	175.20	2.950	1.7	44	70	0.19	44		11	130 140
2.08	41.00	1.210	3.0	16	26	0.27		5.45	Sandy SILT to Clayey SILT	
2.55	29.10	1.200	4.1	19	31	0.33		3.86	Silty CLAY to CLAY	11
3.03	19.30	1.210	6.3	19	31	0.40		2.55	CLAY	11
3.52	18.90	1.430	7.6	19	30	0.46		2.49	11	11
4.03	15.50	1.240	8.0	16	25	0.53		2.03	11	1.1
4.55	12.10	0.950	7.9	12	19	0.60		1.57	1.1	120-130
5.08	13.00	0.850	6.5	13	21	0.66		1.69	1.1	11
6.03	12.30	0.740	6.0	12	20	0.78		1.59	1.1	11
6.57	9.10	0.370	4.1	9	15	0.85		1.45	1.1	110-120
7.53	7.80	0.300	3.8	8	12	0.96		1.46	11	11
8.06	10.00	0.360	3.6	10	16	1.02		1.58	11	11
8.52	8.90	0.340	3.8	9	14	1.07		1.67	11	11
9.03	9.40	0.310	3.3	6	10	1.13		1.47	Silty CLAY to CLAY	11
9.55	8.70	0.360	4.1	9	13	1.19		1.62	CLAY	11
10.08	9.90	0.470	4.7	10	14	1.25		1.55	11	11
10.59	8.90	0.570	6.4	9	13	1.31		1.65	11	120-130
11.00	8.90	0.460	5.2	9	13	1.36		1.64	11	110-120
11.52	9.20	0.430	4.7	9	13	1.42		1.42	11	11
12.55	9.80	0.480	4.9	10	13	1.54		1.51	11	120 170
13.09 13.52	10.40	0.480	4.6	10 9	14	1.61		1.60	11	120-130
14.05	8.80 11.30	0.400 0.540	4.5 4.8	11	12 15	1.65 1.72		1.59 1.74	11	110-120
14.57	8.50	0.350	4.1	9	11	1.78		1.52	11	120-130 110-120
15.51	8.30	0.380	4.6	8	11	1.89		1.47	11	110-120
16.05	9.20	0.420	4.6	9	12	1.95		1.37	1.1	11
16.58	9.80	0.390	4.0	10	12	2.01		1.47	1.1	1.1
17.01	8.50	0.280	3.3	9	11	2.06		1.49	1.1	1.1
17.54	7.80	0.190	2.4	5	6	2.12		1.35	Silty CLAY to CLAY	100-110
18.07	7.90	0.200	2.5	5	6	2.17		1.36	11	11
19.01	13.10	0.430	3.3	9	10	2.29		1.59	1.1	120-130
19.54	11.70	0.400	3.4	8	9	2.35		1.75	1.1	110-120
20.08	13.10	0.350	2.7	7	8	2.41		1.59	Clayey SILT to Silty CLAY	/ II
20.50	15.20	0.310	2.0	8	9	2.46		1.86	11	11
21.03	13.00	0.250	1.9	7	7	2.52		1.57	11	11
21.56	13.50	0.310	2.3	7	8	2.58		1.63	1.1	11
22.02	15.50	0.290	1.9	8	9	2.64		1.89	11	11
22.55	13.50	0.170	1.3	5	6	2.69		1.62	Sandy SILT to Clayey SILT	
23.09	13.30	0.230	1.7	7	7	2.75		1.59	Clayey SILT to Silty CLAY	
23.51	14.40	0.270	1.9	7	8	2.80		1.73		110-120
24.04	23.40	0.450	1.9	9	10	2.86		2.93 3.30	Sandy SILT to Clayey SIL1	120-130
24.57 25.09	26.20 30.50	0.630 1.050	2.4 3.4	10 15	11 16	2.93 3.00		3.87	Clayey SILT to Silty CLAY	
25.52	22.90	0.730	3.2	11	12	3.05		2.85	II	120-130
26.05	24.10	0.780	3.2	12	13	3.13		3.00	11	130-140
26.58	26.50	0.980	3.7	13	14	3.20		3.32	1.1	130 140
27.52	16.90	0.480	2.8	8	9	3.31		2.03	1.1	120-130
28.04	14.40	0.570	4.0	14	15	3.38		1.69	CLAY	11
28.58	51.20	2.140	4.2	26	26	3.45		6.60	Clayey SILT to Silty CLAY	′ 130-140
29.52	55.60	1.290	2.3	22	22	3.58		7.17	Sandy SILT to Clayey SILT	
30.02	76.00	0.500	0.7	19	19	3.64	36		SAND to Silty SAND	110-120
30.56	98.60	0.520	0.5	20	20	3.69	38		SAND	100-110
31.07	67.10	0.880	1.3	22	22	3.76	36		Silty SAND to Sandy SIL1	120-130
31.56	101.30	0.430	0.4	20	20	3.81	38		SAND	100-110
32.06	88.00	1.830	2.1	29	29	3.88	37		Silty SAND to Sandy SIL1	
32.55	57.00	1.110	1.9	19	19	3.94	35		11	11
33.05	40.00	0.790	2.0	16	16	4.01		5.07	Sandy SILT to Clayey SILT	
33.54	36.60	0.460	1.3	12	12	4.07	32	4 50	Silty SAND to Sandy SILT	
34.06	11.20	0.190	1.7	6	6	4.13		1.52	Clayey SILT to Silty CLAY	
34.57	12.20	0.250	2.0	6	6	4.18		1.35	11	110-120
35.07	11.90	0.150	1.3	6	6	4.24		1.63	11	100-110
35.59	11.40	0.170	1.5	6	6	4.29		1.54	11	11
36.01	12.50	0.170	1.4	6	6	4.34		1.38	• •	

PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-20 Page 2 of 2 LOCATION: San Jose / Santa Clara CA DATE : 09-01-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 5.6 feet Terminated at 42.0 feet DEPTH Qс Fs Rf SPT SPT TotVtStr PHI DENSITY RANGE SH SOIL BEHAVIOR (feet) (tsf) (tsf) (%) (N) (N') (ksf) (deg.) (ksf) TYPE (pcf) 36.53 18.00 0.310 1.7 4.40 2.11 Sandy SILT to Clayey SILT 110-120 0.900 130-140 37.10 39.20 2.3 4.47 16 16 4.93 Gravelly SAND to SAND 37.59 354.50 1.550 0.4 59 58 4.52 45 ----100-110 38.08 406.90 1.910 0.5 68 67 4.57 46 ----11 ----11 38.55 401.70 1.990 0.5 67 65 4.62 46 11 39.01 434.80 3.000 4.68 0.7 72 70 46 110-120 39.52 1.1 451.70 2.450 0.5 75 72 4.74 ----1.1 40.02 58 ----1.1 347.30 1.740 0.5 55 4.79 45 100-110 67 40.53 403.50 2.460 0.6 64 4.85 46 ----1.1 110-120 41.01 503.20 79 2.180 0.4 84 4.90 47 100-110 1.1 41.55 350.40 2.570 0.7 58 54 4.96 45 ----110-120 42.01 433.90 2.980 1.1 0.7 67 5.01 46 DEPTH = Sampling interval (2 inches) Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\* Phi = Soil friction angle\* Fs = Sleeve friction resistance Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) SPT = Equivalent Standard Penetration Test\* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf)



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-21 Page 1 of 2

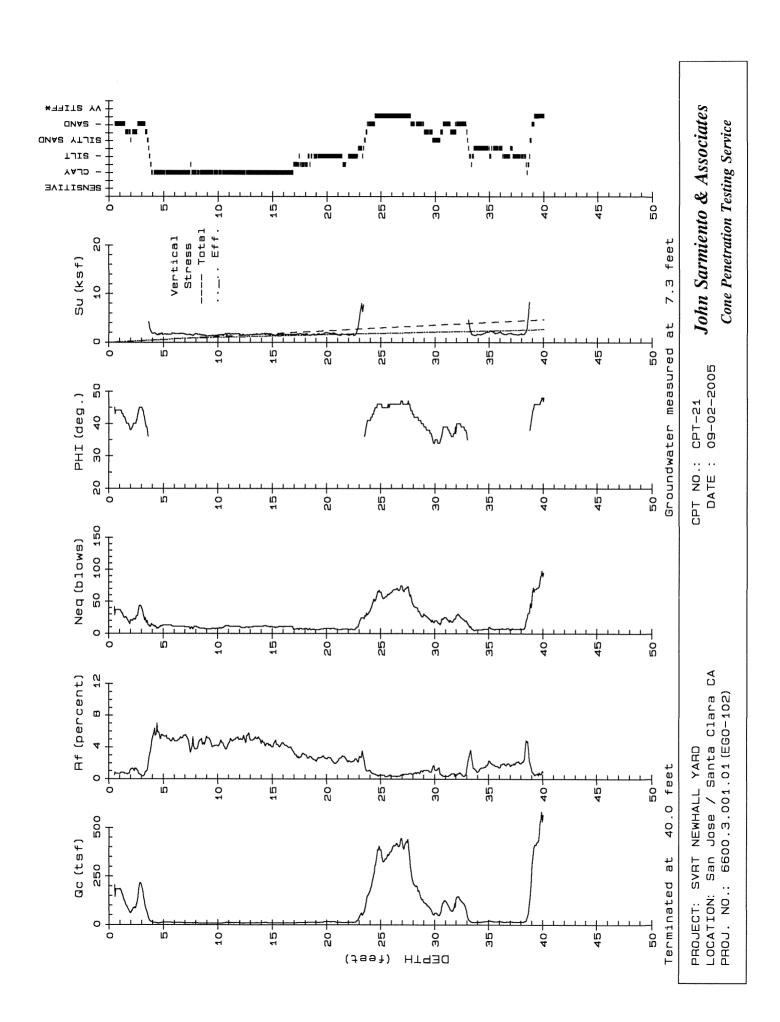
LOCATION: San Jose / Santa Clara CA PROJ. NO.: 6600.3.001.01(EGO-102)

DATE: 09-02-2005

Groundwater measured at 7.3 feet Terminated at 40.0 feet

							1 CT III (1	iateu at	40.0 1660	
DEPTH (feet)	Qc (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT (N')	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0.51	204.90	1.110	0.5	41	66	0.06	45		SAND	110-120
0.59	185.20	1.210	0.7	37	59	0.07	44		11	110
1.01	186.80	1.300	0.7	37	60	0.12	44		11	8 I
1.51	105.40	0.760	0.7	26	42	0.17	41		SAND to Silty SAND	1.1
2.00	62.20	0.740	1.2	21	33	0.24	38		Silty SAND to Sandy SILT	т 120-130
2.52	106.70	1.230	1.2	27	43	0.30	41		SÁND to Silty SÁND	1.1
3.01	195.40	0.860	0.4	39	63	0.35	45		SAND	100-110
3.52	59.50	0.680	1.1	20	32	0.42	38		Silty SAND to Sandy SIL	т 120-130
4.51	7.90	0.470	5.9	8	13	0.53		1.53	CLAY	110-120
4.60	8.90	0.520	5.8	9	14	0.54		1.73	11	1.1
5.01	12.50	0.680	5.4	13	20	0.59		1.63	11	120-130
5.54	12.50	0.620	5.0	13	20	0.66		1.62	11	1.1
6.07	11.10	0.520	4.7	11	18	0.72		1.79	11	1 1
6.51	11.30	0.560	5.0	11	18	0.78		1.82	11	11
7.04	10.20	0.560	5.5	10	16	0.84		1.63	11	11
7.57	9.50	0.350	3.7	10	15	0.91		1.51	11	110-120
8.00	10.80	0.400	3.7	11	16	0.95		1.72	11	11
8.53	7.60	0.380	5.0	8	11	1.02		1.42	11	11
9.06 9.51	7.30 7.70	0.370 0.310	5.1	7 8	11 11	1.08 1.13		1.35 1.43	11	11
10.04	8.10	0.310	4.0 4.1	8	11	1.13		1.50	11	11
10.57	9.80	0.410	4.2	10	14	1.19		1.53	11	11
11.01	11.70	0.520	4.4	12	16	1.30		1.84	11	120-130
11.52	10.80	0.530	4.9	11	15	1.37		1.69	11	11
12.02	10.50	0.510	4.9	11	14	1.43		1.63	11	11
12.55	9.70	0.440	4.5	10	13	1.49		1.49	11	110-120
13.01	10.30	0.490	4.8	10	13	1.55		1.59	1.1	120-130
13.54	11.20	0.560	5.0	11	14	1.62		1.73	11	110 130
14.07	11.00	0.530	4.8	11	14	1.68		1.69	1.1	1.1
14.53	11.20	0.490	4.4	11	14	1.74		1.72	1.1	1.1
15.05	10.20	0.410	4.0	10	13	1.80		1.55	1.1	110-120
15.55	10.20	0.430	4.2	10	13	1.86		1.55	11	11
16.08	10.60	0.460	4.3	11	13	1.92		1.61	11	Li
16.52	10.90	0.420	3.9	11	13	1.97		1.65	11	1.1
17.02	10.70	0.340	3.2	7	9	2.03		1.61	Silty CLAY to CLAY	1.1
17.55	11.40	0.310	2.7	8	9	2.09		1.73	1.1	1.1
18.08	11.40	0.340	3.0	8	9	2.15		1.72	11	1.1
18.52	12.50	0.350	2.8	6	7	2.20		1.52	Clayey SILT to Silty CLAY	
19.06	12.40	0.270	2.2	6	7	2.26		1.50	1.1	11
19.51	13.90	0.380	2.7	7	8	2.32		1.70	1 1	120-130
20.04	16.10	0.410	2.5	8	9	2.38		1.99	1.1	11
20.51	15.30	0.350	2.3	8	9	2.44		1.88	11	110-120
21.03	12.60	0.280	2.2	6	7	2.50		1.51	11	11
21.55	11.10	0.310	2.8	7	8	2.56		1.64	Silty CLAY to CLAY	11
22.04	12.10	0.280	2.3	6	7	2.61		1.44	Clayey SILT to Silty CLA	
22.56	12.00	0.280	2.3	6	6	2.67		1.42	11	11
23.07	47.50	1.320	2.8	19	20	2.74		6.15	Sandy SILT to Clayey SILT	
23.55	82.60	1.420	1.7	28	29 40	2.81	37 42		Silty SAND to Sandy SILT	
24.07	188.90	1.770	0.9	38	40	2.87	42		SAND	120-130
24.52	314.80	1.860	0.6	52	55 47	2.92	45 44		Gravelly SAND to SAND	110-120 100-110
25.03 25.53	385.90 343.30	1.850 1.180	0.5	64 57	67 59	2.98 3.03	46 45		11	100-110
26.01	381.50	1.500	0.3 0.4	64	65	3.08	46		11	11
26.56	413.50	1.500	0.4	69	70	3.14	46		11	1.1
27.03	415.00	2.470	0.6	69	70	3.19	46		1.1	110-120
27.03	440.40	2.710	0.6	73	74	3.25	47		11	110-120 # I
28.06	210.40	1.370	0.7	42	42	3.31	42		SAND	<b># 1</b>
28.54	175.80	1.370	0.8	35	35	3.37	41		II	F I
29.06	114.30	1.310	1.1	29	29	3.43	39		SAND to Silty SAND	120-130
29.53	89.60	0.810	0.9	22	22	3.49	37		II	11
30.01	60.50	0.740	1.2	20	20	3.55	35		Silty SAND to Sandy SIL	
30.50	55.10	0.330	0.6	14	14	3.60	35		SAND to Silty SAND	100-110
31.04	122.90	0.490	0.4	25	25	3.66	39		SAND	11
31.51	75.20	0.470	0.6	19	19	3.71	36		SAND to Silty SAND	1.1
32.02	138.10	0.740	0.5	28	28	3.76	40		SAND	1.1

PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-21 Page 2 of 2 LOCATION: San Jose / Santa Clara CA DATE: 09-02-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 7.3 feet Terminated at 40.0 feet DEPTH Qc Rf SPT SPT TotVtStr PHI Fs SH SOIL BEHAVIOR DENSITY RANGE (feet) (tsf) (tsf) (%) (N) (N') (ksf) (deg.) (ksf) TYPE (pcf) 32.58 116.50 0.560 0.5 23 23 3.82 39 Sandy SILT to Clayey SILT 33.08 36.60 0.770 2.1 15 15 3.89 4.62 130-140 13.80 ----33.51 0.280 2.0 7 3.94 1.58 Clayey SILT to Silty CLAY 110-120 34.01 14.40 0.130 0.9 6 3.98 90-100 6 1.65 Sandy SILT to Clayey SILT 16.30 ----34.52 0.230 1.4 6 4.04 1.90 100-110 120-130 35.03 19.00 0.430 2.3 10 4.10 2.26 Clayey SILT to Silty CLAY 35.55 16.10 0.280 1.7 4.16 ----1.87 Sandy SILT to Clayey SILT 110-120 4.22 2.05 36.08 17.50 0.270 1.5 7 ----11 36.52 14.70 0.260 1.8 4.27 1.68 Clayey SILT to Silty CLAY Sandy SILT to Clayey SILT 1.1 37.03 16.50 0.270 7 4.33 1.91 1.6 11 37.51 14.20 0.280 2.0 4.39 ----1.60 Clayey SILT to Silty CLAY 1.1 38.03 14.40 0.290 2.0 7 7 4.45 1.62 38.55 35.70 1.650 4.6 24 23 4.52 ----4.46 Silty CLAY to CLAY 130-140 39.01 311.20 2.910 0.9 62 60 4.57 44 120-130 SAND 39.53 2.820 68 ----428.10 0.7 71 4.63 46 Gravelly SAND to SAND 110-120 5.250 0.9 89 ----40.02 565.70 4.69 48 120-130 DEPTH = Sampling interval (2 inches) Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\* Phi = Soil friction angle\* Fs = Sleeve friction resistance Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) SPT = Equivalent Standard Penetration Test\* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) References: \* Robertson and Campanella, 1988 



PROJECT: SVRT NEWHALL YARD LOCATION: San Jose / Santa Clara CA PROJ. NO.: 6600.3.001.01(EGO-102) CPT NO.: CPT-22 Page 1 of 2 DATE : 09-02-2005

Groundwater measured at 6.7 feet

1 KOD . 110 .	. 0000.5	.001.01(1		_,		Terminated at 60.0 feet							
DEPTH	Qc	Fs	Rf	SPT	SPT	TotVtStr	PHI	SU	SOIL BEHAVIOR	DENSITY RANGE			
(feet)	(tsf)	(tsf)	(%)		(N')	(ksf)	(deg.)	(ksf)	TYPE	(pcf)			
0.54	284.60	2.250	0.8	57	91	0.06	47		SAND	11			
1.00	153.70	1.960	1.3	31	49	0.12	43		1.1	130-140			
1.52	68.90	1.880	2.7	28	44	0.20		9.17	Sandy SILT to Clayey SILT				
2.54	30.00	1.550	5.2	30	48	0.33		3.98	CLAY	1.1			
3.07	36.50	1.140	3.1	18	29	0.40		4.84	Clayey SILT to Silty CLAY				
3.53	26.10	1.420	5.4	26	42	0.47		3.45	CLAY	11			
4.09	18.90	1.420	7.5	19	30	0.54		2.48	11	11			
4.55	16.30	1.330	8.2	16	26	0.60		2.13	11	11			
5.02	16.80	1.200	7.1	17	27	0.67		2.20	11	11			
5.56	14.70	0.840	5.7	15	24	0.73		1.91	11	120-130			
6.04 6.52	16.30 11.80	0.760	4.7	16	26	0.79		2.12	11	11			
7.09	12.20	0.540 0.380	4.6 3.1	12 8	18 12	0.85 0.92		1.90 1.57					
7.57	9.80	0.260	2.7	7	10	0.98		1.55	Silty CLAY to CLAY	110-120			
8.05	13.20	0.540	4.1	13	19	1.04		1.69	CLAY	120-130			
8.53	15.40	0.740	4.8	15	22	1.10		1.98	II.	120-130			
9.08	9.70	0.390	4.0	10	14	1.16		1.52	11	110-120			
9.57	7.00	0.320	4.6	7	10	1.21		1.28	11	110-120			
10.05	7.60	0.370	4.9	8	10	1.27		1.39	11	11			
10.53	8.20	0.270	3.3	8	11	1.32		1.51	1.1	100-110			
11.01	9.80	0.330	3.4	7	9	1.38		1.52	Silty CLAY to CLAY	110-120			
11.59	16.70	0.580	3.5	11	15	1.45		2.13	11	120-130			
12.07	15.50	0.740	4.8	16	20	1.51		1.97	CLAY	11			
12.59	14.10	0.820	5.8	14	18	1.57		1.78	1.1	11			
13.07	13.30	0.620	4.7	13	17	1.63		1.66	11	11			
13.55	13.50	0.660	4.9	14	17	1.69		1.69	1.1	1.1			
14.02	13.60	0.650	4.8	14	17	1.75		1.70	1.1	1.1			
14.59	12.80	0.580	4.5	13	16	1.82		1.59	11	1.1			
15.07	11.40	0.480	4.2	11	14	1.88		1.74	† I	1 1			
15.55	11.30	0.430	3.8	11	14	1.94		1.72	f 1	110-120			
16.03	11.60	0.460	4.0	12	14	2.00		1.77	F 1	120-130			
16.51	10.70	0.380	3.6	7	8	2.05		1.61	Silty CLAY to CLAY	110-120			
17.09	11.90	0.390	3.3	8	9	2.12		1.81	11	11			
17.57	14.80	0.540	3.6	10	11	2.18		1.83	11 01 4 V	120-130			
18.05	15.00	0.640	4.3	15	17 15	2.24		1.85	CLAY	11			
18.52 19.08	13.10 10.20	0.510	3.9	13 7	15 8	2.30		1.59 1.50					
19.06	11.20	0.290 0.240	2.8 2.1	6	6	2.36 2.41			Silty CLAY to CLAY	110-120			
20.05	7.70	0.240	3.0	5	6	2.47		1.67 1.29	Clayey SILT to Silty CLAY Silty CLAY to CLAY	100-110			
20.53	5.70	0.200	3.5	6	6	2.52		0.89	CLAY	11			
21.01	5.90	0.150	2.5	4	4	2.56		0.92	Silty CLAY to CLAY	90-100			
21.58	8.40	0.160	1.9	4	5	2.62		1.42	Clayey SILT to Silty CLAY				
22.06	10.30	0.130	1.3	5	6	2.67		1.49	II	90-100			
22.52	13.90	0.170	1.2	6	6	2.72		1.67	Sandy SILT to Clayey SILT				
23.00	8.30	0.150	1.8		4	2.77		1.38					
23.58	8.00	0.140	1.8	4	4	2.82		1.32	11	90-100			
24.06	8.90	0.170	1.9	4	5	2.87		1.49	11	100-110			
24.53	10.40	0.170	1.6	5	5	2.92		1.49	11	1.1			
25.00	9.40	0.140	1.5	5	5	2.97		1.32	11	90-100			
25.57	8.00	0.130	1.6	4	4	3.02		1.30	1.1	1.1			
26.06	9.30	0.100	1.1	5	5	3.07		1.29	1.1	1.1			
26.53	11.80	0.140	1.2	5	5	3.11		1.37	Sandy SILT to Clayey SILT				
27.00	12.70	0.260	2.0	6	7	3.16		1.48	Clayey SILT to Silty CLAY	110-120			
27.56	12.30	0.160	1.3	5	5	3.22		1.43	Sandy SILT to Clayey SILT				
28.02	11.50	0.160	1.4	6	6	3.27		1.64	Clayey SILT to Silty CLAY				
28.58	12.30	0.150	1.2	5	5	3.33		1.42	Sandy SILT to Clayey SILT				
29.01	12.80	0.200	1.6	6	6	3.38		1.48	Clayey SILT to Silty CLAY				
29.58	11.00	0.160	1.5	6	6	3.44		1.55	11	11			
30.06	10.20	0.130	1.3	5	5	3.48		1.41	11	90-100			
30.54	13.80	0.230	1.7	7	7	3.53		1.60	11	100-110			
31.08	12.80	0.220	1.7	6	6	3.59		1.47		110, 120			
31.55	15.30	0.290	1.9	8	8	3.64		1.80	11	110-120			
32.02	13.70	0.210	1.5	7	7	3.69		1.58	Condy CILT to Clayery CILT	100-110			
32.51	15.60	0.240	1.5	6	6	3.75		1.83	Sandy SILT to Clayey SILT				
33.01	13.30	0.200	1.5	7	7	3.80		1.52	Clayey SILT to Silty CLAY	100-110			

PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-22 Page 2 of 2

LOCATION: San Jose / Santa Clara CA DATE : 09-02-2005 PROJ. NO.: 6600.3.001.01(EGO-102)

Groundwater measured at 6.7 feet

Terminated at 60.0 feet

							1011111	lacea ac	0010 1000	
DEPTH (feet)	Qc (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT (N')	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
33.51	11.00	0.130	1.2	6	5	3.85		1.51	11	90-100
34.06	10.10	0.090	0.9	5	5	3.90		1.36	1.1	11
34.54	11.20	0.130	1.2		6	3.95			11	11
				6				1.54		
35.05	12.90	0.170	1.3	5	5	4.00		1.45	Sandy SILT to Clayey SILT	
36.08	13.70	0.170	1.2	5	5	4.11		1.55	11	11
36.56	11.90	0.120	1.0	5	5	4.15		1.31	11	90-100
37.03	10.70	0.130	1.2	5	5	4.20		1.43	Clayey SILT to Silty CLAY	
37.50	11.50	0.120	1.0	5	5	4.24		1.25	Sandy SILT to Clayey SILT	
38.06	11.20	0.110	1.0	4	4	4.30		1.21	11	11
38.53	11.50	0.110	1.0	5	5	4.34		1.24	11	11
39.09	11.00	0.090	0.8	4	4	4.39		1.17	11	1.1
39.56	14.20	0.140	1.0	6	6	4.44		1.60	11	11
40.04	13.00	0.160	1.2	5	5	4.49		1.43	11	100-110
40.51	15.80	0.220	1.4	6	6	4.54		1.80	11	11
41.07	17.50	0.280	1.6	7	7	4.60		2.03	11	110-120
41.55	25.40	0.440	1.7	10	10	4.66		3.08	1.1	120-130
42.07	22.90	0.410	1.8	9	9	4.73		2.74	1.1	11
42.53	22.10	0.380	1.7	9	9	4.79		2.63	1.1	11
43.08	24.00	0.360	1.5	10	9	4.85		2.88	1.1	1.1
43.54	34.90	0.690	2.0	14	13	4.91		4.33	11	11
44.00	82.40	0.790	1.0	21	20	4.97	37		SAND to Silty SAND	1.1
44.55	39.00	0.400	1.0	13	12	5.03	32		Silty SAND to Sandy SIL1	110-120
45.01	13.30	0.260	2.0	7	6	5.09		1.43	Clayey SILT to Silty CLAY	
45.57	17.80	0.270	1.5	7	7	5.15		2.03	Sandy SILT to Clayey SIL1	
46.03	11.90	0.180	1.5	6	5	5.20		1.55	Clayey SILT to Silty CLAN	
46.58	11.20	0.180	1.6	6	5	5.26		1.43	11	11
47.05	13.20	0.260	2.0	7	6	5.31		1.41	1.1	110-120
47.51	12.50	0.210	1.7	6	6	5.36		1.31	1.1	100-110
48.07	13.10	0.320	2.4	7	6	5.42		1.39	1.1	110-120
48.52	111.90	1.670	1.5	28	24	5.48	38		SAND to Silty SAND	130-140
49.00	105.90	2.070	2.0	35	30	5.55	37		Silty SAND to Sandy SIL1	
49.55	159.70	2.250	1.4	40	34	5.62	40		SAND to Silty SAND	1.1
50.04	332.20	1.400	0.4	55	46	5.67	44		Gravelly SAND to SAND	100-110
50.51	277.80	2.380	0.9	56	46	5.73	43		SAND	120-130
51.00	328.70	1.950	0.6	55	45	5.79	44		Gravelly SAND to SAND	110-120
51.53	339.50	1.460	0.4	57	46	5.84	44		II	100-110
52.06	255.20	0.870	0.3	43	35	5.89	42		1.1	90-100
52.50	243.80	0.890	0.4	41	33	5.94	42		1.1	100-110
53.03	458.20	2.090	0.5	76	62	6.00	46		11	100-110
53.50	570.00	2.060	0.4	95	77	6.05	47		11	1.1
53.50		2.350		99	80	6.06	47		11	11
	591.20		0.4						11	11
54.02	621.10	2.540	0.4	104	84	6.10	47		11	11
54.09	611.60	2.210	0.4	102	82	6.11	47			
54.51	403.70	1.490	0.4	67	54	6.15	45		11	11
54.58	368.60	1.670	0.5	61	50	6.16	44		11	11
55.03	343.40	1.080	0.3		46	6.20	44		11	90-100
55.54	183.10	1.130	0.6	37	29	6.26	40		SAND	110-120
56.00	21.40	1.030	4.8	21	17	6.32		2.43	CLAY	130-140
56.55	18.80	0.380	2.0	8	6	6.39		2.08	Sandy SILT to Clayey SILT	
57.07	18.90	0.460	2.4	9	.7	6.46		2.09	Clayey SILT to Silty CLAY	
57.56	34.00	1.050	3.1	17	13	6.52		4.10	11	130-140
58.02	37.10	0.780	2.1	15	12	6.59		4.51	Sandy SILT to Clayey SILT	
58.59	30.20	0.890	2.9	15	12	6.66		3.58	Clayey SILT to Silty CLAY	
59.05	27.90	0.980	3.5	14	11	6.72		3.27	1.1	1.1
59.51	27.50	0.910	3.3	14	11	6.79		3.21	1.1	1.1
60.06	25.20	0.760	3.0	13	10	6.86		2.90	11	1.1

DEPTH = Sampling interval (2 inches)

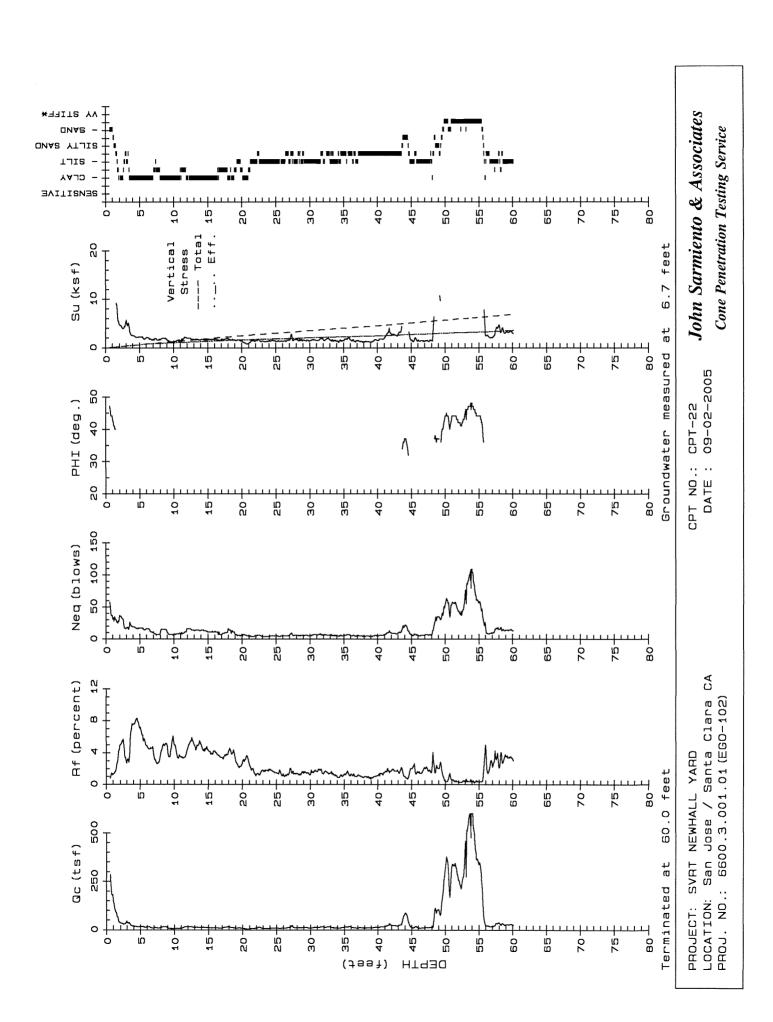
Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\*

Fs = Sleeve friction resistance Phi = Soil friction angle\*

Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) Rf = Tip/Sleeve ratio

(Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) SPT = Equivalent Standard Penetration Test\*

References: \* Robertson and Campanella, 1988 \*\* Olsen, 1989 \*\*\* Durgunoglu & Mitchell, 1975



CPT NO.: CPT-23 DATE: 09-02-2005 PROJECT: SVRT NEWHALL YARD Page 1 of 3 LOCATION: San Jose / Santa Clara CA

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PROJ. NO.: 6600.3.001.01(EGO-102)	Groundwater measured at 11.4 feet
	Terminated at 80.0 feet

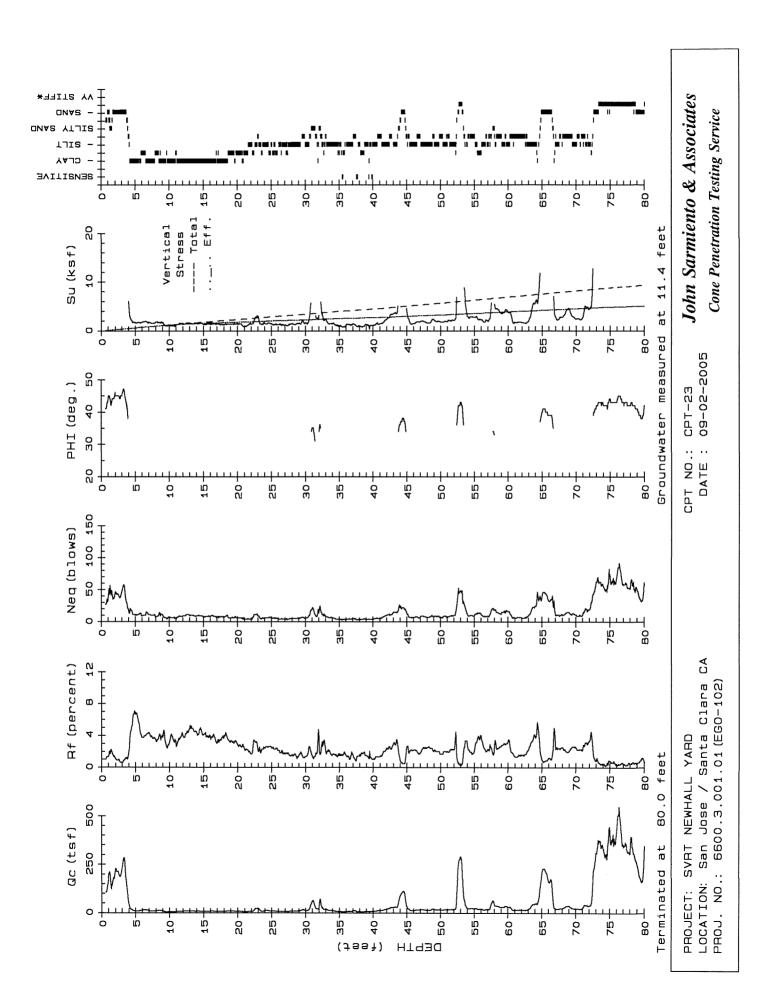
								acca ac	30.0 1000	
DEPTH (feet)	Qc (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT (N')	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0.57	404 00	4 070	4.0			0.07				400 400
0.57 1.01	106.90 200.30	1.030 2.750	1.0 1.4	27 40	43 64	0.07 0.13	41 45		SAND to Silty SAND	120-130
1.56	163.80	2.650	1.6	41	66	0.13	44		SAND SAND to Silty SAND	130-140
2.02	222.80	2.240	1.0	45	71	0.26	45		SAND	120-130
2.56	193.70	1.570	0.8	39	62	0.32	45		11	11
3.07	247.50	1.570	0.6	50	79	0.38	46		1.1	110-120
3.57	178.10	2.200	1.2	36	57	0.45	44		1.1	130-140
4.08	32.60	0.850	2.6	13	21	0.52		4.31	Sandy SILT to Clayey SILT	Γ ''
4.57	13.00	0.780	6.0	13	21	0.58		1.69	CLAY	120-130
5.07	10.50	0.690	6.6	11	17	0.64		1.70	11	11
6.07 6.52	14.20 15.20	0.530 0.610	3.7 4.0	9 10	15	0.77 0.83		1.84 1.97	Silty CLAY to CLAY	1 1 1 1
7.07	10.70	0.450	4.2	11	16 16	0.89		1.71	CLAY	110-120
7.53	9.70	0.350	3.6	10	14	0.94		1.54	LI	110-120
8.06	11.70	0.380	3.2	8	11	1.00		1.87	Silty CLAY to CLAY	1.1
8.51	13.50	0.550	4.1	14	18	1.06		1.73	CLAY	120-130
9.09	8.70	0.380	4.4	9	12	1.12		1.63	11	110-120
9.54	5.60	0.150	2.7	6	7	1.17		1.00	1.1	90-100
10.09	6.50	0.220	3.4	7	8	1.23		1.18	1.1	100-110
10.55	5.90	0.200	3.4	6	7	1.27		1.05	11	1.1
11.09	7.20	0.200	2.8	5	6	1.33		1.31	Silty CLAY to CLAY	11
11.54	8.50	0.310	3.6	9	10	1.38		1.56	CLAY	110-120
12.08 12.51	9.00 10.70	0.330 0.450	3.7 4.2	9 11	11 13	1.44 1.49		1.38 1.66	11	11
13.01	9.30	0.480	5.2	9	11	1.55		1.42	11	11
13.55	9.30	0.430	4.6	ý	11	1.61		1.42	1.1	11
14.01	8.90	0.380	4.3	9	10	1.67		1.61	1.1	1.1
14.55	8.60	0.420	4.9	9	10	1.73		1.55	1.1	1.1
15.09	7.60	0.310	4.1	8	9	1.79		1.34	1.1	1 8
15.54	8.10	0.310	3.8	8	9	1.84		1.44	1.1	1.1
16.02	9.30	0.330	3.5	9	10	1.90		1.39	1.1	1 1
16.57	8.40	0.320	3.8	8	9	1.96		1.48	11	11
17.02	8.20	0.260	3.2	8	9	2.01		1.44	11	100-110
17.57 18.02	7.60 7.20	0.260 0.290	3.4 4.0	8 7	8 8	2.07 2.11		1.31 1.23	11	11
18.55	9.80	0.340	3.5	10	11	2.17		1.45	11	110-120
19.00	9.50	0.310	3.3	6	7	2.23		1.40	Silty CLAY to CLAY	110 120
19.54	8.80	0.280	3.2	6	6	2.29		1.53	11	11
20.09	9.10	0.240	2.6	6	6	2.34		1.32	1.1	100-110
20.54	8.30	0.210	2.5	6	6	2.39		1.42	1.1	1.1
21.08	6.20	0.130	2.1	4	4	2.44		1.00	11	90-100
21.53	7.10	0.150	2.1	5	5	2.49		1.17	11	11
22.07	8.40	0.140	1.7	4	4	2.54		1.43	Clayey SILT to Silty CLAY	
23.00	23.50	0.470	2.0	9	10	2.65		2.96	Sandy SILT to Clayey SILT	
23.54 24.09	7.90 12.30	0.180 0.310	2.3 2.5	5 6	5 6	2.71 2.77		1.31	Silty CLAY to CLAY Clayey SILT to Silty CLAY	100-110 ′ 110-120
24.54	11.30	0.290	2.6	6	6	2.83		1.65	II	110-120
25.00	10.20	0.240	2.4	5	5	2.87		1.46	1.1	100-110
25.56	9.30	0.210	2.3	5	5	2.93		1.31	1.1	11
26.57	7.90	0.150	1.9	4	4	3.04		1.28	1.1	1.1
27.03	7.80	0.130	1.7	4	4	3.08		1.25	1.1	90-100
27.57	8.40	0.130	1.5	4	4	3.13		1.37	1.1	11
28.02	9.80	0.160	1.6	5	5	3.18		1.37	11	100-110
28.56	10.00	0.140	1.4	5	5	3.23		1.40	11	90-100
29.00	10.30	0.150	1.5	5	5	3.28		1.44	Condu CILT to Clavery CILT	100-110
29.55 30.00	17.50 11.40	0.230	1.3	7 6	7 6	3.34 3.39		2.11 1.62	Sandy SILT to Clayey SILT Clayey SILT to Silty CLAY	
30.55	20.30	0.150 0.520	1.3 2.6	10	10	3.46		2.48	ctayey SILI to SILLY CLAI	′ 100-110 120-130
31.07	64.60	0.760	1.2	22	21	3.52	35	2.40	Silty SAND to Sandy SILT	
31.51	24.70	0.450	1.8	10	10	3.58		3.05	Sandy SILT to Clayey SILT	
32.01	49.50	0.970	2.0	17	16	3.65	34		Silty SAND to Sandy SILT	
32.57	22.10	0.640	2.9	11	11	3.72		2.70	Clayey SILT to Silty CLAY	
33.07	19.00	0.330	1.7	8	8	3.77		2.28	Sandy SILT to Clayey SILT	
33.51	12.30	0.260	2.1	6	6	3.82		1.39	Clayey SILT to Silty CLAY	
34.04	11.50	0.190	1.7	6	6	3.88		1.59	! !	100-110

CPT NO.: CPT-23 PROJECT: SVRT NEWHALL YARD Page 2 of 3 DATE : 09-02-2005

LOCATION: San Jose / Santa Clara CA PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 11.4 feet Terminated at 80.0 feet

							Termi	nated at	80.0 feet	
DEPTH (feet)	Qc (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT (N')	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
34.57	7.30	0.110	1.5	4	4	3.93		1.07	11	90-100
35.02	6.60	0.110	1.7	4	4	3.97		0.92	Silty CLAY to CLAY	11
35.55	5.70	0.090	1.6	3	3	4.02		0.74	Sensitive Fine Grained	11
36.55	8.60	0.090	1.0	4	4	4.12		1.31	Clayey SILT to Silty CLAY	1.1
37.00	10.90	0.170	1.6	5	5	4.17		1 47	11	100-110
37.54	6.90	0.090	1.3	3	3	4.22		0.96	Sensitive Fine Grained	90-100
38.08	6.90	0.100	1.4	3	3	4.27		0.95	Clayey SILT to Silty CLAY	
38.53	6.60	0.120	1.8	4	4	4.31		0.89	Silty CLAY to CLAY	11
39.06	8.00	0.120	1.5	4	4	4.36		1.16	Clayey SILT to Silty CLAY	
39.54	7.80	0.090	1.2	4	4	4.41		1.12	II	11
40.08	8.20	0.090	1.1	4	4	4.46		1.19	11	11
40.53	11.20	0.140	1.3	6	5	4.50		1.49	11	11
41.07	13.20	0.180	1.4	5	5	4.56		1.46		
41.52	15.60	0.180	2.0	ر 8	7	4.61			Sandy SILT to Clayey SILT	
42.06	20.50	0.490			9			1.77 2.42	Clayey SILT to Silty CLAY	
42.58	27.80		2.4	10		4.68		3.39		120-130
		0.640	2.3	11	10	4.74			Sandy SILT to Clayey SILT	
43.02 43.55	29.30	0.890	3.0	15	13	4.80		3.59	Clayey SILT to Silty CLAY	130-140
	30.90	0.990	3.2	15	14	4.87	 77	3.80		
44.06	94.90	0.670	0.7	24	21	4.93	37		SAND to Silty SAND	110-120
44.59	107.10	0.540	0.5	21	18	4.99	38		SAND	100-110
45.02	29.00	0.760	2.6	12	10	5.04		3.53	Sandy SILT to Clayey SILT	
45.54	13.60	0.290	2.1	7	6	5.10		1.47	Clayey SILT to Silty CLAY	
46.05	13.80	0.310	2.2	7	6	5.16		1.50	11	11
46.55	16.70	0.310	1.9	7	6	5.22		1.88	Sandy SILT to Clayey SILT	
47.08	17.40	0.340	2.0	9	7	5.28		1.97	Clayey SILT to Silty CLAY	
47.53	16.80	0.410	2.4	8	7	5.34		1.88	11	120-130
48.06	14.40	0.360	2.5	7	6	5.40		1.56	11	110-120
48.51	16.20	0.390	2.4	8	7	5.45		1.80	11	120-130
49.03	19.00	0.390	2.1	8	6	5.52		2.17	Sandy SILT to Clayey SILT	
49.56	17.60	0.360	2.0	9	7	5.59		1.97	Clayey SILT to Silty CLAY	
50.03	16.30	0.280	1.7	7	5	5.64		1.80	Sandy SILT to Clayey SILT	
50.52	17.20	0.340	2.0	9	7	5.70		1.91	Clayey SILT to Silty CLAY	
51.00	16.80	0.340	2.0	8	7	5.75		1.86	11	11
51.56	17.70	0.410	2.3	9	7	5.82		1.97	11	120-130
52.06	19.80	0.480	2.4	10	8	5.88		2.25	1.1	11
52.58	216.00	1.210	0.6	43	34	5.94	41		SAND	110-120
53.03	290.00	0.920	0.3	48	38	5.99	43		Gravelly SAND to SAND	90-100
53.58	63.90	1.680	2.6	26	20	6.06		8.12	Sandy SILT to Clayey SILT	
54.04	24.80	0.600	2.4	10	8	6.12		2.90	11	120-130
54.55	24.40	0.460	1.9	10	8	6.18		2.84	1.1	11
55.06	23.80	0.540	2.3	10	7	6.25		2.76	1.1	11
55.58	19.90	0.770	3.9	13	10	6.31		2.23	Silty CLAY to CLAY	11
56.01	19.70	0.790	4.0	13	10	6.37		2.20	11	11
56.54	17.20	0.390	2.3	9	7	6.43		1.86	Clayey SILT to Silty CLAY	
57.06	18.30	0.430	2.3	9	7	6.50		2.01	11	1.1
58.08	37.40	1.260	3.4	19	14	6.63		4.54	11	130-140
58.51	36.00	0.880	2.4	14	11	6.69		4.35	Sandy SILT to Clayey SILT	
59.04	29.60	0.830	2.8	15	11	6.76		3.50	Clayey SILT to Silty CLAY	
59.55	<b>35.</b> 70	1.020	2.9	14	10	6.83		4.30	Sandy SILT to Clayey SILT	
60.06	31.10	1.080	3.5	16	11	6.90		3.69	Clayey SILT to Silty CLAY	
60.54	20.30	0.380	1.9	8	6	6.96		2.24	Sandy SILT to Clayey SILT	120-130
61.08	16.00	0.210	1.3	6	5	7.02		1.67	11	100-110
61.51	16.50	0.250	1.5	7	5	7.07		1.73	11	110-120
62.08	15.70	0.250	1.6	6	4	7.13		1.62	1.1	1.1
62.52	14.90	0.250	1.7	7	5	7.18		1.51	Clayey SILT to Silty CLAY	11
63.04	20.00	0.450	2.3	10	7	7.25		2.18	11	120-130
63.55	41.70	1.390	3.3	21	15	7.32		5.07	11	130-140
64.06	49.80	1.860	3.7	25	18	7.39		6.15	1.1	1.1
64.53	66.20	2.820	4.3	33	23	7.45		8.33	1.1	1.1
65.03	211.30	1.890	0.9	42	29	7.51	40		SAND	120-130
65.52	220.70	1.750	0.8	44	31	7.57	40		11	11
66.08	158.90	1.970	1.2	32	22	7.65	39		1.1	130-140
66.55	119.90	2.090	1.7	40	28	7.71	37		Silty SAND to Sandy SILT	
67.02	24.20	0.560	2.3	10	7	7.77		2.71	Sandy SILT to Clayey SILT	
3OL				. •					,	•

PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-23 Page 3 of 3 LOCATION: San Jose / Santa Clara CA DATE: 09-02-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 11.4 feet Terminated at 80.0 feet DEPTH Qc Fs Rf SPT SPT TotVtStr PHI SH SOIL BEHAVIOR DENSITY RANGE (ksf) (feet) (tsf) (tsf) (%) (N) (N') (ksf) (deg.) TYPE (pcf) 67.57 23.70 0.560 2.4 7.84 2.64 11 11 11 68.04 25.70 0.640 2.5 10 7 7.90 2.90 1.1 11 1.1 68.55 0.720 ----35.30 2.0 14 10 7.96 4.18 69.05 35.90 0.750 2.1 14 10 8.03 ----11 4.25 130-140 69.57 25.50 9 ----0.670 2.6 13 8.09 2.86 Clayey SILT to Silty CLAY 120-130 70.08 22.30 0.530 2.4 11 8.16 2.43 0.490 11 70.50 22.30 9 ----2.2 8.21 2.43 Sandy SILT to Clayey SILT 1.1 71.01 26.40 0.610 2.3 11 7 8.28 2.97 ----71.51 40.30 1.250 3.1 20 13 8.34 4.82 Clayey SILT to Silty CLAY 130-140 72.02 38.10 1.280 3.4 19 13 8.41 4.52 1.1 72.53 171.10 3.250 1.9 43 28 8.48 39 \_\_\_\_ SAND to Silty SAND ----73.00 310.70 2.370 0.8 62 41 8.54 42 120-130 SAND ----73.51 372.50 1.820 0.5 62 40 8.59 43 Gravelly SAND to SAND 100-110 74.02 335.00 1.460 0.4 56 36 8.65 42 ----1.1 305.80 0.970 51 33 ----90-100 74.53 0.3 8.69 42 74 ----11 120-130 75.01 444.00 3.470 0.8 48 8.75 44 2.900 11 381.00 64 41 ----75.09 0.8 8.76 43 ----11 75.51 405.40 2,400 0.6 68 43 8.81 44 110-120 11 75.58 349.60 58 37 43 ----2.640 0.8 8.82 120-130 71 ----1.1 76.04 426.70 1.360 0.3 46 8.87 44 90-100 53 11 76.52 493.00 2.100 0.4 82 8.92 45 ----100-110 37 ----11 110-120 77.01 347.00 1.770 0.5 58 8.97 43 11 58 8.98 37 \_\_\_\_ 100-110 77.09 346.30 1.670 0.5 43 77.50 347.20 1.170 0.3 58 37 9.02 43 11 1.1 1.1 9.03 ----11 77.57 325.70 1.200 0.4 54 34 42 ----1.1 11 78.02 309.70 1.510 0.5 52 33 9.08 42 1.1 51 32 ----78.54 308.80 1.840 0.6 9.14 42 110-120 ----79.01 247.30 1.490 0.6 49 31 9.19 41 SAND ----79.54 161.90 1.600 1.0 32 20 9.26 38 1.1 120-130 ----80.03 344.70 2.320 0.7 9.31 42 Gravelly SAND to SAND 110-120 DEPTH = Sampling interval (2 inches) TotStr = Total Stress using est. density\*\* Qc = Tip bearing resistance Fs = Sleeve friction resistance Phi = Soil friction angle\* Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) Rf = Tip/Sleeve ratio (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) SPT = Equivalent Standard Penetration Test\* References: \* Robertson and Campanella, 1988 



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-24 Page 1 of 1

LOCATION: San Jose / Santa Clara CA DATE : 09-02-2005

PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 11.7 feet Terminated at 30.0 feet

Defin								Termir	nated at	<b>30.0</b> feet	
1.05 131.10 2.244 1.7 33 52 0.13 42 SAND to Sitty SAND 130-140 1.50 231.60 3.330 1.4 46 74 0.19 46 SAND 1.1 1.50 239.30 2.440 1.0 48 77 0.20 46 SAND 0.1 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0											
1.05 131.10 2.244 1.7 33 52 0.13 42 SAND to Sitty SAND 130-140 1.50 231.60 3.330 1.4 46 74 0.19 46 SAND 1.1 1.50 239.30 2.440 1.0 48 77 0.20 46 SAND 0.1 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	0.53	140.70	1.230	0.9	28	45	0.06	43		SAND	120-130
1.50 231.60 3.3350 1.4 46 74 0.19 46 1.59 239.30 2.440 1.0 48 77 0.20 46 2.52 21.40 0.540 2.5 11 17 0.32 2.52 21.40 0.540 2.5 11 17 0.32 3.05 15.80 0.450 2.8 8 13 0.39 3.05 15.80 0.450 2.8 8 13 0.39 4.06 10.00 0.460 4.6 10 16 0.51 4.06 10.00 0.460 4.6 10 15 0.56 5.53 10.50 0.470 4.9 10 15 0.56 5.53 10.50 0.470 4.9 10 15 0.56 5.53 10.50 0.470 4.9 10 15 0.56 6.08 11.60 0.450 3.7 12 19 0.70 7.71 10.00 0.450 2.9 7 12 19 0.70 7.71 10.00 0.450 2.9 8 12 0.92 7.71 11.70 0.250 2.1 6 9 0.92 7.71 11.70 0.250 2.1 6 9 0.92 7.71 11.70 0.250 2.2 1 6 9 0.92 8.05 11.10 0.310 2.8 7 10 10.9 8.05 11.10 0.310 2.8 7 10 10.9 9.02 11.10 0.310 2.8 7 10 10.9 9.02 11.10 0.310 2.8 7 10 10.9 9.02 11.10 0.310 3.3 6 8 12.0 98 9.02 11.10 0.310 3.3 6 8 12.0 98 9.02 11.10 0.310 3.3 6 8 12.0 98 9.02 11.10 0.310 3.3 6 8 12.0 98 9.02 11.10 0.310 3.3 6 8 12.0 98 9.02 11.10 0.310 3.3 6 8 12.0 98 10.05 9.30 0.310 3.3 6 8 10 1.31 11.55 3.8 8.0 0.330 3.8 9 11 1.36 11.57 3.8 8.0 0.330 3.8 9 11 1.36 11.57 3.8 8.0 0.370 4.4 8 10 1.48 11.59 3.8 8.0 0.370 4.4 8 10 1.48 11.59 3.50 0.390 4.1 10 11 1.77 11.50 0.30 0.30 4.9 9 9 11 1.43 11.50 0.30 0.30 0.20 2.9 2 2.0 11 1.45 11.50 0.30 0.30 0.30 0.20 0.20 0.30 0.30 0.3											
1.59   239,30   2.44d   1.0   48   77   0.20   46										•	
2.01 70.30 0.680 1.0 18 28 0.26 39 SAND to sitty SAND   12.52 21.40 0.540 2.5 11 17 0.32 2.83   Clayey SILT to sitty CLAY   1.30.5 15.80 0.450 2.8 8 13 0.39 2.83   Clayey SILT to sitty CLAY   1.60.6 10.00 0.460 4.6 10 16 0.51 1.55   1.1   1.1   1.5		239.30									120-130
2.52										SAND to Silty SAND	
3.05   15.80   0.450   2.8   8   13   0.39     2.08   11   11   14   14   11   14   14   1	2.52	21.40	0.540	2.5	11	17			2.83	•	γ 11
3.51   18.90   0.480   2.5   9   15   0.44     2.49											
4.06 10.00 0.460 4.6 10 16 0.51 1.62 CLAY 110-120 (.517 19.60 0.500 5.2 10 15 0.56 1.55 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.					9					1.1	11
4.51 9.60 0.500 5.2 10 15 0.56 1.55 1.51 1.50					10					CLAY	110-120
5.07 9.50 0.470 4.9 10 15 0.62 1.53			0.500								
5.53 10.50 0.470 4.5 11 17 0.68 1.69					10					1.1	1.1
7.01 16.40 0.440 3.0 7 12 0.80 1.92 Clayer SILT to Sitty CLAY 120-130 17.757 11.70 0.250 2.1 6 9 0.92 1.87				4.5	11					1.1	1.1
7.01 16.40 0.480 2.9 8 13 0.86 2.15					12					1.1	11
7.01 16.40 0.480 2.9 8 13 0.86 2.15	6.55	14.80	0.440	3.0	7	12	0.80		1.92	Clayey SILT to Silty CLAY	Y 120-130
8.03 16.60 0.460 2.8 8 12 0.98 2.15 100-130 8.58 9.30 0.200 2.8 5 6 1.03 1.46 11 100-130 8.58 9.30 0.200 2.2 5 6 6 1.03 1.46 11 100-130 9.02 11.10 0.310 2.8 7 10 1.09 1.76 Silty CLAY to CLAY 110-120 9.58 9.10 0.240 2.6 6 8 1.14 1.42 1.42 110-120 10.55 9.30 0.310 3.3 6 8 1.20 1.45 1110-120 10.55 7.70 0.210 2.7 5 7 1.25 1.45 1.47 CLAY 110-120 10.52 7.70 0.210 2.7 5 7 1.25 1.42 1.47 CLAY 110-120 11.53 8.80 0.330 3.8 9 11 1.36 1.62 1.47 CLAY 110-120 11.53 8.80 0.330 3.8 9 11 1.36 1.62 1.47 CLAY 110-120 11.53 8.80 0.330 3.8 9 11 1.36 1.62 1.47 CLAY 110-120 11.53 8.80 0.330 0.610 4.0 10 12 1.55 1.64 1.53 1.47 CLAY 120-130 13.54 14.30 0.610 4.0 10 12 1.55 1.64 1.53 1.47 CLAY 120-130 13.54 14.30 0.770 5.4 14 17 1.60 1.80 CLAY 120-130 13.54 14.30 0.770 5.4 14 17 1.60 1.80 CLAY 10-120 15.00 10.10 0.490 4.9 10 11 1.67 1.48 1.54 1.10-120 15.00 10.10 0.490 4.9 10 11 1.78 1.54 1.10-120 15.00 0.330 3.9 4.1 10 11 1.73 1.44 1.10-120 15.00 10.10 0.330 2.9 7 7 2.02 1.53 1.44 1.10-120 15.00 0.330 0.30 2.9 7 7 2.02 1.53 1.48 1.50 Silty CLAY to CLAY 1.10-120 15.00 10.10 0.330 2.9 7 7 2.02 1.53 1.60 Clayey SILT to Silty CLAY 1.10-120 17.51 12.10 0.330 2.2 4 6 7 2.18 1.50 Silty CLAY to CLAY 1.10-120 17.51 12.10 0.340 2.8 8 9 2.07 1.53 1.60 Clayey SILT to Silty CLAY 1.10-120 17.51 12.10 0.340 2.8 8 9 2.07 1.53 1.60 Silty CLAY to CLAY 1.10-120 17.51 12.10 0.340 2.8 8 9 2.07 1.53 1.60 Clayey SILT to Silty CLAY 1.10-120 17.51 12.10 0.340 2.8 8 9 2.07 1.53 1.50 Silty CLAY to CLAY 1.10-120 17.51 12.10 0.340 2.8 8 2.25 2.00 1.53 1.10-120 17.51 12.10 0.340 2.8 8 2.25 2.00 1.53 1.10-120 17.51 17.51 12.10 0.340 2.6 8 8 2.25 2.00 1.53 1.10-120 17.51 17.51 12.10 0.340 2.6 6 6 2.50 1.36 1.51 1.00-110 17.20 17.51 17.51 17.51 17.51 17.51 17.51 17.51 17.51 17.51 17.51 17.51 17.51 17.51 17.51 17.	7.01	16.40	0.480	2.9	8	13	0.86		2.13		
8.03 16.60 0,460 2.8 8 12 0,98 2.15	7.57	11.70	0.250	2.1	6	9	0.92		1.87	1.1	110-120
8.58 9.30 0.200 2.2 5 6 6 1.03 1.46 11 100-110 9.02 11.10 0.310 2.8 7 10 1.09 1.76 Silty CLAY to CLAY 110-120 9.58 9.10 0.240 2.6 6 8 1.14 1.42 11 100-110 10.05 9.30 0.310 3.3 6 8 1.20 1.45 11 100-110 11.07 8.00 0.310 3.9 8 10 1.31 1.47 CLAY 110-120 11.53 8.80 0.330 3.8 9 11 1.35 1.47 CLAY 110-120 11.53 8.80 0.330 3.8 9 11 1.36 1.66 11 11-120 12.08 8.90 0.410 4.6 9 11 1.43 1.64 11 11-120 13.07 15.30 0.610 4.0 10 12 1.55 1.94 Silty CLAY to CLAY 120-130 13.54 14.30 0.770 5.4 14 17 1.60 1.80 11 1.48 11 11-120 14.09 9.70 0.570 5.9 10 11 1.67 1.48 11 11-120 15.00 10.10 0.490 4.9 10 11 1.73 1.44 11 11-120 15.00 10.10 0.490 4.9 10 11 1.78 1.54 11 11-120 15.00 10.10 0.490 4.9 10 11 1.78 1.54 11 11-120 15.00 10.10 0.490 4.9 10 11 1.78 1.54 11 11-120 15.00 10.10 0.490 4.9 10 11 1.78 1.54 11 11-120 15.00 10.10 0.490 4.9 10 11 1.78 1.54 11 11-120 15.00 10.10 0.490 4.9 10 11 1.78 1.54 11 11-120 15.00 10.10 0.490 4.9 10 11 1.78 1.54 11 11-120 17.751 12.10 0.340 2.8 8 9 2.07 1.48 11 11 11-120 18.65 13.10 0.320 2.4 7 7 2.02 1.53 11 1.50 Silty CLAY to CLAY 11 18.05 13.10 0.320 2.4 7 7 2.13 1.60 Silty CLAY to CLAY 11 19.02 16.10 0.420 2.6 8 8 2.25 2.00 11 120-130 19.57 14.70 0.440 3.0 7 8 2.32 1.81 11 11 11-120 21.51 8.50 0.220 2.6 6 6 2.60 1.32 11 11 120-130 22.54 9.50 0.320 3.4 6 6 2.66 1.36 11 11 11 120-120 21.51 8.50 0.220 2.6 6 6 2.60 1.32 11 11-120 22.54 9.50 0.320 3.4 6 6 2.66 1.36 11 11 120-120 22.55 24.10 0.540 2.2 10 10 2.99 3.01 3.01 3.01 11 11-120 25.55 24.10 0.540 2.2 10 10 2.99 3.01 3.01 3.01 11 11-120 25.55 24.10 0.540 2.20 1.11 1 3.15 3.5 1.47 1.27 1.27 1.27 1.27 1.27 1.27 1.27 1.2	8.03	16.60	0.460	2.8	8	12	0.98		2.15	1.1	
9.02				2.2						11	
9.58 9.10 0.240 2.6 6 8 1.14 1.42 11 100-110 10.05 9.30 0.310 3.3 6 8 1.20 1.45 11 100-120 10.52 7.70 0.210 2.7 5 7 1.25 1.42 11 100-110 11.07 8.00 0.310 3.9 8 10 1.31 1.47 CLAY 110-120 11.53 8.80 0.330 3.8 9 11 1.36 1.62 11 11 11 11 120 11.53 8.80 0.370 4.4 8 10 1.43 1.64 11 11 11 11 120 11.53 8.90 0.410 4.6 9 11 1.43 1.64 11 11 11 11 11 11 11 11 11 11 11 11 11										Silty CLAY to CLAY	
10.05					6	8					
10.52 7.70 0.210 2.7 5 7 1.25 1.42 '' 100-110 11.07 8.00 0.310 3.9 8 10 1.31 1.47 CLAY 110-120 11.53 8.80 0.330 3.8 9 11 1.36 1.62 '' '' '' 12.52 8.40 0.370 4.4 8 10 1.48 1.63 ''' '' 13.07 15.30 0.610 4.0 10 12 1.55 1.94 Silty CLAY to CLAY 120-130 13.54 14.30 0.770 5.4 14 17 1.60 1.80 CLAY ''' 14.09 9.70 0.570 5.9 10 11 1.67 1.48 ''' ''' 14.59 9.50 0.390 4.1 10 11 1.67 1.48 ''' ''' 15.00 10.10 0.490 4.9 10 11 1.73 1.54 ''' ''' 16.07 9.60 0.390 4.1 10 11 1.73 1.54 ''' ''' 16.09 10.20 0.300 2.9 7 7 2.02 1.50 Silty CLAY to CLAY ''' 17.51 12.10 0.340 2.8 8 9 2.07 1.50 Silty CLAY to CLAY ''' 18.51 12.50 0.300 2.4 7 7 2.13 1.60 Clayey SILT to Silty CLAY ''' 18.51 12.50 0.300 2.4 6 7 2.18 1.54 ''' 19.02 16.10 0.420 2.6 8 8 2.25 2.00 ''' 120-130 19.57 14.70 0.440 3.0 7 8 2.332 1.81 ''' 20.03 13.20 0.480 3.6 9 9 2.37 1.60 Silty CLAY to CLAY ''' 21.51 8.50 0.220 2.6 6 6 2.54 1.51 Silty CLAY to CLAY ''' 22.15 8.50 0.220 2.6 6 6 2.54 1.55 ''' 21.51 8.50 0.220 2.6 6 6 2.54 1.55 ''' 22.54 9.50 0.290 3.4 6 6 2.66 1.36 ''' 22.55 9.00 0.110 1.2 5 4 2.92 1.45 ''' 22.54 9.55 0.320 3.4 6 6 2.66 1.35 ''' 22.55 9.00 0.110 1.2 5 4 2.92 1.55 ''' 22.55 9.00 0.110 1.2 5 4 2.92 1.55 Sandy SILT to Clayey SILT 10-120 22.54 10.70 0.360 3.4 7 7 2.77 1.55 ''' 22.55 9.00 0.110 1.2 5 4 2.92 1.65 Sandy SILT to Clayey SILT 10-120 25.55 24.10 0.540 2.2 10 10 2.99 3.01 Sandy SILT to Clayey SILT 10-120 26.54 16.90 0.180 1.1 9 9 3.05 31 SAND to Sandy SILT 10-120 27.58 20.70 0.10 0.380 1.1 9 9 3.05 31 SAND to Silty SAND 110-120 28.51 176.00 0.780 0.4 35 35 3.27 41 SAND to Silty SAND 110-120 28.52 107.10 0.790 0.7 27 27 3.32 38 2.45 Sandy SILT to Clayey SILT 10-120 28.52 107.10 0.790 0.7 27 27 3.32 38 2.45 Sandy SILT to Clayey SILT 10-110 28.52 107.10 0.790 0.7 27 27 3.32 38 2.45 Sandy SILT to Clayey SILT 100-110 28.52 23.70 0.260 1.1 9 9 3.45 2.93 3.01 Sandy SILT to Clayey SILT 100-110 28.52 23.70 0.260 1.1 9 9 3.4					6					11	
11.07					5					11	
12.08 8.90 0.410 4.6 9 11 1.43 1.64				3.9	8					CLAY	
12.52					9						
13.07	12.08	8.90	0.410	4.6	9	11	1.43		1.64	f 1	1.1
13.54	12.52	8.40	0.370	4.4	8	10	1.48		1.53	1.1	1.1
13.54	13.07	15.30	0.610	4.0	10	12	1.55		1.94	Silty CLAY to CLAY	120-130
14.54 9.50 0.390 4.1 10 11 1.73 1.44	13.54	14.30	0.770	5.4	14	17	1.60		1.80	*	1.1
15.00 10.10 0.490 4.9 10 11 1.78 1.54	14.09	9.70	0.570	5.9	10	11	1.67		1.48	1.1	1.1
16.07 9.60 0.390 4.1 10 11 1.90 1.44   11   16.53   10.00 0.310 3.1 7 7 1.95 1.50   Silty CLAY to CLAY   11   17.99   10.20 0.300 2.9 7 7 2.02 1.53   11   11   11   11   11   11   11	14.54	9.50	0.390	4.1	10	11	1.73		1.44	1.1	110-120
16.53 10.00 0.310 3.1 7 7 7 1.95 1.50 Silty CLAY to CLAY 11 17.09 10.20 0.3300 2.9 7 7 2.02 1.53 11 11 11 11 11 11 11 11 11 11 11 11 11	15.00	10.10	0.490	4.9	10	11	1.78		1.54	1.1	1.1
17.09	16.07	9.60	0.390	4.1	10	11	1.90		1.44	1.1	11
17.51	16.53	10.00	0.310	3.1	7	7	1.95		1.50	Silty CLAY to CLAY	11
18.05 13.10 0.320 2.4 7 7 2.13 1.60 Clayey SILT to Silty CLAY 1.18.51 12.50 0.300 2.4 6 7 2.18 2.00 1.1 120-130 19.57 14.70 0.440 3.0 7 8 2.32 1.81 1.1 1.1 120-130 19.57 14.70 0.440 3.0 7 8 2.32 1.81 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.	17.09	10.20	0.300	2.9	7	7	2.02		1.53	11	1.1
18.51 12.50 0.300 2.4 6 7 2.18 1.52	17.51	12.10	0.340	2.8	8	9	2.07		1.48	1.1	11
19.02	18.05	13.10	0.320	2.4	7	7	2.13		1.60	Clayey SILT to Silty CLAY	γ 11
19.57	18.51	12.50	0.300	2.4	6	7	2.18		1.52	11	11
20.03 13.20 0.480 3.6 9 9 2.37 1.60 Silty CLAY to CLAY	19.02	16.10	0.420	2.6	8	8	2.25		2.00	1.1	120-130
20.54	19.57	14.70	0.440	3.0	7	8	2.32		1.81	11	11
21.06  9.60  0.270  2.8  6  7  2.49   1.39	20.03	13.20	0.480	3.6	9	9	2.37		1.60	Silty CLAY to CLAY	1.1
21.51 8.50 0.220 2.6 6 6 2.54 1.45   1 100-110 22.02 9.20 0.290 3.2 6 6 2.60 1.32   110-120 22.54 9.50 0.320 3.4 6 6 2.66 1.36   1	20.54	10.30	0.310	3.0	7	7	2.43		1.51	f 1	110-120
22.02 9.20 0.290 3.2 6 6 2.60 1.32 '' 110-120 22.54 9.50 0.320 3.4 6 6 2.66 1.36 '' '' 23.09 10.00 0.330 3.3 7 7 2.72 1.44 '' '' 23.54 10.70 0.360 3.4 7 7 2.77 1.55 '' '' 24.07 10.00 0.250 2.5 7 7 2.83 1.43 '' 100-110 24.51 7.80 0.150 1.9 4 4 2.87 1.27 Clayey SILT to Silty CLAY '' 25.05 9.00 0.110 1.2 5 4 2.92 1.26 '' 90-100 25.55 24.10 0.540 2.2 10 10 2.99 3.01 Sandy SILT to Clayey SILT 120-130 26.59 28.20 0.300 1.1 9 9 3.05 31 Silty SAND to Sandy SILT 110-120 26.54 16.90 0.180 1.1 7 7 3.10 2.05 Sandy SILT to Clayey SILT 100-110 27.00 26.40 0.520 2.0 11 11 3.15 3.31 '' 120-130 27.58 207.00 1.070 0.5 41 41 3.22 42 SAND 110-120 28.01 176.20 0.780 0.4 35 35 3.27 41 SAND to Silty SAND 110-120 28.52 107.10 0.790 0.7 27 27 3.32 38 SAND to Silty SAND 110-120 29.04 20.10 0.380 1.9 8 8 3.39 2.45 Sandy SILT to Clayey SILT 120-130 29.52 23.70 0.260 1.1 9 9 3.45 2.93 '' 110-120 30.00 33.80 0.600 1.8 14 13 3.51 4.27 ''' 120-130	21.06	9.60	0.270	2.8	6	7	2.49		1.39	f 1	11
22.54 9.50 0.320 3.4 6 6 2.66 1.36	21.51	8.50	0.220	2.6	6	6	2.54		1.45	1.1	100-110
23.09 10.00 0.330 3.3 7 7 2.72 1.44 '' 11 23.54 10.70 0.360 3.4 7 7 2.77 1.55 '' 11 24.07 10.00 0.250 2.5 7 7 2.83 1.43 '' 100-110 24.51 7.80 0.150 1.9 4 4 2.87 1.27 Clayey SILT to Silty CLAY '' 25.05 9.00 0.110 1.2 5 4 2.92 1.26 '' 90-100 25.55 24.10 0.540 2.2 10 10 2.99 3.01 Sandy SILT to Clayey SILT 120-130 26.09 28.20 0.300 1.1 9 9 3.05 31 Silty SAND to Sandy SILT 110-120 26.54 16.90 0.180 1.1 7 7 3.10 2.05 Sandy SILT to Clayey SILT 100-110 27.00 26.40 0.520 2.0 11 11 3.15 3.31 '' 120-130 27.58 207.00 1.070 0.5 41 41 3.22 42 SAND 110-120 28.01 176.20 0.780 0.4 35 35 3.27 41 SAND 110-120 29.04 20.10 0.380 1.9 8 8 3.39 2.45 Sandy SILT to Clayey SILT 120-130 29.52 23.70 0.260 1.1 9 9 3.45 2.93 '' 110-120 30.00 33.80 0.600 1.8 14 13 3.51 4.27 '' 120-130	22.02	9.20	0.290	3.2	6	6	2.60		1.32	t t	110-120
23.54 10.70 0.360 3.4 7 7 2.77 1.55	22.54	9.50	0.320	3.4	6	6	2.66		1.36	1.1	1.1
24.07 10.00 0.250 2.5 7 7 2.83 1.43	23.09	10.00	0.330	3.3	7	7	2.72		1.44	1.1	1.0
24.51 7.80 0.150 1.9 4 4 2.87 1.27 Clayey SILT to Silty CLAY 25.05 9.00 0.110 1.2 5 4 2.92 1.26	23.54	10.70	0.360	3.4	7	7	2.77		1.55		11
25.05 9.00 0.110 1.2 5 4 2.92 1.26	24.07	10.00	0.250	2.5	7	7	2.83		1.43	11	
25.55	24.51	7.80	0.150	1.9	4	4	2.87		1.27	Clayey SILT to Silty CLAY	γ 11
26.09	25.05	9.00	0.110	1.2	5	4	2.92		1.26	1 1	90-100
26.54 16.90 0.180 1.1 7 7 3.10 2.05 Sandy SILT to Clayey SILT 100-110 27.00 26.40 0.520 2.0 11 11 3.15 3.31 '' 120-130 27.58 207.00 1.070 0.5 41 41 3.22 42 SAND 110-120 28.01 176.20 0.780 0.4 35 35 3.27 41 '' 100-110 28.52 107.10 0.790 0.7 27 27 3.32 38 SAND to Silty SAND 110-120 29.04 20.10 0.380 1.9 8 8 3.39 2.45 Sandy SILT to Clayey SILT 120-130 29.52 23.70 0.260 1.1 9 9 3.45 2.93 '' 110-120 30.00 33.80 0.600 1.8 14 13 3.51 4.27 '' 120-130	25.55	24.10	0.540	2.2	10	10	2.99		3.01		
26.54 16.90 0.180 1.1 7 7 3.10 2.05 Sandy SILT to Clayey SILT 100-110 27.00 26.40 0.520 2.0 11 11 3.15 3.31 '' 120-130 27.58 207.00 1.070 0.5 41 41 3.22 42 SAND 110-120 28.01 176.20 0.780 0.4 35 35 3.27 41 '' 100-110 28.52 107.10 0.790 0.7 27 27 3.32 38 SAND to Silty SAND 110-120 29.04 20.10 0.380 1.9 8 8 3.39 2.45 Sandy SILT to Clayey SILT 120-130 29.52 23.70 0.260 1.1 9 9 3.45 2.93 '' 110-120 30.00 33.80 0.600 1.8 14 13 3.51 4.27 '' 120-130	26.09	28.20	0.300	1.1	9		3.05	31		Silty SAND to Sandy SILT	г 110-120
27.58 207.00 1.070 0.5 41 41 3.22 42 SAND 110-120 28.01 176.20 0.780 0.4 35 35 3.27 41 '' 100-110 28.52 107.10 0.790 0.7 27 27 3.32 38 SAND to Silty SAND 110-120 29.04 20.10 0.380 1.9 8 8 3.39 2.45 Sandy SILT to Clayey SILT 120-130 29.52 23.70 0.260 1.1 9 9 3.45 2.93 '' 110-120 30.00 33.80 0.600 1.8 14 13 3.51 4.27 '' 120-130	26.54	16.90	0.180	1.1	7	7	3.10		2.05		
28.01 176.20 0.780 0.4 35 35 3.27 41 11 100-110 28.52 107.10 0.790 0.7 27 27 3.32 38 SAND to Silty SAND 110-120 29.04 20.10 0.380 1.9 8 8 3.39 2.45 Sandy SILT to Clayey SILT 120-130 29.52 23.70 0.260 1.1 9 9 3.45 2.93 11 110-120 30.00 33.80 0.600 1.8 14 13 3.51 4.27 11 120-130	27.00	26.40	0.520	2.0	11	11	3.15		3.31	1.1	120-130
28.01 176.20 0.780 0.4 35 35 3.27 41 11 100-110 28.52 107.10 0.790 0.7 27 27 3.32 38 SAND to Silty SAND 110-120 29.04 20.10 0.380 1.9 8 8 3.39 2.45 Sandy SILT to Clayey SILT 120-130 29.52 23.70 0.260 1.1 9 9 3.45 2.93 11 110-120 30.00 33.80 0.600 1.8 14 13 3.51 4.27 11 120-130	27.58	207.00	1.070	0.5	41		3.22	42		SAND	110-120
28.52 107.10 0.790 0.7 27 27 3.32 38 SAND to Silty SAND 110-120 29.04 20.10 0.380 1.9 8 8 3.39 2.45 Sandy SILT to Clayey SILT 120-130 29.52 23.70 0.260 1.1 9 9 3.45 2.93 '' 110-120 30.00 33.80 0.600 1.8 14 13 3.51 4.27 '' 120-130	28.01	176.20	0.780	0.4	35			41		1.1	
29.52     23.70     0.260     1.1     9     9     3.45      2.93     11     110-120       30.00     33.80     0.600     1.8     14     13     3.51      4.27     11     120-130	28.52	107.10			27	27		38		SAND to Silty SAND	
30.00 33.80 0.600 1.8 14 13 3.51 4.27 '' 120-130			0.380	1.9	8	8	3.39		2.45		τ 120-130
30.00 33.80 0.600 1.8 14 13 3.51 4.27 '' 120-130	29.52	23.70	0.260	1.1	9						
	30.00	33.80	0.600	1.8	14	13	3.51		4.27	1.1	120-130

DEPTH = Sampling interval (2 inches)

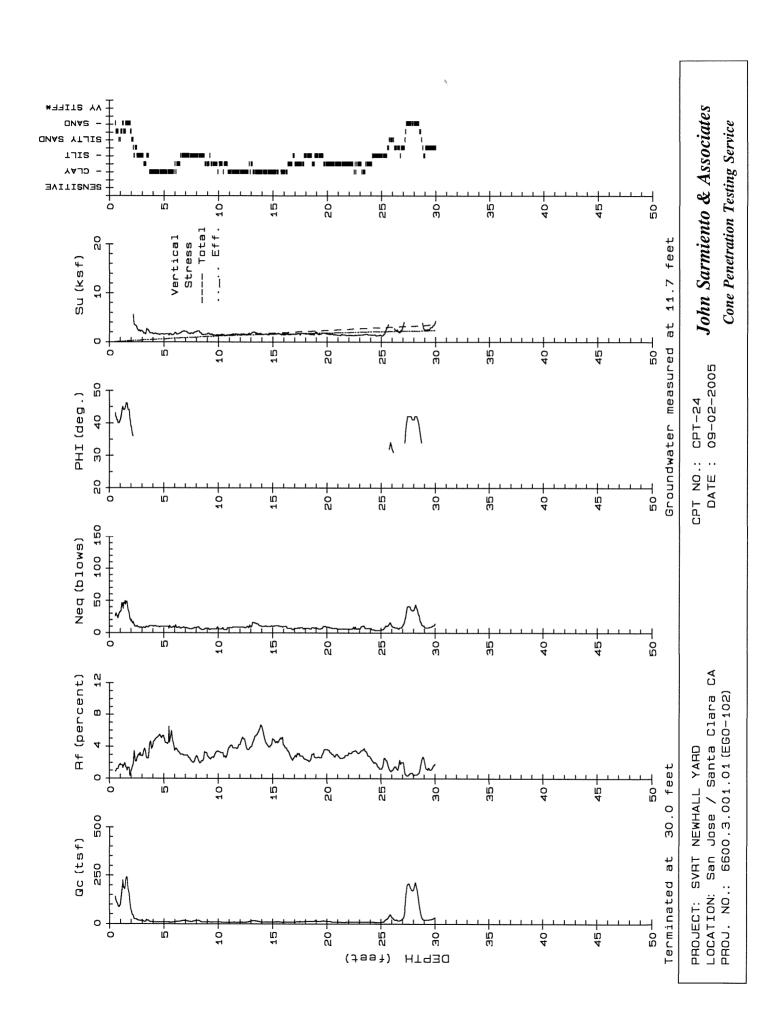
Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\*

Phi = Soil friction angle\* Fs = Sleeve friction resistance

Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) Rf = Tip/Sleeve ratio

(Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) SPT = Equivalent Standard Penetration Test\*

References: \* Robertson and Campanella, 1988 \*\* Olsen, 1989 \*\*\* Durgunoglu & Mitchell, 1975



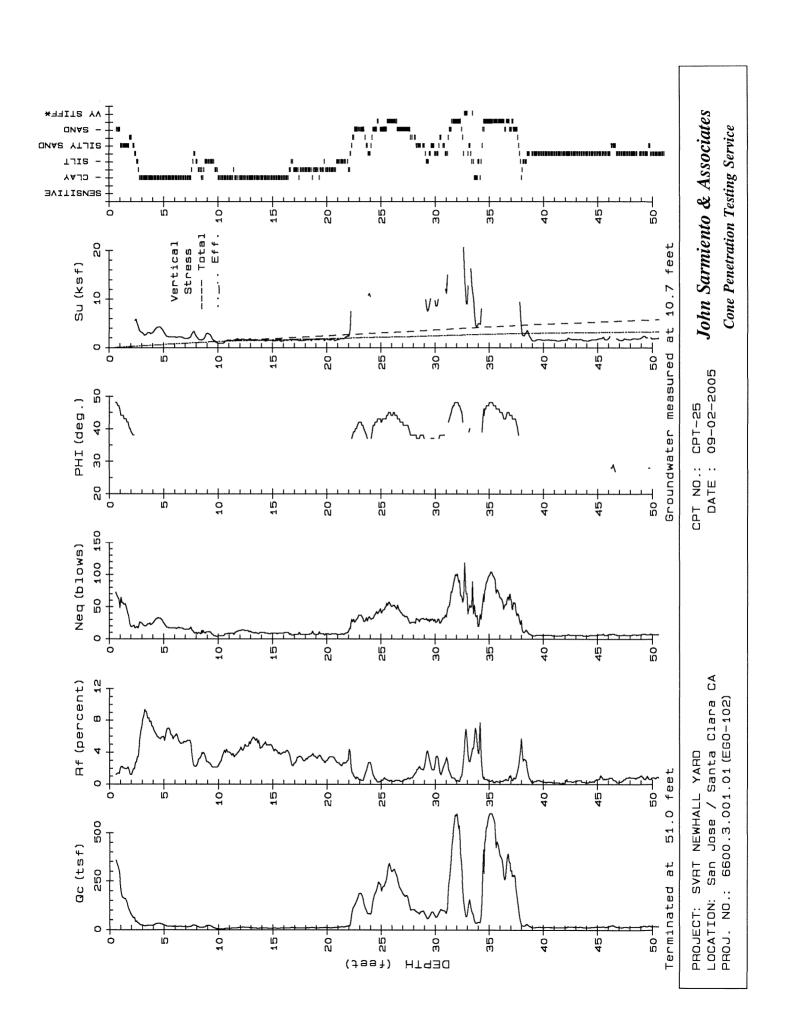
PROJECT: SVRT NEWHALL YARD Page 1 of 2 CPT NO.: CPT-25

LOCATION: San Jose / Santa Clara CA PROJ. NO.: 6600.3.001.01(EGO-102) DATE: 09-02-2005 Groundwater measured at 10.7 feet

Terminated at 51.0 feet

								i Ci iii i	nated at	Ji.o reet	
DEI (fe	PTH et)	Qc (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT ('N')	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0	.57	358.30	4.340	1.2	72	115	0.07	>48		SAND	130-140
	.06	191.70	4.280	2.2	64	102	0.13	44		Silty SAND to Sandy SILT	
1.	.51	149.70	2.850	1.9	50	80	0.19	43		11	1.1
2	.03	75.10	0.920	1.2	19	30	0.26	39		SAND to Silty SAND	120-130
2	.54	38.80	1.320	3.4	19	31	0.33		5.15	Clayey SILT to Silty CLAY	′ 130-140
	.06	22.70	1.810	8.0	23	36	0.40		3.00	CLAY	1.1
	.53	23.10	1.890	8.2	23	37	0.46		<b>3.</b> 05	1 1	1.1
	.01	23.70	1.680	7.1	24	38	0.53		3.12	11	1 1
	.51	32.60	1.880	5.8	33	52	0.59		4.31	11	11
	.00	25.10	1.490	5.9	25	40	0.66		3.30	11	11
	.57	17.00	1.140	6.7	17	27	0.74		2.22	11	11
	.06 .57	17.10	1.020	6.0	17	27 27	0.80		2.23	11	110 170
	.08	17.30 14.80	0.860 0.790	5.0 5.3	17 15	27	0.87		2.25	11	120-130
	.58	21.10	0.750	3.6	14	22 20	0.93 0.99		1.91 2.75		11
	.08	16.50	0.420	2.5	8	11	1.06		2.13	Silty CLAY to CLAY Clayey SILT to Silty CLAY	
	.51	13.10	0.500	3.8	9	12	1.11		1.67	Silty CLAY to CLAY	11
	.00	22.90	0.630	2.8	11	15	1.17		2.98	Clayey SILT to Silty CLAY	
	.51	13.40	0.280	2.1	7	9	1.23		1.70	וו	110-120
	.03	5.00	0.120	2.4	5	6	1.28		0.87	CLAY	90-100
	.54	6.00	0.250	4.2	6	7	1.33		1.07	11	100-110
11	.05	8.30	0.320	3.9	8	10	1.39		1.52	1.1	110-120
11	.56	10.40	0.370	3.6	10	13	1.45		1.61	1.1	1.1
12	. 05	13.00	0.600	4.6	13	15	1.51		1.63	1.1	120-130
	.56	13.30	0.620	4.7	13	16	1.58		1.67	f 1	1.1
	. 04	11.00	0.590	5.4	11	13	1.63		1.70	1.1	1.1
	.53	8.90	0.500	5.6	9	10	1.69		1.61	11	110-120
	. 04	10.00	0.460	4.6	10	11	1.75		1.52	11	1.1
	.54	8.80	0.430	4.9	9	10	1.81		1.58	11	11
	.10	9.40	0.390	4.1	9	11	1.87		1.41	11	11
	.51	8.60	0.330	3.8	9	10	1.92		1.53	! ! ! !	11
	.02 .54	9.40 10.70	0.380 0.380	4.0 3.6	9 7	10 8	1.98		1.40		11
	.05	11.00	0.300	2.7	7	8	2.04 2.10		1.61 1.66	Silty CLAY to CLAY	11
	.56	10.20	0.350	3.4	7	7	2.15		1.52	11	11
	.07	10.60	0.340	3.2	7	8	2.21		1.58	1.1	1.1
	.57	12.10	0.430	3.6	8	9	2.27		1.46	1.1	120-130
	.08	10.80	0.350	3.2	7	8	2.33		1.61	1.1	110-120
	.59	11.60	0.350	3.0	8	8	2.39		1.73	1.1	11
20	.01	11.60	0.350	3.0	8	8	2.44		1.73	11	1.1
20	.52	11.60	0.390	3.4	8	8	2.50		1.73	1.1	1.1
	.02	13.40	0.360	2.7	7	7	2.56		1.62	Clayey SILT to Silty CLAY	11
	.53	14.90	0.400	2.7	7	8	2.62		1.81	11	120-130
	.02	19.00	0.810	4.3	13	13	2.68		2.35	Silty CLAY to CLAY	11
	.56	127.90	1.110	0.9	26	26	2.75	39		SAND	11
	.03	187.00	1.060	0.6	37	37	2.80	42		11	110-120
	.53	111.10	1.510	1.4	28	28	2.87	39 77		SAND to Silty SAND	130-140
	.09	88.60	1.950	2.2	30	29	2.95	37 /2		Silty SAND to Sandy SILT	
	.51 .05	196.70 199.10	1.250 1.000	0.6 0.5	39 40	39 40	2.99 3.05	42 42		SAND	110-120 100-110
	.52	272.70	1.590	0.6	55	54	3.11	42 44		11	100-110 110-120
	.07	304.70	1.280	0.4	51	51	3.16	44		Gravelly SAND to SAND	100-120
	.52	257.70	1.330	0.5	52	51	3.22	43		SAND	110-110
	.07	179.50	0.970	0.5	36	36	3.28	41		I I	110-120
	.57	139.30	0.910	0.7	28	28	3.34	40		1.1	11
	.10	103.40	1.330	1.3	26	26	3.40	38		SAND to Silty SAND	120-130
	.51	86.00	1.780	2.1	29	28	3.46	37		Silty SAND to Sandy SILT	
	.10	75.80	2.330	3.1	30	30	3.54		9.87	Sandy SILT to Clayey SILT	
29	.56	77.60	1.940	2.5	31	31	3.60		10.11	11	1.1
30	.07	65.70	2.210	3.4	26	26	3.67		8.52	1.1	1.1
	.54	105.30	1.300	1.2	26	26	3.73	38		SAND to Silty SAND	120-130
	.04	86.10	2.810	3.3	34	34	3.80		11.23	Sandy SILT to Clayey SILT	
	.56	431.80	3.540	0.8	72	70	3.86	46		Gravelly SAND to SAND	120-130
	.03	599.30	2.760	0.5	100	97	3.91	>48		CAND to Coltan CAND	100-110
52	.53	226.30	4.470	2.0	57	54	3.98	42		SAND to Silty SAND	130-140

PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-25 Page 2 of 2 LOCATION: San Jose / Santa Clara CA DATE: 09-02-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 10.7 feet Terminated at 51.0 feet DEPTH Qc Fs Rf SPT SPT TotVtStr PHI SH SOIL BEHAVIOR DENSITY RANGE (deg.) (ksf) (feet) (tsf) (tsf) (%) (N) (N') (ksf) TYPE (pcf) 97.40 3.7 33.05 3.620 39 37 4.05 12.72 Sandy SILT to Clayey SILT 11 1.1 33.55 77.10 3.410 4.4 39 36 4.11 10.01 Clayey SILT to Silty CLAY 34.06 1.500 1.1 39.20 18 3.8 20 4.18 ----4.95 34.52 291.00 2,710 0.9 58 53 4.24 44 SAND 120-130 35.01 589.60 QR 89 ----2.620 0.4 4.29 48 Gravelly SAND to SAND 100-110 548.80 ----90-100 35.55 1.370 0.2 91 82 4.34 47 36.01 386.70 11 57 ----1.060 0.3 64 4.39 45 11 36.51 265,50 1.530 0.6 53 47 4.44 43 SAND 110-120 37.03 53 ----303.80 2.410 0.8 61 4.51 44 1.1 120-130 181.90 ----11 37.56 2.280 1.3 36 31 4.58 41 130-140 22.80 0.980 38.05 4.3 15 13 4.65 ----2.73 Silty CLAY to CLAY 11 28.90 ----Sandy SILT to Clayey SILT 38.51 0.560 1.9 12 10 4.70 3.54 120-130 39.04 12.90 0.030 ----0.2 5 4 4.75 1.40 80-85 39.54 14.60 0.070 0.5 6 4.79 1.63 11 85-90 1.1 40.05 13.80 0.040 5 ----0.3 6 4.84 1.52 11 ----1.1 : : 40.56 14.00 0.040 0.3 6 5 4.88 1.54 1.1 41.07 5 ----13.70 0.030 0.2 5 4.92 1.50 80-85 1 1 41.57 13.50 0.020 0.1 4.96 1.47 42.08 14.70 0.070 5 . . 0.5 6 5.01 ----1.63 85-90 11 42.56 15.50 0.060 0.4 6 5 5.05 1.73 43.06 14.90 0.060 0.4 6 5 5.10 ----1.65 . . 1.1 . . 1.1 43.57 14.40 0.050 0.3 5.14 1.58 6 0.030 11 44.08 13.10 0.2 5 5.18 ----1.40 80-85 44.58 14.60 0.060 0.4 6 5 5.23 ----1.60 1.1 85-90 11 45.09 7 5 ----16.40 0.100 0.6 5.27 1.84 90-100 18.90 ----1.1 45.53 0.110 0.6 6 5.32 2.17 1.1 1 1 46.02 17.40 0.130 0.7 7 ----6 5.36 1.96 23.70 8 28 . . 46.52 0.130 0.5 6 5.41 Silty SAND to Sandy SILT 47.03 14.10 0.040 5 ----1.52 85-90 0.3 6 5.45 Sandy SILT to Clayey SILT 15.90 0.100 ----47.53 0.6 5.50 1.75 90-100 1.1 48.04 15.10 0.120 0.8 5.55 ----1.64 11 1.1 11 48.52 16.60 0.120 0.7 5 5.60 1.84 11 49.05 ----18.00 0.190 1.1 6 5.65 2.02 100-110 49.55 18.50 0.180 1.0 5.70 2.09 . . 6 \_\_\_\_ 1 1 50.06 0.130 0.8 7 5 90-100 17.10 5.75 1.90 17.80 0.150 ----1.99 1.1 1.1 50.56 0.8 6 5.80 ----1.1 51.06 17.20 0.130 0.8 5.85 1.90 DEPTH = Sampling interval (2 inches) Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\* Fs = Sleeve friction resistance Phi = Soil friction angle\* Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) SPT = Equivalent Standard Penetration Test\* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) References: \* Robertson and Campanella, 1988 



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-26 Page 1 of 2 LOCATION: San Jose / Santa Clara CA DATE: 09-02-2005

PROJ. NO.: 6600.3.001.01(EGO-102)

Groundwater estimated at 10.0 feet

Terminated at 38.0 feet DEPTH Qc Fs Rf SPT SPT TotVtStr PHI SU SOIL BEHAVIOR DENSITY RANGE (feet) (tsf) (tsf) (%) (N) (N) (ksf) (deg.) (ksf) TYPF (pcf) 0.55 250.00 2.010 0.8 80 0.06 46 SAND 120-130 1.06 385.70 3.340 0.9 77 123 0.13 >48 ----11 1.1 1.1 1.54 216.10 2.740 1.3 43 69 0.19 45 130-140 37 2.04 92.30 0.840 0.9 23 0.26 40 SAND to Silty SAND 120-130 2.52 13.60 0.950 7.0 14 22 0.31 ----1.79 CLAY 3.04 1.1 12 ----12.40 0.700 5.6 20 0.38 1.63 11 1.1 3.57 15.30 0.790 5.2 15 24 0.45 2.01 1 1 13 ----1 1 4.03 13.20 0.680 5.2 21 0.50 1.73 1 1 4.57 17.50 0.870 5.0 18 28 0.57 2.30 1.1 5.03 18.00 0.960 29 ----1 1 5.3 18 0.63 2.36 130-140 1.1 5.53 17.80 0.920 5.2 18 28 0.70 2.33 120-130 0.900 11 6.08 19.30 4.7 19 31 0.77 ----2.52 130-140 ----6.51 24.60 0.860 3.5 12 19 0.83 3.22 Clayey SILT to Silty CLAY 0.850 ----1.1 7.01 23.70 18 0.90 3.6 12 3.10 7.55 21.90 0.770 3.5 11 16 0.96 ----2.86 11 120-130 36 52.10 13 18 8.01 0.320 0.6 1.01 ----SAND to Silty SAND 100-110 ----8.58 59.20 0.220 0.4 15 20 1.07 37 90-100 9.03 ----35.60 12 Silty SAND to Sandy SILT 0.550 1.5 16 1.12 34 120-130 10.90 7 9 ----9.58 0.300 2.8 1.19 1.72 Silty CLAY to CLAY 110-120 0.590 17 22 36 10.03 51.60 1.1 1.24 ----Silty SAND to Sandy SILT 120-130 ----10.57 62.80 0.460 0.7 16 20 1.30 37 SAND to Silty SAND 110-120 11.02 13.40 0.350 2.6 8 1.36 ----1.70 Clayey SILT to Silty CLAY 11 11.56 9.20 0.250 2.7 6 R 1.41 Silty CLAY to CLAY 100-110 1.42 ----12.04 8.40 0.310 3.7 8 10 1.47 1.53 CLAY 110-120 12.59 6.40 0.350 5.5 R 1.53 6 1.13 8.00 1.1 13.05 8 \_\_\_\_ 0.270 3.4 10 1.58 1.44 100-110 13.51 7.00 0.310 4.4 7 8 1.63 ----1.24 11 0 ----11 14.07 8.50 0.380 4.5 10 1.69 1.53 110-120 14.52 10.10 0.450 4.5 10 12 1.74 ----1.54 1.1 1.1 0.480 4.9 10 1.81 ----. . 11 15.07 9.70 11 1.47 15.58 9.50 0.470 4.9 10 11 1.86 ----1.43 11 11 16.04 8.90 0.410 4.6 9 10 1.92 \_\_\_\_ 1.59 1.1 11 1.1 16.51 11.00 0.500 4.5 11 12 1.98 1.67 120-130 11 17.06 11.70 0.770 6.6 12 13 2.05 ----1.78 11 9 1.1 17.52 9.30 0.480 5.2 10 2,10 1.38 110-120 18.07 8.20 0.400 4.9 8 Q 2.16 ----1.42 11 1.1 18.53 11.50 0.440 3.8 12 13 2.22 1.73 11 120-130 0.290 19.05 14.40 2.0 8 2.28 ----1.77 Clayey SILT to Silty CLAY 110-120 9 ----19.51 13.20 0.430 3.3 2.34 1.60 Silty CLAY to CLAY 120-130 20.05 12.70 0.320 2.5 6 2.40 ----1.53 Clayey SILT to Silty CLAY 110-120 ----20.51 13.00 0.250 1.9 7 2.45 1.57 1.1 11 13.00 2.7 ----21.07 0.350 2.52 1.57 9 9 1.1 21.52 8,80 0.410 4.7 2.57 1.50 CLAY 1.1 22.07 9.30 0.330 3.5 Q 10 2.63 ----1.33 23.05 19,10 0.480 2.5 10 10 2.75 2.36 Clayey SILT to Silty CLAY 120-130 0.500 ----23.50 15.10 3.3 10 10 2.81 1.83 Silty CLAY to CLAY 11 24.05 15.10 0.400 2.6 8 8 2.88 ----Clayey SILT to Silty CLAY 1.1 1.82 ----1.1 24.59 17.20 0.370 2.2 9 9 2.95 2.10 1.1 1.1 25.04 17.20 0.390 2.3 9 9 3.00 2.09 38 25.51 100.10 2.340 2.3 33 33 3.06 ----Silty SAND to Sandy SILT 130-140 2.390 26.05 120.20 40 40 39 ----2.0 3.14 ----11 11 26.52 95.90 1.560 1.6 32 32 3.20 38 27.07 3.65 1.1 29.00 1.070 15 3.28 ----Clayey SILT to Silty CLAY 3.7 14 27.58 11.30 0.410 3.6 8 8 3.33 ----1.61 Silty CLAY to CLAY 110-120 0.190 3.39 9.60 5 5 28.07 2.0 Clayey SILT to Silty CLAY 100-110 1.32 28.58 9.40 0.170 1.8 5 5 3.44 ----1.28 9 9 3.50 1.1 120-130 29 03 17.60 0 470 2.7 2.11 3.44 11 29.52 27.60 0.800 2.9 14 14 3.56 ----130-140 1.010 1 1 31.00 16 15 3.64 \_\_\_\_ 3.89 30.06 3.3 1.1 11 32.30 1.130 3.5 16 16 3.70 ----4.06 30.52 1.9 1.1 64.70 35 31.07 1.230 22 21 3.77 ----Silty SAND to Sandy SILT 21.40 0.630 2.9 11 11 3.83 ----2.60 Clayey SILT to Silty CLAY 120-130 31.52 3.90 1.95 16.60 0.420 8 ----8 32.06 2.5

9.60

13.80

32.50

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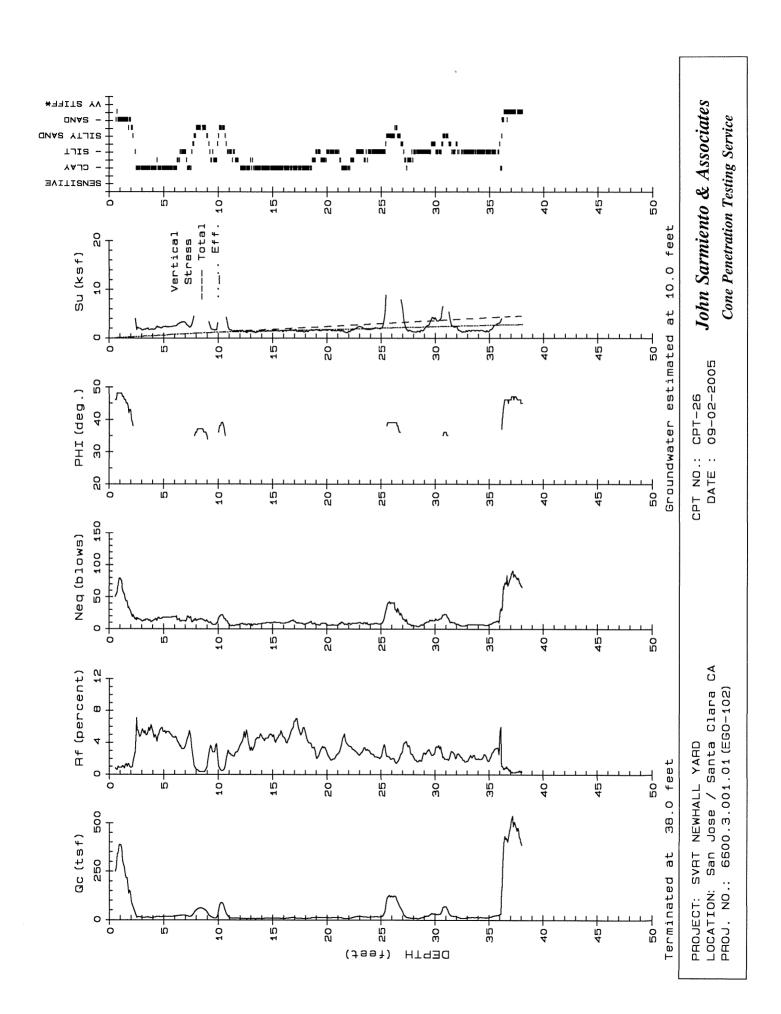
John Sarmiento & Associates
Cone Penetration Testing Service

100-110

110-120

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PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-26 Page 2 of 2 LOCATION: San Jose / Santa Clara CA DATE: 09-02-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater estimated at 10.0 feet Terminated at 38.0 feet DEPTH Qc Rf SPT SPT TotVtStr PHI SOIL BEHAVIOR DENSITY RANGE (feet) (tsf) (tsf) (%) (N) (N') (ksf) (deg.) (ksf) TYPE (pcf) 33.56 14.40 0.340 2.4 4.06 . . 1.65 34.01 13.20 0.260 2.0 4.12 ----1.49 . . 11 34.56 12.60 0.320 1.1 1.1 2.5 6 6 4.18 ----1.40 35.01 13.50 0.230 1.7 4.23 ----1.52 1.1 100-110 35.55 22.30 0.720 3.2 10 4.29 1.1 11 2.69 120-130 36.03 28.20 1.500 5.3 28 26 4.36 ----3.47 CLAY 130-140 36.54 418.70 3.580 0.9 70 64 4.42 46 ----Gravelly SAND to SAND 120-130 37.02 ----502.80 1.960 0.4 84 76 4.47 47 1 1 100-110 4.53 37.58 460.30 1.730 0.4 77 ----69 46 . . 11 38.03 388.80 1.740 0.4 58 4.58 45 ----DEPTH = Sampling interval (2 inches) Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\* Fs = Sleeve friction resistance Phi = Soil friction angle\* Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) SPT = Equivalent Standard Penetration Test\* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) References: \* Robertson and Campanella, 1988



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-28 Page 1 of 1

LOCATION: San Jose / Santa Clara CA DATE: 09-02-2005
PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater estimated at 10.0 feet

	10	-,		Terminated at 30.0 feet						
DEPTH	Qc	Fs	Rf	SPT		TotVtStr	PHI	SU		DENSITY RANGE
(feet)	(tsf)	(tsf)	(%)	(N)	(N:)	(ksf)	(deg.)	(ksf)	TYPE	(pcf)
0.54	230.90	3.240	1.4	46	74	0.06	46		SAND	130-140
1.02	255.00	1.270	0.5	51	82	0.11	46		11	100-110
1.57	157.10	0.680	0.4	31	50	0.17	43		1.1	11
2.00	98.60	0.340	0.3	20	32	0.21	41		i i	90-100
2.53	46.60	0.200	0.4	12	19	0.26	36		SAND to Silty SAND	11
3.09	31.90	0.520	1.6	13	20	0.33		4.23	Sandy SILT to Clayey SILT	
3.55	84.50	1.470	1.7	28	45	0.39	40		Silty SAND to Sandy SILT	130-140
4.04	13.20	0.750	5.7	13	21	0.46		1.73	CLAY	120-130
4.52	41.50	1.840	4.4	28	44	0.52		5.50	Silty CLAY to CLAY	130-140
5.05	37.50	1.350	3.6	19	30	0.59		4.96	Clayey SILT to Silty CLAY	
5.54	35.70	1.090	3.1	18	29	0.66		4.72	11	1.1
6.02	23.20	0.830	3.6	12	19	0.72		3.05	11	11
6.51	21.40	0.900	4.2	14	23	0.79		2.80	Silty CLAY to CLAY	11
7.09 7.58	16.60	0.800	4.8	17 15	26 22	0.86 0.92		2.16	CLAY	120-130
8.07	15.20 16.50	0.860 0.730	5.7 4.4	17	23	0.92		1.97 2.13	11	11
8.52	13.80	0.730	3.9	14	19	1.04		1.77	11	11
9.02	7.30	0.330	4.5	7	10	1.10		1.35	11	110-120
9.52	9.20	0.300	3.3	6	8	1.16		1.44	Silty CLAY to CLAY	110-120
10.02	6.00	0.210	3.5	6	8	1.21		1.08	CLAY	100-110
10.53	5.50	0.260	4.7	6	7	1.26		0.97	11	110
11.03	5.70	0.320	5.6	6	7	1.31		1.01	11	11
11.52	8.20	0.430	5.2	8	10	1.37		1.50	t t	110-120
12.06	10.90	0.440	4.0	11	14	1.43		1.70	11	11
12.56	12.40	0.580	4.7	12	15	1.49		1.55	1.1	120-130
13.06	13.10	0.580	4.4	13	16	1.56		1.64	1.1	1.1
13.56	15.30	0.710	4.6	15	19	1.62		1.93	1.1	11
14.06	16.50	0.800	4.8	17	20	1.68		2.09	11	11
14.55	14.90	0.740	5.0	15	18	1.74		1.87	11	t 1
15.04	12.20	0.660	5.4	12	14	1.81		1.51	1.1	1.1
15.54	11.30	0.500	4.4	11	13	1.87		1.73	11	11
16.04	11.60	0.460	4.0	12	13	1.93		1.77	11	11
16.54 17.03	11.50	0.500	4.3	12	13 8	1.99		1.75		
17.03	10.60 10.20	0.320 0.270	3.0 2.6	7 7	8	2.05 2.11		1.60 1.52	Silty CLAY to CLAY	110-120
18.02	10.20	0.360	3.3	7	8	2.16		1.64	11	11
18.51	13.10	0.480	3.7	ģ	10	2.22		1.60	11	120-130
19.06	13.30	0.560	4.2	13	14	2.29		1.62	CLAY	11
19.55	10.30	0.530	5.1	10	11	2.35		1.52	11	11
20.04	10.50	0.520	5.0	11	11	2.42		1.55	1.1	11
20.54	8.90	0.450	5.1	9	9	2.47		1.53	11	110-120
21.03	11.60	0.420	3.6	8	8	2.53		1.72	Silty CLAY to CLAY	11
21.51	13.60	0.370	2.7	7	7	2.58		1.64	Clayey SILT to Silty CLAY	11
22.04	17.10	0.420	2.5	9	9	2.65		2.10	11	120-130
22.54	12.60	0.510	4.0	13	13	2.71		1.50	CLAY	11
23.03	10.60	0.330	3.1	7	7	2.77		1.54	Silty CLAY to CLAY	110-120
23.53	11.30	0.340	3.0	8	8	2.83		1.65	11	1.1
24.02	9.90	0.280	2.8	7	7	2.88		1.41	11	11
24.51	9.80	0.180	1.8	5	5	2.93		1.39	Clayey SILT to Silty CLAY	
25.09	19.90	0.450	2.3	10	10	3.01		2.45	11	120-130
25.57	17.80	0.410	2.3	9	9	3.07		2.17	11	11
26.07	8.30	0.240	2.9	6	6	3.12		1.35	Silty CLAY to CLAY	100-110
26.56	10.00	0.180	1.8	5	5	3.17		1.40	Clayey SILT to Silty CLAY	
27.05	11.40	0.220	1.9	6	6	3.22		1.63	11	170.440
27.54	27.00	0.910	3.4	14	13	3.29		3.38	0.000	130-140
28.01	70.60	1.840	2.6	28	28	3.35		9.19	Sandy SILT to Clayey SILT	
28.52	45.60	1.810	4.0	23	23	3.42		5.85 4.11	Clayey SILT to Silty CLAY	11
29.09 29.55	32.60 135.20	1.270 1.340	3.9 1.0	16 27	16 27	3.50 3.55	40	4.11	SAND	120-130
30.09	161.10	1.230	0.8	32	32	3.62	40 41		SAND	110-120
30.07	101110	1.230	0.0	JL	JL	3.02	71			110 120
DEPTH = S	Sampling	interval	(2 in	ches	)					

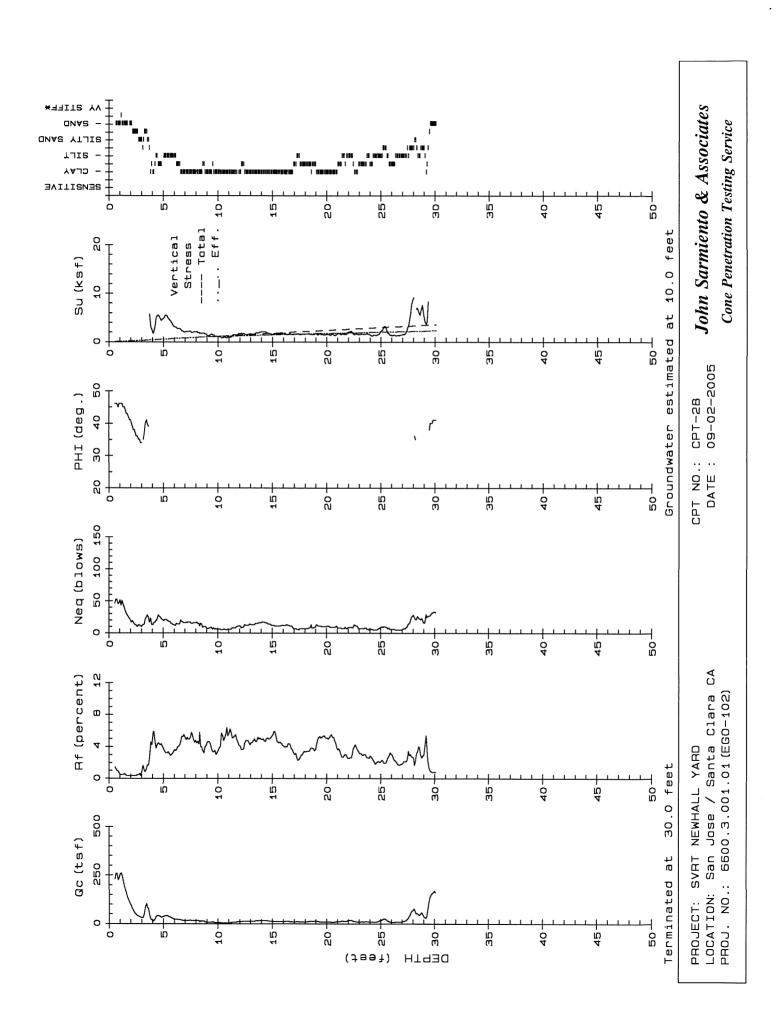
Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\*

Fs = Sleeve friction resistance Phi = Soil friction angle\*

Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf)

SPT = Equivalent Standard Penetration Test\* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf)

References: \* Robertson and Campanella, 1988



PROJECT: SVRT NEWHALL YARD

PROJ. NO.: 6600.3.001.01(EGO-102)

LOCATION: San Jose / Santa Clara CA

CPT NO.: CPT-27

DATE : 09-06-2005

Groundwater measured at 12.5 feet Terminated at 56.5 feet

Page 1 of 2

DEPTH (feet)	Qc (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0.56	363.80	0.920	0.3	61	97	0.06	>48		Gravelly SAND to SAND	90-100
1.08	175.10	0.730	0.4	35	56	0.12	44		SAND	100-110
1.51	39.00	1.030	2.6	16	25	0.18		5.19	Sandy SILT to Clayey SILT	
2.02	29.60	1.310	4.4	20	32	0.25		3.93	Silty CLAY to CLAY	11
2.53	28.90	0.870	3.0	14	23	0.31		3.83	Clayey SILT to Silty CLA	
3.04	14.00	0.690	4.9	14	22	0.38		1.84	CLAY	120-130
3.57 4.01	11.20 15.70	0.730 0.680	6.5 4.3	11 16	18 25	0.44 0.50		1.83 2.06	11	11
4.54	14.60	0.710	4.9	15	23	0.57		1.91	11	11
5.07	8.70	0.690	7.9	9	14	0.63		1.68	1.1	11
5.51	20.80	0.680	3.3	10	17	0.69		2.73	Clayey SILT to Silty CLAY	, 11
6.05	20.70	0.740	3.6	14	22	0.75		2.71	Silty CLAY to CLAY	1.0
6.59	26.30	1.080	4.1	18	28	0.83		3.45	1.1	130-140
7.04	33.50	1.310	3.9	17	25	0.89		4.41	Clayey SILT to Silty CLAY	, II
7.57	37.50	1.460	3.9	19	27	0.96		4.94	1.1	1 1
8.08	40.70	1.350	3.3	20	28	1.03		5.36	11	11
8.52	26.90	1.260	4.7	27	36	1.09		3.51	CLAY	, , ,
9.04	28.90	1.000	3.5	14	19	1.16		3.78	Clayey SILT to Silty CLAY	/ !! !!
9.56 10.00	25.40 41.80	1.610 0.770	6.3 1.8	25 17	33 21	1.23 1.29		3.30 5.49	CLAY Sandy SILT to Clayey SILT	
10.53	12.70	0.470	3.7	8	10	1.35		1.60	Silty CLAY to CLAY	120-130
11.06	6.40	0.410	6.4	6	8	1.41		1.14	CLAY	110-120
11.59	5.50	0.480	8.7	6	6	1.47		0.95	Organic Material	11
12.04	3.70	0.470	12.0	4	4	1.52		0.59	11	100-110
12.58	7.00	0.550	7.9	7	8	1.58		1.24	CLAY	110-120
13.03	7.10	0.470	6.6	7	8	1.64		1.26	1.1	11
13.58	9.00	0.790	8.8	9	10	1.70		1.36	1.1	120-130
14.03	8.80	0.720	8.2	9	10	1.76		1.58	11	11
14.56	7.90	0.660	8.4	8	9	1.83		1.40	! ! ! !	1 1 1 1
15.00	8.70	0.600	6.9 9.9	9 8	9 9	1.88		1.55		11
15.56 16.00	8.00 11.30	0.790 0.620	5.5	11	12	1.95 2.01		1.40 1.72	Organic Material CLAY	11
16.54	10.70	0.500	4.7	11	11	2.08		1.61	II	11
17.08	6.50	0.540	8.3	7	7	2.14		1.09	1.1	110-120
17.53	9.60	0.490	5.1	10	10	2.19		1.42	11	11
18.06	10.40	0.330	3.2	7	7	2.25		1.55	Silty CLAY to CLAY	11
18.50	12.30	0.380	3.1	8	8	2.30		1.49	E 1	11
19.03	13.90	0.560	4.0	14	14	2.37		1.70	CLAY	120-130
19.57	12.90	0.310	2.4	6	7	2.43		1.56	Clayey SILT to Silty CLAY	
20.02	13.40	0.460	3.4	9	9	2.48		1.62	Silty CLAY to CLAY	120-130
20.56	10.10	0.520	5.1	10	10	2.55		1.47	CLAY	
21.00 21.53	10.20 8.70	0.450 0.410	4.4 4.7	10 9	10 9	2.60 2.66		1.48 1.47	11	110-120
22.05	12.50	0.400	3.2	8	8	2.72		1.49	Silty CLAY to CLAY	11
22.50	8.70	0.370	4.3	9	9	2.78		1.46	CLAY	1.1
23.04	10.10	0.500	5.0	10	10	2.84		1.45	11	120-130
23.56	22.60	0.490	2.2	9	9	2.91		2.82	Sandy SILT to Clayey SILT	
24.00	14.30	0.420	2.9	7	7	2.96		1.71	Clayey SILT to Silty CLAY	
24.53	8.80	0.140	1.6	4	4	3.01		1.46	1.1	90-100
25.54	22.60	0.320	1.4	9	9	3.13		2.80	Sandy SILT to Clayey SILT	
26.08	13.60	0.320	2.4	7	7	3.19		1.60	Clayey SILT to Silty CLA	11
26.52	15.80	0.350	2.2	8	8 7	3.24		1.89	11	11
27.06	14.50	0.330	2.3 2.5	7 7	7	3.30 3.36		1.71 1.70	11	11
27.58 28.03	14.40 14.70	0.360 0.420	2.9	7	7	3.42		1.73	11	120-130
28.57	12.50	0.420	3.0	8	8	3.48		1.43	Silty CLAY to CLAY	110-120
29.02	13.60	0.340	2.5	7	7	3.53		1.58	Clayey SILT to Silty CLA	
29.51	103.60	2.420	2.3	35	34	3.60	38		Silty SAND to Sandy SILT	
30.03	92.20	1.410	1.5	31	30	3.67	37		11	1.1
30.55	45.40	1.420	3.1	18	17	3.74		5.80	Sandy SILT to Clayey SILT	
31.06	60.40	1.140	1.9	20	19	3.81	35		Silty SAND to Sandy SIL	
31.57	30.40	0.620	2.0	12	11	3.87		3.80	Sandy SILT to Clayey SILT	and the second s
32.00	14.40	0.320	2.2	7	7	3.92		1.66	Clayey SILT to Silty CLA	/ 110-120
32.52	15.20	0.350	2.3	8 14	7 13	3.98 4.05		1.76 3.44	11	130-140
33.04	27.80	0.950	3.4	14	13	4.03		J.44	, .	150 140

PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-27 Page 2 of 2 LOCATION: San Jose / Santa Clara CA DATE: 09-06-2005

zeen tent tent teet / builtu tentu ti	DAIL : 07 00 2005
PROJ. NO.: 6600.3.001.01(EGO-102)	Groundwater measured at 12.5 feet
	Terminated at 56.5 feet

DEPTH	Qc	Fs	Rf	SPT	SPT	TotVtStr	PHI	SU	SOIL BEHAVIOR	DENSITY RANGE
(feet)	(tsf)	(tsf)	(%)	(N)	(N:)	(ksf)	(deg.)	(ksf)	TYPE	(pcf)
33.54	23.60	0.690	2.9	12	11	4.12		2.87	11	120-130
34.07	16.50	0.330	2.0	8	7	4.18		1.92	1.1	110-120
34.51	19.00	0.450	2.4	10	8	4.23		2.25	1.1	120-130
35.03	43.40	1.570	3.6	22	19	4.30		5.50	1.1	130-140
35.57	488.70	2.550	0.5	81	70	4.36	46		Gravelly SAND to SAND	110-120
36.05	396.30	1.640	0.4	66	56	4.41	45		11	100-110
36.57	474.30	2.200	0.5	79	67	4.47	46		11	11
37.00	477.80	2.180	0.5	80	67	4.51	46		1.1	11
37.54	312.90	2.430	0.8	63	52	4.58	43		SAND	120-130
38.06	345.70	3.200	0.9	69	57	4.65	44		11	11
38.57	302.00	1.780	0.6	50	41	4.70	43		Gravelly SAND to SAND	110-120
39.06	468.20	2.190	0.5	78	64	4.76	46		11	100-110
39.52	510.00	2.250	0.4	85	69	4.80	46		1.1	11
40.01	400.40	2.250	0.6	67	54	4.86	45		1.1	110-120
40.51	296.30	1,660	0.6	49	40	4.92	43		1.1	110 120
41.03	408.60	2.030	0.5	68	55	4.97	45		11	100-110
41.50	422.70	1.740	0.4	70	57	5.02	45		f 1	110
41.57	421.50	1.950	0.5	70	56	5.03	45		11	ET
42.07	428.70	2.290	0.5	71	57	5.09	45		1.1	110-120
42.53	382.20	1.450	0.4	64	51	5.14	44		11	100-110
43.04	383.20	2.660	0.7	64	51	5.19	44		11	110-120
43.52	420.00	2.090	0.5	70	55	5.24	45		11	100-110
44.05	406.70	1.950	0.5	68	54	5.30	45		11	100 110
44.50	519.80	2.580	0.5	87	68	5.35	46		11	11
44.60	527.50	3.310	0.6	88	69	5.36	46		11	110-120
45.01	436.70	2.310	0.5	73	57	5.41	45		1.1	110 120
45.09	430.30	2.150	0.5	72	56	5.41	45		11	100-110
45.55	456.30	2.720	0.6	76	59	5.47	45		11	110-120
46.00	366.90	1.660	0.5	61	48	5.52	44		11	100-110
46.52	340.60	1.240	0.4	57	44	5.57	44		11	100 110
47.05	431.50	3.020	0.7	72	56	5.63	45		1.1	110-120
47.56	311.30	1.720	0.6	52	40	5.69	43		11	110 120
48.02	448.70	3.550	0.8	75	57	5.75	45		11	120-130
48.53	390.70	1.810	0.5	65	50	5.80	44		11	100-110
49.02	411.00	1.740	0.4	69	52	5.85	45		11	110
49.56	472.40	1.550	0.3	79	60	5.90	45		11	90-100
50.05	367.70	3.170	0.9	74	56	5.96	44		SAND	120-130
50.51	301.30	1.580	0.5	50	38	6.02	43		Gravelly SAND to SAND	110-120
51.03	327.50	1.560	0.5	55	41	6.07	43		11	100-110
51.56	70.00	1.530	2.2	23	17	6.14	34		Silty SAND to Sandy SILT	
52.06	23.60	0.570	2.4	12	9	6.21		2.73	Clayey SILT to Silty CLAY	
52.53	25.20	0.620	2.5	10	7	6.26		2.94	Sandy SILT to Clayey SILT	
53.02	26.80	0.480	1.8	11	8	6.33		3.15	II	11
53.51	35.30	0.720	2.0	14	10	6.39		4.28	11	11
54.03	43.90	1.800	4.1	22	16	6.46		5.42		
54.55	218.60	4.460	2.0	55	40	6.53	41	3.42	Clayey SILT to Silty CLAY	1 130-140
55.02	486.10	3.550	0.7	81	58	6.58	41 45		SAND to Silty SAND	110-120
55.56	521.90	2.770	0.7	87	62	6.64	46		Gravelly SAND to SAND	110-120
56.01	520.60	2.770	0.6	87	62	6.70	46			11
56.55	419.20	1.360	0.3	70	50	6.75	44		11	90-100
20.22	417.20	1.300	0.3	70	00	0.75	44		• •	70-100

DEPTH = Sampling interval (2 inches)

Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\*

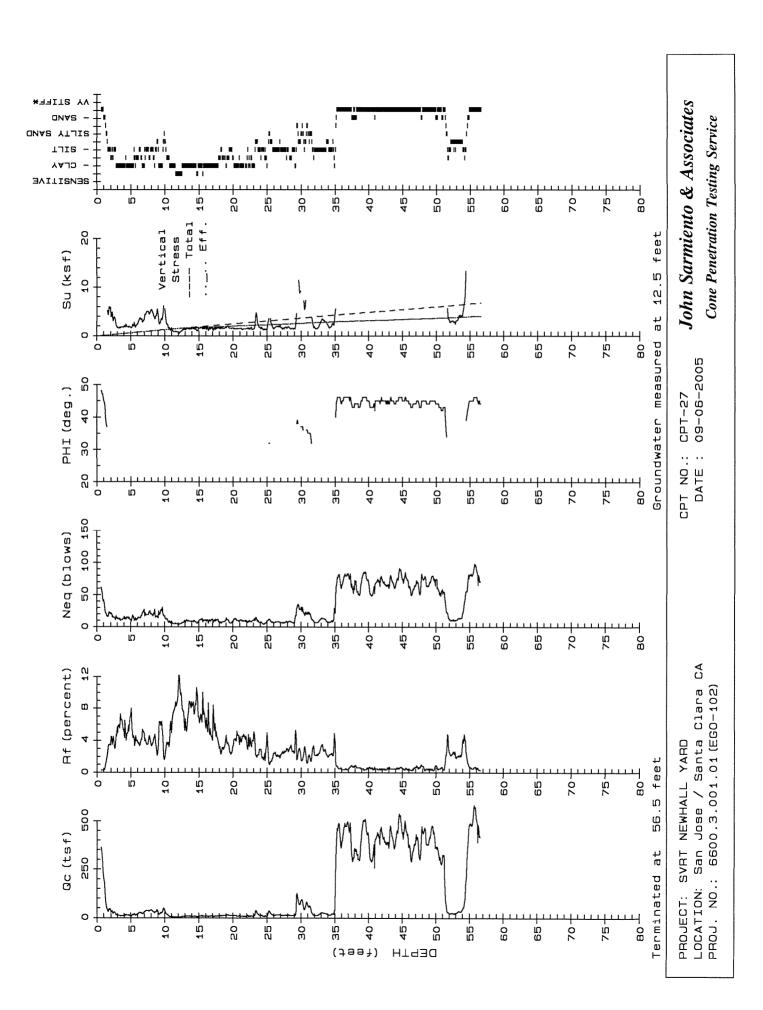
Fs = Sleeve friction resistance Phi = Soil friction angle\*

Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) Rf = Tip/Sleeve ratio

<sup>(</sup>Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf)

SPT = Equivalent Standard Penetration Test\* References: \* Robertson and Campanella, 1988

<sup>\*\*</sup> Olsen, 1989 \*\*\* Durgunoglu & Mitchell, 1975



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-29 Page 1 of 2

LOCATION: San Jose / Santa Clara CA

PROJ. NO.: 6600.3.001.01(EGO-102)

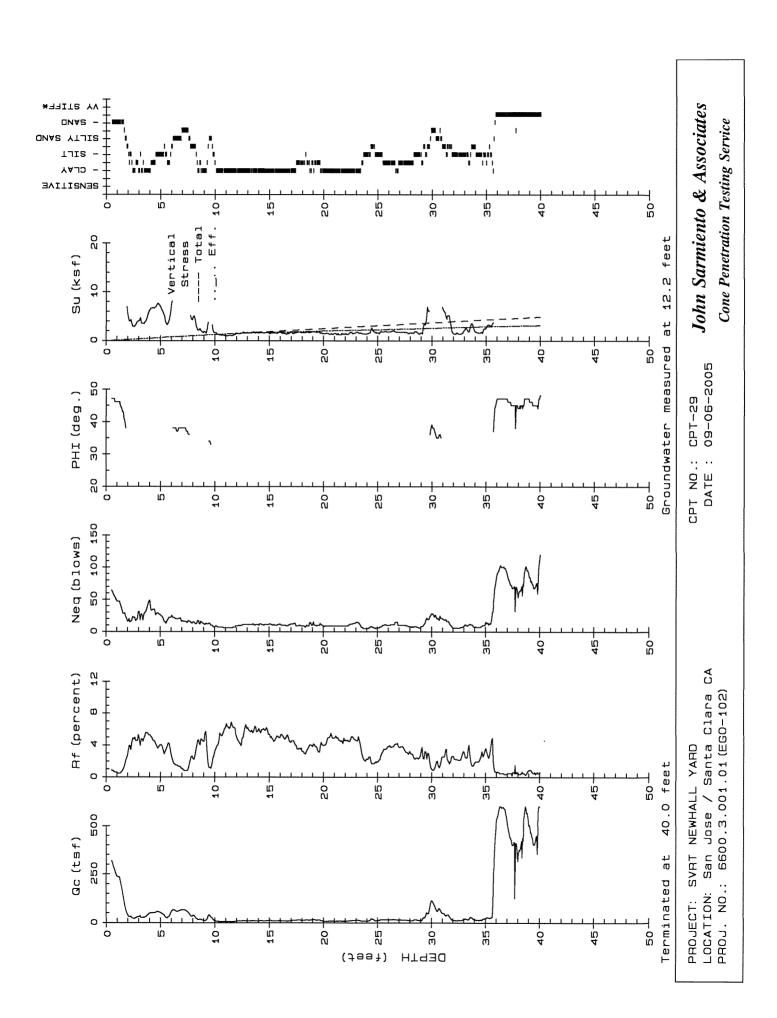
DATE: 09-06-2005

Groundwater measured at 12.2 feet
Terminated at 40.0 feet

							Termir	nated at	40.0 feet	
DEPTH (feet)	Qc (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT (N')	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0.51	319.10	2.720	0.9	64	102	0.06	47		CAND	120 170
1.04	237.40	1.260	0.5	47	76	0.08	46		SAND	120-130
1.56	138.80	1.380	1.0	28	44	0.12	48 43		11	110-120 130-130
2.07	33.40	1.180	3.5	17	27	0.19		4.44	Clayey SILT to Silty CLAY	120-130 130-140
2.55	21.70	1.030	4.7	22	35	0.23		2.87	CLAY	130-140
3.05	31.20	1.480	4.7	31	50	0.32		4.13	II	11
3.58	29.10	1.470	5.1	29	47	0.46		3.85	1.1	1.1
4.03	48.10	2.480	5.2	48	77	0.52		6.38	1.1	11
4.56	52.80	2.180	4.1	26	42	0.59		7.00	Clayey SILT to Silty CLAY	11
5.00	52.60	2.120	4.0	26	42	0.65		6.97	11	1.1
5.54	26.20	0.920	3.5	13	21	0.72		3.45	1.1	1.1
6.07	61.50	1.500	2.4	25	39	0.79		8.15	Sandy SILT to Clayey SILT	11
6.51	58.50	0.850	1.5	20	30	0.85	37		Silty SAND to Sandy SILT	
7.04	66.00	0.640	1.0	17	24	0.92	38		SAND to Silty SAND	1.1
7.57	52.30	0.600	1.1	17	25	0.98	36		Silty SAND to Sandy SILT	
8.01	37.40	0.860	2.3	15	21	1.04		4.92	Sandy SILT to Clayey SILT	130-140
8.53	16.80	0.780	4.6	17	23	1.11		2.17	CLAY	120-130
9.02	11.90	0.520	4.4	12	16	1.17		1.89	1.1	1.1
9.56	38.50	0.450	1.2	13	16	1.23	34		Silty SAND to Sandy SILT	11
10.01	10.40	0.330	3.2	7	9	1.29		1.63	Silty CLAY to CLAY	110-120
10.55	6.50	0.340	5.2	7	8	1.34		1.17	CLAY	100-110
11.08	5.60	0.370	6.6	6	7	1.40		0.98	1.1	1.1
11.53	5.70	0.390	6.8	6	7	1.45		1.00	1.1	11
12.05	9.20	0.430	4.7	9	11	1.51		1.41	11	110-120
12.51	10.30	0.490	4.8	10	12	1.56		1.59	£ 1	120-130
13.05	10.70	0.650	6.1	11	12	1.63		1.65	11	11
13.51	11.70	0.640	5.5	12	13	1.69		1.81	11	11
14.04	10.40	0.620	6.0	10	11	1.75		1.59	11	1 I
14.58	10.60	0.610	5.8	11	12	1.82		1.61	11	11
15.02 15.51	12.00	0.640	5.3	12	13 11	1.88		1.47 1.57	11	11
16.05	10.40	0.480 0.580	4.6 5.2	10 11		1.94			11	11
16.50	11.20 9.70	0.470	4.8	10	12 10	2.00 2.06		1.70 1.45	11	
17.04	11.90	0.530	4.5	12	12	2.12		1.81	11	110-120 120-130
17.57	14.20	0.500	3.5	9	10	2.19		1.75	Silty CLAY to CLAY	120-130
18.02	13.60	0.440	3.2	ģ	9	2.25		1.66	II	1 1
18.55	14.10	0.490	3.5	ģ	10	2.31		1.73	1.1	1.1
19.08	15.00	0.610	4.1	15	15	2.38		1.84	CLAY	1.1
19.53	14.80	0.460	3.1	10	10	2.44		1.81	Silty CLAY to CLAY	1.1
20.07	8.40	0.340	4.0	8	8	2.50		1.43	CLAY	110-120
20.52	9.20	0.450	4.9	9	9	2.55		1.32	11	11
21.05	8.70	0.430	4.9	9	9	2.61		1.48	11	1.1
22.05	8.90	0.410	4.6	9	9	2.73		1.51	11	1.1
22.50	11.60	0.540	4.7	12	12	2.78		1.70	1.1	120-130
23.04	14.60	0.650	4.5	15	15	2.85		1.76	f 1	1.1
23.58	10.00	0.260	2.6	7	7	2.91		1.42	Silty CLAY to CLAY	110-120
24.02	10.10	0.230	2.3	5	5	2.96		1.44	Clayey SILT to Silty CLAY	100-110
24.55	17.30	0.300	1.7	7	7	3.02		2.11	Sandy SILT to Clayey SILT	110-120
25.04	11.50	0.220	1.9	6	6	3.07		1.66	Clayey SILT to Silty CLAY	
25.58	15.40	0.540	3.5	10	10	3.14		1.84	Silty CLAY to CLAY	120 <b>-13</b> 0
26.02	15.60	0.590	3.8	10	10	3.19		1.87	11	11
26.56	16.00	0.640	4.0	11	11	3.26		1.92	1.1	1.1
27.00	14.70	0.550	3.7	10	10	3.32		1.74	1.1	1.1
27.53	14.70	0.480	3.3	10	10	3.38		1.73	11	11
28.06	11.30	0.340	3.0	8	7	3.44		1.60	11	110-120
28.50	16.40	0.370	2.3	8	8	3.50		1.95	Clayey SILT to Silty CLAY	
29.03	11.40	0.370	3.2	8	8	3.56		1.60	Silty CLAY to CLAY	110-120
29.57	53.50	1.230	2.3	21	21	3.63	70	6.89	Sandy SILT to Clayey SILT	
30.00	113.40	1.100	1.0	28	27	3.69	<b>39</b>		SAND to Silty SAND	120-130
30.52	59.20	1.190	2.0	20	19	3.76	<b>3</b> 5	4 30	Silty SAND to Sandy SILT	
31.04	49.10	1.210	2.5	20	19	3.82		6.29	Sandy SILT to Clayey SILT	
31.50	41.10	0.860	2.1	16	15	3.89		5.22	Clavery CILT to College CLAY	110 120
32.01	12.90	0.330	2.6	6	6	3.95		1.46	Clayey SILT to Silty CLAY	110-120
32.53	12.20	0.260	2.1	6 9	6 9	4.01		1.36	11	120-130
33.03	18.90	0.580	3.1	y	y	4.07		2.25	• •	120-130

John Sarmiento & Associates Cone Penetration Testing Service PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-29 Page 2 of 2 LOCATION: San Jose / Santa Clara CA DATE: 09-06-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 12.2 feet Terminated at 40.0 feet DEPTH Rf SPT SPT TotVtStr PHI SOIL BEHAVIOR DENSITY RANGE (feet) (tsf) (%) (N) (N') (tsf) (ksf) (deg.) (ksf) TYPE (pcf) 0.700 11 33.55 24.40 2.9 2.98 1.1 12 11 4.13 34.07 15.40 0.300 1.9 4.19 ----1.77 11 110-120 34.51 1.1 14.50 0.330 7 \_\_\_\_ 1.65 2.3 6 4.24 11 35.02 22.30 0.810 3.6 15 13 4.31 ----2.69 Silty CLAY to CLAY 130-140 27.20 4.6 35.55 1.250 18 15 4.38 3.33 1.1 36.02 529.40 3.270 0.6 4.44 47 ----Gravelly SAND to SAND 110-120 36.52 594.70 3.060 99 83 4.50 47 ----1.1 0.5 37.04 516.20 2.420 0.5 86 4.55 ----1.1 100-110 46 37.52 55 67 ----1.1 400.20 2,420 0.6 4.61 45 110-120 38.05 361.30 1.570 0.4 4.66 ----1.1 100-110 44 89 73 1 1 38.55 534.80 2.790 4.72 47 ----0.5 110-120 39.01 501.70 4.340 0.9 84 4.78 46 ----11 120-130 67 \_\_\_\_ 39.52 403.80 2.310 55 4.83 45 110-120 0.6 . . 40.03 715.10 4.560 0.6 119 4.89 ----DEPTH = Sampling interval (2 inches) Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\* Fs = Sleeve friction resistance Phi = Soil friction angle\* Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) SPT = Equivalent Standard Penetration Test\* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) References: \* Robertson and Campanella, 1988

\*\* Olsen, 1989 \*\*\* Durgunoglu & Mitchell, 1975

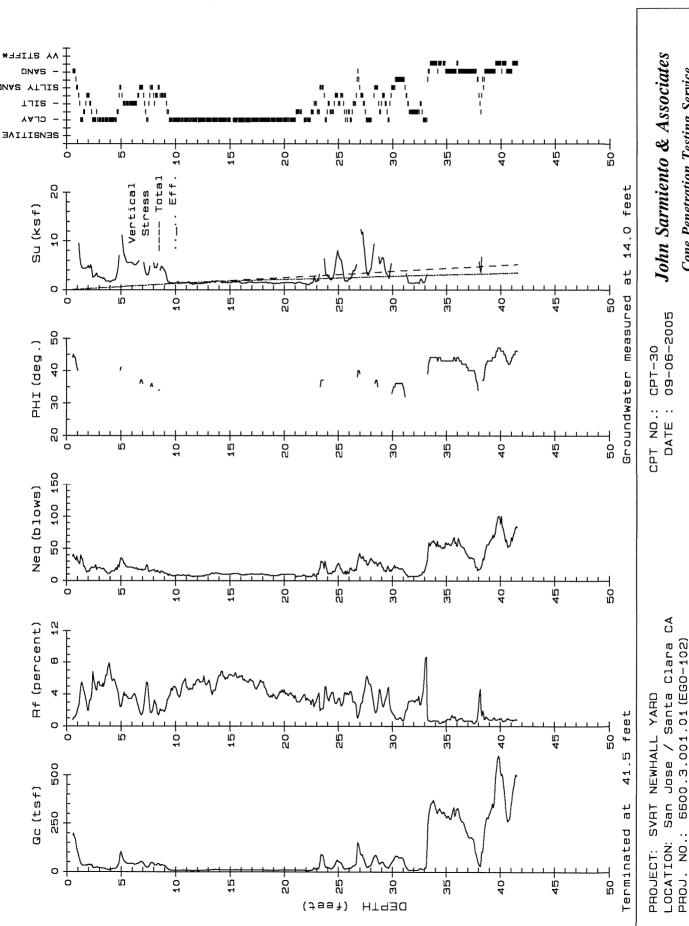


PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-30 Page 1 of 2

LOCATION: San Jose / Santa Clara CA DATE : 09-06-2005 Groundwater measured at 14.0 feet Terminated at 41.5 feet PROJ. NO.: 6600.3.001.01(EGO-102)

							1611111	iateu at	41.5 Teet	
DEPTH (feet)	Qc (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT (N')	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0.53	189.80	1.550	0.8	38	61	0.06	44		SAND	120-130
1.01	91.00	2.090	2.3	30	49	0.13	40		Silty SAND to Sandy SIL1	
1.56	<b>32.7</b> 0	1.430	4.4	22	<b>3</b> 5	0.20		4.35	Silty CLAY to CLAY	11
2.01	<b>37.</b> 20	0.690	1.9	15	24	0.26		4.94	Sandy SILT to Clayey SIL1	r 120-1 <b>3</b> 0
2.50	20.00	1.130	5.7	20	32	0.32		2.65	CLAY	130-140
3.05	19.50	0.980	5.0	20	31	0.40		2.57	11	11
3.52	15.80 13.70	0.890	5.6	16	25	0.46		2.08	11	120-130
4.08 4.55	20.10	0.850 1.000	6.2 5.0	14 20	22 <b>3</b> 2	0.53 0.59		1.79 2.64	11	130-140
5.01	103.80	2.480	2.4	35	55	0.65	41	2.04	Silty SAND to Sandy SIL1	
5.52	43.40	1.590	3.7	22	35	0.72		5.74	Clayey SILT to Silty CLAN	
6.07	40.80	1.520	3.7	20	33	0.79		5.39	11	11
6.53	42.50	1.160	2.7	17	26	0.86		5.61	Sandy SILT to Clayey SILT	ן יי
7.07	41.70	0.900	2.2	17	25	0.93		5.50	11	1.1
7.53	27.50	1.050	3.8	14	19	0.99		3.60	Clayey SILT to Silty CLA	
8.07	34.00	1.090	3.2	17	23	1.06	7,	4.46	11	11
8.52 9.07	39.30 27.30	0.610 0.580	1.6 2.1	13 11	18 14	1.12 1.19	34	3.56	Silty SAND to Sandy SILT	
9.52	9.10	0.360	4.0	9	12	1.19		1.41	Sandy SILT to Clayey SILT CLAY	110-120
10.08	7.80	0.360	4.6	8	10	1.31		1.43	I I	110-120
10.54	7.60	0.360	4.7	8	9	1.36		1.38	1.1	11
11.09	7.90	0.380	4.8	8	9	1.42		1.44	1 1	1.1
11.56	6.70	0.310	4.6	7	8	1.47		1.19	1.1	100-110
12.05	6.90	0.400	5.8	7	8	1.53		1.23	11	110-120
12.51	7.60	0.420	5.5	8	9	1.58		1.36	11	11
13.08	8.70	0.500	5.7	9	10	1.65		1.58	11	11
13.54	11.30	0.500	4.4	11	12	1.70		1.74	11	120-130
14.01 14.56	11.30 10.20	0.710 0.590	6.3 5.8	11 10	12 11	1.76 1.83		1.74 1.55	11	11
15.03	9.70	0.620	6.4	10	10	1.89		1.46	11.	11
15.56	10.50	0.680	6.5	11	11	1.96		1.59	1.1	11
16.02	9.30	0.580	6.2	9	10	2.01		1.38	11	1.1
16.58	9.90	0.540	5.5	10	10	2.08		1.48	1.1	1.1
17.05	10.00	0.560	5.6	10	10	2.14		1.49	11	11
17.51	9.80	0.470	4.8	10	10	2.19		1.45	11	110-120
18.06	9.60	0.530	5.5	10	10	2.26		1.41	11	120-130
18.57 19.04	8.60 7.90	0.320 0.300	3.7 3.8	9 8	9 8	2.32 2.38		1.49 1.34	11	110-120
19.04	9.00	0.360	4.0	9	9	2.33		1.30	11	11
20.07	10.30	0.410	4.0	10	10	2.49		1.51	1.1	11
20.54	10.10	0.410	4.1	10	10	2.55		1.47	1.1	11
21.09	9.50	0.310	3.3	6	6	2.61		1.37	Silty CLAY to CLAY	11
21.55	10.10	0.330	3.3	7	7	2.67		1.46	11	11
22.01	7.40	0.240	3.2	7	7	2.71		1.21	CLAY	100-110
22.56	9.80	0.300	3.1	7	7	2.78		1.40	Silty CLAY to CLAY	110-120
23.03	16.20 82.70	0.560 1.850	3.5 2.2	11 28	11 27	2.84 2.91	37	1.97	Silty SAND to Sandy SILT	120-130 г 130-140
23.58 24.04	21.40	0.730	3.4	28 11	11	2.97		2.66	Clayey SILT to Silty CLA	
24.59	28.20	0.990	3.5	14	14	3.04		3.56	II	130-140
25.09	49.00	1.720	3.5	25	24	3.11		6.33	11	11
25.54	16.30	0.660	4.0	11	11	3.16		1.96	Silty CLAY to CLAY	120-130
26.08	18.60	0.800	4.3	19	18	3.23		2.26	CLAY	11
26.53	35.20	1.020	2.9	18	17	3.29		4.47	Clayey SILT to Silty CLAY	
27.05	94.40	2.520	2.7	38	37	3.36		12.36	Sandy SILT to Clayey SILT	[ ;;
27.56	32.20	1.890	5.9	32 35	31	3.43		4.06	CLAY	11
28.00 28.52	34.80 83.40	1.790 1.540	5.1 1.8	35 28	33 26	3.49 3.56	37	4.41	Silty SAND to Sandy SILT	
29.04	51.30	1.370	2.7	21	19	3.63		6.60	Sandy SILT to Clayey SILT	•
29.57	22.70	1.050	4.6	23	21	3.70		2.78	CLAY	11
30.01	52.50	0.870	1.7	18	16	3.76	34		Silty SAND to Sandy SILT	[ II
30.53	79.40	0.730	0.9	20	18	3.83	36		SAND to Silty SAND	120-130
31.06	58.60	0.460	0.8	15	13	3.89	34		11	110-120
31.55	10.70	0.330	3.1	7	6	3.95		1.45	Silty CLAY to CLAY	11
32.08	10.80	0.320	3.0	7 9	6 8	4.01		1.47	Clayov SILT to Silty CLA	r 120-130
32.54	17.50	0.480	2.7	y	٥	4.06		2.06	Clayey SILT to Silty CLA	. 150-130

PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-30 Page 2 of 2 LOCATION: San Jose / Santa Clara CA DATE: 09-06-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 14.0 feet Terminated at 41.5 feet DEPTH Qc Rf SPT SPT TotVtStr PHI SOIL BEHAVIOR DENSITY RANGE (feet) (N) (N') (tsf) (tsf) (%) (ksf) (deg.) (ksf) TYPE (pcf) 33.06 19.00 1.590 19 2.26 8.4 16 4.13 CLAY 130-140 33.57 349.80 2.100 0.6 49 4.19 44 110-120 Gravelly SAND to SAND 34.08 319.90 2,100 ----11 0.7 53 45 44 4.25 0.8 35.06 280.30 2.240 56 46 4.37 43 ----SAND 120-130 35.51 287.00 3.590 57 47 4.44 ----1.3 130-140 43 36.03 325.70 2.250 0.7 54 44 4.49 ----Gravelly SAND to SAND 110-120 2.100 36.55 258.50 0.8 52 42 4.56 42 ----SAND 120-130 37.00 191.20 1.330 0.7 38 31 4.61 41 ----1.1 110-120 1.1 37.54 167.70 0.660 27 0.4 34 4.67 40 100-110 Clayey SILT to Silty CLAY 38.07 35.30 1.370 3.9 18 14 4.74 \_\_\_\_ 4.39 130-140 38.52 0.9 178.70 29 40 1.580 36 4.80 120-130 ----SAND 39.07 307.80 2.440 0.8 62 49 4.86 43 ----445.60 4.060 39.53 0.9 74 59 ----Gravelly SAND to SAND 4.92 45 . . 40.07 500.70 4.890 1.0 100 79 4.99 ----SAND 319.00 2.620 50 5.05 43 ----1.1 40.53 0.8 64 . . 41.00 337.20 2.720 0.8 67 53 5.11 44 ----1.1 41.52 498.40 4.220 0.8 83 Gravelly SAND to SAND 64 5.17 46 DEPTH = Sampling interval (2 inches) Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\* Phi = Soil friction angle\* Fs = Sleeve friction resistance Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) SPT = Equivalent Standard Penetration Test\* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) References: \* Robertson and Campanella, 1988



Cone Penetration Testing Service

PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-31 Page 1 of 2 LOCATION: San Jose / Santa Clara CA DATE : 09-06-2005

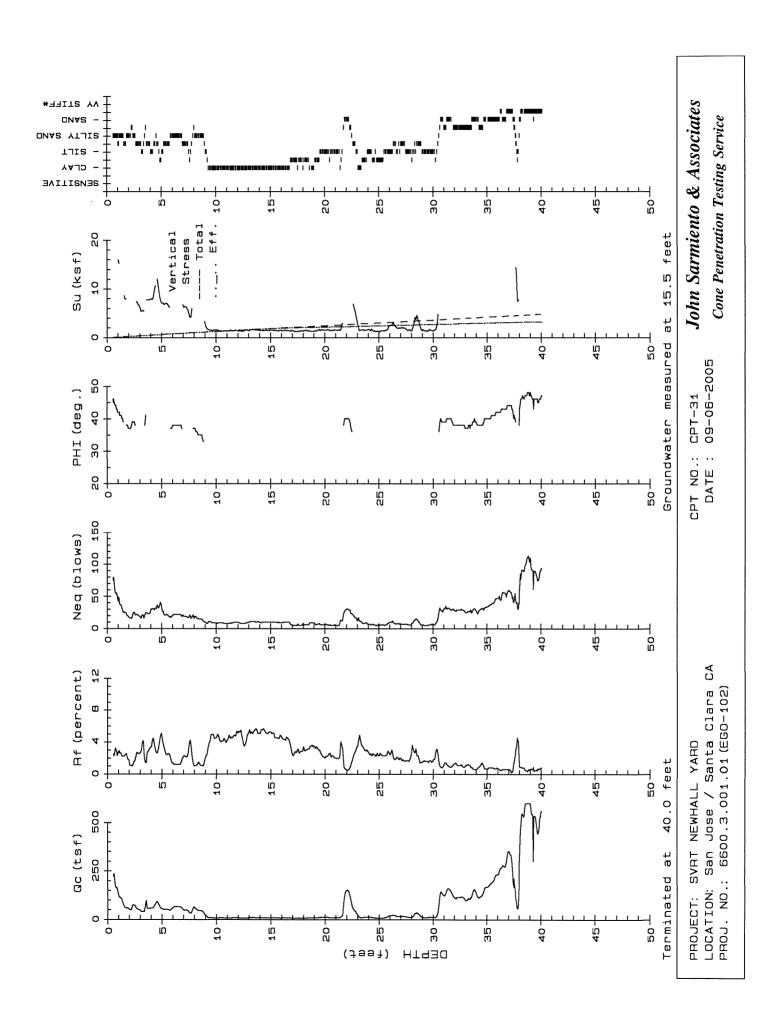
PROJ. NO.: 6600.3.001.01(EGO-102)

Groundwater measured at 15.5 feet Terminated at 40.0 feet

							remin	nateu at	40.0 Teet	
DEPTH (feet)	Qc (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT ('N')	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0.54	233.30	5.250	2.3	78	124	0.06	46		Silty SAND to Sandy SILT	130-140
1.01	119.70	3.420	2.9	48	77	0.13		15.95	Sandy SILT to Clayey SILT	
1.08	115.20	3.250	2.8	46	74	0.14		15.35	11	11
1.53	64.90	1.510	2.3	26	42	0.20		8.64	11	11
2.06	50.00	0.570	1.1	17	27	0.26	37		Silty SAND to Sandy SILT	120-130
2.58	62.50	1.310	2.1	21	33	0.33	38		11	130-140
3.01	46.20	1.240	2.7	18	30	0.39		6.13	Sandy SILT to Clayey SILT	
3.56	96.90	1.330	1.4	24	39	0.47	41		SAND to Silty SAND	11
4.03	59.90	2.040	3.4	30	48	0.53		7.95	Clayey SILT to Silty CLAY	/ 11
4.50	92.30	2.370	2.6	31	49	0.59	40		Silty SAND to Sandy SILT	. 11
5.07	54.00	2.230	4.1	27	43	0.67		7.16	Clayey SILT to Silty CLAY	/ 11
5.56	51.80	1.300	2.5	21	33	0.74		6.86	Sandy SILT to Clayey SILT	. 11
6.02	62.10	0.780	1.3	21	33	0 <b>.79</b>	38		Silty SAND to Sandy SILT	
6.58	66.00	0.760	1.2	22	34	0.86	38			11
7.05	47.40	1.100	2.3	19	28	0.93		6.26	Sandy SILT to Clayey SILT	
7.51	36.90	1.350	3.7	18	26	0.99		4.85	Clayey SILT to Silty CLAY	
8.07	58.30	0.620	1.1	19	27	1.06	37		Silty SAND to Sandy SILT	
8.55	45.00	0.500	1.1	15	20	1.12	35		11	1.1
9.05	19.10	0.440	2.3	10	12	1.18		2.47	Clayey SILT to Silty CLAY	
9.53	9.80	0.480	4.9	10	13	1.24		1.53	CLAY	110-120
10.01	8.90	0.400	4.5	9	11	1.29		1.65	11	11
10.60	9.00	0.370	4.1	9 8	11	1.36		1.39	11	11
11.09 11.57	7.80 9.30	0.340 0.440	4.4 4.7	9	9 11	1.41		1.42 1.43	11	11
12.07	9.10	0.480	5.3	9	10	1.47 1.53		1.39	11	11
12.54	8.10	0.280	3.5	8	9	1.58		1.46	11	100-110
13.03	9.60	0.530	5.5	10	11	1.64		1.46	11	120-130
13.53	10.70	0.590	5.5	11	12	1.70		1.64	1.6	120-130
14.02	10.00	0.500	5.0	10	11	1.76		1.52	11	1.1
14.50	10.00	0.520	5.2	10	10	1.82		1.51	1.1	11
15.09	10.30	0.520	5.0	10	11	1.90		1.56	11	1.1
15.56	9.50	0.430	4.5	10	10	1.95		1.42	1.1	110-120
16.05	9.40	0.410	4.4	9	10	2.01		1.40	1.1	110 120
16.54	9.90	0.440	4.4	10	10	2.06		1.48	1.1	11
17.03	8.20	0.190	2.3	5	5	2.11		1.43	Silty CLAY to CLAY	100-110
17.52	7.10	0.220	3.1	7	7	2.17		1.20	CLAY	1.1
18.00	7.70	0.260	3.4	8	8	2.22		1.32	1.1	11
18.59	9.40	0.320	3.4	9	9	2.28		1.38	ŧ I	110-120
19.09	9.80	0.310	3.2	7	7	2.34		1.44	Silty CLAY to CLAY	1.1
19.58	12.00	0.320	2.7	6	6	2.40		1.44	Clayey SILT to Silty CLAY	11
20.07	13.00	0.290	2.2	7	6	2.45		1.57	1.1	1.1
20.55	10.80	0.230	2.1	5	5	2.50		1.59	1.1	100-110
21.04	10.80	0.210	1.9	5	5	2.56		1.59	11	1.1
21.52	17.50	0.630	3.6	12	12	2.62		2.16	Silty CLAY to CLAY	120-130
22.02	151.20	0.810	0.5	30	30	2.67	40		SAND	100-110
22.50	67.90	1.180	1.7	23	23	2.73	36		Silty SAND to Sandy SILT	
23.08	16.90	0.710	4.2	17	17	2.81		2.07	CLAY	120-130
23.56	11.40	0.370	3.2	8	8	2.86		1.66	Silty CLAY to CLAY	110-120
24.03	14.10	0.360	2.6	7	7	2.92		1.69	Clayey SILT to Silty CLAY	
24.50	9.20	0.220	2.4	6	6	2.96		1.29	Silty CLAY to CLAY	100-110
25.07	7.40	0.190	2.6	5	5	3.02		1.18		
25.50 26.07	9.70	0.220 0.560	2.3	5	5 10	3.07		1.36	Clayey SILT to Silty CLAY	120-130
	20.60		2.7	10	10 7	3.14		2.54		. —
26.54 27.02	18.30	0.350 0.310	1.9	7 7	7	3.20		2.23 2.01	Sandy SILT to Clayey SILT	
27.02 27.58	16.70 13.80	0.240	1.9 1.7	7	7	3.25 3.32		1.62	Clayey SILT to Silty CLAY	110-120
28.05	13.80	0.490	3.6	9	9	3.38		1.61	Silty CLAY to CLAY	120-130
28.51	36.50	0.490	2.3	15	14	3.44		4.64	Sandy SILT to Clayey SILT	
29.07	11.60	0.180	1.6	6	6	3.50		1.64	Clayey SILT to Clayey SILT	130-140 100-110
29.56	12.10	0.180	1.5	6	6	3.55		1.38	clayey SILI to Silty CLAY	100-110
30.05	12.10	0.100	1.8	6	6	3.60		1.36	11	11
30.53	76.10	1.160	1.5	25	23	3.67	36		Silty SAND to Sandy SILT	
31.08	124.40	1.720	1.4	31	28	3.74	39		SAND to Sallay SILI	130-140
31.54	154.90	1.390	0.9	31	28	3.80	40		SAND	120-130
32.06	111.00	1.480	1.3	28	25	3.87	38		SAND to Silty SAND	130-140
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John Sarmiento & Associates Cone Penetration Testing Service

PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-31 Page 2 of 2 LOCATION: San Jose / Santa Clara CA DATE: 09-06-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 15.5 feet Terminated at 40.0 feet DEPTH Qc Fs Rf SPT SPT TotVtStr PHI SU SOIL BEHAVIOR DENSITY RANGE (feet) (tsf) (tsf) (%) (N) (N') (ksf) (deg.) (ksf) TYPE (pcf) 32.55 115.50 1.320 1.1 25 3.93 38 11 120-130 101.00 3.99 ----1 1 33.03 1.060 1.0 25 22 37 1 1 1.1 33.09 99.00 1.130 25 ----1.1 21 4.00 37 33.54 113.40 1.020 0.9 28 24 4.05 38 11 1.1 ----34.00 141.40 0.800 0.6 28 24 4.11 39 SAND 110-120 123.40 SAND to Silty SAND 34.52 1.680 1.4 31 26 4.18 38 130-140 1.230 28 ----35.08 170.00 0.7 34 4.24 40 SAND 110-120 1,490 35.58 197,40 0.8 39 32 4.30 41 47 39 ----1.1 11 36.08 235.70 1.580 0.7 4.36 42 ----11 11 36.56 276.10 1.610 0.6 45 4.41 43 11 1.930 37.03 350.60 0.6 58 48 4.47 44 ----Gravelly SAND to SAND 37.51 212.20 34 ----3.140 1.5 42 4.53 41 SAND 130-140 37.58 3.760 54 43 ----160.80 2.3 4.54 40 Silty SAND to Sandy SILT 1.1 38.00 282.10 2.920 1.0 56 45 4.59 43 ----SAND 120-130 84 38.08 3.760 0.9 68 ----11 421.50 4.60 45 1.1 596.90 3.030 99 80 ----38.53 0.5 4.65 47 Gravelly SAND to SAND 110-120 98 79 47 ----39.04 588.80 3.380 0.6 4.71 11 39.50 71 ----1.1 11 530.60 2,760 0.5 88 4.76 46 1.1 11 2.500 82 ----39.59 494.40 0.5 66 4.77 46 40.05 1.1 560.80 4.750 0.8 4.83 47 120-130 DEPTH = Sampling interval (2 inches) TotStr = Total Stress using est. density\*\* Qc = Tip bearing resistance Phi = Soil friction angle\* Fs = Sleeve friction resistance Su = Undrained Soil Strength\* Rf = Tip/Sleeve ratio (Nk=10 for Qc<9 tsf) SPT = Equivalent Standard Penetration Test\* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) References: \* Robertson and Campanella, 1988



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-32 Page 1 of 2 LOCATION: San Jose / Santa Clara CA DATE: 09-06-2005

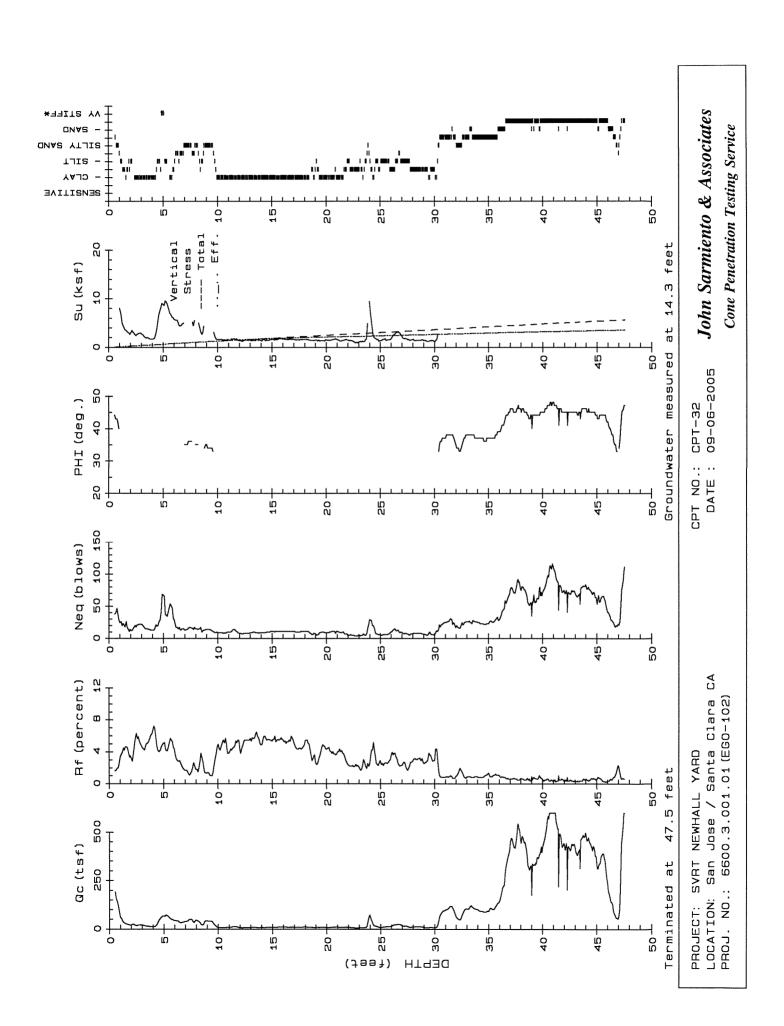
LOCATION: San Jose / Santa Clara CA PROJ. NO.: 6600.3.001.01(EGO-102)

Groundwater measured at 14.3 feet

Terminated at 47.5 feet

							lermi	nated at	4/.5 feet	
DEPTH (feet)	Qc (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT ('N')	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0.51	190.20	3.050	1.6	38	61	0.06	44		SAND	130-140
1.09	52.50	1.920	3.7	26	42	0.14		6.99	Clayey SILT to Silty CLAY	
1.57	26.30	1.210	4.6	26	42	0.20		3.49	CLAY	1.1
2.04	23.10	0.720	3.1	12	18	0.26		3.06	Clayey SILT to Silty CLAY	120-130
2.58	20.50	1.150	5.6	21	33	0.33		2.71	CLAY	130-140
3.06	20.50	0.900	4.4	21	33	0.40		2.71	1.1	11
3.54	15.30	0.760	5.0	15	24	0.46		2.01	1 1 1 1	120-130
4.03 4.51	13.00 39.00	0.870 1.580	6.7 4.1	13 20	21 <b>3</b> 1	0.52 0.58		1.70 5.16	Clayey SILT to Silty CLAY	' 130-140
5.08	65.20	3.300	5.1	65	104	0.66		8.65	Very Stiff Fine Grained *	
6.01	43.70	1.860	4.3	29	47	0.79		5.77	Silty CLAY to CLAY	1.1
6.57	33.40	0.870	2.6	13	21	0.86		4.40	Sandy SILT to Clayey SILT	
7.04	39.60	0.680	1.7	13	20	0.92	35		Silty SAND to Sandy SILT	
7.51	50.10	0.630	1.3	17	24	0.98	36		11	11
8.07	43.90	0.770	1.8	15	20	1.06	35	2 //	11 - 01 0117 to 0114 - 0140	130-140
8.54 9.08	20.50 40.80	0.660 0.570	3.2 1.4	10 14	14 18	1.11 1.18	34	2.66	Clayey SILT to Silty CLAY	
9.55	31.60	0.440	1.4	11	13	1.24	33		Silty SAND to Sandy SILT	11
10.03	8.80	0.430	4.9	9	11	1.30		1.63	CLAY	110-120
10.51	8.20	0.440	5.4	8	10	1.35		1.50	11	11
11.08	9.50	0.380	4.0	10	11	1.42		1.47	1.1	11
11.55	13.70	0.640	4.7	14	16	1.48		1.73	1.1	120-130
12.02	7.70	0.340	4.4	8	9	1.53		1.39	1.1	110-120
12.59	8.20	0.440	5.4	8	9	1.60		1.48	11	11
13.07 13.55	9.20 8.50	0.490 0.540	5.3 6.4	9 9	10 9	1.65 1.71		1.40 1.53	11	11
14.03	9.00	0.440	4.9	9	10	1.76		1.35	11	11
14.59	9.70	0.530	5.5	10	10	1.83		1.46	1.1	120-130
15.06	10.70	0.590	5.5	11	11	1.89		1.63	1.1	1.1
15.52	11.00	0.600	5.5	11	11	1.95		1.67	1.1	11
16.08	11.30	0.590	5.2	11	12	2.02		1.72	11	11
16.55	10.80	0.580	5.4	11	11	2.08		1.63	11 11	11
17.01	10.90	0.550	5.0 4.4	11 10	11 10	2.13 2.20		1.64 1.53	11	110-120
17.56 18.02	10.30 11.20	0.450 0.590	5.3	11	11	2.25		1.68	1.1	120-130
19.00	10.30	0.270	2.6	7	7	2.37		1.52	Silty CLAY to CLAY	110-120
19.56	9.50	0.430	4.5	10	9	2.43		1.38	CLAY	1.1
20.02	8.70	0.370	4.3	9	9	2.48		1.49	1.1	1.1
20.57	10.50	0.420	4.0	11	10	2.55		1.54	11	1.1
21.02	10.60	0.420	4.0	11	11	2.60		1.55	11	1 1 1 1
21.57 22.05	10.00	0.370 0.230	3.7 2.3	10 5	10 5	2.66 2.71		1.44 1.41	Clayey SILT to Silty CLAY	
22.50	9.80 7.50	0.230	2.1	5	5	2.76		1.22	Silty CLAY to CLAY	100-110
23.06	7.20	0.140	1.9	5	5	2.81		1.16	II	90-100
23.52	7.70	0.200	2.6	5	5	2.86		1.25	1.1	100-110
24.06	56.00	1.910	3.4	28	28	2.93		7.27	Clayey SILT to Silty CLAY	130-140
24.51	15.40	0.530	3.4	10	10	2.99		1.85	Silty CLAY to CLAY	120-130
25.07	9.90	0.240	2.4	5	5	3.05		1.40	Clayey SILT to Silty CLAY	
25.52	12.60	0.330	2.6	6	6	3.10		1.47		110-120
26.07 26.52	17.00 24.90	0.660 0.760	3.9 3.1	11 12	11 12	3.17 3.23		2.06 3.10	Silty CLAY to CLAY Clayey SILT to Silty CLAY	120-130 ′ 130-140
27.07	16.30	0.400	2.5	8	8	3.30		1.95	II	120-130
27.52	13.50	0.230	1.7	7	7	3.35		1.58	1.1	100-110
28.06	11.70	0.350	3.0	8	8	3.41		1.67	Silty CLAY to CLAY	110-120
28.56	12.40	0.390	3.1	8	8	3.47		1.42	1.1	1.1
29.01	9.90	0.250	2.5	7	6	3.51		1.36	11	100-110
29.56	9.60	0.350	3.6	10	9	3.58		1.30	CLAY	110-120
30.01 30.55	7.50 73.60	0.220 0.660	2.9 0.9	5 18	5 17	3.62 3.69	36	1.14	Silty CLAY to CLAY SAND to Silty SAND	100-110 120-130
31.08	101.70	0.870	0.9	25	24	3.76	38		SAND TO SILLY SAND	120-130
31.59	116.40	1.010	0.9	29	27	3.82	38		1.1	11
32.03	59.00	0.610	1.0	20	18	3.88	34		Silty SAND to Sandy SILT	11
32.55	72.30	1.080	1.5	24	22	3.95	<b>3</b> 5			130-140
33.06	104.10	0.890	0.9	26	23	4.01	38		SAND to Silty SAND	120-130
33.56	111.00	0.890	0.8	28	24	4.07	38		11	110-120

PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-32 Page 2 of 2 LOCATION: San Jose / Santa Clara CA DATE: 09-06-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 14.3 feet Terminated at 47.5 feet DEPTH Qс Fs Rf SPT SPT TotVtStr PHI SU SOIL BEHAVIOR DENSITY RANGE (N) (N) (feet) (tsf) (ksf) (tsf) (%) (ksf) (deg.) TYPE (pcf) 0.780 1.1 34.05 98.30 0.8 21 4.12 37 1.1 0.830 0.9 34.56 89.40 22 19 4.19 36 ----120-130 97.50 1.1 35.07 1.170 1.2 24 21 4.25 37 11 1.1 27 23 ----35.57 108.80 1.250 1.1 4.31 37 36.07 154.90 1,400 0.9 31 26 4.38 39 ----SAND 1.1 2.190 ----110-120 287.70 58 1.1 36.55 0.8 47 4.43 43 ----37.00 450.00 2.500 0.6 75 61 4.48 46 Gravelly SAND to SAND 1.1 ----. . 75 37.52 447.50 2.830 0.6 61 4.54 45 11 ----. . 1.1 38.02 446.80 3.080 0.7 74 61 4.60 45 11 1.1 68 55 ----38.51 409.60 2.200 0.5 4.66 45 ----. . 1.1 39.05 338.90 1.850 0.5 56 46 4.72 44 39.50 11 11 370.70 2.240 0.6 62 50 4.77 44 --------. . 40.04 436.20 2.090 0.5 73 58 4.83 45 100-110 1.1 3.030 4.89 95 76 \_\_\_\_ 40.55 570.10 0.5 47 110-120 41.00 654.70 2.820 0.4 109 87 4.93 48 ----1.1 100-110 4.94 ----1.1 627.40 105 83 . . 41.09 3.090 0.5 47 ----11 1 1 41.52 487.30 2.440 0.5 81 64 4.99 46 1.510 ----1.1 . . 70 56 5.04 42.03 422.60 0.4 45 54 ----1.1 11 42.09 411.70 2.080 0.5 69 5.05 45 69 55 45 ----1.1 11 42.51 415.00 1.770 0.4 5.09 414.90 54 ----1.1 11 43.01 1.470 0.4 69 5.14 45 ----. . 43.10 394.50 1.120 0.3 66 52 5.15 45 90-100 1.870 ----1.1 43.53 465.60 0.4 78 61 5.20 45 100-110 ----1.1 44.01 484.70 2.700 0.6 81 63 5.25 46 110-120 44.53 420.70 3.010 0.7 70 55 5.31 45 ----1.1 1.1 1.1 53 ----45.02 320.20 2.060 0.6 41 5.37 43 45.52 389.50 1.520 0.4 65 50 5.42 44 ----11 100-110 \_\_\_\_ 46.05 201.40 0.790 0.4 40 31 5.48 41 SAND 1.1 46.53 98.10 0.750 0.8 25 19 5.53 36 ----SAND to Silty SAND 110-120 ----130-140 47.03 64.10 1.320 2.1 21 16 5.60 34 Silty SAND to Sandy SILT 47.53 658.50 3,890 0.6 110 83 5.66 Gravelly SAND to SAND 110-120 DEPTH = Sampling interval (2 inches) Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\* Phi = Soil friction angle\* Fs = Sleeve friction resistance Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) Rf = Tip/Sleeve ratio SPT = Equivalent Standard Penetration Test\* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) References: \* Robertson and Campanella, 1988



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-33 Page 1 of 2

LOCATION: San Jose / Santa Clara CA PROJ. NO.: 6600.3.001.01(EGO-102) DATE: 09-06-2005 Groundwater estimated at 14.5 feet Terminated at 60.0 feet

DEPTH (feet)	Qc (tsf)	Fs (tsf)	R f (%)	SPT (N)	SPT (N')	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0.58	419.10	4.240	1.0	84	134	0.07	>48		SAND	120-130
1.09	305.30	2.650	0.9	61	98	0.13	47		11	11
1.58	185.60	2.430	1.3	37	59	0.20	44		0.54 to 0.440 to 0.54 to 0.44	130-140
2.07	128.60	2.300	1.8	43	69	0.26	42		Silty SAND to Sandy SILT	
2.50 3.01	45.50 49.30	0.920 1.110	2.0 2.3	18 20	29 32	0.32 0.39		6.05 6.55	Sandy SILT to Clayey SILT	11
3.54	31.10	1.190	3.8	16	25	0.39		4.12	Clayey SILT to Silty CLAY	
4.00	17.10	0.240	1.4	7	11	0.52		2.25	Sandy SILT to Clayey SILT	
4.55	6.60	0.370	5.6	7	11	0.58		1.26	CLAY	11
5.01	28.20	0.790	2.8	14	23	0.64		3.72	Clayey SILT to Silty CLAY	130-140
5.57	96.50	1.770	1.8	32	51	0.72	41		Silty SAND to Sandy SIL1	11
6.03	62.00	2.110	3.4	25	40	0.78		8.21	Sandy SILT to Clayey SIL1	
6.58	46.00	1.450	3.2	18	28	0.85		6.08	11	11
7.02	59.80	0.880	1.5	20	30	0.91	37		Silty SAND to Sandy SIL1	
7.55	72.50	0.660	0.9	18	26	0.97	38		SAND to Silty SAND	110 120
8.07	81.70	0.620 0.510	0.8	20 22	28 30	1.03	39 39		1 I	110-120
8.51 9.08	88.60 80.80	0.440	0.6 0.5	20	27	1.08 1.14	38		11	100-110
9.50	54.30	0.340	0.6	14	18	1.18	36		f 1	11
10.04	13.40	0.320	2.4	7	9	1.25		1.70	Clayey SILT to Silty CLAN	110-120
10.58	7.00	0.210	3.0	7	ý	1.30		1.27	CLAY	100-110
11.03	6.90	0.120	1.7	3	4	1.35		1.25	Clayey SILT to Silty CLAY	
11.57	5.60	0.120	2.1	4	4	1.40		0.98	Silty CLAY to CLAY	1.1
12.06	6.90	0.150	2.2	5	5	1.44		1.24	11	1.1
12.53	6.70	0.170	2.5	4	5	1.49		1.19	1.1	100-110
13.09	6.70	0.210	3.1	7	8	1.55		1.18	CLAY	11
13.56	6.10	0.220	3.6	6	7	1.60		1.06	11	11
14.02 14.57	7.70 10.20	0.290 0.410	3.8 4.0	8 10	8 11	1.65 1.71		1.38 1.56	11	110-120
15.03	11.10	0.410	3.9	11	12	1.76		1.70	11	110-120
15.53	11.00	0.540	4.9	11	12	1.83		1.68	1.1	120-130
16.09	9.80	0.510	5.2	10	10	1.90		1.48	1.1	11
16.55	9.70	0.490	5.1	10	10	1.95		1.45	11	110-120
17.01	10.60	0.520	4.9	11	11	2.01		1.60	1.1	120-130
17.56	10.50	0.470	4.5	11	11	2.07		1.58	11	110-120
18.01	10.40	0.390	3.8	10	11	2.12		1.56	11	11
18.56	8.60	0.310	3.6	9	9	2.19		1.50	11	11
19.07	12.40	0.410	3.3	8	8	2.24		1.50	Silty CLAY to CLAY	
19.53	12.40	0.580	4.7	12 8	13 8	2.30 2.36		1.50 1.36	CLAY	120-130 100-110
20.08 20.54	8.00 6.90	0.270 0.160	3.4 2.3	5	5	2.30		1.14	Silty CLAY to CLAY	100-110
21.09	7.50	0.230	3.1	8	7	2.47		1.25	CLAY	1.1
21.55	7.60	0.240	3.2	8	8	2.51		1.27	11	11
22.05	8.60	0.250	2.9	6	6	2.57		1.46	Silty CLAY to CLAY	1.1
22.51	8.70	0.190	2.2	4	4	2.61		1.48	Clayey SILT to Silty CLAY	<i>(</i> 11
23.06	7.40	0.100	1.4	4	4	2.67		1.21	11	90-100
23.52	6.10	0.080	1.3	3	3	2.71		0.95	Sensitive Fine Grained	11
24.07	6.80	0.110	1.6	3	3	2.76		1.08	Clayey SILT to Silty CLA	
24.52	16.60	0.240	1.4	7	7	2.82		2.03	Sandy SILT to Clayey SILT	
25.07	24.50	0.510	2.1	10	10	2.88		3.07 2.51	11	120-130 110-120
25.53 26.08	20.30 6.80	0.260 0.080	1.3	8 3	8 3	2.94 2.99		1.06	Sensitive Fine Grained	90-100
26.54	9.10	0.120	1.3	5	5	3.03		1.26	Clayey SILT to Silty CLA	
27.00	10.80	0.150	1.4	5	5	3.08		1.54	וו	100-110
27.55	9.80	0.150	1.5	5	5	3.14		1.37	11	11
28.09	12.60	0.210	1.7	6	6	3.20		1.47	1.1	1.1
28.51	11.50	0.230	2.0	6	6	3.24		1.65	1.1	1.1
29.03	15.10	0.260	1.7	8	7	3.30		1.79	1.1	110-120
29.58	15.10	0.250	1.7	6	6	3.36		1.79	Sandy SILT to Clayey SILT	
30.05	16.70	0.450	2.7	8	8	3.42		2.00	Clayey SILT to Silty CLA	
30.59	40.00	0.740	1.9	16	16	3.49	74	5.10	Sandy SILT to Clayey SILT	
31.03	72.80	0.540	0.7	18 17	18	3.54	36 36		SAND to Silty SAND	110-120
31.57 32.07	69.90 65.30	0.560 0.930	0.8 1.4	22	17 21	3.61 3.67	36 35		Silty SAND to Sandy SIL	
32.50	88.20	0.780	0.9	22	21	3.72	37		SAND to Silty SAND	11
52.50	55,20	0.100	-17			3	<b></b>			

John Sarmiento & Associates Cone Penetration Testing Service

PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-33 Page 2 of 2

LOCATION: San Jose / Santa Clara CA DATE: 09-06-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater estimated at 14.5 feet

Terminated at 60.0 feet

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DEPTH (feet)	Qc (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT (N')	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
33.03	52.90	0.710	1.3	18	17	3.79	34		Silty SAND to Sandy SILT	. 11
33.55	52.50	0.780	1.5	18	17	3.85	34		II	11
34.07	42.80	0.480	1.1	14	13	3.92	33		11	11
34.50	47.30	0.740	1.6	16	15	3.97	33		11	1.1
35.02	106.20	0.930	0.9	27	24	4.04	38		SAND to Silty SAND	11
35.55	113.80	0.620	0.5	23	21	4.09	38		SAND TO STITLY SAND	100-110
36.06	80.60	0.340	0.4	20	18	4.14	36		SAND to Silty SAND	90-100
36.50	52.80	0.400	0.8	13	12	4.19	34		SAND TO STEELY SAND	110-120
37.02	105.70	0.860	0.8	26	23	4.25	38		11	110 120
37.52	93.40	0.490	0.5	23	21	4.31	37		1.1	100-110
38.03	146.10	1.450	1.0	29	25	4.37	39		SAND	120-130
38.56	284.50	1.250	0.4	47	41	4.42	43		Gravelly SAND to SAND	100-110
39.07	188.80	1.210	0.6	38	32	4.48	41		SAND	110-120
39.57	201.90	0.980	0.5	40	34	4.54	41		11	100-110
40.07	178.60	1.240	0.7	36	30	4.59	40		11	110-120
40.56	177.30	0.710	0.4	35	29	4.64	40		11	100-110
41.04	198.50	1.210	0.6	40	33	4.70	41		1.1	110-120
41.52	270.70	2.630	1.0	54	44	4.76	43		1.1	120-130
42.05	277.30	2.750	1.0	55	45	4.83	43		1.1	11
42.57	372.10	2.500	0.7	62	50	4.89	44		Gravelly SAND to SAND	110-120
43.03	372.30	2.880	0.8	62	50	4.94	44		11	120-130
43.58	319.40	1.160	0.4	53	43	5.00	43		1.1	100-110
44.03	353.10	1.890	0.5	59	47	5.05	44		1.1	110-120
44.55	273.30	2.490	0.9	55	44	5.12	43		SAND	120-130
45.03	68.10	2.740	4.0	34	27	5.18		8.73	Clayey SILT to Silty CLAY	
45.53	31.00	0.850	2.7	12	10	5.25		3.78	Sandy SILT to Clayey SILT	
46.05	42.40	0.660	1.6	14	11	5.32	32		Silty SAND to Sandy SIL1	
46.59	14.90	0.310	2.1	7	6	5.38		1.63	Clayey SILT to Silty CLAY	
47.03	16.00	0.390	2.4	8	6	5.43		1.77	11	120-130
47.52	11.20	0.300	2.7	7	6	5.49		1.41	Silty CLAY to CLAY	110-120
48.06	19.70	0.270	1.4	8	6	5.55		2.26	Sandy SILT to Clayey SILT	Γ ''
48.54	15.30	0.240	1.6	6	5	5.61		1.67	1.1	1.1
49.08	20.90	0.390	1.9	8	6	5.67		2.41	1.1	120-130
49.53	37.40	1.040	2.8	15	11	5.73		4.60	1.1	130-140
50.06	57.60	0.890	1.5	19	15	5.80	33		Silty SAND to Sandy SIL1	г 120-130
50.59	16.20	0.270	1.7	6	5	5.86		1.77	Sandy SILT to Clayey SIL1	
51.04	13.10	0.270	2.1	7	5	5.91		1.35	Clayey SILT to Silty CLAY	
51.56	15.00	0.340	2.3	8	6	5.97		1.60	11	11
52.01	16.40	0.350	2.1	8	6	6.03		1.78	11	120-130
52.55	12.40	0.270	2.2	6	5	6.09		1.25	11	110-120
53.09	13.00	0.240	1.8	7	5	6.15		1.32	11	11
53.54	15.30	0.330	2.2	8	6	6.20		1.63	11	11
54.07	18.10	0.400	2.2	9	7	6.27		2.00	0	120-130
54.52	21.30	0.330	1.5	9	6	6.32		2.42	Sandy SILT to Clayey SILT	
55.06	12.60	0.270	2.1	6	5	6.38		1.25	Clayey SILT to Silty CLAY	, II
55.55	13.90	0.340	2.4	7	5	6.44		1.42		
56.01	16.20	0.390	2.4	8	6	6.50		1.73	11	120-130
56.55 57.00	14.40 14.70	0.350 0.300	2.4	7 7	5 5	6.56 6.62		1.48 1.52	11	110-120
57.09 57.54	15.10	0.300	2.0	8	5	6.67		1.57	11	11
57.54 58.07	20.80	0.350	1.7	8	6	6.74		2.32	Sandy SILT to Clayey SILT	
58.52	19.30	0.330	1.7	8	5	6.79		2.12	sandy SILI to Clayey SILI	110-120
59.09	19.50	0.330	1.7	8	6	6.86		2.14	11	110-120
59.54	25.00	0.450	1.8	10	7	6.91		2.14	11	120-130
60.08	17.90	0.290	1.6	7		6.98		1.92	1.1	110-120
50.00	,,.,	0.270		,	,	3.,0		/-		, 120

DEPTH = Sampling interval (2 inches)

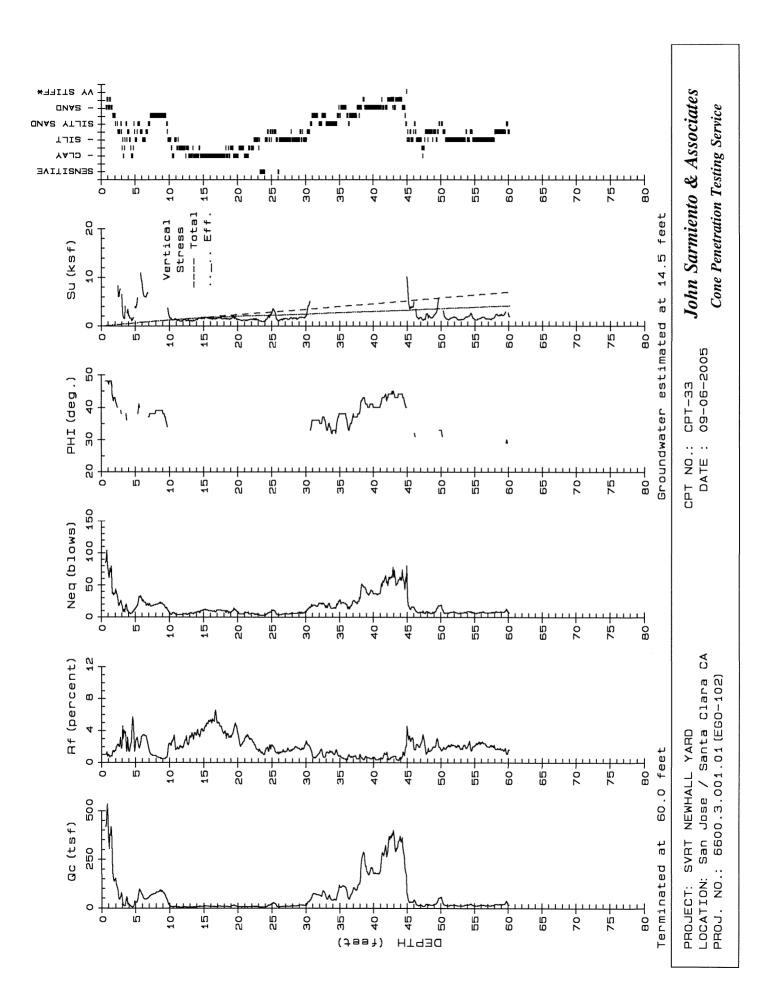
TotStr = Total Stress using est. density\*\* Qc = Tip bearing resistance

Fs = Sleeve friction resistance Phi = Soil friction angle\*

Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) Rf = Tip/Sleeve ratio

SPT = Equivalent Standard Penetration Test\* (Nk=12 for Qc=9 to  $\overline{12}$  tsf) (Nk=15 for Qc>12 tsf)

References: \* Robertson and Campanella, 1988



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-34 Page 1 of 2

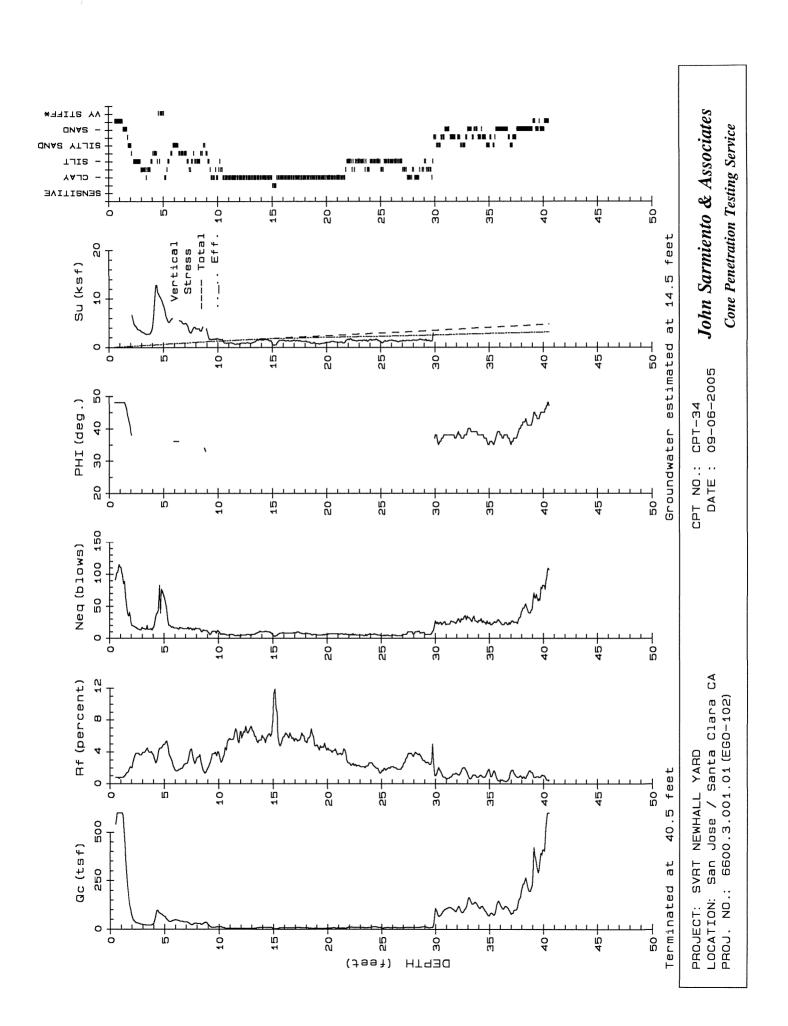
LOCATION: San Jose / Santa Clara CA DATE: 09-06-2005 PROJ. NO.: 6600.3.001.01(EGO-102)

Groundwater estimated at 14.5 feet Terminated at 40.5 feet

DEPTH	Qc	Fs	Rf	SPT	SPT	TotVtStr	PHI	SU	SOIL BEHAVIOR	DENSITY RANGE
(feet)	(tsf)	(tsf)	(%)	(N)	(N1)	(ksf)	(deg.)	(ksf)	TYPE	(pcf)
	E / = 00									
0.52	543.00	4.550	8.0	91	145	0.06	>48		Gravelly SAND to SAND	120-130
1.03 1.58	653.00 230.30	4.990 3.310	0.8 1.4	109 46	174 74	0.12 0.20	>48 46		SAND	130-140
2.05	60.20	1.200	2.0	20	32	0.26	38		Silty SAND to Sandy SILT	
2.56	30.10	1.140	3.8	15	24	0.23		3.99	Clayey SILT to Silty CLAY	
3.03	23.80	0.930	3.9	16	25	0.39		3.15	Silty CLAY to CLAY	1.1
3.54	20.90	0.850	4.1	14	22	0.46		2.76	11	1.1
4.01	31.90	1.140	3.6	16	26	0.53		4.22	Clayey SILT to Silty CLAY	7 11
4.58	81.50	3.590	4.4	82	130	0.60		10.83	Very Stiff Fine Grained *	
5.06	63.00	3.100	4.9	63	101	0.67		8.36	11	1.1
5.53	39.60	1.350	3.4	20	32	0.73		5.23	Clayey SILT to Silty CLAY	
6.09	47.80	0.780	1.6	16	25	0.80	36	 - //	Silty SAND to Sandy SILT	
6.56	41.20	0.770	1.9	16	25	0.86		5.44	Sandy SILT to Clayey SILT	130-140
7.03 7.51	38.00 22.90	0.960 0.980	2.5 4.3	15 15	22 21	0.93 0.99		5.00 2.99		11
8.09	29.00	0.970	3.3	15	20	1.07		3.80	Silty CLAY to CLAY Clayey SILT to Silty CLAY	
8.57	30.50	0.530	1.7	12	16	1.13		3.99	Sandy SILT to Clayey SILT	
9.02	23.80	0.470	2.0	10	12	1.19		3.09	II	110 150
9.51	10.80	0.400	3.7	11	14	1.24		1.70	CLAY	110-120
10.00	11.40	0.450	3.9	11	14	1.31		1.79	11	120-130
10.59	5.50	0.250	4.5	6	7	1.37		0.96	1.1	100-110
11.08	5.50	0.300	5.5	6	7	1.42		0.96	f 1	1.1
11.57	4.10	0.280	6.8	4	5	1.47		0.67	11	1.1
12.06	4.40	0.280	6.4	4	5	1.52		0.73	11	1.1
12.50	4.80	0.340	7.1	5	5	1.57		0.80	11	1.1
13.09	5.60	0.370	6.6	6	6	1.63		0.96	11	110
13.59	8.90	0.450	5.1 5.7	9	10	1.69		1.61	11	110-120
14.09 14.57	10.10 10.20	0.580 0.620	6.1	10 10	11 11	1.75 1.81		1.54 1.55	11	120-130
15.06	3.50	0.390	11.1	4	4	1.86		0.51	Organic Material	100-110
15.54	7.10	0.350	4.9	7	7	1.92		1.23	CLAY	110-120
16.03	8.20	0.480	5.9	8	8	1.97		1.44	11	110
16.53	7.50	0.470	6.3	8	8	2.03		1.30	1.1	1.1
17.03	8.20	0.460	5.6	8	8	2.09		1.43	1 1	1.1
17.52	8.40	0.470	5.6	8	9	2.14		1.47	1.1	11
18.01	7.50	0.390	5.2	8	8	2.20		1.28	11	11
18.50	5.60	0.380	6.8	6	6	2.25		0.89	11	100-110
19.03	5.00	0.240	4.8	5	5	2.31		0.77	11	11
19.53	5.20	0.240	4.6	5	5	2.36		0.80	11	11
20.03 20.52	6.40 7.30	0.280 0.300	4.4 4.1	6 7	6 7	2.41 2.46		1.04 1.21	11	11
21.01	6.50	0.240	3.7	7	6	2.40		1.05	11	11
21.50	6.10	0.260	4.3	6	6	2.57		0.96	1.1	1.1
22.09	10.70	0.270	2.5	5	5	2.63		1.56	Clayey SILT to Silty CLAY	110-120
22.58	9.50	0.230	2.4	6	6	2.69		1.36	Silty CLAY to CLAY	100-110
23.07	10.10	0.210	2.1	5	5	2.74		1.46	Clayey SILT to Silty CLAY	
23.57	8.30	0.180	2.2	6	6	2.79		1.38	Silty CLAY to CLAY	1.1
24.06	11.50	0.300	2.6	6	6	2.85		1.68	Clayey SILT to Silty CLAY	
24.54	11.60	0.220	1.9	6	6	2.90		1.69	11	100-110
25.03	6.50	0.110	1.7	4	4	2.94		1.01	Silty CLAY to CLAY	90-100
25.58	9.00	0.170	1.9	5	4	3.00		1.25	Clayey SILT to Silty CLAY	100-110
26.08 26.57	10.00	0.210 0.130	2.1 1.8	5 4	5 4	3.05 3.10		1.41 1.15	11	90-100
27.06	7.30 8.70	0.130	2.5	6	6	3.15		1.42	Silty CLAY to CLAY	100-110
27.55	10.20	0.390	3.8	10	10	3.21		1.43	CLAY	110-120
28.03	10.70	0.380	3.6	7	7	3.26		1.51	Silty CLAY to CLAY	11
28.52	10.90	0.400	3.7	11	11	3.32		1.54	CLAY	1.1
29.05	12.50	0.340	2.7	6	6	3.38		1.44	Clayey SILT to Silty CLAY	y 11
29.54	9.40	0.230	2.4	6	6	3.43		1.28	Silty CLAY to CLAY	100-110
30.02	107.00	1.020	1.0	27	26	3.49	38		SAND to Silty SAND	120-130
30.50	74.80	1.120	1.5	25	24	3.56	36		Silty SAND to Sandy SILT	
31.07	107.80	0.680	0.6	22	21	3.62	38		SAND	110-120
31.53	105.70	1.080	1.0	26	25	3.68	38 77		SAND to Silty SAND	120-130
32.50	85.80	1.590 1.530	1.9 1.0	29 32	27 30	3.81 3.88	37 40		Silty SAND to Sandy SILT	130-140 120-130
33.04	160.70	1.330	1.0	32	30	٥٥.د	40		SAND	120-130

John Sarmiento & Associates Cone Penetration Testing Service

PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-34 Page 2 of 2 LOCATION: San Jose / Santa Clara CA DATE: 09-06-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater estimated at 14.5 feet Terminated at 40.5 feet DEPTH Qc Rf SPT SPT TotVtStr PHI SOIL BEHAVIOR DENSITY RANGE (feet) (tsf) (tsf) (%) (N) (N') (ksf) (ksf) (deg.) TYPE (pcf) 135.60 33.57 1.1 3.94 39 1.500 SAND to Silty SAND 34.01 112.80 1.000 0.9 4.00 ----1.1 11 0.810 1.1 25 4.06 ----34.52 101.70 0.8 23 37 110-120 35.04 75.50 0.980 1.3 25 22 4.12 36 ----Silty SAND to Sandy SILT 120-130 ----35.50 79.00 1.170 26 23 130-140 1.5 4.19 36 36.03 124.90 0.520 0.4 4.24 ----100-110 SAND 24 36.56 117.70 0.360 20 ----0.3 4.29 38 90-100 37.08 82.10 1.390 1.7 27 23 4.36 ----Silty SAND to Sandy SILT 36 130-140 ----37.52 101.10 0.860 0.9 25 21 4.42 37 SAND to Silty SAND 120-130 38.03 217.30 1.510 0.7 36 4.47 41 ----SAND 110-120 45 37 4.54 ----38.52 223.10 2.500 120-130 1.1 42 39.02 285.50 3.470 57 47 4.60 43 ----. . 130-140 1.1 39.51 291.80 2.660 0.9 58 48 4.67 ----43 120-130 . . 40.07 404.70 4.070 1.0 81 66 4.73 45 ----1.1 40.50 638.00 3.340 0.5 106 47 86 4.78 110-120 Gravelly SAND to SAND DEPTH = Sampling interval (2 inches) Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\* Fs = Sleeve friction resistance Phi = Soil friction angle\* Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf) SPT = Equivalent Standard Penetration Test\* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf) References: \* Robertson and Campanella, 1988



PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-35 Page 1 of 2

LOCATION: San Jose / Santa Clara CA PROJ. NO.: 6600.3.001.01(EGO-102) DATE: 09-06-2005 Groundwater measured at 14.9 feet

Terminated at 47.0 feet

							rennir	iaced at	47.0 feet	
DEPTH (feet)	Qc (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT (N')	TotVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0.55	220.00	1.750	0.8	44	70	0.06	45		SAND	120-130
1.02	138.40	2.290	1.7	35	55	0.13	43		SAND to Silty SAND	130-140
1.55	31.00	1.230	4.0	21	33	0.20		4.12	Silty CLAY to CLAY	11
2.02	18.50	0.960	5.2	19	30	0.26		2.45	CLAY	11
2.55	11.60	0.820	7.1	12	19	0.33		1.91	11	120-130
3.09	12.80	0.830	6.5	13	20	0.40		1.68	11	11
3.55 4.01	17.90 16.70	0.820 0.840	4.6 5.0	18 17	29 27	0.45 0.51		2.36 2.19	11	11
4.55	24.40	0.960	3.9	16	26	0.58		3.21	Silty CLAY to CLAY	130-140
5.01	51.00	2.110	4.1	26	41	0.65		6.76	Clayey SILT to Silty CLAY	
5.51	40.70	2.370	5.8	41	65	0.71		5.38	CLAY	1.1
6.04	27.50	1.590	5.8	28	44	0.79		3.61	11	11
6.50	28.40	1.230	4.3	19	29	0.85		3.73	Silty CLAY to CLAY	11
7.04	38.00	1.030	2.7	15	22	0.92		5.01	Sandy SILT to Clayey SILT	
7.58 8.03	39.80 21.10	0.900 1.100	2.3 5.2	16 21	22 29	0.99		5.24 2.74	I I	11
8.53	24.30	1.020	4.2	16	22	1.05 1.12		3.17	CLAY Silty CLAY to CLAY	11
9.08	27.00	0.840	3.1	14	18	1.20		3.52	Clayey SILT to Silty CLA	
9.54	15.30	0.450	2.9	8	10	1.25		1.96	11	, 120-130
10.00	7.10	0.300	4.2	7	9	1.30		1.29	CLAY	100-110
10.55	5.80	0.230	4.0	6	7	1.36		1.02	f 1	1.1
11.01	7.40	0.380	5.1	7	9	1.41		1.34	1.1	110-120
11.56	9.10	0.430	4.7	9	11	1.48		1.39	11	11
12.06 12.53	5.10 6.20	0.280 0.340	5.5 5.5	5 6	6 7	1.53 1.58		0.87 1.08	11	100-110
13.09	7.10	0.430	6.1	7	8	1.64		1.26	11	110-120
13.56	7.10	0.390	5.5	7	8	1.70		1.25	1.1	110 120
14.02	8.30	0.350	4.2	8	9	1.75		1.49	1.1	t 1
14.57	9.50	0.570	6.0	10	10	1.82		1.43	1.1	120-130
15.03	10.60	0.600	5.7	11	11	1.87		1.61	11	1.1
15.57	13.80	0.720	5.2	14	14	1.94		1.71	11	11
16.03	9.20	0.700	7.6	9	9	2.00		1.37	11	110 120
16.59 17.04	7.90 7.50	0.570 0.480	7.2 6.4	8 8	8 8	2.06 2.12		1.37 1.29	11	110-120
17.50	7.60	0.550	7.2	8	8	2.17		1.30	11	11
18.05	7.60	0.430	5.7	8	8	2.23		1.30	11	1.1
18.55	7.80	0.490	6.3	8	8	2.29		1.33	1.1	11
19.01	9.00	0.460	5.1	9	9	2.34		1.30	1.1	11
19.57	8.20	0.260	3.2	8	8	2.40		1.40	11	100-110
20.03	9.50	0.350	3.7	10	9	2.45		1.38	11	110-120
20.58 21.03	9.90 11.60	0.360 0.390	3.6 3.4	10 8	10 8	2.52 2.57		1.44 1.72	Silty CLAY to CLAY	11
22.00	10.30	0.300	2.9	7	7	2.68		1.49	II	1.1
22.56	10.70	0.290	2.7	7	7	2.74		1.55	1.1	11
23.02	9.30	0.240	2.6	6	6	2.79		1.32	1.1	100-110
23.57	13.00	0.320	2.5	7	6	2.86		1.54	Clayey SILT to Silty CLA	
24.03	16.30	0.470	2.9	8	8	2.91		1.98	11	120-130
24.57	15.00	0.430	2.9	8	7	2.98		1.80	11	100 110
25.01 25.57	10.50 8.20	0.210 0.160	2.0 2.0	5 4	5 4	3.03 3.09		1.50 1.33	11	100-110
26.03	10.30	0.160	2.5	5	5	3.14		1.46	11	110-120
26.57	49.10	0.380	0.8	16	16	3.20	34		Silty SAND to Sandy SIL	
27.03	21.10	0.700	3.3	11	10	3.26		2.60	Clayey SILT to Silty CLA	
27.57	25.70	0.610	2.4	10	10	3.33		3.20	Sandy SILT to Clayey SIL	
28.02	30.70	0.480	1.6	12	12	3.38		3.87	11	
28.52	21.80	0.730	3.3	11	11	3.45	 75	2.68	Clayey SILT to Silty CLA	
29.06	66.20	0.840	1.3	22 20	21 19	3.51 3.58	35 <b>3</b> 5		Silty SAND to Sandy SIL	} ''
29.58 30.03	59.10 24.60	0.640 0.440	1.1 1.8	10	9	3.63	30	3.04	Sandy SILT to Clayey SIL	
30.56	36.00	0.930	2.6	14	13	3.71		4.55	ii	130-140
31.08	54.80	1.240	2.3	22	20	3.78		7.05	11	11
32.09	200.00	1.170	0.6	40	36	3.89	41		SAND	110-120
32.52	184.80	1.580	0.9	37	33	3.95	41		11	120-130
33.03	136.20	1.210	0.9	27	24	4.01	39		CAND to Cilty CAND	110-120
33.52	98.50	0.770	0.8	25	21	4.07	37		SAND to Silty SAND	110-120

John Sarmiento & Associates Cone Penetration Testing Service

PROJECT: SVRT NEWHALL YARD CPT NO.: CPT-35 Page 2 of 2 LOCATION: San Jose / Santa Clara CA DATE: 09-06-2005 PROJ. NO.: 6600.3.001.01(EGO-102) Groundwater measured at 14.9 feet Terminated at 47.0 feet DEPTH Rf SPT SPT TotVtStr PHI ۵c Fs SH SOIL BEHAVIOR DENSITY RANGE (feet) (tsf) (tsf) (%) (N) (N') (ksf) (deg.) (ksf) TYPE (pcf) 34.03 91.30 0.890 1.0 23 19 4.13 37 ----1.1 120-130 34.53 90.60 0.930 1.0 23 19 ----11 4.19 36 35.08 132.30 0.680 0.5 26 22 4.25 39 ----SAND 100-110 35.51 81.60 0.710 0.9 20 17 ----SAND to Silty SAND 4.30 36 120-130 36.07 53.30 0.660 1.2 18 15 4.37 33 ----Silty SAND to Sandy SILT 11 36.50 22.90 0.310 1.4 9 7 4.42 ----2.76 110-120 Sandy SILT to Clayey SILT 37.02 34.30 0.590 1.7 11 4.49 ----4.27 120-130 37.54 4.55 20.10 0.260 8 7 ----1.1 1.3 2.38 110-120 38.01 23.20 0.540 2.3 Q R ----2.79 11 4.61 120-130 0.990 38.53 113.70 37 0.9 28 23 4.67 ----SAND to Silty SAND 39.06 117.20 0.710 0.6 23 19 4.73 38 ----110-120 SAND 1.390 39.58 121.90 30 4.80 ----SAND to Silty SAND 38 1.1 24 120-130 Gravelly SAND to SAND 40.07 234.00 0.770 0.3 39 31 4.84 42 ----90-100 40.57 93.20 0.440 19 4.90 ----100-110 0.5 15 36 SAND 41.07 112.20 0.940 0.8 28 22 4.96 37 ----SAND to Silty SAND 120-130 273.00 41.58 1.750 0.6 55 43 5.02 42 ----110-120 SAND 42.08 348.40 1.800 0.5 58 46 5.07 44 ----Gravelly SAND to SAND 42.53 312.20 2.750 0.9 49 5.13 ----62 43 SAND 120-130 43.00 224.90 1.540 0.7 45 35 5.19 41 ----1.1 110-120 1.1 197.50 1.410 0.7 40 31 ----43.54 5.25 40 1 1 44.07 227.90 1.870 0.8 46 35 5.31 41 ----. . 120-130 44.53 270.60 ----1.1 1.650 0.6 54 42 5.37 42 110-120 Gravelly SAND to SAND 45.04 354.60 2.090 0.6 59 5.43 ----1.1 397.10 1,960 0.5 50 45.56 66 5.48 44 1.1 100-110 46.07 406.90 1.830 0.4 68 52 5.53 45 ----1.1 46.54 591.10 1.710 0.3 99 75 47 ----5.58 90-100 . . 47.03 656.80 3.260 0.5 109 83 5.63 ----100-110

DEPTH = Sampling interval (2 inches)

Qc = Tip bearing resistance TotStr = Total Stress using est. density\*\*

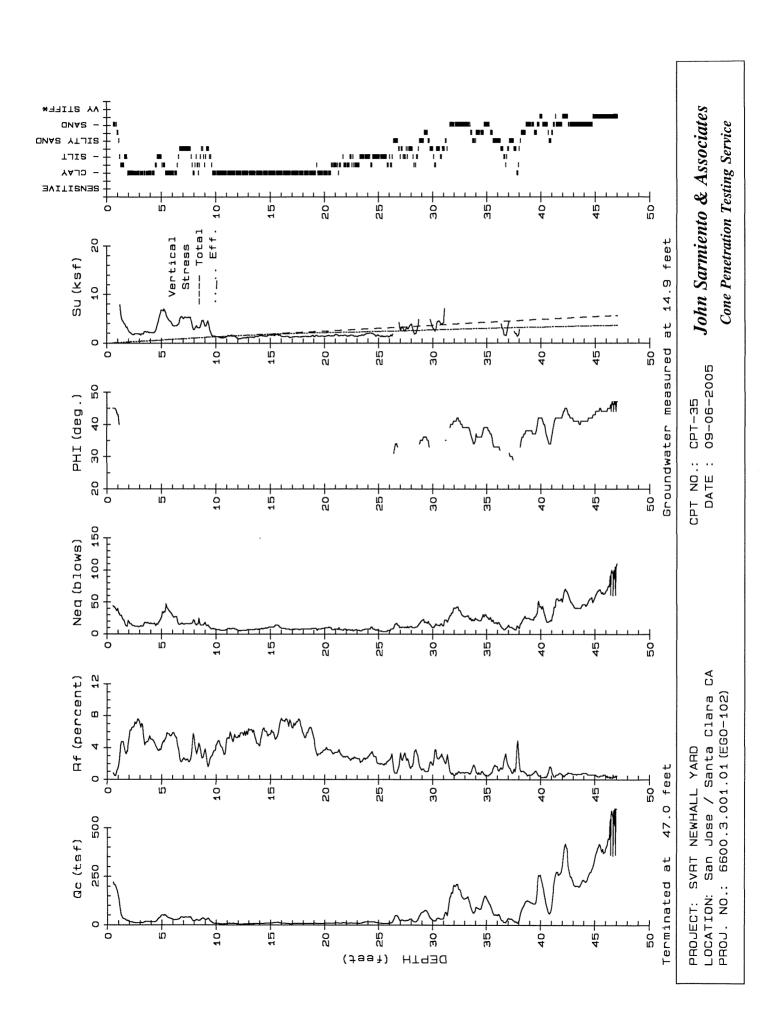
Fs = Sleeve friction resistance Phi = Soil friction angle\*

Rf = Tip/Sleeve ratio Su = Undrained Soil Strength\* (Nk=10 for Qc<9 tsf)

SPT = Equivalent Standard Penetration Test\* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf)

References: \* Robertson and Campanella, 1988

\*\* Olsen, 1989 \*\*\* Durgunoglu & Mitchell, 1975



Silicon Valley Rapid Transit Project —Yard & Shops Segment P0504-D400-RPT-DE-008 Geotechnical Report										
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## 7.2 APPENDIX B

## ENGEO INCORPORATED

Logs of Borings

P0504-D400-RPT-DE-008 Geotechnical Report

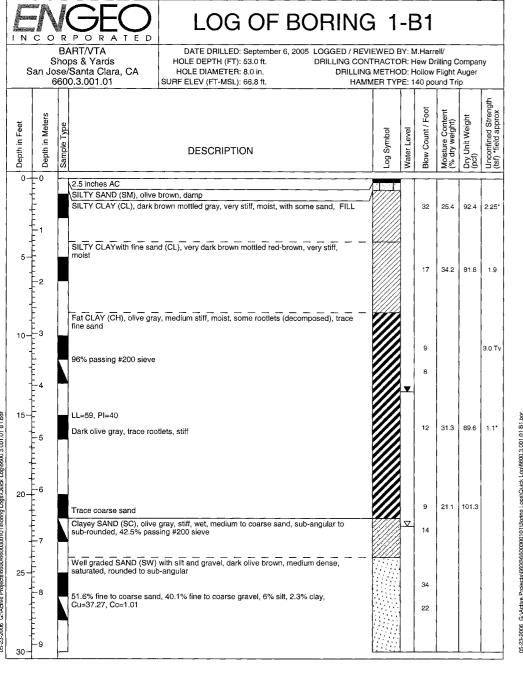
## FIELD EQUIPMENT & PROCEDURES

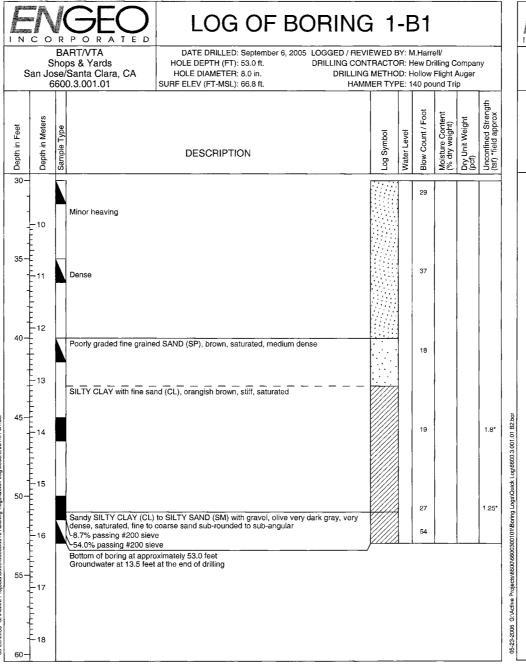
The test borings were drilled by Hew Drilling Company using a CME-750 truck-mounted drill rig equipped with 8-inch-diameter hollow stem augers. The hollow stem auger drilling procedure was performed in accordance with ASTM standards (D6151-97). This method of drilling utilizes the hollow auger to hold the borehole open for sediment sampling and well installation; as such, no drilling fluid is used during drilling.

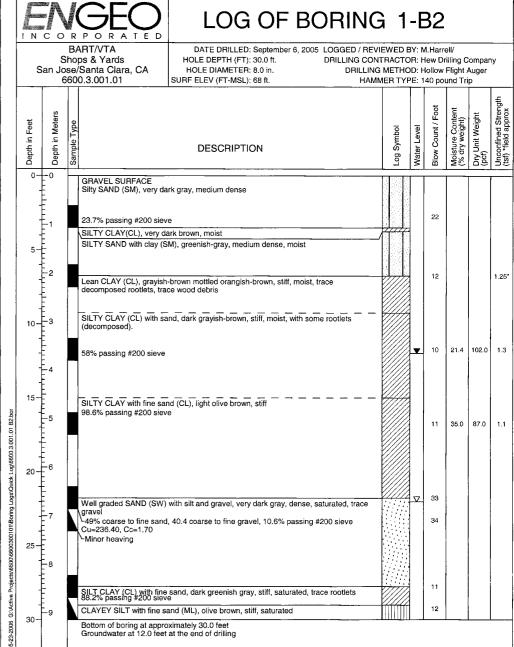
Soil samples were collected by using a 3-inch outside diameter (O.D.) California-type split-spoon sampler fitted with 6-inch-long brass liners, a 2-inch outside diameter (O.D.) Standard Penetration Test split-spoon sampler or a 3-inch O.D. Shelby Tube. The split spoon samplers were driven with a 140-pound above-hole safety hammer falling a distance of 30 inches. An automatic trip system was used to lift the hammer during our exploration, and drill rods were used to keep the hammer above ground. The penetration of the split-spoon samplers into the subsurface materials was field recorded as the number of blows needed to drive the sampler 18 inches in 6-inch increments using the 140-pound hammer with a 30-inch drop. The Shelby Tubes were advanced by pushing using the hydraulics of the drill rig.

It should be noted that the report borelogs represent the actual field blow counts for the last one foot of penetration and have not been subjected to conversion factors to achieve representative SPT ( $N_{60}$ ) results.

After the completion of each test borehole, if a piezometer is planned, a 2-inch O.D. screened PVC pipe will be installed. Clean sand is used to backfill around the screened section and extends to 1 foot above the screen section of the piezometer pipe. A bentonite plug approximately 1-foot-thick is then placed over the clean sand. The remaining length of the piezometer pipe was backfilled with cement grout. If no piezometer is planned at the borehole location, the full length of the borehole was backfilled using cement grout.







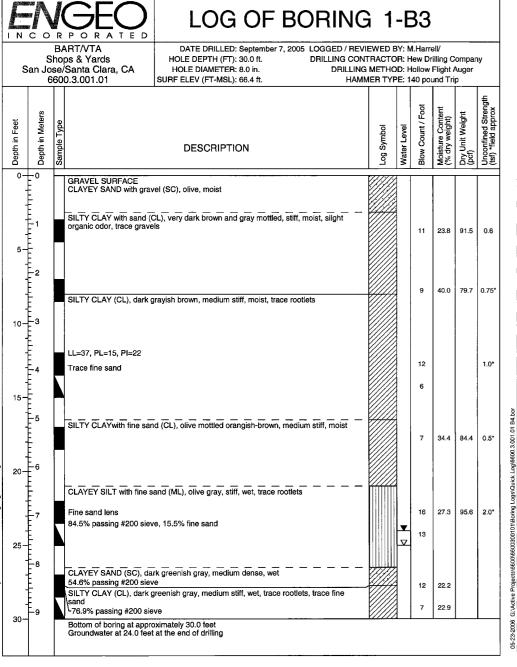
						DESIGNED BY M. CANEPA
						DRAWN BY J. McKISSACK
						CHECKED BY
						IN CHARGE
Α	20060227				INTERIM SUBMITTAL ISSUED FOR REVIEW	M. CANEPA
REV	DATE	BY	SUB	APP	DESCRIPTION	DATE 20060227

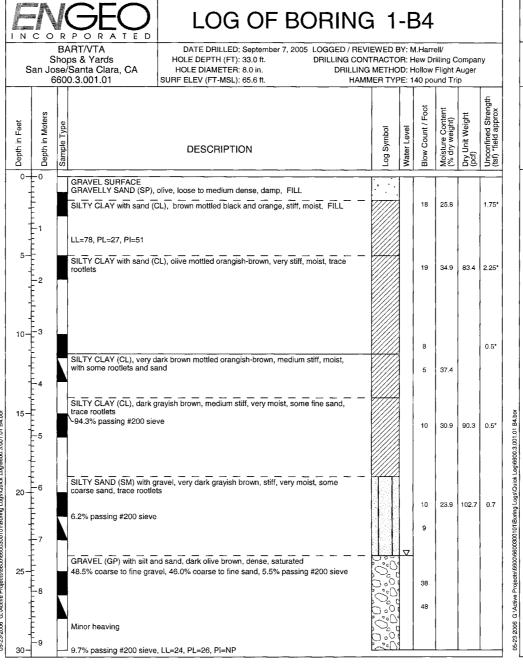


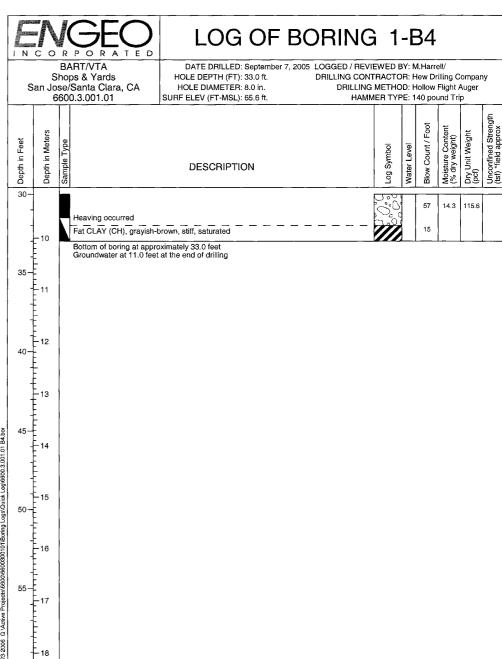












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						DRAWN BY J. McKISSAC
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						IN CHARGE
Α	20060227				INTERIM SUBMITTAL ISSUED FOR REVIEW	M. CANEPA
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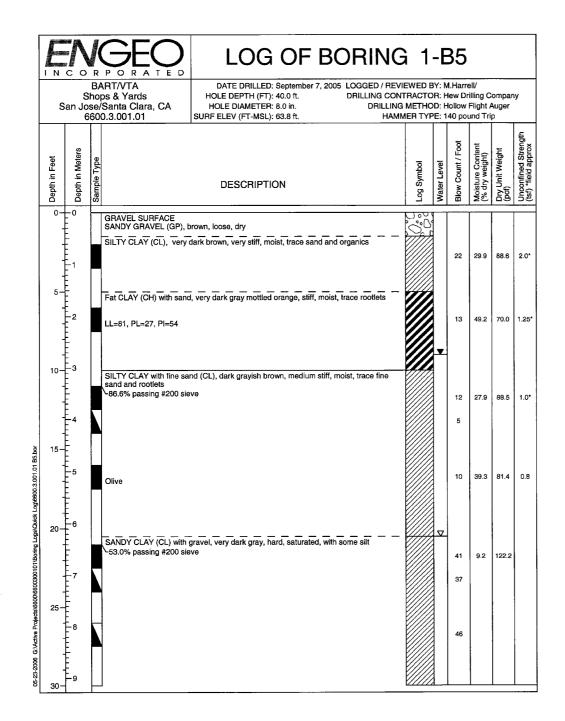
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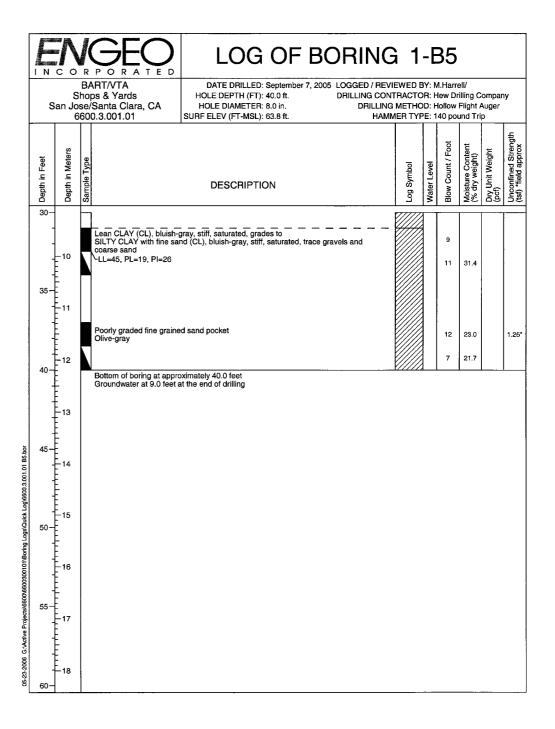




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	P0504 YARD AND SHOPS SEGMENT	SIZE	SCALE		
	GEOTECHNICAL	D		NTS	
ı	520120111012	CONT	CONTRACT NO		
	BORING LOGS			D400	
	BORINGS 1-B3 AND 1-B4	AREA	CODE	SHEET NO.	
	SHEET 2 OF 27	Y	S	G105	

-G105-A.dwg





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						DRAWN BY J. McKISSACK	
						CHECKED BY	
						IN CHARGE	l
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EV	DATE	BY	SUB	APP	DESCRIPTION	DATE 20060227	

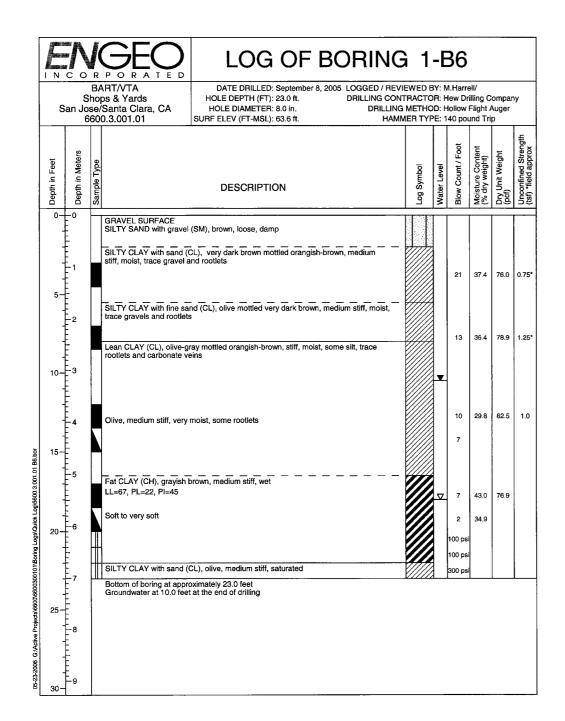








SILICON VALLEY RAPID TRANSIT PROJECT	CADD FILENAME	
SILICON VALLET NAFID INANSII FINOSECT	D400-S-YS-G105-A.dw	g
PO504 YARD AND SHOPS SEGMENT	SIZE SCALE	
GEOTECHNICAL	D NTS	
GEOTECHNICAL	CONTRACT NO. REV.	
BORING LOG	D400	Α
BORINGS 1-B5	AREA CODE SHEET NO. PAGE	NO
SHEET 3 OF 27	YS G105	



E	<u>``</u>		GEO PORATED	LOG OF BORING	G 1	-E	37				
	San Jo	iho ISO/	ART/VTA ps & Yards Santa Clara, CA 0.3.001.01	DATE DRILLED: September 8, 2005 LOGGED / REVIEWED BY: M.Harrell/ HOLE DEPTH (FT): 22.0 ft. DRILLING CONTRACTOR: Hew Drilling Company HOLE DIAMETER: 8.0 in. DRILLING METHOD: Hollow Flight Auger SURF ELEV (FT-MSL): 64.2 ft. HAMMER TYPE: 140 pound Trip							
Depth in Feet	Dapth in Meters	Sample Type		DESCRIPTION	Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) "field approx	
0-	+0 			(SM), brown, medium dense, damp CL), olive-brown, stiff, moist, trace organics			17			2.0*	
5-	-2		FAT CLAY (CH), olive-gr LL=78, PL=25, PI=53	ay, medium stiff, moist, trace rootlets			11	36.5	78.1	1.0	
10-	3		Lean CLAY (CL), dark of trace rootlets, rust stains	ve-brown mottled orangish-brown, meidum stiff, very moist,		•	12 5	33.2	83.9		
15-	1-4 		Offve-gray, stiff, wet			▽	11	32.7	87.1		
ador spiros 20 -	E		Stiff, wet				10 10	31.9	90.2		
DEC 19 COLONO TORRONDO DE PROPERTO DE LA COLONO DE PROPERTO DE LA COLONO DEL COLONO DE LA COLONO DEL COLONO DE LA COLONO DEL LA COLONO DELA COLONO DE LA COLONO DE LA COLONO DE LA COLONO D			Bottom of boring at appre Groundwater at 13.5 feet	oximately 22.0 feet at the end of drilling							
30-	- - - 9										

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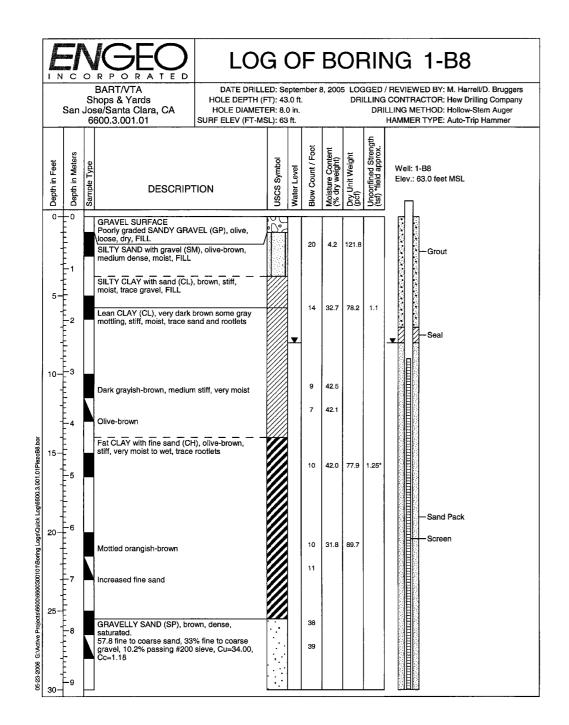


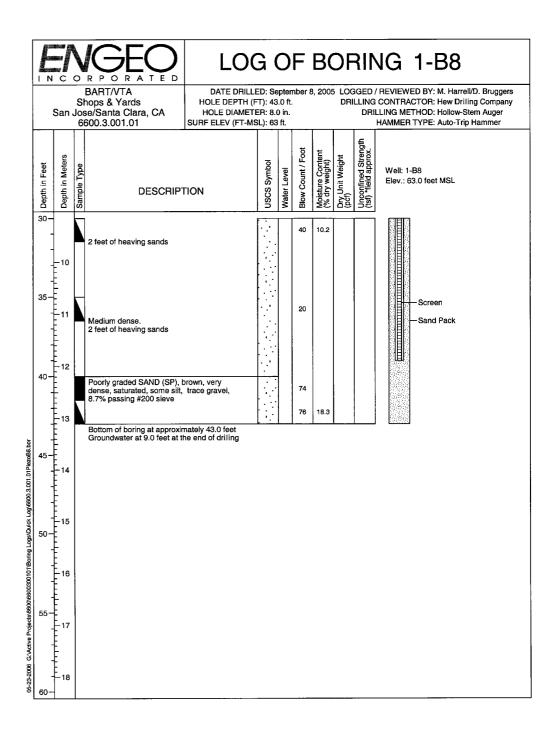






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P0504 YARD AND SHOPS SEGMENT SIZE S GEOTECHNICAL	SCALE NTS	
BORING LOGS	ACT NO. D400	REV. A
BORINGS 1-B6 AND 1-B7 SHEET 4 OF 27  AREA C YS	S G105	PAGE NO.





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ΕV	DATE	BY	SUB	APP	DESCRIPTION	DATE 20060227	



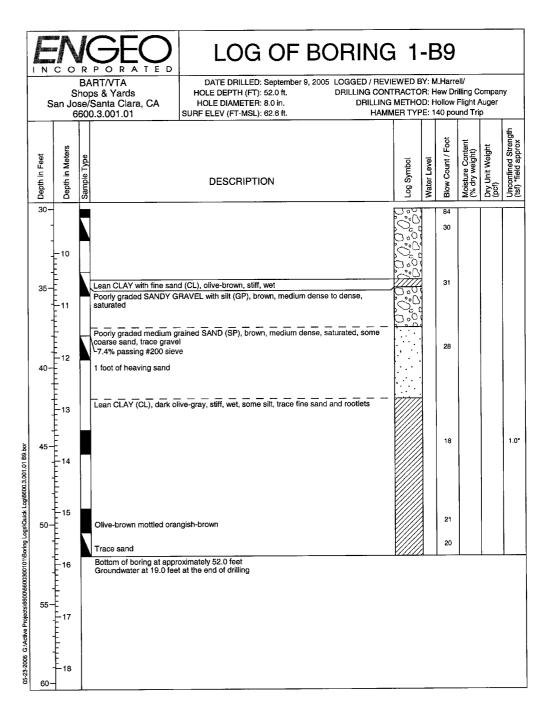






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	P0504 YARD AND SHOPS SEGMENT  GEOTECHNICAL	SIZE D	SCALE	: NTS			
	BORING LOG	CONTR	RACT N	D400	REV.		
1	BORINGS 1—B8 SHEET 5 OF 27	AREA	code S	SHEET NO. G105	PAGE NO		

San Jo	B/ Sho	PORATED ART/VTA ps & Yards Santa Clara, CA 0.3.001.01	DATE DRILLED: September 9, 2005 LOGGED / REVIEWED BY: M.Harrell/ HOLE DEPTH (FT): 52.0 ft. DRILLING CONTRACTOR: Hew Drilling C HOLE DIAMETER: 8.0 in. DRILLING METHOD: Hollow Flight, SURF ELEV (FT-MSL): 62.6 ft. HAMMER TYPE: 140 pound Tr							
Depth in Feet Depth in Meters	Sample Type		DESCRIPTION	Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength	
0+0 		GRAVEL SURFACE Poorly graded SAND with	n gravel (SP), olive-brown, loose, damp, FILL							
1 5- 5- 1- 2		SILTY CLAY with sand (i PL=20, Pl=47	CH), very dark brown, stiff, mosit, trace gravels, LL=67			13			1.2	
10-13		Lean CLAY (CL), olive-b	rown, stiff, very moist, trace sand and rootlets			11			1.0	
15-1-1-5		Increased trace rootlets			₽	11			1.	
20-6			-brown mottled grayish-brown, loose to medium dense			10				
		very mois 70.4 passing #200 siev Poorly graded SANDY G some clay 7.6% passing #200 siev	RAVEL with slit (GP), brown, meldum dense, saturated	i, with		49				



						DESIGNED BY M. CANEPA DRAWN BY J. MCKISSACK CHECKED BY	
						IN CHARGE M. CANEPA	
١	20060227				INTERIM SUBMITTAL ISSUED FOR REVIEW	DATE DATE	
v	DATE	BY	SUB	APP	DESCRIPTION	20060227	

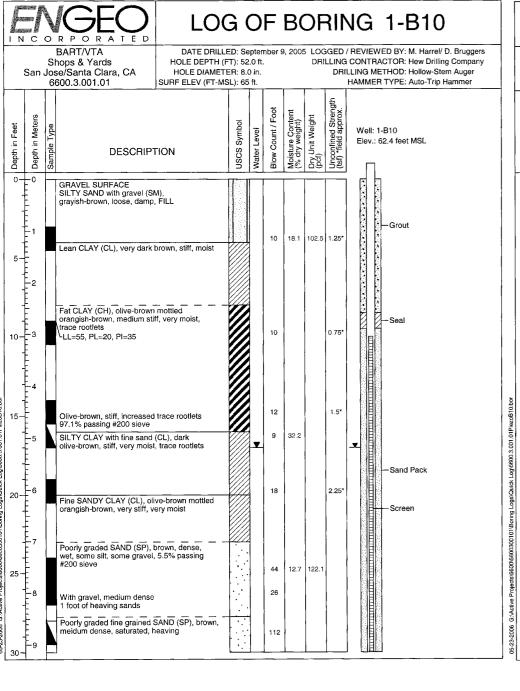


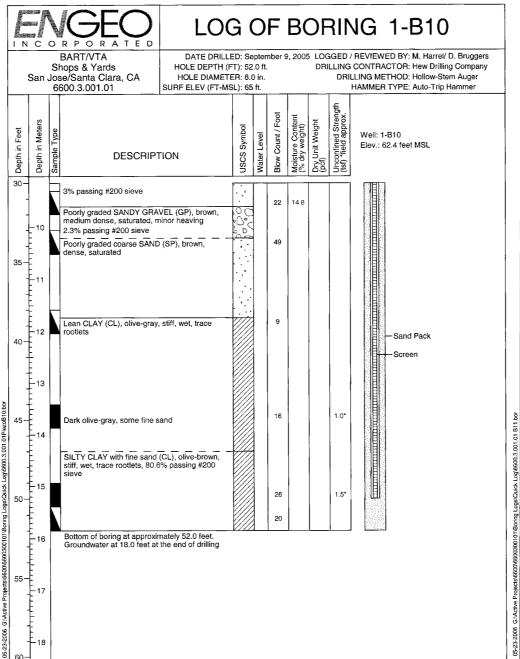


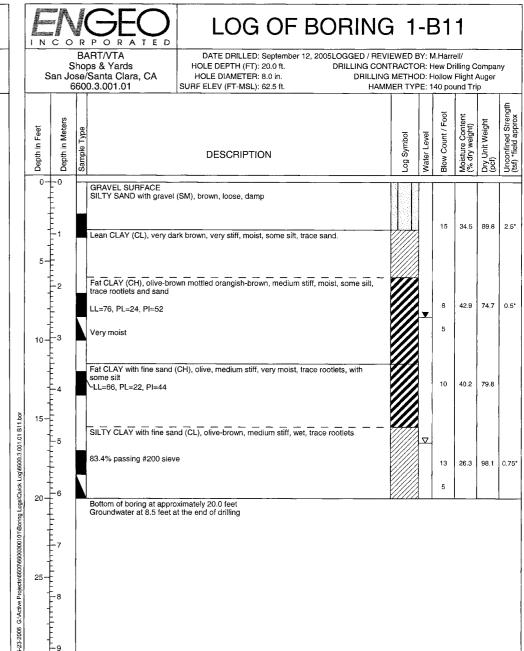




SILICON VALLEY RAPID TRANSIT PROJECT		FILEN 100-S	ame S-YS-G105-	-A.dwg
P0504 YARD AND SHOPS SEGMENT  GEOTECHNICAL	SIZE D	SCALE	NTS	
BORING LOG	CONT	RACT N	0. D400	REV.
BORINGS 1-B9	AREA	CODE	SHEET NO.	PAGE NO.







						DESIGNED BY M. CANEPA
						DRAWN BY J. McKISSACK
						CHECKED BY
						IN CHARGE
Α	20060227				INTERIM SUBMITTAL ISSUED FOR REVIEW	M. CANEPA
REV	DATE	BY	SUB	APP	DESCRIPTION	DATE 20060227

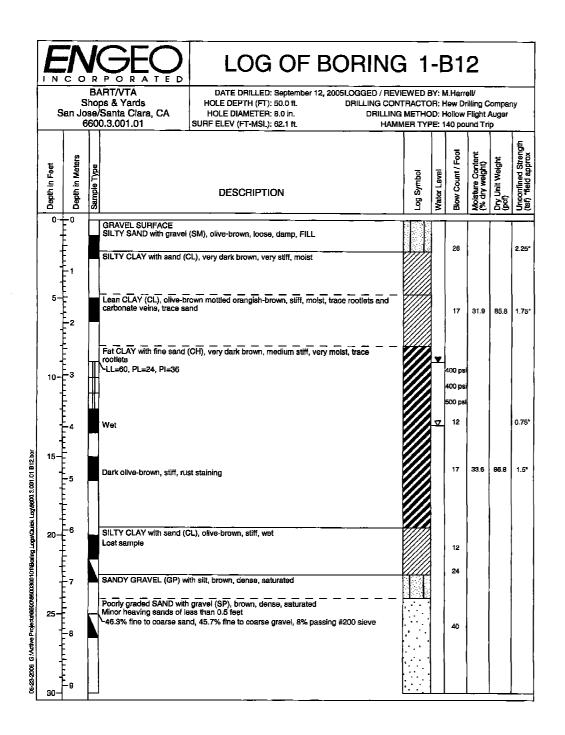


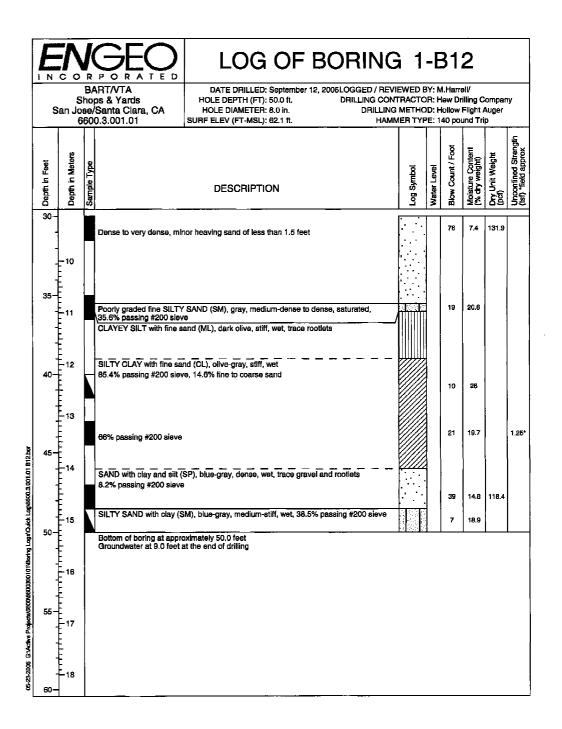






SILICON VALLEY RAPID TRANSIT PROJECT	CADD FILENAME D400-S-YS-G105-A.dwg		
P0504 YARD AND SHOPS SEGMENT  GEOTECHNICAL	SIZE SCAL D	e NTS	
BORING LOGS	CONTRACT	NO. D400	REV.
BORINGS 1—B10 AND 1—B11 SHEET 7 OF 27	AREA CODE YS	SHEET NO. G105	PAGE NO





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						IN CHARGE	
Α	20060227				INTERIM SUBMITTAL ISSUED FOR REVIEW	M. CANEPA	
ΕV	DATE	BY	SUB	APP	DESCRIPTION	DATE	

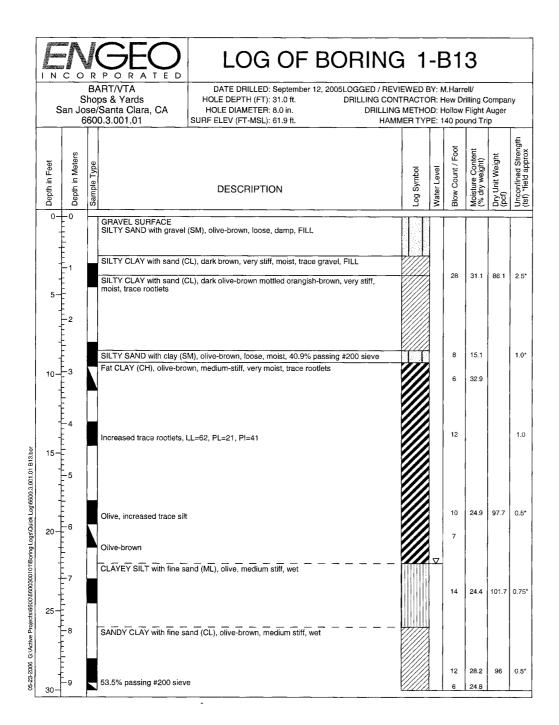


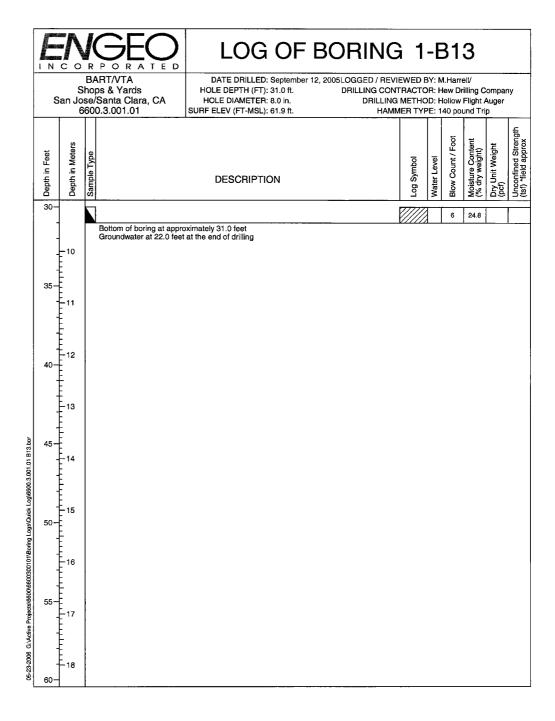






	SILICON VALLEY RAPID TRANSIT PROJECT		FILEN/	AME S-YS-G105	-A.dwg
	P0504 YARD AND SHOPS SEGMENT  GEOTECHNICAL	D	SCALE	NTS	
	BORING LOG	CONT	RACT N	D400	REV. A
١	BORINGS 1—B12 SHEET 8 OF 27	AREA Y	CODE	SHEET NO. G105	PAGE NO.





						DESIGNED BY M. CANEPA DRAWN BY J. McKISSACK CHECKED BY	
						IN CHARGE	1
Α	20060227				INTERIM SUBMITTAL ISSUED FOR REVIEW	M. CANEPA	
RFV	DATE	BY	SUB	APP	DESCRIPTION	DATE 1	

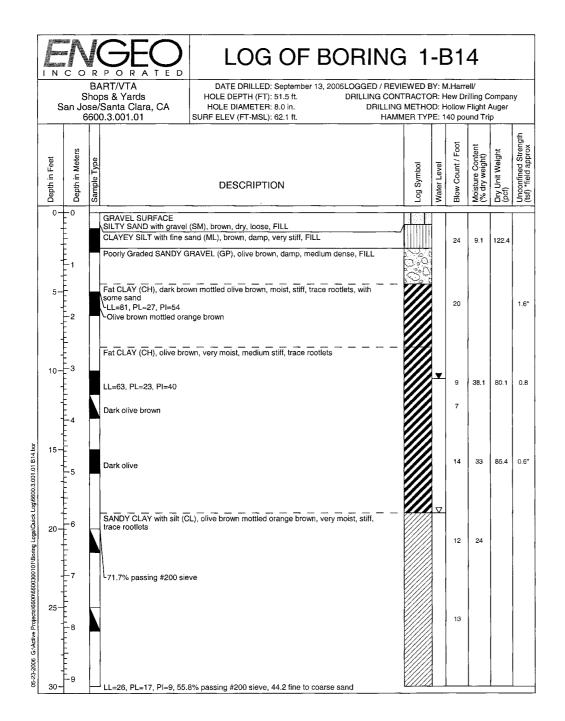


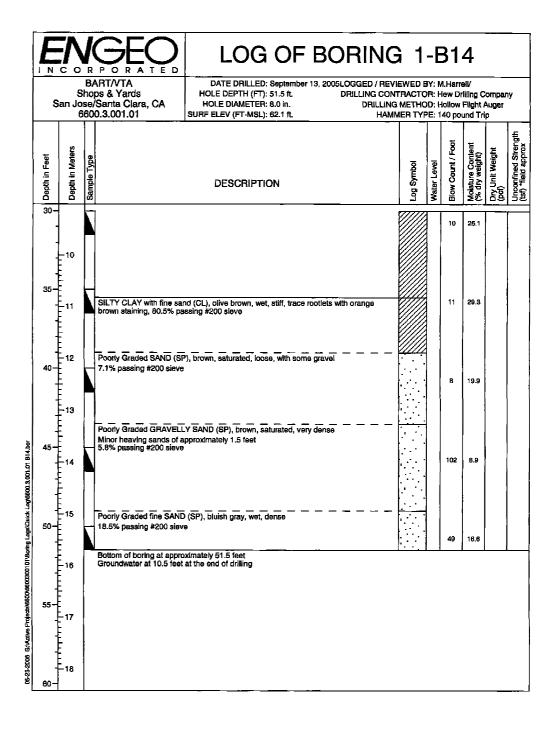






SILICON VALLEY RAPID TRANSIT PROJECT	CADD FILE D400-	NAME -S-YS-G105	-A.dwg
P0504 YARD AND SHOPS SEGMENT GEOTECHNICAL	SIZE SCA D	LE NTS	
BORING LOG	CONTRACT	NO. D400	REV.
BORINGS 1-B13 SHEET 9 OF 27	AREA COD YS	G105	PAGE NO





						DESIGNED BY M. CANEPA DRAWN BY J. MCKISSACK CHECKED BY	
						IN CHARGE	
Α	20060227				INTERIM SUBMITTAL ISSUED FOR REVIEW	M. CANEPA	
ΕV	DATE	BY	SUB	APP	DESCRIPTION	DATE	



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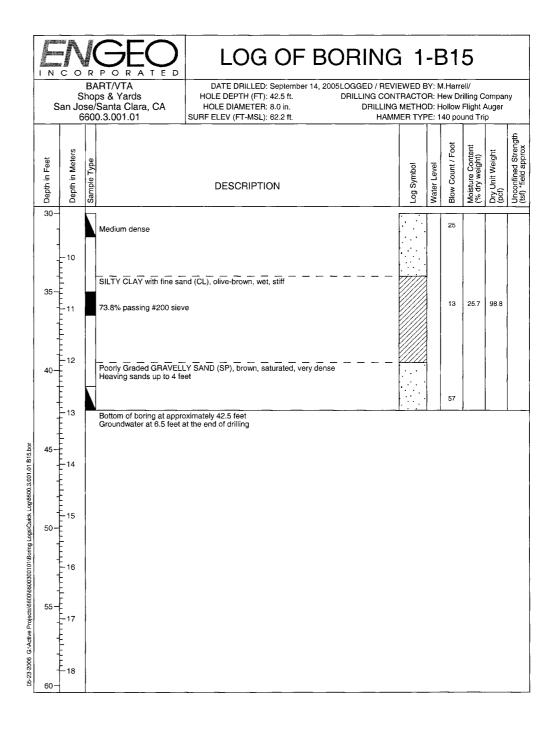






SILICON VALLEY RAPID TRANSIT PROJECT	CADD FILENAME D400-S-YS-G105-A.dwg			
P0504 YARD AND SHOPS SEGMENT GEOTECHNICAL	SIZE SO	ALE NTS		
BORING LOG	CONTRAC	T NO. D400	REV.	
BORINGS 1-B14 SHEET 10 OF 27	AREA CO	DE SHEET NO. G105	PAGE NO	

_ Z	CO	R	SEO P O R A T E D	LOG OF BO	ORING	à 1	-Е	31	5					
5	San Jos	ho <sub>l</sub> se/	ART/VTA os & Yards Santa Clara, CA 0.3.001.01	DATE DRILLED: September 14, 20 HOLE DEPTH (FT): 42.5 ft. HOLE DIAMETER: 8.0 in. SURF ELEV (FT-MSL): 62.2 ft.	DRILLING CON DRILLING	OGGED / REVIEWED BY: M.Harrell/ RILLING CONTRACTOR: Hew Drilling Company DRILLING METHOD: Hollow Flight Auger HAMMER TYPE: 140 pound Trip								
Depth in Feet	Depth in Meters	Sample Type		DESCRIPTION		Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) "field approx			
5-			, 	RAVEL with silt (GP), damp, loose, FILL strown, moist, medium stiff				11			0.5*			
10-	<del>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</del>			e-brown, very moist, medium stiff, trace roo	tlets		▼	9	16.2	92.6 75.5	0.5*			
k Log/6600.3.001.01 B15.bor	5		Olive-brown	· - <del></del>			▽	11	36.9	81.6	1.0*			
101/Boring Logs/Quic	F-6			oarse SAND (SP), brown, saturated, dense add, 42.6 fine to coarse gravel, 7% passing #				39 41						
05-23-2006 G Vactive Projects/6600/6600300101/Boring Logs/Ouick Log/6600.3.001 01 813-bor	7 7 8 8		5.7% passing #200 sieve					49						



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						IN CHARGE	
Α	20060227				INTERIM SUBMITTAL ISSUED FOR REVIEW	M. CANEPA	
PFV	DATE	RY	SUB	ΔPP	DESCRIPTION	DATE	



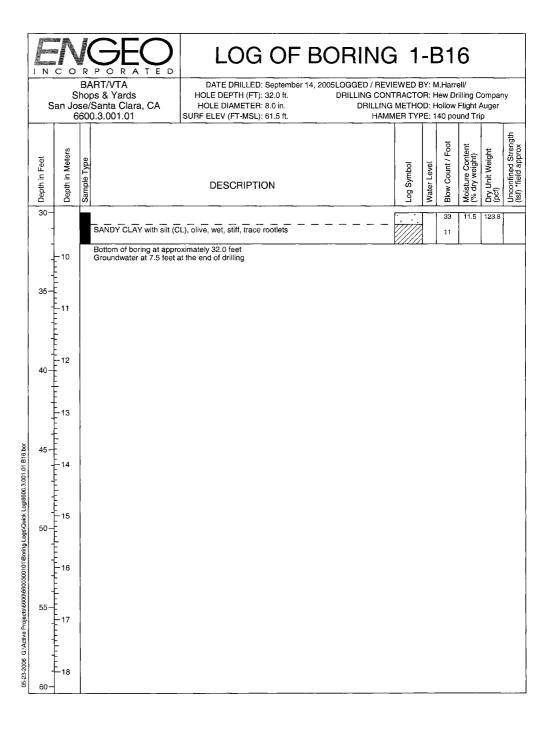






SILICON VALLEY RAPID TRANSIT PROJECT	CADD FILENAME D400-S-YS-G105-A.dwg					
P0504 YARD AND SHOPS SEGMENT GEOTECHNICAL	SIZE SCALE D NTS					
BORING LOG	CONTRACT NO. REV. A					
BORINGS 1-B15 SHEET 11 OF 27	AREA CODE SHEET NO. PAGE NO.  YS G105					

S	S an Jo	BA Shop			)R: F )D: F	lew Dr Iollow	filling C	Auger	iy
Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength
0-1	0		GRAVEL SURFACE SILTY SAND with gravel (SM), olive to brown, damp, loose						
5-	2		Fat CLAY (CH), very dark brown, moist, stiff, trace rootlets		<b>V</b>	17	35.8	80.4	1.5
10-	3	1	Olive brown, increased trace rootlets			14	35.9	83.3	1.1
15	4		LL=67, PL=22, PI=45		▽	18	37.5	82.0	1.29
20-	6		SANDY CLAY with fine sand (CL), olive-brown, wet, medium stiff, trace rootlets 56.7% passing #200 sieve			15	25.5		1.25
-	7	1	SANDY CLAY(SC) CLAYEY SAND (SC), olive-brown, wet, stift/medium dense, trace rootlets	-		7	23.4		
25	8		Poorly Graded fine SAND (SP), brown, saturated, medium dense			33	11.5	123.8	



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Α	20060227				INTERIM SUBMITTAL ISSUED FOR REVIEW	M. CANEPA	
REV	DATE	BY	SUB	APP	DESCRIPTION	DATE 20060227	



SUBMITTED <u>DEB</u>

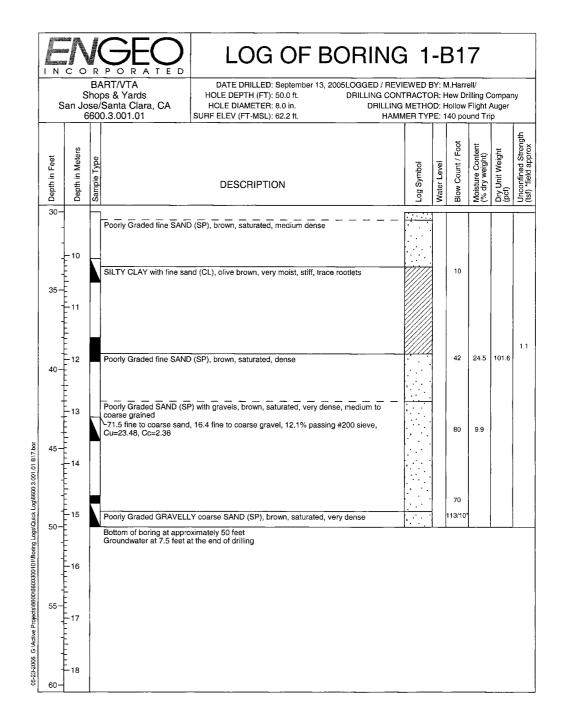






SILICON VALLEY RAPID TRANSIT PROJECT		FILEN 100-5	AME S-YS-G105-	-A.dwg
PO504 YARD AND SHOPS SEGMENT  GEOTECHNICAL	SIZE D	SCALE	NTS	
BORING LOG	CONT	RACT N	0. D400	REV.
BORINGS 1-B16 SHEET 12 OF 27	AREA	CODE	SHEET NO.	PAGE NO.

S	an Jo	Sho ose,	ART/VTA DATE DRILLED: September 13, 2005LOGGED / REVIPES & Yards PSA Yards Santa Clara, CA 0.3.001.01  DATE DRILLED: September 13, 2005LOGGED / REVIPES 6.0 ft. DRILLING CON HOLE DIAMETER: 8.0 in. DRILLING SURF ELEV (FT-MSL): 62.2 ft. HAMM	TRACTO	DR: H	lew Di Iollow	rilling C Flight /	Auger	пу
Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength
0-	0		GRAVEL SURFACE SILTY SAND with gravel (SM), olive brown, damp, medium dense, FILL						
-	-1 -1					25			
5-	-2		SILTY CLAY with sand (CL), dark brown, moist, stiff						
_		ļ	Lean CLAY (CL), olive brown, moist, medium stiff, trace rootlets, trace fine sand		▼	9	31.8	91.6	0.
10-	3								
-	-4					15	41.8	77.0	1.
15-			Dark grayish brown, stiff  Olive brown, very moist, stiff			9		77.0	
-	-5 - - - -		Fine SANDY CLAY with silt (CL), olive, very moist, medium stiff Piece of wood						
20-	6		Piece of wood			21	37.4	79.5	0.
1	<u></u>		Well Graded GRAVELLY SAND (SW), brown, saturated, dense, medium to coarse grained, some silt, trace clay	,,,,,,	₽				
25-			51.2% fine to coarse sand, 38.4% fine to coarse gravel, 10.4% passing #200 sieve, heaving sands of approximately 7 feet			50	6.9		
-	E-8		Minor Heaving sands of approximately 1.5 feet, 6.4% passing #200 sieve						
30-	<u>-</u> 9					36	7.1		



						DESIGNED BY M. CANEPA DRAWN BY J. MCKISSACK CHECKED BY  IN CHARGE
Α	20060227				INTERIM SUBMITTAL ISSUED FOR REVIEW	M. CANEPA
PFV	DATE	BY	SUB	APP	DESCRIPTION	DATE



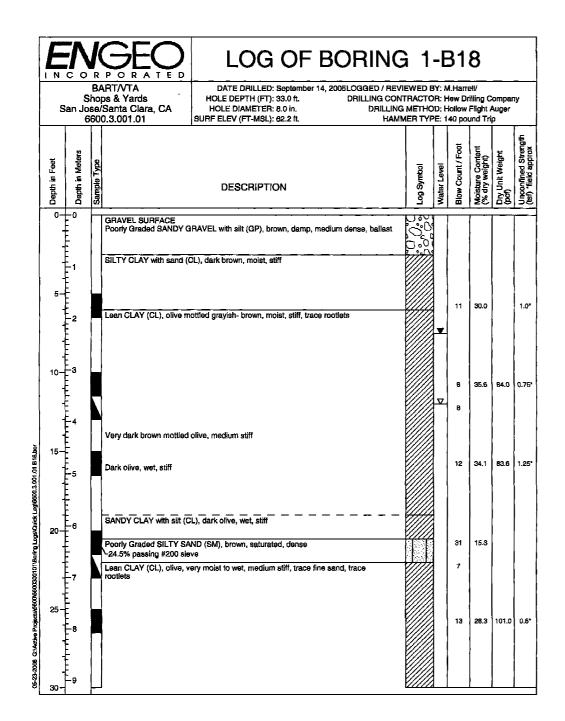
SUBMITTED <u>DEB</u>

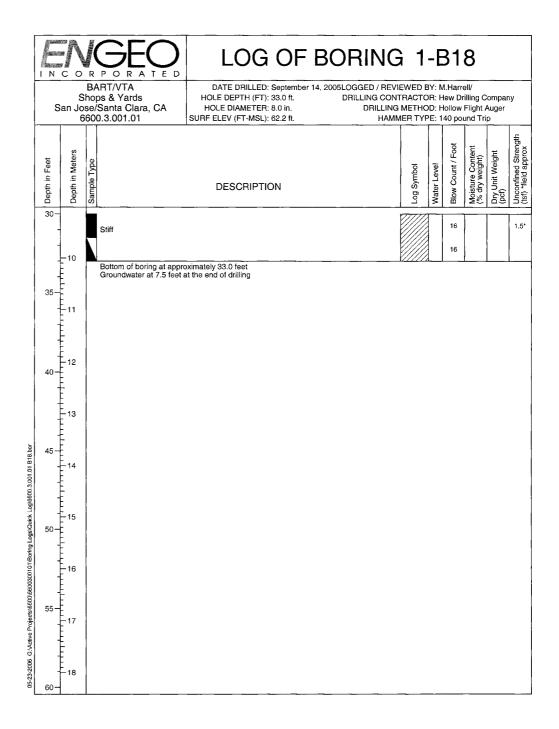






CILICON VALLEY DADID TDANICIT DDO IECT		FILEN				
SILICON VALLEY RAPID TRANSIT PROJECT	D400-S-YS-G105-A.dw					
P0504 YARD AND SHOPS SEGMENT	SIZE	SCALE				
GEOTECHNICAL	D		N	NTS .		
GEOTECHNICAL	CONT		REV.			
BORING LOG			D40	00	A	
BORINGS 1-B17	AREA	CODE	SHEET N	٧0.	PAGE NO.	
SHEET 13 OF 27	Y	S	G1(	05		





						DESIGNED BY M. CANEPA DRAWN BY J. McKISSACK CHECKED BY	
	0000000				INTERIM CURNITAL ISSUED FOR DRIVEN	IN CHARGE M. CANEPA	
Α	20060227				INTERIM SUBMITTAL ISSUED FOR REVIEW	DATE	
RFV	DATE	BY	SUB	APP	DESCRIPTION	20060227	

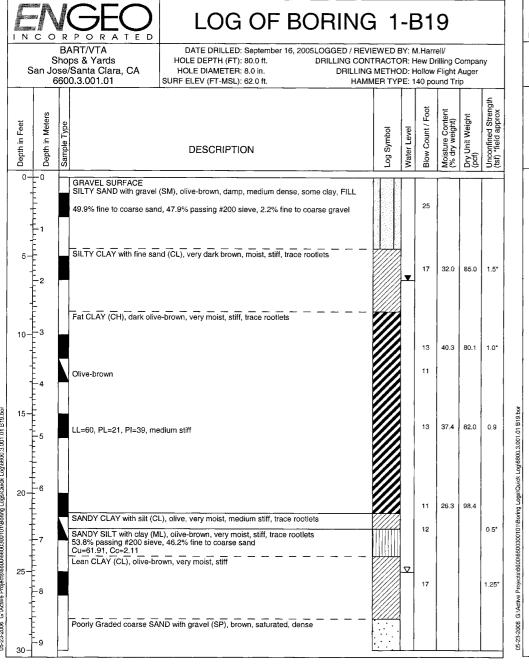


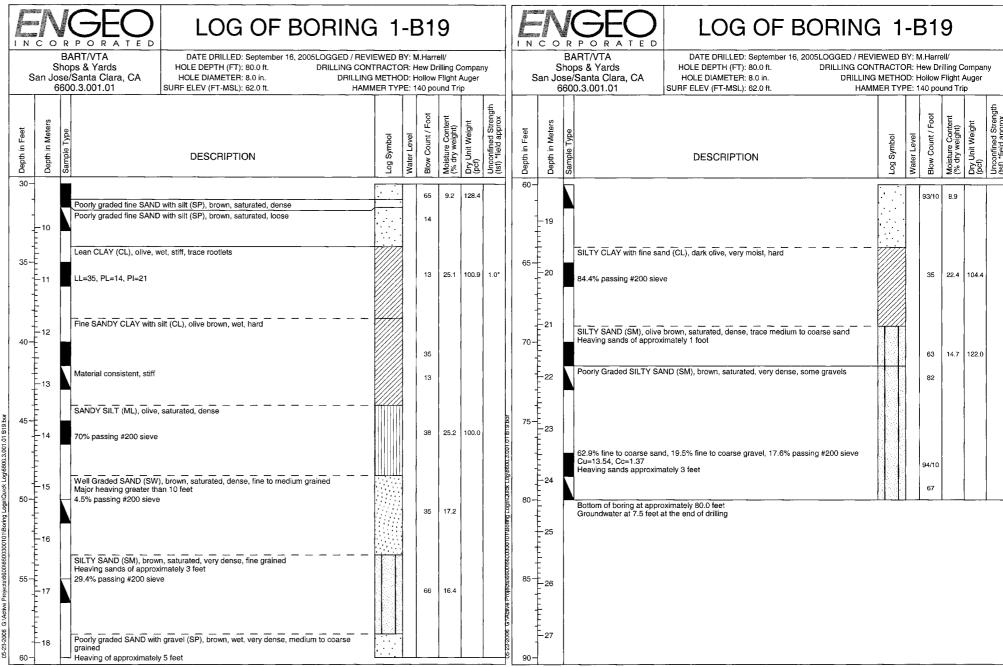






	SILICON VALLEY RAPID TRANSIT PROJECT		FILEN 100-5	ame S-YS-G105-	-A.dwg
	P0504 YARD AND SHOPS SEGMENT  GEOTECHNICAL	SIZE D	SCALE	NTS	
	BORING LOG	CONTR	RACT N	10. D400	REV.
١	BORINGS 1-B18 SHEET 14 OF 27	AREA	CODE	SHEET NO. G105	PAGE NO







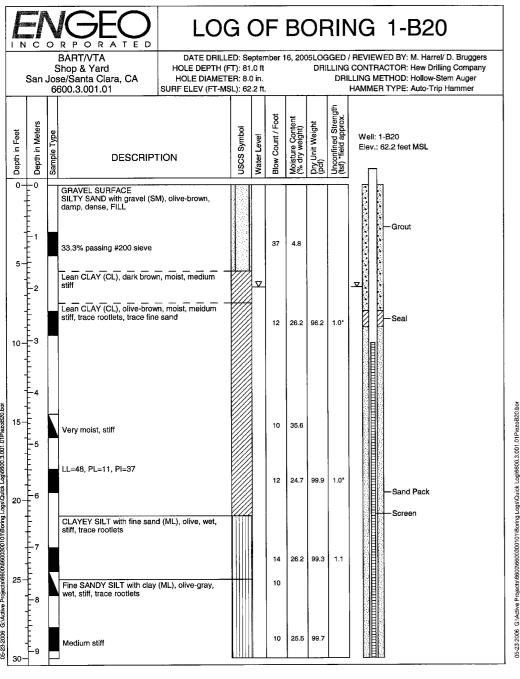


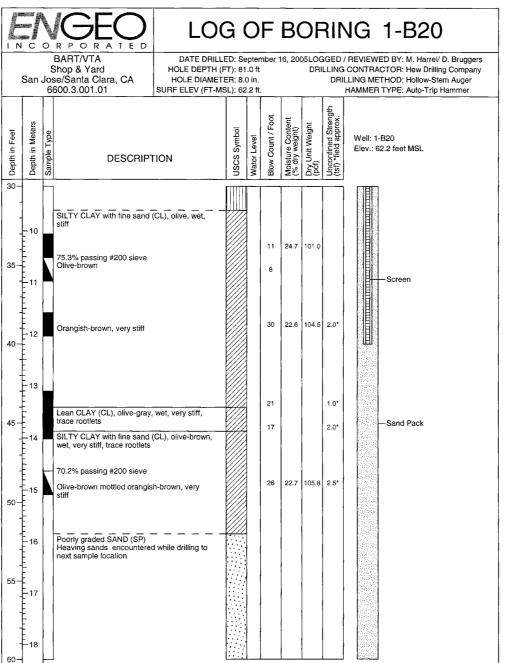


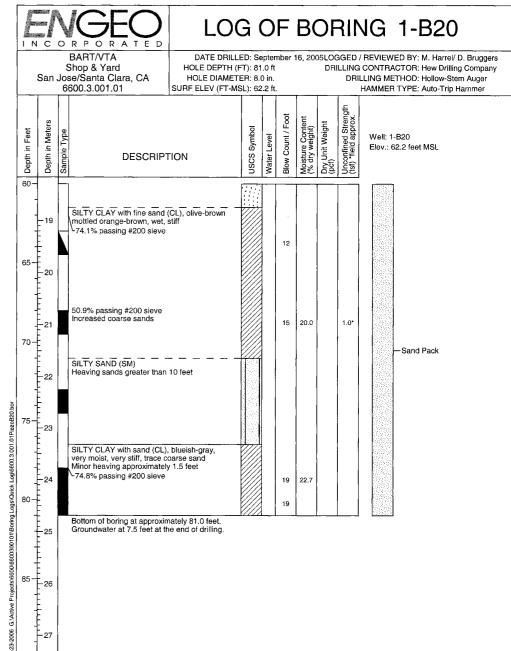




SILICON VALLEY RAPID TRANSIT PROJECT		FILEN 100-5	ame S-YS-G105-	-A.dwg
P0504 YARD AND SHOPS SEGMENT GEOTECHNICAL	SIZE D	SCALE	NTS	
BORING LOG	CONT	RACT N	10. D400	REV.
BORINGS 1—B19 SHEET 15 OF 27	AREA	CODE	SHEET NO. G105	PAGE NO







						DESIGNED BY M. CANEPA
						DRAWN BY J. McKISSACK
						CHECKED BY
						IN CHARGE
Α	20060227				INTERIM SUBMITTAL ISSUED FOR REVIEW	M. CANEPA
REV	DATE	BY	SUB	APP	DESCRIPTION	DATE 20060227



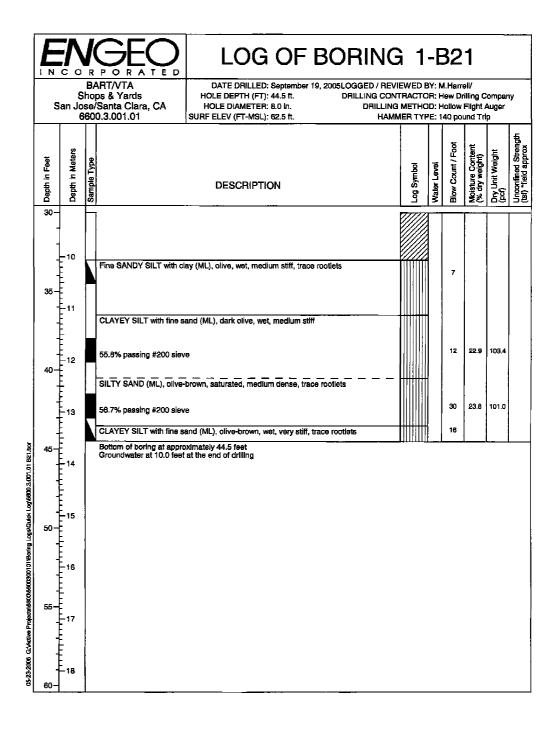






SILICON VALLEY RAPID TRANSIT PROJECT	CADD			
SILICUN VALLET RAPID TRANSIT PROJECT	D40	00-9	S-YS-G105-	-A.dwg
P0504 YARD AND SHOPS SEGMENT	SIZE	SCALE		
GEOTECHNICAL	D		NTS	
GLOTLOTINICAL	CONTR	ACT N	10.	REV.
BORING LOG			D400	A
BORINGS 1-B20	AREA (	CODE	SHEET NO.	PAGE NO
SHEET 16 OF 27	Y	S	G105	

E Sa	S an Jo	B/se/	DEC LOG OF BORING ART/VTA ps & Yards Santa Clara, CA 0.3.001.01  LOG OF BORING DATE DRILLED: September 19, 2005LOGGED / REV HOLE DEPTH (FT): 44.5 ft. HOLE DIAMETER: 8.0 in. SURF ELEV (FT-MSL): 62.5 ft.  DRILLING CON DRILLING	IEWED E	BY: N DR: H	A.Harr lew Di lollow	ell/ rilling C Flight /	Auger	ıy
Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
	-0		GRAVEL SURFACE Poorly graded GRAVELLY SAND with silt (SP), ollve-brown, damp, medium dense, FILL						
5-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	-2		SILTY CLAY with sand (CL), dark-brown, moist, stiff  60.3% passing #200 sieve  SILTY CLAY with fine sand (CL), olive-brown mottled orangish-brown, moist, stiff,			16	26.7	90.5	2.0*
10-	-3		SILTY CLAY with time saint (CL), blive-brown motiled orangish-brown, moist, scit, trace rootlets		v	14	29.9	89.4	1.0*
2 15—	-4		Fat CLAY (CH), olive-brown, very moist, medium stiff, trace rootlets, trace fine sand  LL=81, PL=21, PI=40			11	34.5	83.1	1.0*
2000 100 100 100 100 100 100 100 100 100	-5		Dark-olive			17	35.3	84.6	1.0*
20 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	-6		Olive-brown to very dark-brown  SILTY CLAY (CL), olive, very moist, medium stiff, trace rootlets, trace fine sand		▽				
15-22-2006 G:VacAre Projectiv@600980x3000101860pg Logs/Caulet, Log/6600.3,001.01 B21.bo	-7		LL=37, PL=17, Pl=20			7			
05-23-2006 G: Worker	-9		Olive-gray			12	27.8	95.6	



						DESIGNED BY M. CANEPA DRAWN BY J. MCKISSACK CHECKED BY	
	2000022				INTERIM CURNITAL ICCUER FOR REVIEW	IN CHARGE M. CANEPA	
Α	20060227				INTERIM SUBMITTAL ISSUED FOR REVIEW	DATE	
REV	DATE	BY	SUB	APP	DESCRIPTION	1 200e0227	









ILICON VALLEY RAPID TRANSIT PROJEC	T CADD FILENAME D400-S-YS-G105-A.dwg
PO504 YARD AND SHOPS SEGMENT GEOTECHNICAL	SIZE SCALE D NTS
BORING LOG	CONTRACT NO. D400 REV. A
BORINGS 1—B21 SHEET 17 OF 27	AREA CODE SHEET NO. PAGE NO.

N C San	Sh Jos	BA lop	.RT/VTA DATE DRILLED: September 19, 2005LOGGED / REVI  39 & Yards HOLE DEPTH (FT): 33.0 ft. DRILLING CON  Santa Clara, CA HOLE DIAMETER: 8.0 in. DRILLING	TRACTO	R: H D: H	lew Dr Iollow	illing C Flight #	Auger	ıy
Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pdf)	Unconfined Strength
0+0 +- +- +- +-1	,  -    -		GRAVEL SURFACE Poorly graded SANDY GRAVEL with silt (SM), grayish-brown, damp, medium dense, FILL						İ
5- <del> -</del> 			Lean CLAY (CL), very dark brown, very moist, medium stiff			11	38.5	78.7	1.0
10 - 2			Lean CLAY (CL), clive-brown mottled orangish-brown, very moist, medium stiff, trace rootlets, trace fine sand		v	11	40.7	77.7	0.7
-  -  -  -  -  -  -  -  -  -			Stiff			9		l 	
15-4-5			Olive, medlum stiff			10			0.75
20-1-6			CLAYEY SILT (ML), olive, very moist, medium stiff, trace rootlets		▽	8	27.5	97.1	1.5
25-1-8			Stiff			10	25.6	100.4	0.70
<u>‡</u> - - - -		-	CLAYEY SAND (SC), clive, wet, very stiff						

i l	5	-2	Lean CLAY (CL), very dark brown, very moist, medium stiff	-	11	38.5	78.7	1.
'	10-	-2 -3	Lean CLAY (CL), olive-brown mottled orangish-brown, very moist, medium stiff, trace rootlets, trace fine sand	- <b> </b>	<u> </u>			
	10-	-4	. Stiff		9	40.7	77.7	0
00.3.001.01 B22.ber	15	-5	Olive, medlum stiff		10	1		0.
06-23-2008 G3-Variwe Projecta/08/00/660030010/12a/mg Laga/Quick Lage/690013.001.01 R22.ber	20-	-6 - -7	CLAYEY SILT (ML), olive, very moist, medium stiff, trace rootlets	-	8	27.5	97.1	1.
099/0090stoeloud awithV:D	25-	-8	Stiff		10	25.6	100.4	0.
05-53-2004	30-	-9	CLAYEY SAND (SC), olive, wet, very stiff					
_	•							

DESIGNED BY M. CANEPA

IN CHARGE M. CANEPA DATE

20060227

CHECKED BY

INTERIM SUBMITTAL ISSUED FOR REVIEW

A 20060227

REV DATE BY SUB APP

DRAWN BY J. McKISSACK

ENCELO 6399 SAN IGNACIO AVENUE SUITE 130

IN C O R P O R A T E D SAN JOSE CALIFORNIA 96119

ENCIELLENT BERVICE BINGE 1977 (408) 574-4900 - FAX (889) 279-2698

SUBMITTED <u>DEB</u>

0.76*		CG-29-2006 G-Vactive Projectiviš	55-	-17
AF	STV Incorporated Engineers/Architects/Planners/Construction Managers 10.1 METRO DRIVE, SUITE 248 SAN JOSE, CA 95.110—1348 (408) 573—2810 FAX:(408) 451—9516	BA	R T	Rap



BART/VTA Shops & Yards San Jose/Santa Clara, CA 6600.3.001.01

Depth in Meters Depth in Feet

30-

Bottom of boring at approximately 33.0 feet Groundwater at 10.0 feet at the end of drilling

LOG OF BORING 1-B22

HOLE DIAMETER: 8.0 in. SURF ELEV (FT-MSL): 62.1 ft.

DESCRIPTION

SILTY SAND (SM), olive, saturated, medium dense, trace rootlets, 48.5% passing #200 sieve

DATE DRILLED: September 19, 2005LOGGED / REVIEWED BY: M.Harrell/ HOLE DEPTH (FT): 33.0 ft. DRILLING CONTRACTOR: Hew Drilling Company

DRILLING METHOD: Hollow Flight Auger HAMMER TYPE: 140 pound Trip

> 20 23.3

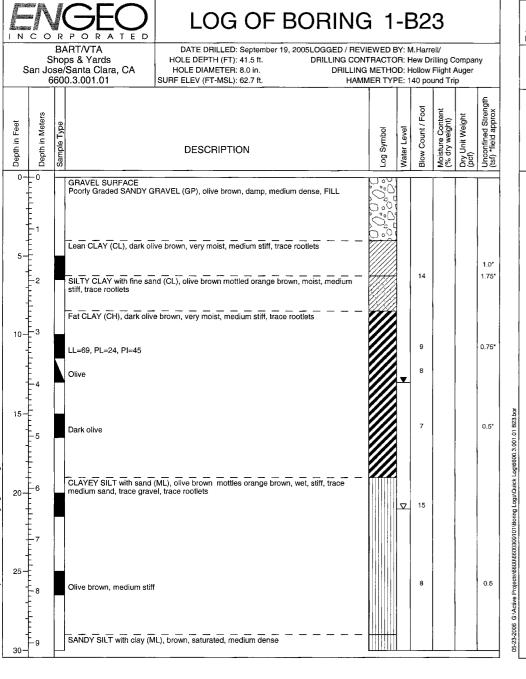
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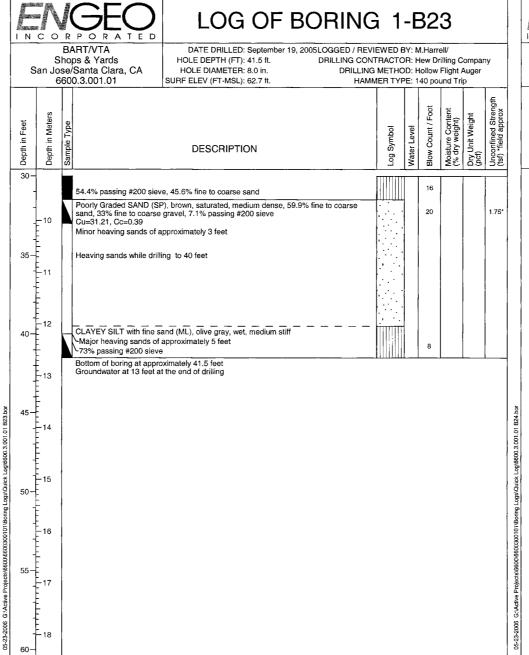
SILICON VALLEY RAPID TRANSIT PROJECT P0504 YARD AND SHOPS SEGMENT GEOTECHNICAL BORING LOG BORINGS 1-B22

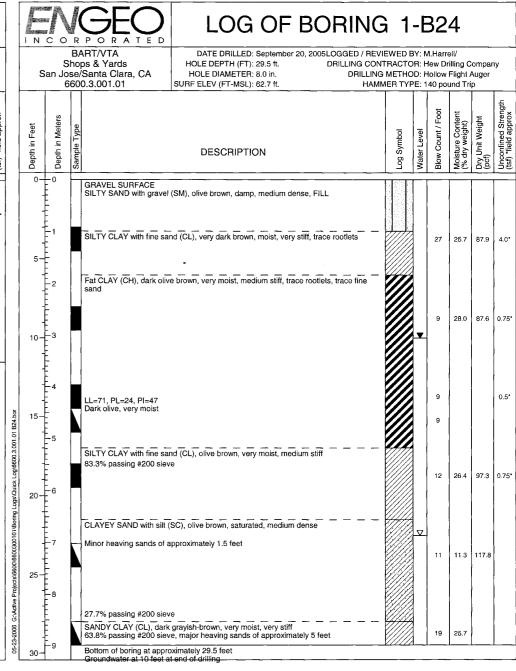
SHEET 18 OF 27

CADD FILENAME D400-S-YS-G105-A.dwg SIZE SCALE AREA CODE SHEET NO.

YS G105







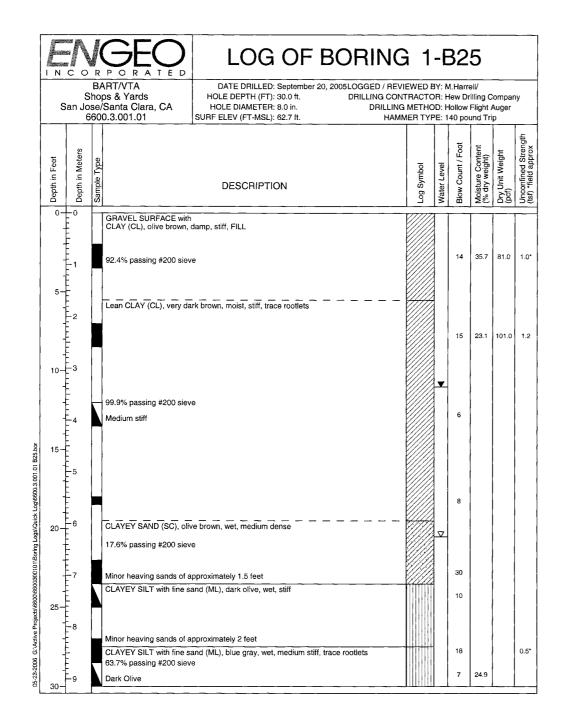
						DESIGNED BY M. CANEPA	Ī
						DRAWN BY J. McKISSACK	
						CHECKED BY	
						IN CHARGE	
Α	20060227				INTERIM SUBMITTAL ISSUED FOR REVIEW	M. CANEPA	
REV	DATE	BY	SUB	APP	DESCRIPTION	DATE	

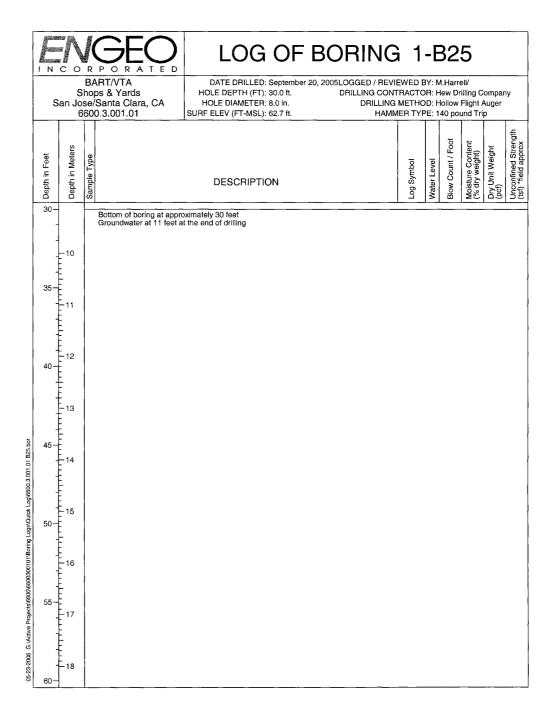












						DESIGNED BY M. CANEPA DRAWN BY J. MCKISSACK CHECKED BY	
						IN CHARGE	
Α	20060227				INTERIM SUBMITTAL ISSUED FOR REVIEW	M. CANEPA	
EV	DATE	BY	SUB	APP	DESCRIPTION	DATE	

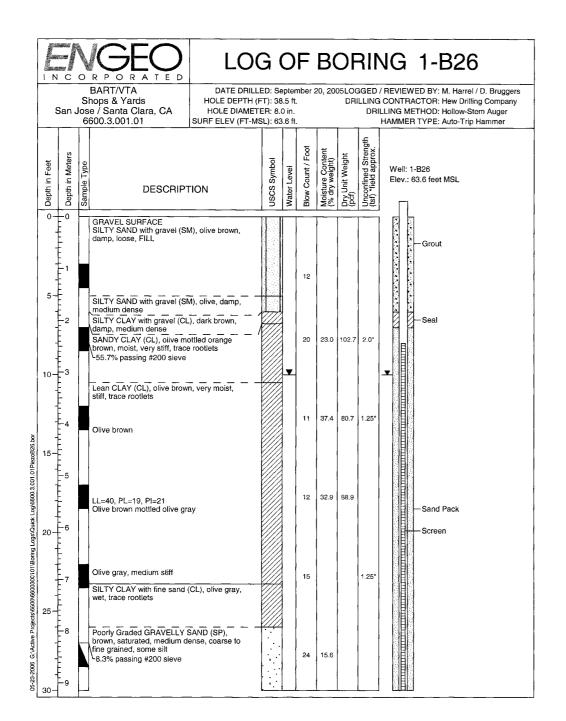


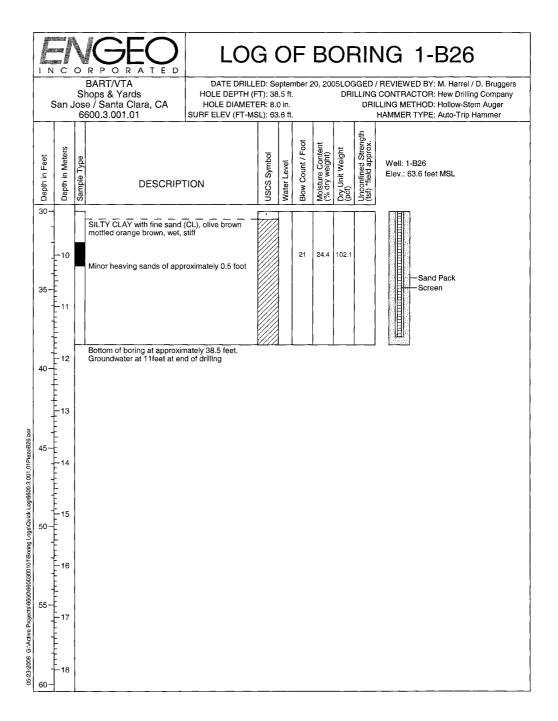






SILICON VALLEY RAPID TRANSIT PROJECT	CADD D4		AME S-YS-G105-	-A.dwg
P0504 YARD AND SHOPS SEGMENT GEOTECHNICAL	SIZE D	SCALE	NTS	
BORING LOG	CONTR	RACT N	D400	rev.
BORINGS 1—B25 SHEET 20 OF 27	AREA	CODE S	SHEET NO. G105	PAGE NO





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						IN CHARGE M. CANEPA	
Α	20060227				INTERIM SUBMITTAL ISSUED FOR REVIEW		
ΕV	DATE	BY	SUB	APP	DESCRIPTION	DATE 20060227	

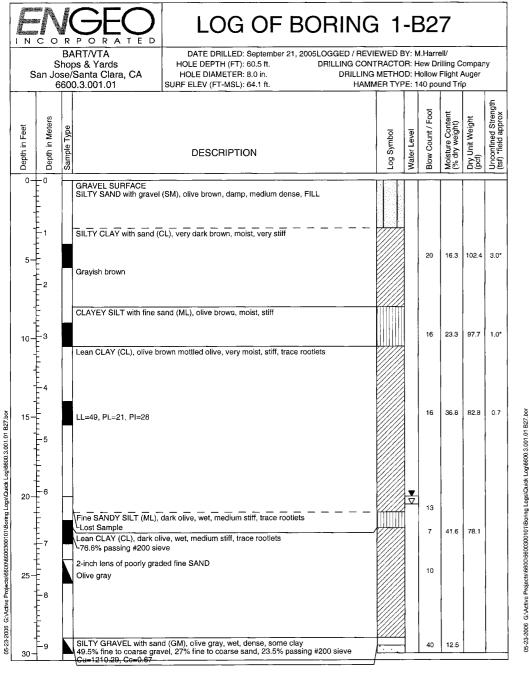


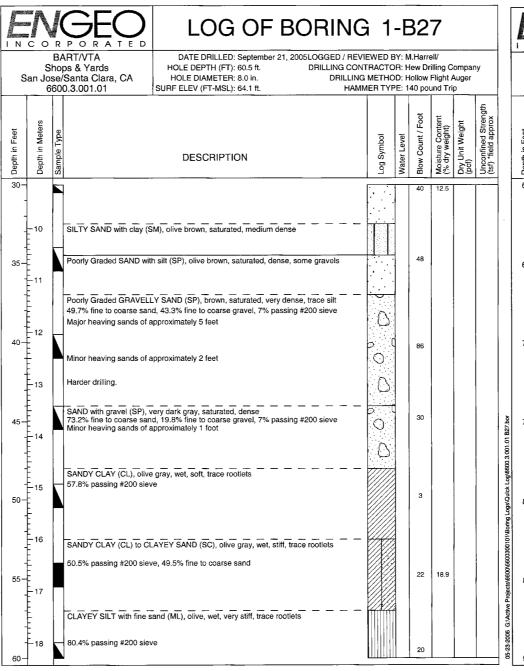


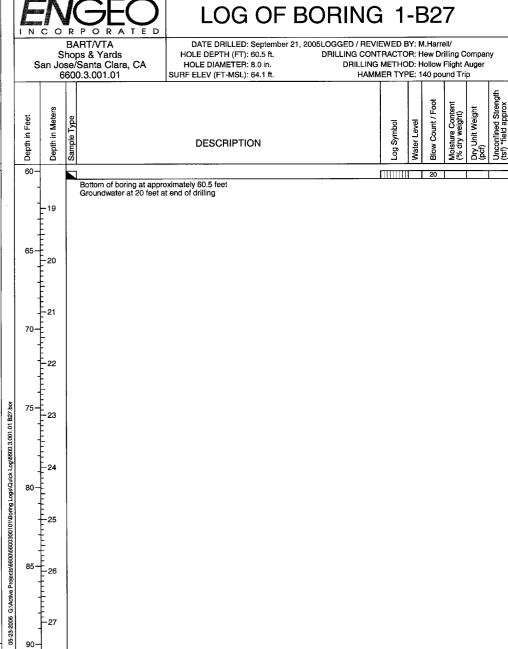




SILICON VALLEY RAPID TRANSIT PROJECT		FILEN	AME S-YS-G105:	-A.dwg
P0504 YARD AND SHOPS SEGMENT GEOTECHNICAL	SIZE D	SCALE	NTS	
BORING LOG	CONTR	RACT N	10. D400	REV.
BORINGS 1—B26 SHEET 21 OF 27	AREA	CODE	SHEET NO. G105	PAGE NO







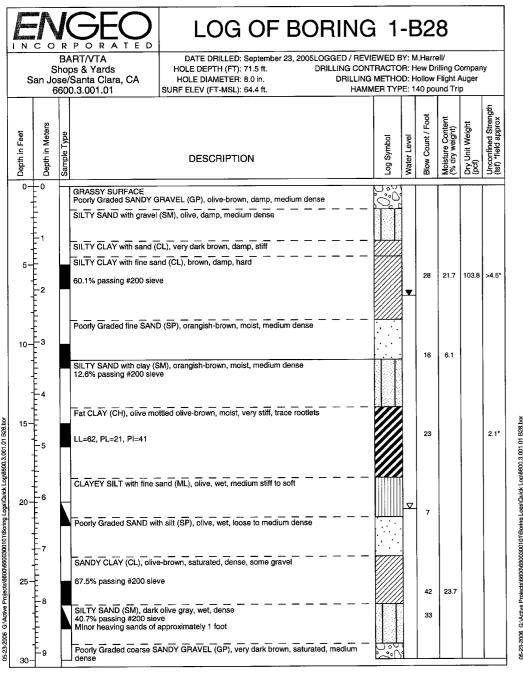
						DESIGNED BY M. CANEPA
						J. McKISSACK
						CHECKED BY
						IN CHARGE
Α	20060227				INTERIM SUBMITTAL ISSUED FOR REVIEW	M. CANEPA
RFV	DATE	BY	SUB	APP	DESCRIPTION	DATE

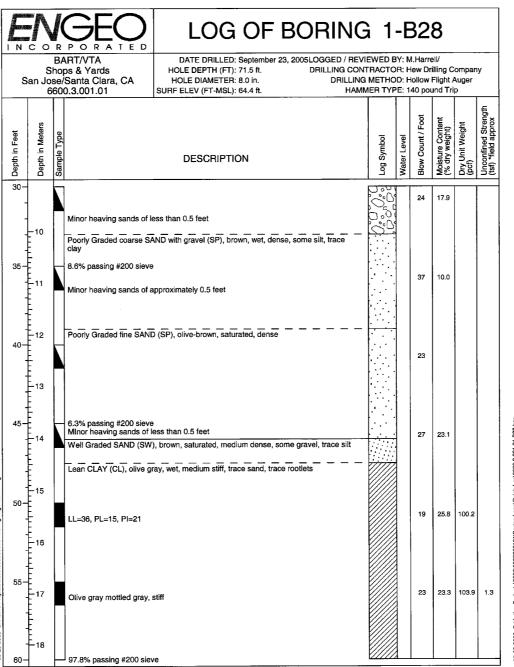


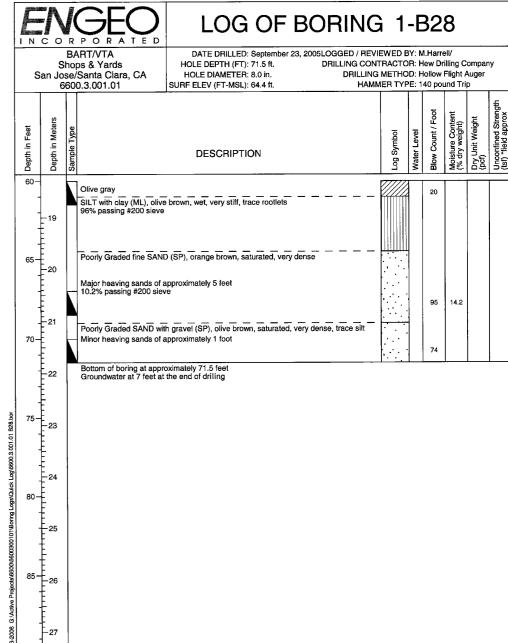












								DESIGNED BY M. CANEPA
								DRAWN BY J. McKISSAC
								CHECKED BY
								IN CHARGE
Α	20060227				INTERIM	SUBMITTAL ISSUED F	OR REVIEW	M. CANEPA
REV	DATE	BY	SUB	APP		DESCRIPTIO	N .	DATE



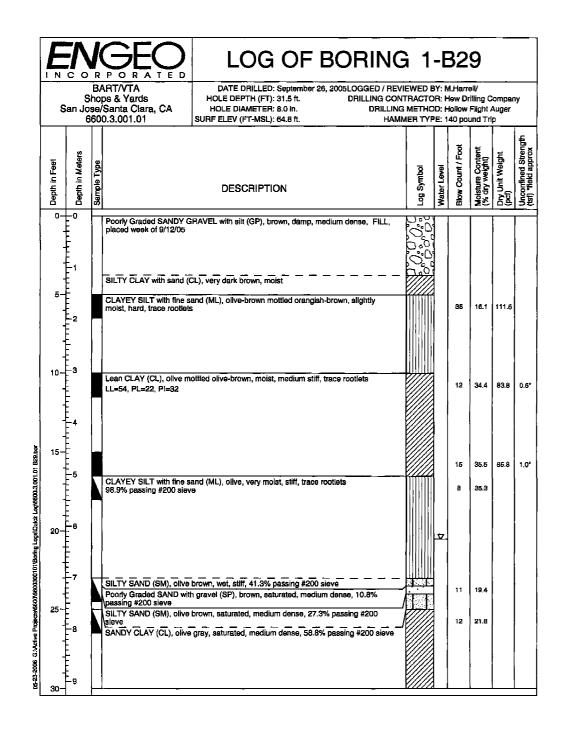


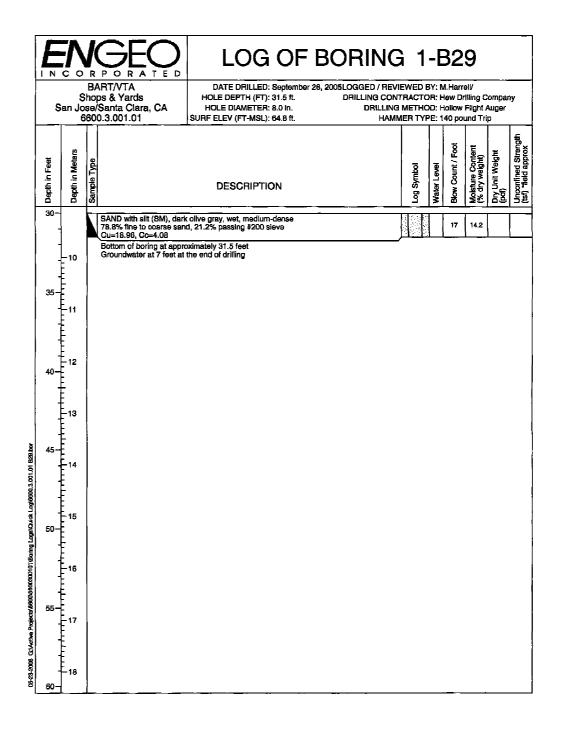
APPROVED





SILICON VALLEY RAPID TRANSIT PROJECT	CADD D4		ame S-YS-G105	-A.dwg
P0504 YARD AND SHOPS SEGMENT  GEOTECHNICAL	SIZE D	SCALE	NTS	
BORING LOG	CONT	RACT N	0. D400	REV.
BORINGS 1—B28 SHEET 23 OF 27	AREA	code S	SHEET NO. G105	PAGE NO





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						IN CHARGE
Α	20060227				INTERIM SUBMITTAL ISSUED FOR REVIEW	M. CANEPA
FV	DATE	BY	SUB	APP	DESCRIPTION	DATE

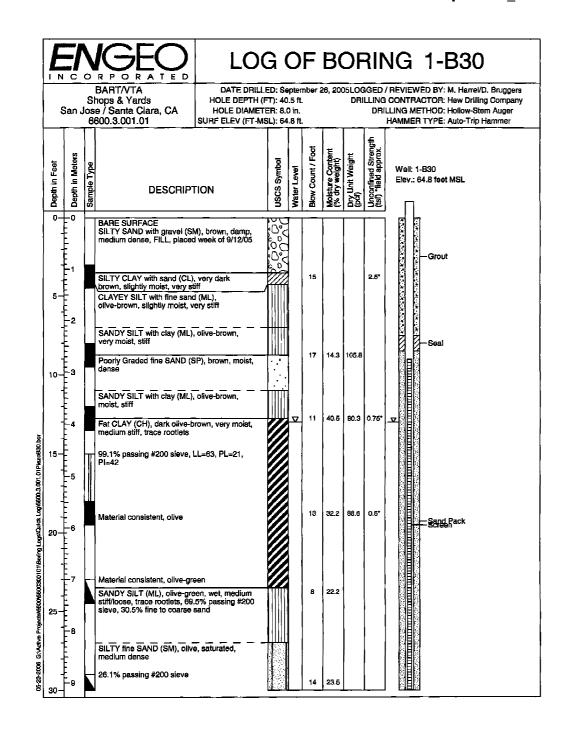


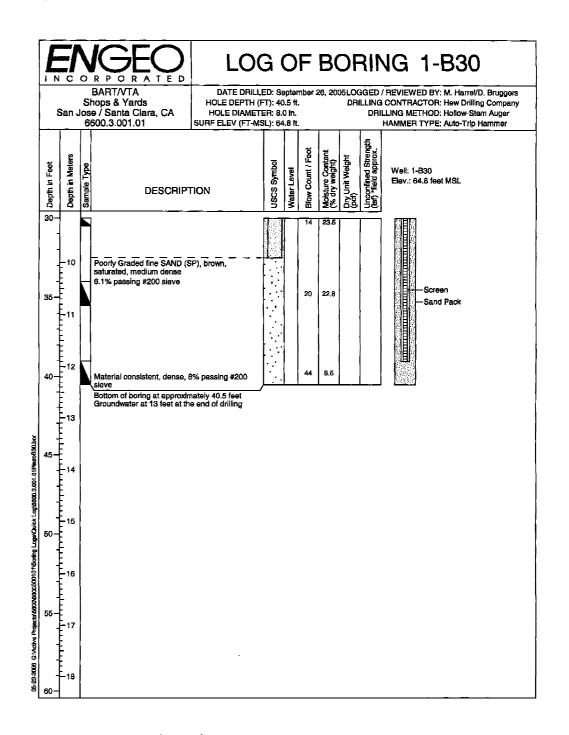






	SILICON VALLEY RAPID TRANSIT PROJECT		FILEN	AME S—YS—G105-	- A dwa
	P0504 YARD AND SHOPS SEGMENT	SIZE	SCALE	-	71.4119
	GEOTECHNICAL	CONT	RACT N	NTS IO.	REV.
	BORING LOG			D400	Α
	BORINGS 1-B29	AREA	CODE	SHEET NO.	PAGE NO.
۱	SHEET 24 OF 27	l Y	5	G105	





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						J. McKISSACK	
						CHECKED BY IN CHARGE	
Α	20060227				INTERIM SUBMITTAL ISSUED FOR REVIEW	M. CANEPA	
REV	DATE	BY	SUB	APP	DESCRIPTION	DATE 20060227	



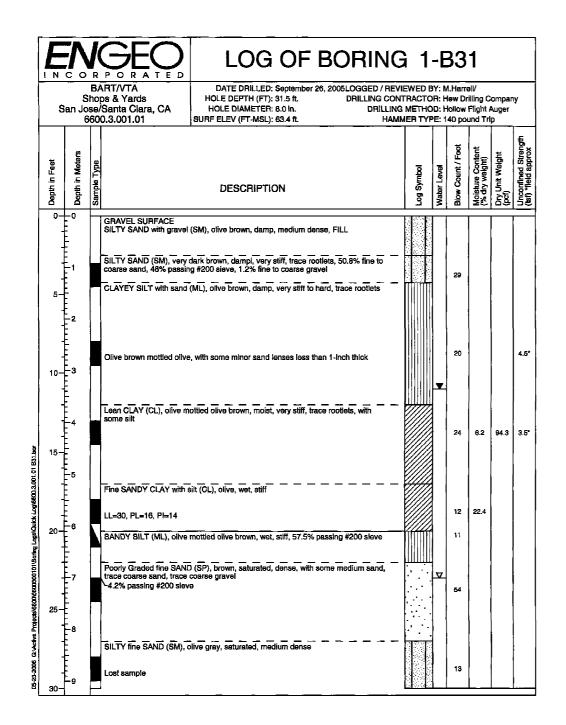
SUBMITTED \_\_\_\_ DEB

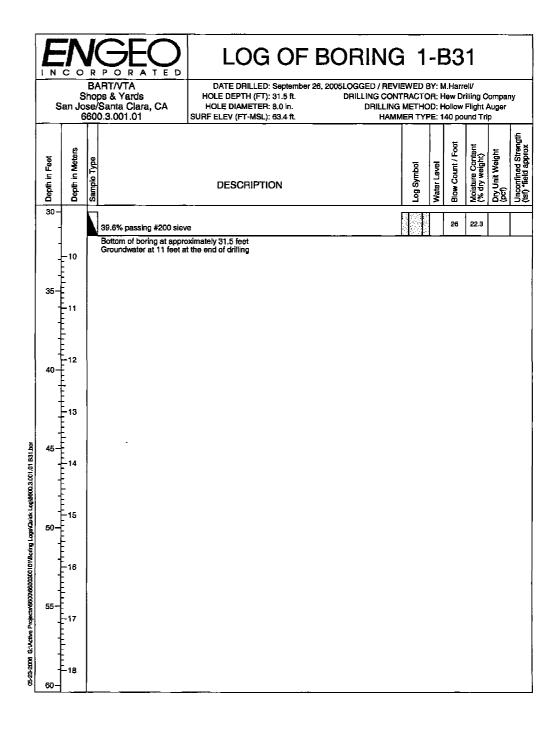






	SILICON VALLEY RAPID TRANSIT PROJECT		FILEN 100-5	AME S-YS-G105-	-A.dwg
	P0504 YARD AND SHOPS SEGMENT	SIZE D	SCALE	NTS	
	GEOTECHNICAL BORING LOG	CONT	RACT N	0. D400	REV. A
l	BORINGS 1-B30 SHEET 25 OF 27	AREA	CODE	SHEET NO.	PAGE NO.





						DESIGNED BY M. CANEPA
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						IN CHARGE
A	20060227				INTERIM SUBMITTAL ISSUED FOR REVIEW	M. CANEPA
ΕV	DATE	BY	SUB	APP	DESCRIPTION	DATE 20060227









SILICON VALLEY RAPID TRANSIT PROJECT		FILEN 100-5	ame S-YS-G105-	-A.dwg
P0504 YARD AND SHOPS SEGMENT GEOTECHNICAL	SIZE D	SCALE	NTS	
BORING LOG	CONT	RACT N	10. D400	REV.
BORINGS 1-B31	AREA	CODE	SHEET NO.	PAGE NO.

S	an Jo	ho se/	RT/VTA  BATE DRILLED: September 22, 2005LOGGED / REVI  S & Yards  HOLE DEPTH (FT): 61.5 ft.  DRILLING CONT  HOLE DIAMETER: 8.0 in.  DRILLING  SURF ELEV (FT-MSL): 64.9 ft.  HAMM	TRACTO	DR: F	lew Di follow	rilling C Flight	Auger	ny
	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
	-0		GRAVEL SURFACE SILTY SAND with gravel (SM), brown, damp, medium dense  SILTY CLAY with sand (CL), very dark brown, moist, medium stiff, trace rootlets						
	-2		CLAYEY SILT with sand (ML), olive brown mottled orange brown, moist, very stiff, trace rootlets  Poorly Graded fine SAND (SP), brown, moist, medium dense to loose			13	22.0	92.7	4.0*
	-4		Fat CLAY (CH), olive brown mottled orange brown, very moist, medium stiff  LL=70, PL=24, PI=46			11	28.4	93.9	0.75*
	-5		Material consistent, very dark brown to olive mottled orange brown			14	37.6	82.4	1.0*
	-7		Material consistent, olive, very moist, stiff  CLAYEY SILT with fine sand (ML), olive mottled orange brown, very moist, stiff, race rootlets		▼	9			
	-8		race roulets			17	22.0	104.6	1.25*

Z	СО		LOG OF BORING  RT/VTA  DATE DRILLED: September 22, 2005LOGGED / REV						
s	an Jo	ho se/	os & Yards HOLE DEPTH (FT): 61.5 ft. DRILLING CON Santa Clara, CA HOLE DIAMETER: 8.0 in. DRILLING	TRACTO	DR: H DD: H	lew Dr Hollow	rilling C Flight	Auger	ny
Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
30-			SILTY SAND (SM), olive brown, saturated, medium dense, 24.4% passing #200 sieve		\ <u>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</u>	13	25.0		
35-	-10 -		Lean CLAY (CL), olive, wet, medium stiff. In shoe  Poorly Graded fine SAND (SM), orange brown, saturated, dense  Minor heaving sands of approximately 0.5 foot						
-	-11 -12		24.2% passing #200 sieve  Poorly Graded GRAVELLY SAND (SP), brown, saturated, dense, some silt			50	21.4	103.4	
0-	13		Heaving sands of approximately 3 feet 61.6% fine to coarse sand, 25.4 fine to coarse gravel, 13% passing #200 sieve			40	9.4		
5-			7.5% passing #200 sieve			55			
1	-14 		Very dense						
0-	16		Lean CLAY (CL), clive brown, wet, stiff, trace rootlets Clay in shoe Lost Sample			14			
5-	-17					20			
	-		Material consistent, olive, 92.1% passing #200 sieve			25	26.7	98.6	
-	-18		SILTY CLAY with fine sand (CL), olive, wet, very stiff, 79.1% passing #200 sieve						

	l N	CO	R P	)E	A T E			L	.00	G (	OF	E	30	R	IN	G	1	-E	33	7		
	BART/VTA Shops & Yards San Jose/Santa Clara, CA 6600.3.001.01			+	DATE OLE DE HOLE D F ELEV	IAMET	-T): 61 ER: 8.	1.5 ft. 0 in.	er 22,		DRILLI	NG C	ONTE	RACTO METHO	)R: F )D: F	lew Dr Iollow		Auger	iy			
	Depth in Feet	Depth in Meters	Sample Type					DES	SCRIP	4OIT	1						Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
001.01 B37.bor	65	-19 20 21 21 22 22	Boggr	ttom of boundwate	oring at 21	approfeet a	oximate	ely 61.5	feet feet feet felling										20			
05-23-2006 G:\Active Projecta\6600\6600300101\Boring Logs\Quick Log\6600.3.001.01 B37.bor	85	-24 -25 -26 -27																				

						DESIGNED BY M. CANEPA
						DRAWN BY J. McKISSACK
						CHECKED BY
						IN CHARGE
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REV	DATE	BY	SUB	APP	DESCRIPTION	DATE 20060227









	SILICON VALLEY RAPID TRANSIT PROJECT	CAD				
	P0504 YARD AND SHOPS SEGMENT	SIZE				
	GEOTECHNICAL					
	BORING LOG					
	BORINGS 1-B37	ARE				
١	SHEET 27 OF 27	`				

ECT	CADD FILENAME D400-S-YS-G105-A.dwg					g
.NT	SIZE D	SCALE	NT	S		
	CONT	RACT N	0. D40	0	REV.	Δ
	AREA Y	code S	SHEET NO		PAGE	NC

### 7.3 APPENDIX C

### ENGEO INCORPORATED

**Laboratory Test Results** 

#### LABORATORY TESTS - PURPOSE

#### 1. Natural Unit Weight and Moisture Content (ASTM D-2216)

Provides in-place density and percentage moisture by dry weight. These aid in characterizing existing and previous ground-water conditions, soil compressibility, and degree of saturation.

### 2. <u>Unconfined Compressive Strength (ASTM D-2166)</u>

Determined usually on cohesive (clay) materials to establish allowable design foundation bearing capacity or estimated shear strength for slope stability studies.

#### 3. Atterberg Limits (ASTM D-4318)

Performed primarily on cohesive soils. Includes the Liquid Limit and the Plastic Limit. From these, a Plasticity Index can be computed which allows classification of the soil and is an indirect measure of its expansion characteristics.

#### 4. Grain Size Distribution (ASTM D-422-63)

Provide information on the distribution of particle sizes in a soil sample. These aid in characterizing soil type and provide information for liquefaction analyses.

#### 5. Consolidation (ASTM D-2435)

Performed on compressible soils. Provides data for computation of consolidation characteristics. Parameters, which can be estimated, include Preconsolidation Pressure,  $P_c$  and Compressions Index,  $C_c$ . These are used to estimate foundation and fill settlements.

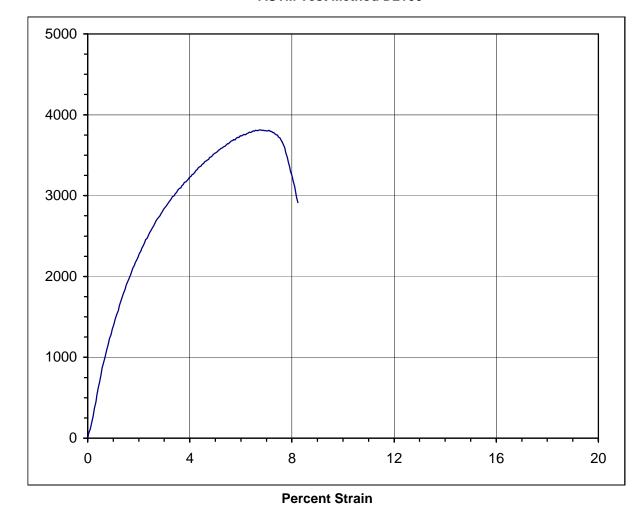
#### 6. Triaxial Compression (ASTM D-2850)

Determines the strength and stress-strain relationships of the tested soil under unconsolidated-undrained conditions. These aids in determining bearing capacity of soil.

#### 7. Swell Potential (ASTM D-4546)

Determines the swell pressure developed by a confined soil when subjected to increased moisture. Also measures volume change due to heave for various initial moisture levels.





Unconfined Compressive Strength: 3810 psf 1.9 tsf

Sample Description: Dark olive gray Silty Clay with fine sand

Initial Diameter: 2.420 in. Sample Number: B1@5' Initial Height: 5.43 **Dry Unit Weight:** 81.8 pcf in. Strain Rate: **Moisture Content:** 1.528 %/min 34.2 % **Total Strain:** 8.24 % Depth of Sample: 15.0 ft.

**ENGEO**INCORPORATED

Axial pressure (psf)

**BART-VTA** 

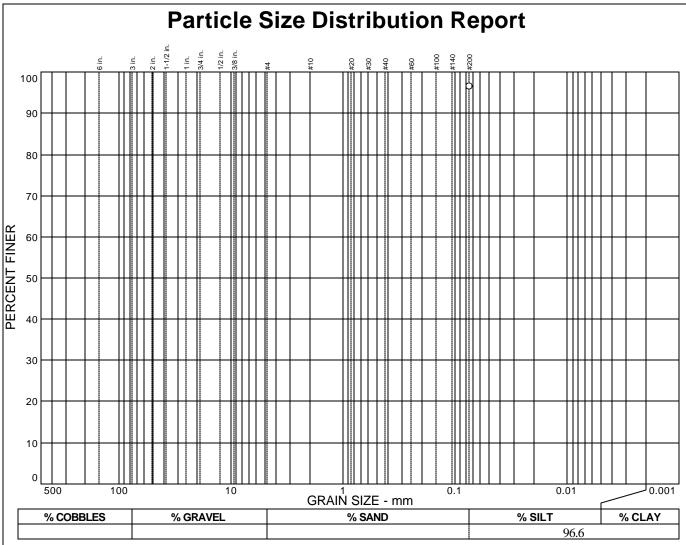
Newhall Yard and Shops. San Jose, CA

Job	6600.3.001.01		
No.:	0000.3.001.01		
Sample	D4 @EL		

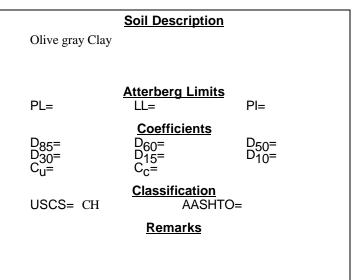
Figure No.

Number: 10/13/2005

B1@5'



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	96.6		



**Date:** 11-15-05

\* (no specification provided)

Sample No.: B1@11.5 Source of Sample: B-1 Location:

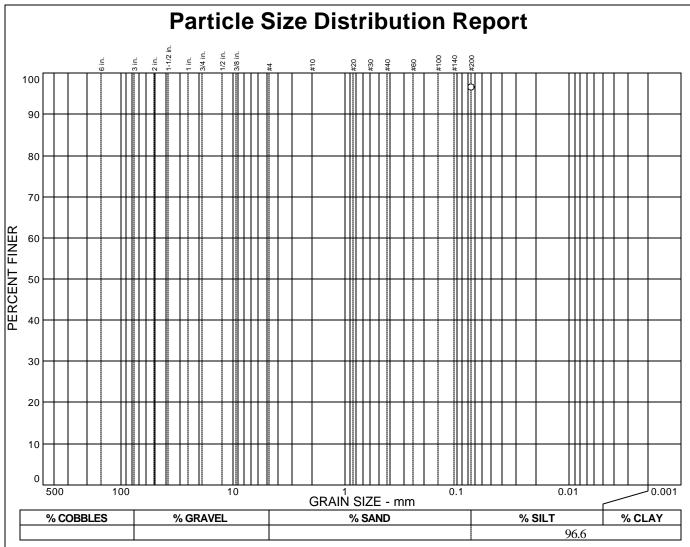
Elev./Depth:

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	96.6		

Olive gray Clay	Soil Description	
PL=	Atterberg Limits LL=	PI=
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>C</sub> =	D <sub>50</sub> = D <sub>10</sub> =
USCS= CH	Classification AASHTO	O=
	<u>Remarks</u>	

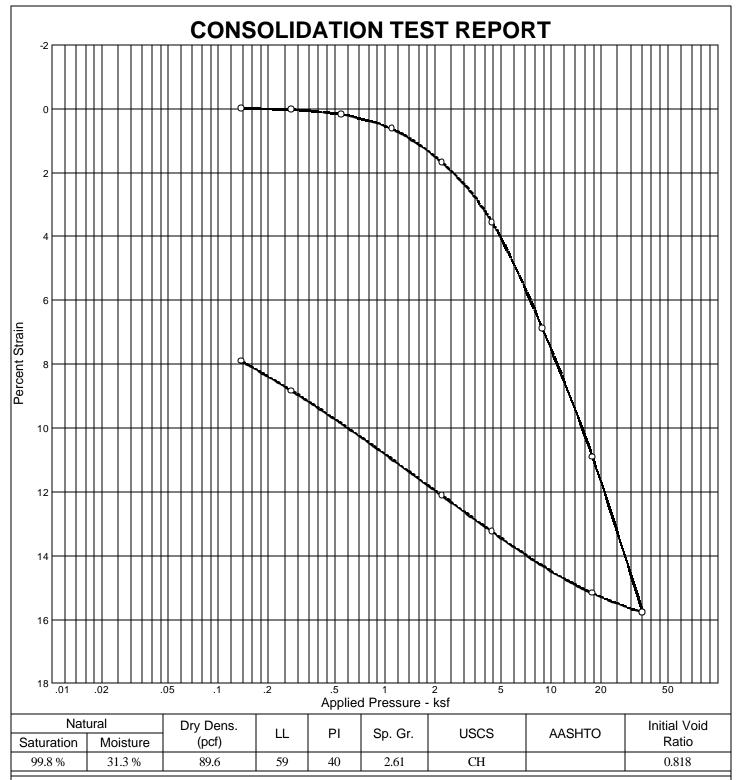
**Sample No.:** B1@11.5 Source of Sample: B-1

**Date:** 11-15-05 Location: Elev./Depth: 11.5 ft.



Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



### **MATERIAL DESCRIPTION**

Olive brown Clay

**Project No.** 6600.3.001.01 **Client:** 

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Source: B-1 Sample No.: B1@15

**EN**GEO

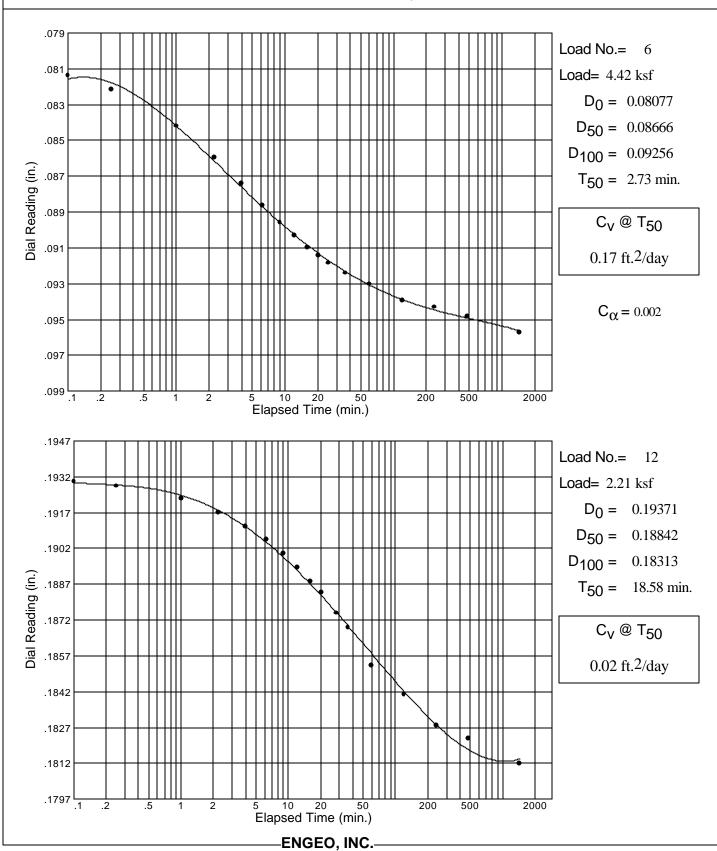
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING Remarks:

Sample swelled at 552 psf loading

## Dial Reading vs. Time

Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

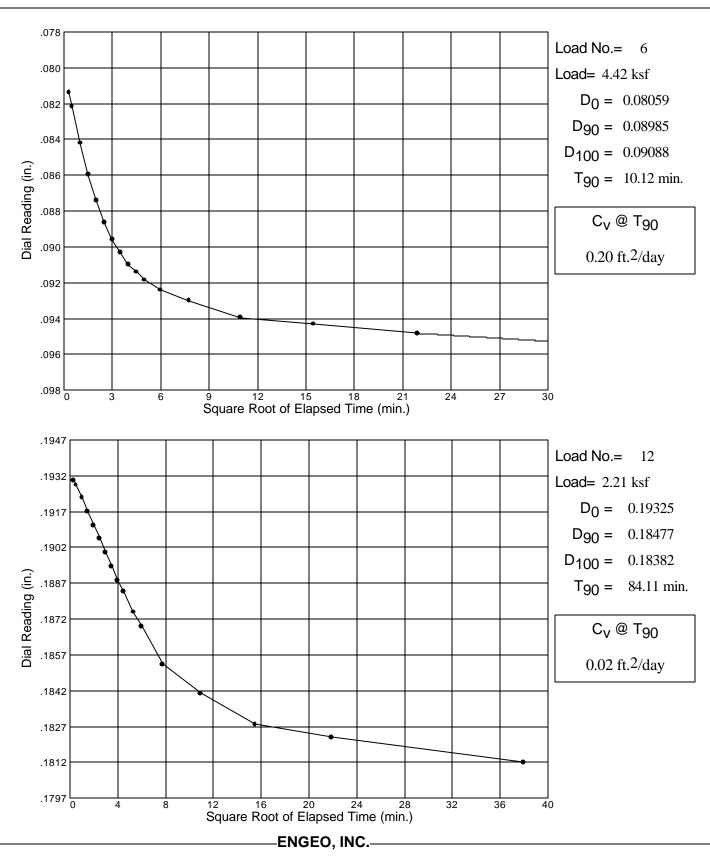
Sample No.: B1@15 Source: B-1

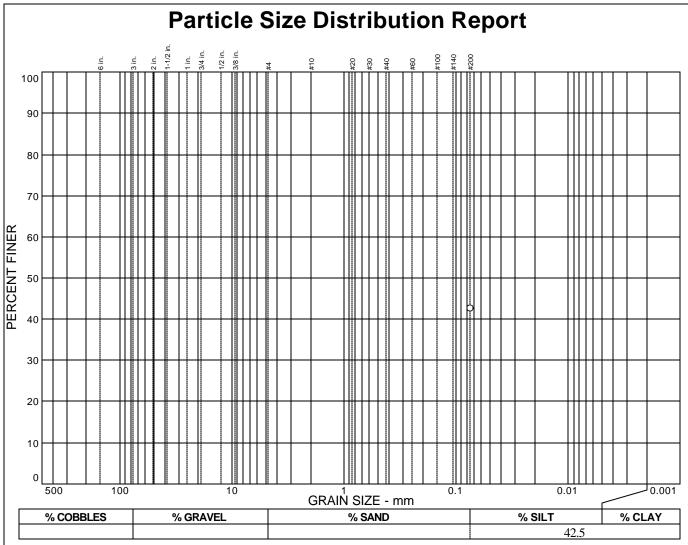


# Dial Reading vs. Time

Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Source: B-1 Sample No.: B1@15





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	42.5		
4			

Olive gray cl	Soil Description	<u>on</u>
PL=	Atterberg Limi LL=	<u>ts</u> Pl=
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =
USCS= SC	Classification AASH	
	<u>Remarks</u>	

**Sample No.:** B1@21.5

Location:

INCORPORATED

Source of Sample: B-1

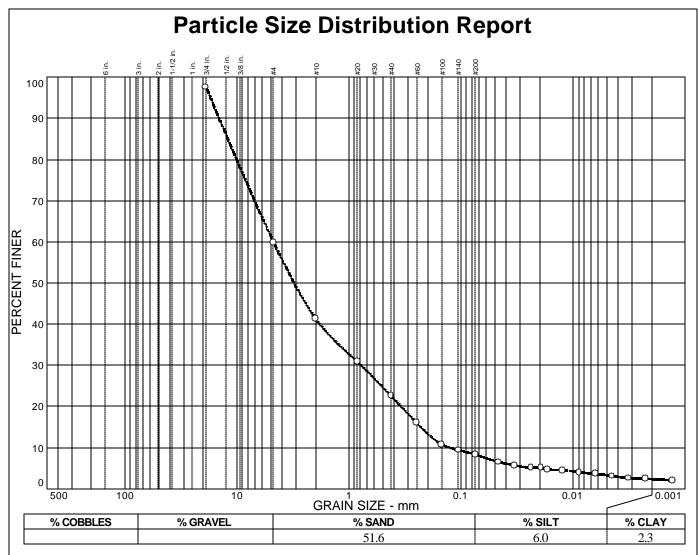
**Date:** 11-15-05 Elev./Depth: 21.5 ft.

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
3/4 in. #4 #10 #20 #40 #60 #100 #140 #200	97.6 59.9 41.4 30.9 22.6 16.0 10.8 9.4 8.3		

Soil Description						
Dark olive brow	vn well graded Sand w	vith silt and gravel				
		-				
	<b>Atterberg Limits</b>					
PL=	LL=	Pl=				
	Coefficients					
$D_{85} = 12.2$	D <sub>60</sub> = 4.77 D <sub>15</sub> = 0.230	D <sub>50</sub> = 3.12 D <sub>10</sub> = 0.128				
$D_{85}=12.2$ $D_{30}=0.785$ $C_{U}=37.27$	$D_{15}^{-} = 0.230$ $C_{c}^{-} = 1.01$	$D_{10}^{*}=0.128$				
$C_{u} = 37.27$	$C_{C} = 1.01$					
	Classification					
USCS= SW-S	M AASHT	O=				
	<b>Remarks</b>					

 Sample No.:
 B1@26.5-35
 Source of Sample: B-1
 Date:
 11-15-05

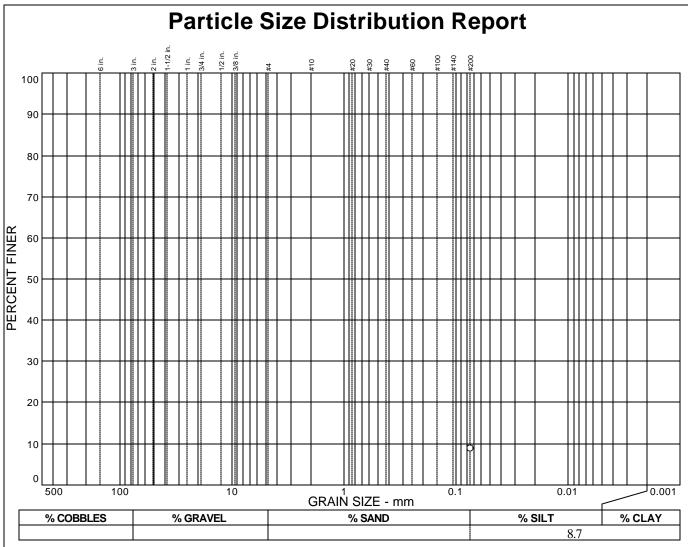
 Location:
 Elev./Depth:
 26.5-35 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	8.7		
* (	C'	. 1)	

Soil Description Olive silty Silty Sand		
PL=	Atterberg Lim	<u>iits</u> Pl=
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D60= D15= C <sub>C</sub> =	D <sub>50</sub> = D <sub>10</sub> =
USCS= SM	Classificatio	<u>n</u> HTO=
	<u>Remarks</u>	

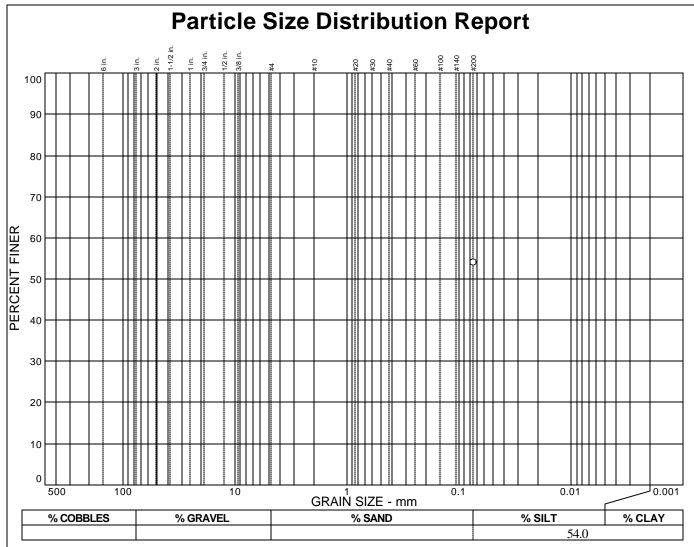
Sample No.: B1@51.5 Source of Sample: B-1 Date: 11-15-05 Location: Elev./Depth: 51.5 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	54.0		
4			

Soil Description  Very dark gray sandy silty Clay with gravel		
PL=	Atterberg Lir	nits Pl=
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	$\begin{array}{c} \underline{\text{Coefficient}} \\ D_{60} = \\ D_{15} = \\ C_{\text{C}} = \end{array}$	D <sub>50</sub> = D <sub>10</sub> =
USCS= CL-SI	Classification AAS	<u>on</u> SHTO=
<u>Remarks</u>		

 Sample No.:
 B1@51.5-53
 Source of Sample: B-1
 Date:
 11-15-05

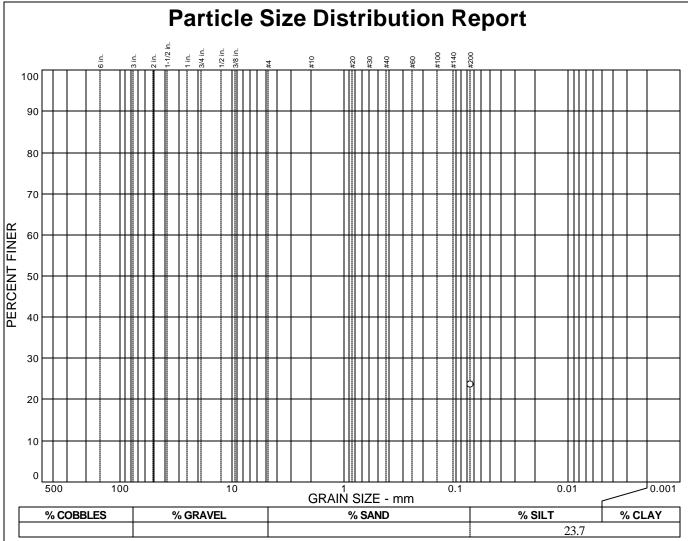
 Location:
 Elev./Depth:
 51.5-53 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	23.7		

	Soil Description			
Very dark gray	Very dark gray silty Sand			
PL=	Atterberg Limits	§ Pl=		
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D60= D15= C <sub>C</sub> =	D <sub>50</sub> = D <sub>10</sub> =		
USCS= SC	Classification AASHT	ГО=		
	<b>Remarks</b>			

Sample No.: B2@3-3.5' Source of Sample: B-2 Date: 10-11-05 Location: Elev./Depth: 3-3.5 ft.

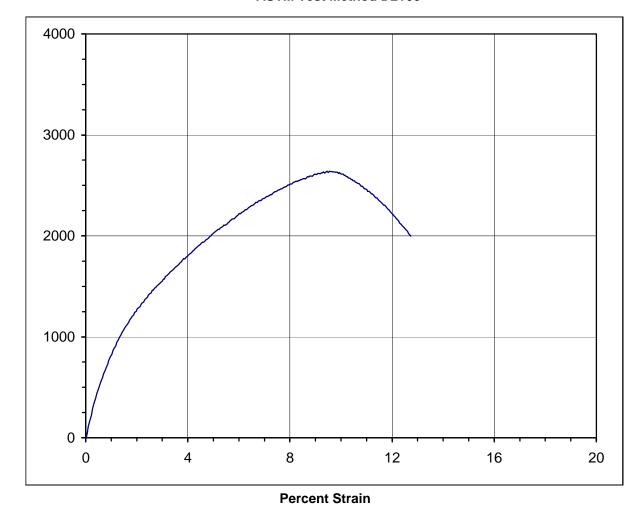
ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA





Unconfined Compressive Strength: 2630 psf 1.3 tsf

Sample Description: Dark grayish brown silty Clay

Initial Diameter: 2.420 in. Sample Number: B2@10' Initial Height: 5.00 in. **Dry Unit Weight:** 102.0 pcf Strain Rate: **Moisture Content:** 1.426 %/min 21.4 % **Total Strain:** 12.73 % Depth of Sample: 10.0 ft.

**ENGEO**INCORPORATED

Axial pressure (psf)

**BART-VTA** 

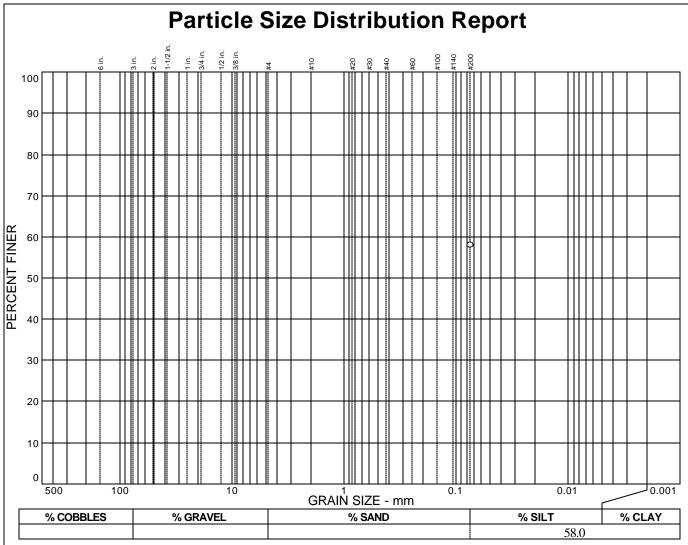
Newhall Yard and Shops. San Jose, CA

Job	6600 2 004 04
No.:	6600.3.001.01

Figure No.

Sample Number: B2@10'

Date: 10/13/2005



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	58.0		
4			

Soil Description  Dark grayish brown sandy silty Clay			
PL=	Atterberg Limi	<u>its</u> Pl=	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =	
Classification USCS= CL AASHTO=			
<u>Remarks</u>			

 Sample No.:
 B2@12-12.5'
 Source of Sample: B-2
 Date: 10-11-05

 Location:
 Elev./Depth: 12-12.5 ft.

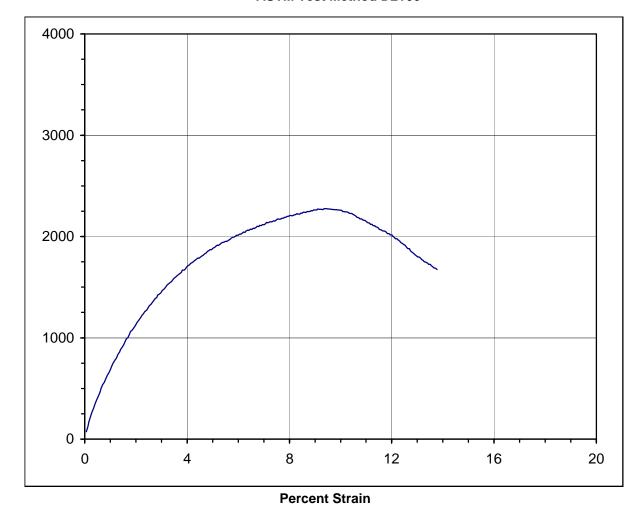
ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA





Unconfined Compressive Strength: 2270 psf 1.1 tsf

Sample Description: Light olive brown silty Clay

**Initial Diameter:** 2.420 in. Sample Number: B2@16' Initial Height: 5.00 in. **Dry Unit Weight:** 87.0 pcf Strain Rate: **Moisture Content:** % 1.632 %/min 35.0 **Total Strain:** 13.77 % Depth of Sample: 16.0 ft.

**ENGEO**INCORPORATED

Axial pressure (psf)

**BART-VTA** 

Newhall Yard and Shops. San Jose, CA

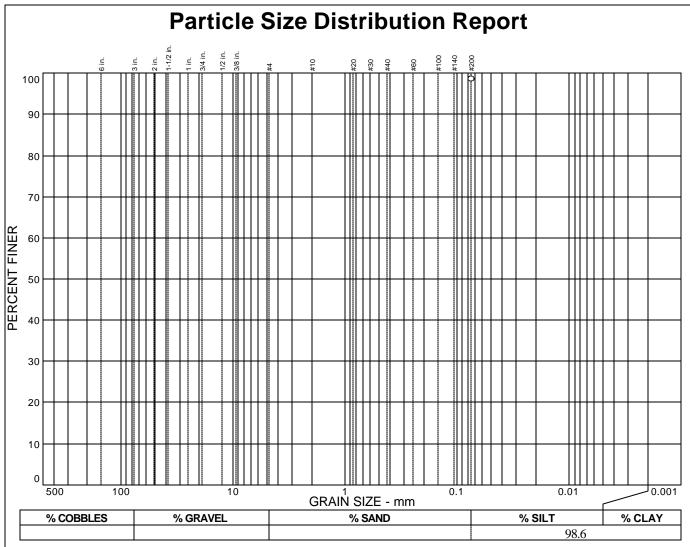
Job	6600.3.001.01
No.:	0000.3.001.01
Sample	B2@4CI

No.

**Figure** 

Number: B2@16'

Date: 10/13/2005



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	98.6		
4			

Soil Description  Light olive brown silty Clay		
PL=	Atterberg Lin	n <u>its</u> Pl=
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficient D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	<u>s</u> D <sub>50</sub> = D <sub>10</sub> =
USCS= CL	Classification AAS	<u>on</u> GHTO=
<u>Remarks</u>		

Sample No.: B2@16'
Location:

Source of Sample: B-2

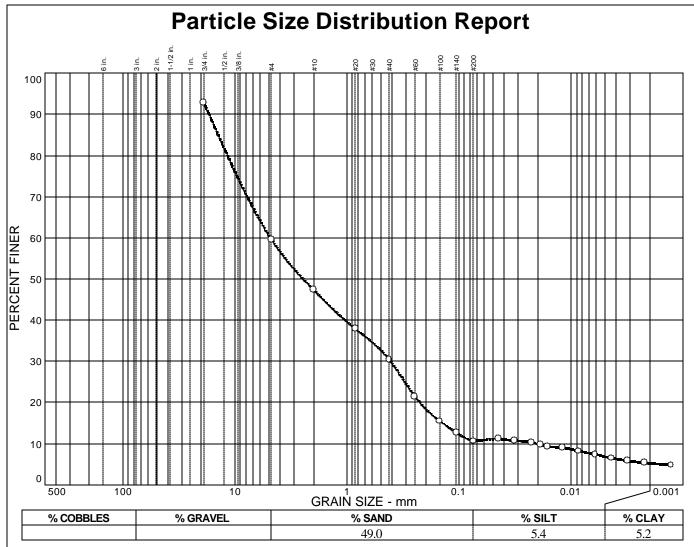
**Date:** 10-11-05 **Elev./Depth:** 16 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
3/4 in. #4 #10 #20 #40 #60 #100 #140 #200	92.8 59.6 47.4 37.9 30.5 21.5 15.5 12.7 10.6		

Soil Description  Very dark gray well graded Sand with silt and gravel					
PL=	Atterberg Limit	<u>s</u> Pl=			
D <sub>85</sub> = 14.2 D <sub>30</sub> = 0.411 C <sub>u</sub> = 236.40	$\begin{array}{c} \underline{\text{Coefficients}} \\ \text{D}_{60} = 4.86 \\ \text{D}_{15} = 0.142 \\ \text{C}_{\text{C}} = 1.70 \end{array}$	D <sub>50</sub> = 2.47 D <sub>10</sub> = 0.0205			
USCS= SW Classification AASHTO=					
<u>Remarks</u>					

Sample No.: B2@22.5'
Location:

Source of Sample: B-2

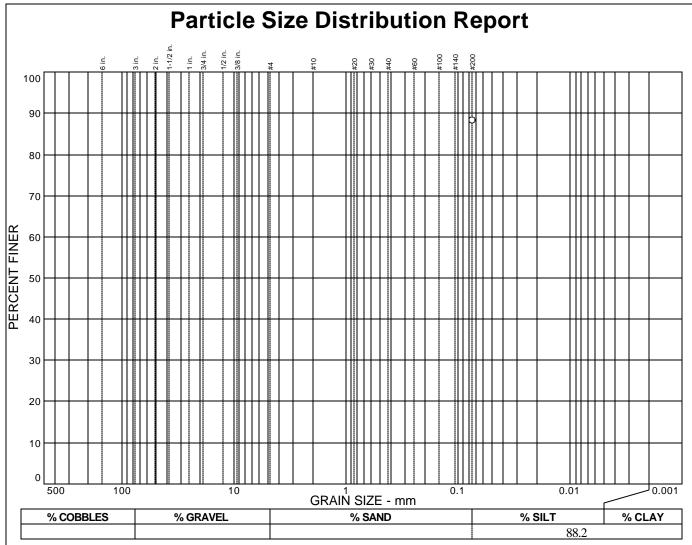
**Date:** 10-11-05 **Elev./Depth:** 22.5 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	88.2		

Soil Description  Dark greenish gray silty Clay with sand				
	Atterberg Limits			
PL=	LL=	PI=		
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =		
USCS= CL	Classification AASHT	O=		
<u>Remarks</u>				

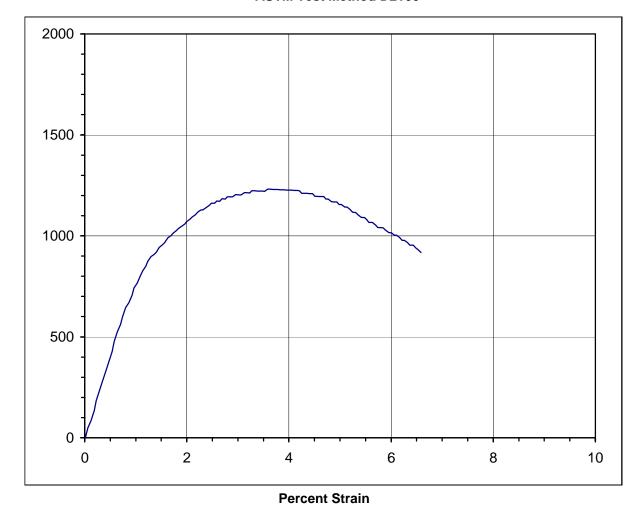
Sample No.: B2@28.5' Source of Sample: B-2 Date: 10-12-05 Location: Elev./Depth: 28.5 ft.



Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA





Unconfined Compressive Strength: 1220 psf 0.6 tsf

Sample Description: Very dark gray silty Clay with sand

Initial Diameter: 2.420 in. Sample Number: B3@4' Initial Height: 5.00 in. Dry Unit Weight: 91.5 pcf Strain Rate: **Moisture Content:** 1.630 %/min 23.8 % **Total Strain:** 6.58 % Depth of Sample: 4-4.5 ft.

**ENGEO**INCORPORATED

Axial pressure (psf)

**BART-VTA** 

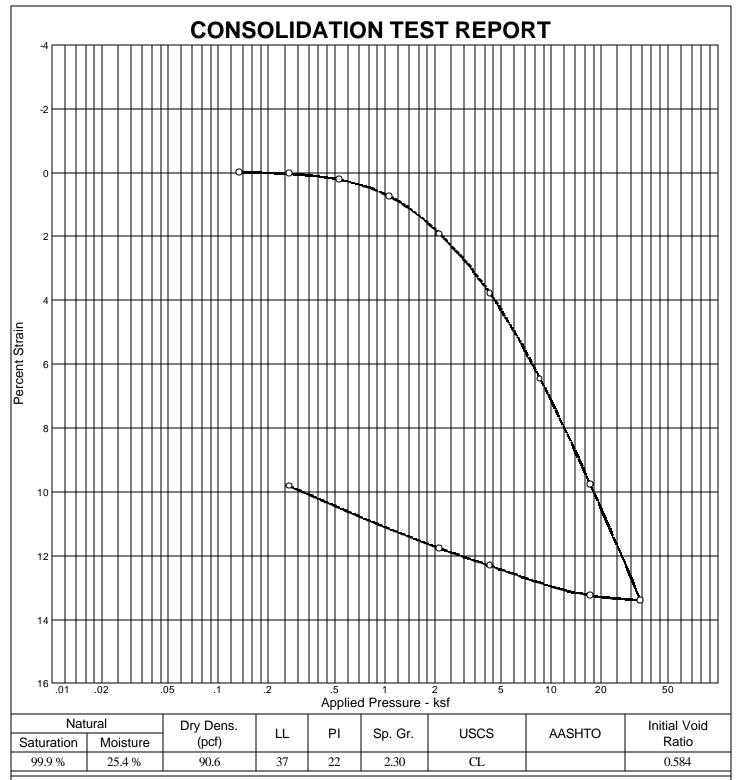
Newhall Yard and Shops. San Jose, CA

Job	6600.3.001.01
No.:	0000.3.001.01
Sample	B3@4'
N I I	D3@4

Figure No.

Date: 10/13/2005

Number:



### **MATERIAL DESCRIPTION**

Dark grayish brown silty Clay

**Project No.** 6600.3.001.01 **Client:** 

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Source: B-3 Sample No.: B3@12'

**ENGEO** 

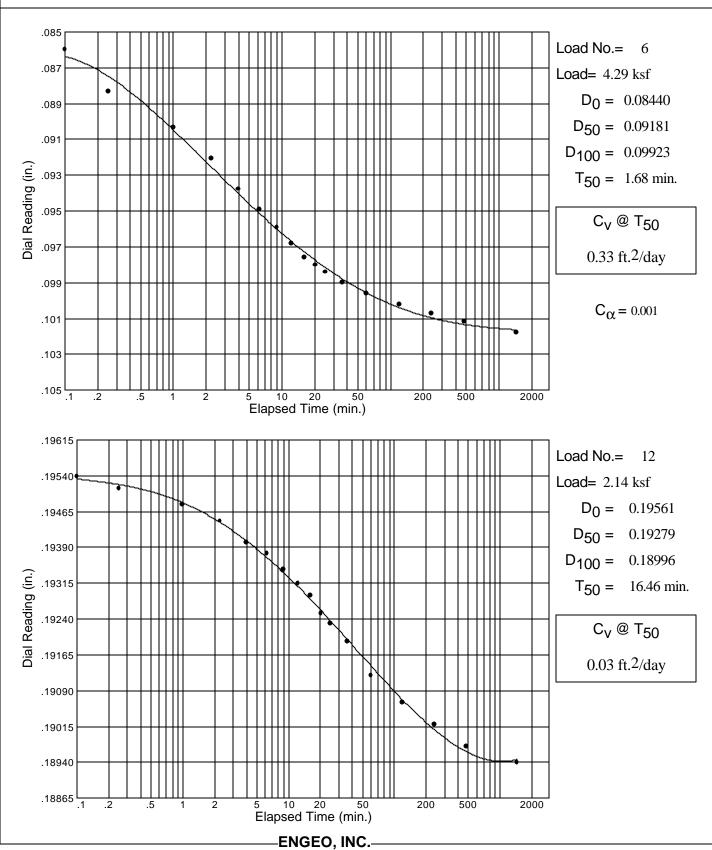
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING Remarks:

Sample swelled at 268 psf loading

## Dial Reading vs. Time

Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

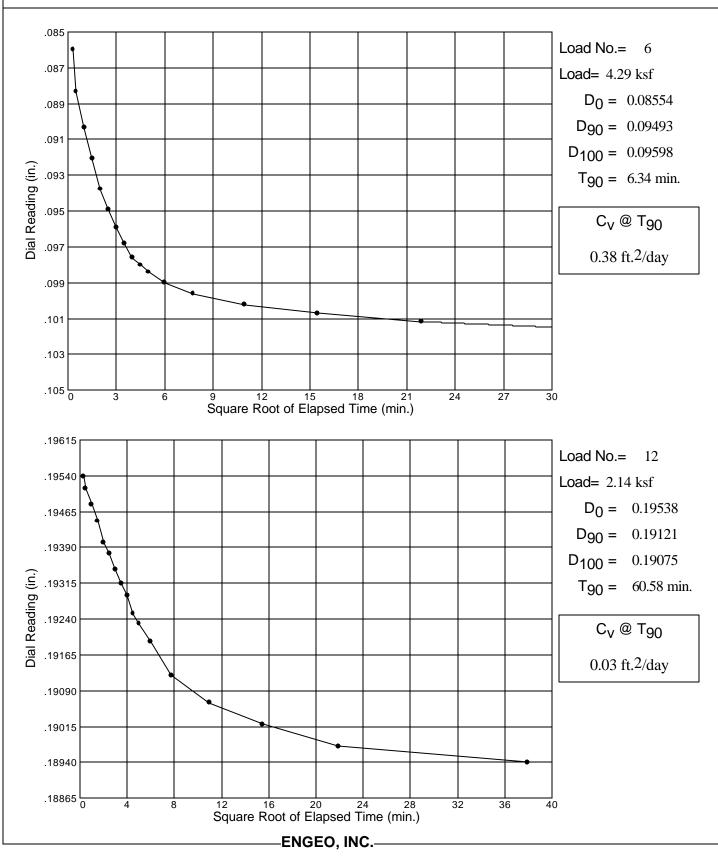
Sample No.: B3@12' Source: B-3

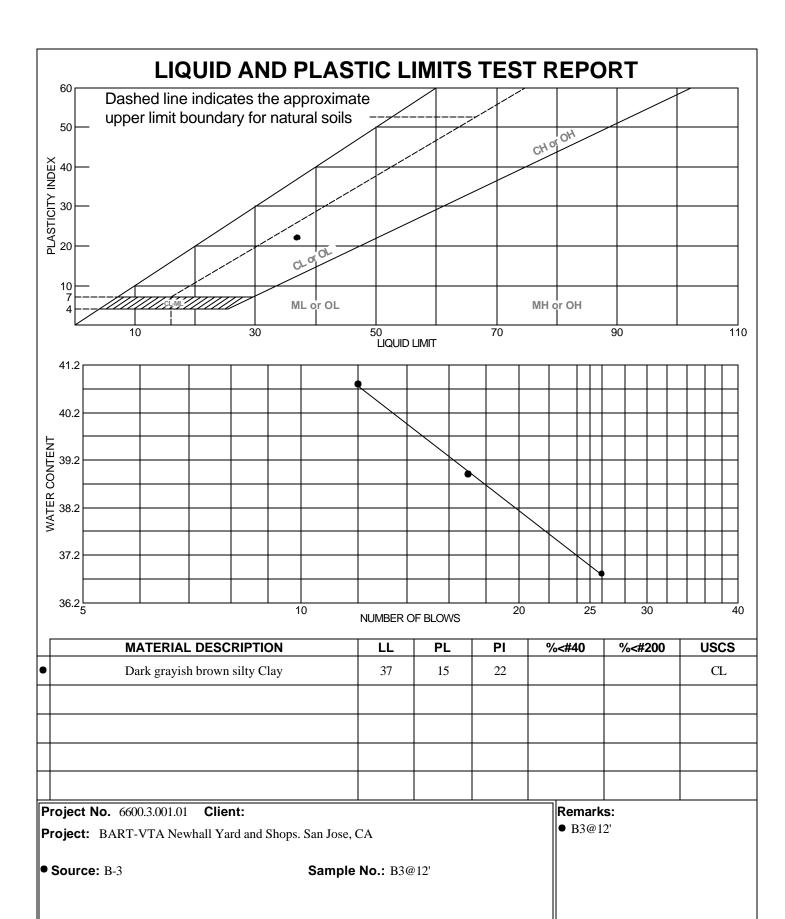


# Dial Reading vs. Time

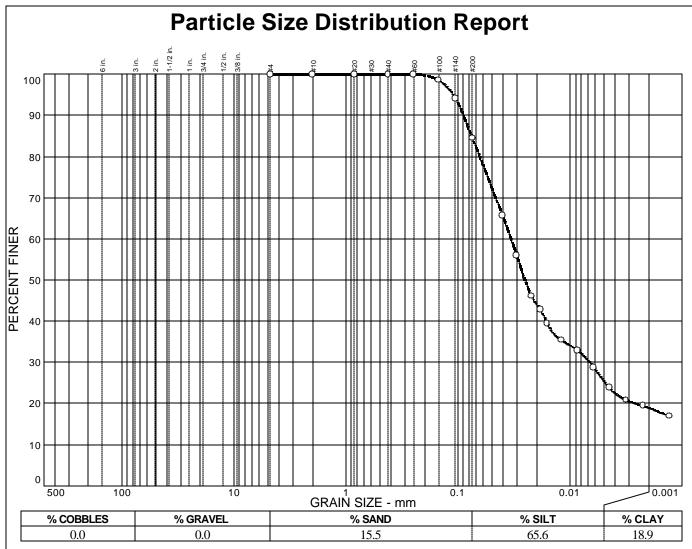
Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Source: B-3 Sample No.: B3@12'









SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#4 #10 #20 #40 #60 #100 #140 #200	100.0 100.0 100.0 100.0 100.0 98.6 94.1 84.5		

Soil Description Olive gray Clayey Silt with fine sand					
PL=	Atterberg Limits PL= LL= PI=				
D <sub>85</sub> = 0.0762 D <sub>30</sub> = 0.0067 C <sub>u</sub> =	Coefficients D60= 0.0339 D15= C <sub>C</sub> =	D <sub>50</sub> = 0.0256 D <sub>10</sub> =			
USCS= ML	Classification USCS= ML AASHTO=				
<u>Remarks</u>					

Sample No.: B3@23.5' Location:

Source of Sample: B-3

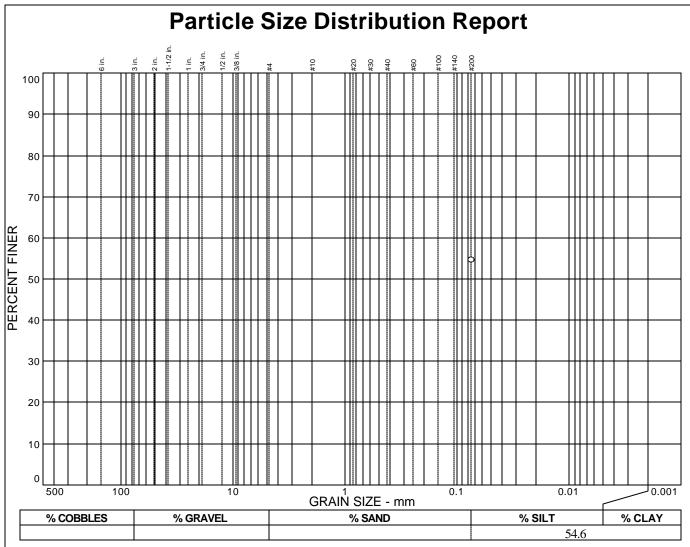
Date: 10-18-05 Elev./Depth: 23.5 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	54.6		

Soil Description  Dark greenish gray silty clayey Sand						
PL=	Atterberg Limits PL= LL= PI=					
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficien D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	<u>ts</u> D <sub>50</sub> = D <sub>10</sub> =				
USCS= SC	Classification USCS= SC AASHTO=					
<u>Remarks</u>						

 Sample No.:
 B3@27.5-28'
 Source of Sample: B-3
 Date: 10-18-05

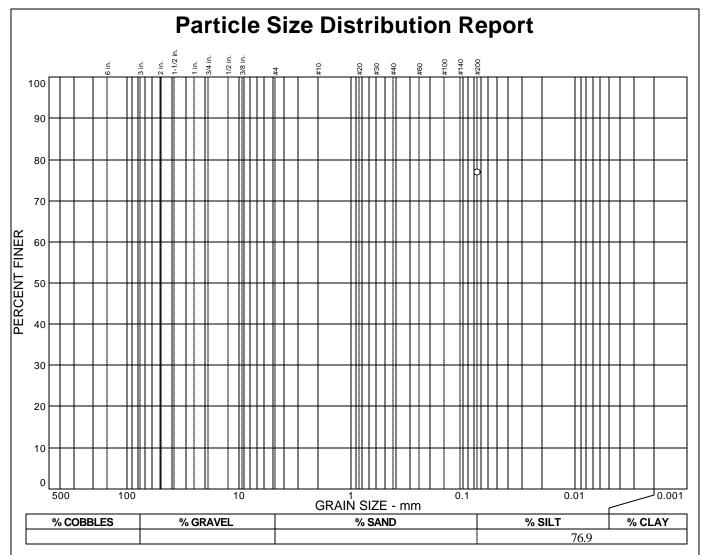
 Location:
 Elev./Depth: 27.5-28 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	76.9		
* (		. 15	

Soil Description					
Dark greenish g	gray silty Clay. Tra	ice fine sand			
	Atterberg Lim				
PL=	LL=	PI=			
	Coefficients	5			
D <sub>85</sub> =	D <sub>60</sub> =	D <sub>50</sub> = D <sub>10</sub> =			
D30=	D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>10</sub> =			
C <sub>u</sub> =	C <sub>C</sub> =				
	Classificatio				
USCS= CL	AAS	HTO=			
	Remarks				

 Sample No.:
 B3@28-28.5'
 Source of Sample: B-3
 Date: 10-18-05

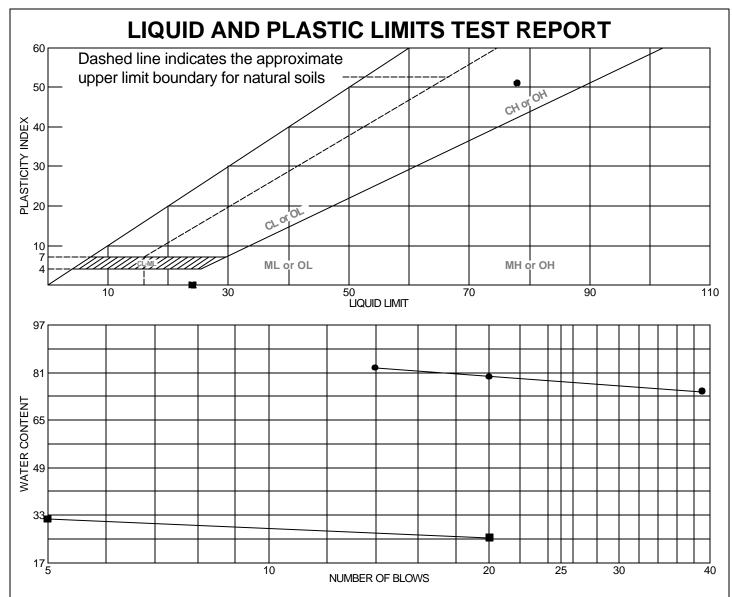
 Location:
 Elev./Depth: 28-28.5 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
•	Very dark olive gray Clay with fine sand	78	27	51			СН
	Dark olive brown Sand with silt and gravel	24	26	NP		9.7	SP

Project No. 6600.3.001.01 Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

• Source: B-4 Sample No.: B4@5'

■ Source: B-4 Sample No.: B4@30-31.5'

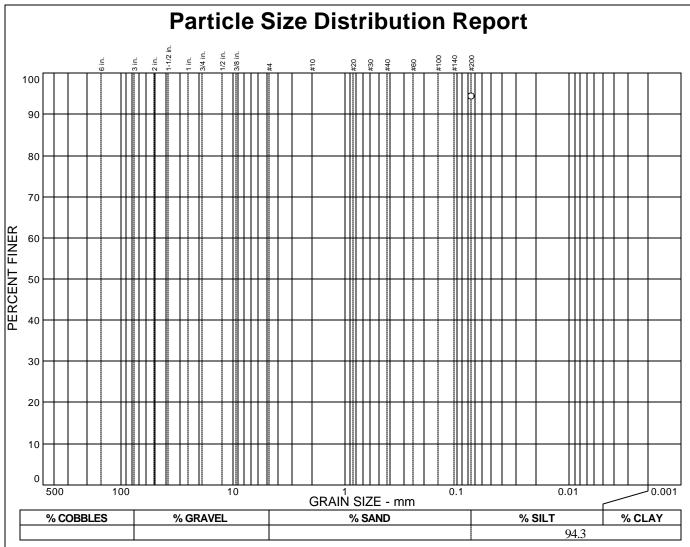
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

IN C O R P O R A T E D

MATERIALS TESTING

#### Remarks:

- B4@5'
- B4@31.5'



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	94.3		
4			

Soil Description  Dark grayish brown silty Clay			
PL=	Atterberg Lin	n <u>its</u> Pl=	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficient D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	<u>s</u> D <sub>50</sub> = D <sub>10</sub> =	
USCS= CL	Classification AAS	<u>on</u> SHTO=	
<u>Remarks</u>			

Sample No.: B4@15' Location:

Source of Sample: B-4

**Date:** 11-19-05

Elev./Depth:

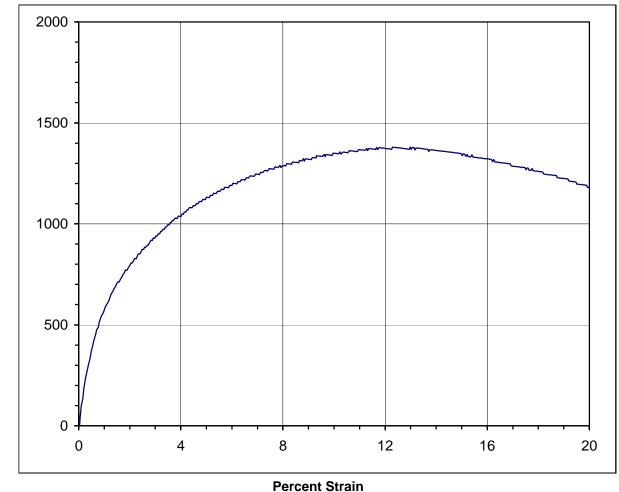
ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA





Unconfined Compressive Strength: 1370 psf 0.7 tsf

Sample Description: Olive silty Sand

**Initial Diameter:** 2.420 in. Sample Number: B4@20' Initial Height: 5.00 in. **Dry Unit Weight:** 102.7 pcf Strain Rate: **Moisture Content:** % 1.418 %/min 23.9 **Total Strain:** 20.01 % **Depth of Sample:** 20.0 ft.

**ENGEO**INCORPORATED

Axial pressure (psf)

**BART-VTA** 

Newhall Yard and Shops. San Jose, CA

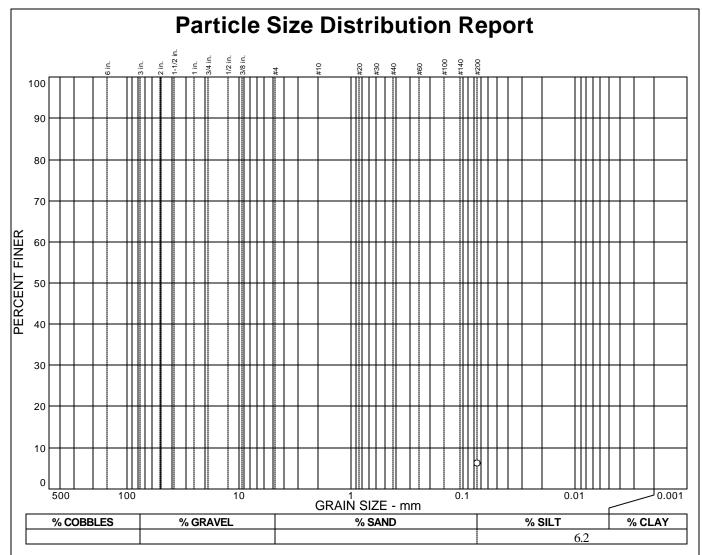
Job	6600 2 001 01	
No.:	6600.3.001.0	
Sample	B4@20'	
NI	D4@20	

Number:

No.

**Figure** 

Date: 10/17/2005



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	6.2		
*		. 1\	

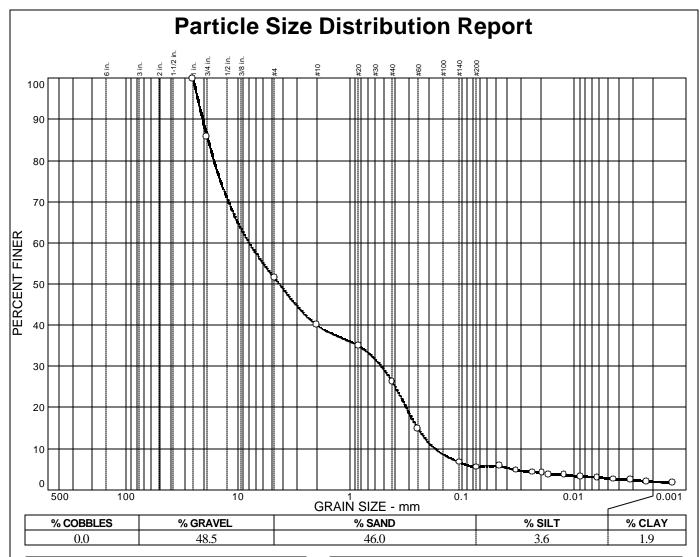
Soil Description				
Very dark gray	ish brown silty Sar	nd with gravel		
DI	Atterberg Lim			
PL=	LL=	Pl=		
	Coefficients	S		
D <sub>85</sub> =	D <sub>60</sub> =	D <sub>50</sub> = D <sub>10</sub> =		
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>10</sub> =		
o <sub>u</sub> =	C=			
	Classification			
USCS= SM	AAS	HTO=		
	Remarks			

**Sample No.:** B4@21.5' Source of Sample: B-4

**Date:** 11-19-05 Location: Elev./Depth:

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS INCORPORATED MATERIALS TESTING Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
1 in. 3/4 in. #4 #10 #20 #40 #60 #140 #200	100.0 85.9 51.5 40.1 35.0 26.3 14.9 6.7 5.5		
*			

	Soil Description			
Dark grayish br	own poorly graded	Gravel with silt and sand		
DI	Atterberg Limit			
PL=	LL=	Pl=		
	<b>Coefficients</b>			
$D_{85} = 18.7$	D <sub>60</sub> = 8.00 D <sub>15</sub> = 0.251 C <sub>c</sub> = 0.20	D <sub>50</sub> = 4.30 D <sub>10</sub> = 0.175		
$D_{85}=18.7$ $D_{30}=0.527$ $C_{U}=45.75$	$D_{15} = 0.251$	$D_{10} = 0.175$		
$C_{U} = 43.73$	$C_{C} = 0.20$			
	Classification			
USCS= GP	AASH	TO=		
	<u>Remarks</u>			

**Sample No.:** B4@25-26.5' **Source of Sample:** B-4 **Date:** 11-19-05

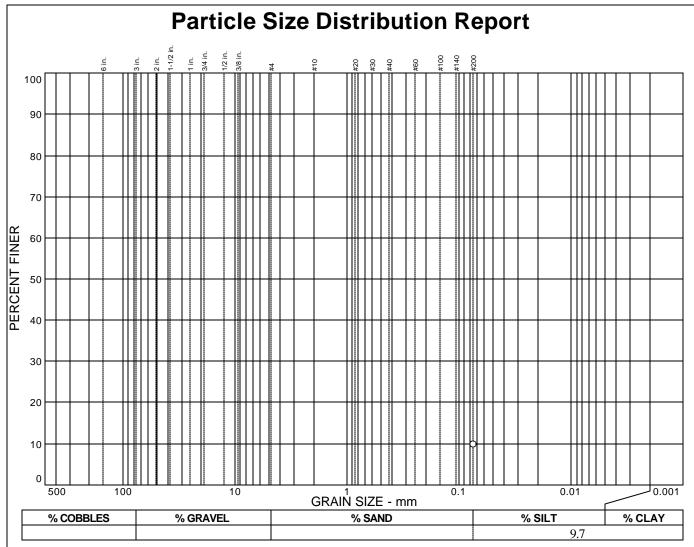
Location: Elev./Depth:

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?	
SIZE	FINER	PERCENT	(X=NO)	
#200	9.7			
* (no sp	* (no specification provided)			

Soil Description			
Dark olive brow	vn Grave; with silt and	sand	
PL= 26	Atterberg Limits LL= 24	PI= NP	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =	
USCS= GP	Classification AASHTO	)=	
	<u>Remarks</u>		

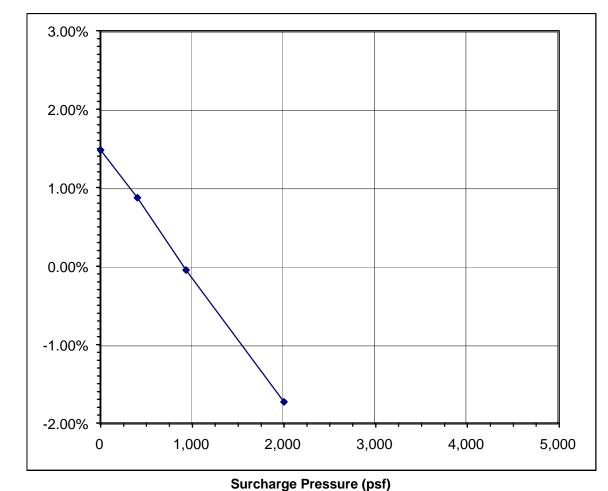
**Sample No.:** B4@30-31.5' Source of Sample: B-4

**Date:** 11-19-05 Location: Elev./Depth:

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS INCORPORATED MATERIALS TESTING Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA





Percent Heave: 1.48 %

Swell Pressure: 930 psf

Sample Description: Very dark gray Clay

Sample Number: B5@5.5' Depth of Sample: 5.5 ft.

PRE-TEST DATA POST-TEST DATA

Moisture Content: 46.8 % Moisture Content: 48.7 % Dry Unit Weight 74.2 pcf Dry Unit Weight 75.5 pcf

**ENGEO**INCORPORATED

Percent Change In Height (%)

**BART-VTA** 

Newhall Yard and Shops. San Jose, CA

Job No.:	6600.3.001.01
Sample Number:	B5@5.5'
Date:	12/02/05



### **MATERIAL DESCRIPTION**

Very dark gray Clay

**Project No.** 6600.3.001.01 **Client:** 

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

**Source:** B-5 **Sample No.:** B5@7-7.5'

**ENGEO** 

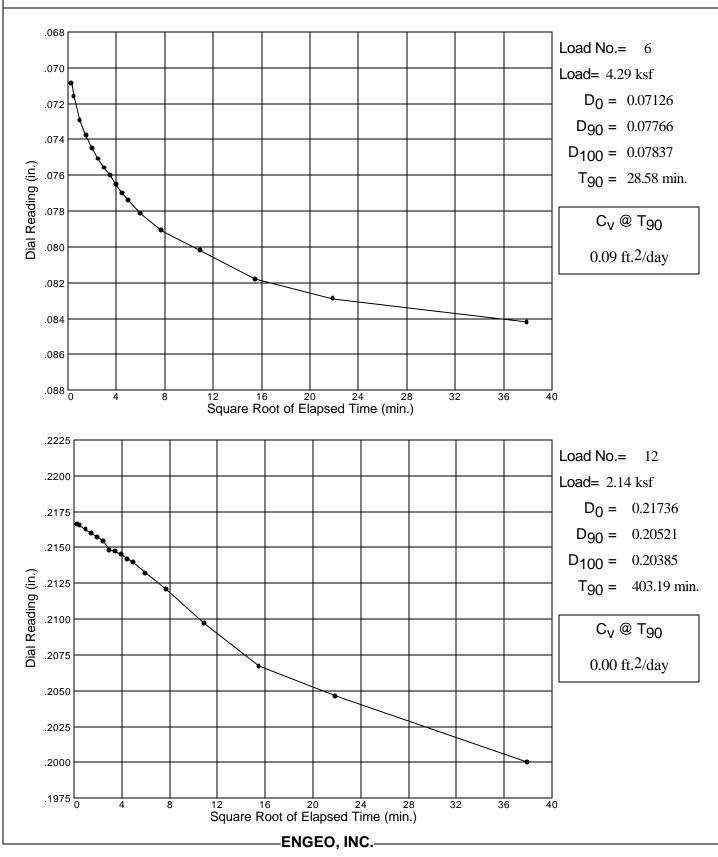
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING Remarks:

Sample swelled at 1072 psf loading

# Dial Reading vs. Time

Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

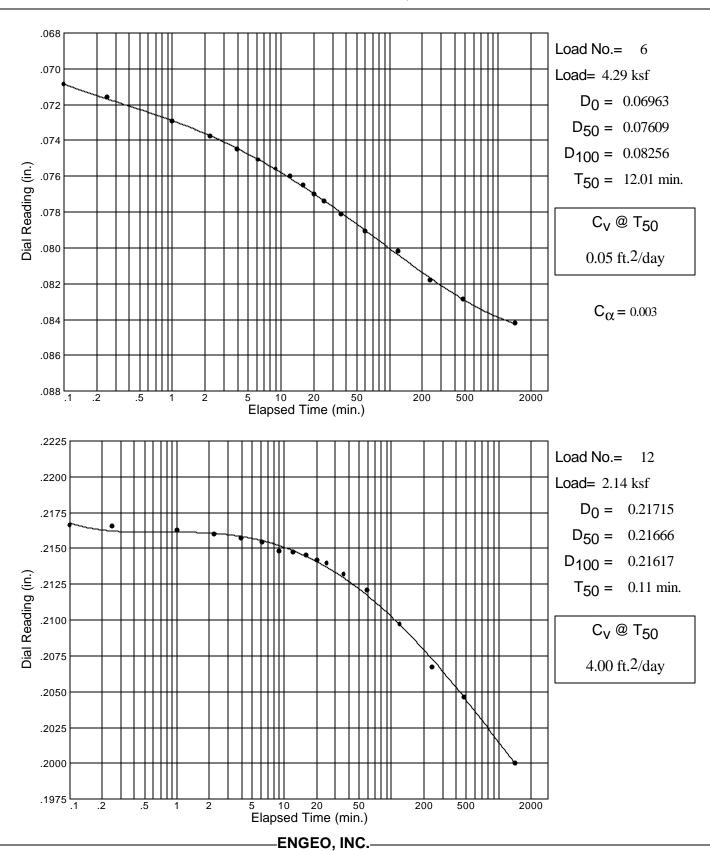
Sample No.: B5@7-7.5' Source: B-5

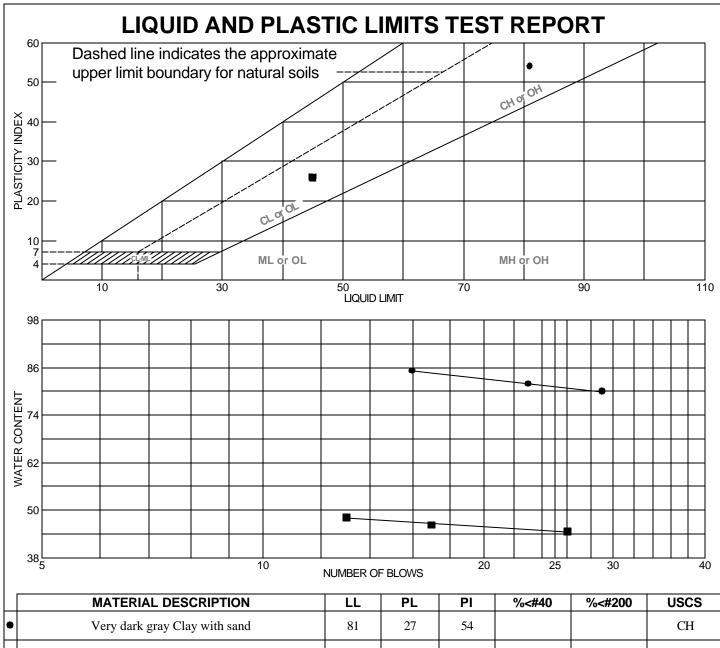


## Dial Reading vs. Time

Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Sample No.: B5@7-7.5' Source: B-5





L	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
	Very dark gray Clay with sand	81	27	54			СН
I	Dark greenish gray silty Clay to Clay with fine sand	45	19	26			CL

Project No. 6600.3.001.01 Client:

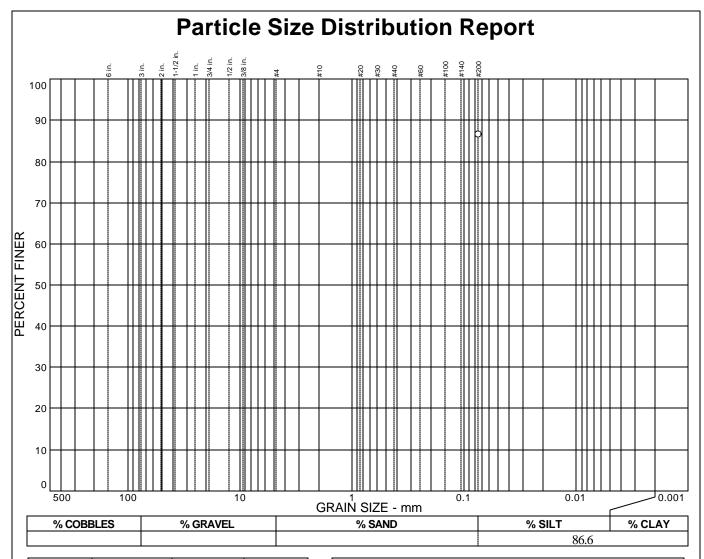
Project: BART-VTA Newhall Yard and Shops. San Jose, CA

● Source: B-5 Sample No.: B5@7-7.5' Sample No.: B5@32.5'

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING

#### Remarks:

- B5@7-7.5'
- B5@32.5'



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	86.6		
*			

Soil Description				
Dark grayish bı	Dark grayish brown silty Clay. Trace fine sand			
	Atterberg Lin			
PL=	LL=	Pl=		
	Coefficient	:s		
D <sub>85</sub> =	D <sub>60</sub> =	D <sub>50</sub> = D <sub>10</sub> =		
D <sub>85</sub> = D <sub>30</sub> = C <sub></sub> =	D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>10</sub> =		
o <sub>u</sub> −	C <sub>C</sub> -			
	Classification			
USCS= CL	AAS	SHTO=		
	Remarks			

**Sample No.:** B5@11-12.5' **Source of Sample:** B-5 **Date:** 10-24-05

Location: Elev./Depth:

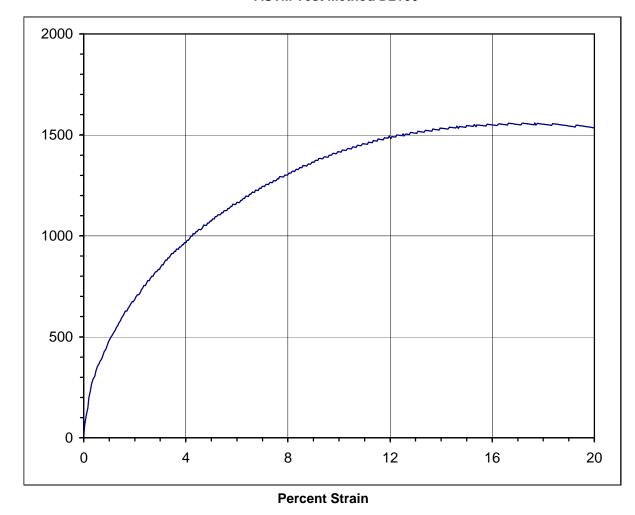
ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA





Unconfined Compressive Strength: 1550 psf 0.8 tsf

Sample Description: Dark grayish brown silty Clay

**Initial Diameter:** 2.420 in. Sample Number: B5@17-17.5' 81.4 pcf Initial Height: 5.00 **Dry Unit Weight:** in. Strain Rate: **Moisture Content:** % 1.485 %/min 39.3 **Total Strain:** 20.04 % Depth of Sample: 16.0 ft.

**ENGEO**INCORPORATED

Axial pressure (psf)

**BART-VTA** 

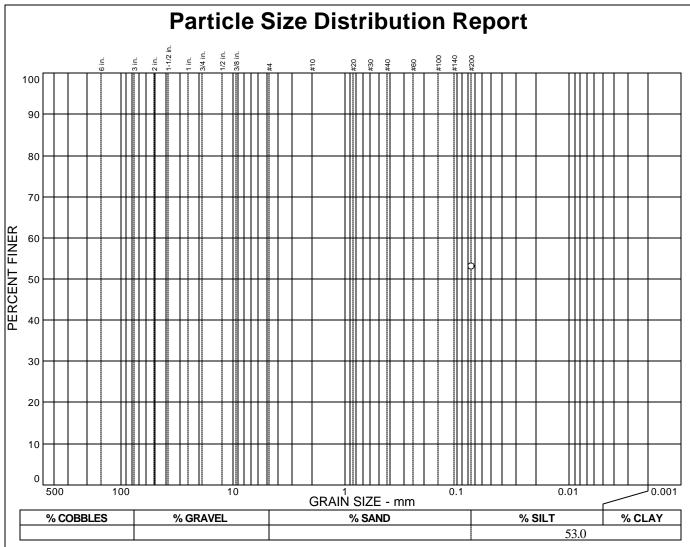
Newhall Yards and Shops. San Jose, CA

Job	6600.3.001.01
No.:	0000.3.001.01
Sample	<u> </u>

Figure No.

Number: B5@17-17.5

Date: 10/17/2005



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	53.0		

Soil Description  Very dark gray Sandy Clay with gravel			
PL=	Atterberg Lir	<u>nits</u> Pl=	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficient D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	<u>bs</u> D <sub>50</sub> = D <sub>10</sub> =	
USCS= CL	Classification USCS= CL AASHTO=		
<u>Remarks</u>			

**Date:** 10-20-05

\* (no specification provided)

Sample No.: B5@21-26' Source of Sample: B-5

Location: Elev./Depth:

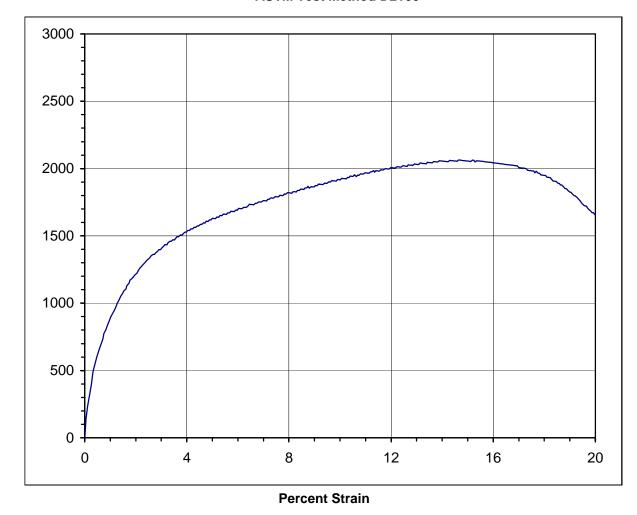
ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA





Unconfined Compressive Strength: 2060 psf 1.0 tsf

Sample Description: Grayish brown Clay

**Initial Diameter:** Sample Number: B6@12.5-13' 2.290 in. 82.5 pcf Initial Height: 4.35 **Dry Unit Weight:** in. Strain Rate: **Moisture Content:** % 1.785 %/min 29.8 **Total Strain:** 20.05 % Depth of Sample: 12.0 ft.

**ENGEO**INCORPORATED

Axial pressure (psf)

**BART-VTA** 

Newhall Yard and Shops. San Jose, CA

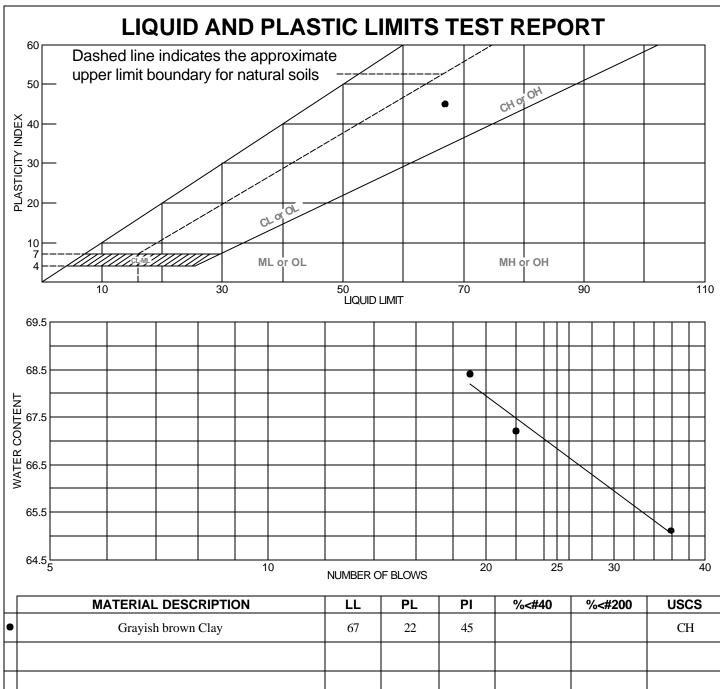
Job No.:	6600.3.001.01
Sample	

Sample B6@12.5-13

**Figure** 

No.

Date: 11/7/2005



Ĺ	MATER	RIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
	Gra	ayish brown Clay	67	22	45			СН
Ī								
ľ								

Project No. 6600.3.001.01 Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

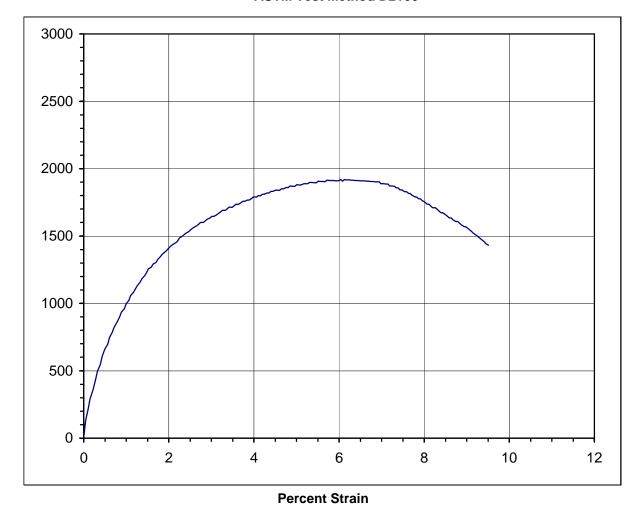
• Source: B-6 **Sample No.:** B6@17.5-18' Remarks:

• B6@17.5-18'



GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING





Unconfined Compressive Strength: 1910 psf 1.0 tsf

Sample Description: Very dark gray Clay

Initial Diameter: 2.375 in. Sample Number: B7@5-5.5' 81.1 pcf Initial Height: 4.76 in. Dry Unit Weight: Strain Rate: **Moisture Content:** 1.561 %/min 36.5 % **Total Strain:** 9.51 % Depth of Sample: 5-5.5 ft.

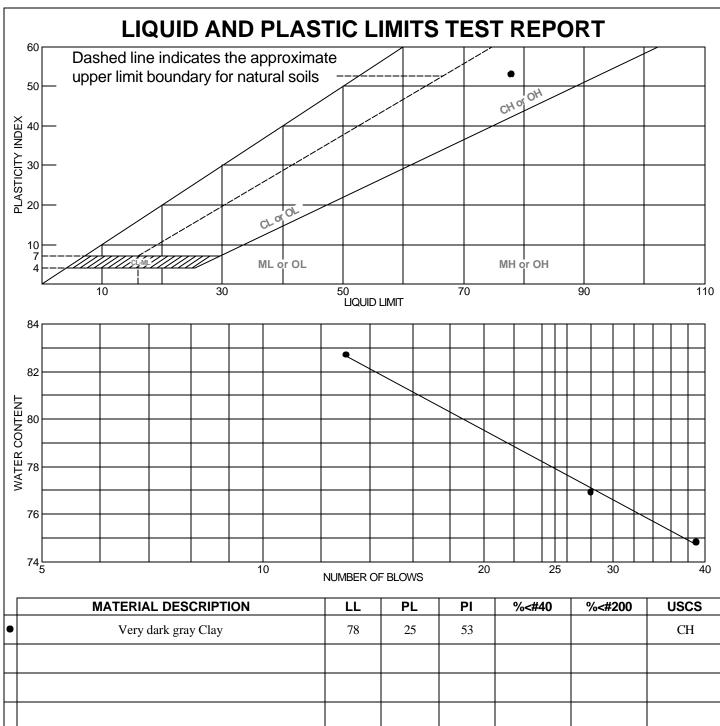
EN	G	EO
INCOR	POR	ATED

Axial pressure (psf)

**BART-VTA** 

Newhall Yard and Shops. San Jose, CA

Job ,	600.3.001.01	Figure
No.:	10.1.00.3.00	No.
Sample	B7@5-5.5'	
Number:	Б7 @5-5.5	
Date:	11/8/2005	



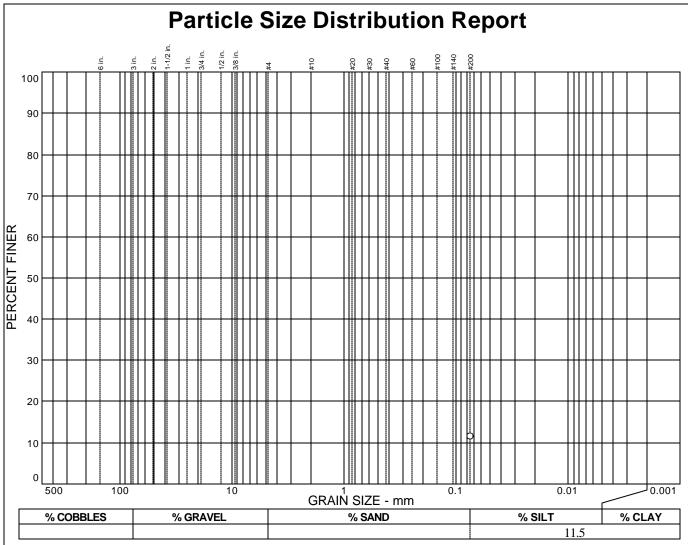
Project No. 6600.3.001.01 Client:		Remark	

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

• Source: B-7 **Sample No.:** B7@5-5.5' • B7@5-5.5'



GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	11.5		
*			

Soil Description Olive gray silty Sand with gravel					
PL=	Atterberg Lim	nits Pl=			
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =			
USCS= SM	Classification USCS= SM AASHTO=				
<u>Remarks</u>					

Sample No.: B8@2-2.5' Source of Sample: B-8 Date: 11-9-05

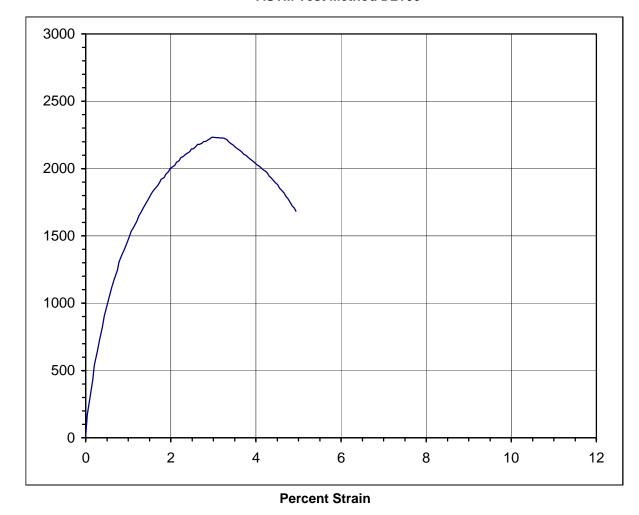
Location: Elev./Depth: 2-2.5 ft.



Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA





Unconfined Compressive Strength: 2230 psf 1.1 tsf

Sample Description: Very dark gray Clay

**Initial Diameter:** 2.420 in. Sample Number: B8@5' Initial Height: 5.00 in. **Dry Unit Weight:** 78.2 pcf Strain Rate: **Moisture Content:** % 1.588 %/min 37.7 **Total Strain:** 4.94 % Depth of Sample: 5.0 ft.

**ENGEO**INCORPORATED

Axial pressure (psf)

**BART-VTA** 

Newhall Yard and Shops. San Jose, CA

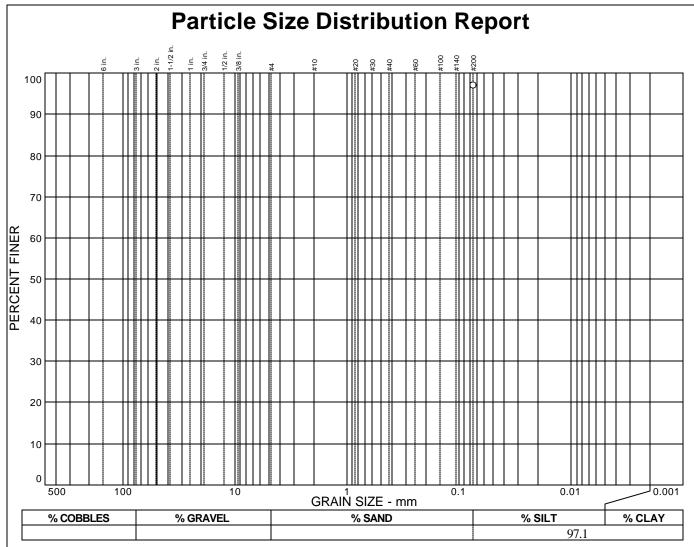
Job	6600.3.001.01
No.:	0000.3.001.01

**Figure** 

No.

Sample Number: B8@5'

Date: 11/9/2005



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	97.1		
4			

Soil Description  Mottled grayish brown and dark yellowish brown silty Clay.  Trace sand					
PL=	Atterberg Limits	PI=			
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	$\begin{array}{c} \underline{\text{Coefficients}} \\ D_{60} = \\ D_{15} = \\ C_{\text{C}} = \end{array}$	D <sub>50</sub> = D <sub>10</sub> =			
USCS= CL	Classification USCS= CL AASHTO=				
<u>Remarks</u>					

 Sample No.:
 B8@11.5-13'
 Source of Sample: B-8
 Date:
 11-9-05

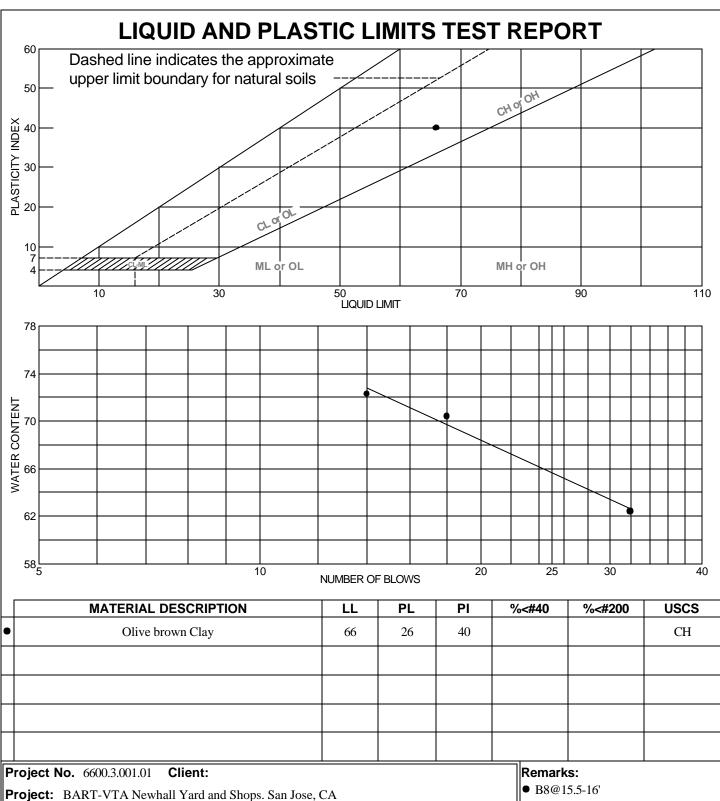
 Location:
 Elev./Depth:
 11.5-13 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

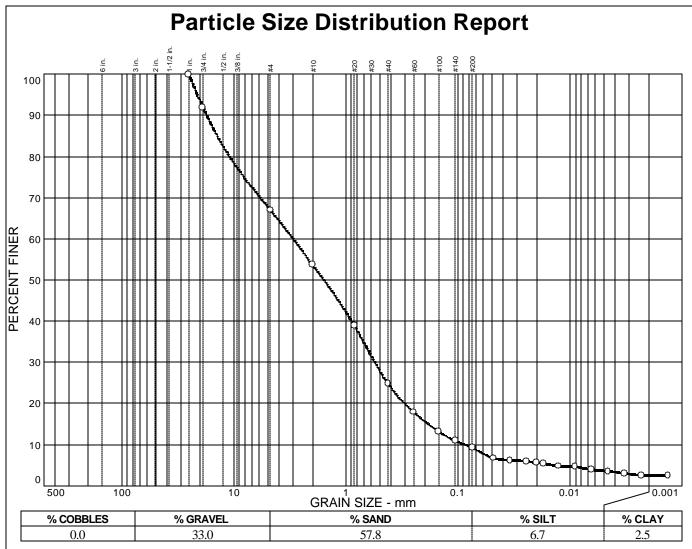
Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



• Source: B-8 **Sample No.:** B8@15.5-16' • B8@15.5-16'





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
1 in. 3/4 in. #4 #10 #20 #40 #60 #100 #140 #200	100.0 91.9 67.0 53.7 38.9 24.8 17.9 13.2 10.9 9.2		

Soil Description					
Very dark grays	sih brown Gravelly S	Sand with silty			
•					
Atterberg Limits PL= LL= PI=					
	Coefficients				
$\begin{array}{c} D_{85} = 14.2 \\ D_{30} = 0.558 \\ C_{u} = 34.00 \end{array}$	D <sub>60</sub> = 2.99 D <sub>15</sub> = 0.186 C <sub>c</sub> = 1.18	D <sub>50</sub> = 1.58 D <sub>10</sub> = 0.0879			
USCS= SP AASHTO=					
<u>Remarks</u>					

**Sample No.:** B8@26-35'

Location:

**Source of Sample:** B-8

**Elev./Depth:** 26-35 ft.

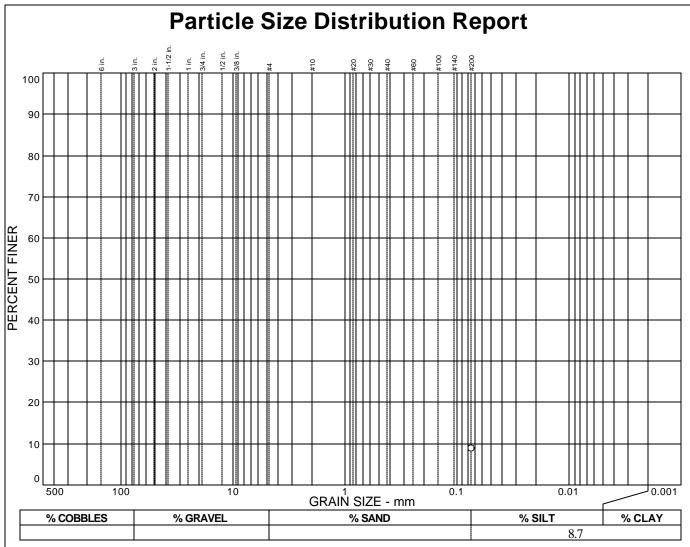
**Date:** 11-9-05

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	8.7		
4			

Soil Description				
Dark grayish brown Sand with silt and gravel				
Atterberg Limits				
PL=	LL=	PI=		
	Coefficients			
D <sub>85</sub> =	D <sub>60</sub> =	D <sub>50</sub> = D <sub>10</sub> =		
D <sub>85</sub> = D <sub>30</sub> = C <sub>11</sub> =	D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>10</sub> =		
o <sub>u</sub> =	ŭ			
<u>Classification</u>				
USCS= SP	AASHTO=			
Remarks				

 Sample No.:
 B8@41.5-43'
 Source of Sample: B-8
 Date:
 11-9-05

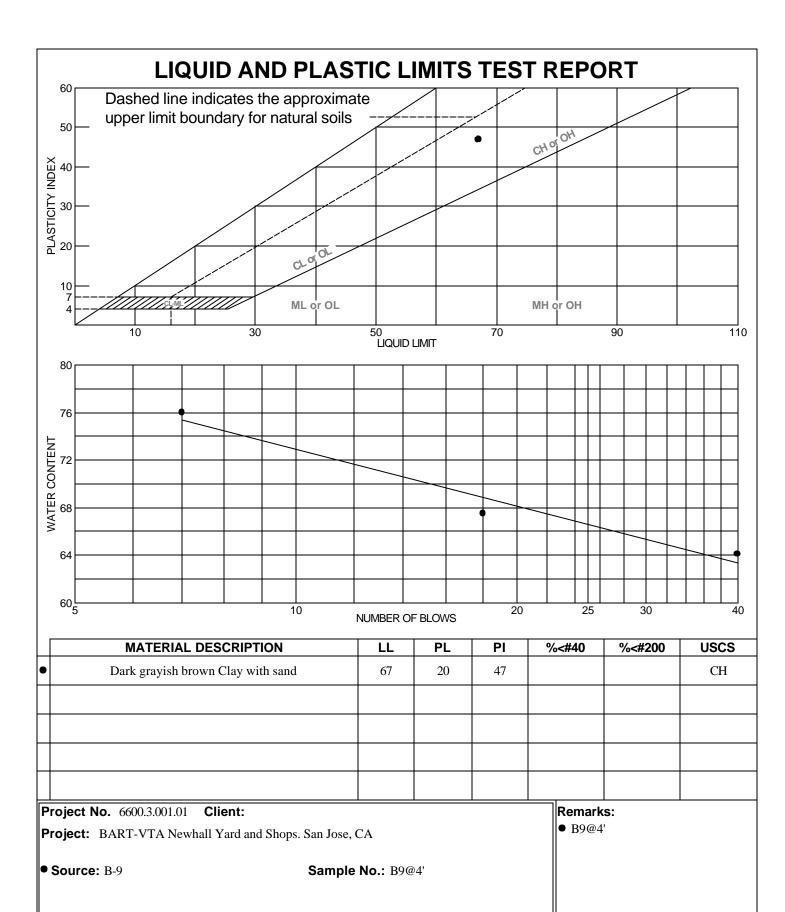
 Location:
 Elev./Depth:
 41.5-43 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

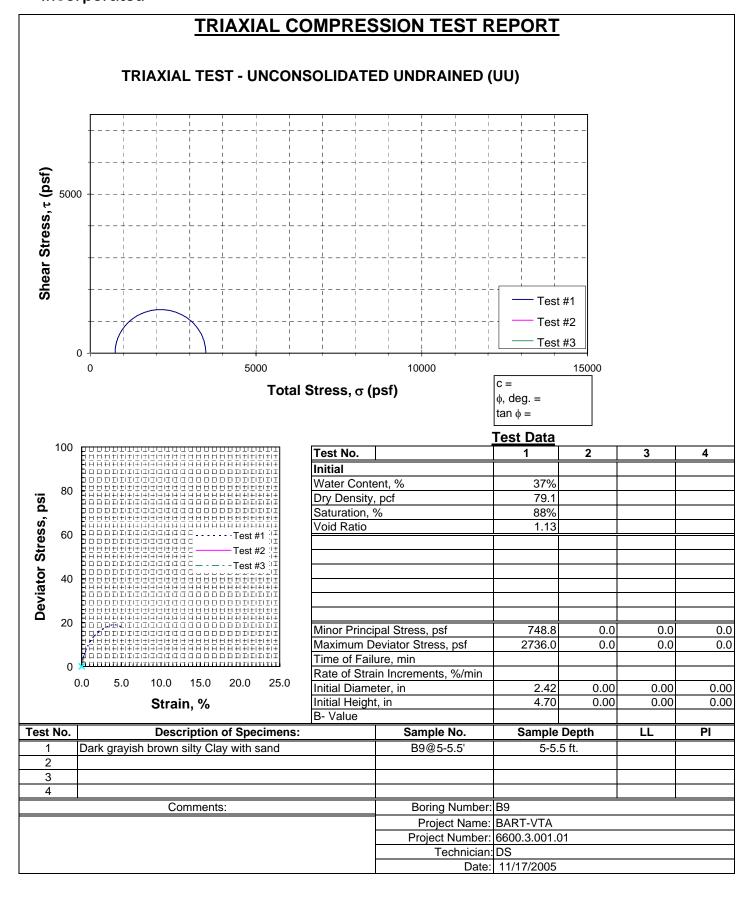
Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

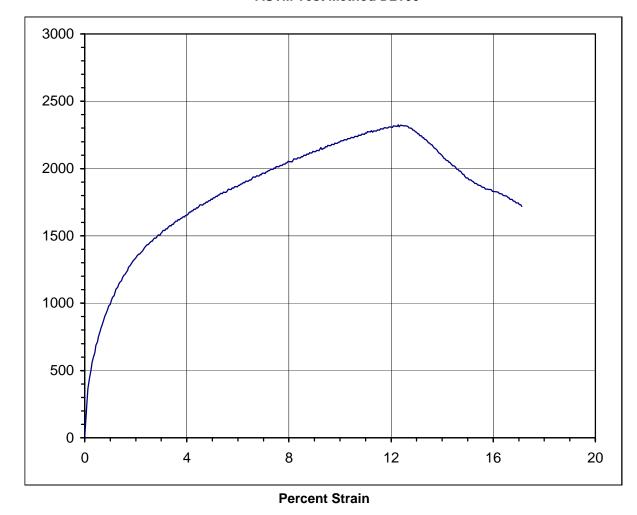












Unconfined Compressive Strength: 2320 psf 1.2 tsf

Sample Description: Dark grayish brown silty Clay to Clay

Initial Diameter: 2.350 in. Sample Number: B9@14.5-15' 85.5 pcf Initial Height: 4.95 in. **Dry Unit Weight:** Strain Rate: **Moisture Content:** 1.423 %/min 31.8 % **Total Strain:** 17.12 % Depth of Sample: 14.5-15 ft.

**ENGEO**INCORPORATED

Axial pressure (psf)

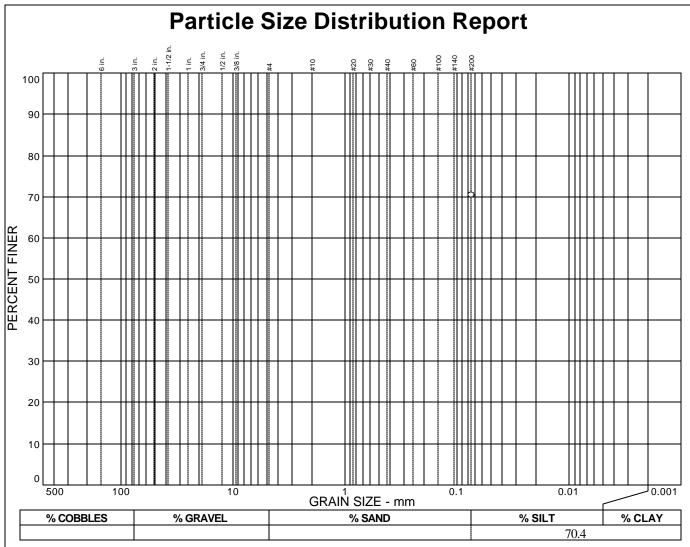
**BART-VTA** 

Newhall Yard and Shops. San Jose, CA

Job No.:	6600.3.001.01	
Sample Number:	B9@14.5-15'	
Date:	11/10/2005	

**Figure** 

No.



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	70.4		
4			

Soil Description  Light olive brown sandy silty Clay				
PL=	Atterberg Lin	nits Pl=		
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficient D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =		
Classification USCS= CL AASHTO=				
<u>Remarks</u>				

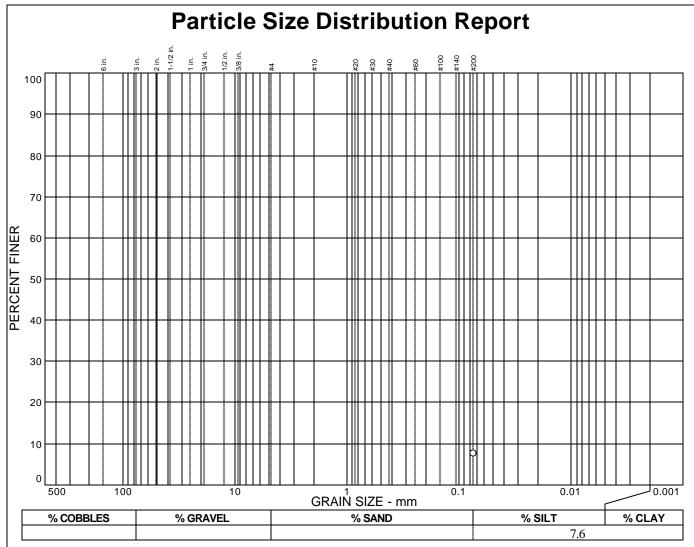
Sample No.: B9@21' Source of Sample: B-9 Date: 11-15-05 Location: Elev./Depth: 21 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	7.6		
4			

Soil Description					
• •	prown and dark yellow	vish browns Sandy			
Gravel with silt					
	Atterberg Limits				
PL=	LL=	Pl=			
	Coefficients				
D <sub>85</sub> =	D <sub>60</sub> =	D <sub>50</sub> =			
C <sub>u</sub> =	C <sub>C</sub> =	D <sub>10</sub> -			
	Classification				
USCS= GP-GM AASHTO=					
<u>Remarks</u>					

 Sample No.:
 B9@24-25.5'
 Source of Sample: B-9
 Date: 11-15-05

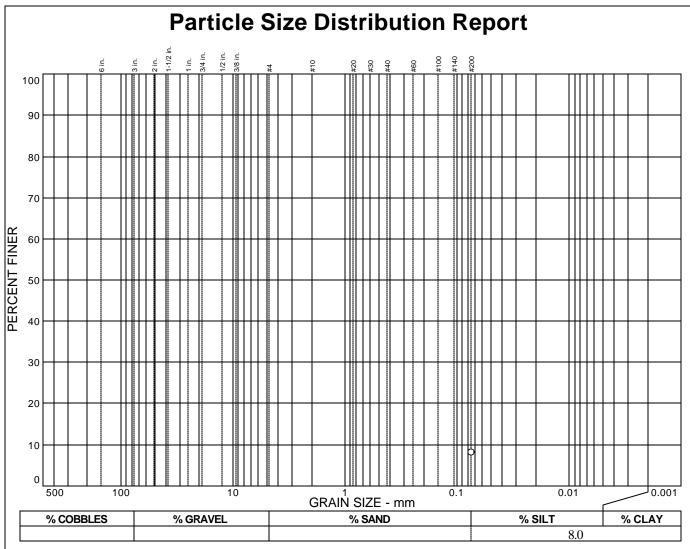
 Location:
 Elev./Depth: 24-25.5 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	8.0		
* (	C'	. 1)	

Soil Description Olive brown Gravel with silt and sand						
PL=	Atterberg Limit	<u>:s</u> Pl=				
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =				
USCS= GP-GM	USCS= GP-GM AASHTO=					
<u>Remarks</u>						

 Sample No.:
 B9@29-30.5'
 Source of Sample: B-9
 Date:
 11-15-05

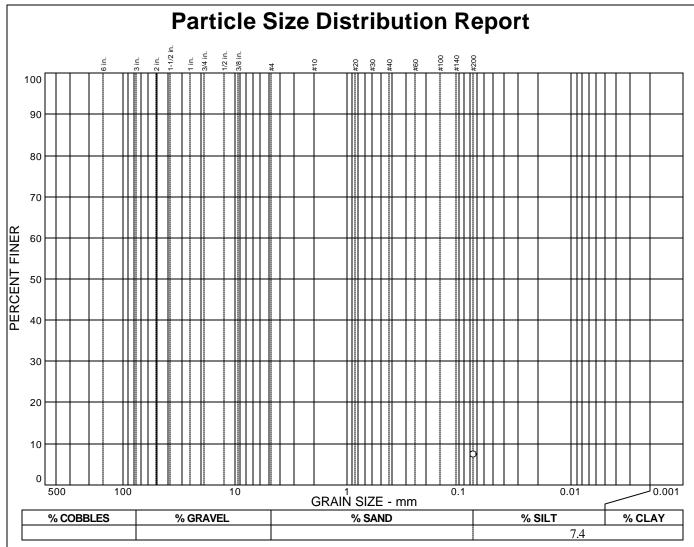
 Location:
 Elev./Depth:
 29-30.5 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	7.4		

Soil Description					
Very dark gray	Sand with silt and gra	ivel			
PL=	Atterberg Limits	PI=			
		' '-			
D <sub>85</sub> =	Coefficients D <sub>60</sub> =	D <sub>50</sub> =			
D30=	D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =			
o <sub>u</sub> –					
LICCC GD	<u>Classification</u>	0			
USCS= SP	AASHT	U=			
<u>Remarks</u>					

Sample No.: B9@38' Source of Sample: B-9 Location:

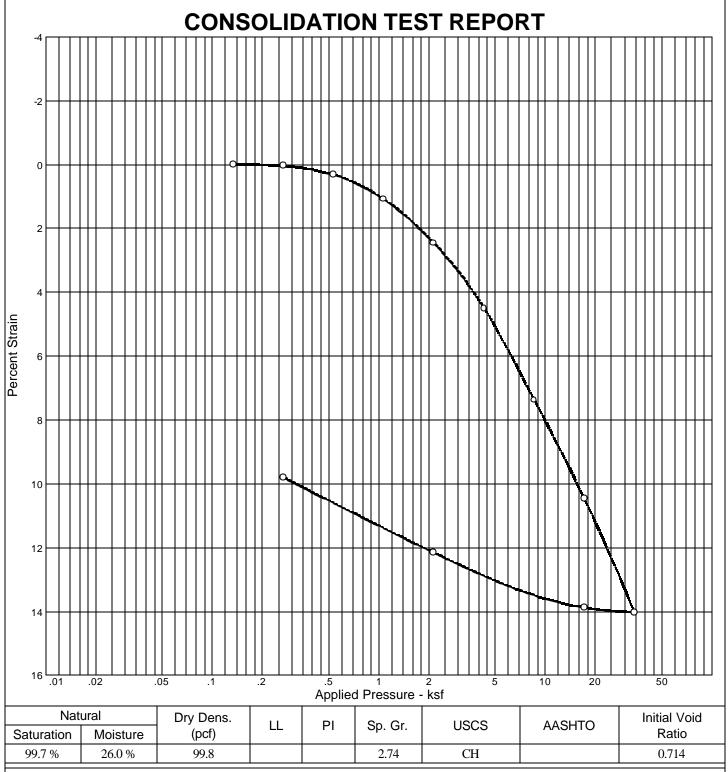
**F Sample:** B-9 **Date:** 11-15-05 **Elev./Depth:** 38 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



#### **MATERIAL DESCRIPTION**

Dark olive brown Clay

**Project No.** 6600.3.001.01 **Client:** 

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Source: B-9 Sample No.: B9@44'

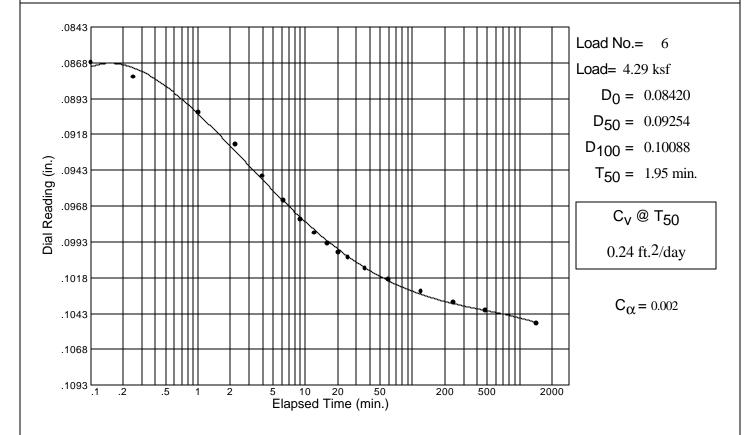
**ENGLO** 

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING Remarks:

Sample swelled at 268 psf loading

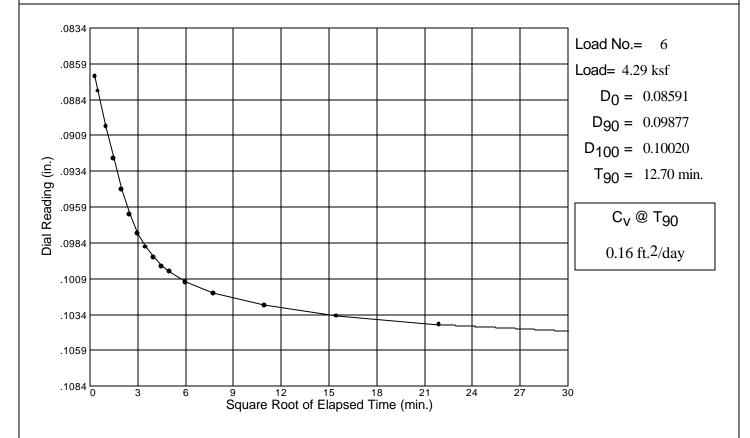
Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

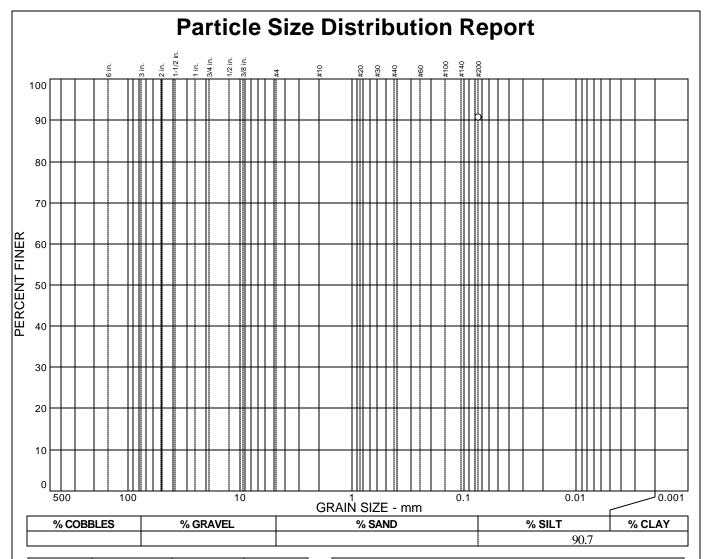
Source: B-9 Sample No.: B9@44'



Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Sample No.: B9@44' Source: B-9





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	90.7		
*			

Soil Description						
Light olive bro	wn silty Clay. Trace fin	e sand				
-						
	<b>Atterberg Limits</b>					
PL=	LL=	PI=				
	Coefficients					
D <sub>85</sub> =		D <sub>50</sub> =				
D30=	D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =				
C <sub>u</sub> =	C <sub>C</sub> =					
	<u>Classification</u>					
USCS= CL	AASHTC	)=				
	Remarks					

Sample No.: B9@50.5' Location:

INCORPORATED

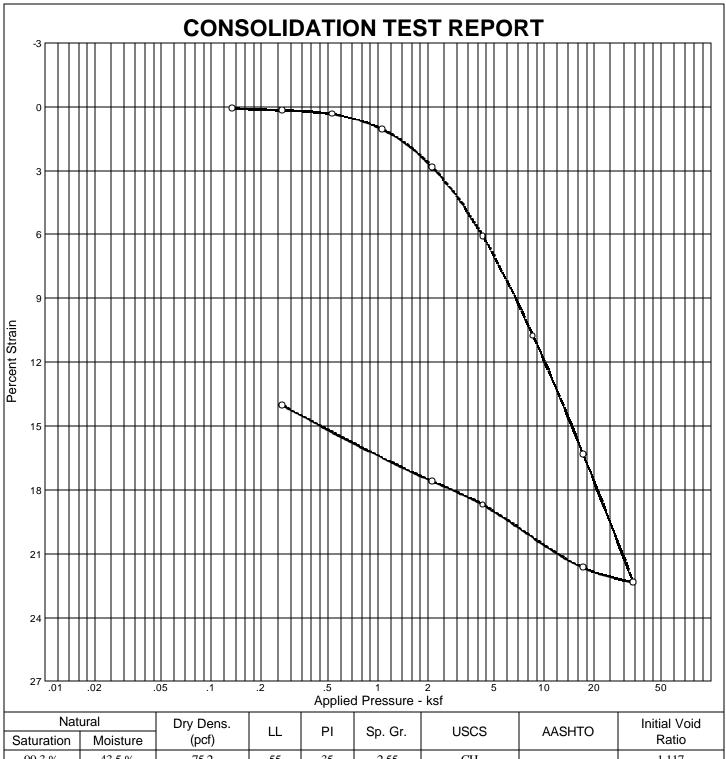
**Source of Sample:** B-9

**Date:** 11-15-05 **Elev./Depth:** 50.5 ft.

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GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



Nat	ural	Dry Dens.	LL PI	DI	Sp. Gr.	USCS	AASHTO	Initial Void
Saturation	Moisture	(pcf)		Sp. Gr.	USCS	AASHIU	Ratio	
99.3 %	43.5 %	75.2	55	35	2.55	СН		1.117

#### **MATERIAL DESCRIPTION**

Dark yellowish brown Clay with fine sand

**Project No.** 6600.3.001.01 Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Source: B-10 **Sample No.:** B10@9'

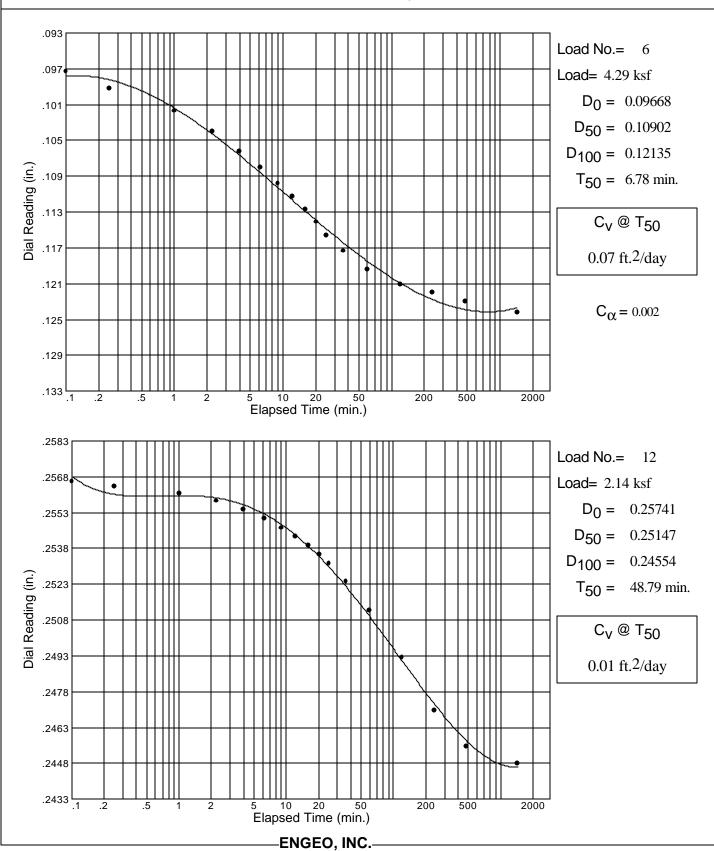
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING

Remarks:

Sample swelled at 536 psf loading

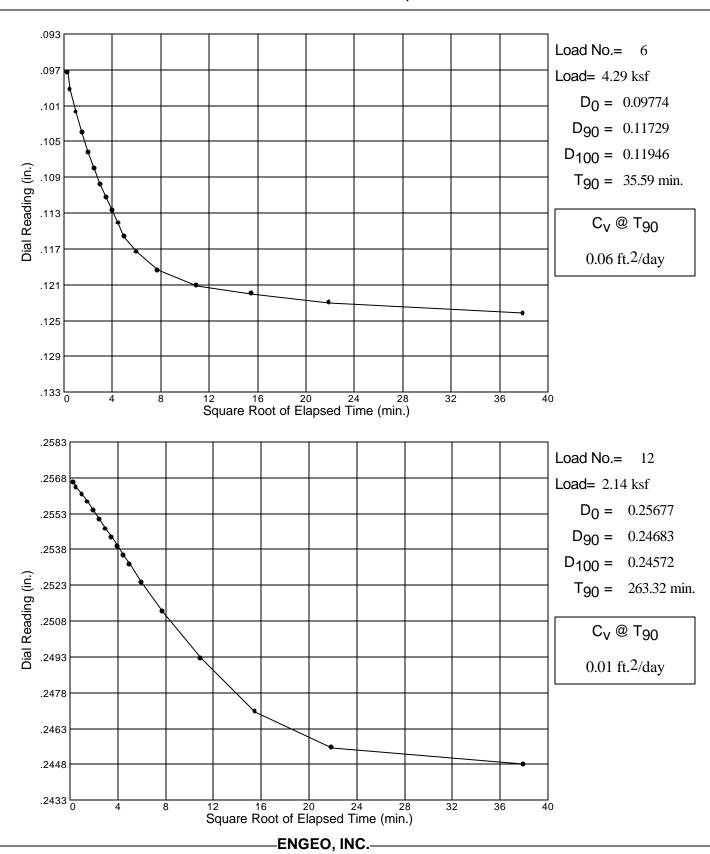
Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

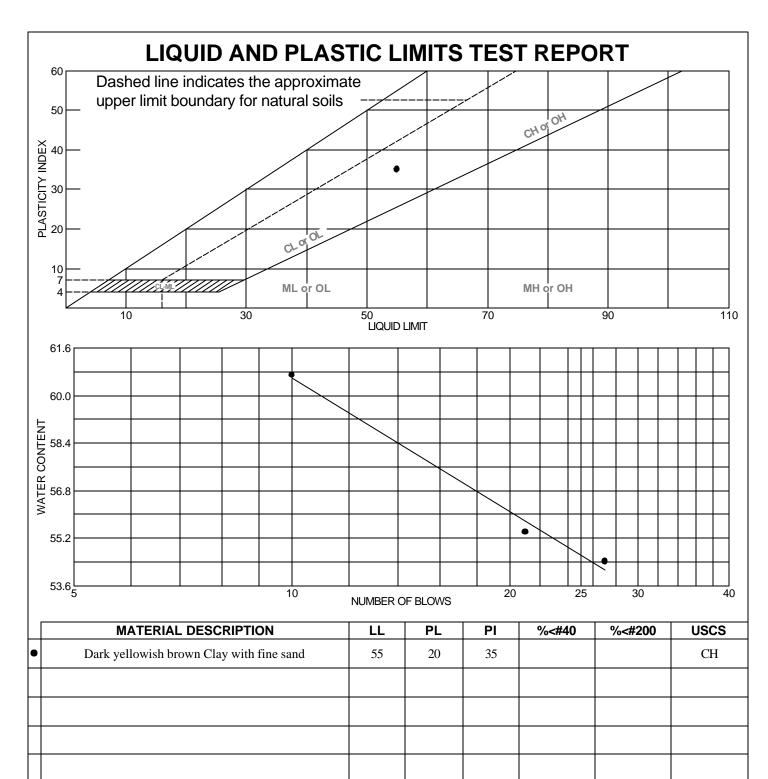
Sample No.: B10@9' Source: B-10



Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Source: B-10 Sample No.: B10@9'

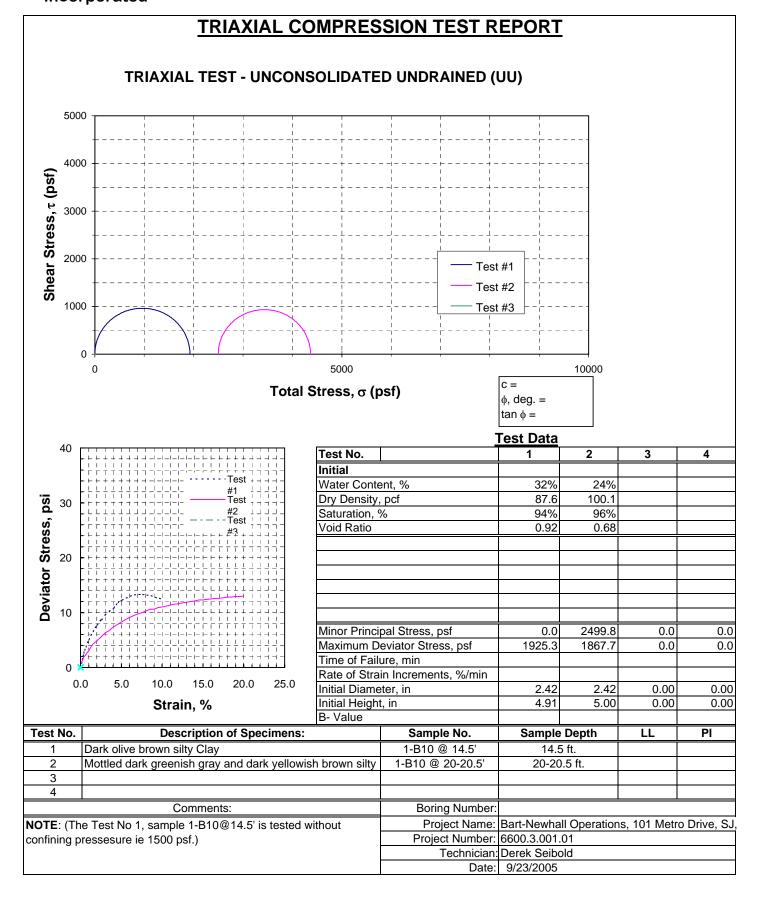


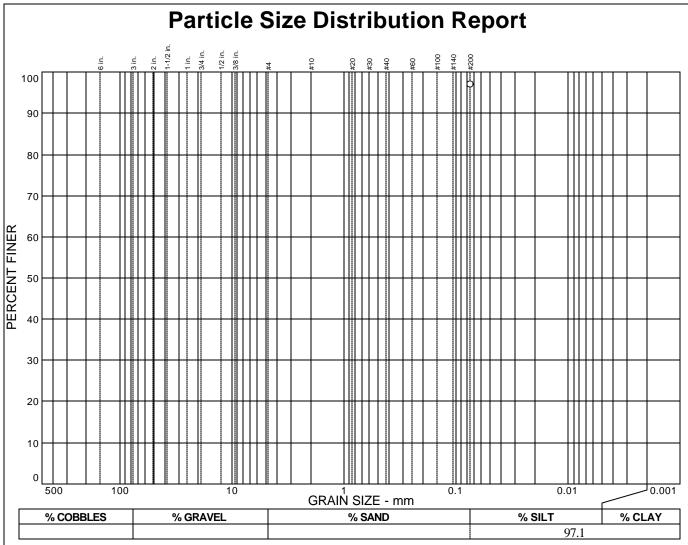


**Project No.** 6600.3.001.01 Client: Remarks: • B10@9' Project: BART-VTA Newhall Yard and Shops. San Jose, CA • Source: B-10 Sample No.: B10@9'

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING







SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	97.1		

Soil Description  Dark grayish brown silty Clay						
PL=	Atterberg Limit	<u>ts</u> Pl=				
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =				
USCS= CL	Classification USCS= CL AASHTO=					
<u>Remarks</u>						

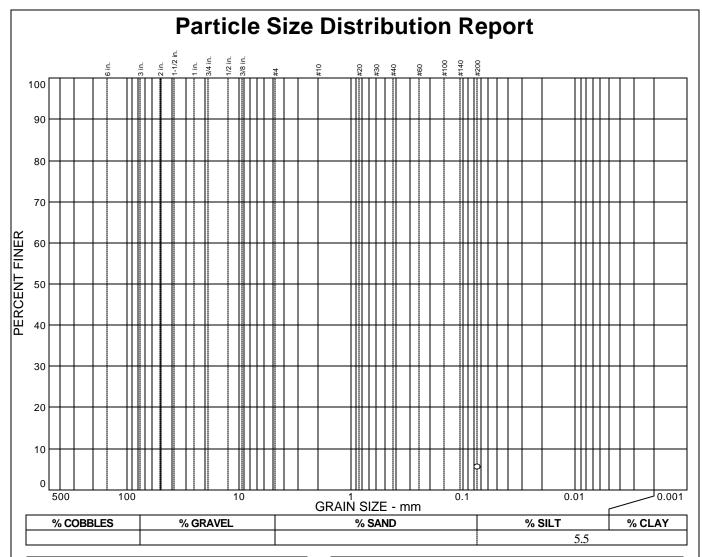
Sample No.: B10@15.5' Source of Sample: B-10 Date: 12-5-05

Location: Elev./Depth: 15.5 ft.



Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	5.5		
*			

Soil Description							
Dark grayish b	rown Sand with si	lt and gravel					
	Atterberg Lir						
PL=	LL=	Pl=					
	Coefficient	<u>:s</u>					
D <sub>85</sub> =	D <sub>60</sub> =	D <sub>50</sub> = D <sub>10</sub> =					
D30=	D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>10</sub> =					
C <sub>u</sub> =	C <sub>C</sub> =						
	<u>Classification</u>						
USCS= SP	AAS	SHTO=					
	Remarks						

 Sample No.:
 B10@24-25.5'
 Source of Sample: B-10
 Date: 12-5-05

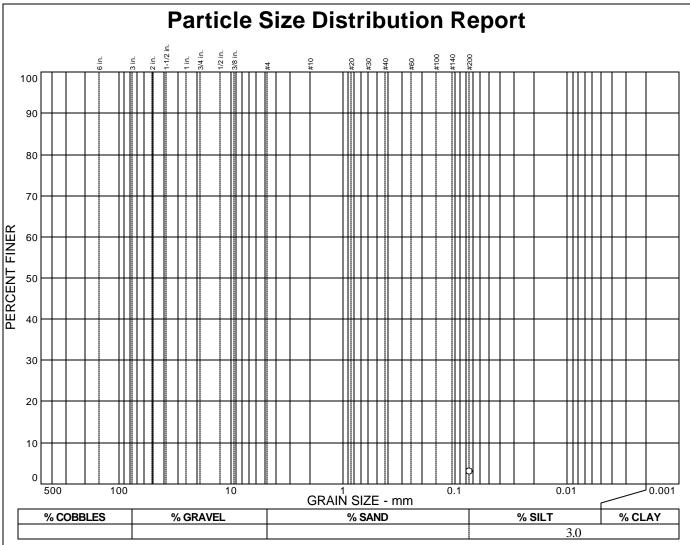
 Location:
 Elev./Depth: 24-25.5 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	3.0		
*		l	

Soil Description  Dark graish brown Sand. Trace silt						
PL=	Atterberg Lim	<u>its</u> Pl=				
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	$\begin{array}{c} \underline{\text{Coefficients}} \\ \text{D}_{60} = \\ \text{D}_{15} = \\ \text{C}_{\text{C}} = \end{array}$	D <sub>50</sub> = D <sub>10</sub> =				
USCS= SP	Classificatio AAS	<u>n</u> HTO=				
<u>Remarks</u>						

Sample No.: B10@30.5' Location:

**Source of Sample:** B-10

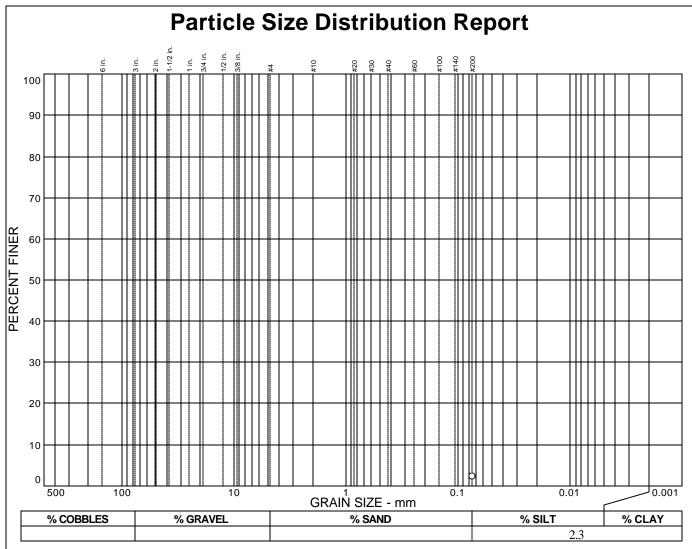
**Date:** 12-5-05 **Elev./Depth:** 30.5 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	2.3		
* (		. 1)	

Soil Description  Dark grayish brown Sand						
PL=	Atterberg Lin	nits Pl=				
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficient D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	<u>s</u> D <sub>50</sub> = D <sub>10</sub> =				
USCS= SP	Classification AAS	<u>on</u> SHTO=				
<u>Remarks</u>						

Sample No.: B10@33' Location:

Source of Sample: B-10

**Date:** 12-5-05 **Elev./Depth:** 33 ft.

Client:

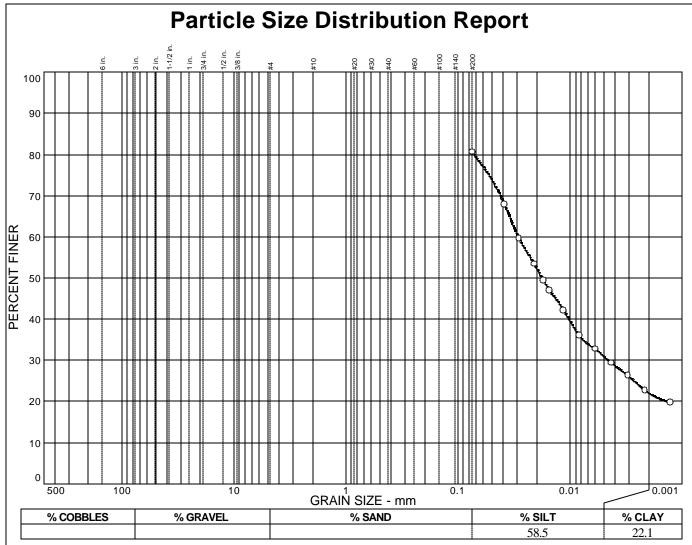
Project: BART-VTA Newhall Yard and Shops. San Jose, CA

— | Project N

**Project No:** 6600.3.001.01

**ENGEO** 1

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	80.6		
* (		. 1)	

Soil Description Olive brown silty Clay with sand						
PL=	Atterberg Limits LL=	PI=				
D <sub>85</sub> = D <sub>30</sub> = 0.0046 C <sub>u</sub> =	Coefficients D <sub>60</sub> = 0.0293 D <sub>15</sub> = C <sub>C</sub> =	D <sub>50</sub> = 0.0180 D <sub>10</sub> =				
USCS= CL	Classification AASHT	O=				
<u>Remarks</u>						

 Sample No.:
 B10@49-50.5'
 Source of Sample: B-10
 Date: 12-5-05

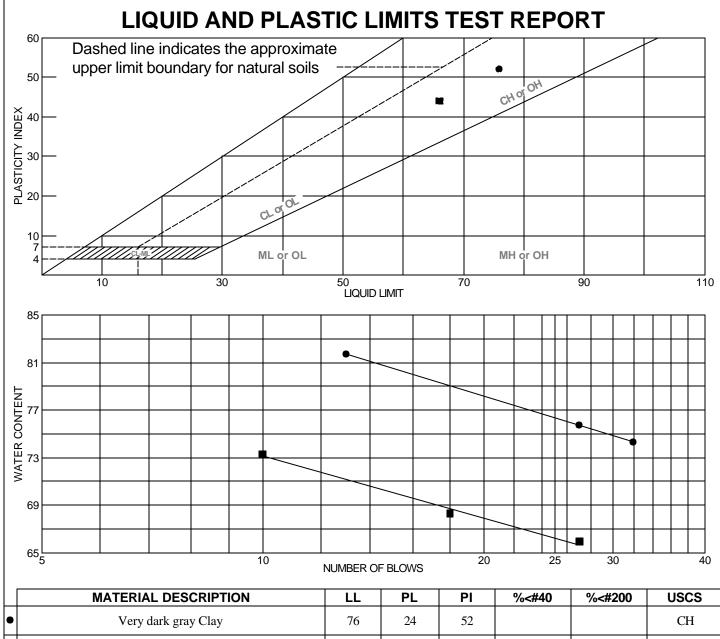
 Location:
 Elev./Depth: 49-50.5'

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
•	Very dark gray Clay	76	24	52			СН
	Dark olive brown Clay	66	22	44			СН

Project No. 6600.3.001.01 Client:

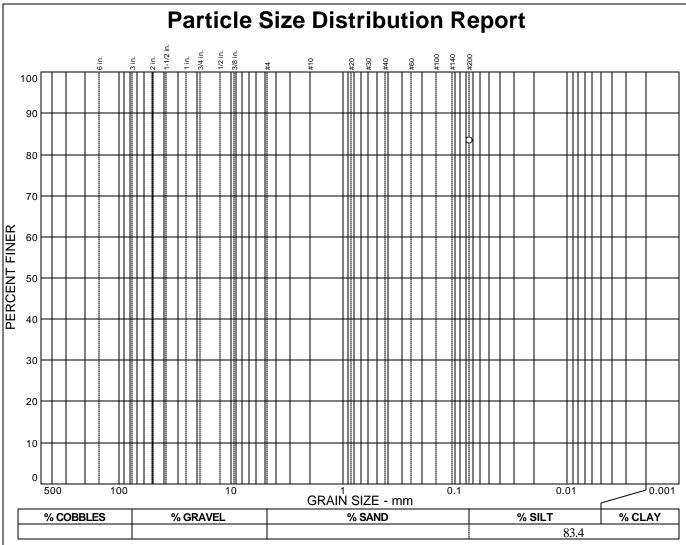
**Project:** BART-VTA Newhall Yard and Shops. San Jose, CA

● Source: B-11 Sample No.: B11@8-8.5'
■ Source: B-11 Sample No.: B11@12.5-13'

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING

#### Remarks:

- B11@8-8.5'
- B11@12.5-13'



PERCENT	SPEC.*	PASS?
FINER	PERCENT	(X=NO)
83.4		
	FINER	FINER PERCENT

Soil Description  Dark olive gray silty Clay with sand							
PL=	Atterberg Lin	nits Pl=					
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficient D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	<u>s</u> D <sub>50</sub> = D <sub>10</sub> =					
USCS= CL	Classification USCS= CL AASHTO=						
<u>Remarks</u>							

 Sample No.:
 B11@17.5-18'
 Source of Sample: B-11
 Date: 11-16-05

 Location:
 Elev./Depth: 17.5-18 ft.

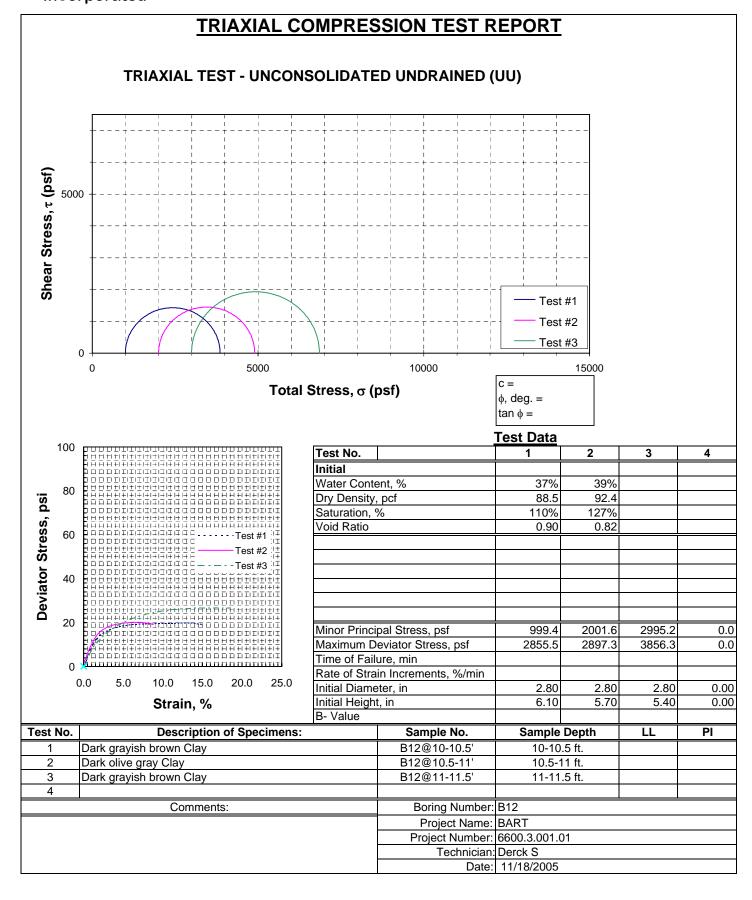
ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

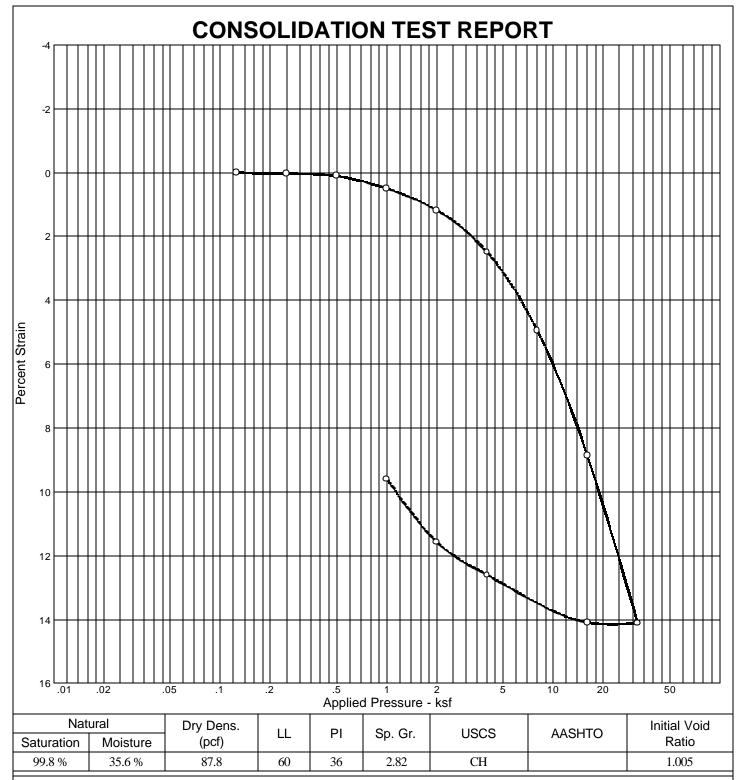
INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA







#### **MATERIAL DESCRIPTION**

Dark grayish brown Clay

**Project No.** 6600.3.001.01 **Client:** 

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

**Source:** B-12 **Sample No.:** B12@9-12'

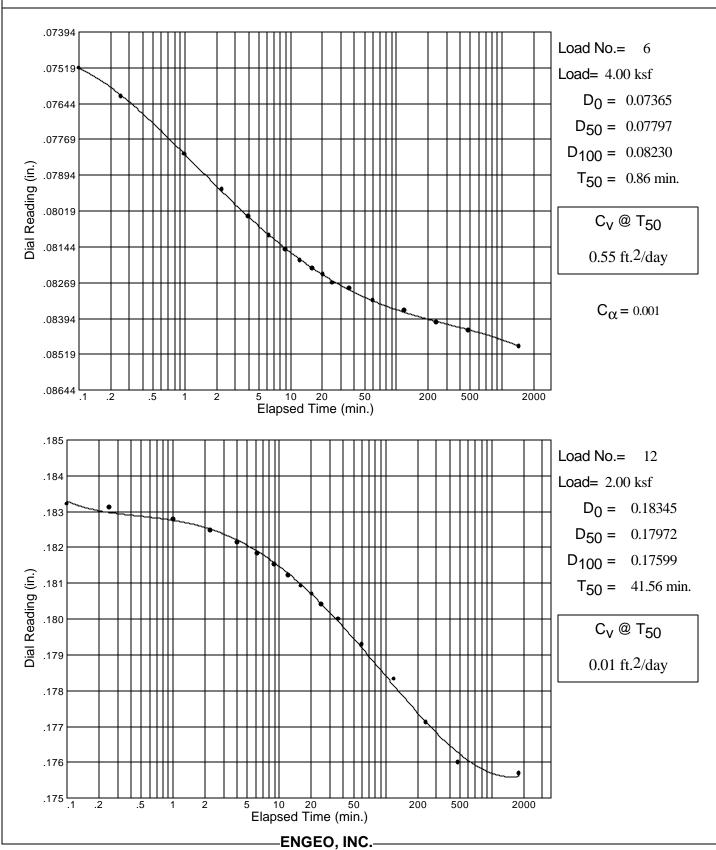
**ENGEO** 

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING Remarks:

Sample swelled at 250 psf loading

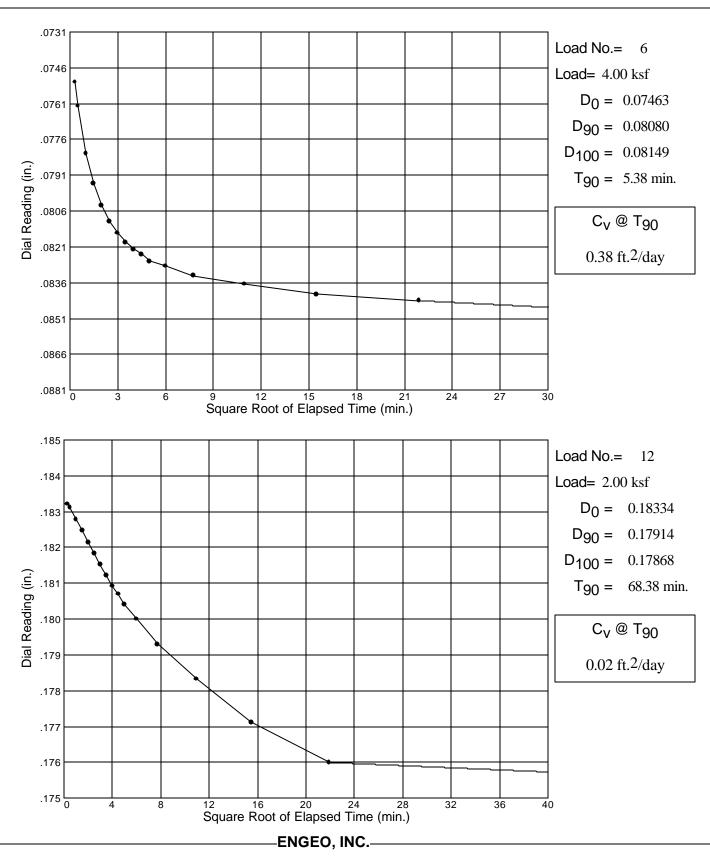
Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

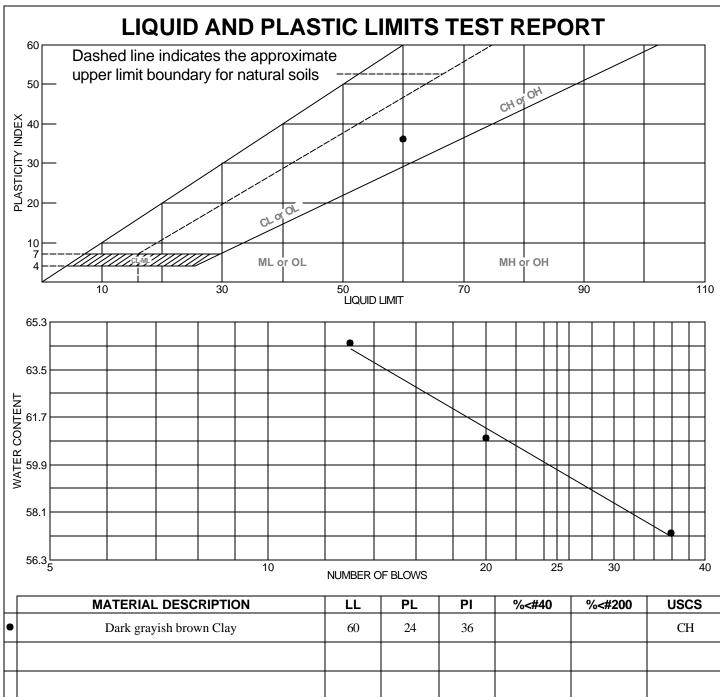
Source: B-12 Sample No.: B12@9-12'



Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Source: B-12 Sample No.: B12@9-12'





•	Dark grayish brown Clay	60	24	36		СН

**Project No.** 6600.3.001.01 **Client:** 

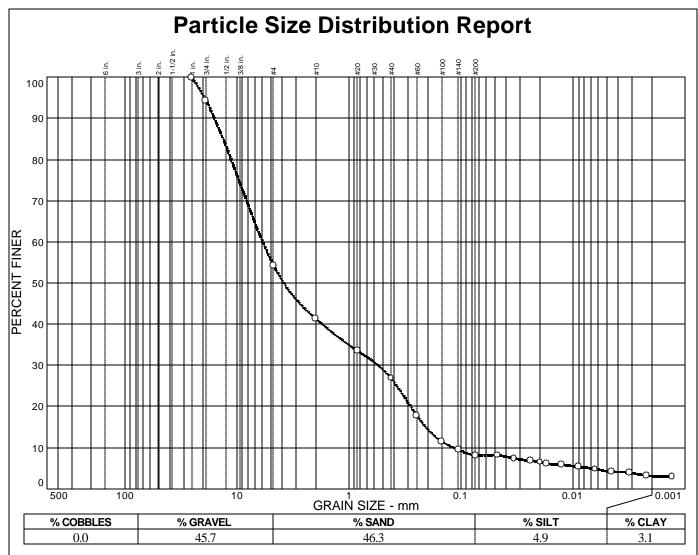
Project: BART-VTA Newhall Yard and Shops. San Jose, CA

• Source: B-12 **Sample No.:** B12@9-12' Remarks:

• B12@9-12'



GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
1 in. 3/4 in. #4 #10 #20 #40 #60 #100 #140 #200	100.0 94.3 54.3 41.4 33.6 26.9 17.8 11.5 9.5 8.0		

Soil Description  Very dark gray poorly graded Sand with silt and gravel		
very dark gray	poorty graded Sand w	in sin and graver
	<b>Atterberg Limits</b>	
PL=	LL=	Pl=
	<b>Coefficients</b>	
$D_{85}$ = 13.4 $D_{30}$ = 0.550 $C_{U}$ = 50.77	D <sub>60</sub> = 5.94 D <sub>15</sub> = 0.208	D <sub>50</sub> = 3.84 D <sub>10</sub> = 0.117
$C_{u} = 50.77$	$C_{c} = 0.44$	210- 0.117
	Classification	
USCS= SP	AASHT	O=
<u>Remarks</u>		

Sample No.: B12@25' Location:

Source of Sample: B-12

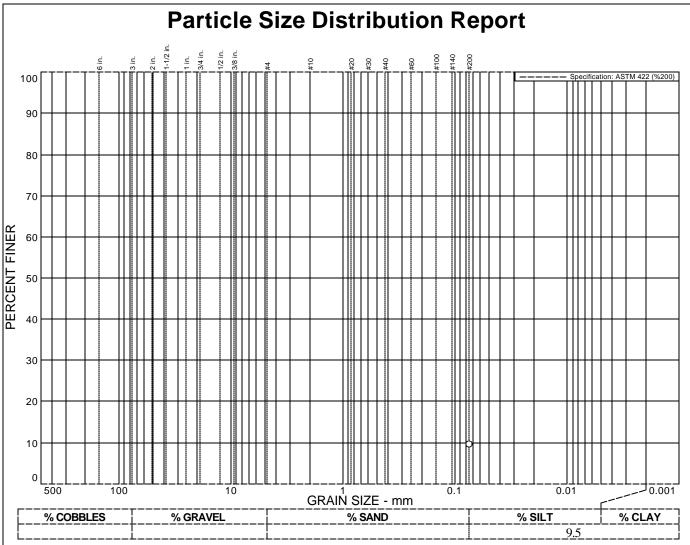
**Date:** 11-17-05 **Elev./Depth:** 25 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	9.5	-	X
*			

Soil Description		
Dark olive brow	n Sand with silt and gra	avel
PL=	Atterberg Limits	PI=
PL=		PI=
_	<u>Coefficients</u>	_
D <sub>85</sub> =	D <sub>60</sub> =	D <sub>50</sub> =
C <sub>11</sub> =	C <sub>C</sub> =	D <sub>10</sub> -
u	Classification	
USCS= SP	AASHTO	=
<u>Remarks</u>		

\* ASTM 422 (%200)

 Sample No.:
 B12@31-31.5'
 Source of Sample: B-12
 Date: 11-17-05

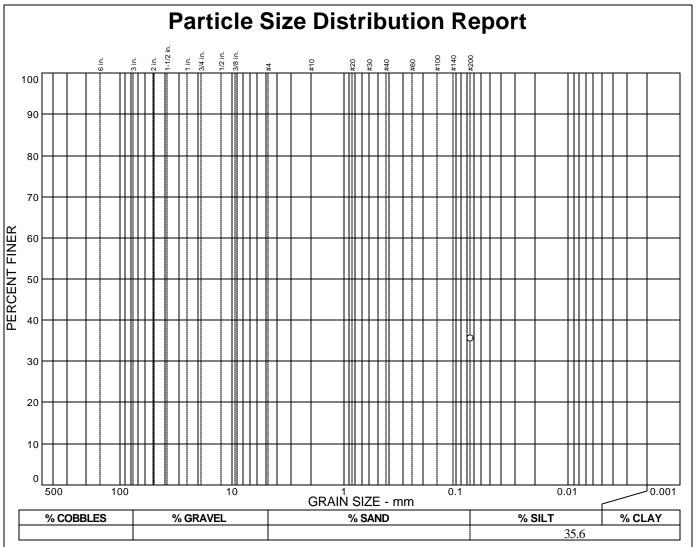
 Location:
 Elev./Depth: 31-31.5 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	35.6		
4			

Soil Description			
Mottled greenis	h gray and olive brown	silty Sand	
PL=	Atterberg Limits	PI=	
r <b>L</b> =	<b></b>	ΓI <del>-</del>	
Б.	<u>Coefficients</u>	Б.	
D <sub>85</sub> =	D <sub>60</sub> =	D <sub>50</sub> =	
C <sub>11</sub> =	D <sub>15</sub> = C <sub>c</sub> =	510-	
G	Classification		
USCS= SM	AASHTO	=	
	<u>Remarks</u>		

 Sample No.:
 B12@35.5-36'
 Source of Sample: B-12
 Date: 11-17-05

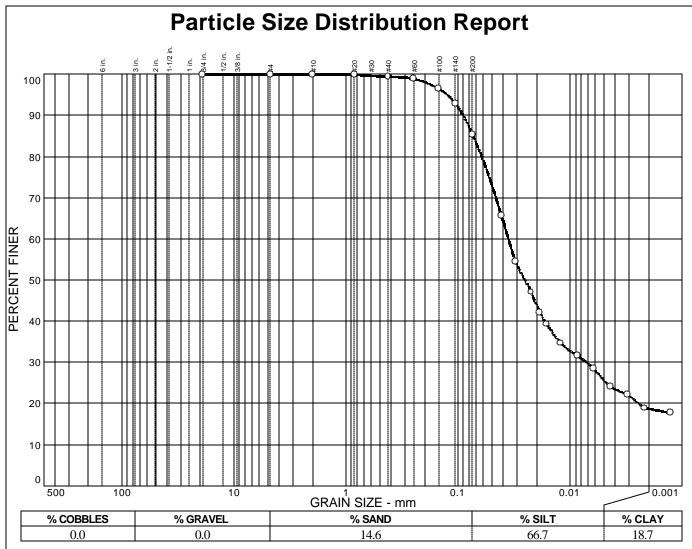
 Location:
 Elev./Depth: 35.5-36 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
3/4 in. #4 #10 #20 #40 #60 #100 #140 #200	100.0 100.0 100.0 99.9 99.4 98.9 96.5 92.9 85.4		

Soil Description Olive brown silty Clay with sand			
PL=	Atterberg Limits LL=	PI=	
D <sub>85</sub> = 0.0739 D <sub>30</sub> = 0.0072 C <sub>u</sub> =	$\begin{array}{c} \underline{\text{Coefficients}} \\ \text{D}_{60} = 0.0361 \\ \text{D}_{15} = \\ \text{C}_{\text{C}} = \end{array}$	D <sub>50</sub> = 0.0255 D <sub>10</sub> =	
USCS= CL	Classification AASHT	·O=	
	<u>Remarks</u>		

Sample No.: B12@40' Location:

INCORPORATED

**Source of Sample:** B-12

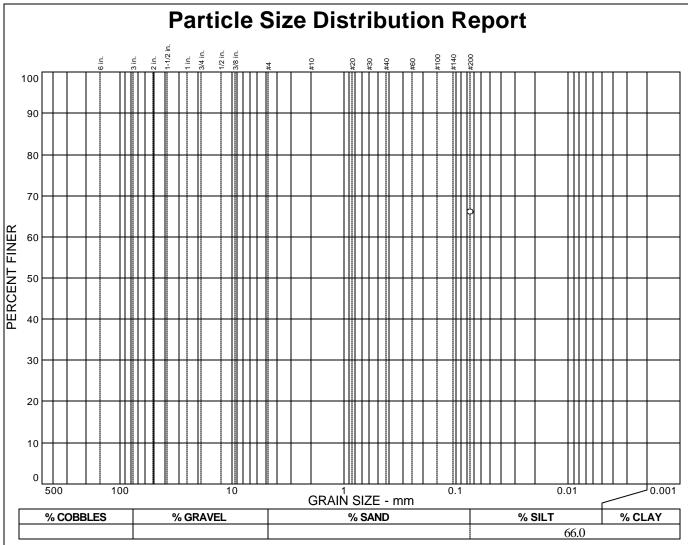
MATERIALS TESTING

**Date:** 11-17-05 **Elev./Depth:** 40 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	66.0		
4			

Soil Description  Dark greenish gray sandy Clay		
PL=	Atterberg Limit	<u>ts</u> Pl=
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =
USCS= CL	Classification AASH	
	<u>Remarks</u>	

Sample No.: B12@44'
Location:

Source of Sample: B-12

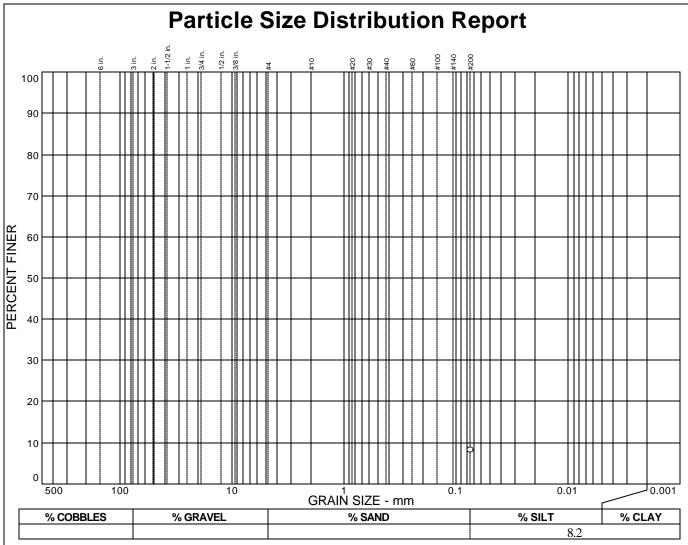
**Date:** 11-17-05 **Elev./Depth:** 44 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	8.2		
*	acification mayid		

Soil Description  Dark bluish gray Sand with silt			
PL=	Atterberg Limits	S PI=	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	$\begin{array}{c} \underline{\text{Coefficients}} \\ D_{60} = \\ D_{15} = \\ C_{\text{C}} = \end{array}$	D <sub>50</sub> = D <sub>10</sub> =	
USCS= SP	Classification AASHT	ГО=	
	<u>Remarks</u>		

Sample No.: B12@47' Location:

INCORPORATED

Source of Sample: B-12

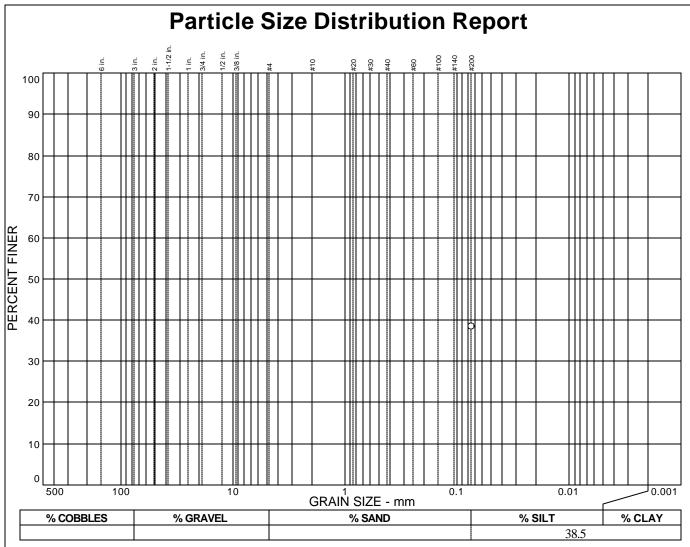
**Date:** 11-17-05 **Elev./Depth:** 47 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	38.5		

Soil Description Bluish gray silty Sand				
PL=	Atterberg Lim	its Pl=		
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =		
Classification USCS= SM AASHTO=				
<u>Remarks</u>				

Sample No.: B12@48.5' Location:

**Source of Sample:** B-12

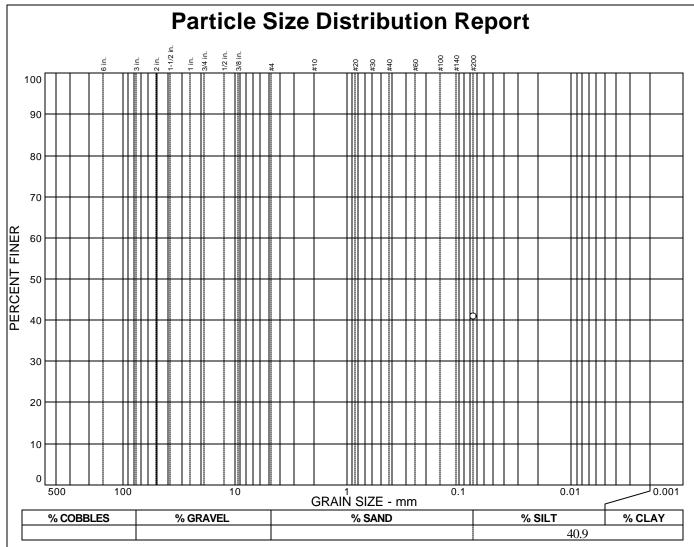
**Date:** 11-17-05 **Elev./Depth:** 48.5 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	40.9		

Soil Description					
Mottled very dark gray and olive brown silty Sand with gravel					
PL=	Atterberg Limits LL=	PI=			
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =			
USCS= SM	Classification AASHTC	)=			
<u>Remarks</u>					

Sample No.: B13@8.5'

Location:

Source of Sample: B-13

Date: 11-28-05

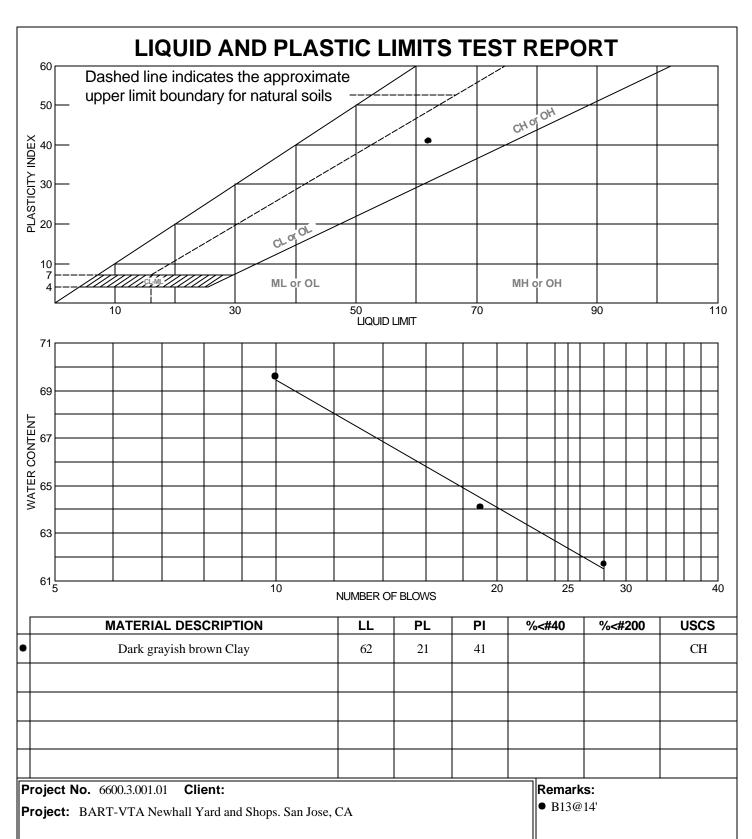
Elev./Depth: 8.5 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

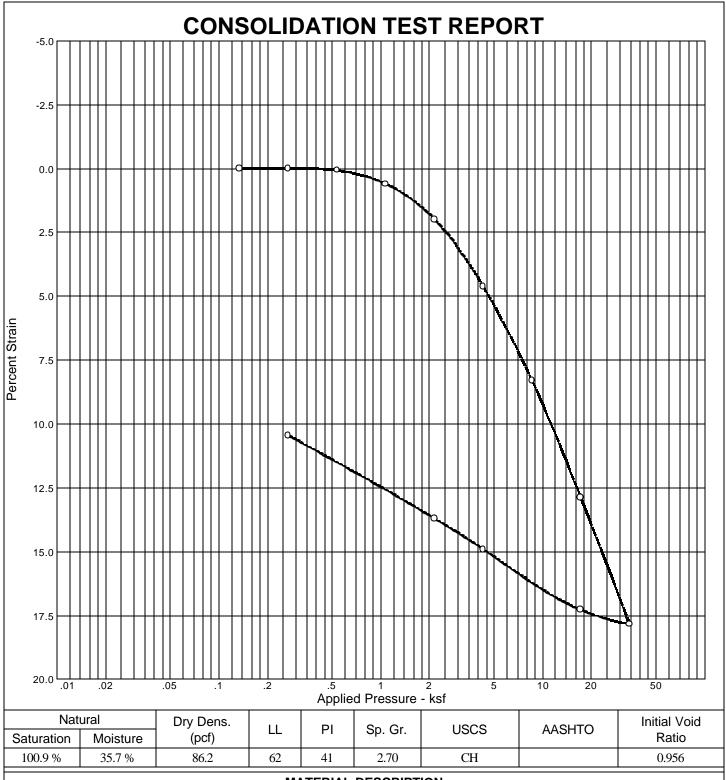
Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



• Source: B-13 Sample No.: B13@14'





#### **MATERIAL DESCRIPTION**

Dark grayish brown Clay

**Project No.** 6600.3.001.01 **Client:** 

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Source: B-13 Sample No.: B13@14'

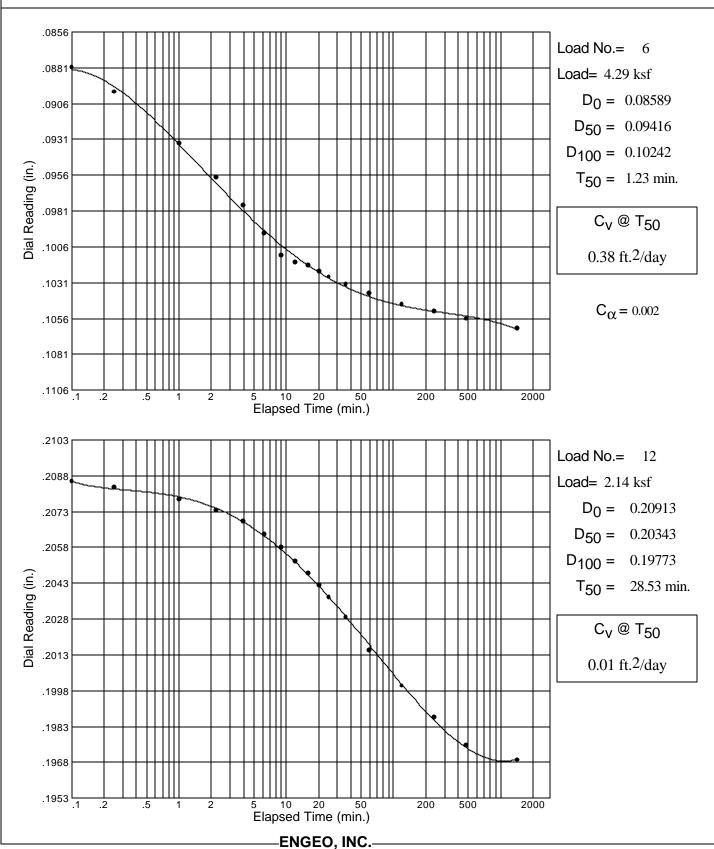
**ENGEO** 

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING Remarks:

Sample swelled at 268 psf loading

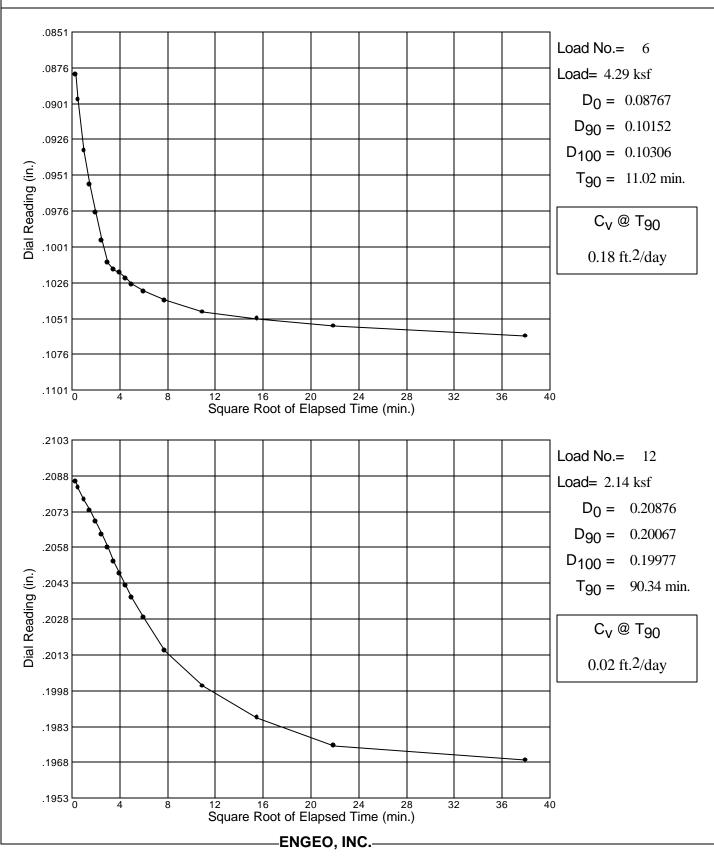
Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Sample No.: B13@14' Source: B-13

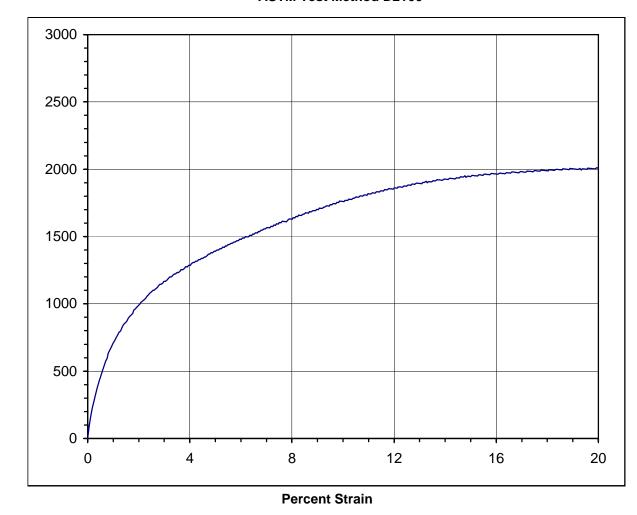


Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Source: B-13 Sample No.: B13@14'







Unconfined Compressive Strength: 2000 psf 1.0 tsf

Sample Description: Dark olive brown Clay

**Initial Diameter:** 2.420 in. Sample Number: B13@19' Initial Height: **Dry Unit Weight:** 4.86 in. 97.7 pcf Strain Rate: **Moisture Content:** 1.652 %/min 24.9 % Depth of Sample: **Total Strain:** 20.04 % 13.0 ft.

ENGEO
INCORPORATED Newha

Axial pressure (psf)

**BART-VTA** 

Newhall Yard and Shops. San Jose, CA

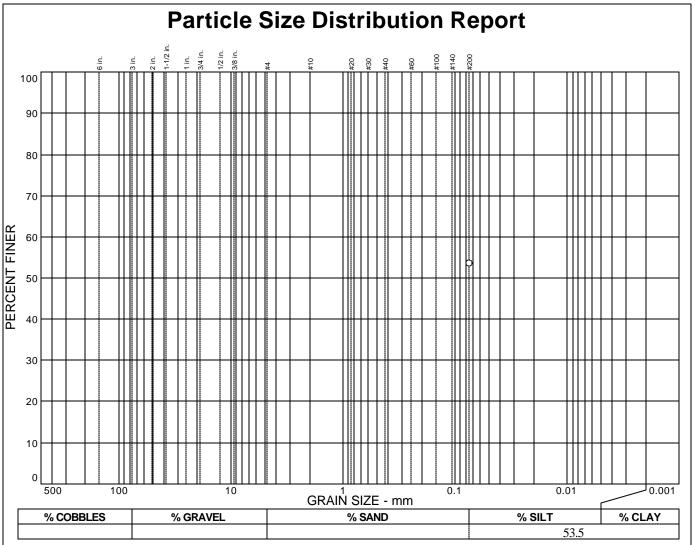
Job No.: 6600.3.001.01

Figure

No.

Sample B13@19'

Date: 11/17/2005



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	53.5		
4			

Soil Description  Dark grayish brown Sandy Clay					
PL=	Atterberg Limit	ts Pl=			
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =			
USCS= CL	Classification USCS= CL AASHTO=				
<u>Remarks</u>					

Sample No.: B13@29.5' Location:

Source of Sample: B-13

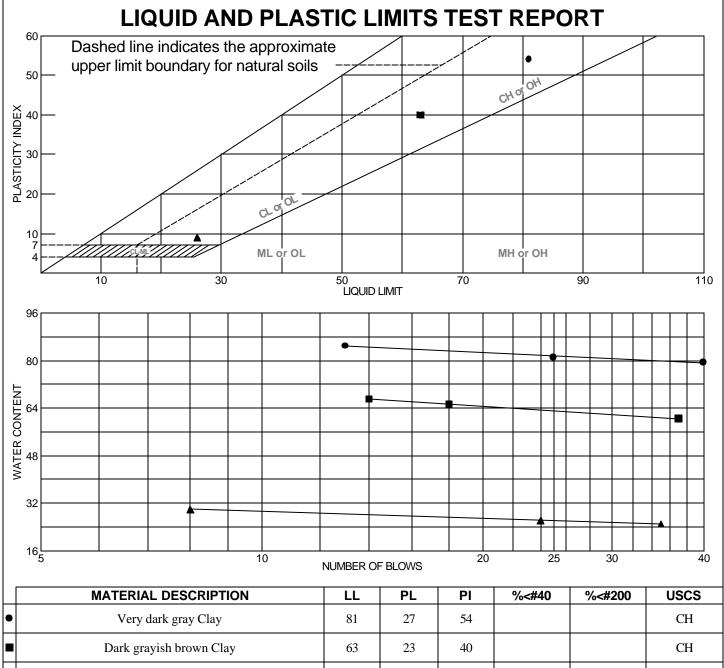
**Date:** 11-28-05 **Elev./Depth:** 29.5 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
•	Very dark gray Clay	81	27	54			СН
	Dark grayish brown Clay	63	23	40			СН
•	Olive brown Silty Sand	26	17	9	97.8	55.8	CL

Project No. 6600.3.001.01 Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

● Source: B-14 Sample No.: B14@5-5.5'
■ Source: B-14 Sample No.: B14@11'

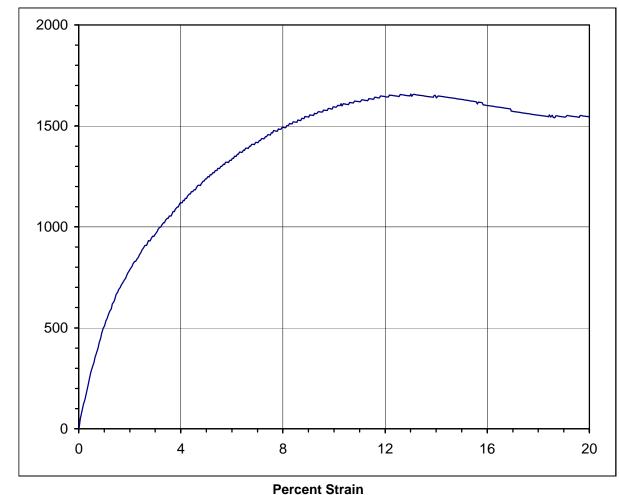
**▲ Source**: B-14 **Sample No.**: B14@30-31.5'



### Remarks:

- B14@5-5.5'
- B14@11'
- ▲ B14@30'





**Unconfined Compressive Strength:** 1650 psf 0.8 tsf

Dark grayish brown silty Clay to Clay **Sample Description:** 

Initial Diameter: 2.420 in. Sample Number: B14@10.5' Initial Height: 5.00 in. **Dry Unit Weight:** 80.1 pcf Strain Rate: **Moisture Content:** % 1.456 %/min 38.1 **Total Strain:** 20.02 % Depth of Sample: 10.5 ft.

**ENGEO INCORPORATED** 

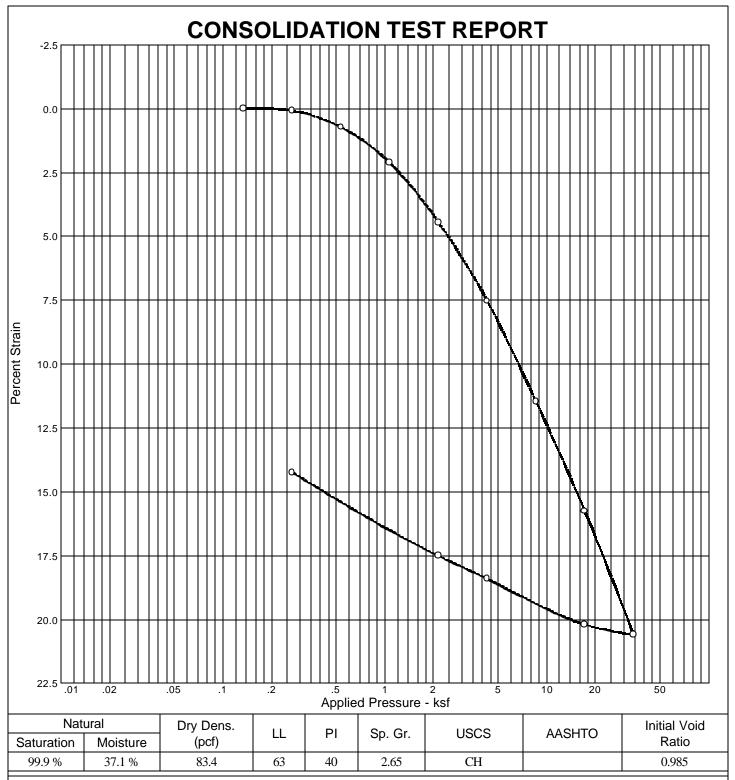
Axial pressure (psf)

**BART-VTA** 

Newhall Yard and Shops. San Jose, CA

Job	66001.3.001.01	Figure
No.:	00001.3.001.01	No.
Sample	e B14@10.5'	
Numbe	er: 614@10.5	

Date: 10/31/2005



### **MATERIAL DESCRIPTION**

Dark grayish brown Clay

Remarks:

Project No.	6600.3.001.01	Client:
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Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Source: B-14 Sample No.: B14@11'

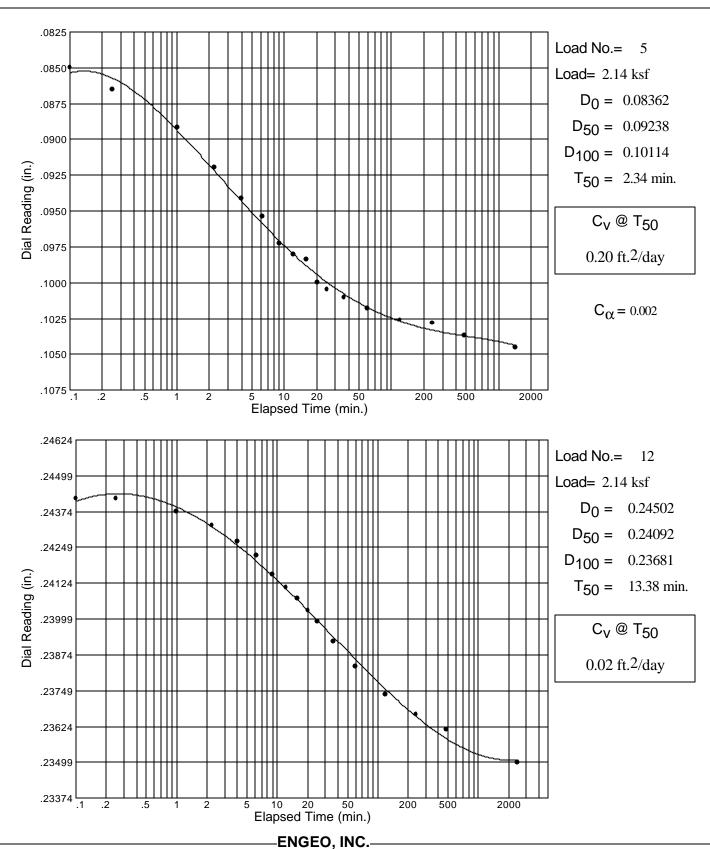


GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING

### Dial Reading vs. Time

Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

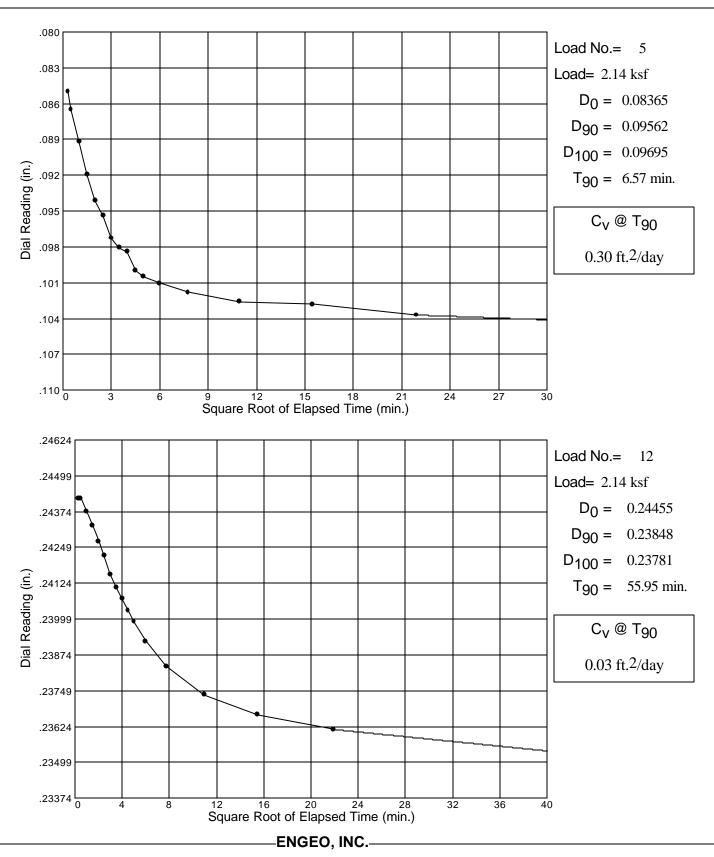
Sample No.: B14@11' Source: B-14

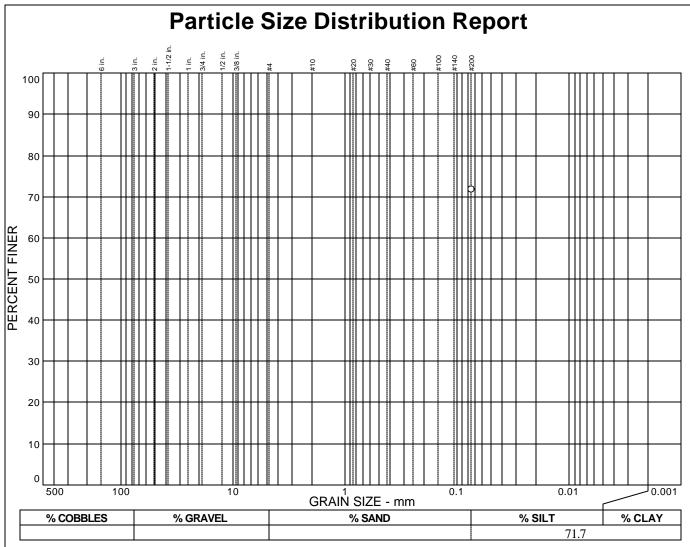


# Dial Reading vs. Time

Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Source: B-14 Sample No.: B14@11'





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	71.7		
*		. 1)	

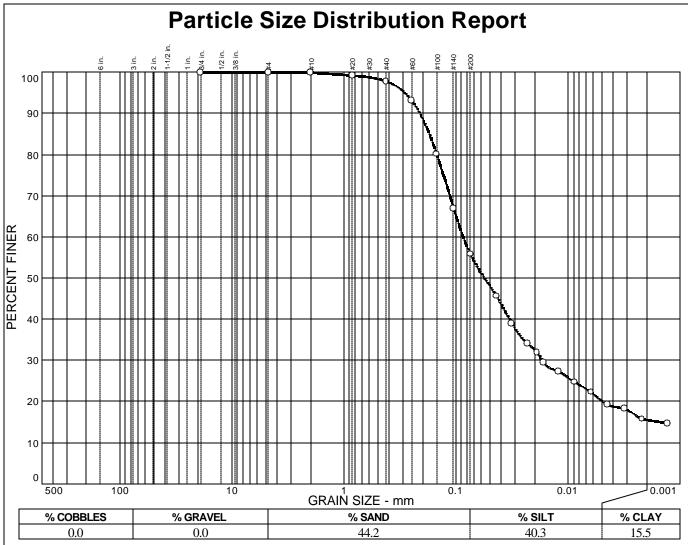
Soil Description Olive brown Sandy Clay			
PL=	Atterberg Limit	<u>its</u> Pl=	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =	
USCS= CL	Classification AASI	<u>1</u> HTO=	
<u>Remarks</u>			

**Sample No.:** B14@20-21.5' Source of Sample: B-14 **Date:** 11-29-05

Location: **Elev./Depth:** 20-21.5 ft.

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS INCORPORATED MATERIALS TESTING Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
3/4 in. #4 #10 #20 #40 #60 #100 #140 #200	100.0 100.0 99.9 99.2 97.8 93.1 80.1 66.8 55.8		

Soil Description Olive brown sandy Sandy Clay				
PL= 17	Atterberg Limits	PI= 9		
D <sub>85</sub> = 0.175 D <sub>30</sub> = 0.0172 C <sub>u</sub> =	Coefficients D <sub>60</sub> = 0.0871 D <sub>15</sub> = 0.0015 C <sub>c</sub> =	D <sub>50</sub> = 0.0563 D <sub>10</sub> =		
USCS= CL	Classification AASHT	-O=		
<u>Remarks</u>				

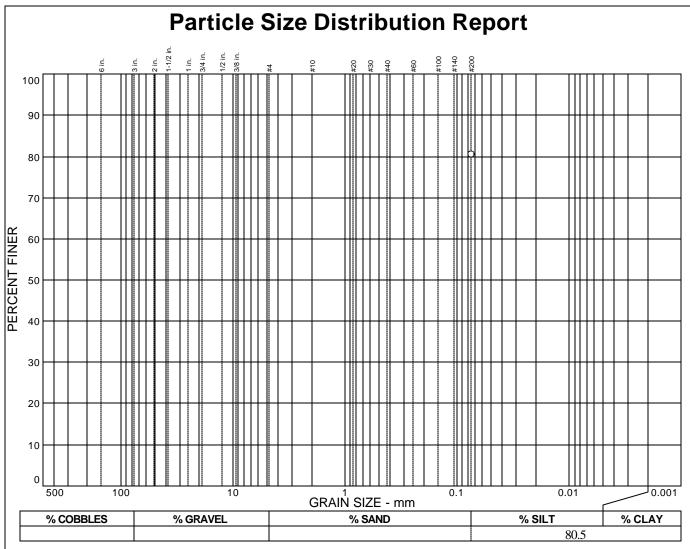
Sample No.: B14@30-31.5' Source of Sample: B-14 Date: 12-29-05 Location: Elev./Depth: 30-31.5'

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INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	80.5		
*			

Soil Description Olive brown silty Clay with sand			
PL=	Atterberg Limits	<u>s</u> Pl=	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =	
USCS= CL	Classification AASH	ГО=	
<u>Remarks</u>			

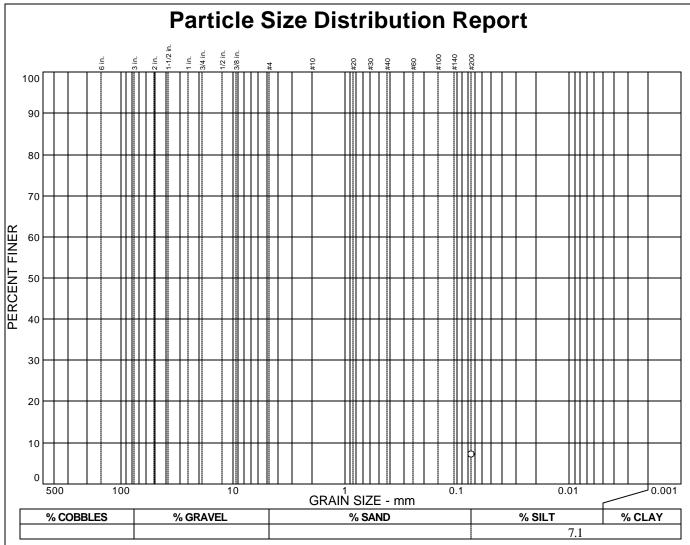
Sample No.: B14@35.5 Source of Sample: B-14 Date: 11-29-05 Location: Elev./Depth: 35.5 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	7.1		
4			

Soil Description Olive brown Sand		
PL=	Atterberg Limi	i <u>ts</u> Pl=
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =
USCS= SP	Classification AASH	
<u>Remarks</u>		

Sample No.: B14@40' Location:

INCORPORATED

Source of Sample: B-14

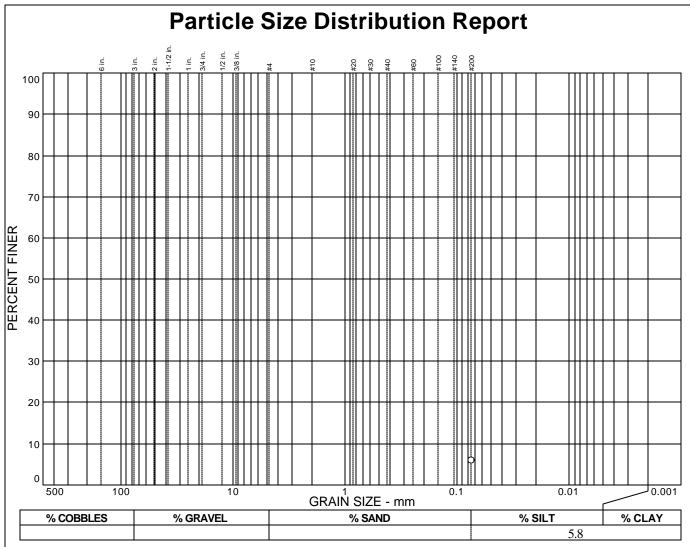
**Date:** 11-29-05 **Elev./Depth:** 40 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	5.8		
* (		. 15	

Soil Description  Very dark gray Gravelly Sand with silt			
PL=	Atterberg Lin	n <u>its</u> Pl=	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficient D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	<u>s</u> D <sub>50</sub> = D <sub>10</sub> =	
USCS= SP	Classification USCS= SP AASHTO=		
<u>Remarks</u>			

Sample No.: B14@45' Location:

INCORPORATED

Source of Sample: B-14

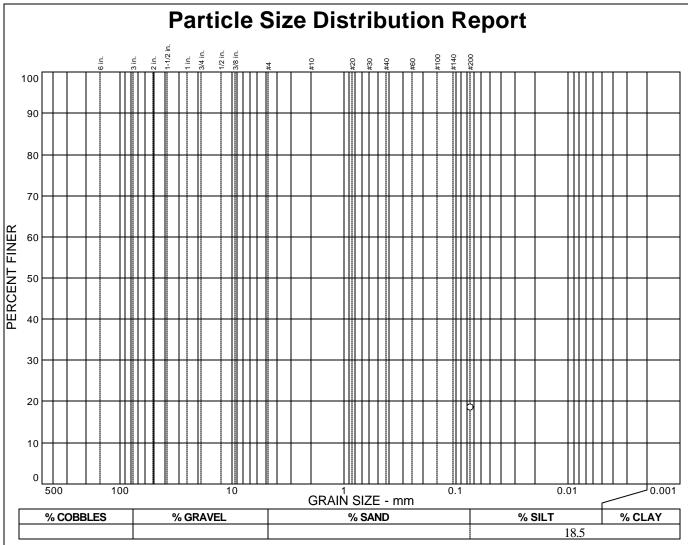
**Date:** 11-29-05 **Elev./Depth:** 45 ft.

RGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	18.5		
*			

Soil Description  Dark bluish gray silty Sand		
PL=	Atterberg Lim	<u>its</u> Pl=
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =
USCS= SM	Classificatio AAS	<u>n</u> HTO=
<u>Remarks</u>		

Sample No.: B14@50' Location:

Source of Sample: B-14

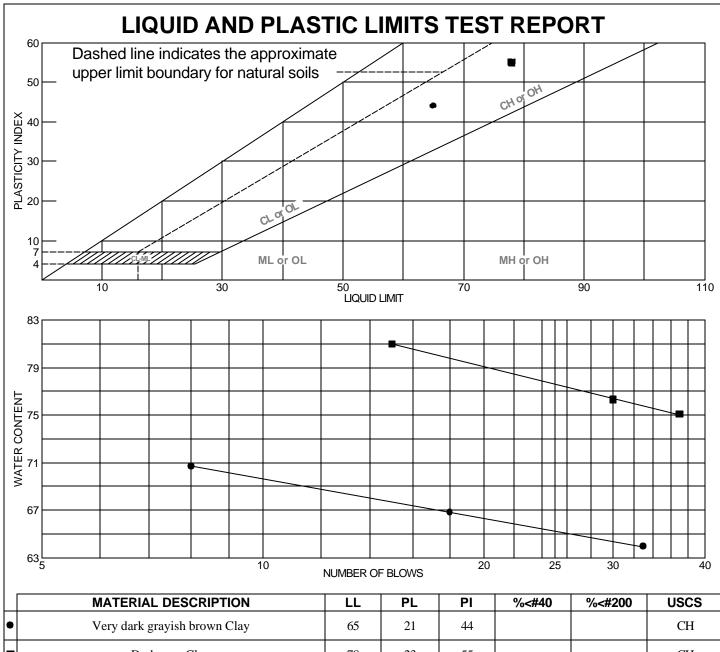
**Date:** 11-29-05 **Elev./Depth:** 50 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
•	Very dark grayish brown Clay	65	21	44			СН
I	Dark gray Clay	78	23	55			СН

Project No. 6600.3.001.01 Client:

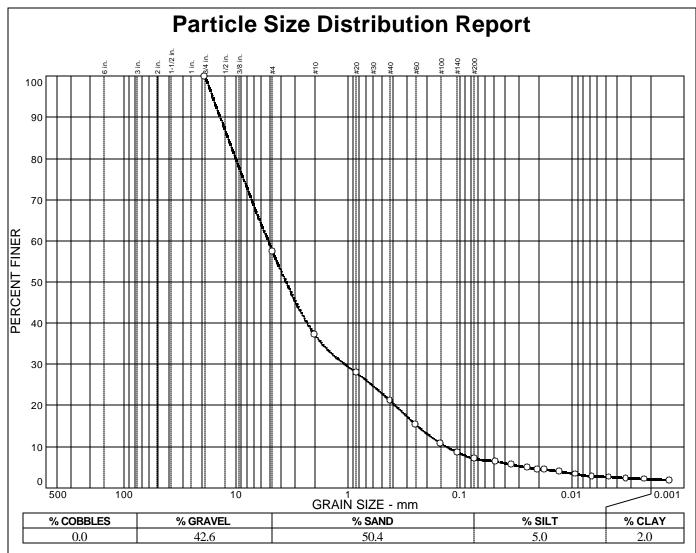
Project: BART-VTA Newhall Yard and Shops. San Jose, CA

● Source: B-15 Sample No.: B15@5.5'
■ Source: B-15 Sample No.: B15@10.5'

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING

### Remarks:

- B15@5.5'
- B15@10.5'



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
3/4 in. #4 #10 #20 #40 #60 #100 #140 #200	100.0 57.4 37.3 28.0 21.2 15.4 10.8 8.6 7.0		

Soil Description			
Dark grayish brown well graded Gravelly Sand with silt			
PL=	Atterberg Limits LL=	PI=	
D <sub>85</sub> = 11.9 D <sub>30</sub> = 1.07 C <sub>u</sub> = 38.98	Coefficients D60= 5.21 D15= 0.240 C <sub>C</sub> = 1.65	D <sub>50</sub> = 3.61 D <sub>10</sub> = 0.134	
USCS= SP	Classification AASHTO	O=	
<u>Remarks</u>			

Sample No.: B15@21.5'
Location:

Source of Sample: B-15

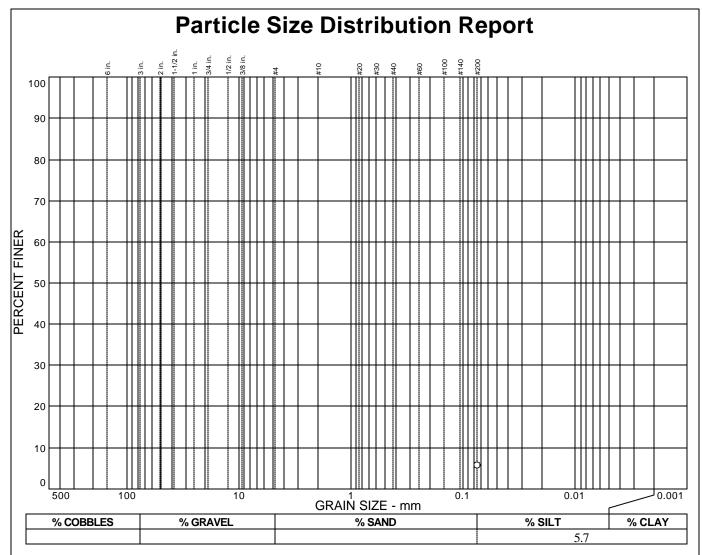
**Date:** 12-02-05 **Elev./Depth:** 21.5 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	5.7		
* (	· · · · · · · · · · · · · · · · · · ·	. 1\	

Soil Description			
Dark grayish brown Gravelly Sand with silt			
Atterberg Limits PL= LL= PI=			
LL=	Pl=		
Coefficien	ts		
D <sub>60</sub> =	D <sub>50</sub> = D <sub>10</sub> =		
D <sub>15</sub> =	D <sub>10</sub> =		
C <sub>C</sub> =			
AA	SHTO=		
Remarks	<b>.</b>		
	Atterberg Lin LL= Coefficien D60= D15= C <sub>c</sub> = Classificati		

Sample No.: B15@26'
Location:

INCORPORATED

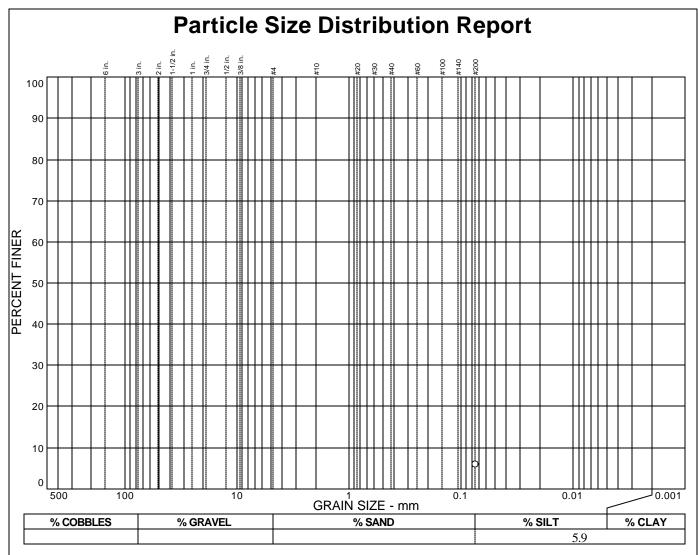
Source of Sample: B-15

**Date:** 12-2-05 **Elev./Depth:** 26 ft.

SEOTECHNICAL A

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	5.9		
*		. 1\	

Soil Description  Dark olive gray Gravelly Sand with silt				
PL=	Atterberg Limi	<u>ts</u> Pl=		
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	$\begin{array}{c} \underline{\text{Coefficients}} \\ D_{60} = \\ D_{15} = \\ C_{\text{C}} = \end{array}$	D <sub>50</sub> = D <sub>10</sub> =		
USCS= SP	USCS= SP AASHTO=			
	<u>Remarks</u>			

Sample No.: B15@30' Location:

Source of Sample: B-15

**Date:** 12-2-05 **Elev./Depth:** 30 ft.

\_\_\_\_

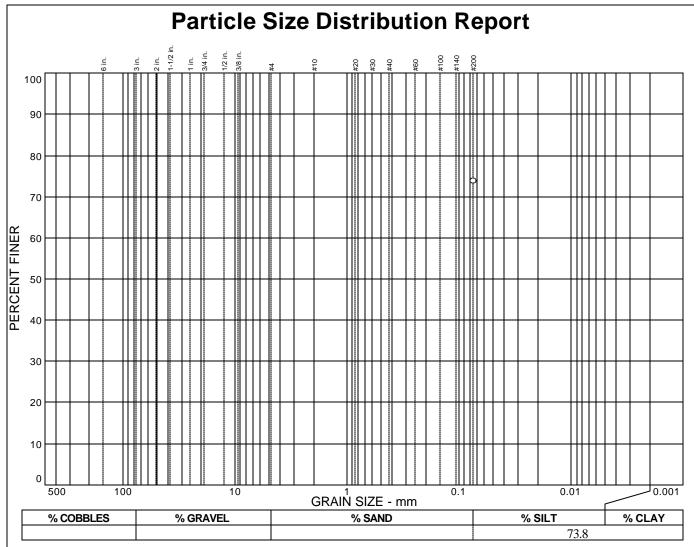
Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

**Project No:** 6600.3.001.01

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	73.8		

Soil Description			
Light olive gray	y silty Clay with san	d	
<b>D</b> I	Atterberg Limit		
PL=	LL=	Pl=	
	Coefficients		
D <sub>85</sub> =	D <sub>60</sub> =	D <sub>50</sub> = D <sub>10</sub> =	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>10</sub> =	
o <sub>u</sub> −	•		
	Classification		
USCS= CL	AASH	110=	
	<b>Remarks</b>		

Sample No.: B15@36' Location:

Source of Sample: B-15

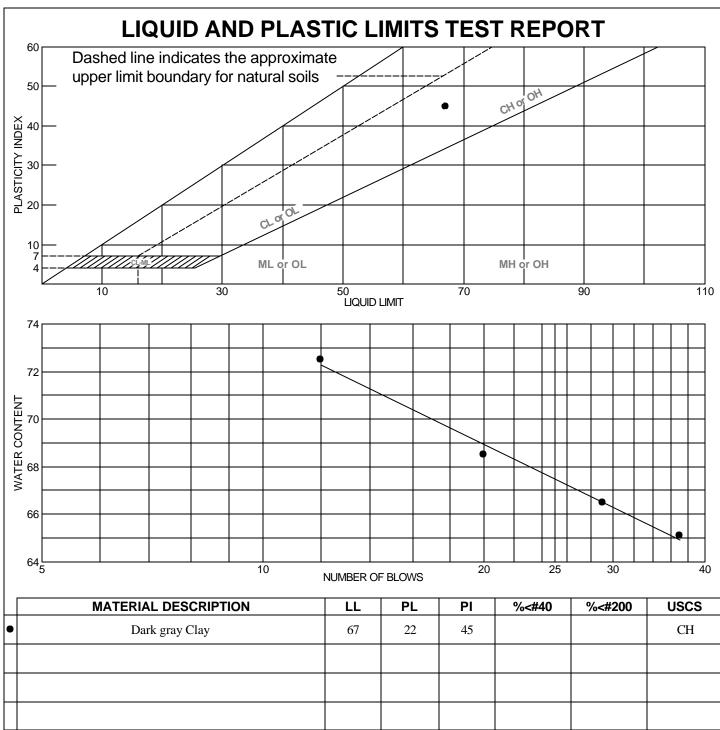
**Date:** 12-2-05 **Elev./Depth:** 36 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



Project No. 6600.3.001.01 Client:
Project: BART-VTA Newhall Yard and Shops. San Jose, CA

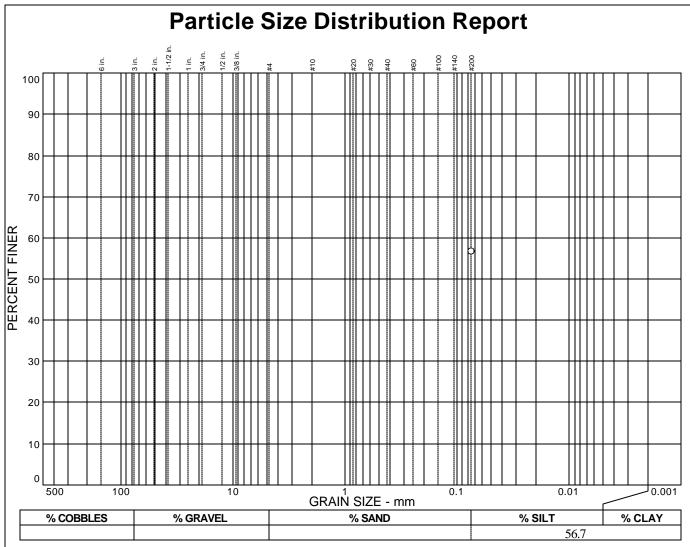
Remarks:

B16@14.5'

**Sample No.:** B16@14.5'

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

• Source: B-16



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	56.7		

Soil Description  Dark olive brown sandy Clay		
PL=	Atterberg Lim	<u>nits</u> Pl=
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =
USCS= CL	Classificatio AAS	<u>n</u> HTO=
	<u>Remarks</u>	

Sample No.: B16@20.5' Location:

Source of Sample: B-16

**Date:** 12-07-05 **Elev./Depth:** 20.5 ft.

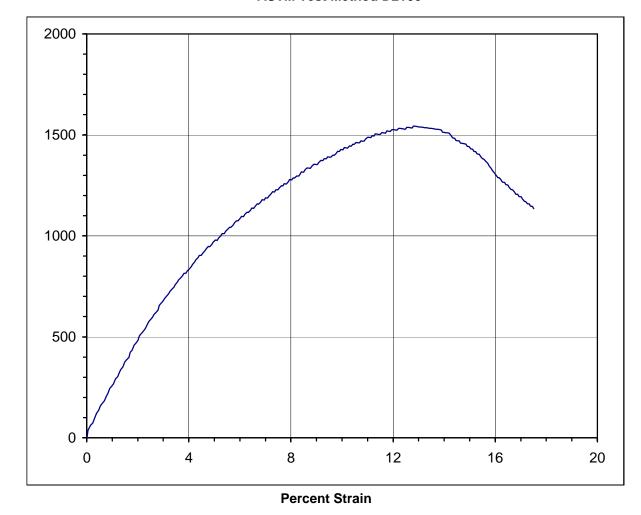
ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA





Unconfined Compressive Strength: 1540 psf 0.8 tsf

Sample Description: Dark grayish brown silty Clay with sand

Initial Diameter: 2.420 in. Sample Number: B17@8.5' 91.6 pcf Initial Height: 4.00 in. **Dry Unit Weight:** Strain Rate: **Moisture Content:** % 2.041 %/min 31.8 **Total Strain:** 17.51 % **Depth of Sample:** 8.5 ft.

**ENGEO**INCORPORATED

Axial pressure (psf)

**BART-VTA** 

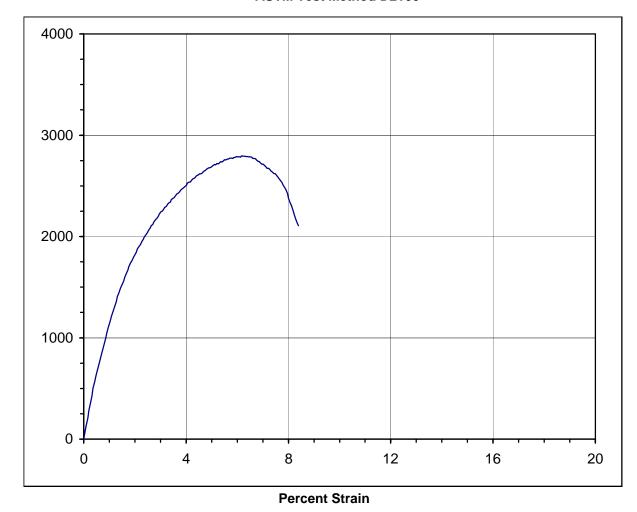
Newhall Yard and Shops. San Jose, CA

Job No.:	6600.3.001.01
Sample Number:	B17@8.5'
Date:	12/2/2005

**Figure** 

No.





Unconfined Compressive Strength: 2790 psf 1.4 tsf

Sample Description: Dark gray Clay

**Initial Diameter:** 2.420 in. Sample Number: B17@13.5' 77.0 pcf Initial Height: 5.00 in. **Dry Unit Weight:** Strain Rate: **Moisture Content:** % 1.624 %/min 41.8 **Total Strain:** 8.39 % Depth of Sample: 13.5 ft.

**ENGEO**INCORPORATED

Axial pressure (psf)

**BART-VTA** 

Newhall Yard and Shops. San Jose, CA

Job		6600 2 004 04
No.:		6600.3.001.01
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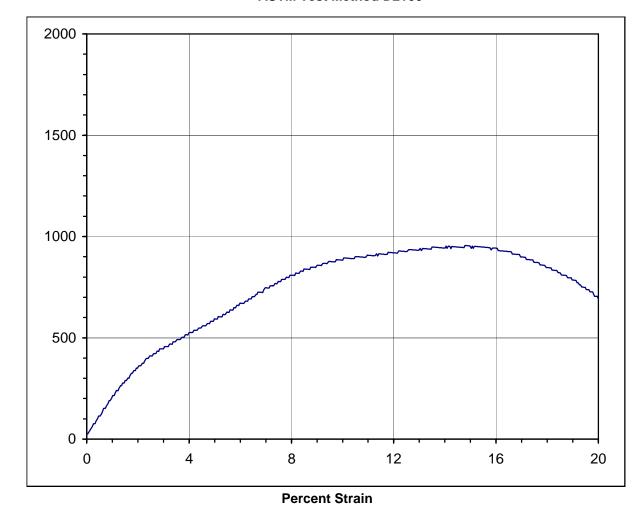
Sample B17@13.5'

**Figure** 

No.

Date: 12/2/2005





Unconfined Compressive Strength: 950 psf 0.5 tsf

Sample Description: Very dark grayish brown Sandy Clay

**Initial Diameter:** 2.375 in. Sample Number: B17@18.5' 79.5 pcf Initial Height: 5.10 Dry Unit Weight: in. Strain Rate: **Moisture Content:** 1.408 %/min 37.4 % **Total Strain:** 20.06 % Depth of Sample: 18-19.5 ft.

**ENGEO**INCORPORATED

Axial pressure (psf)

**BART-VTA** 

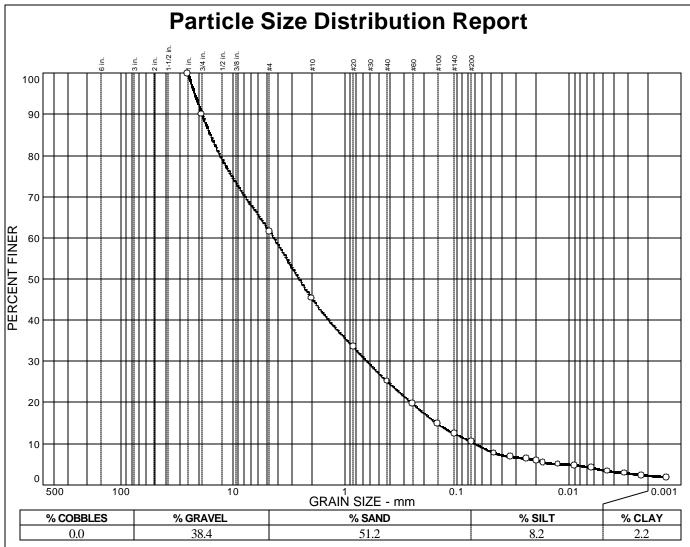
Newhall Yard and Shops. San Jose, CA

Job No.:	6600.3.001.01
Sample Number	B1/@185

**Figure** 

No.

Date: 12/2/2005



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
1 in. 3/4 in. #4 #10 #20 #40 #60 #100 #140 #200	100.0 90.1 61.6 45.4 33.5 25.2 19.7 14.8 12.4 10.4		

Soil Description  Dark grayish brown Gravelly Sand		
PL=	Atterberg Limit	<u>s</u> Pl=
D <sub>85</sub> = 16.0 D <sub>30</sub> = 0.640 C <sub>u</sub> = 61.86	Coefficients D60= 4.35 D15= 0.154 C <sub>C</sub> = 1.34	D <sub>50</sub> = 2.58 D <sub>10</sub> = 0.0703
USCS= SW	Classification AASH	ТО=
	<u>Remarks</u>	

**Sample No.:** B17@23'

Source of Sample: B-17

**Date:** 12-12-05 **Elev./Depth:** 23 ft.

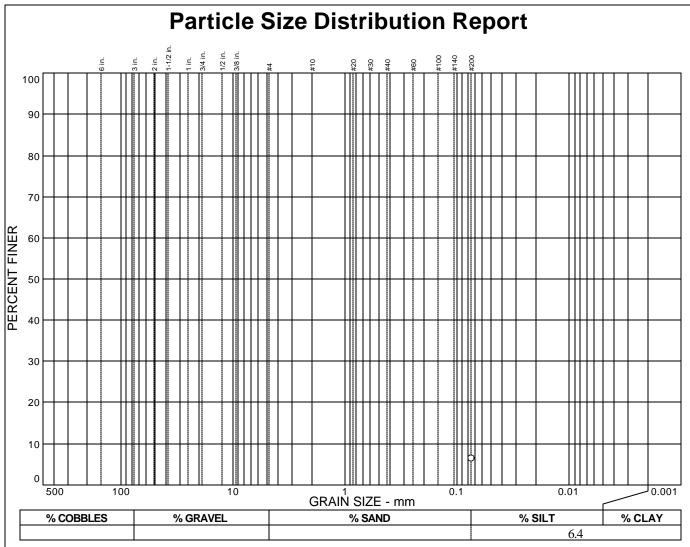
Location:

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

ENGLO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	6.4		

Soil Description  Very dark gray Gravelly Sand with silt		
PL=	Atterberg Lim	nits Pl=
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =
USCS= SW	Classification AAS	<u>n</u> HTO=
	<u>Remarks</u>	

Sample No.: B17@28'
Location:

Source of Sample: B-17

**Date:** 12-12-05 **Elev./Depth:** 28 ft.

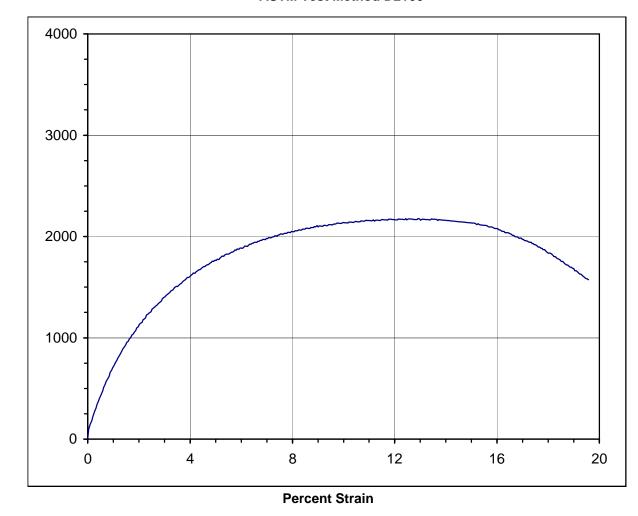
ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA





Unconfined Compressive Strength: 2170 psf 1.1 tsf

Sample Description: Dark brown sandy Clay

**Initial Diameter:** 2.420 in. Sample Number: B17@39' Initial Height: 5.10 in. **Dry Unit Weight:** 101.6 pcf Strain Rate: **Moisture Content:** % 1.446 %/min 24.5 **Total Strain:** 19.57 % Depth of Sample: 39.0 ft.

**ENGEO**INCORPORATED

Axial pressure (psf)

**BART-VTA** 

Newhall Yard and Shops. San Jose, CA

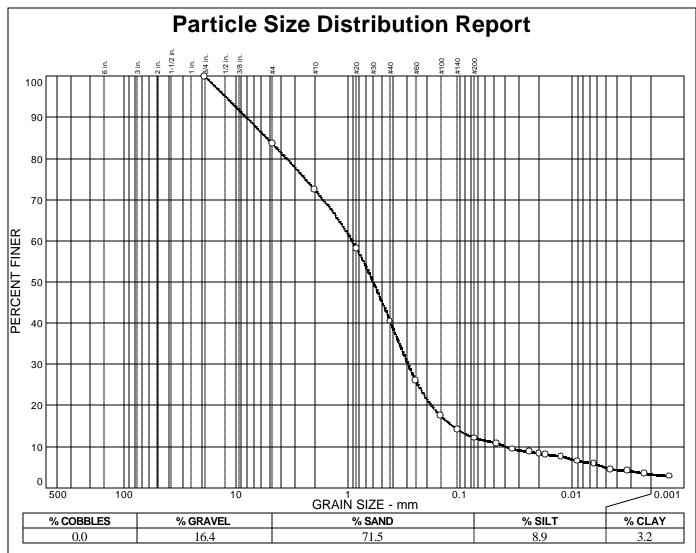
Job No.:	6600.3.001.01
110	
Sample	

Sample B17@39'

**Figure** 

No.

Date: 12/2/2005



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
3/4 in. #4 #10 #20 #40 #60 #100 #140 #200	100.0 83.6 72.5 58.2 40.5 26.0 17.5 14.2 12.1		

Soil Description  Dark grayish brown silty Sand with gravel						
	Atterberg Limits					
PL=	LL=	PI=				
D <sub>85</sub> = 5.33 D <sub>30</sub> = 0.294 C <sub>u</sub> = 23.48	Coefficients D <sub>60</sub> = 0.927 D <sub>15</sub> = 0.117 C <sub>C</sub> = 2.36	D <sub>50</sub> = 0.601 D <sub>10</sub> = 0.0395				
USCS= SM	Classification AASHT	D=				
	Remarks Programme Remarks					

Sample No.: B17@43' Location:

INCORPORATED

Source of Sample: B-17

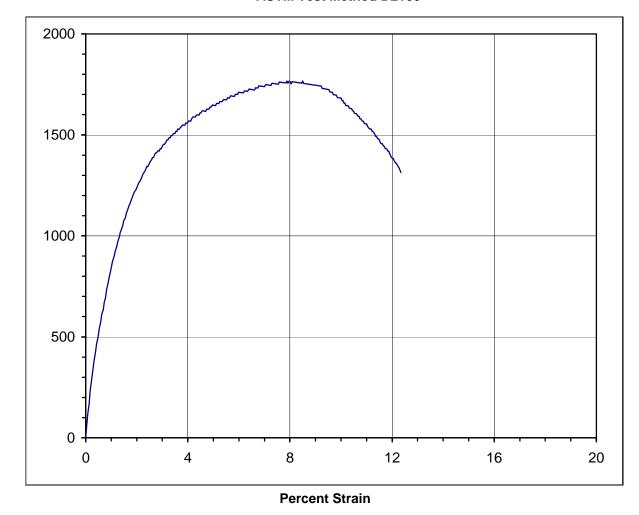
**Date:** 12-12-05 **Elev./Depth:** 43 ft.

**NGF** GEOTECHNIC.

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA





Unconfined Compressive Strength: 1760 psf 0.9 tsf

Sample Description: Grayish brown silty Clay to Clay

Initial Diameter: 2.420 in. Sample Number: B19@15.5' 82.0 pcf Initial Height: 5.28 in. **Dry Unit Weight:** Strain Rate: **Moisture Content:** % 1.344 %/min 37.4 **Total Strain:** 12.34 % Depth of Sample: 15.5 ft.

**ENGEO**INCORPORATED

Axial pressure (psf)

**BART-VTA** 

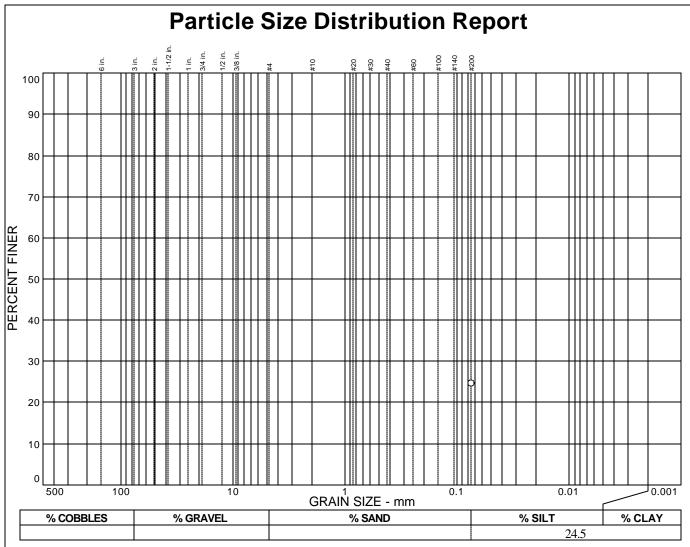
Newhall Yard and Shops. San Jose, CA

Job	6600.3.001.01
No.:	0000.3.001.01
Sample	

Figure No.

Number: B19@15.5'

Date: 11/3/2005



SIEVE	PERCENT	SPEC.*	PASS?	
SIZE	FINER	PERCENT	(X=NO)	
#200	24.5			

Soil Description					
Dark grayish b	Dark grayish brown silty Sand				
PL=	Atterberg Limit LL=	<u>s</u> Pl=			
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D60= D15= C <sub>C</sub> =	D <sub>50</sub> = D <sub>10</sub> =			
USCS= SM	Classification AASH	TO=			
	<u>Remarks</u>				

Sample No.: B18@21'
Location:

Source of Sample: B-18

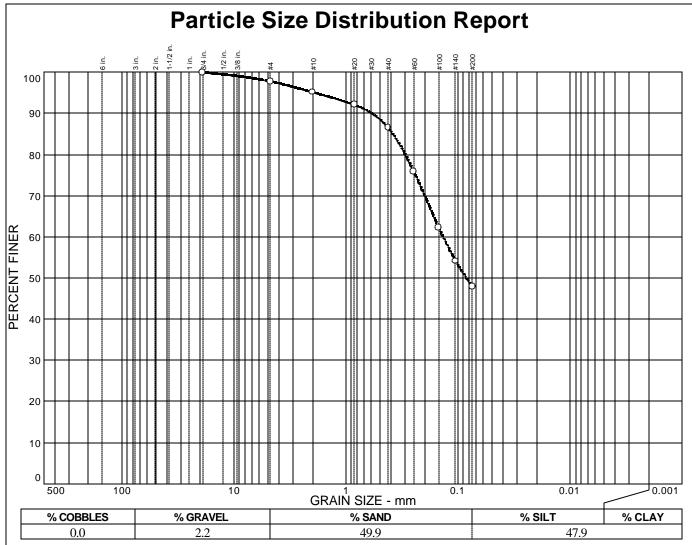
**Date:** 12-06-05 **Elev./Depth:** 21 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
3/4 in. #4 #10 #20 #40 #60 #100 #140 #200	100.0 97.8 95.2 92.1 86.6 75.9 62.3 54.1 47.9		

	Soil Description				
Dark grayis bro	Dark grayis brow silty Sand				
PL=	Atterberg Limits LL=	PI=			
D <sub>85</sub> = 0.383 D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = 0.137 D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = 0.0850 D <sub>10</sub> =			
USCS= SM	Classification AASHT	O=			
	<u>Remarks</u>				

Sample No.: B19@2' Location:

**Source of Sample:** B-19

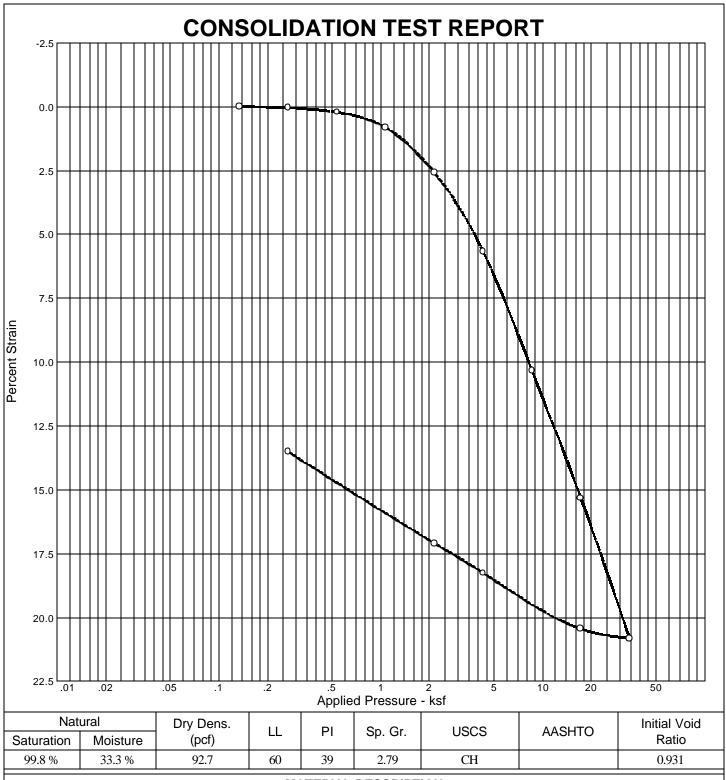
**Date:** 12-6-05 **Elev./Depth:** 2 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



#### **MATERIAL DESCRIPTION**

Olive brown Clay

**Project No.** 6600.3.001.01 **Client:** 

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Source: B-19 Sample No.: B19@16'

**ENGEO** 

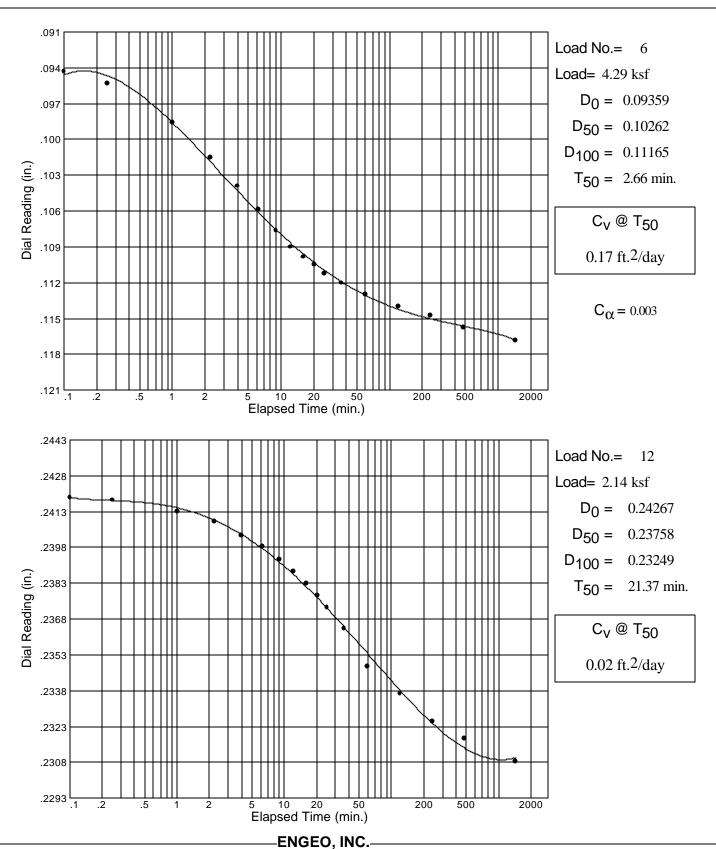
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING Remarks:

Sample swelled at 536 psf loading

## Dial Reading vs. Time

Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

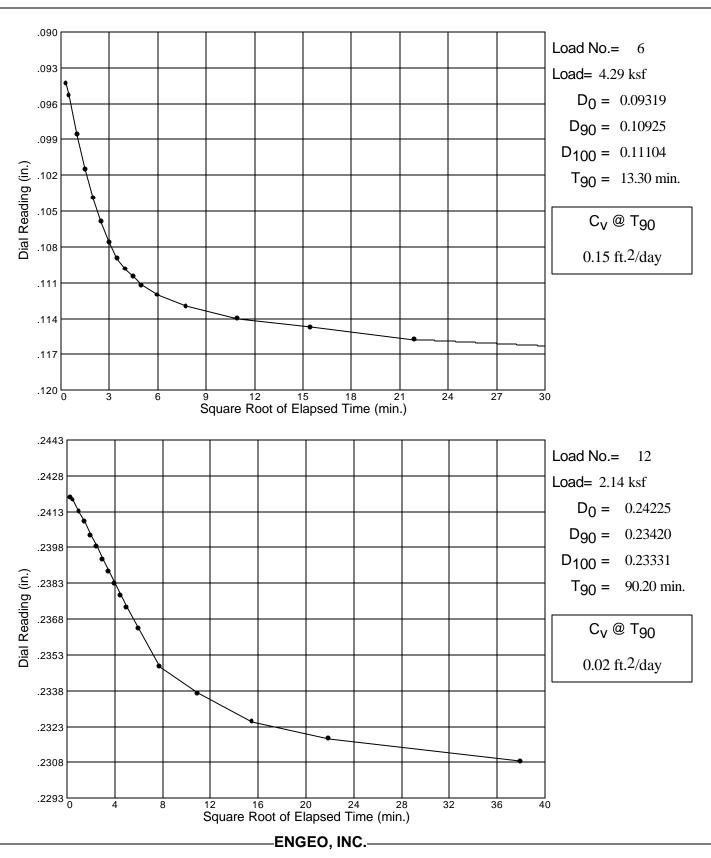
Source: B-19 Sample No.: B19@16'

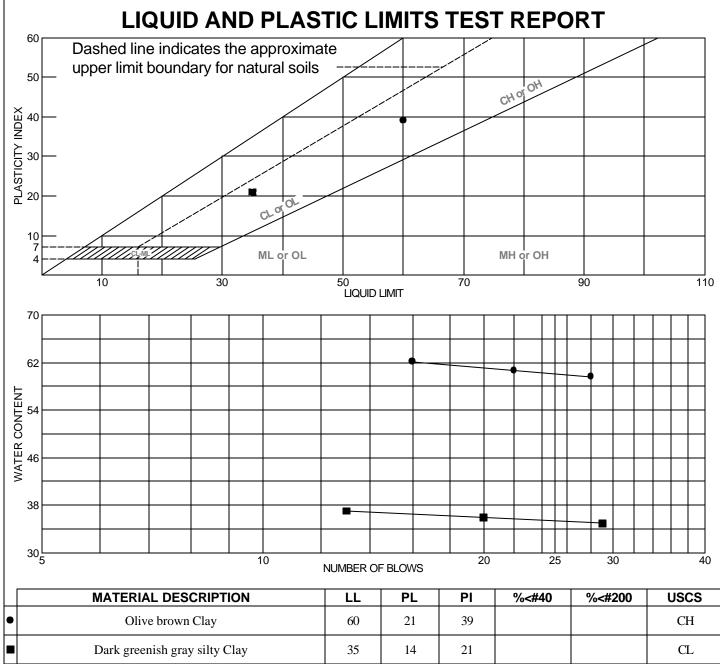


# Dial Reading vs. Time

Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Source: B-19 Sample No.: B19@16'





L		MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
	•	Olive brown Clay	60	21	39			СН
		Dark greenish gray silty Clay	35	14	21			CL

**Project No.** 6600.3.001.01 **Client:** 

**Project:** BART-VTA Newhall Yard and Shops. San Jose, CA

● Source: B-19 Sample No.: B19@16'
■ Source: B-19 Sample No.: B19@36'

GEOTECHNICAL AND STREET OF 
### Remarks:

- B19@16'
- B19@36'



### **MATERIAL DESCRIPTION**

Dark grayish brown Clay

**Project No.** 6600.3.001.01 **Client:** 

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

**Source**: B-19 **Sample No.**: B19@25-26'

**ENGEO** 

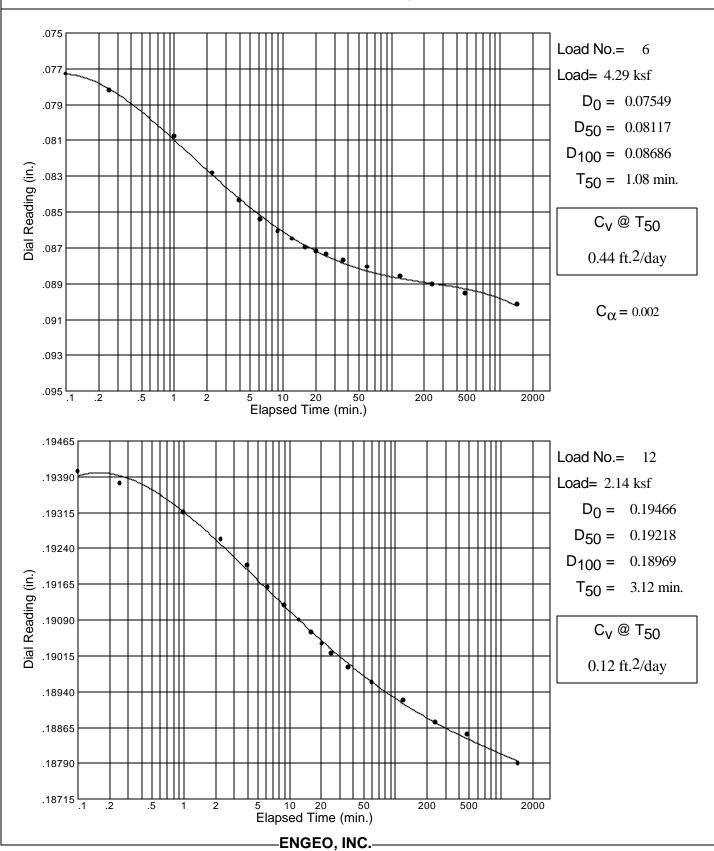
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING Remarks:

Sample swelled at 268 psf loading

## Dial Reading vs. Time

Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

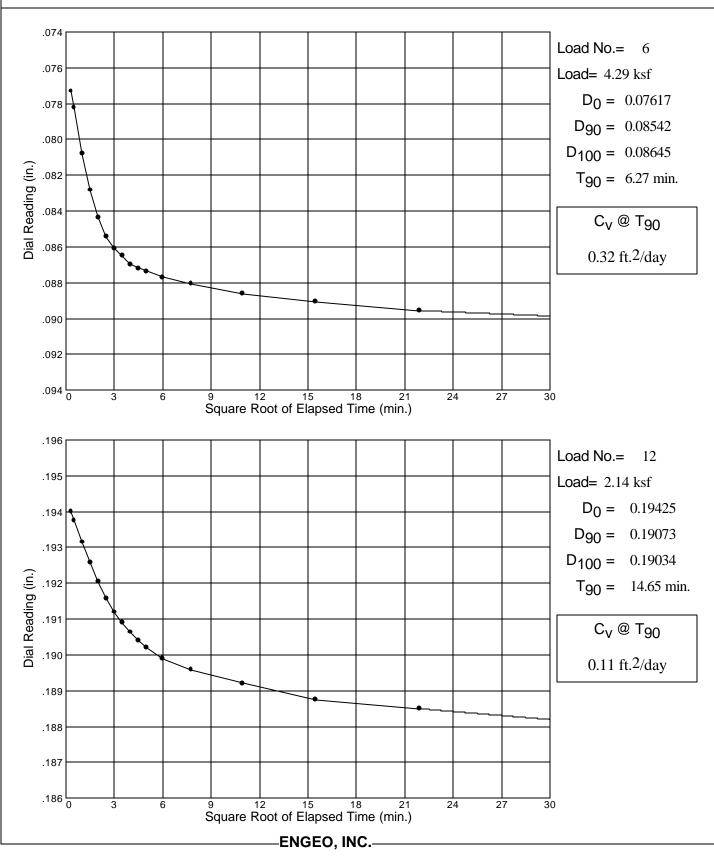
Sample No.: B19@25-26' Source: B-19

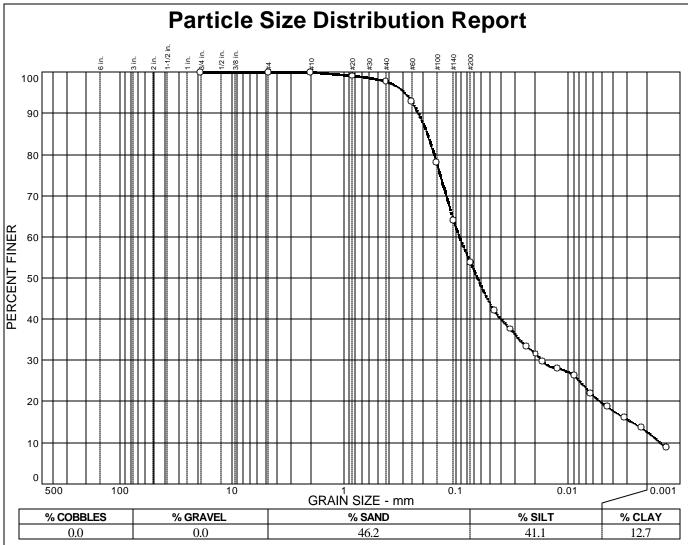


# Dial Reading vs. Time

Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Source: B-19 Sample No.: B19@25-26'





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
3/4 in. #4 #10 #20 #40 #60 #100 #140 #200	100.0 100.0 100.0 99.1 97.7 92.9 78.0 63.9 53.8		

Soil Description Grayish brown Sandy Silt			
PL=	Atterberg Limits	PI=	
D <sub>85</sub> = 0.182 D <sub>30</sub> = 0.0174 C <sub>u</sub> = 61.91	$\begin{array}{c} \textbf{Coefficients} \\ \textbf{D}_{60} = 0.0941 \\ \textbf{D}_{15} = 0.0027 \\ \textbf{C}_{\text{C}} = 2.11 \end{array}$	D <sub>50</sub> = 0.0650 D <sub>10</sub> = 0.0015	
USCS= CL	Classification AASHT	O=	
<u>Remarks</u>			

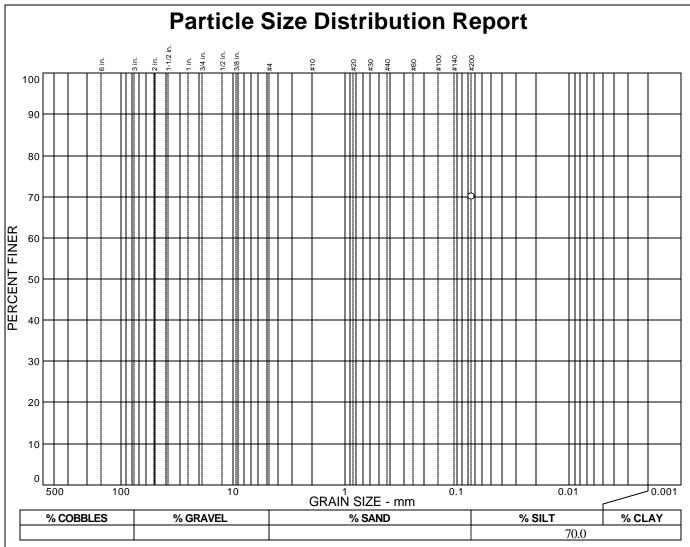
Sample No.: B19@22.5' Source of Sample: B-19 Date: 12-8-05 Location: Elev./Depth: 22.5 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	70.0		
4			

Soil Description Grayish brow sandy Silt		
PL=	Atterberg Lim	its Pl=
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	$\begin{array}{c} \underline{\text{Coefficients}} \\ \text{D}_{60} = \\ \text{D}_{15} = \\ \text{C}_{\text{C}} = \end{array}$	D <sub>50</sub> = D <sub>10</sub> =
USCS= ML	Classificatio AAS	<u>n</u> HTO=
<u>Remarks</u>		

Sample No.: B19@46 Location: Source of Sample: B-19

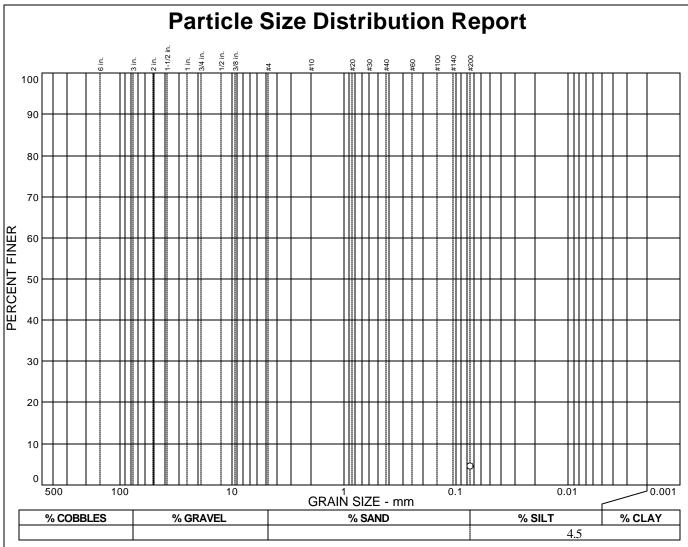
Client:

**Date:** 12-8-05 **Elev./Depth:** 46 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	4.5		
* (		. 15	

Soil Description  Dark gray Sand with silt		
PL=	Atterberg Lim	<u>nits</u> Pl=
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =
USCS= SP	Classification AAS	<u>n</u> HTO=
<u>Remarks</u>		

**Date:** 12-8-05

Elev./Depth: 50 ft.

\* (no specification provided)

Sample No.: B19@50' Source of Sample: B-19
Location:

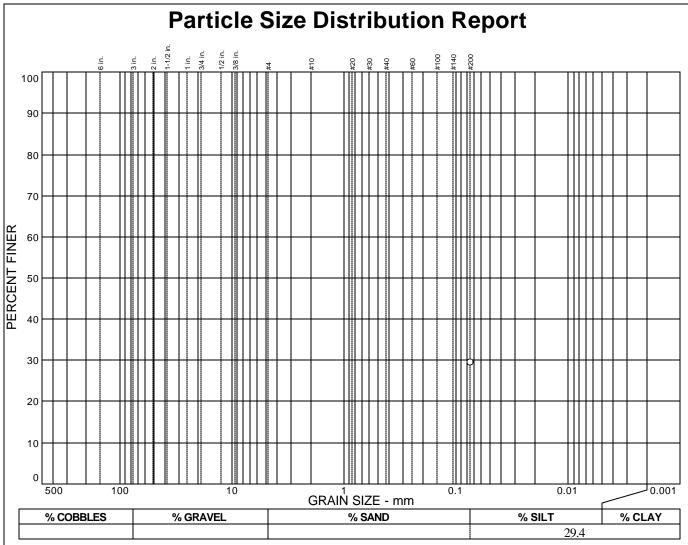
Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

**Project No:** 6600.3.001.01

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	29.4		

Soil Description			
Olive brown si	Olive brown silty Sand		
	A., 1 11 1/		
PL=	Atterberg Limits	PI=	
rt—		ΓI=	
6	<u>Coefficients</u>	<b>D</b>	
D <sub>85</sub> = D <sub>20</sub> =	D <sub>60</sub> = D <sub>15</sub> =	D <sub>50</sub> = D <sub>10</sub> =	
C <sub>u</sub> =	C <sub>C</sub> =	- 10	
	Classification		
USCS= SM	AASHTO	O=	
	<u>Remarks</u>		

Sample No.: B19@55'
Location:

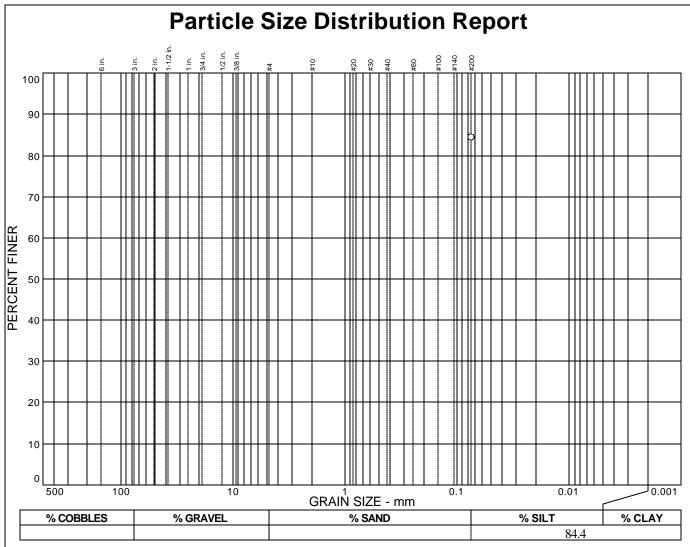
Source of Sample: B-19
Date: 12-8-05
Elev./Depth: 55 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	84.4		

Soil Description			
e sand			
Pl=			
D <sub>50</sub> = D <sub>10</sub> =			
D <sub>10</sub> =			
O=			
Remarks			

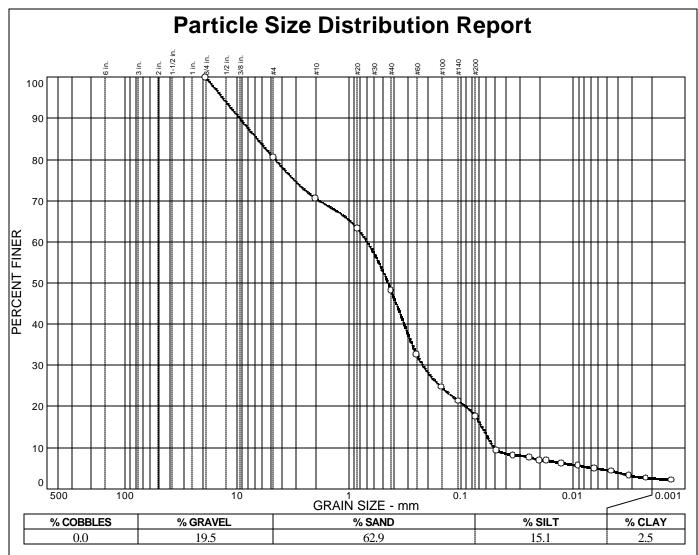
Sample No.: B19@66' Source of Sample: B-19 Date: 12-8-05 Location: Elev./Depth: 66 ft.

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INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
3/4 in. #4 #10 #20 #40 #60 #100 #140 #200	100.0 80.5 70.6 63.3 48.2 32.6 24.7 21.3 17.6		

Soil Description Grayish brown silty Sand with gravel			
PL=	Atterberg Limits	PI=	
D <sub>85</sub> = 6.61 D <sub>30</sub> = 0.221 C <sub>u</sub> = 13.54	Coefficients $D_{60} = 0.693$ $D_{15} = 0.0656$ $C_{c} = 1.37$	D <sub>50</sub> = 0.452 D <sub>10</sub> = 0.0512	
USCS= SM	Classification AASHT	'O=	
	<u>Remarks</u>		

 Sample No.:
 B19@77-78.5'
 Source of Sample: B-19
 Date: 12-8-05

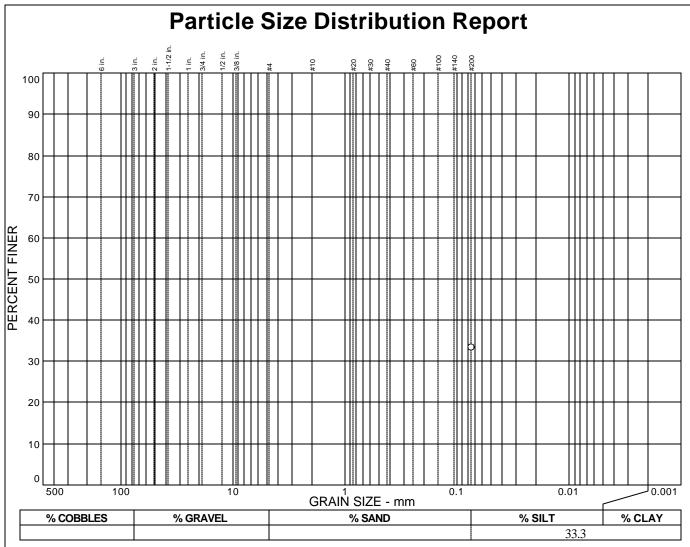
 Location:
 Elev./Depth: 77-78.5'

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INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	33.3		

Soil Description  Dark olive silty Sand		
PL=	Atterberg Lim	nits Pl=
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =
USCS= SM	Classification	<u>on</u> SHTO=
<u>Remarks</u>		

Sample No.: B20@4'
Location:

Source of Sample: B-20

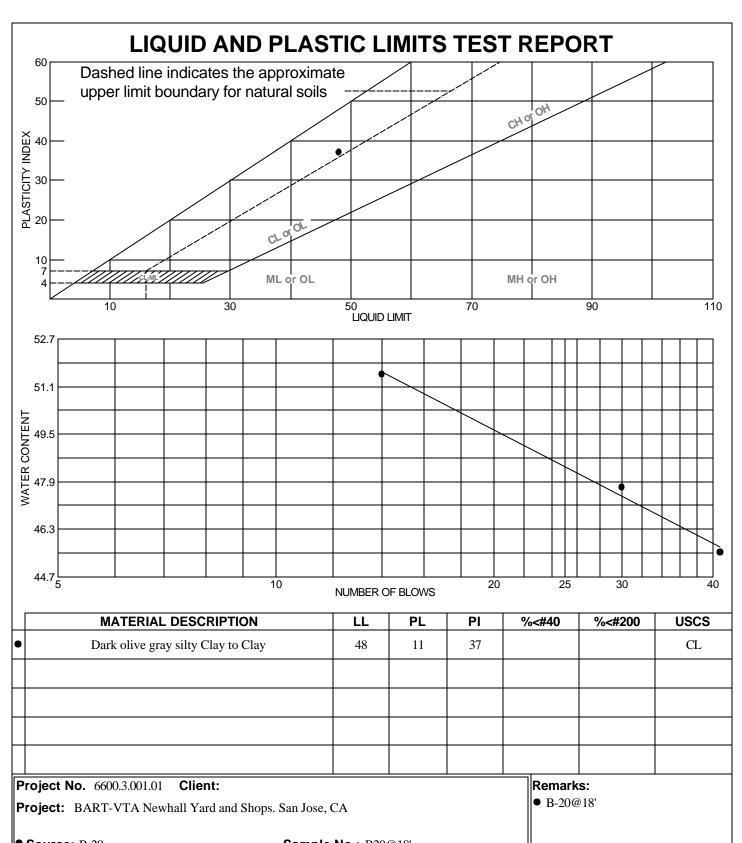
**Date:** 12-2-05 **Elev./Depth:** 4 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

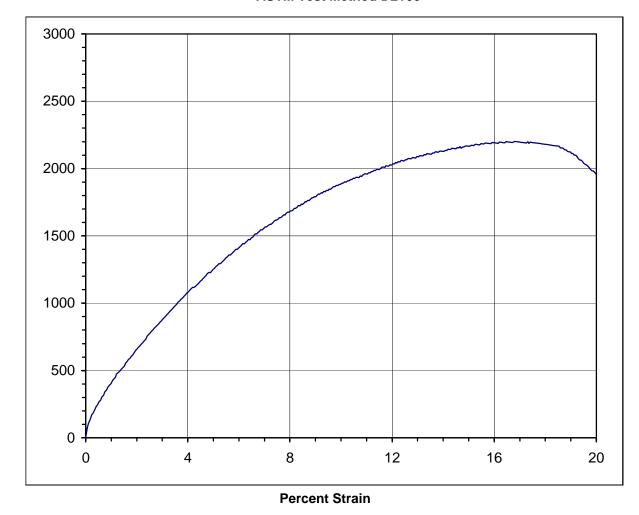
Project: BART-VTA Newhall Yard and Shops. San Jose, CA



● Source: B-20 Sample No.: B20@18'







Unconfined Compressive Strength: 2190 psf 1.1 tsf

Sample Description: Dark olive gray Clayey Silt

Initial Diameter: 2.420 in. Sample Number: B20@24' Initial Height: 4.74 in. **Dry Unit Weight:** 99.3 pcf Strain Rate: **Moisture Content:** % 1.651 %/min 26.2 **Total Strain:** 20.05 % Depth of Sample: 24.0 ft.

<b>ENGEO</b>	
INCORPORATED	

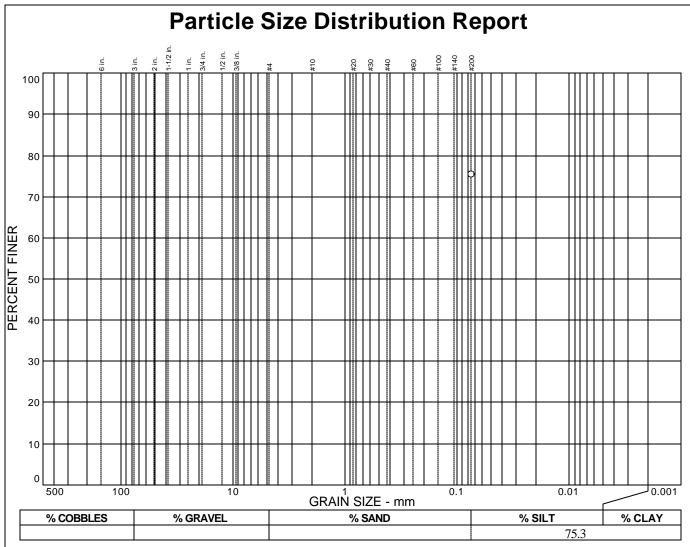
Axial pressure (psf)

**BART-VTA** 

Newhall yard and Shops. San Jose, CA

Job _	600.3.001.01	Figure
No.:	000.3.001.01	No.
Sample	B20@24'	
Number:	D20@24	

Date: 12/7/2005



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	75.3		

Soil Description  Dark bluish gray silty Clay with sand			
PL=	Atterberg Limi LL=	its Pl=	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =	
USCS= CL	Classification USCS= CL AASHTO=		
<u>Remarks</u>			

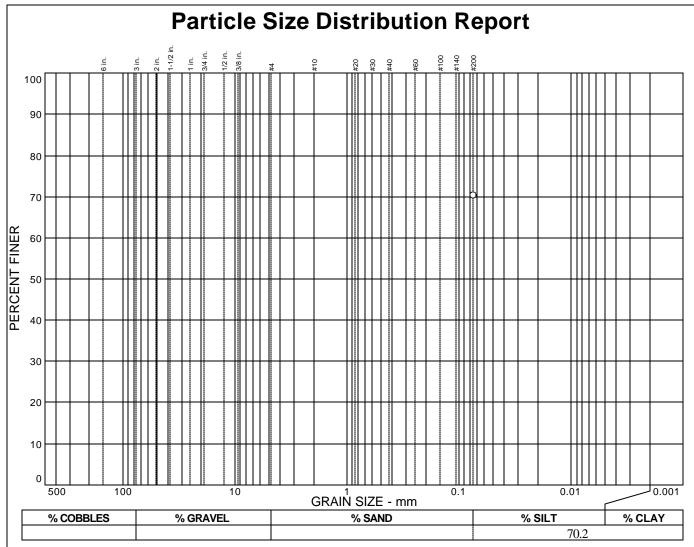
Sample No.: B20@34.5' Source of Sample: B-20 Date: 12-2-05 Location: Elev./Depth: 34.5 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	70.2		

	Soil Description			
Dark olive brow	Dark olive brown sandy silty Clay to silty Clay with sand			
D.	Atterberg Limits	D.		
PL=	LL=	PI=		
	Coefficients			
D <sub>85</sub> =	D <sub>60</sub> =	D <sub>50</sub> =		
D <sub>30</sub> =	D <sub>15</sub> = C <sub>0</sub> =	D <sub>10</sub> =		
C <sub>u</sub> =	C <sub>C</sub> =			
	<b>Classification</b>			
USCS= CL	AASHT	O=		
<u>Remarks</u>				

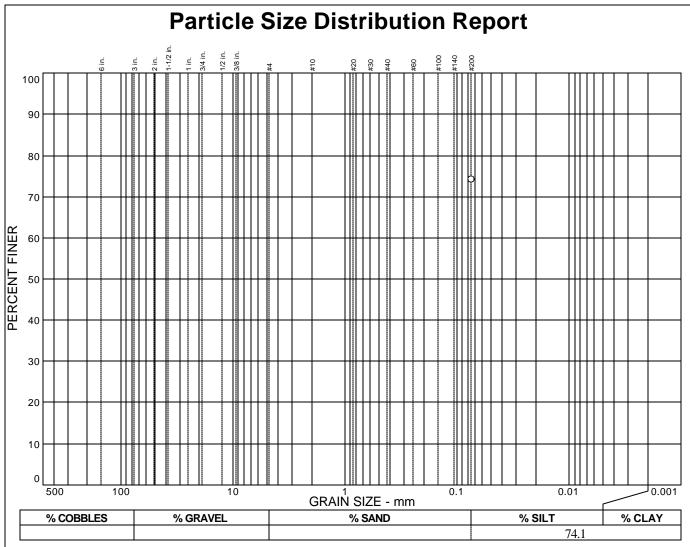
Sample No.: B20@48' Source of Sample: B-20 Date: 12-2-05 Location: Elev./Depth: 48 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	74.1		
4			

Olive brown sile	Soil Description by Clay with sand	<u>on</u>	
PL=	Atterberg Lim	<u>its</u> Pl=	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>C</sub> =	D <sub>50</sub> = D <sub>10</sub> =	
USCS= CL	Classification USCS= CL AASHTO=		
<u>Remarks</u>			

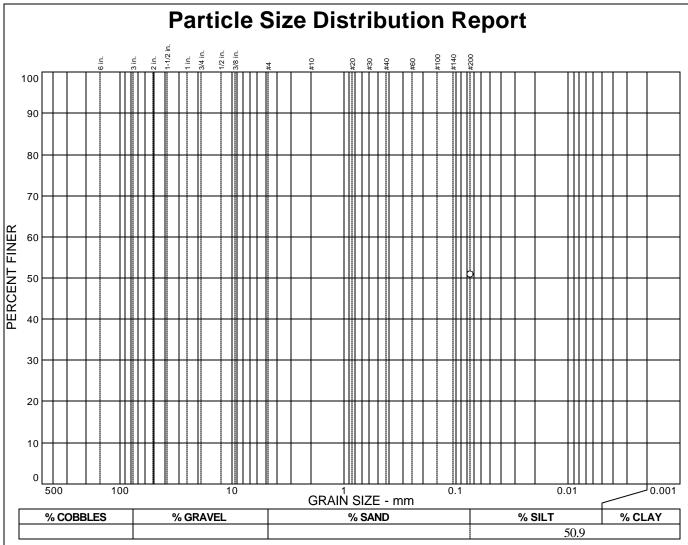
Sample No.: B20@62-64.5' Source of Sample: B-20 Date: 12-2-05

Location: Elev./Depth: 62-64.5 ft.



Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



PERCENT	SPEC.*	PASS?
FINER	PERCENT	(X=NO)
50.9		
	FINER	FINER PERCENT

Olive gray sand	<b>Soil Descriptio</b> y silty Clay	<u>n</u>
PL=	Atterberg Limit	<u>ts</u> Pl=
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =
USCS= CL	Classification AASH	<u>-</u> '
<u>Remarks</u>		

INCORPORATED

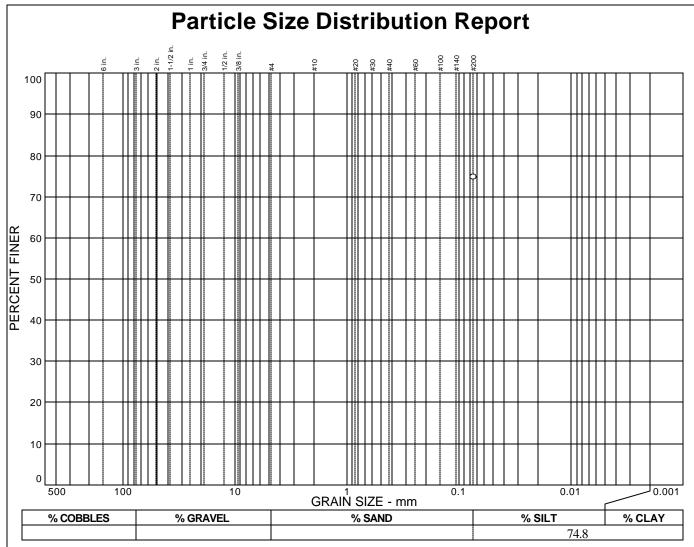
**Sample No.:** B20@68' Source of Sample: B-20 **Date:** 12-2-05 Location: Elev./Depth: 68 ft.

Client:

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

MATERIALS TESTING

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	74.8		

Soil Description			
Dark yellowish	brown and bluish gray	silty Clay with sand	
	Attaubaum Limeita		
PL=	Atterberg Limits LL=	PI=	
	Coefficients		
D <sub>85</sub> =	D <sub>60</sub> =	D <sub>50</sub> =	
D30=	D <sub>15</sub> =	D <sub>10</sub> =	
C <sub>u</sub> =	O <sub>C</sub> =		
USCS= CL	Classification AASHTO	_	
<u>Remarks</u>			

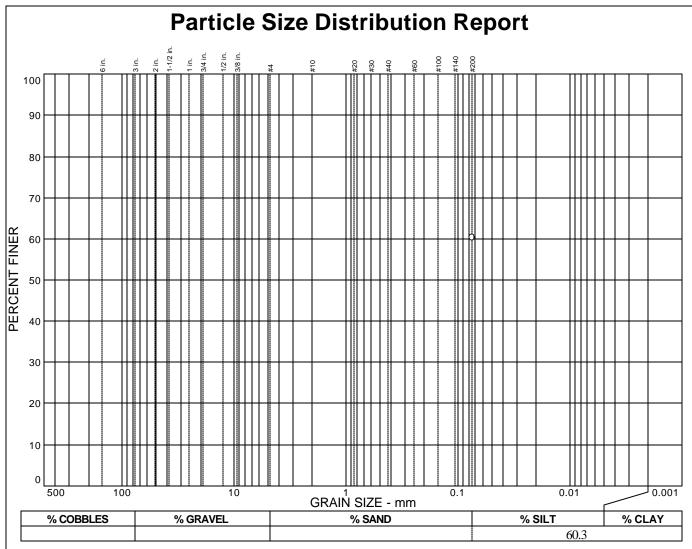
Sample No.: B20@78' Source of Sample: B-20 Date: 12-2-05 Location: Elev./Depth: 78 ft.

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INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	60.3		
*			

Soil Description  Very dark gray sandy silty Clay			
PL=	Atterberg Lin	n <u>its</u> Pl=	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =	
Classification USCS= CL AASHTO=			
<u>Remarks</u>			

Sample No.: B21@4' Location:

Source of Sample: B-21

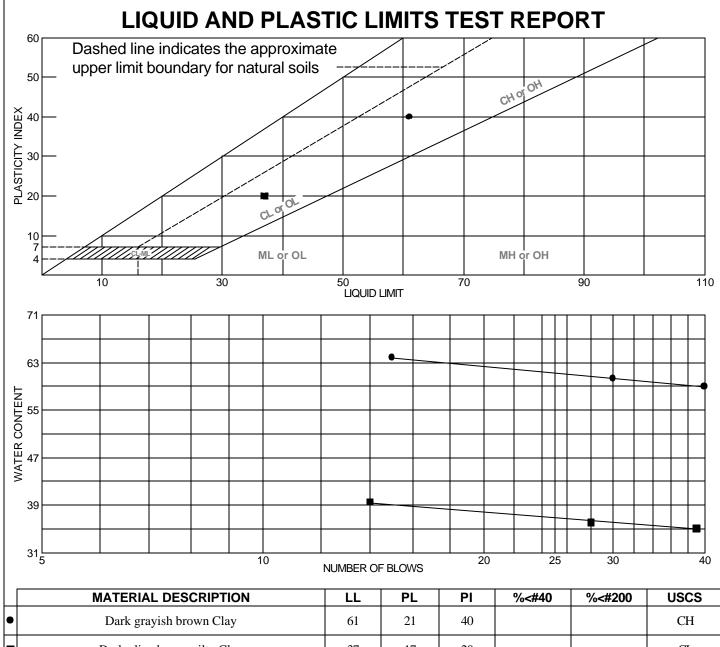
**Date:** 12-8-05 **Elev./Depth:** 4 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



		MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
•	•	Dark grayish brown Clay	61	21	40			СН
I		Dark olive brown silty Clay	37	17	20			CL

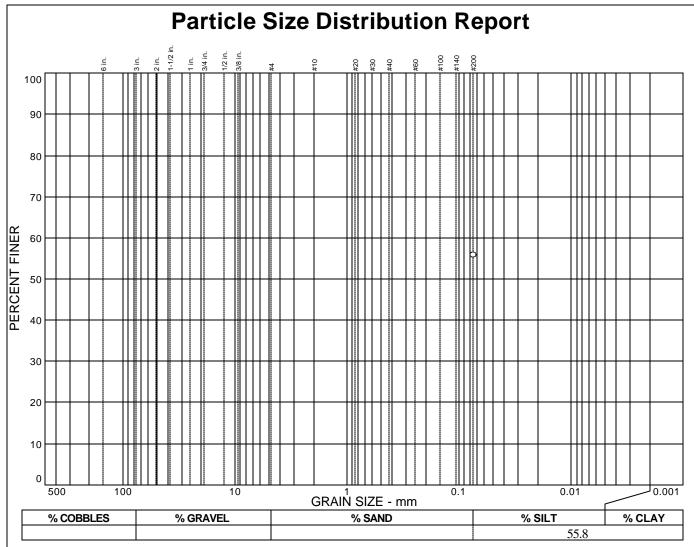
Project No. 6600.3.001.01 Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

● Source: B-21 Sample No.: B21@14'
■ Source: B-21 Sample No.: B21@23'

GEOTECHNICAL AND STREET OF 
#### Remarks:

- B21@14'
- B21@23'



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	55.8		
4			

Soil Description  Very dark gray sandy Clayey Silt				
PL=	Atterberg Limits	PI=		
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	$\begin{array}{c} \underline{\text{Coefficients}} \\ \text{D}_{60} = \\ \text{D}_{15} = \\ \text{C}_{\text{C}} = \end{array}$	D <sub>50</sub> = D <sub>10</sub> =		
USCS= ML	Classification USCS= ML AASHTO=			
<u>Remarks</u>				

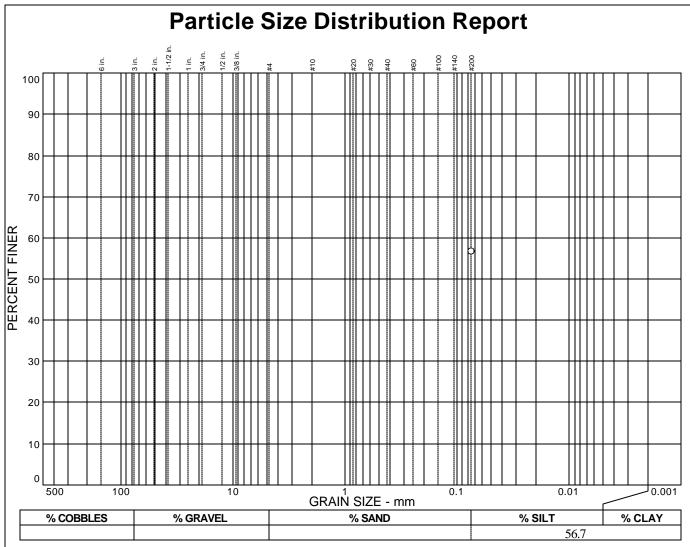
Sample No.: B21@39' Source of Sample: B-21 Date: 12-8-05 Location: Elev./Depth: 39 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	56.7		
4			

Soil Description Olive brown sandy silty Clay			
PL=	Atterberg Lin	nits Pl=	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficient D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	<u>s</u> D <sub>50</sub> = D <sub>10</sub> =	
USCS= CL	Classification USCS= CL AASHTO=		
<u>Remarks</u>			

Sample No.: B21@42.5' Source of Sample: B-21 Date: 12-8-05

Location: Elev./Depth: 42.5 ft.

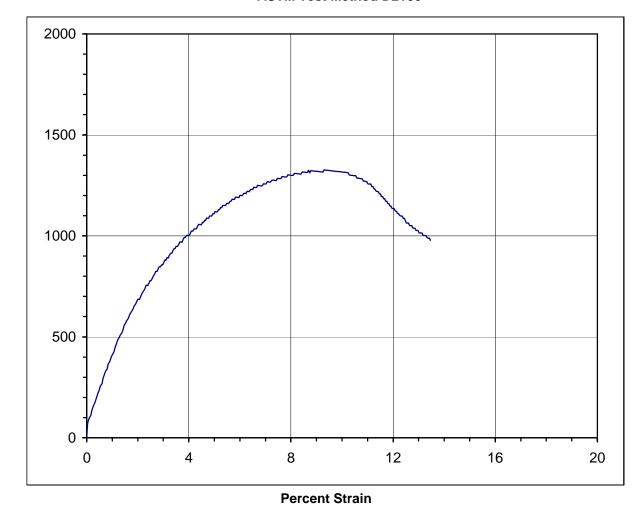
ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA





Unconfined Compressive Strength: 1320 psf 0.7 tsf

Sample Description: Dark grayish brown Clay

Initial Diameter: 2.420 in. Sample Number: B22@11' 77.7 pcf Initial Height: 5.00 in. **Dry Unit Weight:** Strain Rate: **Moisture Content:** 1.387 %/min 40.7 % **Total Strain:** 13.46 % Depth of Sample: 11.0 ft.

**ENGEO**INCORPORATED

Axial pressure (psf)

**BART-VTA** 

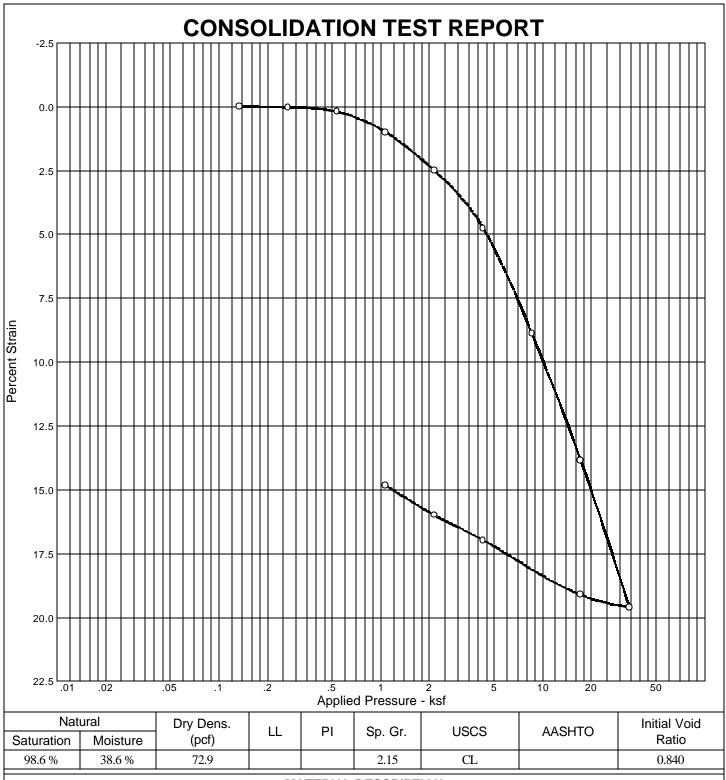
Newhall Yard and Shops. San Jose, CA

Job	6600.3.001.01
No.:	0000.3.001.01
Sample	D00@441

No.

**Figure** 

Number: B22@11'
Date: 12/9/2005



#### **MATERIAL DESCRIPTION**

Grayish brown silty Clay

**Project No.** 6600.3.001.01 **Client:** 

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

**Source:** B-22 **Sample No.:** B22@15.5-16'

Oampie No.: 022@15.5-1

**ENGLO** 

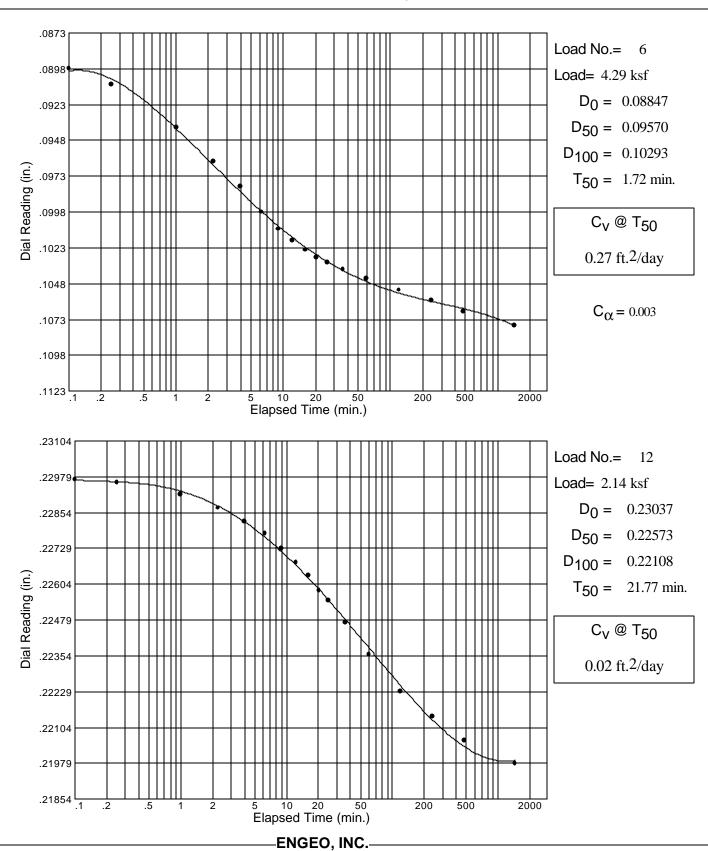
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING Remarks:

Sample swell at 268 psf loading

### Dial Reading vs. Time

Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

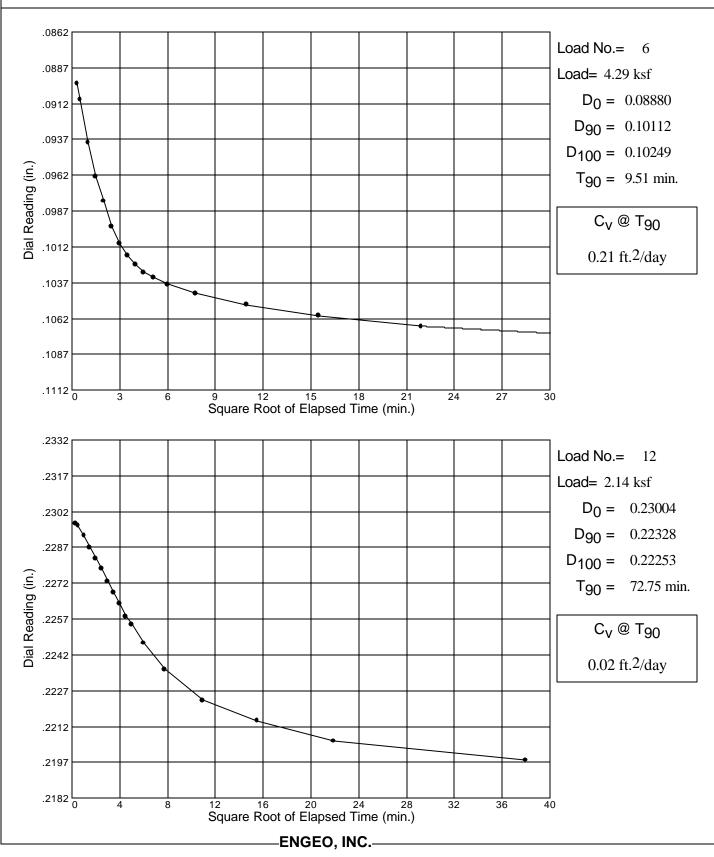
Sample No.: B22@15.5-16' Source: B-22

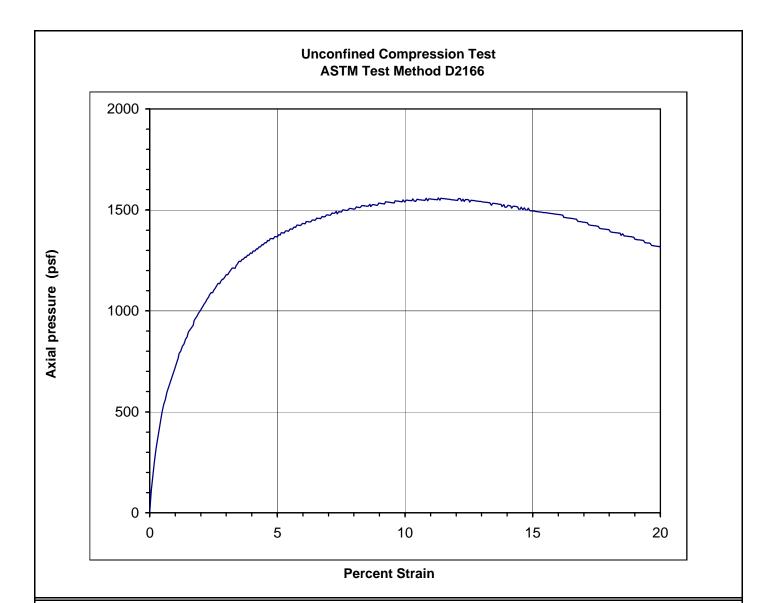


# Dial Reading vs. Time

Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Source: B-22 Sample No.: B22@15.5-16'





Unconfined Compressive Strength: 1550 psf 0.8 tsf

Sample Description: Very dark olive gray CLAY

**Initial Diameter:** 2.420 in. Sample Number: B23@15.5' 82.2 pcf Initial Height: 5.00 in. **Dry Unit Weight:** Strain Rate: **Moisture Content:** 1.646 %/min 38.8 % **Total Strain:** 20.04 % Depth of Sample: 15.5 ft.

**ENGEO**INCORPORATED

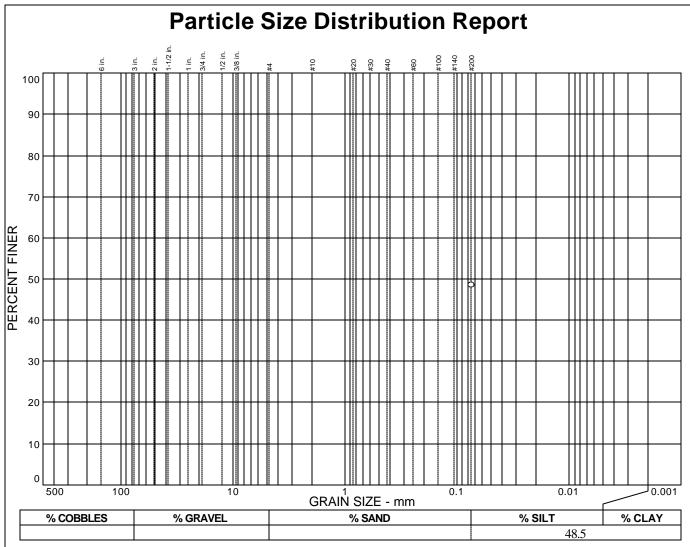
**BART-VTA** 

Newhall Yard and Shops. San Jose, Ca

Job	6600.3.001.01
No.:	0000.3.001.01
Sample	B23@15.5'
N I I	

Figure No.

Number: 12/8/2005



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	48.5		
*			

Soil Description Very dark gray clayey Sand		
PL=	Atterberg Lim	<u>its</u> Pl=
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	$\begin{array}{c} \textbf{Coefficients} \\ \textbf{D}_{60} = \\ \textbf{D}_{15} = \\ \textbf{C}_{\text{C}} = \end{array}$	D <sub>50</sub> = D <sub>10</sub> =
USCS= SC	Classificatio AAS	<u>n</u> HTO=
<u>Remarks</u>		

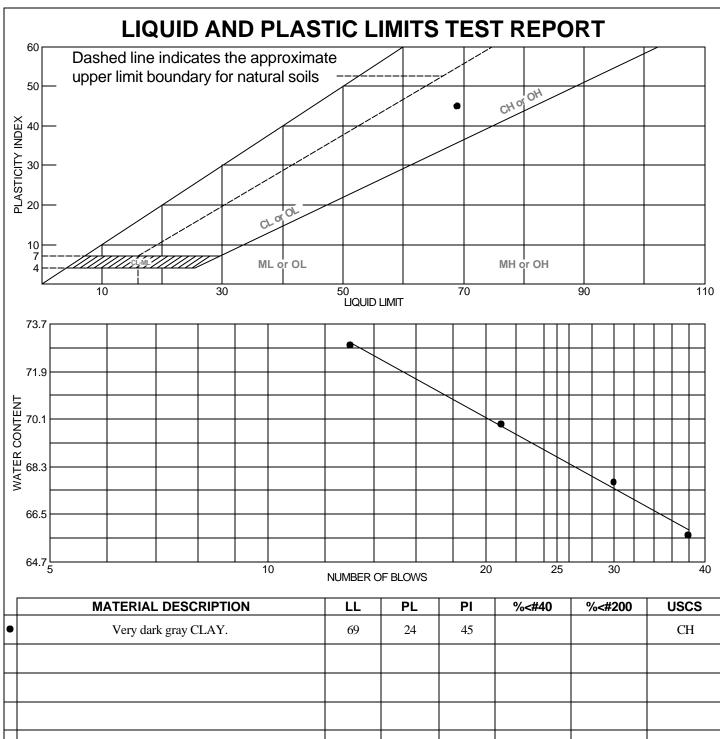
Sample No.: B22@31.5' Source of Sample: B-22 Date: 12-8-05

Location: Elev./Depth: 31.5 ft.



Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



**Project No.** 6600.3.001.01 Client: Remarks:

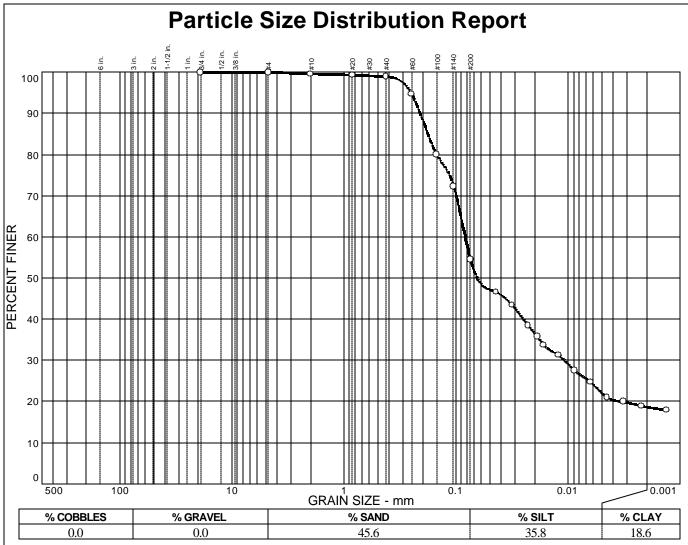
Project: BART-VTA Newhall Yard and Shops. San Jose, CA

• Source: B-23 Sample No.: B23 @ 11'

• B23 @ 11.0 feet



GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
3/4 in. #4 #10 #20 #40 #60 #100 #140 #200	100.0 100.0 99.6 99.3 98.9 94.7 80.0 72.2 54.4		

13.0	33.0	10.0	
Soil Description  Very dark olive gray sandy SILT.			
PL=	Atterberg Limits	Pl=	
D <sub>85</sub> = 0.180 D <sub>30</sub> = 0.0108 C <sub>u</sub> =	Coefficients D <sub>60</sub> = 0.0839 D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = 0.0653 D <sub>10</sub> =	
USCS= ML	Classification AASHT	O=	
	<u>Remarks</u>		

Sample No.: B23 @ 31' Location:

Source of Sample: B-23

**Elev./Depth:** 31.0 feet

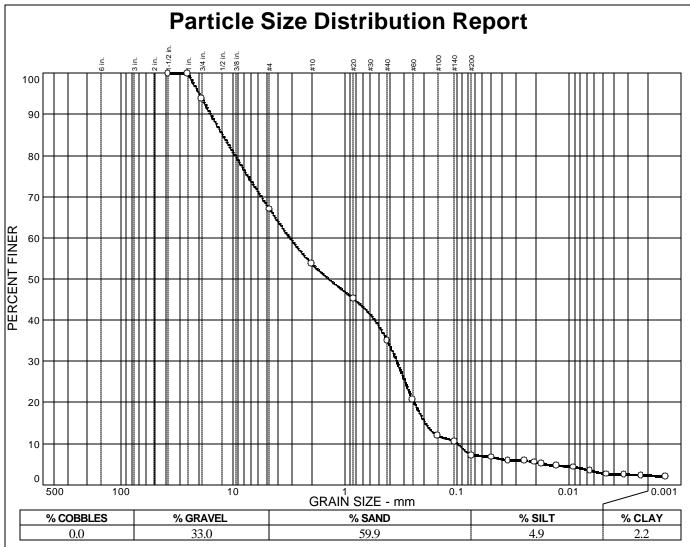
**Date:** 12/20/05

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
1-1/2 in. 1 in. 3/4 in. #4 #10 #20 #40 #60 #100 #140 #200	100.0 100.0 93.8 67.0 53.8 45.3 35.1 20.7 11.9 10.5 7.1		

Soil Description				
Dark yellowish brown poorly graded SAND with silt and gravel.				
PL=	Atterberg Limits LL=	PI=		
D <sub>85</sub> = 12.4 D <sub>30</sub> = 0.349 C <sub>u</sub> = 31.21	Coefficients D <sub>60</sub> = 3.12 D <sub>15</sub> = 0.193 C <sub>c</sub> = 0.39	D <sub>50</sub> = 1.40 D <sub>10</sub> = 0.0999		
USCS= SP-SM	Classification AASHTO=	=		
	<u>Remarks</u>			

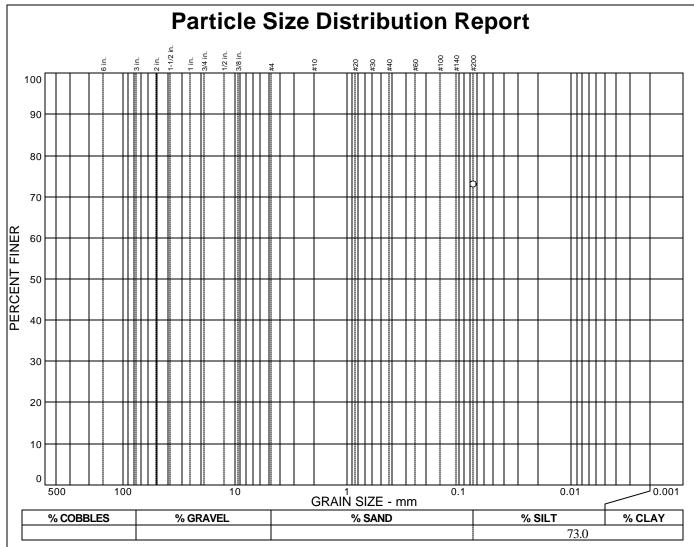
Sample No.: B23 @ 31.5' Source of Sample: B-23 Date: 12/21/05 Location: Elev./Depth: 31.5 feet

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	73.0		
_			

Soil Description  Very dark olive gray Clayey SILT with sand.				
Atterberg Limits PL= LL= PI=				
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficien D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	<u>ts</u> D <sub>50</sub> = D <sub>10</sub> =		
USCS= ML	USCS= ML Classification AASHTO=			
<u>Remarks</u>				

Sample No.: B23 @ 40.5'

Location:

Source of Sample: B-23

Date: 12/21/05

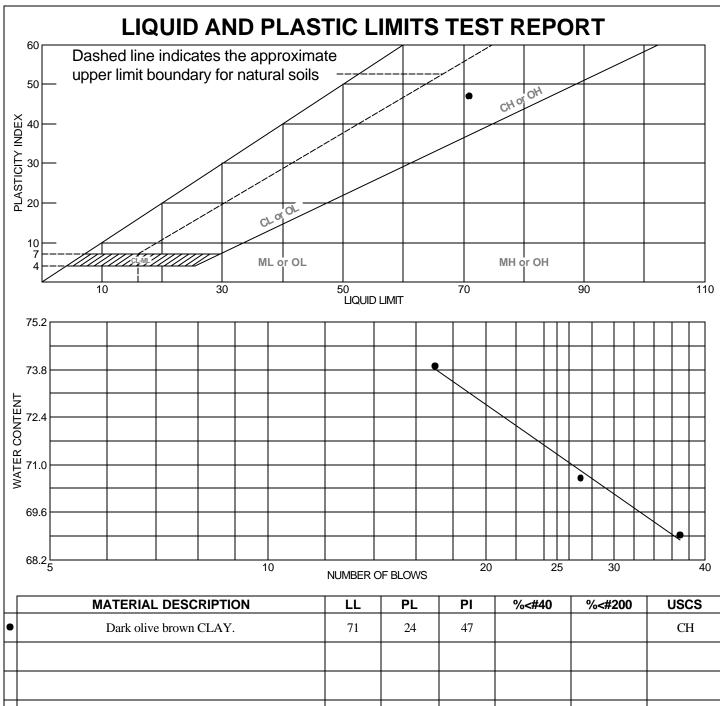
Elev./Depth: 40.5 feet

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



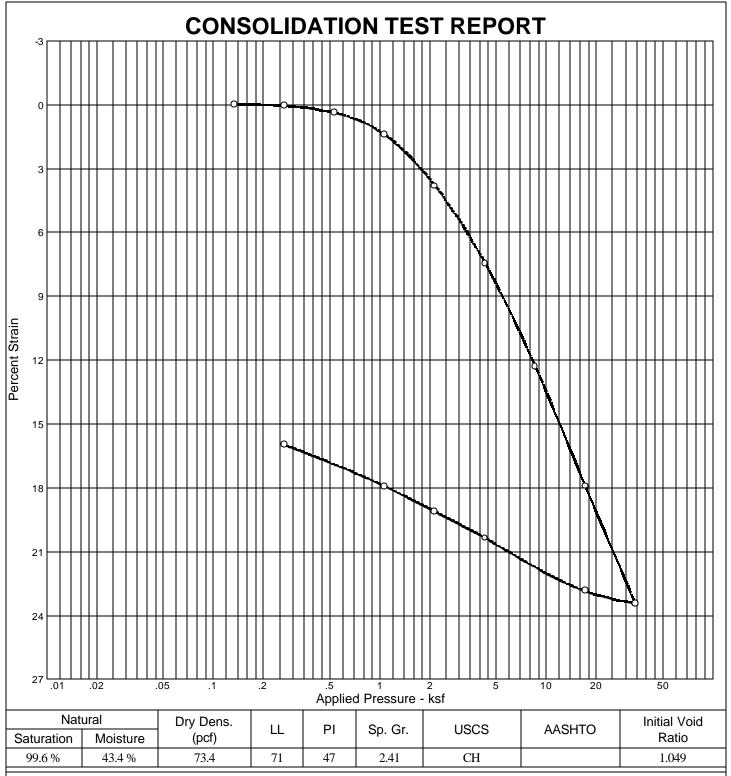
Project No. 6600.3.001.01 Client:		Remark	s:	

**Project:** BART-VTA Newhall Yard and Shops. San Jose, CA

• Source: B-24 **Sample No.:** B24 @ 14' • B24 @ 14.0 feet



GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING



#### **MATERIAL DESCRIPTION**

Dark olive brown CLAY.

**Project No.** 6600.3.001.01 **Client:** 

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

**Source:** B-24 **Sample No.:** B24 @ 14'

**ENGEO** 

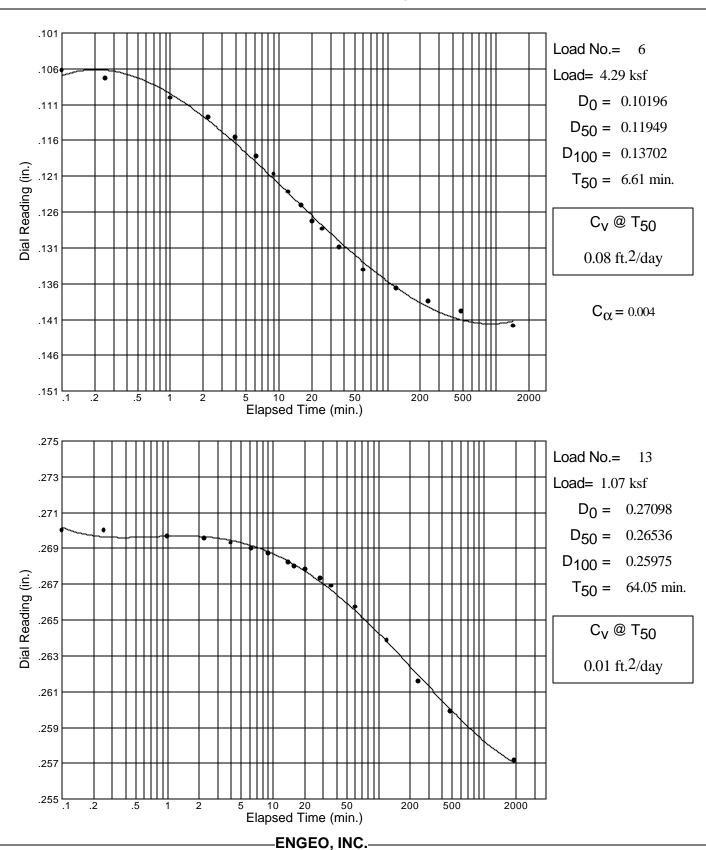
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING Remarks:

Sample swelled at 268 psf loading

### Dial Reading vs. Time

Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

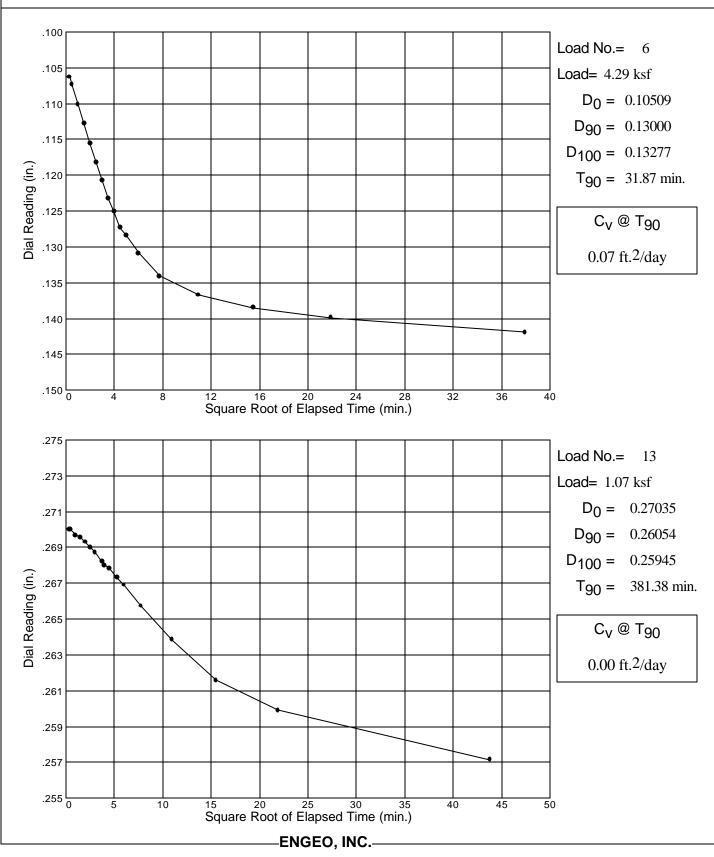
Source: B-24 Sample No.: B24 @ 14'

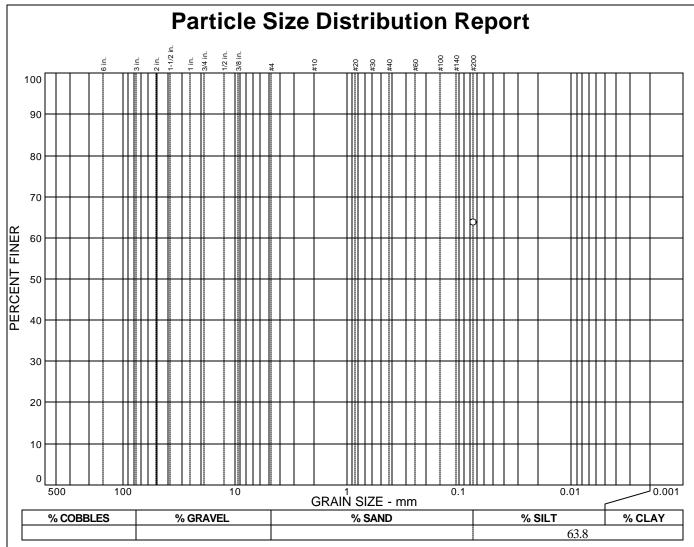


# Dial Reading vs. Time

Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Source: B-24 Sample No.: B24 @ 14'





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	63.8		

Soil Description  Dark grayish brown sandy CLAY.			
PL=	Atterberg Limi	<u>its</u> Pl=	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D60= D15= C <sub>C</sub> =	D <sub>50</sub> = D <sub>10</sub> =	
USCS= CL	Classification USCS= CL AASHTO=		
<u>Remarks</u>			

Sample No.: B24 @ 28'

Source of Sample: B-24

Date: 12/21/05

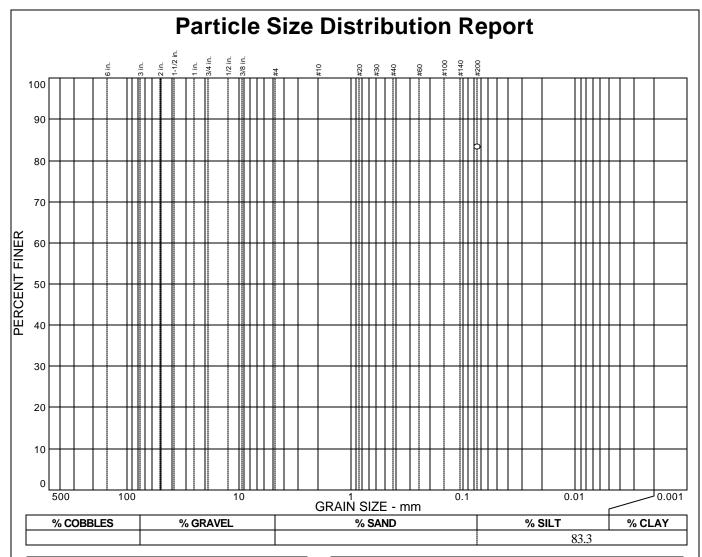
Location: Elev./Depth:

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	83.3		
*			

Soil Description			
Dark grayish b	rown silty CLAY with s	and.	
	<b>Atterberg Limits</b>		
PL=	LL=	PI=	
	Coefficients		
D <sub>85</sub> =		D <sub>50</sub> = D <sub>10</sub> =	
D <sub>30</sub> =	D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>10</sub> =	
C <sub>u</sub> =	C <sub>C</sub> =		
	Classification		
USCS= CL	AASHTC	)=	
Remarks			

**Date:** 12/21/05

(no specification provided)

Sample No.: B24 @ 18' Source of Sample: B-24

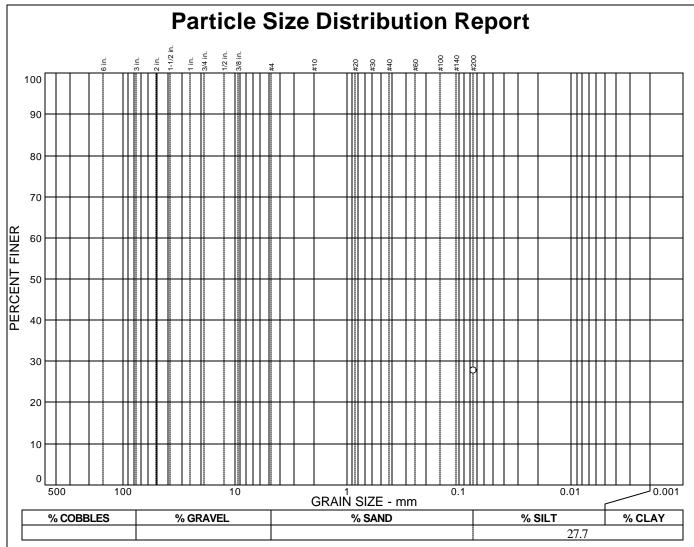
Location: Elev./Depth:

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	27.7		
4			

Soil Description				
Dark grayish brown Clayey Sand with silt				
DI	Atterberg Limi			
PL=	LL=	Pl=		
Coefficients				
D <sub>85</sub> =	D <sub>60</sub> =	D <sub>50</sub> =		
D <sub>30</sub> =	D <sub>15</sub> =	D <sub>50</sub> = D <sub>10</sub> =		
C <sub>u</sub> =	C <sub>C</sub> =			
Classification				
USCS= SC	AASH	TTO=		
Remarks				
	<u>itemarks</u>			

**Sample No.:** B24 @ 27.5' **Source of Sample:** B-24 **Date:** 12/21/05

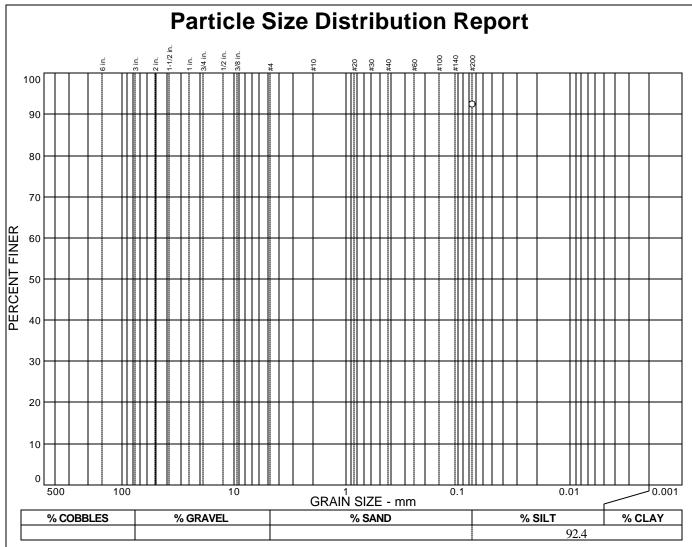
Location: Elev./Depth:

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	92.4		
* (	: 6"	. 1)	

Soil Description  Very dark gray CLAY. Trace sand			
PL=	Atterberg Lin	nits Pl=	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficient D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =	
USCS= CH	Classification USCS= CH AASHTO=		
<u>Remarks</u>			

Sample No.: B25 @ 3' Source of Sample: B-25 Date: 12/21/05

Location: Elev./Depth:

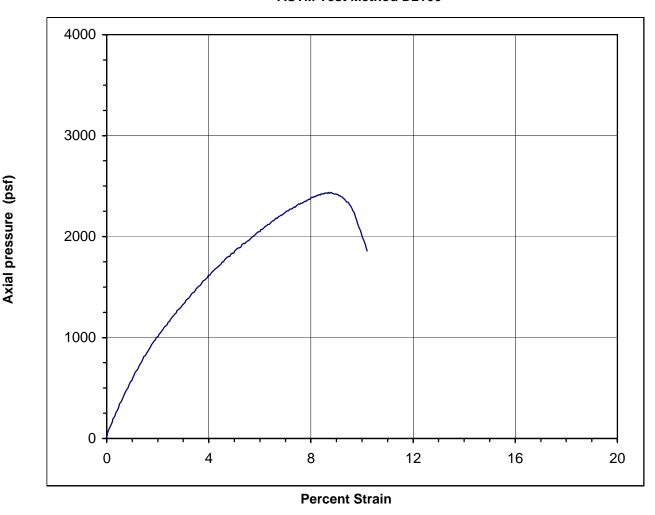
ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA





Unconfined Compressive Strength: 2430 psf 1.2 tsf

Sample Description: Mottled olive brown and yellowish brown silty Clay

**Initial Diameter:** 2.420 in. Sample Number: B25 @ 8' Initial Height: **Dry Unit Weight:** 4.93 in. 101.1 pcf **Moisture Content:** Strain Rate: 1.456 %/min 23.1 % **Total Strain:** 10.21 % Depth of Sample: 8.0 ft.

**ENGEO**INCORPORATED

**BART-VTA** 

Newhall Yard and Shops, San Jose, CA

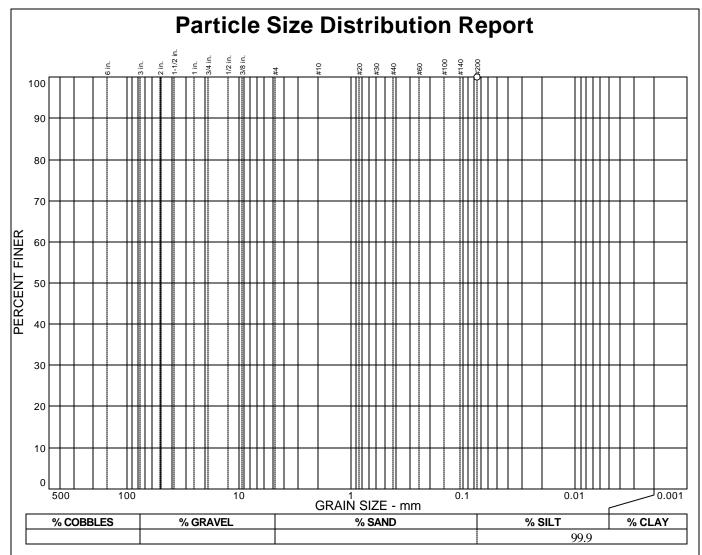
Job No.: 6600.3.001.01

No.: No. Sample B25 @ 8'

Figure

Number: D23 @ 0

Date: 12/12/2005



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	99.9		
* (		. 15	

Soil Description			
Very dark gray and dark olive brown CLAY.			
LL=	PI=		
Coefficien	ts		
D <sub>60</sub> =	D <sub>50</sub> = D <sub>10</sub> =		
D15=	D <sub>10</sub> =		
C <sub>C</sub> =			
<u>Classificati</u>	<u>on</u>		
AA	SHTO=		
Remarks			
	Atterberg Lin LL= Coefficien D60= D15= C <sub>c</sub> = Classificati		

**Date:** 12/21/05

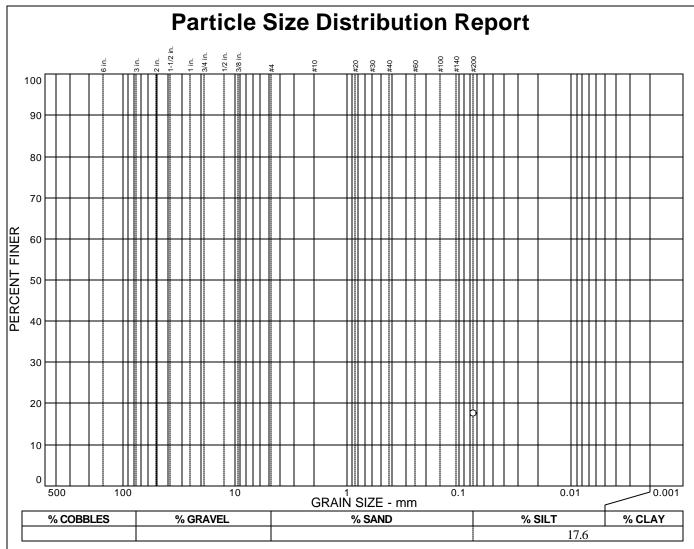
(no specification provided)

**Sample No.:** B25 @ 12' Source of Sample: B-25

Location: Elev./Depth:

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS INCORPORATED MATERIALS TESTING Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	17.6		

Soil Description				
Dark olive brow	Dark olive brown clayey SAND with gravel.			
	Atterberg Lin			
PL=	LL=	Pl=		
	Coefficient	s		
D <sub>85</sub> =		_		
D30=	D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =		
C <sub>u</sub> =	C <sub>C</sub> =			
	Classification			
USCS= SC	AAS	SHTO=		
Remarks				

**Sample No.:** B25 @ 21-21.5' **Source of Sample:** B-25 **Date:** 12/21/05

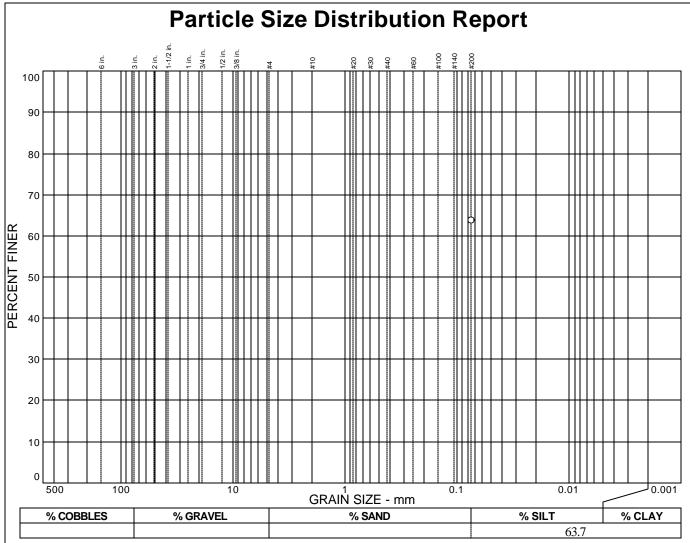
Location: Elev./Depth:

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	63.7		
4			

Soil Description  Very dark gray Clayey Silt .			
PL=	Atterberg Lim	<u>its</u> Pl=	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =	
Classification USCS= ML AASHTO=			
<u>Remarks</u>			

**Sample No.:** B25 @ 28.5' **Source of Sample:** B-25 **Date:** 12/21/05

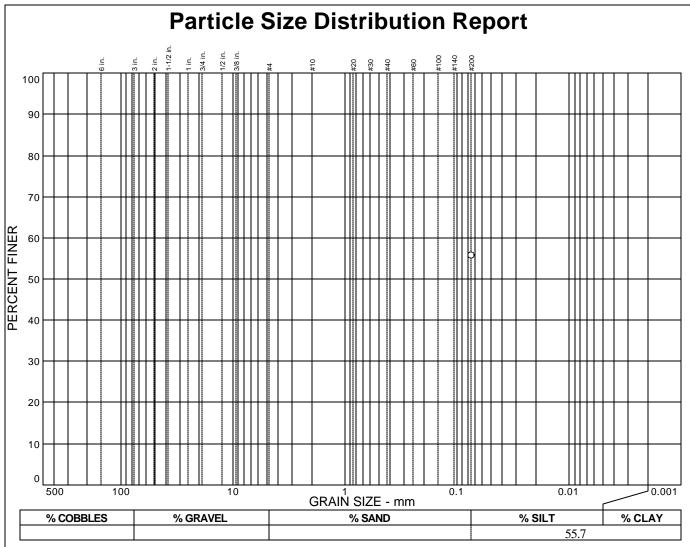
Location: Elev./Depth:

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	55.7		

Soil Description  Dark grayish brown Sandy Clay			
PL=	Atterberg Limi	<u>ts</u> Pl=	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D60= D15= Cc=	D <sub>50</sub> = D <sub>10</sub> =	
USCS= CL	Classification USCS= CL AASHTO=		
<u>Remarks</u>			

Sample No.: B26 @ 8' Location:

Source of Sample: B-26

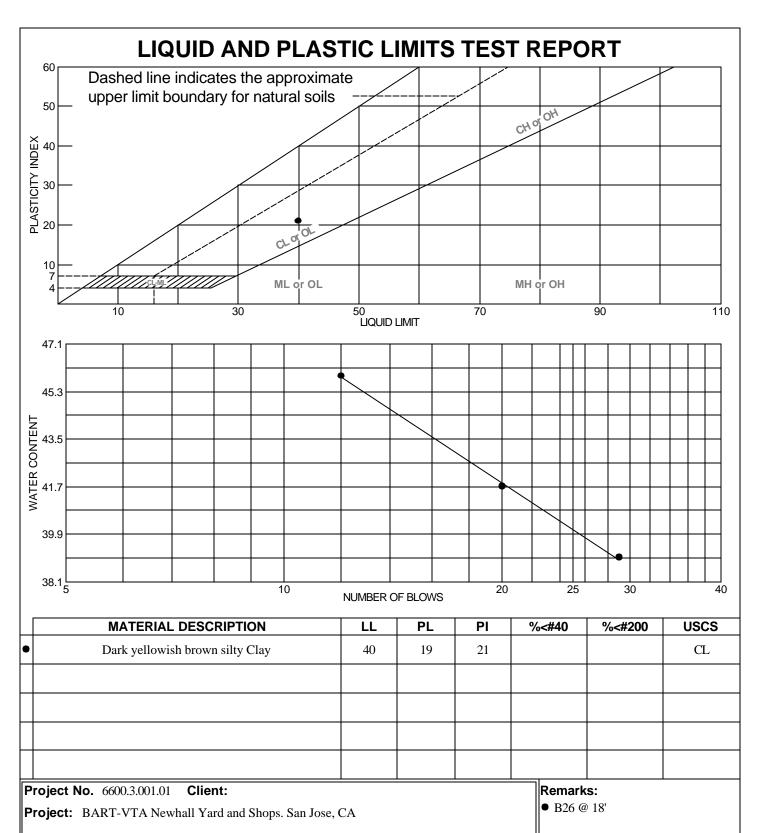
**Date:** 12-14-05 **Elev./Depth:** 8.0 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

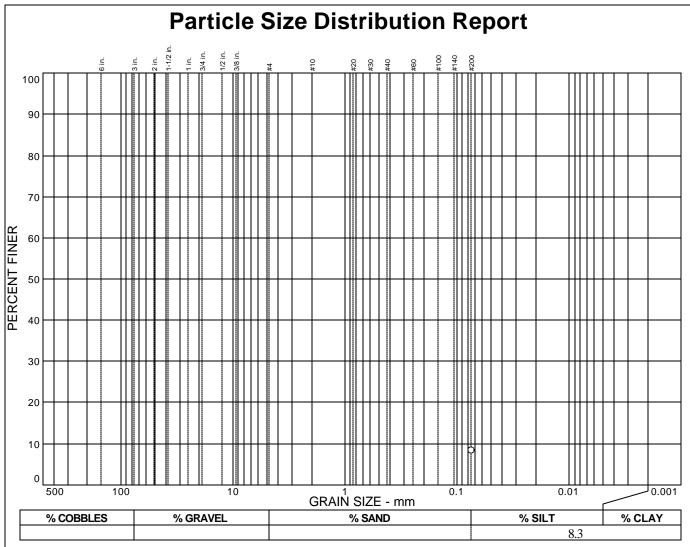
Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



• Source: B-26 Sample No.: B26 @ 18'





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	8.3		

Soil Description  Dark grayish brown Sand with silt			
PL=	Atterberg Lin	nits Pl=	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficient D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	<u>s</u> D <sub>50</sub> = D <sub>10</sub> =	
USCS= SP	Classification USCS= SP AASHTO=		
<u>Remarks</u>			

**Sample No.:** B26 @ 27'

Location:

Source of Sample: B-26

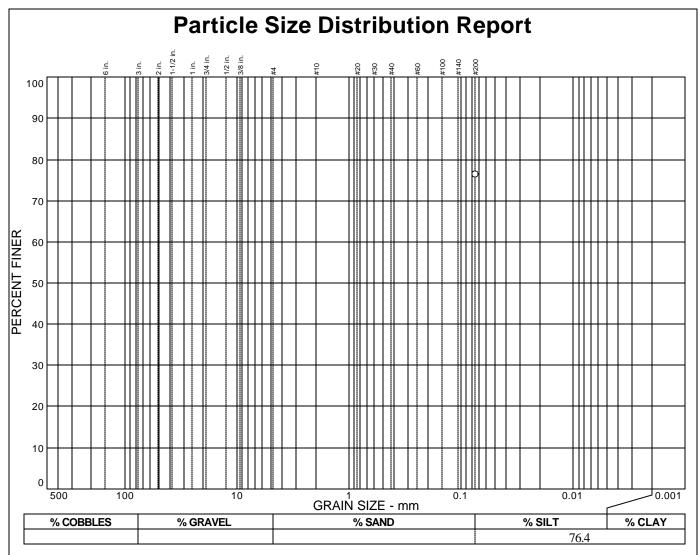
**Date:** 12-14-05 **Elev./Depth:** 27.0 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	76.4		
* (	C'	. 1)	

Soil Description					
Dark yellowisl	n brown silty Clay with s	and			
	Atterberg Limits				
PL=	LL=	PI=			
	Coefficients				
D <sub>85</sub> =	D <sub>60</sub> =	D <sub>50</sub> = D <sub>10</sub> =			
D <sub>30</sub> =	D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>10</sub> =			
o <sub>u</sub> −					
11000 ~	Classification				
USCS= CL	AASHTO	=			
<u>Remarks</u>					

Sample No.: B26 @ 33' Source of Sample: B-26 Date: 12-14-05

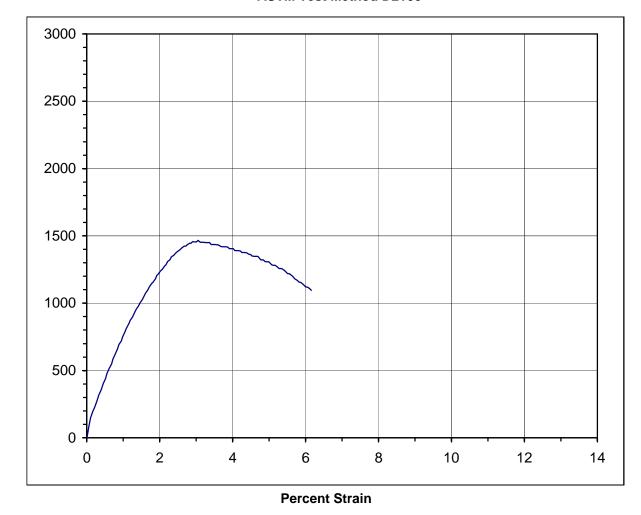
Location: Elev./Depth: 33.0 ft.



Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA





**Unconfined Compressive Strength:** 1460 psf 0.7 tsf

Olive brown silty Clay **Sample Description:** 

Initial Diameter: 2.420 in. Sample Number: B27@14.5' Initial Height: 5.00 in. **Dry Unit Weight:** 82.8 pcf Strain Rate: **Moisture Content:** % 1.551 %/min 36.8 **Total Strain:** 6.16 % Depth of Sample: 14.5 ft.

EN	G	EO
INCOR	POR	RATED

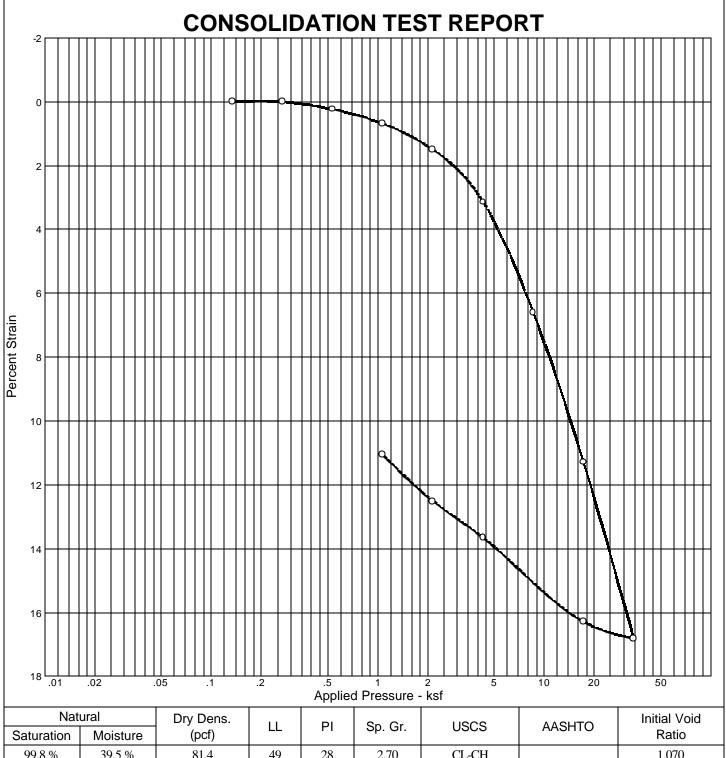
Axial pressure (psf)

**BART-VTA** 

Newhall Yard and Shops, San Jose, CA

6600 2 001 01	Figure
0000.3.001.01	No.
B27@14.5'	
	6600.3.001.01 B27@14.5'

Date: 11/3/2005



Nat	ural	Dry Dens.	1.1	DI	Sp. Gr.	USCS	AASHTO	Initial Void
Saturation	Moisture	(pcf)		FI	Sp. Gr.	0303	AASHTO	Ratio
99.8 %	39.5 %	81.4	49	28	2.70	CL-CH		1.070

### **MATERIAL DESCRIPTION**

Dark grayish brown silty Clay to Clay

**Project No.** 6600.3.001.01 Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Source: B-27 **Sample No.:** B27@15'

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

MATERIALS TESTING

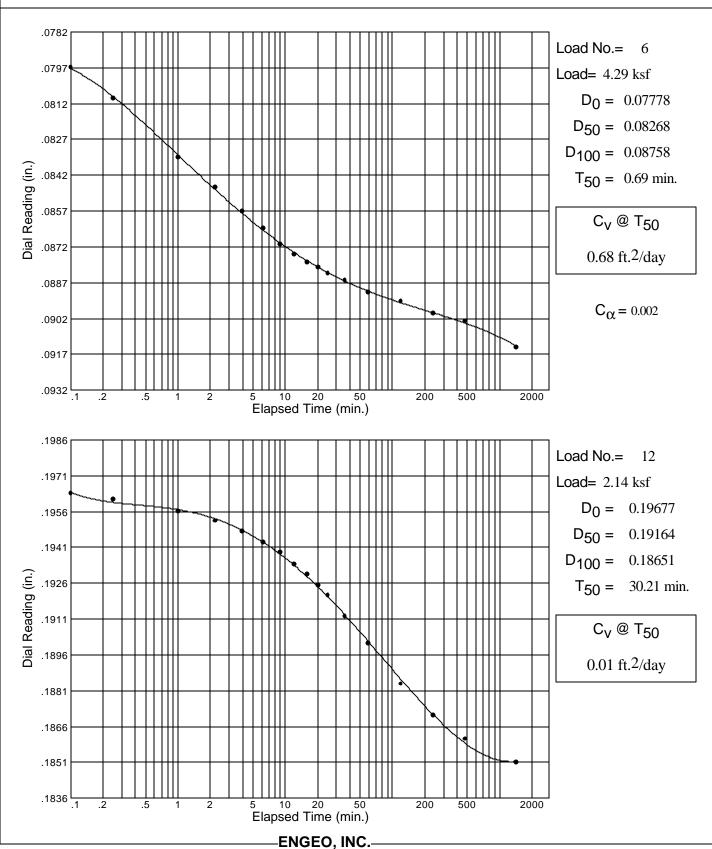
Remarks:

Sample swelled at 536 psf

### Dial Reading vs. Time

Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

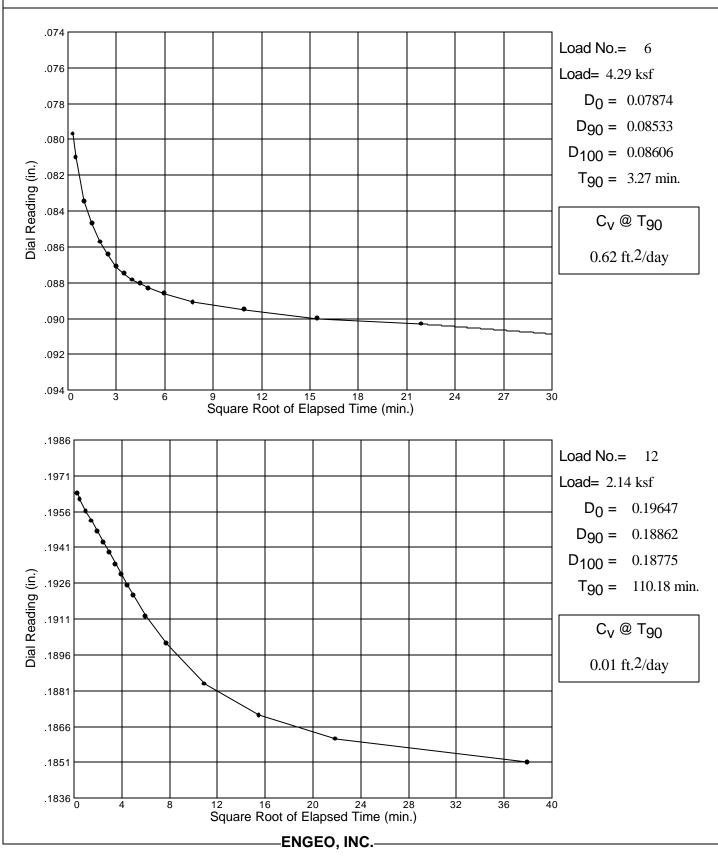
Sample No.: B27@15' Source: B-27

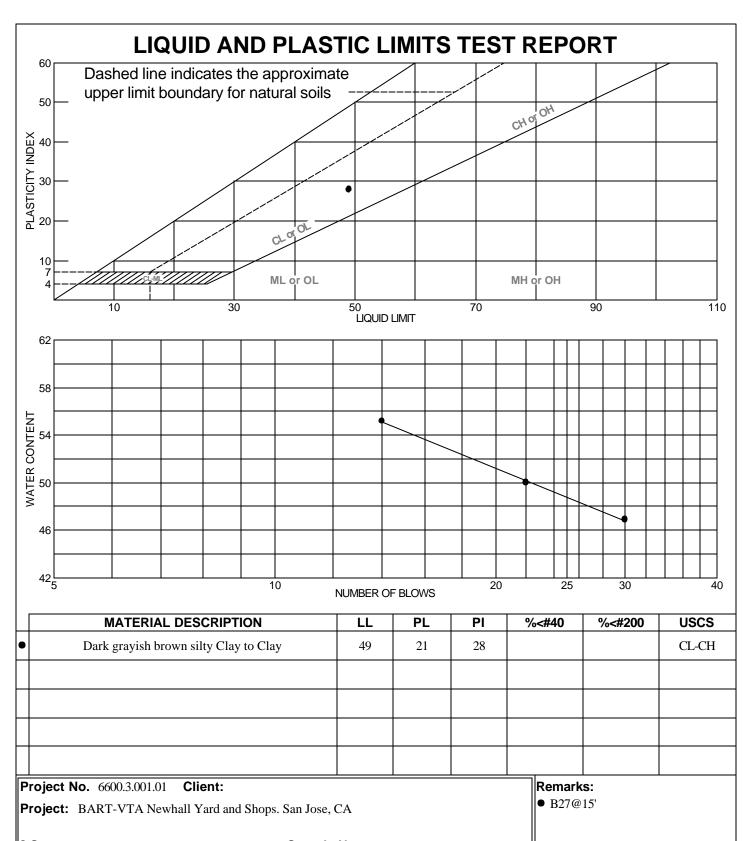


## Dial Reading vs. Time

Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

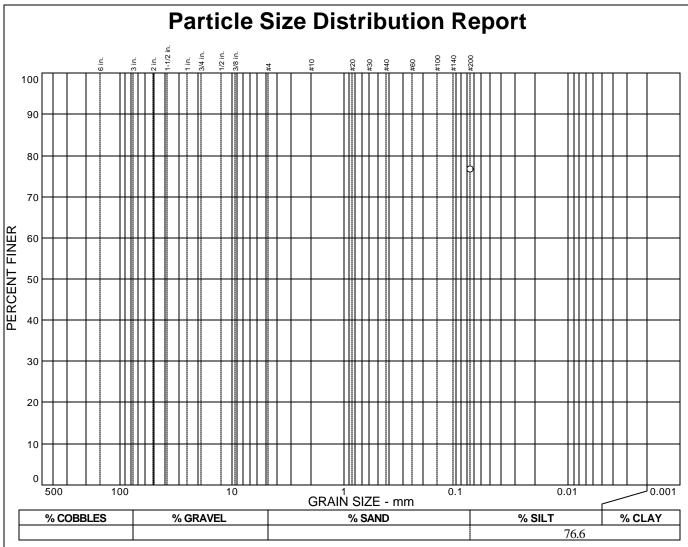
Source: B-27 Sample No.: B27@15'





● Source: B-27 Sample No.: B27@15'





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	76.6		
4			

Soil Description  Black silty Clay with fine sand				
PL=	Atterberg Lir	<u>nits</u> Pl=		
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficient D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	<u>ts</u> D <sub>50</sub> = D <sub>10</sub> =		
USCS= CL	Classification USCS= CL AASHTO=			
<u>Remarks</u>				

Sample No.: B27@22.5' Source of Sample: B-27 Date: 12-12-05

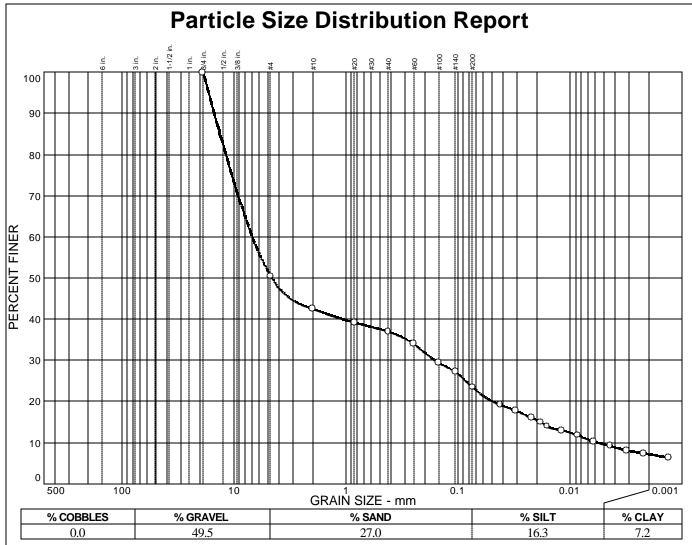
Location: Elev./Depth:

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
3/4 in. #4 #10 #20 #40 #60 #100 #140 #200	100.0 50.5 42.5 39.2 37.0 34.0 29.4 27.2 23.5		

Soil Description  Dark bluish gray silty Gravel with sand				
PL=	Atterberg Limits LL=	Pl=		
D <sub>85</sub> = 13.5 D <sub>30</sub> = 0.162 C <sub>u</sub> = 1210.29	Coefficients D <sub>60</sub> = 6.91 D <sub>15</sub> = 0.0185 C <sub>C</sub> = 0.67	D <sub>50</sub> = 4.63 D <sub>10</sub> = 0.0057		
USCS= GM	Classification AASHT	0=		
<u>Remarks</u>				

Sample No.: B27@29' Location:

Source of Sample: B-27

**Date:** 12-12-05

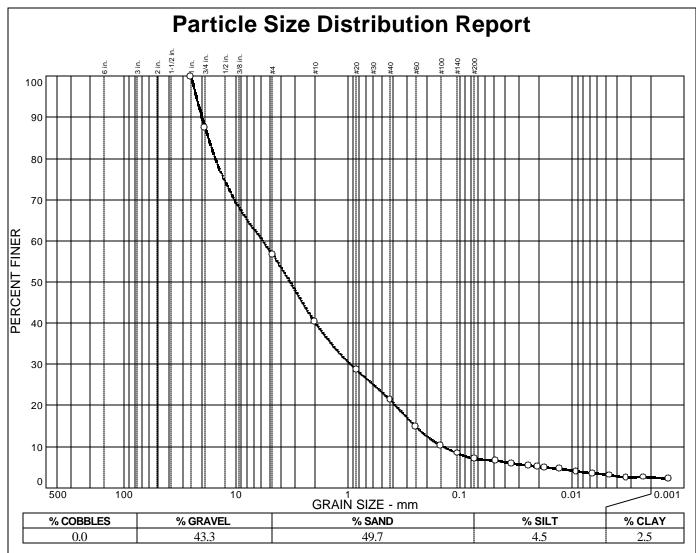
Elev./Depth:

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
1 in. 3/4 in. #4 #10 #20 #40 #60 #100 #140 #200	100.0 87.5 56.7 40.4 28.7 21.4 14.9 10.3 8.4 7.0		

Soil Description  Very dark gray poorly graded Gravelly Sand			
PL=	Atterberg Limit	<u>s</u> Pl=	
D <sub>85</sub> = 17.8 D <sub>30</sub> = 0.956 C <sub>u</sub> = 40.56	Coefficients D <sub>60</sub> = 5.80 D <sub>15</sub> = 0.252 C <sub>C</sub> = 1.10	D <sub>50</sub> = 3.32 D <sub>10</sub> = 0.143	
USCS= SP	Classification AASH	ТО=	
	<u>Remarks</u>		

Sample No.: B27@38'
Location:

**Source of Sample:** B-27

**Date:** 12-12-05

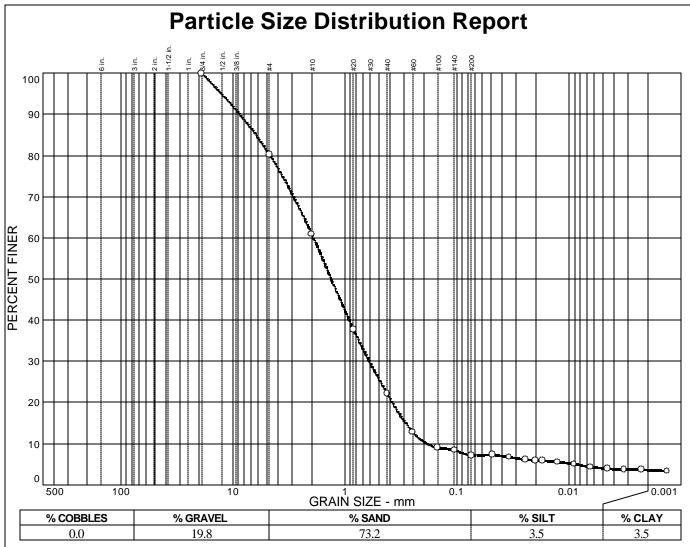
Elev./Depth:

ENGEO GEOTECHNICAL AND GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
3/4 in. #4 #10 #20 #40 #60 #100 #140 #200	100.0 80.2 60.9 37.8 22.2 12.8 9.0 8.4 7.0		

Soil Description  Very dark gray Sand with silt and gravel				
Atterberg Limits	S PI=			
Coefficients D60= 1.93 D15= 0.290 C <sub>C</sub> = 1.03	D <sub>50</sub> = 1.34 D <sub>10</sub> = 0.188			
Classification AASHT	ГО=			
<u>Remarks</u>				
	Atterberg Limits LL= Coefficients D60= 1.93 D15= 0.290 C <sub>c</sub> = 1.03 Classification AASH			

Sample No.: B27@44'
Location:

Source of Sample: B-27

**Date:** 12-12-05

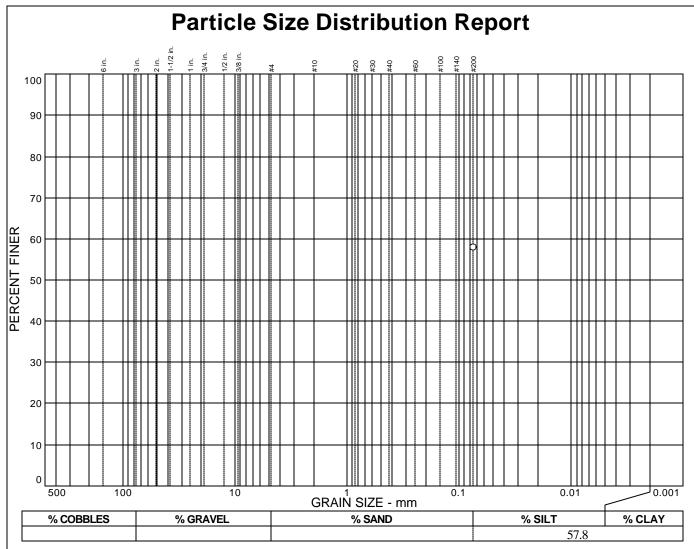
Elev./Depth:

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	57.8		

Soil Description  Dark greenish gray sandy Clay			
PL=	Atterberg Limi	<u>its</u> Pl=	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =	
USCS= CL	Classification AASI	<u>1</u> HTO=	
	<u>Remarks</u>		

**Date:** 12-12-05

Comple No - D27@40

(no specification provided)

Sample No.: B27@49' Source of Sample: B-27

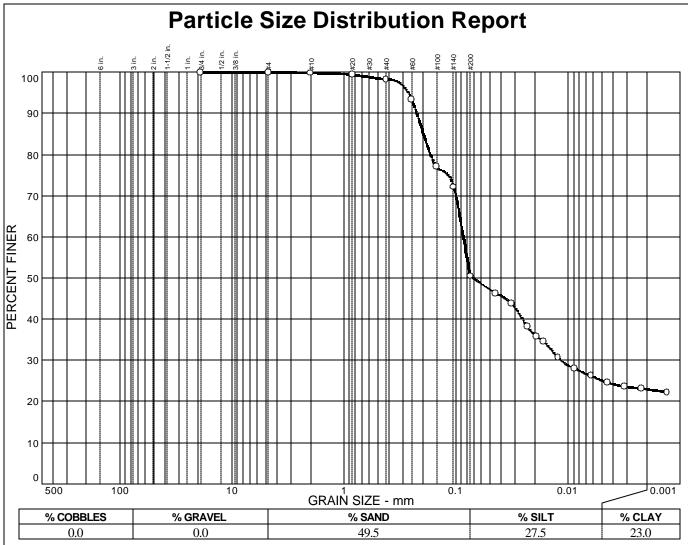
Location: Elev./Depth:

ENGEO GEOTECHNICAL AND GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
3/4 in. #4 #10 #20 #40 #60 #100 #140 #200	100.0 100.0 99.8 99.4 98.3 93.3 77.0 72.1 50.5		

Soil Description  Dark greenish gray sandy Clay to clayey Sand						
PL=	Atterberg Limits PL= LL= PI=					
D <sub>85</sub> = 0.197 D <sub>30</sub> = 0.0116 C <sub>u</sub> =	<u>Coefficients</u> D <sub>60</sub> = 0.0872 D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = 0.0706 D <sub>10</sub> =				
USCS= CL-SC	Classification AASHT	O=				
	<u>Remarks</u>					

Sample No.: B27@54' Location:

Source of Sample: B-27

**Date:** 12-12-05

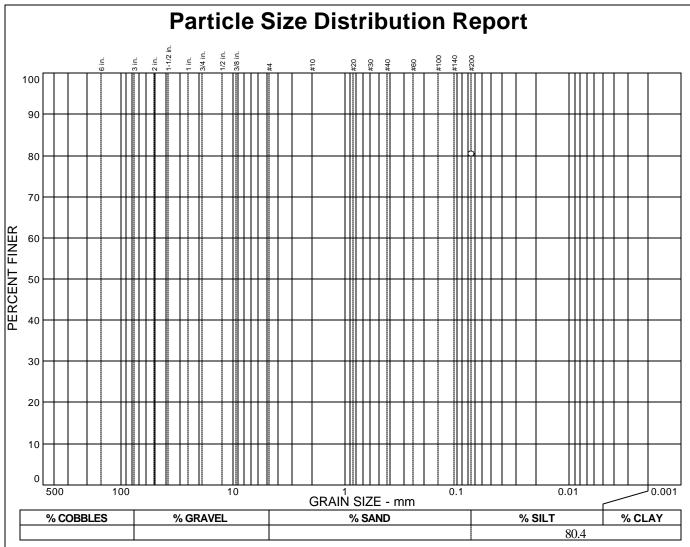
Elev./Depth:

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT (X=NO)	
#200	80.4		

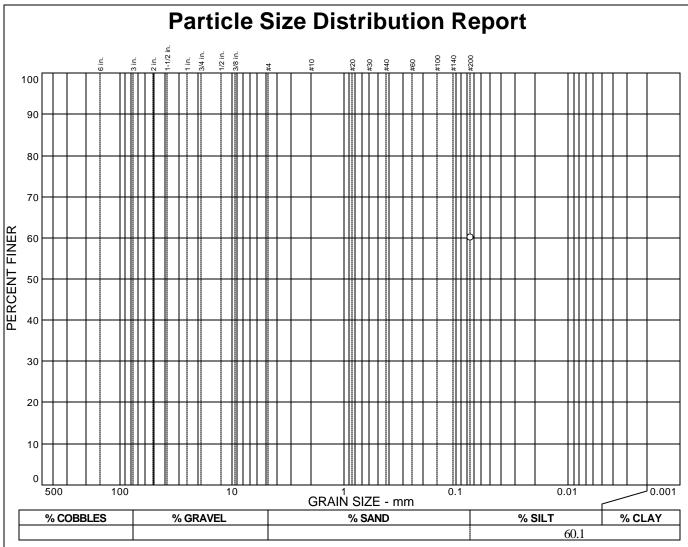
Soil Description  Dark greenish gray Clayey Silt with sand						
PL=	Atterberg Limits PL= LL= PI=					
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>C</sub> =	D <sub>50</sub> = D <sub>10</sub> =				
USCS= ML	Classification USCS= ML AASHTO=					
<u>Remarks</u>						

**Sample No.:** B27@59' Source of Sample: B-27 **Date:** 12-12-05

Location: Elev./Depth:

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS INCORPORATED MATERIALS TESTING Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	60.1		
*	: 6"	. 1)	

Soil Description  Dark grayish brown sandy silty Clay				
PL=	Atterberg Lin	nits Pl=		
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	$\begin{array}{c} \underline{\text{Coefficient}} \\ D_{60} = \\ D_{15} = \\ C_{\text{C}} = \end{array}$	<u>s</u> D <sub>50</sub> = D <sub>10</sub> =		
USCS= CL	Classification AAS	on BHTO=		
Remarks				

Sample No.: B28@6' Location:

Source of Sample: B-28

**Date:** 11-30-05 **Elev./Depth:** 6-6.5 ft.

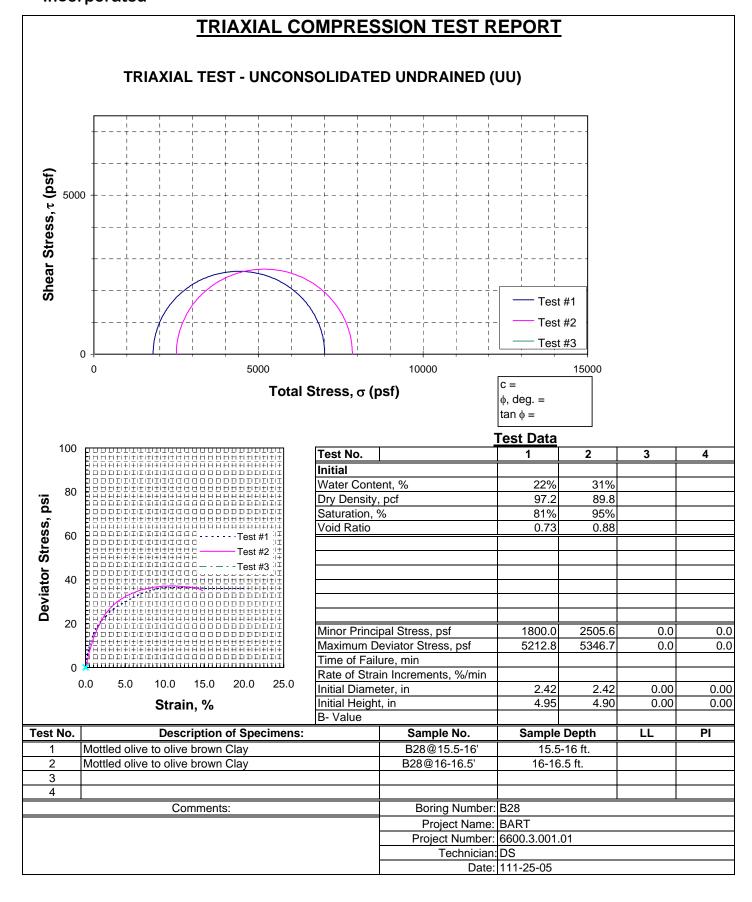
ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

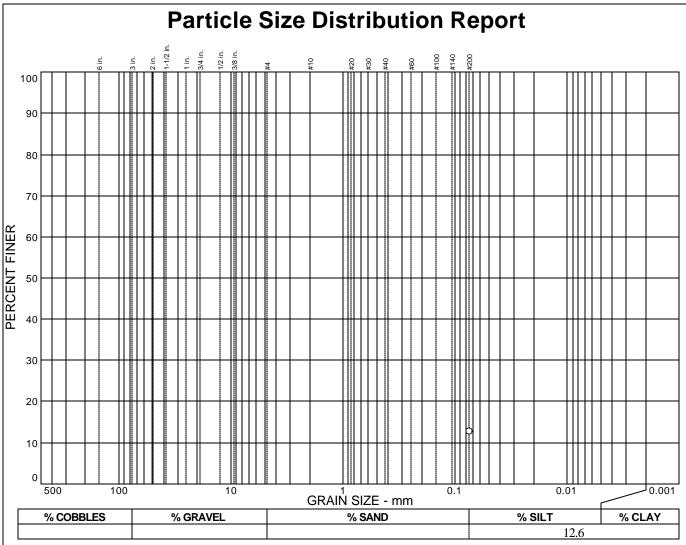
INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA







SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	12.6		
4			

Soil Description			
Grayish brown s	silty Sand		
PL=	Atterberg Limits	PI=	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	$\begin{array}{c} \underline{\text{Coefficients}}\\ \text{D}_{60} =\\ \text{D}_{15} =\\ \text{C}_{\text{C}} =\\ \end{array}$	D <sub>50</sub> = D <sub>10</sub> =	
USCS= SM	Classification AASHT	O=	
	<u>Remarks</u>		

 Sample No.:
 B28@11'
 Source of Sample: B-28
 Date: 12-2-05

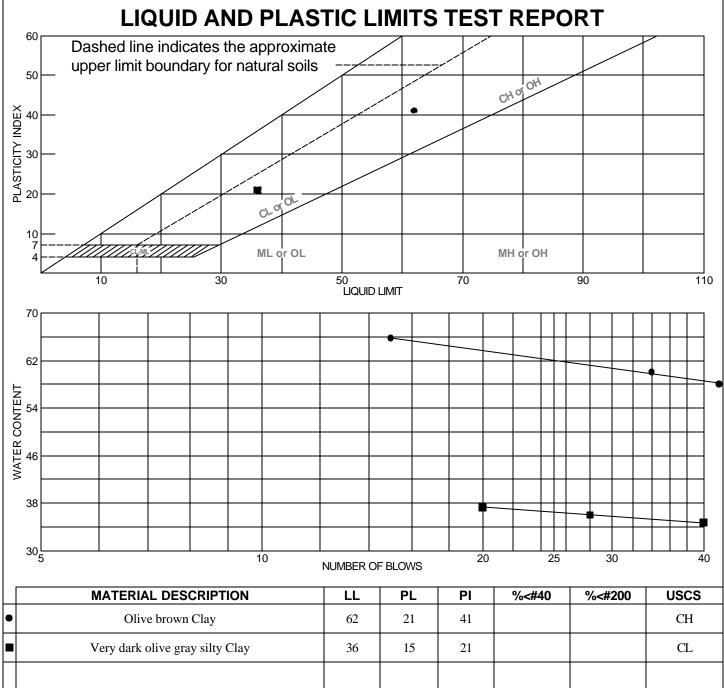
 Location:
 Elev./Depth: 10.5-11 ft.

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INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



l		MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
	•	Olive brown Clay	62	21	41			СН
		Very dark olive gray silty Clay	36	15	21			CL

**Project No.** 6600.3.001.01 Client:

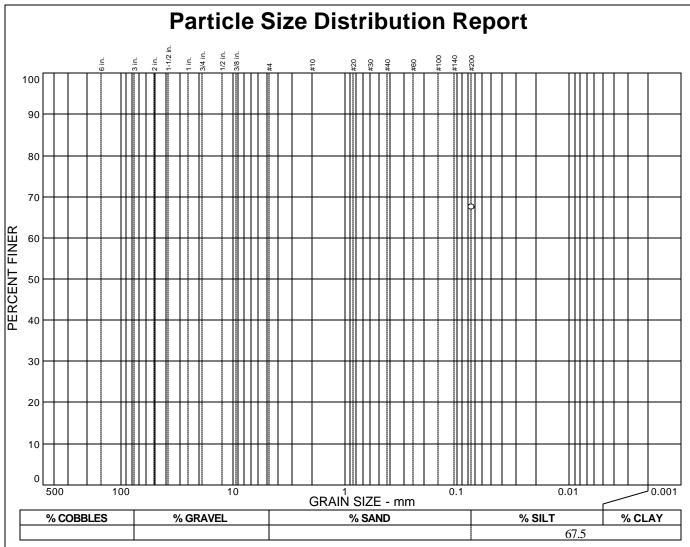
Project: BART-VTA Newhall Yard and Shops. San Jose, CA

• Source: B-28 **Sample No.:** B28@16-16.5 ■ Source: B-28 Sample No.: B28@51'

# GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING

#### Remarks:

- B28@16-16.5'
- B28@51'



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	67.5		
4			

Soil Description Olive brown sandy silty Clay				
PL=	Atterberg Lim	<u>its</u> Pl=		
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =		
USCS= CL	Classification USCS= CL AASHTO=			
<u>Remarks</u>				

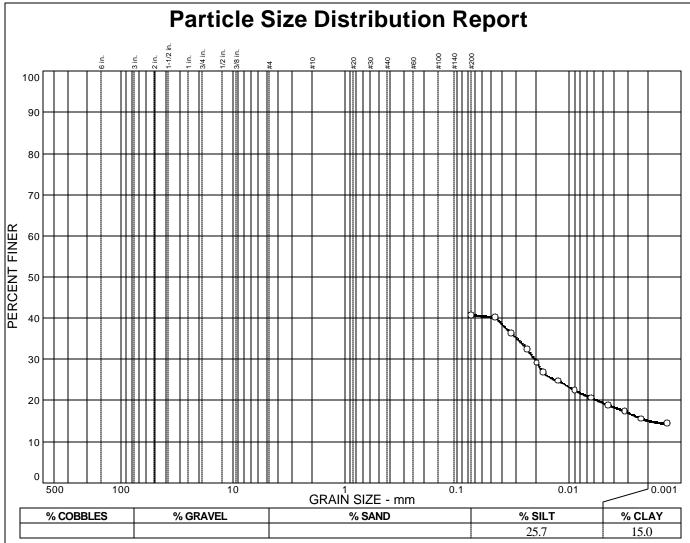
Sample No.: B28@25' Source of Sample: B-28 Date: 12-2-05 Location: Elev./Depth: 25 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	40.7		

Soil Description  Dark olive gray silty Sand				
PL=	Atterberg Limits	PI=		
D <sub>85</sub> = D <sub>30</sub> = 0.0204 C <sub>u</sub> =	$\begin{array}{c} \underline{\text{Coefficients}} \\ \text{D}_{60} = \\ \text{D}_{15} = 0.0020 \\ \text{C}_{\text{C}} = \end{array}$	D <sub>50</sub> = D <sub>10</sub> =		
USCS= SM	USCS= SM AASHTO=			
<u>Remarks</u>				

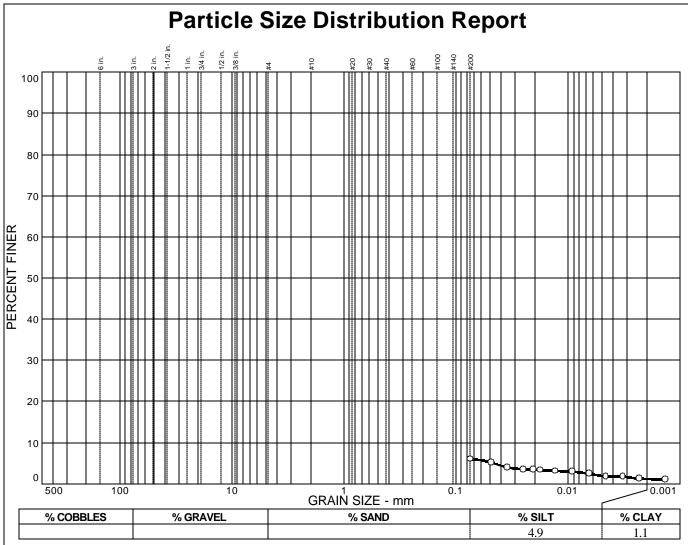
Sample No.: B28@26.5' Source of Sample: B-28 Date: 12-2-05

Location: Elev./Depth: 26.5 ft.



Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	6.0		
* ,	acification massid		

Soil Description  Very dark gray Sandy Gravel				
PL=	Atterberg Limit	ts Pl=		
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =		
USCS= GP	Classification USCS= GP AASHTO=			
<u>Remarks</u>				

**Sample No.:** B28@30'

**Source of Sample:** B-28

**Date:** 11-30-05 **Elev./Depth:** 30 ft.

Location:

Client:

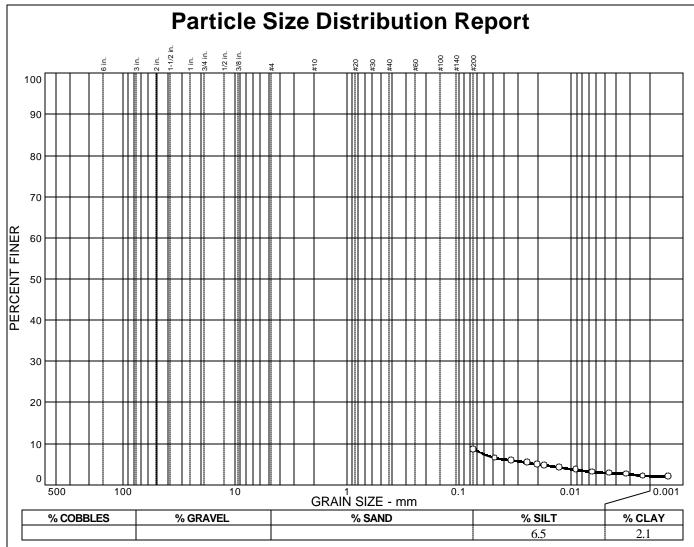
Project: BART-VTA Newhall Yard and Shops. San Jose, CA

LS TESTING

**Project No:** 6600.3.001.01

**ENGEO** 1

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	8.6		
*		. 1\	

Soil Description  Very dark olive brown Sand with gravel					
PL=	Atterberg Limits PL= LL= PI=				
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficient D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	<u>s</u> D <sub>50</sub> = D <sub>10</sub> =			
USCS= SP	Classification USCS= SP AASHTO=				
<u>Remarks</u>					

Sample No.: B28@35' Sou Location:

Source of Sample: B-28

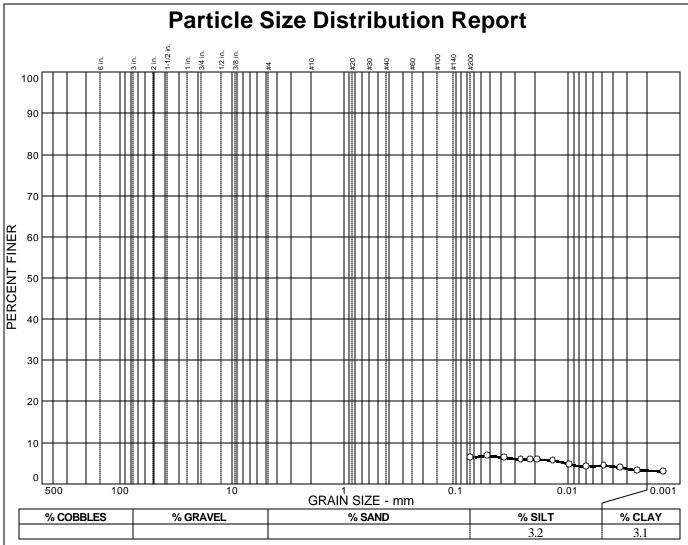
**Date:** 11-30-05 **Elev./Depth:** 35 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	6.3		(- 110)
*			

Brown Sand	Soil Description	<u>n</u>
PL=	Atterberg Limit	<u>ts</u> Pl=
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>C</sub> =	D <sub>50</sub> = D <sub>10</sub> =
USCS= SP	Classification AASH	
	<u>Remarks</u>	

Sample No.: B28@45' Source of Sample: B-28 Date: 12-2-05

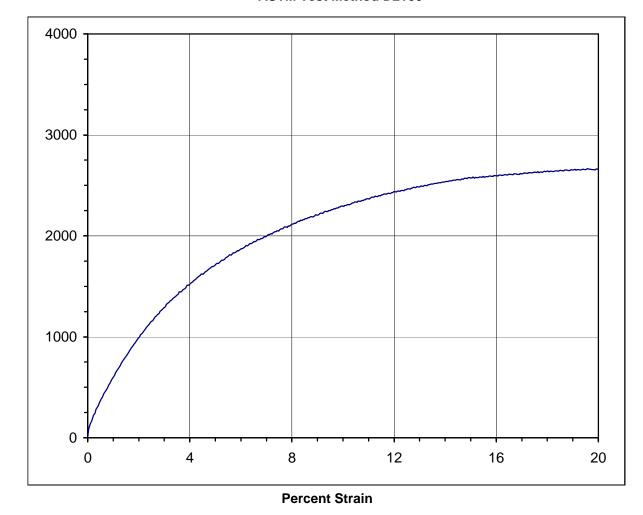
Location: Elev./Depth: 45 ft.



Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA





Unconfined Compressive Strength: 2660 psf 1.3 tsf

Sample Description: Dark greenish gray Clay

**Initial Diameter:** 2.420 in. Sample Number: B28@56' Initial Height: 5.00 in. **Dry Unit Weight:** 103.9 pcf Strain Rate: **Moisture Content:** % 1.489 %/min 23.3 **Total Strain:** 20.06 % Depth of Sample: 56.0 ft.

**ENGEO**INCORPORATED

Axial pressure (psf)

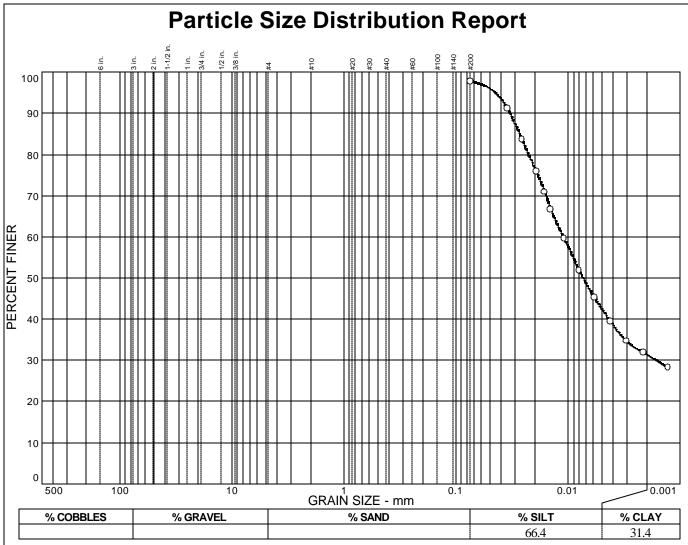
**BART-VTA** 

Newhall Yard and Shops. San Jose, CA

Job		
No.:	6600.3.001.01	
Sample	B28@56'	
N I I	D20@30	

Figure No.

Number: 12/14/2005



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	97.8		
*			

Soil Description  Very dark olive gray Clayey Silt		
PL=	Atterberg Limits LL=	PI=
D <sub>85</sub> = 0.0274 D <sub>30</sub> = 0.0016 C <sub>u</sub> =	Coefficients D <sub>60</sub> = 0.0111 D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = 0.0074 D <sub>10</sub> =
Classification USCS= ML AASHTO=		
	<u>Remarks</u>	

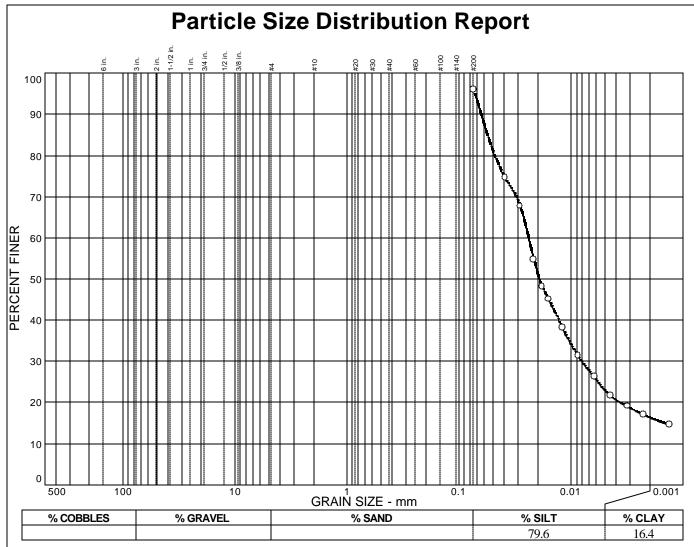
Sample No.: B28@60' Source of Sample: B-28 Location:

**f Sample:** B-28 **Date:** 12-2-05 **Elev./Depth:** 60-61 ft.



Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	96.0		

Soil Description			
Mottled very dark gray and olive brown Clayey Silt. Trace sand			
PL=	Atterberg Limits LL=	Pl=	
D <sub>85</sub> = 0.0561 D <sub>30</sub> = 0.0081 C <sub>u</sub> =	Coefficients D60= 0.0241 D15= 0.0015 C <sub>C</sub> =	D <sub>50</sub> = 0.0194 D <sub>10</sub> =	
USCS= ML AASHTO=			
<u>Remarks</u>			

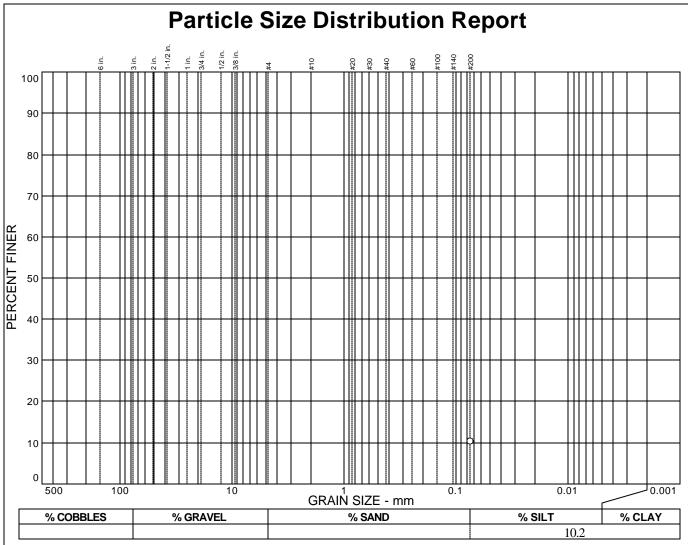
Sample No.: B28@61' Source of Sample: B-28 Date: 12-2-05
Location: Elev./Depth: 61-61.5'

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INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	10.2		
* (	C'	. 1)	

Soil Description  Dark olive brown Sand. Trace silt		
PL=	Atterberg Limits	<u>s</u> Pl=
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =
Classification USCS= SP AASHTO=		
<u>Remarks</u>		

Sample No.: B28@67' Location:

Source of Sample: B-28

**Date:** 12-2-05 **Elev./Depth:** 67-68.5 ft.

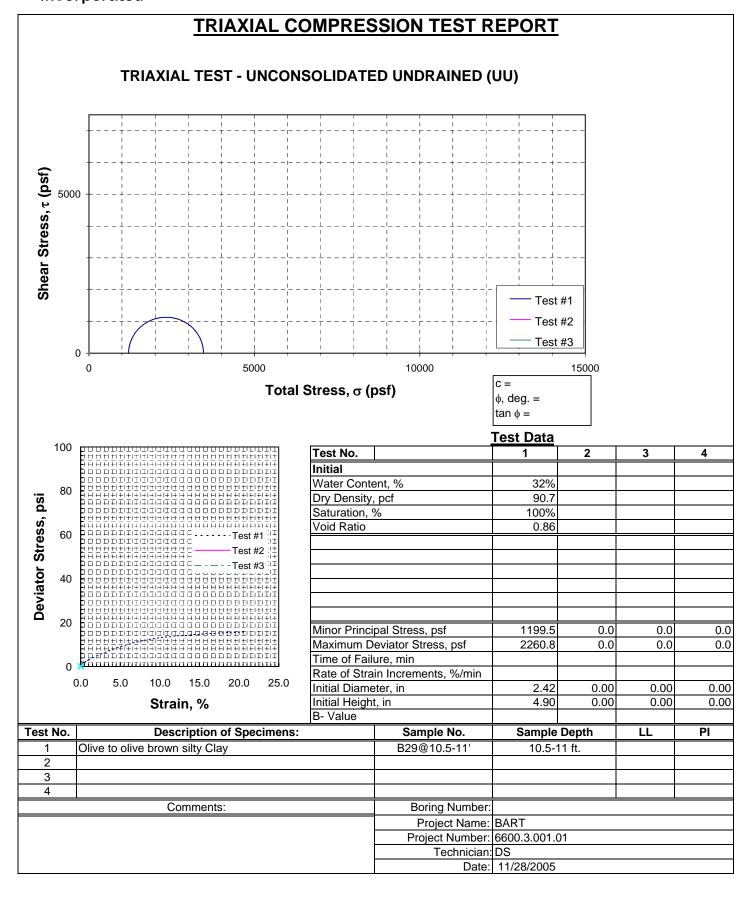
ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

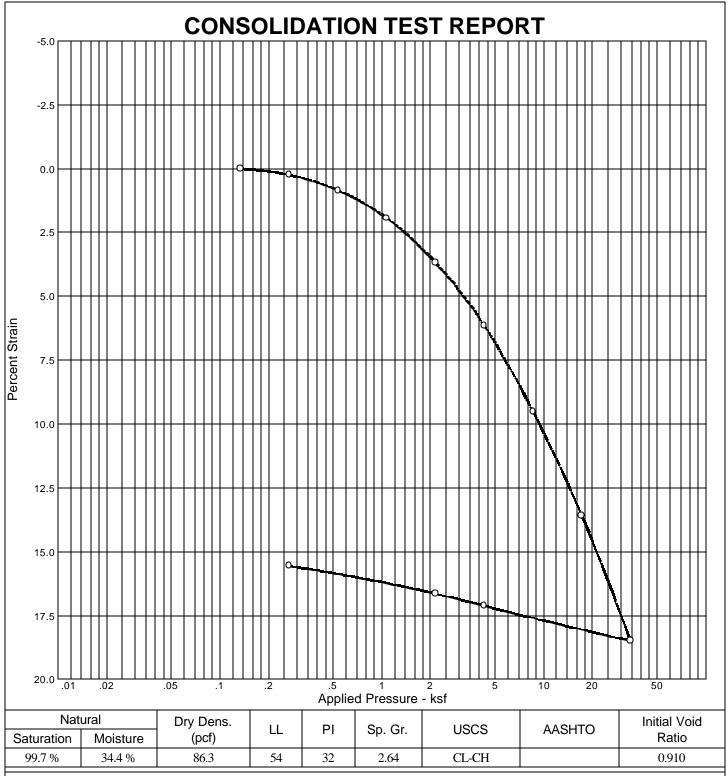
INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA







### **MATERIAL DESCRIPTION**

Remarks:

Dark yellowish brown silty Clay

Project N	<b>lo.</b> 6600.3.001.01	Client:
Project:	BART-VTA Newhall	Yard and Shops. San Jose, CA

Source: B-29 Sample No.: B29@11'

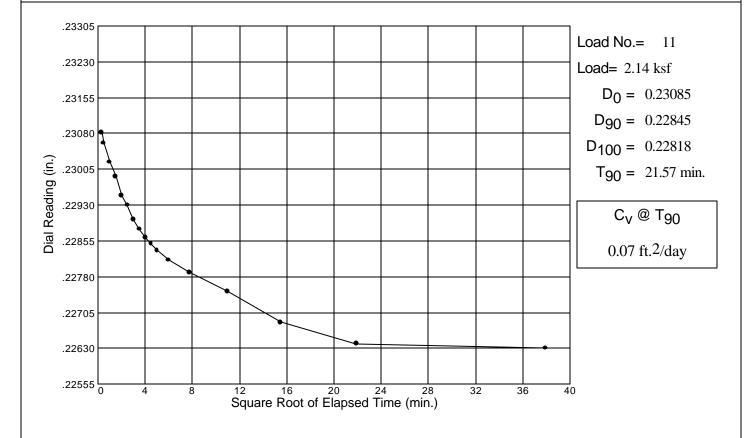


GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING

## **Dial Reading vs. Time**

Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Source: B-29 Sample No.: B29@11'

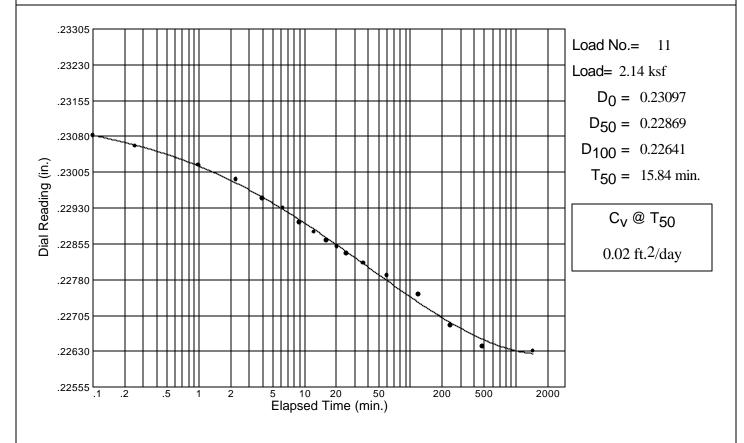


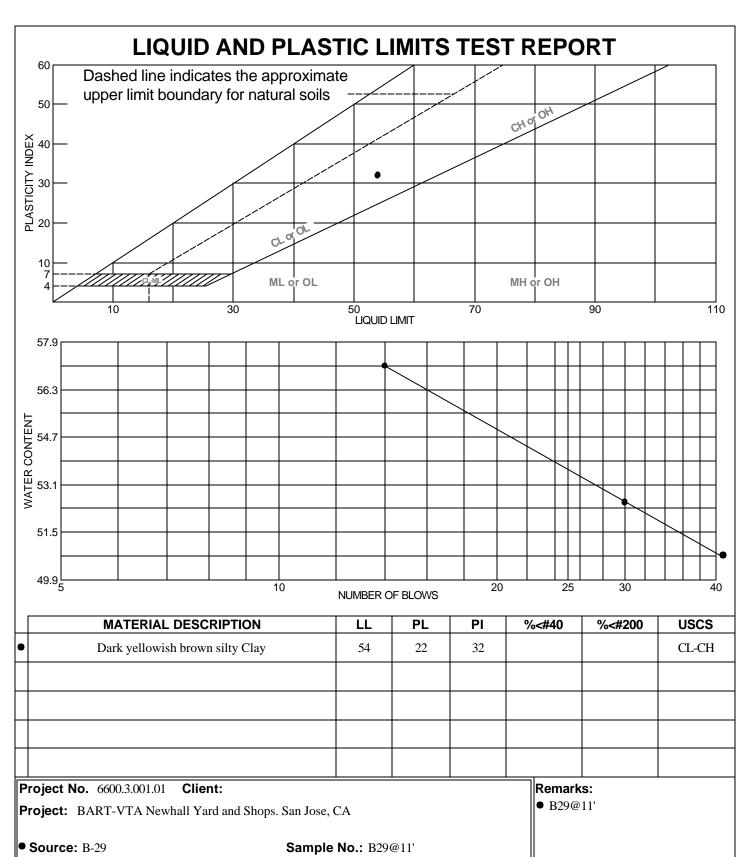
ENGEO, INC.

# Dial Reading vs. Time

Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

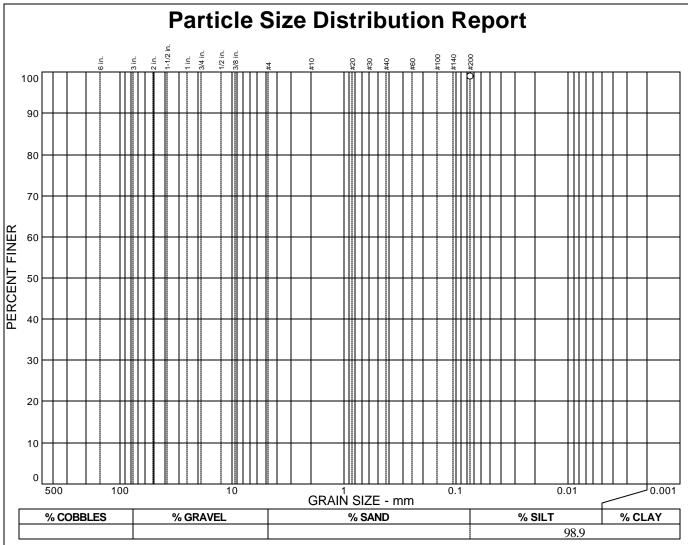
Source: B-29 Sample No.: B29@11'











SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	98.9		

Soil Description  Dark grayish brown Clayey SILT		
PL=	Atterberg Limits	<u>s</u> Pl=
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	$\begin{array}{c} \underline{\text{Coefficients}} \\ \text{D}_{60} = \\ \text{D}_{15} = \\ \text{C}_{\text{C}} = \end{array}$	D <sub>50</sub> = D <sub>10</sub> =
USCS= ML	Classification AASH	ГО=
	<u>Remarks</u>	

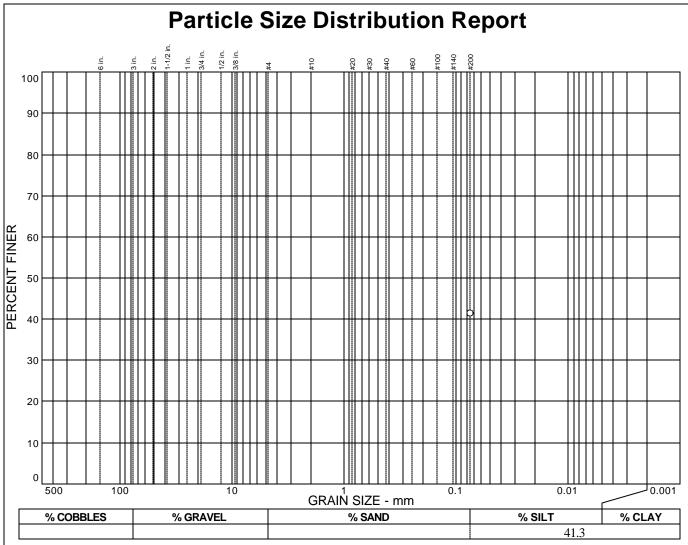
Sample No.: B29@16.5 Source of Sample: B-29 Date: 12-15-05 Location: Elev./Depth: 16.5 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



PERCENT	SPEC.*	PASS?
FINER	PERCENT	(X=NO)
41.3		
	FINER	FINER PERCENT

Soil Description Olive brown silty Sand		
=		
0= 0=		

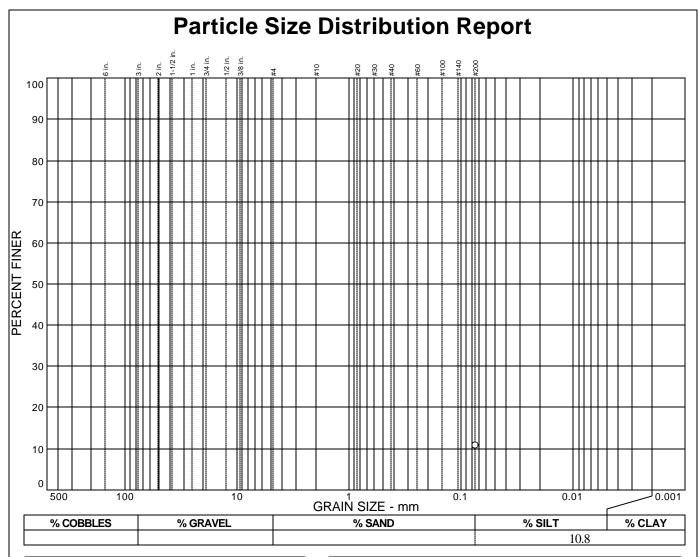
Sample No.: B29@23' Source of Sample: B-29 Date: 12-15-05 Location: Elev./Depth: 23 ft.

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INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	10.8		
*			

Soil Description				
Dark olive brow	Dark olive brown Sand with silt and gravel			
	Atterberg Limi			
PL=	LL=	PI=		
	Coefficients			
D <sub>85</sub> =	P <sub>60</sub> =	D <sub>50</sub> = D <sub>10</sub> =		
D <sub>30</sub> =	D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>10</sub> =		
o <sub>u</sub> −	C <sub>C</sub> -			
	Classification			
USCS= SP	AASI	HTO=		
	<u>Remarks</u>			

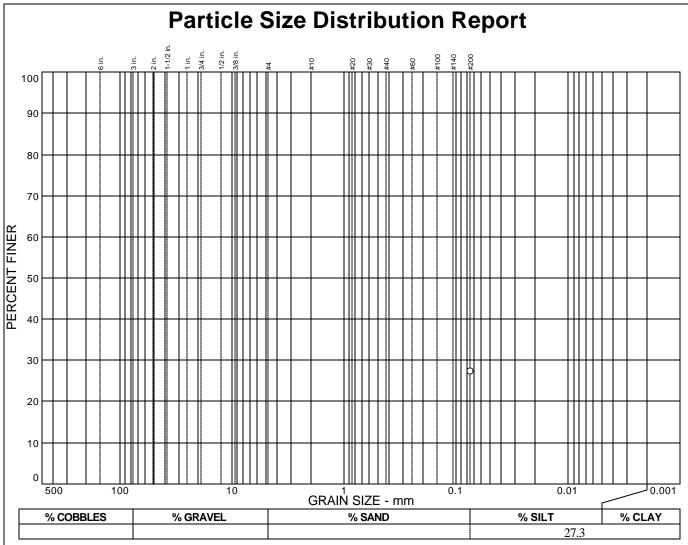
Sample No.: B29@23.5' Source of Sample: B-29 Date: 12-15-05 Location: Elev./Depth: 23.5 ft.

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INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	27.3		
*			

Soil Description  Dark olive brown silty Sand		
PL=	Atterberg Lim LL=	<u>its</u> Pl=
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =
USCS= SM	Classification AASI	<u>n</u> HTO=
	<u>Remarks</u>	

Sample No.: B29@24'
Location:

Source of Sample: B-29

**Date:** 12-15-05 **Elev./Depth:** 24 ft.

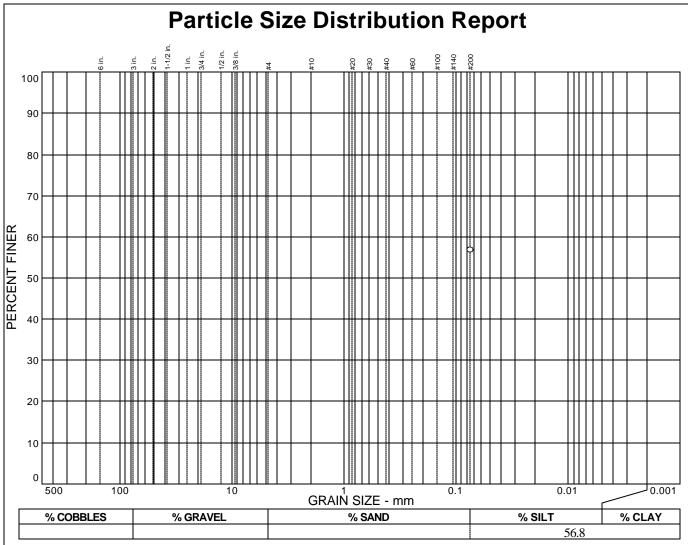
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INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	56.8		
4			

	Soil Description	
Olive gray sandy Clay		
PL=	Atterberg Limits LL=	PI=
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =
USCS= CL	Classification AASHT	O=
	<u>Remarks</u>	

Sample No.: B29@25'
Location:

Source of Sample: B-29

**Date:** 12-15-05 **Elev./Depth:** 25 ft.

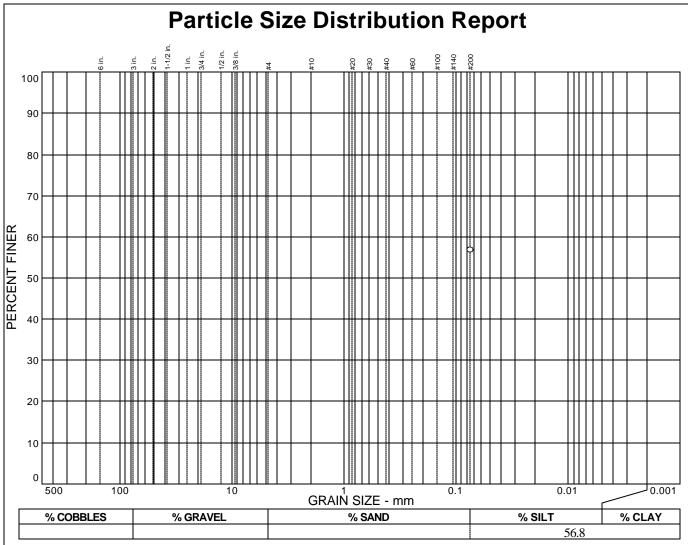
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ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



PERCENT	SPEC.*	PASS?
FINER	PERCENT	(X=NO)
56.8		
	FINER	FINER PERCENT

	Soil Description		
Olive gray sand	Olive gray sandy Clay		
PL=	Atterberg Limits LL=	Pl=	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =	
USCS= CL	Classification AASHT0	)=	
	<u>Remarks</u>		

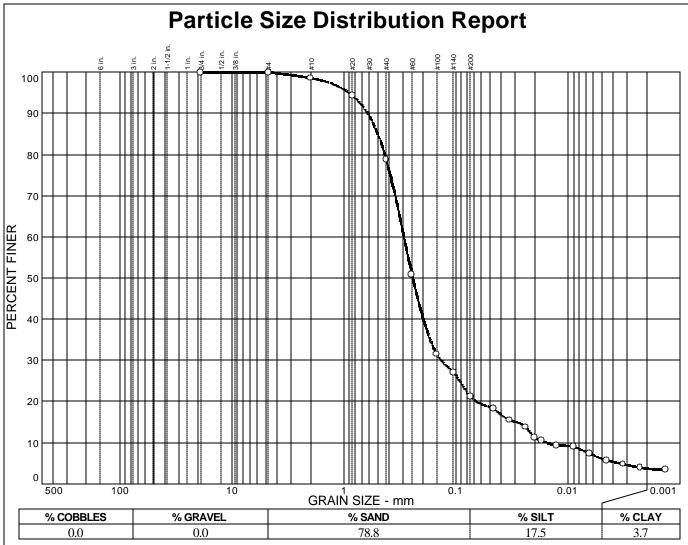
Sample No.: B29@26 Source of Sample: B-29 Date: 12-15-05 Location: Elev./Depth: 26 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
3/4 in. #4 #10 #20 #40 #60 #100 #140 #200	100.0 100.0 98.6 94.4 78.8 50.9 31.5 27.0 21.2		

Soil Description  Dark olive gray silty Sand					
PL=	Atterberg Limits	PI=			
D <sub>85</sub> = 0.505 D <sub>30</sub> = 0.137 C <sub>u</sub> = 18.96	$\begin{array}{c} \underline{\text{Coefficients}} \\ \text{D}_{60} = 0.295 \\ \text{D}_{15} = 0.0294 \\ \text{C}_{\text{C}} = 4.08 \end{array}$	D <sub>50</sub> = 0.246 D <sub>10</sub> = 0.0156			
USCS= SM	Classification USCS= SM AASHTO=				
<u>Remarks</u>					

Sample No.: B29@30' Location:

Source of Sample: B-29

**Date:** 12-15-05 **Elev./Depth:** 30 ft.

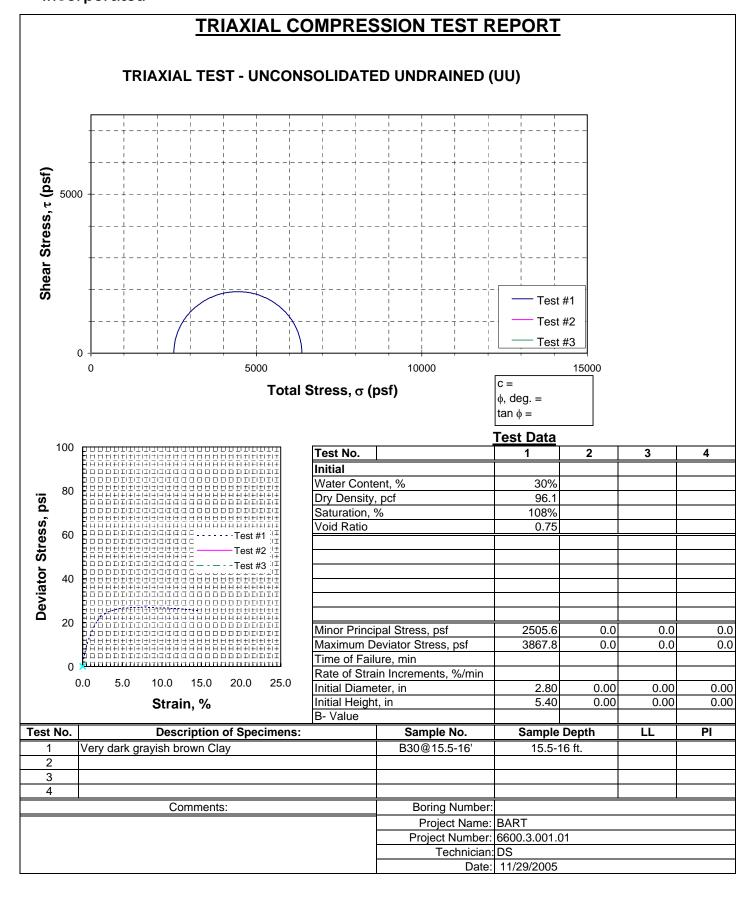
ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

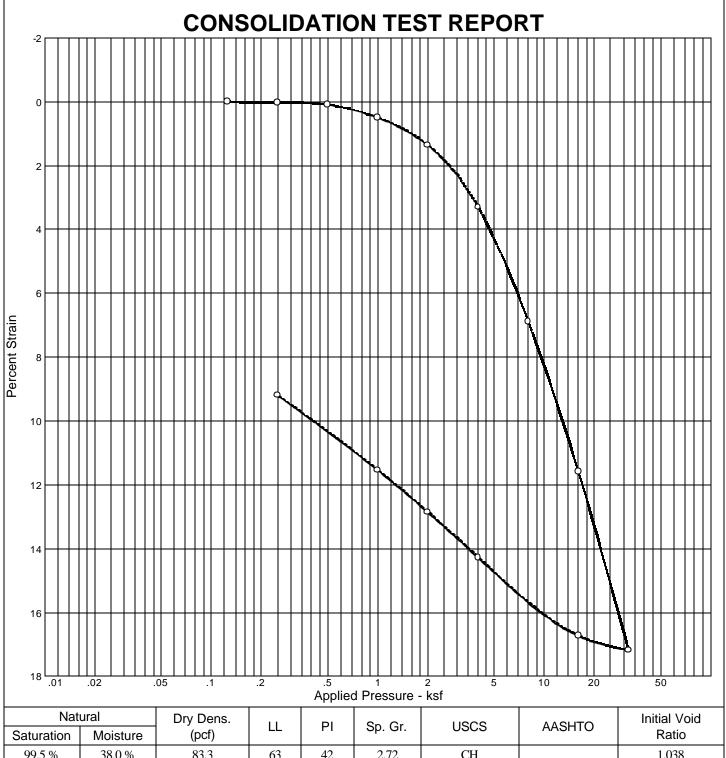
INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA







Natural		Dry Dens.		DI	Sp. Gr.	USCS	AASHTO	Initial Void
Saturation	Moisture	(pcf)		FI	Sp. Gr.	0303	AASHTO	Ratio
99.5 %	38.0 %	83.3	63	42	2.72	СН		1.038

### **MATERIAL DESCRIPTION**

Very dark grayish brown Clay

**Project No.** 6600.3.001.01 Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Source: B-30 **Sample No.:** B30@15'

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING

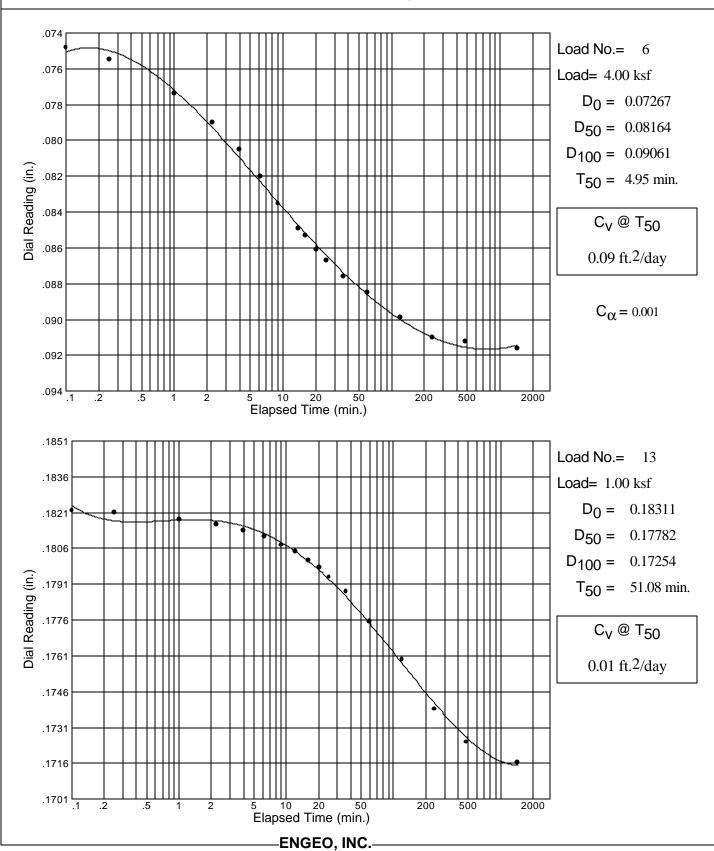
Remarks:

Sample swelled at 500 psf loading

## Dial Reading vs. Time

Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

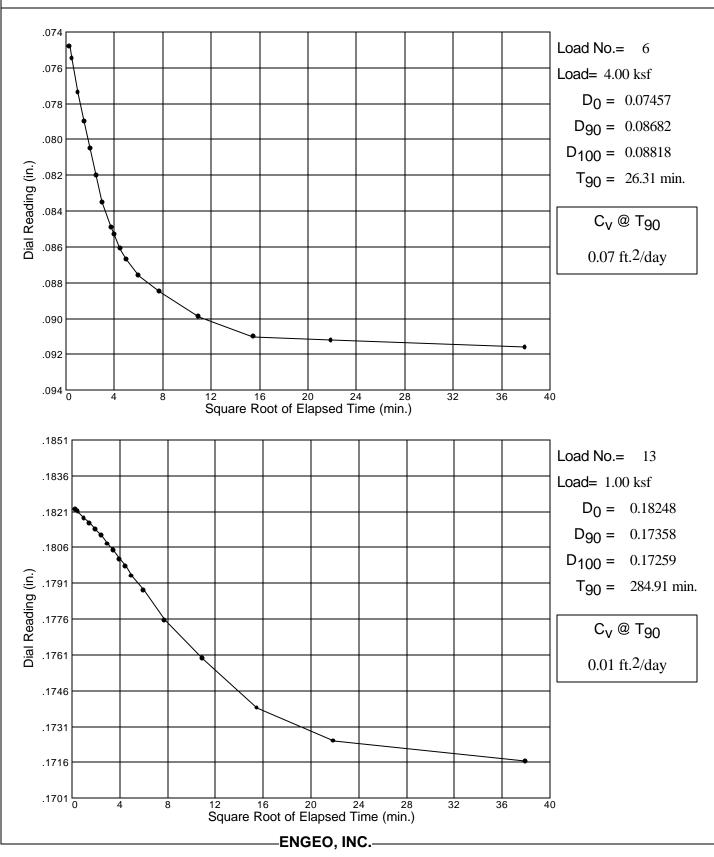
Sample No.: B30@15' Source: B-30

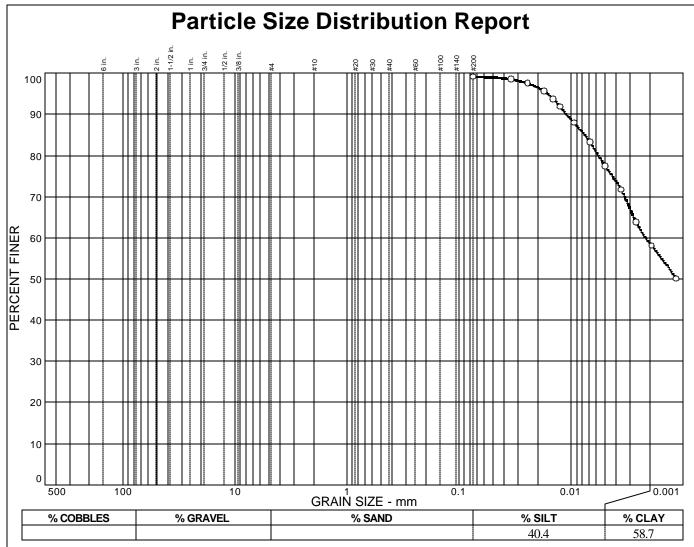


## Dial Reading vs. Time

Project No.: 6600.3.001.01 Project: BART-VTA Newhall Yard and Shops. San Jose, CA

Source: B-30 Sample No.: B30@15'





SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	99.1		

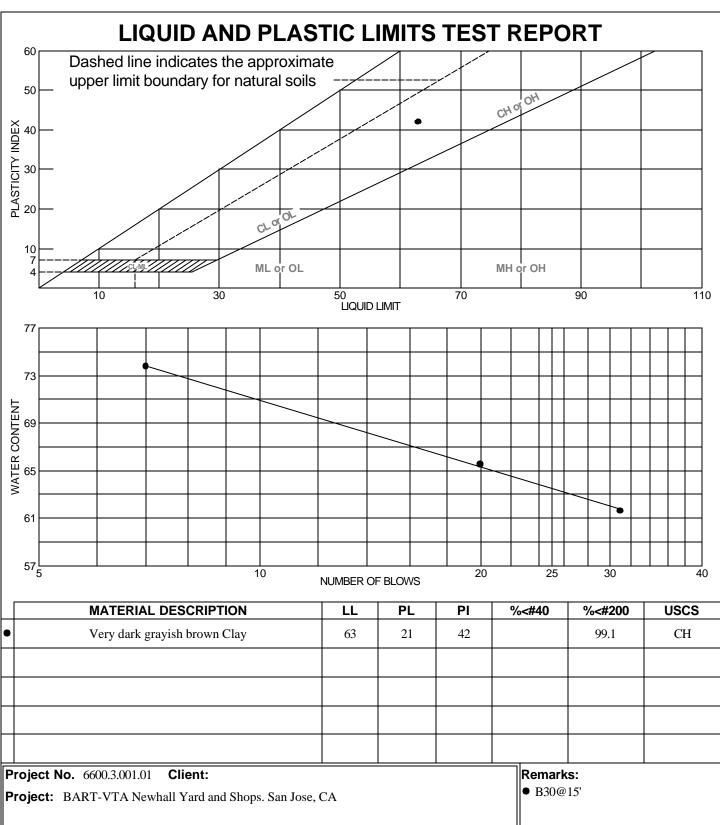
Soil Description  Very dark grayish brown Clay					
PL= 21	Atterberg Limits	PI= 42			
D <sub>85</sub> = 0.0076 D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = 0.0022 D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =			
USCS= CH	Classification USCS= CH AASHTO=				
<u>Remarks</u>					

**Sample No.:** B30@15' Source of Sample: B-30

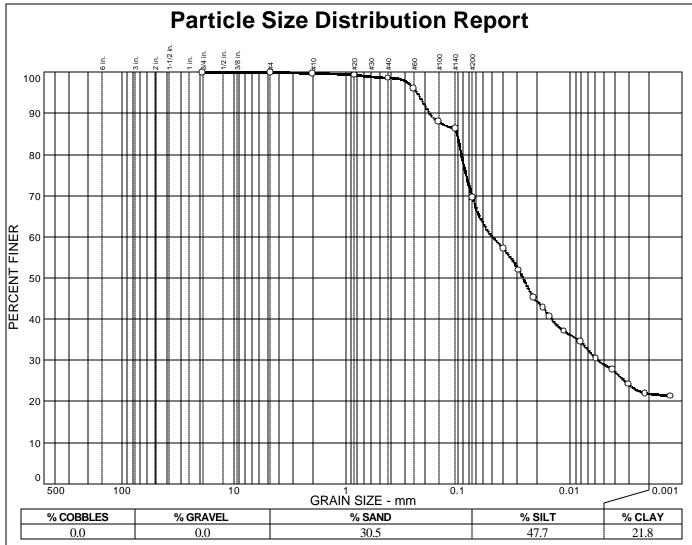
**Date:** 11-28-05 Location: Elev./Depth:

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS INCORPORATED MATERIALS TESTING Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA







SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
3/4 in. #4 #10 #20 #40 #60 #100 #140 #200	100.0 100.0 99.7 99.3 98.6 96.1 88.1 86.4 69.5		

30.3	47.7	21.0			
Soil Description  Dark greenish gray sandy Silt					
PL=	Atterberg Limits LL=	PI=			
D <sub>85</sub> = 0.103 D <sub>30</sub> = 0.0057 C <sub>u</sub> =	Coefficients D <sub>60</sub> = 0.0496 D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = 0.0267 D <sub>10</sub> =			
USCS= ML	Classification AASHT	O=			
	<u>Remarks</u>				

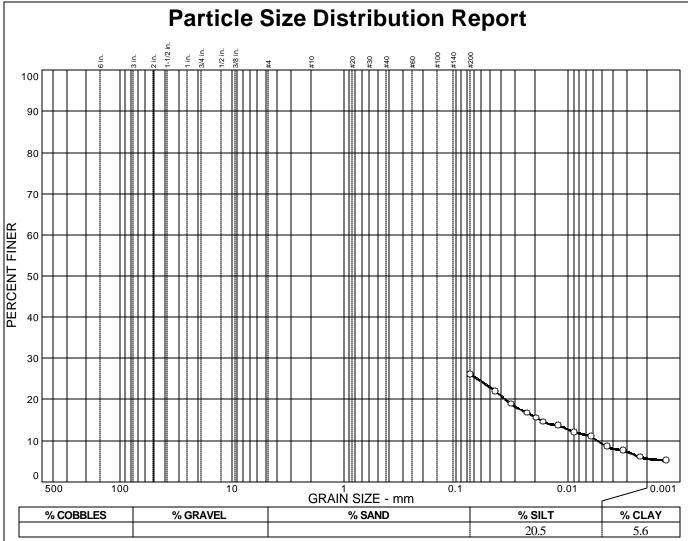
Sample No.: B30@23' Source of Sample: B-30 Date: 12-29-05 Location: Elev./Depth: 23 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	26.1		
*			

Soil Description  Very dark gray silty Sand					
PL=	Atterberg Limits LL=	PI=			
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	$\begin{array}{c} \underline{\text{Coefficients}} \\ \text{D}_{60} = \\ \text{D}_{15} = 0.0179 \\ \text{C}_{\text{C}} = \end{array}$	D <sub>50</sub> = D <sub>10</sub> = 0.0055			
USCS= SM	Classification USCS= SM AASHTO=				
<u>Remarks</u>					

Sample No.: B30@29' Sourc

**Source of Sample:** B-30

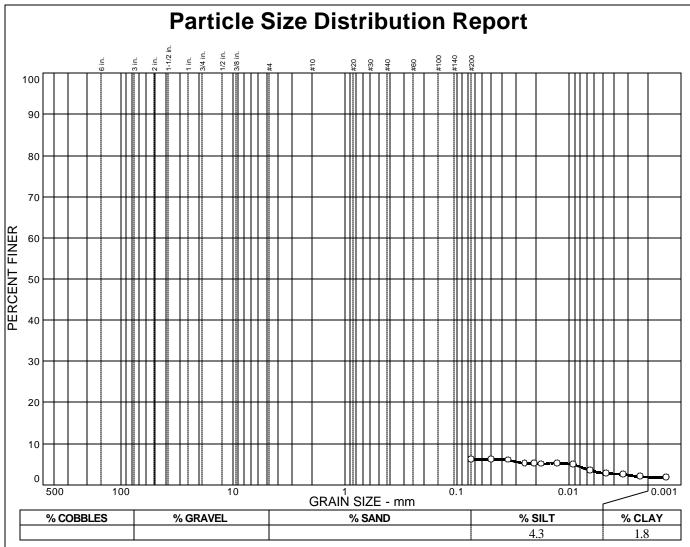
**Date:** 12-29-05 **Elev./Depth:** 29 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



PERCENT	SPEC.*	PASS?
FINER	PERCENT	(X=NO)
6.1		
	FINER	FINER PERCENT

Soil Description Olive brown Sand with silt				
PL=	Atterberg Lim	<u>its</u> Pl=		
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =		
USCS= SP	Classificatio AAS	<u>n</u> HTO=		
<u>Remarks</u>				

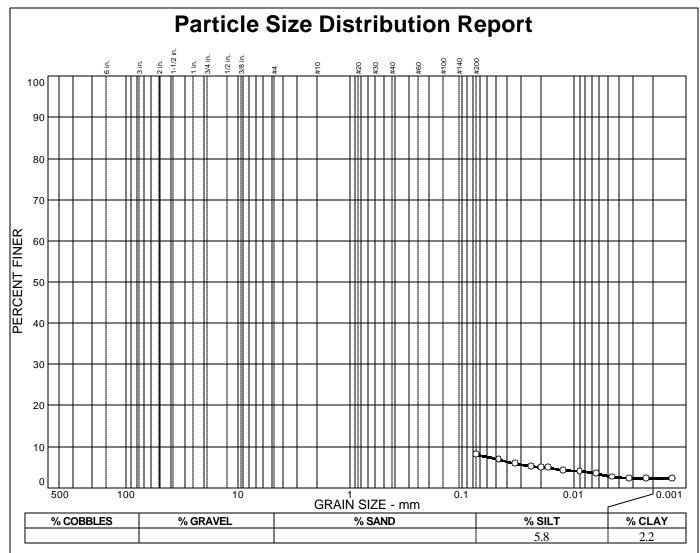
Sample No.: B30@34' Source of Sample: B-30 Date: 12-29-05 Location: Elev./Depth: 34 ft.

ENGEO GEOTECHNICAL AND GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	8.0		
*	acification mayid		

Soil Description			
Dark olive brow	wn Sand with sand	and gravel	
	Atterberg Lim		
PL=	LL=	Pl=	
	Coefficients		
D <sub>85</sub> =	D <sub>60</sub> =	D <sub>50</sub> =	
D <sub>30</sub> =	D <sub>15</sub> =	D <sub>10</sub> =	
C <sub>u</sub> =	C <sub>C</sub> =		
	<u>Classification</u>		
USCS= SP	AASI	HTO=	
<u>Remarks</u>			

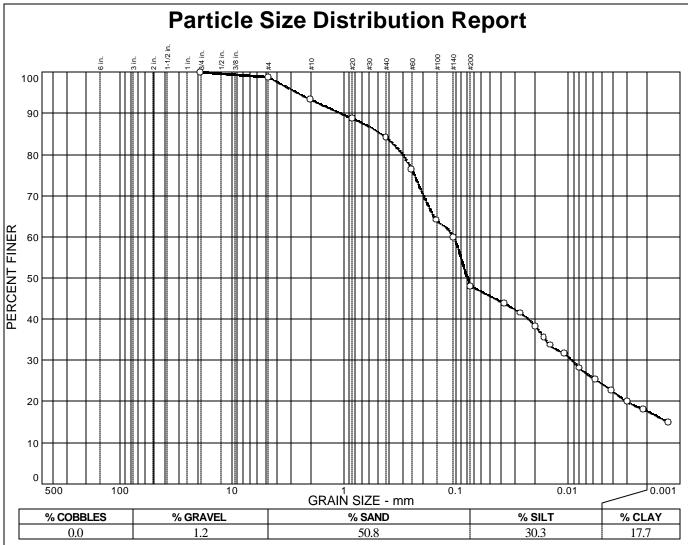
Sample No.: B30@39' Source of Sample: B-30 Date: 12-29-05 Location: Elev./Depth: 39 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
3/4 in. #4 #10 #20 #40 #60 #100 #140 #200	100.0 98.8 93.4 88.8 84.2 76.3 64.1 59.9 48.0		

2010				
Soil Description  Dark brown silty Sand				
PL=	Atterberg Limits LL=	PI=		
D <sub>85</sub> = 0.466 D <sub>30</sub> = 0.0093 C <sub>u</sub> =	Coefficients D <sub>60</sub> = 0.106 D <sub>15</sub> = 0.0013 C <sub>c</sub> =	D <sub>50</sub> = 0.0798 D <sub>10</sub> =		
USCS= SM	Classification AASHTO	D=		
	<u>Remarks</u>			

Sample No.: B31@4'
Location:

Source of Sample: B-31

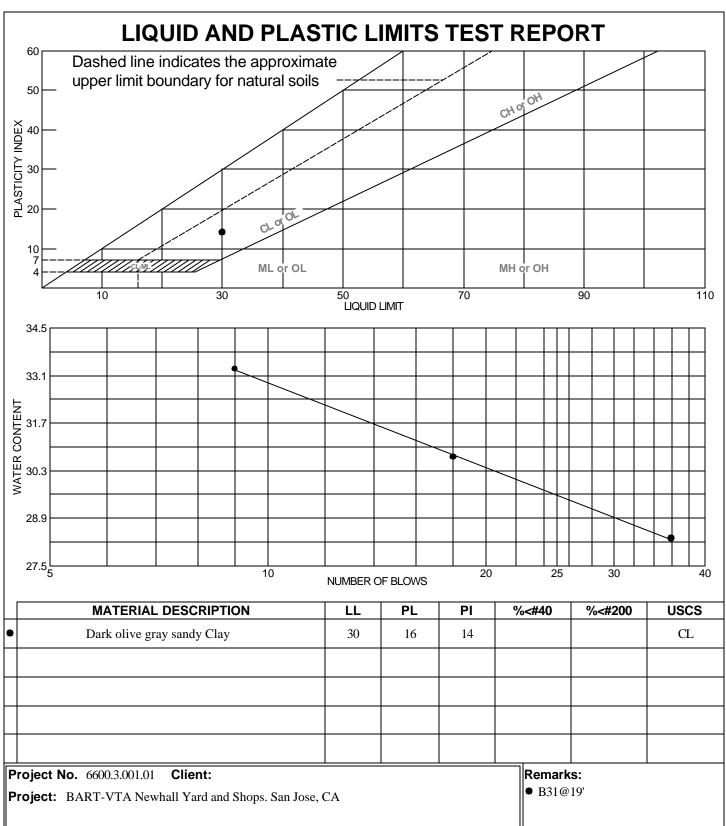
**Date:** 12-15-05 **Elev./Depth:** 4 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

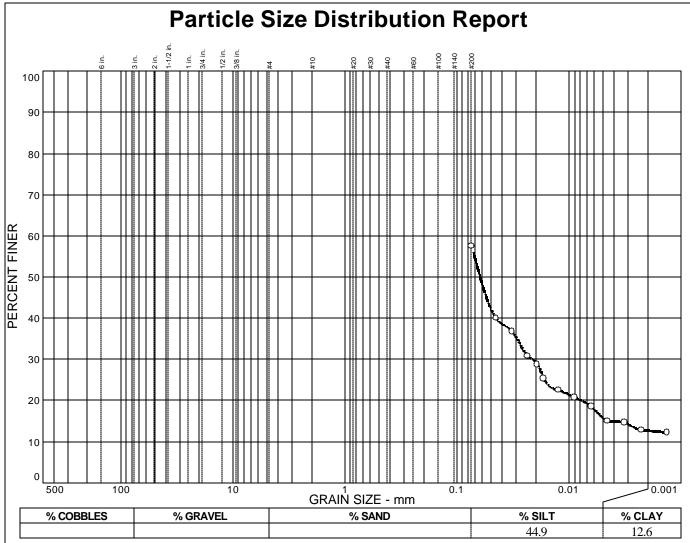
INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA







SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	57.5		

Soil Description  Dark olive gray sandy Silt			
PL=	Atterberg Limits	PI=	
D <sub>85</sub> = D <sub>30</sub> = 0.0213 C <sub>u</sub> =	Coefficients D60= D15= 0.0046 C <sub>C</sub> =	D <sub>50</sub> = 0.0629 D <sub>10</sub> =	
USCS= ML	Classification AASHT	O=	
	<u>Remarks</u>		

Sample No.: B31@20' Location:

INCORPORATED

Source of Sample: B-31

Client:

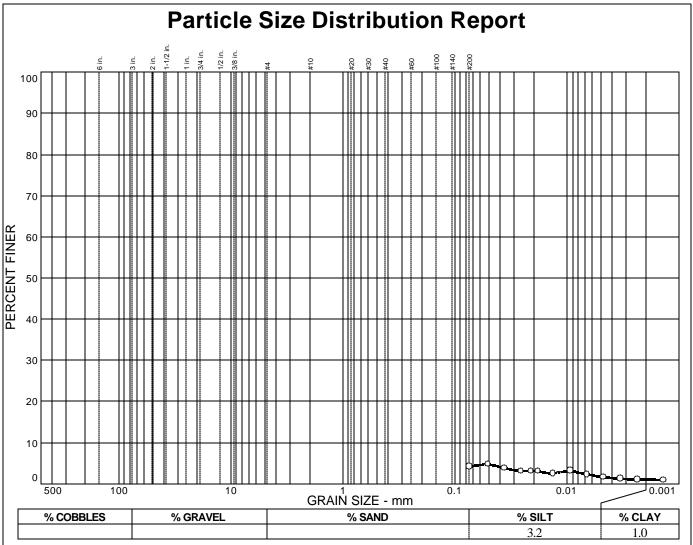
**Date:** 12-15-05 **Elev./Depth:** 20 ft.

ENGEO GEOTECHNIC

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

MATERIALS TESTING

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	4.2		
*			

Soil Description  Dark olive gray Sand with silt				
PL=	Atterberg Limi	<u>ts</u> Pl=		
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =		
USCS= SP	Classification USCS= SP AASHTO=			
<u>Remarks</u>				

Sample No.: B31@23' Location:

**Source of Sample:** B-31

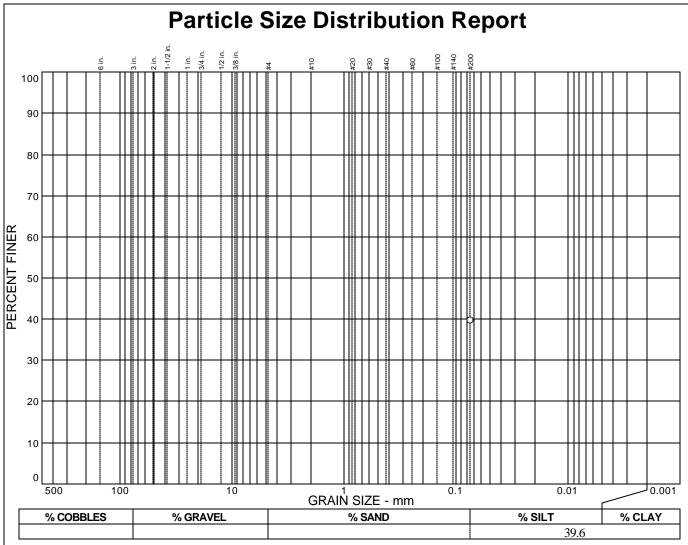
**Date:** 12-15-05 **Elev./Depth:** 23 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	39.6		

Soil Description Very dark gray silty Sand			
PL=	Atterberg Limi	<u>ts</u> Pl=	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =	
USCS= SM	USCS= SM AASHTO=		
<u>Remarks</u>			

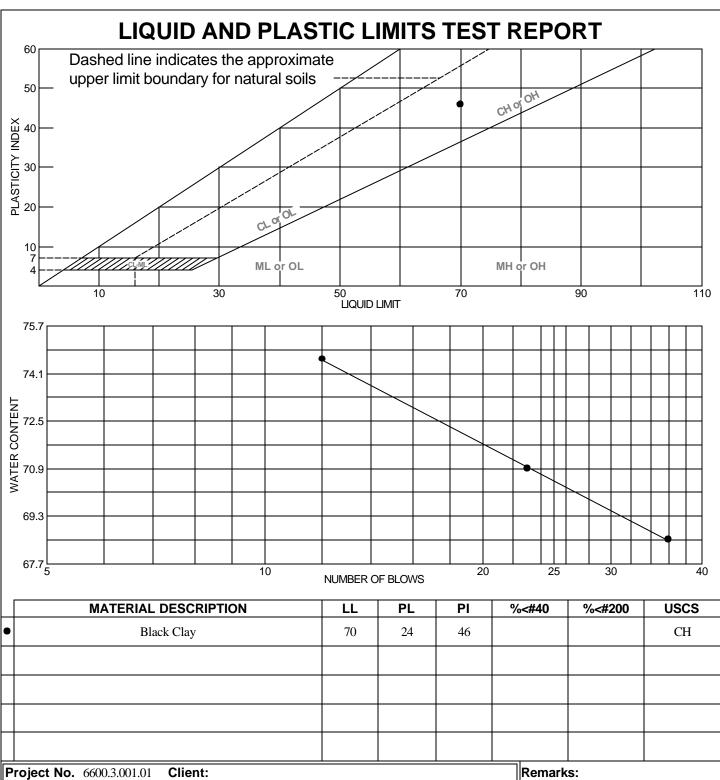
Sample No.: B31@31' Source of Sample: B-31 Date: 12-15-05 Location: Elev./Depth: 31 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



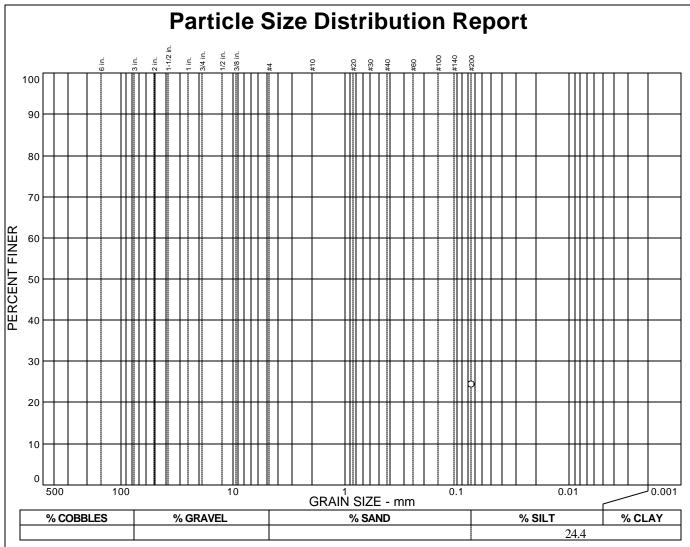
Project: BART-VTA Newhall Yard and Shops. San Jose, CA

• Source: B-37 **Sample No.:** B37@15'

• B37@15'



GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING



PERCENT	SPEC.*	PASS?
FINER	PERCENT	(X=NO)
24.4		
	FINER	FINER PERCENT

Soil Description  Dark yellowish brown silty Sand			
PL=	Atterberg Lin	nits Pl=	
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficient D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	<u>s</u> D <sub>50</sub> = D <sub>10</sub> =	
USCS= SM	USCS= SM Classification AASHTO=		
<u>Remarks</u>			

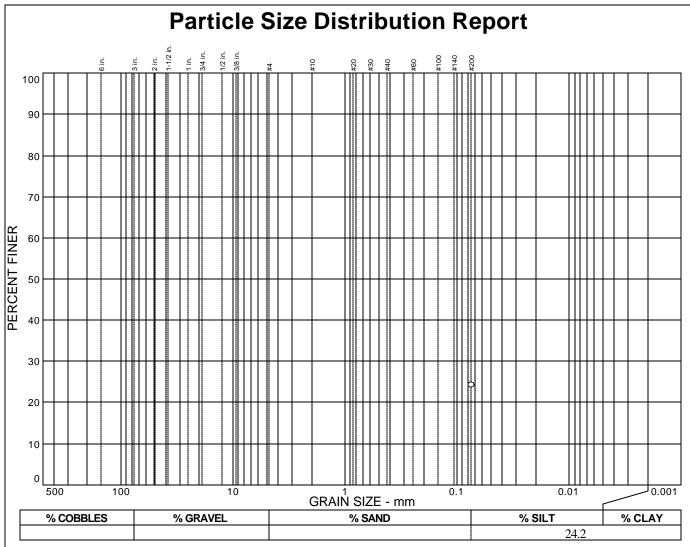
Sample No.: B37@30' Source of Sample: B-37 Date: 12-19-05 Location: Elev./Depth: 30 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	24.2		

Yellowish brow	Soil Description silty Sand	<u>on</u>
PL=	Atterberg Limi	i <u>ts</u> Pl=
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>C</sub> =	D <sub>50</sub> = D <sub>10</sub> =
USCS= SM	Classification AASH	
	<u>Remarks</u>	

Sample No.: B37@36'
Location:

INCORPORATED

Source of Sample: B-37

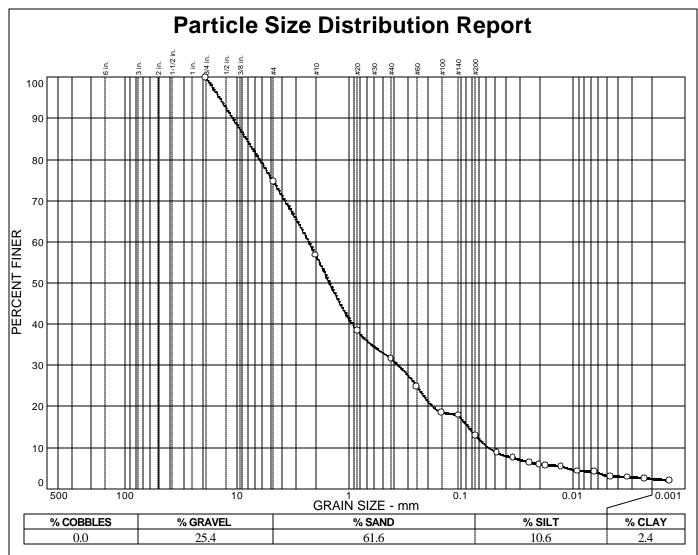
**Date:** 12-18-05 **Elev./Depth:** 36 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
3/4 in. #4 #10 #20 #40 #60 #100 #140 #200	100.0 74.6 56.8 38.4 31.6 24.9 18.5 17.9 13.0		

	Soil Description												
Dark olive brown Gravelly Sand with silt													
	Atterberg Limits												
PL=	LL=	Pl=											
	Coefficients												
$D_{85} = 8.30$	$D_{60} = 2.30$	D <sub>50</sub> = 1.50 D <sub>10</sub> = 0.0573											
D <sub>85</sub> = 8.30 D <sub>30</sub> = 0.365 C <sub>U</sub> = 40.20	D <sub>60</sub> = 2.30 D <sub>15</sub> = 0.0869 C <sub>c</sub> = 1.01	$D_{10} = 0.0573$											
O <sub>u</sub> - 40.20	-												
	Classification												
USCS= SP	AASHTO	)=											
	<b>Remarks</b>												

Sample No.: B37@40' Location:

INCORPORATED

Source of Sample: B-37

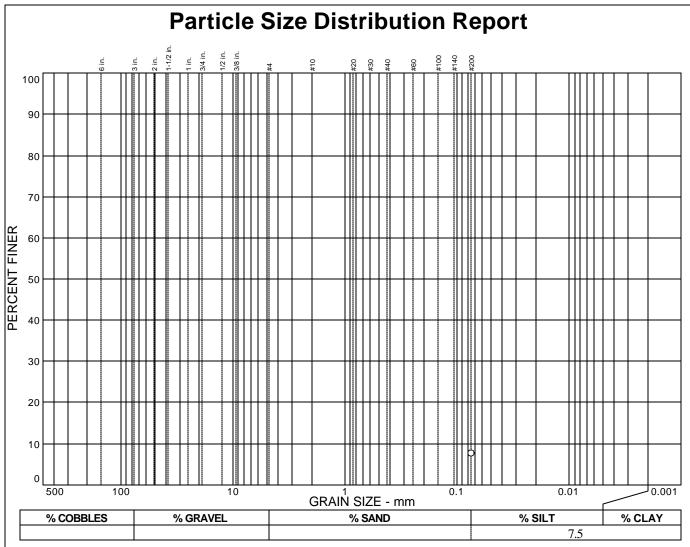
**Date:** 12-19-05 **Elev./Depth:** 40 ft.

RGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	7.5		
4			

Soil Description										
Dark grayish brown Gravelly Sand with silt										
PL=	Atterberg Limits LL=	PI=								
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =								
USCS= SP	Classification AASHTO	=								
	<b>Remarks</b>									

Sample No.: B37@45'

Location:

Source of Sample: B-37

Date: 12-19-05

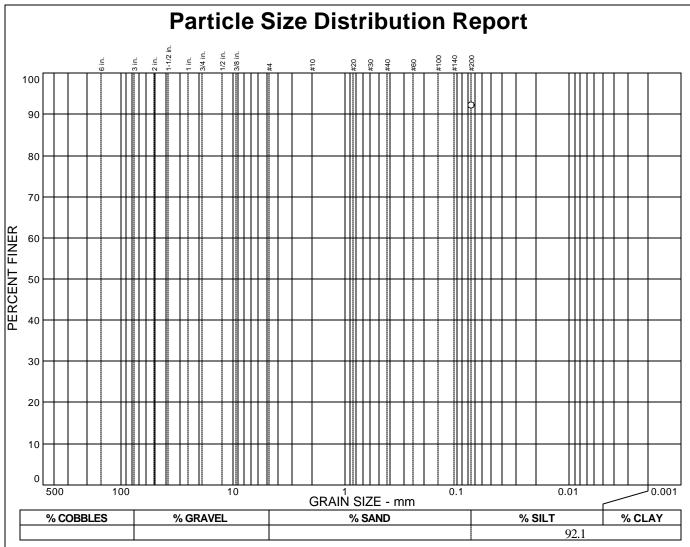
Elev./Depth: 45 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	92.1		

Soil Description  Dark greenish gray silty Clay. Trace fine sand								
2 2	, , , ,							
PL=	Atterberg Limits LL=	PI=						
D <sub>85</sub> = D <sub>30</sub> = C <sub>u</sub> =	Coefficients D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = D <sub>10</sub> =						
USCS= CL	Classification AASHTO	=						
	<u>Remarks</u>							

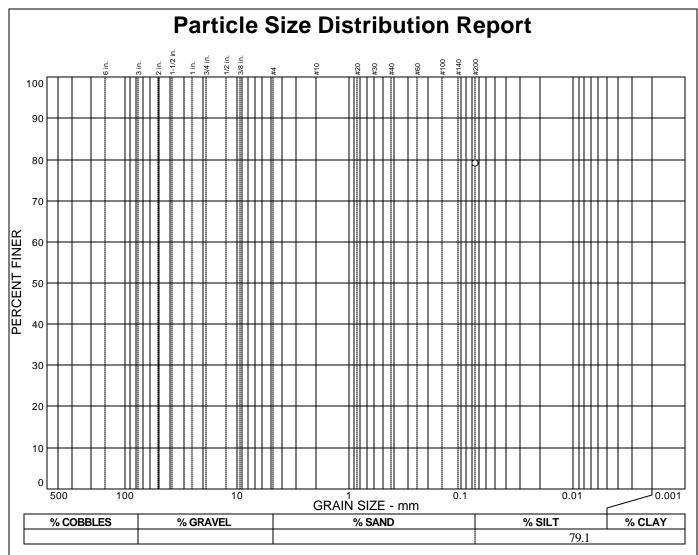
Sample No.: B37@57.5' Source of Sample: B-37 Date: 12-19-05 Location: Elev./Depth: 57.5 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#200	79.1		
* (		. 15	

Soil Description												
Dark greenish gray silty Clay with Sand												
	Atterberg Limits											
PL=	LL=	PI=										
	Coefficients											
D <sub>85</sub> =	D <sub>60</sub> =	D <sub>50</sub> = D <sub>10</sub> =										
D <sub>85</sub> = D <sub>30</sub> = C <sub>11</sub> =	D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	D <sub>10</sub> =										
o <sub>u</sub> −	-											
	Classification											
USCS= CL	AASHTC	)=										
	<b>Remarks</b>											

Sample No.: B37@60' Source of Sample: B-37 Location:

**Sample:** B-37 **Date:** 12-19-05 **Elev./Depth:** 60 ft.

ENGEO GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

INCORPORATED MATERIALS TESTING

Client:

Project: BART-VTA Newhall Yard and Shops. San Jose, CA

### 7.4 APPENDIX D

### ENGEO INCORPORATED

Liquefaction Analysis Spreadsheets

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 1

Depth to Groundwater: 11 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

3.0 60.0 0.80 56.9 71.2 0.351 0.114 0.148 0.42

Above W.T.

MSF: 1.30

		Water	Tip	Sleeve			Effective			Friction							Liquef.	•		
C	Depth	Table	Resist.	Frict.	g (DCE)	Stress	Stress	Tip	Tip	Ratio	τ.	F.C.	Ксрт	DqcIN	(a m)	Stress	Stress	Stress M6.50	of C-f-4	C
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	KCFI	Dqeix	( <b>q</b> c1N)cs	Katio	M7.5	N10.50	Salety	Comments
	0.52	11	107.5	1.93	135	70	70	205.9	3060.4	1.80	1.5	2.5	0.00	0.0	205.9	0.351	0.892	1.159	3.30	Above W.T.
	0.63	11	104.2	1.57	135	85	85	199.6	2448.3	1.51	1.4	1.5	0.00	0.0	199.6	0.351	0.819	1.065	3.03	Above W.T.
	0.73	11	91.8	1.27	135	99	99	175.8	1861.2	1.38	1.4	1.2	0.00	0.0	175.8	0.351	0.585	0.761	2.17	Above W.T.
	0.83	11	82.1	1.2	135	112	112	157.2	1463.8	1.46	1.4	1.7	0.00	0.0	157.2	0.351	0.442	0.574	1.64	Above W.T.
	0.94	11	68.3	1.11	135	127	127	130.8	1075.0	1.63	1.5	2.8	0.00	0.0	130.8	0.351	0.288	0.375	1.07	Above W.T.
	1.04 1.14	11 11	60.1 52.6	1.14 1.26	135 135	140 154	140 154	115.1 100.7	854.8 682.3	1.90 2.40	1.6 1.7	4.2 6.5	0.00 0.04	0.0 4.3	115.1 105.0	0.351	0.222 0.188	0.288 0.244	0.82 0.70	Above W.T. Above W.T.
	1.2	11	47	1.32	135	162	162	90.0	579.0	2.81	1.8	8.4	0.09	9.0	99.0	0.351	0.170	0.221	0.63	Above W.T.
	1.25	11	44.4	1.38	135	169	169	85.0	525.0	3.11	1.9	9.7	0.13	12.2	97.2	0.351	0.165	0.215	0.61	Above W.T.
	1.34	11	37.7	1.13	135	181	181	72.2	415.6	3.00	1.9	10.4	0.14	12.1	84.3	0.351	0.136	0.176	0.50	Above W.T.
	1.45	11	29.5	1.34	135	196	196	56.5	300.3	4.56	2.1	16.6	0.31	25.2	81.7	0.351	0.131	0.170	0.48	Above W.T.
	1.55	11	24	1.41	135	209	209	46.0	228.3	5.90	2.3	21.8	0.45	37.4	83.3	0.351	0.134	0.174	0.50	Above W.T.
	1.61 1.7	11 11	21.5 19.6	1.46 1.36	135 135	217 230	217 230	41.2 37.5	196.8 169.7	6.83 6.98	2.4 2.4	25.1 26.7	0.54 0.58	47.6 51.9	88.8 89.4	0.351 0.351	0.145 0.146	0.189 0.190	0.54 0.54	Above W.T. Above W.T.
	1.81	11	17.3	1.17	135	244	244	33.1	140.5	6.81	2.4	28.2	0.62	53.7	86.8	0.351	0.140	0.190	0.54	Above W.T.
	1.91	11	14.8	1	125	258	258	28.3	113.7	6.82	2.5	30.4	0.68	59.6	88.0	0.351	0.143	0.186	0.53	Above W.T.
	2.02	11	11.2	0.88	125	272	272	21.5	81.4	7.95	2.6	36.9	0.80	85.8	107.3	0.351	0.195	0.253	0.72	Above W.T.
	2.12	11	9.6	0.84	125	284	284	18.4	66.6	8.88	2.7	41.7	0.80	73.5	91.9	0.351	0.152	0.198	0.56	Above W.T.
	2.22	11	9.2	0.84	125	297	297	17.6	61.0	9.28	2.8	43.8	0.80	70.5	88.1	0.351	0.144	0.187	0.53	Above W.T.
	2.33	11	10.5	0.82	125	310	310	20.1	66.6	7.93	2.7	39.6	0.80	80.4	100.5	0.351	0.175	0.227	0.65	Above W.T.
	2.43 2.53	11 11	10 9.4	0.78 0.71	125 125	323 335	323 335	19.2 18.0	60.9 55.0	7.93 7.69	2.7 2.7	40.9 41.8	0.80	76.6 72.0	95.8 90.0	0.351	0.162 0.148	0.210 0.192	0.60 0.55	Above W.T. Above W.T.
	2.64	11	7	0.68	125	349	349	13.4	39.1	9.96	2.9	52.4	0.80	53.6	67.0	0.351	0.148	0.140	0.40	Above W.T.
	2.74	11	5.9	0.67	115	362	362	11.3	31.6	11.72	3.0	59.8	0.80	45.2	56.5	0.351	0.097	0.126	0.36	Above W.T.
	2.85	11	6.7	0.68	115	374	374	12.8	34.8	10.44	3.0	55.5	0.80	51.3	64.2	0.351	0.105	0.136	0.39	Above W.T.
	2.95	11	12.6	0.64	125	386	386	24.1	64.3	5.16	2.5	32.9	0.75	70.6	94.7	0.351	0.159	0.207	0.59	Above W.T.
	3.06	11	17.1	0.72	125	400	400	32.7	84.6	4.26	2.4	26.8	0.58	45.4	78.1	0.351	0.124	0.162	0.46	Above W.T.
	3.16	11	21.3	0.71	125	412	412	40.8	102.4	3.37	2.3	21.7	0.45	32.7	73.5	0.351	0.117	0.152	0.43	Above W.T.
	3.27 3.37	11 11	20.7 21.5	0.88 0.97	135 135	426 439	426 439	39.6 41.2	96.2 96.9	4.30 4.56	2.4 2.4	25.4 26.2	0.55 0.57	47.6 53.5	87.2 94.7	0.351	0.142 0.159	0.184 0.207	0.53 0.59	Above W.T. Above W.T.
	3.48	11	25.6	0.87	135	454	454	49.0	111.7	3.43	2.3	21.0	0.37	36.7	85.7	0.351	0.139	0.207	0.59	Above W.T.
	3.58	11	18.2	0.85	125	468	468	34.9	76.8	4.73	2.5	29.4	0.65	64.9	99.8	0.351	0.172	0.224	0.64	Above W.T.
	3.69	11	15.3	0.79	125	481	481	29.3	62.5	5.25	2.6	33.5	0.76	93.8	123.1	0.351	0.254	0.330	0.94	Above W.T.
	3.8	11	12.9	0.75	125	495	495	24.7	51.1	5.93	2.7	38.4	0.80	98.8	123.5	0.351	0.255	0.332	0.95	Above W.T.
	3.9	11	10.1	0.79	125	508	508	19.3	38.8	8.02	2.8	48.2	0.80	77.4	96.7	0.351	0.164	0.213	0.61	Above W.T.
	4.01	11	10.3	0.83	125	521	521	19.7	38.5	8.27	2.8	48.9	0.80	78.9	98.6	0.351	0.169	0.220	0.63	Above W.T.
	4.11 4.22	11 11	10.6 10.5	0.85 0.88	125 125	534 548	534 548	20.1 19.6	38.7 37.3	8.23 8.61	2.8 2.9	48.7 50.2	0.80	80.3 78.5	100.4 98.2	0.351	0.174 0.168	0.226 0.218	0.64 0.62	Above W.T. Above W.T.
	4.32	11	10.5	0.91	125	560	560	18.5	34.7	9.36	2.9	53.3	0.80	74.0	92.4	0.351	0.153	0.199	0.57	Above W.T.
	4.43	11	9.7	0.94	125	574	574	17.7	32.8	9.99	3.0	55.6	0.80	70.9	88.6	0.351	0.145	0.188	0.54	Above W.T.
	4.53	11	9.7	0.98	125	586	586	17.5	32.1	10.42	3.0	57.0	0.80	70.1	87.6	0.351	0.143	0.185	0.53	Above W.T.
	4.64	11	10.3	1.02	125	600	600	18.4	33.3	10.20	3.0	55.8	0.80	73.6	92.0	0.351	0.152	0.198	0.56	Above W.T.
	4.74	11	11.5	1.1	125	613	613	20.3	36.5	9.83	2.9	53.3	0.80	81.3	101.6	0.351	0.178	0.231	0.66	Above W.T.
	4.85	11	13.2	1.15	125	626	626	23.1	41.1	8.92	2.9	49.3	0.80	92.3	115.4	0.351	0.223	0.290	0.83	Above W.T.
	4.95 5.07	11 11	14.3 14.3	1.18 1.17	135 135	639 655	639 655	24.8 24.4	43.7 42.6	8.44 8.37	2.8 2.8	47.2 47.4	0.80	99.0 97.8	123.8 122.2	0.351 0.351	0.256 0.250	0.333 0.325	0.95 0.93	Above W.T. Above W.T.
	5.18	11	14.5	1.13	135	670	670	24.5	42.3	7.98	2.8	46.6	0.80	98.0	122.6	0.351	0.251	0.327	0.93	Above W.T.
	5.29	11	14	1.09	125	685	685	23.4	39.9	7.98	2.8	47.6	0.80	93.6	117.0	0.351	0.229	0.298	0.85	Above W.T.
	5.4	11	12.9	1.05	125	699	699	21.4	35.9	8.37	2.9	50.4	0.80	85.4	106.8	0.351	0.193	0.251	0.72	Above W.T.
	5.5	11	12.8	1.02	125	711	711	21.0	35.0	8.20	2.9	50.4	0.80	84.0	105.0	0.351	0.188	0.244	0.70	Above W.T.
	5.61	11	12.1	0.98	125	725	725	19.7	32.4	8.35	2.9	52.2	0.80	78.7	98.3	0.351	0.168	0.219	0.62	Above W.T.
	5.72	11	11.9 11.4	0.93	125 125	739 751	739 751	19.2	31.2 29.3	8.07	2.9	52.2 53.6	0.80	76.6	95.8	0.351	0.162	0.210 0.195	0.60 0.56	Above W.T.
	5.82 5.93	11 11	10.6	0.9 0.89	125	765	751 765	18.2 16.8	26.7	8.16 8.71	2.9 3.0	56.7	0.80	72.8 67.1	91.0 83.9	0.351 0.351	0.150 0.135	0.195	0.50	Above W.T. Above W.T.
	6.04	11	10.3	0.89	125	779	779	16.2	25.5	8.98	3.0	58.3	0.80	64.6	80.8	0.351	0.133	0.173	0.48	Above W.T.
	6.14	11	9.8	0.88	125	791	791	15.2	23.8	9.36	3.0	60.6	0.80	61.0	76.2	0.351	0.121	0.158	0.45	Above W.T.
	6.25	11	9.9	0.87	125	805	805	15.3	23.6	9.16	3.0	60.3	0.80	61.1	76.3	0.351	0.121	0.158	0.45	Above W.T.
	6.36	11	11	0.86	125	819	819	16.8	25.9	8.12	3.0	55.9	0.80	67.3	84.1	0.351	0.135	0.176	0.50	Above W.T.
	6.46	11	9.8	0.85	125	831	831	14.9	22.6	9.06	3.0	61.0	0.80	59.5	74.4	0.351	0.118	0.154	0.44	Above W.T.
	6.57 6.68	11 11	9.4 9.4	0.83 0.78	125 125	845 859	845 850	14.2	21.2	9.25 8.70	3.1	62.7	0.80	56.6 56.1	70.8	0.351	0.113 0.112	0.147 0.146	0.42 0.42	Above W.T. Above W.T.
	6.68 6.78	11	9.4		125		859 871	14.0 14.2	20.9	8.70 8.07	3.0	61.7 60.0	0.80	56.1 56.9	70.2 71.2	0.351	0.112		0.42	Above W.T.

125 871

871

14.2 21.0 8.07

9.6 0.74

6.78

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 1

Depth to Groundwater: 11 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	l Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	(q <sub>c1N</sub> ) <sub>cs</sub>	Ratio	M7.5	M6.50	Safety	Comments
	6.89	11	10	0.74	125	885	885	14.7	21.6	7.74	3.0	58.6	0.80	58.8	73.5	0.351	0.117	0.152	0.43	Above W.T.
	6.99	11	9.4	0.76	125	897	897	13.7	19.9	8.49	3.1	62.2	0.80	54.9	68.7	0.351	0.110	0.143	0.41	Above W.T.
	7.1	11	9	0.78	125	911	911	13.0	18.8	9.13	3.1	65.1	0.80	52.2	65.2	0.351	0.106	0.138	0.39	Above W.T.
	7.2 7.31	11 11	9.1 8.4	0.78 0.73	125 125	924 937	924 937	13.1 12.0	18.7 16.9	9.03 9.20	3.1	65.0 67.7	0.80 0.80	52.4 48.0	65.5 60.0	0.351 0.351	0.106 0.100	0.138 0.130	0.39 0.37	Above W.T. Above W.T.
	7.42	11	8.4	0.73	125	951	951	11.9	16.7	8.46	3.1	66.1	0.80	47.7	59.6	0.351	0.100	0.130	0.37	Above W.T.
	7.52	11	8.3	0.64	125	964	964	11.7	16.2	8.19	3.1	66.0	0.80	46.8	58.5	0.351	0.099	0.128	0.37	Above W.T.
	7.63	11	8.1	0.61	125	977	977	11.3	15.6	8.01	3.1	66.5	0.80	45.3	56.7	0.351	0.097	0.126	0.36	Above W.T.
	7.73	11	8	0.61	125	990	990	11.1	15.2	8.13	3.1	67.5	0.80	44.5	55.6	0.351	0.096	0.125	0.36	Above W.T.
	7.84	11	8.6	0.63	125	1004	1004	11.9	16.1	7.78	3.1	65.1	0.80	47.5	59.4	0.351	0.099	0.129	0.37	Above W.T.
	7.94	11	8.6	0.64	125	1016	1016	11.8	15.9	7.91	3.1	65.7	0.80	47.2	59.0	0.351	0.099	0.129	0.37	Above W.T.
	8.05 8.15	11 11	9.7 9.5	0.66 0.68	125 125	1030 1042	1030 1042	13.2 12.9	17.8 17.2	7.19 7.57	3.0	61.1 63.0	0.80 0.80	52.9 51.5	66.1 64.4	0.351 0.351	0.107 0.105	0.139 0.136	0.40 0.39	Above W.T. Above W.T.
	8.26	11	9.7	0.71	125	1056	1042	13.1	17.4	7.74	3.1	63.3	0.80	52.2	65.3	0.351	0.105	0.138	0.39	Above W.T.
	8.37	11	10.8	0.72	125	1070	1070	14.4	19.2	7.01	3.0	59.1	0.80	57.8	72.2	0.351	0.115	0.150	0.43	Above W.T.
	8.43	11	11.9	0.73	125	1077	1077	15.9	21.1	6.43	3.0	55.3	0.80	63.5	79.3	0.351	0.126	0.164	0.47	Above W.T.
	8.52	11	11.7	0.71	125	1089	1089	15.5	20.5	6.36	3.0	55.8	0.80	62.1	77.6	0.351	0.123	0.160	0.46	Above W.T.
	8.62	11	11	0.66	125	1101	1101	14.5	19.0	6.32	3.0	57.2	0.80	58.0	72.5	0.351	0.115	0.150	0.43	Above W.T.
	8.73	11	10.2	0.59	125	1115	1115	13.4	17.3	6.12	3.0	58.6	0.80	53.5	66.8	0.351	0.108	0.140	0.40	Above W.T.
	8.84	11	10.1	0.56		1129	1129	13.2	16.9	5.87	3.0	58.3	0.80	52.6	65.8	0.351	0.106	0.138	0.39	Above W.T.
	8.95 9.05	11 11	10.4 10.3	0.55 0.54	125 125	1142 1155	1142 1155	13.5 13.3	17.2 16.8	5.60 5.55	3.0	57.0 57.3	0.80 0.80	53.9 53.0	67.3 66.3	0.351 0.351	0.108 0.107	0.141 0.139	0.40 0.40	Above W.T. Above W.T.
	9.16	11	10.3	0.48		1169	1169	12.8	16.1	5.10	3.0	56.7	0.80	51.2	64.0	0.351	0.107	0.136	0.39	Above W.T.
	9.27	11	8.8	0.4	115	1181	1181	11.2	13.9	4.87	3.0	59.1	0.80	44.8	56.0	0.351	0.096	0.125	0.36	Above W.T.
	9.37	11	8.6	0.35	115	1193	1193	10.9	13.4	4.37	3.0	57.9	0.80	43.6	54.5	0.351	0.095	0.124	0.35	Above W.T.
	9.48	11	7.7	0.32	115	1205	1205	9.7	11.8	4.51	3.0	61.5	0.80	38.8	48.5	0.351	0.091	0.118	0.34	Above W.T.
	9.59	11	6.9	0.3	105	1218	1218	8.7	10.3	4.77	3.1	65.8	0.80	34.6	43.3	0.351	0.088	0.114	0.32	Above W.T.
	9.69	11	6.7	0.31	105	1228	1228	8.4	9.9	5.09	3.1	68.1	0.80	33.5	41.8	0.351	0.087	0.113	0.32	Above W.T.
	9.8 9.91	11 11	7.6 8.1	0.37 0.43	115 115	1240 1253	1240 1253	9.4 10.0	11.3 11.9	5.30 5.75	3.1	65.7 65.9	0.80 0.80	37.8 40.1	47.2 50.1	0.351 0.351	0.090 0.092	0.117 0.119	0.33 0.34	Above W.T. Above W.T.
	10.01	11	8.4	0.46	115	1264	1264	10.3	12.3	5.92	3.1	65.8	0.80	41.3	51.7	0.331	0.092	0.119	0.35	Above W.T.
	10.12	11	8.4	0.47	115	1277	1277	10.3	12.2	6.06	3.1	66.5	0.80	41.1	51.4	0.344	0.093	0.120	0.35	Above W.T.
	10.23	11	8.2	0.45	115	1289	1289	10.0	11.7	5.96	3.1	67.1	0.80	40.0	50.0	0.344	0.092	0.119	0.35	Above W.T.
	10.34	11	7.8	0.44	115	1302	1302	9.5	11.0	6.15	3.2	69.4	0.80	37.8	47.3	0.344	0.090	0.117	0.34	Above W.T.
	10.44	11	8.2	0.43	115	1314	1314	9.9	11.5	5.70	3.1	66.7	0.80	39.6	49.5	0.344	0.091	0.119	0.34	Above W.T.
	10.55	11	7.3	0.41	115	1326	1326	8.8	10.0	6.18	3.2	71.8	0.80	35.1	43.9	0.344	0.088	0.114	0.33	Above W.T.
	10.65	11	7.2 7.4	0.4	115	1338	1338	8.6	9.8	6.12	3.2	72.3	0.80	34.5	43.1	0.344	0.087	0.114	0.33	Above W.T.
	10.76 10.87	11 11	8.7	0.39	115 115	1350 1363	1350 1363	8.8 10.3	10.0 11.8	5.80 4.86	3.2	70.6 63.0	0.80	35.2 41.2	44.1 51.6	0.344	0.088	0.114 0.121	0.33 0.35	Above W.T. Above W.T.
	10.97	11	9.4	0.41	115	1375	1375	11.1	12.7	4.71	3.0	60.6	0.80	44.4	55.5	0.344	0.096	0.125	0.36	Above W.T.
	11.08	11	9.2	0.41	115	1387	1380	10.8	12.3	4.82	3.0	61.7	0.80	43.3	54.2	0.346	0.095	0.123	0.36	NonLiqfble.
	11.18	11	9.2	0.4	115	1399	1386	10.8	12.3	4.71	3.0	61.3	0.80	43.3	54.1	0.347	0.095	0.123	0.35	NonLiqfble.
	11.29	11	9.6	0.39	115	1411	1391	11.3	12.8	4.38	3.0	59.1	0.80	45.0	56.3	0.349	0.097	0.126	0.36	NonLiqfble.
	11.39	11	9.7	0.4	115	1423	1397	11.4	12.9	4.45	3.0	59.2	0.80	45.4	56.8	0.350	0.097	0.126	0.36	NonLiqfble.
	11.5	11	11.1 11.7	0.42	115	1436	1402	13.0	14.8	4.05	2.9	96.6	0.80	51.9	64.8	0.352	0.105	0.137	0.39	NonLiqfble.
	11.61 11.71	11 11	12.1	0.46 0.5	125 125	1448 1461	1408 1414	13.6 14.1	15.6 16.1	4.19 4.40	2.9 2.9	96.6 96.6	0.80 0.80	54.6 56.3	68.2 70.4	0.354 0.355	0.110 0.112	0.142 0.146	0.40 0.41	NonLiqfble. NonLiqfble.
	11.82	11	11.3	0.48		1474	1421	13.1	14.9	4.54	3.0	96.6	0.80	52.5	65.6	0.357	0.106		0.39	NonLiqfble.
	11.99	11	10.4	0.42	115	1496	1432	12.0	13.5	4.35	3.0	96.6	0.80	48.1	60.1	0.359	0.100	0.130	0.36	NonLiqfble.
	12.09	11	10.3	0.44	115	1507	1437	11.9	13.3	4.61	3.0	96.6	0.80	47.5	59.4	0.361	0.100	0.129	0.36	NonLiqfble.
	12.2	11	10.5	0.47	115	1520	1443	12.1	13.5	4.83	3.0	96.6	0.80	48.4	60.5	0.362	0.101	0.131	0.36	NonLiqfble.
	12.31	11	10.5	0.51	125	1532	1449	12.1	13.4	5.24	3.0	96.6	0.80	48.3	60.3	0.364	0.100	0.131	0.36	NonLiqfble.
	12.41	11	10.5	0.55	125	1545	1455	12.0	13.4	5.65	3.1	96.6	0.80	48.2	60.2	0.365	0.100	0.130	0.36	NonLiqfble.
	12.52 12.62	11 11	11 11.6	0.56 0.56	125 125	1559 1571	1462 1468	12.6 13.2	14.0 14.7	5.48 5.18	3.0	96.6 96.6	0.80 0.80	50.3 53.0	62.9 66.2	0.367 0.368	0.103 0.107	0.134 0.139	0.37 0.38	NonLiqfble. NonLiqfble.
	12.73	11	11.6	0.54	125	1585	1475	13.2	14.7	5.00	3.0	96.6	0.80	52.9	66.1	0.370	0.107	0.139	0.38	NonLiqfble.
	12.84	11	11.9	0.53	125	1599	1482	13.5	15.0	4.77	3.0	96.6	0.80	54.1	67.6	0.371	0.109	0.141	0.38	NonLiqfble.
	12.95	11	11.4	0.51	125	1612	1489	12.9	14.2	4.81	3.0	96.6	0.80	51.7	64.6	0.373	0.105	0.137	0.37	NonLiqfble.
	13.05	11	11.4	0.48	125	1625	1495	12.9	14.2	4.53	3.0	96.6	0.80	51.6	64.5	0.374	0.105	0.136	0.36	NonLiqfble.
	13.16	11	12.3	0.49	125	1639	1502	13.9	15.3	4.27	2.9	54.6	0.80	55.5	69.4	0.375	0.111	0.144	0.38	NonLiqfble.
	13.27	11	13	0.51	125	1652	1509	14.6	16.1	4.19	2.9	53.1	0.80	58.6	73.2	0.377	0.116	0.151	0.40	NonLiqfble.
	13.37 13.48	11 11	13.1 12.4	0.53 0.57	125 125	1665 1679	1515 1522	14.7 13.9	16.2 15.2	4.32 4.93	2.9 3.0	53.6 57.3	0.80	58.9 55.6	73.6 69.5	0.378 0.379	0.117 0.111	0.152 0.145	0.40 0.38	NonLiqfble. NonLiqfble.
	13.40	11	12.4	0.57	123	10/9	1344	13.9	13.2	4.73	5.0	31.3	0.80	55.0	09.3	0.379	0.111	0.143	0.56	NonLiquie.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 1

Depth to Groundwater: 11 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

			Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	l Liquef.	Liquef.	Factor	
13.59		Depth				g							F.C.					-	•		
18.98   11   18.3	Cone	(FT)	(FT)	(TSF)	(TSF)		(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	Dqc1N	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
18.98   11   18.3										_											
11   13.9																					
11   13.9		12 50	11	12	0.6	105	1602	1520	14.5	15.0	4.04	2.0	56.1	0.80	50.2	72.7	0.201	0.116	0.151	0.40	NonLiafhla
1. 1																					-
14   15   15   16   16   16   16   16   16																					
14.11   11   18   70   70   125   175   1502   207   22.8   4.10   2.8   4.58   0.80   8.28   10.15   0.387   0.181   0.227   0.061																					-
Harmon   H																					
14.32   11   18.5   0.7   12.6   17.9   15.7   15.2   15.5   15.2   15		14.11	11	18.7	0.73	125	1757	1562	20.7	22.8	4.10	2.8	45.8	0.80	82.8	103.5	0.387	0.183	0.238	0.62	NonLiqfble.
14.43   11   17.7   0.71   125   197   182   195   21.2   4.3   2.8   47.6   0.80   77.9   97.4   0.90   1.66   0.16																					
14-54   11   16-7   0.7   12-5   181   1888   183   19.9   4.48   2.9   4.98   0.89   73.3   9.17   0.92   0.152   0.197   0.50   NonLighbe, 14-75   11   15   0.66   125   1874   1.097   1.05   0.06   1.05   0.07   0.																					
14-64   11   16.1   0.68   125   1874   1979   176   190   14.8   2.9   50.8   0.80   70.6   882   0.99   0.40   0.113   0.171   0.43   0.44   14.85   11   14.4   0.64   125   1870   1002   16.4   1.4   7.6   4.99   2.9   8.15   0.80   6.25   78.6   0.39   0.125   0.165   0.41   0.145   0.14																					
14.75   11   14.4   0.66   125   137   160   160   17.6   14.8   17.6   14.90   17.6   14.90   11   14.90   11   14.90   10   14.90   11   14.90   10   14.90   11   14.90   11   14.90   10   14.90   11   14.90   11   14.90   11   14.90   11   14.90   11   14.90   11   14.90   11   14.90   11   14.90   11   14.90   11   14.90   11   14.90   11   14.90   11   14.90   11   14.90   11   14.90   11   14.90   11   14.90   12.90   13.90																					-
1485   11   144   0.64   125   150   1608   15.7   16.8   4.75   2.9   14.5   0.80   0.29   78.6   0.390   0.120   0.136   0.39   NonLipphe.     15.2   11   12.9   0.56   125   134   1610   15.1   1.30   0.30   5.72   0.80   5.97   0.99   0.400   0.101   0.15   0.39   NonLipphe.     15.31   11   12.3   0.59   125   194   167   14.3   13.8   13.9   15.0   0.30   0.57   0.30   0.57   0.30   0.10   0.10   0.10   0.10   0.35   NonLipphe.     15.52   11   12   0.56   125   194   167   1.28   13.2   3.40   3.1   0.23   0.80   5.1   0.64   0.40   0.10   0.10   0.13   0.34   NonLipphe.     15.63   11   11.9   0.59   125   194   167   1.28   13.2   3.40   3.1   0.23   0.80   5.1   0.40   0.40   0.10   0.10   0.32   NonLipphe.     15.73   11   11.2   0.56   125   194   167   1.28   13.2   3.40   3.1   0.23   0.80   5.1   0.40   0.40   0.10   0.10   0.32   0.30   0.00   0.15   0.34   0.3																					
15.2   11   12.9   0.56   12.5   13.4   14.7   14.9   15.9   1		14.85	11	14.4	0.64	125	1850	1608	15.7	16.8	4.75	2.9	54.5	0.80	62.9	78.6	0.396	0.125	0.163	0.41	
15.51 11 12.39 0.57 125 1907 1637 13.3 13.9 5.02 3.0 80.5 3.1 66.5 0.401 0.107 0.140 0.35 NonLaphe.  15.62 11 12.3 0.59 125 194 1650 12.9 13.4 5.53 3.1 62.4 0.80 51.7 64.6 0.402 0.107 0.139 0.35 NonLaphe.  15.63 11 11.9 0.59 125 194 1650 12.9 13.4 5.53 3.1 62.4 0.80 51.7 64.6 0.403 0.105 0.139 0.35 NonLaphe.  15.64 11 10.5 0.56 12.5 1960 1663 12.0 12.3 5.48 3.1 62.4 0.80 51.7 64.6 0.403 0.105 0.139 0.35 NonLaphe.  15.65 11 10.3 0.54 175 1987 1677 11.0 11.1 5.05 3.1 65.1 0.80 44.0 55.0 0.408 0.095 0.124 0.30 NonLaphe.  15.05 11 10.3 0.47 115 1987 1677 11.0 11.1 5.05 3.1 65.1 0.80 44.0 55.0 0.408 0.095 0.124 0.30 NonLaphe.  16.06 11 10.7 0.36 115 2012 1688 11.4 11.5 3.71 3.0 56.0 0.80 42.5 55.0 0.408 0.095 0.124 0.30 NonLaphe.  16.16 11 10.7 0.36 115 2012 1688 11.4 11.5 3.71 3.0 56.0 0.80 42.5 55.0 0.410 0.007 0.007 0.125 0.31 NonLaphe.  16.18 11 9.7 0.38 115 2037 1609 10.3 10.2 4.38 3.1 64.4 0.80 41.5 55.0 0.410 0.00 0.10 0.13 0.32 NonLaphe.  16.18 11 9.1 0.4 115 208 170 1.0 9.4 9.2 5.34 3.2 71.0 0.80 37.6 47.1 0.10 0.00 0.117 0.28 NonLaphe.  16.61 11 9.0 0.42 115 2061 1710 9.4 9.2 5.34 3.2 71.0 0.80 37.6 47.1 0.10 0.00 0.117 0.28 NonLaphe.  16.63 11 9.0 0.42 115 208 1727 9.9 9.7 6.23 3.2 72.5 0.80 38.0 47.4 0.417 0.00 0.117 0.28 NonLaphe.  16.61 11 9.0 0.42 115 208 1727 9.9 9.7 6.23 3.2 72.5 0.80 38.0 47.4 0.417 0.00 0.117 0.28 NonLaphe.  16.62 11 9.9 0.42 115 208 1727 9.9 9.7 6.23 3.2 72.5 0.80 38.0 47.4 0.417 0.00 0.117 0.28 NonLaphe.  16.63 11 9.9 0.42 115 208 1727 9.9 9.7 6.23 3.2 72.5 0.80 38.0 47.4 0.410 0.00 0.117 0.28 NonLaphe.  16.71 11 9.9 0.42 115 208 177 9.9 9.7 6.23 3.2 72.7 0.80 3.5 4.6 1.0 0.40 0.00 0.117 0.28 NonLaphe.  16.71 11 9.9 0.42 115 208 177 9.9 9.7 6.23 3.2 74.0 0.80 3.7 4.7 0.41 0.00 0.117 0.28 NonLaphe.  16.71 11 9.7 0.8 12 11 173 0.1 170 9.4 9.2 5.8 8.8 3.3 6.5 0.3 3.2 74.0 0.80 3.7 4.7 0.41 0.00 0.117 0.28 NonLaphe.  16.71 11 9.7 0.8 12 11 17.0 11.1 1.2 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7		14.96	11	13.9				1615	15.1	16.1	4.70	3.0	55.2	0.80	60.5	75.7		0.120	0.156	0.39	NonLiqfble.
15.42																					-
15.52 11 12 0.61 125 194 1650 12.9 13.4 5.53 3.1 0.2.4 0.80 51.7 64.6 0.403 0.105 0.137 0.34 NonLiphic.  15.63 11 11.9 0.59 125 1960 1663 12.0 12.3 5.48 3.1 62.3 0.80 51.2 64.0 0.40 1.010 0.136 0.34 NonLiphic.  15.95 11 10.3 0.47 115 1987 1677 11.0 11.1 5.05 3.1 66.1 0.80 44.0 55.0 0.408 0.095 0.124 0.30 NonLiphic.  15.95 11 10.3 0.47 115 1987 1677 11.0 11.1 5.05 3.1 66.1 0.80 44.0 55.0 0.408 0.095 0.124 0.30 NonLiphic.  16.06 11 10.7 0.36 115 2012 1688 11.4 11.5 5.71 3.0 58.6 0.80 45.5 57.0 0.408 0.095 0.124 0.30 NonLiphic.  16.16 11 10.7 0.36 115 2012 1688 11.4 11.5 3.71 3.0 58.6 0.80 45.6 57.0 0.410 0.007 0.122 0.31 NonLiphic.  16.38 11 9.7 0.38 115 2017 1690 1.02 1.03 10.2 4.38 3.1 64.4 0.80 41.2 51.5 0.412 0.003 0.120 0.29 NonLiphic.  16.48 11 9.7 0.38 115 2007 1699 10.3 10.2 4.38 3.1 64.4 0.80 41.2 51.5 0.412 0.003 0.120 0.29 NonLiphic.  16.59 11 8.9 0.42 115 2061 170 9.4 9.2 5.34 3.2 71.0 0.80 37.6 47.1 0.415 0.000 0.117 0.28 NonLiphic.  16.70 11 8.9 0.42 115 2061 170 9.4 9.2 5.34 3.2 71.0 0.80 37.6 47.0 0.41 0.000 0.117 0.28 NonLiphic.  16.81 11 9.9 0.46 115 208 1727 9.5 9.2 5.78 3.2 72.5 0.80 3.6 4.6 0.80 4.70 0.000 0.117 0.28 NonLiphic.  16.91 11 9.5 0.57 125 2111 1733 10.0 9.7 675 3.2 74.4 0.80 39.9 49.9 0.49 0.000 0.117 0.28 NonLiphic.  17.02 11 9.5 0.57 125 2111 1733 10.0 9.7 675 3.2 74.4 0.80 39.9 49.9 0.49 0.000 0.117 0.28 NonLiphic.  17.17 11 12 0.00 0.17 125 212 178 0.0 9.7 9.4 7.5 3.3 7.7 0.80 39.0 48.7 0.41 0.000 0.117 0.28 NonLiphic.  17.18 1 8.9 0.47 115 2200 1765 9.2 8.8 5.3 3.3 2.7 7.0 8.0 35.0 44.7 0.41 0.000 0.117 0.28 NonLiphic.  17.18 1 8.9 0.47 115 2201 178 9.8 8.8 3.6 6.8 3.2 7.10 0.80 35.1 4.38 0.42 0.08 0.119 0.28 NonLiphic.  17.18 1 1.9 0.00 0.00 1.15 2.20 1.15 0.00 0.00 0.00 0.00 0.00 0.00 0.0																					
15.68																					
15.73   11   11.2   0.56   125   1960   1663   12.0   12.3   5.48   3.1   64.2   0.89   48.1   60.1   0.405   0.10   0.13   0.32   NonLighbe.   15.95   11   10.3   0.47   115   197   1670   11.0   11.1   5.05   3.1   65.1   0.80   44.0   55.0   0.40   0.09   0.12   0.30   NonLighbe.   16.05   11   10.0   0.41   115   199   1682   10.7																					-
15.84																					-
16.05																					
16.16		15.95	11	10.3	0.47	115	1987	1677	11.0	11.1	5.05	3.1	65.1	0.80	44.0	55.0	0.408	0.095	0.124	0.30	
16.27																					
16.38																					
16.48																					
16.59																					-
16.7																					-
16.91																					-
17.02		16.81	11	9	0.46	115	2086	1722	9.5	9.2	5.78	3.2	72.5	0.80	38.0	47.4	0.417	0.090	0.117	0.28	NonLiqfble.
17.12																					-
17.23																					-
17.34																					
17.44																					
17.55   11   8.5   0.42   115   2176   1765   8.9   8.4   5.67   3.2   74.7   0.80   35.8   44.3   0.424   0.088   0.114   0.27   NonLiqible.     17.66   11   8.6   0.4   115   2187   1770   8.9   8.5   5.33   3.2   71.9   0.80   35.8   44.7   0.425   0.088   0.115   0.27   NonLiqible.     17.87   11   8.9   0.47   115   2200   1776   9.2   8.8   5.26   3.2   71.9   0.80   37.0   46.2   0.426   0.089   0.116   0.27   NonLiqible.     17.87   11   8.9   0.47   115   2212   1782   9.2   8.7   6.03   3.2   74.9   0.80   36.9   46.1   0.427   0.089   0.116   0.27   NonLiqible.     18.08   11   9.9   0.58   125   2238   1794   10.2   9.8   6.61   3.2   73.8   0.80   40.9   51.1   0.429   0.090   0.117   0.27   NonLiqible.     18.18   11   9.8   0.61   125   2250   1800   10.1   9.6   7.03   3.2   75.6   0.80   40.9   51.1   0.429   0.090   0.120   0.28   NonLiqible.     18.44   11   10.1   0.63   125   2278   1814   10.4   9.9   9.4   7.44   3.3   77.6   0.80   39.5   49.4   0.431   0.091   0.119   0.28   NonLiqible.     18.61   11   9.6   0.64   125   2301   1833   10.3   9.7   6.71   3.2   75.0   0.80   41.5   51.9   0.432   0.093   0.121   0.28   NonLiqible.     18.82   11   10.6   0.55   125   2330   1840   10.8   10.2   5.83   3.2   70.0   0.80   41.5   51.9   0.432   0.093   0.121   0.28   NonLiqible.     18.83   11   10.2   0.46   115   2359   1859   10.9   10.2   4.73   3.1   65.9   0.80   41.5   51.9   0.430   0.095   0.123   0.28   NonLiqible.     19.93   11   10.2   0.46   115   2359   1859   10.9   10.2   4.84   3.1   66.4   0.80   43.4   54.3   0.48   0.095   0.123   0.28   NonLiqible.     19.14   11   10.7   0.46   115   2359   1859   10.9   10.2   4.84   3.1   66.4   0.80   43.4   54.3   0.44   0.095   0.123   0.28   NonLiqible.     19.57   11   10.2   0.52   125   2431   1884   10.8   10.2   4.84   3.1   66.4   0.80   43.4   54.3   0.44   0.095   0.123   0.28   NonLiqible.     19.57   11   10.7   0.46   115   2359   1854   10.8   10.5   5.5   8.8   3.3   71.7   0.80   44.5   5.8   0.44   0.095   0.1																					-
17.65																					
17.87		17.65	11	8.6	0.4	115	2187	1770	8.9	8.5	5.33	3.2	73.1	0.80	35.8	44.7	0.425	0.088	0.115	0.27	
17.97																					-
18.08         11         9.9         0.58         125         2238         1794         10.2         9.8         6.61         3.2         73.8         0.80         40.9         51.1         0.429         0.092         0.120         0.28         NonLigfble.           18.18         11         9.8         0.61         125         2250         1800         10.1         9.6         7.03         3.2         75.6         0.80         40.4         50.5         0.430         0.092         0.120         0.28         NonLigfble.           18.4         11         9.6         0.63         125         2278         1814         10.4         9.9         7.03         3.2         75.0         0.80         49.4         0.431         0.091         0.112         0.28         NonLigfble.           18.61         11         9.6         0.64         125         2304         1827         9.8         9.2         7.58         3.3         78.4         0.80         39.3         49.1         0.434         0.091         0.118         0.27         NonLigfble.           18.71         11         10.1         0.6         0.55         125         2330         1840         10.8																					-
18.18																					
18.29																					
18.4       11       10.1       0.63       125       2278       1814       10.4       9.9       7.03       3.2       75.0       0.80       41.5       51.9       0.432       0.093       0.121       0.28       NonLiqfble.         18.61       11       9.6       0.64       125       2304       1827       9.8       9.2       7.58       3.3       78.4       0.80       39.3       49.1       0.434       0.091       0.118       0.27       NonLiqfble.         18.71       11       10.1       0.6       125       2316       1833       10.3       9.7       6.71       3.2       74.3       0.80       41.3       51.6       0.435       0.093       0.121       0.28       NonLiqfble.         18.93       11       10.2       0.55       125       2344       1847       10.4       9.8       5.54       3.2       70.0       0.80       41.5       51.9       0.436       0.093       0.121       0.28       NonLiqfble.         19.03       11       10.2       0.46       115       2356       1854       10.4       9.7       5.10       3.1       68.6       0.80       41.5       51.8       0.437       0.																					
18.71         11         10.1         0.6         125         2316         1833         10.3         9.7         6.71         3.2         74.3         0.80         41.3         51.6         0.435         0.093         0.121         0.28         NonLiqfble.           18.82         11         10.6         0.55         125         2330         1840         10.8         10.2         5.83         3.2         70.0         0.80         43.2         54.1         0.436         0.093         0.121         0.28         NonLiqfble.           18.93         11         10.2         0.5         125         2344         1847         10.4         9.8         5.54         3.2         70.2         0.80         41.5         51.9         0.436         0.093         0.121         0.28         NonLiqfble.           19.03         11         10.2         0.46         115         2356         1854         10.4         9.7         5.10         3.1         66.6         0.80         41.5         51.8         0.437         0.093         0.121         0.28         NonLiqfble.           19.46         11         10.7         0.46         115         2382         1865         10.8																					
18.82         11         10.6         0.55         125         2330         1840         10.8         10.2         5.83         3.2         70.0         0.80         43.2         54.1         0.436         0.095         0.123         0.28         NonLiqfble.           18.93         11         10.2         0.5         125         2344         1847         10.4         9.8         5.54         3.2         70.2         0.80         41.5         51.9         0.436         0.093         0.121         0.28         NonLiqfble.           19.03         11         10.2         0.46         115         2356         1854         10.4         9.7         5.10         3.1         66.6         0.80         41.5         51.8         0.437         0.093         0.121         0.28         NonLiqfble.           19.25         11         10.7         0.46         115         2382         1865         10.8         10.2         4.84         3.1         66.4         0.80         43.4         54.2         0.439         0.095         0.123         0.28         NonLiqfble.           19.35         11         10.5         0.48         125         2393         1870         10.6		18.61	11	9.6	0.64	125	2304	1827	9.8	9.2	7.58	3.3	78.4	0.80	39.3	49.1	0.434	0.091	0.118	0.27	NonLiqfble.
18.93 11 10.2 0.5 125 2344 1847 10.4 9.8 5.54 3.2 70.2 0.80 41.5 51.9 0.436 0.093 0.121 0.28 NonLiqfble. 19.03 11 10.2 0.46 115 2356 1854 10.4 9.7 5.10 3.1 68.6 0.80 41.5 51.8 0.437 0.093 0.121 0.28 NonLiqfble. 19.14 11 10.7 0.45 115 2369 1859 10.9 10.2 4.73 3.1 65.9 0.80 43.4 54.3 0.438 0.095 0.123 0.28 NonLiqfble. 19.25 11 10.7 0.46 115 2382 1865 10.8 10.2 4.84 3.1 66.4 0.80 43.4 54.3 0.438 0.095 0.123 0.28 NonLiqfble. 19.35 11 10.5 0.48 125 2393 1870 10.6 9.9 5.16 3.1 68.3 0.80 42.5 53.1 0.400 0.094 0.122 0.28 NonLiqfble. 19.46 11 10.4 0.49 125 2407 1877 10.5 9.8 5.33 3.2 69.3 0.80 42.0 52.5 0.441 0.093 0.122 0.28 NonLiqfble. 19.67 11 10.2 0.52 125 2421 1884 10.3 9.5 5.78 3.2 71.7 0.80 41.1 51.4 0.442 0.093 0.120 0.27 NonLiqfble. 19.67 11 10.7 0.58 125 2433 1890 10.8 10.0 6.12 3.2 71.6 0.80 43.1 53.8 0.443 0.095 0.123 0.28 NonLiqfble. 19.78 11 11.1 0.61 125 2447 1897 11.2 10.4 6.18 3.2 70.8 0.80 44.6 55.8 0.444 0.096 0.125 0.28 NonLiqfble. 19.89 11 11.2 0.66 125 2461 1904 11.2 10.5 6.62 3.2 72.7 0.80 44.9 56.2 0.445 0.096 0.125 0.28 NonLiqfble. 19.99 11 11.3 0.69 125 2473 1910 11.3 10.5 6.86 3.2 72.7 0.80 45.2 56.6 0.445 0.097 0.126 0.28 NonLiqfble. 19.99 11 11.3 0.69 125 2487 1917 13.7 13.0 5.54 3.1 63.5 0.80 53.1 66.3 0.438 0.407 0.110 0.143 0.33 NonLiqfble. 20.1 11 13.3 0.65 125 2513 1930 11.7 10.8 5.65 3.1 68.0 0.80 46.6 58.3 0.439 0.098 0.128 0.29 NonLiqfble. 20.31 11 11.7 0.59 125 2513 1930 11.7 10.8 5.65 3.1 68.0 0.80 46.6 58.3 0.439 0.098 0.128 0.29 NonLiqfble.			11						10.3												-
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20.42 11 11.5 0.52 125 2527 1937 11.4 10.6 5.08 3.1 66.5 0.80 45.7 57.2 0.440 0.097 0.127 0.29 NonLigible.		20.31		11.7	0.59	125	2513	1930	11.7				68.0			58.3	0.439	0.098	0.128	0.29	
		20.42	11	11.5	0.52	125	2527	1937	11.4	10.6	5.08	3.1	66.5	0.80	45.7	57.2	0.440	0.097	0.127	0.29	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 1

Depth to Groundwater: 11 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

		Water	Tip	Sleeve		Total	Effective	Norm.		Friction						Induced	Liquef.	Liquef.	Factor	
C	Depth	Table	Resist.	Frict.	g (DCF)	Stress	Stress	Tip	Tip	Ratio	τ.	F.C.	Ксрт	DqcIN	( <b>a</b> w)	Stress	Stress	Stress	of C-f-4	C
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> e1N	Q	F	Ic	(%)	KCFI	Dqein	(qclN)es	Katio	M7.5	M6.50	Safety	Comments
	20.52	11	11.7	0.48	125	2540	1944	11.6	10.7	4.60	3.1	64.2	0.80	46.4	58.1	0.440	0.098	0.128	0.29	NonLiqfble.
	20.62	11	18.7	0.63	125	2552	1950	18.5	17.9	3.62	2.8	48.5	0.80	74.1	92.6	0.441	0.154	0.200	0.45	NonLiqfble.
	20.73	11	16.4	0.77	125	2566	1957	16.2	15.4	5.09	3.0	57.6	0.80	64.9	81.1	0.442	0.130	0.169	0.38	NonLiqfble.
	20.83 20.94	11 11	19 13.3	0.72 0.94	125 125	2578 2592	1963 1970	18.8 13.1	18.0 12.2	4.07 7.83	2.9 3.2	50.3 71.9	0.80	75.1 52.4	93.8 65.6	0.443 0.443	0.157	0.204 0.138	0.46	NonLiqfble.
	21.04	11	19.7	1.08	135	2605	1976	19.4	18.6	5.87	3.0	56.2	0.80	77.6	96.9	0.443	0.106 0.165	0.138	0.31	NonLiqfble. NonLiqfble.
	21.15	11	22.3	1.07	135	2619	1984	21.9	21.1	5.10	2.9	51.0	0.80	87.6	109.5	0.445	0.202	0.263	0.59	NonLiqfble.
	21.25	11	16.5	0.96	125	2633	1991	16.2	15.2	6.32	3.1	62.1	0.80	64.7	80.9	0.446	0.129	0.168	0.38	NonLiqfble.
	21.36	11	16.9	0.8	125	2647	1998	16.5	15.6	5.14	3.0	57.5	0.80	66.2	82.7	0.446	0.133	0.172	0.39	NonLiqfble.
	21.46 21.57	11 11	11.7 15.3	0.73 0.74	125 125	2659 2673	2005 2011	11.4 14.9	10.3 13.9	7.04 5.30	3.2	42.5 42.5	0.80 0.80	45.7 59.7	57.2 74.6	0.447 0.448	0.097 0.119	0.127 0.154	0.28	NonLiqfble. NonLiqfble.
	21.63	11	13.3	0.72	125	2680	2015	13.0	11.9	6.02	3.1	42.5	0.80	51.9	64.8	0.448	0.105	0.137	0.31	NonLiqfble.
	21.71	11	14.4	0.74	125	2690	2020	14.0	12.9	5.67	3.1	42.5	0.80	56.1	70.1	0.449	0.112	0.146	0.32	NonLiqfble.
	21.81	11	15.7	0.67	125	2703	2026	15.3	14.2	4.67	3.0	42.5	0.80	61.0	76.3	0.449	0.121	0.158	0.35	NonLiqfble.
	21.92 22.02	11 11	13.7 12.3	0.6 0.54	125 125	2717 2729	2033 2040	13.3 11.9	12.1 10.7	4.86 4.94	3.1	42.5 42.5	0.80	53.2 47.7	66.5 59.6	0.450 0.451	0.107 0.100	0.140 0.130	0.31	NonLiqfble.
	22.13	11	11.5	0.48	125	2743	2046	11.1	9.9	4.74	3.1	42.5	0.80	44.5	55.6	0.451	0.100	0.130	0.28	NonLiqfble. NonLiqfble.
	22.23	11	11.2	0.46	125	2755	2053	10.8	9.6	4.68	3.1	42.5	0.80	43.3	54.1	0.452	0.095	0.123	0.27	NonLiqfble.
	22.34	11	9.8	0.5	115	2769	2060	9.4	8.2	5.94	3.2	42.5	0.80	37.8	47.2	0.453	0.090	0.117	0.26	NonLiqfble.
	22.45	11	9.7 11.2	0.63	125 125	2782	2065	9.3	8.0	7.58	3.3	42.5	0.80	37.4	46.7	0.454	0.089	0.116	0.26	NonLiqfble.
	22.55 22.65	11 11	20.5	0.59 0.75	125	2794 2807	2072 2078	10.8 19.7	9.5 18.4	6.02 3.93	3.2 2.9	42.5 42.5	0.80 0.80	43.1 78.7	53.8 98.4	0.454 0.455	0.095 0.169	0.123 0.219	0.27 0.48	NonLiqfble. NonLiqfble.
	22.76	11	41.6	1.72	135	2821	2085	39.9	38.5	4.28	2.6	42.5	0.80	159.5	199.3	0.456	0.816	1.061	2.33	NonLiqfble.
	22.85	11	63.6	2.09	135	2833	2091	60.9	59.4	3.36	2.4	42.5	0.80	243.4	304.3	0.456	2.699	3.509	7.69	
	22.96	11	54.3	2.47	135	2848	2099	51.9	50.4	4.67	2.6	42.5	0.80	207.4	259.3	0.457	1.701	2.211	4.84	N1:0-1-
	23.06 23.17	11 11	37.1 34.1	2.07 2.49	135 135	2861 2876	2107 2115	35.4 32.4	33.9 30.9	5.80 7.62	2.8 2.9	42.5 51.3	0.80	141.5 129.8	176.8 162.2	0.458 0.458	0.594 0.477	0.773 0.620	1.69 1.35	NonLiqfble. NonLiqfble.
	23.27	11	66.9	3.67	135	2889	2122	63.5	61.7	5.61	2.6	34.8	0.80	246.5	310.0	0.459	2.852	3.707	8.08	rvonEaquoie.
	23.34	11	93.9	3.34	135	2899	2127	89.1	86.9	3.61	2.3	24.3	0.51	94.4	183.5	0.459	0.655	0.851	1.85	
	23.38	11	90.3	3.27	135	2904	2130	85.6	83.4	3.68	2.4	25.0	0.53	97.8	183.4	0.459	0.653	0.849	1.85	
	23.42 23.51	11 11	124.8 144.8	3.18 2.9	135 135	2910 2922	2133 2139	118.2 137.0	115.6 134.0	2.58 2.02	2.2	17.5 13.9	0.33	59.2 42.4	177.4 179.4	0.460 0.460	0.600 0.617	0.779 0.802	1.70 1.74	
	23.61	11	162.3	2.05	135	2935	2147	153.3	149.8	1.27	1.9	9.3	0.11	19.8	173.1	0.461	0.562	0.731	1.59	
	23.71	11	174.8	1.91	125	2949	2154	164.8	160.9	1.10	1.8	7.8	0.08	13.4	178.2	0.461	0.607	0.789	1.71	
	23.74	11	152.1	1.83	125	2953	2156	143.3	139.7	1.21	1.9	9.4	0.12	19.3	162.6	0.462	0.480	0.624	1.35	
	23.79 23.83	11 11	173.6 185.5	1.81 1.82	125 125	2959 2964	2159 2161	163.5 174.6	159.4 170.2	1.05 0.99	1.8 1.7	7.6 6.8	0.07 0.05	12.1 8.8	175.6 183.4	0.462 0.462	0.584 0.654	0.759 0.850	1.64 1.84	
	23.92	11	197.2	1.95	125	2975	2167	185.4	180.6	1.00	1.7	6.5	0.03	7.7	193.0	0.463	0.749	0.974	2.10	
	24.02	11	227.4	2.42	125	2988	2173	213.4	207.8	1.07	1.7	6.1	0.03	6.6	220.0	0.463	1.070	1.391	3.00	
	24.09	11	241.3	2.76	125	2996	2178	226.2	220.2	1.15	1.7	6.2	0.03	7.7	234.0	0.464	1.271	1.653	3.56	
	24.19 24.29	11 11	264.5 290.8	3.09 3.46	135 135	3009 3022	2184 2191	247.6 271.8	240.8 263.9	1.17 1.20	1.7 1.7	5.9 5.5	0.02	6.0 3.9	253.7 275.8	0.464 0.465	1.598 2.030	2.078 2.639	4.48 5.68	
	24.28	11	344.4	3.53	125	3034	2198	321.4	311.9	1.03	1.6	3.9	0.00	0.0	321.4	0.465	3.169	4.119	8.85	
	24.45	11	398.4	3.8	125	3043	2202	371.5	360.3	0.96	1.5	3.0	0.00	0.0	371.5	0.466	4.847	6.301	13.53	
	24.54	11	430.6	4.25	125	3054	2208	401.0	388.6	0.99	1.5	2.9	0.00	0.0	401.0	0.466	6.076	7.899	16.94	
	24.63 24.72	11 11	458.3 457.9	4.69 5.82	125 135	3066 3077	2213 2219	426.2 425.3	412.6 411.2	1.03 1.28	1.5 1.6	2.8 4.0	0.00	0.0	426.2 425.3	0.467 0.467	7.282 7.235	9.466 9.406	20.28 20.13	
	24.96	11	414.3	6.22	135	3109	2236	383.3	369.0	1.51	1.7	5.5	0.00	4.8	388.1	0.468	5.518	7.173	15.31	
	25.05	11	383.8	6.23		3121	2243	354.6	340.7	1.63	1.7	6.3	0.04	13.2	367.7	0.469	4.705	6.117	13.04	
	25.15	11	399.7	6.09	135		2250	368.7	353.7	1.53	1.7	5.7	0.02	7.5	376.1	0.469	5.029	6.538	13.93	
	25.24 25.32	11 11	389.3 376.4	7.39 5.98	135 135	3147 3158	2257 2262	358.6 346.2	343.5 331.2	1.91 1.60	1.8 1.7	7.4 6.3	0.07 0.04	24.9 12.7	383.5 358.9	0.470 0.470	5.325 4.380	6.923 5.693	14.73 12.11	
	25.41	11	390.3	4.47		3170	2269	358.5	342.5	1.15	1.6	4.1	0.04	0.0	358.5	0.470	4.365	5.675	12.11	
	25.5	11	334.3	4.88	135		2276	306.6	292.3	1.47	1.7	6.3	0.04	11.4	318.0	0.471	3.071	3.992	8.47	
	25.59	11	341.4	5.65	135		2282	312.7	297.7	1.66	1.8	7.1	0.06	18.8	331.5	0.472	3.467	4.507	9.56	
	25.67	11	353.3	6.22	135		2288	323.2	307.3	1.77	1.8	7.4	0.06	22.3	345.4	0.472	3.913	5.087	10.78	
	25.76 25.84	11 11	327.7 350.3	5.58 4.98	135 135		2294 2300	299.3 319.6	284.1 303.1	1.71 1.43	1.8 1.7	7.6 6.0	0.07	22.0 8.7	321.3 328.3	0.472 0.473	3.166 3.370	4.116 4.381	8.71 9.26	
	25.92	11	333.9	3.74	125		2306	304.2	288.1	1.13	1.6	4.8	0.00	0.0	304.2	0.473	2.699	3.508	7.41	
	26.01	11	342.1	3.57	125	3250	2312	311.3	294.4	1.05	1.6	4.3	0.00	0.0	311.3	0.474	2.886	3.752	7.92	
	26.09	11	346.5	4.37	135	3260	2317	315.0	297.6	1.27	1.7	5.3	0.01	2.7	317.7	0.474	3.061	3.980	8.39	
	26.17 26.25	11 11	321.7 330	4.83 4.66	135 135	3271 3282	2322 2328	292.1 299.2	275.5 281.9	1.51 1.42	1.7 1.7	6.8 6.3	0.05	15.0 10.7	307.1 310.0	0.475 0.475	2.773 2.850	3.604 3.705	7.59 7.80	
	20.23	11	330	7.00	100	3202	2320	211.4	201.7	1.74	1./	0.5	0.03	10.7	310.0	0.773	2.030	5.105	7.00	

Project Number: 6600.3.001.01 Date: September 2005

**CPT Number: 1** 

Depth to Groundwater: 11 feet

EQ Magnitude ( $M_w$ ): 6.5 **PGA (g):** 0.54

**MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	26.33 26.41	11 11	336.5 328	4.82 4.22	135 135	3293 3303	2334 2340	304.7 296.7	286.8 278.8	1.44 1.29	1.7 1.7	6.3 5.8	0.03	11.0 6.1	315.8 302.8	0.475 0.476	3.008 2.661	3.911 3.459	8.23 7.27	
	26.48	11	334.2	3.53	125	3313	2345	302.0	283.5	1.06	1.6	4.5	0.02	0.0	302.0	0.476	2.641	3.433	7.21	
	26.57	11	265.8	3.69	135	3324	2351	239.9	224.6	1.40	1.8	8.3	0.09	23.2	263.1	0.477	1.773	2.305	4.84	
	26.65 26.73	11 11	252.6 260.4	3.77 3.23	135 135	3335 3346	2356 2362	227.7 234.4	212.9 219.0	1.50 1.25	1.8 1.7	8.3 8.3	0.09	22.0 22.7	249.7 257.1	0.477 0.477	1.528 1.660	1.986 2.158	4.16 4.52	
	26.81	11	243.6	2.52	125	3356	2368	219.0	204.2	1.04	1.7	8.3	0.09	21.2	240.2	0.478	1.369	1.779	3.73	
	26.89	11	254.9	2.53	125	3366	2373	228.9	213.3	1.00	1.7	8.3	0.09	22.1	251.1	0.478	1.552	2.017	4.22	
	26.97 27.06	11 11	269.7 282.5	2.73 2.56	125 125	3376 3388	2378 2384	242.0 253.2	225.3 235.5	1.02 0.91	1.7 1.6	8.3 8.3	0.09	23.4 24.5	265.4 277.6	0.478 0.479	1.818 2.070	2.363 2.691	4.94 5.62	
	27.14	11	286.9	2.36	125	3398	2389	256.8	238.7	0.83	1.6	8.3	0.09	24.8	281.7	0.479	2.158	2.805	5.85	
	27.22	11	288.5	2.2	125	3408	2394	258.0	239.5	0.77	1.6	8.3	0.09	24.9	282.9	0.480	2.186	2.842	5.93	
	27.31 27.39	11 11	282.7 285.8	2.37 2.5	125 125	3419 3429	2399 2404	252.5 255.0	234.1 236.2	0.84 0.88	1.6 1.6	8.3 8.3	0.09	24.4 24.6	276.9 279.7	0.480 0.481	2.055 2.114	2.671 2.748	5.56 5.72	
	27.48	11	280.5	3.4	135	3440	2410	250.0	231.3	1.22	1.7	8.3	0.09	24.2	274.2	0.481	1.996	2.595	5.40	
	27.56	11	283	5.14	135	3451	2416	251.9	232.8	1.83	1.8	8.3	0.09	24.3	276.3	0.481	2.041	2.653	5.51	
	27.65 27.73	11 11	287.5 272.4	5.07 4.39	135 135	3463 3474	2422 2428	255.6 241.9	235.8 222.8	1.77 1.62	1.8 1.8	8.3 8.3	0.09	24.7 23.4	280.3 265.2	0.482 0.482	2.128 1.815	2.766 2.360	5.74 4.90	
	27.82	11	244.7	3.93	135	3486	2435	217.0	199.5	1.62	1.8	8.3	0.09	21.0	238.0	0.482	1.333	1.733	3.59	
	27.91	11	207.1	3.15	135	3498	2441	183.4	168.2	1.53	1.9	9.9	0.13	27.3	210.7	0.483	0.950	1.235	2.56	
	28 28.09	11 11	179.2 169.6	2.4 1.91	135 125	3510 3523	2448 2454	158.5 149.8	144.9 136.7	1.35 1.14	1.9 1.8	9.9 9.1	0.13	24.1 18.6	182.6 168.4	0.483 0.484	0.646 0.524	0.840 0.681	1.74 1.41	
	28.27	11	136.4	2.02	135	3545	2466	120.2	109.2	1.50	2.0	12.9	0.21	32.4	152.6	0.484	0.410	0.533	1.10	Low F.S.
	28.36	11 11	143.9 154.9	1.91 1.81	135 125	3557 3571	2472 2479	126.6 136.1	114.9 123.5	1.34	2.0 1.9	11.6 10.1	0.18 0.14	27.3 21.7	154.0	0.485 0.485	0.419 0.445	0.545 0.579	1.12 1.19	Low F.S.
	28.46 28.56	11	169.7	1.96	125	3583	2479	148.9	135.0	1.18 1.17	1.9	9.4	0.14	19.8	157.8 168.7	0.486	0.527	0.579	1.19	Low F.S.
	28.65	11	177.1	2.13	125	3594	2491	155.2	140.7	1.22	1.9	9.4	0.12	20.6	175.8	0.486	0.586	0.761	1.57	
	28.75 28.84	11 11	174.4 172.1	2.29 2.42	135 135	3607 3619	2497 2504	152.7 150.5	138.2 136.0	1.33 1.42	1.9 1.9	10.1 10.8	0.14 0.15	24.3 27.5	177.0 177.9	0.487 0.487	0.596 0.604	0.775 0.785	1.59 1.61	
	28.94	11	175.8	2.28	135	3633	2511	153.5	138.5	1.31	1.9	10.0	0.13	23.9	177.3	0.487	0.599	0.783	1.60	
	29.03	11	183	2.11	125	3645	2518	159.6	143.9	1.16	1.8	8.9	0.11	18.7	178.3	0.488	0.607	0.789	1.62	
	29.13 29.22	11 11	188.9 196.1	2.48 2.02	135 125	3657 3669	2524 2531	164.5 170.6	148.2 153.5	1.33 1.04	1.9 1.8	9.6 7.8	0.12	23.3 13.6	187.8 184.1	0.488 0.489	0.696 0.661	0.904 0.859	1.85 1.76	
	29.32	11	204.6	1.86	125	3682	2537	177.7	159.8	0.92	1.7	6.7	0.05	8.7	186.4	0.489	0.683	0.887	1.81	
	29.41	11	194.5	2.96	135	3693	2542	168.8	151.5	1.54	1.9	10.6	0.15	29.6	198.4	0.489	0.806	1.048	2.14	
	29.5 29.59	11 11	202.6 228.6	2.84 3.05	135 135	3705 3717	2549 2556	175.6 197.9	157.4 177.4	1.41 1.35	1.9 1.8	9.7 8.5	0.13	25.2 20.7	200.7 218.5	0.490 0.490	0.832 1.050	1.082 1.365	2.21 2.79	
	29.68	11	243.8	3.72	135	3730	2562	210.7	188.8	1.54	1.8	9.1	0.11	26.0	236.8	0.491	1.314	1.708	3.48	
	29.77	11	294	4.46	135	3742	2569	253.8	227.4	1.53	1.8	7.9	0.08	21.7	275.5	0.491	2.024	2.631	5.36	
	29.86 29.95	11 11	337.3 331.5	4.31 4.25	135 135	3754 3766	2575 2582	290.8 285.5	260.4 255.2	1.28 1.29	1.7 1.7	6.0 6.2	0.03	8.4 9.2	299.2 294.7	0.491 0.492	2.571 2.460	3.342 3.198	6.80 6.51	
	30.04	11	312.8	4.45	135	3778	2588	269.0	240.1	1.43	1.8	7.2	0.06	16.7	285.7	0.471	2.249	2.923	6.20	
	30.13	11	314.7	7.07	135	3790	2595	270.3	241.0	2.26	1.9	10.7	0.15	48.7	319.1	0.472	3.100	4.030	8.54	
	30.21 30.3	11 11	340.3 356.9	9.2 8.14	135 135	3801 3813	2601 2607	292.0 305.8	260.1 272.2	2.72 2.29	2.0 1.9	11.9 10.1	0.19 0.14	66.4 48.6	358.4 354.4	0.472 0.472	4.362 4.220	5.671 5.486	12.01 11.62	
	30.39	11	290.6	7.61	135	3825	2614	248.7	220.8	2.64	2.0	12.7	0.21	64.2	312.9	0.473	2.929	3.807	8.06	
	30.47	11	251.4	7.52	140	3836	2619	214.9	190.4	3.01	2.1	15.1	0.27	78.9	293.8	0.473	2.438	3.170	6.70	
	30.56 30.65	11 11	248.9 247.6	5.78 2.15	135 125	3849 3861	2626 2633	212.5 211.1	188.0 186.5	2.34 0.88	2.0 1.7	12.7 5.6	0.20	54.6 3.2	267.1 214.4	0.473 0.474	1.851 0.996	2.407 1.295	5.09 2.73	
	30.73	11	247.4	1.86	115	3871	2638	210.8	186.0	0.76	1.6	4.8	0.00	0.0	210.8	0.474	0.951	1.236	2.61	
	30.82 30.9	11 11	242 229.6	1.5 1.32	115 115	3881 3891	2643 2647	206.0 195.3	181.6 171.9	0.62 0.58	1.6 1.6	4.0 4.0	0.00	0.0	206.0 195.3	0.474 0.475	0.893 0.772	1.160 1.004	2.45 2.12	
	30.99	11	224.2	1.14	105	3901	2652	190.5	167.6	0.51	1.6	3.6	0.00	0.0	190.5	0.475	0.772	0.940	1.98	
	31.07	11	215.2	1.04	105	3909	2655	182.7	160.6	0.49	1.6	3.7	0.00	0.0	182.7	0.475	0.647	0.842	1.77	
	31.14 31.23	11 11	206.6 195.8	0.91 0.84	105 105	3917 3926	2658 2662	175.3 166.0	153.9 145.6	0.44 0.43	1.5 1.6	3.6 3.8	0.00	0.0	175.3 166.0	0.476 0.476	0.581 0.506	0.756 0.658	1.59 1.38	
	31.31	11	180	0.84	105	3935	2665	152.6	133.5	0.43	1.6	4.9	0.00	0.0	152.6	0.476	0.410	0.533	1.12	Low F.S.
	31.4	11	173	0.84	105	3944	2669	146.5	128.1	0.49	1.6	5.0	0.00	0.1	146.6	0.477	0.373	0.485	1.02	Low F.S.
	31.44 31.52	11 11	167.6 156.1	0.81 0.84	105 105	3948 3957	2671 2674	141.9 132.1	124.0 115.2	0.49 0.55	1.6 1.7	5.2 6.2	0.01 0.03	0.8 4.2	142.7 136.3	0.477 0.478	0.350 0.316	0.455 0.410	0.95 0.86	Liquefaction Liquefaction
	31.62	11	146.8	0.77	105	3967	2678	124.1	108.1	0.53	1.7	6.5	0.03	5.1	129.2	0.478	0.281	0.365	0.76	Liquefaction
	31.71	11	132.2	0.95	115	3977	2682	111.7	97.0	0.73	1.8	8.9	0.10	13.0	124.7	0.479	0.260	0.339	0.71	Liquefaction
	31.8	11	127.8	0.96	115	3987	2687	107.9	93.6	0.76	1.9	9.5	0.12	14.6	122.5	0.479	0.251	0.326	0.68	Liquefaction

Project Number: 6600.3.001.01 Date: September 2005

**CPT Number: 1** 

Depth to Groundwater: 11 feet

EQ Magnitude ( $M_w$ ): 6.5 **PGA (g):** 0.54

MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth		Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	$(q_{\rm c1N})_{\rm cs}$	Ratio	M7.5	M6.50	Safety	Comments
	31.9	11	125.8	1.43	125	3998	2692	106.1	91.9	1.16	2.0	12.4	0.20	26.0	132.1	0.480	0.294	0.383	0.80	Liquefaction
	31.99	11	117.2	1.04	125	4010	2698	98.7	85.4	0.90	1.9	11.3	0.17	19.9	118.7	0.480	0.235	0.306	0.64	Liquefaction
	32.08	11	109.8	1.07	125	4021	2704	92.4	79.7	0.99	2.0	12.6	0.20	23.3	115.7	0.480	0.224	0.291	0.61	Liquefaction
	32.17	11	115.8	1.28	125	4032	2709	97.3	84.0	1.12	2.0	13.0	0.21	26.4	123.7	0.481	0.256	0.333	0.69	Liquefaction
	32.25	11	119.9	1.6	135	4042	2714	100.7	86.8	1.36	2.0	14.1	0.24	32.5	133.2	0.481	0.300	0.390	0.81	Liquefaction
	32.34 32.43	11 11	146.4 180.7	2.22 2.03	135 125	4054 4066	2721 2727	122.8 151.4	106.1 131.0	1.54 1.14	2.0 1.9	13.4 9.4	0.22 0.12	35.5 20.3	158.3 171.7	0.481 0.481	0.449 0.551	0.583 0.716	1.21 1.49	
	32.52	11	192.3	2.82	135	4078	2733	160.9	139.2	1.14	1.9	10.9	0.12	30.3	191.2	0.481	0.730	0.710	1.49	
	32.61	11	213.7	3.31	135	4090	2739	178.6	154.5	1.56	1.9	10.6	0.15	31.4	210.0	0.482	0.941	1.224	2.54	
	32.7	11	221.7	3.7	135	4102	2746	185.1	159.9	1.68	1.9	10.9	0.16	34.9	220.0	0.482	1.070	1.391	2.88	
	32.79	11	195	3.63	135	4114	2753	162.6	140.1	1.88	2.0	12.8	0.21	43.1	205.7	0.483	0.890	1.157	2.40	
	32.88	11	159.1	3.17	135	4126	2759	132.5	113.8	2.02	2.1	15.2	0.27	49.6	182.1	0.483	0.642	0.835	1.73	
	32.97	11	155 150.8	2.48 2.5	135 135	4138	2766	129.0	110.5	1.62 1.68	2.0	13.5	0.23	37.8	166.8 165.3	0.483	0.511	0.665	1.38	
	33.07 33.17	11 11	184.1	2.44	135	4152 4165	2773 2780	125.3 152.8	107.2 130.9	1.34	2.0 1.9	14.1 10.6	0.24 0.15	40.0 27.0	179.8	0.484 0.484	0.500 0.620	0.650 0.806	1.34 1.67	
	33.26	11	223.2	3.24	135	4178	2787	185.0	158.6	1.47	1.9	9.9	0.13	27.9	212.9	0.484	0.977	1.270	2.62	
	33.35	11	281.5	3.3	135	4190	2793	233.0	200.0	1.18	1.7	6.9	0.05	12.7	245.8	0.484	1.461	1.899	3.92	
	33.44	11	318.5	3.82	135	4202	2800	263.4	225.9	1.21	1.7	6.4	0.04	10.2	273.6	0.485	1.984	2.579	5.32	
	33.53	11	325.4	3.82	135	4214	2806	268.8	230.3	1.18	1.7	6.2	0.03	8.6	277.3	0.485	2.064	2.683	5.53	
	33.62	11	335.6	3.98	135	4226	2813	276.9	237.0	1.19	1.7	6.1	0.03	8.1	285.0	0.485	2.233	2.903	5.98	
	33.71 33.8	11 11	344.7 351.7	4.13 6.49	135 135	4238 4250	2819 2826	284.0 289.5	242.9 247.3	1.21 1.86	1.7 1.8	6.0 8.9	0.03	7.8 34.0	291.9 323.5	0.485 0.486	2.392 3.228	3.110 4.196	6.41 8.64	
	33.92	11	359.4	5.05	135	4267	2835	295.4	252.0	1.41	1.7	6.8	0.05	15.3	310.7	0.486	2.868	3.728	7.67	
	33.99	11	389.1	5.01	135	4276	2840	319.5	272.4	1.29	1.7	5.9	0.02	7.6	327.1	0.486	3.335	4.335	8.92	
	34.08	11	329.4	4.95	135	4288	2846	270.2	229.9	1.51	1.8	7.8	0.08	22.0	292.1	0.487	2.398	3.117	6.41	
	34.18	11	350.1	4.95	135	4302	2853	286.8	243.8	1.42	1.7	7.1	0.06	16.7	303.5	0.487	2.679	3.483	7.16	
	34.27	11	341.1	4.26	135	4314	2860	279.1	236.9	1.26	1.7	6.4	0.04	10.8	289.9	0.487	2.345	3.049	6.26	
	34.36 34.45	11 11	341.3 314.4	3.76 3.12	125 125	4326 4337	2867 2872	278.9 256.7	236.5 217.3	1.11 1.00	1.7 1.7	5.6 5.5	0.02	4.8 3.3	283.7 259.9	0.487 0.488	2.204 1.713	2.865 2.227	5.88 4.57	
	34.54	11	306.7	3.12	125	4349	2878	250.7	211.6	1.00	1.7	5.7	0.01	4.9	255.1	0.488	1.623	2.110	4.37	
	34.63	11	314.3	2.62	125	4360	2883	256.1	216.4	0.84	1.6	4.5	0.00	0.0	256.1	0.488	1.642	2.135	4.37	
	34.72	11	304.8	2.88	125	4371	2889	248.1	209.4	0.95	1.7	5.4	0.01	2.6	250.7	0.489	1.546	2.010	4.11	
	34.8	11	292.5	3.11	125	4381	2894	237.9	200.5	1.07	1.7	6.3	0.04	8.7	246.6	0.489	1.474	1.916	3.92	
	34.92	11	266.7	3.37	135	4396	2902	216.6	182.2	1.27	1.8	8.0	0.08	18.8	235.5	0.489	1.294	1.682	3.44	
	35.01 35.1	11 11	278.9 288.9	3.59 3.06	135 125	4408 4420	2908 2915	226.3 234.1	190.2 196.6	1.30 1.07	1.8 1.7	7.9 6.4	0.08	18.7 9.1	245.0 243.3	0.489 0.490	1.447 1.419	1.881 1.845	3.84 3.77	
	35.19	11	289	3.71	135	4432	2920	234.0	196.3	1.29	1.8	7.6	0.07	17.8	251.8	0.490	1.564	2.034	4.15	
	35.28	11	306.6	3.47	125	4444	2927	248.0	207.9	1.14	1.7	6.5	0.04	10.3	258.3	0.490	1.682	2.187	4.46	
	35.37	11	321.3	3.45	125	4455	2932	259.6	217.5	1.08	1.7	5.9	0.02	6.6	266.2	0.491	1.834	2.384	4.86	
	35.46	11	307.3	3.61	135	4466	2938	248.1	207.6	1.18	1.7	6.7	0.05	12.1	260.1	0.491	1.717	2.232	4.55	
	35.55	11	310.5	3.61	135	4478	2945	250.4	209.3	1.17	1.7	6.6	0.04	11.4	261.7	0.491	1.747	2.271	4.63	
	35.62 35.7	11 11	304.1 295.6	3.33 2.93	125 125	4488 4498	2950 2955	245.0 237.9	204.6 198.5	1.10 1.00	1.7 1.7	6.4 6.0	0.04 0.03	9.4 6.3	254.4 244.2	0.491 0.492	1.611 1.434	2.094 1.865	4.26 3.79	
	35.79	11	304		125	4509	2960	244.5	203.8	0.98	1.7	5.7	0.02	4.9	249.3	0.492	1.521	1.978	4.02	
	35.88	11	298.3	3.07	125	4520	2966	239.7	199.5	1.04	1.7	6.2	0.03	7.6	247.3	0.492	1.486	1.931	3.92	
	35.96	11	313.4	3.13	125	4530	2971	251.6	209.4	1.01	1.7	5.7	0.02	4.8	256.4	0.492	1.648	2.142	4.35	
	36.05	11	313.8	3.33	125	4542	2977	251.7	209.2	1.07	1.7	6.1	0.03	7.4	259.0	0.493	1.697	2.205	4.48	
	36.13	11	306.2	3.35	125	4552	2982	245.4	203.8	1.10	1.7	6.4	0.04	9.5	254.9	0.493	1.620	2.106	4.27 4.97	
	36.22 36.3	11 11	324 317.9	3.67 3.58	125 125	4563 4573	2987 2992	259.4 254.3	215.3 210.9	1.14 1.13	1.7 1.7	6.3 6.4	0.03	9.4 9.8	268.7 264.0	0.493 0.493	1.885 1.792	2.450 2.330	4.72	
	36.38	11	306.6	4.54	135	4583	2997	245.0	203.0	1.49	1.8	8.4	0.09	24.8	269.8	0.494	1.907	2.480	5.02	
	36.47	11	303.9	5.54	135	4595	3004	242.6	200.7	1.84	1.9	10.1	0.14	38.3	280.9	0.494	2.142	2.785	5.64	
	36.55	11	315	4.87	135	4606	3010	251.2	207.7	1.56	1.8	8.6	0.10	26.9	278.1	0.494	2.080	2.704	5.47	
	36.63	11	331.2	4.35	135	4617	3015	263.9	218.0	1.32	1.8	7.2	0.06	16.4	280.2	0.494	2.127	2.765	5.59	
	36.72 36.8	11 11	300.6 294.6	4.07 3.37	135 125	4629 4640	3022 3028	239.3 234.3	197.3 193.0	1.36 1.15	1.8 1.7	8.0 7.0	0.08	20.7 13.2	259.9 247.4	0.495 0.495	1.713 1.489	2.227 1.935	4.50 3.91	
	36.89	11	285.7	3.69	135	4651	3028	234.3	186.8	1.13	1.7	8.0	0.03	19.7	247.4	0.495	1.489	1.933	3.88	
	36.98	11	265.5	4.95	135	4663	3040	210.7	173.1	1.88	1.9	11.3	0.17	42.6	253.3	0.495	1.591	2.068	4.17	
	37.06	11	266	5.15	135	4674	3046	210.9	173.1	1.95	1.9	11.6	0.18	45.2	256.1	0.496	1.643	2.135	4.31	
	37.13	11	267.5	4.79	135	4683	3051	211.9	173.8	1.81	1.9	10.9	0.16	39.9	251.8	0.496	1.564	2.033	4.10	
	37.2	11	246.9	4.85	135	4693	3056	195.4	160.0	1.98	2.0	12.3	0.20	47.4	242.8	0.496	1.411	1.835	3.70	
	37.28 37.36	11 11	283.8 332.6	5.3 5.32	135 135	4703 4714	3062 3068	224.4 262.8	183.8 215.2	1.88 1.61	1.9 1.8	10.9 8.7	0.16 0.10	41.9 28.4	266.3 291.2	0.496 0.496	1.837 2.376	2.388 3.089	4.81 6.22	
	07.00	11	552.0	3.32	100	7/14	5000	202.0	413.4	1.01	1.0	0.7	0.10	20.4	271.2	0.770	2.370	5.007	0.22	

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 1

Depth to Groundwater: 11 feet

Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Stress Stress Stress (TSF) (TSF) (PCF) (PSF) (PSF) (%) Dqcin (qcin)cs Ratio M7.5 M6.50 Safety (FT) (FT) Qc1N 0 Comments Ic 37.45 11 358.2 45 135 4726 3074 282.7 231.4 1.26 1.7 6.6 0.0412.3 295.0 0.496 2.467 3.207 6.46 37.53 11 339.7 3.83 125 4737 3080 267.8 219.0 1.14 1.7 6.2 0.03 8.7 276.6 0.497 2.047 2.662 5.36 37.61 11 352.5 3.76 125 4747 3085 277.7 226.9 1.07 1.7 5.7 0.02 5.0 282.7 0.497 2.180 2.835 5.70 37.7 11 345.1 3.69 125 4758 3090 271.6 221.7 1.08 1.7 5.8 0.02 5.9 277.5 0.497 2.068 2.688 5.41 37.78 11 348.6 3.55 125 4768 274.1 223.6 1.03 1.7 0.01 277.6 0.497 2.070 2.691 37.86 11 367.2 3.23 125 4778 3101 288.5 235.2 0.89 4.4 0.00 0.0 288.5 0.498 2.314 3.008 6.04 1.6 37.95 374.3 3.63 125 4790 293.8 239.4 0.98 4.8 0.00 293.8 0.498 2.440 3.172 6.37 11 3106 1.6 0.0 38.02 4.28 125 1.08 0.00 2.933 11 397.6 4798 3111 311.9 254.0 1.6 5.1 1.1 313.10.498 3.813 7.66 38.18 393.8 2.96 125 250.7 0.00 0.499 3.652 11 4818 3121 308.4 0.76 1.5 3.3 0.0 308.4 2.809 7.32 38.27 11 372.1 2.78 125 4830 3126 291.2 236.4 0.75 1.6 3.6 0.00 0.0 291.2 0.4992.376 3.089 6.19 38.36 11 371.8 3.35 125 4841 3132 290.7 235.8 0.91 1.6 4.5 0.00 0.0 290.7 0.499 2.364 3.074 6.16 3.28 3137 38.45 392.1 125 4852 306.3 248.3 0.84 3.9 0.00 306.3 0.499 2.752 3.578 11 0.0 7.16 38.54 11 391.8 2.05 115 4863 3143 305.8 247.7 0.53 1.4 1.9 0.00 0.0 305.8 0.500 2.739 3.560 7.13 38.62 11 342.3 1.96 115 4873 3147 267.0 215.9 0.58 1.5 2.8 0.00 0.0 267.0 0.500 1.849 2,404 4.81 4.3 38.71 11 275.4 1.7 115 4883 3152 214.6 173.1 0.62 1.6 0.00 0.0 214.6 0.500 0.999 1.299 2.60 38.81 210.8 1.64 115 4895 3157 164.1 131.9 0.79 7.1 0.06 9.8 174.0 0.501 0.570 0.741 1.48 11 1.8 38.9 117.5 17.2 0.501 0.307 0.399 11 151 1.2 115 4905 3162 93.9 0.81 1.9 9.8 0.13 134.7 0.80 Liquefaction 38.99 125 0.501 99.3 1.01 4915 3167 77.2 1.04 15.5 0.28 107.3 0.195 0.253 0.51 Liquefaction 11 61.1 2.1 30.1 39.09 11 74.8 1.04 125 4928 3173 58.1 45.6 1.44 2.3 21.6 0.44 46.4 104.5 0.501 0.186 0.242 0.48 Liquefaction 39.18 1.12 35.6 0.502 NonLiafble. 11 45.9 135 4939 3179 27.3 2.58 2.6 35.7 0.80 142.5 178.1 0.605 0.787 1.57 39.28 11 25.8 1.29 135 4952 3186 20.0 14.6 5.53 3.0 60.3 0.80 80.0 100.0 0.502 0.1730.225 0.45 NonLigfble. 39.37 11 16.3 1 19 135 4965 3192 12.6 87 8 61 33 83.2 0.80 50.5 63.1 0.502 0.103 0.134 0.27 NonLiqfble. 39 47 11 17.7 0.89 125 4978 3200 13.7 9.5 5.85 3.2 72.0 0.80 54.8 68.5 0.502 0.110 0.143 0.28 NonLiqfble. 39.57 11 17.2 1.01 135 4991 3206 13.3 92 6.87 3.2 76.4 0.80 53.2 66.5 0.503 0.107 0.139 0.28 NonLiqfble. 39.66 11 36.4 1.1 135 5003 3212 28.1 21.1 3.25 2.8 43.6 0.80 112.4 140.5 0.503 0.338 0.439 0.87 NonLiqfble. 39.75 11 70.4 1.44 135 5015 3219 54.3 42.2 2.12 2.4 26.7 0.58 74.9 129.2 0.503 0.281 0.365 0.73 Liquefaction 39.85 11 53.8 1.43 135 5028 3226 41.4 31.8 2.79 2.6 34.3 0.78 148.7 190.2 0.503 0.720 0.936 1.86 39.94 35.1 1.43 135 5041 3233 4.39 2.9 49.3 108.0 135.1 0.503 0.309 0.402 NonLiqfble. 11 27.0 20.1 0.80 0.80 40.04 135 0.465 11 21.4 1.3 5054 3240 16.4 11.6 6.89 3.2 70.3 0.80 65.8 82.2 0.1320.171 0.37 NonLigfble. 40.14 1.2 5068 3247 13.2 3.3 0.80 0.466 NonLiafble. 11 17.2 135 9.0 8.18 80.8 52.8 66.0 0.107 0.139 0.30 40.24 17.6 1.44 135 5081 3255 13.5 9.2 9.56 3.3 83.9 0.80 67.5 0.466 0.30 NonLiafble. 11 54.0 0.109 0.141 2 85 40.34 11 43 4 135 5095 3262 33.2 25.0 6.98 29 53.5 0.80 133.0 166.2 0.466 0.507 0.659 1.42 NonLiafble. 40.43 11 68 1 3 78 135 5107 3268 52.1 40.1 5 77 2.7 41.6 0.80 208.5 260.6 0.466 1 726 2.244 4 81 NonLiqfble. 40.53 11 87.5 4.56 135 5120 3276 66.9 51.8 5.37 2.6 36.5 0.80 267.6 334.5 0.466 3.560 4.627 9.92 NonLiqfble. 40.63 11 93.7 4.19 135 5134 3283 71.6 55.5 4.60 2.6 33.1 0.75 216.5 288.0 0.467 2.302 2.993 6.41 40.72 145.4 11 4.61 135 5146 3289 110.9 86.8 3.23 2.3 22.9 0.48 101.3 212.3 0.467 0.969 1.260 2.70 40.82 11 162.3 3.78 135 5159 3297 123.7 96.9 2.37 2.2 18.3 0.35 67.8 191.5 0.467 0.733 0.953 2.04 40.91 166.1 3.7 135 5172 3303 126.4 99.0 2.26 2.2 17.6 0.34 64.0 190.5 0.467 0.723 0.940 41.01 11 144.6 3.67 135 5185 3311 110.0 85.8 2.58 2.2 20.4 0.41 77.0 187.0 0.467 0.688 0.895 1.91 41.11 132.2 3.05 135 5199 3318 100.4 78.1 2.35 2.2 20.4 0.41 70.1 170.5 0.467 0.541 0.703 1.50 11 3325 2.2 Low F.S. 41.21 11 122.4 2.44 135 5212 92.9 72.0 2.04 19.7 0.39 60.3 153.2 0.468 0.414 0.539 1.15 41.31 11 112.4 1.86 135 5226 3332 85.2 65.9 1.69 2.2 18.9 0.37 50.2 135.4 0.468 0.311 0.404 0.86 Liquefaction 41.41 11 129.8 1.65 135 5239 3340 98.3 76.1 1.30 2.1 15.0 0.27 35.9 134.2 0.468 0.305 0.396 0.85 Liquefaction 41.64 11 145.2 2.3 135 5270 3356 109.7 84.9 1.61 2.1 15.8 0.29 44.6 154.3 0.468 0.422 0.548 1.17 Low F.S. 41.74 11 126.6 2.65 135 5284 3364 95.5 73.7 2.14 2.2 20.0 0.40 63.8 159.3 0.469 0.456 0.593 1.27 41.84 11 69.4 2.47 135 5297 3371 52.3 39.6 3.70 2.6 34.8 0.80 204.7 257.0 0.469 1.658 2.156 4.60 135 41.94 43.7 2.12 5311 3378 32.9 2.8 0.80 0.469 0.494 0.642 NonLiqfble. 11 24.3 5.17 48.5 131.6 164.5 1.37 42.04 11 27 1.71 135 5324 3385 20.3 14.4 7.03 3.1 65.6 0.80 81.2 101.5 0.469 0.177 0.230 0.49 NonLiqfble. 42.14 11 20.3 1.37 135 5338 3393 15.2 10.4 7.77 3.2 75.9 0.80 61.0 76.2 0.469 0.121 0.158 0.34 NonLiqfble. 0.141 42.24 1.03 135 5351 3400 6.72 3.2 0.80 67.5 0.470 0.30 NonLiqfble. 11 18 13.5 9.0 76.4 54.0 0.109 42.34 125 0.470 14.5 0.89 5365 3407 10.9 6.9 7.53 3.4 0.80 43.5 54.3 0.095 0.123 0.26 NonLigfble. 11 86.4 42.44 0.85 9.03 11 12.1 125 5377 3413 9.1 5.5 3.5 98.0 0.80 36.2 45.3 0.470 0.089 0.115 0.25 NonLigfble. 42.55 11 11.4 0.79 125 5391 3420 8.5 5.1 9.08 3.5 100.7 0.80 34.1 42.6 0.470 0.087 0.113 0.24NonLigfble. 42.65 11 11.6 0.75 125 5403 3426 8.7 5.2 8.43 3.5 98.2 0.80 34.7 43.4 0.470 0.088 0.114 0.24NonLiqfble. 42 75 11 117 0.73 125 5416 3433 8 7 5.2 8 12 3 5 969 0.80 34 9 43 7 0.471 0.088 0.114 0.24 NonLiqfble 42.85 11 11.7 0.73 125 5428 3439 8.7 5.2 8.12 3.5 97.0 0.80 34 9 43.6 0.471 0.088 0.114 0.24NonLiqfble. 42.95 11 11.8 0.73 125 5441 3445 8.8 5.3 8.04 3.5 96.5 0.80 35.2 44.0 0.471 0.088 0.114 0.24 NonLiqfble. 45.4 43.05 12.2 5453 3452 7.92 0.471 NonLiqfble. 11 0.75 125 9.1 5.5 3.5 94.8 0.80 36.3 0.089 0.115 0.24 43.15 125 7.38 3.4 NonLiqfble. 11 13.3 0.78 5466 3458 9.9 6.1 89.8 0.80 39.6 49.5 0.472 0.091 0.119 0.25 43.23 11 13.4 0.81 125 5476 3463 10.0 6.2 7.60 3.4 90.2 0.80 39.9 49.8 0.472 0.091 0.119 0.25 NonLiqfble. 43.33 14.9 0.86 125 5488 3469 11.1 7.08 3.3 84.7 0.80 44.3 55.3 0.472 0.096 0.124 0.26 11 7.0 NonLigfble. 43.43 125 3475 0.472 0.127 NonLigfble. 15.4 0.91 5501 7.19 83.9 0.80 45.7 57.1 0.097 0.27 11 11.4 7.3 3.3 43.53 0.93 125 5513 3482 6.58 3 3 0.80 50.1 62.7 0.472 0.134 0.28 NonLiafble. 11 16.9 12.5 8 1 78.8 0.103

EQ Magnitude (Mw):

PGA (g):

6.5

0.54

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 1

Depth to Groundwater: 11 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress	-	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	$(q_{c1N})_{es}$	Ratio	M7.5	M6.50	Safety	Comments
	43.64	11	18.3	0.93	135	5527	3488	13.6	8.9	5.99	3.2	74.2	0.80	54.2	67.8	0.473	0.109	0.142	0.30	NonLiqfble.
	43.74	11	19.1	0.94	135	5541	3496	14.1	9.3	5.76	3.2	72.1	0.80	56.5	70.7	0.473	0.113	0.142	0.31	NonLiqfble.
	43.84	11	17.7	0.94	125	5554	3503	13.1	8.5	6.30	3.2	76.5	0.80	52.3	65.4	0.473	0.106	0.138	0.29	NonLiqfble.
	43.94	11	16.9	0.97	125	5567	3509	12.5	8.0	6.87	3.3	80.0	0.80	49.9	62.4	0.473	0.103	0.133	0.28	NonLiqfble.
	44.05	11	17.2	0.97	135	5580	3516	12.7	8.2	6.73	3.3	79.1	0.80	50.8	63.5	0.474	0.104	0.135	0.28	NonLiqfble.
	44.15	11	17.9	0.94	135	5594	3523	13.2	8.6	6.22	3.2	76.1	0.80	52.8	66.0	0.474	0.107	0.139	0.29	NonLiqfble.
	44.25 44.36	11 11	17.8 17.9	0.94 0.94	135 135	5607 5622	3531 3539	13.1 13.2	8.5 8.5	6.27 6.23	3.2	76.5 76.3	0.80	52.4 52.7	65.5 65.8	0.474 0.474	0.106 0.107	0.138 0.138	0.29 0.29	NonLiqfble. NonLiqfble.
	44.46	11	18.5	0.96	135	5636	3546	13.6	8.8	6.12	3.2	74.9	0.80	54.4	68.0	0.474	0.109	0.138	0.30	NonLiqfble.
	44.57	11	19.8	1	135	5650	3554	14.5	9.5	5.89	3.2	72.0	0.80	58.1	72.7	0.474	0.116	0.150	0.32	NonLiqfble.
	44.67	11	20.5	1.02	135	5664	3561	15.0	9.9	5.77	3.2	70.6	0.80	60.1	75.2	0.475	0.119	0.155	0.33	NonLiqfble.
	44.75	11	20	1.03	135	5675	3567	14.7	9.6	6.00	3.2	72.2	0.80	58.6	73.3	0.475	0.117	0.152	0.32	NonLiqfble.
	44.83	11	23.2	1.03	135	5686	3573	17.0	11.4	5.06	3.1	64.5	0.80	67.9	84.9	0.475	0.137	0.178	0.37	NonLiqfble.
	44.94 45.04	11 11	21.8 21.1	1 0.97	135 135	5700 5714	3581 3588	15.9 15.4	10.6 10.2	5.28 5.32	3.1	67.2 68.3	0.80	63.8 61.7	79.7 77.1	0.475 0.475	0.127 0.123	0.165 0.159	0.35 0.34	NonLiqfble. NonLiqfble.
	45.14	11	20.6	0.95	135	5727	3595	15.0	9.9	5.36	3.2	69.2	0.80	60.1	75.2	0.475	0.123	0.155	0.33	NonLiqfble.
	45.25	11	19.2	0.96	135	5742	3603	14.0	9.1	5.88	3.2	73.4	0.80	56.0	70.0	0.475	0.112	0.145	0.31	NonLiqfble.
	45.35	11	19	0.98	135	5756	3610	13.8	8.9	6.08	3.2	74.5	0.80	55.3	69.2	0.476	0.111	0.144	0.30	NonLiqfble.
	45.46	11	17.3	0.96	135	5771	3618	12.6	8.0	6.66	3.3	79.6	0.80	50.3	62.9	0.476	0.103	0.134	0.28	NonLiqfble.
	45.56	11	17.1	0.91	125	5784	3626	12.4	7.8	6.41	3.3	79.2	0.80	49.7	62.1	0.476	0.102	0.133	0.28	NonLiqfble.
	45.67 45.77	11 11	16.5 15.7	0.85 0.77	125 125	5798 5810	3633 3639	12.0 11.4	7.5 7.0	6.25 6.02	3.3 3.3	80.0 80.9	0.80 0.80	47.9 45.6	59.9 56.9	0.476 0.476	0.100 0.097	0.130 0.126	0.27 0.27	NonLiqfble. NonLiqfble.
	45.88	11	15.7	0.77	125	5824	3646	11.4	6.7	5.70	3.3	80.9	0.80	44.1	55.1	0.477	0.097	0.120	0.26	NonLiqfble.
	45.98	11	14.5	0.68	125	5837	3652	10.5	6.3	5.87	3.3	83.4	0.80	42.0	52.5	0.477	0.093	0.121	0.25	NonLiqfble.
	46.09	11	14.3	0.7	125	5850	3659	10.3	6.2	6.15	3.3	85.0	0.80	41.4	51.7	0.477	0.093	0.121	0.25	NonLiqfble.
	46.19	11	13.7	0.73	125	5863	3665	9.9	5.9	6.78	3.4	89.0	0.80	39.6	49.5	0.477	0.091	0.119	0.25	NonLiqfble.
	46.3	11	14.3	0.79	125	5877	3672	10.3	6.2	6.95	3.4	88.0	0.80	41.3	51.6	0.477	0.093	0.121	0.25	NonLiqfble.
	46.4	11	15.5 18.1	0.89	125 135	5889	3678	11.2	6.8	7.09	3.4	85.5	0.80	44.7	55.9	0.478	0.096	0.125	0.26	NonLiqfble.
	46.5 46.61	11 11	21.6	1.12 1.48	135	5902 5916	3685 3693	13.0 15.6	8.2 10.1	7.39 7.94	3.3	81.1 77.1	0.80	52.2 62.2	65.2 77.8	0.478 0.478	0.106 0.124	0.138	0.29 0.34	NonLiqfble. NonLiqfble.
	46.71	11	28.7	1.82	135	5930	3700	20.6	13.9	7.07	3.1	66.5	0.80	82.6	103.2	0.478	0.182	0.237	0.50	NonLiqfble.
	46.81	11	41.7	2.03	135	5943	3707	30.0	20.9	5.24	2.9	51.7	0.80	119.9	149.8	0.478	0.393	0.511	1.07	NonLiqfble.
	46.91	11	49.3	2.21	135	5957	3714	35.4	24.9	4.77	2.8	46.6	0.80	141.6	177.0	0.478	0.595	0.774	1.62	NonLiqfble.
	47.01	11	51.5	2.32	135	5970	3722	36.9	26.1	4.78	2.8	45.9	0.80	147.7	184.7	0.479	0.666	0.866	1.81	NonLiqfble.
	47.12 47.22	11 11	50.9 49.3	2.22 2.17	135 135	5985 5999	3730 3737	36.5 35.3	25.7 24.8	4.63 4.69	2.8 2.8	45.6 46.5	0.80	145.9 141.1	182.3 176.4	0.479 0.479	0.644 0.591	0.837 0.768	1.75 1.60	NonLiqfble. NonLiqfble.
	47.32	11	50	1.98	135	6012	3744	35.8	25.1	4.09	2.8	44.5	0.80	143.0	178.8	0.479	0.611	0.795	1.66	NonLiqfble.
	47.42	11	42.3	1.72	135	6026	3751	30.2	20.9	4.38	2.8	48.5	0.80	120.9	151.1	0.479	0.401	0.521	1.09	NonLiqfble.
	47.52	11	33	1.44	135	6039	3759	23.6	15.9	4.80	3.0	55.8	0.80	94.2	117.8	0.479	0.232	0.301	0.63	NonLiqfble.
	47.63	11	23.4	1.19	135	6054	3767	16.7	10.8	5.84	3.1	68.7	0.80	66.7	83.4	0.480	0.134	0.174	0.36	NonLiqfble.
	47.73	11	17.9	1.05	135	6068	3774	12.7	7.9	7.06	3.3	81.3	0.80	51.0	63.7	0.480	0.104	0.135	0.28	NonLiqfble.
	47.83 47.93	11 11	15.5 14	0.93 0.81	125 125	6081 6094	3781 3787	11.0 10.0	6.6 5.8	7.47 7.40	3.4 3.4	87.7 91.5	0.80	44.1 39.8	55.1 49.8	0.480 0.480	0.096 0.091	0.124 0.119	0.26 0.25	NonLiqfble. NonLiqfble.
	47.99	11	12.2	0.77	125	6101	3791	8.7	4.8	8.42	3.5	100.5	0.80	34.7	43.3	0.480	0.088	0.114	0.24	NonLiqfble.
	48.11	11	14.5	0.69	125	6116	3799	10.3	6.0	6.03	3.4	85.5	0.80	41.2	51.5	0.480	0.093	0.120	0.25	NonLiqfble.
	48.19	11	14.1	0.66	125	6126	3804	10.0	5.8	5.98	3.4	86.5	0.80	40.0	50.0	0.481	0.092	0.119	0.25	NonLiqfble.
	48.3	11	13.1	0.65	125	6140	3811	9.3	5.3	6.48	3.4	91.3	0.80	37.1	46.4	0.481	0.089	0.116	0.24	NonLiqfble.
	48.39	11	12.5	0.66	125	6151	3816	8.9	4.9	7.00	3.5	95.2	0.80	35.4	44.3	0.481	0.088	0.114	0.24	NonLiqfble.
	48.49 48.6	11 11	12.2 13.8	0.68 0.72	125 125	6164 6177	3822 3829	8.6 9.8	4.8 5.6	7.46 6.72	3.5 3.4	97.9 90.3	0.80	34.5 39.0	43.2 48.8	0.481 0.481	0.087 0.091	0.114 0.118	0.24 0.25	NonLiqfble. NonLiqfble.
	48.7	11	14.5	0.79	125	6190	3836	10.2	5.9	6.93	3.4	89.1	0.80	41.0	51.2	0.481	0.092	0.120	0.25	NonLiqfble.
	48.8	11	16.4	0.86	125	6202	3842	11.6	6.9	6.47	3.3	83.0	0.80	46.3	57.9	0.482	0.098	0.127	0.26	NonLiqfble.
	48.9	11	18.8	0.93	135	6215	3848	13.3	8.2	5.93	3.2	76.4	0.80	53.0	66.3	0.482	0.107	0.139	0.29	NonLiqfble.
	49	11	20.3	1	135	6228	3855	14.3	8.9	5.82	3.2	73.6	0.80	57.2	71.5	0.482	0.114	0.148	0.31	NonLiqfble.
	49.1	11	20.4	1.09	135	6242	3863	14.4	8.9	6.31	3.2	75.2	0.80	57.4 50.6	71.8	0.482	0.114	0.149	0.31	NonLiqfble.
	49.2 49.3	11 11	21.2 23.3	1.15 1.17	135 135	6255 6269	3870 3877	14.9 16.4	9.3 10.4	6.36 5.80	3.2	74.3 69.5	0.80 0.80	59.6 65.5	74.6 81.9	0.482 0.482	0.119 0.131	0.154 0.170	0.32 0.35	NonLiqfble. NonLiqfble.
	49.4	11	24.8	1.12	135	6282	3884	17.4	11.1	5.17	3.1	65.5	0.80	69.6	87.1	0.483	0.131	0.170	0.38	NonLiqfble.
	49.5	11	26.4	1.08	135	6296	3892	18.5	11.9	4.65	3.0	61.7	0.80	74.1	92.6	0.483	0.154	0.200	0.41	NonLiqfble.
	49.6	11	26.3	1.13	135	6309	3899	18.4	11.9	4.88	3.1	62.8	0.80	73.7	92.1	0.483	0.153	0.199	0.41	NonLiqfble.
	49.7	11	23	1.17	135	6323	3906	16.1	10.2	5.90	3.2	70.5	0.80	64.4	80.5	0.483	0.129	0.167	0.35	NonLiqfble.
	49.8	11	22.3	1.19	135	6336	3913	15.6	9.8	6.22	3.2	72.6 67.0	0.80	62.4	78.0	0.483	0.124	0.161	0.33	NonLiqfble.
	49.91	11	24.3	1.13	135	6351	3921	17.0	10.8	5.35	3.1	67.0	0.80	67.9	84.9	0.483	0.137	0.178	0.37	NonLiqfble.

 $Project \ Name: \ SVRT - Newhall \ Operations - Maintenance \ and \ Storage \ Yard \\ EQ \ Magnitude \ (M_w): \qquad 6.5$ 

 Project Number: 6600.3.001.01
 PGA (g):
 0.54

 Date: September 2005
 MSF:
 1.30

CPT Number: 1

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	50.01	11	24.1	1.14	135	6365	3929	16.8	10.6	5.45	3.1	54.0	0.80	67.3	84.1	0.426	0.135	0.176	0.41	NonLiqfble.

Cone (FT) (FT) (TSF) (TSF) (PCF) (PSF) (PSF)

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 2

Depth to Groundwater: 11 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA** (g): 0.54 **MSF**: 1.30

KCPT Dqcin (qcin)cs Ratio M7.5 M6.50 Safety Comments

Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor
Depth Table Resist. Frict. g Stress Tip Tip Ratio F.C. Stress Stress Stress of

(%)

Q

q<sub>c1N</sub>

0.58	11	104.9	0.95	125	73	73	200.9	2891.6	0.91	1.2	-0.7	0.00	0.0	200.9	0.351	0.834	1.084	3.09	Above W.T.
0.67	11	154.7	1.03	115	84	84	296.3	3691.8	0.67	1.0	-1.7	0.00	0.0	296.3	0.351	2.499	3.248	9.25	Above W.T.
0.77	11	183.7	1.24	115	95	95	351.8	3854.6	0.68	1.1	-1.6	0.00	0.0	351.8	0.351	4.130	5.369	15.30	Above W.T.
0.83	11	185.7	1.25	115	102	102	355.7	3633.3	0.67	1.1	-1.6	0.00	0.0	355.7	0.351	4.264	5.543	15.79	Above W.T.
0.91	11	206.2	0.99	105	111	111	394.9	3701.1	0.48	0.9	-2.4	0.00	0.0	394.9	0.351	5.808	7.550	21.51	Above W.T.
0.96	11	228.6	0.9	105	117	117	437.8	3918.5	0.39	0.8	-2.8	0.00	0.0	437.8	0.351	7.885	10.250	29.20	Above W.T.
1.01	11	248.5	0.85	95	122	122	475.9	4076.1	0.34	0.8	-3.0	0.00	0.0	475.9	0.351	10.105	13.137	37.43	Above W.T.
1.06	11	240.3	0.86	105	127	127	460.2	3793.6	0.36	0.8	-2.9	0.00	0.0	460.2	0.351	9.145	11.889	33.87	Above W.T.
1.11 1.16	11 11	222.4 195.1	0.86 0.86	105 105	132 137	132 137	425.9 373.7	3371.1 2843.9	0.39	0.8 0.9	-2.8 -2.6	0.00	0.0	425.9 373.7	0.351	7.267 4.932	9.447 6.411	26.91 18.27	Above W.T. Above W.T.
1.21	11	172	0.78	105	142	142	329.4	2414.6	0.45	0.9	-2.5	0.00	0.0	329.4	0.351	3.404	4.426	12.61	Above W.T.
1.27	11	142.4	0.98	115	149	149	272.7	1914.1	0.69	1.1	-1.5	0.00	0.0	272.7	0.351	1.966	2.556	7.28	Above W.T.
1.32	11	123.6	1.31	125	154	154	236.7	1599.4	1.06	1.3	0.1	0.00	0.0	236.7	0.351	1.314	1.708	4.87	Above W.T.
1.37	11	123.2	1.34	125	161	161	236.0	1532.1	1.09	1.3	0.3	0.00	0.0	236.0	0.351	1.302	1.692	4.82	Above W.T.
1.42	11	121.2	1.36	125	167	167	232.1	1450.8	1.12	1.3	0.5	0.00	0.0	232.1	0.351	1.243	1.616	4.60	Above W.T.
1.47	11	122	1.39	125	173	173	233.7	1407.6	1.14	1.3	0.6	0.00	0.0	233.7	0.351	1.266	1.646	4.69	Above W.T.
1.53	11	114.1	1.42	125	181	181	218.5	1261.7	1.25	1.4	1.1	0.00	0.0	218.5	0.351	1.050	1.366	3.89	Above W.T.
1.58 1.8	11 11	88.4 54.9	1.51 1.42	135 135	187 217	187 217	169.3 105.1	944.6 505.7	1.71 2.59	1.5	3.3 8.2	0.00	0.0 9.9	169.3 115.0	0.351	0.531 0.221	0.691 0.288	1.97 0.82	Above W.T.
1.89	11	48.7	1.42	135	229	229	93.3	424.6	2.88	1.8 1.9	9.9	0.09	14.0	107.3	0.351	0.195	0.253	0.82	Above W.T. Above W.T.
1.98	11	39.1	1.28	135	241	241	74.9	323.5	3.28	2.0	12.5	0.13	18.8	93.7	0.351	0.153	0.203	0.72	Above W.T.
2.06	11	35.2	1.08	135	252	252	67.4	278.6	3.08	2.0	12.7	0.21	17.6	85.0	0.351	0.137	0.178	0.51	Above W.T.
2.14	11	33.3	0.99	135	263	263	63.8	252.6	2.98	2.0	13.0	0.21	17.4	81.2	0.351	0.130	0.169	0.48	Above W.T.
2.24	11	36.4	0.95	135	276	276	69.7	262.7	2.62	1.9	11.5	0.17	14.7	84.5	0.351	0.136	0.177	0.50	Above W.T.
2.33	11	34.8	0.88	135	288	288	66.6	240.4	2.54	2.0	11.8	0.18	14.7	81.4	0.351	0.130	0.169	0.48	Above W.T.
2.41	11	32.4	0.81	135	299	299	62.1	215.7	2.51	2.0	12.4	0.20	15.2	77.3	0.351	0.123	0.160	0.46	Above W.T.
2.5	11	29.8	0.76	135	311	311	57.1	190.5	2.56	2.0	13.4	0.22	16.6	73.6	0.351	0.117	0.152	0.43	Above W.T.
2.59 2.69	11 11	29.8 27.7	0.68 0.59	125 125	323 336	323 336	57.1 53.1	183.3 163.9	2.29 2.14	2.0 2.0	12.6 12.8	0.20 0.21	14.6 14.0	71.7 67.1	0.351	0.114 0.108	0.149 0.140	0.42	Above W.T. Above W.T.
2.78	11	25.3	0.64	125	347	347	48.5	144.8	2.55	2.1	15.4	0.21	18.7	67.2	0.351	0.108	0.140	0.40	Above W.T.
2.88	11	27.6	0.61	125	360	360	52.9	152.5	2.22	2.0	13.7	0.23	16.0	68.9	0.351	0.110	0.144	0.41	Above W.T.
2.97	11	32.4	0.63	125	371	371	62.1	173.7	1.96	1.9	11.6	0.18	13.3	75.3	0.351	0.120	0.156	0.44	Above W.T.
3.07	11	29.3	0.55	125	383	383	56.1	151.8	1.89	2.0	12.3	0.19	13.5	69.6	0.351	0.111	0.145	0.41	Above W.T.
3.16	11	32.3	0.59	125	395	395	61.9	162.7	1.84	1.9	11.5	0.17	13.1	74.9	0.351	0.119	0.155	0.44	Above W.T.
3.26	11	32.2	0.51	125	407	407	61.7	157.2	1.59	1.9	10.6	0.15	10.9	72.6	0.351	0.116	0.150	0.43	Above W.T.
3.35	11	32.4	0.49	125	418	418	62.1	153.9	1.52	1.9	10.4	0.14	10.5	72.5	0.351	0.115	0.150	0.43	Above W.T.
3.45	11	30.6 26.7	0.6 0.56	125 125	431	431	58.6	141.0	1.97	2.0	13.2 15.2	0.22 0.27	16.5 19.1	75.1	0.351	0.119	0.155	0.44	Above W.T.
3.54 3.64	11 11	27.1	0.54	125	442 455	442 455	51.1 51.9	119.8 118.2	2.11	2.1 2.1	14.8	0.27	18.5	70.3 70.4	0.351	0.112 0.112	0.146 0.146	0.42	Above W.T. Above W.T.
3.73	11	20.4	0.61	125	466	466	39.1	86.6	3.02	2.3	22.1	0.46	32.9	72.0	0.351	0.112	0.149	0.42	Above W.T.
3.83	11	22.1	0.7	125	478	478	42.3	91.4	3.20	2.3	22.2	0.46	36.1	78.4	0.351	0.125	0.162	0.46	Above W.T.
3.93	11	22.8	0.69	125	491	491	43.7	91.9	3.06	2.3	21.6	0.44	34.9	78.6	0.351	0.125	0.163	0.46	Above W.T.
4.03	11	21.5	0.77	125	503	503	41.2	84.4	3.62	2.4	24.6	0.52	45.4	86.5	0.351	0.140	0.182	0.52	Above W.T.
4.12	11	21.1	0.73	125	515	515	40.4	81.0	3.50	2.4	24.7	0.52	44.7	85.1	0.351	0.137	0.178	0.51	Above W.T.
4.22	11	21.6	0.67	125	527	527	41.2	80.9	3.14	2.3	23.3	0.49	39.4	80.5	0.351	0.129	0.167	0.48	Above W.T.
4.32	11	20 20 F	0.65	125	540	540	37.7	73.1	3.29	2.4	25.1	0.54	43.4	81.1	0.351	0.130	0.169	0.48	Above W.T.
4.41 4.51	11 11	20.5 19.7	0.67 0.73	125 125	551 563	551 563	38.2 36.3	73.4 68.9	3.31 3.76	2.4 2.4	25.1 27.5	0.54 0.60	44.2 54.5	82.4 90.8	0.351	0.132 0.150	0.172 0.195	0.49 0.55	Above W.T. Above W.T.
4.61	11	19.8	0.73	125	576	576	36.1	67.8	3.79	2.4	27.8	0.61	56.2	92.3	0.351	0.150	0.199	0.57	Above W.T.
4.7	11	18.4	0.65	125	587	587	33.2	61.7	3.59	2.4	28.2	0.62	54.3	87.6	0.351	0.142	0.185	0.53	Above W.T.
4.8	11	16.7	0.54	125	600	600	29.8	54.7	3.29	2.5	28.6	0.63	51.1	80.9	0.351	0.129	0.168	0.48	Above W.T.
4.9	11	16.6	0.48	125	612	612	29.4	53.2	2.95	2.4	27.6	0.60	44.5	73.8	0.351	0.117	0.153	0.43	Above W.T.
5.1	11	16.1	0.6	125	637	637	27.9	49.5	3.80	2.5	32.0	0.72	71.7	99.6	0.351	0.172	0.223	0.64	Above W.T.
5.2	11	15.3	0.64	125	650	650	26.3	46.1	4.27	2.6	34.7	0.79	100.4	126.7	0.351	0.269	0.350	1.00	Above W.T.
5.3	11	17	0.69	125	662	662	28.9	50.3	4.14	2.5	33.0	0.75	85.0	113.9	0.351	0.218	0.283	0.81	Above W.T.
5.4	11	15.7	0.7	125	675	675	26.4	45.5	4.56	2.6	35.8	0.80	105.8	132.2	0.351	0.295	0.384	1.09	Above W.T.
5.5 5.6	11	14.9	0.7	125	687	687 700	24.9	42.4	4.81	2.6	37.8	0.80	99.5	124.4 123.2	0.351	0.259	0.337	0.96	Above W.T.
5.6 5.7	11 11	14.9 15.7	0.71 0.69	125 125	700 712	700 712	24.6 25.7	41.6 43.1	4.88 4.50	2.7 2.6	38.3 36.5	0.80 0.80	98.6 103.0	123.2	0.351	0.254 0.278	0.330 0.362	0.94 1.03	Above W.T. Above W.T.
5.8	11	14.5	0.09	125	725	725	23.6	39.0	4.95	2.7	39.5	0.80	94.3	117.9	0.351	0.278	0.302	0.86	Above W.T.
5.9	11	14.6	0.66	125	737	737	23.5	38.6	4.64	2.7	38.6	0.80	94.1	117.7	0.351	0.232	0.301	0.86	Above W.T.
6	11	13.8	0.64	125	750	750	22.1	35.8	4.77	2.7	40.3	0.80	88.2	110.3	0.351	0.205	0.266	0.76	Above W.T.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 2

Depth to Groundwater: 11 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 **MSF:** 1.30

Control   Cont		Donth	Water	Tip Posist	Sleeve								F.C					-	•		
6.1   11   137   0.62   125   762   762   217   34.9   4.66   2.7   40.3   0.30   86.9   108.6   0.33   0.19   0.159   0.73   Abnew W.T.   6.2   11   136   0.66   125   127   777   21.4   34.8   4.84   2.7   41.9   0.00   85.5   106.9   0.33   0.19   0.159   0.74   Abnew W.T.   6.4   11   137   0.66   125   127   777   21.4   34.8   4.84   2.7   41.9   0.00   85.5   106.9   0.35   0.19   0.19   0.259   0.74   Abnew W.T.   6.5   11   14.0   0.66   125   127   122   22.9   35.7   4.55   2.7   36.6   0.00   93.9   11.9   0.19   0.259   0.74   Abnew W.T.   6.6   11   154   0.09   125   827   827   22.9   35.7   4.55   2.7   36.6   0.00   93.9   11.9   0.35   0.19   0.258   0.81   Abnew W.T.   6.6   11   154   0.09   125   827	Cone	-				_			-	_		Ic		Ксрт	Dacin	(QcIN)es					Comments
62         11         126         084         125         775         775         214         34.0         83.1         1092         035         131         025         037         775         214         038         23.2         109         031         031         031         031         036         034         038         038         031         038 </th <th></th> <th>(1 1)</th> <th>(1 1)</th> <th>(101)</th> <th>(101)</th> <th>(101)</th> <th>(151)</th> <th>(101)</th> <th>1</th> <th>·</th> <th></th> <th></th> <th>(,,,)</th> <th></th> <th></th> <th>1 7</th> <th>14410</th> <th></th> <th>1120120</th> <th>Survey</th> <th>Comments</th>		(1 1)	(1 1)	(101)	(101)	(101)	(151)	(101)	1	·			(,,,)			1 7	14410		1120120	Survey	Comments
62         11         126         084         125         775         775         214         34.0         83.1         1092         035         131         025         037         775         214         038         23.2         109         031         031         031         031         036         034         038         038         031         038 </td <td></td>																					
62         11         126         084         125         775         775         214         34.0         83.1         1092         035         131         025         037         775         214         038         23.2         109         031         031         031         031         036         034         038         038         031         038 </td <td></td> <td>6.1</td> <td>11</td> <td>12.7</td> <td>0.62</td> <td>105</td> <td>762</td> <td>762</td> <td>21.7</td> <td>24.0</td> <td>1 66</td> <td>2.7</td> <td>40.2</td> <td>0.80</td> <td>96.0</td> <td>100 6</td> <td>0.251</td> <td>0.100</td> <td>0.250</td> <td>0.74</td> <td>Aboro W.T</td>		6.1	11	12.7	0.62	105	762	762	21.7	24.0	1 66	2.7	40.2	0.80	96.0	100 6	0.251	0.100	0.250	0.74	Aboro W.T
6.8   11   12, 0   6.8   125   787   787   787   787   787   787   787   788																					
6.5   11   149   0.66   125   812   812   229   357   4.55   2.7   3.96   0.80   915   144   0.35   0.210   0.25   0.29   0.88   3.08   M.New W.T.   6.8   11   179   0.77   125   850   850   350   0.45   0.35   0.25   0.25   0																					
6.66   11   154   0.69   128   325																					
6.67   11   16   0.75   128   378   877   242   37.2   4.81   27.   39.8   39.8   39.8   39.8   31.   31.   31.   32.   30.9   31.   34.   32.   33.   34.																					
6.88																					
6.98																					
7.07 11 21.5 0.65 125 83 88.8 13.7 4.7. 3.09 2.5 29.6 0.66 69.9 25.8 848 0.351 0.154 0.200 0.57 Above W.T. 7.7 7.7 11 12.19 0.06 125 806 806 32.0 44.05 2.5 4.2 83.8 0.05 52.8 848 0.351 0.157 0.175 0.100 Above W.T. 7.37 11 11 19.7 0.06 125 908 918 31.4 46.5 2.74 2.4 2.85 0.06 32.5 8.8 91.0 1.35 0.151 0.175 0.100 Above W.T. 7.47 11 19.6 0.65 125 933 933 2.8 14 1.0 3.0 2.6 33.1 0.07 84.3 11.2 0.151 0.151 0.175 0.06 Above W.T. 7.57 11 11 19.0 0.65 125 938 938 2.8 14 1.0 3.0 2.6 33.1 0.05 84.3 11.2 0.151 0.152 0.151 0.100 Above W.T. 7.57 11 11 19.1 0.059 1.25 938 938 2.5 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0			11																	0.94	
7.77 11 21, 60.6 125 80, 80.8 105 98 13.4 479 2.80 2.4 2.83 0.62 12.8 81.8 0.351 0.137 0.178 0.51 Above W.T. 7.37 11 19.7 0.61 125 921 921 924 418 3.07 2.5 319 0.72 72.1 100.5 0.351 0.135 0.172 0.27 0.50 Above W.T. 7.47 11 19.6 0.65 125 93 933 281 41.0 3.40 2.5 31.9 0.72 72.1 100.5 0.351 0.120 0.275 0.78 Above W.T. 7.47 11 18.3 0.64 125 946 946 26.0 37.7 3.59 2.6 35.1 0.30 10.8 127.2 0.351 0.270 0.351 0.170 0.078 0.078 Above W.T. 7.47 11 18.0 0.64 125 946 946 26.0 37.7 3.60 3.351 0.20 0.275 0.351 0.270 0.351 0.170 0.078 0.078 Above W.T. 7.47 11 18.0 0.59 125 971 971 20.8 38.3 3.17 2.6 33.1 0.75 81.0 11.3 0.05 0.351 0.270 0.255 0.73 Above W.T. 7.47 11 13.5 0.47 125 946 946 2.6 3.5 0.34 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2																					
7.27 11   11   10   0.58   125   91   921   284   41.8   31.7   27.4   24   28.5   0.35   0.35   0.35   0.35   0.17   0.25   0.55   Above W.T.   7.47   11   19.6   0.65   125   931   932   28.1   41.0   3.07   2.5   31.9   0.75   0.35   1.17   0.22   0.25   0.5   Above W.T.   7.47   11   19.6   0.65   125   933   933   28.1   41.0   3.0   2.6   33.1   0.75   81.0   10.3   0.35   0.25   0.35   1.06   Above W.T.   7.47   11   18   0.61   125   938   938   28.1   41.0   3.0   3.0   2.6   33.1   0.75   81.0   10.8   0.35   0.25   0.35   1.06   Above W.T.   7.47   11   16   0.69   125   931   931   28.1   41.0   3.0   3.2   0.35   0.25   0.35   0.25   0.35   0.25   0.37   1.06   Above W.T.   7.48   11   10.9   0.53   125   933   938   23.6   33.3   3.25   2.5   0.30   0.0   1.0   1.0   0.35   0.25   0.35   0.00   0.0   0.0   0.0   7.49   11   13.0   0.41   125   10.8   0.0   0.1   0.1   0.2   0.2   0.0																					
7.47 11 19.6 0.65 12.5 91.9 92.1 28.4 41.8 3.7 2.5 31.9 0.72 72.1 100.5 0.351 0.174 0.227 0.65 Above W.T. 7.67 11 18.3 0.64 12.5 94.6 94.6 26.0 37.7 3.59 1.6 3.51 0.10 0.14 130.2 0.351 0.210 0.275 0.78 Above W.T. 7.67 11 18.0 0.69 12.5 94.8 94.8 24.8 38.3 31.7 2.6 33.1 0.75 10.1 10.8 0.351 0.120 0.255 0.71 10.6 Above W.T. 7.77 11 1 15.0 0.59 12.5 97.8 94.8 22.6 35.2 0.351 0.10 10.8 10.5 0.10 10.8 0.351 0.10 0.255 0.13 10.1 Above W.T. 7.77 11 1 15.0 0.59 12.5 97.8 94.8 22.6 35.2 0.351 0.00 10.8 12.7 0.351 0.250 0.255 0.73 Above W.T. 7.87 11 1 13.5 0.47 12.5 99.6 99.6 18.7 2.61 3.01 2.7 41.8 0.00 74.9 93.6 0.351 0.147 0.190 0.55 0.03 Above W.T. 8.67 11 13.0 0.44 12.5 10.0 10.0 10.0 10.1 13.7 14.8 1.5 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2																					
7.47   11   19.6   0.65   125   933   931   281   410   3.40   2.6   33.1   0.75   84.3   12.3   0.351   0.25   0.75   3.7   1.06   Now W.T.   7.67   11   18.1   0.61   125   958   958   254   3.66   3.48   2.6   3.52   0.80   10.18   12.2   0.351   0.258   0.357   1.06   Abow W.T.   7.77   11   19.1   0.59   125   981   998   254   3.66   3.48   2.6   3.52   0.80   10.18   12.2   0.351   0.258   0.355   0.355   0.30   0.45   0.255   0.35   3.258   0.30   0.45   0.355   0.3																					
7.67		7.47	11	19.6	0.65	125	933	933	28.1	41.0	3.40	2.6	33.1	0.75		112.3	0.351	0.212		0.78	Above W.T.
7.77   11   19.1   0.59   125   971   26.8   38.3   3.17   2.6   3.51   0.75   8.10   10.78   0.351   0.230   0.36   0.360   0.86   0.86   0.77   0.73   0.85   0.75   0.8																					
787 11 15,0 0.75 12 18 18 18 18 18 18 18 18 18 18 18 18 18																					
1.   13.5																					
8.07   11   13   0.44   125   1008   1008   17.9   24.8   3.52   27.   41.8   0.80   71.7   89.6   0.551   0.147   0.191   0.54   Above W.T.   8.27   11   9.3   0.42   115   1032   1032   12.7   17.0   4.78   2.9   54.3   0.80   50.7   6.33   0.551   0.104   0.103   0.38   Above W.T.   8.46   11   9.9   0.5   125   1054   1044   12.5   16.6   5.30   3.0   6.7   0.80   4.8   6.2   0.351   0.104   0.135   0.38   Above W.T.   8.56   11   10.6   0.58   125   1054   1044   1044   12.5   16.6   5.30   3.0   55.7   0.80   4.8   6.2   0.351   0.108   0.102   0.133   0.38   Above W.T.   8.56   11   10.6   0.58   125   1074   1074   14.2   18.9   5.76   3.0   5.56   0.80   53.4   6.7   0.351   0.108   0.140   0.40   Above W.T.   8.56   11   10.6   0.58   125   1079   1079   14.7   19.4   6.12   3.0   55.6   0.80   53.6   6.7   0.30   3.51   0.108   0.140   0.40   Above W.T.   8.86   11   10   0.69   125   1079   1079   14.7   19.4   6.12   3.0   55.6   0.80   53.0   6.2   0.351   0.117   0.132   0.42   Above W.T.   8.89   11   9   0.72   125   1104   1104   13.2   17.1   7.62   3.1   6.31   6.31   6.80   53.0   6.2   0.351   0.107   0.139   0.40   Above W.T.   9.07   11   8.5   0.68   125   1109   1101   11.4   11.8   15.1   8.33   3.1   68.6   0.80   47.1   5.55   0.351   0.079   0.129   0.37   Above W.T.   9.17   11   8.6   0.63   125   1143   11.1   14.0   7.85   3.1   68.5   0.80   44.5   55.7   0.351   0.096   0.129   0.35   Above W.T.   9.27   11   7.6   0.59   115   1167   1167   10.5   13.0   7.35   3.1   68.9   0.80   42.0   52.5   0.351   0.090   0.129   0.35   Above W.T.   9.28   11   9.1   0.45   115   1151   1103   10.5   13.0   7.35   3.1   68.0   0.80   47.5   5.50   0.351   0.090   0.129   0.35   Above W.T.   9.28   11   9.1   0.45   115   1151   1103   1203   0.122   0.15   3.00   0.40   0.40   0.40   0.40   0.40   9.29   11   1.7   0.3   0.61   125   1261   1																					
8.27   11   9.3   0.42   115   1032   1032   12.7   17.0   4.78   2.9   5.43   0.80   50.7   63.3   0.51   0.104   0.135   0.38   Above W.T.   8.46   11   9.9   0.5   125   1054   1044   13.1   17.8   5.33   3.0   55.7   0.80   53.4   66.7   0.351   0.102   0.133   0.38   Above W.T.   8.56   11   105   0.55   125   1054   1054   13.3   17.8   5.33   3.0   55.7   0.80   53.4   66.7   0.351   0.108   0.140   0.40   Above W.T.   8.56   11   105   0.55   125   1079   1079   14.7   19.4   6.12   3.0   55.6   0.80   53.4   66.7   0.351   0.108   0.140   0.42   Above W.T.   8.56   11   10   0.69   125   1079   1079   14.7   19.4   6.12   3.0   55.2   0.80   58.6   71.0   0.351   0.117   0.132   0.43   Above W.T.   8.56   11   10   0.69   125   1079   1079   14.7   19.4   6.12   3.0   55.2   0.80   58.6   73.3   0.351   0.117   0.132   0.43   Above W.T.   8.86   11   10   0.72   125   1104   1104   13.2   17.1   7.62   3.1   63.3   0.80   52.7   65.8   0.351   0.107   0.139   0.39   Above W.T.   9.07   11   8.5   0.68   125   1130   1130   11.1   14.0   8.57   3.2   10.5   0.80   47.4   2.53   0.351   0.099   0.129   0.37   Above W.T.   9.17   11   8.6   0.68   125   1143   11.1   14.0   8.57   3.2   10.5   0.80   44.5   55.3   0.351   0.099   0.129   0.35   Above W.T.   9.37   11   7.5   0.59   115   1167   1167   10.5   13.0   73.5   3.1   68.9   0.80   42.0   52.5   0.351   0.099   0.129   0.35   Above W.T.   9.58   11   6.8   0.48   115   1191   1191   8.6   10.4   77.4   3.2   75.7   0.80   34.5   43.1   0.351   0.099   0.122   0.35   Above W.T.   9.59   11   8.1   0.45   115   1151   1152   115		8.07																			Above W.T.
8.37   11   9.2   0.46   115   104   104   125   16.6   5.30   3.0   5.54   0.80   49.8   6.57   3.31   0.102   0.131   0.134   0.40   0.40   Above W.T.   8.68   11   11   0.64   125   1079   1079   14.7   19.4   1.61   1.7   1.																					
8.46         11         9.9         0.5         125         1054         1054         13,3         17.8         5.3         3.0         5.56         0.80         5.14         16.7         0.81         0.11         10.4         0.42         18.9         5.76         3.0         55.6         0.80         5.86         7.0         3.3         0.51         0.11         0.11         0.47         0.2         3.0         8.62         1.3         3.0         5.0         3.0         5.2         0.80         8.86         11         10         0.64         125         1079         107         1.7         7.60         3.1         62.1         0.80         3.50         62.2         0.51         0.00         0.04         Abow W.T.           8.96         11         10         0.72         125         1117         11.0         1.1         1.1         1.1         1.8         1.0         1.0         0.0																					
8.66   11   10.6   0.58   125   1097   1079   14,7   19,4   6.12   3.0,3   5.6   0.80   5.6   7.10   0.351   0.117   0.152   0.43   Abow W.T.   8.76   11   0.64   0.69   125   1092   1092   13,2   17,3   7.30   3.1   6.21   0.80   5.30   6.2   0.351   0.117   0.139   0.40   Abow W.T.   8.86   11   10   0.72   125   1104   1104   13,2   17,1   7.30   3.1   6.21   0.80   5.30   6.2   0.351   0.107   0.139   0.40   Abow W.T.   8.96   11   9   0.72   125   1107   117   11.8   15.1   8.53   3.1   68.5   0.80   47.1   58.9   0.551   0.099   0.129   0.37   Abow W.T.   9.07   11   8.5   0.68   125   133   1130   11.1   14.0   8.57   3.2   7.05   0.80   44.2   5.53   0.351   0.096   0.124   0.35   Abow W.T.   9.07   11   8.6   0.63   125   1433   1131   11.1   14.0   8.57   3.2   7.05   0.80   44.2   5.53   0.351   0.096   0.124   0.35   Abow W.T.   9.07   11   8.6   0.63   125   1433   1131   11.1   14.0   8.57   3.2   7.05   0.80   44.2   5.53   0.351   0.096   0.125   0.36   Abow W.T.   9.37   11   8.2   0.56   115   1155																					
8.66         II         11         0.64         125         1079         1079         147         194         6.12         3.0         55.0         65.2         0.35         0.107         0.139         0.40         Abowe W.T.           8.86         11         10         0.72         125         1104         1104         11.8         15.1         2.0         0.35         10.07         0.139         0.40         Abowe W.T.           8.86         11         1         0.72         125         1117         11.11         11.8         15.1         11.11         11.8         15.1         11.11         11.8         15.1         11.8         16.0         0.80         12.5         11.7         0.80         13.2         17.1         18.6         0.80         42.0         3.3         0.81         0.91         0.129         0.37         Abowe W.T.           9.17         11         8.6         0.83         125         1143         1143         11.1         14.0         7.85         3.1         68.0         0.80         44.2         55.7         0.351         0.09         0.125         0.36         Abowe W.T.           9.37         11         1.6         0.5 <td></td>																					
8.86																					
8.86   11   9   0.72   125   1117   1117   11.8   15.1   8.33   3.1   68.6   0.80   44.1   58.9   0.351   0.090   0.129   0.37   Above W.T.   9.07   11   8.5   0.68   125   1343   1143   11.1   14.0   7.85   3.1   68.5   0.80   44.5   55.7   0.351   0.096   0.124   0.35   Above W.T.   9.27   11   7.6   0.59   115   1155   1155   9.8   12.2   8.40   3.2   73.6   0.80   34.5   55.7   0.351   0.096   0.125   0.35   Above W.T.   9.37   11   8.2   0.56   115   1167   10.5   130   73.5   3.1   68.5   0.80   44.5   55.7   0.351   0.096   0.125   0.35   Above W.T.   9.47   11   6.7   0.53   115   1178   1178   8.5   10.4   8.67   3.3   78.4   0.80   34.5   42.7   0.351   0.097   0.125   0.35   Above W.T.   9.58   11   7.3   0.46   115   1201   1203   9.2   11.1   6.87   3.2   71.5   0.80   34.5   43.1   0.351   0.087   0.113   0.32   Above W.T.   9.58   11   7.3   0.46   115   124   124   10.2   12.3   6.01   3.1   6.60   0.80   40.7   50.9   0.351   0.097   0.120   0.34   Above W.T.   9.98   11   9.1   0.45   115   1227   11.4   13.8   5.30   0.06   0.80   40.5   56.8   0.351   0.097   0.120   0.34   Above W.T.   9.99   11   9.1   0.45   115   1227   11.4   13.8   5.30   0.60   0.80   40.5   56.8   0.351   0.097   0.120   0.36   Above W.T.   10.09   11   16.1   0.63   125   1251   1251   125   12.																					
907   11   8.5   0.88   125   1130   1130   11.1   14.0   8.57   3.2   70.5   0.80   44.2   55.3   0.351   0.096   0.124   0.35   0.360   0.006   0.125   0.36   0.006   0.125   0.36   0.006   0.125   0.36   0.006   0.125   0.36   0.006   0.125   0.36   0.006   0.125   0.36   0.006   0.125   0.36   0.006   0.125   0.0																					
9.17   11   8.6   0.63   125   1143   1143   11.1   14.0   7.85   3.1   68.5   0.80   44.5   55.7   0.351   0.096   0.125   0.36   Above W.T.   9.37   11   8.2   0.56   115   1157   1157   1158   1158   1.80   1.20   8.40   3.2   73.6   0.80   39.1   48.9   0.351   0.093   0.122   0.35   Above W.T.   9.47   11   6.7   0.53   115   1178   1178   8.5   10.4   8.67   3.3   78.4   0.80   34.2   42.7   0.351   0.093   0.122   0.35   Above W.T.   9.58   11   6.8   0.48   115   1191   1191   8.6   10.4   7.74   3.2   7.70   3.0   3.0   3.4   4.17   3.51   0.087   0.114   0.32   Above W.T.   9.68   11   7.3   0.46   115   1203   1203   9.2   11.1   6.87   3.2   71.3   0.80   36.8   46.1   0.351   0.087   0.114   0.33   Above W.T.   9.78   11   8.1   0.45   115   1214   1214   10.2   12.3   6.01   3.1   6.07   0.80   40.7   50.9   0.351   0.097   0.120   0.34   Above W.T.   9.89   11   9.1   0.45   115   1234   1224   10.2   12.3   6.01   3.1   6.07   0.80   40.7   50.9   0.351   0.097   0.120   0.34   Above W.T.   9.99   11   12.3   0.55   125   1238   1238   15.3   18.9   4.71   2.9   51.9   0.80   61.2   76.5   0.351   0.097   0.120   0.34   Above W.T.   10.00   11   16.1   0.63   125   1251   19.9   9.47   4.07   2.8   4.25   0.80   7.9   9.6   0.351   0.092   0.120   0.34   Above W.T.   10.17   11   20.3   0.61   125   1261   1261   25.0   31.2   31.0   2.6   36.1   0.80   10.11   1251   0.344   0.122   0.158   0.45   Above W.T.   10.27   11   21.5   0.52   125   1273   1273   26.4   32.8   2.49   2.5   32.3   0.73   71.3   97.7   0.344   0.167   0.213   0.63   Above W.T.   10.48   11   12.6   0.22   105   1299   1299   15.3   18.4   1.84   2.7   38.3   0.80   61.2   76.5   0.344   0.122   0.158   0.45   Above W.T.   10.58   11   9.3   0.18   105   1320   1320   11.2   13.1   2.08   2.8   4.67   0.80   34.4   3.0   0.344   0.167   0.215   0.63   Above W.T.   10.68   11   9.3   0.18   105   1320   1320   11.2   13.1   2.08   2.8   4.67   0.80   3.6   4.5   5.5   0.344   0.167   0.215   0.63   Above W.T.   10.68   11																					
927   11   7.6   0.59   115   1155   1155   9.8   12.2   8.40   3.2   73.6   0.80   39.1   48.9   0.351   0.091   0.118   0.34   Above W.T.   947   11   6.7   0.53   115   1178   1178   8.5   10.4   8.67   3.3   7.87   4.080   34.2   42.7   0.351   0.093   0.122   0.35   Above W.T.   958   11   6.8   0.48   115   1191   1191   8.6   10.4   7.74   3.2   75.7   0.80   34.2   42.7   0.351   0.087   0.113   0.32   Above W.T.   968   11   7.3   0.46   115   1201   1214   10.2   12.3   6.01   3.1   6.67   0.80   34.5   43.1   0.351   0.087   0.114   0.32   Above W.T.   978   11   8.1   0.45   115   1214   1214   10.2   12.3   6.01   3.1   6.67   0.80   4.7   50.9   0.351   0.097   0.120   0.34   Above W.T.   989   11   12.3   0.55   125   1251   1251   19.9   24.7   4.07   2.8   44.2   0.80   45.5   56.8   0.351   0.097   0.120   0.36   Above W.T.   10.09   11   16.1   0.63   125   1251   1261   1261   25.0   31.2   31.0   2.6   36.1   3.09   7.7   9.6   0.344   0.172   0.223   0.65   Above W.T.   10.77   11   20.3   0.61   125   1251   1273   26.4   32.8   2.49   2.5   32.3   3.0   3.0   3.8   4.9   3.5   0.122   0.178   0.99   Above W.T.   10.38   11   17   0.37   125   1287   1287   1287   1273   2.4   2.4   2.5   3.2   3.0   2.5   3.2   3.0   3.0   3.8   4.2   3.0																					
9.47   11   6.7		9.27	11	7.6	0.59	115	1155		9.8	12.2			73.6	0.80			0.351	0.091		0.34	Above W.T.
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9.99 11 12.3 0.55 125 1238 1238 15.3 18.9 4.71 2.9 51.9 0.80 61.2 76.5 0.351 0.122 0.158 0.45 Above W.T. 10.09 11 16.1 0.63 125 1251 1251 19.9 24.7 4.07 2.8 44.2 0.80 79.7 99.6 0.344 0.172 0.223 0.65 Above W.T. 10.27 11 20.3 0.61 125 1261 1261 25.0 31.2 3.10 2.6 36.1 0.80 100.1 125.1 0.344 0.262 0.341 0.99 Above W.T. 10.27 11 21.5 0.52 125 1273 1273 26.4 32.8 2.49 2.5 32.3 0.73 71.3 97.7 0.344 0.167 0.217 0.63 Above W.T. 10.38 11 17 0.37 125 1287 1287 20.7 25.4 2.26 2.6 36.1 0.80 100.1 125.1 0.30 0.344 0.262 0.341 0.99 Above W.T. 10.38 11 12.6 0.22 10.5 1287 1287 20.7 25.4 2.26 2.6 2.6 35.2 0.80 82.9 103.7 0.344 0.184 0.239 0.69 Above W.T. 10.38 11 19.2 0.15 10.5 1310 1310 11.1 13.0 1.76 2.8 44.4 0.80 44.5 55.6 0.344 0.184 0.122 0.158 0.46 Above W.T. 10.58 11 9.2 0.15 10.5 1310 1310 11.1 13.0 1.76 2.8 44.7 0.80 44.5 55.6 0.344 0.096 0.125 0.36 Above W.T. 10.68 11 9.2 0.15 10.5 1310 1310 11.1 13.0 1.76 2.8 44.7 0.80 44.5 55.6 0.344 0.096 0.125 0.36 Above W.T. 10.78 11 7.5 0.21 10.5 1310 1313 1313 9.0 10.3 3.07 3.0 58.0 0.80 36.0 45.0 0.344 0.096 0.125 0.36 Above W.T. 10.89 11 7.2 0.26 10.5 1342 1342 8.6 9.7 3.98 3.1 63.9 0.80 36.0 45.0 0.344 0.088 0.115 0.33 Above W.T. 10.99 11 7.7 0.31 115 1353 1353 19.2 10.4 4.41 3.1 64.2 0.80 36.0 45.8 0.344 0.089 0.116 0.34 Above W.T. 11.09 11 7.7 0.31 115 1353 1353 19.2 10.4 4.41 3.1 64.2 0.80 36.0 45.8 0.344 0.089 0.116 0.34 Above W.T. 11.09 11 7.8 0.49 11.5 1387 1369 19.2 10.4 6.90 3.2 73.2 0.80 36.9 46.1 0.349 0.089 0.116 0.33 NonLiqfble. 11.29 11 7.8 0.49 11.5 1387 1369 19.2 10.4 6.90 3.2 73.2 0.80 36.9 46.1 0.349 0.089 0.116 0.33 NonLiqfble. 11.5 11.5 11.5 1353 1389 1.0 12.2 5.17 3.1 63.3 0.80 42.7 53.3 0.347 0.094 0.122 0.35 NonLiqfble. 11.5 11.5 11.5 1400 1375 9.7 10.9 6.93 3.2 73.2 0.80 36.9 46.1 0.349 0.089 0.116 0.33 NonLiqfble. 11.5 11.5 11.5 1400 1375 9.7 10.9 6.93 3.2 73.2 0.80 36.9 46.1 0.349 0.089 0.116 0.33 NonLiqfble. 11.5 11.5 11.5 145 145 145 145 145 145 145 145 145 14																					
10.09			11						11.4		5.30	3.0	60.8	0.80	45.5	56.8	0.351		0.126	0.36	Above W.T.
10.17 11 20.3 0.61 125 1261 1261 25.0 31.2 3.10 2.6 36.1 0.80 100.1 125.1 0.344 0.262 0.341 0.99 Above W.T. 10.27 11 21.5 0.52 125 1273 1273 26.4 32.8 2.49 2.5 32.3 0.73 71.3 97.7 0.344 0.167 0.217 0.63 Above W.T. 10.38 11 17 0.37 125 1287 220.7 25.4 2.26 2.6 35.2 0.80 82.9 103.7 0.344 0.167 0.217 0.63 Above W.T. 10.48 11 12.6 0.22 105 1299 1299 15.3 18.4 1.84 2.7 38.3 0.80 61.2 76.5 0.344 0.184 0.239 0.69 Above W.T. 10.58 11 9.2 0.15 105 1310 1310 11.1 13.0 1.76 2.8 44.4 0.80 44.5 55.6 0.344 0.096 0.125 0.36 Above W.T. 10.58 11 9.2 0.15 105 1310 1310 11.1 13.0 1.76 2.8 44.4 0.80 44.5 55.6 0.344 0.096 0.125 0.36 Above W.T. 10.58 11 9.3 0.18 105 1320 1320 11.2 13.1 2.08 2.8 46.7 0.80 44.8 56.0 0.344 0.096 0.125 0.36 Above W.T. 10.78 11 7.5 0.21 105 1331 1331 9.0 10.3 3.07 3.0 58.0 0.80 36.0 45.0 0.344 0.088 0.115 0.33 Above W.T. 10.99 11 7.7 0.31 115 1353 1353 9.2 10.4 4.41 3.1 64.2 0.80 36.6 45.8 0.344 0.087 0.114 0.33 Above W.T. 11.09 11 7.7 0.37 115 1364 1358 8.3 9.3 5.86 3.2 72.6 0.80 33.2 41.6 0.346 0.87 0.114 0.33 NonLighble. 11.19 11 9 0.43 115 1376 1363 10.7 12.2 5.17 3.1 63.3 0.80 42.7 53.3 0.347 0.094 0.089 0.116 0.34 NonLighble. 11.4 11 8.2 0.52 115 1400 1375 9.7 10.9 6.93 3.2 72.1 0.80 38.7 48.4 0.350 0.091 0.118 0.33 NonLighble. 11.5 11 8.1 0.41 115 1446 1396 11.0 12.4 4.73 3.0 61.1 0.80 38.0 37.6 47.0 0.355 0.090 0.117 0.33 NonLighble. 11.8 11 9.4 0.41 115 1445 1390 9.7 10.9 5.74 3.1 68.2 0.80 38.0 37.6 47.0 0.355 0.090 0.117 0.33 NonLighble. 11.8 11 9.4 0.41 115 1446 1396 11.0 12.4 4.73 3.0 61.1 0.80 38.0 34.0 4.0 0.355 0.090 0.117 0.33 NonLighble. 11.9 11 7.5 0.37 115 1461 1491 140 8.9 9.8 5.53 3.2 70.0 0.80 35.5 44.4 0.358 0.88 0.114 0.32 NonLighble. 12.1 11 7.5 0.37 115 1481 1411 8.7 9.6 5.47 3.2 70.0 0.80 35.5 44.4 0.358 0.88 0.114 0.32 NonLighble. 12.1 11 7.5 0.37 115 1481 1411 8.7 9.6 5.47 3.2 70.0 0.80 35.5 43.9 43.6 0.362 0.088 0.114 0.32 NonLighble. 12.1 11 7.5 0.37 115 1481 1411 8.7 9.6 5.47 3.2 70.0 0.80 35.5 43.9 43.6 0.362 0.088 0.114 0.32 NonLighble. 12.1 11 7.5 0.37 115 1491 1417 8.																					
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11.5 11 8.2 0.43 115 1412 1380 9.7 10.9 5.74 3.1 68.2 0.80 38.6 48.3 0.352 0.090 0.118 0.33 NonLiqfble.  11.6 11 8 0.4 115 1423 1385 9.4 10.5 5.49 3.1 68.1 0.80 37.6 47.0 0.353 0.090 0.117 0.33 NonLiqfble.  11.7 11 8.1 0.41 115 1435 1390 9.5 10.6 5.55 3.1 68.1 0.80 38.0 47.5 0.355 0.090 0.117 0.33 NonLiqfble.  11.8 11 9.4 0.41 115 1446 1396 11.0 12.4 4.73 3.0 61.1 0.80 44.0 55.0 0.356 0.096 0.124 0.35 NonLiqfble.  11.9 11 7.6 0.38 115 1458 1401 8.9 9.8 5.53 3.2 70.0 0.80 35.5 44.4 0.358 0.088 0.115 0.32 NonLiqfble.  12 11 7.5 0.37 115 1469 1406 8.8 9.6 5.47 3.2 70.3 0.80 35.0 43.8 0.359 0.088 0.114 0.32 NonLiqfble.  12.1 11 7.5 0.37 115 1481 1411 8.7 9.6 5.47 3.2 70.4 0.80 34.9 43.7 0.361 0.088 0.114 0.32 NonLiqfble.  12.21 11 7.5 0.37 115 1493 1417 8.7 9.5 5.48 3.2 70.6 0.80 34.9 43.6 0.362 0.088 0.114 0.31 NonLiqfble.																					
11.6 11 8 0.4 115 1423 1385 9.4 10.5 5.49 3.1 68.1 0.80 37.6 47.0 0.353 0.090 0.117 0.33 NonLiqfble.  11.7 11 8.1 0.41 115 1435 1390 9.5 10.6 5.55 3.1 68.1 0.80 38.0 47.5 0.355 0.090 0.117 0.33 NonLiqfble.  11.8 11 9.4 0.41 115 1446 1396 11.0 12.4 4.73 3.0 61.1 0.80 44.0 55.0 0.356 0.096 0.124 0.35 NonLiqfble.  11.9 11 7.6 0.38 115 1458 1401 8.9 9.8 5.53 3.2 70.0 0.80 35.5 44.4 0.358 0.088 0.115 0.32 NonLiqfble.  12 11 7.5 0.37 115 1469 1406 8.8 9.6 5.47 3.2 70.3 0.80 35.0 43.8 0.359 0.088 0.114 0.32 NonLiqfble.  12.1 11 7.5 0.37 115 1481 1411 8.7 9.6 5.47 3.2 70.4 0.80 34.9 43.7 0.361 0.088 0.114 0.32 NonLiqfble.  12.21 11 7.5 0.37 115 1493 1417 8.7 9.5 5.48 3.2 70.6 0.80 34.9 43.6 0.362 0.088 0.114 0.31 NonLiqfble.																					
11.7 11 8.1 0.41 115 1435 1390 9.5 10.6 5.55 3.1 68.1 0.80 38.0 47.5 0.355 0.090 0.117 0.33 NonLiqfble.  11.8 11 9.4 0.41 115 1446 1396 11.0 12.4 4.73 3.0 61.1 0.80 44.0 55.0 0.356 0.096 0.124 0.35 NonLiqfble.  11.9 11 7.6 0.38 115 1458 1401 8.9 9.8 5.53 3.2 70.0 0.80 35.5 44.4 0.358 0.088 0.115 0.32 NonLiqfble.  12 11 7.5 0.37 115 1469 1406 8.8 9.6 5.47 3.2 70.3 0.80 35.0 43.8 0.359 0.088 0.114 0.32 NonLiqfble.  12.1 11 7.5 0.37 115 1481 1411 8.7 9.6 5.47 3.2 70.4 0.80 34.9 43.7 0.361 0.088 0.114 0.32 NonLiqfble.  12.21 11 7.5 0.37 115 1493 1417 8.7 9.5 5.48 3.2 70.6 0.80 34.9 43.6 0.362 0.088 0.114 0.31 NonLiqfble.																					
11.9 11 7.6 0.38 115 1458 1401 8.9 9.8 5.53 3.2 70.0 0.80 35.5 44.4 0.358 0.088 0.115 0.32 NonLiqfble.  12 11 7.5 0.37 115 1469 1406 8.8 9.6 5.47 3.2 70.3 0.80 35.0 43.8 0.359 0.088 0.114 0.32 NonLiqfble.  12.1 11 7.5 0.37 115 1481 1411 8.7 9.6 5.47 3.2 70.4 0.80 34.9 43.7 0.361 0.088 0.114 0.32 NonLiqfble.  12.21 11 7.5 0.37 115 1493 1417 8.7 9.5 5.48 3.2 70.6 0.80 34.9 43.6 0.362 0.088 0.114 0.31 NonLiqfble.		11.7																			NonLiqfble.
12 11 7.5 0.37 115 1469 1406 8.8 9.6 5.47 3.2 70.3 0.80 35.0 43.8 0.359 0.088 0.114 0.32 NonLighble.  12.1 11 7.5 0.37 115 1481 1411 8.7 9.6 5.47 3.2 70.4 0.80 34.9 43.7 0.361 0.088 0.114 0.32 NonLighble.  12.21 11 7.5 0.37 115 1493 1417 8.7 9.5 5.48 3.2 70.6 0.80 34.9 43.6 0.362 0.088 0.114 0.31 NonLighble.																					
12.1 11 7.5 0.37 115 1481 1411 8.7 9.6 5.47 3.2 70.4 0.80 34.9 43.7 0.361 0.088 0.114 0.32 NonLigible. 12.21 11 7.5 0.37 115 1493 1417 8.7 9.5 5.48 3.2 70.6 0.80 34.9 43.6 0.362 0.088 0.114 0.31 NonLigible.																					
12.21 11 7.5 0.37 115 1493 1417 8.7 9.5 5.48 3.2 70.6 0.80 34.9 43.6 0.362 0.088 0.114 0.31 NonLigible.																					

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 2

Depth to Groundwater: 11 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

PGA (g): 0.54 MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(q <sub>cIN</sub> ) <sub>cs</sub>	Ratio	M7.5	M6.50	Safety	Comments
	12.41	11	8.4	0.43	115	1516	1428	9.7	10.7	5.63	3.1	68.2	0.80	38.9	48.6	0.365	0.091	0.118	0.32	NonLiqfble.
	12.5 12.59	11 11	7.6 7.6	0.42 0.41	115 115	1527 1537	1432 1437	8.8 8.8	9.5 9.5	6.14 6.00	3.2 3.2	72.9 72.6	0.80	35.1 35.1	43.9 43.9	0.367 0.368	0.088	0.114 0.114	0.31	NonLiqfble. NonLiqfble.
	12.69	11	7.6	0.41	115	1548	1442	8.8	9.5	6.01	3.2	72.7	0.80	35.0	43.8	0.369	0.088	0.114	0.31	NonLiqfble.
	12.8	11	7.1	0.41	115	1561	1448	8.2	8.7	6.49	3.2	76.5	0.80	32.7	40.8	0.371	0.086	0.112	0.30	NonLiqfble.
	12.9	11	8.3	0.41	115	1573	1453	9.5	10.3	5.46	3.1	68.4	0.80	38.1	47.6	0.372	0.090	0.117	0.31	NonLiqfble.
	13.01	11	7.5	0.42	115	1585	1459	8.6	9.2	6.26	3.2	74.4	0.80	34.4	43.0	0.374	0.087	0.114	0.30	NonLiqfble.
	13.11 13.21	11 11	6.6 6.7	0.42 0.39	115 115	1597 1608	1464 1470	7.5 7.6	7.9 8.0	7.24 6.62	3.3	81.7 79.3	0.80	30.2 30.6	37.7 38.2	0.375 0.376	0.085 0.085	0.110 0.111	0.29 0.29	NonLiqfble. NonLiqfble.
	13.29	11	6.9	0.4	115	1617	1474	7.9	8.3	6.57	3.3	78.3	0.80	31.5	39.3	0.377	0.086	0.111	0.29	NonLiqfble.
	13.4	11	6.6	0.4	115	1630	1480	7.5	7.8	6.91	3.3	81.0	0.80	30.0	37.5	0.379	0.085	0.110	0.29	NonLiqfble.
	13.5	11	6	0.38	115	1642	1485	6.8	7.0	7.34	3.4	85.6	0.80	27.3	34.1	0.380	0.084	0.109	0.29	NonLiqfble.
	13.6	11	6.6	0.38	115	1653	1490	7.5	7.7	6.58	3.3	80.1	0.80	29.9	37.4	0.382	0.085	0.110	0.29	NonLiqfble.
	13.71 13.81	11 11	7.6 10	0.38 0.41	115 115	1666 1677	1496 1501	8.6 11.3	9.0 12.2	5.62 4.48	3.2	72.5 60.5	0.80	34.4 45.2	43.0 56.5	0.383 0.384	0.087 0.097	0.114 0.126	0.30 0.33	NonLiqfble. NonLiqfble.
	13.91	11	11.9	0.47	125	1689	1507	13.4	14.7	4.25	3.0	55.4	0.80	53.7	67.1	0.386	0.108	0.140	0.36	NonLiqfble.
	14.01	11	13.7	0.6	125	1701	1513	15.4	17.0	4.67	2.9	53.9	0.80	61.6	77.1	0.387	0.123	0.159	0.41	NonLiqfble.
	14.11	11	15.3	0.75	125	1714	1519	17.2	19.0	5.19	2.9	53.5	0.80	68.7	85.9	0.388	0.139	0.181	0.47	NonLiqfble.
	14.22	11	15.7	0.88	125	1728	1526	17.6	19.4	5.93	3.0	55.5	0.80	70.3	87.9	0.389	0.143	0.186	0.48	NonLiqfble.
	14.32 14.42	11 11	16.4 17.5	0.99 1.05	125 135	1740 1753	1532 1538	18.3 19.5	20.3 21.6	6.37 6.32	3.0 2.9	56.0 54.5	0.80	73.3 78.1	91.7 97.6	0.391 0.392	0.152 0.166	0.197 0.216	0.50 0.55	NonLiqfble. NonLiqfble.
	14.52	11	17.3	1.03	135	1766	1546	21.1	23.4	6.07	2.9	52.1	0.80	84.6	105.7	0.392	0.100	0.210	0.63	NonLiqfble.
	14.62	11	17.4	1.12	135	1780	1553	19.3	21.3	6.78	3.0	56.2	0.80	77.3	96.6	0.394	0.164	0.213	0.54	NonLiqfble.
	14.72	11	17.9	1.19	135	1793	1560	19.8	21.8	7.00	3.0	56.4	0.80	79.3	99.1	0.395	0.171	0.222	0.56	NonLiqfble.
	14.82	11	17.2	1.27	135	1807	1568	19.0	20.8	7.79	3.0	59.5	0.80	76.0	95.0	0.396	0.160	0.208	0.52	NonLiqfble.
	14.92 15.12	11 11	15.2 13.1	1.25 1.01	135 125	1820 1847	1575 1589	16.8 14.4	18.1 15.3	8.75 8.29	3.1	64.9 67.7	0.80	67.0 57.5	83.8 71.9	0.398 0.400	0.135 0.115	0.175 0.149	0.44 0.37	NonLiqfble. NonLiqfble.
	15.12	11	12.1	0.83	125	1860	1596	13.3	14.0	7.43	3.1	67.4	0.80	53.0	66.3	0.400	0.113	0.149	0.37	NonLiqfble.
	15.32	11	11.3	0.67	125	1872	1602	12.4	12.9	6.46	3.1	66.4	0.80	49.4	61.8	0.402	0.102	0.132	0.33	NonLiqfble.
	15.42	11	11.5	0.54	125	1885	1608	12.5	13.1	5.11	3.0	61.3	0.80	50.2	62.7	0.403	0.103	0.134	0.33	NonLiqfble.
	15.53	11	11.1	0.45	115	1898	1615	12.1	12.6	4.43	3.0	59.7	0.80	48.3	60.4	0.404	0.101	0.131	0.32	NonLiqfble.
	15.63	11 11	10.4	0.38 0.36	115 115	1910 1921	1620 1625	11.3 11.9	11.7 12.3	4.02	3.0	59.7	0.80	45.2 47.8	56.5	0.405 0.407	0.097	0.126 0.130	0.31	NonLiqfble.
	15.73 15.84	11	11 10.7	0.38	115	1921	1631	11.6	11.9	3.59 3.90	3.0	56.3 58.6	0.80	46.4	59.7 58.0	0.407	0.100 0.098	0.130	0.32 0.31	NonLiqfble. NonLiqfble.
	15.94	11	9.5	0.39	115	1945	1637	10.3	10.4	4.57	3.1	64.8	0.80	41.1	51.4	0.409	0.093	0.120	0.29	NonLiqfble.
	16.04	11	10	0.45	115	1957	1642	10.8	11.0	4.99	3.1	65.1	0.80	43.2	54.0	0.410	0.095	0.123	0.30	NonLiqfble.
	16.15	11	9.7	0.54	125	1970	1648	10.5	10.6	6.20	3.2	70.5	0.80	41.8	52.3	0.411	0.093	0.121	0.29	NonLiqfble.
	16.24	11	10.1	0.56	125	1981	1653	10.9	11.0	6.15	3.2	69.3	0.80	43.5	54.3	0.412	0.095	0.123	0.30	NonLiqfble.
	16.31 16.36	11 11	9.2 9.1	0.57 0.58	125 125	1990 1996	1658 1661	9.9 9.8	9.9 9.8	6.95 7.16	3.2	74.6 75.7	0.80	39.5 39.1	49.4 48.9	0.413 0.413	0.091 0.091	0.119 0.118	0.29 0.29	NonLiqfble. NonLiqfble.
	16.42	11	8.8	0.58	125	2003	1664	9.4	9.4	7.44	3.3	77.6	0.80	37.8	47.2	0.414	0.090	0.117	0.28	NonLiqfble.
	16.49	11	9.2	0.57	125	2012	1669	9.9	9.8	6.96	3.2	74.9	0.80	39.4	49.3	0.415	0.091	0.118	0.29	NonLiqfble.
	16.55	11	8.8	0.55	115	2020	1673	9.4	9.3	7.06	3.2	76.6	0.80	37.7	47.1	0.415	0.090	0.117	0.28	NonLiqfble.
	16.61	11	9.3	0.53	125	2026	1676	9.9	9.9	6.40	3.2	72.9	0.80	39.8	49.7	0.416	0.091	0.119	0.29	NonLiqfble.
	16.67 16.74	11 11	8.5 9.1	0.5 0.47	115 115	2034 2042	1680 1683	9.1 9.7	8.9 9.6	6.68 5.82	3.2	76.6 71.7	0.80	36.3 38.8	45.4 48.5	0.417 0.417	0.089	0.115 0.118	0.28 0.28	NonLiqfble. NonLiqfble.
	16.74	11	8.1	0.44	115	2042	1686	8.6	8.4	6.22	3.2	76.7	0.80	34.5	43.2	0.417	0.091	0.118	0.28	NonLiqfble.
	16.86	11	8.6	0.44	115	2056	1690	9.2	9.0	5.81	3.2	73.4	0.80	36.6	45.8	0.419	0.089	0.116	0.28	NonLiqfble.
	16.92	11	8.6	0.44	115	2063	1693	9.1	8.9	5.81	3.2	73.5	0.80	36.6	45.7	0.419	0.089	0.116	0.28	NonLiqfble.
	16.99	11	9.6	0.45	115	2071	1696	10.2	10.1	5.25	3.1	68.3	0.80	40.8	51.0	0.420	0.092	0.120	0.29	NonLiqfble.
	17.05 17.11	11	8.2 8.5	0.46 0.47	115 115	2078 2085	1700 1703	8.7 9.0	8.4 8.8	6.42	3.3	77.3 75.8	0.80	34.8	43.5 45.1	0.421 0.421	0.088	0.114 0.115	0.27 0.27	NonLiqfble.
	17.11	11 11	8.4	0.47	115	2083	1703	8.9	8.6	6.30 6.94	3.3	78.3	0.80	36.1 35.6	44.5	0.421	0.089	0.115	0.27	NonLiqfble. NonLiqfble.
	17.25	11	8.9	0.54	115	2101	1710	9.4	9.2	6.88	3.2	76.4	0.80	37.7	47.1	0.423	0.090	0.117	0.28	NonLiqfble.
	17.3	11	8.3	0.54	115	2106	1713	8.8	8.5	7.45	3.3	80.5	0.80	35.1	43.9	0.423	0.088	0.114	0.27	NonLiqfble.
	17.36	11	9	0.56	125	2113	1716	9.5	9.3	7.05	3.2	76.8	0.80	38.0	47.5	0.424	0.090	0.117	0.28	NonLiqfble.
	17.42	11	8.4	0.58	125	2121	1720	8.9	8.5	7.90	3.3	81.6	0.80	35.5	44.3	0.424	0.088	0.115	0.27	NonLiqfble.
	17.48 17.54	11 11	9.1 9.6	0.6 0.59	125 125	2128 2136	1723 1727	9.6 10.1	9.3 9.9	7.47 6.92	3.3 3.2	77.8 74.6	0.80	38.4 40.4	48.0 50.5	0.425 0.425	0.090 0.092	0.117 0.120	0.28 0.28	NonLiqfble. NonLiqfble.
	17.6	11	9.3	0.58	125	2143	1731	9.8	9.5	7.05	3.2	76.0	0.80	39.1	48.9	0.426	0.091	0.120	0.28	NonLiqfble.
	17.67	11	9.4	0.56	125	2152	1735	9.9	9.6	6.73	3.2	74.8	0.80	39.5	49.4	0.427	0.091	0.119	0.28	NonLiqfble.
	17.76	11	9.8	0.54	125	2163	1741	10.3	10.0	6.19	3.2	71.9	0.80	41.1	51.4	0.427	0.093	0.120	0.28	NonLiqfble.
	17.86	11	9.5	0.54	125	2176	1747	9.9	9.6	6.42	3.2	73.7	0.80	39.8	49.7	0.428	0.091	0.119	0.28	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 2

Depth to Groundwater: 11 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
Cono	Depth	Table	Resist.	Frict.	g (DCF)	Stress	Stress	Tip	Tip	Ratio	To.	F.C.	Ксрт	DqcIN	(qcIN)es	Stress	Stress	Stress	of Sofoty	Commonto
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> e1N	Q	F	Ic	(%)	KCFI	Dqeix	(qcin)es	Ratio	M7.5	M6.50	Safety	Comments
	17.97	11	9.4	0.53	125	2190	1754	9.8	9.5	6.38	3.2	74.0	0.80	39.3	49.1	0.429	0.091	0.118	0.28	NonLiqfble.
	18.07	11	9.6	0.51	115	2202	1760	10.0	9.7	6.00	3.2	72.1	0.80	40.0	50.1	0.430	0.092	0.119	0.28	NonLiqfble.
	18.13	11	9.9	0.5	125	2209	1763	10.3	10.0	5.69	3.2	70.2	0.80	41.3	51.6	0.431	0.093	0.121	0.28	NonLiqfble.
	18.17 18.27	11 11	10.4 9.6	0.5 0.5	125 115	2214 2226	1766 1772	10.8 10.0	10.5 9.6	5.38 5.89	3.1	67.7 72.0	0.80	43.3 39.9	54.1 49.9	0.431 0.432	0.095 0.092	0.123 0.119	0.29 0.28	NonLiqfble. NonLiqfble.
	18.37	11	10.7	0.51	125	2238	1777	11.1	10.8	5.32	3.1	66.9	0.80	44.4	55.5	0.433	0.096	0.115	0.29	NonLiqfble.
	18.48	11	11	0.54	125	2252	1784	11.4	11.1	5.47	3.1	66.8	0.80	45.6	57.0	0.434	0.097	0.126	0.29	NonLiqfble.
	18.58	11 11	12.1 11.7	0.56 0.58	125 125	2264 2277	1791 1797	12.5 12.1	12.2 11.8	5.11 5.49	3.1	62.9 65.4	0.80	50.0 48.3	62.6 60.4	0.435	0.103	0.134	0.31	NonLiqfble.
	18.68 18.78	11	12.3	0.6	125	2289	1803	12.1	12.4	5.38	3.1	63.7	0.80	50.7	63.4	0.436 0.437	0.100 0.104	0.131 0.135	0.30	NonLiqfble. NonLiqfble.
	18.88	11	13.7	0.59	125	2302	1809	14.1	13.9	4.70	3.0	58.5	0.80	56.4	70.5	0.438	0.113	0.146	0.33	NonLiqfble.
	18.99	11	13.1	0.58	125	2315	1816	13.4	13.1	4.86	3.0	60.3	0.80	53.8	67.2	0.439	0.108	0.141	0.32	NonLiqfble.
	19.09 19.19	11 11	14.5 12.8	0.58 0.55	125 125	2328 2340	1823 1829	14.9 13.1	14.6 12.7	4.35 4.73	3.0	55.9 60.6	0.80	59.4 52.4	74.3 65.5	0.439 0.440	0.118 0.106	0.154 0.138	0.35 0.31	NonLiqfble. NonLiqfble.
	19.3	11	12.0	0.5	125	2354	1836	12.3	11.8	4.62	3.1	61.9	0.80	49.0	61.3	0.441	0.100	0.130	0.30	NonLiqfble.
	19.4	11	12.8	0.49	125	2367	1842	13.0	12.6	4.22	3.0	58.7	0.80	52.2	65.2	0.442	0.106	0.138	0.31	NonLiqfble.
	19.51	11	11.1	0.46	125	2380	1849	11.3	10.7	4.64	3.1	64.3	0.80	45.2	56.5	0.443	0.097	0.126	0.28	NonLiqfble.
	19.61 19.71	11 11	11.3 10.7	0.42 0.39	115 115	2393 2404	1855 1860	11.5 10.9	10.9 10.2	4.16 4.11	3.0	61.9 63.3	0.80	45.9 43.4	57.4 54.3	0.444 0.445	0.098 0.095	0.127 0.123	0.29 0.28	NonLiqfble. NonLiqfble.
	19.82	11	8.8	0.37	115	2417	1866	8.9	8.1	4.87	3.2	72.4	0.80	35.7	44.6	0.446	0.033	0.125	0.26	NonLiqfble.
	19.92	11	7.4	0.33	115	2429	1871	7.5	6.6	5.34	3.3	80.1	0.80	29.9	37.4	0.446	0.085	0.110	0.25	NonLiqfble.
	20.03	11	7.7	0.3	115	2441	1877	7.8	6.9	4.63	3.2	75.9	0.80	31.1	38.9	0.438	0.085	0.111	0.25	NonLiqfble.
	20.13	11 11	8.6 9.7	0.3 0.31	115 115	2453 2464	1882 1888	8.7 9.8	7.8 9.0	4.07 3.66	3.2	69.9 64.4	0.80	34.7 39.1	43.4 48.8	0.439 0.440	0.088	0.114 0.118	0.26 0.27	NonLiqfble. NonLiqfble.
	20.33	11	10	0.31	115	2476	1893	10.1	9.3	3.54	3.1	63.0	0.80	40.2	50.3	0.441	0.092	0.119	0.27	NonLiqfble.
	20.44	11	10.3	0.34	115	2488	1899	10.3	9.5	3.75	3.1	63.3	0.80	41.4	51.7	0.442	0.093	0.121	0.27	NonLiqfble.
	20.54 20.64	11 11	10.4 10.1	0.36 0.38	115 115	2500 2511	1904 1909	10.4 10.1	9.6 9.3	3.93 4.30	3.1	64.0 66.5	0.80	41.7 40.5	52.1 50.6	0.442 0.443	0.093 0.092	0.121 0.120	0.27 0.27	NonLiqfble. NonLiqfble.
	20.74	11	9.7	0.30	115	2523	1915	9.7	8.8	4.74	3.2	69.7	0.80	38.8	48.5	0.444	0.092	0.120	0.27	NonLiqfble.
	20.85	11	10.2	0.41	115	2536	1920	10.2	9.3	4.59	3.1	67.7	0.80	40.7	50.9	0.445	0.092	0.120	0.27	NonLiqfble.
	20.95	11	10.3	0.43	115	2547	1926	10.3	9.4	4.76	3.1	68.2	0.80	41.1	51.4	0.446	0.093	0.120	0.27	NonLiqfble.
	21.05 21.16	11 11	11 12.4	0.41 0.55	115 125	2559 2571	1931 1937	11.0 12.3	10.1 11.5	4.22 4.95	3.1	64.1 63.9	0.80	43.8 49.3	54.8 61.6	0.447 0.447	0.095 0.102	0.124 0.132	0.28	NonLiqfble. NonLiqfble.
	21.26	11	18	0.62	125	2584	1943	17.9	17.2	3.71	2.9	49.7	0.80	71.5	89.3	0.448	0.102	0.190	0.42	NonLiqfble.
	21.34	11	25.3	0.6	125	2594	1948	25.1	24.6	2.50	2.6	37.0	0.80	100.3	125.4	0.449	0.263	0.342	0.76	NonLiqfble.
	21.37 21.42	11 11	39.4 45.9	0.58 0.55	125 125	2597	1950	39.0	39.1	1.52	2.3	24.2 20.2	0.51	41.0	80.1 76.5	0.449 0.449	0.128	0.166 0.158	0.37 0.35	Liquefaction
	21.42	11	52.7	0.55	125	2604 2615	1953 1959	45.4 52.1	45.7 52.5	1.23 1.07	2.2	17.4	0.41 0.33	31.0 25.7	77.8	0.449	0.122 0.124	0.158	0.36	Liquefaction Liquefaction
	21.61	11	54.8	0.62	125	2627	1965	54.1	54.4	1.16	2.2	17.6	0.34	27.5	81.6	0.451	0.130	0.170	0.38	Liquefaction
	21.71	11	52.9	0.62	125	2640	1971	52.1	52.3	1.20	2.2	18.4	0.36	28.9	81.1	0.451	0.130	0.168	0.37	Liquefaction
	21.81 21.91	11 11	45.2 39	0.62	125 125	2652 2665	1977 1984	44.5 38.3	44.4 38.0	1.41 1.59	2.3	21.8 25.0	0.45 0.54	36.2 44.1	80.7 82.4	0.452 0.453	0.129 0.132	0.167 0.172	0.37 0.38	Liquefaction Liquefaction
	22.01	11	45.5	0.54	125	2677	1990	44.6	44.4	1.22	2.2	20.5	0.41	31.4	76.1	0.453	0.132	0.172	0.35	Liquefaction
	22.09	11	63.2	0.49	115	2687	1995	61.9	62.0	0.79	2.0	13.4	0.22	17.9	79.8	0.454	0.127	0.165	0.36	Liquefaction
	22.15	11	75.5	0.43	105	2694	1998	73.9	74.2	0.58	1.9	9.9	0.13	11.0	84.9	0.454	0.137	0.178	0.39	Liquefaction
	22.25 22.35	11 11	80.6 86.1	0.37 0.39	105 105	2705 2715	2002 2006	78.8 84.1	79.1 84.4	0.47 0.46	1.8 1.8	8.2 7.7	0.09 0.07	7.5 6.4	86.3 90.5	0.455 0.456	0.140 0.149	0.182 0.194	0.40 0.42	Liquefaction Liquefaction
	22.45	11	89.4	0.42	105	2726	2011	87.2	87.5	0.48	1.8	7.5	0.07	6.4	93.6	0.457	0.156	0.203	0.44	Liquefaction
	22.56	11	91.6	0.45	105	2737	2015	89.3	89.5	0.50	1.8	7.6	0.07	6.6	95.9	0.458	0.162	0.211	0.46	Liquefaction
	22.66 22.76	11 11	92.3 90.1	0.44 0.42	105 105	2748 2758	2020 2024	89.9 87.6	90.0 87.6	0.48 0.47	1.8 1.8	7.4 7.5	0.06 0.07	6.1 6.3	96.0 93.9	0.458 0.459	0.162 0.157	0.211 0.204	0.46 0.44	Liquefaction Liquefaction
	22.86	11	88.6	0.38	105	2769	2028	86.1	86.0	0.44	1.8	7.3	0.06	5.6	91.7	0.460	0.157	0.197	0.43	Liquefaction
	22.96	11	87.9	0.4	105	2779	2032	85.3	85.1	0.46	1.8	7.6	0.07	6.4	91.7	0.461	0.152	0.197	0.43	Liquefaction
	23.06	11	78.5	0.4	105	2790	2037	76.1	75.7	0.52	1.8	9.1	0.11	9.4	85.5	0.462	0.138	0.180	0.39	Liquefaction
	23.17 23.24	11 11	76.4 78.4	0.45 0.56	105 115	2801 2809	2041 2044	74.0 75.9	73.4 75.3	0.60 0.73	1.9 1.9	10.1 11.0	0.14 0.16	11.8 14.5	85.7 90.4	0.462 0.463	0.139 0.149	0.180 0.193	0.39 0.42	Liquefaction Liquefaction
	23.34	11	86.9	0.79	125	2820	2050	84.0	83.4	0.73	2.0	11.7	0.18	18.1	102.1	0.464	0.179	0.133	0.50	Liquefaction
	23.4	11	109.7	0.66	115	2828	2053	105.9	105.4	0.61	1.8	7.3	0.06	7.0	112.9	0.464	0.214	0.278	0.60	Liquefaction
	23.48	11	145.9	0.69	105	2837	2058	140.7	140.4	0.48	1.6	4.4	0.00	0.0	140.7	0.465	0.339	0.441	0.95	Liquefaction
	23.52 23.56	11 11	158.6 176.7	0.74 0.87	105 105	2841 2845	2059 2061	152.9 170.3	152.6 170.0	0.47 0.50	1.6 1.5	3.8 3.4	0.00	0.0	152.9 170.3	0.465 0.465	0.413 0.539	0.536 0.701	1.15 1.51	Low F.S.
	23.61	11	166.2	0.92	115	2851	2063	160.1	159.7	0.56	1.6	4.3	0.00	0.0	160.1	0.466	0.462	0.600	1.29	
	23.65	11	161.7	0.94	115	2855	2065	155.7	155.1	0.59	1.6	4.6	0.00	0.0	155.7	0.466	0.431	0.560	1.20	

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 2

Depth to Groundwater: 11 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA** (g): 0.54 **MSF**: 1.30

		Depth	Water Table	Tip Resist.	Sleeve Frict.	•	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	l Liquef. Stress	Liquef. Stress	Factor of	
	Cone	(FT)	(FT)	(TSF)	(TSF)	g (PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dacin	(qcIN)es		M7.5	M6.50		Comments
•	Conc	(11)	(F I)	(151)	(151)	(I CI)	(151)	(151)	<b>q</b>	V	-	К	(70)		Dqui	(quit)us	Katio	1417.5	1110.50	Sarcty	Comments
		00.00		107.7	0.05	445	2060	2077	161.4	160.0	0.57	1.6	4.2	0.00	0.0	161.4	0.466	0.471	0.610	1.01	
		23.69 23.73	11 11	167.7 170.4	0.95 1	115 115	2860 2864	2067 2069	161.4 163.9	160.8 163.2	0.57 0.59	1.6 1.6	4.3 4.4	0.00	0.0	161.4 163.9	0.466 0.466	0.471 0.489	0.612 0.636	1.31 1.36	
		23.79	11	172.7	0.91	105	2871	2073	166.0	165.2	0.53	1.6	3.9	0.00	0.0	166.0	0.467	0.505	0.657	1.41	
		23.85	11	174.6	0.69	105	2878	2075	167.7	166.8	0.40	1.5	2.7	0.00	0.0	167.7	0.467	0.519	0.674	1.44	
		23.91	11	183.7	0.69	105	2884	2078	176.3	175.4	0.38	1.5	2.3	0.00	0.0	176.3	0.468	0.590	0.767	1.64	
		23.95	11	192.6	0.82	105	2888	2079	184.8	183.8	0.43	1.5	2.5	0.00	0.0	184.8	0.468	0.667	0.867	1.85	
		23.99 24.03	11 11	209.4 214.7	0.95 1.16	105 115	2892 2897	2081 2083	200.8 205.8	199.8 204.7	0.46 0.54	1.5 1.5	2.3 2.9	0.00	0.0	200.8 205.8	0.468 0.469	0.833 0.891	1.083 1.158	2.31 2.47	
		24.03	11	225.7	1.46	115	2902	2085	216.2	215.0	0.65	1.5	3.4	0.00	0.0	216.2	0.469	1.020	1.327	2.83	
		24.12	11	219.8	1.71	115	2907	2088	210.5	209.1	0.78	1.6	4.4	0.00	0.0	210.5	0.469	0.947	1.231	2.62	
		24.19	11	243.7	2.08	125	2915	2091	233.2	231.6	0.86	1.6	4.3	0.00	0.0	233.2	0.470	1.259	1.637	3.48	
		24.29	11	269	2.19	125	2927	2098	257.0	255.0	0.82	1.6	3.6	0.00	0.0	257.0	0.470	1.658	2.156	4.58	
		24.38	11	312	2.08	115	2939	2103	297.7	295.2	0.67	1.4	2.1	0.00	0.0	297.7	0.471	2.533	3.293	6.99	
		24.45 24.55	11 11	314.2 268.7	2.35 3.47	115 135	2947 2958	2107 2112	299.5 255.8	296.7 252.9	0.75 1.30	1.5 1.7	2.6 6.3	0.00	0.0 8.9	299.5 264.8	0.471 0.472	2.579 1.806	3.352 2.348	7.11 4.97	
		24.64	11	292.2	3.24	125	2970	2119	277.8	274.3	1.11	1.6	4.9	0.00	0.0	277.8	0.472	2.073	2.695	5.70	
		24.73	11	335.8	2.49	115	2982	2124	318.8	314.6	0.74	1.5	2.3	0.00	0.0	318.8	0.473	3.093	4.021	8.50	
		24.82	11	324.1	2.51	125	2992	2129	307.3	302.9	0.78	1.5	2.7	0.00	0.0	307.3	0.474	2.780	3.614	7.63	
		24.91	11	329.7	2.52	125	3003	2135	312.2	307.4	0.77	1.5	2.5	0.00	0.0	312.2	0.474	2.911	3.784	7.98	
		25	11	338	0.84	95	3015	2140	319.7	314.3	0.25	1.2	-0.9	0.00	0.0	319.7	0.475	3.118	4.053	8.54	
		25.09 25.17	11 11	342.3 363.3	1.93 1.23	115 105	3023 3032	2143 2147	323.5 343.0	317.9 336.8	0.57 0.34	1.4 1.2	1.2 -0.5	0.00	0.0	323.5 343.0	0.475 0.476	3.229 3.834	4.198 4.984	8.83 10.47	
		25.27	11	326	0.78	95	3043	2152	307.5	301.5	0.24	1.2	-0.9	0.00	0.0	307.5	0.477	2.784	3.619	7.60	
		25.36	11	283.5	0.78	95	3051	2155	267.2	261.6	0.28	1.2	-0.1	0.00	0.0	267.2	0.477	1.855	2.411	5.05	
		25.45	11	247.1	0.8	95	3060	2158	232.8	227.5	0.33	1.3	0.7	0.00	0.0	232.8	0.478	1.253	1.629	3.41	
		25.55	11	292.1	0.97	95	3069	2161	274.9	268.8	0.33	1.3	0.2	0.00	0.0	274.9	0.479	2.013	2.617	5.47	
		25.64 25.71	11 11	332.5	1.24	105 105	3078	2164	312.8	305.8	0.37	1.3	0.1	0.00	0.0	312.8	0.479	2.925	3.803	7.93 9.07	
		25.8	11	348.4 364.8	1.72 1.41	105	3085 3095	2167 2171	327.5 342.6	320.0 334.6	0.50 0.39	1.3	0.7 -0.1	0.00	0.0	327.5 342.6	0.480 0.480	3.346 3.820	4.350 4.966	10.34	
		25.89	11	348.1	1.28	105	3104	2174	326.6	318.6	0.37	1.2	-0.1	0.00	0.0	326.6	0.481	3.321	4.317	8.97	
		25.98	11	302.4	1.47	105	3114	2178	283.5	276.1	0.49	1.4	1.2	0.00	0.0	283.5	0.482	2.199	2.859	5.94	
		26.07	11	261.9	1.5	115	3123	2182	245.3	238.5	0.58	1.5	2.4	0.00	0.0	245.3	0.482	1.453	1.889	3.92	
		26.14	11	265	1.46	115	3131	2186	248.0	240.9	0.55	1.5	2.2	0.00	0.0	248.0	0.483	1.499	1.948	4.04	
		26.23 26.32	11 11	267.9 298.8	1.44 1.36	115 105	3141 3152	2190 2195	250.4 279.0	243.1 270.7	0.54 0.46	1.4 1.4	2.1 1.1	0.00	0.0	250.4 279.0	0.483 0.484	1.541 2.101	2.003 2.731	4.15 5.64	
		26.41	11	381.7	1.61	105	3161	2199	356.1	345.6	0.42	1.3	0.0	0.00	0.0	356.1	0.484	4.281	5.565	11.49	
		26.5	11	430.5	1.25	95	3171	2203	401.3	389.3	0.29	1.1	-1.2	0.00	0.0	401.3	0.485	6.091	7.919	16.33	
		26.56	11	462.1	1.47	95	3176	2205	430.6	417.6	0.32	1.1	-1.2	0.00	0.0	430.6	0.485	7.505	9.756	20.10	
		26.63	11	450.4	1.62	105	3183	2207	419.5	406.5	0.36	1.2	-0.9	0.00	0.0	419.5	0.486	6.944	9.027	18.58	
		26.7	11	457.5	1.66	105	3190	2210	425.8	412.4	0.36	1.2	-0.9	0.00	0.0	425.8	0.486	7.259	9.437	19.40	
		26.79 26.87	11 11	410.4 374.8	1.77 1.53	105 105	3200 3208	2214 2217	381.6 348.3	369.1 336.5	0.43 0.41	1.2	-0.1 0.0	0.00	0.0	381.6 348.3	0.487 0.488	5.249 4.008	6.824 5.211	14.01 10.69	
		26.96	11	346.5	1.67	105	3218	2221	321.7	310.4	0.48	1.3	0.7	0.00	0.0	321.7	0.488	3.176	4.128	8.46	
		27.05	11	324.3	1.84	115	3227	2225	300.8	289.9	0.57	1.4	1.6	0.00	0.0	300.8	0.489	2.611	3.395	6.95	
		27.14	11	333.6	1.55	105	3238	2230	309.1	297.7	0.47	1.3	0.8	0.00	0.0	309.1	0.489	2.827	3.675	7.51	
		27.23	11	357.5	1.36	105	3247	2234	331.0	318.5	0.38	1.3	0.0	0.00	0.0	331.0	0.490	3.452	4.487	9.16	
		27.32 27.4	11 11	399.5 402.3	1.37 1.26	105 95	3256 3265	2237 2241	369.5 371.8	355.5 357.5	0.34 0.31	1.2	-0.6 -0.8	0.00	0.0	369.5 371.8	0.490 0.491	4.773 4.862	6.205 6.320	12.65 12.87	
		27.45	11		1.19	105		2242	298.9	286.9	0.37	1.3	0.2	0.00	0.0	298.9	0.491	2.564	3.333	6.78	
		27.54	11	362.3	1.42	105		2246	334.5	321.0	0.39	1.3	0.0	0.00	0.0	334.5	0.492	3.560	4.628	9.41	
		27.63	11	314.2	1.81	115	3288	2250	289.8	277.7	0.58	1.4	1.8	0.00	0.0	289.8	0.492	2.344	3.047	6.19	
		27.72	11	297.4	1.49	105	3299	2255	274.0	262.2	0.50	1.4	1.5	0.00	0.0	274.0	0.493	1.994	2.592	5.26	
		27.82	11		1.11	105	3309	2259	252.0	240.8	0.41	1.4	1.2	0.00	0.0	252.0	0.494	1.569	2.040	4.13	
		27.91 28	11 11	254.2 256.1	1.39 1.12	115 105	3319 3329	2263 2268	233.8 235.3	223.1 224.3	0.55 0.44	1.5 1.4	2.5 1.7	0.00	0.0	233.8 235.3	0.494 0.495	1.269 1.292	1.649 1.679	3.34 3.39	
		28.09	11	255.8	0.86	95	3339	2272	234.8	223.7	0.34	1.3	0.9	0.00	0.0	234.8	0.495	1.284	1.670	3.37	
		28.18	11		1.03	105		2274	243.8	232.1	0.39	1.4	1.2	0.00	0.0	243.8	0.496	1.427	1.855	3.74	
		28.27	11	240.1	0.95	105		2278	220.1	209.2	0.40	1.4	1.7	0.00	0.0	220.1	0.496	1.072	1.393	2.81	
		28.36	11	238.2	1.02	105	3366	2282	218.2	207.2	0.43	1.4	2.0	0.00	0.0	218.2	0.497	1.046	1.359	2.74	
		28.45	11		0.84	105		2286	219.0	207.8	0.35	1.4	1.3	0.00	0.0	219.0	0.498	1.057	1.374	2.76	
		28.55 28.64	11 11	248.7 249.7	0.75 0.59	95 95	3386 3394	2290 2293	227.4 228.1	215.6 216.2	0.30 0.24	1.3	0.8	0.00	0.0	227.4 228.1	0.498 0.499	1.173 1.184	1.525 1.540	3.06 3.09	
		28.73		254.1	0.65		3403	2296	232.0	219.8	0.26	1.3	0.3	0.00	0.0	232.0	0.499	1.242	1.614	3.23	

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 **MSF:** 1.30

CPT Number: 2

	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.					Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> cIN	Q	F	Ic	(%)	Ксрт	DqclN	(q <sub>clN</sub> ) <sub>es</sub>		M7.5	M6.50		Comments
	28.82	11	251	0.65	95	3412	2299	229.0	216.8	0.26	1.3	0.4	0.00	0.0	229.0	0.500	1.197	1.557	3.11	
	28.91	11	234.6	0.74	95	3420	2302	213.9	202.3	0.32	1.4	1.2	0.00	0.0	213.9	0.501	0.991	1.288	2.57	
	29	11	239.1	1.02	105	3429	2305	217.9	205.9	0.43	1.4	2.0	0.00	0.0	217.9	0.501	1.042	1.355	2.70	
	29.1	11	251.9	1.02	105	3439	2309	229.4	216.6	0.41	1.4	1.6	0.00	0.0	229.4	0.502	1.202	1.563	3.11	
	29.19	11	262	1.18	105	3449	2313	238.4	225.0	0.45	1.4	1.8	0.00	0.0	238.4	0.502	1.339	1.741	3.47	
	29.28	11	247.5	1.65	115	3458	2317	225.0	212.1	0.67	1.6	3.6	0.00	0.0	225.0	0.503	1.139	1.481	2.94	
	29.37	11	226.5	1.6	115	3468	2322	205.7	193.6	0.71	1.6	4.3	0.00	0.0	205.7	0.503	0.889	1.156	2.30	
	29.47	11	227.2	1.27	115	3480	2327	206.1	193.7	0.56	1.5	3.3	0.00	0.0	206.1	0.504	0.894	1.162	2.31	
	29.56	11	235.5	1.12	105	3490	2332	213.4	200.4	0.48	1.5	2.5	0.00	0.0	213.4	0.504	0.984	1.279	2.54	
	29.65	11	253.6	1.01	105	3500	2335	229.6	215.6	0.40	1.4	1.6	0.00	0.0	229.6	0.505	1.206	1.567	3.10	
	29.75	11	223.5	0.68	95	3510	2340	202.2	189.5	0.31	1.4	1.4	0.00	0.0	202.2	0.506	0.849	1.103	2.18	
	29.84	11	199.3	0.74	105	3519	2343	180.2	168.6	0.37	1.5	2.5	0.00	0.0	180.2	0.506	0.624	0.811	1.60	
	29.93	11	182.8	0.66	105	3528	2346	165.1	154.2	0.36	1.5	2.9	0.00	0.0	165.1	0.507	0.499	0.648	1.28	
	30.03	11	167.4	0.75	105	3539	2351	151.1	140.9	0.45	1.6	4.1	0.00	0.0	151.1	0.486	0.401	0.521	1.07	Low F.S.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 3

Depth to Groundwater: 10 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

MSF: 1.30

	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> cIN	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	DqcIN	(qcIN)cs	Ratio	M7.5	M6.50	Safety	Comments
	0.59	10	63	0.89	125	74	74	120.7	1706.8	1.41	1.4	1.4	0.00	0.0	120.7	0.351	0.243	0.316	0.90	Above W.T.
	0.69	10	43.2	1.05	135	86	86	82.7	1000.3	2.43	1.7	5.6	0.02	1.4	84.1	0.351	0.135	0.176	0.50	Above W.T.
	0.79	10	39.2	1.19	135	100	100	75.1	784.6	3.04	1.8	8.1	0.08	6.7	81.8	0.351	0.131	0.170	0.48	Above W.T.
	0.89	10	34.8	1.27	135	113	113	66.6	613.3	3.66	1.9	10.6	0.15	11.7	78.4	0.351	0.125	0.162	0.46	Above W.T.
	0.99	10	29.8	1.28	135	127	127	57.1	469.0	4.30	2.0	13.5	0.23	16.7	73.7	0.351	0.117	0.152	0.43	Above W.T.
	1.08 1.18	10 10	28.9 25	1.15 0.94	135 135	139 152	139 152	55.3 47.9	415.0 326.9	3.99 3.77	2.0	13.2 13.9	0.22 0.24	15.6 14.9	70.9 62.8	0.351 0.351	0.113	0.147 0.134	0.42 0.38	Above W.T. Above W.T.
	1.28	10	21.6	0.86	135	166	166	41.4	259.3	4.00	2.1	16.0	0.29	17.2	58.5	0.351	0.103	0.128	0.37	Above W.T.
	1.37	10	19.9	0.81	125	178	178	38.1	222.4	4.09	2.1	17.3	0.33	18.7	56.8	0.351	0.097	0.126	0.36	Above W.T.
	1.47	10	18.6	0.78	125	191	191	35.6	194.1	4.22	2.2	18.7	0.37	20.5	56.1	0.351	0.096	0.125	0.36	Above W.T.
	1.56	10	19.3	0.77	125	202	202	37.0	190.2	4.01	2.2	18.3	0.35	20.2	57.2	0.351	0.097	0.127	0.36	Above W.T.
	1.66	10	18.8	0.72	125	214	214	36.0	174.4	3.85	2.2	18.5	0.36	20.2	56.2	0.351	0.097	0.125	0.36	Above W.T.
	1.75 1.85	10 10	17.1 15.6	0.68 0.65	125 125	226 238	226 238	32.7 29.9	150.6 130.0	4.00 4.20	2.2	20.2 22.1	0.40 0.46	22.3 25.1	55.0 54.9	0.351 0.351	0.095 0.095	0.124 0.124	0.35 0.35	Above W.T. Above W.T.
	1.95	10	15.8	0.63	125	251	251	30.3	125.1	4.02	2.3	21.9	0.45	24.9	55.1	0.351	0.095	0.124	0.35	Above W.T.
	2.01	10	16.2	0.62	125	258	258	31.0	124.5	3.86	2.3	21.4	0.44	24.2	55.3	0.351	0.096	0.124	0.35	Above W.T.
	2.11	10	15.3	0.6	125	271	271	29.3	112.1	3.96	2.3	22.8	0.47	26.5	55.8	0.351	0.096	0.125	0.36	Above W.T.
	2.39	10	14.1	0.64	125	306	306	27.0	91.3	4.59	2.4	26.9	0.59	38.1	65.1	0.351	0.106	0.137	0.39	Above W.T.
	2.49	10	14	0.63	125	318	318	26.8	87.0	4.55	2.4	27.4	0.60	39.7	66.5	0.351	0.107	0.140	0.40	Above W.T.
	2.58	10	14.2	0.62	125	329	329	27.2	85.2	4.42	2.4	27.2	0.59	39.5	66.6	0.351	0.108	0.140	0.40	Above W.T.
	2.68 2.78	10 10	14 13.5	0.65 0.68	125 125	342 354	342 354	26.8 25.9	80.9 75.2	4.70 5.10	2.5 2.5	28.7 30.7	0.63 0.69	46.0 56.9	72.8 82.7	0.351 0.351	0.116 0.133	0.151 0.172	0.43	Above W.T. Above W.T.
	2.88	10	14.4	0.69	125	367	367	27.6	77.5	4.85	2.5	29.6	0.66	53.0	80.6	0.351	0.133	0.172	0.49	Above W.T.
	2.97	10	20	0.63	125	378	378	38.3	104.8	3.18	2.3	20.8	0.42	27.8	66.1	0.351	0.107	0.139	0.40	Above W.T.
	3.07	10	26.1	0.61	125	391	391	50.0	132.6	2.35	2.1	15.4	0.28	19.2	69.2	0.351	0.111	0.144	0.41	Above W.T.
	3.17	10	25.2	0.59	125	403	403	48.3	124.0	2.36	2.1	16.0	0.29	20.0	68.3	0.351	0.110	0.142	0.41	Above W.T.
	3.27	10	21.2	0.61	125	416	416	40.6	101.0	2.91	2.2	20.1	0.40	27.4	68.0	0.351	0.109	0.142	0.40	Above W.T.
	3.37	10	17.7	0.67 0.77	125 125	428 441	428	33.9	81.7	3.83	2.4	25.7	0.55	42.0	75.9	0.351	0.121	0.157	0.45	Above W.T.
	3.47 3.57	10 10	15.8 15.4	0.77	125	453	441 453	30.3 29.5	70.7 67.0	4.94 5.54	2.5 2.6	31.0 33.5	0.70 0.76	69.0 93.5	99.3 123.0	0.351 0.351	0.171 0.253	0.222 0.329	0.63 0.94	Above W.T. Above W.T.
	3.67	10	15.4	0.87	125	466	466	29.5	65.1	5.74	2.6	34.4	0.79	107.7	137.2	0.351	0.320	0.325	1.19	Above W.T.
	3.77	10	15.8	0.9	125	478	478	30.3	65.1	5.78	2.6	34.5	0.79	113.1	143.4	0.351	0.354	0.460	1.31	Above W.T.
	3.86	10	17.1	0.92	125	489	489	32.7	68.9	5.46	2.5	32.9	0.74	95.5	128.2	0.351	0.276	0.359	1.02	Above W.T.
	3.96	10	20.2	0.97	135	502	502	38.7	79.5	4.86	2.5	29.4	0.65	71.9	110.6	0.351	0.206	0.268	0.76	Above W.T.
	4.06	10	22.1	1.05	135	515	515	42.3	84.7	4.81	2.4	28.4	0.63	70.7	113.0	0.351	0.214	0.279	0.79	Above W.T.
	4.16	10 10	23	1.17 1.27	135	529	529	43.8	86.0	5.15	2.5	29.3	0.65	80.4	124.2 129.5	0.351 0.351	0.258 0.282	0.336	0.96	Above W.T.
	4.26 4.35	10	24.4 24.6	1.34	135 135	542 554	542 554	45.8 45.7	88.9 87.7	5.26 5.51	2.5 2.5	29.2 30.0	0.65 0.67	83.6 92.2	137.9	0.351	0.282	0.366 0.421	1.04 1.20	Above W.T. Above W.T.
	4.45	10	24.7	1.36	135	568	568	45.3	85.9	5.57	2.5	30.4	0.68	96.1	141.4	0.351	0.343	0.446	1.27	Above W.T.
	4.55	10	23.4	1.34	135	581	581	42.5	79.5	5.80	2.5	32.0	0.72	109.9	152.4	0.351	0.409	0.532	1.51	Above W.T.
	4.65	10	21.4	1.31	135	595	595	38.4	70.9	6.21	2.6	34.6	0.79	143.6	182.0	0.351	0.641	0.833	2.37	Above W.T.
	4.74	10	19.8	1.27	135	607	607	35.2	64.2	6.51	2.6	36.7	0.80	140.6	175.8	0.351	0.585	0.761	2.17	Above W.T.
	4.84	10	17.8	1.22	135	621	621	31.3	56.3	6.98	2.7	39.7	0.80	125.1	156.3	0.351	0.435	0.566	1.61	Above W.T.
	4.94 5.04	10 10	16.8 16	1.16 1.09	135 135	634 648	634 648	29.2 27.5	52.0 48.4	7.04 6.95	2.7 2.7	41.1 41.9	0.80 0.80	116.8 110.0	146.0 137.5	0.351 0.351	0.369 0.322	0.480 0.419	1.37 1.19	Above W.T. Above W.T.
	5.13	10	15.5	1.03	125	660	660	26.4	46.0	6.79	2.7	42.3	0.80	105.6	132.0	0.351	0.322	0.382	1.09	Above W.T.
	5.23	10	15	0.98	125	672	672	25.3	43.6	6.68	2.7	42.9	0.80	101.3	126.6	0.351	0.269	0.349	0.99	Above W.T.
	5.33	10	14.4	0.97	125	685	685	24.1	41.0	6.90	2.8	44.4	0.80	96.3	120.4	0.351	0.242	0.315	0.90	Above W.T.
	5.42	10	14.6	0.96	125	696	696	24.2	40.9	6.74	2.8	44.0	0.80	96.9	121.1	0.351	0.245	0.319	0.91	Above W.T.
	5.48	10	15.7	0.96	125	704	704	25.9	43.6	6.25	2.7	41.7	0.80	103.6	129.5	0.351	0.282	0.367	1.04	Above W.T.
	5.58	10	15.7	0.96	125	716	716	25.7	42.8	6.26	2.7	42.0	0.80	102.7	128.4	0.351	0.277	0.360	1.02	Above W.T.
	5.68 5.78	10 10	15.4 15.5	0.97 0.98	125 125	729 741	729 741	25.0 24.9	41.3 40.8	6.45 6.48	2.7 2.8	43.1 43.4	0.80 0.80	99.9 99.7	124.8 124.6	0.351 0.351	0.261 0.260	0.339 0.338	0.97 0.96	Above W.T. Above W.T.
	5.87	10	15.2	0.98	125	752	752	24.9	39.4	6.54	2.8	44.1	0.80	97.0	121.2	0.351	0.246	0.338	0.90	Above W.T.
	5.97	10	15.1	0.96	125	765	765	23.9	38.5	6.52	2.8	44.5	0.80	95.6	119.5	0.351	0.239	0.310	0.88	Above W.T.
	6.07	10	14.2	0.95	125	777	777	22.3	35.5	6.88	2.8	46.8	0.80	89.1	111.4	0.351	0.209	0.271	0.77	Above W.T.
	6.17	10	13.7	0.94	125	790	790	21.3	33.7	7.07	2.8	48.2	0.80	85.3	106.7	0.351	0.193	0.251	0.71	Above W.T.
	6.27	10	13.6	0.93	125	802	802	21.0	32.9	7.05	2.8	48.6	0.80	84.0	105.0	0.351	0.188	0.244	0.70	Above W.T.
	6.36 6.46	10 10	13.3	0.92 n 9	125 125	814 826	814 826	20.4	31.7	7.14 7.21	2.9	49.5 50.6	0.80	81.6 78.6	102.0	0.351	0.179	0.232	0.66	Above W.T.

0.9

0.89

0.88

125 826

125 839

125 851

826

839

851

19.6

19.0

18.1

30.2

29.0

27.4

7.21

7.31

2.9

2.9

2.9

50.6

51.6

53.3

0.80

0.80

0.80

78.6

76.2

72.6

98.2

95.2

90.7

0.351

0.351

0.351

0.168

0.160

0.149

0.218

0.208

0.194

0.62

0.59

0.55

Above W.T.

Above W.T.

Above W.T.

6.46

6.56

6.66

10 12.9

10

10

12.6

12.1

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 3

Depth to Groundwater: 10 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

PGA (g): 0.54 MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.		Friction						Induced	Liquef.	•	Factor	
Como	Depth	Table	Resist.	Frict.	g (DCE)	Stress	Stress	Tip	Tip	Ratio	Lo	F.C.	Ксрт	DqcIN	(qclN)es	Stress	Stress	Stress	of Cofoty	Comments
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> e1N	Q	F	Ic	(%)	KCPI	Dqein	( <b>q</b> cIN)es	Katio	M7.5	M6.50	Sarety	Comments
	6.76	10	11.4	0.87	125	864	864	17.0	25.4	7.93	3.0	55.8	0.80	67.9	84.9	0.351	0.137	0.178	0.51	Above W.T.
	6.86	10	10.4	0.83	125	876	876	15.4	22.7	8.33	3.0	59.0	0.80	61.5	76.9	0.351	0.137	0.178	0.31	Above W.T.
	6.96	10	10	0.8	125	889	889	14.7	21.5	8.37	3.0	60.3	0.80	58.7	73.4	0.351	0.117	0.152	0.43	Above W.T.
	7.06	10	9.2	0.76	125	901	901	13.4	19.4	8.69	3.1	63.3	0.80	53.6	67.1	0.351	0.108	0.140	0.40	Above W.T.
	7.15 7.25	10 10	8.1 6.2	0.71 0.66	125 115	912 925	912 925	11.7 8.9	16.8 12.4	9.29 11.50	3.1	68.1 80.6	0.80	46.9 35.7	58.7 44.6	0.351	0.099 0.088	0.128 0.115	0.37	Above W.T. Above W.T.
	7.35	10	5.7	0.63	115	936	936	8.2	11.2	12.04	3.3	84.5	0.80	32.6	40.8	0.351	0.086	0.112	0.32	Above W.T.
	7.45	10	6.3	0.62	115	948	948	9.0	12.3	10.64	3.3	78.9	0.80	35.8	44.8	0.351	0.088	0.115	0.33	Above W.T.
	7.55 7.65	10 10	7 8.6	0.61 0.61	115 125	959 971	959 971	9.9 12.1	13.6 16.7	9.36 7.52	3.2	73.3 63.5	0.80	39.6 48.3	49.4 60.4	0.351	0.091	0.119 0.131	0.34 0.37	Above W.T. Above W.T.
	7.74	10	10.2	0.64	125	982	982	14.2	19.8	6.59	3.0	57.2	0.80	57.0	71.2	0.351	0.100	0.131	0.37	Above W.T.
	7.84	10	11.4	0.66	125	995	995	15.8	21.9	6.05	2.9	53.4	0.80	63.3	79.1	0.351	0.126	0.164	0.47	Above W.T.
	7.94	10	12	0.68	125	1007	1007	16.5	22.8	5.91	2.9	52.2	0.80	66.2	82.7	0.351	0.133	0.172	0.49	Above W.T.
	8.04 8.14	10 10	13.4 13.1	0.66 0.62	125 125	1020 1032	1020 1032	18.4 17.8	25.3 24.4	5.12 4.93	2.8 2.8	47.6 47.6	0.80	73.4 71.4	91.8 89.2	0.351	0.152 0.146	0.198 0.190	0.56 0.54	Above W.T. Above W.T.
	8.24	10	12.9	0.56	125	1045	1032	17.5	23.7	4.52	2.8	46.7	0.80	69.9	87.3	0.351	0.142	0.130	0.53	Above W.T.
	8.33	10	10.8	0.5	125	1056	1056	14.5	19.5	4.87	2.9	51.8	0.80	58.2	72.7	0.351	0.116	0.150	0.43	Above W.T.
	8.43	10	10	0.44	115	1068	1068	13.4	17.7	4.65	2.9	52.9	0.80	53.5	66.9	0.351	0.108	0.140	0.40	Above W.T.
	8.53 8.63	10 10	10.5 10.2	0.39 0.37	115 115	1080 1091	1080 1091	14.0 13.5	18.4 17.7	3.92 3.83	2.9 2.9	49.2 49.7	0.80	55.9 54.0	69.9 67.5	0.351	0.112 0.109	0.145 0.141	0.41	Above W.T. Above W.T.
	8.84	10	11	0.36	115	1115	1115	14.4	18.7	3.45	2.8	46.8	0.80	57.6	72.1	0.351	0.105	0.149	0.43	Above W.T.
	8.94	10	10.5	0.35	115	1127	1127	13.7	17.6	3.52	2.8	48.4	0.80	54.7	68.4	0.351	0.110	0.143	0.41	Above W.T.
	9.04	10	10	0.33	115	1138	1138	13.0	16.6	3.50	2.9	49.5	0.80	51.9	64.8	0.351	0.105	0.137	0.39	Above W.T.
	9.14 9.23	10 10	9.6 9.5	0.33 0.34	115 115	1150 1160	1150 1160	12.4 12.2	15.7 15.4	3.66 3.81	2.9 2.9	51.4 52.5	0.80	49.5 48.8	61.9 61.0	0.351 0.351	0.102 0.101	0.133 0.131	0.38	Above W.T. Above W.T.
	9.33	10	9.5	0.35	115	1172	1172	12.1	15.2	3.93	2.9	53.2	0.80	48.6	60.7	0.351	0.101	0.131	0.37	Above W.T.
	9.43	10	9.5	0.36	115	1183	1183	12.1	15.1	4.04	2.9	54.0	0.80	48.3	60.4	0.351	0.101	0.131	0.37	Above W.T.
	9.53	10	9.7	0.38	115	1195	1195	12.3	15.2	4.17	2.9	54.3	0.80	49.1	61.4	0.351	0.102	0.132	0.38	Above W.T.
	9.63 9.73	10 10	9.4 8.9	0.38 0.36	115 115	1206 1218	1206 1218	11.8 11.2	14.6 13.6	4.32 4.34	3.0	55.8 57.5	0.80	47.4 44.6	59.2 55.8	0.351 0.351	0.099 0.096	0.129 0.125	0.37	Above W.T. Above W.T.
	9.83	10	9	0.34	115	1229	1229	11.2	13.6	4.05	3.0	56.2	0.80	44.9	56.2	0.351	0.096	0.125	0.36	Above W.T.
	9.93	10	9	0.33	115	1241	1241	11.2	13.5	3.94	3.0	55.9	0.80	44.7	55.9	0.351	0.096	0.125	0.36	Above W.T.
	10.03 10.13	10 10	9	0.31 0.3	115 115	1252 1264	1246	11.2	13.4	3.70	2.9	55.0 51.9	0.80	44.6	55.8 59.4	0.346	0.096 0.099	0.125 0.129	0.36	NonLiqfble.
	10.13	10	9.6 9.8	0.29	115	1275	1251 1257	11.9 12.1	14.3 14.6	3.35 3.17	2.9 2.9	50.6	0.80	47.5 48.4	60.5	0.347 0.349	0.101	0.129	0.37 0.37	NonLiqfble. NonLiqfble.
	10.33	10	9.7	0.29	115	1287	1262	11.9	14.3	3.20	2.9	51.1	0.80	47.8	59.7	0.351	0.100	0.130	0.37	NonLiqfble.
	10.43	10	11.3	0.3	115	1298	1267	13.9	16.8	2.82	2.8	45.9	0.80	55.6	69.4	0.352	0.111	0.144	0.41	NonLiqfble.
	10.53 10.62	10 10	12.6 12.4	0.3 0.29	115 115	1310 1320	1272 1277	15.5 15.2	18.8 18.4	2.51 2.47	2.7	42.0 42.2	0.80	61.8 60.7	77.3 75.9	0.354 0.356	0.123 0.121	0.160 0.157	0.45 0.44	NonLiqfble.
	10.02	10	11.6	0.28	115	1332	1282	14.2	17.0	2.56	2.7 2.8	44.2	0.80	56.7	70.9	0.357	0.121	0.137	0.44	NonLiqfble. NonLiqfble.
	10.82	10	11.6	0.28	115	1343	1288	14.1	17.0	2.56	2.8	44.3	0.80	56.6	70.7	0.359	0.113	0.147	0.41	NonLiqfble.
	10.92	10	11	0.27	115	1355	1293	13.4	16.0	2.62	2.8	45.8	0.80	53.5	66.9	0.360	0.108	0.140	0.39	NonLiqfble.
	11.02 11.12	10 10	10.9 10.5	0.29	115 115	1366 1378	1298 1303	13.2 12.7	15.7 15.0	2.84 3.06	2.8 2.9	47.3 49.4	0.80	52.9 50.9	66.2 63.6	0.362 0.364	0.107 0.104	0.139 0.135	0.38	NonLiqfble.
	11.12	10	10.5	0.35	115	1378	1303	12.7	15.0	3.50	2.9	51.2	0.80	51.8	64.7	0.365	0.104	0.133	0.37	NonLiqfble. NonLiqfble.
	11.32	10	11.3	0.39	115	1401	1314	13.6	16.1	3.68	2.9	50.9	0.80	54.6	68.2	0.367	0.110	0.142	0.39	NonLiqfble.
	11.41	10	11.1	0.41	115	1411	1319	13.4	15.8	3.94	2.9	52.6	0.80	53.5	66.9	0.368	0.108	0.140	0.38	NonLiqfble.
	11.51 11.61	10 10	11.1 11.5	0.4	115 115	1422 1434	1324 1329	13.3 13.8	15.7 16.2	3.85 3.52	2.9 2.9	52.2 50.1	0.80	53.4 55.2	66.7 69.0	0.370 0.371	0.108	0.140 0.144	0.38	NonLiqfble. NonLiqfble.
	11.71	10	11.9	0.36	115	1445	1334	14.3	16.7	3.22	2.8	48.0	0.80	57.0	71.3	0.371	0.111	0.148	0.40	NonLiqfble.
	11.81	10	13	0.36	115	1457	1340	15.5	18.3	2.93	2.8	44.8	0.80	62.2	77.7	0.374	0.124	0.161	0.43	NonLiqfble.
	11.91	10	13.5	0.36	115	1468	1345	16.1	19.0	2.82	2.8	43.5	0.80	64.4	80.5	0.376	0.129	0.167	0.45	NonLiqfble.
	12.01 12.04	10 10	13.4 13.7	0.37 0.37	115 115	1480 1483	1350 1352	16.0 16.3	18.7 19.2	2.92 2.86	2.8 2.8	44.2 43.5	0.80 0.80	63.8 65.2	79.8 81.5	0.377 0.377	0.127 0.130	0.165 0.169	0.44 0.45	NonLiqfble. NonLiqfble.
	12.11	10	14.1	0.37	125	1491	1355	16.8	19.2	2.77	2.7	42.5	0.80	67.0	83.8	0.377	0.130	0.109	0.45	NonLiqfble.
	12.21	10	14.9	0.38	125	1504	1362	17.7	20.8	2.69	2.7	41.1	0.80	70.7	88.3	0.380	0.144	0.187	0.49	NonLiqfble.
	12.31	10	16.1	0.39	125	1516	1368	19.0	22.4	2.54	2.7	38.9	0.80	76.2	95.2	0.381	0.160	0.208	0.55	NonLiqfble.
	12.41 12.51	10 10	16.4 17	0.39	125 125	1529 1541	1374 1380	19.4 20.0	22.7 23.5	2.49 2.40	2.7 2.6	38.4 37.3	0.80 0.80	77.4 80.1	96.8 100.1	0.383 0.384	0.164 0.173	0.214 0.225	0.56 0.59	NonLiqfble. NonLiqfble.
	12.61	10	17.4	0.33	125	1554	1387	20.4	24.0	2.40	2.6	37.0	0.80	81.8	102.2	0.385	0.179	0.223	0.60	NonLiqfble.
	12.71	10	17.6	0.42	125	1566	1393	20.6	24.1	2.50	2.6	37.4	0.80	82.5	103.2	0.387	0.182	0.237	0.61	NonLiqfble.
	12.8	10	17.6	0.44	125	1578	1399	20.6	24.0	2.62	2.7	38.1	0.80	82.4	103.0	0.388	0.181	0.236	0.61	NonLiqfble.
	12.9	10	18	0.46	125	1590	1405	21.0	24.5	2.67	2.7	38.1	0.80	84.0	105.1	0.389	0.188	0.244	0.63	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 3

Depth to Groundwater: 10 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

PGA (g): 0.54 MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress		of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	13	10	18.4	0.47	125	1603	1411	21.4	24.9	2.67	2.6	37.7	0.80	85.7	107.2	0.391	0.194	0.253	0.65	NonLiqfble.
	13.1	10	18.4	0.49	125	1615	1417	21.4	24.8	2.79	2.7	38.4	0.80	85.5	106.9	0.392	0.194	0.252	0.64	NonLiqfble.
	13.2	10	18	0.5	125	1628	1424	20.9	24.1	2.91	2.7	39.5	0.80	83.5	104.4	0.393	0.186	0.241	0.61	NonLiqfble.
	13.3	10	18.4	0.5	125	1640	1430	21.3	24.6	2.84	2.7	38.9	0.80	85.2	106.5	0.395	0.192	0.250	0.63	NonLiqfble.
	13.4	10	17.5	0.51	125	1653	1436	20.2	23.2	3.06	2.7	40.9	0.80	80.8	101.0	0.396	0.176	0.229	0.58	NonLiqfble.
	13.5 13.59	10 10	16.3 15.2	0.5 0.47	125 125	1665 1676	1442 1448	18.8 17.5	21.4 19.8	3.23 3.27	2.8 2.8	43.2 44.9	0.80	75.1 69.9	93.9 87.4	0.397 0.398	0.157 0.142	0.204 0.185	0.51 0.46	NonLiqfble.
	13.69	10	14.3	0.47	125	1689	1446	16.4	18.5	3.20	2.8	45.9	0.80	65.6	82.0	0.398	0.142	0.183	0.43	NonLiqfble. NonLiqfble.
	13.79	10	13.1	0.37	115	1701	1461	15.0	16.8	3.02	2.8	47.0	0.80	60.0	75.0	0.401	0.119	0.155	0.39	NonLiqfble.
	13.89	10	12	0.32	115	1713	1466	13.7	15.2	2.87	2.8	48.2	0.80	54.9	68.6	0.402	0.110	0.143	0.36	NonLiqfble.
	13.99	10	11.5	0.28	115	1724	1471	13.1	14.5	2.63	2.8	47.9	0.80	52.5	65.6	0.403	0.106	0.138	0.34	NonLiqfble.
	14.09 14.19	10 10	10.9	0.25 0.24	115 105	1736 1747	1476	12.4	13.6	2.49	2.8	48.4	0.80	49.6	62.1	0.404	0.102	0.133 0.134	0.33	NonLiqfble.
	14.19	10	11 11.3	0.24	115	1758	1482 1486	12.5 12.8	13.7 14.0	2.37 2.88	2.8 2.9	47.6 49.9	0.80	50.0 51.3	62.5 64.1	0.406 0.407	0.103 0.105	0.134	0.33	NonLiqfble. NonLiqfble.
	14.38	10	12.2	0.36	115	1768	1491	13.8	15.2	3.18	2.9	49.8	0.80	55.3	69.1	0.408	0.111	0.144	0.35	NonLiqfble.
	14.48	10	12.7	0.4	115	1780	1496	14.4	15.8	3.39	2.9	50.0	0.80	57.5	71.8	0.409	0.114	0.149	0.36	NonLiqfble.
	14.58	10	13.1	0.44	125	1791	1501	14.8	16.3	3.61	2.9	50.4	0.80	59.2	74.0	0.410	0.118	0.153	0.37	NonLiqfble.
	14.68	10	11.6	0.44	125	1804	1507	13.1	14.2	4.11	3.0	55.6	0.80	52.3	65.4	0.412	0.106	0.138	0.33	NonLiqfble.
	14.78 14.88	10 10	9.2 8.1	0.41 0.37	115 115	1816 1828	1514 1519	10.3 9.1	11.0 9.5	4.94 5.15	3.1	65.0 69.5	0.80	41.4 36.4	51.7 45.5	0.413 0.414	0.093 0.089	0.121 0.115	0.29 0.28	NonLiqfble. NonLiqfble.
	14.98	10	8.6	0.33	115	1839	1524	9.6	10.1	4.30	3.1	64.4	0.80	38.6	48.2	0.415	0.009	0.113	0.28	NonLiqfble.
	15.08	10	9.8	0.29	115	1851	1529	11.0	11.6	3.27	3.0	56.2	0.80	43.9	54.8	0.416	0.095	0.124	0.30	NonLiqfble.
	15.18	10	10	0.29	115	1862	1535	11.2	11.8	3.20	3.0	55.4	0.80	44.7	55.8	0.417	0.096	0.125	0.30	NonLiqfble.
	15.27	10	9.6	0.3	115	1873	1539	10.7	11.3	3.46	3.0	57.9	0.80	42.8	53.5	0.418	0.094	0.123	0.29	NonLiqfble.
	15.38	10	9.8	0.29	115	1885	1545	10.9	11.5	3.27	3.0	56.5	0.80	43.6	54.5	0.420	0.095	0.124	0.29	NonLiqfble.
	15.48 15.58	10 10	9.6 9.6	0.3 0.3	115 115	1897 1908	1550 1556	10.7 10.6	11.2 11.1	3.47 3.47	3.0	58.1 58.2	0.80	42.7 42.6	53.3 53.2	0.421 0.422	0.094 0.094	0.122 0.122	0.29 0.29	NonLiqfble. NonLiqfble.
	15.67	10	9.8	0.32	115	1919	1560	10.0	11.3	3.62	3.0	58.5	0.80	43.4	54.3	0.423	0.095	0.122	0.29	NonLiqfble.
	15.77	10	10.3	0.35	115	1930	1566	11.4	11.9	3.75	3.0	57.9	0.80	45.6	56.9	0.424	0.097	0.126	0.30	NonLiqfble.
	15.87	10	10.7	0.38	115	1942	1571	11.8	12.4	3.91	3.0	57.7	0.80	47.2	59.1	0.425	0.099	0.129	0.30	NonLiqfble.
	15.97	10	11	0.38	115	1953	1576	12.1	12.7	3.79	3.0	56.6	0.80	48.5	60.6	0.426	0.101	0.131	0.31	NonLiqfble.
	16.07 16.17	10 10	10.7 9.3	0.4 0.39	115 115	1965 1976	1582 1587	11.8	12.3 10.5	4.12	3.0	58.9	0.80 0.80	47.1 40.9	58.9	0.427 0.428	0.099 0.092	0.129 0.120	0.30 0.28	NonLiqfble.
	16.17	10	8.3	0.35	115	1988	1592	10.2 9.1	9.2	4.69 4.79	3.1	65.1 68.9	0.80	36.4	51.1 45.5	0.428	0.092	0.120	0.28	NonLiqfble. NonLiqfble.
	16.37	10	8.1	0.29	115	1999	1597	8.9	8.9	4.08	3.1	66.6	0.80	35.5	44.3	0.431	0.088	0.115	0.27	NonLiqfble.
	16.47	10	7.4	0.22	105	2011	1603	8.1	8.0	3.44	3.1	66.3	0.80	32.4	40.4	0.432	0.086	0.112	0.26	NonLiqfble.
	16.57	10	7.9	0.21	105	2021	1607	8.6	8.6	3.05	3.1	62.3	0.80	34.5	43.1	0.433	0.087	0.114	0.26	NonLiqfble.
	16.67	10	8.6	0.22	105	2032	1611	9.4	9.4	2.90	3.0	59.2	0.80	37.5	46.9	0.434	0.090	0.116	0.27	NonLiqfble.
	16.77 16.87	10 10	8.8 8.9	0.26 0.3	105 115	2042 2053	1615 1620	9.6 9.7	9.6 9.7	3.34 3.81	3.0	61.0 63.1	0.80 0.80	38.3 38.7	47.9 48.4	0.435 0.436	0.090 0.091	0.117 0.118	0.27 0.27	NonLiqfble. NonLiqfble.
	16.97	10	9.2	0.33	115	2064	1625	10.0	10.0	4.04	3.1	63.3	0.80	39.9	49.9	0.437	0.092	0.119	0.27	NonLiqfble.
	17.06	10	9.6	0.35	115	2075	1630	10.4	10.5	4.09	3.1	62.5	0.80	41.6	52.0	0.438	0.093	0.121	0.28	NonLiqfble.
	17.17	10	9.6	0.35	115	2087	1635	10.4	10.5	4.09	3.1	62.6	0.80	41.5	51.9	0.439	0.093	0.121	0.28	NonLiqfble.
	17.26	10	9.9	0.34	115	2098	1640	10.7	10.8	3.84	3.0	60.7	0.80	42.8	53.5	0.440	0.094	0.122	0.28	NonLiqfble.
	17.36	10	10	0.33	115	2109	1645	10.8	10.9	3.69	3.0	59.8	0.80	43.1	53.9	0.441	0.095	0.123	0.28	NonLiqfble.
	17.46 17.56	10 10	9.7 10.7	0.32 0.34	115 115	2121 2132	1651 1656	10.4 11.5	10.5 11.6	3.70 3.53	3.0	60.8 57.4	0.80 0.80	41.8 46.0	52.2 57.5	0.442 0.443	0.093 0.098	0.121 0.127	0.27 0.29	NonLiqfble. NonLiqfble.
	17.66	10	11.1	0.39	115	2144	1661	11.9	12.1	3.89	3.0	58.3	0.80	47.7	59.6	0.444	0.100	0.130	0.29	NonLiqfble.
	17.75	10	11.4	0.42	115		1666	12.2	12.4	4.07	3.0	58.5	0.80	48.9	61.1	0.445	0.101	0.132	0.30	NonLiqfble.
	17.85	10	11.3	0.41	115	2165	1671	12.1	12.2	4.01	3.0	58.5	0.80	48.4	60.5	0.446	0.101	0.131	0.29	NonLiqfble.
	17.95	10	10.5	0.39	115		1676	11.2	11.2	4.14	3.0	61.1	0.80	44.9	56.1	0.447	0.096	0.125	0.28	NonLiqfble.
	18.05 18.15	10 10	9.8 10.2	0.37 0.36	115 115	2188 2200	1682 1687	10.5 10.9	10.3 10.8	4.25 3.96	3.1	63.5 61.2	0.80	41.8 43.5	52.3 54.3	0.448 0.449	0.093 0.095	0.121 0.123	0.27 0.28	NonLiqfble. NonLiqfble.
	18.25	10	10.4	0.35	115	2211	1692	11.1	11.0	3.77	3.0	59.9	0.80	44.2	55.3	0.449	0.093	0.123	0.28	NonLiqfble.
	18.35	10	10	0.33	115	2223	1697	10.6	10.5	3.71	3.0	60.8	0.80	42.5	53.1	0.450	0.094	0.122	0.27	NonLiqfble.
	18.45	10	9.9	0.3	115	2234	1703	10.5	10.3	3.42	3.0	59.7	0.80	42.0	52.5	0.451	0.093	0.121	0.27	NonLiqfble.
	18.5	10	10.1	0.3	115	2240	1705	10.7	10.5	3.34	3.0	58.8	0.80	42.8	53.5	0.452	0.094	0.123	0.27	NonLiqfble.
	18.62	10	10.4	0.29	115	2254	1712	11.0	10.8	3.13	3.0	57.1	0.80	44.0	55.0	0.453	0.095	0.124	0.27	NonLiqfble.
	18.72 18.82	10 10	10.2 10.5	0.31 0.35	115 115	2265 2277	1717 1722	10.8 11.1	10.6 10.9	3.42 3.74	3.0	59.2 60.0	0.80 0.80	43.1 44.3	53.9 55.4	0.454 0.455	0.095 0.096	0.123 0.125	0.27 0.27	NonLiqfble. NonLiqfble.
	18.92	10	10.5	0.35	115	2288	1727	10.9	10.9	3.74	3.0	60.6	0.80	44.3	54.7	0.455	0.096	0.123	0.27	NonLiqible. NonLiqfble.
	19.02	10	10.7	0.36	115		1733	11.2	11.0	3.77	3.0	59.9	0.80	45.0	56.2	0.457	0.097	0.124	0.27	NonLiqfble.
	19.12	10	10	0.37	115		1738	10.5	10.2	4.18	3.1	63.7	0.80	42.0	52.5	0.457	0.093	0.121	0.27	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 3

Depth to Groundwater: 10 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	DqcIN	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	19.22	10	10.2	0.35	115	2323	1743	10.7	10.4	3.87	3.0	61.8	0.80	42.8	53.4	0.458	0.094	0.122	0.27	NonLiqfble.
	19.32	10	11.7		115	2334	1748	12.2	12.0	3.89	3.0	58.3	0.80	49.0	61.2	0.459	0.101	0.132	0.29	NonLiqfble.
	19.41	10	10.7		115	2345	1753	11.2	10.9	3.67	3.0	59.7	0.80	44.7	55.9	0.460	0.096	0.125	0.27	NonLiqfble.
	19.5 19.6	10 10	13.4 10.2		125 115	2355 2368	1758 1764	14.0 10.6	13.9 10.2	3.52 5.21	2.9 3.1	53.3 67.8	0.80	55.9 42.5	69.9 53.1	0.461 0.462	0.112 0.094	0.145 0.122	0.32 0.26	NonLiqfble. NonLiqfble.
	19.7	10	13.4		125	2379	1769	13.9	13.8	3.44	2.9	53.1	0.80	55.8	69.7	0.462	0.094	0.122	0.20	NonLiqfble.
	19.78	10	19.6		125	2389	1774	20.4	20.7	2.28	2.7	38.9	0.80	81.4	101.8	0.463	0.178	0.232	0.50	NonLiqfble.
	19.86	10	30.1	0.54	125	2399	1779	31.2	32.5	1.87	2.5	29.0	0.64	55.7	86.9	0.464	0.141	0.183	0.40	Liquefaction
	19.96	10	28.8		125	2412	1786	29.8	30.9	2.10	2.5	31.1	0.70	68.9	98.7	0.465	0.169	0.220	0.47	Liquefaction
	20.06 20.16	10 10	28.3 29.4		135 135	2424 2438	1792 1799	29.3 30.3	30.2 31.3	2.92 3.19	2.6 2.6	35.7 36.4	0.80	117.0 121.3	146.3 151.6	0.456 0.457	0.371 0.404	0.482 0.525	1.06 1.15	NonLiqfble. NonLiqfble.
	20.16	10	38.2		135	2451	1807	39.3	40.9	3.19	2.6	35.3	0.80	157.3	196.6	0.457	0.787	1.023	2.24	NonLiqible.
	20.32	10	50.2		135	2459	1811	51.6	54.1	3.80	2.5	30.7	0.69	113.4	165.0	0.458	0.498	0.647	1.41	
	20.39	10	79.5		135	2469	1816	81.6	86.2	3.04	2.3	22.2	0.46	69.6	151.3	0.458	0.402	0.523	1.14	Low F.S.
	20.46	10	120		135	2478	1821	123.0	130.4	2.34	2.1	15.5	0.28	47.7	170.7	0.459	0.543	0.706	1.54	
	20.55 20.62	10 10	136 167.8		135 135	2490 2500	1828 1833	139.2 171.5	147.4 181.7	2.28 1.84	2.0 1.9	14.2 10.8	0.25 0.15	45.3 31.4	184.5 202.9	0.459 0.460	0.664 0.857	0.864 1.114	1.88 2.42	
	20.02	10	197.2		135	2511	1838	201.2	213.1	1.54	1.8	8.4	0.13	19.9	202.9	0.460	1.085	1.411	3.07	
	20.78	10	226.5		135	2521	1844	230.8	244.2	1.30	1.7	6.4	0.04	9.2	240.0	0.461	1.365	1.775	3.85	
	20.86	10	226.7	2.46	125	2532	1850	230.6	243.6	1.09	1.7	5.4	0.01	2.4	233.0	0.461	1.257	1.634	3.54	
	20.94	10	218.6		125	2542	1855	222.1	234.2	1.09	1.7	5.6	0.01	3.4	225.4	0.462	1.146	1.489	3.23	
	21.01	10	235 255		135	2551	1859	238.4 258.3	251.3	1.23	1.7	6.0	0.03	6.3	244.8	0.462	1.444	1.877	4.06	
	21.09 21.17	10 10	296.6		135 135	2562 2572	1865 1871	300.0	271.9 315.5	1.36 1.19	1.7 1.6	6.2 4.7	0.03	8.5 0.0	266.9 300.0	0.463 0.463	1.847 2.591	2.402 3.369	5.19 7.27	
	21.25	10	262		135	2583	1877	264.6	277.7	1.24	1.7	5.5	0.01	3.8	268.4	0.464	1.877	2.441	5.26	
	21.33	10	239.1	3	135	2594	1883	241.1	252.5	1.26	1.7	6.1	0.03	7.2	248.3	0.464	1.504	1.955	4.21	
	21.41	10	222.7	2.76	135	2605	1888	224.2	234.4	1.25	1.7	6.4	0.04	8.7	232.9	0.465	1.256	1.632	3.51	
	21.49	10	226.8		135	2616	1894	228.0	238.0	1.26	1.7	6.4	0.04	8.8	236.8	0.465	1.314	1.709	3.67	
	21.56 21.68	10 10	253.3 299.5		135 135	2625 2641	1899 1908	254.3 300.0	265.2 312.4	1.42 1.42	1.7 1.7	6.6 5.8	0.04 0.02	11.3 6.6	265.6 306.6	0.466 0.466	1.822 2.760	2.369 3.588	5.09 7.69	
	21.76	10	313		135	2652	1914	313.0	325.6	1.28	1.6	5.0	0.00	0.0	313.0	0.467	2.933	3.813	8.17	
	21.85	10	275.4		135	2664	1920	275.0	285.3	1.61	1.8	7.1	0.06	16.3	291.3	0.467	2.379	3.092	6.62	
	21.94	10	298.8		135	2676	1927	297.8	308.6	1.50	1.7	6.2	0.03	10.1	307.9	0.468	2.795	3.634	7.76	
	22.02	10	308.2		135	2687	1933	306.7	317.4	1.16	1.6	4.5	0.00	0.0	306.7	0.468	2.764	3.593	7.67	
	22.11 22.19	10 10	299.9 302.5		125 125	2699 2709	1939 1944	298.0 300.2	307.8 309.6	0.89 0.90	1.5 1.5	3.2 3.3	0.00	0.0	298.0 300.2	0.469 0.470	2.540 2.595	3.302 3.374	7.04 7.18	
	22.27	10	296.8		125	2719	1949	294.1	303.0	0.84	1.5	3.0	0.00	0.0	294.1	0.470	2.446	3.180	6.77	
	22.36	10	289		125	2731	1955	286.0	294.1	0.86	1.5	3.2	0.00	0.0	286.0	0.471	2.255	2.932	6.23	
	22.44	10	268.4		125	2741	1960	265.3	272.4	0.90	1.6	3.8	0.00	0.0	265.3	0.471	1.816	2.361	5.01	
	22.53	10	265.4		115	2752	1966	261.9	268.5	0.75	1.5	3.0	0.00	0.0	261.9	0.472	1.751	2.276	4.83	
	22.61 22.68	10 10	274.6 282.7	1.66 1.62	115 115	2761 2769	1970 1974	270.7 278.4	277.3 285.0	0.61 0.58	1.4 1.4	2.0	0.00	0.0	270.7 278.4	0.472 0.473	1.925 2.087	2.502 2.714	5.30 5.74	
	22.76	10	291.8		115	2778	1978	287.1	293.6	0.58	1.4	1.6	0.00	0.0	287.1	0.473	2.281	2.965	6.26	
	22.85	10	292.9		115	2789	1982	287.8	294.0	0.54	1.4	1.3	0.00	0.0	287.8	0.474	2.298	2.987	6.30	
	22.92	10	306.8		105	2797	1986	301.2	307.4	0.46	1.3	0.7	0.00	0.0	301.2	0.474	2.621	3.408	7.18	
	23	10 10	294.1	1.52	115	2805	1990 1994	288.5 284.1	294.1	0.52 0.64	1.4 1.4	1.2	0.00	0.0	288.5 284.1	0.475	2.313	3.007	6.33	
	23.08 23.16	10	289.9 278.2	1.85 1.68	115 115	2814 2824	1994	272.3	289.3 277.0	0.61	1.4	2.0	0.00	0.0	272.3	0.476 0.476	2.212 1.958	2.876 2.546	6.05 5.35	
	23.24	10			115		2002	241.1	244.8	0.66	1.5	2.8	0.00	0.0	241.1	0.477	1.384	1.799	3.77	
	23.33	10	229.1	1.54	115	2843	2007	223.8	226.8	0.68	1.5	3.3	0.00	0.0	223.8	0.477	1.122	1.458	3.06	
	23.41	10	214.6		115	2852	2011	209.4	211.9	0.77	1.6	4.2	0.00	0.0	209.4	0.478	0.934	1.214	2.54	
	23.49	10	188.6		115	2861	2015	183.8	185.7	0.64	1.6	4.0	0.00	0.0	183.8	0.478	0.658	0.855	1.79	
	23.57 23.65	10 10	181.5 179.8		115 125	2871 2880	2020 2024	176.7 174.9	178.2 176.2	0.71 0.81	1.6 1.7	4.7 5.5	0.00 0.01	0.0 2.2	176.7 177.0	0.479 0.480	0.593 0.596	0.771 0.775	1.61 1.62	
	23.74	10	163.2		125	2891	2029	158.5	159.3	0.82	1.7	6.1	0.01	4.8	163.3	0.480	0.485	0.631	1.31	
	23.82	10	154.2	1.19	115	2901	2034	149.6	150.1	0.78	1.7	6.2	0.03	5.0	154.6	0.481	0.424	0.551	1.15	Low F.S.
	23.9	10	163.5		115		2039	158.4	158.9	0.74	1.7	5.6	0.02	2.6	161.1	0.481	0.469	0.609	1.27	
	23.99 24.06	10	176.4 215.8		125 115	2921 2929	2043	170.7 208.7	171.2	0.82	1.7	5.7	0.02	3.4	174.1 208.7	0.482	0.571 0.925	0.742	1.54	
	24.06	10 10	250		115	2929	2048 2052	241.5	209.3 242.1	0.66 0.68	1.6 1.5	3.6 3.0	0.00	0.0	241.5	0.482 0.483	1.390	1.202 1.806	2.49 3.74	
	24.22	10	290.3		115	2948	2056	280.1	280.8	0.72	1.5	2.6	0.00	0.0	280.1	0.483	2.124	2.761	5.72	
	24.3	10	307.7	2.12	115	2957	2060	296.6	297.1	0.69	1.5	2.2	0.00	0.0	296.6	0.484	2.507	3.259	6.74	
	24.38	10	323.3	2.07	115	2966	2065	311.3	311.6	0.64	1.4	1.7	0.00	0.0	311.3	0.484	2.886	3.752	7.75	

Project Number: 6600.3.001.01 Date: September 2005

**CPT Number: 3** 

Depth to Groundwater: 10 feet

EQ Magnitude ( $M_w$ ): 6.5 **PGA (g):** 0.54

MSF: 1.30

		W-4	Tre	C1		T-4-1	F.664:	N	C	E-i-ti						T., J.,	T:	T:6	E4	
	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.					Stress	Liquef. Stress	ractor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	q <sub>c1N</sub>	Q	F	Ic	(%)	Ксрт	DqcIN	(QcIN)cs	Ratio		M6.50		Comments
	, ,	. ,	, ,	, ,	( - /	( /	( /	-				()			-					
	24.46	10	316.6	1.98	115	2975	2069	304.6	304.5	0.63	1.4	1.7	0.00	0.0	304.6	0.485	2.707	3.519	7.26	
	24.54 24.63	10 10	319.7 306.9	2.11 1.81	115 115	2985 2995	2073 2078	307.2 294.6	306.9 293.9	0.66 0.59	1.4 1.4	1.9 1.7	0.00	0.0	307.2 294.6	0.485 0.486	2.777 2.458	3.610 3.195	7.44 6.58	
	24.71	10	300.9	1.63	115	3004	2078	287.7	286.6	0.55	1.4	1.4	0.00	0.0	287.7	0.486	2.294	2.982	6.13	
	24.79	10	282	1.17	105	3013	2086	270.1	268.8	0.42	1.3	0.8	0.00	0.0	270.1	0.487	1.914	2.488	5.11	
	24.88	10	280.9	1.2	105	3023	2090	268.8	267.3	0.43	1.3	0.9	0.00	0.0	268.8	0.487	1.887	2.453	5.03	
	24.93	10	278.2	1.14	105	3028	2092	266.1	264.4	0.41	1.3	0.8	0.00	0.0	266.1	0.488	1.833	2.383	4.89	
	25.02	10	273.7	1.21	105	3038	2096	261.6	259.6	0.44	1.4	1.1	0.00	0.0	261.6	0.488	1.745	2.268	4.64	
	25.1	10	268.1	1.09	105	3046	2099	256.0	253.9	0.41	1.4	1.0	0.00	0.0	256.0	0.489	1.641	2.133	4.36	
	25.19 25.28	10 10	278.9 303.5	1.16 1.16	105 105	3055 3065	2103 2107	266.1 289.3	263.7 286.5	0.42 0.38	1.3	0.9	0.00	0.0	266.1 289.3	0.490 0.490	1.832 2.332	2.382 3.031	4.87 6.18	
	25.20	10	318.1	1.66	115	3074	2111	302.9	299.8	0.52	1.4	1.1	0.00	0.0	302.9	0.491	2.666	3.465	7.06	
	25.45	10	327.9	1.93	115	3083	2115	312.0	308.5	0.59	1.4	1.5	0.00	0.0	312.0	0.491	2.904	3.775	7.68	
	25.53	10	352.6	2.44	115	3093	2119	335.1	331.2	0.70	1.4	1.8	0.00	0.0	335.1	0.492	3.580	4.655	9.47	
	25.6	10	368	2.73	115	3101	2123	349.5	345.1	0.74	1.4	2.0	0.00	0.0	349.5	0.492	4.049	5.264	10.70	
	25.68	10	364	2.65	115	3110	2127	345.3	340.6	0.73	1.4	1.9	0.00	0.0	345.3	0.493	3.910	5.082	10.32	
	25.77	10	388.6	2.93	125	3120	2132	368.2	363.0	0.76	1.4	1.9	0.00	0.0	368.2	0.493	4.724	6.141	12.45	
	25.85	10	401.9	2.53	115	3130	2137	380.4	374.5	0.63	1.4	1.0	0.00	0.0	380.4	0.494	5.199	6.759	13.69	
	25.93 26.01	10 10	430.4 404.7	2.36 2.38	115 115	3139 3149	2141 2145	407.0 382.3	400.4 375.7	0.55 0.59	1.3	0.3	0.00	0.0	407.0 382.3	0.494 0.495	6.349 5.277	8.254 6.859	16.71 13.87	
	26.09	10	402.6	2.15	115	3158	2149	379.9	373.0	0.54	1.3	0.5	0.00	0.0	379.9	0.495	5.181	6.735	13.61	
	26.18	10	398.9	2.05	115	3168	2154	376.0	368.7	0.52	1.3	0.4	0.00	0.0	376.0	0.496	5.025	6.533	13.18	
	26.26	10	378.1	1.62	105	3177	2158	356.1	348.7	0.43	1.3	0.0	0.00	0.0	356.1	0.496	4.279	5.563	11.21	
	26.34	10	383.8	1.6	105	3186	2162	361.2	353.4	0.42	1.2	-0.1	0.00	0.0	361.2	0.497	4.461	5.800	11.68	
	26.42	10	371.7	1.64	105	3194	2165	349.5	341.7	0.44	1.3	0.2	0.00	0.0	349.5	0.497	4.051	5.266	10.59	
	26.5	10	346.3	1.56	105	3203	2169	325.4	317.8	0.45	1.3	0.5	0.00	0.0	325.4	0.498	3.283	4.268	8.58	
	26.59 26.67	10 10	326.5 299.4	1.28 1.38	105 105	3212 3220	2172 2176	306.5 280.8	299.0 273.6	0.39 0.46	1.3 1.4	0.3	0.00	0.0	306.5 280.8	0.498 0.499	2.758 2.140	3.585 2.782	7.20 5.58	
	26.75	10	274.9	1.75	115	3229	2179	257.7	250.7	0.40	1.5	2.6	0.00	0.0	257.7	0.499	1.671	2.172	4.35	
	26.83	10	264.2	1.87	115	3238	2183	247.4	240.4	0.71	1.5	3.2	0.00	0.0	247.4	0.500	1.488	1.934	3.87	
	26.91	10	271.3	1.7	115	3247	2188	253.8	246.4	0.63	1.5	2.6	0.00	0.0	253.8	0.500	1.600	2.080	4.16	
	27	10	236	1.62	115	3258	2192	220.5	213.7	0.69	1.6	3.7	0.00	0.0	220.5	0.501	1.077	1.401	2.80	
	27.08	10	222.2	1.58	115	3267	2197	207.4	200.7	0.72	1.6	4.2	0.00	0.0	207.4	0.501	0.910	1.183	2.36	
	27.16	10	227.1	1.6	115	3276	2201	211.8	204.8	0.71	1.6	4.0	0.00	0.0	211.8	0.502	0.964	1.253	2.50	
	27.24 27.32	10 10	232.5 232.8	1.56 1.44	115 115	3285 3294	2205 2209	216.6 216.7	209.3 209.2	0.68 0.62	1.6 1.5	3.7 3.3	0.00	0.0	216.6 216.7	0.502 0.502	1.026 1.026	1.333 1.334	2.66 2.66	
	27.4	10	245.9	1.5	115	3304	2213	228.7	220.6	0.62	1.5	3.0	0.00	0.0	228.7	0.502	1.192	1.550	3.08	
	27.48	10	254.3	1.66	115	3313	2218	236.3	227.7	0.66	1.5	3.1	0.00	0.0	236.3	0.503	1.307	1.699	3.37	
	27.56	10	284.8	1.76	115	3322	2222	264.4	254.8	0.62	1.5	2.4	0.00	0.0	264.4	0.504	1.798	2.338	4.64	
	27.64	10	307.3	1.85	115	3331	2226	285.0	274.5	0.61	1.4	2.0	0.00	0.0	285.0	0.504	2.232	2.902	5.76	
	27.72	10	328.5	2.13	115	3340	2230	304.3	293.0	0.65	1.4	2.0	0.00	0.0	304.3	0.505	2.702	3.512	6.96	
	27.8	10	339.1	2.24	115	3350	2235	313.9	301.9	0.66	1.4	2.0	0.00	0.0	313.9	0.505	2.956	3.842	7.61	
	27.88 27.96	10 10	347.6 344.3	2.24 2.08	115 115	3359 3368	2239 2243	321.4 318.1	308.9 305.4	0.65 0.61	1.4 1.4	1.8 1.6	0.00	0.0	321.4 318.1	0.506 0.506	3.169 3.073	4.119 3.995	8.15 7.90	
	28.04	10	312.5	1.8	115	3377	2247	288.4	276.5	0.58	1.4	1.8	0.00	0.0	288.4	0.506	2.312	3.005	5.93	
	28.12	10	334.3	1.65	105	3386	2251	308.3	295.3	0.50	1.4	1.0	0.00	0.0	308.3	0.507	2.804	3.646	7.19	
	28.19	10	330.1	1.53	105		2254	304.2	291.2	0.47	1.3	0.9	0.00	0.0	304.2	0.507	2.698	3.507	6.91	
	28.27	10	332	1.7	115	3402	2258	305.7	292.5	0.51	1.4	1.2	0.00	0.0	305.7	0.508	2.737	3.558	7.01	
	28.46	10	298.4	1.66	115	3424	2268	274.2	261.6	0.56	1.4	1.9	0.00	0.0	274.2	0.509	1.997	2.596	5.10	
	28.55	10	288.8	1.51	115	3434	2272	265.1	252.6	0.53	1.4	1.8	0.00	0.0	265.1	0.509	1.812	2.356	4.63	
	28.63	10	282.7 267.4	1.57	115	3444	2277	259.2	246.7 232.9	0.56	1.4	2.1 2.9	0.00	0.0	259.2	0.510	1.700	2.210	4.34	
	28.71 28.8	10 10	264.8	1.7 1.34	115 105	3453 3463	2281 2286	245.0 242.3	232.9	0.64 0.51	1.5 1.4	2.9	0.00	0.0	245.0 242.3	0.510 0.511	1.447 1.404	1.881 1.825	3.69 3.57	
	28.88	10	251.5	0.95	105	3472	2289	230.0	218.1	0.31	1.4	1.4	0.00	0.0	230.0	0.511	1.212	1.575	3.08	
	28.96	10	245.4	1.38	115	3480	2292	224.3	212.5	0.57	1.5	2.8	0.00	0.0	224.3	0.512	1.129	1.468	2.87	
	29.04	10	240.7	1.57	115	3489	2297	219.8	208.0	0.66	1.6	3.6	0.00	0.0	219.8	0.512	1.067	1.387	2.71	
	29.13	10	226.2	1.57	115	3499	2301	206.3	195.0	0.70	1.6	4.2	0.00	0.0	206.3	0.512	0.897	1.166	2.27	
	29.19	10	227.8	1.39	115	3506	2305	207.6	196.1	0.61	1.6	3.6	0.00	0.0	207.6	0.513	0.912	1.186	2.31	
	29.27	10	221.1	1.01	105	3516	2309	201.3	189.9	0.46	1.5	2.6	0.00	0.0	201.3	0.513	0.839	1.091	2.13	
	29.36 29.44	10 10	229.9 229.9	1.35 1.43	115 115	3525 3534	2313 2317	209.2 209.0	197.2 196.9	0.59 0.63	1.5	3.4 3.6	0.00	0.0	209.2	0.514 0.514	0.931	1.210 1.207	2.36	
	29.44	10	208.9	1.48	115	3545	2322	189.7	178.4	0.63	1.6 1.6	4.8	0.00	0.0	209.0 189.7	0.514	0.929 0.715	0.929	2.35 1.81	
	29.61	10		1.38		3554	2326	182.5	171.3	0.69	1.6	4.8	0.00	0.0	182.5	0.515	0.645	0.838	1.63	
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**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 Project Number: 6600.3.001.01 Date: September 2005 MSF: 1.30

CPT Number: 3

	Depth		Tip Resist.		g	Stress	Stress	Tip	Tip	Friction Ratio		F.C.	Ксрт	Da		Stress	Stress		of	<b>G</b>
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	KCPI	Dqcin	(qc1N)es	Katio	M17.5	M6.50	Sarety	Comments
	29.69	10	184.3	1.25	115	3563	2330	167.1	156.6	0.68	1.7	5.3	0.01	1.4	168.4	0.515	0.524	0.682	1.32	
	29.78	10	185.9	1.46	115	3573	2335	168.3	157.7	0.79	1.7	6.0	0.03	4.7	173.0	0.516	0.562	0.730	1.42	
	29.86	10	188.5	1.68	125	3583	2339	170.5	159.6	0.90	1.7	6.6	0.04	7.8	178.4	0.516	0.608	0.790	1.53	
	29.94	10	196.5	1.73	125	3593	2344	177.6	166.1	0.89	1.7	6.3	0.04	6.5	184.1	0.516	0.660	0.858	1.66	
	30.03	10	216.5	1.75	125	3604	2350	195.4	182.7	0.82	1.7	5.3	0.01	1.6	197.0	0.495	0.791	1.028	2.08	

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 4

Depth to Groundwater: 10 feet

EQ Magnitude ( $M_w$ ): 6.5 **PGA (g):** 0.54

54.6 0.80 63.2 79.0 0.351 0.126 0.164 0.47

Above W.T.

MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm	Corr	Friction						Induced	Lianef	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress		Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> cIN	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	DqcIN	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	0.5	10	129.8	1.46	125	63	63	248.6	4150.9	1.13	1.3	0.2	0.00	0.0	248.6	0.351	1.509	1.961	5.59	Above W.T.
	0.6	10	98.4		135	75	75	188.5	2621.9	1.71	1.5	2.2	0.00	0.0	188.5	0.351	0.702	0.913	2.60	Above W.T.
	0.69	10	82	1.89	135	87	87	157.0	1880.0	2.31	1.6	4.3	0.00	0.0	157.0	0.351	0.440	0.572	1.63	Above W.T.
	0.79	10	74.3	2.22	135	101	101	142.3	1474.8	2.99	1.7	6.5	0.04	6.1	148.4	0.351	0.384	0.499	1.42	Above W.T.
	0.88	10	69.8	2.37	135	113	113	133.7	1236.1	3.40	1.8	7.9	0.08	11.4	145.1	0.351	0.364	0.473	1.35	Above W.T.
	0.97	10	60.1	2.25	135	125	125	115.1	960.6	3.75	1.9	9.4	0.12	15.4	130.5	0.351	0.287	0.373	1.06	Above W.T.
	1.06 1.15	10 10	55.3 52.2	2 1.73	135 135	137 149	137 149	105.9 100.0	805.4 698.2	3.62 3.32	1.9 1.9	9.6 9.2	0.12 0.11	14.8 12.7	120.7 112.7	0.351 0.351	0.244 0.213	0.317 0.277	0.90 0.79	Above W.T. Above W.T.
	1.24	10	49.3	1.53	135	161	161	94.4	609.6	3.11	1.8	9.1	0.11	11.6	106.0	0.351	0.191	0.248	0.71	Above W.T.
	1.33	10	45.7	1.38	135	174	174	87.5	525.4	3.03	1.9	9.4	0.12	11.7	99.2	0.351	0.171	0.222	0.63	Above W.T.
	1.41	10	41.6	1.32	135	184	184	79.7	450.1	3.18	1.9	10.5	0.15	13.8	93.5	0.351	0.156	0.203	0.58	Above W.T.
	1.5	10	36.8	1.26	135	197	197	70.5	373.4	3.43	2.0	12.2	0.19	16.8	87.3	0.351	0.142	0.184	0.53	Above W.T.
	1.59	10	35.9 34.1	1.18	135 135	209 221	209	68.8	343.0	3.30	2.0	12.2	0.19 0.22	16.5	85.2	0.351	0.138 0.134	0.179 0.174	0.51	Above W.T.
	1.68 1.77	10 10	32.7	1.15 1.1	135	233	221 233	65.3 62.6	307.7 279.6	3.38 3.38	2.0	13.1 13.7	0.22	18.1 18.8	83.4 81.5	0.351 0.351	0.134	0.174	0.50 0.48	Above W.T. Above W.T.
	1.86	10	28.3		135	245	245	54.2	229.8	3.55	2.1	15.5	0.28	21.0	75.2	0.351	0.130	0.155	0.44	Above W.T.
	1.95	10	30.9		135	257	257	59.2	239.1	2.99	2.0	13.4	0.22	17.1	76.3	0.351	0.121	0.158	0.45	Above W.T.
	2.04	10	28.7	0.77	135	269	269	55.0	212.0	2.70	2.0	13.2	0.22	15.3	70.3	0.351	0.112	0.146	0.42	Above W.T.
	2.13	10	31.5	0.58	125	282	282	60.3	222.7	1.85	1.9	9.5	0.12	8.3	68.6	0.351	0.110	0.143	0.41	Above W.T.
	2.22	10	32.4	0.54	125	293	293	62.1	220.2	1.67	1.8	8.8	0.10	7.0	69.1	0.351	0.111	0.144	0.41	Above W.T.
	2.3	10	33.1	0.63	125	303	303	63.4	217.5	1.91	1.9	9.9	0.13	9.6	73.0	0.351	0.116	0.151	0.43	Above W.T.
	2.39 2.48	10 10	25.8 26.2	0.7 0.76	125 135	314 325	314 325	49.4 50.2	163.2 160.0	2.73 2.92	2.1	15.2 16.0	0.27 0.29	18.5 21.0	67.9 71.2	0.351 0.351	0.109 0.114	0.142 0.148	0.40 0.42	Above W.T. Above W.T.
	2.58	10	28.5	0.7	125	339	339	54.6	167.2	2.47	2.0	14.0	0.24	17.3	71.9	0.351	0.115	0.149	0.42	Above W.T.
	2.67	10	28.2		125	350	350	54.0	160.1	2.46	2.0	14.3	0.25	17.9	71.9	0.351	0.115	0.149	0.42	Above W.T.
	2.76	10	25.5	0.75	135	361	361	48.8	140.1	2.96	2.1	17.3	0.33	23.9	72.7	0.351	0.116	0.150	0.43	Above W.T.
	2.85	10	25.1	0.85	135	373	373	48.1	133.4	3.41	2.2	19.3	0.38	29.7	77.8	0.351	0.124	0.161	0.46	Above W.T.
	2.94	10	25.8	0.96	135	386	386	49.4	132.8	3.75	2.2	20.5	0.41	34.8	84.2	0.351	0.136	0.176	0.50	Above W.T.
	3.03 3.12	10 10	25.7 25.3	1.08 1.18	135 135	398 410	398 410	49.2 48.5	128.2 122.4	4.24 4.70	2.3	22.3 24.2	0.46 0.51	42.4 50.8	91.6 99.2	0.351 0.351	0.152 0.171	0.197 0.222	0.56 0.63	Above W.T. Above W.T.
	3.21	10	25.5	1.17	135	422	422	47.9	117.4	4.72	2.4	24.6	0.51	52.7	100.6	0.351	0.171	0.222	0.65	Above W.T.
	3.3	10	24.6	1.13	135	434	434	47.1	112.3	4.63	2.4	24.8	0.53	53.0	100.2	0.351	0.173	0.225	0.64	Above W.T.
	3.4	10	21.6	1.07	135	448	448	41.4	95.5	5.01	2.4	27.7	0.60	63.3	104.7	0.351	0.187	0.243	0.69	Above W.T.
	3.49	10	19.4	1.17	135	460	460	37.2	83.3	6.10	2.5	32.2	0.73	99.0	136.2	0.351	0.315	0.409	1.17	Above W.T.
	3.58	10	18.5	1.09	135	472	472	35.4	77.4	5.97	2.5	32.8	0.74	102.1	137.5	0.351	0.322	0.418	1.19	Above W.T.
	3.67 3.76	10 10	18.4 18	1.11 1.08	135 135	484 496	484 496	35.2 34.5	75.0 71.5	6.11 6.08	2.6	33.6 34.1	0.76 0.78	113.6 120.4	148.8 154.9	0.351 0.351	0.386 0.426	0.502 0.553	1.43 1.58	Above W.T.
	3.86	10	16.1	1.00	125	510	510	30.8	62.1	6.37	2.6 2.6	36.8	0.78	123.3	154.9	0.351	0.420	0.533	1.56	Above W.T. Above W.T.
	3.95	10	14		125	521	521	26.8	52.7	7.13	2.7	41.1	0.80	107.3	134.1	0.351	0.304	0.395	1.13	Above W.T.
	4.04	10	13.3	1	125	532	532	25.2	49.0	7.67	2.8	43.5	0.80	100.9	126.1	0.351	0.267	0.346	0.99	Above W.T.
	4.13	10	14.5	1.03	125	544	544	27.2	52.3	7.24	2.7	41.5	0.80	108.8	136.1	0.351	0.314	0.409	1.16	Above W.T.
	4.23	10	16.2		135	556	556	30.1	57.2	6.97	2.7	39.5	0.80	120.2	150.3	0.351	0.396	0.514	1.47	Above W.T.
	4.32	10	17.5 17.5	1.17	135	568	568	32.1	60.6	6.80	2.7	38.2	0.80	128.5	160.6	0.351	0.465	0.605	1.72	Above W.T.
	4.41 4.5	10 10	16.2	1.21 1.19	135 135	580 593	580 593	31.8 29.1	59.3 53.7	7.03 7.48	2.7 2.7	39.1 41.7	0.80 0.80	127.1 116.5	158.9 145.6	0.351 0.351	0.453 0.367	0.589 0.477	1.68 1.36	Above W.T. Above W.T.
	4.59	10	15.3		135	605	605	27.2	49.6	7.67	2.8	43.3	0.80	108.9	136.1	0.351	0.315	0.409	1.17	Above W.T.
	4.68	10	14.3	1.06	125	617	617	25.2	45.3	7.58	2.8	44.5	0.80	100.8	126.0	0.351	0.266	0.346	0.98	Above W.T.
	4.77	10	13.6	0.96	125	628	628	23.7	42.3	7.23	2.8	44.8	0.80	95.0	118.7	0.351	0.236	0.306	0.87	Above W.T.
	4.87	10	13	0.89	125	641	641	22.5	39.6	7.02	2.8	45.3	0.80	89.9	112.4	0.351	0.212	0.276	0.79	Above W.T.
	4.96	10	12.5	0.86	125	652	652	21.4	37.3	7.06	2.8	46.4	0.80	85.7	107.1	0.351	0.194	0.253	0.72	Above W.T.
	5.05 5.14	10 10	11.4 11.9	0.89 0.89	125 125	663 674	663 674	19.4 20.1	33.4 34.3	8.04 7.70	2.9 2.9	50.9 49.5	0.80 0.80	77.5 80.2	96.9 100.3	0.351 0.351	0.164 0.174	0.214 0.226	0.61 0.64	Above W.T. Above W.T.
	5.23	10	11.7	0.85	125	686	686	19.6	33.1	7.48	2.9	49.5	0.80	78.2	97.8	0.351	0.174	0.226	0.62	Above W.T.
	5.33	10	12.4	0.83	125	698	698	20.5	34.5	6.89	2.8	47.3	0.80	82.1	102.7	0.351	0.181	0.235	0.67	Above W.T.
	5.42	10	12.8	0.85	125	709	709	21.0	35.1	6.83	2.8	46.9	0.80	84.1	105.1	0.351	0.188	0.245	0.70	Above W.T.
	5.51	10	13	0.86	125	721	721	21.2	35.1	6.80	2.8	46.8	0.80	84.8	105.9	0.351	0.191	0.248	0.71	Above W.T.
	5.56	10	13.3	0.86	125	727	727	21.6	35.6	6.65	2.8	46.1	0.80	86.3	107.9	0.351	0.197	0.256	0.73	Above W.T.
	5.63	10	13.6	0.86	125	736	736	21.9	36.0	6.50	2.8	45.5	0.80	87.8	109.7	0.351	0.203	0.264	0.75	Above W.T.
	5.72 5.81	10 10	12.4 11.9	0.82 0.77	125 125	747 758	747 758	19.9 18.9	32.2 30.4	6.82 6.68	2.8 2.9	48.4 49.0	0.80 0.80	79.4 75.6	99.3 94.6	0.351 0.351	0.171 0.159	0.222 0.206	0.63 0.59	Above W.T. Above W.T.
	5.91	10	11.3	0.77	125	771	771	17.3	27.5	6.88	2.9	51.4	0.80	69.4	86.7	0.351	0.139	0.200	0.52	Above W.T.
	6	10			125		782	15.8	24.8	7.31	2.9	54.6	0.80	63.2	79.0	0.351	0.126		0.32	Above W T

2.9

782 15.8 24.8 7.31

125 782

10 10.1 0.71

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 4

Depth to Groundwater: 10 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54

MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(q <sub>c1N</sub> ) <sub>cs</sub>	Ratio	M7.5	M6.50	Safety	Comments
	6.09	10	9.5	0.7	125	793	793	14.8	22.9	7.69	3.0	57.2	0.80	59.0	73.8	0.351	0.117	0.153	0.43	Above W.T.
	6.18	10	10	0.66	125	804	804	15.4	23.9	6.88	2.9	54.2	0.80	61.7	77.1	0.351	0.123	0.159	0.45	Above W.T.
	6.27 6.37	10 10	9.9 9.5	0.65 0.64	125 125	816 828	816 828	15.2 14.4	23.3 21.9	6.85 7.04	2.9 3.0	54.6 56.3	0.80	60.7 57.8	75.8 72.2	0.351 0.351	0.121 0.115	0.157 0.150	0.45 0.43	Above W.T. Above W.T.
	6.45	10	9.1	0.63	125	838	838	13.8	20.7	7.26	3.0	58.1	0.80	55.0	68.8	0.351	0.110	0.143	0.41	Above W.T.
	6.55	10	9.3	0.62	125	851	851	14.0	20.9	6.99	3.0	57.2	0.80	55.8	69.8	0.351	0.112	0.145	0.41	Above W.T.
	6.64 6.73	10 10	9.3 9.4	0.62 0.61	125 125	862 873	862 873	13.9 13.9	20.6 20.5	6.99 6.81	3.0	57.5 57.0	0.80	55.4 55.7	69.3 69.6	0.351 0.351	0.111 0.111	0.144 0.145	0.41	Above W.T. Above W.T.
	6.82	10	9.6	0.59	125	884	884	14.1	20.3	6.44	3.0	55.8	0.80	56.5	70.6	0.351	0.111	0.143	0.41	Above W.T.
	6.91	10	9.8	0.59	125	896	896	14.3	20.9	6.31	3.0	55.2	0.80	57.3	71.6	0.351	0.114	0.148	0.42	Above W.T.
	7.01	10	9.8	0.58	125	908	908	14.2	20.6	6.21	3.0	55.2	0.80	56.9	71.1	0.351	0.113	0.148	0.42	Above W.T.
	7.1 7.19	10 10	9.9 10.6	0.57 0.56	125 125	919 931	919 931	14.3 15.2	20.5 21.8	6.04 5.53	2.9 2.9	54.7 51.9	0.80	57.1 60.8	71.4 76.0	0.351 0.351	0.114 0.121	0.148 0.157	0.42 0.45	Above W.T. Above W.T.
	7.13	10	10.7	0.55	125	943	943	15.2	21.7	5.38	2.9	51.4	0.80	61.0	76.2	0.351	0.121	0.157	0.45	Above W.T.
	7.38	10	11.4	0.56	125	954	954	16.1	22.9	5.13	2.9	49.5	0.80	64.6	80.7	0.351	0.129	0.168	0.48	Above W.T.
	7.47	10	12.2	0.56	125	966	966	17.2	24.3	4.78	2.8	47.2	0.80	68.7	85.9	0.351	0.139	0.181	0.51	Above W.T.
	7.56 7.65	10 10	12.9 13.6	0.55 0.54	125 125	977 988	977 988	18.1 18.9	25.4 26.5	4.43 4.12	2.8 2.7	45.1 43.1	0.80	72.2 75.7	90.3 94.7	0.351 0.351	0.148 0.159	0.193 0.207	0.55 0.59	Above W.T. Above W.T.
	7.74	10	13.5	0.53	125	999	999	18.7	26.0	4.08	2.8	43.3	0.80	74.7	93.4	0.351	0.156	0.207	0.58	Above W.T.
	7.84	10	13.7	0.53	125	1012	1012	18.8	26.1	4.02	2.7	43.0	0.80	75.4	94.2	0.351	0.158	0.205	0.58	Above W.T.
	7.93	10	13.2	0.5	125	1023	1023	18.1	24.8	3.94	2.8	43.6	0.80	72.2	90.3	0.351	0.148	0.193	0.55	Above W.T.
	8.02 8.11	10 10	12.2 10.2	0.44 0.38	125 115	1034 1046	1034 1046	16.6 13.8	22.6 18.5	3.77 3.93	2.8	44.6 49.2	0.80	66.4 55.2	83.0 69.0	0.351 0.351	0.133	0.173 0.144	0.49 0.41	Above W.T. Above W.T.
	8.2	10	8.3	0.31	115	1056	1056	11.2	14.7	3.99	2.9	54.2	0.80	44.7	55.9	0.351	0.096	0.125	0.36	Above W.T.
	8.29	10	7.3	0.28	105	1066	1066	9.8	12.7	4.14	3.0	58.2	0.80	39.1	48.9	0.351	0.091	0.118	0.34	Above W.T.
	8.39	10	7.5	0.25	105	1077	1077	10.0	12.9	3.59	3.0	55.3	0.80	40.0	50.0	0.351	0.092	0.119	0.34	Above W.T.
	8.48 8.57	10 10	7.6 7.9	0.25 0.28	105 105	1086 1096	1086 1096	10.1 10.4	13.0 13.4	3.54 3.81	2.9 3.0	55.0 55.5	0.80	40.4 41.8	50.4 52.2	0.351 0.351	0.092 0.093	0.120 0.121	0.34 0.35	Above W.T. Above W.T.
	8.66	10	8.2	0.36	115	1105	1105	10.4	13.8	4.71	3.0	58.6	0.80	43.2	54.0	0.351	0.095	0.121	0.35	Above W.T.
	8.76	10	8.2	0.39	115		1117	10.7	13.7	5.10	3.0	60.3	0.80	42.9	53.7	0.351	0.094	0.123	0.35	Above W.T.
	8.84	10	8.9	0.42	115	1126	1126	11.6	14.8	5.04	3.0	58.3	0.80	46.4	58.0	0.351	0.098	0.128	0.36	Above W.T.
	8.91 9	10 10	9.1 9.2	0.44 0.45	115 115	1134 1144	1134 1144	11.8 11.9	15.0 15.1	5.16 5.22	3.0	58.4 58.5	0.80	47.3 47.6	59.1 59.5	0.351 0.351	0.099 0.100	0.129 0.129	0.37 0.37	Above W.T. Above W.T.
	9.1	10	9.4	0.45	115	1156	1156	12.1	15.3	5.10	3.0	57.9	0.80	48.4	60.5	0.351	0.101	0.123	0.37	Above W.T.
	9.19	10	9.8	0.43	115	1166	1166	12.6	15.8	4.67	3.0	55.4	0.80	50.2	62.8	0.351	0.103	0.134	0.38	Above W.T.
	9.28	10	9.7	0.42	115	1176	1176	12.4	15.5	4.61	3.0	55.7	0.80	49.5	61.9	0.351	0.102	0.133	0.38	Above W.T.
	9.37 9.47	10 10	9.8 9.5	0.41 0.39	115 115	1187 1198	1187 1198	12.4 12.0	15.5 14.8	4.45 4.38	2.9 3.0	55.0 55.7	0.80	49.8 48.0	62.2 60.0	0.351 0.351	0.102 0.100	0.133 0.130	0.38 0.37	Above W.T. Above W.T.
	9.56	10	9	0.37	115	1209	1209	11.3	13.9	4.41	3.0	57.3	0.80	45.3	56.6	0.351	0.097	0.126	0.36	Above W.T.
	9.65	10	8.8	0.35	115	1219	1219	11.0	13.4	4.27	3.0	57.5	0.80	44.1	55.1	0.351	0.096	0.124	0.35	Above W.T.
	9.74	10	8.7	0.34	115		1229	10.9	13.1	4.21	3.0	57.7	0.80	43.4	54.3	0.351	0.095	0.123	0.35	Above W.T.
	9.83 9.92	10 10	9.4 10	0.33	115 115	1240 1250	1240 1250	11.7 12.4	14.2 15.0	3.76 3.41	2.9 2.9	54.1 51.2	0.80	46.7 49.5	58.4 61.9	0.351 0.351	0.099 0.102	0.128 0.133	0.36 0.38	Above W.T. Above W.T.
	10.02	10	10.1	0.33	115		1255	12.5	15.1	3.49	2.9	51.4	0.80	49.9	62.4	0.346	0.103	0.133	0.39	NonLiqfble.
	10.11	10	10.5	0.36	115	1272	1260	12.9	15.7	3.65	2.9	51.4	0.80	51.8	64.7	0.347	0.105	0.137	0.39	NonLiqfble.
	10.2	10	12.2	0.38	115	1282 1293	1265	15.0	18.3	3.29	2.8	46.5	0.80	60.0	75.0	0.349	0.119	0.155	0.44	NonLiqfble.
	10.29 10.38	10 10	14.5 13.7	0.36 0.33	125 115	1304	1269 1275	17.8 16.8	21.8 20.5	2.60 2.53	2.7 2.7	39.7 40.5	0.80	71.2 67.1	89.0 83.9	0.350 0.352	0.146 0.135	0.189 0.175	0.54 0.50	NonLiqfble. NonLiqfble.
	10.48	10	12.6	0.32	115		1280	15.4	18.6	2.68	2.7	43.1	0.80	61.6	77.0	0.353	0.123	0.159	0.45	NonLiqfble.
	10.57	10	11.9	0.3	115	1326	1285	14.5	17.5	2.67	2.8	44.3	0.80	58.1	72.6	0.355	0.116	0.150	0.42	NonLiqfble.
	10.66	10	11.8	0.29	115	1336	1290	14.4	17.3	2.61	2.8	44.2	0.80	57.5	71.9	0.356	0.115	0.149	0.42	NonLiqfble.
	10.75 10.84	10 10	11.5 11.6	0.29 0.32	115 115	1346 1357	1295 1299	14.0 14.1	16.7 16.8	2.68 2.93	2.8	45.2 46.4	0.80	55.9 56.3	69.9 70.4	0.358 0.359	0.112 0.112	0.145 0.146	0.41 0.41	NonLiqfble. NonLiqfble.
	10.94	10	11.9	0.33	115	1368	1305	14.4	17.2	2.94	2.8	46.1	0.80	57.7	72.1	0.361	0.115	0.149	0.41	NonLiqfble.
	11.03	10	11.6	0.36	115		1309	14.0	16.7	3.30	2.8	48.5	0.80	56.1	70.1	0.362	0.112	0.146	0.40	NonLiqfble.
	11.12	10	11.6	0.39	115		1314	14.0	16.6	3.58	2.9	49.8	0.80	56.0	70.0	0.364	0.112	0.145	0.40	NonLiqfble.
	11.21 11.3	10 10	12 12.8	0.42 0.43	115 125	1399 1410	1319 1323	14.5 15.4	17.1 18.3	3.72 3.56	2.9 2.8	49.8 47.8	0.80	57.8 61.6	72.3 77.0	0.365 0.366	0.115 0.122	0.150 0.159	0.41 0.43	NonLiqfble. NonLiqfble.
	11.39	10	13	0.43	125	1421	1329	15.6	18.5	3.50	2.8	47.3	0.80	62.4	78.0	0.368	0.124	0.161	0.44	NonLiqfble.
	11.48	10	13.7	0.42	125	1432	1335	16.4	19.4	3.23	2.8	45.1	0.80	65.6	82.0	0.369	0.131	0.171	0.46	NonLiqfble.
	11.57	10	14.2	0.41	125	1443	1340	17.0	20.1	3.04	2.8	43.5	0.80	67.9	84.9	0.370	0.137	0.178	0.48	NonLiqfble.
	11.66 11.76	10 10	14.7 15.1	0.42 0.43	125 125	1455 1467	1346 1352	17.5 18.0	20.8 21.2	3.01 2.99	2.7 2.7	42.7 42.2	0.80 0.80	70.1 71.9	87.7 89.8	0.372 0.373	0.143 0.147	0.185 0.192	0.50 0.51	NonLiqfble. NonLiqfble.
	3	10	70.1	3.40	120	. 707		10.0		//		.2.2	0.00	/	57.0	0.575	0.177	0.172	0.51	

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 4

Depth to Groundwater: 10 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54

MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	$\mathbf{q}_{\mathrm{clN}}$	Q	F	Ic	(%)	Ксрт	DqcIN	(qclN)cs	Ratio	M7.5	M6.50	Safety	Comments
	11.85	10	15.6	0.42	125	1478	1358	18.5	21.9	2.83	2.7	40.8	0.80	74.1	92.6	0.374	0.154	0.200	0.53	NonLiqfble.
	11.94	10	15.6	0.45	125	1490	1364	18.5	21.8	3.03	2.7	41.9	0.80	73.9	92.4	0.376	0.153	0.199	0.53	NonLiqfble.
	12.03 12.12	10 10	15.6 15.5	0.45 0.44	125 125	1501 1512	1369 1375	18.4 18.3	21.7 21.4	3.03 2.98	2.7 2.7	42.0 42.0	0.80 0.80	73.8 73.2	92.2 91.5	0.377 0.378	0.153 0.151	0.199 0.196	0.53 0.52	NonLiqfble. NonLiqfble.
	12.21	10	16.6	0.45	125	1523	1380	19.5	22.9	2.84	2.7	40.1	0.80	78.2	97.7	0.380	0.151	0.170	0.57	NonLiqfble.
	12.3	10	16.2	0.45	125	1535	1386	19.0	22.3	2.92	2.7	41.0	0.80	76.2	95.2	0.381	0.160	0.208	0.55	NonLiqfble.
	12.4	10	16.6	0.47	125	1547	1392	19.5	22.7	2.97	2.7	40.9	0.80	77.9	97.3	0.382	0.166	0.215	0.56	NonLiqfble.
	12.49 12.58	10 10	17 17.5	0.51 0.54	125 125	1558 1570	1398 1404	19.9 20.4	23.2 23.8	3.14 3.23	2.7 2.7	41.3 41.3	0.80 0.80	79.6 81.8	99.5 102.2	0.383 0.385	0.172 0.179	0.223 0.233	0.58 0.61	NonLiqfble. NonLiqfble.
	12.67	10	18.7	0.55	125	1581	1409	21.8	25.4	3.07	2.7	39.4	0.80	87.2	109.0	0.386	0.200	0.260	0.68	NonLiqfble.
	12.76	10	18.4	0.56	125	1592	1415	21.4	24.9	3.18	2.7	40.3	0.80	85.6	107.0	0.387	0.194	0.252	0.65	NonLiqfble.
	12.85	10	17.7	0.58	125	1603	1421	20.5	23.8	3.43	2.7	42.2	0.80	82.2	102.7	0.388	0.181	0.235	0.61	NonLiqfble.
	12.94 13.03	10 10	16.7 15	0.57 0.54	125 125	1615 1626	1426 1432	19.3 17.3	22.3 19.8	3.59 3.81	2.8	44.1 47.3	0.80 0.80	77.4 69.4	96.7 86.7	0.389	0.164 0.141	0.213 0.183	0.55 0.47	NonLiqfble. NonLiqfble.
	13.12	10	12.6	0.5	125	1637	1437	14.5	16.4	4.24	2.9	53.0	0.80	58.2	72.7	0.392	0.116	0.150	0.38	NonLiqfble.
	13.21	10	11	0.48	125	1648	1443	12.7	14.1	4.72	3.0	58.2	0.80	50.7	63.3	0.393	0.104	0.135	0.34	NonLiqfble.
	13.31	10	9	0.42	115	1661	1449	10.3	11.3	5.14	3.1	65.1	0.80	41.4	51.7	0.394	0.093	0.121	0.31	NonLiqfble.
	13.4 13.49	10 10	9.2 9.7	0.33	115 115	1671 1682	1454 1459	10.6 11.1	11.5 12.1	3.95 3.39	3.0	59.6 55.7	0.80	42.2 44.4	52.8 55.6	0.395 0.397	0.094 0.096	0.122 0.125	0.31	NonLiqfble. NonLiqfble.
	13.58	10	11	0.33	115	1692	1464	12.6	13.9	3.25	2.9	52.1	0.80	50.3	62.9	0.398	0.103	0.134	0.34	NonLiqfble.
	13.67	10	12.3	0.34	115	1702	1468	14.0	15.6	2.97	2.8	48.2	0.80	56.2	70.2	0.399	0.112	0.146	0.37	NonLiqfble.
	13.77	10	12.4	0.34	115	1714	1474	14.1	15.7	2.95	2.8	48.0	0.80	56.5	70.7	0.400	0.113	0.147	0.37	NonLiqfble.
	13.86 13.95	10 10	10.9 10.9	0.33	115 115	1724 1734	1478 1483	12.4 12.4	13.6 13.5	3.29 3.29	2.9 2.9	52.7 52.8	0.80	49.6 49.5	62.0 61.9	0.401 0.402	0.102 0.102	0.133 0.133	0.33	NonLiqfble. NonLiqfble.
	14.04	10	11.1	0.31	115	1745	1488	12.6	13.7	3.03	2.9	51.2	0.80	50.4	63.0	0.403	0.103	0.134	0.33	NonLiqfble.
	14.13	10	10	0.29	115	1755	1492	11.3	12.2	3.18	2.9	54.5	0.80	45.3	56.6	0.405	0.097	0.126	0.31	NonLiqfble.
	14.22	10	10	0.28 0.28	115	1766	1497	11.3	12.2	3.07	2.9	54.1	0.80	45.2	56.5	0.406	0.097	0.126	0.31	NonLiqfble.
	14.31 14.4	10 10	10.2 10.8	0.28	115 115	1776 1786	1502 1507	11.5 12.2	12.4 13.1	3.01 3.03	2.9 2.9	53.3 52.1	0.80	46.1 48.7	57.6 60.9	0.407 0.408	0.098 0.101	0.127 0.131	0.31	NonLiqfble. NonLiqfble.
	14.49	10	10.7	0.32	115	1797	1511	12.0	13.0	3.26	2.9	53.7	0.80	48.2	60.2	0.409	0.100	0.130	0.32	NonLiqfble.
	14.58	10	10.4	0.34	115	1807	1516	11.7	12.5	3.58	3.0	56.0	0.80	46.7	58.4	0.410	0.099	0.128	0.31	NonLiqfble.
	14.67	10	10.4 10.4	0.36	115	1817	1521	11.7	12.5	3.79	3.0	57.1	0.80	46.7	58.3	0.411	0.098	0.128	0.31	NonLiqfble.
	14.77 14.86	10 10	9.3	0.35 0.33	115 115	1829 1839	1526 1531	11.6 10.4	12.4 10.9	3.69 3.94	3.0	56.7 60.8	0.80	46.6 41.6	58.2 52.0	0.412 0.413	0.098 0.093	0.128 0.121	0.31 0.29	NonLiqfble. NonLiqfble.
	14.95	10	8.3	0.32	115	1849	1536	9.3	9.6	4.34	3.1	65.8	0.80	37.1	46.3	0.414	0.089	0.116	0.28	NonLiqfble.
	15.04	10	8.9	0.32	115	1860	1540	9.9	10.3	4.02	3.1	62.5	0.80	39.7	49.6	0.415	0.091	0.119	0.29	NonLiqfble.
	15.13 15.22	10 10	9.4 9.8	0.3 0.33	115 115	1870 1881	1545 1550	10.5 10.9	11.0 11.4	3.54 3.72	3.0	58.9 58.8	0.80	41.9 43.6	52.3 54.5	0.416 0.417	0.093 0.095	0.121 0.124	0.29	NonLiqfble.
	15.22	10	10.6	0.36	115	1891	1555	11.8	12.4	3.72	3.0	56.9	0.80	47.1	58.8	0.417	0.093	0.124	0.30	NonLiqfble. NonLiqfble.
	15.4	10	11	0.4	115	1901	1559	12.2	12.9	3.98	3.0	57.2	0.80	48.8	60.9	0.419	0.101	0.131	0.31	NonLiqfble.
	15.44	10	12.4	0.41	115	1906	1561	13.7	14.7	3.58	2.9	52.5	0.80	54.9	68.7	0.420	0.110	0.143	0.34	NonLiqfble.
	15.53 15.62	10 10	12.4 12.4	0.42 0.43	125 125	1916 1927	1566 1572	13.7 13.7	14.6 14.5	3.67 3.76	2.9 2.9	53.0 53.5	0.80	54.8 54.7	68.5 68.4	0.421 0.422	0.110 0.110	0.143 0.143	0.34	NonLiqfble. NonLiqfble.
	15.71	10	11.7	0.43	115	1939	1577	12.9	13.6	3.73	2.9	54.8	0.80	51.6	64.4	0.422	0.110	0.143	0.34	NonLiqfble.
	15.81	10	10.6	0.38	115	1950	1583	11.7	12.2	3.95	3.0	58.4	0.80	46.6	58.3	0.424	0.098	0.128	0.30	NonLiqfble.
	15.9	10	9.5	0.31	115	1961	1587	10.4	10.7	3.64	3.0	59.9	0.80	41.7	52.2	0.425	0.093	0.121	0.29	NonLiqfble.
	15.99 16.08	10 10	8.2 8.5	0.28 0.25	105 105	1971	1592	9.0 9.3	9.1 9.4	3.88	3.1	65.2 61.5	0.80	36.0	45.0 46.5	0.426 0.427	0.088 0.089	0.115 0.116	0.27	NonLiqfble.
	16.17	10	8.8	0.25	105	1980 1990	1596 1600	9.5	9.4	3.33 3.20	3.0	60.0	0.80	37.2 38.5	48.1	0.427	0.089	0.116	0.27 0.27	NonLiqfble. NonLiqfble.
	16.26	10	9.2	0.27	115	1999	1604	10.1	10.2	3.29	3.0	59.3	0.80	40.2	50.3	0.429	0.092	0.119	0.28	NonLiqfble.
	16.35	10	9.7	0.32	115	2010	1608	10.6	10.8	3.68	3.0	59.9	0.80	42.3	52.9	0.430	0.094	0.122	0.28	NonLiqfble.
	16.44	10	9.9	0.35	115	2020	1613	10.8	11.0	3.94	3.0	60.6	0.80	43.1	53.9	0.431	0.095	0.123	0.29	NonLiqfble.
	16.53 16.62	10 10	9.1 8.2	0.38 0.38	115 115	2030 2041	1618 1623	9.9 8.9	10.0 8.8	4.70 5.29	3.1	66.3 71.8	0.80	39.6 35.6	49.5 44.5	0.432 0.433	0.091 0.088	0.119 0.115	0.27 0.27	NonLiqfble. NonLiqfble.
	16.71	10	8.6	0.38	115	2051	1627	9.3	9.3	5.02	3.2	69.4	0.80	37.3	46.6	0.434	0.089	0.116	0.27	NonLiqfble.
	16.8	10	9.1	0.37	115	2061	1632	9.9	9.9	4.59	3.1	66.1	0.80	39.4	49.3	0.434	0.091	0.118	0.27	NonLiqfble.
	16.9	10	9.5	0.37	115	2073	1637	10.3	10.3	4.37	3.1	64.1	0.80	41.1	51.4	0.435	0.093	0.120	0.28	NonLiqfble.
	16.99 17.08	10 10	9.5 9.7	0.38	115 115	2083 2094	1642 1647	10.3 10.5	10.3 10.5	4.49 4.51	3.1	64.7 64.3	0.80	41.0 41.8	51.3 52.3	0.436 0.437	0.093 0.093	0.120 0.121	0.28 0.28	NonLiqfble. NonLiqfble.
	17.17	10	9.4	0.38	115	2104	1651	10.1	10.1	4.55	3.1	65.4	0.80	40.5	50.6	0.438	0.092	0.120	0.27	NonLiqfble.
	17.26	10	9.6	0.38	115	2114	1656	10.3	10.3	4.45	3.1	64.5	0.80	41.3	51.6	0.439	0.093	0.121	0.27	NonLiqfble.
	17.35	10	9.7	0.36	115	2125	1661	10.4	10.4	4.17	3.1	63.1	0.80	41.7	52.1	0.440	0.093	0.121	0.28	NonLiqfble.
	17.44	10	9.8	0.34	115	2135	1666	10.5	10.5	3.89	3.0	61.6	0.80	42.0	52.5	0.441	0.093	0.122	0.28	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 4

Depth to Groundwater: 10 feet

EQ Magnitude (M<sub>w</sub>): 6.5 PGA (g): 0.54

MSF: 1.30

Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Stress Stress Stress (TSF) (TSF) (PCF) (PSF) (PSF) (%) DqcIN (qcIN)cs Ratio M7.5 M6.50 Safety (FT) (FT) Qc1N 0 Comments Ic 17 53 10 97 0.32 115 2145 1670 10.4 10.3 3.71 3.0 61.1 0.80 41.5 51.9 0.442 0.093 0.121 0.27 NonLigfble. 17.62 10 9.3 0.32 115 2156 1675 9.9 9.8 3.89 3.1 63.3 0.80 39.8 49.7 0.443 0.091 0.119 0.27 NonLiqfble. 17.71 10 10 0.33 115 2166 1680 10.7 10.6 3.70 3.0 60.4 0.80 42.7 53.4 0.444 0.094 0.122 0.28 NonLiqfble. 17.8 10 9.8 0.33 115 2176 1685 10.4 10.3 3.79 3.0 61.5 0.80 41.8 52.2 0.444 0.093 0.121 0.27 NonLiqfble. 17.89 9.8 0.33 115 2187 1689 10.4 10.3 3.79 3.0 61.6 0.80 41.7 52.2 0.445 0.093 0.121 0.27 NonLiqfble. 17.98 10 9.7 0.34 115 2197 1694 10.3 10.2 3.95 3.1 62.7 0.80 41.2 51.6 0.446 0.093 0.121 0.27 NonLiqfble. 18.07 10 0.38 115 2207 1699 10.6 10.5 4.27 0.80 42.5 53.1 0.447 0.094 0.122 0.27 NonLiafble. 10 3.1 63.4 2218 1704 3.89 3.0 0.80 48.3 0.131 0.29 NonLiafble. 18.16 10 11.4 0.4 115 12.1 12.1 58.2 60.4 0.448 0.101 18.25 11.3 0.38 2228 1708 3.73 57.8 0.80 47.8 59.8 0.449 0.130 0.29 NonLiafble. 10 115 12.0 11.9 3.0 0.10018.34 10 10.7 0.42 115 2238 1713 11.3 11.2 4.38 3.1 62.2 0.80 45.2 56.6 0.449 0.097 0.126 0.28 NonLigfble. 18.44 10 12.9 0.47 125 2250 1718 13.6 13.7 3.99 3.0 55.8 0.80 54.5 68.1 0.450 0.109 0.142 0.32 NonLigfble 18.53 10.9 0.46 125 2261 1724 11.3 4.71 0.80 45.9 57.4 0.451 0.098 0.127 0.28 NonLiqfble. 10 11.5 3.1 63.3 18.6 10 11 0.41 115 2270 1728 11.6 11.4 4.16 3.0 60.8 0.80 46.3 57.9 0.452 0.098 0.127 0.28 NonLiqfble. 18.69 10 11.2 0.36 115 2280 1733 11.8 11.6 3.58 3.0 57.7 0.80 47.1 58.9 0.453 0.099 0.129 0.28 NonLiqfble. 18.78 10 9.8 0.32 115 2291 1738 10.3 10.0 3.70 3.1 62.0 0.80 41.1 51.4 0.453 0.093 0.120 0.27 NonLiafble. 18.87 0.29 115 2301 1742 9.4 9.0 3.69 3.1 64.5 0.80 37.7 47.2 0.454 0.090 0.117 0.26 NonLiqfble. 10 0.455 18.96 8.4 0.29 2311 1747 8.8 4.00 10 115 8.3 3.1 68.1 0.80 35.2 44.0 0.088 0.114 0.25 NonLiafble. 105 19.05 8.5 0.22 2322 1752 8.9 3.00 0.80 35.5 44.4 0.456 0.088 0.115 NonLigfble. 10 8.4 3.1 62.7 0.25 19.14 10 8.1 0.26 105 2331 1756 8.5 7.9 3.75 3.1 68.2 0.80 33.8 42.3 0.457 0.087 0.113 0.25 NonLigfble. 19.23 0.36 2341 9.9 9.5 10 9.5 115 1760 4.32 3.1 66.1 0.80 39.6 49.5 0.458 0.091 0.119 0.26 NonLigfble. 19.32 10 16.4 0.38 125 2351 1764 17.1 17.3 2.50 2.8 43.6 0.80 68.3 85.4 0.458 0.138 0.1790.39 NonLigfble. 19 41 10 14.1 0.41 125 2362 1770 14 7 14 6 3 17 29 50.6 0.80 58.7 733 0.459 0.117 0.152 0.33 NonLiqfble. 19.5 10 12 0.36 115 2373 1776 12.5 12.2 3.33 3.0 55.4 0.80 49 8 62.3 0.460 0.102 0.133 0.29 NonLiqfble. 19.59 10 14.9 0.32 115 2384 1780 15.5 15.4 2.33 2.8 44 9 0.80 61.8 77 3 0.461 0.123 0.160 0.35 NonLiqfble. 19.68 9.8 0.31 115 2394 1785 10.1 9.6 3.60 3.1 62.3 0.80 40.6 50.7 0.461 0.092 0.120 0.26 NonLiqfble. 19.77 10 10.6 0.29 115 2404 1790 11.0 10.5 3.09 3.0 57.6 0.80 43.9 54.8 0.462 0.095 0.124 0.27 NonLigfble. 19.86 10 10.4 0.32 115 2415 1795 10.7 10.2 3.48 3.0 60.2 0.80 43.0 53.7 0.463 0.094 0.123 0.27 NonLiqfble. 19.95 0.37 115 4.12 0.80 42.1 0.464 0.094 0.122 10 10.2 2425 1799 10.5 10.0 3.1 63.8 52.6 0.26 NonLigfble. 20.04 0.53 125 0.455 10 10.1 2436 1804 10.4 9.8 5.97 3.2 71.5 0.80 41.6 52.0 0.093 0.121 0.27 NonLigfble. 20.13 125 1810 10.9 10.4 8.21 3.3 0.80 43.6 0.095 0.27 10 10.6 0.77 2447 77.2 54 5 0.456 0.124 NonLiafble. 20.22 31.6 0.92 135 2458 1815 32.5 3.03 2.6 34.6 0.79 122.5 155.0 0.456 0.426 0.554 10 33.4 1.21 0.89 20.31 10 25 1 135 2470 1822 25.7 26.2 3 73 2.7 417 0.80 102.9 128 6 0.457 0.278 0.361 0.79 NonLiafble. 20.4 10 148 0.94 125 2482 1828 15 1 14 8 6.93 3.1 64.6 0.80 60.6 75.7 0.457 0.120 0.156 0.34 NonLiqfble. 20.49 10 16.3 0.92 125 2494 1834 16.7 16.4 6.11 3.0 59.7 0.80 66.6 83.3 0.458 0.134 0.174 0.38 NonLiqfble. 20.58 10 23.9 0.86 135 2505 1840 24.4 24.6 3.80 2.7 43.1 0.80 97.5 121.9 0.459 0.248 0.323 0.70 NonLiqfble. 20.67 22.6 23.0 0.288 NonLiqfble. 10 0.94 135 2517 1846 23.1 4.40 2.8 46.7 0.80 92.1 115.1 0.459 0.222 0.63 20.76 10 24.1 0.95 135 2529 1853 24.5 24.6 4.16 2.8 44.6 0.80 98.0 122.5 0.460 0.251 0.326 0.71 NonLigfble. 20.85 29.9 1.03 135 2541 1859 30.3 30.8 3.60 2.7 38.4 0.80 121.4 0.461 0.405 0.526 NonLiqfble. 20.94 10 25.1 135 2553 1866 25.4 25.5 4.20 2.8 44.1 0.80 101.7 127.1 0.461 0.271 0.352 0.76 NonLiqfble. 21.03 25.1 0.98 135 2566 1872 25.4 25.4 4.11 2.8 43.8 0.80 101.5 126.9 0.462 0.270 0.351 0.76 NonLiafble. 10 0.74 27.1 2.6 21.12 10 26.8 135 2578 1879 27.1 2.90 37.4 0.80 108.2 135.3 0.462 0.310 0.403 0.87 NonLiafble. 21.2 10 21.3 0.55 125 2589 1885 21.5 21.2 2.75 2.7 41.0 0.80 85.9 107.3 0.463 0.195 0.254 0.55 NonLiafble. 21.29 10 34.3 0.47 125 2600 1890 34.5 34.9 1.42 2.4 25.1 0.54 39.9 74.4 0.463 0.118 0.154 0.33 Liquefaction 21.38 10 61.4 0.53 115 2611 1896 61.7 63.4 0.88 2.0 13.9 0.24 19.3 81.0 0.464 0.129 0.168 0.36 Liquefaction 21.47 83.4 0.92 125 2621 1901 83.7 86.3 1.12 2.0 12.7 0.21 21.7 105.4 0.465 0.189 0.246 0.53 Liquefaction 10 0.199 21.55 10 83.6 1.03 125 2631 1906 83.8 86.3 1.25 2.0 13.6 0.23 24.8 108.6 0.465 0.259 0.56 Liquefaction 21.64 92.1 125 1911 92.2 95.0 1.29 2.0 0.21 24.8 0.466 0.229 0.297 Liquefaction 10 1.17 2643 12.9 116.9 0.64 21.73 10 77.8 1.28 135 2654 1917 77.7 79.8 1.67 2.1 16.8 0.31 35.7 113.4 0.467 0.216 0.280 0.60 Liquefaction 21.82 10 85.3 1.27 135 2666 1923 85.1 87.3 1.51 2.1 15.0 0.27 31.0 116.1 0.467 0.226 0.293 0.63 Liquefaction 21.9 88.6 1.33 135 2677 1929 88.3 1.52 2.1 14.7 31.0 119.3 0.468 0.238 0.309 10 90.4 0.26 0.66 Liquefaction 21.96 97.5 135 97.0 0.468 0.344 1.41 2685 1934 99.4 1.47 2.0 0.23 28.8 125.8 0.265 0.74 Liquefaction 10 13.6 125.8 1.52 22.04 10 125 2696 1939 125.0 128.3 1.22 1.9 10.1 0.14 19.7 144.7 0.468 0.361 0.470 1.00 Low F.S. 22.13 10 155.5 1.78 125 2707 1945 154.3 158.4 1.15 1.8 8.2 0.09 14.6 168.8 0.469 0.527 0.686 1.46 22.22 10 166.2 1.67 125 2718 1951 164.6 168.9 1.01 1.7 7.0 0.05 9.2 173.9 0.470 0.569 0.740 1.58 22.3 10 165.9 1 78 125 2728 1956 164 1 168.2 1.08 1.8 74 0.06 114 175 5 0.470 0.583 0.757 1.61 22 39 10 202 5 1.73 125 2739 1961 200.1 205.0 0.86 1.6 5.0 0.00 0.0 200.1 0.471 0.825 1.072 2.28 22.47 10 216.1 1.85 125 2749 1966 213.2 218 3 0.86 1.6 4.6 0.00 0.0 213.2 0.471 0.982 1.276 2.71 22.55 229.9 10 1.95 125 2759 1971 226.6 231.7 0.85 1.6 4.3 0.00 0.0 226.6 0.472 1.161 1.510 3.20 22.64 1.93 125 237.5 10 241.4 2771 1977 237.5 242.7 0.80 1.6 3.8 0.00 0.0 0.472 1.327 1.725 3.65 22.72 10 227.2 1.51 115 2781 1982 223.3 227.8 0.67 1.5 3.2 0.00 0.0 223.3 0.473 1.115 1.450 3.07

0.63

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16

3.0

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224.0

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219.9

217.5

218.4

0.473

0.474

0.474

1.069

1.037

1.048

1.389

1.348

1.363

2.93

2.84

2.87

1.4

1.87

1.9

115 2791

125

125 2812

2800

1987

1991

1997

219.9

217.5

218.4

224

221.8

223

10

10

10

22.81

22.89

22 98

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 4

Depth to Groundwater: 10 feet

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g (DCF)	Stress	Stress	Tip	Tip	Ratio		F.C.	K com	Da	(a)	Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	( <b>q</b> c1N)es	Ratio	M7.5	M6.50	Safety	Comments
	23.06	10	234.3	1.82	125	2822	2002	229.1	232.6	0.78	1.6	3.8	0.00	0.0	229.1	0.475	1.199	1.559	3.28	
	23.15	10	215.7	1.71	125	2833	2007	210.7	213.4	0.80	1.6	4.4	0.00	0.0	210.7	0.476	0.949	1.234	2.60	
	23.23	10	215.4	1.55	115	2843	2012	210.1	212.6	0.72	1.6	3.9	0.00	0.0	210.1	0.476	0.943	1.225	2.57	
	23.31 23.4	10 10	216.1 227.1	1.44 1.21	115 115	2852 2862	2016 2021	210.6 221.0	212.8 223.2	0.67 0.54	1.5 1.5	3.6 2.4	0.00	0.0	210.6 221.0	0.477 0.477	0.948 1.084	1.233 1.409	2.59 2.95	
	23.48	10	239.7	1.02	105	2872	2025	233.0	235.2	0.43	1.4	1.4	0.00	0.0	233.0	0.477	1.257	1.634	3.42	
	23.56	10	251.7	1.1	105	2880	2029	244.5	246.6	0.44	1.4	1.3	0.00	0.0	244.5	0.478	1.439	1.871	3.91	
	23.64	10	248.2	1.46	115	2888	2032	240.9	242.7	0.59	1.5	2.4	0.00	0.0	240.9	0.479	1.380	1.794	3.75	
	23.72 23.8	10 10	265.7 262.8	1.58 1.24	115 105	2898 2907	2036 2041	257.6 254.5	259.4 256.0	0.60 0.47	1.5 1.4	2.2 1.4	0.00	0.0	257.6 254.5	0.479 0.480	1.670 1.614	2.171 2.098	4.53 4.37	
	23.88	10	254.5	1.3	115	2915	2044	246.3	247.5	0.51	1.4	1.8	0.00	0.0	246.3	0.481	1.470	1.910	3.98	
	23.96	10	245.3	1.4	115	2924	2048	237.2	238.0	0.57	1.5	2.4	0.00	0.0	237.2	0.481	1.320	1.717	3.57	
	24.04	10	226.1	1.08	105	2934	2052	218.4	218.8	0.48	1.4	2.1	0.00	0.0	218.4	0.482	1.048	1.363	2.83	
	24.12 24.2	10 10	215.1 200.5	0.62 0.62	95 95	2942 2950	2056 2058	207.6 193.4	207.7 193.3	0.29 0.31	1.3 1.4	0.8 1.3	0.00	0.0	207.6 193.4	0.482 0.483	0.912 0.752	1.185 0.978	2.46	
	24.29	10	194.5	0.65	95	2958	2061	187.4	187.2	0.34	1.4	1.7	0.00	0.0	187.4	0.484	0.692	0.900	1.86	
	24.37	10	200.2	0.54	95	2966	2064	192.8	192.5	0.27	1.4	1.0	0.00	0.0	192.8	0.484	0.747	0.971	2.00	
	24.44	10	198.5	0.68	95	2972	2066	191.1	190.6	0.35	1.4	1.7	0.00	0.0	191.1	0.485	0.729	0.947	1.95	
	24.53 24.61	10 10	185 177.3	0.78 0.66	105 105	2981 2989	2069 2073	177.9 170.4	177.3 169.6	0.43 0.38	1.5 1.5	2.7 2.5	0.00	0.0	177.9 170.4	0.485 0.486	0.604 0.540	0.785 0.702	1.62 1.44	
	24.69	10	167.5	0.6	105	2998	2076	160.8	159.9	0.36	1.5	2.6	0.00	0.0	160.8	0.487	0.467	0.607	1.25	
	24.77	10	181.8	0.81	105	3006	2079	174.4	173.3	0.45	1.5	3.0	0.00	0.0	174.4	0.487	0.574	0.746	1.53	
	24.86	10	176.8	0.72	105	3016	2083	169.5	168.2	0.41	1.5	2.8	0.00	0.0	169.5	0.488	0.533	0.693	1.42	
	24.94 25.02	10 10	184.7 187.6	0.5 0.57	95 95	3024 3032	2087 2089	176.9 179.6	175.5 178.1	0.27 0.31	1.4 1.4	1.4 1.6	0.00	0.0	176.9 179.6	0.488 0.489	0.595 0.619	0.773 0.804	1.58 1.64	
	25.1	10	199.3	0.56	95	3039	2092	190.7	189.0	0.28	1.4	1.2	0.00	0.0	190.7	0.490	0.725	0.942	1.92	
	25.13	10	194.7	0.56	95	3042	2093	186.2	184.5	0.29	1.4	1.3	0.00	0.0	186.2	0.490	0.681	0.885	1.81	
	25.21	10	188.9	0.52	95	3050	2095	180.6	178.8	0.28	1.4	1.4	0.00	0.0	180.6	0.490	0.627	0.816	1.66	
	25.29 25.38	10 10	190.4 187.9	0.47 0.46	95 95	3057 3066	2098 2101	181.9 179.4	180.0 177.3	0.25 0.25	1.4 1.4	1.1 1.1	0.00	0.0	181.9 179.4	0.491 0.492	0.640 0.617	0.831 0.802	1.69 1.63	
	25.46	10	175.5	0.42	95	3073	2104	167.4	165.3	0.24	1.4	1.4	0.00	0.0	167.4	0.492	0.516	0.671	1.36	
	25.55	10	161	0.44	95	3082	2107	153.5	151.3	0.28	1.4	2.1	0.00	0.0	153.5	0.493	0.416	0.541	1.10	Low F.S.
	25.63	10	159.6 152.8	0.68	105 115	3089	2109	152.1	149.8	0.43	1.6	3.6	0.00	0.0	152.1	0.494	0.407	0.529	1.07	Low F.S.
	25.72 25.8	10 10	163.8	0.9 0.7	105	3099 3108	2113 2117	145.4 155.8	143.1 153.2	0.60 0.43	1.6 1.5	5.2 3.5	0.00	0.7 0.0	146.1 155.8	0.494 0.495	0.370 0.431	0.481 0.561	0.97 1.13	Liquefaction Low F.S.
	25.89	10	184	0.76	105	3118	2121	174.8	172.0	0.42	1.5	2.7	0.00	0.0	174.8	0.495	0.577	0.750	1.51	2011 1.5.
	25.95	10	184.4	0.89	105	3124	2124	175.1	172.1	0.49	1.5	3.3	0.00	0.0	175.1	0.496	0.579	0.753	1.52	
	26.03	10	206.1	0.98	105	3132	2127	195.5	192.2	0.48	1.5	2.7	0.00	0.0	195.5	0.496	0.775	1.008	2.03	
	26.12 26.2	10 10	219.6 236.4	0.91 0.72	105 95	3142 3150	2131 2134	208.1 223.9	204.6 220.0	0.42 0.31	1.4	1.9 0.7	0.00	0.0	208.1 223.9	0.497 0.497	0.919 1.124	1.194 1.461	2.40 2.94	
	26.28	10	259	0.64	95	3158	2137	245.1	240.8	0.25	1.3	-0.1	0.00	0.0	245.1	0.498	1.450	1.885	3.79	
	26.36	10	266.3	0.73	95	3165	2139	251.9	247.4	0.28	1.3	0.0	0.00	0.0	251.9	0.499	1.567	2.037	4.09	
	26.45 26.53	10 10	275.3 276.8	0.81 0.81	95 95	3174 3181	2142 2145	260.2 261.5	255.4 256.5	0.30 0.29	1.3	0.1	0.00	0.0	260.2 261.5	0.499 0.500	1.719 1.743	2.235 2.266	4.48 4.53	
	26.61	10	278.1	1.09	105	3189	2143	262.6	257.4	0.29	1.3	0.1	0.00	0.0	262.6	0.500	1.763	2.293	4.58	
	26.69	10	281.5	1.08	105	3197	2151	265.6	260.1	0.39	1.3	0.7	0.00	0.0	265.6	0.501	1.822	2.368	4.73	
	26.78	10	279.3	1.27	105	3207	2155	263.3	257.6	0.46	1.4	1.3	0.00	0.0	263.3	0.501	1.777	2.310	4.61	
	26.86 26.94	10 10	270.9 268.5	1.53	115 105	3215 3225	2158 2162	255.1 252.6	249.4 246.7	0.57 0.46	1.4 1.4	2.1	0.00	0.0	255.1 252.6	0.502 0.502	1.625 1.579	2.112 2.053	4.21 4.09	
	27.02	10	254.9	1.02	105	3233	2166	239.6	233.8	0.40	1.4	1.2	0.00	0.0	239.6	0.502	1.360	1.768	3.52	
	27.1	10	220.7	1.18	115	3241	2169	207.3	201.9	0.54	1.5	2.9	0.00	0.0	207.3	0.503	0.909	1.181	2.35	
	27.19	10	212.7	1.46	115	3252	2174	199.6	194.1	0.69	1.6	4.2	0.00	0.0	199.6	0.504	0.820	1.065	2.11	
	27.27 27.35	10 10	206.2 233.3	1.44 1.57	115 115	3261 3270	2178 2182	193.3 218.5	187.8 212.2	0.70 0.68	1.6 1.6	4.4 3.6	0.00	0.0	193.3 218.5	0.504 0.505	0.752 1.050	0.977 1.365	1.94 2.70	
	27.43	10	269.6	1.68	115	3279	2182	252.3	245.0	0.63	1.5	2.6	0.00	0.0	252.3	0.505	1.573	2.045	4.05	
	27.51	10	288.7	1.78	115	3288	2191	269.9	261.9	0.62	1.5	2.3	0.00	0.0	269.9	0.506	1.908	2.480	4.90	
	27.59	10	304.5	2.01	115	3298	2195	284.4	275.8	0.66	1.5	2.3	0.00	0.0	284.4	0.506	2.219	2.884	5.70	
	27.67 27.74	10 10	304.3 327.4	2.21 2.16	115 115	3307 3315	2199 2203	283.9 305.2	275.1 295.6	0.73 0.66	1.5 1.4	2.8 2.1	0.00	0.0	283.9 305.2	0.507 0.507	2.208 2.724	2.871 3.541	5.67 6.98	
	27.74	10	343.6	2.02	115	3324	2207	320.0	309.7	0.59	1.4	1.4	0.00	0.0	320.0	0.507	3.128	4.066	8.01	
	27.9	10	335	2.02	115	3333	2211	311.7	301.3	0.61	1.4	1.6	0.00	0.0	311.7	0.508	2.896	3.765	7.41	
	27.98	10	318.6	2.1	115	3343	2216	296.2	286.0	0.66	1.5	2.2	0.00	0.0	296.2	0.508	2.496	3.244	6.38	
	28.06	10	332.3	2.13	115	3352	2220	308.6	297.8	0.64	1.4	1.9	0.00	0.0	308.6	0.509	2.813	3.657	7.19	

**EQ Magnitude** (M<sub>w</sub>): 6.5

**PGA (g):** 0.54

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 **MSF:** 1.30

CPT Number: 4

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	$\mathbf{q}_{\mathrm{clN}}$	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	DqcIN	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	28.14	10	340	1.16	105	3361	2224	315.5	304.1	0.34	1.2	-0.2	0.00	0.0	315.5	0.509	2.999	3.899	7.66	
	28.22	10	338	1.15	105	3369	2227	313.4	301.9	0.34	1.2	-0.1	0.00	0.0	313.4	0.510	2.941	3.824	7.50	
	28.3	10	328.1	1.07	95	3378	2231	303.9	292.5	0.33	1.2	-0.1	0.00	0.0	303.9	0.510	2.691	3.499	6.86	
	28.38	10	313.3	1.08	105	3385	2233	290.1	278.9	0.35	1.3	0.2	0.00	0.0	290.1	0.511	2.350	3.055	5.98	
	28.42	10	241.4	1.1	105	3390	2235	223.4	214.4	0.46	1.4	2.0	0.00	0.0	223.4	0.511	1.117	1.452	2.84	
	28.49	10	310.2	1.1	105	3397	2238	286.9	275.6	0.36	1.3	0.3	0.00	0.0	286.9	0.511	2.276	2.959	5.79	
	28.58	10	307.6	1.1	105	3406	2242	284.2	272.8	0.36	1.3	0.3	0.00	0.0	284.2	0.512	2.216	2.881	5.63	
	28.66	10	302.1	1.21	105	3415	2245	279.0	267.5	0.40	1.3	0.7	0.00	0.0	279.0	0.512	2.099	2.728	5.32	
	28.74	10	298.2	1.24	105	3423	2249	275.1	263.6	0.42	1.3	0.9	0.00	0.0	275.1	0.513	2.017	2.622	5.11	
	28.82	10	282	1.1	105	3432	2252	260.0	248.8	0.39	1.3	0.9	0.00	0.0	260.0	0.513	1.715	2.229	4.34	
	28.91	10	272.5	1.02	105	3441	2256	251.0	240.0	0.38	1.3	0.9	0.00	0.0	251.0	0.514	1.551	2.016	3.92	
	28.99	10	236.6	0.91	105	3449	2259	217.8	207.8	0.39	1.4	1.6	0.00	0.0	217.8	0.514	1.041	1.353	2.63	
	29.07	10	219.4	0.7	95	3458	2263	201.8	192.3	0.32	1.4	1.4	0.00	0.0	201.8	0.515	0.844	1.098	2.13	
	29.15	10	219.3	0.87	105	3465	2265	201.6	192.0	0.40	1.4	2.1	0.00	0.0	201.6	0.515	0.842	1.095	2.12	
	29.23	10	187.8	1.13	115	3474	2269	172.5	163.9	0.61	1.6	4.5	0.00	0.0	172.5	0.516	0.557	0.725	1.40	
	29.32	10	199.5	1.25	115	3484	2274	183.1	173.9	0.63	1.6	4.3	0.00	0.0	183.1	0.516	0.651	0.846	1.64	
	29.4	10	207.2	1.19	115	3493	2278	190.0	180.3	0.58	1.6	3.8	0.00	0.0	190.0	0.517	0.717	0.933	1.80	
	29.48	10	218.2	1.14	115	3503	2282	199.9	189.6	0.53	1.5	3.1	0.00	0.0	199.9	0.517	0.822	1.069	2.07	
	29.56	10	212.6	1.12	115	3512	2286	194.5	184.4	0.53	1.5	3.3	0.00	0.0	194.5	0.518	0.765	0.994	1.92	
	29.64	10	213.2	1.01	105	3521	2290	194.9	184.6	0.48	1.5	2.9	0.00	0.0	194.9	0.518	0.769	0.999	1.93	
	29.72	10	220.9	1.06	105	3529	2294	201.8	191.0	0.48	1.5	2.8	0.00	0.0	201.8	0.518	0.844	1.098	2.12	
	29.8	10	224.4	1.16	115	3538	2297	204.9	193.7	0.52	1.5	3.0	0.00	0.0	204.9	0.519	0.879	1.143	2.20	
	29.88	10	237.2	1.01	105	3547	2301	216.3	204.5	0.43	1.4	2.0	0.00	0.0	216.3	0.519	1.022	1.328	2.56	
	29.94	10	234.5	1.08	105	3553	2304	213.8	201.9	0.46	1.5	2.3	0.00	0.0	213.8	0.520	0.988	1.285	2.47	
	30.02	10	243	1.52	115	3562	2307	221.3	209.0	0.63	1.5	3.4	0.00	0.0	221.3	0.498	1 089	1 415	2.84	

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 5

Depth to Groundwater: 11 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

	Donth	Water	Tip Resist.	Sleeve Frict.		Total Stress	Effective Stress			Friction Ratio		F.C.					•	Liquef.	Factor of	
Cone	Depth (FT)	Table (FT)	(TSF)	(TSF)	g (PCF)	(PSF)	(PSF)	Tip Qcin	Tip Q	F	Ic	(%)	Ксрт	Dacin	(QcIN)es	Stress	Stress M7.5	Stress M6.50	Safety	Comments
Conc	(11)	(11)	(101)	(101)	(101)	(151)	(151)	1	V	-		(70)		- 1	(1)	Rutio	141710	110.50	Surety	Comments
	0.58	11	188.4	4.33	135	78	78	360.8	4809.3	2.30	1.6	4.3	0.00	0.0	360.8	0.351	4.449	5.784	16.48	Above W.T.
	0.68	11	204.8	4.32	135	92	92	392.2	4459.0	2.11	1.6	3.6	0.00	0.0	392.2	0.351	5.692	7.400	21.08	Above W.T.
	0.78	11	224.1	5.05	135	105	105	429.2	4253.6	2.25	1.6	4.1	0.00	0.0	429.2	0.351	7.433	9.663	27.53	Above W.T.
	0.88 0.97	11	241.8 329	4.57 4.37	135	119	119	463.1	4068.0	1.89	1.5	2.9	0.00	0.0	463.1	0.351	9.316	12.111 30.349	34.50 86.46	Above W.T.
	1.05	11 11	358.7	5.33	135 135	131 142	131 142	630.1 687.0	5021.7 5057.9	1.33 1.49	1.4 1.4	1.1 1.7	0.00	0.0	630.1 687.0	0.351 0.351	23.346 30.232	39.302	111.97	Above W.T. Above W.T.
	1.14	11	400.4	5.45	135	154	154	766.8	5200.2	1.36	1.4	1.2	0.00	0.0	766.8	0.351	42.018	54.623	155.62	Above W.T.
	1.23	11	464.3	8	135	166	166	889.2	5589.0	1.72	1.5	2.6	0.00	0.0	889.2	0.351	65.472	85.113	242.49	Above W.T.
	1.33	11	472.6	6.73	135	180	180	905.1	5261.1	1.42	1.4	1.5	0.00	0.0	905.1	0.351	69.041	89.754	255.71	Above W.T.
	1.42 1.51	11 11	494 451.6	7.65 8.06	135 135	192 204	192 204	946.1 864.9	5150.7 4427.9	1.55 1.79	1.4 1.5	1.9 2.6	0.00	0.0	946.1 864.9	0.351	78.840 60.251	102.492 78.326	292.00	Above W.T. Above W.T.
	1.6	11	443.8	7.16	135	216	216	850.0	4106.5	1.61	1.4	2.0	0.00	0.0	850.0	0.351	57.187	74.343	211.80	Above W.T.
	1.69	11	380.4	5.57	135	228	228	728.5	3332.3	1.46	1.4	1.4	0.00	0.0	728.5	0.351	36.042	46.855	133.49	Above W.T.
	1.78	11	314	4	135	240	240	601.4	2611.3	1.27	1.3	0.7	0.00	0.0	601.4	0.351	20.306	26.398	75.21	Above W.T.
	1.88 2.1	11 11	255.7 107	2.99 2.13	125 135	254 281	254 281	489.7 204.9	2013.1 759.4	1.17 1.99	1.3 1.6	0.4 4.9	0.00	0.0	489.7 204.9	0.351 0.351	11.002 0.880	14.303 1.144	40.75 3.26	Above W.T. Above W.T.
	2.2	11	72.3	1.8	135	295	295	138.5	489.3	2.49	1.8	8.0	0.08	12.2	150.6	0.351	0.398	0.517	1.47	Above W.T.
	2.29	11	53.3	1.71	135	307	307	102.1	346.1	3.22	2.0	12.0	0.19	23.3	125.3	0.351	0.263	0.342	0.97	Above W.T.
	2.35	11	42.9	1.75	135	315	315	82.2	271.2	4.09	2.1	16.0	0.29	34.0	116.2	0.351	0.226	0.294	0.84	Above W.T.
	2.4 2.46	11 11	36.2 24.1	1.8 1.79	135 135	322 330	322 330	69.3 46.2	223.9 145.0	4.99 7.48	2.2 2.5	19.7 29.3	0.39 0.65	44.9 85.5	114.2 131.6	0.351 0.351	0.219 0.292	0.284 0.380	0.81 1.08	Above W.T. Above W.T.
	2.51	11	23.5	1.78	135	337	337	45.0	138.6	7.63	2.5	30.1	0.67	91.5	136.5	0.351	0.232	0.411	1.17	Above W.T.
	2.59	11	20	1.73	135	347	347	38.3	114.1	8.73	2.6	34.5	0.79	141.4	179.7	0.351	0.620	0.806	2.30	Above W.T.
	2.68	11	18.1	1.45	135	360	360	34.7	99.6	8.09	2.6	34.7	0.79	133.7	168.4	0.351	0.524	0.681	1.94	Above W.T.
	2.78	11	15.6	1.3	135	373	373	29.9	82.6	8.43	2.6	37.8	0.80	119.5	149.4	0.351	0.390	0.507	1.44	Above W.T.
	2.87 2.97	11 11	14.9 14.1	1.21 1.14	135 135	385 399	385 399	28.5 27.0	76.3 69.7	8.23 8.20	2.7 2.7	38.4 39.6	0.80 0.80	114.1 108.0	142.7 135.0	0.351 0.351	0.350 0.309	0.455 0.402	1.30 1.14	Above W.T. Above W.T.
	3.06	11	13.9	1.14	135	411	411	26.6	66.6	8.32	2.7	40.5	0.80	106.5	133.1	0.351	0.299	0.389	1.11	Above W.T.
	3.16	11	14.9	1.1	135	424	424	28.5	69.2	7.49	2.7	38.1	0.80	114.1	142.7	0.351	0.350	0.455	1.30	Above W.T.
	3.26	11	14.9	1.07	125	438	438	28.5	67.0	7.29	2.7	38.0	0.80	114.1	142.7	0.351	0.350	0.455	1.30	Above W.T.
	3.36 3.45	11 11	12.9 13	0.97 1.02	125 125	450 462	450 462	24.7 24.9	56.3 55.3	7.65 7.99	2.7 2.7	41.4 42.4	0.80 0.80	98.8 99.6	123.5 124.5	0.351 0.351	0.255 0.259	0.332	0.95 0.96	Above W.T. Above W.T.
	3.55	11	12.8	1.02	125	474	474	24.5	53.0	8.44	2.7	44.1	0.80	98.1	124.5	0.351	0.259	0.327	0.90	Above W.T.
	3.63	11	12.9	1.08	125	484	484	24.7	52.3	8.53	2.8	44.5	0.80	98.8	123.5	0.351	0.255	0.332	0.95	Above W.T.
	3.72	11	13.6	1.11	125	495	495	26.0	53.9	8.31	2.8	43.6	0.80	104.2	130.2	0.351	0.285	0.371	1.06	Above W.T.
	3.82	11	15.1	1.14	135	508	508	28.9	58.4	7.68	2.7	40.9	0.80	115.7	144.6	0.351	0.361	0.470	1.34	Above W.T.
	3.92 4.03	11 11	15.9 16	1.16 1.17	135 135	521 536	521 536	30.5 30.2	60.0 58.6	7.42 7.44	2.7 2.7	39.9 40.3	0.80	121.8 120.9	152.3 151.2	0.351 0.351	0.408 0.401	0.531 0.522	1.51 1.49	Above W.T. Above W.T.
	4.13	11	15	1.17	135	550	550	28.0	53.5	7.95	2.7	42.8	0.80	112.0	140.0	0.351	0.335	0.435	1.24	Above W.T.
	4.24	11	14.6	1.13	135	565	565	26.9	50.7	7.89	2.8	43.5	0.80	107.5	134.4	0.351	0.306	0.398	1.13	Above W.T.
	4.34	11	13.5	1.07	125	578	578	24.6	45.7	8.10	2.8	45.7	0.80	98.3	122.8	0.351	0.252	0.328	0.93	Above W.T.
	4.45 4.68	11 11	13.5 15.5	1.04 1.02	125 125	592 621	592 621	24.3 27.2	44.6 48.9	7.88 6.72	2.8 2.7	45.5 41.1	0.80	97.1 108.9	121.4 136.1	0.351 0.351	0.246 0.315	0.320 0.409	0.91 1.16	Above W.T. Above W.T.
	4.79	11	13.5	1.01	125	634	634	23.5	41.5	7.66	2.8	46.2	0.80	93.8	117.3	0.351	0.230	0.299	0.85	Above W.T.
	4.9	11	11.7	0.98	125	648	648	20.1	35.1	8.61	2.9	51.4	0.80	80.4	100.5	0.351	0.175	0.227	0.65	Above W.T.
	5	11	12.4	0.95	125	661	661	21.1	36.5	7.87	2.8	48.9	0.80	84.4	105.5	0.351	0.189	0.246	0.70	Above W.T.
	5.11	11	11.1	0.93	125	674	674	18.7	31.9	8.64	2.9	53.1	0.80	74.8	93.5	0.351	0.156	0.203	0.58	Above W.T.
	5.22 5.32	11 11	10.5 9.7	0.93 0.92	125 125	688 701	688 701	17.5 16.0	29.5 26.7	9.16 9.84	3.0	55.8 59.3	0.80 0.80	70.1 64.1	87.6 80.2	0.351 0.351	0.142 0.128	0.185 0.166	0.53 0.47	Above W.T. Above W.T.
	5.43	11	9.6	0.91	125	714	714	15.7	25.9	9.85	3.0	60.0	0.80	62.9	78.6	0.351	0.125	0.163	0.46	Above W.T.
	5.54	11	9.7	0.89	125	728	728	15.7	25.6	9.53	3.0	59.4	0.80	62.9	78.6	0.351	0.125	0.163	0.46	Above W.T.
	5.65	11	9.4	0.89	125	742	742	15.1	24.3	9.86	3.0	61.2	0.80	60.4	75.5	0.351	0.120	0.156	0.44	Above W.T.
	5.75 5.86	11 11	10.1 8.8	0.9 0.9	125 125	754 768	754 768	16.1 13.9	25.8 21.9	9.26 10.69	3.0	58.7 65.3	0.80 0.80	64.4 55.6	80.4 69.5	0.351 0.351	0.128 0.111	0.167 0.145	0.48 0.41	Above W.T. Above W.T.
	5.97	11	9.4	0.91	125	782	782	14.7	23.0	10.09	3.1	62.9	0.80	58.8	73.5	0.351	0.111	0.143	0.41	Above W.T.
	6.08	11	10.1	0.91	125	796	796	15.7	24.4	9.38	3.0	60.1	0.80	62.7	78.3	0.351	0.125	0.162	0.46	Above W.T.
	6.18	11	9.2	0.9	125	808	808	14.2	21.8	10.23	3.1	64.4	0.80	56.6	70.8	0.351	0.113	0.147	0.42	Above W.T.
	6.29	11	10.1	0.9	125	822	822	15.4	23.6	9.29	3.0	60.6	0.80	61.7	77.1	0.351	0.123	0.159	0.45	Above W.T.
	6.4 6.51	11 11	9.6 10	0.89 0.86	125 125	836 849	836 849	14.5 15.0	22.0 22.5	9.69 8.98	3.1	63.0 60.8	0.80 0.80	58.1 60.1	72.7 75.1	0.351 0.351	0.116 0.119	0.150 0.155	0.43 0.44	Above W.T. Above W.T.
	6.61	11	10	0.88	125	862	862	14.9	22.2	9.20	3.0	61.6	0.80	59.6	74.5	0.351	0.118	0.154	0.44	Above W.T.
	6.72	11	10.4	0.89	125	876	876	15.4	22.7	8.93	3.0	60.5	0.80	61.5	76.9	0.351	0.122	0.159	0.45	Above W.T.

Project Number: 6600.3.001.01 Date: September 2005

**CPT Number: 5** 

Depth to Groundwater: 11 feet

EQ Magnitude ( $M_w$ ): 6.5 **PGA (g):** 0.54

MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
_	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.	17		<i>(-:</i> )	Stress	Stress	Stress	of	_
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> <sub>cIN</sub>	Q	F	Ic	(%)	Ксрт	Dqein	(qcIN)cs	Ratio	M7.5	M6.50	Safety	Comments
	6.83	11	9.5	0.9	125	889	889	13.9	20.4	9.94	3.1	65.2	0.80	55.8	69.7	0.351	0.111	0.145	0.41	Above W.T.
	6.93	11	11.1	0.88	125	902	902	16.2	23.6	8.26	3.0	58.1	0.80	64.7	80.9	0.351	0.111	0.143	0.48	Above W.T.
	7.04	11	9.6	0.85	125	916	916	13.9	20.0	9.30	3.1	64.2	0.80	55.5	69.4	0.351	0.111	0.144	0.41	Above W.T.
	7.15	11	9.4	0.82	125	929	929	13.5	19.2	9.18	3.1	64.7	0.80	54.0	67.5	0.351	0.109	0.141	0.40	Above W.T.
	7.25 7.36	11	8.8 8.7	0.8 0.78	125 125	942 956	942	12.5 12.3	17.7	9.61	3.1	67.6	0.80	50.2 49.3	62.7	0.351	0.103	0.134	0.38	Above W.T. Above W.T.
	7.47	11 11	8.3	0.76	125	969	956 969	11.7	17.2 16.1	9.49 9.72	3.1	68.0 70.0	0.80	46.7	61.6 58.3	0.351 0.351	0.102 0.098	0.132 0.128	0.38	Above W.T.
	7.57	11	8.5	0.73	125	982	982	11.9	16.3	9.11	3.1	68.3	0.80	47.5	59.3	0.351	0.099	0.129	0.37	Above W.T.
	7.68	11	8.6	0.68	125	996	996	11.9	16.3	8.39	3.1	66.5	0.80	47.7	59.6	0.351	0.100	0.130	0.37	Above W.T.
	7.78	11	9.5	0.65	125	1008	1008	13.1	17.8	7.23	3.0	61.2	0.80	52.4	65.5	0.351	0.106	0.138	0.39	Above W.T.
	8.03 8.12	11 11	10.6 10	0.62 0.57	125 125	1039 1051	1039 1051	14.4 13.5	19.4 18.0	6.15 6.02	3.0	56.2 57.4	0.80	57.5 54.0	71.9 67.5	0.351 0.351	0.115 0.109	0.149 0.141	0.42	Above W.T. Above W.T.
	8.21	11	10	0.54	125	1062	1062	13.4	17.8	5.70	3.0	56.6	0.80	53.7	67.1	0.351	0.109	0.141	0.40	Above W.T.
	8.32	11	9.1	0.51	115	1076	1076	12.1	15.9	5.96	3.0	59.9	0.80	48.6	60.7	0.351	0.101	0.131	0.37	Above W.T.
	8.43	11	8.3	0.48	115	1088	1088	11.0	14.2	6.19	3.1	63.2	0.80	44.0	55.0	0.351	0.096	0.124	0.35	Above W.T.
	8.53	11	8.8	0.46	115	1100	1100	11.6	15.0	5.58	3.0	59.9	0.80	46.4	58.1	0.351	0.098	0.128	0.36	Above W.T.
	8.64 8.75	11	8.6	0.45	115	1112	1112	11.3	14.5	5.59	3.0	60.8	0.80	45.1	56.4	0.351	0.097	0.126	0.36	Above W.T.
	8.86	11 11	8.4 8.2	0.46 0.48	115 115	1125 1138	1125 1138	11.0 10.6	13.9 13.4	5.87 6.29	3.1	62.6 64.9	0.80	43.8 42.5	54.8 53.2	0.351 0.351	0.095 0.094	0.124 0.122	0.35	Above W.T. Above W.T.
	8.96	11	7.6	0.49	115	1149	1149	9.8	12.2	6.97	3.2	69.3	0.80	39.2	49.0	0.351	0.091	0.118	0.34	Above W.T.
	9.07	11	8.3	0.49	115	1162	1162	10.7	13.3	6.35	3.1	65.3	0.80	42.6	53.3	0.351	0.094	0.122	0.35	Above W.T.
	9.18	11	9.1	0.49	115	1175	1175	11.6	14.5	5.76	3.0	61.3	0.80	46.5	58.1	0.351	0.098	0.128	0.36	Above W.T.
	9.29	11	8.7	0.5	115	1187	1187	11.0	13.7	6.17	3.1	64.1	0.80	44.2	55.2	0.351	0.096	0.124	0.35	Above W.T.
	9.4 9.5	11 11	8.6 9.2	0.52 0.52	115 115	1200 1211	1200 1211	10.9 11.6	13.3 14.2	6.50 6.05	3.1	65.7 62.8	0.80	43.5 46.3	54.3 57.8	0.351 0.351	0.095 0.098	0.123 0.127	0.35 0.36	Above W.T. Above W.T.
	9.61	11	9.4	0.52	115	1224	1224	11.8	14.4	5.92	3.1	62.1	0.80	47.0	58.8	0.351	0.099	0.129	0.37	Above W.T.
	9.72	11	9.4	0.52	115	1237	1237	11.7	14.2	5.92	3.1	62.4	0.80	46.8	58.5	0.351	0.099	0.128	0.37	Above W.T.
	9.83	11	9	0.52	115	1249	1249	11.1	13.4	6.21	3.1	64.7	0.80	44.6	55.7	0.351	0.096	0.125	0.36	Above W.T.
	9.93	11	8.3	0.52	115	1261	1261	10.2	12.2	6.78	3.1	68.9	0.80	40.9	51.1	0.351	0.092	0.120	0.34	Above W.T.
	10.04 10.15	11 11	8.1 7.6	0.51 0.47	115 115	1273 1286	1273 1286	9.9 9.3	11.7 10.8	6.83 6.76	3.2	69.9 71.7	0.80	39.7 37.1	49.7 46.4	0.344	0.091 0.089	0.119 0.116	0.35	Above W.T. Above W.T.
	10.25	11	7.1	0.44	115	1298	1298	8.6	9.9	6.82	3.2	74.1	0.80	34.5	43.1	0.344	0.087	0.114	0.33	Above W.T.
	10.36	11	6.4	0.43	115	1310	1310	7.7	8.8	7.49	3.3	79.6	0.80	30.9	38.7	0.344	0.085	0.111	0.32	Above W.T.
	10.47	11	6.9	0.42	115	1323	1323	8.3	9.4	6.73	3.2	75.2	0.80	33.2	41.5	0.344	0.087	0.113	0.33	Above W.T.
	10.57	11	6.7	0.42	115	1334	1334	8.0	9.0	6.96	3.3	77.1	0.80	32.1	40.1	0.344	0.086	0.112	0.33	Above W.T.
	10.68 10.79	11 11	6.2 6.3	0.43 0.44	115 115	1347 1360	1347 1360	7.4 7.5	8.2 8.3	7.78 7.83	3.3	82.3 82.3	0.80	29.6 29.9	37.0 37.4	0.344	0.085 0.085	0.110 0.110	0.32 0.32	Above W.T. Above W.T.
	10.75	11	7.4	0.44	115	1371	1371	8.7	9.8	6.55	3.2	73.7	0.80	35.0	43.7	0.344	0.088	0.114	0.32	Above W.T.
	11	11	9	0.44	115	1384	1384	10.6	12.0	5.30	3.1	64.1	0.80	42.3	52.9	0.344	0.094	0.122	0.35	NonLiqfble.
	11.11	11	9.9	0.44	115	1396	1390	11.6	13.2	4.78	3.0	59.9	0.80	46.5	58.1	0.346	0.098	0.128	0.37	NonLiqfble.
	11.21	11	11	0.46	125	1408	1395	12.9	14.8	4.47	3.0	56.2	0.80	51.5	64.4	0.347	0.105	0.136	0.39	NonLiqfble.
	11.39 11.49	11 11	13.8 15	0.47 0.48	125 125	1430 1443	1406 1412	16.1 17.5	18.6 20.2	3.59 3.36	2.8 2.8	47.6 44.9	0.80	64.4 69.9	80.5 87.3	0.350 0.351	0.129 0.142	0.167 0.184	0.48 0.52	NonLiqfble. NonLiqfble.
	11.6	11	14.9	0.49	125	1457	1419	17.3	20.0	3.46	2.8	45.6	0.80	69.2	86.5	0.353	0.142	0.182	0.52	NonLiqfble.
	11.71	11	15.3	0.48	125	1470	1426	17.7	20.4	3.30	2.8	44.4	0.80	70.9	88.6	0.355	0.145	0.188	0.53	NonLiqfble.
	11.82	11	13.7	0.47	125	1484	1433	15.8	18.1	3.63	2.8	48.3	0.80	63.3	79.2	0.356	0.126	0.164	0.46	NonLiqfble.
	11.93	11	11.9	0.44	125	1498	1440	13.7	15.5	3.95	2.9	52.9	0.80	54.9	68.6	0.358	0.110	0.143	0.40	NonLiqfble.
	12.03 12.14	11 11	12 13.1	0.42 0.41	115 125	1510 1523	1446 1452	13.8 15.0	15.5 17.0	3.74 3.32	2.9 2.8	51.9 48.2	0.80 0.80	55.2 60.2	69.0 75.2	0.359 0.361	0.111 0.120	0.144 0.155	0.40 0.43	NonLiqfble. NonLiqfble.
	12.25	11	12.8	0.41	115	1537	1459	14.7	16.5	3.32	2.8	48.8	0.80	58.7	73.3	0.362	0.120	0.153	0.42	NonLiqfble.
	12.36	11	12.9	0.39	115	1550	1465	14.7	16.6	3.22	2.8	48.2	0.80	59.0	73.7	0.364	0.117	0.152	0.42	NonLiqfble.
	12.46	11	12.4	0.37	115	1561	1470	14.2	15.8	3.18	2.9	49.0	0.80	56.6	70.8	0.365	0.113	0.147	0.40	NonLiqfble.
	12.57	11	11.7	0.36	115	1574	1476	13.3	14.8	3.30	2.9	51.0	0.80	53.3	66.6	0.367	0.108	0.140	0.38	NonLiqfble.
	12.68 12.79	11 11	11.9 9.8	0.33 0.31	115 115	1586 1599	1481 1487	13.5 11.1	15.0 12.1	2.97 3.44	2.9 3.0	49.0 56.1	0.80 0.80	54.1 44.5	67.6 55.6	0.368 0.370	0.109 0.096	0.141 0.125	0.38	NonLiqfble. NonLiqfble.
	12.79	11	9.0	0.31	115	1612	1493	10.2	11.0	3.66	3.0	59.4	0.80	40.8	51.0	0.370	0.090	0.123	0.34	NonLiqfble.
	13.01	11	7.9	0.29	115	1624	1499	8.9	9.5	4.09	3.1	65.1	0.80	35.7	44.6	0.373	0.088	0.115	0.31	NonLiqfble.
	13.11	11	7.1	0.3	105	1636	1504	8.0	8.3	4.78	3.2	71.3	0.80	32.0	40.1	0.374	0.086	0.112	0.30	NonLiqfble.
	13.22	11	7.4	0.3	105	1647	1509	8.3	8.7	4.56	3.2	69.3	0.80	33.3	41.7	0.376	0.087	0.113	0.30	NonLiqfble.
	13.33	11	7.7	0.31	115	1659	1513	8.7	9.1	4.51	3.1	68.0	0.80	34.6	43.3	0.377	0.088	0.114	0.30	NonLiqfble.
	13.43 13.54	11 11	7.7 7.9	0.32 0.32	115 115	1670 1683	1519 1525	8.6 8.9	9.0 9.3	4.66 4.53	3.1	68.7 67.6	0.80	34.6 35.4	43.2 44.3	0.378 0.380	0.088	0.114 0.114	0.30	NonLiqfble. NonLiqfble.
	13.65	11	8.5	0.34	115	1696	1530	9.5	10.0	4.33	3.1	65.2	0.80	38.0	47.5	0.381	0.088	0.114	0.30	NonLiqfble.
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Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 5

Depth to Groundwater: 11 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

PGA (g): 0.54 MSF: 1.30

	Donath	Water	Tip	Sleeve	_		Effective			Friction		EC					-	Liquef.		
Cone	Depth (FT)	Table (FT)	Resist.	Frict. (TSF)	g (PCF)	Stress (PSF)	Stress (PSF)	Tip Qcin	Tip Q	Ratio F	Ic	F.C. (%)	Ксрт	Dagin	(qcIN)es	Stress Ratio	Stress M7.5	Stress M6.50	of Safety	Comments
Conc	(11)	(F I)	(151)	(151)	(I CI)	(151)	(131)	quii	V		ı	(70)		D quii	(40.1)0	Katio	117.5	1/10.50	Sarcty	Comments
	13.75	11	10.5	0.37	115	1707	1536	11.7	12.6	3.84	3.0	57.1	0.80	46.9	58.6	0.382	0.099	0.128	0.34	NonLigfble.
	13.86	11	9.6	0.37	115	1720	1541	10.7	11.3	4.58	3.1	62.7	0.80	42.8	53.5	0.384	0.094	0.128	0.34	NonLiqfble.
	13.97	11	8.9	0.42	115	1732	1547	9.9	10.4	5.23	3.1	67.5	0.80	39.6	49.5	0.385	0.091	0.119	0.31	NonLiqfble.
	14.08	11	9.2	0.43	115	1745	1553	10.2	10.7	5.16	3.1	66.4	0.80	40.9	51.1	0.387	0.092	0.120	0.31	NonLiqfble.
	14.18	11 11	9.3 8.8	0.4 0.36	115	1757 1769	1558	10.3 9.7	10.8	4.75	3.1	64.6	0.80	41.2	51.5	0.388	0.093	0.121 0.118	0.31	NonLiqfble.
	14.29 14.39	11	8	0.36	115 115	1781	1564 1569	8.8	10.1 9.1	4.55 5.06	3.1	65.4 70.3	0.80	38.9 35.3	48.7 44.2	0.389	0.091 0.088	0.118	0.30 0.29	NonLiqfble. NonLiqfble.
	14.5	11	8.7	0.37	115	1793	1575	9.6	9.9	4.74	3.1	66.7	0.80	38.4	48.0	0.392	0.090	0.117	0.30	NonLiqfble.
	14.61	11	8.8	0.39	115	1806	1581	9.7	10.0	4.94	3.1	67.3	0.80	38.7	48.4	0.393	0.091	0.118	0.30	NonLiqfble.
	14.73	11	9.6	0.41	115	1820	1587	10.5	10.9	4.72	3.1	64.1	0.80	42.2	52.7	0.394	0.094	0.122	0.31	NonLiqfble.
	14.83 14.94	11 11	8.4 8.6	0.41 0.39	115 115	1831 1844	1592 1598	9.2 9.4	9.4 9.6	5.48 5.08	3.2	71.0 68.9	0.80	36.8 37.7	46.1 47.1	0.396 0.397	0.089	0.116 0.117	0.29 0.29	NonLiqfble. NonLiqfble.
	15.05	11	8.9	0.37	115	1857	1604	9.7	9.9	4.64	3.1	66.2	0.80	38.9	48.6	0.398	0.091	0.117	0.30	NonLiqfble.
	15.16	11	8.7	0.37	115	1869	1610	9.5	9.6	4.76	3.1	67.5	0.80	38.0	47.4	0.399	0.090	0.117	0.29	NonLiqfble.
	15.26	11	7.4	0.37	115	1881	1615	8.1	8.0	5.73	3.2	76.2	0.80	32.2	40.3	0.401	0.086	0.112	0.28	NonLiqfble.
	15.37	11	7.6	0.38	115	1893	1621	8.3	8.2	5.71	3.2	75.4	0.80	33.0	41.3	0.402	0.087	0.113	0.28	NonLiqfble.
	15.48 15.59	11 11	7.5 6.7	0.37 0.36	115 115	1906 1919	1627 1632	8.1 7.3	8.0 7.0	5.65 6.27	3.2	75.8 81.8	0.80	32.5 29.0	40.7 36.3	0.403 0.404	0.086 0.084	0.112 0.110	0.28 0.27	NonLiqfble. NonLiqfble.
	15.69	11	7.4	0.35	115	1930	1638	8.0	7.9	5.44	3.2	75.6	0.80	32.0	40.0	0.405	0.086	0.112	0.28	NonLiqfble.
	15.8	11	7.5	0.34	115	1943	1643	8.1	7.9	5.21	3.2	74.4	0.80	32.4	40.5	0.407	0.086	0.112	0.28	NonLiqfble.
	15.91	11	6.6	0.35	115	1956	1649	7.1	6.8	6.23	3.3	82.6	0.80	28.4	35.6	0.408	0.084	0.109	0.27	NonLiqfble.
	16.02 16.12	11 11	7.2 7.6	0.36 0.35	115 115	1968 1980	1655 1660	7.7 8.2	7.5 8.0	5.79 5.30	3.3 3.2	78.2 74.7	0.80	31.0 32.6	38.7 40.8	0.409 0.410	0.085 0.086	0.111 0.112	0.27 0.27	NonLiqfble. NonLiqfble.
	16.23	11	9.7	0.36	115	1992	1666	10.4	10.4	4.14	3.1	62.8	0.80	41.6	52.0	0.411	0.093	0.112	0.27	NonLiqfble.
	16.34	11	8.1	0.36	115	2005	1672	8.7	8.5	5.07	3.2	72.1	0.80	34.7	43.3	0.413	0.088	0.114	0.28	NonLiqfble.
	16.45	11	8.9	0.36	115	2018	1678	9.5	9.4	4.56	3.1	67.3	0.80	38.0	47.5	0.414	0.090	0.117	0.28	NonLiqfble.
	16.55	11	9.8	0.37	115	2029	1683	10.5	10.4	4.21	3.1	63.2	0.80	41.8	52.3	0.415	0.093	0.121	0.29	NonLiqfble.
	16.66 16.77	11 11	7.8 7.9	0.37 0.37	115 115	2042 2054	1689 1694	8.3 8.4	8.0 8.1	5.46 5.38	3.2 3.2	75.1 74.5	0.80 0.80	33.2 33.6	41.5 42.0	0.416 0.417	0.087 0.087	0.113	0.27 0.27	NonLiqfble. NonLiqfble.
	16.88	11	7.6	0.38	115	2067	1700	8.1	7.7	5.79	3.3	77.4	0.80	32.3	40.3	0.418	0.086	0.112	0.27	NonLiqfble.
	16.98	11	8.1	0.37	115	2079	1705	8.6	8.3	5.24	3.2	73.4	0.80	34.3	42.9	0.419	0.087	0.114	0.27	NonLiqfble.
	17.09	11	8.9	0.38	115	2091	1711	9.4	9.2	4.84	3.1	69.1	0.80	37.7	47.1	0.420	0.090	0.117	0.28	NonLiqfble.
	17.19 17.3	11 11	9.2 8.6	0.4 0.42	115 115	2103 2115	1716 1722	9.7 9.1	9.5 8.8	4.91 5.57	3.1	68.5 73.2	0.80 0.80	38.9 36.3	48.6 45.3	0.421 0.422	0.091	0.118 0.115	0.28 0.27	NonLiqfble. NonLiqfble.
	17.41	11	8.7	0.42	115	2113	1728	9.2	8.8	5.37	3.2	72.2	0.80	36.6	45.8	0.424	0.089	0.115	0.27	NonLiqfble.
	17.51	11	9.2	0.42	115	2140	1733	9.7	9.4	5.17	3.2	69.8	0.80	38.7	48.3	0.425	0.091	0.118	0.28	NonLiqfble.
	17.62	11	9.5	0.42	115	2152	1739	10.0	9.7	4.99	3.1	68.3	0.80	39.9	49.8	0.426	0.092	0.119	0.28	NonLiqfble.
	17.73	11	8.5	0.43	115	2165	1745	8.9	8.5	5.80	3.2	74.8	0.80	35.6	44.5	0.427	0.088	0.115	0.27	NonLiqfble.
	17.83 17.94	11 11	9.5 9.1	0.45 0.47	115 115	2176 2189	1750 1756	9.9 9.5	9.6 9.1	5.35 5.87	3.2 3.2	69.9 73.2	0.80	39.7 38.0	49.7 47.5	0.428 0.429	0.091 0.090	0.119 0.117	0.28 0.27	NonLiqfble. NonLiqfble.
	18.19	11	10.7	0.45	115	2218	1769	11.1	10.8	4.69	3.1	64.3	0.80	44.5	55.7	0.431	0.096	0.125	0.29	NonLiqfble.
	18.3	11	10	0.44	115	2230	1775	10.4	10.0	4.95	3.1	67.3	0.80	41.5	51.9	0.432	0.093	0.121	0.28	NonLiqfble.
	18.4	11	9.4	0.43	115	2242	1780	9.7	9.3	5.19	3.2	70.2	0.80	39.0	48.7	0.433	0.091	0.118	0.27	NonLiqfble.
	18.51 18.62	11 11	9.2 9.8	0.43 0.42	115 115	2255 2267	1786 1792	9.5 10.1	9.0 9.7	5.33 4.85	3.2	71.4 67.8	0.80	38.1 40.5	47.6 50.6	0.434 0.435	0.090 0.092	0.117 0.120	0.27 0.28	NonLiqfble. NonLiqfble.
	18.72	11	10.1	0.42	115	2279	1797	10.1	10.0	4.69	3.1	66.3	0.80	41.7	52.1	0.436	0.093	0.120	0.28	NonLiqfble.
	18.83	11	9.6	0.42	115	2291	1803	9.9	9.4	4.97	3.1	69.0	0.80	39.6	49.5	0.437	0.091	0.119	0.27	NonLiqfble.
	18.94	11	9.2	0.43	115	2304	1809	9.5	8.9	5.34	3.2	71.9	0.80	37.9	47.3	0.438	0.090	0.117	0.27	NonLiqfble.
	19.04 19.15	11 11	9	0.42 0.41	115 115	2316 2328	1814	9.2 9.2	8.6 8.6	5.36	3.2	72.7 72.3	0.80	37.0 36.9	46.2 46.2	0.439 0.440	0.089 0.089	0.116 0.116	0.26 0.26	NonLiqfble. NonLiqfble.
	19.15	11	8.9	0.41	115	2341	1820 1825	9.2	8.5	5.23 5.43	3.2	73.6	0.80	36.5	45.6	0.440	0.089	0.116	0.26	NonLiqfble.
	19.37	11	7.7	0.42	115	2353	1831	7.9	7.1	6.44	3.3	82.0	0.80	31.5	39.4	0.442	0.086	0.111	0.25	NonLiqfble.
	19.47	11	9.1	0.4	115	2365	1836	9.3	8.6	5.05	3.2	71.6	0.80	37.2	46.5	0.443	0.089	0.116	0.26	NonLiqfble.
	19.58	11	7.5		115	2378	1842	7.6	6.8	6.34	3.3	82.8	0.80	30.6	38.2	0.444	0.085	0.111	0.25	NonLiqfble.
	19.69 19.81	11 11	7.5 8.1	0.42 0.41	115 115	2390 2404	1848 1854	7.6 8.2	6.8 7.4	6.66 5.94	3.3	84.1 79.0	0.80	30.5 32.9	38.2 41.2	0.445 0.446	0.085 0.086	0.111 0.112	0.25 0.25	NonLiqfble. NonLiqfble.
	19.92	11	8.6	0.39	115	2417	1860	8.7	7.9	5.28	3.2	74.7	0.80	34.9	43.6	0.447	0.088	0.112	0.26	NonLiqfble.
	20.03	11	8	0.38	115	2429	1866	8.1	7.3	5.60	3.3	78.4	0.80	32.4	40.5	0.439	0.086	0.112	0.26	NonLiqfble.
	20.13	11	8	0.38	115	2441	1871	8.1	7.2	5.61	3.3	78.5	0.80	32.4	40.5	0.440	0.086	0.112	0.25	NonLiqfble.
	20.24 20.34	11	7.9 8.6	0.39 0.39	115 115	2454 2465	1877 1882	8.0 8.7	7.1 7.8	5.84 5.29	3.3 3.2	80.0 75.2	0.80	31.9 34.7	39.9 43.4	0.440 0.441	0.086 0.088	0.112 0.114	0.25 0.26	NonLiqfble. NonLiqfble.
	20.34	11 11	7.5	0.39	115	2463	1888	7.6	6.6	6.39	3.3	84.0	0.80	30.2	37.8	0.441	0.088	0.114	0.26	NonLiqible. NonLiqfble.
	20.55	11	7.8	0.39		2489	1893	7.8	6.9	5.95	3.3	81.1	0.80	31.4	39.2	0.443	0.086	0.111	0.25	NonLiqfble.

Date: September 2005

**CPT Number: 5** 

Depth to Groundwater: 11 feet

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard **EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	20.66	11	8.5	0.37	115	2502	1899	8.5	7.6	5.10	3.2	75.1	0.80	34.1	42.7	0.444	0.087	0.113	0.26	NonLiqfble.
	20.76	11	9.1	0.39	115	2513	1904	9.1	8.2	4.97	3.2	72.5	0.80	36.5	45.6	0.445	0.089	0.115	0.26	NonLiqfble.
	20.87 20.97	11 11	8.7 9.1	0.42 0.43	115 115	2526 2537	1910 1915	8.7 9.1	7.8 8.2	5.65 5.49	3.2	76.7 74.7	0.80	34.8 36.4	43.5 45.5	0.446 0.446	0.088 0.089	0.114 0.115	0.26 0.26	NonLiqfble. NonLiqfble.
	21.08	11	9.4	0.42	115	2550	1921	9.4	8.5	5.17	3.2	72.6	0.80	37.5	46.9	0.447	0.090	0.116	0.26	NonLiqfble.
	21.18	11	9.9	0.41	115	2562	1926	9.9	8.9	4.76	3.2	69.4	0.80	39.5	49.3	0.448	0.091	0.119	0.26	NonLiqfble.
	21.29 21.35	11	9.9	0.53	125	2574 2582	1932	9.9	8.9	6.15	3.2	74.8	0.80	39.4 40.6	49.3	0.449	0.091	0.118 0.120	0.26	NonLiqfble. NonLiqfble.
	21.33	11 11	10.2 11.6	0.65 0.88	125 125	2589	1936 1940	10.1 11.5	9.2 10.6	7.30 8.54	3.3	77.7 77.4	0.80	46.1	50.7 57.6	0.449 0.450	0.092 0.098	0.120	0.27 0.28	NonLiqfble.
	21.52	11	44	2.46	135	2603	1947	43.6	43.9	5.76	2.7	40.2	0.80	174.5	218.2	0.451	1.046	1.360	3.02	NonLiqfble.
	21.61	11	63.4	3.03	135	2615	1953	62.8	63.6	4.88	2.5	32.2	0.73	166.9	229.7	0.451	1.207	1.569	3.48	
	21.71 21.82	11 11	105.4 59.5	3.55 3.26	135 135	2629 2644	1960 1968	104.2 58.7	106.1 59.1	3.41 5.60	2.3	21.5 35.4	0.44	81.7 234.7	185.9 293.4	0.452 0.453	0.677 2.429	0.880 3.157	1.95 6.98	
	21.92	11	90.9	4.08	135	2657	1976	89.5	90.6	4.56	2.4	26.9	0.58	125.9	215.4	0.453	1.010	1.313	2.90	
	22.02	11	101.5	3.59	135	2671	1983	99.7	101.0	3.58	2.3	22.6	0.47	88.2	187.9	0.454	0.697	0.906	2.00	
	22.13	11	94.4	3.17	135	2685	1991	92.6	93.4	3.41	2.3	22.8	0.47	83.4	176.0	0.455	0.587	0.763	1.68	
	22.23 22.33	11 11	104.5 138.8	3.56 4.01	135 135	2699 2712	1998 2005	102.3 135.6	103.2 137.0	3.45 2.92	2.3	21.9 17.3	0.45	84.0 66.5	186.3 202.1	0.455 0.456	0.681 0.847	0.886 1.102	1.95 2.42	
	22.43	11		3.72	135	2712	2013	165.1	166.8	2.22	2.0	13.0	0.33	44.8	210.0	0.456	0.941	1.223	2.68	
	22.53	11	194.8	4.21	135	2739	2020	189.6	191.4	2.18	2.0	11.9	0.18	42.6	232.2	0.457	1.245	1.618	3.54	
	22.63	11	200.1	3.81	135	2753	2027	194.5	196.0	1.92	1.9	10.6	0.15	34.3	228.8	0.458	1.193	1.551	3.39	
	22.73 22.82	11 11	223.3 239.9	3.52 3.47	135 135	2766 2779	2034 2041	216.6 232.3	218.1 233.6	1.59 1.45	1.8 1.8	8.5 7.4	0.09 0.07	22.1 16.3	238.7 248.6	0.458 0.459	1.345 1.509	1.748 1.962	3.82 4.28	
	22.92	11	246.1	3.67	135	2792	2048	237.9	238.8	1.50	1.8	7.5	0.07	17.3	255.2	0.459	1.626	2.114	4.60	
	23.02	11	268.1	5.69	135	2806	2055	258.7	259.4	2.13	1.9	9.8	0.13	38.0	296.7	0.460	2.510	3.262	7.09	
	23.11	11	277.3	4.83	135	2818	2062	267.2	267.5	1.75	1.8	8.1	0.08	23.7	290.9	0.460	2.369	3.080	6.69	
	23.21 23.3	11 11	294.3 248.3	4.93 5.78	135 135	2831 2843	2069 2076	283.1 238.5	283.0 237.8	1.68 2.34	1.8 1.9	7.5 11.1	0.07 0.16	20.0 46.5	303.0 285.0	0.461 0.462	2.668 2.233	3.468 2.902	7.52 6.29	
	23.4	11	249.4	5.23	135	2857	2083	239.1	238.0	2.11	1.9	10.2	0.10	38.6	277.7	0.462	2.233	2.692	5.82	
	23.49	11		4.33	135	2869	2090	232.2	230.7	1.80	1.8	9.1	0.11	28.3	260.6	0.463	1.725	2.243	4.85	
	23.58	11	234.8	3.93	135	2881	2096	224.4	222.6	1.68	1.8	8.8	0.10	25.3	249.7	0.463	1.528	1.986	4.29	
	23.68 23.77	11 11	231 217	3.17 2.1	135 125	2895 2907	2103 2110	220.4 206.7	218.2 204.2	1.38 0.97	1.8 1.7	7.5 5.7	0.07 0.02	15.6 3.7	236.0 210.4	0.464 0.464	1.302 0.946	1.693 1.230	3.65 2.65	
	23.86	11	216.5	2.22	125	2918	2116	206.0	203.2	1.03	1.7	6.0	0.02	5.8	211.7	0.465	0.940	1.252	2.69	
	23.95	11	226.1	1.72	115	2929	2121	214.8	211.7	0.77	1.6	4.2	0.00	0.0	214.8	0.465	1.002	1.302	2.80	
	24.04	11	221.2	1.64	115	2940	2126	209.9	206.6	0.75	1.6	4.2	0.00	0.0	209.9	0.466	0.940	1.222	2.62	
	24.13 24.22	11 11	201.4 187.3	2.14 2.16	125 125	2950 2961	2131 2136	190.9 177.3	187.6 173.9	1.07 1.16	1.7 1.8	6.7 7.7	0.05 0.07	9.1 13.6	200.0 191.0	0.467 0.467	0.824 0.728	1.071 0.946	2.29 2.02	
	24.3	11	187.6	2.29	135	2971	2141	177.4	173.8	1.23	1.8	8.1	0.07	15.8	193.2	0.468	0.750	0.975	2.09	
	24.4	11	178.2	2.43	135	2985	2149	168.2	164.4	1.38	1.8	9.2	0.11	21.2	189.4	0.468	0.712	0.926	1.98	
	24.48	11		2.75	135	2996	2154	176.5	172.3	1.48	1.9	9.4	0.12	23.6	200.1	0.469	0.825	1.073	2.29	
	24.58 24.67	11 11	200.2 227.3	2.36 2.24	125 125	3009 3020	2162 2167	188.4 213.6	183.8 208.3	1.19 0.99	1.8 1.7	7.5 5.7	0.07	13.3 3.8	201.7 217.4	0.469 0.470	0.844 1.036	1.097 1.347	2.34 2.87	
	24.75	11		2.43	125	3030	2172	246.3	240.1	0.93	1.6	4.6	0.02	0.0	246.3	0.470	1.470	1.911	4.07	
	24.8	11	240.4	2.6	125	3037	2175	225.5	219.5	1.09	1.7	5.9	0.02	5.6	231.2	0.470	1.229	1.597	3.40	
	24.88	11	282.1	2.75	125	3047	2180	264.3	257.3	0.98	1.6	4.5	0.00	0.0	264.3	0.471	1.798	2.337	4.96	
	24.97 25.06	11 11	293.4 289.4	2.67 3.61	125 135	3058 3069	2186 2192	274.6 270.5	266.9 262.6	0.91 1.25	1.6 1.7	4.0 5.9	0.00	0.0 6.3	274.6 276.8	0.471 0.472	2.005 2.052	2.606 2.668	5.53 5.65	
	25.16	11		3.29	135	3083	2199	256.1	248.2	1.21	1.7	5.9	0.02	6.3	262.4	0.472	1.760	2.288	4.84	
	25.25	11	294.9	2.72	125	3095	2205	274.8	265.9	0.93	1.6	4.1	0.00	0.0	274.8	0.473	2.009	2.612	5.52	
	25.34	11		3.64	135	3106	2211	279.1	269.8	1.22	1.7	5.6	0.01	4.2	283.2	0.473	2.193	2.851	6.02	
	25.43 25.51	11 11	346.4 365.4	4.56 4.52	135 135	3118 3129	2218 2223	321.8 339.1	310.9 327.1	1.32 1.24	1.7 1.6	5.4 4.8	0.01	3.3 0.0	325.2 339.1	0.474 0.474	3.277 3.705	4.260 4.816	8.99 10.16	
	25.6	11	363.8	3.98	125	3141	2230	337.1	324.7	1.10	1.6	4.1	0.00	0.0	337.1	0.475	3.642	4.734	9.98	
	25.69	11	359.9	4.99	135	3152	2236	333.0	320.4	1.39	1.7	5.6	0.02	5.2	338.2	0.475	3.677	4.781	10.06	
	25.77	11		4.61	135	3163	2241	319.2	306.7	1.34	1.7	5.5	0.01	4.6	323.8	0.476	3.237	4.208	8.85	
	25.86 25.95	11 11	342.7 312.6	4.45 4.34	135 135	3175 3187	2248 2254	316.3 288.1	303.4 275.8	1.30 1.40	1.7 1.7	5.4 6.3	0.01	3.5 10.3	319.7 298.4	0.476 0.476	3.120 2.551	4.056 3.316	8.52 6.96	
	26.04	11		4.53	135	3200	2261	290.3	277.5	1.44	1.7	6.5	0.03	12.0	302.3	0.477	2.650	3.445	7.22	
	26.14	11	307.7	4.16	135	3213	2268	282.7	269.8	1.36	1.7	6.2	0.03	9.6	292.3	0.477	2.403	3.123	6.54	
	26.22	11	314.4	3.65	135	3224	2274	288.5	275.0	1.17	1.6	5.2	0.01	1.5	289.9	0.478	2.347	3.051	6.39	
	26.31 26.41	11 11		3.4 3.88	135 135	3236 3249	2281 2288	267.0 254.9	254.0 242.1	1.17 1.40	1.7 1.7	5.6 7.0	0.02	4.4 14.3	271.4 269.3	0.478 0.479	1.939 1.896	2.521 2.464	5.27 5.15	
	20.71	11	2,0.7	5.00	100	5277	2200	25 T.)	272.1	110	1./	7.0	0.05	1-1.5	207.3	0.41)	1.070	2.707	5.15	

Project Number: 6600.3.001.01 Date: September 2005

Depth to Groundwater: 11 feet

CPT Number: 5

Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Stress Stress Stress (TSF) (TSF) (PCF) (PSF) (PSF) (%) KCPT DqcIN (qcIN)cs Ratio M7.5 (FT) (FT) M6.50 Safety Qc1N 0 Comments Ic 26.49 11 273.9 4.93 135 3260 2294 250.2 237.3 1.81 1.8 0.09 24.2 274.4 0.479 2.002 2.602 5.43 26.59 11 258.5 4.73 135 3274 2301 235.8 223.2 1.84 1.9 8.3 0.09 22.8 258.6 0.479 1.688 2.194 4.58 26.67 11 275.7 4.43 135 3285 2307 251.2 237.5 1.62 1.8 8.3 0.09 24.3 275.4 0.480 2.023 2.630 5.48 26.76 11 330.5 4.48 135 3297 2313 300.7 284.2 1.36 1.7 0.09 29.1 329.7 0.480 3.413 4.437 9.24 26.85 283.8 4.93 135 3309 2320 257.8 243.1 1.75 0.09 24.9 282.7 0.481 2.182 2.836 26.94 11 271.5 4.83 135 3321 2326 246.3 231.9 1.79 1.8 8.3 0.09 23.8 270.1 0.481 1.912 2.486 5.17 224.6 27.02 4.14 135 3332 2332 238.9 1.58 8.3 0.09 23.1 262.0 0.481 1.753 2.278 4.73 11 263.7 1.8 27.11 225.3 3.52 3344 2339 203.8 1.57 8.3 0.09 19.7 223.5 0.482 1.454 11 135 191.2 1.8 1.119 3.02 27.2 195.4 3.25 135 3356 2345 176.5 0.09 193.6 0.482 0.981 11 165.1 1.68 1.9 8.3 17.1 0.755 2.04 27.29 11 177.7 2.96 135 3368 2352 160.3 149.6 1.68 1.9 8.3 0.09 15.5 175.8 0.483 0.585 0.761 1.58 27.38 11 183.4 3.11 135 3380 2358 165.2 154.0 1.71 1.9 8.3 0.09 16.0 181.2 0.483 0.633 0.823 1.70 0.988 1.9 2.04 27.46 196.7 135 3391 2364 177.0 164.9 0.09 17.1 194.1 0.483 0.760 11 3.13 1.61 27 55 11 216.2 2 93 135 3403 2371 194.3 180.9 1.37 1.8 8.3 0.09 18.8 213.1 0.484 0.979 1.273 2.63 27.64 11 240.1 3.38 135 3416 2377 215.5 200.5 1.42 1.8 8.3 0.09 20.8 236.3 0.484 1.307 1.699 3.51 27.73 135 11 240.7 3.09 3428 2384 215.7 200.4 1.29 1.8 0.09 20.8 236.6 0.485 1.311 1.704 3.52 27.81 233.9 2.8 135 3438 2390 209.4 194.3 1.21 0.09 20.2 229.6 0.485 1.205 1.567 3.23 11 1.8 27.9 210.5 2.27 125 3451 174.2 11 2396 188.2 1.09 1.8 8.3 0.09 18.2 206.3 0.485 0.897 1.166 2.40 27.99 135 192.0 2.58 3462 2402 175.1 1.33 0.09 0.486 0.738 0.960 11 196.1 161.8 1.8 16.9 1.98 28.08 11 174.4 2.78 135 3474 2408 155.5 143.3 1.61 1.9 11.4 0.17 31.8 187.3 0.486 0.691 0.899 1.85 28.17 148.6 2.93 2415 132.3 11 135 3486 121.6 2.00 2.1 14.5 0.25 45.1 177.4 0.486 0.600 0.779 1.60 28.26 11 146 3.05 135 3498 2421 129.8 119.1 2.11 2.1 15.2 0.27 48.9 178.7 0.487 0.611 0.7941.63 28.36 11 139 3 1 135 3512 2429 123 4 113.0 2.26 2.1 164 0.30 53.7 177 1 0.487 0.596 0.775 1 59 28 46 11 132.3 3.12 135 3525 2436 117.3 107.1 2.39 22 17.4 0.33 58.1 175 4 0.488 0.582 0.756 1.55 28.55 11 125.5 3.17 135 3537 2442 111.1 101.3 2.56 2.2 18.7 0.36 63.8 175.0 0.488 0.578 0.751 1.54 28.65 3.11 135 3551 2450 105.2 95.7 2.65 2.2 19.6 0.39 67.2 172.4 0.488 0.557 0.724 1.48 28.74 11 110.4 3.1 135 3563 2456 97.5 88.4 2.85 2.3 21.2 0.43 74.5 172.0 0.489 0.553 0.719 1.47 28.83 11 109.9 3.15 135 3575 2463 96.9 87.8 2.91 2.3 21.5 0.44 76.7 173.6 0.489 0.566 0.736 1.51 28.93 112.3 3.26 135 3589 2470 98.9 2.95 2.3 77.8 0.490 0.593 0.771 11 89.4 0.44 176.7 1.57 21.5 29.02 135 100.4 0.490 11 114.2 3.15 3601 2476 90.7 2.80 2.3 20.8 0.42 72.9 173.3 0.564 0.733 1.50 2.3 2.99 3614 2484 0.43 72.8 0.490 0.527 1.40 29.12 11 109.3 135 96.0 86.5 2.78 21.2 168.8 0.686 29.21 104.6 2.85 135 3627 2490 91.7 82.5 2.77 2.3 21.6 0.44 164.9 0.491 0.647 1.32 11 73.2 0.497 2.3 29.31 11 993 2 74 135 3640 2498 86.9 78.0 2.81 22.4 0.46 75 4 162.3 0.491 0.478 0.621 1.26 29 41 11 96.7 2.66 135 3654 2505 84 5 75.7 2.80 23 22.7 0.47 75.7 160.3 0.492 0.463 0.602 1.22 29.5 11 95.3 2.7 135 3666 2511 83.2 74.4 2.89 2.3 23.2 0.49 79.1 162.3 0.492 0.477 0.620 1.26 29.6 11 91.4 2.7 135 3679 2519 79.7 71.1 3.01 2.3 24.3 0.51 84.6 164.3 0.492 0.492 0.640 1.30 29.69 89.3 2.68 77.8 2.4 24.8 11 135 3691 2525 69.2 3.06 0.53 87.1 164.9 0.493 0.497 0.646 1.31 29.79 11 94.1 2.5 135 3705 2532 81.8 72.8 2.71 2.3 0.47 73.6 155.4 0.493 0.429 0.558 1.13 Low F.S. 29.89 93.3 2.24 135 3718 2540 81.0 72.0 2.45 2.3 21.7 0.45 65.3 146.4 0.493 0.372 0.483 0.98 Liquefaction 29.98 11 83.4 135 3731 2546 72.3 64.0 2.45 2.3 23.1 0.48 67.5 139.8 0.494 0.334 0.434 0.88 Liquefaction 30.08 11 68.9 1.77 135 3744 2553 59.7 52.5 2.64 2.4 26.4 0.57 79.5 139.1 0.473 0.330 0.430 0.91 Liquefaction 2.5 0.579 30.17 11 53.8 1.54 135 3756 2560 46.5 40.5 2.97 31.4 0.71 111.2 157.7 0.474 0.445 1.22 30.27 11 40.1 1.32 135 3770 2567 34.6 29.8 3.45 2.7 38.4 0.80 138.5 173.1 0.474 0.563 0.732 1.54 NonLiafble. 30.37 11 30 1.2 135 3783 2574 25.9 21.8 4.27 2.8 47.3 0.80 103.5 129.3 0.475 0.281 0.366 0.77NonLiqfble. 30.46 11 23.7 1.23 135 3795 2581 20.4 16.9 5.64 3.0 57.5 0.80 81.6 102.1 0.475 0.179 0.233 0.49 NonLigfble. 30.56 11 17.4 1.4 135 3809 2588 15.0 12.0 9.04 3.2 75.6 0.80 59.9 74.8 0.475 0.119 0.155 0.33 NonLiqfble. 30.66 11 19.9 1.46 135 3822 2596 17.1 13.9 8.12 3.2 69.6 0.80 68.4 85.5 0.476 0.138 0.179 0.38 NonLiqfble. 135 30.75 36 1.75 3834 30.9 2.8 0.80 123.5 154.4 0.476 0.549 NonLiqfble. 11 2602 26.2 5.13 47.0 0.422 1.15 30.85 11 52.5 2.14 135 3848 2609 45.0 38.7 4.23 2.6 37.2 0.80 179.9 224.8 0.476 1.137 1.478 3.10 NonLiqfble. 30.95 11 49.9 2.41 135 3861 2617 42.7 36.6 5.02 40.8 0.80 170.7 213.4 0.477 0.984 1.279 2.68 NonLiqfble. 31.04 2.15 135 3874 2623 42.8 4.46 2.7 38.9 0.80 171.2 0.477 0.991 1.289 2.70 11 50.1 36.7 214.0 NonLiqfble. 135 44.6 0.477 31.14 60.6 2.4 3887 2630 51.7 4.09 2.6 34.5 0.79 192.6 244.3 1.437 1.868 3.91 11 31.23 2.64 11 77.2 135 3899 2637 65.8 57.1 3.51 2.5 28.9 0.64 116.5 182.2 0.478 0.643 0.836 1.75 31.26 11 80.4 2.69 135 3903 2639 68.5 59.4 3.43 2.4 28.1 0.62 110.2 178.7 0.478 0.611 0.794 1.66

EQ Magnitude (Mw):

PGA (g):

6.5

0.54

MSF: 1.30

2.76

2 95

3.11

3.23

3.43

3.69

3.86

3.93

3.82

3.58

92

95

96.9

103.6

105.7

109.1

93.8

135 3909

135 3922

135 3936

135 3949

135 3963

135 3976

135 3988

135 4002

135

135 4028

4015

2642

2649

2657

2664

2671

2678

2685

2692

2699

2706

72.8

78.2

796

80.1

80.4

81.9

85.1

87.4

89.0

91.8

63.2

67.9

69.1

69.4

69.6

70.8

73.6

75.4

76.8

79.1

3.30

3 28

3.39

3.49

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3.89

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26.8

25.9

26.1

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27.1

27.6

27.2

26.8

25.9

24 3

0.58

0.56

0.56

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0.59

0.58

0.56

0.52

101.8

98.2

102.4

106.9

115.7

124.6

124.0

121.3

112.6

97.9

174.6

176.5

182.1

187.0

196.2

206.5

209.1

208.7

201.7

189.7

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0.481

0.575

0.591

0.641

0.688

0.782

0.899

0.930

0.925

0.843

0.715

0.747

0.768

0.834

0.895

1.016

1.169

1.209

1.203

1.095

0.929

1.56

1.61

1 74

1.87

2.12

2.44

2.52

2.51

2.28

1.93

31.3

31 4

31.5

31.6

31.7

31.8

31.89

31.99

32.09

32 18

11 85.5

11

11

11 94.5

11

11

11 100.8

11

11

11

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 5

Depth to Groundwater: 11 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

PGA (g): 0.54 MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress		Tip	Tip	Ratio		F.C.				Stress	•	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	q <sub>c1N</sub>	Q	F	Ic	(%)	Ксрт	Dqc1N	(q <sub>c1N</sub> ) <sub>cs</sub>	Ratio	M7.5	M6.50	Safety	Comments
	32.28	11	112.3	3.4	135	4041	2713	94.3	81.3	3.08	2.3	23.0	0.48	87.7	182.0	0.481	0.641	0.833	1.73	
	32.38	11	120.6	3.26	135	4055	2720	101.2	87.1	2.75	2.3	21.0	0.43	75.1	176.3	0.481	0.589	0.766	1.59	
	32.48	11	131.7	2.87	135	4068	2728	110.3	95.0	2.21	2.2	17.8	0.34	57.0	167.3	0.482	0.516	0.670	1.39	
	32.57	11	119.6	2.59	135	4080 4094	2734 2741	100.1 86.2	86.0	2.20 2.42	2.2	18.7	0.37	57.7	157.8 152.9	0.482 0.482	0.445	0.579	1.20	I F C
	32.67 32.77	11 11	103.1 82.6	2.45 2.31	135 135	4107	2749	68.9	73.7 58.6	2.42	2.3	21.3 26.0	0.44 0.56	66.7 88.0	156.9	0.482	0.412 0.440	0.536 0.571	1.11 1.18	Low F.S. Low F.S.
	32.87	11	69.1	2.19	135	4121	2756	57.6	48.6	3.27	2.5	30.1	0.67	117.3	174.9	0.483	0.577	0.750	1.55	Low 1.5.
	32.97	11	57.8	2	135	4134	2763	48.1	40.3	3.59	2.6	34.1	0.78	167.9	216.0	0.483	1.018	1.323	2.74	
	33.06	11	44.1	1.73	135	4146	2770	36.7	30.3	4.12	2.7	40.7	0.80	146.7	183.3	0.483	0.653	0.849	1.76	NonLiqfble.
	33.17	11	34.2	1.39	135	4161	2778	28.4	23.1	4.33	2.8	46.4	0.80	113.6	142.0	0.484	0.346	0.450	0.93	NonLiqfble.
	33.26	11	24.6	1.04	135	4173	2784	20.4	16.2	4.62	2.9	54.8	0.80	81.6	102.0	0.484	0.179	0.232	0.48	NonLiqfble.
	33.36	11	16.5	0.95	125	4187	2792	13.7	10.3	6.59	3.2	72.4	0.80	54.7	68.3	0.484	0.110	0.143	0.29	NonLiqfble.
	33.45 33.55	11 11	11.9 11.1	0.86 0.83	125 125	4198 4211	2797 2803	9.8 9.2	7.0 6.4	8.78 9.23	3.4	89.8 93.7	0.80	39.4 36.7	49.2 45.9	0.485 0.485	0.091	0.118 0.116	0.24 0.24	NonLiqfble. NonLiqfble.
	33.65	11	12.3	0.88	125	4223	2810	10.2	7.2	8.64	3.4	88.4	0.80	40.6	50.8	0.485	0.002	0.110	0.25	NonLiqfble.
	33.74	11	11.7	0.9	125	4234	2815	9.6	6.8	9.39	3.4	92.4	0.80	38.6	48.2	0.486	0.090	0.118	0.24	NonLiqfble.
	33.84	11	17.5	0.85	125	4247	2822	14.4	10.9	5.53	3.1	67.4	0.80	57.7	72.1	0.486	0.115	0.149	0.31	NonLiqfble.
	33.92	11	22.6	0.75	125	4257	2827	18.6	14.5	3.66	2.9	53.1	0.80	74.4	93.0	0.486	0.155	0.201	0.41	NonLiqfble.
	34	11	23.5	0.69	125	4267	2832	19.3	15.1	3.23	2.9	50.2	0.80	77.3	96.6	0.487	0.164	0.213	0.44	NonLiqfble.
	34.1	11	20.4	0.62	125	4279	2838	16.8	12.9	3.40	2.9	54.5	0.80	67.0	83.8	0.487	0.135	0.175	0.36	NonLiqfble.
	34.19 34.29	11 11	13.2 8.4	0.6 0.58	125 125	4291 4303	2843 2850	10.8 6.9	7.8 4.4	5.43 9.28	3.2	75.9 106.3	0.80	43.3 27.5	54.2 34.4	0.487 0.488	0.095 0.084	0.123	0.25 0.22	NonLiqfble. NonLiqfble.
	34.39	11	7.2	0.53	115	4316	2856	5.9	3.5	10.51	3.7	117.4	0.80	23.6	29.5	0.488	0.082	0.107	0.22	NonLiqfble.
	34.49	11	9.9	0.48	115	4327	2861	8.1	5.4	6.21	3.4	89.5	0.80	32.4	40.5	0.488	0.086	0.112	0.23	NonLiqfble.
	34.59	11	11.8	0.43	125	4339	2867	9.6	6.7	4.47	3.2	76.0	0.80	38.6	48.2	0.489	0.090	0.118	0.24	NonLiqfble.
	34.86	11	9.4	0.4	115	4372	2883	7.7	5.0	5.55	3.4	89.4	0.80	30.6	38.3	0.490	0.085	0.111	0.23	NonLiqfble.
	34.96	11	9.2	0.39	115	4384	2889	7.5	4.8	5.57	3.4	90.4	0.80	30.0	37.4	0.490	0.085	0.110	0.23	NonLiqfble.
	35.06	11	9 8.7	0.39 0.4	115	4395 4406	2894	7.3	4.7	5.73	3.4	92.1	0.80	29.3	36.6	0.490	0.085	0.110	0.22	NonLiqfble.
	35.15 35.25	11 11	9.1	0.41	115 115	4417	2899 2904	7.1 7.4	4.5 4.7	6.16 5.95	3.5 3.4	95.3 92.7	0.80	28.3 29.6	35.4 36.9	0.491 0.491	0.084 0.085	0.109 0.110	0.22 0.22	NonLiqfble. NonLiqfble.
	35.36	11	9.4	0.43	115	4430	2910	7.6	4.9	5.99	3.4	91.5	0.80	30.5	38.1	0.492	0.085	0.111	0.23	NonLiqfble.
	35.46	11	10.1	0.45	115	4441	2915	8.2	5.4	5.71	3.4	87.6	0.80	32.7	40.9	0.492	0.086	0.112	0.23	NonLiqfble.
	35.56	11	10.5	0.46	115	4453	2920	8.5	5.7	5.56	3.4	85.6	0.80	34.0	42.5	0.492	0.087	0.113	0.23	NonLiqfble.
	35.67	11	10.6		115	4465	2926	8.6	5.7	5.50	3.3	85.0	0.80	34.3	42.9	0.493	0.087	0.114	0.23	NonLiqfble.
	35.77	11	10.9	0.45	115	4477	2931	8.8	5.9	5.20	3.3	82.8	0.80	35.2	44.0	0.493	0.088	0.114	0.23	NonLiqfble.
	35.88 35.99	11 11	10.7 10.4	0.45 0.44	115 115	4490 4502	2937 2943	8.6 8.4	5.8 5.5	5.32 5.40	3.3 3.4	84.1 85.6	0.80	34.6 33.6	43.2 41.9	0.494 0.494	0.087 0.087	0.114	0.23 0.23	NonLiqfble. NonLiqfble.
	36.09	11	10.4	0.45	115	4514	2948	8.1	5.3	5.74	3.4	88.2	0.80	32.6	40.7	0.494	0.087	0.113	0.23	NonLiqfble.
	36.2	11	10.9	0.44	115	4526	2954	8.8	5.8	5.10	3.3	82.7	0.80	35.1	43.9	0.495	0.088	0.114	0.23	NonLiqfble.
	36.3	11	9.8	0.45	115	4538	2959	7.9	5.1	5.98	3.4	90.5	0.80	31.5	39.4	0.495	0.086	0.111	0.22	NonLiqfble.
	36.41	11	11.5	0.45	125	4551	2965	9.2	6.2	4.88	3.3	80.0	0.80	37.0	46.2	0.496	0.089	0.116	0.23	NonLiqfble.
	36.52	11	11.6	0.43	115	4564	2972	9.3	6.3	4.62	3.3	78.6	0.80	37.2	46.6	0.496	0.089	0.116	0.23	NonLiqfble.
	36.62 36.73	11 11	10.1 10.4	0.43 0.4	115 115	4576 4588	2977 2983	8.1 8.3	5.2 5.4	5.50 4.94	3.4	87.7 84.3	0.80	32.4 33.3	40.5	0.496 0.497	0.086 0.087	0.112	0.23 0.23	NonLiqfble.
	36.83	11	10.4	0.39	115	4600	2988	8.3	5.4	4.82	3.3	83.8	0.80	33.3	41.7 41.6	0.497	0.087	0.113	0.23	NonLiqfble. NonLiqfble.
	36.94	11	10.7	0.39	115	4613	2994	8.0	5.1	5.07	3.4	86.6	0.80	32.0	40.0	0.498	0.086	0.112	0.22	NonLiqfble.
	37.04	11	9.3	0.43	115	4624	2999	7.4	4.7	6.15	3.4	94.0	0.80	29.7	37.2	0.498	0.085	0.110	0.22	NonLiqfble.
	37.15	11	9.6	0.62	125	4637	3005	7.7	4.8	8.52	3.5	100.7	0.80	30.6	38.3	0.498	0.085	0.111	0.22	NonLiqfble.
	37.25	11	10.2		125	4649	3011	8.1	5.2	11.05	3.6	105.0	0.80	32.5	40.7	0.499	0.086	0.112	0.22	NonLiqfble.
	37.36	11	21.1	1.13	135	4663	3018	16.8	12.4	6.02	3.1	65.8	0.80	67.2	84.0	0.499	0.135	0.176	0.35	NonLiqfble.
	37.46 37.56	11 11	76.5 84.5	1.46 1.93	135 135	4676 4690	3025 3033	60.9 67.1	49.0 54.2	1.97 2.35	2.3 2.4	23.9 24.6	0.50 0.52	62.0 73.8	122.9 141.0	0.499 0.499	0.253 0.340	0.328 0.443	0.66 0.89	Liquefaction Liquefaction
	37.67	11	81.2		135	4705	3041	64.4	51.8	2.84	2.4	27.5	0.60	96.4	160.9	0.499	0.340	0.607	1.22	Liquefaction
	37.77	11	70.2		135	4718	3048	55.6	44.5	3.23	2.5	31.2	0.70	129.5	185.2	0.500	0.671	0.872	1.74	
	37.87	11	73	1.76	135	4732	3055	57.8	46.2	2.49	2.4	27.4	0.60	85.7	143.5	0.500	0.355	0.461	0.92	Liquefaction
	37.98	11	66.2	1.75	135	4747	3063	52.3	41.7	2.74	2.5	30.0	0.67	105.0	157.3	0.500	0.442	0.575	1.15	Low F.S.
	38.08	11	53.1	1.64	135	4760	3070	41.9	33.0	3.23	2.6	35.7	0.80	167.7	209.6	0.501	0.937	1.218	2.43	NonLiqfble.
	38.15	11	47.1	1.41	135	4770	3075	37.2	29.1	3.15	2.6	37.5	0.80	148.6	185.8	0.501	0.677	0.879	1.76	NonLiqfble.
	38.26 38.36	11 11	35 28.1	1.58 1.96	135 135	4784 4798	3083 3091	27.6 22.1	21.1 16.6	4.85 7.63	2.9 3.1	50.1 64.0	0.80	110.3 88.5	137.9 110.6	0.501 0.501	0.324 0.206	0.421 0.267	0.84 0.53	NonLiqfble. NonLiqfble.
	38.47	11	45.8	2.32	135	4813	3091	36.0	28.0	5.35	2.8	46.5	0.80	144.0	180.0	0.501	0.622	0.207	1.61	NonLiqfble.
	38.56	11	82.2	3.02	135	4825	3105	64.5	51.4	3.79	2.5	31.4	0.70	153.9	218.4	0.502	1.049	1.364	2.72	1
	38.65	11	105.9	4.15	135	4837	3112	83.1	66.5	4.01	2.5	28.8	0.64	144.9	227.9	0.502	1.181	1.536	3.06	

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 **MSF:** 1.30

**CPT Number: 5** 

	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.					Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	Dqc1N	(qcIN)cs	Ratio	M7.5	M6.50	Safety	Comments
	38.75	11	107.1	5	140	4851	3119	83.9	67.1	4.78	2.5	31.2	0.70	195.3	279.2	0.502	2.103	2.734	5.44	
	38.85	11	128.3	5.71	140	4865	3127	100.4	80.5	4.54	2.4	28.2	0.62	163.6	264.0	0.502	1.790	2.327	4.63	
	38.94	11		5.72	135	4877	3134	142.6	114.8	3.18	2.2	19.9	0.40	93.9	236.4	0.503	1.309	1.702	3.39	
	39.03	11	215.6	5.16	135	4889	3140	168.3	135.7	2.42	2.1	15.5	0.28	65.2	233.6	0.503	1.265	1.645	3.27	
	39.13	11	221.4	4.38	135	4903	3148	172.7	139.1	2.00	2.0	13.5	0.23	50.3	223.0	0.503	1.111	1.445	2.87	
	39.23	11	231.8	3.56	135	4916	3155	180.6	145.3	1.55	1.9	11.0	0.16	34.3	214.8	0.503	1.002	1.303	2.59	
	39.33	11	229.7	3.26	135	4930	3162	178.7	143.7	1.43	1.9	10.4	0.15	30.4	209.1	0.503	0.931	1.210	2.40	
	39.42	11	232.6	3.32	135	4942	3169	180.8	145.2	1.44	1.9	10.4	0.14	30.5	211.3	0.504	0.958	1.245	2.47	
	39.52	11	237.4	3.39	135	4956	3176	184.3	147.9	1.44	1.9	10.3	0.14	30.3	214.6	0.504	0.999	1.299	2.58	
	39.61	11	240.6	3.64	135	4968	3182	186.6	149.6	1.53	1.9	10.6	0.15	33.1	219.7	0.504	1.066	1.386	2.75	
	39.71	11	244.7	3.82	135	4981	3190	189.6	151.8	1.58	1.9	10.8	0.15	34.6	224.2	0.504	1.128	1.466	2.91	
	39.8	11	238.9	3.86	135	4993	3196	184.9	147.9	1.63	1.9	11.3	0.17	37.0	221.9	0.504	1.096	1.425	2.83	
	39.89	11	222.6	4.01	135	5005	3203	172.1	137.4	1.82	2.0	12.7	0.21	44.7	216.8	0.505	1.028	1.336	2.65	
	39.98	11	197.4	3.94	135	5018	3209	152.5	121.4	2.02	2.1	14.7	0.26	53.0	205.4	0.505	0.886	1.152	2.28	

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 **MSF:** 1.30

CPT Number: 6

Part			Water	Tip	Sleeve			Effective			Friction							-	Liquef.		
0.59 8 559.4 12.9 135 80 80 1071.4 14039.6 2.31 1.7 6.5 0.04 45.7 117.0 0.351 MANNAW PRINAM \$80.38 Above W.T. 0.67 8 460.6 11.45 135 90 90 90.4 160.214 2.38 1.7 6.0 0.03 24.0 94.5 0.351 78.427 MANNAW PRINAM \$80.38 Above W.T. 0.68 8 364.3 72.6 135 116 135 103 103 800.2 8139.8 2.24 1.6 4.9 0.00 0.0 80.0 2.051 67.726 6.044 176.76 Above W.T. 0.68 8 364.3 72.75 135 118 5116 18.517 583.7 2.24 16. 4.9 0.00 0.0 \$8.07.2 0.351 47.726 6.044 176.76 Above W.T. 1.05 8 27.57 4.64 135 142 142 449 348.6 1.05 1.5 3.0 0.0 0.0 4.94 0.051 8.832 11.4 0.0 4.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1	Cone	-				-			-	_		Ic		Ксрт	Dacin	(QcIN)es					Comments
0.67		(11)	(1 1)	(101)	(101)	(101)	(151)	(151)		·			(,0)		-	(1 /	14410	112710	1120120	Surety	Comments
0.67																					
0.67																					
0.76																					
0.86 8 2 8948 7 685 195 101 101 651.7 88887 2 224 1 169 4.3 0.00 0.0 51.7 0.31 258.6 33.74 95.6 Above W.T. 1.05 8 297.5 4.64 136 142 142 444.9 3348.6 195 1.5 2.9 0.00 0.0 51.0 0.0 51.0 1.5 1.5 1.5 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0																					
1.05 8 2375 469 139 149 149 149 149 3486 109 159 159 3.00 0.00 0.0 4549 0.318 8.27 1492 221 1.40 200 W.T. 1.144 8 1595 403 139 159 167 167 2025 18226 2598 2.06 1.0 4.9 0.00 0.0 374 0.0 2025 0.351 1.20 1.50 8.0 18.0 4.0 Abow W.T. 1.33 8 114.8 3.33 158 180 180 2199 145.7 792.6 4.04 1.9 107 0.15 26.3 172.0 0.351 0.351 0.719 2.05 Abow W.T. 1.51 8 5.03 2.7 8 152 228 71.4 2.2 19.0 0.0 4.0 4.2 19.0 0.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1																					
1.14																					
124 8 1 5 6 7 8 3 8 1 1 1 4 8 1 5 7 8 3 8 1 1 8 1 2 9 1 9 1 1 2 9 1 5 1 8 2 0 2 9 1 0 1 9 4 9 1 0 0 0 0 2 9 2 5 0 3 1 1 2 0 0 3 1 1 2 0 0 1 1 2 0 1 1 1 1 4 2 1 7 1 1 1 1 4 2 1 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1																					
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22         8         33.7         1.66         135         297         64.5         225.8         4.95         2.2         9.8         27.4         1.5         135         309         309         50         52.5         1.62         5.51         2.2         2.4         8.0         1.01         0.351         0.175         0.22         0.65         Abow W.T.           2.48         8         23.1         1.37         135         323         323         44.2         142.1         5.79         2.4         2.66         0.55         53.4         9.0         0.351         0.16         0.22         0.65         Abow W.T.           2.67         8         16.7         1.04         135         306         35.0         10.6         6.26         2.5         31.6         0.71         7.82         11.0         0.351         0.17         0.20         0.66         Abow W.T.           2.67         8         16.0         0.99         125         346         3.06         6.26         2.5         31.6         0.71         81.1         1.02         0.31         0.17         0.20         0.66         Abow W.T.           2.87         8         16.3         0.91																					
239         8         231         1.37         135         323         323         42         1241         5.97         2.4         261         0.56         569         101.1         0.351         0.163         0.214         0.61         Above W.T.           2.58         8         19.3         1.1         135         338         338         348         348         0.7         10.08         5.75         2.4         28.2         0.62         59.9         96.8         0.351         0.164         0.21         0.61         Above W.T.           2.67         8         16         0.99         125         374         374         36         86.5         6.26         2.5         32.5         0.71         78.2         10.351         0.212         0.27         0.82         Above W.T.           2.87         8         16.4         0.91         125         38         36.0         31.2         80.7         5.28         3.25         10.31         11.15         0.20         0.66         Above W.T.           2.87         8         16.4         0.81         125         411         411         27.5         69.0         5.50         2.6         33.4         8																					
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4.02         8         2.8         0.41         105         520         5.4         9.8         16.14         3.5         96.2         0.80         21.5         26.8         0.351         0.082         0.106         0.30         Above W.T.           4.13         8         3.2         0.42         105         531         531         6.1         11.0         14.31         3.4         89.4         0.80         24.3         30.4         0.351         0.083         0.107         0.31         Above W.T.           4.24         8         4         0.42         105         543         553         12.5         23.2         6.69         2.9         54.2         0.80         49.9         62.3         0.351         0.085         0.110         0.31         Above W.T.           4.45         8         4.9         0.44         105         566         566         9.0         16.3         9.53         3.2         69.8         0.80         36.4         45.5         0.351         0.089         0.115         0.33         Above W.T.           4.56         8         5         0.46         115         577         577         9.1         16.3         9.76 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>																					
4.24       8       4       0.42       105       543       543       7.5       13.7       11.26       3.3       77.4       0.80       30.1       37.6       0.351       0.085       0.110       0.31       Above W.T.         4.34       8       6.7       0.43       115       553       553       12.5       23.2       6.69       2.9       54.2       0.80       49.9       62.3       0.351       0.103       0.133       0.38       Above W.T.         4.45       8       4.9       0.44       105       566       566       9.0       16.3       9.53       3.2       69.3       0.80       36.1       45.1       0.351       0.089       0.115       0.33       Above W.T.         4.56       8       5       0.46       115       577       9.1       16.3       9.76       3.2       69.8       0.80       36.4       45.5       0.351       0.089       0.115       0.33       Above W.T.         4.67       8       4.1       0.49       105       590       590       7.4       12.9       12.88       3.3       82.4       0.80       29.5       36.9       0.351       0.080       0.110       0.00<																					
4.34       8       6.7       0.43       115       553       553       12.5       23.2       6.69       2.9       54.2       0.80       49.9       62.3       0.351       0.103       0.133       0.38       Above W.T.         4.45       8       4.9       0.44       105       566       566       9.0       16.3       9.53       3.2       69.8       0.80       36.1       45.1       0.351       0.089       0.115       0.33       Above W.T.         4.56       8       5       0.46       115       577       577       9.1       16.3       9.76       3.2       69.8       0.80       36.4       45.5       0.351       0.089       0.115       0.33       Above W.T.         4.67       8       4.1       0.49       105       590       7.4       12.9       12.88       3.3       82.4       0.80       29.5       36.9       0.351       0.085       0.110       0.31       Above W.T.         4.77       8       3.8       0.52       105       601       612       7.8       13.4       10.99       3.3       77.5       0.80       31.1       38.9       0.351       0.085       0.111       0.3																					
4.45         8         4.9         0.44         105         566         566         9.0         16.3         9.53         3.2         69.3         0.80         36.1         45.1         0.351         0.089         0.115         0.33         Above W.T.           4.56         8         5         0.46         115         577         577         9.1         16.3         9.76         3.2         69.8         0.80         36.4         45.5         0.351         0.089         0.115         0.33         Above W.T.           4.67         8         4.1         0.49         105         590         590         7.4         12.9         12.88         3.3         82.4         0.80         29.5         36.9         0.351         0.085         0.110         0.31         Above W.T.           4.88         8         4.4         0.45         105         612         612         7.8         13.4         10.99         3.3         77.5         0.80         31.1         38.9         0.351         0.085         0.111         0.32         Above W.T.           4.99         8         5.1         0.48         115         624         624         8.9         15.3         <																					
4.56         8         5         0.46         115         577         577         9.1         16.3         9.76         3.2         69.8         0.80         36.4         45.5         0.351         0.089         0.115         0.33         Above W.T.           4.67         8         4.1         0.49         105         590         590         7.4         12.9         12.88         3.3         82.4         0.80         29.5         36.9         0.351         0.085         0.110         0.31         Above W.T.           4.77         8         3.8         0.52         105         601         601         6.8         11.6         14.86         3.4         88.9         0.80         27.1         33.9         0.351         0.084         0.109         0.31         Above W.T.           4.89         8         5.1         0.48         115         624         624         8.9         15.3         10.02         3.2         71.9         0.80         35.7         44.7         0.351         0.088         0.115         0.33         Above W.T.           5.09         8         6.8         0.51         115         635         635         11.8         20.4																					
4.77 8 3.8 0.52 105 601 601 6.8 11.6 14.86 3.4 88.9 0.80 27.1 33.9 0.351 0.084 0.109 0.31 Above W.T. 4.88 8 4.4 0.45 105 612 612 7.8 13.4 10.99 3.3 77.5 0.80 31.1 38.9 0.351 0.085 0.111 0.32 Above W.T. 4.99 8 5.1 0.48 115 624 624 8.9 15.3 10.02 3.2 71.9 0.80 35.7 44.7 0.351 0.088 0.115 0.33 Above W.T. 5.09 8 6.8 0.51 115 635 635 11.8 20.4 7.87 3.0 60.1 0.80 47.2 59.0 0.351 0.099 0.129 0.37 Above W.T. 5.17 8 8 0.53 115 644 644 13.8 23.8 6.90 2.9 54.3 0.80 55.2 68.9 0.351 0.100 0.144 0.41 Above W.T. 5.28 8 9.1 0.57 125 657 657 15.5 26.7 6.50 2.9 50.9 0.80 62.1 77.7 0.351 0.124 0.161 0.46 Above W.T. 5.39 8 10.6 0.62 125 671 671 17.9 30.6 6.04 2.8 47.0 0.80 71.6 89.5 0.351 0.124 0.161 0.46 Above W.T. 5.5 8 9.6 0.68 125 685 685 16.1 27.0 7.35 2.9 53.0 0.80 64.2 80.3 0.351 0.128 0.167 0.47 Above W.T. 5.61 8 8.7 0.71 125 698 698 14.4 23.9 8.50 3.0 58.4 0.80 57.6 72.0 0.351 0.115 0.149 0.43 Above W.T. 5.72 8 7.9 0.69 125 712 712 13.0 21.2 9.15 3.1 62.5 0.80 51.8 64.8 0.351 0.105 0.137 0.39 Above W.T. 5.82 8 6 0.67 115 737 737 7.7 12.0 14.22 3.4 86.9 0.80 39.0 48.8 0.351 0.091 0.118 0.34 Above W.T. 5.93 8 4.8 0.63 115 737 737 7.7 12.0 14.22 3.4 86.9 0.80 30.9 38.7 0.351 0.093 0.108 0.31 Above W.T. 6.04 8 3.9 0.61 115 737 737 7.7 12.0 14.22 3.4 86.9 0.80 30.9 38.7 0.351 0.093 0.108 0.31 Above W.T. 6.04 8 3.9 0.61 115 737 737 7.7 12.0 14.22 3.4 86.9 0.80 30.9 38.7 0.351 0.093 0.108 0.31 Above W.T.		4.56																			
4.88       8       4.4       0.45       105       612       612       7.8       13.4       10.99       3.3       77.5       0.80       31.1       38.9       0.351       0.085       0.111       0.32       Above W.T.         4.99       8       5.1       0.48       115       624       624       8.9       15.3       10.02       3.2       71.9       0.80       35.7       44.7       0.351       0.088       0.115       0.33       Above W.T.         5.09       8       6.8       0.51       115       635       635       11.8       20.4       7.87       3.0       60.1       0.80       47.2       59.0       0.351       0.099       0.129       0.37       Above W.T.         5.17       8       8       0.53       115       644       644       13.8       23.8       6.90       2.9       54.3       0.80       55.2       68.9       0.351       0.110       0.144       0.41       Above W.T.         5.28       8       9.1       0.57       125       657       657       15.5       26.7       6.50       2.9       50.9       0.80       62.1       77.7       0.351       0.144       0.1																					
4.99       8       5.1       0.48       115       624       624       8.9       15.3       10.02       3.2       71.9       0.80       35.7       44.7       0.351       0.088       0.115       0.33       Above W.T.         5.09       8       6.8       0.51       115       635       635       11.8       20.4       7.87       3.0       60.1       0.80       47.2       59.0       0.351       0.099       0.129       0.37       Above W.T.         5.17       8       8       0.53       115       644       644       13.8       23.8       6.90       2.9       54.3       0.80       55.2       68.9       0.351       0.110       0.144       0.41       Above W.T.         5.28       8       9.1       0.57       125       657       657       15.5       26.7       6.50       2.9       50.9       0.80       62.1       77.7       0.351       0.124       0.161       0.46       Above W.T.         5.39       8       10.6       0.62       125       671       671       17.9       30.6       6.04       2.8       47.0       0.80       71.6       89.5       0.351       0.147       0.																					
5.17         8         8         0.53         115         644         644         13.8         23.8         6.90         2.9         54.3         0.80         55.2         68.9         0.351         0.110         0.144         0.41         Above W.T.           5.28         8         9.1         0.57         125         657         657         15.5         26.7         6.50         2.9         50.9         0.80         62.1         77.7         0.351         0.124         0.161         0.46         Above W.T.           5.39         8         10.6         0.62         125         671         671         17.9         30.6         6.04         2.8         47.0         0.80         71.6         89.5         0.351         0.147         0.191         0.54         Above W.T.           5.5         8         9.6         0.68         125         685         685         16.1         27.0         7.35         2.9         53.0         0.80         64.2         80.3         0.351         0.147         0.191         0.54         Above W.T.           5.61         8         8.7         0.71         125         698         698         14.4         23.9																					
5.28       8       9.1       0.57       125       657       657       15.5       26.7       6.50       2.9       50.9       0.80       62.1       77.7       0.351       0.124       0.161       0.46       Above W.T.         5.39       8       10.6       0.62       125       671       671       17.9       30.6       6.04       2.8       47.0       0.80       71.6       89.5       0.351       0.147       0.191       0.54       Above W.T.         5.5       8       9.6       0.68       125       685       685       16.1       27.0       7.35       2.9       53.0       0.80       64.2       80.3       0.351       0.128       0.167       0.47       Above W.T.         5.61       8       8.7       0.71       125       698       698       14.4       23.9       8.50       3.0       58.4       0.80       57.6       72.0       0.351       0.115       0.149       0.43       Above W.T.         5.72       8       7.9       0.69       125       712       13.0       21.2       9.15       3.1       62.5       0.80       51.8       64.8       0.351       0.105       0.137 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>																					
5.39       8       10.6       0.62       125       671       671       17.9       30.6       6.04       2.8       47.0       0.80       71.6       89.5       0.351       0.147       0.191       0.54       Above W.T.         5.5       8       9.6       0.68       125       685       685       16.1       27.0       7.35       2.9       53.0       0.80       64.2       80.3       0.351       0.128       0.167       0.47       Above W.T.         5.61       8       8.7       0.71       125       698       698       14.4       23.9       8.50       3.0       58.4       0.80       57.6       72.0       0.351       0.115       0.149       0.43       Above W.T.         5.72       8       7.9       0.69       125       712       13.0       21.2       9.15       3.1       62.5       0.80       51.8       64.8       0.351       0.105       0.137       0.39       Above W.T.         5.82       8       6       0.67       115       725       725       9.8       15.6       11.88       3.2       75.7       0.80       39.0       48.8       0.351       0.085       0.118       0																					
5.5       8       9.6       0.68       125       685       685       16.1       27.0       7.35       2.9       53.0       0.80       64.2       80.3       0.351       0.128       0.167       0.47       Above W.T.         5.61       8       8.7       0.71       125       698       698       14.4       23.9       8.50       3.0       58.4       0.80       57.6       72.0       0.351       0.115       0.149       0.43       Above W.T.         5.72       8       7.9       0.69       125       712       712       13.0       21.2       9.15       3.1       62.5       0.80       51.8       64.8       0.351       0.105       0.137       0.39       Above W.T.         5.82       8       6       0.67       115       725       725       9.8       15.6       11.88       3.2       75.7       0.80       39.0       48.8       0.351       0.091       0.118       0.34       Above W.T.         5.93       8       4.8       0.63       115       737       737       7.7       12.0       14.22       3.4       86.9       0.80       30.9       38.7       0.351       0.085       0.11																					
5.72 8 7.9 0.69 125 712 712 13.0 21.2 9.15 3.1 62.5 0.80 51.8 64.8 0.351 0.105 0.137 0.39 Above W.T. 5.82 8 6 0.67 115 725 725 9.8 15.6 11.88 3.2 75.7 0.80 39.0 48.8 0.351 0.091 0.118 0.34 Above W.T. 5.93 8 4.8 0.63 115 737 737 7.7 12.0 14.22 3.4 86.9 0.80 30.9 38.7 0.351 0.085 0.111 0.32 Above W.T. 6.04 8 3.9 0.61 115 750 750 6.2 9.4 17.31 3.5 99.3 0.80 24.9 31.2 0.351 0.083 0.108 0.31 Above W.T.																					Above W.T.
5.82 8 6 0.67 115 725 725 9.8 15.6 11.88 3.2 75.7 0.80 39.0 48.8 0.351 0.091 0.118 0.34 Above W.T. 5.93 8 4.8 0.63 115 737 737 7.7 12.0 14.22 3.4 86.9 0.80 30.9 38.7 0.351 0.085 0.111 0.32 Above W.T. 6.04 8 3.9 0.61 115 750 750 6.2 9.4 17.31 3.5 99.3 0.80 24.9 31.2 0.351 0.083 0.108 0.31 Above W.T.																					
5.93 8 4.8 0.63 115 737 737 7.7 12.0 14.22 3.4 86.9 0.80 30.9 38.7 0.351 0.085 0.111 0.32 Above W.T. 6.04 8 3.9 0.61 115 750 750 6.2 9.4 17.31 3.5 99.3 0.80 24.9 31.2 0.351 0.083 0.108 0.31 Above W.T.																					
6.04 8 3.9 0.61 115 750 750 6.2 9.4 17.31 3.5 99.3 0.80 24.9 31.2 0.351 0.083 0.108 0.31 Above W.T.																					
			8						6.2		17.31				24.9		0.351	0.083	0.108		
6.15 8 3.5 0.59 105 762 762 5.5 8.2 18.92 3.6 106.2 0.80 22.2 27.7 0.351 0.082 0.107 0.30 Above W.T. 6.26 8 3.4 0.58 105 774 774 5.3 7.8 19.25 3.6 108.2 0.80 21.4 26.7 0.351 0.082 0.106 0.30 Above W.T.																					
6.26 8 3.4 0.58 105 774 774 5.3 7.8 19.25 3.6 108.2 0.80 21.4 26.7 0.351 0.082 0.106 0.30 Above W.T. 6.37 8 4.2 0.56 115 786 786 6.6 9.7 14.71 3.4 93.8 0.80 26.2 32.8 0.351 0.083 0.108 0.31 Above W.T.																					
6.47 8 5.1 0.55 115 797 797 7.9 11.8 11.70 3.3 82.3 0.80 31.6 39.5 0.351 0.086 0.111 0.32 Above W.T.		6.47	8	5.1	0.55	115	797	797	7.9	11.8	11.70	3.3	82.3	0.80	31.6	39.5	0.351	0.086	0.111	0.32	Above W.T.
6.58 8 6.5 0.55 115 810 810 10.0 15.0 9.02 3.2 70.0 0.80 40.0 50.0 0.351 0.092 0.119 0.34 Above W.T.																					
6.69 8 7.6 0.57 115 822 822 11.6 17.5 7.93 3.1 63.7 0.80 46.4 58.0 0.351 0.098 0.128 0.36 Above W.T. 6.8 8 8.1 0.59 115 835 835 12.3 18.4 7.68 3.0 61.8 0.80 49.1 61.3 0.351 0.101 0.132 0.38 Above W.T.																					
6.9 8 8.1 0.6 125 847 847 12.2 18.1 7.82 3.1 62.5 0.80 48.7 60.9 0.351 0.101 0.131 0.37 Above W.T.																					

**EQ Magnitude (M<sub>w</sub>):** 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 **MSF:** 1.30

CPT Number: 6

Part			Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
7.01 8 7.9 0.61 125 800 800 11.8 17.4 8.17 3.1 64.4 0.80 47.1 58.9 0.51 10.09 0.129 0.37 Abov W.T. 7.12 8 7.8 0.6 175 87.8 8 7.2 0.5 175 80.5 10.0 0.129 0.5 Abov W.T. 7.23 8 7.8 0.6 175 87.8 1.2 1.2 15.9 7.0 1.0 16.5 8.1 1.2 15.2 1.2 15.9 7.0 1.0 16.5 8.1 1.2 15.2 1.2 15.9 7.0 1.0 16.5 8.1 1.2 15.2 1.2 15.9 7.0 1.2 1.2 15.2 1.2 15.9 7.0 1.2 1.2 15.9 7.0 1.2 1.2 15.2 1.2 15.9 7.0 1.2 1.2 15.2 1.2 15.9 7.0 1.2 1.2 15.2 1.2 15.9 7.0 1.2 1.2 15.2 1.2 15.9 7.0 1.2 1.2 15.2 1.2 1.2 15.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1	_	-				_			_	_				**	***	(					_
7.12 8 7.8 0.6 115 15 878 874 15. 16.8 8.15 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	( <b>q</b> e1N)es	Ratio	M7.5	M6.50	Safety	Comments
7.12 8 7.8 0.6 115 15 878 874 15. 16.8 8.15 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.																					
7.12 8 7.8 0.6 115 15 878 874 15. 16.8 8.15 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.																					
7.23 8 7.8 0.58 175 8.7 18.7 19.8 1.5 19.6 17.8 18.7 18.7 19.8 1.1 17.7 17.8 19.8 19.8 19.1 19.1 11.9 17.0 19.7 19.8 19.1 19.1 11.9 17.0 19.7 19.8 19.1 19.1 11.9 17.0 19.7 19.1 19.1 19.1 19.1 19.1 19.1 19.1																					
7.439   8   8.3   0.56   115   916   918   988   918   121   17.5   71.3   3.0   61.4   0.80   41.5   92.4   0.31   0.10   0.12   0.37   Above W.T.   7.55   8   7.8   0.53   115   93   92.3   11.2   13.9   7.22   3.1   6.38   0.80   41.9   56.2   0.351   0.00   0.12   0.37   Above W.T.   7.55   8   7.8   0.53   115   93   92.3   11.2   13.9   7.22   3.1   6.38   0.80   41.9   56.2   0.351   0.00   0.12   0.37   Above W.T.   7.55   8   7.8   0.53   115   93   93   93   93   93   94   93   93																					
7.55   8   7.86   0.53   115   9.30   2.12   1.12   1.59   7.12   1.59																					
7.65 8 7.6 0.53 115 935 935 935 109 18.3 17.3 94.8 1.07 14.0 19.0 19.0 19.0 19.0 19.0 19.0 19.0 19																					
7.76 8 7.75 0.53 115 948 948 10.7 148. 7.54 3.1 6.64 0.80 42.6 13.3 0.51 0.94 0.192 0.13 0.30 Above W.T. 7.87 7.95 8 7.1 0.52 115 1003 969 10.0 13.6 7.86 3.2 0.92 0.80 39.9 49.9 10.9 10.9 0.11 0.34 Above W.T. 8.24 4 8 8 0.59 1.5 115 1003 985 11.2 11.3 0.7 11.3 0.5 11.5 10.1 990 10.1 11.3 0.7 11.3 0.5 11.5 10.1 990 10.1 11.3 0.5 11.5 10.1 990 10.1 11.3 0.5 11.5 10.1 990 10.1 11.3 0.5 11.5 10.1 990 10.1 11.3 0.5 11.5 10.1 990 10.1 11.3 0.5 11.5 11.5 11.5 11.5 11.5 11.5 11.5		7.55	8			115	923	923	11.2	15.9	7.22	3.1	63.8	0.80	44.9	56.2	0.351	0.096	0.125	0.36	
7.87 8 8 7.3 0.54 115 900 909 100 134 142 792 3.1 68.4 0.80 41.2 51.5 0.903 10.21 0.14 Above W.T. 18.24 8 8 8 0.55 115 1003 985 11.2 15.2 73.3 3.1 65.1 0.804 41.6 5.8 0.35 0.090 0.122 0.15 0.004 Above W.T. 18.24 18.8 8 4.0 0.90 11.2 15.2 73.3 3.1 65.1 0.80 44.6 5.8 0.35 0.009 0.122 0.15 0.004 Above W.T. 18.24 18.8 8 4.0 0.90 11.2 15.2 19.2 19.2 19.2 19.2 19.2 19.2 19.2 19																					
Real Color																					
8.24 8 8 8.4 0.55 115 100 985 11.2 15.2 7.33 3.1 05.1 08.0 44.6 55.8 0.370 0.099 0.125 0.35 NonLaigning.  8.34 8 8.4 0.55 15 15 107 990 11.2 15.9 7.10 11.6 1.5 0.10 11.6 1.5 0.5 0.00 4.7 0.0 1.5 0.00 0.099 0.125 0.35 NonLaigning.  8.45 8 9.3 0.64 125 1037 1002 12.9 10.5 10.7 0.00 11.5 1.5 0.00 11.5 0.00 11.5 0.00 11.5 0.																					
8.34 8 8 84 0.56 115 1014 990 11,7 15,9 71,0 3.1 6.14 0.80 46,7 15,0 10,0 10,0 10,0 10,0 10,0 10,0 10,0																					
8.55 8 9.30 0.62 125 1039 1092 129 17.5 7.006 1.00 10.5 0.15 0.15 0.15 0.15 0.15 0.15		8.34			0.56	115	1014	990	11.7		7.10				46.7		0.360	0.099	0.128		-
8.66 8 9.99 0.64 125 1033 1009 12.6 18.6 8.3 3.0 50.2 0.80 54.5 65.2 0.366 0.109 0.142 0.399 NonLiphic.  8.87 8 9.6 0.66 125 1079 1020 13.1 17.7 7.28 3.0 61.6 0.80 52.6 65.7 0.371 0.106 0.139 0.38 NonLiphic.  8.88 9 9.7 0.62 125 1073 1039 1039 132 13.7 7.7 7.28 3.0 61.6 0.80 52.6 65.7 0.371 0.106 0.138 0.37 NonLiphic.  9.99 8 9.9 0.59 125 1107 1036 12.2 16.3 6.99 3.1 62.6 0.80 48.3 61.2 0.375 0.101 0.132 0.35 NonLiphic.  9.19 8 8.9 0.57 125 1119 1042 12.1 16.0 6.38 0.3 1.6 62.5 0.80 48.3 61.2 0.375 0.101 0.132 0.35 NonLiphic.  9.19 8 8 9.6 0.56 115 1133 1049 11.6 153 0.97 3.1 66.2 0.80 48.3 61.2 0.375 0.101 0.132 0.35 NonLiphic.  9.19 8 8 7.8 0.54 115 1159 1061 10.5 13.6 0.748 3.1 68.2 0.80 43.7 64.0 3.37 0.009 0.124 0.32 NonLiphic.  9.10 9.10 9.10 9.10 9.10 10.5 13.6 0.748 3.1 68.2 0.80 43.7 64.0 3.38 0.093 0.121 0.32 NonLiphic.  9.10 9.10 9.10 9.10 10.5 13.5 7.62 13.1 68.2 0.80 43.7 64.0 3.38 0.093 0.121 0.32 NonLiphic.  9.10 9.10 9.10 9.10 9.10 10.5 13.5 7.62 13.1 68.8 0.4 14.5 52.4 0.383 0.093 0.121 0.32 NonLiphic.  9.10 9.10 9.10 9.10 10.5 13.5 7.62 13.1 68.2 0.80 41.5 52.4 0.383 0.093 0.121 0.31 NonLiphic.  9.10 9.10 9.10 9.10 10.5 13.5 7.62 13.1 68.2 0.80 41.5 52.4 0.383 0.093 0.121 0.31 NonLiphic.  9.10 9.10 9.10 9.10 9.10 10.5 13.5 7.62 13.1 68.2 0.80 41.5 52.4 0.383 0.093 0.121 0.31 NonLiphic.  9.10 9.10 9.10 9.10 9.10 10.5 13.5 7.62 13.2 0.50 13.2 7.60 13.0 13.5 7.62 13.1 68.8 0.4 18.5 52.4 0.383 0.093 0.121 0.31 NonLiphic.  9.10 9.10 9.10 9.10 10.5 13.5 7.62 13.2 0.50 13.2 7.60 13.0 13.2 7.60 13.0 13.2 7.0 13.0 13.2 7.0 13																					-
8.76 8 9.6 0.66 125 1006 105 13.2 17.9 7.28 3.0 61.4 0.80 52.7 65.9 0.368 0.107 0.139 0.38 NonLaphe.  8.87 8 9.6 0.66 125 1009 102 113.1 17.7 7.28 3.0 61.4 0.80 52.6 65.9 0.368 0.107 0.139 0.38 NonLaphe.  9.98 8 9.7 0.62 125 1003 1029 13.2 17.8 6.77 3.0 60.0 0.80 52.6 65.2 0.373 0.10 0.0138 0.37 NonLaphe.  9.91 8 8 8.9 0.67 125 1119 104 12.1 16.0 6.83 3.1 0.25 0.80 48.9 61.3 575 0.10 0.131 0.35 NonLaphe.  9.3 8 8.6 0.6 115 113 1049 11.6 15.3 6.97 3.1 0.25 0.80 48.9 61.3 575 0.01 0.01 0.131 0.35 NonLaphe.  9.3 8 8.6 0.5 115 1170 106 10.5 13.5 7.62 3.1 0.25 0.80 48.5 0.3 0.377 0.00 0.131 0.35 NonLaphe.  9.5 7.8 0.5 115 1170 106 10.5 13.5 7.62 3.1 0.80 4.1 0.25 0.38 0.3 0.00 0.121 0.32 NonLaphe.  9.8 8 7.8 0.58 115 1170 1066 10.5 13.5 7.62 3.1 0.80 4.1 0.25 0.38 0.3 0.00 0.121 0.32 NonLaphe.  9.8 4 7.7 0.6 115 1195 1077 9.3 11.9 9.37 3.2 7.67 0.80 18.0 3.0 3.0 3.0 3.0 3.0 0.00 0.11 0.30 NonLaphe.  9.94 8 7.6 0.8 115 1170 1088 10.2 13.0 8.04 3.2 7.7 0.80 18.0 1.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0																					-
8.87 8 9.6 0.66 125 1079 1022 13.1 17,7 72.8 3.0 61.6 0.80 52.0 65.7 0.371 1.0160 1.38 0.379 NonLapphe. 9.8 8.9 9 0.69 125 1107 1036 12.2 16.3 6.99 3.1 6.26 0.80 48.3 61.2 0.375 0.101 0.132 0.355 NonLapphe. 9.9 8 8.9 0.59 10.7 125 1117 1130 104 12.1 16.0 6.83 1.0 62.5 0.80 48.3 61.2 0.375 0.101 0.132 0.35 NonLapphe. 9.3 8 8.6 0.56 115 1133 1049 11.6 1055 10.7 0.3 1.0 6.0 10.5 13.6 6.7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0																					
8.98   8   9.7   0.62   125   1093   1029   13.2   17.8   0.67   3.10   60.0   0.89   3.59   66.2   0.373   0.107   0.139   0.37   NonLisphe.																					
9.99   8   9   0.59   125   1107   1036   12.2   16.3   6.99   3.1   62.6   0.80   48.9   61.2   0.375   0.10   0.132   0.35   NonLaphe.   9.3   8   8.6   0.56   115   1133   1049   11.6   15.3   6.97   3.1   61.9   0.80   4.55   58.1   0.379   0.098   0.124   0.32   0.34   NonLaphe.   9.41   8   8.1   0.54   115   115   105   1061   10.5   13.5   7.68   1.3   0.80   0.80   4.5   58.1   0.379   0.098   0.124   0.32   0.34   NonLaphe.   9.52   8   7.8   0.54   115   1159   1061   10.5   13.5   7.68   1.3   0.82   0.80   4.18   0.82   0.383   0.093   0.121   0.31																					
9.31 8 8.6 0.56 115 1133 1049 11.6 15.3 6.97 3.1 63.9 0.80 45.5 8.1 0.379 0.098 0.128 0.34 NonLighbe. 9.62 8 7.8 0.54 115 1159 1100 1106 10.5 13.6 7.48 3.1 68.2 0.80 41.9 52.4 0.383 0.093 0.121 0.32 NonLighbe. 9.62 8 7.8 0.54 115 1170 1066 10.5 13.5 7.62 3.1 68.8 0.80 41.9 52.4 0.383 0.093 0.121 0.32 NonLighbe. 9.63 8 7.3 0.58 115 1183 1072 9.8 12.5 8.65 3.2 73.5 0.80 30.0 48.8 0.387 0.091 0.118 0.30 NonLighbe. 9.64 8 7.6 0.58 115 1195 1077 9.8 12.5 8.65 3.2 73.5 0.80 30.0 48.8 0.387 0.091 0.118 0.30 NonLighbe. 9.944 8 7.6 0.58 115 1207 1083 10.1 12.9 8.29 3.2 71.7 0.80 40.4 50.5 0.391 0.092 0.120 0.31 NonLighbe. 10.05 8 7.7 0.57 115 1239 1084 0.2 13.0 80.4 3.2 70.9 0.80 40.4 50.5 0.391 0.092 0.120 0.31 NonLighbe. 10.10 8 7.4 0.55 115 123 10.9 4 9.8 12.4 8.11 3.2 72.3 0.80 30.2 48.9 0.387 0.091 0.118 0.30 NonLighbe. 10.10 8 7.4 0.55 115 123 10.9 4 9.8 12.4 8.11 3.2 72.3 0.80 30.2 48.9 0.387 0.091 0.118 0.31 NonLighbe. 10.26 8 7.4 0.55 115 123 10.9 4 9.8 12.4 8.11 3.2 72.3 0.80 30.2 48.9 0.387 0.091 0.118 0.31 NonLighbe. 10.27 8 7 0.54 115 12.56 1103 3.2 11.5 8.48 3.2 71.6 0.80 30.1 48.8 0.39 0.091 0.118 0.30 NonLighbe. 10.28 8 7.9 0.59 115 1209 1111 9.0 12.0 8.25 13.2 73.5 0.80 38.3 47.9 0.39 0.090 0.110 0.30 NonLighbe. 10.28 8 7.9 0.59 115 1230 1116 0.3 13.0 7.99 3.2 74.5 0.80 38.3 47.9 0.39 0.090 0.110 0.30 NonLighbe. 10.29 8 7.1 0.56 115 130 1139 8.8 10.3 13.8 8.8 10.8 8.30 3.2 74.5 0.80 38.3 47.9 0.39 0.090 0.110 0.30 NonLighbe. 10.10 8 8 7.9 0.59 115 130 1137 3.8 8.8 10.8 8.30 3.2 76.3 0.80 38.3 47.9 0.39 0.090 0.110 0.30 NonLighbe. 10.11 8 6 6 0.39 115 1341 1144 7.8 9.3 7.32 3.3 77.4 0.80 3.0 3.5 44.2 0.40 0.08 0.110 0.30 NonLighbe. 11.11 8 6 0.39 115 1341 1144 7.8 9.3 7.32 3.3 77.4 0.80 3.0 4.0 0.00 0.08 0.110 0.28 NonLighbe. 11.12 8 8 6.2 0.37 115 138 115 137 118 138 11.5 137 118 0.5 127 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0																					-
9.41 8 8.1 0.54 115 1146 1055 10.9 14.3 7.17 3.1 66.2 0.80 43.7 \$4.6 0.381 0.095 0.124 0.32 NonLiphe. 9.62 8 7.8 0.55 115 1170 1066 10.5 13.5 7.62 3.1 68.8 0.80 41.8 52.3 0.385 0.093 0.121 0.31 NonLiphe. 9.73 8 7.3 0.68 115 1183 1077 9.3 11.9 9.37 13.2 67.7 0.80 37.3 46.7 0.389 0.89 0.110 0.30 NonLiphe. 9.84 8 7.6 0.58 115 1195 1077 9.3 11.9 9.37 3.2 76.7 0.80 37.3 46.7 0.389 0.899 0.110 0.30 NonLiphe. 10.05 8 7.7 0.57 115 1219 1088 10.2 13.0 8.04 3.2 71.7 0.80 40.4 50.5 3.9 0.899 0.899 0.110 0.30 NonLiphe. 10.16 8 7.4 0.55 115 1232 1084 9.8 12.3 12.4 8.11 3.2 72.3 10.8 0.4 3.2 71.7 0.80 40.4 50.5 10.0 10.0 10.0 10.0 10.0 10.0 10.0		9.19	8	8.9	0.57	125	1119	1042	12.1	16.0	6.83	3.1	62.5	0.80	48.3	60.3	0.377	0.100	0.131	0.35	NonLiqfble.
9.62 8 7.8 0.54 115 1159 1061 10.5 13.6 7.48 3.1 68.2 0.80 41.9 52.4 0.383 0.093 0.121 0.32 NonLaphe. 9.63 8 7.8 0.55 115 1170 1066 10.5 13.5 7.62 3.1 68.8 0.80 41.9 52.4 0.383 0.093 0.121 0.32 NonLaphe. 9.84 8 7.0 0.6 115 1183 1072 9.8 12.5 8.65 3.2 73.5 0.80 30.0 48.8 0.37 0.091 0.118 0.30 NonLaphe. 9.84 8 7.6 0.58 115 1207 1083 10.1 12.9 8.29 3.7 3.2 76.7 0.80 30.0 48.8 0.37 0.091 0.118 0.30 NonLaphe. 10.05 8 7.7 0.57 115 1232 1084 9.8 12.4 8.11 3.2 70.9 0.80 40.4 50.5 0.391 0.092 0.120 0.31 NonLaphe. 10.16 8 7.4 0.55 115 1232 1084 9.8 12.4 8.11 3.2 70.9 0.80 40.8 50.5 0.391 0.092 0.120 0.31 NonLaphe. 10.26 8 7.4 0.55 115 1232 1084 9.8 12.4 8.11 3.2 72.3 0.80 30.2 48.9 0.387 0.091 0.118 0.30 NonLaphe. 10.27 8 7 0.54 115 1256 1105 9.2 11.5 8.48 3.2 71.6 0.80 30.1 48.8 0.339 0.091 0.118 0.30 NonLaphe. 10.27 8 7 0.54 115 1290 1111 9.0 12.0 8.25 3.2 71.5 0.80 30.1 48.8 0.393 0.091 0.118 0.30 NonLaphe. 10.28 8 7.9 0.59 115 1290 1111 9.0 12.0 8.25 3.2 71.5 0.80 30.1 48.8 0.393 0.091 0.118 0.30 NonLaphe. 10.29 8 7.9 0.59 115 1290 1111 9.0 12.0 8.25 3.2 71.5 0.80 30.8 3.4 47.9 0.393 0.090 0.110 0.30 NonLaphe. 10.99 8 7.9 0.59 115 1293 1122 10.3 12.9 8.13 3.2 71.3 0.80 13.5 44.2 0.000 0.093 0.121 0.30 NonLaphe. 10.99 8 7.9 0.59 115 1305 1127 0.33 11.4 8.80 3.2 71.3 0.80 13.5 44.2 0.000 0.088 0.110 0.30 NonLaphe. 11.01 8 6.5 0.46 115 1307 1133 8.8 10.8 8.30 3.2 76.3 0.80 3.54 44.2 0.00 0.08 0.110 0.30 NonLaphe. 11.10 8 6.6 0.39 115 1341 1144 7.8 9.3 7.32 3.3 77.4 0.80 3.0 4.3 51.6 0.30 0.000 0.																					
9.62 8 7.8 0.55 115 1170 1066 10.5 13.5 7.62 3.1 68.8 0.80 41.8 52.3 0.38 0.09 0.121 0.31 NonLighbe. 9.78 8 7.3 0.58 115 1183 1072 9.8 12.5 8.65 3.2 76.7 0.80 37.3 46.7 0.389 0.089 0.116 0.30 NonLighbe. 9.84 8 7.6 0.58 115 1207 1083 10.1 12.9 10.8 10.1 12.9 10.8 10.1 12.9 10.8 10.1 12.9 12.9 12.9 12.9 12.9 12.9 12.9 12																					
9.73 8 7.3 0.58 115 1183 072 9.8 12.5 8.65 3.2 73.5 0.80 39.0 48.8 0.387 0.00 0.118 0.30 NonLaphe. 9.94 8 7.6 0.59 115 129 1083 10.1 12.9 8.29 3.2 71.7 0.80 40.4 50.5 0.391 0.092 0.120 0.31 NonLaphe. 10.05 8 7.7 0.57 115 1219 1083 10.2 13.0 8.04 3.2 70.9 0.80 40.8 51.1 0.385 0.092 0.120 0.31 NonLaphe. 10.16 8 7.4 0.55 115 1232 1094 9.8 12.3 7.82 3.2 71.6 0.80 39.1 48.9 0.387 0.001 0.118 0.30 NonLaphe. 10.26 8 7.4 0.53 115 1244 1099 9.8 12.3 7.82 3.2 71.6 0.80 39.1 48.8 0.389 0.091 0.118 0.31 NonLaphe. 10.37 8 7 0.54 115 1256 1105 9.2 11.5 8.48 3.2 71.6 0.80 39.1 48.8 0.389 0.091 0.118 0.31 NonLaphe. 10.48 8 7.3 0.55 115 1264 110 9.2 11.5 8.48 3.2 71.6 0.80 39.1 48.8 0.389 0.091 0.118 0.30 NonLaphe. 10.58 8 7.9 0.59 115 1280 1116 10.3 13.0 7.99 3.2 73.5 0.80 38.3 47.9 0.393 0.090 0.117 0.30 NonLaphe. 10.69 8 7.9 0.59 115 1280 1116 10.3 13.0 7.99 3.2 73.5 0.80 38.3 47.9 0.393 0.090 0.117 0.30 NonLaphe. 10.69 8 7.9 0.59 115 1205 1105 120 10.3 12.9 8.13 3.2 71.3 0.80 41.3 51.7 0.395 0.093 0.121 0.31 NonLaphe. 10.69 8 7.9 0.59 115 1205 1127 0.3 11.4 8.69 3.2 71.3 0.80 41.3 51.7 0.395 0.093 0.121 0.31 NonLaphe. 10.99 8 7.1 0.55 115 1305 1127 0.3 11.2 8.8 10.8 8.30 3.2 71.3 0.80 41.3 51.7 0.395 0.093 0.091 0.118 0.30 NonLaphe. 11.01 8 6.5 0.46 115 1300 1139 8.4 10.2 7.88 3.2 71.3 0.80 41.3 51.7 0.396 0.093 0.091 0.11 0.30 NonLaphe. 11.11 8 8 6.5 0.45 115 1330 1139 8.4 10.2 7.88 3.2 71.3 0.80 41.3 51.0 0.396 0.093 0.091 0.11 0.28 NonLaphe. 11.14 8 7.1 0.37 115 1361 1144 7.8 9.3 7.32 3.3 7.74 0.80 3.0 3.0 3.0 4.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 NonLaphe. 11.14 8 7.1 0.37 115 136 115 1375 1160 9.1 11.1 5.76 3.1 67.7 0.80 36.5 45.5 0.40 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.																					
9.84 8 76 0.58 115 1195 1077 9.3 11.9 9.37 3.2 76.7 0.80 37.3 46.7 0.389 0.089 0.116 0.30 NonLighbe. 10.05 8 7.7 0.57 115 1219 1088 10.2 13.0 8.04 3.2 70.9 0.80 40.8 51.1 0.385 0.092 0.120 0.31 NonLighbe. 10.16 8 7.4 0.55 115 1232 1094 9.8 12.4 8.11 3.2 72.3 0.80 39.2 48.9 0.387 0.091 0.118 0.30 NonLighbe. 10.26 8 7.4 0.53 115 1244 1099 9.8 12.3 7.82 3.2 71.6 0.80 39.1 48.8 0.387 0.091 0.118 0.31 NonLighbe. 10.37 8 7 0.54 115 1256 1105 9.2 11.5 8.48 3.2 75.1 0.80 36.9 46.1 0.391 0.099 0.116 0.30 NonLighbe. 10.37 8 7 0.54 115 1269 1110 9.6 12.0 8.25 3.2 73.5 0.80 39.1 48.8 0.391 0.099 0.116 0.30 NonLighbe. 10.58 8 7.9 0.58 115 1269 1110 9.6 12.0 8.25 3.2 73.5 0.80 39.1 48.8 0.391 0.099 0.116 0.30 NonLighbe. 10.58 8 7.9 0.58 115 1269 1110 9.6 12.0 8.25 3.2 73.5 0.80 36.9 46.1 0.391 0.099 0.116 0.30 NonLighbe. 10.58 8 7.9 0.59 115 1269 1110 9.6 12.0 8.25 3.2 73.5 0.80 36.9 46.1 0.391 0.099 0.117 0.30 NonLighbe. 10.58 8 7.9 0.59 115 1293 1122 10.3 12.9 8.13 3.2 76.3 0.80 41.4 51.7 0.395 0.099 0.121 0.31 NonLighbe. 10.59 8 7.0 0.59 115 1293 1122 10.3 12.9 8.13 3.2 76.3 0.80 3.4 4.4 51.7 0.395 0.099 0.121 0.31 NonLighbe. 10.79 8 7.1 0.50 1.15 1.15 1.15 1.15 1.15 1.15 1.																					-
9.94 8 7.6 0.58 115 120 1083 10.1 12.9 8.29 3.2 71.7 0.80 40.4 10.5 0.391 0.092 0.120 0.31 NonLighbe. 10.16 8 7.4 0.55 115 1232 1094 9.8 12.4 8.11 3.2 72.3 0.80 39.2 48.9 0.387 0.091 0.118 0.31 NonLighbe. 10.26 8 7.4 0.53 115 1244 1099 9.8 12.3 7.82 3.2 71.6 0.80 39.1 48.9 0.387 0.091 0.118 0.31 NonLighbe. 10.37 8 7.7 0.57 115 1256 1105 9.2 11.5 8.48 3.2 71.6 0.80 36.9 46.1 0.391 0.089 0.116 0.30 NonLighbe. 10.48 8 7.3 0.55 115 1269 1111 9.6 12.0 8.25 3.2 73.5 0.80 38.3 47.9 0.393 0.090 0.117 0.30 NonLighbe. 10.58 8 7.9 0.58 115 1280 1116 10.3 13.0 7.99 3.2 70.8 0.80 41.4 51.7 0.395 0.093 0.121 0.31 NonLighbe. 10.69 8 7.9 0.58 115 1280 116 10.3 13.0 7.99 3.2 70.8 0.80 41.3 51.6 0.396 0.093 0.121 0.30 NonLighbe. 10.69 8 7.9 0.59 115 1305 1127 9.3 11.4 8.69 3.2 75.9 0.80 31.5 44.2 0.400 0.88 0.114 0.29 NonLighbe. 11.01 8 6.5 0.46 115 1305 1127 9.3 11.4 8.69 3.2 75.9 0.80 31.5 44.2 0.400 0.88 0.114 0.29 NonLighbe. 11.01 8 6.5 0.46 115 1303 1139 8.4 102 7.88 3.2 76.6 0.80 31.0 31.0 31.0 31.0 31.0 31.0 31.0 31.																					
10.16		9.94				115															
10.26		10.05						1088		13.0	8.04	3.2	70.9	0.80	40.8	51.1	0.385	0.092	0.120	0.31	NonLiqfble.
10.37   8   7   0.54   115   1266   1105   9.22   11,5   8.48   3.2   75.1   0.80   36.9   46.1   0.391   0.089   0.116   0.30   NonLigible.																					
10.48																					-
10.58																					
10.68																					-
10.9																					
11.01		10.79			0.56	115	1305	1127	9.3	11.4	8.69	3.2	75.9		37.0	46.3	0.398	0.089	0.116	0.29	NonLiqfble.
11.11																					-
11.22																					
11.26																					-
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11.62								1160		11.1			68.4			45.6					NonLiqfble.
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13.24       8       5       0.36       105       1583       1253       6.2       6.7       8.55       3.4       90.4       0.80       24.7       30.9       0.435       0.083       0.108       0.25       NonLiqfble.         13.35       8       7.2       0.38       115       1594       1257       8.9       10.2       5.94       3.2       70.5       0.80       35.5       44.4       0.436       0.088       0.115       0.26       NonLiqfble.         13.45       8       10       0.4       115       1606       1263       12.3       14.6       4.35       3.0       56.0       0.80       49.3       61.6       0.437       0.102       0.132       0.30       NonLiqfble.         13.56       8       13.4       0.44       125       1618       1268       16.5       19.8       3.49       2.8       45.9       0.80       65.9       82.3       0.439       0.132       0.171       0.39       NonLiqfble.																					-
13.35 8 7.2 0.38 115 1594 1257 8.9 10.2 5.94 3.2 70.5 0.80 35.5 44.4 0.436 0.088 0.115 0.26 NonLiqfble. 13.45 8 10 0.4 115 1606 1263 12.3 14.6 4.35 3.0 56.0 0.80 49.3 61.6 0.437 0.102 0.132 0.30 NonLiqfble. 13.56 8 13.4 0.44 125 1618 1268 16.5 19.8 3.49 2.8 45.9 0.80 65.9 82.3 0.439 0.132 0.171 0.39 NonLiqfble.																					
13.45 8 10 0.4 115 1606 1263 12.3 14.6 4.35 3.0 56.0 0.80 49.3 61.6 0.437 0.102 0.132 0.30 NonLiqible. 13.56 8 13.4 0.44 125 1618 1268 16.5 19.8 3.49 2.8 45.9 0.80 65.9 82.3 0.439 0.132 0.171 0.39 NonLiqible.																					-
13.56 8 13.4 0.44 125 1618 1268 16.5 19.8 3.49 2.8 45.9 0.80 65.9 82.3 0.439 0.132 0.171 0.39 NonLigible.																					-
																					-

**EQ Magnitude (M<sub>w</sub>):** 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 **MSF:** 1.30

CPT Number: 6

		Water	Ti	Cleave		Total	Effortive	Norm	Com	Friction						Induced	Lianof	Lianof	Fastan	
	Depth	Table	Tip Resist.	Sleeve Frict.	g	Stress	Effective Stress	Tip	Tip	Ratio		F.C.				Stress	Liquef. Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> e1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)cs	Ratio	M7.5	M6.50	Safety	Comments
	13.77	8	14.4	0.55	125	1645	1281	17.6	21.2	4.05	2.8	47.0	0.80	70.4	88.0	0.441	0.143	0.186	0.42	NonLiqfble.
	13.88	8	13.8	0.57	125	1658	1288	16.8	20.1	4.39	2.9	49.4	0.80	67.3	84.1	0.443	0.135	0.176	0.40	NonLiqfble.
	13.98 14.09	8	13.6 13.4	0.58 0.58	125 125	1671 1685	1295 1302	16.5 16.3	19.7 19.3	4.54 4.62	2.9 2.9	50.4 51.1	0.80	66.2 65.0	82.7 81.3	0.444 0.445	0.133	0.172 0.169	0.39	NonLiqfble. NonLiqfble.
	14.03	8	14.3	0.59	125	1698	1302	17.3	20.6	4.39	2.8	48.9	0.80	69.2	86.5	0.447	0.130	0.182	0.38	NonLiqfble.
	14.3	8	14.3	0.6	125	1711	1315	17.3	20.4	4.46	2.9	49.3	0.80	69.0	86.3	0.448	0.140	0.182	0.41	NonLiqfble.
	14.41	8	15	0.77	125	1725	1322	18.1	21.4	5.45	2.9	51.9	0.80	72.2	90.3	0.449	0.148	0.193	0.43	NonLiqfble.
	14.52	8	19.6	1.02	135	1738	1328	23.5	28.2	5.45	2.8	46.7	0.80	94.1	117.6	0.450	0.231	0.301	0.67	NonLiqfble.
	14.62	8	26.3	1.14	135	1752	1336	31.5	38.1	4.48	2.7	38.3	0.80	125.9	157.4	0.451	0.443	0.576	1.28	NonLiqfble.
	14.84 14.94	8	20.1 16.3	0.91	135 125	1782	1352	23.9	28.4	4.74	2.8	44.1 47.9	0.80	95.7	119.6	0.453	0.239	0.311	0.69	NonLiqfble.
	15.05	8	14.5	0.71 0.54	125	1795 1809	1359 1366	19.3 17.2	22.7 19.9	4.61 3.97	2.8 2.8	47.9	0.80	77.4 68.7	96.7 85.8	0.454 0.456	0.164 0.139	0.213 0.180	0.47 0.40	NonLiqfble. NonLiqfble.
	15.16	8	12.8	0.47	125	1823	1373	15.1	17.3	3.95	2.9	50.6	0.80	60.5	75.6	0.457	0.120	0.156	0.34	NonLiqfble.
	15.27	8	10.8	0.45	115	1836	1380	12.7	14.3	4.55	3.0	57.2	0.80	50.9	63.6	0.458	0.104	0.135	0.30	NonLiqfble.
	15.37	8	9.9	0.43	115	1848	1385	11.6	13.0	4.79	3.0	60.4	0.80	46.6	58.2	0.459	0.098	0.128	0.28	NonLiqfble.
	15.48	8	11.2	0.43	115	1861	1391	13.1	14.8	4.19	2.9	55.0	0.80	52.6	65.7	0.460	0.106	0.138	0.30	NonLiqfble.
	15.59	8	9.7	0.42	115	1873	1396	11.4	12.5	4.79	3.0	61.2	0.80	45.4	56.8	0.461	0.097	0.126	0.27	NonLiqfble.
	15.69	8	9.8	0.42	115	1885	1402	11.5	12.6	4.74	3.0	60.8	0.80	45.8	57.3	0.463	0.097	0.127	0.27	NonLiqfble.
	15.8 15.91	8	10.6 10.6	0.44 0.48	115 125	1897 1910	1407 1413	12.4 12.3	13.7 13.6	4.56 4.98	3.0	58.2 59.9	0.80 0.80	49.4 49.3	61.8 61.7	0.464 0.465	0.102 0.102	0.133 0.132	0.29 0.28	NonLiqfble. NonLiqfble.
	16.02	8	10.8	0.40	125	1910	1413	12.5	13.8	5.18	3.0	60.4	0.80	50.2	62.7	0.466	0.102	0.134	0.28	NonLiqfble.
	16.12	8	12.9	0.55	125	1936	1426	14.9	16.7	4.61	2.9	54.0	0.80	59.8	74.7	0.467	0.119	0.154	0.33	NonLiqfble.
	16.23	8	12.4	0.6	125	1950	1433	14.3	15.9	5.25	3.0	57.4	0.80	57.3	71.7	0.468	0.114	0.148	0.32	NonLiqfble.
	16.34	8	12.3	0.62	125	1964	1440	14.2	15.7	5.48	3.0	58.6	0.80	56.7	70.9	0.469	0.113	0.147	0.31	NonLiqfble.
	16.44	8	11.6	0.62	125	1976	1446	13.3	14.7	5.84	3.0	61.4	0.80	53.4	66.7	0.470	0.108	0.140	0.30	NonLiqfble.
	16.55	8	10.1	0.61	125	1990	1453	11.6	12.5	6.70	3.1	67.9	0.80	46.4	58.0	0.471	0.098	0.128	0.27	NonLiqfble.
	16.66	8	10.6	0.65	125	2004	1460	12.1	13.1	6.77	3.1	66.9	0.80	48.5	60.7	0.472	0.101	0.131	0.28	NonLiqfble.
	16.76 16.87	8	13.9 12.8	0.65 0.63	125 125	2016 2030	1466 1473	15.9 14.6	17.6 16.0	5.04 5.35	2.9 3.0	54.6 57.7	0.80	63.5 58.4	79.4 73.0	0.473 0.474	0.127 0.116	0.165 0.151	0.35	NonLiqfble. NonLiqfble.
	16.97	8	11.1	0.6	125	2042	1480	12.6	13.6	5.95	3.1	63.4	0.80	50.5	63.1	0.475	0.113	0.134	0.32	NonLiqfble.
	17.08	8	9.2	0.56	125	2056	1486	10.4	11.0	6.85	3.2	71.6	0.80	41.8	52.2	0.476	0.093	0.121	0.25	NonLiqfble.
	17.19	8	9.3	0.55	125	2070	1493	10.5	11.1	6.65	3.2	70.8	0.80	42.1	52.6	0.477	0.094	0.122	0.26	NonLiqfble.
	17.29	8	8.8	0.59	125	2082	1500	9.9	10.3	7.60	3.2	75.5	0.80	39.8	49.7	0.478	0.091	0.119	0.25	NonLiqfble.
	17.4	8	8.8	0.57	125	2096	1507	9.9	10.3	7.35	3.2	74.9	0.80	39.7	49.6	0.479	0.091	0.119	0.25	NonLiqfble.
	17.5 17.61	8	8.8 10.9	0.54	115 125	2109 2121	1513	9.9	10.2	6.97	3.2	73.8	0.80	39.6	49.5	0.479	0.091	0.119	0.25	NonLiqfble.
	17.72	8	8.9	0.57 0.49	115	2121	1519 1525	12.2 10.0	13.0 10.3	5.79 6.26	3.1	64.1 71.4	0.80	49.0 39.9	61.2 49.9	0.481 0.481	0.101 0.092	0.132 0.119	0.27	NonLiqfble. NonLiqfble.
	17.72	8	8.6	0.48	115	2147	1531	9.6	9.8	6.38	3.2	73.0	0.80	38.5	48.1	0.482	0.090	0.117	0.24	NonLiqfble.
	17.93	8	7.7	0.44	115	2159	1536	8.6	8.6	6.65	3.3	77.4	0.80	34.4	43.0	0.483	0.087	0.114	0.23	NonLiqfble.
	18.03	8	7.8	0.44	115	2171	1542	8.7	8.7	6.55	3.2	76.8	0.80	34.8	43.5	0.484	0.088	0.114	0.24	NonLiqfble.
	18.14	8	7.8	0.43	115	2183	1548	8.7	8.7	6.41	3.2	76.4	0.80	34.7	43.4	0.485	0.088	0.114	0.23	NonLiqfble.
	18.21	8	8.3	0.43	115	2191	1551	9.2	9.3	5.97	3.2	73.1	0.80	36.9	46.1	0.486	0.089	0.116	0.24	NonLiqfble.
	18.31 18.42	8	8 8.8	0.45 0.47	115 115	2203 2216	1556 1562	8.9 9.7	8.9 9.8	6.52 6.11	3.2	76.2 72.0	0.80	35.5 39.0	44.4 48.7	0.487 0.488	0.088	0.115 0.118	0.24	NonLiqfble.
	18.53	8	8.3	0.47	115	2228	1568	9.7	9.8	6.82	3.2	76.3	0.80	36.7	45.9	0.489	0.091	0.116	0.24	NonLiqfble. NonLiqfble.
	18.64	8	8.9	0.49	115	2241	1574	9.8	9.9	6.30	3.2	72.6	0.80	39.3	49.1	0.490	0.091	0.118	0.24	NonLiqfble.
	18.74	8	7.5	0.47	115	2252	1579	8.3	8.1	7.37	3.3	81.6	0.80	33.0	41.3	0.491	0.087	0.113	0.23	NonLiqfble.
	18.85	8	8	0.44	115	2265	1585	8.8	8.7	6.41	3.2	76.4	0.80	35.2	44.0	0.492	0.088	0.114	0.23	NonLiqfble.
	18.96	8	7.8	0.42	115	2278	1591	8.6	8.4	6.31	3.3	77.0	0.80	34.2	42.8	0.493	0.087	0.113	0.23	NonLiqfble.
	19.06	8	6.9	0.39	115	2289	1596	7.6	7.2	6.78	3.3	82.8	0.80	30.2	37.8	0.493	0.085	0.111	0.22	NonLiqfble.
	19.17	8	7.2	0.37	115	2302	1602	7.9	7.5	6.12	3.3	79.2	0.80	31.5	39.4	0.494	0.086	0.111	0.23	NonLiqfble.
	19.28 19.39	8	7.2 6.3	0.35 0.34	115 105	2315 2327	1608 1613	7.9 6.9	7.5 6.4	5.79 6.62	3.3 3.4	78.2 86.0	0.80	31.4 27.5	39.3 34.3	0.495 0.496	0.086 0.084	0.111 0.109	0.22 0.22	NonLiqfble. NonLiqfble.
	19.49	8	6.5	0.34	105	2338	1618	7.1	6.6	6.19	3.4	83.4	0.80	28.3	35.4	0.490	0.084	0.109	0.22	NonLiqfble.
	19.6	8	6	0.33	105	2349	1622	6.5	5.9	6.84	3.4	88.8	0.80	26.1	32.6	0.498	0.083	0.108	0.22	NonLiqfble.
	19.71	8	6.3	0.33	105	2361	1627	6.8	6.3	6.45	3.4	85.7	0.80	27.3	34.2	0.499	0.084	0.109	0.22	NonLiqfble.
	19.81	8	6.8	0.33	115	2371	1631	7.4	6.9	5.88	3.3	81.0	0.80	29.5	36.8	0.500	0.085	0.110	0.22	NonLiqfble.
	19.92	8	8	0.32	115	2384	1637	8.7	8.3	4.70	3.2	71.1	0.80	34.6	43.3	0.501	0.088	0.114	0.23	NonLiqfble.
	20.03	8	8.1	0.33	115	2397	1643	8.7	8.4	4.78	3.2	71.2	0.80	35.0	43.7	0.492	0.088	0.114	0.23	NonLiqfble.
	20.14	8	7.8	0.33	115	2409	1649	8.4	8.0	5.00	3.2	73.4	0.80	33.6	42.0	0.492	0.087	0.113	0.23	NonLiqfble.
	20.24 20.35	8	6.6 6.2	0.31 0.28	105 105	2421 2432	1654 1658	7.1 6.7	6.5 6.0	5.75 5.62	3.3	82.1 84.0	0.80	28.4 26.6	35.5 33.3	0.493 0.494	0.084 0.083	0.109 0.108	0.22 0.22	NonLiqfble. NonLiqfble.
	20.33	8	5.7	0.20	105	2444	1663	6.1	5.4	6.03	3.4	89.0	0.80	24.5	30.6	0.494	0.083	0.108	0.22	NonLiqfble.
	_3	3	3.7	3,			- 505													

**EQ Magnitude (M<sub>w</sub>):** 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 **MSF:** 1.30

CPT Number: 6

		***	To.	CI.		m . 1	Dee	<b>N</b> T		F							T. 6		F. 4	
	Depth	Water Table	Tip Resist.	Sleeve Frict.		Stress	Effective Stress		Corr. Tip	Friction Ratio		F.C.				Stress	Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	g (PCF)	(PSF)	(PSF)	Tip <b>q</b> ein	Q	F	Ic	(%)	Ксрт	Da-m	(qc1N)es		M7.5	M6.50	Safety	Comments
Cone	(F1)	(F 1)	(151)	(131)	(I CF)	(1 51)	(131)	quiv	Ų	ь	п	(70)	11011	Dqui	(quit)ts	Katio	1417.5	1410.50	Salety	Comments
	20.56	8	5.5	0.26	105	2454	1667	5.9	5.1	6.09	3.4	90.7	0.80	23.6	29.5	0.496	0.082	0.107	0.22	NonLiqfble.
	20.67	8	5.9	0.26	105	2466	1672	6.3	5.6	5.57	3.4	86.1	0.80	25.3	31.6	0.497	0.083	0.108	0.22	NonLiqfble.
	20.77	8	6	0.25	105	2476	1676	6.4	5.7	5.25	3.3	84.2	0.80	25.6	32.1	0.498	0.083	0.108	0.22	NonLiqfble.
	20.88	8	5.5	0.25	105	2488	1681	5.9	5.1	5.87	3.4	90.3	0.80	23.5	29.3	0.499	0.082	0.107	0.21	NonLiqfble.
	20.99 21.09	8 8	5.3 4.8	0.25 0.25	105 105	2499 2510	1686	5.6 5.1	4.8 4.2	6.17 7.05	3.4	93.1 100.8	0.80	22.6	28.2 25.5	0.500	0.082	0.107	0.21 0.21	NonLiqfble.
	21.09	8	4.5	0.25	105	2522	1690 1695	4.8	3.8	8.03	3.5 3.6	107.3	0.80	20.4 19.1	23.9	0.500 0.501	0.082 0.081	0.106 0.106	0.21	NonLiqfble. NonLiqfble.
	21.31	8	4	0.23	95	2533	1699	4.2	3.2	8.42	3.7	114.7	0.80	17.0	21.2	0.502	0.081	0.105	0.21	NonLiqfble.
	21.41	8	3.7	0.19	95	2543	1703	3.9	2.9	7.82	3.7	117.3	0.80	15.7	19.6	0.503	0.081	0.105	0.21	NonLiqfble.
	21.52	8	4.2	0.21	95	2553	1706	4.4	3.4	7.18	3.6	6.2	0.03	0.1	4.6	0.504	0.080	0.104	0.21	NonLiqfble.
	21.59	8	4.9	0.21	105	2560	1709	5.2	4.2	5.80	3.5	6.2	0.03	0.2	5.4	0.505	0.080	0.104	0.21	NonLiqfble.
	21.72	8	5.7	0.22	105	2573	1714	6.0	5.1	4.99	3.4	6.2	0.03	0.2	6.2	0.506	0.080	0.104	0.21	NonLiqfble.
	21.83	8	6.5	0.23	105	2585	1719	6.9	6.1	4.42	3.3	6.2	0.03	0.2	7.1	0.507	0.080	0.104	0.21	NonLiqfble.
	21.94	8	7.3	0.24	105	2596	1723	7.7	7.0	4.00	3.2	6.2	0.03	0.3	7.9	0.508	0.080	0.104	0.20	NonLiqfble.
	22.05 22.15	8	8.1 8.4	0.26 0.27	105 105	2608 2618	1728 1732	8.5 8.8	7.9 8.2	3.83 3.81	3.1	6.2 6.2	0.03	0.3	8.8 9.1	0.509 0.509	0.080	0.104 0.104	0.20 0.20	NonLiqfble.
	22.13	8	8.2	0.27	115	2630	1732	8.6	7.9	4.21	3.2	6.2	0.03	0.3	8.9	0.510	0.080	0.104	0.20	NonLiqfble. NonLiqfble.
	22.37	8	8.4	0.3	115	2643	1743	8.8	8.1	4.24	3.2	6.2	0.03	0.3	9.1	0.511	0.080	0.104	0.20	NonLiqfble.
	22.47	8	8.6	0.3	115	2654	1748	9.0	8.3	4.13	3.1	6.2	0.03	0.3	9.3	0.512	0.080	0.104	0.20	NonLiqfble.
	22.58	8	8.2	0.3	115	2667	1754	8.6	7.8	4.37	3.2	6.2	0.03	0.3	8.9	0.512	0.080	0.104	0.20	NonLiqfble.
	22.69	8	8.7	0.31	115	2679	1760	9.1	8.4	4.21	3.1	6.2	0.03	0.3	9.4	0.513	0.080	0.104	0.20	NonLiqfble.
	22.79	8	9.1	0.32	115	2691	1765	9.5	8.8	4.13	3.1	6.2	0.03	0.3	9.8	0.514	0.080	0.104	0.20	NonLiqfble.
	22.9	8	9.2	0.34	115	2704	1771	9.6	8.9	4.33	3.1	6.2	0.03	0.3	9.9	0.514	0.080	0.104	0.20	NonLiqfble.
	23.01	8	9.4	0.38	115	2716	1777	9.8	9.0	4.73	3.1	6.2	0.03	0.3	10.1	0.515	0.080	0.104	0.20	NonLiqfble.
	23.12 23.22	8	10.1 12.3	0.45 0.59	115 125	2729 2740	1782 1788	10.5 12.7	9.8 12.2	5.15 5.40	3.1	68.6 64.1	0.80 0.80	41.9 50.9	52.3 63.6	0.516 0.517	0.093 0.104	0.121 0.135	0.24 0.26	NonLiqfble. NonLiqfble.
	23.33	8	15.2	0.73	125	2754	1794	15.7	15.4	5.28	3.0	58.3	0.80	62.8	78.5	0.517	0.125	0.162	0.20	NonLiqfble.
	23.44	8	18.7	0.76	125	2768	1801	19.3	19.2	4.39	2.9	50.3	0.80	77.1	96.4	0.518	0.163	0.212	0.41	NonLiqfble.
	23.54	8	19.4	0.74	125	2780	1808	20.0	19.9	4.11	2.8	48.4	0.80	79.9	99.8	0.518	0.173	0.224	0.43	NonLiqfble.
	23.65	8	19.8	0.77	125	2794	1814	20.3	20.3	4.18	2.8	48.4	0.80	81.4	101.7	0.519	0.178	0.231	0.45	NonLiqfble.
	23.76	8	18.9	0.84	125	2808	1821	19.4	19.2	4.80	2.9	51.9	0.80	77.5	96.9	0.519	0.165	0.214	0.41	NonLiqfble.
	23.86	8	18.9	0.83	125	2820	1828	19.3	19.1	4.75	2.9	51.7	0.80	77.4	96.7	0.520	0.164	0.213	0.41	NonLiqfble.
	23.97	8	22.8	0.78	135	2834	1835	23.3	23.3	3.65	2.8	43.5	0.80	93.2	116.5	0.521	0.227	0.295	0.57	NonLiqfble.
	24.07 24.18	8	24.7 22.5	0.87 0.95	135 135	2848 2863	1842 1850	25.2 22.9	25.3 22.8	3.74 4.51	2.7 2.8	42.4 47.4	0.80 0.80	100.7 91.6	125.9 114.4	0.521 0.521	0.266 0.219	0.345 0.285	0.66 0.55	NonLiqfble. NonLiqfble.
	24.18	8	23.5	0.97	135	2876	1857	23.9	23.8	4.40	2.8	46.2	0.80	95.4	119.3	0.521	0.219	0.209	0.59	NonLiqfble.
	24.38	8	28.5	0.95	135	2890	1864	28.9	29.0	3.51	2.7	39.1	0.80	115.5	144.4	0.522	0.360	0.468	0.90	NonLiqfble.
	24.48	8	30.3	0.91	135	2903	1872	30.6	30.8	3.15	2.6	36.5	0.80	122.6	153.2	0.523	0.415	0.539	1.03	NonLiqfble.
	24.58	8	27.7	0.89	135	2917	1879	28.0	27.9	3.39	2.7	39.2	0.80	111.8	139.8	0.523	0.334	0.434	0.83	NonLiqfble.
	24.68	8	23	0.84	135	2930	1886	23.2	22.8	3.90	2.8	45.0	0.80	92.7	115.9	0.523	0.225	0.292	0.56	NonLiqfble.
	24.79	8	17.9	0.82	125	2945	1894	18.0	17.3	4.99	2.9	54.7	0.80	72.0	90.0	0.524	0.148	0.192	0.37	NonLiqfble.
	24.9 25	8	14.9 15.1	0.81 0.8	125 125	2959 2971	1901 1907	15.0	14.1	6.04	3.1	62.9	0.80	59.8	74.8	0.524	0.119	0.155	0.29	NonLiqfble.
	25.28	8	15.1	0.72	125	3006	1907	15.1 15.9	14.3 15.0	5.88 5.00	3.1	5.5 5.5	0.01 0.01	0.2	15.3 16.1	0.525 0.526	0.080	0.104 0.105	0.20	NonLiqfble. NonLiqfble.
	25.20	8	14.6	0.72	125	3020	1923	14.5	13.5	5.42	3.0	5.5	0.01	0.2	14.7	0.527	0.080	0.103	0.20	NonLiqfble.
	25.49	8	13.4	0.68	125	3032	1938	13.3	12.3	5.72	3.1	5.5	0.01	0.2	13.5	0.527	0.080	0.104	0.20	NonLiqfble.
	25.6	8	12.2	0.65	125	3046	1945	12.1	11.0	6.09	3.1	5.5	0.01	0.2	12.3	0.528	0.080	0.104	0.20	NonLiqfble.
	25.7	8	11.8	0.61	125	3059	1951	11.7	10.5	5.94	3.2	5.5	0.01	0.2	11.8	0.528	0.080	0.104	0.20	NonLiqfble.
	25.81	8	11.4	0.59	125	3072	1958	11.3	10.1	5.98	3.2	5.5	0.01	0.2	11.4	0.529	0.080	0.104	0.20	NonLiqfble.
	25.91	8	11.2	0.55	125	3085	1964	11.1	9.8	5.70	3.2	5.5	0.01	0.1	11.2	0.529	0.080	0.104	0.20	NonLiqfble.
	26.02 26.12	8	10.5 10.4	0.52 0.51	125 125	3099 3111	1971 1977	10.3 10.2	9.1 8.9	5.81 5.77	3.2	5.5 5.5	0.01 0.01	0.1	10.5 10.4	0.530 0.530	0.080	0.104 0.104	0.20 0.20	NonLiqfble.
	26.12	8	9.9	0.51	125	3111	1977	9.7	8.4	6.00	3.2	5.5	0.01	0.1	9.9	0.530	0.080	0.104	0.20	NonLiqfble. NonLiqfble.
	26.33	8	10.2	0.49	125	3123	1990	10.0	8.7	5.68	3.2	5.5	0.01	0.1	10.1	0.531	0.080	0.104	0.20	NonLiqfble.
	26.44	8	9.7	0.48	115		1997	9.5	8.1	5.91	3.2	5.5	0.01	0.1	9.6	0.531	0.080	0.104	0.20	NonLiqfble.
	26.54	8	9.3	0.47	115	3163	2003	9.1	7.7	6.09	3.3	5.5	0.01	0.1	9.2	0.532	0.080	0.104	0.20	NonLiqfble.
	26.65	8	8.5	0.43	115	3175	2008	8.3	6.9	6.22	3.3	82.3	0.80	33.2	41.5	0.533	0.087	0.113	0.21	NonLiqfble.
	26.75	8	8.4	0.41	115	3187	2014	8.2	6.8	6.02	3.3	82.1	0.80	32.8	41.0	0.533	0.086	0.112	0.21	NonLiqfble.
	26.86	8	8.5	0.41	115	3199	2019	8.3	6.8	5.94	3.3	81.5	0.80	33.1	41.4	0.534	0.087	0.113	0.21	NonLiqfble.
	26.96	8	8.5	0.43	115	3211	2025	8.3	6.8	6.24	3.3	82.6	0.80	33.1	41.3	0.534	0.087	0.113	0.21	NonLiqfble.
	27.07	8	9.1	0.44	115	3224	2030	8.8	7.4	5.88	3.3	79.0	0.80	35.3	44.2	0.535	0.088	0.114	0.21	NonLiqfble.
	27.17 27.28	8	10 9.5	0.44 0.42	115 115	3235 3248	2036 2042	9.7 9.2	8.2 7.7	5.25 5.33	3.2	73.6 75.7	0.80	38.8 36.8	48.5 46.0	0.535 0.536	0.091 0.089	0.118 0.116	0.22 0.22	NonLiqfble. NonLiqfble.
	21.20	٥	9.0	0.42	113	3240	2042	1.4	1.1	5.55	3.4	13.1	0.00	50.0	-0.0	0.550	0.007	0.110	0.22	romaquic.

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 **MSF:** 1.30 CPT Number: 6

Depth to Groundwater: 8 feet

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress		Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> e1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	27.38	8	9.4	0.39	115	3259	2047	9.1	7.6	5.02	3.2	74.9	0.80	36.4	45.5	0.537	0.089	0.115	0.21	NonLiqfble.
	27.49	8	8.4	0.36	115	3272	2053	8.1	6.6	5.32	3.3	54.6	0.80	32.4	40.6	0.537	0.086	0.112	0.21	NonLiqfble.
	27.59 27.7	8	7.9 6.8	0.32	115 105	3283 3296	2058 2064	7.6 6.5	6.1 5.0	5.11 5.63	3.3 3.4	54.6 54.6	0.80 0.80	30.5 26.2	38.1 32.7	0.538 0.538	0.085 0.083	0.111 0.108	0.21	NonLiqfble. NonLiqfble.
	27.8	8	6.6		105	3307	2068	6.4	4.8	5.46	3.4	54.6	0.80	25.4	31.8	0.539	0.083	0.108	0.20	NonLiqfble.
	27.91	8	7.1	0.26	105	3318	2073	6.8	5.2	4.78	3.3	54.6	0.80	27.3	34.1	0.539	0.084	0.109	0.20	NonLiqfble.
	28.02 28.12	8	7.3 7.2	0.27 0.23	105 105	3330 3340	2077 2081	7.0 6.9	5.4 5.3	4.79 4.16	3.3	54.6 76.9	0.80 0.80	28.0 27.6	35.0 34.5	0.540 0.541	0.084 0.084	0.109 0.109	0.20	NonLiqfble.
	28.23	8	6.2		105	3352	2086	5.9	4.3	5.31	3.4	76.9	0.80	23.8	29.7	0.541	0.084	0.109	0.20	NonLiqfble. NonLiqfble.
	28.33	8	5.5		105	3362	2090	5.3	3.7	5.76	3.5	76.9	0.80	21.1	26.3	0.542	0.082	0.106	0.20	NonLiqfble.
	28.38	8	6.1	0.21	105	3367	2093	5.8	4.2	4.76	3.4	76.9	0.80	23.3	29.2	0.542	0.082	0.107	0.20	NonLiqfble.
	28.49 28.6	8	4.5 3.7	0.21 0.21	95 95	3379 3389	2097 2101	4.3 3.5	2.7 1.9	7.47 10.48	3.7 3.9	76.9 76.9	0.80 0.80	17.2 14.1	21.5 17.7	0.543 0.544	0.081	0.105 0.105	0.19 0.19	NonLiqfble. NonLiqfble.
	28.71	8	4.1	0.21	95	3400	2104	3.9	2.3	8.34	3.8	76.9	0.80	15.6	19.6	0.544	0.081	0.105	0.19	NonLiqfble.
	28.81	8	4.3	0.22	95	3409	2108	4.1	2.5	8.48	3.8	76.9	0.80	16.4	20.5	0.545	0.081	0.105	0.19	NonLiqfble.
	28.92	8	4.9	0.23	105	3420	2111	4.7	3.0	7.21	3.6	76.9	0.80	18.7	23.3	0.546	0.081	0.106	0.19	NonLiqfble.
	29.02	8	5.2		105	3430	2116	4.9	3.3	5.74	3.6	76.9	0.80	19.8	24.7	0.546	0.081	0.106	0.19	NonLiqfble.
	29.13 29.24	8	5.4 5.7	0.17 0.16	95 95	3442 3452	2120 2124	5.1 5.4	3.5 3.7	4.62 4.03	3.5 3.4	76.9 76.9	0.80 0.80	20.5 21.6	25.7 27.1	0.547 0.548	0.082 0.082	0.106 0.106	0.19 0.19	NonLiqfble. NonLiqfble.
	29.34	8	7.4	0.17	105	3462	2127	7.0	5.3	3.00	3.2	76.9	0.80	28.1	35.1	0.548	0.084	0.109	0.20	NonLiqfble.
	29.45	8	8.2		105	3473	2132	7.8	6.1	2.94	3.2	76.9	0.80	31.1	38.9	0.549	0.085	0.111	0.20	NonLiqfble.
	29.56	8	7.8		105	3485	2136	7.4	5.7	3.14	3.2	74.0	0.80	29.5	36.9	0.550	0.085	0.110	0.20	NonLiqfble.
	29.66	8	7 6.2		105	3495 3507	2141	6.6	4.9	3.62	3.3	81.0	0.80	26.5	33.1	0.550	0.083	0.108	0.20	NonLiqfble.
	29.77 29.88	8	6.1	0.18 0.17	105 95	3519	2145 2150	5.9 5.8	4.1 4.0	4.05 3.92	3.4 3.4	88.6 88.8	0.80	23.4 23.0	29.3 28.8	0.551 0.551	0.082 0.082	0.107 0.107	0.19 0.19	NonLiqfble. NonLiqfble.
	29.98	8	5.2		95	3528	2153	4.9	3.2	4.95	3.5	101.9	0.80	19.6	24.5	0.552	0.081	0.106	0.19	NonLiqfble.
	30.09	8	6.3	0.18	105	3538	2157	5.9	4.2	3.97	3.4	9.7	0.13	0.9	6.8	0.530	0.080	0.104	0.20	NonLiqfble.
	30.2	8	6.8	0.18	105	3550	2162	6.4	4.6	3.58	3.3	9.7	0.13	0.9	7.3	0.530	0.080	0.104	0.20	NonLiqfble.
	30.3 30.41	8	7.1 7.4	0.2 0.2	105 105	3561 3572	2166 2171	6.7 6.9	4.9 5.2	3.76 3.56	3.3	9.7 9.7	0.13	1.0 1.0	7.6 7.9	0.531 0.531	0.080	0.104 0.104	0.20	NonLiqfble. NonLiqfble.
	30.51	8	7.6		105	3583	2175	7.1	5.3	3.44	3.3	9.7	0.13	1.0	8.2	0.531	0.080	0.104	0.20	NonLiqfble.
	30.62	8	8.4	0.2	105	3594	2179	7.9	6.1	3.03	3.2	9.7	0.13	1.1	9.0	0.533	0.080	0.104	0.20	NonLiqfble.
	30.72	8	7.7	0.2	105	3605	2184	7.2	5.4	3.39	3.2	9.7	0.13	1.0	8.2	0.533	0.080	0.104	0.20	NonLiqfble.
	30.83	8	7.8 8.7	0.22	105	3616	2188	7.3	5.5	3.67	3.3	9.7	0.13	1.0	8.3	0.534	0.080	0.104	0.20	NonLiqfble.
	30.93 31.04	8	10.2	0.26 0.29	105 115	3627 3638	2193 2197	8.1 9.5	6.3 7.6	3.78 3.46	3.2	9.7 9.7	0.13	1.2 1.4	9.3 10.9	0.534 0.535	0.080	0.104 0.104	0.19 0.19	NonLiqfble. NonLiqfble.
	31.14	8	10.8		115	3650	2203	10.1	8.1	3.34	3.1	9.7	0.13	1.4	11.5	0.535	0.080	0.104	0.19	NonLiqfble.
	31.25	8	10.2		115	3662	2208	9.5	7.6	3.47	3.1	9.7	0.13	1.4	10.9	0.536	0.080	0.104	0.19	NonLiqfble.
	31.35	8	9.9		115	3674	2214	9.2	7.3	3.47	3.1	9.7	0.13	1.3	10.5	0.536	0.080	0.104	0.19	NonLiqfble.
	31.46 31.56	8	10.1 10	0.27 0.26	115 115	3687 3698	2219 2225	9.4 9.3	7.4 7.3	3.27 3.19	3.1	9.7 9.7	0.13	1.3 1.3	10.7 10.6	0.536 0.537	0.080	0.104 0.104	0.19 0.19	NonLiqfble. NonLiqfble.
	31.83	8	11	0.27	115	3729	2239	10.2	8.2	2.96	3.1	63.1	0.13	40.7	50.9	0.538	0.080	0.104	0.19	NonLiqfble.
	31.94	8	12.6		115	3742	2245	11.6	9.6	2.61	3.0	57.1	0.80	46.5	58.2	0.538	0.098	0.128	0.24	NonLiqfble.
	32.04	8	12.8		115	3753	2250	11.8	9.7	3.30	3.0	60.6	0.80	47.2	59.0	0.539	0.099	0.129	0.24	NonLiqfble.
	32.15	8	13.3 14		125	3766	2256	12.3	10.1	3.94	3.1	62.7	0.80	49.0	61.3	0.539	0.101	0.132	0.24	NonLiqfble.
	32.22 32.25	8	14.1	0.44 0.44	125 125	3775 3778	2260 2262	12.9 13.0	10.7 10.8	3.63 3.60	3.0	59.9 59.6	0.80	51.5 51.9	64.4 64.9	0.539 0.539	0.105 0.105	0.136 0.137	0.25 0.25	NonLiqfble. NonLiqfble.
	32.29	8	15.9		125	3783	2265	14.6	12.4	3.07	2.9	53.7	0.80	58.5	73.1	0.540	0.116	0.151	0.28	NonLiqfble.
	32.34	8	15.7	0.42	125	3790	2268	14.4	12.2	3.04	2.9	53.9	0.80	57.7	72.1	0.540	0.115	0.149	0.28	NonLiqfble.
	32.37	8	16		125	3793	2270	14.7	12.4	2.91	2.9	52.7	0.80	58.8	73.5	0.540	0.117	0.152	0.28	NonLiqfble.
	32.42 32.53	8	17.5 16.9		125 125	3800 3813	2273 2280	16.1 15.5	13.7 13.1	2.63 2.73	2.9 2.9	49.0 50.5	0.80	64.2 61.9	80.3 77.4	0.540 0.540	0.128 0.123	0.167 0.160	0.31	NonLiqfble. NonLiqfble.
	32.64	8	17		125	3827	2286	15.6	13.1	2.73	2.9	51.8	0.80	62.2	77.8	0.541	0.123	0.161	0.30	NonLiqfble.
	32.74	8	16.5	0.57	125	3840	2293	15.1	12.7	3.91	3.0	57.2	0.80	60.3	75.4	0.541	0.120	0.156	0.29	NonLiqfble.
	32.85	8	20.5		125	3853	2300	18.7	16.1	3.61	2.9	50.5	0.80	74.8	93.5	0.541	0.156	0.203	0.37	NonLiqfble.
	32.96	8	29.3		125	3867	2306	26.7	23.7	2.34	2.6	36.8	0.80	106.8	133.5	0.541	0.301	0.391	0.72	NonLiqfble.
	33.06 33.17	8	28.1 20.3	0.57 0.47	125 125	3880 3893	2313 2320	25.6 18.4	22.6 15.8	2.18 2.56	2.6 2.8	36.7 45.7	0.80	102.3 73.8	127.8 92.2	0.542 0.542	0.274 0.153	0.357 0.199	0.66 0.37	NonLiqfble. NonLiqfble.
	33.27	8	14.8		125	3906	2326	13.4	11.0	3.35	3.0	57.7	0.80	53.7	67.1	0.542	0.108	0.133	0.26	NonLiqfble.
	33.38	8	11.8	0.46	125	3920	2333	10.7	8.4	4.68	3.2	70.6	0.80	42.8	53.4	0.543	0.094	0.122	0.23	NonLiqfble.
	33.48	8	12.7		125	3932	2339	11.5	9.2	5.59	3.2	72.0	0.80	46.0	57.4	0.543	0.098	0.127	0.23	NonLiqfble.
	33.59 33.69	8	17.8 27.7		125 135	3946 3958	2346 2352	16.1 25.0	13.5 21.9	4.87 3.58	3.0 2.8	59.8 44.4	0.80 $0.80$	64.3 100.0	80.4 124.9	0.543 0.543	0.128 0.261	0.167 0.340	0.31 0.63	NonLiqfble. NonLiqfble.
	55.09	8	21.1	0.32	133	2720	2332	25.0	21.9	3.30	2.0		0.80	100.0	124.9	0.343	0.201	0.540	0.03	NonLiquie.

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 **MSF:** 1.30

CPT Number: 6

Depth to Groundwater: 8 feet

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.	**	_	, .	Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	33.8	8	30.4	1.01	135	3973	2360	27.4	24.1	3.55	2.7	42.5	0.80	109.5	136.9	0.544	0.319	0.414	0.76	NonLiqfble.
	33.9	8	29.1	1.05	135	3987	2367	26.2	22.9	3.87	2.8	44.8	0.80	104.7	130.8	0.544	0.288	0.375	0.69	NonLiqfble.
	34.01	8	33	0.97	135	4002	2375	29.6	26.1	3.13	2.7	39.2	0.80	118.5	148.1	0.544	0.382	0.497	0.91	NonLiqfble.
	34.11 34.21	8	34.4 23.8	0.83 0.7	135 125	4015 4029	2383 2390	30.8 21.3	27.2 18.2	2.56 3.21	2.6 2.8	35.7 46.2	0.80	123.3 85.2	154.2 106.5	0.544 0.544	0.421 0.192	0.547 0.250	1.01 0.46	NonLiqfble. NonLiqfble.
	34.32	8	18.1	0.54	125	4042	2397	16.2	13.4	3.36	2.9	53.4	0.80	64.7	80.9	0.545	0.129	0.168	0.31	NonLiqfble.
	34.43	8	13	0.42	125	4056	2404	11.6	9.1	3.83	3.1	64.8	0.80	46.4	58.0	0.545	0.098	0.128	0.23	NonLiqfble.
	34.53	8	12.1	0.36	115	4069	2410	10.8	8.3	3.58	3.1	65.8	0.80	43.1	53.9	0.545	0.095	0.123	0.23	NonLiqfble.
	34.63	8	12	0.34	115	4080	2415	10.7	8.2	3.41	3.1	65.3	0.80	42.7	53.4	0.546	0.094	0.122	0.22	NonLiqfble.
	34.74	8	13.2	0.36	115	4093	2421	11.7	9.2	3.23	3.0	61.5	0.80	47.0	58.7	0.546	0.099	0.128	0.24	NonLiqfble.
	34.84	8	13.4	0.39	125	4104	2426	11.9	9.3	3.44	3.1	62.2	0.80	47.6	59.5	0.546	0.100	0.129	0.24	NonLiqfble.
	34.94	8	14.6	0.41	125	4117	2433	13.0	10.3	3.27	3.0	59.0	0.80	51.8	64.8	0.546	0.105	0.137	0.25	NonLiqfble.
	35.02	8	14.4 13.4	0.41 0.42	125 125	4127 4139	2438 2444	12.8 11.9	10.1 9.3	3.32	3.0	59.7	0.80	51.0	63.8 59.3	0.547	0.104	0.135	0.25	NonLiqfble.
	35.12 35.22	8	12.8	0.42	125	4152	2444	11.3	8.7	3.71 3.92	3.1	63.8 66.3	0.80	47.4 45.3	56.6	0.547 0.547	0.099 0.097	0.129	0.24 0.23	NonLiqfble. NonLiqfble.
	35.33	8	12.9	0.42	125	4165	2457	11.4	8.8	3.88	3.1	66.0	0.80	45.5	56.9	0.547	0.097	0.126	0.23	NonLiqfble.
	35.43	8	12.8	0.41	125	4178	2463	11.3	8.7	3.83	3.1	66.0	0.80	45.1	56.4	0.548	0.097	0.126	0.23	NonLiqfble.
	35.54	8	13.2	0.41	125	4192	2470	11.6	9.0	3.69	3.1	64.5	0.80	46.5	58.1	0.548	0.098	0.128	0.23	NonLiqfble.
	35.64	8	12.7	0.39	115	4204	2476	11.2	8.6	3.68	3.1	65.7	0.80	44.7	55.8	0.548	0.096	0.125	0.23	NonLiqfble.
	35.74	8	12.4	0.38	115	4216	2482	10.9	8.3	3.69	3.1	66.6	0.80	43.6	54.5	0.549	0.095	0.124	0.23	NonLiqfble.
	35.85	8	12.1	0.36	115	4228	2487	10.6	8.0	3.61	3.1	67.0	0.80	42.5	53.1	0.549	0.094	0.122	0.22	NonLiqfble.
	35.96	8	11.6	0.35	115	4241	2493	10.2	7.6	3.69	3.1	68.9	0.80	40.7	50.8	0.549	0.092	0.120	0.22	NonLiqfble.
	36.06	8	11.7	0.34	115	4252	2498	10.2	7.7	3.55	3.1	68.0	0.80	41.0	51.2	0.550	0.092	0.120	0.22	NonLiqfble.
	36.17 36.27	8	11.9 12.1	0.34 0.33	115 115	4265 4277	2504 2509	10.4 10.6	7.8 7.9	3.48 3.31	3.1	67.1 65.8	0.80	41.6 42.3	52.0 52.8	0.550 0.550	0.093 0.094	0.121 0.122	0.22 0.22	NonLiqfble. NonLiqfble.
	36.38	8	11.7	0.33	115	4289	2515	10.0	7.6	3.45	3.1	67.7	0.80	40.8	51.0	0.551	0.094	0.122	0.22	NonLiqfble.
	36.48	8	12	0.33	115	4301	2521	10.5	7.8	3.35	3.1	66.4	0.80	41.8	52.3	0.551	0.093	0.121	0.22	NonLiqfble.
	36.59	8	12.3	0.34	115	4313	2526	10.7	8.0	3.35	3.1	65.7	0.80	42.8	53.5	0.551	0.094	0.123	0.22	NonLiqfble.
	36.7	8	12.8	0.37	115	4326	2532	11.1	8.4	3.48	3.1	65.2	0.80	44.5	55.6	0.552	0.096	0.125	0.23	NonLiqfble.
	36.8	8	13.1	0.43	125	4338	2537	11.4	8.6	3.93	3.1	66.8	0.80	45.5	56.9	0.552	0.097	0.126	0.23	NonLiqfble.
	36.91	8	15.5	0.5	125	4351	2544	13.4	10.5	3.75	3.0	61.0	0.80	53.8	67.2	0.552	0.108	0.141	0.25	NonLiqfble.
	37.01	8	17.9	0.64	125	4364	2551	15.5	12.3	4.07	3.0	58.6	0.80	62.0	77.5	0.553	0.123	0.160	0.29	NonLiqfble.
	37.12 37.22	8	20.3 23.9	0.85 1.12	135 135	4378 4391	2557 2565	17.6 20.6	14.2 16.9	4.69 5.16	3.0	58.0 55.8	0.80	70.3 82.6	87.8 103.2	0.553 0.553	0.143 0.182	0.186 0.237	0.34 0.43	NonLiqfble.
	37.32	8	28.9	1.33	135	4405	2572	24.9	20.8	4.98	2.9	50.9	0.80	99.7	124.7	0.553	0.162	0.237	0.43	NonLiqfble. NonLiqfble.
	37.43	8	36.7	1.49	135	4419	2580	31.6	26.7	4.32	2.8	43.7	0.80	126.5	158.1	0.553	0.447	0.582	1.05	NonLiqfble.
	37.53	8	44.5	1.62	135	4433	2587	38.3	32.7	3.83	2.7	38.4	0.80	153.1	191.4	0.553	0.732	0.952	1.72	NonLiqfble.
	37.64	8	49.5	1.66	135	4448	2595	42.5	36.4	3.51	2.6	35.4	0.80	170.1	212.6	0.553	0.973	1.265	2.29	1
	37.74	8	60.3	1.71	135	4461	2602	51.7	44.6	2.94	2.5	29.9	0.67	103.2	154.9	0.554	0.426	0.553	1.00	Liquefaction
	37.84	8	68.1	1.88	135	4475	2610	58.3	50.5	2.85	2.4	27.9	0.61	91.5	149.8	0.554	0.393	0.510	0.92	Liquefaction
	37.95	8	65.8	2.16	135	4490	2618	56.3	48.5	3.40	2.5	30.7	0.69	122.7	179.0	0.554	0.613	0.797	1.44	
	38.05	8	58.9	2.41	135	4503	2625	50.3	43.1	4.25	2.6	35.6	0.80	201.2	251.5	0.554	1.560	2.027	3.66	NonLiqfble.
	38.15 38.24	8	57 63.7	2.35 2.06	135 135	4517 4529	2632 2639	48.6 54.3	41.6 46.5	4.29 3.35	2.6 2.5	36.3 31.1	0.80 0.70	194.4 124.4	243.1 178.7	0.554 0.554	1.415 0.610	1.840 0.794	3.32 1.43	NonLiqfble.
	38.34	8	51.8	1.77	135	4542	2646	44.1	37.4	3.57	2.6	35.2	0.80	176.2	220.3	0.554	1.074	1.397	2.52	
	38.45	8	37.7	1.52	135	4557	2654	32.0	26.7	4.29	2.8	43.6	0.80	128.1	160.1	0.554	0.462	0.600	1.08	NonLiqfble.
	38.55	8	27.4	1.24	135	4571	2661	23.2	18.9	4.94	2.9	52.7	0.80	93.0	116.2	0.555	0.226	0.294	0.53	NonLiqfble.
	38.65	8	21.6	1.07	135	4584	2668	18.3	14.5	5.54	3.0	60.6	0.80	73.2	91.5	0.555	0.151	0.197	0.35	NonLiqfble.
	38.76	8	20.4	1.27	135	4599	2676	17.3	13.5	7.02	3.1	67.0	0.80	69.0	86.3	0.555	0.140	0.182	0.33	NonLiqfble.
	38.86	8	20.6	1.76	135	4612	2684	17.4	13.6	9.62	3.2	73.8	0.80	69.6	87.0	0.555	0.141	0.184	0.33	NonLiqfble.
	38.96	8	27.2	1.96	135	4626	2691	22.9	18.5	7.88	3.1	62.3	0.80	91.8	114.7	0.555	0.220	0.286	0.52	NonLiqfble.
	39.06	8	100	1.81	135	4639	2698	50.5	42.7	3.14	2.5	31.4	0.70	120.7	171.2	0.555	0.547	0.711	1.28	Liquafortion
	39.16 39.26	8	100 113.9	1.53 1.29	135 125	4653 4666	2705 2713	84.1 95.7	72.2 82.2	1.57 1.16	2.1	17.2 13.4	0.33	40.6 27.6	124.7 123.3	0.555 0.555	0.260 0.254	0.338	0.61 0.60	Liquefaction Liquefaction
	39.36	8	114.2	1.29	125	4679	2719	95.8	82.2	1.15	2.0	13.4	0.22	27.5	123.3	0.556	0.255	0.331	0.60	Liquefaction
	39.46	8	101.9	1.29	125	4691	2725	85.4	73.0	1.30	2.1	15.4	0.28	32.9	118.4	0.556	0.234	0.304	0.55	Liquefaction
	39.56	8	79.9	1.32	135	4704	2732	66.9	56.8	1.70	2.2	20.6	0.42	47.8	114.7	0.556	0.220	0.287	0.52	Liquefaction
	39.66	8	52.9	1.3	135	4717	2739	44.2	36.9	2.57	2.5	30.9	0.69	99.7	144.0	0.556	0.358	0.465	0.84	Liquefaction
	39.76	8	30	1.09	135	4731	2746	25.0	20.1	3.94	2.8	47.6	0.80	100.2	125.2	0.556	0.263	0.342	0.61	NonLiqfble.
	39.86	8	24.2	0.9	135	4744	2753	20.2	15.8	4.12	2.9	53.2	0.80	80.7	100.9	0.556	0.176	0.228	0.41	NonLiqfble.
	39.92	8	20.8	0.77	125	4753	2758	17.3	13.4	4.18	3.0	57.2	0.80	69.3	86.7	0.557	0.141	0.183	0.33	NonLiqfble.

8 19.9 0.64 125 4765 2764 16.6 12.7 3.65 3.0 56.1 0.80 66.2 82.8 0.514 0.133 0.173 0.34 NonLiqble.

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 7

Depth to Groundwater: 8 feet

**EQ Magnitude (M<sub>w</sub>):** 6.5 **PGA (g):** 0.54 **MSF:** 1.30

	Depth	Water Table	Tip Resist.	Sleeve	a	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	•	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	g (PCF)	(PSF)	(PSF)	<b>q</b> elN	Q	F	Ic	(%)	Ксрт	DqciN	(qcIN)es		M7.5	M6.50		Comments
		, ,																		
	0.51	8	370.7	6.26	135	69	69	710.0	######	1.69	1.6	3.6	0.00	0.0	710.0	0.351	33.361	43.369	123.56	Above W.T.
	0.57	8	389.1	6.62	135	77	77	745.2	######	1.70	1.5	3.5	0.00	0.0	745.2	0.351	38.567			Above W.T.
	0.62 0.67	8	382.4 394.6	7.36 6.44	135 135	84 90	84 90	732.4 755.7	9132.6 8720.6	1.92 1.63	1.6 1.5	4.1 3.0	0.00	0.0	732.4 755.7	0.351		47.596 52.288		Above W.T. Above W.T.
	0.72	8	373.2	5.74	135	97	97	714.8	7674.8	1.54	1.5	2.4	0.00	0.0	714.8	0.351	34.039	44.250		Above W.T.
	0.78	8	359.7	5.28	135	105	105	688.9	6828.1	1.47	1.4	1.9	0.00	0.0	688.9	0.351	30.485	39.631	112.91	Above W.T.
	0.84	8	324.4	5.85	135	113	113	621.3	5718.0	1.80	1.5	2.9	0.00	0.0	621.3	0.351	22.383	29.098	82.90	Above W.T.
	0.89 0.95	8	248.3 199.4	5.75 5.49	135 135	120 128	120 128	475.5 381.9	4130.4 3107.3	2.32 2.75	1.6 1.7	4.2 5.4	0.00	0.0 4.0	475.5 385.9	0.351	10.081 5.424	13.106 7.052	37.34 20.09	Above W.T. Above W.T.
	1.01	8	158.4	5.17	135	136	136	303.4	2321.5	3.27	1.7	6.8	0.05	15.6	319.0	0.351	3.098	4.027	11.47	Above W.T.
	1.06	8	131.7	4.85	135	143	143	252.2	1838.9	3.68	1.8	8.1	0.08	22.6	274.9	0.351	2.011	2.614	7.45	Above W.T.
	1.14	8	94	4.41	135	154	154	180.0	1220.1	4.70	1.9	11.1	0.16	35.3	215.3	0.351	1.008	1.310	3.73	Above W.T.
	1.23 1.32	8	62.6 53.5	4.18 3.85	135 135	166 178	166 178	119.9 102.5	752.7 599.2	6.69 7.21	2.1	16.7 18.7	0.31 0.36	54.6 58.9	174.5 161.3	0.351	0.574 0.471	0.746 0.612	2.13 1.74	Above W.T. Above W.T.
	1.42	8	45.7	3.68	135	192	192	87.5	475.6	8.07	2.3	21.4	0.44	68.3	155.8	0.351	0.432	0.562	1.60	Above W.T.
	1.49	8	46.3	3.7	135	201	201	88.7	459.2	8.01	2.3	21.5	0.44	69.8	158.5	0.351	0.450	0.586	1.67	Above W.T.
	1.54	8	53	3.9	135	208	208	101.5	508.6	7.37	2.2	19.8	0.39	66.1	167.6	0.351	0.518	0.673	1.92	Above W.T.
	1.6 1.64	8	58.5 67.1	4.07 4.17	135 135	216 221	216 221	112.0 128.5	540.4 604.9	6.97 6.22	2.2	18.7 16.7	0.37 0.31	64.6 58.3	176.6 186.8	0.351	0.592 0.686	0.770 0.892	2.19 2.54	Above W.T. Above W.T.
	1.68	8	72.9	4.17	135	227	227	139.6	641.6	5.63	2.1	15.2	0.31	52.2	191.8	0.351	0.736	0.892	2.73	Above W.T.
	1.71	8	80	3.99	135	231	231	153.2	691.8	4.99	2.0	13.5	0.23	44.8	198.0	0.351	0.802	1.043	2.97	Above W.T.
	1.75	8	84.5	4.15	135	236	236	161.8	714.0	4.92	2.0	13.2	0.22	45.3	207.1	0.351	0.906	1.178	3.36	Above W.T.
	1.78	8	87.5	4.73	135	240	240	167.6	727.0	5.41	2.0	14.2	0.25	54.8	222.4	0.351	1.102	1.433	4.08	Above W.T.
	1.81 1.85	8	90.3 89.1	4.64 3.91	135 135	244 250	244 250	172.9 170.6	737.8 712.2	5.15 4.39	2.0	13.6 12.0	0.23 0.19	51.4 38.9	224.3 209.6	0.351	1.130 0.936	1.469 1.217	4.19 3.47	Above W.T. Above W.T.
	1.89	8	85.7	3.6	135	255	255	164.1	670.5	4.21	2.0	11.7	0.18	35.8	200.0	0.351	0.824	1.071	3.05	Above W.T.
	1.92	8	83.7	3.66	135	259	259	160.3	644.6	4.38	2.0	12.3	0.19	38.7	199.0	0.351	0.813	1.057	3.01	Above W.T.
	1.95	8	100.8	3.72	135	263	263	193.1	764.5	3.70	1.9	10.0	0.13	29.4	222.5	0.351	1.104	1.435	4.09	Above W.T.
	1.99 2.02	8	92.2 81.4	3.71 3.7	135 135	269 273	269 273	176.6 155.9	685.1 595.7	4.03 4.55	1.9 2.0	11.2 13.0	0.17 0.21	34.9 42.5	211.5 198.4	0.351	0.960 0.806	1.248 1.048	3.56 2.99	Above W.T. Above W.T.
	2.06	8	71.9	3.68	135	278	278	137.7	515.9	5.13	2.1	15.0	0.27	50.3	188.0	0.351	0.698	0.907	2.58	Above W.T.
	2.1	8	66.3	3.62	135	284	284	127.0	466.5	5.47	2.1	16.3	0.30	54.8	181.7	0.351	0.638	0.830	2.36	Above W.T.
	2.15	8	67.9	3.52	135	290	290	130.0	466.7	5.20	2.1	15.7	0.28	51.7	181.7	0.351	0.638	0.830	2.36	Above W.T.
	2.25 2.34	8	61.8 50.5	3.25 2.92	135 135	304 316	304 316	118.4 96.7	405.7 318.6	5.27 5.80	2.1	16.6 19.2	0.31 0.38	52.9 59.2	171.2 155.9	0.351	0.547 0.432	0.711 0.562	2.02 1.60	Above W.T. Above W.T.
	2.44	8	42.2	2.71	135	329	329	80.8	255.1	6.45	2.3	22.2	0.46	68.6	149.4	0.351	0.390	0.507	1.44	Above W.T.
	2.54	8	40.8	2.5	135	343	343	78.1	236.9	6.15	2.3	22.1	0.46	65.6	143.7	0.351	0.356	0.463	1.32	Above W.T.
	2.64	8	40.8	2.45	135	356	356	78.1	227.9	6.03	2.3	22.1	0.46	65.7	143.9	0.351	0.357	0.464	1.32	Above W.T.
	2.74 2.84	8	43.1 42.5	2.42 2.35	135	370 383	370	82.5	231.9	5.64	2.3	21.1 21.2	0.43	61.9	144.5 143.7	0.351	0.360	0.469	1.33	Above W.T.
	2.94	8	39.7	2.15	135 135	397	383 397	81.4 76.0	220.6 199.0	5.55 5.44	2.3	21.2	0.43 0.45	62.3 61.7	137.7	0.351	0.356 0.323	0.462 0.420	1.32 1.20	Above W.T. Above W.T.
	3.03	8	33.3	1.93	135	409	409	63.8	161.7	5.83	2.4	24.5	0.52	69.4	133.1	0.351	0.300	0.389	1.11	Above W.T.
	3.14	8	22.7	1.68	135	424	424	43.5	106.1	7.47	2.5	32.7	0.74	122.8	166.2	0.351	0.507	0.659	1.88	Above W.T.
	3.24	8	16.1	1.44	135	437	437	30.8	72.6	9.07	2.7	40.9	0.80	123.3	154.2	0.351	0.421	0.547	1.56	Above W.T.
	3.34 3.44	8	12.5 8.8	1.26 1.18	135 125	451 464	451 464	23.9 16.9	54.4 36.9	10.27 13.77	2.8	47.5 60.6	0.80 0.80	95.8 67.4	119.7 84.3	0.351	0.240 0.136	0.311 0.176	0.89 0.50	Above W.T. Above W.T.
	3.55	8	7.9	1.15	125	478	478	15.1	32.0	15.01	3.1	65.4	0.80	60.5	75.7	0.351	0.120	0.156	0.45	Above W.T.
	3.65	8	7.5	1.14	125	491	491	14.4	29.6	15.71	3.1	68.1	0.80	57.5	71.8	0.351	0.114	0.149	0.42	Above W.T.
	3.75	8	7.5	1.07	125	503	503	14.4	28.8	14.76	3.1	67.1	0.80	57.5	71.8	0.351	0.114	0.149	0.42	Above W.T.
	3.86 3.96	8 8	7.4 6.8	1 0.94	125 125	517 529	517 529	14.2 12.9	27.6 24.7	14.00 14.38	3.1	66.7 69.7	0.80 0.80	56.7 51.7	70.9 64.7	0.351 0.351	0.113 0.105	0.147 0.137	0.42 0.39	Above W.T. Above W.T.
	4.07	8	8.1	0.87	125	543	543	15.2	28.8	11.11	3.0	60.5	0.80	60.8	76.0	0.351	0.103	0.157	0.39	Above W.T.
	4.17	8	6.5	0.76	125	556	556	12.1	22.4	12.21	3.1	67.9	0.80	48.3	60.3	0.351	0.100	0.131	0.37	Above W.T.
	4.28	8	6	0.73	115	569	569	11.0	20.1	12.77	3.2	71.4	0.80	44.0	55.0	0.351	0.095	0.124	0.35	Above W.T.
	4.38 4.49	8 8	5.7 6.8	0.74 0.7	115 125	581 594	581 594	10.3 12.2	18.6 21.9	13.68 10.76	3.2	74.8 65.4	0.80 0.80	41.4 48.8	51.7 61.1	0.351 0.351	0.093 0.101	0.121 0.132	0.34	Above W.T. Above W.T.
	4.49	8	6.6	0.69	115	606	606	10.7	18.8	12.11	3.2	71.6	0.80	42.7	53.3	0.351	0.101	0.132	0.37	Above W.T.
	4.7	8	4.2	0.71	115	619	619	7.4	12.6	18.25	3.4	92.6	0.80	29.6	36.9	0.351	0.085	0.110	0.31	Above W.T.
	4.81	8	3.1	0.74	105	631	631	5.4	8.8	26.58	3.7	114.6	0.80	21.6	27.0	0.351	0.082	0.106	0.30	Above W.T.
	4 91	8	46	0.77	115	642	642	7.9	13 3	18.00	3.4	90.6	0.80	31.8	39.7	0.351	0.086	0.112	0.32	Above W T

0.81

0.86

115 642

115 655

125 666

642

655

666

7.9

8.9

9.5

13.3

14.9

15.8

18.00

16.62

16.33

3.4

3.4

3.3

90.6

85.5

83.4

0.80

0.80

0.80

31.8

35.6

38.0

39.7

44.5

47.5

0.351

0.351

0.351

0.086 0.112

0.088 0.115

0.090 0.117

0.32

0.33

0.33

Above W.T.

Above W.T.

Above W.T.

4.6 0.77

5.2

5.6

4.91

5.02

Date: September 2005

**CPT Number: 7** 

Depth to Groundwater: 8 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	•	Frict.	g	Stress		Tip	Tip	Ratio		F.C.					-	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(q <sub>c1N</sub> ) <sub>cs</sub>	Ratio	M7.5	M6.50	Safety	Comments
	5.23	8	5.8	0.86	125	680	680	9.7	16.1	15.75	3.3	82.1	0.80	38.9	48.7	0.351	0.091	0.118	0.34	Above W.T.
	5.34	8	6.6	0.83	125	694	694	11.0	18.0	13.27	3.2	74.9	0.80	43.9	54.8	0.351	0.095	0.124	0.35	Above W.T.
	5.44 5.68	8	7 9.2	0.84 0.94	125 125	706 736	706 736	11.5 14.8	18.8 24.0	12.64 10.64	3.2	72.6 63.2	0.80	46.1 59.4	57.6 74.2	0.351	0.098 0.118	0.127 0.153	0.36 0.44	Above W.T. Above W.T.
	5.79	8	9.8	1	125	750	750	15.7	25.1	10.61	3.1	62.2	0.80	62.6	78.3	0.351	0.115	0.162	0.46	Above W.T.
	5.9	8	9.8	1.05	125	764	764	15.5	24.7	11.15	3.1	63.7	0.80	62.1	77.6	0.351	0.123	0.160	0.46	Above W.T.
	6 6.11	8	9.7 10	1.07 1.07	125 125	776 790	776 790	15.2 15.6	24.0 24.3	11.49 11.14	3.1	65.0 64.0	0.80	60.9 62.3	76.2 77.8	0.351	0.121 0.124	0.157 0.161	0.45 0.46	Above W.T. Above W.T.
	6.22	8	9.5	1.04	125	804	804	14.7	22.6	11.43	3.1	66.1	0.80	58.7	73.3	0.351	0.124	0.151	0.43	Above W.T.
	6.33	8	9.7	1	125	817	817	14.8	22.7	10.76	3.1	64.6	0.80	59.4	74.2	0.351	0.118	0.153	0.44	Above W.T.
	6.43	8	8.8	0.96	125	830	830	13.4	20.2	11.45	3.1	68.6	0.80	53.5	66.8	0.351	0.108	0.140	0.40	Above W.T.
	6.54 6.65	8 8	7.7 7.2	0.93	125 125	844 857	844 857	11.6 10.8	17.2 15.8	12.78 13.29	3.2	74.9 78.1	0.80	46.4 43.0	58.0 53.8	0.351 0.351	0.098 0.094	0.128 0.123	0.36	Above W.T. Above W.T.
	6.76	8	6.6	0.87	125	871	871	9.8	14.1	14.11	3.3	82.4	0.80	39.1	48.9	0.351	0.091	0.118	0.34	Above W.T.
	6.86	8	6.6	0.86	125	884	884	9.7	13.9	13.97	3.3	82.5	0.80	38.9	48.6	0.351	0.091	0.118	0.34	Above W.T.
	6.97	8	5.5	0.85	125	897	897	8.0	11.3	16.83	3.4	93.3	0.80	32.1	40.2	0.351	0.086	0.112	0.32	Above W.T.
	7.08 7.19	8 8	4.9 4.9	0.82 0.78	115 115	911 924	911 924	7.1 7.1	9.8 9.6	18.45 17.58	3.5 3.5	100.1 99.1	0.80	28.4 28.2	35.5 35.3	0.351 0.351	0.084 0.084	0.109 0.109	0.31	Above W.T. Above W.T.
	7.3	8	5.3	0.76	115	936	936	7.6	10.3	15.73	3.4	93.9	0.80	30.3	37.9	0.351	0.085	0.111	0.32	Above W.T.
	7.4	8	4.7	0.78	115	948	948	6.7	8.9	18.46	3.5	102.8	0.80	26.7	33.4	0.351	0.083	0.109	0.31	Above W.T.
	7.51	8	4.8	0.8	115	960	960	6.8	9.0	18.52	3.5	102.6	0.80	27.1	33.9	0.351	0.084	0.109	0.31	Above W.T.
	7.62 7.72	8 8	5.4 6.5	0.82 0.84	115 125	973 985	973 985	7.6 9.1	10.1 12.2	16.69 13.98	3.5 3.4	96.2 86.0	0.80	30.3 36.3	37.9 45.3	0.351 0.351	0.085 0.089	0.111 0.115	0.32	Above W.T. Above W.T.
	7.83	8	7	0.84	125	998	998	9.7	13.0	12.92	3.3	82.2	0.80	38.8	48.5	0.351	0.091	0.118	0.34	Above W.T.
	7.94	8	7.2	0.83	125	1012	1012	9.9	13.2	12.40	3.3	80.8	0.80	39.6	49.5	0.351	0.091	0.119	0.34	Above W.T.
	8.04	8	7.3	0.81	125	1025	1018	10.0	13.3	11.93	3.3	79.6	0.80	40.0	50.0	0.353	0.092	0.119	0.34	NonLiqfble.
	8.15 8.26	8	7.6 7	0.79 0.76	125 125	1038 1052	1025 1032	10.4 9.5	13.8 12.5	11.16 11.74	3.3	77.1 80.8	0.80	41.5 38.1	51.9 47.7	0.355 0.358	0.093 0.090	0.121 0.117	0.34 0.33	NonLiqfble. NonLiqfble.
	8.36	8	6.6	0.62	115	1065	1038	9.0	11.7	10.22	3.3	79.2	0.80	35.8	44.8	0.360	0.088	0.115	0.32	NonLiqfble.
	8.47	8	6.1	0.66	115	1077	1044	8.3	10.6	11.87	3.4	85.4	0.80	33.0	41.3	0.362	0.087	0.113	0.31	NonLiqfble.
	8.57	8	4.8 5	0.66	115 115	1089	1049	6.5	8.1	15.51	3.5	100.6	0.80	25.9	32.4	0.364	0.083	0.108	0.30	NonLiqfble.
	8.61 8.71	8	5.9	0.65 0.65	115	1093 1105	1052 1057	6.7 7.9	8.5 10.1	14.60 12.16	3.5 3.4	97.5 87.5	0.80	27.0 31.8	33.7 39.7	0.365 0.367	0.084 0.086	0.109 0.112	0.30	NonLiqfble. NonLiqfble.
	8.81	8	5.9	0.64	115	1116	1062	7.9	10.1	11.98	3.4	87.2	0.80	31.7	39.6	0.369	0.086	0.112	0.30	NonLiqfble.
	8.92	8	5.8	0.62	115	1129	1068	7.8	9.8	11.84	3.4	87.7	0.80	31.1	38.8	0.371	0.085	0.111	0.30	NonLiqfble.
	9.03 9.14	8	6.2 5.4	0.59 0.58	115 115	1142 1154	1074 1079	8.3 7.2	10.5 8.9	10.48 12.03	3.3	82.7 90.7	0.80	33.1 28.8	41.4 36.0	0.373 0.375	0.087 0.084	0.113 0.110	0.30 0.29	NonLiqfble. NonLiqfble.
	9.25	8	4.5	0.58	115	1167	1075	6.0	7.2	14.81	3.5	102.9	0.80	23.9	29.9	0.373	0.084	0.110	0.29	NonLiqfble.
	9.35	8	4.1	0.56	105	1178	1090	5.4	6.4	15.95	3.6	108.7	0.80	21.7	27.2	0.379	0.082	0.106	0.28	NonLiqfble.
	9.46	8	4.1	0.53	105	1190	1095	5.4	6.4	15.12	3.6	107.3	0.80	21.7	27.1	0.381	0.082	0.106	0.28	NonLiqfble.
	9.57 9.68	8	4.2 4.1	0.52 0.5	105 105	1202 1213	1100 1105	5.5 5.4	6.5 6.3	14.45 14.31	3.6 3.6	105.2 106.1	0.80	22.2 21.6	27.7 27.0	0.383 0.386	0.082 0.082	0.107 0.106	0.28 0.28	NonLiqfble. NonLiqfble.
	9.79	8	4	0.49	105	1225	1109	5.3	6.1	14.47	3.6	107.5	0.80	21.0	26.3	0.388	0.082	0.106	0.27	NonLiqfble.
	9.9	8	4.3	0.49	105	1236	1114	5.6	6.6	13.31	3.5	102.6	0.80	22.5	28.2	0.390	0.082	0.107	0.27	NonLiqfble.
	10.01	8	4.2	0.49	105	1248	1119	5.5	6.4	13.70	3.6	104.5	0.80	22.0	27.5	0.384	0.082	0.107	0.28	NonLiqfble.
	10.11 10.22	8	4.6 4.8	0.5 0.54	115 115	1258 1271	1123 1129	6.0 6.3	7.1 7.4	12.59 12.97	3.5 3.5	98.9 98.4	0.80	24.0 25.0	30.0 31.3	0.385 0.387	0.083 0.083	0.107 0.108	0.28	NonLiqfble. NonLiqfble.
	10.33	8	5	0.56	115	1284	1134	6.5	7.7	12.85	3.5	96.9	0.80	26.0	32.5	0.389	0.083	0.108	0.28	NonLiqfble.
	10.44	8	5.3	0.59	115	1296	1140	6.9	8.2	12.68	3.5	94.8	0.80	27.5	34.3	0.391	0.084	0.109	0.28	NonLiqfble.
	10.54 10.65	8 8	5.5 5.5	0.61 0.63	115 115	1308 1320	1145 1151	7.1 7.1	8.5 8.4	12.59 13.02	3.4	93.5 94.6	0.80	28.4 28.4	35.6 35.5	0.393 0.395	0.084 0.084	0.109 0.109	0.28 0.28	NonLiqfble. NonLiqfble.
	10.65	8	5.9	0.63	115	1333	1157	7.6	9.0	12.04	3.4	90.4	0.80	30.4	37.9	0.393	0.085	0.109	0.28	NonLiqfble.
	10.86	8	5.7	0.62	115	1345	1162	7.3	8.6	12.33	3.4	92.3	0.80	29.3	36.6	0.398	0.085	0.110	0.28	NonLiqfble.
	10.97	8	6.1	0.61	115	1357	1168	7.8	9.3	11.25	3.4	87.9	0.80	31.2	39.0	0.400	0.086	0.111	0.28	NonLiqfble.
	11.08 11.19	8	5.4 5.3	0.58 0.56	115 115	1370 1382	1174 1180	6.9 6.8	8.0 7.8	12.30 12.15	3.5	86.6 86.6	0.80 0.80	27.6 27.0	34.5 33.8	0.401 0.403	0.084 0.084	0.109 0.109	0.27 0.27	NonLiqfble. NonLiqfble.
	11.19	8	5.3 5.4	0.54	115	1394	1180	6.9	7.8 7.9	11.48	3.4	86.6	0.80	27.5	34.3	0.405	0.084	0.109	0.27	NonLiqible.
	11.4	8	5.4	0.51	115	1407	1191	6.8	7.9	10.86	3.4	86.6	0.80	27.4	34.2	0.406	0.084	0.109	0.27	NonLiqfble.
	11.51	8	5.2	0.49	115	1419	1196	6.6	7.5	10.91	3.4	86.6	0.80	26.3	32.9	0.408	0.083	0.108	0.27	NonLiqfble.
	11.61 11.72	8	5.3 5.1	0.49 0.49	115 115	1431 1443	1202 1208	6.7 6.4	7.6 7.2	10.69 11.19	3.4	86.6 86.6	0.80 0.80	26.8 25.7	33.4 32.1	0.410 0.411	0.083 0.083	0.109 0.108	0.26 0.26	NonLiqfble. NonLiqfble.
	11.72	8	4.6	0.49	105	1445	1208	5.8	6.4	12.66	3.5	86.6	0.80	23.1	28.9	0.411	0.083	0.108	0.26	NonLiqible.
	11.94	8	5.1	0.49	115	1468	1218	6.4	7.2	11.22	3.5	86.6	0.80	25.6	32.0	0.414	0.083	0.108	0.26	NonLiqfble.

Date: September 2005

**CPT Number: 7** 

Depth to Groundwater: 8 feet

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard **EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

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	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> cin	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es		M7.5	M6.50		Comments
	()	()	(-2-)	(-2-)	()	(-2-)	(= == )	-				(,-,								
	12.04	0	11	0.40	105	1479	1222	5.5	6.0	12.20	26	86.6	0.80	22.0	27.5	0.416	0.002	0.107	0.26	NonLiafhla
	12.04 12.31	8 8	4.4 7	0.49 0.47	105 115	1507	1223 1235	5.5 8.7	6.0 10.1	13.39 7.52	3.6	86.6	0.80	22.0 34.9	27.5 43.6	0.416 0.420	0.082 0.088	0.107 0.114	0.26 0.27	NonLiqfble. NonLiqfble.
	12.41	8	5.8	0.48	115	1519	1240	7.2	8.1	9.52	3.4	86.6	0.80	28.8	36.0	0.421	0.084	0.110	0.26	NonLiqfble.
	12.52	8	6.2	0.5	115	1532	1246	7.7	8.7	9.20	3.3	86.6	0.80	30.7	38.4	0.423	0.085	0.111	0.26	NonLiqfble.
	12.63	8	6.2	0.52	115	1544	1252	7.7	8.7	9.58	3.4	85.8	0.80	30.7	38.3	0.424	0.085	0.111	0.26	NonLiqfble.
	12.74 12.85	8	6.8 6.6	0.54 0.55	115 115	1557 1570	1257 1263	8.4 8.1	9.6 9.2	8.97 9.46	3.3	81.4 83.8	0.80	33.6 32.5	42.0 40.6	0.426 0.427	0.087 0.086	0.113 0.112	0.27 0.26	NonLiqfble. NonLiqfble.
	12.95	8	6.8	0.57	115	1581	1268	8.4	9.5	9.49	3.3	83.0	0.80	33.4	41.8	0.429	0.087	0.113	0.26	NonLiqfble.
	13.06	8	8.2	0.59	125	1594	1274	10.1	11.6	7.97	3.2	73.5	0.80	40.2	50.3	0.430	0.092	0.119	0.28	NonLiqfble.
	13.17	8	8.2	0.61	125	1607	1281	10.0	11.5	8.25	3.2	74.5	0.80	40.1	50.1	0.432	0.092	0.119	0.28	NonLiqfble.
	13.28 13.39	8 8	9.2 8.7	0.6 0.6	125 125	1621 1635	1288 1295	11.2	13.0	7.15	3.1	68.3	0.80	44.9	56.1 52.9	0.433	0.096 0.094	0.125 0.122	0.29	NonLiqfble.
	13.5	8	7.9	0.59	115	1649	1302	10.6 9.6	12.2 10.9	7.61 8.34	3.2	71.3 76.3	0.80	42.3 38.3	47.9	0.434 0.436	0.094	0.122	0.28 0.27	NonLiqfble. NonLiqfble.
	13.61	8	7.4	0.56	115	1661	1308	9.0	10.0	8.52	3.3	78.9	0.80	35.8	44.8	0.437	0.088	0.115	0.26	NonLiqfble.
	13.71	8	7.6	0.53	115	1673	1313	9.2	10.3	7.84	3.2	76.3	0.80	36.7	45.9	0.438	0.089	0.116	0.26	NonLiqfble.
	13.82	8	7.8	0.47	115	1686	1319	9.4	10.5	6.76	3.2	72.4	0.80	37.6	47.0	0.440	0.090	0.117	0.27	NonLiqfble.
	13.93 14.04	8	6.3 5.6	0.42 0.43	115 115	1698 1711	1324 1330	7.6 6.7	8.2 7.1	7.71 9.06	3.3	82.0 90.1	0.80	30.3 26.9	37.9 33.6	0.441 0.442	0.085 0.084	0.111 0.109	0.25 0.25	NonLiqfble. NonLiqfble.
	14.14	8	6.4	0.46	115	1722	1335	7.7	8.3	8.31	3.4	83.6	0.80	30.7	38.3	0.444	0.085	0.109	0.25	NonLiqfble.
	14.25	8	7.5	0.52	115	1735	1341	9.0	9.9	7.84	3.3	77.4	0.80	35.8	44.8	0.445	0.088	0.115	0.26	NonLiqfble.
	14.36	8	8.3	0.55	115	1748	1347	9.9	11.0	7.41	3.2	73.2	0.80	39.6	49.5	0.446	0.091	0.119	0.27	NonLiqfble.
	14.46	8	8.2	0.55	115	1759	1352	9.8	10.8	7.51	3.2	74.0	0.80	39.0	48.8	0.447	0.091	0.118	0.26	NonLiqfble.
	14.57 14.68	8	7.2 7.7	0.57 0.6	115 115	1772 1784	1358 1364	8.5 9.1	9.3 10.0	9.03	3.3	82.4 79.8	0.80	34.2 36.5	42.7 45.6	0.449	0.087 0.089	0.113 0.115	0.25	NonLiqfble.
	14.79	8	8.7	0.63	125	1797	1370	10.3	11.4	8.81 8.08	3.2	74.3	0.80	41.1	51.4	0.450 0.451	0.089	0.113	0.26 0.27	NonLiqfble. NonLiqfble.
	14.89	8	10.1	0.7	125	1810	1376	11.9	13.4	7.61	3.1	69.0	0.80	47.7	59.6	0.452	0.100	0.130	0.29	NonLiqfble.
	15	8	11	0.83	125	1823	1383	12.9	14.6	8.23	3.1	68.6	0.80	51.8	64.7	0.454	0.105	0.137	0.30	NonLiqfble.
	15.11	8	11.6	0.87	125	1837	1390	13.6	15.4	8.15	3.1	67.2	0.80	54.5	68.1	0.455	0.109	0.142	0.31	NonLiqfble.
	15.21 15.32	8	12.4 14.1	0.88 0.86	125 125	1850 1863	1396 1403	14.5 16.5	16.4 18.8	7.67 6.53	3.1	64.3 58.1	0.80	58.1 65.9	72.6 82.4	0.456 0.457	0.116 0.132	0.150 0.172	0.33	NonLiqfble. NonLiqfble.
	15.43	8	12.7	0.82	125	1877	1410	14.8	16.7	6.97	3.1	62.0	0.80	59.2	74.0	0.458	0.132	0.172	0.33	NonLiqfble.
	15.54	8	11.3	0.79	125	1891	1417	13.1	14.6	7.63	3.1	66.9	0.80	52.5	65.7	0.459	0.106	0.138	0.30	NonLiqfble.
	15.64	8	10.8	0.74	125	1903	1423	12.5	13.8	7.51	3.1	67.9	0.80	50.1	62.6	0.460	0.103	0.134	0.29	NonLiqfble.
	15.75	8	10.4	0.71	125	1917	1430	12.0	13.2	7.52	3.1	69.1	0.80	48.1	60.2	0.461	0.100	0.130	0.28	NonLiqfble.
	15.86 15.97	8	10.9 9.8	0.71 0.72	125 125	1931 1945	1437 1443	12.6 11.3	13.8 12.2	7.15 8.16	3.1	66.9 72.8	0.80	50.3 45.1	62.9 56.4	0.462 0.463	0.103 0.097	0.134 0.126	0.29 0.27	NonLiqfble. NonLiqfble.
	16.07	8	9.1	0.72	125	1957	1450	10.5	11.2	8.99	3.3	77.2	0.80	41.8	52.3	0.464	0.093	0.120	0.26	NonLiqfble.
	16.18	8	9.3	0.72	125	1971	1457	10.7	11.4	8.66	3.2	75.9	0.80	42.6	53.3	0.465	0.094	0.122	0.26	NonLiqfble.
	16.29	8	9.6	0.67	125	1985	1464	11.0	11.8	7.78	3.2	72.7	0.80	43.9	54.9	0.466	0.095	0.124	0.27	NonLiqfble.
	16.4	8	8.9	0.74	125	1998	1470	10.2	10.7	9.37	3.3	79.3	0.80	40.6	50.8	0.467	0.092	0.120	0.26	NonLiqfble.
	16.51 16.59	8	9.6 7.8	0.72 0.68	125 125	2012 2022	1477 1482	10.9 8.9	11.6 9.2	8.38 10.02	3.2	74.6 85.3	0.80	43.7 35.5	54.6 44.3	0.468 0.469	0.095 0.088	0.124 0.115	0.26 0.24	NonLiqfble. NonLiqfble.
	16.67	8	11.1	0.65	125	2032	1487	12.6	13.6	6.45	3.1	65.2	0.80	50.4	63.0	0.470	0.103	0.134	0.29	NonLiqfble.
	16.77	8	8.9	0.62	125	2045	1494	10.1	10.5	7.87	3.2	75.8	0.80	40.3	50.4	0.471	0.092	0.119	0.25	NonLiqfble.
	16.88	8	7.4	0.58	115	2058	1500	8.4	8.5	9.10	3.3	85.1	0.80	33.4	41.8	0.472	0.087	0.113	0.24	NonLiqfble.
	16.99	8	6.7 6.5	0.56 0.55	115 115	2071 2084	1506 1512	7.6 7.3	7.5 7.2	9.89 10.08	3.4 3.4	90.7 92.4	0.80	30.2 29.3	37.8 36.6	0.473 0.474	0.085 0.085	0.111 0.110	0.23	NonLiqfble.
	17.1 17.21	8	5.5	0.56	115	2096	1512	5.6	5.2	14.17	3.6	112.3	0.80	22.5	28.1	0.474	0.083	0.110	0.23 0.22	NonLiqfble. NonLiqfble.
	17.31	8	4.6	0.57	115	2108	1523	5.2	4.7	16.08	3.7	119.9	0.80	20.6	25.8	0.476	0.082	0.106	0.22	NonLiqfble.
	17.42	8	4.9	0.58	115	2120	1529	5.5	5.0	15.11	3.7	115.4	0.80	21.9	27.4	0.477	0.082	0.106	0.22	NonLiqfble.
	17.53	8	5.9	0.58	115	2133	1535	6.6	6.3	12.00	3.5	101.3	0.80	26.4	32.9	0.478	0.083	0.108	0.23	NonLiqfble.
	17.64	8	6.4	0.57	115	2146	1540	7.1	6.9	10.70	3.5	95.3	0.80	28.5	35.7	0.479	0.084	0.109	0.23	NonLiqfble.
	17.74 17.85	8	6.1 6.1	0.56 0.55	115 115		1546 1551	6.8 6.8	6.5 6.5	11.15 10.97	3.5 3.5	98.3 98.0	0.80	27.2 27.1	33.9 33.9	0.480 0.481	0.084 0.084	0.109 0.109	0.23 0.23	NonLiqfble. NonLiqfble.
	17.96	8	5.3	0.55	115	2183	1557	5.9	5.4	13.07	3.6	108.6	0.80	23.5	29.4	0.482	0.082	0.107	0.23	NonLiqfble.
	18.06	8	5.4	0.55	115	2194	1563	6.0	5.5	12.78	3.6	107.4	0.80	23.9	29.9	0.483	0.082	0.107	0.22	NonLiqfble.
	18.17	8		0.58	115		1568	6.3	5.9	12.62	3.6	105.0	0.80	25.2	31.5	0.484	0.083	0.108	0.22	NonLiqfble.
	18.28	8		0.61	115	2219	1574	6.6	6.2	12.47	3.5	102.8	0.80	26.5	33.1	0.485	0.083	0.108	0.22	NonLiqfble.
	18.39 18.49	8	6.5 6.5	0.61 0.6	115 115	2232 2243	1580 1585	7.2 7.1	6.8 6.8	11.33 11.16	3.5 3.5	97.2 96.9	0.80	28.6 28.6	35.8 35.7	0.486 0.487	0.084 0.084	0.110 0.110	0.23 0.22	NonLiqfble. NonLiqfble.
	18.6	8		0.59	115	2256	1591	7.1	6.9	10.78	3.5	95.6	0.80	29.0	36.2	0.488	0.084	0.110	0.22	NonLiqfble.
	18.8	8	7.5	0.58	115	2279	1601	8.2	7.9	9.12	3.4	87.1	0.80	32.8	41.0	0.490	0.086	0.112	0.23	NonLiqfble.
	18.89	8	7.3	0.58	115	2289	1606	8.0	7.7	9.42	3.4	88.9	0.80	31.9	39.8	0.490	0.086	0.112	0.23	NonLiqfble.

Date: September 2005

Depth to Groundwater: 8 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30 **CPT Number: 7** 

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.		g	Stress		Tip	Tip	Ratio		F.C.					Stress	•	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	$\mathbf{q}_{\mathrm{clN}}$	Q	F	Ic	(%)	Ксрт	DqcIN	(q <sub>c1N</sub> ) <sub>cs</sub>	Ratio	M7.5	M6.50	Safety	Comments
	18.99	8	7.1	0.58	115	2301	1611	7.7	7.4	9.75	3.4	90.9	0.80	31.0	38.7	0.491	0.085	0.111	0.23	NonLigfble.
	19.1	8	7	0.58	115	2314	1617	7.6	7.2	9.93	3.4	92.0	0.80	30.5	38.1	0.492	0.085	0.111	0.22	NonLiqfble.
	19.21	8	6.6	0.56	115	2326	1623	7.2	6.7	10.30	3.5	95.2	0.80	28.7	35.8	0.493	0.084	0.110	0.22	NonLiqfble.
	19.31	8	7	0.56	115	2338	1628	7.6	7.2	9.60	3.4	91.4	0.80	30.4	38.0	0.494	0.085	0.111	0.22	NonLiqfble.
	19.42	8	7.2 6.5	0.57	115	2350	1634	7.8	7.4	9.46	3.4	90.2	0.80	31.2	39.0	0.495	0.086	0.111	0.22	NonLiqfble.
	19.53 19.64	8	7	0.57 0.58	115 115	2363 2376	1640 1646	7.0 7.6	6.5 7.1	10.72 9.98	3.5 3.4	97.3 92.8	0.80	28.1 30.2	35.1 37.8	0.496 0.497	0.084 0.085	0.109 0.111	0.22	NonLiqfble. NonLiqfble.
	19.75	8	6.3	0.59	115	2388	1651	6.8	6.2	11.56	3.5	100.8	0.80	27.1	33.9	0.497	0.084	0.109	0.22	NonLiqfble.
	19.86	8	6.3	0.58	115	2401	1657	6.8	6.2	11.37	3.5	100.5	0.80	27.1	33.9	0.498	0.084	0.109	0.22	NonLiqfble.
	19.96	8	6.5	0.57	115	2413	1662	7.0	6.4	10.77	3.5	98.0	0.80	27.9	34.9	0.499	0.084	0.109	0.22	NonLiqfble.
	20.07 20.18	8	7 6.6	0.55 0.53	115 115	2425 2438	1668 1674	7.5 7.1	6.9 6.4	9.50 9.85	3.4	92.1 95.4	0.80	30.0 28.2	37.5 35.3	0.490 0.491	0.085 0.084	0.110 0.109	0.23 0.22	NonLiqfble.
	20.18	8	7.1	0.55	115	2450	1680	7.6	7.0	8.51	3.4	89.1	0.80	30.3	37.9	0.491	0.085	0.109	0.22	NonLiqfble. NonLiqfble.
	20.39	8	7	0.5	115	2462	1685	7.5	6.8	8.67	3.4	90.2	0.80	29.8	37.3	0.492	0.085	0.110	0.22	NonLiqfble.
	20.5	8	6.9	0.52	115	2475	1691	7.3	6.7	9.18	3.4	92.3	0.80	29.4	36.7	0.493	0.085	0.110	0.22	NonLiqfble.
	20.61	8	6.6	0.53	115	2487	1697	7.0	6.3	9.90	3.5	96.0	0.80	28.0	35.1	0.494	0.084	0.109	0.22	NonLiqfble.
	20.72	8	6.4	0.51	115	2500	1702	6.8	6.0	9.90	3.5	97.4	0.80	27.1	33.9	0.495	0.084	0.109	0.22	NonLiqfble.
	20.82 20.93	8	6 5.2	0.46 0.41	115 105	2511 2524	1708 1713	6.4 5.5	5.6 4.6	9.70 10.41	3.5 3.6	99.6 107.8	0.80	25.4 22.0	31.8 27.5	0.496 0.496	0.083 0.082	0.108 0.107	0.22 0.21	NonLiqfble. NonLiqfble.
	21.04	8	5.1	0.39	105	2536	1718	5.4	4.5	10.18	3.6	53.0	0.80	21.5	26.9	0.497	0.082	0.106	0.21	NonLiqfble.
	21.14	8	5	0.4	105	2546	1722	5.3	4.3	10.73	3.6	53.0	0.80	21.1	26.4	0.498	0.082	0.106	0.21	NonLiqfble.
	21.25	8	4.4	0.43	105	2558	1727	4.6	3.6	13.78	3.7	53.0	0.80	18.5	23.2	0.499	0.081	0.106	0.21	NonLiqfble.
	21.36	8	4.6	0.45	105	2569	1732	4.8	3.8	13.58	3.7	53.0	0.80	19.3	24.2	0.500	0.081	0.106	0.21	NonLiqfble.
	21.46 21.57	8	4.6 5.2	0.46 0.46	105 115	2580 2591	1736 1741	4.8 5.5	3.8 4.5	13.90 11.78	3.7 3.6	53.0 53.0	0.80 0.80	19.3 21.8	24.2 27.3	0.501 0.502	0.081	0.106 0.106	0.21	NonLiqfble. NonLiqfble.
	21.68	8	4.7	0.40	105	2604	1747	4.9	3.9	13.83	3.7	53.0	0.80	19.7	24.6	0.502	0.082	0.106	0.21	NonLiqfble.
	21.93	8	7	0.5	115	2630	1757	7.3	6.5	8.80	3.4	53.0	0.80	29.2	36.5	0.504	0.085	0.110	0.22	NonLiqfble.
	22.03	8	7.3	0.52	115	2642	1762	7.6	6.8	8.70	3.4	53.0	0.80	30.4	38.0	0.505	0.085	0.111	0.22	NonLiqfble.
	22.14	8	8.3	0.52	115	2654	1768	8.6	7.9	7.46	3.3	53.0	0.80	34.5	43.2	0.506	0.087	0.114	0.22	NonLiqfble.
	22.25 22.35	8	8.5 8.5	0.53 0.56	115 115	2667 2678	1774 1779	8.8 8.8	8.1 8.0	7.40 7.82	3.3	53.0 53.0	0.80 0.80	35.3 35.3	44.1 44.1	0.507 0.507	0.088	0.114 0.114	0.23 0.23	NonLiqfble.
	22.46	8	8.3	0.61	125	2691	1779	8.6	7.8	8.77	3.4	53.0	0.80	34.4	43.0	0.508	0.087	0.114	0.23	NonLiqfble. NonLiqfble.
	22.57	8	9.3	0.66	125	2705	1792	9.6	8.9	8.31	3.3	53.0	0.80	38.5	48.1	0.509	0.090	0.117	0.23	NonLiqfble.
	22.66	8	12	0.72	125	2716	1798	12.4	11.8	6.77	3.2	53.0	0.80	49.5	61.9	0.509	0.102	0.133	0.26	NonLiqfble.
	22.76	8	13.5	0.83	125	2729	1804	13.9	13.4	6.84	3.1	53.0	0.80	55.6	69.5	0.510	0.111	0.145	0.28	NonLiqfble.
	22.87	8	15.3	0.97	125	2742	1811	15.7	15.4	6.96	3.1	53.0	0.80	62.9	78.7	0.510	0.125	0.163	0.32	NonLiqfble.
	22.98 23.09	8	18.6 22.4	1.15 1.33	135 135	2756 2771	1818 1826	19.1 22.9	18.9 23.0	6.68 6.33	3.0 2.9	53.0 53.0	0.80 0.80	76.4 91.8	95.4 114.7	0.511 0.511	0.161 0.220	0.209 0.286	0.41 0.56	NonLiqfble. NonLiqfble.
	23.19	8	26.8	1.45	135	2784	1833	27.4	27.7	5.71	2.8	53.0	0.80	109.6	136.9	0.512	0.319	0.415	0.81	NonLiqfble.
	23.3	8	31.9	1.5	135	2799	1841	32.5	33.1	4.92	2.7	53.0	0.80	130.1	162.7	0.512	0.480	0.624	1.22	NonLiqfble.
	23.4	8	34.8	1.48	135	2813	1848	35.4	36.1	4.43	2.7	53.0	0.80	141.7	177.1	0.513	0.597	0.775	1.51	NonLiqfble.
	23.5	8	35 33.2	1.44	135	2826	1855	35.6	36.2	4.29	2.7	53.0	0.80	142.2	177.8	0.513	0.602	0.783	1.53	NonLiqfble.
	23.61 23.72	8	29.4	1.43 1.49	135 135	2841 2856	1863 1871	33.7 29.7	34.1 29.9	4.50 5.33	2.7 2.8	53.0 53.0	0.80 0.80	134.6 118.9	168.3 148.7	0.514 0.514	0.523 0.386	0.680 0.501	1.32 0.97	NonLiqfble. NonLiqfble.
	23.82	8	25.8	1.5	135	2870	1879	26.0	25.9	6.16	2.9	53.0	0.80	104.2	130.2	0.515	0.285	0.371	0.72	NonLiqfble.
	23.92	8	25.6	1.38	135	2883	1886	25.8	25.6	5.71	2.9	53.0	0.80	103.2	129.0	0.515	0.279	0.363	0.71	NonLiqfble.
	24.02	8	30	1.22	135	2897	1893	30.2	30.2	4.27	2.7	53.0	0.80	120.7	150.8	0.516	0.399	0.519	1.01	NonLiqfble.
	24.13	8	30	1.11	135	2911	1901	30.1	30.0	3.89	2.7	53.0	0.80	120.4	150.5	0.516	0.397	0.516	1.00	NonLiqfble.
	24.24 24.34	8	24.3 17.7	0.98 0.88	135 125	2926 2940	1909 1916	24.3 17.7	23.9 16.9	4.29 5.42	2.8 3.0	53.0 53.0	0.80 0.80	97.3 70.8	121.7 88.5	0.516 0.517	0.248 0.144	0.322 0.188	0.62 0.36	NonLiqfble. NonLiqfble.
	24.44	8	13.8	0.81	125	2952	1923	13.8	12.8	6.57	3.1	53.0	0.80	55.1	68.9	0.517	0.110	0.143	0.28	NonLiqfble.
	24.54	8	9.9	0.75	125	2965	1929	9.9	8.7	8.91	3.3	53.0	0.80	39.5	49.3	0.518	0.091	0.118	0.23	NonLiqfble.
	24.65	8	8.1	0.7	125	2978	1936	8.1	6.8	10.59	3.5	53.0	0.80	32.2	40.3	0.518	0.086	0.112	0.22	NonLiqfble.
	24.75	8	7.5	0.67	125	2991	1942	7.4	6.2	11.16	3.5	53.0	0.80	29.8	37.2	0.519	0.085	0.110	0.21	NonLiqfble.
	24.85 24.96	8	7.5 6.6	0.65 0.6	125 115	3003 3017	1948 1955	7.4 6.5	6.2 5.2	10.84 11.79	3.5 3.6	53.0 53.0	0.80 0.80	29.7 26.1	37.2 32.7	0.519 0.520	0.085 0.083	0.110 0.108	0.21 0.21	NonLiqfble. NonLiqfble.
	25.06	8	6.4	0.53	115	3029	1960	6.3	5.0	10.85	3.6	53.0	0.80	25.3	31.6	0.520	0.083	0.108	0.21	NonLiqfble.
	25.16	8	6.2	0.5	115	3040	1966	6.1	4.8	10.69	3.6	53.0	0.80	24.5	30.6	0.521	0.083	0.107	0.21	NonLiqfble.
	25.41	8	8.3	0.5	115	3069	1979	8.2	6.8	7.39	3.4	53.0	0.80	32.7	40.8	0.523	0.086	0.112	0.21	NonLiqfble.
	25.52	8	8.4	0.52	115	3082	1985	8.3	6.9	7.58	3.4	53.0	0.80	33.0	41.3	0.523	0.087	0.112	0.21	NonLiqfble.
	25.62	8	9.4	0.55	125	3093	1990	9.2	7.9	7.00	3.3	53.0	0.80	36.9	46.1	0.524	0.089	0.116	0.22	NonLiqfble.
	25.72 25.83	8	8.8 9.5	0.55 0.56	115 125	3106 3118	1996 2002	8.6 9.3	7.3 7.9	7.59 7.05	3.3 3.3	53.0 53.0	0.80 0.80	34.5 37.2	43.1 46.5	0.524 0.525	0.087 0.089	0.114 0.116	0.22 0.22	NonLiqfble. NonLiqfble.
	20.00	o	5.5	5.50	123	5110	2002	7.3	1.7	7.05	5.5	55.0	0.00	31.2	-10.5	0.525	0.007	0.110	0.22	. romaquic.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 7

Depth to Groundwater: 8 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(q <sub>c1N</sub> )es	Ratio	M7.5	M6.50	Safety	Comments
	25.93	8	9.7	0.54	125	3131	2008	9.5	8.1	6.64	3.3	53.0	0.80	37.9	47.4	0.525	0.090	0.117	0.22	NonLiqfble.
	26.04	8	9.1	0.51	115	3145	2015	8.9	7.5	6.78	3.3	81.8	0.80	35.5	44.3	0.526	0.088	0.115	0.22	NonLiqfble.
	26.14	8	9	0.48	115	3156	2020	8.8	7.3	6.47	3.3	81.3	0.80	35.0	43.8	0.526	0.088	0.114	0.22	NonLiqfble.
	26.25	8	7.8	0.43	115	3169	2026	7.6	6.1	6.92	3.4	88.1	0.80	30.3	37.9	0.527	0.085	0.111	0.21	NonLiqfble.
	26.36	8	6.6	0.4	115	3181	2032	6.4	4.9	7.99	3.5	98.5	0.80	25.6	32.0	0.528	0.083	0.108	0.20	NonLiqfble.
	26.47	8	5.5		105	3194	2038	5.3	3.8	9.48	3.6	111.6	0.80	21.3	26.7	0.528	0.082	0.106	0.20	NonLiqfble.
	26.57	8	5.2	0.35	105	3204	2042	5.0	3.5	9.73	3.7	115.3	0.80	20.1	25.2	0.529	0.081	0.106	0.20	NonLiqfble.
	26.68	8	5.6	0.34	105	3216	2047	5.4	3.9	8.52	3.6	108.1	0.80	21.7	27.1	0.529	0.082	0.106	0.20	NonLiqfble.
	26.79	8	5.5	0.36	105	3228	2051	5.3	3.8	9.27	3.6	111.4	0.80	21.3	26.6	0.530	0.082	0.106	0.20	NonLiqfble.
	26.9	8	5.2		105	3239	2056	5.0	3.5	11.17	3.7	119.7	0.80	20.1	25.1	0.531	0.081	0.106	0.20	NonLiqfble.
	27.01	8	5.5	0.42	115	3251	2061	5.3	3.8	10.84	3.7	116.0	0.80	21.2	26.5	0.532	0.082	0.106	0.20	NonLiqfble.
	27.11	8	6.3	0.41	115	3262	2066	6.1	4.5	8.78	3.6	103.8	0.80	24.3	30.3	0.532	0.083	0.107	0.20	NonLiqfble.
	27.22	8	6.4	0.41	115	3275	2072	6.2	4.6	8.61	3.5	102.7	0.80	24.6	30.8	0.533	0.083	0.108	0.20	NonLiqfble.
	27.32	8	5.7	0.41	115	3286	2077	5.5	3.9	10.11	3.6	112.7	0.80	21.9	27.4	0.533	0.082	0.106	0.20	NonLiqfble.
	27.43	8	6.9	0.4	115	3299	2083	6.6	5.0	7.62	3.5	96.6	0.80	26.5	33.1	0.534	0.083	0.108	0.20	NonLiqfble.
	27.54	8	7	0.37	115	3312	2089	6.7	5.1	6.92	3.4	93.8	0.80	26.8	33.5	0.534	0.083	0.109	0.20	NonLiqfble.
	27.64	8	6.9	0.35	115	3323	2094	6.6	5.0	6.68	3.4	93.7	0.80	26.4	33.0	0.535	0.083	0.108	0.20	NonLiqfble.
	27.75	8	6.3	0.34	105	3336	2100	6.0	4.4	7.34	3.5	100.1	0.80	24.1	30.1	0.535	0.083	0.107	0.20	NonLiqfble.
	27.86	8	5.8	0.33	105	3347	2104	5.5	3.9	8.00	3.6	106.3	0.80	22.1	27.7	0.536	0.082	0.107	0.20	NonLiqfble.
	27.96	8	5.6	0.32	105	3358	2109	5.3	3.7	8.16	3.6	108.7	0.80	21.3	26.7	0.537	0.082	0.106	0.20	NonLiqfble.
	28.07	8	5.3	0.31	105	3369	2113	5.0	3.4	8.58	3.6	113.0	0.80	20.2	25.2	0.537	0.081	0.106	0.20	NonLiqfble.
	28.18	8	5.2	0.3	105	3381	2118	4.9	3.3	8.55	3.7	114.1	0.80	19.8	24.7	0.538	0.081	0.106	0.20	NonLiqfble.
	28.28	8	5.2	0.27	105	3391	2122	4.9	3.3	7.71	3.6	111.5	0.80	19.8	24.7	0.538	0.081	0.106	0.20	NonLiqfble.
	28.39	8	5.1	0.29	105	3403	2127	4.8	3.2	8.53	3.7	115.4	0.80	19.4	24.2	0.539	0.081	0.106	0.20	NonLiqfble.
	28.49	8	5.4	0.3	105	3413	2131	5.1	3.5	8.12	3.6	111.1	0.80	20.5	25.6	0.540	0.082	0.106	0.20	NonLiqfble.
	28.52	8	5.2	0.3	105	3417	2132	4.9	3.3	8.59	3.7	114.6	0.80	19.7	24.6	0.540	0.081	0.106	0.20	NonLiqfble.
	28.6	8	5.9	0.31	105	3425	2136	5.6	3.9	7.40	3.6	104.3	0.80	22.3	27.9	0.540	0.082	0.107	0.20	NonLiqfble.
	28.7	8	5.6	0.32	105	3436	2140	5.3	3.6	8.24	3.6	109.8	0.80	21.2	26.5	0.541	0.082	0.106	0.20	NonLiqfble.
	28.8	8	6.4	0.33	105	3446	2144	6.0	4.4	7.06	3.5	99.5	0.80	24.2	30.2	0.542	0.083	0.107	0.20	NonLiqfble.
	28.91	8	6.3	0.35	105	3458	2149	5.9	4.3	7.66	3.5	102.4	0.80	23.8	29.7	0.542	0.082	0.107	0.20	NonLiqfble.
	29.01	8	6.8	0.38	115	3468	2153	6.4	4.7	7.50	3.5	98.5	0.80	25.6	32.1	0.543	0.083	0.108	0.20	NonLiqfble.
	29.11	8	7.5	0.42	115	3480	2159	7.1	5.3	7.29	3.4	93.7	0.80	28.3	35.3	0.543	0.084	0.109	0.20	NonLiqfble.
	29.22	8	8.4	0.47	115	3492	2164	7.9	6.1	7.06	3.4	88.5	0.80	31.6	39.5	0.544	0.086	0.111	0.20	NonLigfble.
	29.32	8	9.8		125	3504	2170	9.2	7.4	6.96	3.3	82.6	0.80	36.8	46.0	0.544	0.089	0.116	0.21	NonLiqfble.
	29.42	8	11.5	0.64	125	3516	2176	10.8	9.0	6.57	3.2	76.1	0.80	43.1	53.9	0.545	0.095	0.123	0.23	NonLiqfble.
	29.53	8	12.8	0.68	125	3530	2183	12.0	10.1	6.16	3.2	71.5	0.80	47.9	59.9	0.545	0.100	0.130	0.24	NonLiqfble.
	29.63	8	14.9	0.72	125	3542	2189	13.9	12.0	5.48	3.1	64.8	0.80	55.7	69.7	0.545	0.111	0.145	0.27	NonLigfble.
	29.74	8	15.6	0.72	125	3556	2196	14.6	12.6	6.29	3.1	66.5	0.80	58.3	72.8	0.546	0.116	0.143	0.28	NonLiqfble.
	29.84	8	16.4	1.15	135	3569	2202	15.3	13.3	7.87	3.2	69.9	0.80	61.2	76.5	0.546	0.122	0.151	0.29	NonLiqfble.
	29.95	8	18.9	1.58	135	3584	2210	17.6	15.5	9.24	3.2	69.8	0.80	70.4	88.0	0.546	0.122	0.186	0.23	NonLiqfble.
	30.05	8	25.7	1.85	135	3597	2217	23.9	21.5	7.74	3.0	58.6	0.80	95.5	119.4	0.524	0.238	0.310	0.59	NonLiqfble.
	00.00	o	20.7	1.00	100	3371	4411	40.1	41.0	7.7	5.0	50.0	0.00	10.0	117.4	0.524	0.230	0.510	0.57	ronLiquic.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 8

Depth to Groundwater: 8 feet

**EQ Magnitude (M<sub>w</sub>):** 6.5 **PGA (g):** 0.54 **MSF:** 1.30

Water Tip Sleeve Induced Liquef. Liquef. Factor Total Effective Norm. Corr. Friction Tip Ratio F.C. Depth Table Resist. Frict. Stress Stress Tip Stress Stress Cone (FT) (FT) (TSF) (TSF) (PCF) (PSF) (PSF) QcIN Q (%) KCPT DqcIN (qcIN)cs Ratio M7.5 M6.50 Safety Comments

0.59 0.69	8	129.5 118.6	1.74 1.66	135 135	80 93	80 93	248.0 227.1	3249.4 2544.4	1.34 1.40	1.3 1.4	0.9 1.1	0.00	0.0	248.0 227.1	0.351	1.499 1.170	1.948 1.521	5.55 4.33	Above W.T. Above W.T.
0.8	8	103.2	1.88	135	108	108	197.6	1909.3	1.82	1.5	2.7	0.00	0.0	197.6	0.351	0.798	1.037	2.96	Above W.T.
0.91	8	86.8	2.38	135	123	123	166.2	1411.5	2.74	1.7	5.9	0.02	4.2	170.4	0.351	0.540	0.702	2.00	Above W.T.
1.01	8	71.7	2.36	135	136	136	137.3	1050.3	3.29	1.8	8.0	0.08	12.0	149.3	0.351	0.390	0.507	1.44	Above W.T.
1.12	8	60	2.82	135	151	151	114.9	792.3	4.71	2.0	12.3	0.20	28.0	142.9	0.351	0.351	0.457	1.30	Above W.T.
1.22 1.32	8	52.8 73.7	2.77 2.55	135 135	165 178	165 178	101.1 141.2	639.9 825.8	5.25 3.46	2.1 1.8	14.4 9.1	0.25 0.11	33.7 17.3	134.8 158.5	0.351	0.308 0.450	0.400 0.585	1.14	Above W.T.
1.43	8	73.7	2.07	135	193	193	151.3	817.1	2.62	1.7	6.7	0.11	7.3	158.6	0.351	0.450	0.586	1.67 1.67	Above W.T. Above W.T.
1.53	8	78.1	1.52	135	207	207	149.6	754.9	1.95	1.6	4.7	0.00	0.0	149.6	0.351	0.391	0.509	1.45	Above W.T.
1.63	8	73.9	1.37	135	220	220	141.5	670.4	1.86	1.6	4.7	0.00	0.0	141.5	0.351	0.344	0.447	1.27	Above W.T.
1.85	8	52.6	1.52	135	250	250	100.7	420.0	2.90	1.9	10.0	0.13	15.5	116.2	0.351	0.226	0.294	0.84	Above W.T.
1.92	8	44.7	1.3	135	259	259	85.6	343.8	2.92	1.9	11.0	0.16	16.5	102.1	0.351	0.179	0.233	0.66	Above W.T.
1.95 2.01	8	42.2 31	1.28 1.35	135 135	263 271	263 271	80.8 59.4	319.5 227.4	3.04 4.37	2.0 2.2	11.8 18.0	0.18 0.35	18.0 31.4	98.9 90.8	0.351	0.170 0.150	0.221 0.194	0.63 0.55	Above W.T. Above W.T.
2.12	8	28.3	1.17	135	286	286	54.2	196.7	4.16	2.2	18.4	0.36	30.3	84.5	0.351	0.136	0.177	0.50	Above W.T.
2.22	8	22.6	1.05	135	300	300	43.3	149.8	4.68	2.3	22.2	0.46	36.7	80.0	0.351	0.128	0.166	0.47	Above W.T.
2.32	8	16.9	1.05	135	313	313	32.4	106.9	6.27	2.5	29.8	0.66	63.2	95.5	0.351	0.161	0.209	0.60	Above W.T.
2.42	8	14.1	1.09	125	327	327	27.0	85.3	7.82	2.6	36.1	0.80	108.0	135.0	0.351	0.309	0.402	1.14	Above W.T.
2.51	8	11.2	1.08	125	338	338	21.5	65.3	9.79	2.8	43.8	0.80	85.8	107.3	0.351	0.195	0.253	0.72	Above W.T.
2.62 2.72	8	11.1 12	1.09 1.08	125 125	352 364	352 364	21.3 23.0	62.1 64.9	9.98 9.14	2.8 2.7	44.9 42.6	0.80	85.0 91.9	106.3 114.9	0.351	0.192 0.221	0.249 0.287	0.71 0.82	Above W.T. Above W.T.
2.83	8	10.9	1.08	125	378	378	20.9	56.7	10.08	2.8	46.5	0.80	83.5	104.4	0.351	0.186	0.241	0.69	Above W.T.
2.93	8	11.2	1.08	125	390	390	21.5	56.3	9.81	2.8	46.1	0.80	85.8	107.3	0.351	0.195	0.253	0.72	Above W.T.
3.04	8	10.9	1.06	125	404	404	20.9	52.9	9.91	2.8	47.2	0.80	83.5	104.4	0.351	0.186	0.241	0.69	Above W.T.
3.15	8	11	1.03	125	418	418	21.1	51.6	9.55	2.8	46.9	0.80	84.3	105.3	0.351	0.189	0.245	0.70	Above W.T.
3.25 3.36	8	11.2 11.8	1.02 1.01	125 125	430 444	430 444	21.5 22.6	51.0 52.1	9.29 8.72	2.8 2.8	46.5 45.0	0.80	85.8 90.4	107.3 113.0	0.351	0.195 0.214	0.253 0.278	0.72 0.79	Above W.T. Above W.T.
3.47	8	10	1.01	125	458	458	19.2	42.7	10.34	2.9	51.7	0.80	76.6	95.8	0.351	0.162	0.278	0.79	Above W.T.
3.57	8	10.2	1.02	125	470	470	19.5	42.3	10.24	2.9	51.6	0.80	78.1	97.7	0.351	0.167	0.217	0.62	Above W.T.
3.68	8	10.4	1.03	125	484	484	19.9	41.9	10.14	2.9	51.5	0.80	79.7	99.6	0.351	0.172	0.223	0.64	Above W.T.
3.79	8	13.3	1.06	125	498	498	25.5	52.4	8.12	2.8	43.5	0.80	101.9	127.4	0.351	0.272	0.354	1.01	Above W.T.
3.89	8	15.1	1.1	135	510	510	28.9	58.1	7.41	2.7	40.3	0.80	115.7	144.6	0.351	0.361	0.470	1.34	Above W.T.
4 4.11	8	15.6 14.8	1.11 1.12	135 135	525 540	525 540	29.8 27.9	58.4 53.8	7.24 7.71	2.7 2.7	39.8 42.2	0.80	119.1 111.5	148.9 139.3	0.351	0.387	0.503 0.431	1.43 1.23	Above W.T. Above W.T.
4.21	8	15.3	1.11	135	554	554	28.5	54.2	7.39	2.7	41.3	0.80	113.8	142.3	0.351	0.348	0.452	1.29	Above W.T.
4.47	8	17.8	1.04	135	589	589	32.1	59.4	5.94	2.6	36.2	0.80	128.4	160.5	0.351	0.464	0.604	1.72	Above W.T.
4.57	8	17.6	1.07	135	602	602	31.4	57.4	6.19	2.6	37.4	0.80	125.5	156.9	0.351	0.439	0.571	1.63	Above W.T.
4.68	8	18.4	1.13	135	617	617	32.4	58.6	6.25	2.6	37.2	0.80	129.6	162.0	0.351	0.476	0.618	1.76	Above W.T.
4.79	8	18.3	1.21	135	632	632	31.9	56.9	6.73	2.7	38.9	0.80	127.4	159.3	0.351	0.456	0.592	1.69	Above W.T.
4.89 5	8	18.5 17.3	1.27 1.29	135 135	645 660	645 660	31.9 29.5	56.3 51.4	6.99 7.60	2.7 2.7	39.7 42.6	0.80 0.80	127.4 117.8	159.3 147.3	0.351	0.456 0.377	0.593 0.490	1.69 1.40	Above W.T. Above W.T.
5.11	8	16.3	1.28	135	675	675	27.4	47.3	8.02	2.8	44.9	0.80	109.8	137.2	0.351	0.320	0.416	1.19	Above W.T.
5.21	8	14.7	1.2	135	689	689	24.5	41.7	8.36	2.8	47.8	0.80	98.0	122.5	0.351	0.251	0.327	0.93	Above W.T.
5.32	8	13.7	1.14	125	704	704	22.6	37.9	8.54	2.9	49.8	0.80	90.4	113.0	0.351	0.214	0.278	0.79	Above W.T.
5.42	8	12	1.1	125	716	716	19.6	32.5	9.45	2.9	54.6	0.80	78.5	98.1	0.351	0.168	0.218	0.62	Above W.T.
5.54 5.64	8	12.3 13.1	1.07 1.04	125 125	731 744	731 744	19.9 21.0	32.6 34.2	8.97 8.17	2.9 2.9	53.5 50.7	0.80 0.80	79.6 84.1	99.5 105.1	0.351	0.172 0.188	0.223 0.244	0.64 0.70	Above W.T. Above W.T.
5.75	8	13.1	1.04	125	757	757	20.8	33.6	7.86	2.9	50.7	0.80	83.3	103.1	0.351	0.185	0.244	0.70	Above W.T.
5.86	8	12.3	0.95	125	771	771	19.4	30.9	7.97	2.9	52.1	0.80	77.5	96.9	0.351	0.165	0.214	0.61	Above W.T.
5.97	8	11.4	0.88	125	785	785	17.8	28.0	7.99	2.9	54.0	0.80	71.2	89.0	0.351	0.146	0.189	0.54	Above W.T.
6.07	8	10.5	0.81	125	797	797	16.3	25.3	8.02	3.0	56.1	0.80	65.1	81.4	0.351	0.130	0.169	0.48	Above W.T.
6.18	8	9.5	0.76	125	811	811	14.6	22.4	8.36	3.0	59.4	0.80	58.4	73.0	0.351	0.116	0.151	0.43	Above W.T.
6.29 6.39	8	9 8.9	0.72 0.68	125 125	825 837	825 837	13.7 13.5	20.8 20.3	8.38 8.02	3.0	61.0 60.7	0.80 0.80	54.8 53.8	68.6 67.3	0.351	0.110 0.108	0.143 0.141	0.41 0.40	Above W.T. Above W.T.
6.5	8	8.2	0.66	125	851	851	12.3	18.3	8.49	3.1	64.1	0.80	49.2	61.5	0.351	0.108	0.141	0.40	Above W.T.
6.61	8	7.4	0.64	115	865	865	11.0	16.1	9.19	3.1	68.7	0.80	44.0	55.1	0.351	0.096	0.124	0.35	Above W.T.
6.72	8	6.7	0.62	115	877	877	9.9	14.3	9.90	3.2	73.4	0.80	39.6	49.5	0.351	0.091	0.119	0.34	Above W.T.
6.82	8	6.4	0.61	115	889	889	9.4	13.4	10.24	3.2	75.8	0.80	37.6	47.0	0.351	0.090	0.117	0.33	Above W.T.
6.93	8	6.1 5.7	0.58	115	902	902	8.9	12.5	10.27	3.3	77.5	0.80	35.6	44.4	0.351	0.088	0.115	0.33	Above W.T.
7.04 7.15	8	5.7 6	0.55 0.52	115 115	914 927	914 927	8.2 8.6	11.5 11.9	10.49 9.39	3.3 3.2	80.3 76.6	0.80 0.80	33.0 34.5	41.2 43.1	0.351	0.087 0.087	0.112 0.114	0.32 0.32	Above W.T. Above W.T.
7.10	o	U	0.02	. 13	121	741	0.0	11.7	1.31	5.2	, 5.0	0.00	54.5	7.7.1	0.551	0.007	0.117	0.52	110010 11.11.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 8

Depth to Groundwater: 8 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

PGA (g): 0.54 MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	-	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	•		of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qclN)cs	Ratio	M7.5	M6.50	Safety	Comments
	7.25	8	5.6	0.51	115	938	938	8.0	10.9	9.94	3.3	80.3	0.80	32.0	40.0	0.351	0.086	0.112	0.32	Above W.T.
	7.36	8	5.8	0.5	115	951	951	8.2	11.2	9.39	3.3	78.3	0.80	32.9	41.1	0.351	0.086	0.112	0.32	Above W.T.
	7.47	8	5.2	0.5	115	964	964	7.3	9.8	10.60	3.3	84.9	0.80	29.3	36.6	0.351	0.085	0.110	0.31	Above W.T.
	7.58 7.68	8	5.2 5.2	0.5 0.48	115 115	976 988	976 988	7.3 7.2	9.6 9.5	10.61 10.20	3.3	85.3 84.7	0.80	29.1 29.0	36.4 36.2	0.351 0.351	0.084 0.084	0.110 0.110	0.31	Above W.T. Above W.T.
	7.79	8	4.7	0.48	105	1000	1000	6.5	8.4	11.43	3.4	91.2	0.80	26.0	32.5	0.351	0.083	0.110	0.31	Above W.T.
	7.9	8	4.7	0.47	105	1012	1012	6.5	8.3	11.21	3.4	91.0	0.80	25.9	32.3	0.351	0.083	0.108	0.31	Above W.T.
	8	8	4	0.44	105	1023	1023	5.5	6.8	12.61	3.5	100.1	0.80	21.9	27.4	0.351	0.082	0.106	0.30	NonLiqfble.
	8.09	8	4.5 4.5	0.42	105	1032	1026	6.1	7.8	10.54	3.4	91.4	0.80	24.6	30.7	0.353	0.083	0.108	0.30	NonLiqfble.
	8.2 8.3	8	4.5 4	0.38 0.35	105 105	1044 1054	1031 1035	6.1 5.4	7.7 6.7	9.55 10.08	3.4	89.1 94.6	0.80	24.5 21.8	30.7 27.2	0.355 0.357	0.083 0.082	0.107 0.106	0.30	NonLiqfble. NonLiqfble.
	8.41	8	4.3	0.32	105	1066	1040	5.8	7.2	8.49	3.4	88.0	0.80	23.3	29.2	0.360	0.082	0.107	0.30	NonLiqfble.
	8.52	8	3.7	0.22	95	1077	1045	5.0	6.0	6.96	3.4	88.7	0.80	20.0	25.0	0.362	0.081	0.106	0.29	NonLiqfble.
	8.63	8	3.6	0.21	95	1088	1048	4.9	5.8	6.87	3.4	89.5	0.80	19.5	24.3	0.364	0.081	0.106	0.29	NonLiqfble.
	8.73	8	3.9	0.21	95	1097	1051	5.3	6.4	6.27	3.3	84.7	0.80	21.0	26.3	0.366	0.082	0.106	0.29	NonLiqfble.
	8.8 8.91	8	5.4 4.9	0.22 0.23	105 105	1104 1115	1054 1058	7.3 6.6	9.2 8.2	4.54 5.30	3.1	67.8 73.9	0.80	29.1 26.4	36.4 32.9	0.368 0.370	0.084	0.110 0.108	0.30	NonLiqfble. NonLiqfble.
	9.02	8	5.5	0.24	105	1127	1063	7.4	9.3	4.86	3.1	68.9	0.80	29.5	36.9	0.372	0.085	0.110	0.30	NonLiqfble.
	9.13	8	5.7	0.27	105	1138	1068	7.6	9.6	5.26	3.2	69.6	0.80	30.5	38.2	0.374	0.085	0.111	0.30	NonLiqfble.
	9.24	8	5.9	0.3	105	1150	1073	7.9	9.9	5.63	3.2	70.1	0.80	31.5	39.4	0.376	0.086	0.111	0.30	NonLiqfble.
	9.34 9.45	8	5.4 5.3	0.31 0.31	105 105	1160 1172	1077 1081	7.2 7.1	8.9 8.7	6.43 6.58	3.2	75.6 76.8	0.80	28.8 28.2	36.0 35.3	0.378 0.380	0.084 0.084	0.110 0.109	0.29	NonLiqfble. NonLiqfble.
	9.45	8	5.9	0.31	105	1172	1086	7.1	9.8	5.84	3.2	71.3	0.80	31.3	39.2	0.382	0.086	0.109	0.29	NonLiqfble.
	9.67	8	5.5	0.3	105	1195	1091	7.3	9.0	6.12	3.2	74.5	0.80	29.1	36.4	0.385	0.084	0.110	0.29	NonLiqfble.
	9.78	8	6.1	0.31	105	1207	1096	8.1	10.0	5.64	3.2	69.9	0.80	32.3	40.3	0.387	0.086	0.112	0.29	NonLiqfble.
	9.89	8	7.1	0.31	115	1218	1100	9.4	11.8	4.78	3.1	62.6	0.80	37.5	46.8	0.389	0.090	0.116	0.30	NonLiqfble.
	10 10.1	8 8	6.9 7.3	0.32 0.32	115 115	1231 1242	1106 1111	9.1 9.6	11.4 12.0	5.09 4.79	3.1	64.7 62.2	0.80	36.3 38.3	45.4 47.9	0.383 0.385	0.089	0.115 0.117	0.30	NonLiqfble. NonLiqfble.
	10.21	8	6.9	0.32	115	1255	1117	9.0	11.2	5.10	3.1	65.0	0.80	36.1	45.2	0.386	0.090	0.117	0.31	NonLiqfble.
	10.32	8	7.6	0.32	115	1268	1123	9.9	12.4	4.59	3.0	60.6	0.80	39.7	49.6	0.388	0.091	0.119	0.31	NonLiqfble.
	10.43	8	7.8	0.33	115	1280	1129	10.2	12.7	4.61	3.0	60.2	0.80	40.6	50.8	0.390	0.092	0.120	0.31	NonLiqfble.
	10.54	8	7.5	0.32	115	1293	1134	9.7	12.1	4.67	3.0	61.6	0.80	39.0	48.7	0.392	0.091	0.118	0.30	NonLiqfble.
	10.65 10.75	8	6.9 6.9	0.31 0.29	105 105	1306 1316	1140 1144	8.9 8.9	11.0 10.9	4.96 4.65	3.1	65.1 63.9	0.80	35.8 35.7	44.7 44.6	0.394 0.396	0.088	0.115 0.115	0.29	NonLiqfble. NonLiqfble.
	10.75	8	6.8	0.28	105	1328	1149	8.8	10.7	4.56	3.1	64.1	0.80	35.1	43.9	0.397	0.088	0.113	0.29	NonLiqfble.
	10.97	8	6.5	0.29	105	1339	1154	8.4	10.1	4.97	3.1	67.2	0.80	33.5	41.9	0.399	0.087	0.113	0.28	NonLiqfble.
	11.08	8	6.4	0.31	105	1351	1159	8.2	9.9	5.42	3.2	69.4	0.80	32.9	41.1	0.401	0.086	0.112	0.28	NonLiqfble.
	11.18	8	5.6	0.32	105	1361	1163	7.2	8.5	6.51	3.3	77.4	0.80	28.7	35.9	0.403	0.084	0.110	0.27	NonLiqfble.
	11.29 11.4	8	6.6 8.1	0.33	105 115	1373 1384	1167 1172	8.5 10.4	10.1 12.6	5.58 4.45	3.2	69.4 59.6	0.80 0.80	33.8 41.4	42.3 51.8	0.404 0.406	0.087 0.093	0.113 0.121	0.28	NonLiqfble. NonLiqfble.
	11.51	8	9.4	0.35	115	1397	1178	12.0	14.8	4.02	2.9	54.3	0.80	47.9	59.9	0.408	0.100	0.130	0.32	NonLiqfble.
	11.62	8	10.5	0.4	115	1410	1184	13.4	16.5	4.08	2.9	52.1	0.80	53.4	66.8	0.410	0.108	0.140	0.34	NonLiqfble.
	11.72	8	10.5	0.37	115	1421	1189	13.3	16.5	3.78	2.9	50.9	0.80	53.3	66.6	0.411	0.107	0.140	0.34	NonLiqfble.
	11.82 11.93	8 8	11.1 11.4	0.49 0.55	125 125	1433 1446	1194 1201	14.1 14.4	17.4 17.8	4.72 5.15	2.9 2.9	53.6 54.7	0.80 0.80	56.2 57.6	70.3 72.0	0.413 0.414	0.112 0.115	0.146 0.149	0.35	NonLiqfble.
	12.02	8	8.4	0.55	115	1458	1201	10.6	12.7	7.17	3.1	69.0	0.80	42.3	52.9	0.414	0.113	0.149	0.30	NonLiqfble. NonLiqfble.
	12.15	8	11.7	0.54	125	1473	1214	14.7	18.1	4.93	2.9	53.6	0.80	58.8	73.5	0.417	0.117	0.152	0.36	NonLiqfble.
	12.26	8	11.7	0.55	125	1486	1220	14.7	17.9	5.02	2.9	54.1	0.80	58.6	73.3	0.419	0.117	0.152	0.36	NonLiqfble.
	12.37	8	10.3	0.55	125	1500	1227	12.9	15.6	5.76	3.0	59.7	0.80	51.5	64.3	0.420	0.105	0.136	0.32	NonLiqfble.
	12.48 12.59	8 8	9.5 9.8	0.54 0.52	125 125	1514 1528	1234 1241	11.8 12.2	14.2 14.6	6.18 5.75	3.1	63.3 61.2	0.80 0.80	47.3 48.7	59.2 60.9	0.422 0.423	0.099 0.101	0.129 0.131	0.31	NonLiqfble. NonLiqfble.
	12.7	8	9.8	0.52	125	1541	1248	12.1	14.5	5.65	3.0	61.0	0.80	48.6	60.7	0.425	0.101	0.131	0.31	NonLiqfble.
	12.8	8	9.4	0.51	115	1554	1254	11.6	13.7	5.91	3.1	63.1	0.80	46.5	58.1	0.426	0.098	0.128	0.30	NonLiqfble.
	12.91	8	9.5	0.5	115	1566	1260	11.7	13.8	5.74	3.1	62.3	0.80	46.8	58.5	0.428	0.099	0.128	0.30	NonLiqfble.
	13.02	8	8.6	0.48	115	1579	1266	10.6	12.3	6.15	3.1	66.5	0.80	42.3	52.9	0.429	0.094	0.122	0.28	NonLiqfble.
	13.13 13.24	8	8.4 7.7	0.44 0.42	115 115	1592 1604	1272 1277	10.3 9.4	12.0 10.8	5.79 6.09	3.1	66.0 69.6	0.80	41.2 37.7	51.5 47.1	0.431 0.432	0.093	0.121 0.117	0.28 0.27	NonLiqfble. NonLiqfble.
	13.35	8	7.1	0.39	115	1617	1283	8.7	9.8	6.20	3.2	72.4	0.80	34.7	43.4	0.433	0.090	0.117	0.26	NonLiqfble.
	13.46	8	5.8	0.37	105	1630	1289	7.1	7.7	7.42	3.3	82.9	0.80	28.3	35.3	0.435	0.084	0.109	0.25	NonLiqfble.
	13.56	8	5.7	0.36	105	1640	1293	6.9	7.5	7.38	3.3	83.5	0.80	27.7	34.7	0.436	0.084	0.109	0.25	NonLiqfble.
	13.67	8	5 5 4	0.36	105	1652	1298	6.1	6.4	8.63	3.4	92.0	0.80	24.3	30.4	0.438	0.083	0.107	0.25	NonLiqfble.
	13.78 13.89	8	5.4 5.7	0.37 0.4	105 115	1663 1675	1303 1307	6.5 6.9	7.0 7.4	8.10 8.23	3.4 3.4	87.8 86.5	0.80	26.2 27.6	32.7 34.5	0.439 0.441	0.083 0.084	0.108 0.109	0.25 0.25	NonLiqfble. NonLiqfble.
	. 5.55	0	0.7	0.4	113	1010	1507	0.7		0.20	υ.¬	00.0	0.00	20	55	J+1	0.004	0.107	0.23	o

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 8

Depth to Groundwater: 8 feet

EQ Magnitude  $(M_w)$ : 6.5 PGA (g): 0.54

	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es		M7.5	M6.50		Comments
			, /	( /	( - )	, , ,	( )	-				()			-					
	10.00	0	<b>.</b>	0.40	445	1606	1212	7.1		0.21	2.4	05.7	0.00	20.5	25.6	0.442	0.004	0.100	0.25	N. T. 01
	13.99 14.1	8 8	5.9 8.1	0.42 0.46	115 115	1686 1699	1313 1318	7.1 9.8	7.7 11.0	8.31 6.34	3.4	85.7 70.0	0.80	28.5 39.0	35.6 48.8	0.442 0.443	0.084	0.109 0.118	0.25 0.27	NonLiqfble. NonLiqfble.
	14.21	8	10	0.52	125	1712	1324	12.0	13.8	5.69	3.1	62.2	0.80	48.1	60.1	0.445	0.100	0.130	0.29	NonLiqfble.
	14.32	8	9.5	0.58	125	1725	1331	11.4	13.0	6.72	3.1	67.1	0.80	45.6	57.0	0.446	0.097	0.126	0.28	NonLiqfble.
	14.42	8	9.8	0.6	125	1738	1337	11.7	13.4	6.72	3.1	66.4	0.80	46.9	58.6	0.447	0.099	0.128	0.29	NonLiqfble.
	14.53 14.64	8	10.5 10.7	0.57 0.53	125 125	1752 1765	1344 1351	12.5 12.7	14.3 14.5	5.92 5.40	3.1	62.2 60.0	0.80	50.1 50.9	62.7 63.7	0.448 0.449	0.103 0.104	0.134 0.135	0.30 0.30	NonLiqfble.
	14.74	8	12.7	0.55	125	1778	1357	15.1	17.4	4.23	2.9	51.7	0.80	60.3	75.4	0.449	0.104	0.156	0.35	NonLiqfble. NonLiqfble.
	14.85	8	11	0.49	125	1792	1364	13.0	14.8	4.85	3.0	57.6	0.80	52.1	65.2	0.452	0.106	0.137	0.30	NonLiqfble.
	14.96	8	11.5	0.5	125	1805	1371	13.6	15.5	4.72	3.0	56.1	0.80	54.4	67.9	0.453	0.109	0.142	0.31	NonLiqfble.
	15.07	8	10.5	0.54	125	1819	1378	12.4	13.9	5.63	3.0	61.8	0.80	49.5	61.9	0.454	0.102	0.133	0.29	NonLiqfble.
	15.18 15.28	8	10.3 10.6	0.5 0.47	125 115	1833 1845	1385 1391	12.1 12.4	13.5 13.9	5.33 4.86	3.0	61.4 59.0	0.80 0.80	48.4 49.7	60.6 62.2	0.455 0.456	0.101 0.102	0.131 0.133	0.29	NonLiqfble. NonLiqfble.
	15.36	8	11	0.45	115	1855	1395	12.9	14.4	4.47	3.0	56.7	0.80	51.5	64.4	0.457	0.102	0.136	0.30	NonLiqfble.
	15.47	8	10.6	0.45	115	1867	1401	12.4	13.8	4.66	3.0	58.4	0.80	49.6	62.0	0.458	0.102	0.133	0.29	NonLiqfble.
	15.58	8	10	0.47	115	1880	1407	11.7	12.9	5.19	3.1	62.1	0.80	46.7	58.3	0.460	0.098	0.128	0.28	NonLiqfble.
	15.68	8	10.2	0.48	115	1891	1412	11.9	13.1	5.19	3.0	61.6	0.80	47.5	59.4	0.461	0.099	0.129	0.28	NonLiqfble.
	15.79 15.9	8	10.5 9.9	0.5 0.49	125 115	1904 1918	1418 1425	12.2 11.5	13.5 12.5	5.24 5.48	3.0	61.2 63.7	0.80	48.8 45.9	61.0 57.4	0.462 0.463	0.101 0.098	0.131 0.127	0.28 0.27	NonLiqfble. NonLiqfble.
	16.01	8	9.4	0.47	115	1930	1431	10.9	11.8	5.57	3.1	65.6	0.80	43.5	54.4	0.464	0.095	0.123	0.27	NonLiqfble.
	16.12	8	9.4	0.43	115	1943	1436	10.9	11.7	5.10	3.1	64.0	0.80	43.4	54.3	0.465	0.095	0.123	0.27	NonLiqfble.
	16.22	8	8.9	0.41	115	1955	1442	10.3	11.0	5.18	3.1	65.8	0.80	41.0	51.3	0.466	0.093	0.120	0.26	NonLiqfble.
	16.33	8	9	0.42	115	1967	1447	10.4	11.1	5.24	3.1	65.9	0.80	41.4	51.8	0.468	0.093	0.121	0.26	NonLiqfble.
	16.44 16.55	8	7.7 7.5	0.44 0.43	115 115	1980 1993	1453 1459	8.8 8.6	9.2 8.9	6.56 6.61	3.2	75.2 76.4	0.80	35.4 34.4	44.2 43.0	0.469 0.470	0.088 0.087	0.114 0.114	0.24	NonLiqfble. NonLiqfble.
	16.66	8	7.5	0.42	115	2005	1465	8.6	8.9	6.46	3.2	76.0	0.80	34.3	42.9	0.471	0.087	0.114	0.24	NonLiqfble.
	16.77	8	7.9	0.4	115	2018	1471	9.0	9.4	5.80	3.2	72.2	0.80	36.1	45.1	0.472	0.089	0.115	0.24	NonLiqfble.
	16.88	8	6.9	0.37	115	2031	1476	7.9	8.0	6.29	3.3	78.3	0.80	31.4	39.3	0.473	0.086	0.111	0.24	NonLiqfble.
	16.99 17.09	8	7.7 5.9	0.34 0.32	115 105	2043 2055	1482 1487	8.8 6.7	9.0 6.5	5.09 6.57	3.2	70.6 84.9	0.80	35.0 26.8	43.8 33.5	0.474 0.475	0.088	0.114 0.109	0.24 0.23	NonLiqfble.
	17.09	8	5.4	0.32	105	2066	1492	6.1	5.9	6.64	3.4	88.6	0.80	24.5	30.6	0.476	0.083	0.109	0.23	NonLiqfble. NonLiqfble.
	17.31	8	6.1	0.29	105	2078	1497	6.9	6.8	5.73	3.3	81.0	0.80	27.6	34.5	0.477	0.084	0.109	0.23	NonLiqfble.
	17.41	8	7	0.3	105	2088	1501	7.9	7.9	5.04	3.2	73.8	0.80	31.6	39.5	0.479	0.086	0.111	0.23	NonLiqfble.
	17.54	8	7.9	0.31	115	2102	1507	8.9	9.1	4.53	3.1	68.0	0.80	35.6	44.5	0.480	0.088	0.115	0.24	NonLiqfble.
	17.64 17.74	8	8.4 7.8	0.32 0.31	115 115	2113 2125	1512 1517	9.5 8.8	9.7 8.9	4.36 4.60	3.1	65.6 69.0	0.80	37.8 35.0	47.3 43.8	0.481 0.482	0.090 0.088	0.117 0.114	0.24 0.24	NonLiqfble. NonLiqfble.
	17.85	8	8.1	0.32	115	2138	1523	9.1	9.2	4.55	3.1	67.7	0.80	36.3	45.4	0.483	0.089	0.115	0.24	NonLiqfble.
	17.95	8	8	0.33	115	2149	1528	9.0	9.1	4.77	3.1	69.1	0.80	35.8	44.8	0.484	0.088	0.115	0.24	NonLiqfble.
	18.06	8	8.6	0.33	115	2162	1534	9.6	9.8	4.39	3.1	65.5	0.80	38.4	48.0	0.485	0.090	0.117	0.24	NonLiqfble.
	18.16	8	10	0.34	115	2173	1539	11.2	11.6	3.81	3.0	58.9	0.80	44.6	55.8	0.486	0.096	0.125	0.26	NonLiqfble.
	18.27 18.37	8	10.5 10.4	0.36 0.37	115 115	2186 2197	1545 1550	11.7 11.6	12.2 12.0	3.83 3.98	3.0	57.8 58.8	0.80	46.8 46.2	58.4 57.8	0.487 0.488	0.099 0.098	0.128 0.127	0.26 0.26	NonLiqfble. NonLiqfble.
	18.48	8	10.4	0.39	115	2210	1556	11.5	11.9	4.20	3.0	59.9	0.80	46.1	57.7	0.489	0.098	0.127	0.26	NonLiqfble.
	18.74	8	10.1	0.43	115	2240	1570	11.2	11.4	4.79	3.1	63.4	0.80	44.6	55.8	0.491	0.096	0.125	0.25	NonLiqfble.
	18.84	8	10.7	0.43	115	2251	1575	11.8	12.2	4.49	3.0	60.7	0.80	47.2	59.0	0.492	0.099	0.129	0.26	NonLiqfble.
	18.95 19.05	8	9.5 9.3	0.43 0.41	115 115	2264 2276	1581 1586	10.5 10.2	10.6 10.3	5.14 5.02	3.1	66.6 66.9	0.80	41.8 40.9	52.3 51.1	0.493 0.494	0.093	0.121 0.120	0.25 0.24	NonLiqfble.
	19.05	8	9.3 8.5	0.41	115	2288	1592	9.3	9.2	5.02	3.1	70.2	0.80	37.3	46.6	0.494	0.092	0.120	0.24	NonLiqfble. NonLiqfble.
	19.26	8	7.8	0.35	115	2300	1597	8.5	8.3	5.26	3.2	73.4	0.80	34.2	42.7	0.495	0.087	0.113	0.23	NonLiqfble.
	19.37	8	7.7	0.33	115	2312	1603	8.4	8.2	5.04	3.2	73.0	0.80	33.7	42.1	0.496	0.087	0.113	0.23	NonLiqfble.
	19.47	8	7.2	0.32	115	2324	1608	7.9	7.5	5.30	3.2	76.3	0.80	31.4	39.3	0.497	0.086	0.111	0.22	NonLiqfble.
	19.58 19.69	8	7.5 8	0.32 0.34	115 115	2337 2349	1614 1620	8.2 8.7	7.8 8.4	5.05	3.2	74.1 71.9	0.80	32.7 34.8	40.8 43.5	0.498 0.499	0.086	0.112 0.114	0.23 0.23	NonLiqfble. NonLiqfble.
	19.69	8	8.5	0.35	115	2361	1625	9.2	9.0	4.98 4.78	3.2	69.3	0.80	36.9	46.1	0.499	0.088	0.114	0.23	NonLiqible. NonLiqfble.
	19.9	8	9.7	0.45	115	2373	1631	10.5	10.4	5.29	3.1	67.5	0.80	42.0	52.5	0.501	0.093	0.122	0.24	NonLiqfble.
	20	8	11.8	0.93	125	2385	1636	12.8	13.0	8.77	3.2	72.9	0.80	51.1	63.8	0.491	0.104	0.135	0.28	NonLiqfble.
	20.1	8	15.1	1.61	135	2397	1642	16.3	16.9	11.58	3.2	73.0	0.80	65.2	81.5	0.492	0.130	0.169	0.34	NonLiqfble.
	20.13 20.16	8	19.2 22.1	1.74 1.89	135 135	2401 2405	1644 1647	20.7 23.8	21.9 25.4	9.67 9.04	3.1	63.0 58.5	0.80	82.9 95.3	103.6 119.1	0.492 0.492	0.183 0.237	0.238 0.308	0.48 0.63	NonLiqfble. NonLiqfble.
	20.10	8	37.7	2.44	135	2416	1652	40.6	44.1	6.69	2.7	42.7	0.80	162.3	202.9	0.492	0.257	1.114	2.26	NonLiqfble.
	20.31	8	47.9	2.92	135	2426	1658	51.5	56.3	6.25	2.6	37.8	0.80	205.9	257.4	0.493	1.666	2.166	4.39	NonLiqfble.
	20.37	8	52.4	3.22	135	2434	1662	56.2	61.6	6.29	2.6	36.7	0.80	225.0	281.2	0.493	2.148	2.792	5.66	NonLiqfble.
	20.47	8	58.6	3.41	135	2447	1669	62.8	68.7	5.94	2.6	34.3	0.78	224.1	286.9	0.494	2.276	2.959	5.99	

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 8

Depth to Groundwater: 8 feet

**EQ** Magnitude (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 **MSF:** 1.30

	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
one	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	q <sub>c1N</sub>	Q	F	Ic	(%)	Ксрт	Dqc1N	(qcIN)cs	Ratio	M7.5	M6.50	Safety	Comment
	20.57	8	60.4	3.8	135	2461	1676	64.5	70.6	6.42	2.6	35.2	0.80	258.2	322.7	0.495	3.206	4.168	8.43	
	20.62	8	68.5	3.64	135	2468	1680	73.1	80.0	5.41	2.5	30.9	0.69	163.1	236.2	0.495	1.306	1.698	3.43	
	20.67	8	79	3.58	135	2474	1684	84.2	92.3	4.60	2.4	26.8	0.58	117.8	202.0	0.495	0.847	1.101	2.22	
	20.7 20.75	8	91.9 93.4	3.66 3.7	135 135	2478 2485	1686 1689	97.9 99.4	107.5 109.1	4.04 4.01	2.3	23.4 23.2	0.49 0.49	95.0 94.3	193.0 193.7	0.495 0.496	0.748 0.756	0.973 0.983	1.96 1.98	
	20.81	8	91.5	3.47	135	2493	1694	97.3	106.5	3.84	2.3	22.9	0.48	89.2	186.5	0.496	0.683	0.888	1.79	
	20.85	8	92.6	3.2	135	2499	1697	98.4	107.6	3.50	2.3	21.7	0.44	78.7	177.1	0.496	0.597	0.775	1.56	
	20.94	8	118.1	2.75	135	2511	1703	125.2	137.1	2.35	2.1	15.1	0.27	46.2	171.4	0.497	0.548	0.713	1.44	
	21.02	8	133.9	2.71	135	2522	1709	141.7	155.2	2.04	2.0	12.8	0.21	37.3	179.0	0.497	0.613	0.797	1.60	
	21.08	8	145.3 154.2	2.63 2.58	135	2530 2535	1713 1716	153.6 162.9	168.1 178.1	1.83	1.9	11.3 10.2	0.17	30.8	184.4	0.497 0.498	0.663	0.861 0.922	1.73	
	21.12 21.2	8	169.7	2.56	135 135	2546	1710	178.9	195.5	1.69 1.52	1.9 1.8	8.8	0.14 0.10	26.3 20.3	189.2 199.2	0.498	0.709 0.815	1.059	1.85 2.13	
	21.3	8	193.1	2.62	135	2559	1729	203.2	221.7	1.37	1.8	7.3	0.06	13.3	216.5	0.499	1.024	1.331	2.67	
	21.4	8	216.8	3.14	135	2573	1737	227.6	248.1	1.46	1.8	7.1	0.06	13.7	241.4	0.499	1.388	1.804	3.61	
	21.49	8	227.2	3.13	135	2585	1743	238.1	259.1	1.39	1.7	6.6	0.04	10.4	248.5	0.500	1.507	1.959	3.92	
	21.59	8	226.3	2.84	135	2598	1750	236.7	257.0	1.26	1.7	6.0	0.03	6.5	243.2	0.500	1.417	1.843	3.68	
	21.69	8	189.5	2.59	135	2612	1758	197.8	214.0	1.38	1.8	7.6	0.07	14.5	212.3	0.501	0.970	1.261	2.52	
	21.79 21.87	8	175.1 160.8	2.46 2.27	135 135	2625 2636	1765 1771	182.4 167.2	196.8 180.1	1.42 1.42	1.8	8.3 8.8	0.09 0.10	17.3 19.1	199.7 186.3	0.501 0.502	0.821 0.682	1.067 0.886	2.13 1.77	
	21.97	8	142.6	2.26	135	2650	1771	148.0	158.8	1.60	1.9	10.6	0.10	25.9	173.8	0.502	0.569	0.739	1.47	
	22.06	8	131.2	2.57	135	2662	1785	135.9	145.5	1.98	2.0	13.0	0.21	36.9	172.8	0.503	0.560	0.728	1.45	
	22.15	8	118	2.88	135	2674	1791	122.0	130.2	2.47	2.1	16.0	0.29	50.8	172.7	0.503	0.559	0.727	1.45	
	22.24	8	115.1	3.3	135	2686	1798	118.8	126.5	2.90	2.2	18.0	0.35	62.8	181.6	0.504	0.637	0.828	1.64	
	22.33	8	112.8	3.39	135	2698	1804	116.2	123.5	3.04	2.2	18.7	0.37	67.0	183.2	0.504	0.651	0.847	1.68	
	22.42	8	124.2	3.97	135	2711	1811	127.7	135.6	3.23	2.2	18.5	0.36	72.3	200.0	0.504	0.824	1.071	2.12	
	22.51	8	168.8	4.31	135	2723	1817	173.3	184.2	2.57	2.0	13.7	0.23	52.4	225.7	0.505	1.149	1.494	2.96	
	22.59 22.68	8	241.7 273.5	4.54 4.79	135 135	2733 2746	1823 1830	247.7 279.8	263.6 297.4	1.89 1.76	1.8	8.7 7.5	0.10 0.07	27.3 20.4	275.0 300.1	0.505 0.506	2.013 2.595	2.617 3.373	5.18 6.67	
	22.76	8	301.2	5.27	135	2756	1835	307.6	326.6	1.76	1.7	7.1	0.07	18.0	325.6	0.506	3.291	4.279	8.46	
	22.84	8	328.9	5.56	135	2767	1841	335.4	355.6	1.70	1.7	6.4	0.04	13.3	348.7	0.506	4.023	5.230	10.33	
	22.92	8	343.7	5.99	135	2778	1847	349.9	370.5	1.75	1.7	6.5	0.04	14.2	364.2	0.507	4.571	5.943	11.73	
	23	8	359.3	6.2	135	2789	1853	365.2	386.2	1.73	1.7	6.2	0.03	12.2	377.5	0.507	5.082	6.606	13.03	
	23.08	8	378.1	6.36	135	2800	1859	383.7	405.2	1.69	1.7	5.8	0.02	8.8	392.5	0.508	5.703	7.414	14.61	
	23.16	8	379.6	6.32	135	2810	1864	384.7	405.5	1.67	1.7	5.8	0.02	8.0	392.6	0.508	5.710	7.423	14.61	
	23.24 23.32	8	398.8 419.8	6.26 5.73	135 135	2821 2832	1870 1876	403.5 424.1	424.8 445.8	1.58 1.37	1.6 1.6	5.2 4.1	0.00	2.0 0.0	405.5 424.1	0.508 0.509	6.280 7.172	8.163 9.324	16.06 18.33	
	23.4	8	408.7	5.45	135	2843	1882	412.2	432.7	1.34	1.6	4.1	0.00	0.0	412.2	0.509	6.594	8.573	16.84	
	23.48	8	398.3	5.64	135	2854	1888	401.1	420.3	1.42	1.6	4.6	0.00	0.0	401.1	0.509	6.082	7.906	15.52	
	23.55	8	377.6	5.43	135	2863	1893	379.8	397.3	1.44	1.6	4.9	0.00	0.0	379.8	0.510	5.173	6.725	13.19	
	23.63	8	376	4.89	135	2874	1899	377.6	394.4	1.31	1.6	4.3	0.00	0.0	377.6	0.510	5.086	6.611	12.96	
	23.71	8	370	4.51	135	2885	1904	371.0	386.9	1.22	1.6	4.0	0.00	0.0	371.0	0.510	4.828	6.277	12.30	
	23.79	8	352.3 333.8	4.08 4.78	135	2895 2905	1910 1915	352.7 333.7	367.2	1.16	1.6	3.9 5.4	0.00	0.0	352.7	0.511	4.160	5.408	10.59	
	23.86 23.95	8	295.6	5.27	135 135	2903	1913	295.0	346.9 306.0	1.44 1.79	1.7 1.8	7.5	0.01 0.07	3.8 21.4	337.6 316.4	0.511 0.511	3.657 3.026	4.754 3.934	9.30 7.69	
	24.03	8	235	5.14	135	2928	1928	234.2	242.2	2.20	1.9	10.5	0.15	40.0	274.2	0.512	1.997	2.596	5.07	
	24.11	8	227.5	4.97	135	2939	1933	226.4	233.7	2.20	1.9	10.7	0.15	40.4	266.8	0.512	1.845	2.399	4.68	
	24.18	8	205.1	4.9	135	2948	1938	203.8	210.0	2.41	2.0	12.2	0.19	48.1	252.0	0.512	1.568	2.038	3.98	
	24.26	8	248.8	4.96	135	2959	1944	246.9	254.3	2.01	1.9	9.4	0.12	32.8	279.7	0.513	2.115	2.750	5.36	
	24.33	8	305.5	4.45	135	2968	1949	302.7	311.8	1.46	1.7	6.0	0.03	8.5	311.2	0.513	2.884	3.749	7.31	
	24.4	8	364.9	5.15	135	2978	1954	361.1	371.7	1.42	1.6	5.0	0.00	0.4	361.5	0.513	4.474	5.817	11.33	
	24.45 24.5	8	361.2 367.3	4.63 4.83	135 135	2985 2991	1958 1962	357.1 362.8	367.3 372.8	1.29 1.32	1.6 1.6	4.5 4.6	0.00	0.0	357.1 362.8	0.514 0.514	4.317 4.523	5.612 5.879	10.93 11.44	
	24.54	8	355.6	5.08	135	2997	1962	351.0	360.3	1.43	1.7	5.2	0.00	2.3	353.4	0.514	4.323	5.438	10.58	
	24.58	8	354.6	5.56	135	3002	1968	349.8	358.8	1.57	1.7	5.9	0.02	8.4	358.2	0.514	4.353	5.658	11.01	
	24.66	8	388.2	5.44	135	3013	1973	382.4	391.8	1.41	1.6	4.8	0.00	0.0	382.4	0.514	5.279	6.862	13.34	
	24.74	8	426.2	5.15	135	3024	1979	419.2	429.0	1.21	1.5	3.6	0.00	0.0	419.2	0.515	6.930	9.008	17.50	
	24.82	8	433.4	5.34	135	3035	1985	425.6	435.0	1.24	1.6	3.6	0.00	0.0	425.6	0.515	7.251	9.426	18.30	
	24 89	8	408 4	5 58	105	3044	1990	400.6	408.7	1 37	1.6	4.5	0.00	0.0	400.6		6.057	7 874	15.28	

5.58

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135 3056 1990 400.6

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288.2

1997

2002

2007

2013

2019

408.7

391.3

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308.1

291.5

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15.28

13.49

10.63

8.79

6.78

6.10

408.4

392.3

362.4

340.2

311.8

296

24.89

24.98

25.05

25.13

25.21

Project Number: 6600.3.001.01 Date: September 2005

**CPT Number: 8** 

Depth to Groundwater: 8 feet

EQ Magnitude (M<sub>w</sub>): 6.5 PGA (g): 0.54 MSF: 1.30

Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Stress Stress Stress (TSF) (TSF) (PCF) (PSF) (PSF) (%) KCPT Dqcin (qcin)cs Ratio M7.5 M6.50 Safety (FT) (FT) Qc1N 0 Comments Ic 25.36 8 288.6 135 3107 2024 280.7 283.5 1.39 1.7 0.03 8.9 289.6 0.517 2.338 3.039 5.88 259.5 25.44 267.2 3.6 135 3118 2030 261.6 1.36 1.7 6.4 0.04 9.8 269.3 0.518 1.897 2.466 4.76 25.51 264.6 3.85 135 3128 2035 256.6 258.4 1.46 1.7 6.9 0.05 14.1 270.7 0.518 1.925 2.503 4.83 25.59 245.6 4.64 135 3138 2041 237.9 239.0 1.90 1.9 0.12 31.0 268.9 0.518 1.888 2.455 4.74 25.66 271.3 4.45 135 3148 2046 262.4 263.6 1.65 1.8 0.07 20.3 282.8 0.518 2.182 2.837 5.47 25.73 278.3 3.84 135 3157 2051 268.9 269.7 1.39 1.7 6.4 0.04 10.2 279.1 0.519 2.101 2.732 5.27 25.8 275.8 4.71 135 3167 2056 266.6 1.72 7.9 0.08 22.6 288.7 0.519 2.317 3.013 8 266.1 1.8 5.80 25.88 275.6 2062 1.9 0.12 302.4 8 5.78 135 3178 265.6 265.7 2.11 9.6 36.8 0.519 2.652 3.448 6.64 25.94 325.1 6.44 135 2066 312.9 1.99 342.4 0.520 4.956 8 3186 313.0 1.8 8.2 0.09 29.5 3.813 9.54 5.95 26.01 8 351.3 135 3195 2071 337.7 337.5 1.70 1.7 6.7 0.04 15.9 353.6 0.520 4.193 5.451 10.49 26.09 8 348.6 8.2 135 3206 2077 334.7 334.0 2.36 1.9 9.3 0.11 43.4 378.0 0.520 5.105 6.636 12.76 2082 26.16 376.8 8.87 135 3215 361.3 360.2 2.36 8.9 42.3 403.6 0.520 6.195 8.053 1.8 0.10 15.48 26.22 389.3 7.99 135 3224 2087 372.9 371.4 2.06 1.8 7.7 0.07 28.6 401.5 0.521 6.101 7.931 15.24 135 26.27 362.8 7.01 3230 2090 347.2 345.5 1.94 1.8 7.5 0.07 25.3 372.5 0.521 4.888 6.354 12.20 26.31 135 3236 4.740 373 6.1 2093 356.7 354.7 1.64 1.7 6.2 0.03 11.9 368.7 0.521 6.162 11.83 26.4 333.5 4.75 135 3248 2100 318.4 316.0 1.43 1.7 5.8 0.02 7.0 325.5 0.521 3.287 4.273 8.20 26.46 135 3256 2.04 29.9 375.5 0.521 362.4 7.37 2104 345.7 342.8 1.8 8.0 0.08 5.006 6.508 12.48 26.54 135 340.4 0.522 357.4 6.65 3267 2110 337.1 1.87 0.06 23.1 363.5 4.547 5.912 1.8 7.4 11.33 26.61 8 384.3 5.58 135 3276 2115 365.6 361.7 1.46 1.7 5.3 0.01 3.3 368.9 0.522 4.750 6.175 11.83 26.68 380.2 8 400.1 4.9 135 3286 2120 380.2 375.8 1.23 1.6 4.1 0.00 0.0 0.522 5.191 6.749 12.92 26.75 351.4 4.84 135 3295 2125 333.5 329.0 1.38 1.7 5.4 0.01 3.7 337.2 0.522 3.647 4.741 9.07 26.83 326.3 5.72 135 3306 2131 309 3 304 6 1.76 1.8 74 0.06 21.5 330.7 0.523 3 445 4 478 8 57 26.89 347.5 4.42 135 3314 2135 329.0 323.8 1.28 1.6 5.0 0.00 0.0 329 0 0.523 3.393 4.411 8 43 26.96 321.6 3.43 125 3323 2140 304.2 298.8 1.07 1.6 4.3 0.00 0.0 304.2 0.523 2.697 3.506 6.70 8 27.01 319.7 3.49 125 3330 2143 302.1 296.6 1.10 4.5 0.00 0.0 302.1 0.523 2.645 3.439 6.57 27.09 295.3 3.13 125 3340 2148 278.8 273.2 1.07 1.6 4.7 0.00 0.0 278.8 0.524 2.094 2.723 5.20 27.17 268 3.48 135 3350 2153 252.7 247.2 1.31 1.7 6.4 0.04 10.0 262.7 0.524 1.765 2.295 4.38 27.25 227.5 4.11 135 3360 245.5 0.524 8 2159 214.2 209.1 1.82 1.9 9.8 0.13 31.3 1.457 1.894 3.61 27.33 4.41 135 242.5 215 3371 2165 202.2 197.0 2.07 1.9 11.2 0.17 40.3 0.525 1.406 1.827 3.48 27.42 8 202.6 4.79 3383 2.38 2.0 0.525 1.388 1.805 3.44 135 2172 190.2 185.0 12.9 0.21 51.2 241.4 27.5 125.9 135 3394 2177 3.78 2.3 22.0 0.45 216.5 0.525 1.331 2.53 8 4.7 118.1 114.0 98.5 1.024 2 41 2.4 27 59 712 135 3406 2184 66.7 63.6 3 47 27.4 0.60 99 1 165.8 0.526 0.504 0.655 1.25 27.67 8 496 1.68 135 3417 2190 464 43 7 3.51 2.5 32.6 0.74 129 8 176.2 0.526 0.589 0.765 1 46 27.76 30.5 1.44 135 3429 2196 28.5 26.2 5.00 2.8 46.5 0.80 113.9 142.4 0.526 0.348 0.453 0.86 NonLigfble. 27.84 23.3 1.2 135 3440 2202 21.7 19.6 5.56 2.9 54.1 0.80 86.9 108.6 0.526 0.199 0.259 0.49 NonLiqfble. 27.87 3444 3.0 0.219 NonLiqfble. 21.1 1.12 135 2204 19.7 17.6 5.78 57.1 0.80 78.7 98.3 0.526 0.168 0.42 27.96 20.8 0.92 135 3456 2211 19.4 17.2 4.82 2.9 54.2 0.80 77.4 96.8 0.527 0.164 0.214 0.41 NonLiqfble. 28.05 15.4 0.85 125 3468 2217 14.3 12.3 6.22 3.1 66.7 0.80 57.2 0.527 0.114 0.148 0.28 NonLiqfble. 28.14 14.3 0.76 125 3480 2223 13.3 11.3 6.05 3.1 68.3 0.80 53.1 0.527 0.107 0.139 0.26 NonLiqfble. 66.4 28.24 11.2 0.71 125 3492 2229 10.4 7.51 3.3 80.6 0.80 41.5 51.9 0.528 0.093 0.121 0.23 NonLiafble. 8.5 28.33 2235 8 9.9 0.68 125 3503 9.2 7.3 8.35 3.4 87.4 0.80 36.7 45.8 0.528 0.089 0.116 0.22 NonLiafble. 28.42 8.3 0.65 125 3515 2240 7.7 5.8 9.94 3.5 98.6 0.80 30.7 38.4 0.529 0.085 0.111 0.21 NonLiafble. 28.51 8 0.63 125 3526 2246 7.4 5.6 10.10 3.5 100.7 0.80 29.5 36.9 0.529 0.085 0.110 0.21 NonLiqfble. 28.61 8 8.1 0.61 125 3538 2252 7.5 5.6 9.64 3.5 99.0 0.80 29.9 37.3 0.529 0.085 0.110 0.21 NonLigfble. 0.087 28.7 9.2 0.58 125 3550 2258 8.5 6.6 7.81 3.4 88.9 0.80 33.9 42.4 0.530 0.113 0.21 NonLiqfble. 28.8 9.9 0.55 125 3562 2264 9.1 7.2 6.77 3.3 83.0 0.80 36.4 45.5 0.530 0.089 0.115 0.22 NonLiqfble. 28.89 8.7 0.53 115 3573 2270 3.4 0.80 32.0 39.9 0.530 0.112 0.21 NonLiqfble. 8.0 6.1 7.67 90.8 0.086 28.99 9.7 0.5 115 3585 2275 8.9 6.9 6.32 3.3 82.4 0.80 35.6 44.5 0.531 0.088 0.115 0.22 NonLiqfble. 29.08 9.9 0.46 115 3595 2280 9.1 7.1 5.68 3.3 79.3 0.80 36.3 45.4 0.531 0.089 0.115 0.22 NonLiqfble. 29.18 0.44 2285 10.1 4.78 3.2 72.3 0.80 40.3 50.3 0.532 0.092 0.22 11 115 3607 8.0 0.119 NonLiqfble. 29.28 0.43 125 11.8 3618 2290 10.8 4.30 0.80 43.2 53.9 0.532 0.095 0.123 0.23 NonLigfble. 8.7 3.1 68.1 29.38 8 11.7 0.42 115 3631 2297 10.7 8.6 4.25 3.1 68.2 0.80 42.7 53.4 0.533 0.094 0.122 0.23 NonLigfble. 29.47 8 11.8 0.43 125 3641 2301 10.8 8.7 4.31 3.1 68.3 0.80 43.0 53.8 0.533 0.094 0.1230.23NonLigfble. 29.58 8 11.2 0.44 115 3655 2308 10.2 8.1 4.69 3.2 71.7 0.80 40.8 51.0 0.534 0.092 0.1200.22 NonLiqfble. 29 67 8 104 0.43 115 3665 2313 9 5 74 5.02 32 75.6 0.80 37.8 47 3 0.534 0.090 0.117 0.22 NonLiqfble 29.77 10.4 0.43 115 3677 2318 9.5 7.4 5.02 3.2 75.7 0.80 37.8 47 3 0.534 0.090 0.117 0.22NonLiqfble.

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4.72

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3.3

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76.6

80.7

77.0

0.80

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36.3

33.7

35.1

45.4

42.2

43.9

0.535

0.535

0.513

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0.088

0.115

0.113

0.114

0.22

0.21

NonLiqfble.

NonLiqfble.

NonLiqfble.

10

9.3

9.7

8

29.87

29.97

EQ Magnitude ( $M_w$ ): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 MSF: 1.30

CPT Number: 9

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	l Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	$\mathbf{q}_{\mathrm{clN}}$	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	0.5	8	250.3	4.54	135	68	68	479.4	7412.2	1.81	1.5	3.3	0.00	0.0	479.4	0.351		13.422	38.24	Above W.T.
	0.58	8	261.9	4.54	135	78	78	501.6	6685.9	1.73	1.5	2.9	0.00	0.0	501.6	0.351	11.816	15.361	43.76	Above W.T.
	0.69 0.79	8	233.8 167.9	4.64 4.79	135 135	93 107	93 107	447.8 321.6	5016.8 3146.3	1.98 2.85	1.5 1.7	3.3 5.7	0.00 0.02	0.0 5.8	447.8 327.4	0.351 0.351	8.429 3.344	10.958 4.347	31.22 12.38	Above W.T. Above W.T.
	0.9	8	128.3	4.69	135	122	122	245.7	2110.1	3.66	1.8	7.9	0.08	20.5	266.3	0.351	1.836	2.386	6.80	Above W.T.
	1	8	120.3	4.65	135	135	135	230.4	1780.5	3.87	1.8	8.6	0.10	24.3	254.7	0.351	1.616	2.101	5.99	Above W.T.
	1.1	8	115.4	4.53	135	149	149	221.0	1552.6	3.93	1.8	8.9	0.10	25.7	246.7	0.351	1.476	1.919	5.47	Above W.T.
	1.2 1.3	8	107.8 104.9	4.2 3.54	135 135	162 176	162 176	206.5 200.9	1329.3 1193.9	3.90 3.38	1.8	9.1 8.0	0.11	25.3 17.2	231.7 218.1	0.351 0.351	1.237 1.045	1.608 1.359	4.58 3.87	Above W.T. Above W.T.
	1.4	8	98.1	3.54	135	189	189	187.9	1036.7	3.06	1.8	7.4	0.06	12.9	200.7	0.351	0.832	1.082	3.08	Above W.T.
	1.5	8	83.1	2.73	135	203	203	159.2	819.4	3.29	1.8	8.6	0.10	17.1	176.3	0.351	0.590	0.767	2.18	Above W.T.
	1.6	8	60.8	2.61	135	216	216	116.4	561.7	4.30	2.0	12.6	0.20	29.9	146.3	0.351	0.371	0.483	1.37	Above W.T.
	1.7	8	44	2.74	135	230	230	84.3	382.3	6.24	2.2	19.1	0.38	50.7	135.0	0.351	0.309	0.401	1.14	Above W.T.
	1.8 1.9	8	46.1 56.3	2.8 2.29	135 135	243 257	243 257	88.3 107.8	378.3 437.8	6.09 4.08	2.2	18.8 13.2	0.37 0.22	51.5 30.2	139.8 138.0	0.351 0.351	0.334 0.325	0.434 0.422	1.24 1.20	Above W.T. Above W.T.
	2	8	69	1.71	135	270	270	132.1	509.9	2.48	1.8	7.8	0.22	10.8	142.9	0.351	0.352	0.422	1.30	Above W.T.
	2.09	8	73.1	1.68	135	282	282	140.0	516.9	2.30	1.8	7.2	0.06	8.6	148.6	0.351	0.385	0.501	1.43	Above W.T.
	2.27	8	84.5	1.6	135	306	306	161.8	550.2	1.90	1.7	5.5	0.01	2.2	164.0	0.351	0.490	0.637	1.82	Above W.T.
	2.37	8	80.1	1.64	135	320	320	153.4	499.5	2.05	1.7	6.4	0.04	6.0	159.4	0.351	0.457	0.594	1.69	Above W.T.
	2.47 2.57	8	70 60.8	1.83 2.01	135 135	333 347	333 347	134.1 116.4	418.7 349.3	2.62 3.32	1.8	9.1 12.2	0.11 0.19	16.5 27.7	150.6 144.2	0.351 0.351	0.397 0.359	0.517 0.466	1.47 1.33	Above W.T. Above W.T.
	2.67	8	52.9	2.09	135	360	360	101.3	292.4	3.96	2.1	15.1	0.17	37.5	138.8	0.351	0.329	0.428	1.22	Above W.T.
	2.77	8	47.2	2.18	135	374	374	90.4	251.3	4.64	2.2	18.0	0.35	47.8	138.2	0.351	0.325	0.423	1.21	Above W.T.
	2.87	8	56.5	2.5	135	387	387	108.2	290.5	4.44	2.1	16.5	0.31	47.7	156.0	0.351	0.433	0.563	1.60	Above W.T.
	2.97	8	67.9	2.41	135	401	401	130.0	337.6	3.56	2.0	13.1	0.22	36.0	166.0	0.351	0.506	0.657	1.87	Above W.T.
	3.07 3.17	8	93.4 108.6	3.54 3.64	135 135	414 428	414 428	178.9 208.0	449.5 506.3	3.80 3.36	2.0 1.9	12.3 10.6	0.20 0.15	43.5 36.2	222.3 244.2	0.351 0.351	1.102 1.434	1.433 1.864	4.08 5.31	Above W.T. Above W.T.
	3.27	8	86.9	3.2	135	441	441	166.4	392.5	3.69	2.0	12.7	0.21	43.0	209.4	0.351	0.934	1.215	3.46	Above W.T.
	3.38	8	40.1	2.82	135	456	456	76.8	174.7	7.07	2.4	26.7	0.58	105.5	182.3	0.351	0.643	0.836	2.38	Above W.T.
	3.48	8	35.4	1.92	135	470	470	67.8	149.6	5.46	2.3	24.3	0.52	72.0	139.8	0.351	0.334	0.435	1.24	Above W.T.
	3.58	8	27.5	1.49	135	483	483	52.7	112.8	5.47	2.4	27.1	0.59	76.0	128.6	0.351	0.278	0.361	1.03	Above W.T.
	3.68 3.79	8	20.2 11.3	1.48 1.43	135 135	497 512	497 512	38.7 21.6	80.3 43.2	7.42 12.95	2.6 3.0	35.9 56.3	0.80 0.80	154.7 86.6	193.4 108.2	0.351 0.351	0.753 0.198	0.979 0.257	2.79 0.73	Above W.T. Above W.T.
	3.89	8	12.6	1.38	135	525	525	24.1	47.0	11.19	2.9	51.7	0.80	96.2	120.3	0.351	0.242	0.314	0.90	Above W.T.
	4	8	11.7	1.42	135	540	540	22.0	42.3	12.42	3.0	55.7	0.80	88.1	110.1	0.351	0.204	0.266	0.76	Above W.T.
	4.1	8	11.5	1.35	135	554	554	21.4	40.5	12.03	3.0	55.8	0.80	85.5	106.9	0.351	0.194	0.252	0.72	Above W.T.
	4.2 4.3	8	23.2 39.8	1.16 1.19	135 135	567 581	567 581	42.6 72.3	80.8 136.1	5.06 3.01	2.5	29.7 17.7	0.66 0.34	83.0 37.2	125.6 109.5	0.351 0.351	0.264 0.202	0.344 0.263	0.98 0.75	Above W.T. Above W.T.
	4.41	8	32.3	1.13	135	595	595	57.9	107.5	3.44	2.3	21.4	0.34	45.3	103.2	0.351	0.182	0.203	0.68	Above W.T.
	4.51	8	26.6	1.09	135	609	609	47.2	86.3	4.15	2.4	26.1	0.56	61.2	108.3	0.351	0.198	0.258	0.73	Above W.T.
	4.62	8	21.4	1.11	135	624	624	37.5	67.6	5.26	2.5	32.6	0.74	104.5	142.0	0.351	0.346	0.450	1.28	Above W.T.
	4.72	8	18.2	1.13	135	637	637	31.5	56.1	6.32	2.7	38.1	0.80	126.2	157.7	0.351	0.445	0.578	1.65	Above W.T.
	4.83 4.93	8	16.1 14.7	1.11 1.08	135 125	652 666	652 666	27.6 24.9	48.4 43.2	7.04 7.52	2.7 2.8	42.2 45.2	0.80 0.80	110.3 99.7	137.9 124.7	0.351 0.351	0.324 0.260	0.421 0.338	1.20 0.96	Above W.T. Above W.T.
	5.04	8	14	1.06	125	679	679	23.5	40.2	7.76	2.8	47.0	0.80	94.0	117.5	0.351	0.231	0.300	0.86	Above W.T.
	5.14	8	14	1	125	692	692	23.3	39.5	7.32	2.8	46.2	0.80	93.2	116.4	0.351	0.227	0.295	0.84	Above W.T.
	5.25	8	13.3	0.9	125		706	21.9	36.7	6.95	2.8	46.4	0.80	87.6	109.5	0.351	0.202	0.263	0.75	Above W.T.
	5.35	8	12.7	0.86	125	718	718	20.7	34.4	6.97	2.8	47.6	0.80	82.9	103.7	0.351	0.184	0.239	0.68	Above W.T.
	5.55 5.66	8	10 9.1	0.81 0.77	125 125	743 757	743 757	16.1 14.5	25.9 23.0	8.41 8.83	3.0	56.6 60.0	0.80 0.80	64.2 57.9	80.3 72.4	0.351 0.351	0.128 0.115	0.166 0.150	0.47 0.43	Above W.T. Above W.T.
	5.76	8	8.5	0.73	125	769	769	13.4	21.1	9.00	3.1	62.2	0.80	53.6	67.0	0.351	0.108	0.140	0.40	Above W.T.
	5.87	8	8.3	0.71	125	783	783	13.0	20.2	8.98	3.1	63.1	0.80	51.9	64.9	0.351	0.105	0.137	0.39	Above W.T.
	5.98	8	8.2	0.72	125	797	797	12.7	19.6	9.23	3.1	64.4	0.80	50.8	63.6	0.351	0.104	0.135	0.38	Above W.T.
	6.08 6.19	8	9.4 9.8	0.73 0.72	125 125	809 823	809 823	14.5 14.9	22.2 22.8	8.12 7.67	3.0	59.0 57.3	0.80 0.80	57.8 59.8	72.3 74.7	0.351 0.351	0.115 0.119	0.150 0.154	0.43 0.44	Above W.T. Above W.T.
	6.3	8	9.0	0.72	125	823	823 837	13.8	20.7	7.95	3.0	60.0	0.80	55.1	68.8	0.351	0.119	0.134	0.44	Above W.T.
	6.41	8	8.9	0.66	125	851	851	13.4	19.9	7.79	3.0	60.4	0.80	53.4	66.8	0.351	0.108	0.140	0.40	Above W.T.
	6.51	8	9.2	0.65	125	863	863	13.7	20.3	7.41	3.0	59.0	0.80	54.8	68.5	0.351	0.110	0.143	0.41	Above W.T.
	6.62	8	9.1	0.64	125	877	877	13.4	19.7	7.39	3.0	59.5	0.80	53.8	67.2	0.351	0.108	0.141	0.40	Above W.T.
	6.73 6.84	8	10.9 12.7	0.65 0.68	125 125	891 904	891 904	16.0 18.5	23.5 27.1	6.22 5.55	2.9 2.8	52.6 47.8	0.80 0.80	63.9 73.9	79.9 92.4	0.351 0.351	0.127 0.153	0.166 0.199	0.47 0.57	Above W.T. Above W.T.
	6.95	8	12.7	0.69	125		918	18.2	26.4	5.68	2.8	48.6	0.80	72.8	91.0	0.351	0.150	0.199	0.56	Above W.T.

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 **MSF:** 1.30

CPT Number: 9

		Water	Tip	Sleeve			Effective			Friction							-	Liquef.		
Cone	Depth (FT)	Table (FT)	Resist.	Frict. (TSF)	g (PCF)	Stress	Stress (PSF)	Tip	Tip	Ratio F	I.o.	F.C. (%)	Ксрт	DqcIN	(qcIN)es	Stress	Stress M7.5	Stress M6.50	of Sofoty	Comments
Cone	(F I)	(F I)	(1SF)	(1SF)	(PCF)	(PSF)	(FSF)	<b>q</b> e1N	Q	Г	Ic	(%)	TECT	Dqeix	( <b>q</b> eix)is	Katio	W17.5	W10.50	Sarety	Comments
	7.05	8	10.7	0.67	125	931	931	15.3	22.0	6.55	2.9	54.9	0.80	61.4	76.7	0.351	0.122	0.159	0.45	Above W.T.
	7.16	8	9.1	0.65	125	944	944	13.0	18.3	7.53	3.0	61.6	0.80	51.8	64.8	0.351	0.122	0.137	0.43	Above W.T.
	7.27	8	8.1	0.63	125	958	958	11.5	15.9	8.27	3.1	66.7	0.80	45.8	57.3	0.351	0.097	0.127	0.36	Above W.T.
	7.37	8	8.2	0.59	125	971	971	11.5	15.9	7.65	3.1	65.0	0.80	46.1	57.6	0.351	0.098	0.127	0.36	Above W.T.
	7.48	8	8.2	0.56	115	984	984	11.4	15.7	7.27	3.1	64.3	0.80	45.7	57.2	0.351	0.097	0.127	0.36	Above W.T.
	7.59 7.69	8	7.3 7.8	0.56 0.59	115 115	997 1008	997 1008	10.1 10.7	13.6 14.5	8.23 8.09	3.2	70.3 68.5	0.80	40.5 43.0	50.6 53.7	0.351 0.351	0.092 0.094	0.120 0.123	0.34	Above W.T. Above W.T.
	7.8	8	7.8	0.61	115	1021	1021	10.7	14.3	8.37	3.2	69.5	0.80	42.7	53.4	0.351	0.094	0.122	0.35	Above W.T.
	7.91	8	8	0.63	125	1034	1034	10.9	14.5	8.42	3.2	69.3	0.80	43.5	54.4	0.351	0.095	0.123	0.35	Above W.T.
	8.02	8	8.8	0.63	125	1048	1041	11.9	15.9	7.61	3.1	64.9	0.80	47.7	59.7	0.353	0.100	0.130	0.37	NonLiqfble.
	8.12 8.23	8	9.1 10.1	0.62 0.62	125 125	1060	1047 1054	12.3 13.6	16.4	7.23	3.1	63.2	0.80	49.2	61.5	0.355	0.102	0.132 0.142	0.37 0.40	NonLiqfble.
	8.34	8	8.8	0.62	115	1074 1088	1054	11.8	18.1 15.6	6.48 6.18	3.0	58.7 61.1	0.80	54.5 47.3	68.1 59.1	0.358 0.360	0.109 0.099	0.142	0.40	NonLiqfble. NonLiqfble.
	8.44	8	9.1	0.53	115	1099	1066	12.2	16.0	6.20	3.0	60.5	0.80	48.8	61.0	0.362	0.101	0.131	0.36	NonLiqfble.
	8.55	8	8.6	0.51	115	1112	1072	11.5	15.0	6.34	3.1	62.5	0.80	46.0	57.5	0.364	0.098	0.127	0.35	NonLiqfble.
	8.58	8	9.8	0.5	115	1115	1073	13.1	17.2	5.41	3.0	56.3	0.80	52.4	65.4	0.365	0.106	0.138	0.38	NonLiqfble.
	8.68 8.79	8	9.5 9.9	0.49 0.49	115 115	1127 1139	1079 1084	12.7 13.2	16.6 17.2	5.48 5.25	3.0	57.4 55.8	0.80	50.6 52.6	63.3 65.8	0.367 0.369	0.104 0.106	0.135 0.138	0.37 0.38	NonLiqfble. NonLiqfble.
	8.89	8	9.7	0.43	115	1151	1090	12.9	16.7	5.48	3.0	57.2	0.80	51.4	64.3	0.309	0.105	0.136	0.37	NonLiqfble.
	9	8	10.2	0.49	125	1163	1095	13.5	17.6	5.09	2.9	54.8	0.80	53.9	67.4	0.373	0.109	0.141	0.38	NonLiqfble.
	9.11	8	9.5	0.48	115	1177	1102	12.5	16.2	5.39	3.0	57.6	0.80	50.1	62.6	0.375	0.103	0.134	0.36	NonLiqfble.
	9.21	8	10.1	0.47	115	1189	1108	13.3	17.2	4.94	2.9	54.7	0.80	53.1	66.4	0.377	0.107	0.139	0.37	NonLiqfble.
	9.32 9.43	8	8.9 8.9	0.46 0.44	115 115	1201 1214	1113 1119	11.7 11.6	14.9 14.8	5.54 5.31	3.0	60.0 59.3	0.80	46.7 46.6	58.4 58.2	0.379 0.381	0.098 0.098	0.128 0.128	0.34 0.34	NonLiqfble. NonLiqfble.
	9.53	8	8.8	0.43	115	1225	1119	11.5	14.6	5.25	3.0	59.5	0.80	45.9	57.4	0.383	0.098	0.128	0.34	NonLiqfble.
	9.65	8	8.6	0.43	115	1239	1131	11.2	14.1	5.39	3.0	60.7	0.80	44.8	56.0	0.385	0.096	0.125	0.33	NonLiqfble.
	9.75	8	8.9	0.42	115	1251	1136	11.6	14.6	5.08	3.0	58.8	0.80	46.2	57.8	0.386	0.098	0.127	0.33	NonLiqfble.
	9.86	8	8.1	0.42	115	1263	1142	10.5	13.1	5.62	3.1	63.3	0.80	42.0	52.4	0.388	0.093	0.121	0.31	NonLiqfble.
	9.97 10.08	8	8.1 7.4	0.42 0.4	115 115	1276 1289	1148 1153	10.5 9.5	13.0 11.7	5.63 5.92	3.1	63.4 67.0	0.80	41.8 38.1	52.3 47.7	0.390 0.384	0.093 0.090	0.121 0.117	0.31 0.30	NonLiqfble. NonLiqfble.
	10.19	8	7	0.39	115	1301	1159	9.0	11.0	6.14	3.2	69.4	0.80	36.0	45.0	0.386	0.088	0.115	0.30	NonLiqfble.
	10.3	8	7.2	0.38	115	1314	1165	9.2	11.2	5.81	3.1	67.6	0.80	36.9	46.2	0.388	0.089	0.116	0.30	NonLiqfble.
	10.4	8	7.1	0.38	115	1326	1170	9.1	11.0	5.90	3.1	68.5	0.80	36.3	45.4	0.390	0.089	0.115	0.30	NonLiqfble.
	10.51 10.62	8	7.4 7.7	0.38 0.38	115 115	1338 1351	1176 1182	9.4 9.8	11.4 11.9	5.65 5.41	3.1	66.6 64.8	0.80	37.8 39.2	47.2 49.0	0.391 0.393	0.090 0.091	0.117 0.118	0.30 0.30	NonLiqfble. NonLiqfble.
	10.02	8	8	0.38	115	1362	1187	10.2	12.3	5.19	3.1	63.1	0.80	40.6	50.8	0.395	0.091	0.118	0.30	NonLiqfble.
	10.83	8	8.1	0.37	115	1375	1193	10.3	12.4	4.99	3.1	62.2	0.80	41.0	51.3	0.397	0.093	0.120	0.30	NonLiqfble.
	10.94	8	8.9	0.36	115	1388	1199	11.2	13.7	4.39	3.0	57.5	0.80	45.0	56.2	0.398	0.097	0.126	0.32	NonLiqfble.
	11.05	8	8.3	0.36	115	1400	1204	10.5	12.6	4.74	3.0	60.8	0.80	41.9	52.3	0.400	0.093	0.121	0.30	NonLiqfble.
	11.15 11.26	8	9.3 8.6	0.35 0.35	115 115	1412 1424	1210 1215	11.7 10.8	14.2 13.0	4.07 4.44	3.0	55.4 58.9	0.80	46.8 43.2	58.5 54.0	0.401 0.403	0.099 0.095	0.128 0.123	0.32	NonLiqfble. NonLiqfble.
	11.37	8	8.7	0.35	115	1437	1213	10.8	13.1	4.39	3.0	58.6	0.80	43.6	54.5	0.405	0.095	0.123	0.31	NonLiqfble.
	11.47	8	8.5	0.36	115	1449	1226	10.6	12.7	4.63	3.0	60.3	0.80	42.5	53.1	0.406	0.094	0.122	0.30	NonLiqfble.
	11.58	8	9.4	0.37	115	1461	1232	11.7	14.1	4.27	3.0	56.4	0.80	46.9	58.6	0.408	0.099	0.128	0.31	NonLiqfble.
	11.69	8	9.7	0.38	115	1474	1238	12.1	14.5	4.24	3.0	55.7	0.80	48.2	60.3	0.410	0.100	0.131	0.32	NonLiqfble.
	11.8 12	8	9.8 9.2	0.39 0.41	115 115	1487 1510	1244 1254	12.2 11.4	14.6 13.5	4.31 4.85	3.0	55.8 59.8	0.80	48.6 45.5	60.8 56.8	0.411 0.414	0.101 0.097	0.131 0.126	0.32	NonLiqfble. NonLiqfble.
	12.11	8	8.2	0.42	115	1522	1260	10.1	11.8	5.65	3.1	65.8	0.80	40.4	50.5	0.416	0.092	0.120	0.29	NonLiqfble.
	12.22	8	8.7	0.42	115	1535	1266	10.7	12.5	5.29	3.1	63.1	0.80	42.8	53.5	0.417	0.094	0.123	0.29	NonLiqfble.
	12.33	8	8.2	0.42	115	1547	1272	10.1	11.7	5.66	3.1	66.1	0.80	40.2	50.3	0.419	0.092	0.119	0.29	NonLiqfble.
	12.43 12.54	8	9 8.8	0.42 0.43	115 115	1559 1572	1277 1283	11.0	12.9 12.5	5.11 5.37	3.0	61.8 63.4	0.80	44.1 43.0	55.1 53.8	0.420	0.096 0.094	0.124 0.123	0.30 0.29	NonLiqfble.
	12.54	8	8.8	0.43	115	1572	1288	10.8 10.7	12.3	5.37	3.1	63.6	0.80	42.9	53.6	0.421 0.423	0.094	0.123	0.29	NonLiqfble. NonLiqfble.
	12.76	8	9.9	0.43	115	1597	1294	12.0	14.1	4.72	3.0	58.3	0.80	48.2	60.2	0.424	0.100	0.123	0.31	NonLiqfble.
	12.87	8	10.7	0.42	115	1610	1300	13.0	15.2	4.24	2.9	54.6	0.80	51.9	64.9	0.426	0.105	0.137	0.32	NonLiqfble.
	12.98	8	10.3	0.43	115	1622	1306	12.5	14.5	4.53	3.0	56.8	0.80	49.9	62.4	0.427	0.103	0.133	0.31	NonLiqfble.
	13.09 13.19	8	9.9 9.6	0.44 0.44	115 115	1635 1646	1312 1317	12.0 11.6	13.8 13.3	4.84 5.01	3.0	59.1 60.6	0.80	47.8 46.3	59.8 57.9	0.429 0.430	0.100 0.098	0.130 0.127	0.30 0.30	NonLiqfble. NonLiqfble.
	13.19	8	10.7	0.44	115	1659	1323	12.9	14.9	4.46	3.0	55.9	0.80	51.5	64.4	0.430	0.105	0.127	0.30	NonLiqfble.
	13.41	8	11	0.43	115	1672	1328	13.2	15.3	4.23	2.9	54.4	0.80	52.8	66.0	0.433	0.107	0.139	0.32	NonLiqfble.
	13.52	8	10.2	0.42	115	1684	1334	12.2	14.0	4.49	3.0	57.4	0.80	48.9	61.1	0.434	0.101	0.132	0.30	NonLiqfble.
	13.63	8	11.8	0.42	115	1697	1340	14.1	16.3	3.84	2.9	51.3	0.80	56.4	70.5	0.436	0.113	0.146	0.34	NonLiqfble.
	13.73	8	11.4	0.42	115	1708	1345	13.6	15.7	3.98	2.9	52.8	0.80	54.4	68.0	0.437	0.109	0.142	0.33	NonLiqfble.

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 **MSF:** 1.30 CPT Number: 9

		Water	Tip	Sleeve		Total	Effective	Norm.		Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.	17			Stress	Stress	Stress	of	_
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	(qc1N)es	Ratio	M7.5	M6.50	Safety	Comments
	13.84	8	11.8 11.7	0.43 0.45	125 125	1721	1351	14.0	16.2 15.9	3.93	2.9	51.9 53.2	0.80	56.2	70.2 69.5	0.438	0.112	0.146 0.145	0.33	NonLiqfble.
	13.95 14.06	8	11.7	0.45	125	1735 1749	1358 1365	13.9 13.6	15.6	4.15 4.33	2.9 2.9	53.2 54.4	0.80	55.6 54.5	68.1	0.439 0.441	0.111	0.143	0.33 0.32	NonLiqfble. NonLiqfble.
	14.16	8	12.1	0.46	125	1761	1371	14.3	16.4	4.10	2.9	52.4	0.80	57.2	71.5	0.442	0.114	0.148	0.34	NonLiqfble.
	14.27	8	12	0.48	125	1775	1378	14.1	16.1	4.32	2.9	53.6	0.80	56.6	70.7	0.443	0.113	0.147	0.33	NonLiqfble.
	14.38	8	12.4	0.5	125	1789	1385	14.6	16.6	4.35	2.9	53.1	0.80	58.3	72.9	0.444	0.116	0.151	0.34	NonLiqfble.
	14.49	8	11.5	0.49	125	1802	1392	13.5	15.2	4.62	3.0	56.1	0.80	54.0	67.4	0.445	0.109	0.141	0.32	NonLiqfble.
	14.59 14.7	8	13.9 13.1	0.49 0.51	125 125	1815 1829	1398 1405	16.3 15.3	18.6 17.3	3.77 4.19	2.8 2.9	48.4 51.6	0.80	65.1 61.2	81.3 76.5	0.447 0.448	0.130 0.122	0.169 0.158	0.38 0.35	NonLiqfble. NonLiqfble.
	14.81	8	12.7	0.51	125	1842	1412	14.8	16.7	4.33	2.9	53.0	0.80	59.2	73.9	0.449	0.118	0.153	0.34	NonLiqfble.
	14.92	8	13.3	0.52	125	1856	1419	15.4	17.4	4.20	2.9	51.5	0.80	61.8	77.2	0.450	0.123	0.160	0.35	NonLiqfble.
	15.02	8	13.6	0.54	125	1869	1425	15.8	17.8	4.26	2.9	51.4	0.80	63.1	78.8	0.451	0.126	0.163	0.36	NonLiqfble.
	15.13	8	14.7	0.56	125	1882	1432	17.0	19.2	4.07	2.9	49.0	0.80	68.0	85.0	0.452	0.137	0.178	0.39	NonLiqfble.
	15.39 15.5	8	15.1 12.9	0.54 0.51	125 125	1915 1929	1448 1455	17.4 14.8	19.5 16.4	3.82 4.27	2.8 2.9	47.6 53.1	0.80	69.4 59.2	86.8 74.0	0.455 0.456	0.141 0.118	0.183 0.153	0.40 0.34	NonLiqfble. NonLiqfble.
	15.6	8	11.8	0.49	125	1941	1461	13.5	14.8	4.52	3.0	56.3	0.80	54.0	67.5	0.457	0.110	0.133	0.34	NonLiqfble.
	15.71	8	10.2	0.46	115	1955	1468	11.6	12.6	4.99	3.0	61.9	0.80	46.6	58.2	0.458	0.098	0.128	0.28	NonLiqfble.
	15.82	8	9.9	0.44	115	1968	1474	11.3	12.1	4.94	3.1	62.6	0.80	45.1	56.4	0.459	0.097	0.126	0.27	NonLiqfble.
	15.93	8	11	0.43	115	1980	1480	12.5	13.5	4.30	3.0	57.4	0.80	50.0	62.6	0.460	0.103	0.134	0.29	NonLiqfble.
	16.03	8	10.1 9.4	0.44	115	1992	1485	11.5	12.3	4.83	3.0	61.9	0.80	45.9	57.3	0.461	0.098	0.127	0.27	NonLiqfble.
	16.14 16.25	8	8.9	0.46 0.48	115 115	2004 2017	1491 1497	10.7 10.1	11.3 10.5	5.48 6.08	3.1	66.4 70.2	0.80	42.6 40.3	53.3 50.3	0.462 0.464	0.094 0.092	0.122 0.119	0.26 0.26	NonLiqfble. NonLiqfble.
	16.36	8	7.8	0.48	115	2030	1502	8.8	9.0	7.07	3.3	77.5	0.80	35.2	44.0	0.465	0.088	0.114	0.25	NonLiqfble.
	16.47	8	8.6	0.45	115	2042	1508	9.7	10.0	5.94	3.2	70.9	0.80	38.8	48.4	0.466	0.091	0.118	0.25	NonLiqfble.
	16.57	8	10.1	0.43	115	2054	1513	11.4	12.0	4.74	3.1	62.0	0.80	45.4	56.8	0.467	0.097	0.126	0.27	NonLiqfble.
	16.68	8	9.8	0.43	115	2066	1519	11.0	11.5	4.91	3.1	63.6	0.80	44.0	55.0	0.468	0.095	0.124	0.27	NonLiqfble.
	16.79 16.9	8	9 8.5	0.44 0.45	115 115	2079 2092	1525 1531	10.1 9.5	10.4 9.7	5.53 6.04	3.1	68.4 72.1	0.80	40.3 38.0	50.4 47.5	0.469 0.470	0.092 0.090	0.119 0.117	0.25 0.25	NonLiqfble. NonLiqfble.
	17.01	8	8	0.43	115	2104	1537	8.9	9.0	6.19	3.2	74.5	0.80	35.7	44.6	0.470	0.090	0.117	0.23	NonLiqfble.
	17.11	8	7.2	0.4	115	2116	1542	8.0	8.0	6.51	3.3	79.1	0.80	32.1	40.1	0.472	0.086	0.112	0.24	NonLiqfble.
	17.22	8	5.5	0.36	105	2129	1548	6.1	5.7	8.12	3.4	94.1	0.80	24.5	30.6	0.473	0.083	0.107	0.23	NonLiqfble.
	17.33	8	5	0.34	105	2140	1552	5.6	5.1	8.65	3.5	99.6	0.80	22.2	27.8	0.474	0.082	0.107	0.22	NonLiqfble.
	17.43	8	5.2	0.32	105 105	2151	1557	5.8	5.3	7.76	3.5	95.4	0.80	23.1	28.8	0.475	0.082	0.107	0.22	NonLiqfble.
	17.54 17.65	8	5.1 5.8	0.29	105	2162 2174	1561 1566	5.6 6.4	5.1 6.0	7.47 6.15	3.5 3.4	95.4 86.0	0.80	22.6 25.7	28.2 32.1	0.476 0.477	0.082	0.107 0.108	0.22 0.23	NonLiqfble. NonLiqfble.
	17.75	8	5.7	0.29	105	2184	1570	6.3	5.9	6.29	3.4	87.3	0.80	25.2	31.5	0.478	0.083	0.108	0.23	NonLiqfble.
	17.86	8	6	0.29	105	2196	1575	6.6	6.2	5.92	3.3	84.1	0.80	26.5	33.1	0.480	0.083	0.108	0.23	NonLiqfble.
	17.97	8	6.6	0.29	105	2207	1580	7.3	7.0	5.28	3.3	78.4	0.80	29.1	36.3	0.481	0.084	0.110	0.23	NonLiqfble.
	18.07	8	6.8	0.29	105	2218	1584	7.5	7.2	5.10	3.2	76.7	0.80	29.9	37.4	0.482	0.085	0.110	0.23	NonLiqfble.
	18.18	8	6.9 6.7	0.29	105	2229	1588	7.6	7.3	5.01	3.2	76.0	0.80	30.3	37.9	0.483	0.085	0.111	0.23	NonLiqfble.
	18.29 18.4	8	7.9	0.29	105 115	2241 2252	1593 1598	7.3 8.6	7.0 8.5	5.20 4.58	3.3	77.9 70.1	0.80	29.4 34.6	36.7 43.2	0.484 0.485	0.085 0.088	0.110 0.114	0.23 0.23	NonLiqfble. NonLiqfble.
	18.53	8	10.7	0.32	115	2267	1605	11.7	11.9	3.35	3.0	56.0	0.80	46.7	58.4	0.486	0.099	0.128	0.26	NonLiqfble.
	18.63	8	11.4	0.33	115	2279	1610	12.4	12.7	3.22	2.9	53.8	0.80	49.7	62.2	0.487	0.102	0.133	0.27	NonLiqfble.
	18.74	8	12.3	0.33	115	2292	1616	13.4	13.8	2.96	2.9	50.7	0.80	53.6	66.9	0.488	0.108	0.140	0.29	NonLiqfble.
	18.84	8	11.8	0.33	115	2303	1621	12.8	13.1	3.10	2.9	52.5	0.80	51.3	64.1	0.489	0.105	0.136	0.28	NonLiqfble.
	18.95 19.06	8	11.4 11.2	0.34 0.36	115 115	2316 2328	1627 1633	12.4 12.1	12.6 12.3	3.32 3.59	2.9 3.0	54.6 56.4	0.80	49.5 48.5	61.8 60.6	0.490 0.491	0.102 0.101	0.133	0.27 0.27	NonLiqfble. NonLiqfble.
	19.17	8	10.3	0.38	115	2341	1638	11.1	11.1	4.16	3.0	61.4	0.80	44.5	55.7	0.492	0.096	0.125	0.25	NonLiqfble.
	19.27	8	9.4	0.4	115	2352	1644	10.1	10.0	4.86	3.1	67.0	0.80	40.6	50.7	0.492	0.092	0.120	0.24	NonLiqfble.
	19.39	8	7.9	0.41	115	2366	1650	8.5	8.1	6.10	3.3	77.1	0.80	34.0	42.5	0.493	0.087	0.113	0.23	NonLiqfble.
	19.49	8	6.6	0.39	115	2378	1655	7.1	6.5	7.21	3.4	87.2	0.80	28.4	35.5	0.494	0.084	0.109	0.22	NonLiqfble.
	19.6 19.71	8	5.5 5.6	0.37 0.34	105 105	2390 2402	1661	5.9	5.2 5.3	8.60 7.73	3.5	98.7 95.4	0.80	23.6 24.0	29.5 30.0	0.495 0.496	0.082 0.083	0.107 0.107	0.22 0.22	NonLiqfble. NonLiqfble.
	19.71	8	6.2	0.34	105	2414	1666 1670	6.0 6.6	6.0	6.41	3.5 3.4	95.4 87.1	0.80	26.6	33.2	0.496	0.083	0.107	0.22	NonLiqible. NonLiqfble.
	19.93	8	6	0.3	105	2425	1675	6.4	5.7	6.27	3.4	88.0	0.80	25.7	32.1	0.498	0.083	0.108	0.22	NonLiqfble.
	20.04	8	5.9	0.3	105	2437	1680	6.3	5.6	6.41	3.4	89.3	0.80	25.2	31.5	0.489	0.083	0.108	0.22	NonLiqfble.
	20.14	8	5.5	0.29	105	2447	1684	5.9	5.1	6.78	3.4	93.5	0.80	23.5	29.3	0.490	0.082	0.107	0.22	NonLiqfble.
	20.25	8	5	0.28	105	2459	1689	5.3	4.5	7.43	3.5	100.0	0.80	21.3	26.6	0.491	0.082	0.106	0.22	NonLiqfble.
	20.36 20.47	8	4.7 4.5	0.28 0.28	105 105	2470 2482	1693 1698	5.0 4.8	4.1 3.8	8.08 8.59	3.6 3.6	105.1 108.9	0.80	20.0 19.1	25.0 23.9	0.492 0.492	0.081	0.106 0.106	0.22 0.21	NonLiqfble. NonLiqfble.
	20.47	8	4.5	0.29	105	2482	1702	4.8	3.8	8.65	3.6	108.9	0.80	19.1	23.9	0.492	0.081	0.106	0.21	NonLiqible. NonLiqfble.
	20.68	8	5.3	0.31		2504	1707	5.6	4.7	7.66	3.5	98.7	0.80	22.5	28.1	0.494	0.082	0.107	0.22	NonLiqfble.
																				-

CPT Number: 9

Depth to Groundwater: 8 feet (actual 12.3 feet)

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 **MSF:** 1.30

	D4h	Water	Tip	Sleeve	_		Effective			Friction		E.C.					•	Liquef.		
Cone	Depth (FT)	Table (FT)	Resist.	Frict. (TSF)	g (PCF)	Stress (PSF)	Stress (PSF)	Tip Qcin	Tip Q	Ratio F	Ic	F.C. (%)	Ксрт	Dagin	(qcIN)cs	Stress Ratio	Stress M7.5	Stress M6.50	of Safety	Comments
Conc	(11)	(F 1)	(151)	(151)	(I CI)	(151)	(151)	qua	·		ıc	(10)		2 qui	(40.0)	Katio	1417.5	10.50	Sarcty	Comments
	00.70	0	0.4	0.04	105	2515	1710			6.61	2.4	07.7	0.00	27.1	22.0	0.405	0.004	0.100	0.00	N. T. 01
	20.79 20.89	8 8	6.4 8.1	0.34 0.36	105 115	2515 2526	1712 1716	6.8 8.6	6.0 8.0	6.61 5.27	3.4	87.7 74.6	0.80	27.1 34.2	33.8 42.8	0.495 0.496	0.084 0.087	0.109 0.113	0.22 0.23	NonLiqfble. NonLiqfble.
	21	8	9.8	0.39	115	2539	1722	10.3	9.9	4.57	3.1	66.0	0.80	41.3	51.7	0.497	0.093	0.121	0.24	NonLiqfble.
	21.11	8	10.4	0.42	115	2551	1727	10.9	10.6	4.60	3.1	64.6	0.80	43.8	54.7	0.498	0.095	0.124	0.25	NonLiqfble.
	21.21	8	11.4	0.5	125	2563	1733	12.0	11.7	4.94	3.1	63.5	0.80	47.9	59.9	0.498	0.100	0.130	0.26	NonLiqfble.
	21.32 21.43	8	13 13.4	0.61 0.73	125 125	2576 2590	1740 1747	13.6 14.0	13.5 13.9	5.21 6.03	3.0	61.1 63.3	0.80	54.5 56.1	68.2 70.1	0.499 0.500	0.109 0.112	0.142 0.146	0.29 0.29	NonLiqfble. NonLiqfble.
	21.74	8	27.5	0.70	135	2629	1766	28.6	29.6	3.51	2.7	38.7	0.80	114.5	143.2	0.502	0.353	0.459	0.25	NonLiqfble.
	21.85	8	33	1.05	135	2644	1774	34.3	35.7	3.31	2.6	34.8	0.80	134.5	168.8	0.502	0.527	0.685	1.36	
	21.95	8	37.6	1.21	135	2657	1781	39.0	40.7	3.34	2.5	32.9	0.75	114.5	153.5	0.503	0.416	0.541	1.08	Low F.S.
	22.06	8	37.5	1.32	135	2672	1789	38.8	40.4	3.65	2.6	34.3	0.78	139.9	178.7	0.503	0.611	0.794	1.58	NI I : - G-1-
	22.16 22.27	8	35.7 34.1	1.32	135 135	2686 2700	1796 1804	36.9 35.1	38.2 36.3	3.84 3.97	2.6 2.6	35.9 37.2	0.80 0.80	147.4 140.5	184.3 175.6	0.504 0.504	0.662 0.584	0.860 0.759	1.71 1.50	NonLiqfble. NonLiqfble.
	22.38	8	29.7	1.33	135	2715	1812	30.5	31.3	4.69	2.7	42.3	0.80	122.1	152.6	0.505	0.411	0.534	1.06	NonLiqfble.
	22.48	8	27.6	1.3	135	2729	1820	28.3	28.8	4.96	2.8	44.6	0.80	113.2	141.5	0.505	0.344	0.447	0.88	NonLiqfble.
	22.59	8	29.1	1.18	135	2744	1828	29.8	30.3	4.26	2.7	41.3	0.80	119.1	148.9	0.506	0.387	0.503	0.99	NonLiqfble.
	22.7	8	31.8	1.03	135	2758	1836	32.5	33.1	3.39	2.6	36.3	0.80	129.9	162.4	0.506	0.478	0.622	1.23	NonLiqfble.
	22.8 22.91	8 8	26.5 18.8	0.9 0.77	135 125	2772 2787	1843 1851	27.0 19.1	27.2 18.8	3.58 4.42	2.7 2.9	40.4 50.8	0.80	108.0 76.5	135.0 95.6	0.507 0.507	0.309 0.161	0.402 0.210	0.79 0.41	NonLiqfble. NonLiqfble.
	23.02	8	15.3	0.67	125	2801	1858	15.5	15.0	4.82	3.0	57.2	0.80	62.1	77.7	0.508	0.124	0.161	0.32	NonLiqfble.
	23.12	8	14.1	0.67	125	2813	1864	14.3	13.6	5.28	3.0	61.1	0.80	57.2	71.4	0.509	0.114	0.148	0.29	NonLiqfble.
	23.23	8	13.2	0.84	125	2827	1871	13.4	12.6	7.13	3.1	69.1	0.80	53.4	66.8	0.509	0.108	0.140	0.27	NonLiqfble.
	23.34	8	16.1	1.12	135	2841	1878	16.3	15.6	7.63	3.1	65.4	0.80	65.0	81.3	0.510	0.130	0.169	0.33	NonLiqfble.
	23.44 23.55	8	26.5 42.1	1.36 1.52	135 135	2854 2869	1885 1893	26.7 42.3	26.6 42.9	5.42 3.74	2.8 2.6	47.7 33.8	0.80 0.77	106.8 140.0	133.5 182.4	0.510 0.511	0.301 0.644	0.392 0.837	0.77 1.64	NonLiqfble.
	23.65	8	55	1.7	135	2882	1900	55.2	56.3	3.17	2.4	27.8	0.61	85.7	140.9	0.511	0.340	0.442	0.86	Liquefaction
	23.75	8	61.8	1.92	135	2896	1908	61.9	63.3	3.18	2.4	26.3	0.57	82.1	144.0	0.512	0.358	0.465	0.91	Liquefaction
	23.86	8	65.8	2.17	135	2911	1916	65.8	67.2	3.37	2.4	26.4	0.57	87.4	153.1	0.512	0.414	0.538	1.05	Low F.S.
	23.96	8	76.5	2.41	135	2924	1923	76.3	78.0	3.21	2.3	24.0	0.51	78.6	154.9	0.512	0.426	0.553	1.08	Low F.S.
	24.06 24.16	8	87.1 95.5	2.59 2.69	135 135	2938 2951	1930 1937	86.7 94.9	88.7 97.0	3.02 2.86	2.3	21.9 20.3	0.45 0.41	71.1 65.6	157.9 160.5	0.513 0.513	0.446 0.465	0.580 0.604	1.13 1.18	Low F.S. Low F.S.
	24.26	8	101.6	2.79	135	2965	1945	100.8	102.9	2.79	2.2	19.4	0.39	63.2	164.0	0.513	0.490	0.637	1.24	Low 1.3.
	24.37	8	104.1	2.87	135	2980	1953	103.1	105.1	2.80	2.2	19.3	0.38	63.5	166.5	0.514	0.509	0.662	1.29	
	24.47	8	103.9	2.94	135	2993	1960	102.7	104.5	2.87	2.2	19.6	0.39	65.7	168.4	0.515	0.524	0.682	1.32	
	24.57	8	102.9	3.01	135	3007	1967	101.5	103.1	2.97	2.2	20.1	0.40	68.8	170.3	0.515	0.539	0.701	1.36	
	24.67 24.77	8	104.3 106.4	2.93 2.97	135 135	3020 3034	1974 1982	102.7 104.6	104.1 105.8	2.85 2.83	2.2	19.6 19.3	0.39 0.38	65.4 64.9	168.1 169.5	0.515 0.516	0.522 0.533	0.678 0.692	1.32 1.34	
	24.87	8	107.6	3.16	135	3047	1989	105.6	106.6	2.98	2.2	19.8	0.40	69.2	174.8	0.516	0.577	0.750	1.45	
	24.99	8	110.4	3.36	135	3063	1998	108.1	109.0	3.09	2.2	20.0	0.40	72.5	180.5	0.517	0.627	0.815	1.58	
	25.09	8	115.2	3.44	135	3077	2005	112.6	113.3	3.03	2.2	19.4	0.39	70.6	183.1	0.517	0.651	0.847	1.64	
	25.19	8	118.1	3.45	135	3090	2012	115.2	115.8	2.96	2.2	19.0	0.37	68.6	183.8	0.518	0.657	0.855	1.65	
	25.29 25.39	8 8	118.3 115.3	3.46 3.31	135 135	3104 3117	2019 2027	115.2 112.1	115.6 112.2	2.96 2.91	2.2 2.2	19.0 19.1	0.37 0.38	68.8 67.5	184.0 179.6	0.518 0.518	0.660 0.619	0.858 0.805	1.66 1.55	
	25.49	8	115.4	3.14	135	3131	2034	112.0	111.9	2.76	2.2	18.5	0.36	63.3	175.2	0.519	0.580	0.754	1.45	
	25.59	8	114.1	2.94	135	3144	2041	110.5	110.2	2.61	2.2	18.1	0.35	59.3	169.8	0.519	0.535	0.696	1.34	
	25.69	8	110.1	2.74	135	3158	2048	106.4	105.9	2.52	2.2	18.1	0.35	57.2	163.6	0.519	0.487	0.633	1.22	
	25.78	8	106.5 98.8	2.49 2.36	135	3170	2055	102.8	102.1	2.37	2.2	17.8	0.34	53.3	156.1	0.520 0.520	0.434	0.564	1.08	Low F.S.
	25.86 25.96	8	96.6 88.2	2.36	135 135	3181 3194	2061 2068	95.2 84.9	94.3 83.7	2.43 2.62	2.2	18.8 20.8	0.37 0.42	55.5 62.2	150.7 147.0	0.520	0.398 0.376	0.518 0.488	1.00 0.94	Liquefaction Liquefaction
	26.06	8	76.2	2.15	135	3208	2075	73.2	71.9	2.88	2.3	23.6	0.50	72.3	145.5	0.521	0.367	0.477	0.91	Liquefaction
	26.16	8	67.7	1.99	135	3221	2083	64.9	63.4	3.01	2.4	25.6	0.55	79.5	144.4	0.521	0.360	0.468	0.90	Liquefaction
	26.26	8	60.9	1.81	135	3235	2090	58.3	56.7	3.05	2.4	27.2	0.59	84.8	143.1	0.522	0.352	0.458	0.88	Liquefaction
	26.36	8	57.1	1.6	135	3248	2097	54.6	52.9	2.88	2.4	27.4	0.60	81.0	135.6	0.522	0.312	0.405	0.78	Liquefaction
	26.46 26.55	8	49.7 36.9	1.77 1.87	135 135	3262 3274	2104 2111	47.4 35.1	45.7 33.4	3.68 5.30	2.5 2.8	32.7 43.2	0.74 0.80	133.7 140.6	181.1 175.7	0.522 0.523	0.633 0.584	0.822 0.760	1.57 1.45	NonLiqfble.
	26.65	8	28.4	1.8	135	3287	2118	27.0	25.3	6.73	2.9	52.6	0.80	108.0	135.0	0.523	0.309	0.401	0.77	NonLiqfble.
	26.75	8	44.2	1.65	135	3301	2125	41.9	40.0	3.88	2.6	35.4	0.80	167.8	209.7	0.523	0.938	1.220	2.33	
	26.85	8	81.5	1.79	135	3314	2133	77.2	74.8	2.24	2.2	20.3	0.41	53.5	130.7	0.524	0.288	0.374	0.71	Liquefaction
	26.94	8	100.7	1.97	135	3327	2139	83.2	80.7	2.28	2.2	19.7	0.39	53.9	137.1	0.524	0.320	0.416	0.79	Liquefaction
	27.04 27.14	8	100.7 116.4	2.07 2.1	135 135	3340 3354	2146 2154	95.1 109.7	92.2 106.5	2.09 1.83	2.2	17.5 14.9	0.33 0.26	47.5 39.3	142.6 149.1	0.524 0.525	0.350 0.388	0.454 0.504	0.87 0.96	Liquefaction Liquefaction
	27.14	8	126.8	2.01	135	3366	2160	119.4	115.8	1.61	2.0	13.0	0.20	32.5	151.9	0.525	0.406	0.528	1.01	Low F.S.
	27.33	8		1.96		3379	2167	127.0	123.1	1.47	2.0	11.8	0.18	28.2	155.1	0.525	0.427	0.555	1.06	Low F.S.

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 **MSF:** 1.30

CPT Number: 9

		Water	Tip	Sleeve			Effective			Friction							-	Liquef.		
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress		of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	27.43	8	137.5	2.01	135	3393	2175	129.0	124.8	1.48	2.0	11.7	0.18	28.3	157.4	0.526	0.442	0.575	1.09	Low F.S.
	27.52	8	134.6	2.09	135	3405	2181	126.1	121.8	1.57	2.0	12.4	0.20	31.2	157.3	0.526	0.442	0.575	1.09	Low F.S.
	27.6	8	131.4	2.18	135	3416	2187	122.9	118.6	1.68	2.0	13.2	0.22	34.5	157.5	0.526	0.443	0.576	1.09	Low F.S.
	27.69	8	130.8	2.22	135	3428	2194	122.2	117.6	1.72	2.0	13.5	0.23	35.7	157.9	0.527	0.446	0.580	1.10	Low F.S.
	27.78	8	132.9	2.23	135	3440	2200	124.0	119.2	1.70	2.0	13.3	0.22	35.1	159.1	0.527	0.454	0.591	1.12	Low F.S.
	27.87	8	138.5	2.26	135	3452	2207	129.0	123.9	1.65	2.0	12.7	0.21	33.4	162.4	0.527	0.478	0.622	1.18	Low F.S.
	27.96	8	142.7	2.04	135	3464	2213	132.7	127.3	1.45	1.9	11.4	0.17	27.4	160.2	0.527	0.462	0.601	1.14	Low F.S.
	28.06	8	146.2	2.18	135	3478	2220	135.8	130.1	1.51	1.9	11.6	0.18	28.9	164.7	0.528	0.495	0.644	1.22	
	28.14	8	161.6	2.14	135	3489	2226	149.9	143.5	1.34	1.9	9.9	0.13	22.7	172.6	0.528	0.558	0.726	1.37	
	28.22	8	214.9	2.52	125	3499	2232	199.0	190.9	1.18	1.8	7.2	0.06	12.5	211.5	0.528	0.960	1.249	2.36	
	28.3	8	295.3	2.83	125	3509	2237	273.2	262.3	0.96	1.6	4.3	0.00	0.0	273.2	0.529	1.976	2.569	4.86	
	28.39	8	356.9	3.53	125	3521	2243	329.7	316.6	0.99	1.6	3.7	0.00	0.0	329.7	0.529	3.414	4.439	8.39	
	28.48	8	406.3	4.79	135	3532	2248	374.9	359.7	1.18	1.6	4.1	0.00	0.0	374.9	0.529	4.981	6.475	12.23	
	28.56	8	445.6	4.68	125	3543	2254	410.6	393.6	1.05	1.5	3.1	0.00	0.0	410.6	0.530	6.520	8.476	16.01	
	28.64	8	448.4	5.56	135	3553	2259	412.8	395.2	1.24	1.6	4.0	0.00	0.0	412.8	0.530	6.621	8.607	16.24	
	28.73	8	424.6	5.42	135	3565	2266	390.3	373.1	1.28	1.6	4.4	0.00	0.0	390.3	0.530	5.609	7.292	13.75	
	28.82	8	421.3	5.23	135	3577	2272	386.7	369.1	1.25	1.6	4.3	0.00	0.0	386.7	0.530	5.458	7.096	13.38	
	28.9	8	387.5	4.91	135	3588	2278	355.2	338.5	1.27	1.6	4.8	0.00	0.0	355.2	0.531	4.249	5.523	10.41	
	28.99	8	395.2	4.9	135	3600	2285	361.8	344.3	1.25	1.6	4.6	0.00	0.0	361.8	0.531	4.483	5.828	10.98	
	29.07	8	400.6	4.95	135	3611	2290	366.2	348.1	1.24	1.6	4.5	0.00	0.0	366.2	0.531	4.649	6.044	11.38	
	29.15	8	397.2	4.54	135	3622	2296	362.7	344.2	1.15	1.6	4.1	0.00	0.0	362.7	0.531	4.517	5.872	11.05	
	29.24	8	379.5	4.72	135	3634	2303	346.0	327.9	1.25	1.6	4.8	0.00	0.0	346.0	0.532	3.933	5.113	9.62	
	29.32	8	386	4.78	135	3644	2309	351.5	332.7	1.24	1.6	4.7	0.00	0.0	351.5	0.532	4.119	5.355	10.07	
	29.41	8	394.8	4.22	125	3657	2315	359.0	339.4	1.07	1.6	3.8	0.00	0.0	359.0	0.532	4.384	5.699	10.71	
	29.48	8	397.3	3.88	125	3665	2319	360.9	340.9	0.98	1.5	3.3	0.00	0.0	360.9	0.532	4.453	5.789	10.87	
	29.56	8	397.8	3.95	125	3675	2324	361.0	340.6	1.00	1.5	3.4	0.00	0.0	361.0	0.533	4.456	5.792	10.87	
	29.64	8	384.3	4	125	3685	2329	348.4	328.2	1.05	1.6	3.8	0.00	0.0	348.4	0.533	4.012	5.216	9.78	
	29.73	8	364	3.99	125	3697	2335	329.6	310.1	1.10	1.6	4.3	0.00	0.0	329.6	0.533	3.410	4.432	8.31	
	29.8	8	358.9	3.94	125	3705	2339	324.7	305.1	1.10	1.6	4.4	0.00	0.0	324.7	0.534	3.263	4.241	7.95	
	29.88	8	361.2	4.38	135	3715	2344	326.4	306.4	1.22	1.6	4.9	0.00	0.0	326.4	0.534	3.314	4.308	8.07	
	29.95	8	356.4	5.37	135	3725	2350	321.7	301.7	1.51	1.7	6.4	0.04	12.5	334.3	0.534	3.553	4.619	8.65	
	30.03	8	370.8	5.27	135	3736	2355	334.3	313.1	1.43	1.7	5.8	0.02	7.7	342.0	0.512	3.799	4.939	9.64	

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 10

Depth to Groundwater: 7 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	q <sub>c1N</sub>	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	0.51	7	109.3	1.42	125	64	64	209.3	3426.6	1.30	1.3	0.8	0.00	0.0	209.3	0.351	0.933	1.213	3.46	Above W.T.
	0.6	7	117.5	1.29	125	75	75	225.0	3131.0	1.10	1.3	0.0	0.00	0.0	225.0	0.351	1.140	1.482	4.22	Above W.T.
	0.7	7	108	1.12	125	88	88	206.8	2466.5	1.04	1.2	-0.2	0.00	0.0	206.8	0.351	0.903	1.174	3.34	Above W.T.
	0.81	7	93	0.99	125	101	101	178.1	1835.3	1.07	1.3	0.1	0.00	0.0	178.1	0.351	0.606	0.787	2.24	Above W.T.
	0.92	7	74.4	1.09	135	115	115	142.5	1292.4	1.47	1.4	1.9	0.00	0.0	142.5	0.351	0.349	0.454	1.29	Above W.T.
	1.03 1.14	7 7	42.2 33.8	1.28 1.39	135 135	130 145	130 145	80.8 64.7	648.7 466.0	3.04 4.12	1.8	8.7 13.0	0.10	8.8 17.6	89.6 82.4	0.351 0.351	0.147 0.132	0.191 0.172	0.54 0.49	Above W.T. Above W.T.
	1.24	7	20.5	1.4	135	158	158	39.3	258.1	6.86	2.3	23.0	0.48	36.3	75.5	0.351	0.132	0.172	0.44	Above W.T.
	1.35	7	16.3	1.3	135	173	173	31.2	187.3	8.02	2.4	28.0	0.61	49.7	80.9	0.351	0.129	0.168	0.48	Above W.T.
	1.46	7	16	1.14	135	188	188	30.6	169.2	7.17	2.4	27.2	0.59	44.4	75.1	0.351	0.119	0.155	0.44	Above W.T.
	1.56	7	13.7	1.03	125	201	201	26.2	135.0	7.57	2.5	30.3	0.67	54.3	80.6	0.351	0.129	0.167	0.48	Above W.T.
	1.67	7	11.1	0.97	125	215	215	21.3	102.1	8.82	2.6	36.0	0.80	85.0	106.3	0.351	0.192	0.249	0.71	Above W.T.
	1.78 1.88	7 7	11.5 10.9	0.92 0.87	125 125	229 241	229 241	22.0 20.9	99.4 89.3	8.08 8.07	2.6 2.6	34.7 36.0	0.79 0.80	84.9 83.5	106.9 104.4	0.351 0.351	0.194 0.186	0.252 0.241	0.72 0.69	Above W.T. Above W.T.
	1.99	7	12.5	0.84	125	255	255	23.9	96.9	6.79	2.5	11.5	0.30	5.0	29.0	0.351	0.180	0.107	0.30	Above W.T.
	2.23	7	19.5	0.96	135	285	285	37.3	135.7	4.96	2.3	11.5	0.17	7.8	45.2	0.351	0.089	0.115	0.33	Above W.T.
	2.33	7	17	0.96	125	299	299	32.6	112.8	5.70	2.4	11.5	0.17	6.8	39.4	0.351	0.086	0.111	0.32	Above W.T.
	2.44	7	14	0.96	125	312	312	26.8	88.6	6.93	2.6	11.5	0.17	5.6	32.4	0.351	0.083	0.108	0.31	Above W.T.
	2.54	7	11.7	0.91	125	325	325	22.4	71.0	7.89	2.7	11.5	0.17	4.7	27.1	0.351	0.082	0.106	0.30	Above W.T.
	2.65 2.76	7 7	10.3 8.9	0.84 0.82	125 125	339 352	339 352	19.7 17.0	59.8 49.5	8.29 9.40	2.7 2.8	11.5 47.3	0.17 0.80	4.1 68.2	23.9 85.2	0.351 0.351	0.081 0.138	0.106 0.179	0.30	Above W.T. Above W.T.
	2.76	7	9.6	0.85	125	366	366	18.4	51.4	9.40	2.8	45.9	0.80	73.5	91.9	0.351	0.158	0.179	0.56	Above W.T.
	2.97	7	10.7	0.91	125	379	379	20.5	55.5	8.66	2.8	43.9	0.80	82.0	102.5	0.351	0.132	0.234	0.67	Above W.T.
	3.08	7	11.9	0.99	125	392	392	22.8	59.6	8.46	2.7	42.4	0.80	91.2	114.0	0.351	0.218	0.283	0.81	Above W.T.
	3.19	7	14.2	1.06	125	406	406	27.2	68.9	7.57	2.7	38.3	0.80	108.8	136.0	0.351	0.314	0.408	1.16	Above W.T.
	3.3	7	14.6	1.12	135	420	420	28.0	68.5	7.78	2.7	38.9	0.80	111.8	139.8	0.351	0.334	0.434	1.24	Above W.T.
	3.4	7 7	14.9	1.19	135	433	433	28.5	67.7	8.10	2.7	39.8	0.80	114.1	142.7	0.351	0.350	0.455	1.30	Above W.T.
	3.51 3.62	7	17.1 18.7	1.24 1.24	135 135	448 463	448 463	32.7 35.8	75.3 79.7	7.35 6.71	2.6 2.6	36.6 34.3	0.80 0.78	131.0 129.3	163.7 165.1	0.351 0.351	0.488 0.499	0.635 0.648	1.81 1.85	Above W.T. Above W.T.
	3.73	7	17.4	1.23	135	478	478	33.3	71.8	7.17	2.6	36.8	0.80	133.3	166.6	0.351	0.510	0.663	1.89	Above W.T.
	3.83	7	16.7	1.2	135	491	491	32.0	66.9	7.29	2.7	38.0	0.80	127.9	159.9	0.351	0.460	0.598	1.71	Above W.T.
	3.94	7	15	1.14	135	506	506	28.7	58.2	7.73	2.7	41.1	0.80	114.9	143.6	0.351	0.356	0.462	1.32	Above W.T.
	4.05	7	14.2	1.07	125	521	521	27.2	53.5	7.68	2.7	42.2	0.80	108.8	136.0	0.351	0.314	0.408	1.16	Above W.T.
	4.15 4.26	7 7	13.1 11.2	1.03	125 125	534 547	534 547	24.8 20.9	48.1 39.9	8.03 9.15	2.8	44.7 50.3	0.80	99.2 83.8	124.1 104.7	0.351 0.351	0.258 0.187	0.335 0.243	0.95 0.69	Above W.T.
	4.20	7	10.1	0.99	125	561	561	18.7	35.0	10.08	2.9	54.6	0.80	74.6	93.3	0.351	0.157	0.243	0.58	Above W.T. Above W.T.
	4.47	7	10.1	0.95	125	574	574	18.5	34.2	9.68	2.9	54.2	0.80	73.8	92.3	0.351	0.153	0.199	0.57	Above W.T.
	4.58	7	9.4	0.93	125	587	587	17.0	31.0	10.21	3.0	57.2	0.80	67.9	84.8	0.351	0.137	0.178	0.51	Above W.T.
	4.69	7	9.1	0.91	125	601	601	16.2	29.3	10.34	3.0	58.6	0.80	65.0	81.2	0.351	0.130	0.169	0.48	Above W.T.
	4.79	7	9.1	0.9	125	614	614	16.1	28.6	10.24	3.0	58.8	0.80	64.3	80.4	0.351	0.128	0.167	0.48	Above W.T.
	4.9 5.01	7 7	10 10.2	0.89 0.88	125 125	627 641	627 641	17.5 17.6	30.9 30.8	9.19 8.91	2.9 2.9	55.0 54.4	0.80	69.9 70.5	87.3 88.1	0.351 0.351	0.142 0.144	0.185 0.187	0.53 0.53	Above W.T. Above W.T.
	5.11	7	10.1	0.77	125	654	654	17.3	29.9	7.88	2.9	52.5	0.80	69.1	86.4	0.351	0.140	0.182	0.52	Above W.T.
	5.22	7	10.5	0.79	125	667	667	17.8	30.5	7.77	2.9	51.9	0.80	71.1	88.9	0.351	0.145	0.189	0.54	Above W.T.
	5.33	7	10	0.77	125	681	681	16.8	28.3	7.97	2.9	53.7	0.80	67.1	83.8	0.351	0.135	0.175	0.50	Above W.T.
	5.36	7	11.2	0.76	125	685	685	18.7	31.7	7.00	2.9	49.1	0.80	74.9	93.6	0.351	0.156	0.203	0.58	Above W.T.
	5.47	7	10.2	0.72	125	699	699	16.9	28.2	7.31	2.9	52.1	0.80	67.5	84.4	0.351	0.136	0.177	0.50	Above W.T.
	5.58 5.68	7 7	9.2 8.1	0.68 0.65	125 125	712 725	712 725	15.1 13.2	24.8 21.3	7.69 8.40	3.0	55.6 60.5	0.80	60.3 52.7	75.4 65.8	0.351 0.351	0.120 0.107	0.156 0.138	0.44 0.39	Above W.T. Above W.T.
	5.79	7	7	0.61	115	739	739	11.3	17.9	9.20	3.1	66.3	0.80	45.1	56.3	0.351	0.097	0.126	0.36	Above W.T.
	5.9	7	4.6	0.56	115	751	751	7.3	11.2	13.26	3.4	86.8	0.80	29.4	36.7	0.351	0.085	0.110	0.31	Above W.T.
	6.01	7	3.9	0.54	105	764	764	6.2	9.2	15.35	3.5	96.5	0.80	24.7	30.9	0.351	0.083	0.108	0.31	Above W.T.
	6.11	7	3.5	0.54	105	774	774	5.5	8.0	17.35	3.6	104.1	0.80	22.0	27.5	0.351	0.082	0.107	0.30	Above W.T.
	6.22	7	5.3 5.7	0.56	115	786 700	786 700	8.3	12.5	11.41	3.3	80.2	0.80	33.1	41.4	0.351	0.087	0.113	0.32	Above W.T.
	6.33 6.44	7 7	5.7 6	0.58 0.59	115 115	799 811	799 811	8.8 9.2	13.3 13.8	10.94 10.55	3.3	77.6 75.7	0.80	35.3 36.9	44.1 46.1	0.351 0.351	0.088	0.114 0.116	0.33	Above W.T. Above W.T.
	6.55	7	5.8	0.57	115	824	824	8.8	13.1	10.58	3.3	77.1	0.80	35.4	44.2	0.351	0.088	0.110	0.33	Above W.T.
	6.65	7	6.3	0.54	115	835	835	9.5	14.1	9.18	3.2	72.0	0.80	38.1	47.7	0.351	0.090	0.117	0.33	Above W.T.
	6.76	7	6.2	0.53	115	848	848	9.3	13.6	9.18	3.2	72.8	0.80	37.3	46.6	0.351	0.089	0.116	0.33	Above W.T.
	6.87	7	6.9	0.53	115	861	861	10.3	15.0	8.19	3.1	67.8	0.80	41.2	51.5	0.351	0.093	0.120	0.34	Above W.T.
	6.98	7	6.4	0.54	115	873	873	9.5	13.6	9.06	3.2	72.4	0.80	37.9	47.4	0.351	0.090	0.117	0.33	Above W.T.
	7.08	7	6.3	0.54	115	885	879	9.3	13.3	9.22	3.2	73.4	0.80	37.2	46.5	0.353	0.089	0.116	0.33	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 10

Depth to Groundwater: 7 feet

EQ Magnitude (Mw): 6.5 PGA (g): 0.54 MSF: 1.30

Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Stress Stress Stress g (TSF) (TSF) (PCF) (PSF) (PSF) (%) KCPT DqcIN (qcIN)cs Ratio M7.5 M6.50 Safety (FT) (FT) **q**c1N 0 Comments Ic 7.19 7 6.7 0.53 115 898 884 9.9 14.1 8.48 3.2 70.1 0.80 39 4 49 3 0.356 0.091 0.118 0.33 NonLigfble. 7.3 6.4 0.51 115 910 890 9.4 13.3 8.58 3.2 71.7 0.80 37.5 46.9 0.359 0.090 0.116 0.32 NonLiqfble. 7.4 6.1 0.51 115 922 895 8.9 12.6 9.04 3.2 74.4 0.80 35.7 44.6 0.361 0.088 0.115 0.32 NonLiqfble. 7.51 6.1 0.52 115 934 901 8.9 12.5 9.23 3.2 75.1 0.80 35.6 44.5 0.364 0.088 0.115 0.31 NonLiqfble. 7.62 5.9 0.51 115 947 907 8.6 12.0 9.40 3.2 76.6 0.80 34.3 42.9 0.366 0.087 0.114 0.31 NonLiqfble. 7.72 6.5 0.5 115 959 912 9.4 13.2 8.30 3.2 71.3 0.80 37.7 47.1 0.369 0.090 0.117 0.32 NonLiqfble. 7.83 6.8 0.5 115 971 918 9.8 13.7 7.92 3.2 69.2 0.80 39.3 49.1 0.371 0.118 0.32 NonLiafble. 0.091 7.94 0.5 924 9.08 3.2 0.80 34.5 43.2 0.374 0.087 0.30 NonLiafble. 6 115 984 8.6 11.9 75.9 0.114 8.05 5.9 0.49 996 930 9.07 0.80 33.9 0.376 0.113 0.30 NonLiafble. 115 8.5 11.6 3.2 76.5 42.3 0.087 8.15 935 6.5 0.48 115 1008 9.3 12.8 8.01 3.2 71.2 0.80 37.2 46.5 0.378 0.089 0.116 0.31 NonLigfble. 8.26 6.7 0.41 115 1021 941 9.6 13.2 6.62 3.1 66.5 0.80 38.2 47.8 0.381 0.090 0.117 0.31 NonLigfble 8.37 6.4 0.41 115 1033 947 9.1 12.4 6.97 68.9 0.80 45.5 0.383 0.089 0.115 0.30 NonLiqfble. 3.1 36.4 8.47 0.41 115 1045 952 8.5 11.5 7.49 3.2 72.4 0.80 34 0 42.5 0.385 0.087 0.113 0.29 NonLiqfble. 8.54 7 8.8 0.41 115 1053 955 12.5 17.3 4.96 2.9 54.6 0.80 49.8 62.3 0.387 0.102 0.133 0.34 NonLiqfble. 8.65 3.0 47.4 8.4 0.42 115 1065 961 11.9 16.4 5.34 57.2 0.80 59.3 0.389 0.099 0.129 0.33 NonLiafble. 8.76 7.9 0.42 115 1078 967 11.1 15.2 5.71 3.0 60.1 0.80 44.5 55.6 0.391 0.096 0.125 0.32 NonLiqfble. 8.86 7.8 0.42 972 3.0 43.8 0.393 0.095 115 1090 10.9 14.9 5.79 60.8 0.80 54.7 0.124 0.31 NonLiafble. 8.97 0.43 0.396 115 1102 978 11.2 15.2 5.77 3.0 60.3 0.80 44.8 56.0 0.096 0.125 NonLigfble. 0.32 9.08 6.8 0.46 115 1115 984 9.5 12.7 7.37 3.2 69.6 0.80 37.9 47.4 0.398 0.090 0.117 0.29 NonLigfble. 0.47 990 10.3 51.5 9.19 7.4 115 1128 13.8 6.88 3.1 66.1 0.80 41.2 0.400 0.093 0.1200.30 NonLigfble. 9.29 8.1 0.49 115 1139 995 11.2 15.1 6.51 3.1 62.8 0.80 44.9 56.2 0.402 0.096 0.125 0.31 NonLigfble. 94 0.49 115 1152 1001 97 12.8 7.63 32 70.1 0.80 38.7 48 4 0.404 0.091 0.118 0.29 NonLiafble. 9.51 7 0.5 115 1164 1006 97 12.7 7.79 3.2 70.7 0.80 38.6 48 3 0.406 0.090 0.118 0.29 NonLiqfble. 9.62 7.3 0.52 115 1177 1012 10.0 13.3 7.75 3.2 69.6 0.80 40.2 50.2 0.408 0.092 0.119 0.29 NonLiqfble. 9.73 5.8 0.51 115 1190 1018 8.0 10.2 9.80 3.3 81.7 0.80 31.8 39.8 0.410 0.086 0.112 0.27 NonLiqfble. 9.84 6.9 0.48 115 1202 1024 9.4 12.3 7.62 3.2 71.1 0.80 37.7 47.2 0.412 0.090 0.117 0.28 NonLigfble. 9.94 5.2 0.42 105 1214 1029 7.1 8.9 9.14 3.3 83.8 0.80 28.4 35.5 0.414 0.084 0.109 0.26 NonLiqfble. 10.05 4.6 0.38 105 1225 1034 7.7 3.4 89.0 0.80 25.0 31.3 0.083 0.108 6.3 9.53 0.408 0.26 NonLigfble. 10.35 10.16 0.35 105 1038 0.410 1237 5.4 6.5 3.5 96.2 0.80 21.7 27.20.082 0.106 0.26 NonLigfble. 10.27 4.7 0.36 1248 1043 8.83 0.80 0.083 0.108 NonLiafble. 105 6.4 7.8 3.4 86.8 25.5 31.8 0.412 0.26 10.38 7 4.5 0.38 105 1260 1048 9.82 3.4 91.0 0.80 24.3 0.414 0.107 NonLiafble. 6.1 7.4 30.4 0.083 0.26 10 48 1052 7 37 0.39 105 1271 5.0 5.8 12.73 36 105 4 0.80 20.0 25.00.415 0.081 0.106 0.25 NonLiafble. 10.59 32 0.37 105 1282 1057 43 4.8 14 46 3.7 1154 0.80 17.2 21.5 0.417 0.081 0.105 0.25 NonLiqfble. 10.7 7 3.8 0.34 105 1294 1061 5.1 5.9 10.78 3.5 100.2 0.80 20.4 25.5 0.419 0.082 0.106 0.25 NonLiqfble. 10.81 3.1 0.33 105 1305 1066 4.2 4.6 13.49 3.7 0.80 16.6 20.8 0.421 0.081 0.105 0.25 NonLiqfble. 115.2 10.91 4.0 4.4 14.09 3.7 NonLiqfble. 3 0.33 105 1316 1070 118.2 0.80 16.0 20.1 0.423 0.081 0.105 0.25 11.02 0.31 105 1327 1075 5.3 6.2 9.29 3.5 95.0 0.80 21.4 26.7 0.425 0.082 0.106 0.25 NonLigfble 11.13 4.5 0.29 105 1339 1080 7.1 7.57 3.4 85.9 0.80 24.0 30.0 0.426 0.083 0.107 0.25 NonLiqfble. 11.24 3.7 0.29 105 1350 1084 4.9 5.6 9.59 3.5 99.1 0.80 19.7 24.6 0.428 0.081 0.106 0.25 NonLiqfble. 11.34 0.29 105 1361 1089 5.3 6.1 8.74 3.4 93.9 0.80 21.2 26.5 0.430 0.082 0.106 0.25 NonLiafble. 11.45 7 0.29 0.80 4.2 105 1372 1093 5.6 6.4 8.25 3.4 90.9 22.2 27.8 0.432 0.082 0.107 0.25 NonLiafble. 11.56 4.7 0.29 105 1384 1098 6.2 7.3 7.24 3.3 84.0 0.80 24.8 31.0 0.434 0.083 0.108 0.25 NonLiafble. 11.67 5 0.28 105 1395 1103 6.6 7.8 6.51 3.3 79.7 0.80 26.4 32.9 0.435 0.083 0.108 0.25 NonLigfble. 11.97 7.4 0.32 115 1427 1116 9.7 12.0 4.79 3.1 62.2 0.80 38.8 48.5 0.440 0.091 0.118 0.27 NonLigfble. 12.08 7 7.7 0.32 115 1440 1121 10.1 12.4 4.58 3.0 60.5 0.80 40.2 50.3 0.442 0.092 0.119 0.27 NonLiqfble. 12.18 8.3 0.31 115 1451 1127 10.8 13.4 4.09 3.0 56.7 0.80 43.3 54.1 0.443 0.095 0.123 0.28 NonLiqfble. 12.29 7.5 0.32 11.9 4.73 62.1 0.80 39.0 48 8 0.445 0.118 0.27 NonLiqfble. 115 1464 1132 9.8 3.1 0.091 12.4 7.4 0.33 115 1476 1138 9.6 11.7 4.95 3.1 63.4 0.80 38.4 48.0 0.446 0.090 0.117 0.26 NonLiqfble. 12.51 6.9 0.33 115 1489 1144 8.9 10.8 5.36 3.1 67.1 0.80 35.7 44.6 0.448 0.088 0.115 0.26 NonLiqfble. 12.62 7.5 0.32 1502 1150 9.7 4.74 0.80 38.7 48.4 0.449 0.091 NonLiqfble. 115 11.7 3.1 62.5 0.118 0.26 12.73 7.6 62.1 0.451 0.32 115 1514 1156 9.8 4.68 0.80 39.1 48.9 0.091 0.118 0.26 NonLigfble. 11.8 3.1 7.9 0.32 12.84 115 1527 1161 10.1 12.3 4.48 3.0 60.4 0.80 40.6 50.7 0.452 0.092 0.120 0.26 NonLigfble. 12.94 9.5 0.35 115 1539 1167 12.2 15.0 4.01 2.9 54.0 0.80 48.7 60.8 0.454 0.101 0.131 0.29 NonLigfble. 13.05 10 0.35 115 1551 1172 12.8 15.7 3.79 2.9 51.9 0.80 51.1 63.9 0.455 0.104 0.136 0.30 NonLiqfble. 13 16 8.3 0.35 115 1564 1178 10.6 12.8 4 66 3.0 60.2 0.80 42.3 52.9 0.457 0.094 0.122 0.27 NonLiafble 13.27 7 9.8 0.35 115 1576 1184 12.5 15.2 3.88 29 53.0 0.80 49 8 62.3 0.458 0.102 0.133 0.29 NonLiqfble. 13.38 8.3 0.34 115 1589 1190 10.5 12.6 4.53 3.0 60.0 0.80 42.1 52.6 0.459 0.094 0.122 0.26 NonLiqfble. 13.49 7 55.0 0.124 NonLiqfble. 8.7 0.33 115 1602 1196 11.0 13.2 4.18 3.0 57.5 0.80 44.0 0.461 0.096 0.27 13.59 0.32 3.0 41.4 NonLiqfble. 8.2 115 1613 1201 10.4 12.3 4.33 59.7 0.80 51.8 0.462 0.093 0.121 0.26 13.7 0.32 115 1626 1207 10.1 11.9 4.45 3.0 61.0 0.80 40.3 50.4 0.464 0.092 0.119 0.26 NonLiqfble. 13.81 0.33 115 1639 1212 10.6 4.35 0.80 42.2 52.8 0.465 0.094 0.122 0.26 8.4 12.5 3.0 59.5 NonLigfble.

0.466

0.467

53.9

56.3

0.095

0.097

0.123

0.126

0.26

0.27

NonLigfble.

NonLiafble.

0.35

0.37

8.6

115

115 1663

1651

1218

1223

10.8

11.3

12.8

13.3

4.50

4.53

3.0

3.0

59.6

58.7

0.80

0.80

43.1

45.0

13.92

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 10

Depth to Groundwater: 7 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54

	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	q <sub>c1N</sub>	Q	F	Ic	(%)	Ксрт	DqcIN	(qclN)es		M7.5	M6.50		Comments
	()	()	()	(-2-)	()	(-2-)	()	-				(,-,							~	
	14.13	7	8.8	0.39	115	1675	1229	11.0	12.9	4.90	3.0	60.8	0.80	43.9	54.9	0.469	0.095	0.124	0.26	NonLiqfble.
	14.13	7	9.1	0.39	115	1688	1235	11.3	13.4	4.72	3.0	59.4	0.80	45.3	56.6	0.409	0.093	0.124	0.20	NonLiqfble.
	14.34	7	10.6	0.38	115	1700	1240	13.2	15.7	3.90	2.9	52.4	0.80	52.7	65.8	0.471	0.107	0.139	0.29	NonLiqfble.
	14.45	7	10.2	0.37	115	1712	1246	12.6	15.0	3.96	2.9	53.7	0.80	50.6	63.2	0.473	0.103	0.135	0.28	NonLiqfble.
	14.56	7	10.3	0.37	115	1725	1252	12.7	15.1	3.92	2.9	53.4	0.80	51.0	63.7	0.474	0.104	0.135	0.29	NonLiqfble.
	14.67 14.77	7 7	11 10.6	0.38 0.4	115 115	1737 1749	1258 1263	13.6 13.1	16.1 15.4	3.75 4.11	2.9 2.9	51.2 53.8	0.80	54.3 52.2	67.9 65.3	0.475 0.476	0.109 0.106	0.142 0.138	0.30	NonLiqfble. NonLiqfble.
	14.97	7	10.1	0.41	115	1772	1273	12.4	14.5	4.45	3.0	56.5	0.80	49.5	61.9	0.479	0.100	0.133	0.28	NonLiqfble.
	15.07	7	9.3	0.42	115	1783	1279	11.4	13.1	5.00	3.0	60.8	0.80	45.5	56.9	0.480	0.097	0.126	0.26	NonLiqfble.
	15.19	7	8.6	0.4	115	1797	1285	10.5	12.0	5.19	3.1	63.8	0.80	42.0	52.5	0.481	0.093	0.121	0.25	NonLiqfble.
	15.29	7	8.4	0.39	115	1809	1290	10.2	11.6	5.20	3.1	64.6	0.80	40.9	51.2	0.482	0.092	0.120	0.25	NonLiqfble.
	15.4 15.43	7 7	8.1 7.1	0.38 0.38	115 115	1821 1825	1296 1298	9.8 8.6	11.1 9.5	5.29 6.14	3.1 3.2	66.0 73.0	0.80	39.4 34.5	49.2 43.1	0.483 0.484	0.091 0.087	0.118 0.114	0.24 0.24	NonLiqfble. NonLiqfble.
	15.48	7	7.3	0.37	115	1831	1300	8.9	9.8	5.80	3.2	71.0	0.80	35.4	44.3	0.484	0.088	0.115	0.24	NonLiqfble.
	15.56	7	7.7	0.37	115	1840	1304	9.3	10.4	5.46	3.1	68.3	0.80	37.3	46.6	0.485	0.089	0.116	0.24	NonLiqfble.
	15.66	7	7.7	0.38	115	1851	1310	9.3	10.3	5.61	3.1	69.0	0.80	37.2	46.5	0.486	0.089	0.116	0.24	NonLiqfble.
	15.71	7	7.6	0.38	115	1857	1312	9.2	10.2	5.70	3.2	69.7	0.80	36.7	45.9	0.487	0.089	0.116	0.24	NonLiqfble.
	15.82 15.93	7 7	7.6 8.1	0.38 0.38	115 115	1870 1882	1318 1324	9.2 9.7	10.1 10.8	5.70 5.31	3.2	69.9 66.7	0.80	36.6 39.0	45.8 48.7	0.488 0.489	0.089	0.116 0.118	0.24 0.24	NonLiqfble.
	16.03	7	8.3	0.38	115	1894	1324	10.0	11.1	5.17	3.1	65.6	0.80	39.8	49.8	0.489	0.091	0.118	0.24	NonLiqfble. NonLiqfble.
	16.14	7	8	0.39	115	1907	1335	9.6	10.6	5.53	3.1	68.2	0.80	38.3	47.9	0.491	0.090	0.117	0.24	NonLiqfble.
	16.25	7	7.9	0.39	115	1919	1341	9.4	10.3	5.62	3.1	69.0	0.80	37.8	47.2	0.492	0.090	0.117	0.24	NonLiqfble.
	16.36	7	7.9	0.39	115	1932	1346	9.4	10.3	5.62	3.1	69.1	0.80	37.7	47.1	0.494	0.090	0.117	0.24	NonLiqfble.
	16.46	7	8	0.38	115	1943	1352	9.5	10.4	5.41	3.1	68.1	0.80	38.1	47.6	0.495	0.090	0.117	0.24	NonLiqfble.
	16.57 16.68	7 7	7.6 7.5	0.38 0.38	115 115	1956 1969	1358 1363	9.0 8.9	9.8 9.6	5.74 5.83	3.2 3.2	70.9 71.8	0.80	36.1 35.5	45.1 44.4	0.496 0.497	0.089 0.088	0.115 0.115	0.23	NonLiqfble. NonLiqfble.
	16.77	7	7.1	0.37	115	1979	1368	8.4	8.9	6.06	3.2	74.4	0.80	33.6	42.0	0.498	0.087	0.113	0.23	NonLigfble.
	16.87	7	6.9	0.35	115	1990	1373	8.1	8.6	5.93	3.2	75.0	0.80	32.6	40.7	0.499	0.086	0.112	0.22	NonLiqfble.
	16.98	7	6.6	0.33	105	2003	1379	7.8	8.1	5.89	3.2	76.4	0.80	31.1	38.9	0.500	0.085	0.111	0.22	NonLiqfble.
	17.08	7	6.1	0.32	105	2014	1383	7.2	7.4	6.28	3.3	80.6	0.80	28.7	35.9	0.501	0.084	0.110	0.22	NonLiqfble.
	17.18 17.29	7 7	6.2 6.2	0.31 0.33	105 105	2024 2036	1388 1392	7.3 7.3	7.5 7.4	5.98 6.37	3.3	79.0 80.5	0.80	29.1 29.1	36.4 36.4	0.502 0.503	0.084 0.084	0.110 0.110	0.22 0.22	NonLiqfble. NonLiqfble.
	17.23	7	6.3	0.35	105	2046	1397	7.4	7.6	6.63	3.3	81.0	0.80	29.5	36.9	0.504	0.085	0.110	0.22	NonLiqfble.
	17.5	7	6.4	0.35	115	2058	1401	7.5	7.7	6.52	3.3	80.2	0.80	29.9	37.4	0.505	0.085	0.110	0.22	NonLiqfble.
	17.6	7	5.8	0.27	105	2069	1407	6.8	6.8	5.67	3.3	80.7	0.80	27.1	33.8	0.506	0.084	0.109	0.21	NonLiqfble.
	17.7	7	5.8	0.26	105	2080	1411	6.8	6.7	5.46	3.3	80.0	0.80	27.0	33.8	0.507	0.084	0.109	0.21	NonLiqfble.
	17.81 17.85	7 7	5.4 5.8	0.27 0.28	105 105	2091 2095	1415 1417	6.3 6.7	6.1 6.7	6.20 5.89	3.4	85.5 81.8	0.80	25.1 27.0	31.4 33.7	0.508 0.509	0.083 0.084	0.108 0.109	0.21	NonLiqfble. NonLiqfble.
	17.98	7	7.3	0.32	115	2109	1423	8.5	8.8	5.12	3.2	71.4	0.80	33.9	42.3	0.510	0.087	0.113	0.22	NonLiqfble.
	18.08	7	8.2	0.37	115	2121	1428	9.5	10.0	5.18	3.1	68.2	0.80	38.0	47.5	0.511	0.090	0.117	0.23	NonLiqfble.
	18.19	7	9.2	0.38	115	2133	1434	10.6	11.3	4.67	3.1	63.1	0.80	42.5	53.2	0.512	0.094	0.122	0.24	NonLiqfble.
	18.29	7	9.3	0.35	115	2145	1439	10.7	11.4	4.25	3.0	61.2	0.80	42.9	53.6	0.513	0.094	0.123	0.24	NonLiqfble.
	18.4 18.5	7 7	7.8 7.5	0.31 0.3	115 115	2157 2169	1445 1450	9.0 8.6	9.3 8.8	4.61 4.68	3.1	67.8 69.4	0.80	35.9 34.5	44.9 43.1	0.514 0.515	0.088 0.087	0.115 0.114	0.22 0.22	NonLiqfble. NonLiqfble.
	18.6	7	7.5	0.29	105	2180	1455	8.0	8.1	4.91	3.2	72.6	0.80	32.1	40.1	0.515	0.086	0.114	0.22	NonLiqfble.
	18.71	7	6.8	0.3	105	2192	1460	7.8	7.8	5.26	3.2	75.1	0.80	31.1	38.9	0.516	0.085	0.111	0.22	NonLiqfble.
	18.81	7	5.7	0.28	105	2202	1464	6.5	6.3	6.09	3.3	84.5	0.80	26.1	32.6	0.517	0.083	0.108	0.21	NonLiqfble.
	18.92	7	5.2	0.25	105	2214	1469	5.9	5.6	6.11	3.4	88.2	0.80	23.7	29.7	0.518	0.082	0.107	0.21	NonLiqfble.
	19.02 19.13	7 7	4.5 5.6	0.24 0.25	105 105	2225 2236	1473 1478	5.1 6.4	4.6 6.1	7.09 5.58	3.5	97.8 83.6	0.80	20.5 25.5	25.6 31.9	0.519 0.520	0.082 0.083	0.106 0.108	0.20	NonLiqfble. NonLiqfble.
	19.23	7	6.7	0.28	105	2247	1482	7.6	7.5	5.02	3.2	75.2	0.80	30.5	38.1	0.521	0.085	0.108	0.21	NonLiqfble.
	19.32	7	8.6	0.32	115	2256	1486	9.8	10.1	4.28	3.1	64.4	0.80	39.0	48.8	0.522	0.091	0.118	0.23	NonLiqfble.
	19.42	7	11.2	0.38	115	2268	1491	12.7	13.5	3.78	3.0	55.2	0.80	50.8	63.4	0.523	0.104	0.135	0.26	NonLiqfble.
	19.51	7	14.3	0.47	125	2278	1496	16.2	17.6	3.57	2.8	48.6	0.80	64.7	80.9	0.524	0.129	0.168	0.32	NonLiqfble.
	19.6	7 7	15.2 16.5	0.55 0.6	125 125	2289 2300	1502 1507	17.2 18.6	18.7 20.4	3.91	2.8	48.9	0.80	68.7 74.4	85.8 93.0	0.524	0.139 0.155	0.180 0.201	0.34 0.38	NonLiqfble.
	19.69 19.77	7	17.5	0.59	125	2310	1507	19.7	20.4	3.91 3.61	2.8 2.8	47.2 44.8	0.80	78.8	93.0 98.4	0.525 0.526	0.155	0.201	0.38	NonLiqfble. NonLiqfble.
	19.85	7	18.3	0.58	125	2320	1517	20.6	22.6	3.38	2.7	42.9	0.80	82.2	102.8	0.526	0.105	0.215	0.45	NonLiqfble.
	19.93	7	18.8	0.58	125	2330	1522	21.1	23.2	3.29	2.7	42.0	0.80	84.3	105.4	0.527	0.189	0.246	0.47	NonLiqfble.
	20.03	7	18.8	0.58	125	2343	1529	21.0	23.1	3.29	2.7	42.1	0.80	84.2	105.2	0.516	0.188	0.245	0.47	NonLiqfble.
	20.13	7	17.3	0.6	125	2355	1535	19.3	21.0	3.72	2.8	45.8	0.80	77.3	96.6	0.517	0.164	0.213	0.41	NonLiqfble.
	20.23 20.33	7 7	15.1 14.2	0.61 0.61	125 125	2368 2380	1541 1547	16.8 15.8	18.1 16.8	4.38 4.69	2.9 2.9	51.5 54.2	0.80	67.3 63.2	84.2 79.0	0.518 0.518	0.135 0.126	0.176 0.164	0.34 0.32	NonLiqfble. NonLiqfble.
	_5.55	,	1-7.2	3.01	.20	2500	15-17	15.0	10.0			J 1.2	0.00	55.2	, , 0	0.510	0.120	0.107	0.52	qioic.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 10

Depth to Groundwater: 7 feet

EQ Magnitude (M<sub>w</sub>): 6.5 PGA (g): 0.54

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Lianef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	DqcIN	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	20.44	7	14.3	0.62	125	2394	1554	15.0	16.9	4.72	2.0	54.3	0.80	62.5	79.4	0.510	0.126	0.164	0.22	NonLiafhla
	20.44 20.53	7	15.7	0.58	125	2405	1554 1560	15.9 17.4	18.6	4.73 4.00	2.9 2.9	49.4	0.80	63.5 69.6	87.0	0.519 0.520	0.120	0.184	0.32 0.35	NonLiqfble. NonLiqfble.
	20.63	7	13.4	0.54	125	2418	1566	14.8	15.6	4.43	2.9	54.8	0.80	59.3	74.1	0.520	0.118	0.153	0.29	NonLiqfble.
	20.72	7	12.7	0.52	125	2429	1572	14.0	14.6	4.53	3.0	56.6	0.80	56.1	70.1	0.521	0.112	0.146	0.28	NonLiqfble.
	20.76	7	13.3	0.51	125	2434	1574	14.7	15.3	4.22	2.9	54.3	0.80	58.7	73.3	0.521	0.117	0.152	0.29	NonLiqfble.
	20.81	7 7	12.8 12.1	0.5 0.51	125 125	2440 2452	1577 1583	14.1 13.3	14.7 13.7	4.32 4.69	3.0	55.7 58.7	0.80	56.4 53.2	70.5 66.5	0.521 0.522	0.113 0.107	0.146 0.140	0.28	NonLiqfble. NonLiqfble.
	20.99	7	12.1	0.55	125	2463	1589	13.2	13.6	5.11	3.0	60.6	0.80	52.7	65.9	0.522	0.107	0.140	0.27	NonLiqfble.
	21.07	7	12.2	0.61	125	2473	1594	13.4	13.8	5.56	3.0	61.9	0.80	53.5	66.9	0.523	0.108	0.140	0.27	NonLiqfble.
	21.16	7	12.9	0.63	125	2484	1599	14.1	14.6	5.40	3.0	60.0	0.80	56.5	70.6	0.523	0.113	0.146	0.28	NonLiqfble.
	21.23	7	12.9	0.65	125	2493	1604	14.1	14.5	5.58	3.0	60.7	0.80	56.4	70.5	0.524	0.113	0.146	0.28	NonLiqfble.
	21.27 21.3	7 7	13.5 14	0.66 0.67	125 125	2498 2502	1606 1608	14.7 15.3	15.2 15.8	5.39 5.26	3.0	58.9 57.6	0.80	59.0 61.1	73.7 76.4	0.524 0.524	0.117 0.121	0.152 0.158	0.29 0.30	NonLiqfble. NonLiqfble.
	21.35	7	13.5	0.66	125	2508	1611	14.7	15.2	5.39	3.0	59.0	0.80	58.9	73.6	0.524	0.117	0.150	0.29	NonLiqfble.
	21.57	7	15.2	0.59	125	2535	1625	16.5	17.1	4.23	2.9	52.0	0.80	66.0	82.5	0.526	0.132	0.172	0.33	NonLiqfble.
	21.68	7	14.5	0.54	125	2549	1632	15.7	16.2	4.08	2.9	52.6	0.80	62.8	78.5	0.526	0.125	0.163	0.31	NonLiqfble.
	21.79	7 7	14.2 12.7	0.52	125	2563	1639	15.3	15.8	4.03	2.9	52.9	0.80	61.4	76.7	0.527	0.122	0.159	0.30	NonLiqfble.
	21.9 22	7	11.4	0.5 0.46	125 125	2577 2589	1646 1652	13.7 12.3	13.9 12.2	4.38 4.55	3.0	57.2 60.8	0.80	54.8 49.1	68.5 61.4	0.528 0.528	0.110 0.101	0.143 0.132	0.27 0.25	NonLiqfble. NonLiqfble.
	22.11	7	10.7	0.39	115	2603	1659	11.5	11.3	4.15	3.0	60.9	0.80	46.0	57.5	0.529	0.098	0.127	0.24	NonLiqfble.
	22.21	7	10.4	0.35	115	2614	1664	11.2	10.9	3.85	3.0	60.4	0.80	44.6	55.8	0.529	0.096	0.125	0.24	NonLiqfble.
	22.32	7	9	0.32	115	2627	1670	9.6	9.2	4.16	3.1	66.1	0.80	38.5	48.2	0.530	0.090	0.118	0.22	NonLiqfble.
	22.43 22.53	7 7	8.8 8.3	0.31 0.32	115 115	2640 2651	1676 1681	9.4 8.9	8.9 8.3	4.14 4.59	3.1	66.8 70.7	0.80	37.6 35.4	47.0 44.3	0.531 0.531	0.090 0.088	0.117 0.115	0.22 0.22	NonLiqfble. NonLiqfble.
	22.64	7	7.1	0.32	115	2664	1687	7.6	6.8	6.24	3.3	82.5	0.80	30.3	37.8	0.531	0.085	0.113	0.22	NonLiqfble.
	22.75	7	7.1	0.43	115	2676	1692	7.6	6.8	7.46	3.4	86.8	0.80	30.2	37.8	0.533	0.085	0.111	0.21	NonLiqfble.
	22.86	7	9	0.55	125	2689	1698	9.6	9.0	7.18	3.3	77.9	0.80	38.2	47.8	0.534	0.090	0.117	0.22	NonLiqfble.
	22.96	7	13.9	0.64	125	2702	1704	14.7	14.7	5.10	3.0	58.7	0.80	58.9	73.7	0.534	0.117	0.152	0.29	NonLiqfble.
	23.07 23.18	7 7	22.8 29.7	0.73 0.81	125 135	2715 2729	1711 1718	24.1 31.3	25.0 33.0	3.40 2.86	2.7 2.6	41.1 34.0	0.80 0.78	96.5 108.3	120.6 139.7	0.535 0.535	0.243 0.333	0.316 0.433	0.59 0.81	NonLiqfble. Liquefaction
	23.28	7	28.8	0.93	135	2743	1725	30.3	31.8	3.39	2.6	37.0	0.80	121.3	151.7	0.536	0.405	0.526	0.98	NonLiqfble.
	23.39	7	28.6	1.08	135	2757	1733	30.1	31.4	3.97	2.7	39.6	0.80	120.2	150.3	0.536	0.396	0.514	0.96	NonLiqfble.
	23.49	7	27.3	1.29	135	2771	1741	28.6	29.8	4.98	2.8	44.2	0.80	114.5	143.1	0.536	0.353	0.459	0.86	NonLiqfble.
	23.6	7	27.5	1.39	135	2786	1749	28.8	29.8	5.32	2.8	45.3	0.80	115.1	143.9	0.537	0.357	0.464	0.86	NonLiqfble.
	23.7 23.8	7 7	32.6 52	1.42 1.35	135 135	2799 2813	1756 1763	34.0 54.2	35.5 57.4	4.55 2.67	2.7 2.4	39.7 25.4	0.80 0.54	136.2 64.7	170.2 118.9	0.537 0.538	0.538 0.236	0.700 0.307	1.30 0.57	NonLiqfble. Liquefaction
	23.83	7	52.5	1.49	135	2817	1765	54.7	57.9	2.92	2.4	26.4	0.57	72.6	127.3	0.538	0.272	0.353	0.66	Liquefaction
	23.88	7	73.2	1.72	135	2824	1769	76.1	81.1	2.40	2.2	20.2	0.41	51.9	128.1	0.538	0.275	0.358	0.67	Liquefaction
	23.92	7	80	1.78	135	2829	1772	83.2	88.7	2.27	2.2	18.7	0.37	47.8	131.0	0.538	0.289	0.376	0.70	Liquefaction
	23.95 24	7	82.2 91.2	1.72 1.65	135 135	2833 2840	1774 1778	85.4 94.6	91.0 101.0	2.13 1.84	2.2	17.8 15.4	0.34	44.2 36.4	129.6 131.0	0.538 0.538	0.283	0.367 0.376	0.68 0.70	Liquefaction Liquefaction
	24.08	7	124.3	1.66	135	2851	1784	128.8	137.7	1.35	1.9	10.3	0.28	21.2	150.0	0.539	0.394	0.512	0.70	Liquefaction
	24.17	7	155.7	2.15	135	2863	1790	161.0	172.3	1.39	1.8	9.0	0.11	19.2	180.2	0.539	0.624	0.811	1.51	1
	24.27	7	178.7	2.45	135	2876	1797	184.4	197.2	1.38	1.8	8.1	0.08	16.5	200.9	0.539	0.834	1.085	2.01	
	24.35	7	190.6	2.1	125	2887	1803	196.4	209.7	1.11	1.7	6.3	0.03	7.0	203.4	0.540	0.862	1.121	2.08	
	24.45 24.55	7	190.8 186	1.65 1.71	125 125	2900 2912	1809 1816	196.3 191.0	209.2 203.2	0.87 0.93	1.6 1.7	4.9 5.4	0.00	0.0 2.1	196.3 193.1	0.540 0.540	0.783 0.749	1.018 0.974	1.89 1.80	
	24.63	7	160.3	1.8	125	2922	1821	164.4	174.4	1.13	1.8	7.5	0.07	11.7	176.1	0.541	0.588	0.764	1.41	
	24.72	7	169.3	1.84	125	2933	1826	173.3	183.7	1.10	1.7	7.0	0.05	9.6	182.9	0.541	0.649	0.844	1.56	
	24.82	7	167.8	1.75	125	2946	1833	171.5	181.4	1.05	1.7	6.8	0.05	8.6	180.1	0.542	0.623	0.810	1.50	
	24.92 25.02	7 7	163.4 159.2	1.73 1.66	125 125	2958 2971	1839 1845	166.7 162.2	176.0 170.9	1.07 1.05	1.7 1.8	7.1 7.2	0.06	9.7 9.9	176.4 172.1	0.542 0.543	0.591 0.554	0.768 0.720	1.42 1.33	
	25.12	7	160.2		125	2983	1851	162.9	171.4	1.01	1.7	6.9	0.05	8.8	171.7	0.543	0.550	0.720	1.32	
	25.22	7		1.6	125	2996	1858	159.7	167.7	1.03	1.8	7.1	0.06	9.6	169.3	0.543	0.531	0.690	1.27	
	25.32	7	154.1	1.58	125	3008	1864	156.2	163.7	1.04	1.8	7.3	0.06	10.3	166.5	0.544	0.509	0.662	1.22	
	25.42	7	156.2	1.56	125	3021	1870	158.0	165.4	1.01	1.8	7.1	0.06	9.4	167.4	0.544	0.516	0.671	1.23	
	25.52 25.62	7 7	158.9 159.3	1.96 2.27	135 135	3033 3047	1876 1884	160.5 160.6	167.7 167.5	1.25 1.44	1.8 1.9	8.4 9.4	0.09	15.9 21.4	176.4 182.0	0.545 0.545	0.590 0.640	0.767 0.833	1.41 1.53	
	25.72	7	168.8	2.29	135	3060	1891	169.8	176.8	1.37	1.8	8.7	0.12	18.5	188.4	0.545	0.702	0.833	1.67	
	25.81	7	183	2.71	135	3072	1897	183.8	191.2	1.49	1.8	8.8	0.10	20.9	204.7	0.546	0.878	1.141	2.09	
	25.91	7	205.6	3.08	135	3086	1905	206.1	214.2	1.51	1.8	8.2	0.09	19.3	225.4	0.546	1.145	1.489	2.73	
	25.98 26.08	7 7		3.38 3.42	135 135	3095 3109	1910 1917	221.7 253.4	230.1 262.8	1.54 1.36	1.8 1.7	7.9	0.08 0.04	18.8 9.5	240.4 262.9	0.546	1.373 1.770	1.785 2.301	3.27 4.21	
	20.00	,	200.0	3.42	133	3109	171/	233.4	202.0	1.30	1./	6.4	0.04	7.3	202.9	0.546	1.770	2.501	4.21	

Project Number: 6600.3.001.01 Date: September 2005

Depth to Groundwater: 7 feet

CPT Number: 10

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tin	Sleeve		Total	Effective	Nome	Com	Friction						Induced	Lianof	Liquef.	Factor	
	Depth	Table	Tip Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
	•				_			•	-				Ксрт	Da	(a)					<b>a</b> .
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	KCPI	DqcIN	( <b>q</b> e1N)es	Ratio	M7.5	M6.50	Safety	Comments
	26.17	7		3.61	135	3121	1924	273.7	283.6	1.32	1.7	5.8	0.02	6.1	279.8	0.547	2.118	2.753	5.04	
	26.26	7	298.8	3.9	135	3133	1930	297.6	307.9	1.31	1.7	5.4	0.01	3.0	300.6	0.547	2.606	3.388	6.19	
	26.36	7	311.1	3.44	125	3147	1937	309.2	319.4	1.11	1.6	4.2	0.00	0.0	309.2	0.547	2.830	3.680	6.72	
	26.45	7	318.9	2.82	125	3158	1943	316.5	326.5	0.89	1.5	3.0	0.00	0.0	316.5	0.548	3.030	3.939	7.19	
	26.54	7	299.7	4.57	135	3169	1949	297.1	305.8	1.53	1.7	6.4	0.04	11.7	308.8	0.548	2.818	3.663	6.68	
	26.63	7	291.3	4.18	135	3181	1955	288.2	296.2	1.44	1.7	6.2	0.03	9.3	297.5	0.548	2.529	3.288	6.00	
	26.72	7	303.5	5.04	135	3194	1962	299.8	307.7	1.67	1.7	7.0	0.05	16.8	316.6	0.549	3.032	3.942	7.19	
	26.81	7	269.1	4.49	135	3206	1968	265.4	271.7	1.68	1.8	7.7	0.07	20.3	285.7	0.549	2.248	2.922	5.32	
	26.9	7	250.6	4.41	135	3218	1975	246.7	252.1	1.77	1.8	8.5	0.09	25.1	271.9	0.549	1.949	2.534	4.61	
	26.98	7	255.7	3.55	135	3229	1981	251.4	256.5	1.40	1.7	6.7	0.04	11.8	263.1	0.549	1.775	2.307	4.20	
	27.07	7	260.6	3.83	135	3241	1987	255.8	260.5	1.48	1.7	7.0	0.05	14.2	270.0	0.550	1.911	2.485	4.52	
	27.16	7	270.4	3.79	135	3253	1994	265.0	269.5	1.41	1.7	6.5	0.04	10.9	275.9	0.550	2.033	2.642	4.81	
	27.25	7	280.4	4.96	135	3265	2000	274.3	278.6	1.78	1.8	8.0	0.08	23.5	297.8	0.550	2.537	3.298	6.00	
	27.33	7	300.3	5.85	135	3276	2006	293.4	297.6	1.96	1.8	8.4	0.09	28.8	322.2	0.550	3.191	4.148	7.54	
	27.42	7	347.1	6.02	135	3288	2013	338.5	343.2	1.74	1.7	6.8	0.05	16.9	355.4	0.551	4.255	5.532	10.05	
	27.5	7	346.2	6.7	135	3299	2018	337.2	341.3	1.94	1.8	7.6	0.07	25.3	362.5	0.551	4.510	5.863	10.65	
	27.59	7	364.1	5.52	135	3311	2025	354.0	357.8	1.52	1.7	5.7	0.02	6.4	360.4	0.551	4.434	5.765	10.46	
	27.67	7	370.9	4.31	135	3322	2031	360.1	363.5	1.17	1.6	4.0	0.00	0.0	360.1	0.551	4.423	5.750	10.43	
	27.76	7	337.3	3.75	125	3334	2037	327.0	329.4	1.12	1.6	4.1	0.00	0.0	327.0	0.551	3.331	4.330	7.85	
	27.84	7	328.8	3.91	135	3344	2042	318.3	320.2	1.20	1.6	4.6	0.00	0.0	318.3	0.552	3.080	4.004	7.26	
	27.92	7	297.7	4.14	135	3355	2048	287.8	289.0	1.40	1.7	6.1	0.03	8.6	296.4	0.552	2.501	3.252	5.89	
	28.02	7	310.8	4.05	135	3368	2055	300.0	300.7	1.31	1.7	5.5	0.01	3.9	303.8	0.552	2.688	3.495	6.33	
	28.11	7	281.9	3.77	135	3380	2062	271.6	271.7	1.35	1.7	6.1	0.03	8.5	280.1	0.552	2.124	2.761	5.00	
	28.21	7	261.4	3.04	125	3394	2069	251.4	250.9	1.17	1.7	5.7	0.02	4.5	255.9	0.553	1.639	2.131	3.86	
	28.29	7	244.4	3.25	135	3404	2074	234.8	233.9	1.34	1.7	6.9	0.05	12.4	247.2	0.553	1.485	1.930	3.49	
	28.39	7	228.1	3.61	135	3417	2081	218.8	217.4	1.59	1.8	8.5	0.09	22.7	241.5	0.553	1.389	1.806	3.26	
	28.48	7	218.8	4.26	135	3430	2088	209.5	207.9	1.96	1.9	10.4	0.15	35.5	245.0	0.553	1.448	1.883	3.40	
	28.57	7	210.9	3.87	135	3442	2094	201.6	199.7	1.85	1.9	10.2	0.14	32.5	234.2	0.554	1.274	1.656	2.99	
	28.66	7	186.2	3.66	135	3454	2101	177.7	175.5	1.98	2.0	11.7	0.18	38.4	216.1	0.554	1.019	1.324	2.39	
	28.75	7	186.3	3.37	135	3466	2108	177.6	175.1	1.83	1.9	11.0	0.16	33.6	211.2	0.554	0.956	1.243	2.24	
	28.84	7	210	3.13	135	3478	2114	199.8	196.9	1.50	1.8	8.7	0.10	21.8	221.6	0.554	1.092	1.420	2.56	
	28.93	7		3.23	135	3490	2121	235.7	232.3	1.31	1.7	6.8	0.05	11.7	247.5	0.555	1.490	1.937	3.49	
	29.01	7	273.8	3.42	135	3501	2126	259.8	255.8	1.26	1.7	6.0	0.03	7.1	266.9	0.555	1.849	2,403	4.33	
	29.09	7	293.4	3.73	135	3512	2132	278.0	273.4	1.28	1.7	5.8	0.02	5.9	283.9	0.555	2.208	2.870	5.17	
	29.18	7	312	3.97	135	3524	2139	295.2	290.0	1.28	1.7	5.5	0.01	4.0	299.2	0.555	2.570	3.341	6.02	
	29.26	7	331.4	3.81	135	3535	2145	313.1	307.3	1.16	1.6	4.6	0.00	0.0	313.1	0.555	2.935	3.815	6.87	
	29.35	7	336	3.95	135	3547	2151	317.0	310.6	1.18	1.6	4.7	0.00	0.0	317.0	0.556	3.042	3.954	7.12	
	29.44	7	339.7	4	135	3559	2158	320.0	313.1	1.18	1.6	4.7	0.00	0.0	320.0	0.556	3.127	4.065	7.31	
	29.52	7	357.8	3.9	125	3570	2163	336.6	329.0	1.10	1.6	4.0	0.00	0.0	336.6	0.556	3.626	4.714	8.48	
	29.61	7	362.2	4.29	135	3581	2169	340.3	332.2	1.19	1.6	4.5	0.00	0.0	340.3	0.556	3.744	4.867	8.75	
	29.7	7	353.3	3.92	125	3593	2176	331.4	323.0	1.12	1.6	4.2	0.00	0.0	331.4	0.557	3.465	4.505	8.09	
	29.78	7	366.9	3.44	125	3603	2170	343.8	334.7	0.94	1.5	3.2	0.00	0.0	343.8	0.557	3.858	5.016	9.01	
	29.87	7	351.3	3.95	125	3615	2186	328.7	319.6	1.13	1.6	4.3	0.00	0.0	328.7	0.557	3.384	4.399	7.90	
	29.95	7	367.8	3.87	125	3625	2191	343.8	333.9	1.06	1.6	3.8	0.00	0.0	343.8	0.557	3.859	5.016	9.00	
	29.90	/	307.0	5.07	123	3023	2171	343.0	333.9	1.00	1.0	5.0	0.00	0.0	343.0	0.557	3.033	5.010	2.00	

Depth to Groundwater: 7 feet

Water Tip Sleeve

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 MSF: 1.30 CPT Number: 11

Total Effective Norm. Corr. Friction

Induced Liquef. Liquef. Factor

	Donth	Table	Pociet	Frict.		Stress	Stress	Norm.	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cono	_		Resist.		g (DCE)			Tip	_	F	To.		Ксрт	DqcIN	(a-m)-					Commonto
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	KCFI	Dqein	(qc1N)es	Ratio	M7.5	M6.50	Safety	Comments
	0.51	7	308.8	4.94	135	69	69	591.4	8965.5	1.60	1.5	2.9	0.00	0.0	591.4	0.351	19.318		71.55	Above W.T.
	0.61	7	283.1	4.79	135	82	82	542.2	6871.7	1.69	1.5	2.8	0.00	0.0	542.2	0.351	14.903	19.374	55.20	Above W.T.
	0.71	7	229.8	5.23	135	96	96	440.1	4792.0	2.28	1.6	4.2	0.00	0.0	440.1	0.351	8.008	10.411	29.66	Above W.T.
	0.81	7	181.4	5.45	135	109	109	347.4	3315.4	3.01	1.7	6.1	0.03	10.4	357.9	0.351	4.342	5.644	16.08	Above W.T.
	0.92	7	143.5	5.2	135	124	124	274.8	2308.8	3.63	1.8	7.8	0.07	21.8	296.6	0.351	2.507	3.260	9.29	Above W.T.
	1.02	7	111.3	5.3	140	138	138	213.2	1614.9	4.76	1.9	10.8	0.15	38.9	252.1	0.351	1.570	2.041	5.81	Above W.T.
	1.12	7	93.2	5.21	140	152	152	178.5	1227.2	5.59	2.0	13.1	0.22	49.0	227.5	0.351	1.175	1.527	4.35	Above W.T.
	1.22	7	91.6	5.41	140	166	166	175.4	1104.2	5.91	2.0	14.0	0.24	55.2	230.7	0.351	1.222	1.588	4.52	Above W.T.
	1.31	7	93.1 93.4	4.94 4.2	140 135	178 192	178	178.3 178.9	1042.9 970.0	5.31	2.0	12.9	0.21	47.4	225.7	0.351	1.149 1.000	1.494 1.300	4.26	Above W.T.
	1.41 1.51	7 7	85.8	3.93	135	206	192 206	164.3	832.5	4.50 4.59	1.9 2.0	11.2 11.9	0.17 0.18	35.8 37.1	214.7 201.4	0.351	0.840	1.091	3.70 3.11	Above W.T. Above W.T.
	1.6	7	76.6	3.61	135	218	218	146.7	701.6	4.72	2.0	12.8	0.18	38.5	185.2	0.351	0.671	0.872	2.48	Above W.T.
	1.7	7	66.4	3.27	135	231	231	127.2	572.5	4.93	2.0	14.1	0.24	40.8	168.0	0.351	0.521	0.677	1.93	Above W.T.
	1.79	7	54	2.99	135	244	244	103.4	442.2	5.55	2.1	16.7	0.24	47.2	150.6	0.351	0.321	0.517	1.47	Above W.T.
	1.89	7	47.1	2.55	135	257	257	90.2	365.2	5.43	2.2	17.5	0.33	45.3	135.5	0.351	0.311	0.405	1.15	Above W.T.
	1.99	7	42.7	2.09	135	271	271	81.8	314.5	4.91	2.1	17.2	0.33	39.4	121.2	0.351	0.246	0.319	0.91	Above W.T.
	2.08	7	40.8	2.02	135	283	283	78.1	287.5	4.97	2.2	17.9	0.34	41.0	119.2	0.351	0.237	0.309	0.88	Above W.T.
	2.28	7	43.7	2.27	135	310	310	83.7	281.0	5.21	2.2	18.7	0.36	48.0	131.7	0.351	0.292	0.380	1.08	Above W.T.
	2.38	7	44.4	2.31	135	323	323	85.0	273.6	5.22	2.2	18.9	0.37	49.9	135.0	0.351	0.309	0.401	1.14	Above W.T.
	2.48	7	45.3	2.24	135	337	337	86.8	267.9	4.96	2.2	18.4	0.36	48.1	134.8	0.351	0.308	0.400	1.14	Above W.T.
	2.58	7	46.9	2.76	135	350	350	89.8	266.7	5.91	2.2	20.7	0.42	64.5	154.4	0.351	0.422	0.549	1.56	Above W.T.
	2.68	7	50.5	2.75	135	364	364	96.7	276.5	5.47	2.2	19.4	0.38	60.2	156.9	0.351	0.440	0.571	1.63	Above W.T.
	2.78	7	80.9	2.86	135	377	377	154.9	427.7	3.54	2.0	11.8	0.18	34.6	189.6	0.351	0.714	0.928	2.64	Above W.T.
	2.87	7	103	2.81	135	389	389	197.3	527.8	2.73	1.8	8.5	0.09	20.3	217.6	0.351	1.038	1.350	3.85	Above W.T.
	2.97	7	137.5	2.08	135	403	403	263.3	681.3	1.51	1.5	3.4	0.00	0.0	263.3	0.351	1.778	2.312	6.59	Above W.T.
	3.07	7	146.4	1.73	125	416	416	280.4	701.9	1.18	1.4	2.0	0.00	0.0	280.4	0.351	2.130	2.769	7.89	Above W.T.
	3.17	7	148.2	1.56	125	429	429	283.8	689.8	1.05	1.4	1.5	0.00	0.0	283.8	0.351	2.207	2.868	8.17	Above W.T.
	3.27	7	128.3	1.38	125	441	441	245.7	580.1	1.08	1.4	2.0	0.00	0.0	245.7	0.351	1.460	1.898	5.41	Above W.T.
	3.37	7	112.7	1.37	125	454	454	215.8	495.4	1.22	1.5	3.1	0.00	0.0	215.8	0.351	1.015	1.320	3.76	Above W.T.
	3.47	7	91.6	1.44	135	466	466	175.4	391.6	1.58	1.7	5.5	0.01	2.4	177.9	0.351	0.603	0.784	2.23	Above W.T.
	3.57	7	72.4	1.52	135	480	480	138.7	300.6	2.11	1.8	8.9	0.10	16.0	154.7	0.351	0.424	0.552	1.57	Above W.T.
	3.68	7	57.7	1.52	135	495	495	110.5	232.2	2.65	2.0	12.4	0.20	27.2	137.7	0.351	0.323	0.420	1.20	Above W.T.
	3.78	7	44.6	1.5	135	508	508	85.4	174.4	3.38	2.1	17.0	0.32	40.1	125.5	0.351	0.264	0.343	0.98	Above W.T.
	3.88	7	33.2	1.48	135	522	522	63.6	126.2	4.49	2.3	23.3	0.49	60.4	124.0	0.351	0.257	0.335	0.95	Above W.T.
	3.98	7	28.1	1.47	135	535	535	53.1	104.0	5.28	2.4	27.5	0.60	79.9	133.0	0.351	0.299	0.388	1.11	Above W.T.
	4.09	7	22	1.5	135	550	550	41.0	79.0	6.90	2.6	34.9	0.80	163.0	204.0	0.351	0.870	1.131	3.22	Above W.T.
	4.19	7	24.2	1.49	135	564	564	44.6	84.8	6.23	2.5	32.3	0.73	120.6	165.2	0.351	0.499	0.649	1.85	Above W.T.
	4.29	7	24.6	1.39	135	577	577	44.8	84.2	5.72	2.5	31.1	0.70	102.8	147.6	0.351	0.379	0.493	1.40	Above W.T.
	4.39	7	23.6	1.29	135	591	591	42.5	78.9	5.54	2.5	31.4	0.70	101.3	143.8	0.351	0.356	0.463	1.32	Above W.T.
	4.49	7	20.4	1.21	135	604	604	36.3	66.5	6.02	2.6	34.9	0.80	143.8	180.1	0.351	0.624	0.811	2.31	Above W.T.
	4.6 4.7	7 7	18.6 17.9	1.11 1.08	135 135	619 632	619 632	32.7 31.1	59.1 55.6	6.07 6.14	2.6 2.6	36.7 37.7	0.80	130.8 124.6	163.6 155.7	0.351 0.351	0.487 0.431	0.633 0.560	1.80 1.60	Above W.T. Above W.T.
	4.8	7	17.5	1.11	135	646	646	30.1	53.0	6.46	2.7	39.2	0.80	120.5	150.6	0.351	0.431	0.517	1.47	Above W.T.
	4.91	7	18.4	1.07	135	661	661	31.3	54.7	5.92	2.6	37.4	0.80	125.3	156.6	0.351	0.437	0.568	1.62	Above W.T.
	5.01	7	18.3	1.13	135	674	674	30.8	53.3	6.29	2.7	38.7	0.80	123.3	154.2	0.351	0.421	0.547	1.56	Above W.T.
	5.11	7	18.1	1.14	135	688	688	30.2	51.6	6.42	2.7	39.6	0.80	120.8	151.0	0.351	0.421	0.520	1.48	Above W.T.
	5.16	7	18.4	1.16	135	695	695	30.5	52.0	6.43	2.7	39.5	0.80	122.2	152.7	0.351	0.411	0.535	1.52	Above W.T.
	5.26	7	20.1	1.18	135	708	708	33.1	55.8	5.98	2.6	37.2	0.80	132.2	165.3	0.351	0.500	0.650	1.85	Above W.T.
	5.36	7	18.9	1.16	135	722	722	30.8	51.4	6.26	2.7	39.2	0.80	123.1	153.9	0.351	0.419	0.545	1.55	Above W.T.
	5.47	7	19.1	1.15	135	736	736	30.8	50.9	6.14	2.7	39.0	0.80	123.2	154.0	0.351	0.420	0.545	1.55	Above W.T.
	5.58	7	18.2	1.12	135	751	751	29.1	47.4	6.28	2.7	40.5	0.80	116.2	145.3	0.351	0.365	0.475	1.35	Above W.T.
	5.68	7	17	1.08	135	765	765	26.9	43.4	6.50	2.7	42.4	0.80	107.6	134.5	0.351	0.306	0.398	1.13	Above W.T.
	5.79	7	17.1	1.03	135	780	780	26.8	42.9	6.16	2.7	41.7	0.80	107.2	134.0	0.351	0.304	0.395	1.12	Above W.T.
	5.89	7	17.3	0.98	135	793	793	26.9	42.6	5.80	2.7	40.8	0.80	107.5	134.4	0.351	0.306	0.397	1.13	Above W.T.
	6	7	15.3	0.93	125	808	808	23.6	36.9	6.24	2.8	44.4	0.80	94.2	117.8	0.351	0.232	0.301	0.86	Above W.T.
	6.1	7	11.6	0.9	125	820	820	17.7	27.3	8.04	2.9	54.7	0.80	70.9	88.6	0.351	0.145	0.188	0.54	Above W.T.
	6.21	7	9.8	0.87	125	834	834	14.8	22.5	9.27	3.0	61.5	0.80	59.4	74.2	0.351	0.118	0.153	0.44	Above W.T.
	6.32	7	10	0.81	125	848	848	15.0	22.6	8.46	3.0	59.5	0.80	60.1	75.1	0.351	0.119	0.155	0.44	Above W.T.
	6.42	7	10.2	0.77	125	860	860	15.2	22.7	7.88	3.0	57.9	0.80	60.9	76.1	0.351	0.121	0.157	0.45	Above W.T.
	6.53	7	10.7	0.75	125	874	874	15.8	23.5	7.31	3.0	55.7	0.80	63.3	79.2	0.351	0.126	0.164	0.47	Above W.T.
	6.64	7	11	0.75	125	888	888	16.2	23.8	7.11	2.9	54.9	0.80	64.6	80.8	0.351	0.129	0.168	0.48	Above W.T.
	6.74	7	10.7	0.75	125	900	900	15.6	22.8	7.32	3.0	56.4	0.80	62.4	78.0	0.351	0.124	0.161	0.46	Above W.T.

Depth to Groundwater: 7 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 Project Number: 6600.3.001.01 Date: September 2005 **MSF:** 1.30 CPT Number: 11

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth		Resist.		g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress	•	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> e1N	Q	F	Ic	(%)	Ксрт	DqciN	$(q_{c1N})_{es}$	Ratio	M7.5	M6.50	Safety	Comments
	6.85	7	10.7	0.75	125	914	914	15.5	22.4	7.32	3.0	56.7	0.80	61.9	77.4	0.351	0.123	0.160	0.46	Above W.T.
	6.96	7	11	0.78	125	928	928	15.8	22.7	7.40	3.0	56.6	0.80	63.2	79.0	0.351	0.126	0.164	0.47	Above W.T.
	7.07	7	11.1	0.79	125	942	935	15.9	22.7	7.43	3.0	56.7	0.80	63.5	79.4	0.354	0.127	0.165	0.47	NonLiqfble.
	7.17 7.28	7 7	11.5 12.7	0.8 0.82	125 125	954 968	941 948	16.4 18.0	23.4 25.8	7.26 6.71	3.0 2.9	55.6 52.2	0.80	65.6 72.2	82.0 90.2	0.356 0.358	0.131 0.148	0.171 0.193	0.48 0.54	NonLiqfble.
	7.28	7	12.7		125	980	954	17.7	25.2	6.58	2.9	52.2	0.80	70.8	88.5	0.358	0.148	0.193	0.54	NonLiqfble. NonLiqfble.
	7.49	7	11.4	0.73	125	994	961	16.1	22.7	6.70	2.9	54.7	0.80	64.4	80.4	0.363	0.128	0.167	0.46	NonLiqfble.
	7.6	7	11.7	0.7	125	1008	968	16.5	23.1	6.25	2.9	53.0	0.80	65.8	82.3	0.365	0.132	0.171	0.47	NonLiqfble.
	7.7	7	11	0.68	125	1020	974	15.4	21.5	6.48	2.9	55.1	0.80	61.7	77.1	0.368	0.123	0.159	0.43	NonLiqfble.
	7.81 7.91	7 7	10.3 9.5	0.68 0.66	125 125	1034 1047	981 987	14.4 13.2	19.9 18.2	6.95 7.35	3.0	58.1 61.2	0.80	57.5 52.9	71.9 66.1	0.370 0.372	0.115 0.107	0.149 0.139	0.40 0.37	NonLiqfble. NonLiqfble.
	8.02	7	8.3	0.63	125	1047	994	11.5	15.6	8.11	3.1	66.7	0.80	46.1	57.6	0.374	0.107	0.139	0.34	NonLiqfble.
	8.13	7	8.1	0.58	115	1074	1001	11.2	15.1	7.67	3.1	66.3	0.80	44.8	56.0	0.377	0.096	0.125	0.33	NonLiqfble.
	8.23	7	7.5	0.54	115	1086	1006	10.3	13.8	7.76	3.1	68.6	0.80	41.4	51.7	0.379	0.093	0.121	0.32	NonLiqfble.
	8.34	7	_ 7		115	1098	1012	9.6	12.7	7.75	3.2	70.6	0.80	38.5	48.1	0.381	0.090	0.117	0.31	NonLiqfble.
	8.45	7	7.2		115	1111	1018	9.9	13.0	7.07	3.1	68.0	0.80	39.5	49.4	0.383	0.091	0.119	0.31	NonLiqfble.
	8.55 8.6	7 7	6.8 8.1	0.41 0.42	115 115	1123 1128	1023 1026	9.3 11.1	12.2 14.7	6.57 5.57	3.1	68.1 60.4	0.80	37.2 44.3	46.5 55.3	0.385 0.386	0.089 0.096	0.116 0.124	0.30 0.32	NonLiqfble. NonLiqfble.
	8.73	7	10.8	0.43	115	1143	1033	14.7	19.8	4.20	2.9	48.9	0.80	58.8	73.5	0.389	0.117	0.152	0.39	NonLiqfble.
	8.84	7	10.3	0.43	115	1156	1039	14.0	18.7	4.42	2.9	50.9	0.80	55.9	69.9	0.391	0.112	0.145	0.37	NonLiqfble.
	8.95	7	10	0.44	115	1169	1044	13.5	18.0	4.67	2.9	52.7	0.80	54.2	67.7	0.393	0.109	0.142	0.36	NonLiqfble.
	9.05	7	9.4	0.46	115	1180	1050	12.7	16.8	5.22	3.0	56.2	0.80	50.8	63.5	0.395	0.104	0.135	0.34	NonLiqfble.
	9.16 9.26	7 7	9.1 9.2	0.48 0.5	115 115	1193 1204	1055 1061	12.3 12.4	16.1 16.2	5.64 5.82	3.0	58.6 59.0	0.80	49.0 49.4	61.3 61.8	0.397 0.398	0.101 0.102	0.132 0.133	0.33	NonLiqfble. NonLiqfble.
	9.37	7	9.3	0.52	115	1217	1066	12.5	16.3	5.98	3.0	59.5	0.80	49.8	62.3	0.400	0.102	0.133	0.33	NonLiqfble.
	9.48	7	9.2	0.54	125	1229	1072	12.3	16.0	6.29	3.0	60.8	0.80	49.2	61.5	0.402	0.102	0.132	0.33	NonLiqfble.
	9.58	7	8.9	0.54	115	1242	1078	11.9	15.3	6.52	3.1	62.5	0.80	47.4	59.3	0.404	0.099	0.129	0.32	NonLiqfble.
	9.69	7	8.1	0.52	115	1255	1084	10.8	13.8	6.96	3.1	66.4	0.80	43.1	53.8	0.406	0.094	0.123	0.30	NonLiqfble.
	9.8 9.91	7 7	8.6 8.8	0.52 0.53	115 115	1267 1280	1090 1096	11.4 11.6	14.6 14.9	6.53 6.50	3.1	63.7 63.1	0.80	45.6 46.5	57.0 58.2	0.408 0.410	0.097 0.098	0.126 0.128	0.31	NonLiqfble. NonLiqfble.
	10.02	7	8.5	0.55	115	1293	1102	11.2	14.3	7.00	3.1	65.7	0.80	44.8	56.0	0.404	0.096	0.125	0.31	NonLiqfble.
	10.13	7	8.9	0.56	125	1305	1107	11.7	14.9	6.79	3.1	64.0	0.80	46.8	58.5	0.405	0.099	0.128	0.32	NonLiqfble.
	10.23	7	9.2		125	1318	1114	12.1	15.3	6.67	3.1	63.0	0.80	48.2	60.3	0.407	0.100	0.131	0.32	NonLiqfble.
	10.34 10.45	7 7	9.5 9.7	0.57 0.58	125 125	1331 1345	1121 1127	12.4 12.6	15.8 16.0	6.45 6.43	3.0	61.7 61.3	0.80	49.7 50.6	62.1 63.2	0.409 0.410	0.102 0.103	0.133 0.135	0.33	NonLiqfble.
	10.45	7	10.3	0.57	125	1343	1134	13.4	17.0	5.93	3.0	58.4	0.80	53.5	66.9	0.410	0.103	0.133	0.33	NonLiqfble. NonLiqfble.
	10.66	7	10.6		125	1371	1141	13.7	17.4	5.95	3.0	57.9	0.80	54.9	68.7	0.414	0.110	0.143	0.35	NonLiqfble.
	10.77	7	9.8	0.6	125	1385	1147	12.7	15.9	6.59	3.1	62.0	0.80	50.6	63.3	0.415	0.104	0.135	0.32	NonLiqfble.
	10.88	7	9.2	0.58	125	1399	1154	11.8	14.7	6.82	3.1	64.4	0.80	47.4	59.2	0.417	0.099	0.129	0.31	NonLiqfble.
	10.98 11.09	7 7	8.9 8.7	0.54 0.51	115 115	1411 1424	1161 1166	11.4 11.1	14.1 13.7	6.59 6.38	3.1	64.7 64.7	0.80	45.7	57.2 55.7	0.418 0.420	0.097 0.096	0.127 0.125	0.30	NonLiqfble.
	11.19	7	9.2		115	1436	1172	11.1	14.5	5.78	3.0	61.4	0.80	44.6 47.0	58.8	0.420	0.090	0.123	0.30	NonLiqfble. NonLiqfble.
	11.3	7	9.3	0.49	115	1448	1177	11.9	14.6	5.71	3.0	61.1	0.80	47.4	59.3	0.423	0.099	0.129	0.31	NonLiqfble.
	11.41	7	9.2	0.49	115	1461	1183	11.7	14.3	5.79	3.0	61.7	0.80	46.8	58.5	0.425	0.099	0.128	0.30	NonLiqfble.
	11.51	7	8.7	0.49	115	1472	1188	11.0	13.4	6.15	3.1	64.5	0.80	44.2	55.2	0.426	0.096	0.124	0.29	NonLiqfble.
	11.62 11.73	7 7	9.1 9.2	0.48 0.47	115 115	1485 1498	1194 1200	11.5 11.6	14.0 14.1	5.74 5.56	3.1	62.1 61.3	0.80	46.1 46.5	57.6 58.1	0.428 0.429	0.098 0.098	0.127 0.128	0.30 0.30	NonLiqfble. NonLiqfble.
	11.83	7	9.5	0.47	115	1509	1205	12.0	14.5	5.72	3.0	61.2	0.80	47.9	59.9	0.421	0.100	0.120	0.30	NonLiqfble.
	11.87	7	9.9	0.51	125	1514	1207	12.5	15.1	5.58	3.0	59.7	0.80	49.9	62.3	0.431	0.103	0.133	0.31	NonLiqfble.
	11.9	7	10.5		125	1518	1209	13.2	16.1	5.34	3.0	57.5	0.80	52.8	66.1	0.432	0.107	0.139	0.32	NonLiqfble.
	12.01	7	9.9		125	1531	1216	12.4	15.0	5.80	3.0	60.7	0.80	49.7	62.1	0.433	0.102	0.133	0.31	NonLiqfble.
	12.12 12.23	7 7	9.7 9.2	0.52 0.5	125	1545 1559	1223 1230	12.1 11.5	14.6	5.82	3.0	61.4 63.3	0.80	48.5 45.9	60.7 57.4	0.435	0.101 0.098	0.131 0.127	0.30 0.29	NonLiqfble. NonLiqfble.
	12.23	7	9.2 8.9		115 115	1570	1235	11.5	13.7 13.1	5.94 6.04	3.1	64.6	0.80	44.3	55.4	0.436 0.437	0.098	0.127	0.29	NonLiqfble.
	12.44	7	7.9		115	1583	1241	9.8	11.5	6.61	3.2	69.8	0.80	39.2	49.1	0.439	0.091	0.118	0.27	NonLiqfble.
	12.55	7	8.5		115	1596	1247	10.5	12.3	5.97	3.1	65.8	0.80	42.1	52.7	0.440	0.094	0.122	0.28	NonLiqfble.
	12.66	7	9.1	0.45	115	1608	1253	11.3	13.2	5.42	3.1	62.3	0.80	45.0	56.3	0.442	0.097	0.126	0.28	NonLiqfble.
	12.76 12.86	7 7	9.3 8.8	0.45 0.46	115 115	1620 1631	1258 1263	11.5 10.8	13.5 12.6	5.30 5.76	3.0	61.4 64.6	0.80	45.9 43.3	57.4 54.2	0.443 0.444	0.098 0.095	0.127 0.123	0.29 0.28	NonLiqfble. NonLiqfble.
	12.97	7	8.3	0.46	115	1644	1269	10.3	11.8	6.15	3.1	67.6	0.80	40.8	51.0	0.446	0.093	0.123	0.28	NonLiqfble.
	13.08	7	7.6		115	1657	1275	9.3	10.6	6.79	3.2	72.3	0.80	37.3	46.6	0.447	0.089	0.116	0.26	NonLiqfble.
	13.19	7			115	1669	1280	9.4	10.7	6.70	3.2	71.8	0.80	37.7	47.1	0.448	0.090	0.117	0.26	NonLiqfble.
	13.3	7	7.2	0.45	115	1682	1286	8.8	9.9	7.08	3.2	75.1	0.80	35.1	43.9	0.450	0.088	0.114	0.25	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 11

Depth to Groundwater: 7 feet

**EQ Magnitude (M<sub>w</sub>):** 6.5 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	$q_{\rm c1N}$	Q	F	Ic	(%)	Ксрт	DqcIN	$(\mathbf{q}_{clN})_{cs}$	Ratio	M7.5	M6.50	Safety	Comments
	13.4	7	7.2	0.44	115	1693	1291	8.8	9.8	6.93	3.2	74.7	0.80	35.1	43.8	0.451	0.088	0.114	0.25	NonLiqfble.
	13.51	7	7.6	0.41	115	1706	1297	9.2	10.4	6.08	3.2	70.5	0.80	36.9	46.2	0.452	0.089	0.116	0.26	NonLiqfble.
	13.62	7	8.5	0.4	115	1719	1303	10.3	11.7	5.24	3.1	64.5	0.80	41.2	51.5	0.454	0.093	0.121	0.27	NonLiqfble.
	13.73 13.83	7 7	8.6 8.5	0.4 0.4	115 115	1731 1743	1309 1314	10.4 10.3	11.8 11.6	5.17 5.24	3.1	64.1 64.8	0.80	41.6 41.0	52.0 51.3	0.455 0.456	0.093 0.093	0.121 0.120	0.27 0.26	NonLiqfble. NonLiqfble.
	13.94	7	8.6	0.42	115	1755	1320	10.4	11.7	5.44	3.1	65.3	0.80	41.4	51.8	0.457	0.093	0.120	0.26	NonLiqfble.
	14.04	7	8.9	0.44	115	1767	1325	10.7	12.1	5.49	3.1	64.7	0.80	42.8	53.5	0.459	0.094	0.122	0.27	NonLiqfble.
	14.15	7	9.2	0.46	115	1780	1331	11.0	12.5	5.54	3.1	64.1	0.80	44.1	55.2	0.460	0.096	0.124	0.27	NonLiqfble.
	14.26 14.36	7 7	11.1 11.3	0.47 0.48	125 125	1792 1805	1337 1343	13.3 13.5	15.3 15.5	4.61 4.62	3.0	56.0 55.7	0.80	53.1 54.0	66.4 67.5	0.461 0.462	0.107 0.109	0.139 0.141	0.30 0.31	NonLiqfble.
	14.47	7	10.5	0.49	125	1819	1350	12.5	14.2	5.11	3.0	59.5	0.80	50.0	62.5	0.462	0.109	0.141	0.31	NonLiqfble. NonLiqfble.
	14.57	7	10.6	0.47	115	1831	1356	12.6	14.3	4.85	3.0	58.4	0.80	50.4	63.0	0.464	0.103	0.134	0.29	NonLiqfble.
	14.68	7	11.1	0.46	125	1844	1362	13.2	14.9	4.52	3.0	56.1	0.80	52.6	65.8	0.466	0.106	0.138	0.30	NonLiqfble.
	14.79	7	11.1	0.45	115	1857	1369	13.1	14.9	4.42	3.0	55.8	0.80	52.5	65.6	0.467	0.106	0.138	0.30	NonLiqfble.
	14.89 15	7 7	10.7 10.8	0.46 0.5	115 125	1869 1882	1374 1380	12.6 12.7	14.2 14.3	4.71 5.07	3.0	58.0 59.2	0.80	50.5 50.9	63.1 63.6	0.468 0.469	0.103 0.104	0.134 0.135	0.29 0.29	NonLiqfble. NonLiqfble.
	15.11	7	10.7	0.52	125	1895	1387	12.6	14.1	5.33	3.0	60.5	0.80	50.3	62.9	0.470	0.103	0.134	0.29	NonLiqfble.
	15.32	7	13.4	0.53	125	1922	1400	15.7	17.8	4.26	2.9	51.4	0.80	62.7	78.4	0.472	0.125	0.162	0.34	NonLiqfble.
	15.43	7	11.8	0.5	125	1935	1407	13.8	15.4	4.62	3.0	55.8	0.80	55.1	68.8	0.473	0.110	0.143	0.30	NonLiqfble.
	15.54 15.64	7 7	12.5 12.4	0.48 0.49	125 125	1949 1962	1414 1420	14.5 14.4	16.3 16.1	4.16 4.29	2.9 2.9	52.8 53.6	0.80	58.2 57.6	72.7 72.0	0.474 0.475	0.116 0.115	0.151 0.149	0.32	NonLiqfble. NonLiqfble.
	15.73	7	11.4	0.46	125	1973	1426	13.2	14.6	4.42	3.0	56.2	0.80	52.8	66.1	0.476	0.113	0.139	0.29	NonLiqfble.
	15.81	7	10.8	0.46	115	1983	1431	12.5	13.7	4.69	3.0	58.7	0.80	50.0	62.5	0.477	0.103	0.133	0.28	NonLiqfble.
	15.91	7	12.7	0.45	125	1994	1436	14.7	16.3	3.85	2.9	51.4	0.80	58.7	73.3	0.478	0.117	0.152	0.32	NonLiqfble.
	16.01 16.11	7 7	11.1 11.6	0.45 0.46	115 125	2007 2018	1442 1447	12.8 13.3	14.0 14.6	4.46 4.34	3.0	57.3 55.9	0.80	51.2 53.4	63.9 66.7	0.479 0.480	0.104 0.108	0.136 0.140	0.28	NonLiqfble. NonLiqfble.
	16.22	7	11.3	0.46	125	2032	1454	13.0	14.1	4.47	3.0	57.1	0.80	51.9	64.8	0.481	0.105	0.140	0.29	NonLiqfble.
	16.32	7	9.6	0.46	115	2045	1460	11.0	11.7	5.36	3.1	64.9	0.80	44.0	55.0	0.482	0.095	0.124	0.26	NonLiqfble.
	16.43	7	10.5	0.46	115	2057	1466	12.0	12.9	4.86	3.0	60.7	0.80	48.0	60.0	0.483	0.100	0.130	0.27	NonLiqfble.
	16.54	7 7	8.2 7.3	0.45 0.46	115	2070 2083	1472	9.4	9.7	6.28	3.2	72.9	0.80	37.4	46.8	0.484	0.090	0.116	0.24	NonLiqfble.
	16.65 16.75	7	7.5 7.5	0.45	115 115	2083	1478 1483	8.3 8.5	8.5 8.7	7.35 6.97	3.3	80.1 78.2	0.80	33.2 34.1	41.5 42.6	0.485 0.486	0.087 0.087	0.113 0.113	0.23	NonLiqfble. NonLiqfble.
	16.86	7	7.7	0.43	115	2107	1489	8.7	8.9	6.47	3.2	75.8	0.80	34.9	43.7	0.487	0.088	0.114	0.23	NonLiqfble.
	16.97	7	9.1	0.42	115	2119	1495	10.3	10.8	5.22	3.1	66.6	0.80	41.2	51.5	0.488	0.093	0.121	0.25	NonLiqfble.
	17.07	7	8.1	0.42	115	2131	1500	9.2	9.4	5.97	3.2	72.8	0.80	36.6	45.8	0.489	0.089	0.116	0.24	NonLiqfble.
	17.18 17.29	7 7	8.2 9.1	0.44 0.46	115 115	2143 2156	1506 1512	9.2 10.2	9.5 10.6	6.17 5.73	3.2	73.3 68.8	0.80	37.0 41.0	46.2 51.2	0.490 0.491	0.089 0.092	0.116 0.120	0.24 0.25	NonLiqfble. NonLiqfble.
	17.39	7	9.9	0.47	115	2168	1517	11.1	11.6	5.33	3.1	65.0	0.80	44.5	55.6	0.492	0.096	0.125	0.25	NonLiqfble.
	17.5	7	10.7	0.48	125	2180	1523	12.0	12.6	5.00	3.0	61.8	0.80	48.0	60.0	0.493	0.100	0.130	0.26	NonLiqfble.
	17.61	7	11.4	0.49	125	2194	1529	12.8	13.5	4.76	3.0	59.4	0.80	51.0	63.8	0.493	0.104	0.135	0.27	NonLiqfble.
	17.71 17.82	7 7	12.2 11.8	0.51 0.52	125 125	2207 2220	1536 1543	13.6 13.1	14.4 13.9	4.60 4.86	3.0	57.2 59.1	0.80	54.5 52.6	68.1 65.7	0.494 0.495	0.109 0.106	0.142 0.138	0.29 0.28	NonLiqfble. NonLiqfble.
	17.92	7	10.9	0.52	125	2233	1549	12.1	12.6	5.32	3.1	63.0	0.80	48.5	60.6	0.496	0.101	0.131	0.26	NonLiqfble.
	18.03	7	11.1	0.52	125	2247	1556	12.3	12.8	5.21	3.1	62.3	0.80	49.3	61.6	0.497	0.102	0.132	0.27	NonLiqfble.
	18.13	7	10.7	0.53	125	2259	1562	11.8	12.2	5.54	3.1	64.5	0.80	47.4	59.2	0.497	0.099	0.129	0.26	NonLiqfble.
	18.24 18.45	7 7	10 9	0.52 0.47	125 115	2273 2299	1569 1582	11.0 9.9	11.3 9.9	5.87 5.99	3.1 3.2	67.7 71.4	0.80	44.2 39.6	55.2 49.5	0.498 0.500	0.096 0.091	0.124 0.119	0.25 0.24	NonLiqfble. NonLiqfble.
	18.56	7	8.3	0.45	115	2312	1588	9.1	9.0	6.30	3.2	75.1	0.80	36.5	45.6	0.501	0.089	0.115	0.23	NonLiqfble.
	18.66	7	8.3	0.43	115	2323	1593	9.1	9.0	6.02	3.2	74.2	0.80	36.4	45.5	0.502	0.089	0.115	0.23	NonLiqfble.
	18.77	7	7.5	0.42	115	2336	1599	8.2	7.9	6.63	3.3	79.7	0.80	32.8	41.0	0.503	0.086	0.112	0.22	NonLiqfble.
	18.88 18.98	7 7	7.8 7.1	0.41 0.39	115 115	2348 2360	1605 1610	8.5 7.7	8.3 7.4	6.19 6.59	3.3	77.0 81.6	0.80	34.1 31.0	42.6 38.7	0.503 0.504	0.087 0.085	0.113 0.111	0.23 0.22	NonLiqfble. NonLiqfble.
	19.09	7	7.7	0.36	115	2373	1616	8.4	8.1	5.53	3.2	75.2	0.80	33.5	41.9	0.505	0.083	0.111	0.22	NonLiqfble.
	19.2	7	7	0.34	115	2385	1621	7.6	7.2	5.86	3.3	79.8	0.80	30.4	38.0	0.506	0.085	0.111	0.22	NonLiqfble.
	19.3	7	7.5	0.33	115	2397	1627	8.1	7.7	5.24	3.2	75.2	0.80	32.5	40.7	0.507	0.086	0.112	0.22	NonLiqfble.
	19.41	7	7.6	0.33	115	2409	1633	8.2	7.8	5.16	3.2	74.6	0.80	32.9	41.2	0.508	0.086	0.112	0.22	NonLiqfble.
	19.52 19.62	7 7	7.5 7	0.34 0.34	115 115	2422 2434	1638 1644	8.1 7.6	7.7 7.0	5.41 5.88	3.2	76.1 80.4	0.80	32.4 30.2	40.5 37.8	0.509 0.509	0.086 0.085	0.112 0.111	0.22 0.22	NonLiqfble. NonLiqfble.
	19.73	7	6.9	0.36	115	2446	1649	7.4	6.9	6.34	3.3	82.7	0.80	29.7	37.2	0.510	0.085	0.110	0.22	NonLiqfble.
	19.84	7	6.8	0.38	115	2459	1655	7.3	6.7	6.82	3.3	85.0	0.80	29.3	36.6	0.511	0.085	0.110	0.22	NonLiqfble.
	19.94	7	6.7	0.39	115	2470	1660	7.2	6.6	7.14	3.4	86.7	0.80	28.8	36.0	0.512	0.084	0.110	0.21	NonLiqfble.
	20.03 20.14	7 7	7.4 7.7	0.4 0.41	115 115	2481 2493	1665 1671	7.9 8.2	7.4 7.7	6.49 6.35	3.3 3.3	81.1 79.4	0.80	31.7 33.0	39.7 41.2	0.502 0.503	0.086 0.087	0.112 0.112	0.22	NonLiqfble. NonLiqfble.
	_3.14	,	,.,	3.41		2.75	10/1	0.2		0.55	5.5	, , , , ,	0.00	55.0	2	0.505	0.007	0.112	V.22	

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 11

Depth to Groundwater: 7 feet

EQ Magnitude (Mw): 6.5 PGA (g): 0.54

MSF: 1.30

Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Stress Stress Stress (TSF) (TSF) (PCF) (PSF) (PSF) (%) KCPT DqcIN (qcIN)cs Ratio M7.5 M6.50 Safety (FT) (FT) **q**c1N 0 Comments Ic 20.25 7 8.1 0.41 115 2506 1677 8.7 8.2 5.99 3.2 76.6 0.80 34.6 43.3 0.504 0.088 0.114 0.23 NonLigfble. 20.35 8.4 0.41 115 2518 1682 9.0 8.5 5.74 3.2 74.6 0.80 35.8 44.8 0.504 0.088 0.115 0.23 NonLiqfble. 20.46 8.9 0.4 115 2530 1688 9.5 9.0 5.24 3.2 71.1 0.80 37.9 47.4 0.505 0.090 0.117 0.23 NonLiqfble. 20.56 0.4 115 2542 1693 9.6 9.1 5.18 3.2 70.6 0.80 38.3 47.9 0.506 0.090 0.117 0.23 NonLiqfble. 20.67 9.1 0.4 115 2554 1699 9.7 9.2 3.2 0.80 38.6 48.3 0.507 0.090 0.118 0.23 NonLiqfble. 20.78 9.2 0.4 115 2567 1705 9.7 9.3 5.05 3.2 69.6 0.80 39.0 48.7 0.507 0.091 0.118 0.23 NonLiqfble. 20.88 9.9 0.4 115 2578 1710 10.5 10.1 4.65 3.1 0.80 41.9 52.4 0.508 0.121 0.24 NonLiafble. 65.9 0.093 20.99 9.7 0.42 2591 1716 5.00 0.80 41.0 0.509 0.093 0.120 0.24 NonLiafble. 115 10.2 9.8 3.1 68.0 51.2 21.09 9.6 0.45 2603 0.80 0.510 0.23 NonLiafble. 115 1721 10.1 9.6 5.42 3.2 70.1 40.5 50.6 0.092 0.1200.55 21.2 7 10.3 125 2615 1727 10.8 10.4 6.12 3.2 70.6 0.80 43.4 54.2 0.510 0.095 0.123 0.24NonLigfble. 21.41 24.3 1.26 135 2642 1740 25.5 26.4 5.48 2.8 48.0 0.80 102.0 127.5 0.512 0.273 0.354 0.69 NonLigfble 6.46 21.5 32.6 2.02 135 2654 1746 34.1 35.8 2.8 45.5 0.80 136.5 170.7 0.512 0.542 0.705 1.38 NonLiqfble. 21.6 29.3 2 29 135 2667 1754 30.6 31.9 8.19 2.9 52.1 0.80 122.5 153.1 0.512 0.414 0.538 1.05 NonLiqfble. 21.68 7 31.7 2.71 135 2678 1759 33.1 34.5 8.93 2.9 52.4 0.80 132.3 165.3 0.513 0.500 0.650 1.27 NonLiqfble. 135 2.9 135.4 21.77 32.5 2.64 2690 1766 33.8 35.3 8.47 50.9 0.80 169.2 0.513 0.530 0.690 1.34 NonLiafble 21.85 30.5 2.25 135 2701 1772 31.7 32.9 7.72 50.3 0.80 126.8 158.5 0.514 0.450 0.586 1.14 NonLiqfble. 21.95 1.91 135 2.9 0.411 26.3 2714 1779 27.3 28.0 7.66 53.2 0.80 109.1 136.4 0.514 0.316 0.80 NonLiafble. 135 22.05 28.2 2.03 2728 1786 29.2 30.0 7.56 2.9 51.6 0.80 146.0 0.515 0.369 0.480 0.93 NonLigfble. 116.8 22.16 22.9 1.37 135 2743 1794 23.7 24.0 6.36 2.9 52.6 0.80 94.6 118.3 0.515 0.234 0.304 0.59 NonLigfble. 22.26 2756 16.1 1.06 135 1802 16.6 16.3 7.20 3.1 63.1 0.80 66.4 83.0 0.516 0.1330.1730.34 NonLigfble. 22.36 0.78 125 2770 1809 8.2 7.3 11.79 3.5 96.1 0.80 32.9 41.2 0.516 0.086 0.112 0.22 NonLigfble. 59 22 47 0.6 115 2784 1816 6.1 5.0 13 31 36 112.1 0.80 24.2 30.3 0.517 0.083 0.107 0.21 NonLiqfble. 22 57 7 4.9 0.46 105 2795 1821 5.0 3.8 13.14 3.7 120.7 0.80 20.1 25.1 0.517 0.081 0.106 0.20 NonLiqfble. 22.68 4.6 0.4 105 2807 1826 4.7 3.5 12.52 3.7 122.8 0.80 18.8 23.6 0.518 0.081 0.106 0.20 NonLiqfble. 22.79 4.9 0.42 105 2818 1830 5.0 3.8 12.03 3.7 118.5 0.80 20.0 25.1 0.519 0.081 0.106 0.20 NonLiqfble. 22.89 6.3 0.43 115 2829 1835 6.4 5.3 8.80 3.5 98.4 0.80 25.7 32.2 0.520 0.083 0.108 0.21 NonLigfble 22.99 5.9 0.45 115 2840 1840 6.0 4.9 10.05 3.6 104.9 0.80 24.1 30.1 0.520 0.083 0.107 0.21 NonLiqfble. 23.09 0.45 115 2852 1845 5.0 9.84 30.6 0.521 0.083 0.107 6 3.5 103.7 0.80 24.4 0.21 NonLigfble. 6.1 23.19 10.95 0.521 0.5 115 2863 1850 6.1 4.9 3.6 106.7 0.80 24.4 30.5 0.083 0.107 0.21 NonLigfble. 23.3 6.4 0.7 2876 1856 5.3 0.80 32.5 0.522 0.083 NonLiafble. 115 6.5 14.11 3.6 111.2 26.0 0.108 0.21 23.39 7 0.88 125 2886 1861 12.65 3.5 0.80 42.6 0.523 0.113 0.22 NonLiafble. 8.4 8.5 7.5 97.4 34.1 0.087 0.96 23 43 7 10.8 125 2891 1863 10.9 10.0 10.26 33 83.4 0.80 43.8 54.7 0.523 0.095 0.124 0.24NonLiafble. 23.48 182 1 09 135 2897 1867 184 17 9 6.51 3.0 59.0 0.80 73.7 92.2 0.523 0.153 0.199 0.38 NonLiqfble. 23.68 7 31.1 2.15 135 2924 1881 31.4 31.5 7.25 2.9 49.9 0.80 125.5 156.9 0.524 0.439 0.571 1.09 NonLiqfble. 23.78 32.8 2.41 135 2938 1888 33.0 33.2 7.69 2.9 50.1 0.80 132.1 165.1 0.524 0.499 0.648 1.24 NonLiqfble. 23.82 2.43 50.7 4.97 202.8 253.5 50.4 135 2943 1891 51.7 2.6 35.3 0.80 0.524 1.596 2.074 3.96 23.87 73.9 2.48 135 2950 1895 74.3 76.4 3.42 2.4 25.0 0.53 85.4 159.7 0.525 0.459 0.597 1.14 Low F.S. 23.95 163.6 2.51 135 2961 1901 164.2 170.5 1.55 9.8 0.13 24.3 188.5 0.525 0.703 0.914 1.74 24 192.7 2.49 135 2968 1904 193.2 200.7 1.30 1.8 7.6 0.07 14.2 207.4 0.525 0.909 1.182 2.25 2981 222.8 24.1 222.6 2.42 125 1912 231.2 1.09 1.7 5.7 0.02 226.8 0.525 1.515 2.88 4.1 1.166 24.18 2.35 225.5 0.526 7 222.5 125 2991 1917 222.4 230.5 1.06 1.7 5.5 0.01 3.1 1.146 1.490 2.83 24.25 7 224.5 2.55 125 3000 1921 224.1 232.1 1.14 1.7 5.9 0.02 5.6 229.7 0.526 1.208 1.570 2.98 24.36 7 212.6 2.56 135 3014 1928 211.9 218.9 1.21 1.7 6.6 0.04 9.4 221.3 0.527 1.088 1.414 2.68 24.45 214.4 2.56 135 3026 1934 213.3 220.0 1.20 1.7 6.5 0.04 9.0 222.3 0.527 1.101 1.432 2.72 2.86 24.55 7 219.2 2.63 135 3039 1942 217.7 224.1 1.21 1.7 6.4 0.04 8.7 226.4 0.527 1.159 1.507 24.65 222.6 3.18 135 3053 1949 220.6 226.8 1.44 1.8 0.07 16.0 236.7 0.528 1.313 1.706 3.23 24.75 7 216.7 135 1956 1.45 7.7 0.07 17.0 231.3 0.528 1.231 3.03 3.11 3066 214.4 219.9 1.8 1.601 24.82 214.6 2.88 135 3076 1961 212.0 217.2 1.35 1.8 7.4 0.06 14.2 226.2 0.528 1.157 1.504 2.85 24.91 217.9 2.51 125 3088 1968 214.9 219.8 1.16 1.7 6.3 0.03 7.7 222.6 0.529 1.106 1.438 2.72 1.020 25.01 216.1 125 3100 1974 1.02 1.7 0.02 0.529 2.19 212.8 217.3 5.6 3.4 216.2 1.326 2.51 125 25.11 205.2 2.34 3113 1980 201.8 1.7 0.04 9.0 210.8 0.530 1.237 2.33 205.6 1.15 6.6 0.951 25.21 193.9 2.4 135 3125 1987 190.3 193.6 1.25 1.8 7.5 0.07 13.5 203.9 0.530 0.868 1.129 2.13 25.3 7 192.1 2.53 135 3137 1993 188.3 191.1 1.33 1.8 8.0 0.08 16.3 204.6 0.530 0.876 1.139 2.15 25.39 7 183.5 2.15 125 3150 2000 179.5 181.9 1.18 1.8 7.5 0.07 12.9 192.4 0.531 0.743 0.965 1.82 83 25 49 173 4 2 15 135 3162 2006 169 4 171.2 1.25 1.8 0.0916.2 185 6 0.531 0.674 0.877 1.65 25.58 7 159.2 2.15 135 3174 2012 155.3 156.6 1.36 19 9 5 0.12 21.0 176.3 0.532 0.590 0.766 1 44 25.64 149 2.14 135 3182 2017 145.2 146 1 1.45 1.9 10.4 24.5 169.7 0.532 0.535 0.695 1.31 0.14 25.92 7 147.3 142.8 143.0 154.3 0.533 0.548 Low F.S. 1.41 125 3220 2037 0.97 1.8 7.8 0.07 11.5 0.421 1.03 115 26 167.4 1.13 3230 2042 162.1 162.3 0.68 1.6 5.1 0.00 0.3 162.4 0.533 0.478 0.622 1.17 Low F.S. 26.06 180.6 1.16 115 3237 2045 174.7 175.0 0.65 4.4 0.00 0.0 174.7 0.533 0.576 0.749 1.40 1.6 26.14 187.4 1.44 115 3246 2049 0.78 0.00 181.5 0.534 0.827 1.55 181.1 181.2 1.6 5.1 0.4 0.636 1.47 26.23 125 2054 0.534 0.783 181.4 3257 175.1 175.0 0.82 1.7 0.02 2.7 177.8 0.603 1.47

5.6

16

0.01

0.9

170.5

0.535

0.541

0.703

1.32

1.28

175.9

115 3268 2060

169.6

169.1

0.73

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 11

Depth to Groundwater: 7 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA** (g): 0.54

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	-	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	DqcIN	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	00.00	-	107.1	1.07	445	2276	2072	161.0	160.2	0.65	1.6	4.0	0.00	0.0	161.0	0.525	0.460	0.600	1.14	I F.C
	26.39 26.48	7	167.1 148.8	1.07 0.75	115 105	3276 3286	2063 2068	161.0 143.2	160.3 142.2	0.65 0.51	1.6 1.6	4.9 4.5	0.00	0.0	161.0 143.2	0.535 0.535	0.468 0.353	0.608 0.459	1.14 0.86	Low F.S. Liquefaction
	26.58	7	131.6	0.73	95	3297	2072	126.5	125.4	0.31	1.5	3.5	0.00	0.0	126.5	0.536	0.268	0.349	0.65	Liquefaction
	26.67	7	97.4	0.21	88	3305	2075	93.5	92.2	0.22	1.6	4.5	0.00	0.0	93.5	0.537	0.156	0.203	0.38	Liquefaction
	26.77	7	75	0.18	88	3314	2078	72.0	70.6	0.25	1.7	6.7	0.05	3.5	75.5	0.537	0.120	0.156	0.29	Liquefaction
	26.87	7	49.8	0.17	95	3323	2081	47.8	46.3	0.35	2.0	11.9	0.18	10.8	58.6	0.538	0.099	0.128	0.24	Liquefaction
	26.97 27.06	7	26.7 30.6	0.17 0.36	95 115	3332 3341	2084 2087	25.6 29.3	24.0 27.7	0.68 1.24	2.3	24.0 27.1	0.51 0.59	26.4 42.1	52.0 71.4	0.539 0.539	0.093 0.114	0.121 0.148	0.22 0.27	Liquefaction
	27.16	7	27.3	0.30	115	3352	2092	26.1	24.5	1.17	2.4	28.4	0.62	43.5	69.6	0.540	0.114	0.148	0.27	Liquefaction Liquefaction
	27.24	7	16.6	0.21	105	3362	2096	15.9	14.2	1.41	2.7	40.0	0.80	63.5	79.3	0.540	0.126	0.164	0.30	NonLiqfble.
	27.34	7	13.6	0.14	95	3372	2100	13.0	11.3	1.18	2.7	42.5	0.80	51.9	64.9	0.541	0.105	0.137	0.25	NonLiqfble.
	27.44	7	14.1	0.13	95	3382	2104	13.5	11.8	1.05	2.7	40.5	0.80	53.8	67.3	0.542	0.108	0.141	0.26	NonLiqfble.
	27.54 27.65	7	8.8 7.1	0.08 0.07	95 95	3391 3402	2107	8.4	6.7	1.13	2.9	54.0 63.0	0.80	33.6	41.9	0.542	0.087 0.084	0.113	0.21	NonLiqfble.
	27.75	7	5.3	0.07	95	3411	2111 2114	6.8 5.0	5.1 3.4	1.30 2.78	3.1	87.7	0.80	27.0 20.2	33.8 25.2	0.543 0.544	0.084	0.109	0.20 0.19	NonLiqfble. NonLiqfble.
	27.85	7	5.5	0.11	95	3421	2117	5.2	3.6	2.90	3.4	86.8	0.80	20.9	26.2	0.544	0.082	0.106	0.19	NonLiqfble.
	27.92	7	4.4	0.12	95	3427	2119	4.2	2.5	4.47	3.6	107.9	0.80	16.7	20.9	0.545	0.081	0.105	0.19	NonLiqfble.
	28.02	7	4.4	0.11	95	3437	2123	4.2	2.5	4.10	3.6	106.1	0.80	16.7	20.9	0.546	0.081	0.105	0.19	NonLiqfble.
	28.13	7	3.4	0.07	88	3447	2126	3.2	1.6	4.18	3.8	125.3	0.80	12.9	16.1	0.546	0.080	0.105	0.19	NonLiqfble.
	28.23 28.34	7	3.4 3.8	0.04 0.05	88 88	3456 3466	2129 2132	3.2 3.6	1.6 1.9	2.39 2.42	3.6 3.6	113.3 105.1	0.80	12.9 14.4	16.1 18.0	0.547 0.548	0.080	0.105 0.105	0.19 0.19	NonLiqfble.
	28.45	7	3.6 4.2	0.03	95	3475	2134	4.0	2.3	3.25	3.6	103.1	0.80	15.9	19.9	0.549	0.081	0.105	0.19	NonLiqfble. NonLiqfble.
	28.55	7	5	0.1	95	3485	2138	4.7	3.0	3.07	3.4	93.3	0.80	18.9	23.7	0.549	0.081	0.106	0.19	NonLiqfble.
	28.66	7	5.6	0.12	95	3495	2141	5.3	3.6	3.12	3.4	88.0	0.80	21.2	26.5	0.550	0.082	0.106	0.19	NonLiqfble.
	28.77	7	6.8	0.16	95	3506	2145	6.4	4.7	3.17	3.3	79.8	0.80	25.7	32.1	0.551	0.083	0.108	0.20	NonLiqfble.
	28.87	7	8	0.26	105	3515	2148	7.6	5.8	4.17	3.3	78.8	0.80	30.2	37.8	0.551	0.085	0.111	0.20	NonLiqfble.
	28.98 29.05	7	10.6 11.4	0.31 0.37	115 115	3527 3535	2153 2156	10.0 10.7	8.2 8.9	3.51 3.84	3.1	65.9 8.0	0.80	40.0 0.9	50.0 11.7	0.552 0.552	0.092 0.080	0.119 0.104	0.22 0.19	NonLiqfble. NonLiqfble.
	29.13	7	12.2		125	3544	2161	11.5	9.6	5.85	3.2	8.0	0.08	1.0	12.5	0.553	0.080	0.104	0.19	NonLiqfble.
	29.23	7	17.5		125	3557	2167	16.4	14.5	5.53	3.0	8.0	0.08	1.4	17.9	0.553	0.081	0.105	0.19	NonLiqfble.
	29.33	7	48.7	1.13	135	3569	2173	45.7	43.2	2.41	2.4	8.0	0.08	4.0	49.7	0.553	0.091	0.119	0.21	Liquefaction
	29.38	7	83.3	1.22	135	3576	2177	78.1	74.9	1.50	2.1	8.0	0.08	6.8	84.9	0.554	0.137	0.178	0.32	Liquefaction
	29.42 29.46	7	97 117.6	1.28 1.33	125 125	3581 3586	2180 2182	90.9 110.1	87.3 106.1	1.34 1.15	2.0 1.9	8.0 8.0	0.08	7.9 9.6	98.8 119.7	0.554 0.554	0.170 0.240	0.221 0.312	0.40 0.56	Liquefaction
	29.54	7	123.2	1.39	125	3596	2187	115.3	111.0	1.13	1.9	8.0	0.08	10.0	125.3	0.554	0.240	0.312	0.62	Liquefaction Liquefaction
	29.63	7	135.8	1.44	125	3607	2193	126.9	122.2	1.07	1.9	8.0	0.08	11.0	137.9	0.554	0.324	0.421	0.76	Liquefaction
	29.72	7	145.9	1.37	125	3619	2198	136.1	131.0	0.95	1.8	8.0	0.08	11.9	148.0	0.555	0.382	0.496	0.89	Liquefaction
	29.81	7	157.1	1.56	125	3630	2204	146.4	140.8	1.00	1.8	8.0	0.08	12.7	159.2	0.555	0.455	0.591	1.07	Low F.S.
	29.91	7	163	1.7	125	3642	2210	151.7	145.8	1.05	1.8	8.0	0.08	13.2	164.9	0.555	0.497	0.646	1.16	Low F.S.
	30.02 30.11	7	163 170	2.43 2.33	135 135	3656 3668	2217 2224	151.5 157.7	145.3 151.2	1.51 1.39	1.9 1.9	8.0 8.0	0.08	13.2 13.7	164.6 171.5	0.532 0.533	0.495 0.549	0.644	1.21 1.34	
	30.11	7	202.7	2.8	135	3682	2231	187.8	180.0	1.39	1.8	8.0	0.08	16.3	204.1	0.533	0.871	1.132	2.12	
	30.31	7	219.4	2.41	125	3695	2238	202.9	194.3	1.11	1.7	8.0	0.08	17.7	220.6	0.533	1.078	1.401	2.63	
	30.4	7	255.7	2.38	125	3707	2244	236.2	226.2	0.94	1.6	8.0	0.08	20.6	256.7	0.533	1.654	2.150	4.03	
	30.5	7	253	2.53	125	3719	2250	233.4	223.1	1.01	1.7	8.0	0.08	20.3	253.7	0.534	1.598	2.078	3.89	
	30.6 30.7	7	244.4	2.17	125 115	3732 3744	2256	225.1	214.9	0.89	1.6	4.9	0.00	0.0	225.1 198.3	0.534	1.141	1.483	2.78	
	30.7	7	215.6 181.9	1.65 1.6	125	3756	2263 2268	198.3 167.1	188.8 158.7	0.77 0.89	1.6 1.7	4.8 6.6	0.00	0.0 7.5	174.6	0.534 0.535	0.805 0.575	1.047 0.748	1.96 1.40	
	30.9	7	152.2		115	3768	2274	139.6	132.1	0.82	1.8	7.3	0.06	9.2	148.9	0.535	0.387	0.503	0.94	Liquefaction
	31	7	118.9	0.77	115	3780	2280	109.0	102.6	0.66	1.8	7.9	0.08	9.2	118.2	0.535	0.233	0.304	0.57	Liquefaction
	31.1	7	77.7	0.64	115	3791	2285	71.1	66.3	0.84	2.0	13.2	0.22	19.8	90.9	0.536	0.150	0.195	0.36	Liquefaction
	31.18	7	60	0.81	125	3800	2289	54.9	50.7	1.39	2.2	20.0	0.40	36.8	91.7	0.536	0.152	0.197	0.37	Liquefaction
	31.33	7 7	36 26.5	0.98	135	3819	2298	32.9	29.7	2.87	2.6	35.8	0.80	131.4	164.3	0.537	0.492	0.640	1.19	NonLiqfble.
	31.41 31.51	7	26.5	1.03 1.17	135 135	3830 3843	2304 2311	24.2 19.9	21.3 17.3	4.19 5.86	2.8	47.4 57.8	0.80	96.6 79.7	120.8 99.7	0.537 0.537	0.244 0.172	0.317 0.224	0.59 0.42	NonLiqfble. NonLiqfble.
	31.62	7	18.8		135	3858	2319	17.1	14.5	7.88	3.1	67.8	0.80	68.3	85.4	0.537	0.172	0.179	0.33	NonLiqfble.
	31.72	7	31	1.27	135	3872	2327	28.1	25.0	4.37	2.8	45.1	0.80	112.5	140.6	0.537	0.338	0.440	0.82	NonLiqfble.
	31.82	7	81.3		135	3885	2334	73.6	68.0	1.85	2.2	19.4	0.38	46.1	119.7	0.538	0.240	0.311	0.58	Liquefaction
	31.92	7	104.6		125	3899	2341	94.6	87.7	1.33	2.0	13.9	0.24	29.6	124.2	0.538	0.258	0.335	0.62	Liquefaction
	32.02 32.09	7	122.3 121.8	1.34 1.39	125 125	3911 3920	2347 2352	110.4 109.9	102.5 101.9	1.11 1.16	1.9 1.9	11.2 11.5	0.17 0.17	21.9 23.2	132.3 133.1	0.538 0.538	0.295 0.299	0.384	0.71 0.72	Liquefaction Liquefaction
	32.19	7	130.5	1.57	125	3932	2352	117.6	101.9	1.16	1.9	11.5	0.17	24.1	141.6	0.538	0.299	0.389	0.72	Liquefaction
	32.28	7	139.4	1.45	125	3944	2364	125.5	116.2	1.06	1.9	9.8	0.13	18.5	144.0	0.539	0.358	0.465	0.86	Liquefaction
																				-

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 11

Depth to Groundwater: 7 feet

EQ Magnitude ( $M_w$ ): 6.5 **PGA (g):** 0.54 MSF: 1.30

			_	~-					~											
	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> cIN	Q	F	Ic	(%)	$\mathbf{K}_{\mathrm{CPT}}$	DqcIN	(q <sub>c1N</sub> ) <sub>cs</sub>		M7.5	M6.50		Comments
	32.38	7	150.8	2.34	135	3956	2370	135.5	125.5	1.57	2.0	12.2	0.19	32.2	167.7	0.539	0.519	0.675	1.25	
	32.48	7	167.4	2.37	135	3970	2377	150.2	139.1	1.43	1.9	10.7	0.15	26.8	177.0	0.539	0.596	0.775	1.44	
	32.58 32.68	7 7	190.2 181.1	2.08 1.96	125 125	3983 3996	2385 2391	170.4 162.1	157.8 149.8	1.11 1.09	1.8 1.8	8.0 8.2	0.08	14.7 15.4	185.1 177.4	0.539 0.540	0.670 0.600	0.871 0.780	1.61 1.44	
	32.78	7	189.9	1.88	125	4008	2397	169.7	156.7	1.00	1.8	7.4	0.09	11.5	181.3	0.540	0.634	0.780	1.53	
	32.86	7	195.9	1.64	125	4018	2402	174.9	161.4	0.85	1.7	6.2	0.03	5.9	180.8	0.540	0.630	0.819	1.52	
	32.96	7	203.3	1.48	115	4031	2408	181.3	167.1	0.74	1.7	5.3	0.01	1.4	182.6	0.540	0.646	0.840	1.55	
	33.06	7	205.9	1.32	115	4042	2414	183.4	168.9	0.65	1.6	4.6	0.00	0.0	183.4	0.541	0.653	0.850	1.57	
	33.15 33.25	7 7	192.9 185.1	1.24 1.25	115 115	4053 4064	2418 2424	171.6 164.5	157.8 151.0	0.65 0.68	1.6 1.7	5.0 5.5	0.00	0.0 2.3	171.7 166.8	0.541 0.542	0.550 0.511	0.716 0.665	1.32 1.23	
	33.35	7	170.8	1.15	115	4076	2429	151.6	138.9	0.68	1.7	6.0	0.03	4.2	155.9	0.542	0.432	0.562	1.04	Low F.S.
	33.45	7	161.9	1.08	115	4087	2434	143.6	131.3	0.68	1.7	6.3	0.04	5.3	148.9	0.542	0.387	0.503	0.93	Liquefaction
	33.55	7	156.2	0.98	115	4099	2439	138.4	126.3	0.64	1.7	6.3	0.03	4.9	143.3	0.543	0.354	0.460	0.85	Liquefaction
	33.64	7	152.5	0.89	115	4109	2444	135.0	123.1	0.59	1.7	6.1	0.03	4.1	139.1	0.543	0.330	0.429	0.79	Liquefaction
	33.74 33.84	7 7	151.5 150.2	1.4 1.18	125 115	4120 4133	2449 2456	133.9 132.6	122.0 120.6	0.94 0.80	1.8 1.8	8.7 7.8	0.10 0.07	14.6 10.7	148.6 143.3	0.543 0.543	0.385 0.354	0.500 0.460	0.92 0.85	Liquefaction Liquefaction
	33.93	7	144.5	1.09	115	4143	2460	127.5	115.7	0.77	1.8	7.9	0.08	10.6	138.0	0.544	0.325	0.422	0.78	Liquefaction
	34.03	7	134.8	1.19	125	4155	2466	118.8	107.6	0.90	1.9	9.3	0.12	15.6	134.4	0.544	0.306	0.397	0.73	Liquefaction
	34.12	7	137.4	1.1	115	4166	2471	120.9	109.5	0.81	1.8	8.6	0.10	13.0	133.9	0.544	0.303	0.394	0.72	Liquefaction
	34.21	7	143.5 156.6	1.05	115	4176	2476	126.2	114.2	0.74	1.8	7.8	0.07	10.2	136.4	0.545	0.316	0.411	0.75	Liquefaction
	34.3 34.4	7 7	161.1	0.94 0.91	115 115	4187 4198	2481 2486	137.6 141.4	124.5 127.9	0.61 0.57	1.7 1.7	6.2 5.7	0.03	4.4 2.7	142.0 144.1	0.545 0.545	0.346 0.358	0.450 0.466	0.83 0.85	Liquefaction Liquefaction
	34.49	7	164.4	1.34	125	4209	2491	144.1	130.3	0.83	1.8	7.5	0.07	10.2	154.3	0.546	0.422	0.548	1.00	Low F.S.
	34.54	7	157.6	1.6	125	4215	2494	138.1	124.6	1.03	1.8	9.1	0.11	17.1	155.2	0.546	0.428	0.556	1.02	Low F.S.
	34.63	7	152.1	1.64	125	4226	2499	133.1	120.0	1.09	1.9	9.8	0.13	19.7	152.8	0.546	0.412	0.535	0.98	Liquefaction
	34.72 34.82	7 7	151.4 153.5	2.45 4.18	135 135	4237 4251	2505 2512	132.4 134.0	119.1 120.5	1.64 2.76	2.0	13.0 17.9	0.21 0.34	35.8 70.0	168.1 204.0	0.546 0.546	0.522 0.870	0.678 1.131	1.24 2.07	
	34.92	7	168.6	5.23	135	4264	2520	147.0	132.1	3.14	2.2	18.5	0.34	82.4	229.4	0.547	1.202	1.563	2.86	
	35.01	7	135.7	5.83	140	4276	2526	118.1	105.7	4.37	2.4	24.6	0.52	130.4	248.5	0.547	1.507	1.960	3.58	
	35.11	7	147.3	5.87	140	4290	2534	128.0	114.5	4.04	2.3	22.8	0.48	116.4	244.4	0.547	1.437	1.869	3.42	
	35.2	7	163.6	5.15	135	4303	2541	142.0	127.0	3.19	2.2	19.0	0.37	84.5	226.5	0.547	1.161	1.510	2.76	
	35.27 35.36	7 7	203.9 266.1	4.65 3.91	135 135	4313 4325	2546 2553	176.8 230.5	158.4 206.7	2.30 1.48	2.0 1.8	13.8 8.3	0.23	53.9 22.1	230.8 252.6	0.547 0.547	1.223 1.579	1.590 2.052	2.91 3.75	
	35.45	7	330.7	3.33	125	4337	2559	286.0	256.7	1.48	1.6	4.7	0.09	0.0	286.0	0.547	2.256	2.933	5.36	
	35.54	7	368.5	3.14	125	4348	2565	318.4	285.6	0.86	1.5	3.4	0.00	0.0	318.4	0.547	3.081	4.006	7.32	
	35.62	7	381.4	3.2	125	4358	2570	329.2	295.0	0.84	1.5	3.1	0.00	0.0	329.2	0.548	3.398	4.417	8.07	
	35.71	7 7	369.5 360.2	3.66	125 125	4369	2575	318.6	285.1	1.00	1.6	4.1	0.00	0.0	318.6	0.548	3.087	4.013	7.32	
	35.8 35.89	7	316.5	3.82 4.1	135	4381 4392	2581 2587	310.2 272.3	277.3 242.9	1.07 1.30	1.6 1.7	4.6 6.5	0.00 0.04	0.0 11.4	310.2 283.7	0.548 0.548	2.856 2.203	3.713 2.864	6.78 5.22	
	35.98	7	278.3	4.08	135	4404	2593	239.1	212.9	1.48	1.8	8.1	0.08	21.5	260.6	0.548	1.727	2.245	4.09	
	36.07	7	281.1	4.44	135	4416	2600	241.2	214.5	1.59	1.8	8.6	0.10	25.6	266.8	0.549	1.846	2.400	4.38	
	36.16	7	275.9	5.82	135	4428	2606	236.5	209.9	2.13	1.9	11.1	0.16	45.6	282.0	0.549	2.166	2.816	5.13	
	36.25 36.34	7 7	282.2 300.6	6.5 6.79	135 135	4440 4453	2613 2619	241.6 257.0	214.2 227.7	2.32 2.28	2.0 1.9	11.7 11.1	0.18 0.16	52.6 50.3	294.2 307.3	0.549 0.549	2.447 2.778	3.182 3.612	5.80 6.58	
	36.42	7	306.6	7.07	135	4463	2625	261.8	231.8	2.32	1.9	11.1	0.10	52.0	313.8	0.549	2.953	3.840	6.99	
	36.5	7	336.2	6.86	135	4474	2631	286.8	253.8	2.05	1.9	9.6	0.12	40.2	327.0	0.549	3.331	4.331	7.89	
	36.58	7	385.9	6.37	135	4485	2637	328.8	290.9	1.66	1.8	7.2	0.06	20.8	349.6	0.549	4.054	5.270	9.59	
	36.66	7		5.92	135	4496	2642	341.9	302.2	1.48	1.7	6.3	0.03	11.8	353.7	0.549	4.196	5.455	9.93	
	36.74 36.81	7 7	412.1 401.5	5.78 5.78	135 135	4507 4516	2648 2653	350.4 341.0	309.4 300.8	1.41 1.45	1.7 1.7	5.8 6.1	0.02	7.8 10.5	358.1 351.5	0.550 0.550	4.352 4.119	5.658 5.355	10.30 9.74	
	36.88	7	388.2	6.82	135	4525	2658	329.4	290.2	1.77	1.8	7.7	0.03	25.5	355.0	0.550	4.239	5.511	10.03	
	36.96	7	382.4	7.51	135	4536	2664	324.1	285.2	1.98	1.8	8.6	0.10	34.9	359.1	0.550	4.386	5.701	10.37	
	37.01	7	362.9	6.69	135	4543	2668	307.4	270.2	1.86	1.8	8.4	0.09	31.1	338.5	0.550	3.687	4.793	8.72	
	37.07	7	348.9 332.6	5.94	135	4551	2672	295.3	259.3	1.71	1.8	8.1	0.08	26.3	321.6	0.550	3.173	4.124	7.50	
	37.13 37.16	7 7	283.9	5.45 5.1	135 135	4559 4563	2677 2679	281.3 240.0	246.7 210.2	1.65 1.81	1.8 1.9	8.1 9.7	0.08	24.9 34.5	306.2 274.5	0.550 0.550	2.751 2.003	3.576 2.604	6.50 4.73	
	37.21	7	272.9	4.72	135	4570	2682	230.5	201.7	1.74	1.9	9.7	0.13	32.8	263.4	0.550	1.779	2.312	4.20	
	37.27	7	263.9	4.12	135	4578	2687	222.8	194.7	1.57	1.8	9.1	0.11	27.4	250.2	0.550	1.536	1.997	3.63	
	37.35	7	267.3	3.81	135	4589	2693	225.4	196.8	1.44	1.8	8.4	0.09	22.3	247.6	0.550	1.492	1.940	3.53	
	37.55 37.63	7 7	215.1 197.4	2.46 1.97	125 125	4616 4626	2707 2712	180.9 165.8	157.1 143.8	1.16 1.01	1.8 1.8	8.3 8.0	0.09	17.4 14.5	198.3 180.3	0.551 0.551	0.805 0.625	1.047 0.813	1.90 1.48	
	37.72	7	183.7	1.33	115	4637	2712	154.2	133.4	0.73	1.7	6.7	0.08	7.1	161.3	0.551	0.023	0.611	1.11	Low F.S.
	37.81	7		1.2	115	4648	2722	125.4	108.1	0.81	1.8	8.7	0.10	13.9	139.3	0.551	0.331	0.431	0.78	Liquefaction

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 11

Depth to Groundwater: 7 feet

		Water	Tip	Sleeve			Effective			Friction								Liquef.		
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress		of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> e1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)cs	Ratio	M7.5	M6.50	Safety	Comments
		_																		
	37.9	7	117.6	1.11	125	4658	2727	98.5	84.5	0.96	2.0	11.8	0.18	21.9	120.4	0.552	0.242	0.315	0.57	Liquefaction
	37.97	7	87.7	1.08	125	4667	2732	73.4	62.5	1.27	2.1	16.8	0.32	33.9	107.3	0.552	0.195	0.254	0.46	Liquefaction
	38.06	7	60.8	1.05	135	4678	2737	50.8	42.7	1.80	2.4	24.7	0.53	56.5	107.3	0.552	0.195	0.254	0.46	Liquefaction
	38.15	7	40.2	1.15	135	4690	2744	33.6	27.6	3.04	2.6	37.8	0.80	134.3	167.9	0.552	0.520	0.676	1.23	NonLiqfble.
	38.25	7	29.4	1.54	135	4704	2751	24.5	19.7	5.69	2.9	54.5	0.80	98.1	122.6	0.552	0.251	0.327	0.59	NonLiqfble.
	38.34	7	39.9	1.85	135	4716	2758	33.2	27.2	4.93	2.8	45.6	0.80	133.0	166.2	0.552	0.507	0.659	1.19	NonLiqfble.
	38.43	7	47	2.39	135	4728	2764	39.1	32.3	5.35	2.8	44.0	0.80	156.5	195.6	0.552	0.776	1.008	1.83	NonLiqfble.
	38.52	7	64.7	2.61	135	4740	2771	53.8	45.0	4.19	2.6	34.7	0.79	207.5	261.3	0.552	1.738	2.260	4.09	
	38.6	7	183.4	2.59	135	4751	2776	152.3	130.3	1.43	1.9	11.1	0.16	29.9	182.2	0.553	0.643	0.835	1.51	
	38.69	7	283.9	2.98	125	4763	2783	235.5	202.2	1.06	1.7	6.2	0.03	7.8	243.2	0.553	1.419	1.844	3.34	
	38.77	7	366.2	3.54	125	4773	2788	303.5	260.9	0.97	1.6	4.4	0.00	0.0	303.5	0.553	2.679	3.482	6.30	
	38.85	7	444.5	4.24	125	4783	2793	368.0	316.5	0.96	1.5	3.5	0.00	0.0	368.0	0.553	4.715	6.129	11.08	
	38.93	7	479.2	5.12	125	4793	2798	396.4	340.7	1.07	1.6	3.8	0.00	0.0	396.4	0.553	5.872	7.633	13.80	
	39	7	492.2	5.34	125	4802	2802	406.8	349.4	1.09	1.6	3.8	0.00	0.0	406.8	0.553	6.341	8.244	14.90	
	39.08	7	511	5.54	125	4812	2807	422.0	362.2	1.09	1.6	3.6	0.00	0.0	422.0	0.553	7.068	9.188	16.60	
	39.17	7	489.5	6.72	135	4823	2813	403.8	346.2	1.38	1.6	5.2	0.00	1.8	405.7	0.554	6.289	8.175	14.77	
	39.26	7	454.9	6.09	135	4835	2820	374.8	320.8	1.35	1.7	5.3	0.01	3.5	378.4	0.554	5.117	6.653	12.01	
	39.34	7	449.4	4.9	125	4846	2825	369.9	316.3	1.10	1.6	4.2	0.00	0.0	369.9	0.554	4.788	6.224	11.24	
	39.43	7	410.7	4.89	135	4857	2831	337.7	288.3	1.20	1.6	5.1	0.00	1.1	338.8	0.554	3.698	4.807	8.68	
	39.52	7	377.7	4.28	125	4869	2838	310.2	264.4	1.14	1.7	5.2	0.00	2.0	312.3	0.554	2.912	3.785	6.83	
	39.52	7	352.1	3.49	125	4879	2843	289.0	245.9	1.14		4.8	0.01		289.0	0.554	2.324	3.021	5.45	
		7			125						1.6			0.0						
	39.69	/	339.2	2.7		4891	2848	278.1	236.4	0.80	1.6	3.9	0.00	0.0	278.1	0.554	2.080	2.704	4.88	
	39.78	7	294.8	1.99	115	4902	2854	241.5	204.8	0.68	1.6	3.8	0.00	0.0	241.5	0.555	1.389	1.806	3.26	
	39.87	7	261.1	1.49	115	4912	2859	213.7	180.9	0.58	1.6	3.7	0.00	0.0	213.7	0.555	0.987	1.283	2.31	
	39.96	7	200.6	1.06	115	4922	2863	164.0	138.3	0.53	1.6	4.9	0.00	0.0	164.0	0.555	0.490	0.638	1.15	Low F.S.
	40.05	7	152	1.05	115	4933	2868	124.2	104.2	0.70	1.8	8.2	0.08	11.4	135.6	0.513	0.312	0.405	0.79	Liquefaction

**PGA (g):** 0.54

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 12 Depth to Groundwater: 10 feet EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
C	Depth	Table	Resist.	Frict.	g (DCE)	Stress	Stress	Tip	Tip	Ratio	<b>.</b>	F.C.	Ксрт	DqcIN	( <b>a</b> w)	Stress	Stress	Stress	of C-f-4	C
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> e1N	Q	F	Ic	(%)	KCPI	DqcIN	(qclN)es	капо	M7.5	M6.50	Sarety	Comments
	0.57	10	141.9	4.05	135	77	77	271.8	3685.6	2.85	1.7	5.7	0.02	5.3	277.1	0.351	2.058	2.676	7.62	Above W.T.
	0.67 0.77	10 10	110.7 94	3.61 3.11	135 135	90 104	90 104	212.0 180.0	2445.7 1806.8	3.26 3.31	1.7 1.8	6.8 7.1	0.05	10.7 10.9	222.7 191.0	0.351	1.107 0.728	1.439 0.946	4.10 2.70	Above W.T. Above W.T.
	0.77	10	62.5	3.34	135	119	119	119.7	1050.7	5.35	2.0	12.9	0.00	32.1	151.8	0.351	0.728	0.527	1.50	Above W.T.
	0.98	10	48.6	3.47	135	132	132	93.1	733.4	7.15	2.2	17.7	0.34	47.8	140.8	0.351	0.340	0.442	1.26	Above W.T.
	1.02	10	43.4	3.49	135	138	138	83.1	629.1	8.05	2.2	20.0	0.40	55.5	138.6	0.351	0.328	0.426	1.21	Above W.T.
	1.12 1.22	10 10	37.3 33.3	3.46 3.28	135 135	151 165	151 165	71.4 63.8	492.2 403.2	9.29 9.87	2.3	23.4 25.5	0.49 0.55	68.7 77.1	140.1 140.8	0.351 0.351	0.336 0.340	0.437 0.442	1.24 1.26	Above W.T. Above W.T.
	1.32	10	30.4	3.01	135	178	178	58.2	340.0	9.93	2.4	26.7	0.58	80.3	138.5	0.351	0.327	0.426	1.21	Above W.T.
	1.42	10	27.5	2.81	135	192	192	52.7	285.8	10.25	2.5	28.5	0.63	88.9	141.6	0.351	0.344	0.447	1.27	Above W.T.
	1.52 1.62	10 10	25.9 43.2	2.78 3.12	135 135	205 219	205 219	49.6 82.7	251.3 393.9	10.78 7.24	2.5	30.4 20.9	0.68	104.5 61.3	154.1 144.0	0.351 0.351	0.420 0.358	0.546 0.465	1.56 1.32	Above W.T. Above W.T.
	1.72	10	82.8	3.5	135	232	232	158.6	711.9	4.23	1.9	11.6	0.43	33.7	192.3	0.351	0.741	0.963	2.74	Above W.T.
	1.82	10	71	3.59	135	246	246	136.0	576.7	5.07	2.1	14.4	0.25	45.4	181.3	0.351	0.635	0.825	2.35	Above W.T.
	1.92	10	58.3	3.6	135	259	259	111.7	448.7	6.19	2.2	18.1	0.35	59.7	171.4	0.351	0.548	0.713	2.03	Above W.T.
	2.02 2.25	10 10	46.4 27.6	3.45 2.47	135 135	273 304	273 304	88.9 52.9	339.2 180.7	7.46 9.00	2.3	22.3 30.2	0.46 0.67	76.2 109.1	165.1 161.9	0.351 0.351	0.499 0.475	0.648 0.617	1.85 1.76	Above W.T. Above W.T.
	2.36	10	24.8	2.21	135	319	319	47.5	154.6	8.97	2.5	31.7	0.71	117.7	165.2	0.351	0.499	0.649	1.85	Above W.T.
	2.46	10	22.6	2.01	135	332	332	43.3	135.0	8.96	2.6	33.1	0.75	129.4	172.7	0.351	0.559	0.727	2.07	Above W.T.
	2.56 2.66	10	20.9 19.5	1.91 1.82	135 135	346 359	346 359	40.0 37.3	119.9 107.6	9.21 9.42	2.6 2.6	34.9 36.5	0.80	157.5 149.4	197.6 186.7	0.351 0.351	0.797 0.686	1.036 0.891	2.95 2.54	Above W.T. Above W.T.
	2.76	10 10	19.8	1.7	135	373	373	37.9	107.0	8.67	2.6	35.3	0.80	151.7	189.6	0.351	0.714	0.928	2.64	Above W.T.
	2.86	10	21.5	1.59	135	386	386	41.2	110.3	7.46	2.5	32.2	0.73	109.1	150.3	0.351	0.396	0.514	1.47	Above W.T.
	2.97	10	21.8	1.55	135	401	401	41.8	107.7	7.18	2.5	31.8	0.72	105.3	147.1	0.351	0.376	0.489	1.39	Above W.T.
	3.07 3.17	10 10	21.8 19.6	1.55 1.58	135 135	414 428	414 428	41.8 37.5	104.2 90.6	7.18 8.15	2.5 2.6	32.2 36.0	0.73 0.80	110.9 150.2	152.6 187.7	0.351	0.411 0.695	0.534 0.903	1.52 2.57	Above W.T. Above W.T.
	3.28	10	19.1	1.65	135	443	443	36.6	85.2	8.74	2.7	38.0	0.80	146.3	182.9	0.351	0.649	0.844	2.40	Above W.T.
	3.38	10	19.9	1.75	135	456	456	38.1	86.2	8.90	2.7	38.2	0.80	152.4	190.6	0.351	0.724	0.941	2.68	Above W.T.
	3.49	10	20.5	1.81	135	471	471	39.3	86.0	8.93	2.7	38.3	0.80	157.0	196.3	0.351	0.784	1.019	2.90	Above W.T.
	3.59 3.7	10 10	19.9 20.5	1.88 1.94	135 135	485 500	485 500	38.1 39.3	81.1 81.0	9.56 9.58	2.7 2.7	40.4 40.4	0.80	152.4 157.0	190.6 196.3	0.351 0.351	0.724 0.784	0.941 1.019	2.68 2.90	Above W.T. Above W.T.
	3.81	10	20.2	1.98	135	514	514	38.7	77.5	9.93	2.7	41.7	0.80	154.7	193.4	0.351	0.753	0.979	2.79	Above W.T.
	3.91	10	20.3	1.97	135	528	528	38.7	75.9	9.83	2.7	41.8	0.80	154.6	193.3	0.351	0.752	0.977	2.78	Above W.T.
	4.01 4.12	10 10	18.9 17.9	1.93 1.88	135 135	541 556	541 556	35.5 33.2	68.8 63.3	10.36 10.67	2.8 2.8	44.2 46.0	0.80	142.2 132.8	177.7 166.0	0.351	0.602 0.506	0.783 0.657	2.23 1.87	Above W.T. Above W.T.
	4.22	10	17.2	1.82	135	570	570	31.5	59.4	10.76	2.8	47.1	0.80	126.1	157.6	0.351	0.444	0.578	1.65	Above W.T.
	4.33	10	16.3	1.77	135	585	585	29.5	54.7	11.06	2.9	48.9	0.80	118.0	147.5	0.351	0.378	0.492	1.40	Above W.T.
	4.43	10	15.7	1.69	135	598	598	28.1	51.5	10.97	2.9	49.8	0.80	112.4	140.4	0.351	0.338	0.439	1.25	Above W.T.
	4.54 4.64	10 10	15.3 14.7	1.63 1.57	135 135	613 626	613 626	27.0 25.7	48.9 45.9	10.87 10.91	2.9 2.9	50.4 51.5	0.80	108.2 102.8	135.2 128.5	0.351	0.310 0.277	0.403 0.360	1.15 1.03	Above W.T. Above W.T.
	4.75	10	13.1	1.51	135	641	641	22.6	39.8	11.82	3.0	55.7	0.80	90.5	113.2	0.351	0.215	0.279	0.80	Above W.T.
	4.85	10	12.6	1.45	135	655	655	21.5	37.5	11.82	3.0	56.8	0.80	86.2	107.7	0.351	0.196	0.255	0.73	Above W.T.
	4.96 5.06	10 10	11.9 11	1.37 1.29	135 125	670 683	670 683	20.1 18.4	34.5 31.2	11.85 12.10	3.0	58.4 60.8	0.80	80.5 73.7	100.6 92.1	0.351	0.175 0.153	0.227 0.198	0.65 0.57	Above W.T. Above W.T.
	5.17	10	10.7	1.22	125	697	697	17.7	29.7	11.79	3.0	61.2	0.80	70.9	88.7	0.351	0.145	0.188	0.54	Above W.T.
	5.27	10	9.9	1.18	125	709	709	16.3	26.9	12.36	3.1	64.3	0.80	65.1	81.3	0.351	0.130	0.169	0.48	Above W.T.
	5.44 5.55	10	11	1.12	125 125	731 744	731	17.8	29.1 26.9	10.53	3.0	59.1 62.3	0.80	71.2	89.0 83.4	0.351	0.146	0.189	0.54 0.50	Above W.T. Above W.T.
	5.65	10 10	10.4 9.6	1.14 1.13	125	757	744 757	16.7 15.3	24.4	11.37 12.25	3.1	66.2	0.80	66.7 61.1	76.3	0.351 0.351	0.134 0.121	0.174 0.158	0.30	Above W.T.
	5.76	10	8.8	1.09	125	771	771	13.9	21.8	12.95	3.2	69.9	0.80	55.5	69.4	0.351	0.111	0.144	0.41	Above W.T.
	5.86	10	8.2	1.04	125	783	783	12.8	19.9	13.32	3.2	72.6	0.80	51.3	64.1	0.351	0.104	0.136	0.39	Above W.T.
	5.97 6.08	10 10	8.1 8.2	0.99 0.94	125 125	797 811	797 811	12.6 12.6	19.3 19.2	12.85 12.06	3.2	72.4 71.0	0.80	50.2 50.4	62.8 63.0	0.351 0.351	0.103 0.103	0.134 0.134	0.38 0.38	Above W.T. Above W.T.
	6.18	10	7.5	0.9	125	823	823	11.4	17.2	12.70	3.2	74.8	0.80	45.8	57.2	0.351	0.097	0.127	0.36	Above W.T.
	6.29	10	6.9	0.86	125	837	837	10.4	15.5	13.27	3.3	78.5	0.80	41.7	52.2	0.351	0.093	0.121	0.35	Above W.T.
	6.4 6.51	10 10	6.9 7	0.83 0.78	125 125	851 864	851 864	10.4 10.4	15.2 15.2	12.82	3.3	78.1 76.2	0.80	41.4	51.8 52.1	0.351	0.093	0.121 0.121	0.34 0.34	Above W.T. Above W.T.
	6.51 6.61	10	6.7	0.76	125	804 877	864 877	9.9	14.3	11.88 12.14	3.2	78.3	0.80	41.7 39.6	49.5	0.351 0.351	0.093 0.091	0.121	0.34	Above W.T.
	6.72	10	6.4	0.76	125	891	891	9.4	13.4	12.76	3.3	81.2	0.80	37.5	46.9	0.351	0.090	0.116	0.33	Above W.T.
	6.83	10	6.4	0.76	125	904	904	9.3	13.1	12.78	3.3	81.7	0.80	37.2	46.6	0.351	0.089	0.116	0.33	Above W.T.
	6.94 7.05	10 10	6.4 6.5	0.77 0.77	125 125	918 932	918 932	9.2 9.3	12.9 12.9	12.96 12.76	3.3	82.5 82.1	0.80	37.0 37.3	46.2 46.6	0.351 0.351	0.089 0.089	0.116 0.116	0.33	Above W.T. Above W.T.
		10	0.0	3.77	120	,,,,,	,,,,,	7.5	/	.2.70	0.0	02.1	0.50	55	.5.0	0.001	0.007	0.110	0.55	. 100.0 11.11

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 12

Depth to Groundwater: 10 feet

EQ Magnitude (M<sub>w</sub>): 6.5 PGA (g): 0.54 MSF: 1.30

44.1

43.6

0.396

0.397

55.2

0.096

0.095

0.124

0.124

0.31

0.31

NonLigfble.

NonLiafble.

Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Stress Stress Stress g (TSF) (TSF) (PCF) (PSF) (PSF) (%) KCPT DqcIN (qcIN)cs Ratio M7.5 M6.50 Safety (FT) (FT) **q**c1N 0 Comments Ic 7.15 10 6.7 0.77 125 944 944 9.5 13.2 12.36 3.3 80.8 0.80 38.2 47.7 0.351 0.090 0.117 0.33 Above W.T. 7.26 10 6.7 0.74 125 958 958 9.5 13.0 11.90 3.3 80.2 0.80 37.9 47.4 0.351 0.090 0.117 0.33 Above W.T. 7.37 10 6.2 0.71 115 972 972 8.7 11.8 12.43 3.3 83.9 0.80 34.8 43.5 0.351 0.088 0.114 0.32 Above W.T. 7.47 10 6.6 0.69 115 983 983 9.2 12.4 11.30 3.3 80.1 0.80 36.8 46.0 0.351 0.089 0.116 0.33 Above W.T. 7.58 6.2 0.68 115 996 8.6 11.4 11.93 3.3 83.6 0.80 34.4 43.0 0.351 0.087 0.114 0.32 Above W.T. 7.69 10 5.9 0.68 115 1009 1009 8.1 10.7 12.60 3.4 86.9 0.80 32.5 40.6 0.351 0.086 0.112 0.32 Above W.T. 7.79 6.2 0.68 115 1020 1020 8.5 11.95 84.3 0.80 34.0 42.5 0.351 0.113 0.32 Above W.T. 10 11.2 3.3 0.087 8.06 6.2 0.67 1051 3.3 0.80 33.5 0.351 0.087 0.32 10 115 1051 8.4 10.8 11.81 84.9 41.8 0.113 Above W.T. 8.17 0.65 1064 1064 10.71 0.80 0.351 0.114 0.33 10 6.6 115 8.9 11.4 3.3 81.0 35.4 44.3 0.088 Above W.T. 8.28 10 6.1 0.63 115 1077 1077 8.1 10.3 11.33 3.3 85.1 0.80 32.5 40.7 0.351 0.086 0.112 0.32 Above W.T. 8.38 10 6.3 0.62 115 1088 1088 8.4 10.6 10.77 3.3 83.1 0.80 33.4 41.8 0.351 0.087 0.113 0.32 Above W.T. 0.085 8.49 5.6 0.61 115 1101 1101 12.08 90.1 0.80 29.5 36.9 0.351 0.110 0.31 Above W.T 10 7.4 9.2 3.4 8.6 10 6.2 0.6 115 1113 1113 8.1 10.1 10.63 3.3 84.0 0.80 32.5 40.7 0.351 0.086 0.112 0.32 Above W.T. 8.71 10 6.9 0.6 115 1126 1126 9.0 11.3 9.47 3.3 78.4 0.80 36.0 45.0 0.351 0.088 0.115 0.33 Above W.T. 8.81 10 7.1 0.6 115 1137 1137 9.2 11.5 9.19 3.3 77.1 0.80 36.8 46.1 0.351 0.089 0.116 0.33 Above W.T. 8.92 0.6 115 1150 1150 9.0 11.2 9.34 3.3 78.2 0.80 36.1 45.2 0.351 0.089 0.115 0.33 Above W.T. 10 9.03 6.8 0.58 8.7 9.33 3.3 43.6 0.351 0.32 10 115 1163 1163 10.7 79.3 0.80 34.9 0.088 0.114 Above W.T. 6.4 9.14 0.56 115 1175 8.2 9.64 3.3 82.2 0.80 32.7 40.8 0.351 0.112 0.32 Above W.T. 10 1175 9.9 0.086 9.25 10 6 0.53 115 1188 1188 7.6 9.1 9.80 3.3 85.0 0.80 30.5 38.1 0.351 0.085 0.111 0.32 Above W.T. 9.36 6.5 0.351 10 0.5 115 1201 1201 8.2 9.8 8.48 3.3 79.3 0.80 32.8 41.0 0.086 0.112 0.32 Above W.T. 9.46 10 6.5 0.48 115 1212 1212 8.2 9.7 8.14 3.3 78.7 0.80 32.7 40.8 0.351 0.086 0.112 0.32 Above W.T. 9.57 10 6 1 0.49 115 1225 1225 76 90 8 93 33 83.1 0.80 30.5 38.1 0.351 0.085 0.111 0.32 Above W.T. 9 68 10 6.1 0.51 115 1238 1238 7.6 8.9 9.30 3.3 84.4 0.80 30.3 37 9 0.351 0.085 0.111 0.32 Above W.T. 9.79 10 5.9 0.51 115 1250 1250 7.3 8.4 9.67 3.4 86.8 0.80 29.2 36.5 0.351 0.085 0.110 0.31 Above W.T. 9.89 5.7 0.51 115 1262 1262 7.0 8.0 10.06 3.4 89.2 0.80 28.1 35.1 0.351 0.084 0.109 0.31 Above W.T. 10 10 5.8 0.5 115 1274 1274 7.1 8.1 9.69 3.4 88.0 0.80 28.4 35.5 0.344 0.084 0.109 0.32 NonLigfble. 10.11 10 5.5 0.49 115 1287 1280 6.7 10.09 3.4 90.9 0.80 26.9 33.6 0.346 0.084 0.109 0.31 NonLiqfble. 7.6 10.22 0.49 115 1286 29.3 0.348 0.085 0.110 10 6 1300 7.3 8.3 9.16 3.4 85.8 0.80 36.6 0.32 NonLigfble. 10.32 5.8 0.49 0.349 10 115 1311 1291 7.18.0 9.53 3.4 88.0 0.80 28.3 35.3 0.084 0.109 0.31 NonLigfble. 10.43 6.3 0.49 1324 1297 7.7 8.69 3.3 0.80 30.6 0.351 0.085 0.111 NonLiafble. 10 115 8.7 83.3 38.3 0.32 10.54 6.4 0.5 1303 7.8 8.72 3.3 0.80 31.0 0.353 0.111 0.31 NonLiafble. 10 115 1336 8.8 83.1 38.8 0.085 10 64 0.354 10 64 0.51 115 1348 1308 77 88 8 91 33 83.7 0.80 31.0 38.7 0.085 0.111 0.31 NonLiafble. 10.75 10 7.3 0.52 115 1361 1314 88 10.1 7.86 3.2 76.9 0.80 35.2 44 1 0.356 0.088 0.114 0.32 NonLiqfble. 10.86 10 0.51 115 1373 1320 8.4 9.6 8.08 3.3 79.0 0.80 33.7 42.2 0.358 0.087 0.113 0.32 NonLiqfble. 10.96 10 7.3 0.51 115 1385 1325 8.8 10.0 7.72 3.2 76.8 0.80 35.1 43.9 0.360 0.088 0.114 0.32 NonLiqfble. 11.07 6.5 0.53 NonLiqfble. 10 115 1397 1331 7.8 8.7 9.14 3.3 84.4 0.80 31.2 39.0 0.361 0.086 0.111 0.31 11.18 10 6.9 0.53 115 1410 1336 8.3 9.3 8.56 3.3 81.2 0.80 33.0 41.3 0.363 0.087 0.113 0.31 NonLigfble. 11.28 6.9 0.52 115 1422 1342 8.2 9.2 8.40 3.3 80.9 0.80 33.0 41.2 0.364 0.087 0.112 0.31 NonLiqfble. 11.37 10 6.8 0.51 115 1432 1346 8.1 9.0 8.38 3.3 81.4 0.80 32.4 40.5 0.366 0.086 0.112 0.31 NonLiqfble. 11.48 6.4 0.51 115 1445 1352 7.6 8.98 3.3 0.80 30.5 38.1 0.367 0.085 0.111 0.30 NonLiafble. 10 8.4 85.1 6.9 0.52 11.58 10 115 1456 1357 8.2 9.1 8.43 3.3 81.3 0.80 32.8 41.0 0.369 0.086 0.112 0.30 NonLiafble. 11.69 10 7.4 0.53 115 1469 1363 8.8 9.8 7.95 3.3 78.0 0.80 35.1 43.8 0.371 0.088 0.114 0.31 NonLiafble. 11.8 10 8.1 0.53 115 1481 1369 9.6 10.7 7.20 3.2 73.3 0.80 38.3 47.9 0.372 0.090 0.117 0.32 NonLiqfble. 11.9 10 9.3 0.55 125 1493 1374 11.0 12.4 6.43 3.1 67.2 0.80 43.9 54.9 0.374 0.095 0.124 0.33 NonLigfble. 12.01 10 10.4 0.6 125 1507 1381 12.2 14.0 6.22 3.1 63.7 0.80 49.0 61.2 0.375 0.101 0.132 0.35 NonLiqfble. 12.08 10 9.6 0.62 125 1515 1386 11.3 12.8 7.01 3.1 68.4 0.80 45.1 56.4 0.376 0.097 0.126 0.33 NonLiqfble. 12.15 9.8 0.66 125 1524 1390 7.30 0.80 46.0 57.5 0.377 0.098 0.127 0.34 NonLiqfble. 10 11.5 13.0 3.1 68.8 12.2 10 9.6 0.69 125 1530 1393 11.3 12.7 7.81 3.2 70.9 0.80 45.0 56.3 0.378 0.097 0.126 0.33 NonLiqfble. 12.27 10 10.7 0.71 125 1539 1397 12.5 14.2 7.15 3.1 66.2 0.80 50.1 62.6 0.379 0.103 0.134 0.35 NonLiqfble. 0.132 12.33 10.5 125 1547 1401 0.80 49.1 0.380 0.35 10 0.73 12.3 13.9 7.51 3.1 67.8 61.4 0.101 NonLiqfble. 12.39 0.73 125 0.380 10.4 1554 1405 12.1 13.7 7.59 68.4 0.80 48.6 60.7 0.131 0.34 NonLigfble. 10 3.1 0.101 12.49 10 10.7 0.73 125 1567 1411 12.5 14.0 7.36 3.1 67.1 0.80 49.9 62.3 0.382 0.103 0.133 0.35 NonLigfble. 12.6 10 9.8 0.7 125 1580 1418 11.4 12.7 7.77 3.2 70.7 0.80 45.5 56.9 0.383 0.097 0.126 0.33 NonLigfble. 12.71 10 9.9 0.67 125 1594 1425 11.5 12.8 7.36 3.2 69.4 0.80 45.9 57.4 0.385 0.098 0.127 0.33 NonLiqfble. 1281 10 93 0.64 125 1607 1431 10.8 119 7 53 32 717 0.80 43.0 53.8 0.386 0.094 0.123 0.32 NonLiafble 12.92 10 9.6 0.63 125 1620 1438 11.1 12.2 7.17 3.2 69.9 0.80 44 3 55 4 0.388 0.096 0.125 0.32 NonLiqfble. 13.03 10 9.7 0.62 125 1634 1445 11.2 12.3 6.98 3.2 69.2 0.80 44 7 55.8 0.389 0.096 0.125 0.32 NonLiqfble. 43.2 54.0 0.390 0.123 NonLiqfble. 13.14 10 9.4 0.6 125 1648 1452 10.8 11.8 7.00 3.2 70.3 0.80 0.095 0.32 13.25 9.3 0.58 125 1459 0.392 0.094 NonLiqfble. 10 1662 10.7 11.6 6.85 3.2 70.2 0.80 42.6 53.3 0.122 0.31 13.35 10 0.56 125 1674 1465 10.7 11.7 6.54 3.1 69.1 0.80 43.0 53.7 0.393 0.094 0.123 0.31 NonLiqfble. 13.46 9.8 0.54 125 1688 1472 6.03 0.80 44.7 55.9 0.394 0.096 0.125 0.32 10 11.2 12.2 3.1 66.4 NonLigfble.

0.54

0.55

125

125 1714

1702

1479

1485

11.0

10.9

12.0

11.8

6.10

6.29

67.1

68.1

3.1

3 1

0.80

0.80

9.7

96

10

10

13.57

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 12

Depth to Groundwater: 10 feet

EQ Magnitude (M<sub>w</sub>): 6.5 PGA (g): 0.54

		Water	Tip	Sleeve			Effective			Friction						Induced	-	-		
Cono	Depth (FT)	Table	Resist.	Frict.	g (PCF)	Stress (PSF)	Stress	Tip Qcin	Tip	Ratio F	Io	F.C. (%)	Ксрт	DqcIN	(qclN)cs	Stress	Stress M7.5	Stress M6 50	of Sofoty	Comments
Cone	(F1)	(FT)	(TSF)	(TSF)	(FCF)	(FSF)	(PSF)	qeix	Q	г	Ic	(%)	TKCI I	Dqeix	(qeix)es	Katio	W17.5	M6.50	Safety	Comments
	13.78	10	9.3	0.55	125	1728	1492	10.5	11.3	6.52	3.2	69.8	0.80	42.1	52.7	0.398	0.094	0.122	0.31	NonLiafhla
	13.89	10	10	0.53	125	1742	1492	11.3	12.2	5.92	3.1	66.0	0.80	45.2	56.5	0.398	0.094	0.122	0.31	NonLiqfble. NonLiqfble.
	13.99	10	9.9	0.62	125	1754	1505	11.2	12.0	6.87	3.2	69.5	0.80	44.7	55.8	0.401	0.096	0.125	0.31	NonLiqfble.
	14.1	10	9.8	0.73	125	1768	1512	11.0	11.8	8.19	3.2	73.8	0.80	44.1	55.1	0.402	0.096	0.124	0.31	NonLiqfble.
	14.2	10	9.9	0.71	125	1780	1518	11.1	11.9	7.88	3.2	72.7	0.80	44.5	55.6	0.403	0.096	0.125	0.31	NonLiqfble.
	14.36 14.47	10 10	11.9 11.9	0.66 0.63	125 125	1800 1814	1528 1535	13.3 13.3	14.4 14.3	6.00 5.73	3.1	62.3 61.5	0.80	53.3 53.2	66.6 66.4	0.405 0.406	0.107 0.107	0.140 0.139	0.34 0.34	NonLiqfble. NonLiqfble.
	14.58	10	10.8	0.6	125	1828	1542	12.0	12.8	6.07	3.1	65.3	0.80	48.1	60.2	0.408	0.107	0.139	0.34	NonLiqfble.
	14.69	10	10.8	0.57	125	1842	1549	12.0	12.8	5.77	3.1	64.4	0.80	48.0	60.0	0.409	0.100	0.130	0.32	NonLiqfble.
	14.8	10	11.1	0.55	125	1855	1556	12.3	13.1	5.41	3.1	62.5	0.80	49.3	61.6	0.410	0.102	0.132	0.32	NonLiqfble.
	14.88	10	12	0.58	125	1865	1561	13.3	14.2	5.24	3.0	60.0	0.80	53.2	66.5	0.411	0.107	0.139	0.34	NonLiqfble.
	14.98	10	13 14.5	0.63	125	1878	1567	14.4	15.4	5.22	3.0	58.1	0.80	57.5	71.8 80.0	0.412	0.114	0.149	0.36	NonLiqfble.
	15.09 15.2	10 10	14.5	0.69 0.76	125 125	1892 1905	1574 1581	16.0 16.0	17.2 17.1	5.09 5.61	3.0	55.2 57.1	0.80 0.80	64.0 63.8	79.8	0.413 0.415	0.128 0.127	0.166 0.165	0.40 0.40	NonLiqfble. NonLiqfble.
	15.31	10	14.4	0.70	125	1919	1588	15.8	16.9	5.95	3.0	58.5	0.80	63.2	79.1	0.416	0.127	0.164	0.39	NonLiqfble.
	15.41	10	14	0.8	125	1932	1594	15.3	16.3	6.14	3.0	59.9	0.80	61.4	76.7	0.417	0.122	0.159	0.38	NonLiqfble.
	15.52	10	13.7	0.77	125	1945	1601	15.0	15.9	6.05	3.0	60.2	0.80	59.9	74.9	0.418	0.119	0.155	0.37	NonLiqfble.
	15.63	10	13.5	0.74	125	1959	1608	14.7	15.6	5.91	3.0	60.2	0.80	58.9	73.7	0.419	0.117	0.152	0.36	NonLiqfble.
	15.74 15.84	10 10	12.5 11.4	0.7 0.67	125 125	1973 1985	1615 1621	13.6 12.4	14.3 12.8	6.08 6.44	3.1	62.8 66.4	0.80 0.80	54.4 49.6	68.1 61.9	0.420 0.421	0.109 0.102	0.142 0.133	0.34 0.32	NonLiqfble. NonLiqfble.
	15.95	10	11.2	0.64	125	1999	1628	12.4	12.5	6.27	3.1	66.5	0.80	48.6	60.7	0.421	0.102	0.133	0.32	NonLiqfble.
	16.06	10	9.7	0.63	125	2013	1635	10.5	10.6	7.25	3.2	73.7	0.80	42.0	52.5	0.424	0.093	0.121	0.29	NonLiqfble.
	16.17	10	9.1	0.62	125	2027	1642	9.8	9.8	7.67	3.3	77.0	0.80	39.3	49.1	0.425	0.091	0.118	0.28	NonLiqfble.
	16.27	10	8.6	0.59	125	2039	1648	9.3	9.2	7.78	3.3	79.2	0.80	37.1	46.3	0.426	0.089	0.116	0.27	NonLiqfble.
	16.38 16.49	10 10	8.3 7.2	0.54	115	2053	1655 1660	8.9 7.7	8.8	7.42	3.3	79.3	0.80	35.7	44.6	0.427	0.088	0.115	0.27	NonLiqfble.
	16.59	10	6.9	0.47 0.41	115 115	2065 2077	1666	7.4	7.4 7.0	7.62 7.00	3.3	84.7 84.3	0.80 0.80	30.9 29.6	38.7 37.0	0.428 0.429	0.085 0.085	0.111 0.110	0.26 0.26	NonLiqfble. NonLiqfble.
	16.7	10	6.4	0.38	115	2090	1672	6.8	6.4	7.10	3.4	87.4	0.80	27.4	34.2	0.430	0.084	0.109	0.25	NonLiqfble.
	16.8	10	6.9	0.36	115	2101	1677	7.4	7.0	6.15	3.3	81.6	0.80	29.5	36.9	0.431	0.085	0.110	0.26	NonLiqfble.
	16.91	10	6.7	0.34	115	2114	1683	7.1	6.7	6.03	3.3	82.3	0.80	28.6	35.7	0.432	0.084	0.110	0.25	NonLiqfble.
	17.02	10	7.1	0.33	115	2126	1688	7.6	7.1	5.47	3.3	78.4	0.80	30.2	37.8	0.433	0.085	0.111	0.26	NonLiqfble.
	17.13 17.23	10 10	6.7 7.4	0.33 0.32	115 115	2139 2151	1694 1699	7.1 7.9	6.6 7.4	5.86 5.06	3.3	82.0 75.6	0.80	28.5 31.4	35.6 39.3	0.434 0.435	0.084 0.086	0.109 0.111	0.25 0.26	NonLiqfble. NonLiqfble.
	17.23	10	7.4	0.31	115	2163	1705	7.8	7.4	4.91	3.2	75.1	0.80	31.4	39.2	0.436	0.086	0.111	0.26	NonLiqfble.
	17.45	10	7.5	0.36	115	2176	1711	7.9	7.5	5.61	3.3	77.6	0.80	31.7	39.7	0.437	0.086	0.112	0.25	NonLiqfble.
	17.55	10	6.9	0.35	115	2187	1716	7.3	6.8	6.03	3.3	82.1	0.80	29.1	36.4	0.438	0.084	0.110	0.25	NonLiqfble.
	17.66	10	6.7	0.31	105	2200	1722	7.1	6.5	5.54	3.3	81.4	0.80	28.3	35.3	0.439	0.084	0.109	0.25	NonLiqfble.
	17.74 17.85	10 10	8.3 7.6	0.3 0.29	115 105	2208 2221	1725 1731	8.7 8.0	8.3 7.5	4.17 4.47	3.1	68.7 72.9	0.80	35.0 32.0	43.7 40.0	0.440 0.441	0.088 0.086	0.114 0.112	0.26 0.25	NonLiqfble. NonLiqfble.
	17.95	10	7.8	0.3	115	2232	1735	8.2	7.7	4.49	3.2	72.3	0.80	32.8	41.0	0.442	0.086	0.112	0.25	NonLiqfble.
	18.06	10	7.8	0.32	115	2244	1741	8.2	7.7	4.79	3.2	73.7	0.80	32.7	40.9	0.443	0.086	0.112	0.25	NonLiqfble.
	18.17	10	7.7	0.32	115	2257	1747	8.1	7.5	4.87	3.2	74.5	0.80	32.2	40.3	0.444	0.086	0.112	0.25	NonLiqfble.
	18.28	10	7.1	0.3	105	2270	1753	7.4	6.8	5.03	3.3	78.0	0.80	29.7	37.1	0.445	0.085	0.110	0.25	NonLiqfble.
	18.38 18.49	10 10	6.6 7.6	0.29 0.28	105 105	2280 2292	1757 1762	6.9 7.9	6.2 7.3	5.31 4.34	3.3	81.8 73.0	0.80	27.6 31.7	34.4 39.6	0.446 0.447	0.084 0.086	0.109 0.112	0.24	NonLiqfble. NonLiqfble.
	18.6	10	8.2	0.29	115	2303	1766	8.5	8.0	4.11	3.2	69.6	0.80	34.1	42.7	0.447	0.087	0.112	0.25	NonLiqfble.
	18.7	10	8.3	0.31	115	2315	1772	8.6	8.1	4.34	3.2	70.4	0.80	34.5	43.1	0.449	0.087	0.114	0.25	NonLiqfble.
	18.81	10	9.1	0.33	115	2327	1778	9.4	8.9	4.16	3.1	66.9	0.80	37.8	47.2	0.450	0.090	0.117	0.26	NonLiqfble.
	18.92	10	9	0.33	115	2340	1783	9.3	8.8	4.21	3.1	67.6	0.80	37.3	46.6	0.451	0.089	0.116	0.26	NonLiqfble.
	19.03 19.14	10	8.8	0.32 0.32	115	2353 2365	1789	9.1	8.5	4.20	3.1	68.3	0.80	36.4	45.5	0.452	0.089	0.115 0.113	0.26	NonLiqfble.
	19.14	10 10	8.1 8.4	0.32	115 115	2378	1795 1801	8.4 8.7	7.7 8.0	4.63 4.30	3.2	72.8 70.4	0.80	33.5 34.6	41.8 43.3	0.453 0.454	0.087 0.088	0.113	0.25 0.25	NonLiqfble. NonLiqfble.
	19.35	10	9.2	0.32	115	2389	1806	9.5	8.9	4.00	3.1	66.3	0.80	37.9	47.4	0.455	0.090	0.117	0.26	NonLiqfble.
	19.46	10	10.3	0.36	115	2402	1812	10.6	10.0	3.96	3.1	63.0	0.80	42.4	52.9	0.456	0.094	0.122	0.27	NonLiqfble.
	19.57	10	11.3	0.4	115	2415	1817	11.6	11.1	3.96	3.0	60.6	0.80	46.4	58.0	0.457	0.098	0.128	0.28	NonLiqfble.
	19.68	10	11.1	0.44	115	2427	1823	11.4	10.8	4.45	3.1	63.3	0.80	45.5	56.9	0.458	0.097	0.126	0.28	NonLiqfble.
	19.79 19.89	10	12 13.8	0.5 0.57	125 125	2440 2452	1829 1835	12.3 14.1	11.8	4.64	3.1	62.0	0.80	49.1 56.4	61.4 70.5	0.459 0.460	0.102 0.113	0.132 0.146	0.29 0.32	NonLiqfble.
	19.69	10 10	15.6	0.64	125	2466	1842	15.3	13.7 14.9	4.53 4.65	3.0	58.1 56.6	0.80	56.4 61.2	76.5	0.460	0.113	0.146	0.32	NonLiqfble. NonLiqfble.
	20.11	10	15.2	0.71	125	2480	1849	15.5	15.1	5.09	3.0	58.0	0.80	61.9	77.3	0.452	0.123	0.160	0.35	NonLiqfble.
	20.21	10	15.2	0.71	125	2492	1855	15.4	15.0	5.09	3.0	58.1	0.80	61.8	77.2	0.453	0.123	0.160	0.35	NonLiqfble.
	20.32	10	13.5	0.69	125	2506	1862	13.7	13.1	5.63	3.1	63.2	0.80	54.8	68.4	0.453	0.110	0.143	0.31	NonLiqfble.
	20.42	10	12.2	0.7	125	2519	1868	12.3	11.7	6.40	3.1	68.6	0.80	49.4	61.7	0.454	0.102	0.132	0.29	NonLiqfble.

Date: September 2005

CPT Number: 12

Depth to Groundwater: 10 feet

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard **EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	•	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqciN	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	20.53	10	14.2	0.76	125	2532	1875	14.3	13.8	5.88	3.1	62.9	0.80	57.4	71.7	0.455	0.114	0.149	0.33	NonLiqfble.
	20.64	10	16.5	0.86	125	2546	1882	16.6	16.2	5.65	3.0	58.5	0.80	66.6	83.2	0.456	0.134	0.174	0.38	NonLiqfble.
	20.74	10	19.1	1.12	135	2559	1889	19.2	18.9	6.29	3.0	57.2	0.80	76.9	96.2	0.457	0.163	0.211	0.46	NonLiqfble.
	20.85	10	21.3	1.6	135	2574	1897	21.4	21.1	7.99	3.0	59.7	0.80	85.6	107.0	0.457	0.194	0.252	0.55	NonLiqfble.
	20.95	10	23.5	1.61	135	2587	1904	23.6	23.3	7.25	3.0	55.7	0.80	94.3	117.8	0.458	0.232	0.302	0.66	NonLiqfble.
	21.06 21.13	10 10	22.6 30.9	1.76 1.87	135 135	2602 2611	1912 1917	22.6 30.9	22.3 30.9	8.26 6.32	3.0 2.8	59.3 47.7	0.80 0.80	90.5 123.5	113.1 154.4	0.459 0.459	0.214 0.422	0.279 0.549	0.61 1.20	NonLiqfble. NonLiqfble.
	21.13	10	38.7	2.06	135	2625	1924	38.6	38.8	5.51	2.7	41.4	0.80	154.4	193.0	0.460	0.749	0.973	2.12	NonLiqfble.
	21.34	10	51	2.31	135	2640	1932	50.8	51.4	4.65	2.6	34.4	0.78	185.0	235.8	0.460	1.299	1.689	3.67	r ton Enquoie.
	21.45	10	64.2	2.53	135	2655	1940	63.8	64.8	4.02	2.5	29.2	0.65	116.1	179.9	0.461	0.622	0.808	1.75	
	21.55	10	81.2	2.72	135	2668	1947	80.5	82.0	3.41	2.3	24.2	0.51	84.4	164.9	0.462	0.497	0.646	1.40	
	21.65	10	100.4	2.77	135	2682	1955	99.4	101.3	2.80	2.2	19.6	0.39	63.6	163.0	0.462	0.483	0.627	1.36	
	21.75	10	118.9	2.66	135	2695	1962	117.5	119.8	2.26	2.1	15.9	0.29	47.9	165.4	0.463	0.501	0.651	1.41	
	21.85	10	137.6	2.37	135	2709	1969	135.7	138.3	1.74	2.0	12.3	0.19	32.7	168.4	0.463	0.524	0.681	1.47	
	21.95 22.05	10 10	166.8 211	2.25 3.62	135 135	2722 2736	1976 1984	164.2 207.3	167.3 211.3	1.36 1.73	1.8 1.9	9.0 9.3	0.11 0.11	19.6 26.9	183.8 234.2	0.464 0.465	0.657 1.274	0.854 1.656	1.84 3.56	
	22.15	10	225	3.41	135	2749	1991	220.6	224.6	1.73	1.8	8.0	0.11	19.3	239.9	0.465	1.364	1.773	3.81	
	22.25	10	246.6	3.48	135	2763	1998	241.4	245.3	1.42	1.7	7.0	0.05	13.7	255.1	0.466	1.624	2.111	4.53	
	22.35	10	230	3.13	135	2776	2005	224.7	227.9	1.37	1.8	7.2	0.06	13.8	238.5	0.466	1.342	1.745	3.74	
	22.45	10	240.3	3.2	135	2790	2013	234.4	237.3	1.34	1.7	6.8	0.05	11.9	246.2	0.467	1.468	1.909	4.09	
	22.55	10	239	2.64	125	2803	2020	232.7	235.2	1.11	1.7	5.7	0.02	4.3	236.9	0.468	1.317	1.712	3.66	
	22.65	10	237.7	2.46	125	2816	2026	231.0	233.1	1.04	1.7	5.3	0.01	2.1	233.2	0.468	1.259	1.636	3.49	
	22.74	10	237.1 234.7	2.25	125 125	2827 2839	2032 2038	230.1 227.5	231.9 228.8	0.95	1.6	4.9	0.00	0.0	230.1	0.469	1.214 1.220	1.578 1.587	3.37 3.38	
	22.84 22.94	10 10	234.7	2.46 2.29	125	2852	2038	231.0	232.0	1.05 0.97	1.7 1.6	5.5 4.9	0.01	3.1 0.0	230.6 231.0	0.469 0.470	1.226	1.594	3.39	
	23.03	10	249.4	2.36	125	2863	2050	241.0	241.8	0.95	1.6	4.7	0.00	0.0	241.0	0.471	1.382	1.797	3.82	
	23.12	10	251.7	3.06	135	2874	2056	242.9	243.4	1.22	1.7	6.1	0.03	7.2	250.1	0.471	1.535	1.996	4.24	
	23.22	10	253.7	3	135	2888	2063	244.4	244.5	1.19	1.7	5.9	0.02	5.9	250.3	0.472	1.539	2.000	4.24	
	23.31	10	244	2.93	135	2900	2069	234.7	234.3	1.21	1.7	6.2	0.03	7.8	242.5	0.472	1.406	1.828	3.87	
	23.4	10	239.6	2.73	125	2912	2076	230.1	229.3	1.15	1.7	6.0	0.03	6.3	236.4	0.473	1.308	1.701	3.60	
	23.49	10	239.4	2.72	125	2923	2082	229.6	228.5	1.14	1.7	6.0	0.03	6.3	235.9	0.473	1.300	1.690	3.57	
	23.58 23.68	10 10	239.6 220.1	3.81 2.81	135 135	2935 2948	2087 2094	229.5 210.4	228.1 208.7	1.60 1.29	1.8 1.8	8.3 7.2	0.09	21.9 13.4	251.4 223.8	0.474 0.474	1.558 1.123	2.025 1.460	4.27 3.08	
	23.77	10	221.4	2.92	135	2960	2101	211.3	209.3	1.33	1.8	7.4	0.07	14.8	226.1	0.474	1.125	1.502	3.16	
	23.86	10	186.9	2.65	135	2972	2108	178.1	175.9	1.43	1.8	9.0	0.11	21.5	199.6	0.475	0.820	1.066	2.24	
	23.95	10	201.2	2.86	135	2985	2114	191.5	188.9	1.43	1.8	8.6	0.10	20.3	211.8	0.476	0.963	1.252	2.63	
	24.04	10	200	2.05	125	2997	2121	190.0	187.1	1.03	1.7	5.5	0.01	2.6	192.6	0.476	0.744	0.968	2.03	
	24.13	10	200.9	1.78	125	3008	2126	190.6	187.5	0.89	1.7	5.5	0.01	2.6	193.2	0.477	0.751	0.976	2.05	
	24.22	10	196.2	1.63	125	3019	2132	185.9	182.6	0.84	1.7	5.5	0.01	2.5	188.4	0.477	0.702	0.913	1.91	
	24.31 24.4	10 10	201.6 208.8	2.01 2.03	125 125	3030 3042	2138 2143	190.8 197.3	187.1 193.4	1.00 0.98	1.7 1.7	5.5 5.5	0.01 0.01	2.6 2.7	193.4 200.0	0.478 0.478	0.752 0.824	0.978 1.071	2.05 2.24	
	24.48	10	193.6	2.18	125	3052	2148	182.8	178.8	1.13	1.8	5.5	0.01	2.5	185.2	0.479	0.671	0.872	1.82	
	24.57	10	194.2	1.93	125	3063	2154	183.1	178.8	1.00	1.7	5.5	0.01	2.5	185.6	0.479	0.674	0.877	1.83	
	24.67	10	195.3	1.95	125	3075	2160	183.9	179.3	1.01	1.7	5.5	0.01	2.5	186.3	0.480	0.682	0.886	1.85	
	24.76	10	177.5	2.11	125	3087	2166	166.9	162.4	1.20	1.8	5.5	0.01	2.3	169.1	0.480	0.530	0.689	1.43	
	24.86	10	167.5	2.2	135	3099	2172	157.3	152.7	1.33	1.9	5.5	0.01	2.1	159.4	0.481	0.457	0.594	1.23	
	24.95	10 10	163.7 179.6	2.52	135	3111	2178 2185	153.5	148.8 162.9	1.55	1.9 2.0	5.5 5.5	0.01	2.1	155.5	0.481 0.482	0.430	0.559	1.16	Low F.S.
	25.04 25.13	10	216	3.87 3.73		3124 3136	2192	168.1 201.9	195.6	2.17 1.74	1.9	5.5	0.01 0.01	2.7	170.4 204.6	0.482	0.540 0.877	0.702 1.140	1.46 2.36	
	25.23	10	282.5	4.25			2192	263.6	255.4	1.74	1.8	5.5	0.01	3.6	267.2	0.483	1.853	2.409	4.99	
	25.32	10	300.1	4.59		3161	2205	279.6	270.6	1.54	1.7	5.5	0.01	3.8	283.4	0.483	2.197	2.856	5.91	
	25.41	10	304.2	4.76	135	3173	2212	283.0	273.5	1.57	1.8	5.5	0.01	3.8	286.8	0.483	2.275	2.957	6.12	
	25.5	10	309.7	4.8		3186	2218	287.7	277.7	1.56	1.7	5.5	0.01	3.9	291.6	0.484	2.386	3.101	6.41	
	25.59	10	330.8	5.13		3198	2225	306.8	295.8	1.56	1.7	6.7	0.05	14.6	321.4	0.484	3.168	4.118	8.50	
	25.68	10	368.8	4.48		3210	2231	341.6	329.0	1.22	1.6	4.6	0.00	0.0	341.6	0.485	3.787	4.923	10.16	
	25.77 25.86	10	385.2 396.8	5.12 5.47		3222 3234	2238 2245	356.3 366.5	342.7 352.0	1.33	1.6	5.0 5.1	0.00	0.1 1.2	356.4 367.6	0.485 0.486	4.288	5.575	11.49	
	25.95	10 10	382.1	5.04		3246	2243	352.4	337.9	1.38 1.32	1.6 1.6	5.0	0.00	0.2	352.6	0.486	4.701 4.156	6.111 5.403	12.59 11.12	
	26.04	10	345.5	4.68	135	3259	2258	318.2	304.5	1.36	1.7	5.7	0.02	5.7	323.8	0.486	3.238	4.210	8.66	
	26.13	10	337.4	4.39	135		2264	310.2	296.5	1.31	1.7	5.5	0.01	4.4	314.7	0.487	2.978	3.872	7.95	
	26.22	10	321.6	4.35	135	3283	2271	295.3	281.7	1.36	1.7	6.0	0.03	8.3	303.6	0.487	2.682	3.486	7.16	
	26.31	10	311.7	4.47	135		2277	285.8	272.2	1.44	1.7	6.6	0.04	12.6	298.4	0.488	2.550	3.315	6.80	
	26.4	10	320	4.7	135	3307	2284	293.0	278.7	1.48	1.7	6.6	0.04	13.3	306.2	0.488	2.751	3.576	7.33	

Date: September 2005 CPT Number: 12

Depth to Groundwater: 10 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

Pepth   Table   Resist   Frict.   g   Stress   Stress   Tip   Tip   Ratio   F.C.     Stress   Stress   Stress   Of   Cone   (FT)   (FT)   (TSF)   (TSF)   (PCF)   (PSF)   (PSF)   Q4N   Q   F   Ic   (%)   Kcrr   Dq4N   (Q4N)s   Ratio   M7.5   M6.50   Safety   Comm   C	nents
26.48 10 339 4.78 135 3318 2290 310.0 294.6 1.42 1.7 6.1 0.03 9.2 319.1 0.488 3.103 4.034 8.26 26.57 10 351.5 4.48 135 3330 2296 321.0 304.6 1.28 1.7 5.3 0.01 2.4 323.3 0.489 3.224 4.191 8.58 26.65 10 369.1 5.12 135 3341 2302 336.6 319.1 1.39 1.7 5.6 0.02 5.4 342.0 0.489 3.801 4.941 10.10 26.74 10 381.5 6.14 135 3353 2308 347.4 328.9 1.62 1.7 6.4 0.04 13.9 361.4 0.489 4.468 5.809 11.87 26.82 10 389.7 5.69 135 3364 2314 354.4 335.2 1.47 1.7 5.7 0.02 6.8 361.2 0.490 4.463 5.802 11.85 26.9 10 400.9 5.66 135 3375 2320 364.2 344.0 1.42 1.7 5.4 0.01 3.6 367.8 0.490 4.708 6.120 12.49 26.98 10 369.3 5.94 135 3385 2326 335.0 316.0 1.62 1.7 6.6 0.04 15.2 350.3 0.490 4.707 5.300 10.81 27.06 10 383.5 5.81 135 3396 2332 347.5 327.4 1.52 1.7 6.1 0.03 10.1 357.6 0.491 4.331 5.631 11.47 27.13 10 402.2 5.79 135 3406 2337 364.0 342.6 1.45 1.7 5.5 0.01 5.1 369.1 0.491 4.756 6.183 12.59	ients
26.57       10       351.5       4.48       135       3330       2296       321.0       304.6       1.28       1.7       5.3       0.01       2.4       323.3       0.489       3.224       4.191       8.58         26.65       10       369.1       5.12       135       3341       2302       336.6       319.1       1.39       1.7       5.6       0.02       5.4       342.0       0.489       3.801       4.941       10.10         26.74       10       381.5       6.14       135       3353       2308       347.4       328.9       1.62       1.7       6.4       0.04       13.9       361.4       0.489       4.468       5.809       11.87         26.82       10       389.7       5.69       135       3364       2314       354.4       335.2       1.47       1.7       5.7       0.02       6.8       361.2       0.490       4.463       5.802       11.85         26.9       10       400.9       5.66       135       3375       2320       364.2       344.0       1.42       1.7       5.4       0.01       3.6       367.8       0.490       4.708       6.120       12.49         26.98<	
26.57       10       351.5       4.48       135       3330       2296       321.0       304.6       1.28       1.7       5.3       0.01       2.4       323.3       0.489       3.224       4.191       8.58         26.65       10       369.1       5.12       135       3341       2302       336.6       319.1       1.39       1.7       5.6       0.02       5.4       342.0       0.489       3.801       4.941       10.10         26.74       10       381.5       6.14       135       3353       2308       347.4       328.9       1.62       1.7       6.4       0.04       13.9       361.4       0.489       4.468       5.809       11.87         26.82       10       389.7       5.69       135       3364       2314       354.4       335.2       1.47       1.7       5.7       0.02       6.8       361.2       0.490       4.463       5.802       11.85         26.9       10       400.9       5.66       135       3375       2320       364.2       344.0       1.42       1.7       5.4       0.01       3.6       367.8       0.490       4.708       6.120       12.49         26.98<	
26.57       10       351.5       4.48       135       3330       2296       321.0       304.6       1.28       1.7       5.3       0.01       2.4       323.3       0.489       3.224       4.191       8.58         26.65       10       369.1       5.12       135       3341       2302       336.6       319.1       1.39       1.7       5.6       0.02       5.4       342.0       0.489       3.801       4.941       10.10         26.74       10       381.5       6.14       135       3353       2308       347.4       328.9       1.62       1.7       6.4       0.04       13.9       361.4       0.489       4.468       5.809       11.87         26.82       10       389.7       5.69       135       3364       2314       354.4       335.2       1.47       1.7       5.7       0.02       6.8       361.2       0.490       4.463       5.802       11.85         26.9       10       400.9       5.66       135       3375       2320       364.2       344.0       1.42       1.7       5.4       0.01       3.6       367.8       0.490       4.708       6.120       12.49         26.98<	
26.65       10       369.1       5.12       135       3341       2302       336.6       319.1       1.39       1.7       5.6       0.02       5.4       342.0       0.489       3.801       4.941       10.10         26.74       10       381.5       6.14       135       3353       2308       347.4       328.9       1.62       1.7       6.4       0.04       13.9       361.4       0.489       4.468       5.809       11.87         26.82       10       389.7       5.69       135       3364       2314       354.4       335.2       1.47       1.7       5.7       0.02       6.8       361.2       0.490       4.463       5.802       11.85         26.9       10       400.9       5.66       135       3375       2320       364.2       344.0       1.42       1.7       5.4       0.01       3.6       367.8       0.490       4.708       6.120       12.49         26.98       10       369.3       5.94       135       3385       2326       335.0       316.0       1.62       1.7       6.6       0.04       15.2       350.3       0.490       4.077       5.300       10.81         27.0	
26.74       10       381.5       6.14       135       3353       2308       347.4       328.9       1.62       1.7       6.4       0.04       13.9       361.4       0.489       4.468       5.809       11.87         26.82       10       389.7       5.69       135       3364       2314       354.4       335.2       1.47       1.7       5.7       0.02       6.8       361.2       0.490       4.463       5.802       11.85         26.9       10       400.9       5.66       135       3375       2320       364.2       344.0       1.42       1.7       5.4       0.01       3.6       367.8       0.490       4.708       6.120       12.49         26.98       10       369.3       5.94       135       3385       2326       335.0       316.0       1.62       1.7       6.6       0.04       15.2       350.3       0.490       4.077       5.300       10.81         27.06       10       383.5       5.81       135       3396       2332       347.5       327.4       1.52       1.7       6.1       0.03       10.1       357.6       0.491       4.331       5.631       11.47         27.	
26.9       10       400.9       5.66       135       3375       2320       364.2       344.0       1.42       1.7       5.4       0.01       3.6       367.8       0.490       4.708       6.120       12.49         26.98       10       369.3       5.94       135       3385       2326       335.0       316.0       1.62       1.7       6.6       0.04       15.2       350.3       0.490       4.077       5.300       10.81         27.06       10       383.5       5.81       135       3396       2332       347.5       327.4       1.52       1.7       6.1       0.03       10.1       357.6       0.491       4.331       5.631       11.47         27.13       10       402.2       5.79       135       3406       2337       364.0       342.6       1.45       1.7       5.5       0.01       5.1       369.1       0.491       4.756       6.183       12.59	
26.98       10       369.3       5.94       135       3385       2326       335.0       316.0       1.62       1.7       6.6       0.04       15.2       350.3       0.490       4.077       5.300       10.81         27.06       10       383.5       5.81       135       3396       2332       347.5       327.4       1.52       1.7       6.1       0.03       10.1       357.6       0.491       4.331       5.631       11.47         27.13       10       402.2       5.79       135       3406       2337       364.0       342.6       1.45       1.7       5.5       0.01       5.1       369.1       0.491       4.756       6.183       12.59	
27.06     10     383.5     5.81     135     3396     2332     347.5     327.4     1.52     1.7     6.1     0.03     10.1     357.6     0.491     4.331     5.631     11.47       27.13     10     402.2     5.79     135     3406     2337     364.0     342.6     1.45     1.7     5.5     0.01     5.1     369.1     0.491     4.756     6.183     12.59	
<b>27.13</b> 10 <b>402.2</b> 5.79 <b>135</b> 3406 2337 364.0 342.6 1.45 1.7 5.5 0.01 5.1 369.1 0.491 4.756 6.183 12.59	
<b>27.21</b> 10 <b>434.1 5.19 135</b> 3416 2343 392.4 369.0 1.20 1.6 4.1 0.00 0.0 392.4 0.491 5.700 7.411 15.08	
<b>27.26</b> 10 <b>428.4</b> 5.17 135 3423 2346 387.0 363.6 1.21 1.6 4.2 0.00 0.0 387.0 0.492 5.469 7.110 14.46	
27.31 10 429.1 4.69 125 3430 2350 387.3 363.6 1.10 1.6 3.6 0.00 0.0 387.3 0.492 5.483 7.128 14.49	
27.36 10 417.2 4.84 135 3436 2353 376.3 353.0 1.16 1.6 4.1 0.00 0.0 376.3 0.492 5.036 6.547 13.30 27.41 10 389.4 5.06 135 3443 2357 351.0 328.9 1.31 1.6 5.0 0.00 0.5 351.4 0.492 4.116 5.351 10.87	
27.45 10 389.7 5.13 135 3448 2359 351.0 328.7 1.32 1.6 5.1 0.00 1.2 352.3 0.492 4.145 5.388 10.94	
<b>27.49</b> 10 <b>382</b> 5.06 <b>135</b> 3454 2362 343.9 321.8 1.33 1.7 5.3 0.01 2.4 346.3 0.493 3.943 5.126 10.40	
<b>27.52</b> 10 <b>380.3 4.92</b> 1 <b>35</b> 3458 2365 342.2 320.1 1.30 1.6 5.1 0.00 1.3 343.5 0.493 3.849 5.004 10.16	
27.59 10 384.1 4.93 135 3467 2370 345.2 322.6 1.29 1.6 5.1 0.00 0.5 345.8 0.493 3.925 5.103 10.35	
27.67 10 400.7 5.08 135 3478 2375 359.7 335.8 1.27 1.6 4.8 0.00 0.0 359.7 0.493 4.409 5.732 11.62 27.74 10 376.9 4.92 135 3488 2381 338.0 315.1 1.31 1.7 5.3 0.01 2.4 340.4 0.494 3.749 4.874 9.87	
27.81 10 353.3 5.16 135 3497 2386 316.5 294.6 1.47 1.7 6.3 0.03 11.5 327.9 0.494 3.360 4.368 8.84	
<b>27.85</b> 10 <b>339.1 5.27 135</b> 3502 2389 303.6 282.4 1.56 1.7 6.9 0.05 16.6 320.2 0.494 3.133 4.073 8.24	
<b>27.93</b> 10 <b>317.9</b> 5.13 135 3513 2394 284.3 264.0 1.62 1.8 7.6 0.07 20.9 305.1 0.494 2.722 3.539 7.16	
28.02 10 300.9 4.89 135 3525 2401 268.7 249.1 1.63 1.8 7.9 0.08 22.8 291.5 0.495 2.383 3.098 6.26	
28.11 10 239.8 4.54 135 3537 2407 213.8 197.7 1.91 1.9 10.5 0.15 36.9 250.8 0.495 1.547 2.011 4.06 28.19 10 211.9 3.53 135 3548 2413 188.7 174.1 1.68 1.9 10.3 0.14 31.3 220.0 0.495 1.071 1.392 2.81	
28.28 10 202.1 2.8 135 3560 2420 179.8 165.5 1.40 1.9 9.3 0.11 23.1 202.9 0.496 0.857 1.114 2.25	
28.36 10 187.9 2.48 135 3571 2426 166.9 153.4 1.33 1.9 9.4 0.12 22.4 189.4 0.496 0.711 0.925 1.86	
<b>28.44</b> 10 <b>196.1 2.48 135</b> 3582 2431 174.0 159.8 1.28 1.8 8.9 0.10 20.0 194.0 0.496 0.759 0.986 1.99	
28.51 10 212.8 2.71 135 3591 2436 188.6 173.1 1.28 1.8 8.4 0.09 18.7 207.3 0.497 0.908 1.181 2.38	
<b>28.59</b> 10 <b>269.8</b> 3.6 135 3602 2442 238.9 219.4 1.34 1.8 7.3 0.06 15.3 254.2 0.497 1.607 2.089 4.20 <b>28.67</b> 10 311.7 <b>4.26</b> 135 3613 2448 275.6 253.1 1.37 1.7 6.6 0.04 12.6 288.2 0.497 2.307 2.999 6.03	
28.75 10 316.9 4.33 135 3624 2454 279.9 256.7 1.37 1.7 6.6 0.04 12.1 292.1 0.498 2.397 3.116 6.26	
<b>28.83</b> 10 <b>322 4.49 135</b> 3635 2460 284.1 260.2 1.40 1.7 6.6 0.04 12.9 296.9 0.498 2.515 3.269 6.57	
<b>28.9</b> 10 <b>307.3 4.64 135</b> 3644 2465 270.8 247.8 1.52 1.8 7.4 0.06 18.8 289.6 0.498 2.339 3.041 6.10	
28.98 10 304.9 4.69 135 3655 2471 268.4 245.2 1.55 1.8 7.6 0.07 20.2 288.6 0.498 2.315 3.009 6.04	
29.05 10 292.7 4.45 135 3664 2476 257.4 234.9 1.53 1.8 7.8 0.07 20.6 278.0 0.499 2.078 2.701 5.42 29.13 10 284.3 3.96 135 3675 2481 249.7 227.6 1.40 1.8 7.3 0.06 16.6 266.4 0.499 1.837 2.389 4.79	
29.21 10 254.4 3.62 135 3686 2487 223.2 203.0 1.43 1.8 8.2 0.08 20.5 243.7 0.499 1.426 1.854 3.71	
<b>29.29</b> 10 <b>246.7 3.27 135</b> 3697 2493 216.2 196.3 1.34 1.8 <mark>7.9</mark> 0.08 17.9 234.1 0.500 1.273 1.654 3.31	
<b>29.38</b> 10 <b>231.9 2.89 135 3</b> 709 2500 202.9 184.0 1.26 1.8 <mark>7.8</mark> 0.08 16.7 219.6 0.500 1.065 1.384 2.77	
29.46 10 235.1 2.84 135 3720 2505 205.5 186.1 1.22 1.8 7.6 0.07 15.1 220.6 0.500 1.078 1.402 2.80	
29.54 10 243 3.45 135 3731 2511 212.2 192.0 1.43 1.8 8.5 0.09 21.8 233.9 0.501 1.270 1.652 3.30 29.63 10 266.9 3.76 135 3743 2518 232.7 210.4 1.42 1.8 7.9 0.08 19.3 252.0 0.501 1.569 2.040 4.07	
29.71 10 288.2 3.94 135 3753 2524 251.0 226.8 1.38 1.8 7.2 0.06 15.9 266.9 0.501 1.849 2.403 4.79	
<b>29.79</b> 10 <b>304.4 4.76 135</b> 3764 2529 264.8 239.1 1.57 1.8 <b>7.9</b> 0.08 22.0 286.9 0.501 2.275 2.958 5.90	
29.87 10 316.5 5.49 135 3775 2535 275.0 248.1 1.75 1.8 <mark>8.4</mark> 0.09 27.8 302.8 0.502 2.663 3.462 6.90	
29.95 10 359.5 5.96 135 3786 2541 312.0 281.4 1.67 1.8 7.4 0.06 21.6 333.6 0.502 3.534 4.594 9.15	
30.03 10 319 5.32 135 3797 2547 276.6 248.9 1.68 1.8 8.1 0.08 25.2 301.8 0.481 2.635 3.426 7.12 30.12 10 327 5.46 135 3809 2553 283.1 254.5 1.68 1.8 8.0 0.08 24.7 307.9 0.482 2.794 3.633 7.54	
30.2 10 292.1 4.86 135 3820 2559 252.6 22.67 1.67 1.8 8.6 0.10 27.2 279.9 0.482 2.119 2.754 5.71	
<b>30.29</b> 10 <b>282 4.31 135 3</b> 832 2566 243.6 218.2 1.54 1.8 <mark>8.2</mark> 0.09 23.0 266.6 0.482 1.843 2.396 4.97	
30.37 10 272.9 3.98 135 3843 2571 235.5 210.7 1.47 1.8 8.1 0.08 21.3 256.8 0.483 1.655 2.151 4.46	
30.45 10 293.8 3.6 135 3853 2577 253.2 226.4 1.23 1.7 6.5 0.04 10.7 263.9 0.483 1.790 2.327 4.82	
30.54 10 293.7 3.16 125 3866 2584 252.8 225.7 1.08 1.7 3.0 0.00 0.0 252.8 0.483 1.583 2.057 4.26 30.63 10 273.1 2.64 125 3877 2589 234.8 209.3 0.97 1.7 3.0 0.00 0.0 234.8 0.483 1.284 1.669 3.45	
30.72 10 260.6 2.59 125 3888 2595 223.8 199.3 1.00 1.7 3.0 0.00 0.0 238.0 0.484 1.123 1.460 3.02	
30.8 10 262.9 3.08 135 3898 2600 225.6 200.6 1.18 1.7 3.0 0.00 0.0 225.6 0.484 1.148 1.492 3.08	
<b>30.89</b> 10 <b>267.4 3.54</b> 1 <b>35</b> 3910 2607 229.2 203.6 1.33 1.8 <b>3.0</b> 0.00 0.0 229.2 0.484 1.199 1.559 3.22	
30.94 10 251.8 4.1 135 3917 2610 215.6 191.4 1.64 1.9 3.0 0.00 0.0 215.6 0.485 1.013 1.316 2.72	
31.03 10 268.5 3.8 135 3929 2617 229.7 203.6 1.43 1.8 3.0 0.00 0.0 229.7 0.485 1.206 1.568 3.23 31.12 10 278.6 4.42 135 3941 2623 238.0 210.8 1.60 1.8 3.0 0.00 0.0 238.0 0.485 1.334 1.734 3.57	
31.21 10 285.8 3.99 135 3953 2630 243.8 215.8 1.41 1.8 3.0 0.00 0.0 243.8 0.485 1.428 1.857 3.83	

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 12

Depth to Groundwater: 10 feet

EQ Magnitude (M<sub>w</sub>): 6.5 PGA (g): 0.54

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	l Liquef.	Liquef.	Factor	
	Depth		Resist.	Frict.	g	Stress		Tip	Tip	Ratio		F.C.	•	_			Stress		of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	( <b>q</b> cIN)es	Ratio	M7.5	M6.50	Safety	Comments
	31.3	10	302	3.68	135	3966	2636	257.3	227.5	1.23	1.7	3.0	0.00	0.0	257.3	0.486	1.665	2.165	4.46	
	31.39	10	302.9	3.43	125	3978	2643	257.8	227.6	1.14	1.7	3.0	0.00	0.0	257.8	0.486	1.673	2.175	4.48	
	31.48 31.56	10 10	323.1 333.4	3.47 3.53	125 125	3989 3999	2649 2654	274.7 283.2	242.4 249.7	1.08 1.07	1.7 1.6	3.0	0.00	0.0	274.7 283.2	0.486 0.487	2.008 2.192	2.610 2.850	5.37 5.86	
	31.65	10	338.6	4.19	135	4010	2659	287.3	253.0	1.24	1.7	3.0	0.00	0.0	287.3	0.487	2.192	2.971	6.10	
	31.75	10	331.5	4.23	135	4024	2666	280.9	247.0	1.28	1.7	3.0	0.00	0.0	280.9	0.487	2.141	2.783	5.71	
	31.84	10	317.4	4.08	135	4036	2673	268.6	235.9	1.29	1.7	3.0	0.00	0.0	268.6	0.488	1.882	2.447	5.02	
	31.93	10	314.2	4.04	135	4048	2680	265.6	232.9	1.29	1.7	3.0	0.00	0.0	265.6	0.488	1.822	2.369	4.86	
	32.01	10	307.1	3.97	135	4059	2685	259.3	227.1	1.30	1.7	3.0	0.00	0.0	259.3	0.488	1.701	2.212	4.53	
	32.1	10	316.4	3.75	135	4071	2692	266.8	233.5	1.19	1.7	6.1	0.03	8.4	275.2	0.488	2.019	2.625	5.38	
	32.19 32.28	10 10	295.4 304.6	3.53 5.2	135 135	4083 4095	2698 2705	248.8 256.3	217.3 223.6	1.20 1.72	1.7 1.8	6.6 8.9	0.04	11.0 30.0	259.8 286.2	0.489 0.489	1.711 2.261	2.225 2.939	4.55 6.01	
	32.37	10	341.5	4.66	135	4107	2711	286.9	250.3	1.37	1.7	6.7	0.10	13.5	300.5	0.489	2.602	3.383	6.92	
	32.46	10	363.6	4.45	135	4120	2718	305.2	265.9	1.23	1.7	5.7	0.02	5.6	310.8	0.489	2.871	3.732	7.63	
	32.54	10	329.5	5.11	135	4130	2724	276.2	240.3	1.56	1.8	7.8	0.07	22.2	298.5	0.490	2.553	3.319	6.78	
	32.63	10	309.5	4.86	135	4142	2730	259.2	225.1	1.58	1.8	8.3	0.09	24.7	283.8	0.490	2.206	2.868	5.85	
	32.72	10	295.5	4.53	135	4155	2737	247.1	214.3	1.54	1.8	8.4	0.09	24.4	271.6	0.490	1.942	2.525	5.15	
	32.8	10	301	4.53	135	4165	2743	251.5	217.9	1.52	1.8	8.1	0.08	23.0	274.5	0.490	2.003	2.603	5.31	
	32.89 32.98	10 10	297.3 306.3	4.06 3.61	135 135	4178 4190	2749 2756	248.1 255.3	214.7 220.7	1.38 1.19	1.8 1.7	7.5 6.4	0.07 0.04	18.0 10.0	266.1 265.3	0.491 0.491	1.833 1.817	2.383 2.362	4.86 4.81	
	33.06	10	308.3	4.41	135	4201	2762	256.7	221.7	1.44	1.8	2.3	0.00	0.0	256.7	0.491	1.653	2.149	4.37	
	33.15	10	290.5	4.25	135	4213	2768	241.6	208.3	1.47	1.8	2.3	0.00	0.0	241.6	0.491	1.391	1.809	3.68	
	33.23	10	271.9	4.38	135	4223	2774	225.9	194.4	1.62	1.9	2.3	0.00	0.0	225.9	0.492	1.152	1.497	3.05	
	33.32	10	273.9	4.82	135	4236	2780	227.3	195.4	1.77	1.9	2.3	0.00	0.0	227.3	0.492	1.172	1.523	3.10	
	33.4	10	303	4.64	135	4246	2786	251.2	215.9	1.54	1.8	2.3	0.00	0.0	251.2	0.492	1.553	2.019	4.10	
	33.49	10 10	331.5 334.5	4.11 3.8	135 125	4259 4269	2793 2799	274.5 276.7	235.8 237.4	1.25 1.14	1.7 1.7	2.3	0.00	0.0	274.5 276.7	0.492 0.493	2.003 2.049	2.604 2.664	5.29 5.41	
	33.57 33.65	10	333	3.69	125	4279	2804	275.2	235.9	1.14	1.7	2.3 2.3	0.00	0.0	275.2	0.493	2.049	2.623	5.32	
	33.73	10	355.6	3.94	125	4289	2809	293.6	251.6	1.11	1.7	2.3	0.00	0.0	293.6	0.493	2.433	3.163	6.41	
	33.82	10	356.1	4.23	135	4301	2814	293.7	251.4	1.20	1.7	2.3	0.00	0.0	293.7	0.493	2.436	3.167	6.42	
	33.9	10	355.2	3.91	125	4311	2820	292.7	250.3	1.11	1.7	2.3	0.00	0.0	292.7	0.494	2.411	3.134	6.35	
	33.99	10	319.3	3.68	135	4323	2826	262.8	224.4	1.16	1.7	2.3	0.00	0.0	262.8	0.494	1.768	2.299	4.65	
	34.07	10	311	3.46	125	4333	2831	255.7	218.1	1.12	1.7	2.3	0.00	0.0	255.7	0.494	1.635	2.126	4.30	
	34.13 34.22	10 10	287.2 317.1	3.4 4.06	135 135	4341 4353	2835 2842	236.0 260.3	201.0 221.5	1.19 1.29	1.7 1.7	2.3 2.3	0.00	0.0	236.0 260.3	0.494 0.495	1.302 1.720	1.693 2.235	3.42 4.52	
	34.31	10	341.6	4.45	135	4365	2848	280.1	238.2	1.31	1.7	2.3	0.00	0.0	280.1	0.495	2.123	2.760	5.58	
	34.4	10	347.4	4.57	135	4377	2855	284.5	241.7	1.32	1.7	2.3	0.00	0.0	284.5	0.495	2.221	2.888	5.83	
	34.49	10	379.1	4.48	135	4390	2861	310.1	263.3	1.19	1.7	2.3	0.00	0.0	310.1	0.495	2.853	3.709	7.49	
	34.57	10	390.9	4.5	135	4400	2867	319.4	271.0	1.16	1.7	5.2	0.01	1.8	321.2	0.496	3.163	4.112	8.30	
	34.66	10	359.3	4.73	135	4413	2874	293.3	248.4	1.32	1.7	6.5	0.04	12.1	305.4	0.496	2.729	3.547	7.15	
	34.75	10	361.8 352.5	4.71	135	4425	2880	295.0	249.6	1.31	1.7	6.4	0.04	11.4	306.3	0.496	2.753	3.579	7.22	
	34.83 34.92	10 10	332.5	4.74 5.31	135 135	4435 4448	2886 2893	287.1 279.9	242.6 236.2	1.35 1.55	1.7 1.8	6.8 7.9	0.05	14.1 23.1	301.2 302.9	0.496 0.497	2.621 2.665	3.407 3.465	6.86 6.98	
	35	10	342.5	5.41	135	4458	2898	278.4	234.7	1.59	1.8	8.1	0.08	24.7	303.1	0.497	2.670	3.470	6.99	
	35.09	10	303	5.46	135	4471	2905	246.0	207.0	1.82	1.9	9.8	0.13	36.3	282.3	0.497	2.173	2.824	5.68	
	35.18	10	305.2	5.32	135	4483	2911	247.5	208.0	1.76	1.9	9.5	0.12	34.0	281.5	0.497	2.154	2.801	5.63	
	35.27	10	299.3	4.94	135		2918	242.4	203.5	1.66	1.9	9.2	0.11	30.9	273.4	0.497	1.980	2.574	5.17	
	35.35	10		4.54	135		2924	247.5	207.6	1.50	1.8	8.3	0.09	24.1	271.6	0.498	1.944	2.527	5.08	
	35.44 35.53	10 10	315.8 319.2	4.38 4.23	135 135	4518 4530	2930 2937	255.3 257.7	213.9 215.7	1.40 1.33	1.8 1.8	7.7 7.3	0.07 0.06	19.6 16.9	274.8 274.6	0.498 0.498	2.010 2.006	2.614 2.608	5.25 5.24	
	35.61	10	330.8	4.23	135	4541	2943	266.8	223.2	1.33	1.7	7.3	0.06	15.7	282.5	0.498	2.176	2.829	5.68	
	35.7	10	337.7	4.45	135	4553	2949	272.1	227.4	1.33	1.7	7.0	0.05	15.1	287.2	0.499	2.283	2.968	5.95	
	35.78	10	359	4.74	135	4564	2955	289.0	241.3	1.33	1.7	6.7	0.04	13.4	302.4	0.499	2.651	3.446	6.91	
	35.86	10	375.2	4.96	135	4575	2961	301.7	251.8	1.33	1.7	6.4	0.04	12.1	313.8	0.499	2.953	3.839	7.70	
	35.95	10	373	4.83	135	4587	2967	299.6	249.8	1.30	1.7	6.4	0.04	11.2	310.8	0.499	2.872	3.734	7.48	
	36.03	10	371.8	4.98 5.27	135	4597	2973	298.3	248.5	1.35	1.7	6.6	0.04	13.3	311.7	0.499	2.895	3.764	7.54	
	36.11 36.19	10 10	375.2 386.8	5.27 5.26	135 135	4608 4619	2979 2985	300.8 309.8	250.2 257.5	1.41 1.37	1.7 1.7	6.9 6.5	0.05 0.04	15.9 13.0	316.7 322.8	0.500 0.500	3.033 3.208	3.943 4.171	7.89 8.35	
	36.27	10	420.6	5.2	135	4630	2991	336.5	279.6	1.24	1.7	5.5	0.04	4.5	341.0	0.500	3.768	4.898	9.80	
	36.35	10	453.2	5.21	135	4641	2996	362.2	300.8	1.16	1.6	4.7	0.00	0.0	362.2	0.500	4.501	5.851	11.70	
	36.42	10	476	8.06	135	4650	3001	380.1	315.5	1.70	1.7	7.0	0.05	21.5	401.6	0.500	6.105	7.937	15.86	
	36.49	10	498.2	7.71	135	4660	3007	397.5	329.7	1.55	1.7	6.2	0.03	12.8	410.3	0.500	6.505	8.456	16.90	
	36.53	10	509.4	7.69	135	4665	3009	406.3	336.8	1.52	1.7	5.9	0.02	10.0	416.3	0.501	6.790	8.827	17.64	

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 12

39.75

39.85

39.94

40.04

8.5

9.7

0.72

0.71

0.69

0.65

125 5077

125 5090

125 5101

125 5114

10

10

10 10.5

10 10.1

3221

3227

3233

3239

6.6

7.5

8.1

7.8

3.7

4.4

4.9

4.7

12.08

9.92

8.68

8.62

3.7

3.6

3.5

3.5

119.7

107.7

100.7

102.3

0.80

0.80

0.80

0.80

26.2

29.9

32.3

31.1

32.8

37.4

40.4

38.8

Depth to Groundwater: 10 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

MSF: 1.30

0.509

0.509

0.510

0.471

0.083

0.085

0.086

0.085

0.108

0.110

0.112

0.111

0.21

0.22

0.22

0.24

NonLiafble.

NonLiafble.

NonLigfble.

NonLiqfble.

Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Stress Stress Stress (TSF) (TSF) (PCF) (PSF) (PSF) (%) KCPT Dqcin (qcin)cs Ratio M7.5 M6.50 Safety (FT) (FT) **q**c1N 0 Ic Comments 36.63 10 579 7.82 135 4678 3017 461.2 382.1 1.36 1.6 4.7 0.00 0.0 461.2 0.501 9.206 11.967 23.90 36.71 10 519.3 7.66 135 4689 3023 413.3 341.9 1.48 1.7 5.7 0.02 7.7 421.0 0.501 7.017 9.122 18.21 36.78 10 517 7.32 135 4699 3028 411.1 339.8 1.42 1.7 5.4 0.01 4.9 416.0 0.501 6.777 8.810 17.58 500.6 36.86 10 6.6 135 4710 3033 397.7 328.4 1.32 1.6 5.1 0.00 1.6 399.3 0.501 5.999 7.798 15.55 36.93 487.8 5.68 135 4719 3039 387.2 319.4 1.17 0.00 0.0 387.2 0.502 5.478 7.122 14.20 37.01 10 467.6 4.71 125 4730 3044 370.8 305.5 1.01 1.6 3.9 0.00 0.0 370.8 0.502 4.822 6.268 12.49 37.08 423.9 3.88 125 4739 3049 335.9 276.4 0.92 3.9 0.00 335.9 0.502 9.34 10 1.6 0.0 3.605 4.686 37.16 390.1 3.49 125 4749 3054 308.9 253.8 0.90 0.00 0.0 308.9 0.502 2.820 3.667 7.30 10 1.6 4.1 37.33 314.9 3.89 135 4770 3064 248.9 203.9 1.24 0.06 264.2 0.503 2.333 10 1.8 7.2 15.3 1.795 4.64 37.42 10 286.1 135 4782 3071 225.9 184.7 1.41 1.8 8.6 0.10 24.2 250.10.503 1.534 1.994 3.97 37.51 10 232.4 3.67 135 4794 3077 183.3 149.4 1.60 1.9 11.0 0.16 34.9 218.2 0.503 1.046 1.360 2.70 37.59 185.6 4.09 135 4805 3083 146.2 118.8 2.23 15.8 0.29 59.2 205.5 0.503 0.887 1.153 2.29 10 2.1 37.68 10 171.6 43 135 4817 3090 135.1 109.5 2.54 22 17.8 0.34 70.5 205.6 0.503 0.888 1.155 2.29 37.76 10 172.3 4.08 135 4828 3096 135.5 109.7 2.40 2.1 17.2 0.33 65.8 201.2 0.504 0.838 1.089 2.16 37.85 3.74 135 4840 3102 152.4 123.5 2.0 0.25 49.6 202.0 0.504 10 194 1.95 14.2 0.847 1.101 2.18 37.92 240.7 3.64 135 4849 3107 188.9 153.3 1.53 1.9 10.5 0.15 32.3 221.2 0.504 1.087 1.412 2.80 10 125 4860 3113 225.2 182.9 0.504 1.376 1.789 38 10 287.2 3.3 1.16 1.8 7.4 0.06 15.4 240.6 3.55 38.07 125 4869 7.4 2.447 320.8 2.88 3117 251.4 204.2 0.90 1.7 0.06 17.2 268.6 0.504 1.882 10 4.85 38.13 10 336.7 2.57 125 4876 3121 263.7 214.1 0.77 1.6 7.4 0.06 18.1 281.8 0.505 2.160 2.808 5.57 38.16 342.2 2.26 4880 267.9 1.5 7.4 0.06 0.505 2.940 10 115 3123 217.5 0.67 18.3 286.3 2.262 5.83 38.19 10 333.4 2.16 115 4884 3125 261.0 211.8 0.65 1.5 7.4 0.06 17.9 278.8 0.505 2.096 2.725 5.40 7.4 38 23 10 330.6 2 12 115 4888 3127 258.7 209.8 0.65 15 0.06 17.7 276.4 0.505 2.044 2.657 5.26 38 27 10 342 5 2.05 115 4893 3129 267.9 217.3 0.60 1.5 7.4 0.06 18.3 286.3 0.505 2.261 2.940 5.82 38.31 10 336.8 1.95 115 4897 3131 263.4 213.5 0.58 1.5 7.4 0.06 18.0 281.4 0.505 2 152 2.798 5 54 259.7 38.37 332.3 105 4904 3134 210.4 0.49 1.5 7.4 0.06 17.8 277.5 0.505 2.067 2.687 5.32 38.44 10 295.4 1.37 105 4912 3137 230.8 186.7 0.47 1.5 7.4 0.06 15.8 246.6 0.506 1.474 1.916 3.79 38.52 265 1.66 115 4920 3140 206.9 167.1 0.63 1.6 0.06 14.2 221.1 0.506 1.085 1.410 2.79 10 38.6 215.3 1.88 125 4929 3145 168.0 0.88 7.4 0.06 0.506 10 135.3 1.8 11.5 179.5 0.618 0.803 1.59 38.69 125 132.4 0.506 0.446 Liquefaction 10 169.8 1.6 4941 3150 106.2 0.96 1.9 7.4 0.06 9.1 141.4 0.343 0.88 1.98 0.296 38.77 140.2 135 4951 3155 109.2 1.44 2.1 7.4 0.06 7.5 0.507 0.228 0.58 10 87.3 116.7 Liquefaction 38.86 2.09 135 4963 3162 53.8 2.5 7.4 0.06 3.7 0.507 0.098 0.127 0.25 Liquefaction 10 69.1 42.1 3.14 57.4 38 95 1 89 74 0.507 10 42 1 135 4975 3168 32.7 25.0 4 77 2.8 0.06 22 35.0 0.084 0.109 0.22NonLiafble. 39.02 10 27.5 1.66 135 4984 3173 21.4 15.8 6.64 3.1 74 0.06 1.5 22.8 0.507 0.081 0.105 0.21 NonLiqfble. 39.12 10 18.8 1.34 135 4998 3181 14.6 10.2 8.22 3.3 7.4 0.06 1.0 15.6 0.507 0.080 0.104 0.21 NonLiqfble. 39.21 10 15.8 0.89 125 5010 3187 12.2 8.3 6.69 3.3 7.4 0.06 0.8 13.1 0.508 0.080 0.104 0.21 NonLiqfble. 39.28 13.8 0.77 125 5019 6.82 3.3 7.4 0.508 0.104 NonLiqfble. 3192 10.7 7.1 0.06 0.7 11.4 0.080 0.21 39.37 10 12.6 0.73 125 5030 3197 6.3 7.24 3.4 7.4 0.06 0.7 10.4 0.508 0.080 0.104 0.20 NonLiqfble. 39.46 9.9 0.74 125 5041 3203 7.7 4.6 10.03 3.6 7.4 0.06 0.5 0.508 0.080 0.104 0.20 NonLiqfble. 39.56 10 6.8 0.73 125 5054 3209 5.3 2.7 17.09 3.9 0.06 0.4 5.6 0.509 0.080 0.104 0.20 NonLiqfble. 39.65 6.8 0.73 125 5065 3215 5.2 2.7 17.11 3.9 143.6 0.80 21.0 26.2 0.509 0.082 0.106 0.21 NonLiafble. 10

Date: September 2005 CPT Number: 13

Depth to Groundwater: 8 feet

EQ Magnitude ( $M_w$ ): 6.5 **PGA (g):** 0.54 Project Number: 6600.3.001.01 **MSF:** 1.30

0.58 8 2176 3.38 135 78 78 416.7 5554.8 1.55 1.4 2.0 0.00 0.0 416.7 0.351 6.811 8.855 25.23 Above 0.07 8 76.8 2.67 135 92 92 147.1 1671.5 3.74 18 8.3 0.010 12.4 10.4 0.351 6.271 0.013 1.75 Above 0.07 8 5.65 2.14 133 107 107 107 116 1143 3.00 1.8 8.7 0.010 12.4 10.4 0.351 6.26 0.36 0.348 0.09 Above 0.07 8 5.65 2.14 133 107 107 107 116 1143 3.00 1.8 8.7 0.010 12.4 10.4 0.351 6.26 0.364 0.09 Above 1.1 8 28.1 1.46 135 135 137 77.4 97.3 3.02 1.9 10.6 0.15 13.6 0.05 10.26 0.354 0.09 0.55 Above 1.1 8 28.1 1.46 135 136 149 149 51.8 37.3 3.02 1.9 10.6 0.15 13.6 0.05 10.25 0.160 0.5 0.5 Above 1.2 8 24.1 1.3 135 162 149 149 51.8 37.3 5.21 2.1 16.8 0.32 2.18 78.6 0.351 0.125 0.160 0.5 Above 1.2 8 15.8 1.74 135 174 174 30.3 180.4 11.07 2.6 33.9 0.77 10.18 13.20 0.351 0.250 0.04 Above 1.29 8 15.8 1.74 135 174 174 30.3 180.4 11.07 2.6 33.9 0.77 10.18 13.20 0.351 0.250 0.044 1.14 Above 1.40 8 50.1 4.84 135 0.01 201 57.6 299.2 16.13 2.6 3.5 0.00 2.06 2.832 0.351 2.307 2.999 6.044 1.14 Above 1.60 8 50.1 4.84 135 0.01 201 57.6 299.2 16.13 2.6 3.5 0.00 2.06 2.832 0.351 2.307 2.999 6.044 1.14 Above 1.60 8 8 8 0.1 4.84 135 0.01 201 57.6 299.2 16.13 2.5 2.5 2.90 0.04 193.6 302.2 0.351 2.407 2.299 6.6 2.40 225 2.40 225 2.40 2.25 2.25 2.40 2.25 2.40 2.25 2.40 2.25 2.40 2.25 2.25 2.25 2.40 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.2			Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
0.58 8 2176 3.38 135 78 78 416.7 5554.8 1.55 1.4 2.0 0.00 0.0 416.7 0.351 6.811 8.855 25.23 Above 0.08 8 76.8 2.57 135 92 92 147.1 1671.5 3.74 1.8 8.3 0.019 14.4 161.4 0.351 6.471 0.613 1.75 Above 0.79 8 56.5 2.14 135 107 107 110 1140 11113 3.00 11.8 8.7 0.010 12.4 12.54 0.351 0.250 0.451 0.059 Above 0.79 8 56.5 2.14 135 107 107 110 1140 11113 3.00 11.8 8.7 0.010 12.4 12.54 0.351 0.250 0.451 0.059 Above 0.79 8 56.5 2.14 135 107 107 110 1140 11113 3.00 11.8 8.7 0.010 12.4 12.54 0.351 0.250 0.451 0.059 Above 1.1 8 28.1 1.46 135 135 187 187 187 187 187 187 187 187 187 187		Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
0.88	Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qclN)cs	Ratio	M7.5	M6.50	Safety	Comments
0.88																					
0.88																					
0.88																					
0.79																					Above W.T.
0.89																					Above W.T.
1 8 8 04 1.46 135 149 149 538 77.4 97.3 3.62 1.9 10.6 0.15 13.6 91.0 0.351 0.150 0.195 0.56 Above 1.12 8 28.1 1.46 135 149 149 53.8 37.3 5.21 2.1 18.8 0.37 26.9 13.0 0.351 0.16 0.151 0.43 Above 1.29 8 15.8 17.4 135 174 147 30.3 114 147 30.3 1804 11.07 2.6 13.9 0.77 10.18 13.20 0.351 0.16 0.151 0.43 Above 1.29 8 15.8 17.2 2.58 158 188 188 32.9 182.2 15.08 2.7 39.7 0.89 131.8 16.17 0.351 0.496 0.64 1.18 Above 1.49 8 30.1 4.84 135 20.1 01.5 7.6 2.82 16.13 2.6 3.5 0.5 0.89 131.8 16.17 0.351 0.496 0.64 1.18 Above 1.58 8 80.9 5.52 140 217 227 18.1 8.0 20.7 6.4 2.1 15.1 0.27 6.1 2.350 0.252 0.351 1.350 1.77 4.5 Above 1.58 8 18.8 1.58 1.2 1.2 1.2 1.1 1.1 1.1 1.1 1.1 1.1 1.1																					Above W.T. Above W.T.
1.2 8 24.1 1.3 155 162 162 264 62 266.4 541 22 18.8 0.37 26.0 73.0 0.351 0.24 0.351 0.34 Above 1.39 8 17.2 258 188 188 129 1822 1508 2.7 39.7 0.8 131.8 16.7 0.351 0.24 0.352 1.9 Above 1.49 8 30.1 484 135 20 10.2 15.0 5.2 8.2 16.2 15.8 2.7 39.7 0.8 131.8 16.7 0.351 0.24 0.352 1.0 Above 1.49 8 30.1 484 135 20 10.2 15.0 5.2 82.2 16.1 1.5 10.2 0.3 10.2 15.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1																					Above W.T.
1.29		1.1	8	28.1	1.46	135	149	149	53.8	377.3	5.21	2.1	16.8	0.32	24.8	78.6	0.351	0.125	0.163	0.46	Above W.T.
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1.49																					Above W.T. Above W.T.
1.68  8 90.9 5.52 140 213 213 1741 810 608 2.1 15.1 0.27 64.1 2882 0.35 1.736 1.306 1.737 4.95 Above 11.68 8 96.26 6.32 140 241 241 108.6 408.8 12.83 2.5 2.0 0.0 4.1 91.0 19.0 19.0 19.0 19.0 19.0 19.0 19																					Above W.T.
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241 8 50.1 1.83 135 315 380 380 40.27 325.7 2.86 1.9 11.1 0.16 0.23 29.3 125.3 0.351 0.263 0.342 0.97 Above 2.5 8 53.9 1.52 135 340 340 103.2 315.8 2.83 1.9 11.2 0.17 20.5 123.7 0.351 0.256 0.333 0.95 Above 2.6 8 42.9 1.8 135 340 340 103.2 315.8 2.83 1.9 11.2 0.17 20.5 123.7 0.351 0.256 0.333 0.95 Above 2.6 8 42.9 1.8 135 347 344 82.2 241.5 4.2 2.1 1.7 1.0 3.2 9.3 47.7 10.8 0.351 0.246 0.320 0.91 Above 2.8 8 29.9 1.8 135 367 367 37.2 207.0 4.79 2.2 19.8 0.39 47.7 10.8 0.351 0.246 0.320 0.91 Above 2.8 8 29.9 1.8 148 18.1 35 341 344 34.2 2.1 1.7 1.0 1.2 1.2 1.2 1.3 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2																					Above W.T.
26 8 429 1.8 135 340 340 103.2 315.8 2.83 1.9 11.2 0.17 205.1 23.7 0.510 10.26 0.333 0.99 Above 2.6 8 42.9 1.8 135 345 354 8.2 241.5 4.2 2.1 1.1 1.71 0.37 39.1 121.3 0.351 0.246 0.332 0.99 Above 2.7 8 38.2 1.82 135 347 381 381 37.3 156.0 6.19 2.4 2.5.7 0.55 70.9 47.0 128.2 0.351 0.246 0.317 0.90 Above 2.8 8 29.9 1.84 135 381 381 37.3 156.0 6.19 2.4 25.7 0.55 70.9 128.2 0.351 0.246 0.377 0.50 Above 3.8 17.7 1.65 135 408 408 33.9 85.8 9.43 2.7 39.3 0.80 135.6 168.5 0.551 0.253 0.676 0.879 2.50 Above 3.8 17.7 1.65 135 408 408 33.9 85.8 9.43 2.7 39.3 0.80 135.6 168.5 0.551 0.253 0.683 1.97 Above 3.2 8 16.6 1.42 135 435 435 31.8 75.4 8.67 2.7 39.5 0.80 127.2 159.0 0.351 0.245 0.83 1.97 Above 3.2 8 16.6 1.42 135 435 435 31.8 75.4 8.67 2.7 39.5 0.80 127.2 159.0 0.351 0.454 0.590 1.68 Above 3.51 8 13.1 1.65 135 408 408 32.9 2.5 1.2 12.89 2.9 53.3 0.80 9.2 15.5 15.0 0.351 0.454 0.590 1.68 Above 3.51 8 13.1 1.65 135 408 408 32.2 2.5 1.2 12.89 2.9 53.3 0.80 9.2 15.5 15.0 0.351 0.454 0.590 1.68 Above 3.51 8 13.1 1.65 135 409 400 37.0 77.7 8.71 2.7 39.2 0.80 1.47.9 18.4 8 0.551 0.523 0.337 0.96 Above 3.61 8 19.3 1.65 135 504 504 9.0 490 37.0 77.7 8.71 2.7 39.2 0.80 1.47.9 18.4 8 0.551 0.550 0.337 0.96 Above 3.81 8 8 64.3 1.78 135 504 504 9.0 490 37.0 77.7 8.71 2.7 39.2 0.80 1.47.9 18.4 8 0.551 0.358 0.404 0.25 4.7 Above 3.81 8 2.4 1.86 135 504 504 9.2 3 19.0 4.0 3.88 2.2 1.9 2.9 0.80 1.47.9 18.4 8 0.551 0.358 0.404 0.25 4.7 Above 3.81 8 2.4 1.86 13.5 1.0 4.0 0.551 0.338 0.40 1.2 4.0 1.2 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0		2.31	8	50.1	1.83	135	315	315	96.0	317.5	3.66	2.0	13.8	0.23	29.3	125.3	0.351	0.263	0.342	0.97	Above W.T.
2.6 8 42.9 1.8 135 354 354 82.2 241.5 4.21 2.1 17.1 0.32 30.1 121.3 0.351 0.246 0.320 0.91 Above 2.8 8 29.9 1.84 135 367 367 73.2 2070 4.79 2.2 19.8 0.39 47.7 120.8 0.351 0.246 0.320 0.91 Above 2.8 8 29.9 1.84 135 381 381 381 381 381 382 37.3 156.0 6.19 2.4 25.7 0.55 70.9 128.2 0.351 0.246 0.358 1.02 Above 2.9 8 19.4 1.82 135 394 394 37.2 97.4 9.48 2.6 37.8 0.80 148.6 18.8 0.351 0.676 0.879 2.50 Above 3.1 8 17.6 1.49 135 421 421 33.7 82.5 8.57 2.7 38.1 0.80 148.6 18.8 0.351 0.570 0.358 1.02 Above 3.1 8 17.6 1.49 135 421 421 33.7 82.5 8.57 2.7 38.1 0.80 13.4 8 168.5 0.351 0.333 0.93 1.97 Above 3.31 8 16.4 1.42 135 450 453 31.8 75.4 8.67 2.7 38.1 0.80 134.8 168.5 0.351 0.352 0.683 1.92 Above 3.31 8 16.4 1.44 135 450 450 31.4 71.9 8.90 2.7 40.6 0.80 125.6 17.0 0.351 0.454 0.90 1.68 Above 3.31 8 16.4 1.44 135 450 450 450 31.4 71.9 8.90 2.7 40.6 0.80 125.6 17.0 0.351 0.454 0.572 1.63 Above 3.51 8 13.3 1.66 135 477 477 2.49 53.5 12.289 2.9 52.6 0.80 92.7 115.9 0.351 0.255 0.220 0.83 Above 3.61 8 19.3 1.66 135 407 407 2.49 53.5 12.289 2.9 52.6 0.80 92.7 115.9 0.351 0.255 0.220 0.83 Above 3.81 8 64.3 1.73 135 517 517 123.1 247.6 2.70 2.0 12.2 0.19 2.2 12.4 40.5 10.351 0.255 0.338 0.440 1.25 Above 4.02 8 40.2 1.78 135 545 545 75.3 146.4 4.46 2.3 21.8 0.45 61.0 1.34 0.251 0.351 0.350 0.440 0.50 0.32 1.51 Above 4.02 8 40.2 1.78 135 545 545 75.3 146.4 4.46 2.3 21.8 0.45 61.0 1.34 1.22 0.351 0.350 0.351 0.350 0.450 1.17 Above 4.22 8 21.2 1.42 135 567 586 5.45 75.3 146.4 4.46 2.3 21.8 0.45 61.0 1.82 1.72 0.351 0.350 0.450 1.17 Above 4.42 8 15.8 1.36 1.35 614 614 2.75 49.8 9.02 2.8 46.4 0.80 110.2 1.35 1.050 0.351 0.350 0.750 0.750 0.751 0.350 0.750 0.750 0.751 0.750 0.750 0.751 0.750 0.750 0.751 0.750 0.750 0.751 0.750																					Above W.T.
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3.81 8 64.3 1.73 135 517 517 123.1 247.6 2.70 2.0 12.2 0.19 29.2 152.4 0.351 0.409 0.532 1.51 Above 4.02 8 59.6 1.69 135 531 13.2 223.6 2.85 2.0 13.4 0.22 32.5 145.7 0.351 0.368 0.478 1.36 Above 4.02 8 40.2 1.78 135 545 545 75.3 1464. 4.46 2.3 21.8 0.45 61.0 136.4 0.351 0.360 0.478 1.36 Above 4.02 8 40.2 1.78 135 545 545 75.3 1464. 4.46 2.3 21.8 0.45 61.0 136.4 0.351 0.300 0.390 1.11 Above 4.12 8 30.4 1.54 135 579 579 56.3 107.7 5.11 2.4 26.6 0.58 77.0 133.2 0.351 0.300 0.390 1.11 Above 4.22 8 21.2 1.42 135 586 586 34.5 64.2 7.55 2.7 8.8 13.6 1.41 135 610 610 12.8.6 52.2 8.92 2.8 45.4 0.80 155.1 193.9 0.351 0.558 0.985 2.81 Above 4.43 8 16 1.4 135 601 601 28.6 52.2 8.92 2.8 45.4 0.80 114.3 142.8 0.351 0.351 0.456 1.30 Above 4.64 8 15.5 1.37 135 629 629 27.0 48.3 9.02 2.8 46.4 0.80 110.2 137.7 0.351 0.301 0.403 1.15 Above 4.84 8 16.8 1.36 135 656 656 28.7 50.2 8.26 2.8 46.4 0.80 10.2 137.7 0.351 0.351 0.300 0.411 1.17 Above 4.84 8 16.8 1.36 135 656 656 28.7 50.2 8.26 2.8 46.4 0.80 10.8 135.2 0.351 0.310 0.403 1.15 Above 4.95 8 17.5 1.26 135 671 671 29.6 51.1 7.34 2.7 42.1 0.80 114.8 143.5 0.351 0.355 0.461 1.31 Above 4.95 8 17.5 1.26 135 671 671 29.6 51.1 7.34 2.7 42.1 0.80 114.8 143.5 0.351 0.350 0.494 1.41 Above 5.05 8 17.2 1.24 135 684 684 28.8 49.2 7.36 2.7 42.7 0.80 114.8 143.5 0.351 0.350 0.357 0.464 1.32 Above 5.05 8 17.2 1.29 135 710 710 2.6 64.6 8.00 2.8 45.1 0.80 110.0 137.5 0.351 0.350 0.368 0.411 1.17 Above 5.36 8 15.8 1.26 1.35 769 750 750 2.52 8.10 2.7 42.7 0.80 115.1 143.8 0.351 0.350 0.351 0.300 0.401 1.1 Above 5.36 8 15.8 1.26 1.35 769 680 2.57 42.5 8.16 2.8 47.0 0.80 116.2 137.8 0.351 0.350 0.360 0.411 1.17 Above 5.36 8 15.8 1.26 1.35 760 770 710 2.66 44.6 8.10 2.8 47.0 0.80 116.2 137.8 0.351 0.350 0.360 0.411 1.17 Above 5.36 8 15.8 1.26 1.35 760 750 750 750 750 750 750 750 750 750 75																					Above W.T.
3.91   8   59.6   1.69   135   531   531   133.2   223.6   2.85   2.0   13.4   0.22   32.5   145.7   0.351   0.368   0.478   1.36   Above   4.02   8   40.2   1.78   135   545   545   75.3   146.4   4.46   2.3   21.8   0.45   61.0   136.4   0.351   0.316   0.411   1.17   Above   4.12   8   30.4   1.54   135   559   559   559   559   63.3   1077   5.11   2.4   21.8   0.45   61.0   13.2   0.351   0.300   0.300   1.11   Above   4.22   8   21.2   1.42   135   572   572   38.8   73.0   6.79   2.6   35.6   0.80   155.1   193.9   0.351   0.758   0.985   2.81   Above   4.32   8   19.1   1.42   135   586   586   34.5   64.2   7.55   2.7   39.2   0.80   138.1   172.6   0.351   0.558   0.726   2.07   Above   4.43   8   16   1.4   135   614   614   27.5   49.8   9.02   2.8   45.4   0.80   114.3   412.8   0.351   0.351   0.350   0.456   1.30   Above   4.64   8   15.5   1.37   135   629   629   27.0   48.3   9.02   2.8   46.4   0.80   110.2   137.7   0.351   0.310   0.403   1.15   Above   4.74   8   15.8   1.36   135   645   645   27.5   49.8   9.02   2.8   46.4   0.80   10.2   137.7   0.351   0.310   0.403   1.15   Above   4.74   8   15.8   1.36   135   645   645   27.3   48.2   8.79   2.8   46.4   0.80   10.2   137.7   0.351   0.310   0.403   1.15   Above   4.74   8   15.8   1.36   135   645   645   28.7   50.2   8.26   2.8   44.5   0.80   114.8   143.5   0.351   0.350   0.401   1.17   Above   4.84   8   16.8   1.36   135   645   656   628.7   50.2   8.26   2.8   44.5   0.80   114.8   143.5   0.351   0.350   0.401   1.17   Above   4.95   8   17.5   1.26   135   645   645   28.7   50.2   8.26   2.8   44.5   0.80   114.8   143.5   0.351   0.350   0.404   1.41   Above   5.05   8   17.2   1.24   135   648   684   8.8   49.2   7.36   2.7   42.7   0.80   114.2   13.8   0.351   0.350   0.404   1.41   Above   5.15   8   16.6   1.3   135   698   698   27.5   46.6   8.00   2.8   45.1   0.80   10.6   133.0   0.351   0.351   0.350   0.404   1.41   Above   5.15   8   16.6   1.3   135   698   698   27.5   46.6   8.00   2.8   45.1   0.8																					Above W.T.
4.12 8 30.4 1.54 135 559 559 56.3 107.7 5.11 2.4 26.6 0.58 77.0 133.2 0.351 0.300 0.390 1.11 Above 4.22 8 21.2 1.42 135 572 572 38.8 73.0 6.79 2.6 35.6 0.80 155.1 193.9 0.351 0.758 0.985 2.81 Above 4.32 8 19.1 1.42 135 586 586 34.5 64.2 7.55 2.7 39.2 0.80 138.1 172.6 0.351 0.558 0.726 2.07 Above 4.43 8 16 1.4 135 601 601 28.6 52.2 8.92 2.8 45.4 0.80 114.3 142.8 0.351 0.351 0.456 1.30 Above 4.53 8 15.6 1.38 135 614 614 27.5 49.8 9.02 2.8 46.4 0.80 110.2 137.7 0.351 0.323 0.420 1.20 Above 4.64 8 15.5 1.37 135 629 629 27.0 48.3 9.02 2.8 46.4 0.80 110.2 137.7 0.351 0.323 0.420 1.20 Above 4.64 8 15.5 1.37 135 629 629 27.0 48.3 9.02 2.8 46.9 0.80 108.2 135.2 0.351 0.310 0.403 1.15 Above 4.64 8 15.8 1.36 135 643 643 27.3 48.2 8.79 2.8 46.4 0.80 109.1 136.4 0.351 0.316 0.411 1.17 Above 4.84 8 16.8 1.36 135 656 656 28.7 50.2 8.26 2.8 44.5 0.80 114.8 143.5 0.351 0.355 0.461 1.31 Above 4.95 8 17.5 1.26 135 671 671 29.6 51.1 7.34 2.7 42.1 0.80 118.2 147.8 0.351 0.355 0.461 1.31 Above 5.05 8 17.2 1.24 135 684 684 2.8.8 49.2 7.36 2.7 42.7 0.80 115.1 143.8 0.351 0.357 0.464 1.32 Above 5.15 8 16.6 1.3 135 698 698 27.5 46.6 8.00 2.8 45.1 0.80 110.0 137.5 0.351 0.20 0.418 1.19 Above 5.36 8 15.8 1.26 135 726 726 25.7 42.5 8.16 8.14 2.8 46.1 0.80 102.6 128.3 0.351 0.20 0.388 1.11 Above 5.36 8 15.8 1.26 135 726 726 25.7 42.5 8.16 2.8 47.0 0.80 102.6 128.3 0.351 0.20 0.308 1.11 Above 5.56 8 14.4 1.16 135 753 753 23.0 37.2 8.27 2.9 49.5 0.80 101.7 127.1 0.351 0.20 0.20 0.20 0.74 Above 5.67 8 13.8 1.14 135 768 768 21.8 34.9 8.50 2.9 51.2 0.80 87.1 108.9 0.351 0.200 0.260 0.74 Above 5.67 8 13.8 1.41 1.15 5782 792 792 21.8 34.4 8.16 2.9 50.7 0.80 87.1 108.9 0.351 0.200 0.260 0.74 Above 5.66 8 14.4 1.11 125 782 792 792 21.8 34.4 8.16 2.9 50.7 0.80 87.1 108.9 0.351 0.200 0.260 0.74 Above 6.67 8 13.8 1.41 1.11 125 889 889 20.8 31.8 34.4 8.16 2.9 50.7 0.80 87.1 108.9 0.351 0.150 0.200 0.260 0.74 Above 6.67 8 13.7 1.03 1.01 125 873 883 833 18.8 28.8 9.01 3.0 56.0 0.80 87.0 103.1 0.351 0.165 0.212 0.60 Above 6.64 8 13.1 1.01 125 873 889 90.0																					Above W.T.
4.22         8         21.2         1.42         135         572         572         38.8         73.0         6.79         2.6         35.6         0.80         155.1         193.9         0.351         0.758         0.985         2.81         Above           4.43         8         16         1.4         135         586         586         34.5         64.2         7.55         2.7         39.2         0.80         138.1         172.6         0.351         0.351         0.456         2.07         Above           4.53         8         15.6         1.38         135         614         614         27.5         49.8         9.02         2.8         46.4         0.80         110.2         137.7         0.351         0.351         0.456         1.20         Above           4.64         8         15.5         1.37         135         629         629         27.0         48.3         9.02         2.8         46.9         0.80         108.2         135.2         0.351         0.310         0.403         1.15         Above           4.74         8         15.5         1.36         135         665         656         28.7         50.2         8.		4.02	8		1.78			545	75.3	146.4	4.46	2.3	21.8	0.45	61.0	136.4	0.351	0.316	0.411	1.17	Above W.T.
4.32 8 19.1 1.42 135 586 586 34.5 64.2 7.55 2.7 39.2 0.80 138.1 172.6 0.351 0.558 0.726 2.07 Above 4.43 8 16 1.4 135 601 601 28.6 52.2 8.92 2.8 45.4 0.80 114.3 142.8 0.351 0.351 0.456 1.30 Above 4.53 8 15.6 1.38 135 614 614 27.5 49.8 9.02 2.8 46.9 0.80 118.2 137.7 0.351 0.351 0.400 1.20 Above 4.64 8 15.5 1.37 135 629 629 27.0 48.3 9.02 2.8 46.9 0.80 108.2 135.2 0.351 0.310 0.403 1.15 Above 4.74 8 15.8 1.36 135 643 643 27.3 48.2 8.79 2.8 46.9 0.80 108.2 135.2 0.351 0.310 0.403 1.15 Above 4.95 8 17.5 1.26 135 656 656 28.7 50.2 8.26 2.8 44.5 0.80 118.2 147.8 0.351 0.355 0.461 1.17 Above 4.95 8 17.5 1.26 135 671 671 29.6 51.1 7.34 2.7 42.1 0.80 118.2 147.8 0.351 0.355 0.461 1.31 Above 5.05 8 17.2 1.24 135 684 684 28.8 49.2 7.36 2.7 42.7 0.80 115.1 143.8 0.351 0.357 0.464 1.32 Above 5.15 8 16.6 1.3 135 698 698 27.5 46.6 8.00 2.8 45.1 0.80 110.0 137.5 0.351 0.320 0.499 1.34 Above 5.36 8 15.8 1.26 135 740 740 25.4 41.7 7.84 2.8 46.1 0.80 106.4 133.0 0.351 0.299 0.388 1.11 Above 5.36 8 15.8 1.26 135 740 740 25.4 41.7 7.84 2.8 46.5 0.80 10.6 13.3 0.351 0.299 0.388 1.1 Above 5.67 8 13.8 1.4 135 782 782 20.8 33.0 32.0 3.20 2.9 49.5 0.80 11.7 127.1 0.351 0.210 0.352 1.00 Above 5.86 8 14.4 1.16 135 753 753 23.0 3.2 3.0 3.2 3.0 8.0 10.0 1.7 127.1 0.351 0.210 0.352 1.00 Above 5.85 8 14.4 1.11 125 782 782 20.8 33.0 8.60 2.9 52.4 0.80 83.3 10.1 0.351 0.200 0.260 0.74 Above 5.86 8 14.4 1.11 125 782 782 20.8 33.0 8.60 2.9 52.4 0.80 83.3 10.1 0.351 0.200 0.260 0.74 Above 6.66 8 12.7 1.11 125 819 819 19.4 30.0 9.03 3.0 55.2 0.80 77.0 96.3 0.351 0.18 0.221 0.60 Above 6.67 8 13.7 1.03 125 845 845 20.6 31.4 7.76 2.9 51.6 0.80 77.0 96.3 0.351 0.163 0.212 0.60 Above 6.67 8 13.7 1.01 125 873 873 19.3 28.8 8.04 2.9 50.6 0.80 77.0 96.3 0.351 0.163 0.212 0.60 Above 6.49 8 13 1.01 125 873 873 19.3 28.8 8.04 2.9 50.6 0.80 77.0 96.3 0.351 0.163 0.212 0.60 Above 6.49 8 13 1.01 125 873 873 19.3 28.8 80.4 2.9 50.6 0.80 77.0 96.3 0.351 0.163 0.212 0.60 Above 6.49 8 13 1.01 125 873 873 19.3 28.8 80.4 2.9 50.6 0.80 77.0 96.3 0.351 0.163 0.212 0.60 A																					Above W.T.
4.43 8 16 1.4 135 601 601 28.6 52.2 8.92 2.8 45.4 0.80 114.3 142.8 0.351 0.351 0.456 1.30 Above 4.53 8 15.6 1.38 135 614 614 27.5 49.8 9.02 2.8 46.4 0.80 110.2 137.7 0.351 0.323 0.420 1.20 Above 4.64 8 15.5 1.37 135 629 629 27.0 48.3 9.02 2.8 46.9 0.80 108.2 135.2 0.351 0.310 0.403 1.15 Above 4.74 8 15.8 1.36 135 643 643 27.3 48.2 8.79 2.8 46.4 0.80 109.1 136.4 0.351 0.350 0.401 1.17 Above 4.84 8 16.8 1.36 135 656 656 28.7 50.2 8.26 2.8 44.5 0.80 114.8 143.5 0.351 0.355 0.461 1.31 Above 4.95 8 17.5 1.26 135 671 671 29.6 51.1 7.34 2.7 42.1 0.80 118.2 147.8 0.351 0.380 0.494 1.41 Above 5.05 8 17.2 1.24 135 684 684 28.8 49.2 7.36 2.7 42.7 0.80 115.1 143.8 0.351 0.357 0.464 1.32 Above 5.15 8 16.6 1.3 135 698 698 27.5 46.6 8.00 2.8 45.1 0.80 110.0 137.5 0.351 0.320 0.418 1.19 Above 5.24 8 16.2 1.29 135 710 710 26.6 44.6 8.14 2.8 46.1 0.80 106.4 133.0 0.351 0.299 0.388 1.11 Above 5.36 8 15.8 1.26 135 726 726 25.7 42.5 8.16 2.8 47.0 0.80 102.6 128.3 0.351 0.270 0.359 1.02 Above 5.56 8 14.4 1.16 135 753 753 23.0 37.2 8.27 2.9 49.5 0.80 91.8 11.4 8 0.351 0.200 0.260 0.74 Above 5.67 8 13.3 1.11 125 782 782 20.8 33.0 8.60 2.9 51.2 0.80 87.1 108.9 0.351 0.200 0.260 0.74 Above 5.85 8 14.4 1.11 125 782 792 21.8 34.4 8.16 2.9 50.7 0.80 87.1 108.9 0.351 0.200 0.260 0.74 Above 5.85 8 14.4 1.11 125 782 792 21.8 34.4 8.16 2.9 50.7 0.80 87.1 108.9 0.351 0.200 0.260 0.74 Above 5.85 8 14.4 1.11 125 782 792 21.8 34.4 8.16 2.9 50.7 0.80 87.1 108.9 0.351 0.200 0.260 0.74 Above 5.86 8 14.4 1.11 125 782 792 21.8 34.4 8.16 2.9 50.7 0.80 87.1 108.9 0.351 0.200 0.260 0.74 Above 5.86 8 14.4 1.11 125 782 819 819 19.4 30.0 9.03 3.0 55.2 0.80 77.7 97.1 0.351 0.165 0.215 0.61 Above 6.06 8 12.7 1.11 125 819 819 19.4 30.0 9.03 3.0 55.2 0.80 77.7 97.1 0.351 0.165 0.215 0.61 Above 6.07 8 12.4 1.08 12.5 873 873 19.3 28.8 8.04 2.9 53.6 0.80 77.0 96.3 0.351 0.163 0.212 0.60 Above 6.27 8 13.7 1.01 125 859 859 20.8 87.1 47.7 7.7 2.9 53.6 0.80 77.0 96.3 0.351 0.163 0.212 0.60 Above 6.49 8 13 1.01 1.12 878 873 873 19.3 28.8 8.04 2.9 53.6 0.80 77.0 96.3 0.3																					Above W.T. Above W.T.
4.53 8 15.6 1.38 135 614 614 27.5 49.8 9.02 2.8 46.4 0.80 110.2 137.7 0.351 0.323 0.420 1.20 Above 4.64 8 15.5 1.37 135 629 629 27.0 48.3 9.02 2.8 46.9 0.80 108.2 135.2 0.351 0.310 0.403 1.15 Above 4.74 8 15.8 1.36 135 643 643 27.3 48.2 8.79 2.8 46.4 0.80 109.1 136.4 0.351 0.316 0.411 1.17 Above 4.84 8 16.8 1.36 135 656 656 28.7 50.2 8.26 2.8 44.5 0.80 118.2 135.5 0.351 0.316 0.411 1.17 Above 4.95 8 17.5 1.26 135 671 671 29.6 51.1 7.34 2.7 42.1 0.80 118.2 147.8 0.351 0.355 0.461 1.31 Above 5.05 8 17.2 1.24 135 684 684 28.8 49.2 7.36 2.7 42.7 0.80 115.1 143.8 0.351 0.357 0.464 1.32 Above 5.15 8 16.6 1.3 135 698 698 698 27.5 46.6 8.00 2.8 45.1 0.80 110.0 137.5 0.351 0.322 0.418 1.19 Above 5.24 8 16.2 1.29 135 710 710 26.6 44.6 8.14 2.8 46.1 0.80 106.4 133.0 0.351 0.299 0.388 1.11 Above 5.36 8 15.8 1.26 135 726 726 25.7 42.5 8.16 2.8 47.0 0.80 10.6 133.0 0.351 0.299 0.388 1.11 Above 5.46 8 15.8 1.21 135 740 740 25.4 41.7 7.84 2.8 46.5 0.80 101.7 127.1 0.351 0.276 0.359 1.02 Above 5.67 8 13.3 1.14 125 782 782 20.8 34.9 8.50 2.9 51.2 0.80 87.1 10.89 0.351 0.201 0.287 0.82 Above 5.85 8 14.4 1.11 125 782 782 20.8 34.9 8.50 2.9 51.2 0.80 87.1 10.89 0.351 0.200 0.260 0.74 Above 5.96 8 14.4 1.11 125 792 792 21.8 34.4 8.16 2.9 50.7 0.80 87.1 10.89 0.351 0.207 0.269 0.77 Above 6.06 8 12.7 1.11 125 819 819 19.4 30.0 9.03 3.0 55.2 0.80 77.7 97.1 0.351 0.165 0.215 0.61 Above 6.07 8 13.7 1.03 125 845 845 20.6 31.4 7.76 2.9 51.3 0.80 77.0 96.3 0.351 0.163 0.212 0.60 Above 6.27 8 13.7 1.03 125 845 845 20.6 31.4 7.76 2.9 51.3 0.80 77.0 96.3 0.351 0.163 0.212 0.60 Above 6.49 8 13 1.01 125 859 859 20.8 31.4 7.50 2.9 50.6 0.80 87.0 103.8 0.351 0.163 0.212 0.60 Above 6.49 8 13 1.01 125 859 859 20.8 31.4 7.50 2.9 50.6 0.80 87.0 103.8 0.351 0.163 0.212 0.60 Above 6.49 8 13 1.01 1.25 859 859 20.8 31.4 7.50 2.9 50.6 0.80 87.0 103.8 0.351 0.163 0.212 0.60 Above 6.49 8 13 1.01 1.01 125 859 859 20.8 31.4 7.50 2.9 50.6 0.80 87.0 103.8 0.351 0.163 0.212 0.60 Above																					Above W.T.
4.74       8       15.8       1.36       135       643       643       27.3       48.2       8.79       2.8       46.4       0.80       109.1       136.4       0.351       0.316       0.411       1.17       Above         4.84       8       16.8       1.36       135       656       656       28.7       50.2       8.26       2.8       44.5       0.80       114.8       143.5       0.351       0.355       0.461       1.31       Above         5.05       8       17.2       1.24       135       684       684       28.8       49.2       7.36       2.7       42.7       0.80       115.1       143.8       0.351       0.357       0.464       1.32       Above         5.15       8       16.6       1.3       135       684       684       28.8       49.2       7.36       2.7       42.7       0.80       115.1       143.8       0.351       0.322       0.418       1.19       Above         5.15       8       16.6       1.3       710       710       26.6       44.6       8.14       2.8       46.1       0.80       110.0       137.5       0.51       0.329       0.388       1.11 <td></td> <td>Above W.T.</td>																					Above W.T.
4.84       8       16.8       1.36       135       656       656       28.7       50.2       8.26       2.8       44.5       0.80       114.8       143.5       0.351       0.355       0.461       1.31       Above         4.95       8       17.5       1.26       135       671       671       29.6       51.1       7.34       2.7       42.1       0.80       118.2       147.8       0.351       0.350       0.494       1.41       Above         5.05       8       17.2       1.24       135       684       684       28.8       49.2       7.36       2.7       42.7       0.80       115.1       143.8       0.351       0.357       0.464       1.32       Above         5.15       8       16.6       1.3       135       698       698       27.5       46.6       8.00       2.8       45.1       0.80       110.0       137.5       0.351       0.292       0.388       1.11       Above         5.24       8       16.2       1.29       135       710       710       26.6       44.5       8.16       2.8       47.0       0.80       102.6       128.3       0.351       0.299       0.388 </td <td></td> <td>Above W.T.</td>																					Above W.T.
4.95         8         17.5         1.26         135         671         671         29.6         51.1         7.34         2.7         42.1         0.80         118.2         147.8         0.351         0.380         0.494         1.41         Above           5.05         8         17.2         1.24         135         684         684         28.8         49.2         7.36         2.7         42.7         0.80         115.1         143.8         0.351         0.357         0.464         1.32         Above           5.15         8         16.6         1.3         135         698         698         27.5         46.6         8.00         2.8         45.1         0.80         110.0         137.5         0.351         0.322         0.418         1.19         Above           5.24         8         16.2         1.29         135         710         710         26.6         44.6         8.14         2.8         46.1         0.80         106.4         133.0         0.351         0.299         0.388         1.11         Above           5.46         8         15.8         1.21         135         740         740         25.4         41.7																					Above W.T.
5.05         8         17.2         1.24         135         684         684         28.8         49.2         7.36         2.7         42.7         0.80         115.1         143.8         0.351         0.357         0.464         1.32         Above           5.15         8         16.6         1.3         135         698         698         27.5         46.6         8.00         2.8         45.1         0.80         110.0         137.5         0.351         0.322         0.418         1.19         Above           5.24         8         16.2         1.29         135         710         710         26.6         44.6         8.14         2.8         46.1         0.80         106.4         133.0         0.351         0.322         0.418         1.19         Above           5.36         8         15.8         1.26         135         726         726         25.7         42.5         8.16         2.8         47.0         0.80         102.6         128.3         0.351         0.271         0.352         1.00         Above           5.46         8         15.8         1.21         135         740         740         25.4         41.7																					Above W.T.
5.24         8         16.2         1.29         135         710         710         26.6         44.6         8.14         2.8         46.1         0.80         106.4         133.0         0.351         0.299         0.388         1.11         Above           5.36         8         15.8         1.26         135         726         726         25.7         42.5         8.16         2.8         47.0         0.80         102.6         128.3         0.351         0.276         0.359         1.02         Above           5.46         8         15.8         1.21         135         740         740         25.4         41.7         7.84         2.8         46.5         0.80         101.7         127.1         0.351         0.271         0.352         1.00         Above           5.56         8         14.4         1.16         135         753         753         23.0         37.2         8.27         2.9         49.5         0.80         91.8         114.8         0.351         0.200         0.260         0.74         Above           5.67         8         13.3         1.11         125         782         782         20.8         33.0																					Above W.T.
5.36         8         15.8         1.26         135         726         726         25.7         42.5         8.16         2.8         47.0         0.80         102.6         128.3         0.351         0.276         0.359         1.02         Above           5.46         8         15.8         1.21         135         740         740         25.4         41.7         7.84         2.8         46.5         0.80         101.7         127.1         0.351         0.271         0.352         1.00         Above           5.56         8         14.4         1.16         135         768         768         21.8         34.9         8.50         2.9         51.2         0.80         91.8         114.8         0.351         0.201         0.200         0.260         0.74         Above           5.67         8         13.8         1.14         135         768         768         21.8         34.9         8.50         2.9         51.2         0.80         87.1         108.9         0.351         0.200         0.260         0.74         Above           5.85         8         14         1.11         125         792         792         21.8         34			8							46.6		2.8	45.1							1.19	Above W.T.
5.46         8         15.8         1.21         135         740         740         25.4         41.7         7.84         2.8         46.5         0.80         101.7         127.1         0.351         0.271         0.352         1.00         Above           5.56         8         14.4         1.16         135         753         23.0         37.2         8.27         2.9         49.5         0.80         91.8         114.8         0.351         0.221         0.287         0.82         Above           5.67         8         13.8         1.14         135         768         768         21.8         34.9         8.50         2.9         51.2         0.80         87.1         108.9         0.351         0.200         0.260         0.74         Above           5.87         8         13.3         1.11         125         782         782         20.8         33.0         8.60         2.9         52.4         0.80         87.1         108.9         0.351         0.200         0.260         0.74         Above           5.85         8         14         1.11         125         792         792         21.8         34.4         8.16         2.9																					Above W.T.
5.56         8         14.4         1.16         135         753         753         23.0         37.2         8.27         2.9         49.5         0.80         91.8         114.8         0.351         0.221         0.287         0.82         Above           5.67         8         13.8         1.14         135         768         768         21.8         34.9         8.50         2.9         51.2         0.80         87.1         108.9         0.351         0.200         0.260         0.74         Above           5.87         8         13.3         1.11         125         782         20.8         33.0         8.60         2.9         52.4         0.80         83.3         104.1         0.351         0.200         0.260         0.68         Above           5.85         8         14         1.11         125         792         792         21.8         34.4         8.16         2.9         50.7         0.80         87.1         108.9         0.351         0.200         0.260         0.74         Above           5.96         8         14.4         1.11         125         819         819         19.4         30.0         9.03         3.0<																					Above W.T. Above W.T.
5.67         8         13.8         1.14         135         768         768         21.8         34.9         8.50         2.9         51.2         0.80         87.1         108.9         0.351         0.200         0.260         0.74         Above           5.77         8         13.3         1.11         125         782         782         20.8         33.0         8.60         2.9         52.4         0.80         83.3         104.1         0.351         0.200         0.260         0.74         Above           5.85         8         14         1.11         125         792         792         21.8         34.4         8.16         2.9         50.7         0.80         87.1         108.9         0.351         0.200         0.260         0.74         Above           5.96         8         14.4         1.11         135         805         805         22.2         34.7         7.93         2.9         49.9         0.80         88.8         111.0         0.351         0.200         0.269         0.77         Above           6.06         8         12.7         1.11         125         819         819         19.4         30.0         9.03<																					Above W.T.
5.85       8       14       1.11       125       792       792       21.8       34.4       8.16       2.9       50.7       0.80       87.1       108.9       0.351       0.200       0.260       0.74       Above         5.96       8       14.4       1.11       135       805       805       22.2       34.7       7.93       2.9       49.9       0.80       88.8       111.0       0.351       0.207       0.269       0.77       Above         6.06       8       12.7       1.11       125       819       819       19.4       30.0       9.03       3.0       55.2       0.80       77.7       97.1       0.351       0.165       0.215       0.61       Above         6.17       8       12.4       1.08       125       833       18.8       28.8       9.01       3.0       56.0       0.80       75.2       94.0       0.351       0.157       0.204       0.58       Above         6.27       8       13.7       1.03       125       845       845       20.6       31.4       7.76       2.9       51.3       0.80       82.5       103.1       0.351       0.182       0.236       0.67																					Above W.T.
5.96     8     14.4     1.11     135     805     805     22.2     34.7     7.93     2.9     49.9     0.80     88.8     111.0     0.351     0.207     0.269     0.77     Above       6.06     8     12.7     1.11     125     819     819     19.4     30.0     9.03     3.0     55.2     0.80     77.7     97.1     0.351     0.165     0.215     0.61     Above       6.17     8     12.4     1.08     125     833     833     18.8     28.8     9.01     3.0     56.0     0.80     75.2     94.0     0.351     0.157     0.204     0.58     Above       6.27     8     13.7     1.03     125     845     845     20.6     31.4     7.76     2.9     51.3     0.80     82.5     103.1     0.351     0.182     0.236     0.67     Above       6.38     8     13.9     1.01     125     873     873     19.3     28.8     8.04     2.9     53.6     0.80     77.0     96.3     0.351     0.163     0.212     0.60     Above       6.49     8     13     1.01     125     873     873     19.3     28.8     8.04																					Above W.T.
6.06 8 12.7 1.11 125 819 819 19.4 30.0 9.03 3.0 55.2 0.80 77.7 97.1 0.351 0.165 0.215 0.61 Above 6.17 8 12.4 1.08 125 833 833 18.8 28.8 9.01 3.0 56.0 0.80 75.2 94.0 0.351 0.157 0.204 0.58 Above 6.27 8 13.7 1.03 125 845 845 20.6 31.4 7.76 2.9 51.3 0.80 82.5 103.1 0.351 0.182 0.236 0.67 Above 6.38 8 13.9 1.01 125 859 859 20.8 31.4 7.50 2.9 50.6 0.80 83.0 103.8 0.351 0.184 0.239 0.68 Above 6.49 8 13 1.01 125 873 873 19.3 28.8 8.04 2.9 53.6 0.80 77.0 96.3 0.351 0.163 0.212 0.60 Above																					Above W.T.
6.17 8 12.4 1.08 125 833 833 18.8 28.8 9.01 3.0 56.0 0.80 75.2 94.0 0.351 0.157 0.204 0.58 Above 6.27 8 13.7 1.03 125 845 845 20.6 31.4 7.76 2.9 51.3 0.80 82.5 103.1 0.351 0.182 0.236 0.67 Above 6.38 8 13.9 1.01 125 859 859 20.8 31.4 7.50 2.9 50.6 0.80 83.0 103.8 0.351 0.184 0.239 0.68 Above 6.49 8 13 1.01 125 873 873 19.3 28.8 8.04 2.9 53.6 0.80 77.0 96.3 0.351 0.163 0.212 0.60 Above																					Above W.T. Above W.T.
6.27 8 13.7 1.03 125 845 845 20.6 31.4 7.76 2.9 51.3 0.80 82.5 103.1 0.351 0.182 0.236 0.67 Above 6.38 8 13.9 1.01 125 859 859 20.8 31.4 7.50 2.9 50.6 0.80 83.0 103.8 0.351 0.184 0.239 0.68 Above 6.49 8 13 1.01 125 873 873 19.3 28.8 8.04 2.9 53.6 0.80 77.0 96.3 0.351 0.163 0.212 0.60 Above																					Above W.T.
6.49 8 13 1.01 125 873 873 19.3 28.8 8.04 2.9 53.6 0.80 77.0 96.3 0.351 0.163 0.212 0.60 Above		6.27	8	13.7	1.03	125	845	845	20.6	31.4	7.76	2.9	51.3	0.80	82.5	103.1	0.351	0.182	0.236	0.67	Above W.T.
																					Above W.T.
ם אוות הביל מולא ביל אוות הביל הביל הביל		6.49 6.59	8 8	13 10.6	1.01	125 125	873 885	873 885	19.3 15.6	28.8 22.9	8.04 9.85	2.9 3.1	53.6 62.4	0.80	77.0 62.4	96.3 77.9	0.351	0.163 0.124	0.212 0.161	0.60 0.46	Above W.T. Above W.T.
																					Above W.T.
																					Above W.T.
6.91 8 9.8 0.95 125 925 925 14.1 20.2 10.17 3.1 65.9 0.80 56.4 70.5 0.351 0.113 0.146 0.42 Above		6.91	8	9.8	0.95	125	925	925	14.1	20.2	10.17	3.1	65.9	0.80	56.4	70.5	0.351	0.113	0.146	0.42	Above W.T.

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 13

Depth to Groundwater: 8 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 **MSF:** 1.30

Note   Conceccion   Conceccio	Stress	1 0.106 1 0.107 1 0.108 1 0.107	Stress	of Safety 0.39 0.40	Comments  Above W.T.
Cone (FT) (FT) (TSF) (TSF) (PCF) (PSF) (PSF) Q <sub>4N</sub> Q F Ic (%) K <sub>CFT</sub> Dq <sub>4N</sub> (Q <sub>4N</sub> ) <sub>e</sub> 7.01 8 9.2 0.94 125 938 938 13.1 18.6 10.77 3.1 69.0 0.80 52.6 65.7	0.351 0.351 0.351 0.351 0.351 0.351	1 0.106 1 0.107 1 0.108 1 0.107	0.138 0.139	<b>Safety</b> 0.39	
	0.351 0.351 0.351 0.351 0.351 0.351	1 0.107 1 0.108 1 0.107	0.139		Above W.T.
	0.351 0.351 0.351 0.351 0.351 0.351	1 0.107 1 0.108 1 0.107	0.139		Above W.T.
	0.351 0.351 0.351 0.351 0.351 0.351	1 0.107 1 0.108 1 0.107	0.139		Above W.T.
	0.351 0.351 0.351 0.351 0.351 0.351	1 0.107 1 0.108 1 0.107	0.139		710010 11.11.
	0.351 0.351 0.351 0.351	0.107	0.140		Above W.T.
7.22 8 9.5 0.91 125 964 964 13.4 18.7 10.09 3.1 67.4 0.80 53.6 66.9	0.351 0.351 0.351			0.40	Above W.T.
<b>7.32</b> 8 <b>9.4 0.88 125 9</b> 76 <b>9</b> 76 <b>13.2 18.2 9.87 3.1 67.5 0.80 52.7 65.8</b>	0.351 0.351	1 0.103	0.138	0.39	Above W.T.
7.43 8 9 0.85 125 990 990 12.5 17.2 9.99 3.2 69.2 0.80 50.1 62.6	0.351	0 100	0.134	0.38	Above W.T.
7.53 8 8.6 0.82 125 1003 1003 11.9 16.1 10.13 3.2 70.9 0.80 47.5 59.4 7.64 8 8.4 0.79 125 1016 1016 11.5 15.5 10.01 3.2 71.6 0.80 46.1 57.6			0.129 0.127	0.37 0.36	Above W.T. Above W.T.
7.74 8 8 0.78 125 1010 1010 11.3 13.3 10.01 3.2 71.0 0.80 40.1 37.0			0.127	0.35	Above W.T.
7.82 8 7.1 0.76 125 1039 1039 9.6 12.7 11.55 3.3 80.1 0.80 38.6 48.2	0.351		0.118	0.33	Above W.T.
<b>7.93</b> 8 <b>7.6 0.75 125</b> 1053 1053 10.2 13.4 10.60 3.2 <b>76.5</b> 0.80 41.0 51.2	0.351	0.093	0.120	0.34	Above W.T.
8.03 8 7.8 0.74 125 1065 1059 10.5 13.7 10.18 3.2 75.0 0.80 42.0 52.4	0.353		0.121	0.34	NonLiqfble.
8.14 8 7 0.72 125 1079 1066 9.4 12.1 11.14 3.3 80.4 0.80 37.5 46.9	0.355		0.116	0.33	NonLiqfble.
8.24 8 7.8 0.72 125 1091 1072 10.4 13.5 9.93 3.2 74.8 0.80 41.7 52.1 8.35 8 8.2 0.72 125 1105 1079 10.9 14.2 9.42 3.2 72.4 0.80 43.7 54.6	0.357 0.360		0.121 0.124	0.34 0.34	NonLiqfble. NonLiqfble.
8.45 8 7.8 0.71 125 1118 1085 10.4 13.3 9.81 3.2 74.8 0.80 41.4 51.8	0.361		0.121	0.33	NonLiqfble.
8.49 8 8.6 0.7 125 1123 1088 11.4 14.8 8.71 3.2 69.6 0.80 45.6 57.0	0.362		0.126	0.35	NonLiqfble.
<b>8.55</b> 8 <b>9.7 0.7 125</b> 1130 1091 12.8 16.7 7.66 3.1 63.9 0.80 51.4 64.2	0.363	0.105	0.136	0.37	NonLiqfble.
8.66 8 9.9 0.71 125 1144 1098 13.1 17.0 7.61 3.1 63.4 0.80 52.3 65.4	0.366		0.138	0.38	NonLiqfble.
8.76 8 8.7 0.71 125 1156 1105 11.5 14.7 8.74 3.2 69.8 0.80 45.8 57.3	0.367		0.127	0.34	NonLiqfble.
8.87 8 9.4 0.71 125 1170 1111 12.3 15.9 8.05 3.1 66.2 0.80 49.3 61.7 8.97 8 9.1 0.7 125 1183 1118 11.9 15.2 8.23 3.1 67.6 0.80 47.6 59.5	0.370 0.371		0.132 0.130	0.36 0.35	NonLiqfble. NonLiqfble.
9.08 8 9.6 0.69 125 1196 1125 12.5 16.0 7.67 3.1 64.9 0.80 50.1 62.6	0.371		0.134	0.36	NonLiqfble.
9.18 8 9.7 0.66 125 1209 1131 12.6 16.1 7.26 3.1 63.7 0.80 50.5 63.1	0.375		0.134	0.36	NonLiqfble.
<b>9.29</b> 8 <b>10.2 0.65 125</b> 1223 1138 13.2 16.8 6.78 3.0 61.2 0.80 52.9 66.2	0.377	7 0.107	0.139	0.37	NonLiqfble.
9.39 8 9.8 0.64 125 1235 1144 12.7 16.0 6.97 3.1 62.9 0.80 50.7 63.4	0.379		0.135	0.36	NonLiqfble.
9.5 8 8.5 0.6 125 1249 1151 11.0 13.7 7.62 3.1 68.5 0.80 43.9 54.8 9.61 8 7.4 0.56 115 1263 1158 9.5 11.7 8.27 3.2 74.2 0.80 38.1 47.6	0.381		0.124	0.33	NonLiqfble.
9.61 8 7.4 0.56 115 1263 1158 9.5 11.7 8.27 3.2 74.2 0.80 38.1 47.6 9.71 8 6.6 0.52 115 1274 1163 8.5 10.2 8.72 3.3 78.9 0.80 33.9 42.3	0.383 0.385		0.117 0.113	0.31 0.29	NonLiqfble. NonLiqfble.
9.82 8 6.3 0.48 115 1287 1169 8.1 9.7 8.49 3.3 79.8 0.80 32.3 40.3	0.386		0.112	0.29	NonLiqfble.
9.92 8 6.6 0.46 115 1298 1174 8.4 10.1 7.73 3.2 76.4 0.80 33.7 42.1	0.388	8 0.087	0.113	0.29	NonLiqfble.
10.03     8     5.6     0.46     115     1311     1180     7.1     8.4     9.30     3.4     86.0     0.80     28.5     35.7	0.382		0.109	0.29	NonLiqfble.
10.14 8 5.7 0.45 115 1324 1186 7.2 8.5 8.93 3.3 84.6 0.80 29.0 36.2	0.384		0.110	0.29	NonLiqfble.
10.24 8 6.2 0.45 115 1335 1191 7.9 9.3 8.13 3.3 79.9 0.80 31.4 39.3 10.35 8 6.5 0.45 115 1348 1197 8.2 9.7 7.72 3.3 77.5 0.80 32.9 41.1	0.386 0.387		0.111 0.112	0.29 0.29	NonLiqfble. NonLiqfble.
10.45 8 6.1 0.44 115 1359 1202 7.7 9.0 8.12 3.3 80.7 0.80 32.9 41.1	0.389		0.112	0.29	NonLiqfble.
10.56 8 6.2 0.43 115 1372 1208 7.8 9.1 7.80 3.3 79.4 0.80 31.2 39.0	0.391		0.111	0.28	NonLiqfble.
10.66 8 6.1 0.43 115 1383 1213 7.7 8.9 7.95 3.3 80.5 0.80 30.7 38.3	0.392		0.111	0.28	NonLiqfble.
10.76 8 6.2 0.41 115 1395 1218 7.8 9.0 7.45 3.3 78.7 0.80 31.1 38.9	0.394		0.111	0.28	NonLiqfble.
10.87 8 5.9 0.4 115 1408 1224 7.4 8.5 7.70 3.3 81.1 0.80 29.5 36.9	0.396		0.110	0.28	NonLiqfble.
10.97 8 6.1 0.4 115 1419 1229 7.6 8.8 7.42 3.3 79.4 0.80 30.4 38.1 11.08 8 5.9 0.4 115 1432 1235 7.3 8.4 7.72 3.3 81.5 0.80 29.4 36.7	0.397		0.111 0.110	0.28 0.28	NonLiqfble. NonLiqfble.
11.19 8 5.5 0.38 105 1444 1241 6.8 7.7 7.95 3.3 84.7 0.80 27.3 34.2	0.400		0.109	0.27	NonLiqfble.
11.29 8 4.8 0.37 105 1455 1245 6.0 6.5 9.09 3.4 92.8 0.80 23.8 29.8	0.402		0.107	0.27	NonLiqfble.
11.39 8 4 0.36 105 1465 1249 5.0 5.2 11.02 3.6 105.0 0.80 19.8 24.8	0.403		0.106	0.26	NonLiqfble.
11.5 8 3.8 0.37 105 1477 1254 4.7 4.9 12.09 3.6 109.9 0.80 18.8 23.5	0.405		0.106	0.26	NonLiqfble.
11.61 8 3.6 0.38 105 1488 1259 4.4 4.5 13.31 3.7 115.2 0.80 17.8 22.2 11.71 8 4.1 0.36 105 1499 1263 5.0 5.3 10.75 3.6 103.8 0.80 20.2 25.2	0.407 0.408		0.105 0.106	0.26 0.26	NonLiqfble. NonLiqfble.
11.83 8 5.1 0.34 105 1512 1268 6.3 6.8 7.83 3.4 87.7 0.80 25.1 31.3	0.410		0.108	0.26	NonLiqfble.
11.94 8 5.4 0.35 105 1523 1273 6.6 7.3 7.55 3.3 85.0 0.80 26.5 33.1	0.412		0.108	0.26	NonLiqfble.
<b>12.04</b> 8 <b>5.9 0.38 115 1</b> 534 1277 7.2 8.0 7.40 3.3 81.8 0.80 28.9 36.1	0.413		0.110	0.27	NonLiqfble.
12.15 8 6.3 0.42 115 1546 1283 7.7 8.6 7.60 3.3 80.4 0.80 30.8 38.5	0.415		0.111	0.27	NonLiqfble.
12.25 8 6.2 0.45 115 1558 1288 7.6 8.4 8.30 3.3 83.1 0.80 30.2 37.8 12.36 8 7.1 0.47 115 1570 1294 8.6 9.8 7.44 3.2 76.6 0.80 34.5 43.2	0.416 0.417		0.111 0.114	0.27 0.27	NonLiqfble. NonLiqfble.
12.30 8 7.1 0.47 115 1570 1294 8.0 9.8 7.44 3.2 70.0 0.80 34.3 43.2 12.47 8 8.3 0.49 115 1583 1300 10.1 11.5 6.53 3.2 69.3 0.80 40.3 50.4	0.417		0.114	0.27	NonLiqfble.
12.57 8 8.7 0.53 115 1595 1305 10.5 12.1 6.71 3.1 68.7 0.80 42.1 52.7	0.420		0.122	0.29	NonLiqfble.
<b>12.68</b> 8 <b>8.9 0.57 125 1607 1311 10.8 12.3 7.04 3.2 69.3 0.80 43.0 53.8</b>	0.422		0.123	0.29	NonLiqfble.
<b>12.79</b> 8 <b>9.9 0.59 125 1621 1318 11.9 13.8 6.49 3.1 64.9 0.80 47.7 59.7</b>	0.423		0.130	0.31	NonLiqfble.
12.89 8 9.6 0.61 125 1633 1324 11.5 13.3 6.95 3.1 67.2 0.80 46.2 57.7	0.424		0.127	0.30	NonLiqfble.
13 8 9.3 0.61 125 1647 1331 11.2 12.7 7.20 3.1 69.0 0.80 44.6 55.8 13.11 8 9.5 0.6 125 1661 1338 11.4 13.0 6.92 3.1 67.7 0.80 45.5 56.8	0.426 0.427		0.125 0.126	0.29	NonLiqfble. NonLiqfble.
13.21 8 9.7 0.59 125 1673 1344 11.6 13.2 6.66 3.1 66.5 0.80 46.3 57.9	0.427		0.120	0.30	NonLiqfble.
13.32 8 9.4 0.59 125 1687 1351 11.2 12.7 6.90 3.1 68.2 0.80 44.8 56.0	0.430		0.125	0.29	NonLiqfble.
13.42 8 9.1 0.58 125 1700 1357 10.8 12.2 7.03 3.2 69.6 0.80 43.2 54.0	0.431	0.095	0.123	0.29	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 13

Depth to Groundwater: 8 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g (DCF)	Stress	Stress	Tip	Tip	Ratio		F.C.	K com	Da	(a)	Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	( <b>q</b> c1N)es	Ratio	M7.5	M6.50	Safety	Comments
	40.50	0	0.7	0.50	105	1712	1264	10.2	11.5	7.14	2.2	71.4	0.00	41.0	51.5	0.422	0.002	0.121	0.20	N. 1: 01
	13.53 13.63	8	8.7 9.4	0.56 0.56	125 125	1713 1726	1364 1370	10.3 11.1	11.5 12.5	7.14 6.56	3.2	71.4 67.6	0.80	41.2 44.4	51.5 55.6	0.432 0.433	0.093 0.096	0.121 0.125	0.28	NonLiqfble. NonLiqfble.
	13.74	8	8.9	0.56	125	1740	1377	10.5	11.7	6.97	3.2	70.5	0.80	42.0	52.5	0.435	0.093	0.121	0.28	NonLiqfble.
	13.84	8	8.6	0.55	115	1752	1383	10.1	11.2	7.12	3.2	72.1	0.80	40.5	50.6	0.436	0.092	0.120	0.27	NonLiqfble.
	13.95 14.05	8	9.2 8.9	0.54 0.54	125 115	1765 1777	1389 1395	10.8 10.4	12.0 11.5	6.49 6.74	3.1	68.3 70.2	0.80	43.2 41.7	54.0 52.1	0.437 0.438	0.095 0.093	0.123 0.121	0.28	NonLiqfble.
	14.14	8	8.9	0.55	125	1788	1400	10.4	11.3	6.87	3.2	70.2	0.80	41.6	52.1	0.439	0.093	0.121	0.28	NonLiqfble. NonLiqfble.
	14.24	8	8.4	0.57	115	1800	1406	9.8	10.7	7.60	3.2	74.7	0.80	39.2	49.0	0.440	0.091	0.118	0.27	NonLiqfble.
	14.35	8	8.6	0.57	125	1813	1412	10.0	10.9	7.41	3.2	73.6	0.80	40.1	50.1	0.442	0.092	0.119	0.27	NonLiqfble.
	14.45 14.56	8	8.9 9.4	0.57 0.55	125 125	1825 1839	1418 1425	10.3 10.9	11.3 11.9	7.14 6.49	3.2	71.9 68.5	0.80	41.4 43.6	51.7 54.5	0.443 0.444	0.093 0.095	0.121 0.124	0.27 0.28	NonLiqfble. NonLiqfble.
	14.66	8	9.8	0.59	125	1852	1432	11.3	12.4	6.65	3.1	68.0	0.80	45.3	56.7	0.445	0.097	0.124	0.28	NonLiqfble.
	14.77	8	9.7	0.55	125	1865	1438	11.2	12.2	6.27	3.1	67.2	0.80	44.8	56.0	0.446	0.096	0.125	0.28	NonLiqfble.
	14.87	8	8.1	0.52	115	1878	1445	9.3	9.9	7.26	3.2	75.6	0.80	37.3	46.6	0.447	0.089	0.116	0.26	NonLiqfble.
	14.92 15.03	8	9.6 8.6	0.51 0.49	115 115	1884 1896	1447 1453	11.0 9.9	12.0 10.5	5.89 6.40	3.1	66.3 71.3	0.80	44.2 39.5	55.2 49.4	0.448 0.449	0.096 0.091	0.124 0.119	0.28	NonLiqfble. NonLiqfble.
	15.13	8	8.2	0.47	115	1908	1458	9.4	9.9	6.49	3.2	73.1	0.80	37.6	47.0	0.450	0.091	0.117	0.26	NonLiqfble.
	15.24	8	7.3	0.48	115	1920	1464	8.3	8.7	7.57	3.3	80.2	0.80	33.4	41.7	0.451	0.087	0.113	0.25	NonLiqfble.
	15.34	8	7.3	0.49	115	1932	1469	8.3	8.6	7.74	3.3	80.8	0.80	33.3	41.7	0.452	0.087	0.113	0.25	NonLiqfble.
	15.45 15.55	8	6.2 7.4	0.5 0.48	115 115	1945 1956	1475 1481	7.1 8.4	7.1 8.7	9.57 7.47	3.4	91.6 79.8	0.80 0.80	28.3 33.7	35.3 42.1	0.453 0.454	0.084 0.087	0.109 0.113	0.24 0.25	NonLiqfble. NonLiqfble.
	15.66	8	8	0.47	115	1969	1486	9.1	9.4	6.70	3.2	75.1	0.80	36.3	45.4	0.456	0.089	0.115	0.25	NonLiqfble.
	15.76	8	8.3	0.48	115	1980	1492	9.4	9.8	6.57	3.2	73.7	0.80	37.6	47.0	0.457	0.090	0.117	0.26	NonLiqfble.
	15.87	8	7.2	0.49	115	1993	1497	8.1	8.3	7.90	3.3	82.4	0.80	32.6	40.7	0.458	0.086	0.112	0.24	NonLiqfble.
	15.98 16.08	8	7.2 7.8	0.52 0.54	115 115	2005 2017	1503 1508	8.1 8.8	8.2 9.0	8.39 7.95	3.3	84.0 80.2	0.80 0.80	32.5 35.1	40.6 43.9	0.459 0.460	0.086 0.088	0.112 0.114	0.24	NonLiqfble. NonLiqfble.
	16.19	8	8.5	0.56	115	2030	1514	9.6	9.9	7.48	3.2	76.3	0.80	38.2	47.8	0.461	0.090	0.117	0.25	NonLiqfble.
	16.3	8	8.8	0.56	125	2042	1520	9.9	10.2	7.20	3.2	74.6	0.80	39.5	49.4	0.462	0.091	0.119	0.26	NonLiqfble.
	16.4	8	8.2	0.56	115	2055	1526	9.2	9.4	7.81	3.3	78.7	0.80	36.7	45.9	0.463	0.089	0.116	0.25	NonLiqfble.
	16.51 16.61	8	7.7 7.5	0.56 0.55	115 115	2067 2079	1532 1537	8.6 8.4	8.7 8.4	8.40 8.51	3.3	82.5 83.8	0.80 0.80	34.4 33.5	43.0 41.8	0.464 0.465	0.087 0.087	0.114 0.113	0.24	NonLiqfble. NonLiqfble.
	16.72	8	7.2	0.54	115	2092	1543	8.0	8.0	8.78	3.4	86.0	0.80	32.1	40.1	0.466	0.086	0.112	0.24	NonLiqfble.
	16.82	8	7.1	0.53	115	2103	1548	7.9	7.8	8.76	3.4	86.6	0.80	31.6	39.5	0.467	0.086	0.111	0.24	NonLiqfble.
	16.93	8	8.2	0.52	115	2116	1554	9.1	9.2	7.28	3.3	77.7	0.80	36.4	45.5	0.468	0.089	0.115	0.25	NonLiqfble.
	17.03 17.14	8	8.3 7.1	0.5 0.49	115 115	2127 2140	1559 1565	9.2 7.9	9.3 7.7	6.91 8.13	3.2	76.2 85.2	0.80	36.8 31.4	46.0 39.3	0.469 0.470	0.089 0.086	0.116 0.111	0.25 0.24	NonLiqfble. NonLiqfble.
	17.24	8	7.9	0.46	115	2151	1570	8.7	8.7	6.74	3.3	77.5	0.80	34.9	43.6	0.471	0.088	0.114	0.24	NonLiqfble.
	17.32	8	7.8	0.45	115	2161	1575	8.6	8.5	6.70	3.3	77.8	0.80	34.4	43.0	0.472	0.087	0.114	0.24	NonLiqfble.
	17.43	8	6.6	0.43	115	2173	1580	7.3	7.0	7.80	3.4	87.1	0.80	29.1	36.3	0.473	0.084	0.110	0.23	NonLiqfble.
	17.53 17.64	8	5.9 6.1	0.41 0.38	115 115	2185 2197	1586 1591	6.5 6.7	6.1	8.53 7.60	3.4	93.5 89.6	0.80	25.9 26.8	32.4 33.5	0.474 0.475	0.083 0.083	0.108 0.109	0.23	NonLiqfble. NonLiqfble.
	17.74	8	5.7	0.36	105	2209	1597	6.2	5.8	7.83	3.4	93.1	0.80	25.0	31.2	0.476	0.083	0.108	0.23	NonLiqfble.
	17.85	8	5.1	0.36	105	2220	1601	5.6	5.0	9.02	3.5	101.3	0.80	22.3	27.9	0.477	0.082	0.107	0.22	NonLiqfble.
	17.95	8	5.1	0.38	105	2231	1606	5.6	5.0	9.54	3.5	102.8	0.80	22.3	27.8	0.478	0.082	0.107	0.22	NonLiqfble.
	18.06 18.16	8	5.4 6.4	0.41 0.42	105 115	2242 2253	1610 1615	5.9 7.0	5.3 6.5	9.58 7.97	3.5 3.4	100.7 89.6	0.80	23.6 27.9	29.4 34.8	0.479 0.480	0.082 0.084	0.107 0.109	0.22 0.23	NonLiqfble. NonLiqfble.
	18.28	8	6.9	0.42	115	2267	1621	7.5	7.1	7.28	3.3	84.9	0.80	30.0	37.5	0.481	0.085	0.110	0.23	NonLiqfble.
	18.38	8	7	0.45	115	2278	1626	7.6	7.2	7.68	3.4	85.8	0.80	30.4	38.0	0.482	0.085	0.111	0.23	NonLiqfble.
	18.49	8	8	0.5 0.55	115	2291 2302	1632	8.7	8.4	7.29	3.3	80.2	0.80	34.7	43.3	0.483	0.088	0.114	0.24	NonLiqfble.
	18.59 18.7	8	8.2 9.3	0.55	115 125	2302	1637 1643	8.9 10.0	8.6 9.9	7.80 6.76	3.3	81.0 74.0	0.80	35.5 40.2	44.3 50.2	0.484 0.485	0.088 0.092	0.115 0.119	0.24	NonLiqfble. NonLiqfble.
	18.8	8	9.7	0.51	125	2328	1649	10.5	10.3	5.97	3.2	70.3	0.80	41.8	52.3	0.485	0.093	0.121	0.25	NonLiqfble.
	18.91	8	9.5	0.49	115	2341	1656	10.2	10.1	5.88	3.2	70.7	0.80	40.9	51.1	0.486	0.092	0.120	0.25	NonLiqfble.
	19.01	8	9.2	0.47	115	2353	1661	9.9	9.7	5.86	3.2	71.6	0.80	39.5	49.4	0.487	0.091	0.119	0.24 0.23	NonLiqfble.
	19.12 19.23	8	8.3 8.5	0.45 0.43	115 115	2365 2378	1667 1673	8.9 9.1	8.5 8.7	6.32 5.88	3.2	76.6 74.4	0.80	35.6 36.4	44.5 45.5	0.488 0.489	0.088 0.089	0.115 0.115	0.23	NonLiqfble. NonLiqfble.
	19.33	8	8.1	0.41	115	2390	1678	8.7	8.2	5.94	3.2	76.2	0.80	34.6	43.3	0.490	0.088	0.114	0.23	NonLiqfble.
	19.44	8	8.4	0.39	115	2402	1684	9.0	8.5	5.42	3.2	73.2	0.80	35.8	44.8	0.491	0.088	0.115	0.23	NonLiqfble.
	19.54	8	8.2	0.37	115	2414	1689	8.7	8.3	5.29	3.2	73.6	0.80	34.9	43.6	0.491	0.088	0.114	0.23	NonLiqfble.
	19.65 19.76	8	8.6 7.6	0.39 0.37	115 115	2426 2439	1695 1701	9.1 8.1	8.7 7.5	5.28 5.80	3.2	72.2 78.3	0.80	36.6 32.3	45.7 40.3	0.492 0.493	0.089 0.086	0.116 0.112	0.23	NonLiqfble. NonLiqfble.
	19.79	8	8	0.37	115	2443	1702	8.5	8.0	5.46	3.2	75.3	0.80	33.9	42.4	0.494	0.087	0.112	0.23	NonLiqfble.
	19.85	8	8.2	0.37	115	2449	1706	8.7	8.2	5.30	3.2	74.0	0.80	34.7	43.4	0.494	0.088	0.114	0.23	NonLiqfble.

Date: September 2005 CPT Number: 13

Depth to Groundwater: 8 feet

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard **EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 Project Number: 6600.3.001.01 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	l Liauef.	Liquef.	Factor	
	Depth		Resist.		g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress	•	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	19.96	8	7.6	0.35	115	2462	1711	8.0	7.4	5.50	3.3	77.3	0.80	32.2	40.2	0.495	0.086	0.112	0.23	NonLiqfble.
	20.06	8	7.7	0.34	115	2474	1717	8.1	7.5	5.26	3.2	76.1	0.80	32.5	40.7	0.486	0.086	0.112	0.23	NonLiqfble.
	20.17	8	7.8	0.34	115	2486	1722	8.2	7.6	5.19	3.2	75.5	0.80	32.9	41.1	0.486	0.086	0.112	0.23	NonLiqfble.
	20.27 20.38	8	8 8.7	0.38 0.39	115 115	2498 2510	1728 1733	8.4 9.1	7.8 8.6	5.63 5.24	3.2 3.2	76.5 72.4	0.80	33.7 36.6	42.1 45.7	0.487 0.488	0.087 0.089	0.113 0.116	0.23 0.24	NonLiqfble. NonLiqfble.
	20.48	8	8.7		115	2522	1739	9.1	8.6	5.24	3.2	72.5	0.80	36.5	45.6	0.489	0.089	0.115	0.24	NonLiqfble.
	20.59	8	9.5		115	2535	1745	10.0	9.4	4.86	3.1	68.4	0.80	39.8	49.8	0.490	0.091	0.119	0.24	NonLiqfble.
	20.69	8	10.6		115	2546	1750	11.1	10.7	4.40	3.1	63.5	0.80	44.3	55.4	0.490	0.096	0.125	0.25	NonLiqfble.
	20.8	8	10.8		115	2559	1756	11.3	10.8	4.41	3.1	63.1	0.80	45.1	56.4	0.491	0.097	0.126	0.26	NonLiqfble.
	20.9 21.01	8	10.9 11.4	0.43 0.47	115 125	2570 2583	1761 1767	11.4 11.9	10.9 11.4	4.47 4.65	3.1	63.2 62.8	0.80	45.5 47.5	56.8 59.3	0.492 0.493	0.097 0.099	0.126 0.129	0.26 0.26	NonLiqfble. NonLiqfble.
	21.11	8	12.3		125	2595	1773	12.8	12.4	4.82	3.0	61.5	0.80	51.1	63.9	0.493	0.104	0.136	0.27	NonLiqfble.
	21.22	8	13.4		125	2609	1780	13.9	13.6	5.62	3.1	62.4	0.80	55.6	69.5	0.494	0.111	0.145	0.29	NonLiqfble.
	21.31	8	14.2		125	2620	1785	14.7	14.4	5.35	3.0	60.0	0.80	58.8	73.5	0.495	0.117	0.152	0.31	NonLiqfble.
	21.35	8	16.1	0.7	125	2625	1788	16.7	16.5	4.73	2.9	54.7	0.80	66.6	83.3	0.495	0.134	0.174	0.35	NonLiqfble.
	21.43 21.54	8	17.6 16.3		125 125	2635 2649	1793 1800	18.2 16.8	18.2 16.6	4.36 4.54	2.9 2.9	51.3 53.9	0.80	72.7 67.2	90.9 84.1	0.495 0.496	0.150 0.135	0.195 0.176	0.39	NonLiqfble. NonLiqfble.
	21.64	8	16.1	0.61	125	2662	1806	16.6	16.3	4.13	2.9	52.6	0.80	66.3	82.9	0.497	0.133	0.173	0.35	NonLiqfble.
	21.74	8	14		125	2674	1812	14.4	14.0	4.34	3.0	56.9	0.80	57.6	71.9	0.497	0.115	0.149	0.30	NonLiqfble.
	21.85	8	12.2		125	2688	1819	12.5	11.9	4.51	3.0	61.2	0.80	50.1	62.6	0.498	0.103	0.134	0.27	NonLiqfble.
	21.95	8	11.9	0.42	115	2700	1825	12.2	11.6	3.98	3.0	59.7	0.80	48.7	60.9	0.498	0.101	0.131	0.26	NonLiqfble.
	22.06 22.16	8	10.6 9.5		115 115	2713 2724	1831 1836	10.8 9.7	10.1 8.9	4.11 5.04	3.1	63.6 70.8	0.80	43.4 38.8	54.2 48.5	0.499 0.500	0.095 0.091	0.123 0.118	0.25 0.24	NonLiqfble. NonLiqfble.
	22.27	8	8.6		125	2737	1842	8.8	7.8	9.82	3.4	89.2	0.80	35.1	43.8	0.501	0.088	0.114	0.23	NonLiqfble.
	22.38	8	14.5		135	2751	1849	14.8	14.2	8.69	3.2	70.5	0.80	59.0	73.8	0.501	0.117	0.153	0.30	NonLiqfble.
	22.48	8	27.6		135	2764	1856	28.0	28.2	9.04	3.0	56.4	0.80	112.1	140.1	0.502	0.336	0.437	0.87	NonLiqfble.
	22.58	8	38.3		135	2778	1864	38.8	39.6	7.15	2.8	45.7	0.80	155.3	194.1	0.502	0.760	0.988	1.97	NonLiqfble.
	22.68 22.79	8	118.2 101.8		135 135	2791 2806	1871 1879	119.6 102.8	124.8 106.8	2.44 3.91	2.1	16.2 23.1	0.30 0.48	51.3 96.2	170.9 199.0	0.503 0.503	0.544 0.813	0.707 1.057	1.41 2.10	
	22.89	8	134.8		135	2820	1886	135.8	141.4	3.34	2.2	18.6	0.36	77.1	212.9	0.504	0.978	1.271	2.52	
	22.99	8	146.8		135	2833	1893	147.6	153.5	2.99	2.1	16.6	0.31	66.6	214.2	0.504	0.994	1.292	2.56	
	23.09	8	137.8	4.85	135	2847	1901	138.3	143.4	3.56	2.2	19.2	0.38	84.0	222.3	0.505	1.102	1.433	2.84	
	23.19	8	142.9	4.57	135	2860	1908	143.1	148.2	3.23	2.2	17.8	0.34	74.1	217.2	0.505	1.033	1.343	2.66	
	23.29 23.39	8	153.6 175.6		135 135	2874 2887	1915 1922	153.6 175.2	158.8 181.1	2.38 2.28	2.0	14.0 12.7	0.24	48.8 45.1	202.4 220.4	0.506 0.506	0.851 1.075	1.107 1.398	2.19 2.76	
	23.48	8	211.5		135	2899	1929	210.7	217.7	1.67	1.8	8.8	0.10	24.1	234.8	0.506	1.284	1.669	3.30	
	23.58	8	257.3	3.36	135	2913	1936	255.8	264.2	1.31	1.7	6.1	0.03	7.9	263.7	0.507	1.785	2.321	4.58	
	23.65	8	271.7	3.65	135	2922	1941	269.8	278.3	1.35	1.7	6.0	0.03	7.7	277.5	0.507	2.067	2.688	5.30	
	23.74	8	301.8		135	2934	1948	299.2 303.5	308.2	1.24	1.6	5.0	0.00	0.1	299.3	0.508	2.574	3.347	6.59	
	23.84 23.93	8	306.7 339.2		135 135	2948 2960	1955 1962	335.1	312.1 344.2	1.82 1.85	1.8 1.8	7.6 7.2	0.07 0.06	22.2 21.0	325.7 356.0	0.508 0.508	3.294 4.278	4.282 5.561	8.43 10.94	
	24.02	8	381.8		135	2972	1968	376.5	386.3	1.94	1.7	7.0	0.05	21.8	398.3	0.509	5.957	7.744	15.22	
	24.11	8	416.2	7.65	135	2984	1975	409.8	419.8	1.84	1.7	6.3	0.04	14.9	424.7	0.509	7.203	9.364	18.39	
	24.2	8	419.5		135	2997	1981	412.4	421.8	1.74	1.7	5.9	0.02	10.1	422.5	0.510	7.093	9.221	18.09	
	24.29 24.37	8	439 502.4	7.62 8.92	135 135	3009 3020	1988 1994	430.8 492.3	440.0 502.3	1.74 1.78	1.7 1.7	5.7 5.4	0.02	8.5 5.0	439.3 497.3	0.510 0.510	7.963 11.521	10.352 14.977	20.30 29.35	
	24.45	8	579.5		135	3030	1999	567.0	577.9	1.67	1.6	4.5	0.00	0.0	567.0	0.510	17.036		43.37	
	24.53	8	645.9		135	3041	2005	631.1	642.4	1.80	1.6	4.7	0.00	0.0	631.1	0.511	23.456		59.67	
	24.56	8	648.6		135	3045	2007	633.4	644.4	1.82	1.6	4.7	0.00	0.0	633.4		23.712		60.31	
	24.6	8	658.1		135	3051	2010	642.2	652.9	1.85	1.6	4.8	0.00	0.0	642.2	0.511	24.712		62.83	
	24.68 24.76	8 8	681.3 608.3		135 135	3061 3072	2016 2022	663.9 591.9	674.0 599.9	1.89 2.12	1.6 1.7	4.8 6.0	0.00	0.0 16.1	663.9 608.0		27.292 20.985		69.34 53.28	
	24.85	8	567.8		135	3084	2028	551.6	558.1	2.11	1.7	6.2	0.03	18.6	570.2		17.325		43.96	
	24.93	8	576.9		135	3095	2034	559.6	565.4	1.58	1.6	4.2	0.00	0.0	559.6	0.513	16.381		41.54	
	25	8	558.4		135	3105	2039	541.0	545.9	1.36	1.5	3.4	0.00	0.0	541.0	0.513	14.807		37.53	
	25.06	8	547.5		135	3113	2044	529.9	534.0	1.40	1.6	3.7	0.00	0.0	529.9	0.513	13.917		35.25	
	25.13 25.2	8	521.2 520.6		135 135	3122 3132	2049 2054	503.8 502.6	507.0 505.2	1.28 1.23	1.5 1.5	3.3 3.1	0.00	0.0	503.8 502.6	0.513 0.514	11.973 11.888		30.31 30.08	
	25.25	8	501.3		135	3138	2054	483.5	485.6	1.23	1.5	3.1	0.00	0.0	483.5	0.514	10.595		26.80	
	25.28	8	498.6			3142	2060	480.7	482.4	1.11	1.5	2.7	0.00	0.0	480.7	0.514	10.410		26.32	
	25.31	8	497		125	3146	2062	478.9	480.4	0.98	1.4	2.1	0.00	0.0	478.9	0.514	10.296		26.03	
	25.35	8	508.4		125		2064	489.6	490.9	0.90	1.4	1.6	0.00	0.0	489.6	0.514		14.295	27.79	
	25.42	8	542	4.23	125	3160	2068	521.4	522.3	0.78	1.3	0.9	0.00	0.0	521.4	0.515	13.264	17.244	33.50	

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 13

Depth to Groundwater: 8 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	•	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\mathrm{CPT}}$	DqcIN	(qcIN)cs	Ratio	M7.5	M6.50	Safety	Comments
	25.46	8	510	4.36	125	3165	2071	490.3	490.8	0.86	1.4	1.4	0.00	0.0	490.3	0.515	11.044	14.358	27.88	
	25.52	8	478.5	4.36	125	3172	2075	459.6	459.5	0.91	1.4	1.9	0.00	0.0	459.6	0.515		11.844	22.99	
	25.55	8	461.5	4.46	125	3176	2077	443.1	442.8	0.97	1.5	2.3	0.00	0.0	443.1	0.515	8.171	10.623	20.61	
	25.58	8	436.1 414.3	4.41 4.75	125 135	3180 3192	2078 2085	418.5 397.0	417.9 395.8	1.01 1.15	1.5 1.5	2.7 3.6	0.00	0.0	418.5 397.0	0.516 0.516	6.898 5.900	8.968 7.670	17.40 14.86	
	25.68 25.73	8	394.7	5.21	135	3192	2083	377.9	376.3	1.13	1.6	4.6	0.00	0.0	377.9	0.516	5.099	6.629	12.84	
	25.76	8	388.1	6	135	3203	2091	371.4	369.6	1.55	1.7	5.7	0.02	6.6	378.0	0.516	5.102	6.633	12.85	
	25.82	8	384	5.65	135	3211	2095	367.1	364.9	1.48	1.7	5.4	0.01	3.8	370.9	0.517	4.824	6.271	12.14	
	25.88	8	390.2	5.1	135	3219	2099	372.6	370.1	1.31	1.6	4.6	0.00	0.0	372.6	0.517	4.892	6.359	12.31	
	25.92	8	387.2	4.77	135	3225	2102	369.5	366.7	1.24	1.6	4.3	0.00	0.0	369.5	0.517	4.772	6.203	12.00	
	25.96 26.03	8	288.5 393.1	4.83 5.48	135 135	3230 3240	2105 2110	275.1 374.4	272.5 370.9	1.68 1.40	1.8 1.6	7.7 5.0	0.07 0.00	21.1	296.2 374.4	0.517 0.517	2.497 4.962	3.246 6.450	6.28 12.47	
	26.06	8	392.9	5.56	135	3244	2110	374.4	370.9	1.40	1.6	5.1	0.00	0.7	374.4	0.517	4.902	6.467	12.47	
	26.21	8	468.4	5.13	125	3264	2123	444.8	439.5	1.10	1.5	3.0	0.00	0.0	444.8	0.518	8.263	10.741	20.74	
	26.28	8	467.4	6.21	135	3273	2128	443.4	437.6	1.33	1.6	4.0	0.00	0.0	443.4	0.518	8.185	10.641	20.53	
	26.31	8	470.1	6.24	135	3277	2130	445.7	439.7	1.33	1.6	4.0	0.00	0.0	445.7	0.518	8.314	10.808	20.85	
	26.38	8	483.9	6.48	135	3286	2135	458.2	451.6	1.34	1.6	4.0	0.00	0.0	458.2	0.519	9.028	11.737	22.63	
	26.42 26.47	8	469.9 352.3	6.3 6.17	135 135	3292 3298	2138 2141	444.7 333.1	437.9 327.4	1.35 1.76	1.6 1.7	4.1 7.1	0.00	0.0 19.5	444.7 352.6	0.519 0.519	8.257 4.156	10.734 5.403	20.69 10.41	
	26.53	8	451.7	6.77	135	3306	2146	426.7	419.3	1.50	1.6	4.9	0.00	0.0	426.7	0.519	7.303	9.494	18.28	
	26.57	8	448.3	6.33	135	3312	2149	423.2	415.6	1.42	1.6	4.6	0.00	0.0	423.2	0.519	7.127	9.265	17.84	
	26.62	8	448	6.09	135	3319	2152	422.5	414.6	1.36	1.6	4.4	0.00	0.0	422.5	0.520	7.095	9.223	17.75	
	26.66	8	441.7	5.7	135	3324	2155	416.3	408.2	1.30	1.6	4.1	0.00	0.0	416.3	0.520	6.789	8.826	16.98	
	26.76 26.86	8	383.3 386.3	5.89 5.1	135 135	3337 3351	2162 2170	360.6 362.9	352.8 354.4	1.54 1.33	1.7 1.6	5.8 4.8	0.02	8.0 0.0	368.7 362.9	0.520 0.520	4.740 4.523	6.162 5.880	11.85 11.30	
	26.95	8	395.8	5.93	135	3363	2176	371.2	362.0	1.50	1.7	5.5	0.00	5.4	376.6	0.521	5.047	6.562	12.60	
	27.03	8	439.6	6.26	135	3374	2182	411.8	401.2	1.43	1.6	4.8	0.00	0.0	411.8	0.521	6.572	8.544	16.40	
	27.12	8	568.1	6.91	135	3386	2189	531.3	517.4	1.22	1.5	3.0	0.00	0.0	531.3	0.521	14.030	18.238	34.98	
	27.2	8	575.8	6.49	135	3397	2194	537.8	523.0	1.13	1.5	2.5	0.00	0.0	537.8	0.522		18.911	36.26	
	27.28	8	581.1	6.16	125	3408	2200	542.0	526.5	1.06	1.5	2.2	0.00	0.0	542.0	0.522	14.891		37.09	
	27.37 27.45	8	563.3 569.4	6.08 5.68	125 125	3419 3429	2206 2211	524.8 529.9	509.0 513.3	1.08 1.00	1.5 1.4	2.4	0.00	0.0	524.8 529.9	0.522 0.523	13.520 13.914		33.65 34.61	
	27.53	8	587.9	5.12	125	3439	2216	546.4	528.9	0.87	1.4	1.3	0.00	0.0	546.4	0.523	15.255		37.92	
	27.61	8	606	5.27	125	3449	2221	562.6	544.0	0.87	1.4	1.2	0.00	0.0	562.6	0.523	16.644		41.35	
	27.68	8	682.4	6.98	125	3458	2225	632.9	611.5	1.03	1.4	1.6	0.00	0.0	632.9	0.524	23.662		58.75	
	27.72	8	675.9	7.5	135	3463	2228	626.6	605.0	1.11	1.4	2.0	0.00	0.0	626.6	0.524	22.956		56.98	
	27.76 27.83	8	695.1 721.6	7.96 9.07	135 135	3468 3478	2231 2236	643.9 667.7	621.4 643.7	1.15 1.26	1.4 1.5	2.1	0.00	0.0	643.9 667.7	0.524 0.524	24.913 27.768	36.098	61.82 68.88	
	27.88	8	623.8	9.46	135	3484	2239	576.8	555.3	1.52	1.6	4.0	0.00	0.0	576.8	0.524	17.923		44.44	
	27.92	8	427.9	9.59	135	3490	2242	395.4	380.0	2.25	1.8	8.3	0.09	37.8	433.2	0.524	7.639	9.931	18.94	
	27.99	8	645.6	9.81	135	3499	2247	595.9	572.7	1.52	1.6	3.9	0.00	0.0	595.9	0.525	19.755		48.95	
	28.05	8	632.8	10.07	135	3507	2252	583.5	560.3	1.60	1.6	4.3	0.00	0.0	583.5	0.525		24.120	45.96	
	28.08 28.12	8	604.6 583.9	10.09 9.5	135 135	3511 3517	2254 2257	557.2 537.8	534.7 515.7	1.67 1.63	1.6 1.6	4.7 4.7	0.00	0.0	557.2 537.8	0.525 0.525	16.169 14.545	21.020	40.04 36.01	
	28.32	8	531.5	8.75	135	3544	2271	488.0	466.3	1.65	1.6	5.1	0.00	1.9	489.8	0.526	11.010		27.22	
	28.35	8	524.9	8.55	135	3548	2273	481.7	460.0	1.63	1.6	5.1	0.00	1.6	483.3	0.526		13.748	26.15	
	28.39	8	516.1	7.71	135		2276	473.3	451.7	1.50	1.6	4.6	0.00	0.0	473.3	0.526		12.922	24.57	
	28.43	8		7.65	135		2279	473.9	452.0	1.48	1.6	4.6	0.00	0.0	473.9		9.978		24.66	
	28.5 28.55	8	525.9 576.5	7.96 7.95	135 135	3568 3575	2284 2288	481.4 527.3	458.7 502.2	1.52 1.38	1.6 1.6	4.7 3.8	0.00	0.0	481.4 527.3	0.526 0.526	10.457 13.718		25.83 33.87	
	28.6	8	575.8	8.88	135	3581	2292	526.3	500.7	1.55	1.6	4.5	0.00	0.0	526.3	0.527	13.636		33.66	
	28.63	8	293.5	8.52	140	3586	2294	268.1	254.2	2.92	2.0	12.8	0.21	70.3	338.4	0.527	3.684	4.789	9.09	
	28.71	8	539.3	8.72	135	3597	2300	492.0	467.2	1.62	1.6	5.0	0.00	0.2	492.2	0.527	11.172		27.56	
	28.75	8	531.6	9.17	135	3602	2303	484.7	459.9	1.73	1.7	5.5	0.01	6.7	491.4	0.527	11.112		27.41	
	28.84 28.87	8	538.9 514.1	8.66 8.08	135 135	3614 3618	2309 2312	490.6 467.8	464.9 443.0	1.61 1.58	1.6 1.6	5.0 5.0	0.00	0.0 0.4	490.6 468.2	0.527 0.527	11.065	12.515	27.28 23.73	
	28.91	8	507.6	7.51	135	3624	2312	461.6	436.9	1.48	1.6	4.7	0.00	0.0	461.6	0.528		11.998	22.74	
	28.94	8	402.3	6.94	135	3628	2317	365.7	345.6	1.73	1.7	6.7	0.05	17.5	383.2	0.528	5.312	6.905	13.09	
	29	8	519.8	5.85	135	3636	2321	472.1	446.1	1.13	1.5	3.0	0.00	0.0	472.1	0.528	9.864	12.823	24.29	
	29.04	8	509.6	5.32	125	3641	2324	462.5	436.8	1.05	1.5	2.7	0.00	0.0	462.5	0.528		12.066	22.85	
	29.07 29.11	8	404.3 530.4	6.61 8.46	135 135	3645 3650	2326 2329	366.8 480.9	345.9 453.8	1.64 1.60	1.7 1.6	6.3 5.0	0.04	13.4 0.5	380.2 481.4	0.528 0.528	5.193 10.453	6.751	12.78 25.73	
	29.31	8	541.7			3677	2343	489.6	460.6	2.03	1.7	6.6	0.04	22.5	512.1	0.529	12.568		30.90	

Date: September 2005

Depth to Groundwater: 8 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 Project Number: 6600.3.001.01 **MSF:** 1.30 CPT Number: 13

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	l Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress	-	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	(q <sub>c1N</sub> ) <sub>cs</sub>	Ratio	M7.5	M6.50	Safety	Comments
	29.39	8		10.76	135	3688	2349	465.4	437.1	2.09	1.8	7.1	0.06	27.5	492.9	0.529	11.215		27.56	
	29.47	8		10.92	135	3699	2355	480.6	450.9	2.06	1.7	6.8	0.05	24.6	505.1	0.529	12.067	15.687	29.64	
	29.54 29.62	8		10.32 9.32	135 135	3708 3719	2360 2366	429.7 405.4	402.6 379.3	2.17	1.8	7.7	0.07	33.7 30.7	463.4	0.529 0.530	9.333 7.794	12.132 10.132	22.91 19.13	
	29.02	8		8.05	135	3730	2372	376.2	351.4	2.08 1.93	1.8 1.8	7.6 7.4	0.07 0.06	26.1	436.1 402.3	0.530	6.134	7.974	15.05	
	29.78	8		6.71	135	3741	2377	329.7	307.4	1.84	1.8	7.7	0.07	25.5	355.2	0.530	4.248	5.522	10.41	
	29.84	8	355.2	6.27	135	3749	2382	318.4	296.6	1.77	1.8	7.6	0.07	23.9	342.4	0.530	3.812	4.956	9.34	
	29.91	8		5.73	135	3758	2387	326.7	304.0	1.58	1.7	6.7	0.04	15.1	341.8	0.531	3.794	4.932	9.29	
	29.95	8		5.46	135	3764	2390	308.3	286.6	1.59	1.7	7.0	0.05	17.5	325.8	0.531	3.297	4.285	8.08	
	29.98 30.07	8		5.52 5.26	135 135	3768 3780	2392 2398	295.8 310.8	274.7 288.4	1.68 1.52	1.8 1.7	7.6 6.6	0.07 0.04	22.1 14.3	317.8 325.1	0.531	3.066 3.277	3.986 4.259	7.51 8.37	
	30.14	8		5.59	135	3789	2404	323.3	299.7	1.55	1.7	6.6	0.04	14.4	337.7	0.509	3.661	4.760	9.35	
	30.22	8		5.5	135	3800	2409	332.3	307.8	1.48	1.7	6.2	0.03	10.7	343.0	0.509	3.833	4.983	9.78	
	30.27	8	350.5	5.88	135	3807	2413	312.2	288.8	1.69	1.8	7.4	0.06	21.2	333.4	0.509	3.525	4.582	8.99	
	30.3	8		5.81	135	3811	2415	303.0	280.1	1.72	1.8	7.7	0.07	23.2	326.2	0.510	3.307	4.299	8.44	
	30.38	8		6.43	135	3822	2421	306.3	282.8	1.88	1.8	8.3	0.09	29.5	335.7	0.510	3.599	4.679	9.18	
	30.42	8		6.61 6.63	135 135	3827 3833	2424 2427	304.6 290.9	281.1 268.2	1.94	1.8	8.6 9.2	0.10	32.1	336.7	0.510	3.630	4.719	9.26	
	30.46 30.49	8		6.43	135	3837	2427	290.9	269.3	2.04 1.97	1.8	8.9	0.11 0.10	36.9 34.1	327.8 326.2	0.510 0.510	3.356 3.309	4.363 4.302	8.56 8.43	
	30.53	8		6.17	135	3842	2432	294.7	271.5	1.87	1.8	8.5	0.09	30.1	324.8	0.510	3.267	4.247	8.33	
	30.57	8		6.07	135	3848	2435	315.3	290.4	1.72	1.8	3.0	0.00	0.0	315.3	0.510	2.996	3.894	7.63	
	30.6	8	346.2	6.1	135	3852	2437	306.8	282.4	1.77	1.8	3.0	0.00	0.0	306.8	0.510	2.767	3.597	7.05	
	30.63	8		6.13	135	3856	2439	272.4	250.5	2.01	1.9	3.0	0.00	0.0	272.4	0.510	1.960	2.548	4.99	
	30.7	8		5.69	135	3865	2444	281.3	258.4	1.80	1.8	3.0	0.00	0.0	281.3	0.511	2.149	2.794	5.47	
	30.76 30.8	8		5.12 4.72	135 135	3873 3879	2449 2451	273.6 257.1	251.0	1.67 1.63	1.8 1.8	3.0	0.00	0.0	273.6 257.1	0.511 0.511	1.984 1.660	2.580 2.158	5.05 4.22	
	30.84	8		4.72	135	3884	2454	267.1	235.6 244.8	1.48	1.8	3.0	0.00	0.0	267.1	0.511	1.853	2.138	4.71	
	30.91	8		4.79	135	3893	2459	279.1	255.5	1.52	1.8	3.0	0.00	0.0	279.1	0.511	2.101	2.731	5.34	
	30.94	8		4.03	135	3897	2462	158.3	144.2	2.27	2.1	3.0	0.00	0.0	158.3	0.511	0.449	0.584	1.14	Low F.S.
	31	8		4.84	135	3906	2466	275.3	251.8	1.56	1.8	7.5	0.07	19.9	295.3	0.511	2.474	3.216	6.29	
	31.03	8		4.71	135	3910	2468	266.9	243.9	1.56	1.8	7.7	0.07	20.9	287.9	0.512	2.299	2.988	5.84	
	31.07	8		5.74	135	3915	2471	284.7	260.1	1.79	1.8	8.4	0.09	28.0	312.7	0.512	2.924	3.801	7.43	
	31.12 31.15	8		6.03 5.79	135 135	3922 3926	2475 2477	318.0 327.9	290.5 299.5	1.68 1.56	1.8 1.7	7.3 6.6	0.06 0.04	20.9 15.1	338.8 343.0	0.512 0.512	3.697 3.833	4.807 4.982	9.39 9.73	
	31.18	8		6.08	135	3930	2479	321.9	293.8	1.67	1.8	7.2	0.04	20.2	342.1	0.512	3.804	4.945	9.66	
	31.21	8		6.34	135	3934	2481	310.2	282.9	1.81	1.8	8.0	0.08	26.9	337.0	0.512	3.641	4.733	9.24	
	31.29	8	357.2	5.83	135	3945	2487	313.4	285.5	1.64	1.8	7.2	0.06	19.9	333.3	0.512	3.523	4.580	8.94	
	31.35	8		6.27	135	3953	2491	287.3	261.4	1.92	1.8	8.9	0.10	33.5	320.8	0.512	3.151	4.096	7.99	
	31.39	8		6.28	135	3958	2494	273.1	248.2	2.03	1.9	9.6	0.12	38.5	311.5	0.512	2.892	3.760	7.34	
	31.42	8		6.28	135	3962	2496	272.6	247.7	2.03	1.9	9.6	0.12	38.6	311.2	0.513	2.884	3.749	7.31	
	31.49 31.52	8		6.25 6.36	135 135	3972 3976	2502 2504	301.4 289.3	273.7 262.6	1.82 1.93	1.8 1.8	8.2 8.9	0.09 0.10	28.6 33.8	329.9 323.2	0.513 0.513	3.420 3.219	4.446 4.185	8.67 8.16	
	31.55	8		6.45	135	3980	2506	274.3	248.8	2.07	1.9	9.8	0.13	40.1	314.4	0.513	2.970	3.861	7.53	
	31.6	8		5.93	135	3987	2510	261.2	236.7	2.00	1.9	9.8	0.13	38.2	299.4	0.513	2.576	3.349	6.53	
	31.63	8	292.1	5.46	135	3991	2512	255.0	230.9	1.88	1.9	9.4	0.12	34.3	289.3	0.513	2.333	3.033	5.91	
	31.69	8		4.79	135	3999	2516	257.7	233.1	1.63	1.8	8.3	0.09	24.8	282.5	0.513	2.177	2.829	5.51	
	31.76	8		4.4	135	4008	2521	269.6	243.8	1.43	1.8	7.1	0.06	16.1	285.7	0.513	2.248	2.923	5.69	
	31.84 31.91	8		4.39 3.63	135 135	4019 4028	2527 2532	254.9 250.5	230.1 225.9	1.51 1.27	1.8 1.7	7.8 6.7	0.07 0.05	20.6 12.0	275.4 262.5	0.514 0.514	2.023 1.763	2.630 2.292	5.12 4.46	
	31.98	8		3.61	135	4038	2537	249.0	224.3	1.27	1.7	6.7	0.05	12.2	261.2	0.514	1.738	2.260	4.40	
	32.06	8		3.92	135	4049	2543	235.5	211.8	1.46	1.8	8.0	0.08	20.6	256.1	0.514	1.642	2.134	4.15	
	32.14	8	280.3	4.23	135	4059	2549	242.9	218.3	1.52	1.8	8.1	0.08	22.3	265.2	0.514	1.815	2.359	4.59	
	32.2	8		4.16	135	4068	2553	195.2	174.9	1.86	1.9	11.1	0.16	38.3	233.4	0.514	1.263	1.642	3.19	
	32.41	8		3.61	135	4096	2568	219.7	196.5	1.43	1.8	8.3	0.09	21.5	241.2	0.515	1.385	1.801	3.50	
	32.49 32.58	8	254 257.8	3.53	135 135	4107 4119	2574 2581	219.0 222.0	195.7	1.40	1.8	8.2 8.2	0.09	20.6	239.6	0.515	1.360 1.406	1.768	3.43	
	32.58	8		3.59 3.3	135	4119	2581	210.3	198.1 187.4	1.40 1.36	1.8	8.2	0.08	20.4 20.2	242.5 230.5	0.515 0.516	1.219	1.827 1.585	3.55 3.07	
	32.74	8		3.62	135	4140	2592	192.8	171.4	1.63	1.9	10.2	0.09	31.0	223.8	0.516	1.122	1.459	2.83	
	32.83	8		3.17	135	4153	2599	186.8	165.9	1.47	1.9	9.6	0.12	26.3	213.2	0.516	0.981	1.275	2.47	
	32.92	8		2.72	135	4165	2605	154.3	136.5	1.53	1.9	11.3	0.17	31.3	185.6	0.516	0.675	0.877	1.70	
	33	8		2.34	135	4176	2611	131.7	116.2	1.54	2.0	2.3	0.00	0.0	131.7	0.516	0.292	0.380	0.74	Liquefaction
	33.09	8		4.3	135	4188	2618	116.7	102.6	3.20	2.3	2.3	0.00	0.0	116.7	0.517	0.228	0.296	0.57	Liquefaction
	33.18	8	86.9	4.64	135	4200	2624	74.2	64.6	5.47	2.6	2.3	0.00	0.0	74.2	0.517	0.118	0.153	0.30	Liquefaction

Date: September 2005 CPT Number: 13

Depth to Groundwater: 8 feet

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard **EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 Project Number: 6600.3.001.01 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	•	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	Dqc1N	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	33.28	8	61.5	4.52	135	4213	2632	52.5	45.1	7.61	2.8	2.3	0.00	0.0	52.5	0.517	0.093	0.121	0.23	NonLiqfble.
	33.37	8	21.9	3.78	135	4226	2638	18.7	15.0	19.10	3.4	2.3	0.00	0.0	18.7	0.517	0.081	0.121	0.20	NonLigfble.
	33.46	8	10.9	2.77	135	4238	2645	9.3	6.6	31.55	3.8	2.3	0.00	0.0	9.3	0.517	0.080	0.104	0.20	NonLiqfble.
	33.56	8	9.3	1.82	135	4251	2652	7.9	5.4	25.37	3.8	2.3	0.00	0.0	7.9	0.518	0.080	0.104	0.20	NonLiqfble.
	33.65	8	5.1	1.23	125	4263	2658	4.3	2.2	41.45	4.2	2.3	0.00	0.0	4.3	0.518	0.080	0.104	0.20	NonLiqfble.
	33.75 33.84	8	6.3 6.7	1.08 1.03	125 125	4276 4287	2665 2670	5.3 5.7	3.1 3.4	25.95 22.61	4.0 3.9	2.3 2.3	0.00	0.0	5.3 5.7	0.518 0.518	0.080	0.104 0.104	0.20	NonLiqfble. NonLiqfble.
	33.93	8	4.1	0.95	115	4298	2676	3.5	1.5	48.72	4.4	2.3	0.00	0.0	3.5	0.519	0.080	0.104	0.20	NonLiqfble.
	34.03	8	3.4	0.82	115		2681	2.9	0.9	65.91	4.6	2.3	0.00	0.0	2.9	0.519	0.080	0.104	0.20	NonLiqfble.
	34.13	8	5.1	0.82	115	4321	2686	4.3	2.2	27.91	4.1	2.3	0.00	0.0	4.3	0.519	0.080	0.104	0.20	NonLiqfble.
	34.22	8	7.6	0.82	125	4332	2691	6.4	4.0	15.09	3.7	2.3	0.00	0.0	6.4	0.520	0.080	0.104	0.20	NonLiqfble.
	34.29 34.39	8	10.1 9.6	0.81 0.79	125 125	4340 4353	2696 2702	8.5 8.1	5.9 5.5	10.22 10.64	3.5 3.5	2.3 2.3	0.00	0.0	8.5 8.1	0.520 0.520	0.080	0.104 0.104	0.20 0.20	NonLiqfble. NonLiqfble.
	34.47	8	10.3	0.78	125	4363	2702	8.7	6.0	9.61	3.5	2.3	0.00	0.0	8.7	0.520	0.080	0.104	0.20	NonLiqfble.
	34.55	8	9.5	0.77	125	4373	2712	8.0	5.4	10.53	3.5	2.3	0.00	0.0	8.0	0.521	0.080	0.104	0.20	NonLiqfble.
	34.65	8	9	0.75	125	4385	2718	7.6	5.0	11.02	3.6	106.4	0.80	30.2	37.8	0.521	0.085	0.111	0.21	NonLiqfble.
	34.75	8	8.9	0.73	125	4398	2724	7.5	4.9	10.90	3.6	106.7	0.80	29.8	37.3	0.521	0.085	0.110	0.21	NonLiqfble.
	34.85	8	10	0.73	125	4410	2731	8.4	5.7	9.37	3.5	97.8	0.80	33.5	41.9	0.522	0.087	0.113	0.22	NonLiqfble.
	34.95 35.05	8	10.9 12.1	0.73 0.93	125 125	4423 4435	2737 2743	9.1 10.1	6.3 7.2	8.40 9.41	3.4 3.4	91.7 90.7	0.80	36.5 40.4	45.6 50.5	0.522 0.522	0.089	0.115 0.120	0.22 0.23	NonLiqfble. NonLiqfble.
	35.16	8	13	1.01	125	4449	2750	10.8	7.8	9.37	3.4	88.1	0.80	43.4	54.2	0.522	0.095	0.123	0.24	NonLiqfble.
	35.26	8	14.5	1.09	125	4462	2756	12.1	8.9	8.88	3.3	83.2	0.80	48.3	60.4	0.523	0.101	0.131	0.25	NonLiqfble.
	35.34	8	21.9	1.21	135	4472	2761	18.2	14.2	6.15	3.1	63.1	0.80	72.9	91.2	0.523	0.150	0.196	0.37	NonLiqfble.
	35.42	8	22.5	1.33	135	4482	2767	18.7	14.6	6.57	3.1	63.7	0.80	74.9	93.6	0.523	0.156	0.203	0.39	NonLiqfble.
	35.52 35.63	8	23.7 28.1	1.54 1.86	135 135	4496 4511	2774 2782	19.7 23.3	15.5 18.6	7.18 7.20	3.1	35.6 35.6	0.80 0.80	78.7 93.2	98.4 116.5	0.523 0.524	0.169 0.227	0.219 0.295	0.42 0.56	NonLiqfble. NonLiqfble.
	35.73	8	33.1	2.44	135	4524	2790	27.4	22.1	7.91	3.0	35.6	0.80	109.7	137.1	0.524	0.320	0.416	0.79	NonLiqfble.
	35.83	8	39	2.85	135	4538	2797	32.3	26.3	7.76	2.9	35.6	0.80	129.1	161.3	0.524	0.471	0.612	1.17	NonLiqfble.
	35.93	8	55	2.96	135	4551	2804	45.4	37.6	5.61	2.7	35.6	0.80	181.8	227.2	0.524	1.171	1.522	2.90	NonLiqfble.
	36.04	8	75.4	2.86	135	4566	2812	62.2	52.0	3.91	2.5	35.6	0.80	248.8	311.1	0.524	2.879	3.743	7.14	
	36.14 36.24	8	82.5 68.7	2.72 2.49	135 135	4580 4593	2819 2827	68.0 56.5	56.9 47.0	3.39 3.75	2.5 2.5	35.6 35.6	0.80 0.80	271.9 226.2	339.9 282.7	0.525 0.525	3.732 2.181	4.852 2.835	9.25 5.40	
	36.34	8	48	2.49	135	4607	2834	39.5	32.2	5.10	2.8	35.6	0.80	157.8	197.3	0.525	0.794	1.032	1.97	NonLiqfble.
	36.45	8	35.1	2.33	135	4622	2842	28.8	23.1	7.11	3.0	35.6	0.80	115.2	144.0	0.525	0.358	0.465	0.89	NonLiqfble.
	36.55	8	30.4	2.43	135	4635	2849	24.9	19.7	8.65	3.1	35.6	0.80	99.7	124.6	0.525	0.260	0.338	0.64	NonLiqfble.
	36.65	8	42.3	2.6	135	4649	2856	34.6	28.0	6.50	2.9	35.6	0.80	138.5	173.1	0.526	0.563	0.732	1.39	NonLiqfble.
	36.75	8	41.9 44.4	2.99 3.73	135	4662	2864	34.3	27.6	7.56	2.9	35.6	0.80	137.0	171.3	0.526 0.526	0.547	0.712	1.35	NonLiqfble.
	36.86 36.96	8	56.6	3.73	135 135	4677 4690	2872 2879	36.3 46.2	29.3 37.7	8.87 7.34	3.0 2.8	35.6 35.6	0.80 0.80	145.0 184.6	181.3 230.8	0.526	0.634 1.223	0.824 1.590	1.57 3.02	NonLiqfble. NonLiqfble.
	37.05	8	75	4.64	135	4703	2885	61.1	50.3	6.39	2.7	35.6	0.80	244.4	305.5	0.526	2.730	3.550	6.74	NonLiqfble.
	37.15	8	125.6	4.89	135	4716	2893	102.2	85.2	3.97	2.4	25.7	0.55	126.5	228.6	0.526	1.192	1.549	2.94	•
	37.24	8	150.6	4.98	135	4728	2899	122.4	102.2	3.36	2.3	21.7	0.44	98.1	220.4	0.527	1.076	1.399	2.66	
	37.33	8	145.5	5.04	135	4740	2906	118.1	98.5	3.52	2.3	22.6	0.47	104.9	223.0	0.527	1.111	1.444	2.74	
	37.42 37.49	8	153.1 169.1	4.68 5.09	135 135	4752 4762	2912 2917	124.1 137.0	103.5 114.2	3.11 3.05	2.2 2.2	20.6 19.5	0.42	88.7 86.1	212.8 223.1	0.527 0.527	0.976 1.112	1.269 1.446	2.41 2.74	
	37.57	8	196.3	5.56	135	4773	2923	158.9	132.6	2.87	2.2	17.4	0.33	78.7	237.6	0.527	1.327	1.726	3.27	
	37.64	8	231.1	5.91	135	4782	2928	186.9	156.1	2.58	2.1	15.0	0.27	67.9	254.8	0.527	1.618	2.103	3.99	
	37.71	8	263.4	6.44	135	4792	2933	212.8	177.9	2.47	2.0	13.5	0.23	62.9	275.7	0.527	2.028	2.637	5.00	
	37.8	8		7.09	135		2940	220.1	183.8	2.62	2.0	13.9	0.24	68.6	288.7	0.528	2.317	3.012	5.71	
	37.89 37.98	8	295.7 324.7	7.03 7.07	135 135		2946 2953	238.4 261.4	199.0 218.2	2.40 2.19	2.0 1.9	12.5 11.1	0.20 0.16	59.5 50.6	297.8 312.1	0.528 0.528	2.537 2.906	3.299 3.778	6.25 7.16	
	38.06	8	361.2	6.83	135		2959	290.5	242.4	1.90	1.9	9.2	0.10	37.2	327.7	0.528	3.354	4.360	8.26	
	38.14	8	418.3	7.83	135		2965	336.1	280.4	1.88	1.8	8.4	0.09	33.1	369.2	0.528	4.761	6.189	11.72	
	38.22	8	475.3	9.17	135		2970	381.6	318.3	1.94	1.8	7.9	0.08	32.4	414.0	0.528	6.680	8.684	16.43	
	38.29	8	526.7	9.71	135		2975	422.5	352.2	1.85	1.8	7.1	0.06	25.1	447.6	0.529	8.421	10.947	20.71	
	38.36	8	602 518 5	8.8	135		2981	482.5	402.2	1.47	1.6	4.9	0.00	0.0	482.5	0.529	10.524	13.682	25.88	
	38.47 38.54	8	518.5 470.9	7.22 7.87	135 135	4894 4904	2989 2994	415.0 376.6	345.2 312.8	1.40 1.68	1.7 1.7	5.3 7.0	0.01	3.0 20.7	418.0 397.3	0.529 0.529	6.873 5.912	8.935 7.685	16.90 14.53	
	38.61	8	451.6	8.45	135		2999	360.8	299.4	1.88	1.8	8.0	0.03	31.5	392.3	0.529	5.697	7.406	14.00	
	38.68	8	445.4	7.79	135		3004	355.6	294.8	1.76	1.8	7.6	0.07	26.3	381.9	0.529	5.259	6.837	12.92	
	38.76	8	471.9	6.86	135		3010	376.4	311.8	1.46	1.7	6.0	0.03	10.4	386.8	0.529	5.461	7.100	13.41	
	38.84	8		6.01	135		3015	353.9	292.9	1.36	1.7	5.8	0.02	8.1	362.0	0.529	4.493	5.841	11.03	
	38.92	8	444.7	6.02	135	4955	3021	354.0	292.6	1.36	1.7	5.8	0.02	8.2	362.2	0.530	4.498	5.848	11.04	

Project Number: 6600.3.001.01 Date: September 2005

Depth to Groundwater: 8 feet

CPT Number: 13

Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Stress Stress Stress (TSF) (TSF) (PCF) (PSF) (PSF) (%) KCPT Dqcin (qcin)cs Ratio M7.5 M6.50 Safety (FT) (FT) Qc1N 0 Comments Ic 39 8 435 5.75 135 4966 3027 345.9 285.7 1.33 1.7 5.8 0.02 7.6 353.6 0.530 4.191 5.449 10.29 39.06 8 428.9 5.37 135 4974 3031 340.8 281.2 1.26 1.7 5.5 0.01 5.0 345.9 0.530 3.928 5.107 9.64 39.12 431 4.54 125 4982 3036 342.3 282.2 1.06 4.5 0.00 0.0 342.3 0.530 3.809 4.952 9.34 39.19 456.6 4.1 125 4991 3040 362.3 298.6 0.90 1.5 3.4 0.00 0.0 362.3 0.530 4.504 5.855 11.05 39.23 433.4 3.81 125 4996 3043 343.8 283.1 0.00 0.0 343.8 0.530 3.859 5.016 39.31 440.5 3.73 125 5006 3048 349.1 287.3 0.85 1.5 3.3 0.00 0.0 349.1 0.530 4.038 5.249 9.90 39.34 409.2 3.96 125 5009 3049 324.2 0.97 4.3 324.2 0.530 3.250 4.224 266.6 1.6 0.00 0.0 7.96 39.38 418.9 5014 3052 272.8 0.96 0.00 331.8 0.531 8.52 125 331.8 1.6 4.1 0.0 3,476 4.519 39.56 406.3 3.23 125 5037 3063 0.80 0.00 0.531 321.2 263.5 1.5 3.4 0.0 321.2 3.162 4.110 7.74 39.6 8 377.5 4.13 125 5042 3066 298.3 244.5 1.10 1.7 5.4 0.01 3.4 301.7 0.531 2.634 3.425 6.45 39.67 8 391.8 5.13 135 5051 3070 309.4 253.5 1.32 1.7 6.3 0.04 11.6 320.9 0.531 3.154 4.101 7.72 3.043 301.2 39.71 381.6 5.29 135 5056 3073 246.6 6.9 0.05 317.0 0.531 3.956 1.40 1.7 15.8 7.45 39.77 405.4 4.93 135 5064 3077 319.7 261.7 1.22 1.7 5.7 0.02 6.3 326.0 0.531 3.302 4.293 8.08 39.8 395.7 4.77 135 5068 3080 312.0 255.2 1.21 1.7 5.8 0.02 6.7 318.7 0.531 3.091 4.018 7.56 39.85 293.3 355.6 4.5 135 5075 3083 280.2 228.9 1.27 1.7 6.7 0.04 13.1 0.532 2,426 3.154 5.93 39.88 404.5 4.37 125 5079 3085 318.6 260.4 1.09 5.0 0.00 0.3 318.9 0.532 3.097 4.026 7.57 1.6 272.8 39.91 423.8 4.45 125 3087 0.532 5083 333.7 1.06 1.6 4.7 0.00 0.0 333.7 3.537 4.598 8.65 39.99 125 0.532 434.3 3.84 5093 3092 341.7 279.1 0.89 0.00 341.7 3.791 1.6 3.6 0.0 4.928 9.27 40.03 420.2 2.7 115 5098 3095 330.5 269.8 0.65 1.5 2.3 0.00 0.0 330.5 0.491 3.437 4.468 9.09 40.08 333.8 4.7 333.8 0.492 8 424.6 4.46 125 5104 3097 272.4 1.06 1.6 0.00 0.0 3.539 4.601 9.36 40.13 411.9 4.6 125 5110 3101 323.7 263.9 1.12 1.6 5.2 0.00 1.4 325.1 0.492 3.275 4.258 8.66 5.7 40 16 4026 4 84 135 5114 3102 3163 257.8 1.21 17 0.02 6.2 322.5 0.492 3 199 4 159 8 46 40.19 386 4.76 135 5118 3105 303.1 246 9 1.24 1.7 6.1 0.03 92 312.3 0.492 2.913 3.787 7.70 40.25 376.6 4.36 135 5126 3109 295.5 240.5 1.17 1.7 5.8 0.02 6.8 302.4 0.492 2.651 3.446 7.01 8 40.28 178.2 4.5 135 5130 3111 139.8 112.9 2.56 2.2 17.7 0.34 71.3 211.1 0.492 0.955 1.241 2.52 40.35 371.6 5.03 135 5139 3116 291.3 236.7 1.36 1.7 0.05 15.8 307.1 0.492 2.774 3.606 7.33 40.38 348.2 4.82 135 5143 3118 272.8 221.6 1.39 1.8 0.07 19.1 292.0 0.492 2.394 3.113 6.33 40.45 339.2 4.29 135 3123 1.27 7.0 0.05 280.6 0.492 8 5153 265.6 215.5 1.7 15.0 2.134 2.775 5.64 40.52 2.59 125 0.492 326.1 5162 3129 255.1 206.7 0.80 1.6 4.5 0.00 0.0 255.1 1.624 2.111 4.29 40.57 309.2 4.43 3132 195.7 0.09 0.492 135 5168 241.8 1.44 1.8 8.4 24.4 266.1 1.833 2.383 4.84 40.61 296.2 135 5174 231.5 187.3 1.50 9.0 27.5 259.0 0.492 2.204 4.4 3135 1.8 0.11 1.695 4.47 40 64 297 4 4.37 135 5178 3137 232.3 187 9 1 48 1.8 89 0.10 26.8 259 1 0.492 1 698 2.208 4 48 40.67 300.8 4.32 135 5182 3139 234 9 189 9 1.45 1.8 8.6 0.10 25.3 260.2 0.493 1 718 2.234 4 53 40.74 326.1 4.22 135 5191 3144 254.5 205.7 1.30 1.8 7.4 0.06 17.6 272.1 0.493 1.953 2.539 5.15 40.78 175.3 4.08 135 5197 3147 136.7 109.7 2.36 2.1 17.1 0.32 65.0 201.7 0.493 0.843 1.097 2.23 40.85 321.9 250.9 2.380 3.93 135 5206 3152 202.5 1.23 1.8 7.1 0.06 15.1 266.0 0.493 1.831 4.83 40.88 314.9 3.8 135 5210 3154 245.3 197.9 1.22 1.8 0.06 15.2 260.6 0.493 1.725 2.243 4.55 40.95 333.1 3.32 125 5220 3159 259.3 209.1 1.00 0.02 264.3 0.493 1.797 2.336 4.74 41.02 343.4 3.01 125 5228 3164 267.1 215.3 0.88 4.8 0.00 0.0 267.1 0.493 1.853 2,409 4.88 1.6 41.06 339.2 2.83 125 5233 3166 263.8 212.5 0.84 4.6 0.00 263.8 0.493 1.786 2.322 4.71 1.6 0.0 41.11 8 328.4 2.74 125 5240 3169 255.2 205.5 0.84 1.6 4.8 0.00 0.0 255.2 0.493 1.626 2.114 4.29 41.15 335.7 2.68 125 5245 3172 260.8 209.9 0.80 1.6 4.5 0.00 0.0 260.8 0.493 1.730 2.249 4.56 41.2 367.8 3 125 5251 3175 285.6 229.9 0.82 1.6 4.1 0.00 0.0 285.6 0.493 2.247 2.921 5.92 41.26 339.7 3.34 125 5258 3179 263.6 212.0 0.99 1.7 5.6 0.01 4.0 267.6 0.494 1.862 2.420 4.90 8 41.29 334.8 3.5 125 5262 3181 259.7 208.8 1.05 1.7 6.0 0.03 7.1 266.8 0.494 1.847 2.401 4.86 41.35 323.3 3.49 125 5270 3184 250.7 201.3 1.09 1.7 0.04 9.7 260.3 0.494 1.721 2.237 4.53 41.43 346.8 3.34 125 5280 0.97 1.7 5.3 2.5 0.494 1.934 2.515 3189 268.7 215.7 0.01 271.2 5.09 41.49 339.2 3.42 125 5287 3193 262.6 210.7 1.02 1.7 0.02 5.2 267.9 0.494 1.868 2.428 4.91 41.56 336.4 3.35 125 5296 3197 260.3 208.7 1.00 1.7 5.7 0.02 5.0 265.3 0.494 1.818 2.363 4.78 41.62 331.1 3.37 125 3201 1.03 0.02 262.6 0.494 2.293 5303 256.0 205.1 1.7 5.9 6.6 1.764 4.64 125 41.68 252.3 258.7 0.494 326.4 3.27 5311 3205 201.9 1.7 5.9 0.02 1.690 2.197 4.44 1.01 6.4 3.23 4.9 41.73 330.8 125 5317 3208 255.5 204.5 0.98 1.7 5.7 0.02 260.5 0.494 1.724 2.241 4.53 41.78 8 322.6 3.1 125 5323 3211 249.1 199.2 0.97 1.7 5.8 0.02 5.2 254.3 0.495 1.609 2.092 4.23 41.84 313.4 2.95 125 5331 3215 241.8 193.2 0.95 1.7 5.8 0.02 5.4 247.2 0.495 1.486 1.931 3.90 41 89 305.6 271 125 5337 3218 235.7 188.2 0.89 17 5.6 0.02 4 1 239 8 0.495 1 362 1 771 3 58 41.95 288 2 22 125 5345 3222 222.0177.0 0.78 17 5.2 0.01 1.4 223 4 0.495 1.117 1.452 2.93 42.01 289.8 2 44 125 5352 3226 223 3 178.0 0.85 1.7 5.7 0.02 4.1 227 3 0.495 1.173 1.525 3.08 8 125 3229 42.06 5358 225.6 237.5 1.724 293 3.07 179.8 1.06 1.7 6.9 0.05 11.9 0.495 1.326 3.48 42.13 295.1 125 5367 3233 237.3 8 2.98 227.1 180.8 1.02 1.7 6.6 0.04 10.2 0.495 1.323 1.720 3.47 42.2 278.1 2.74 125 5376 3238 213.9 170.1 0.99 1.7 0.05 11.0 224.9 0.495 1.138 1.479 2.99 6.8 42.28 213.6 2.37 125 5386 3243 130.0 1.12 0.12 0.496 0.679 0.882 164.1 1.9 9.4 21.9 186.0 1.78

EQ Magnitude (Mw):

173.0

152.3

0.496

0.496

0.731

0.531

1.47

1.07

Low F.S.

0.562

0.408

PGA (g):

6.5

0.54

MSF: 1.30

2.91

2 41

160.6

116.7

42.37

42 45

135

135 5408

5397

3248

3254

123.3

89.5

97.2

70.0

1.84

2.11

2.1

15.8

20.4

0.29

0.41

49.8

62.8

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 13

Depth to Groundwater: 8 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

PGA (g): 0.54 MSF: 1.30

	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	q <sub>c1N</sub>	Q	F	Ic	(%)	Ксрт	Dqcin	(qc1N)es		M7.5	M6.50		Comments
				, ,	/	( )						( ,			-					
	42.48	8	96.3	2.49	135	5412	3256	73.8	57.5	2.66	2.4	25.3	0.54	87.7	161.5	0.496	0.472	0.614	1.24	
	42.56	8	72.2	2.45	135	5423	3262	55.3	42.6	3.53	2.6	33.1	0.75	165.0	220.3	0.496	1.075	1.397	2.82	
	42.65	8	42.8	2.29	135	5435	3268	32.8	24.5	5.71	2.9	50.1	0.80	131.0	163.8	0.496	0.489	0.635	1.28	NonLiqfble.
	42.74 42.84	8	31.2 23.2	2.01 1.62	135 135	5447	3275 3282	23.9 17.7	17.4	7.06	3.0	61.3 71.6	0.80	95.4 70.9	119.3 88.6	0.496	0.238	0.309	0.62	NonLiqfble.
	42.64	8	23.2	1.46	135	5461 5473	3282	17.7	12.5 12.0	7.91 7.39	3.2	71.0	0.80	68.7	85.8	0.496 0.496	0.145 0.139	0.188 0.180	0.38	NonLiqfble. NonLiqfble.
	43.02	8	25.4	1.41	135	5485	3295	19.4	13.7	6.22	3.1	64.1	0.80	77.4	96.8	0.497	0.164	0.214	0.43	NonLiqfble.
	43.12	8	25.8	1.48	135	5498	3303	19.6	14.0	6.42	3.1	64.4	0.80	78.6	98.2	0.497	0.168	0.219	0.44	NonLiqfble.
	43.21 43.3	8	25.6	1.49	135 135	5511 5523	3309	19.5	13.8	6.52	3.1	65.0	0.80	77.9	97.4	0.497	0.166	0.216	0.43	NonLiqfble.
	43.4	8 8	24.8 24.8	1.45 1.4	135	5536	3316 3323	18.8 18.8	13.3 13.3	6.58 6.35	3.1	66.1 65.4	0.80	75.4 75.3	94.2 94.1	0.497 0.497	0.158 0.158	0.205 0.205	0.41 0.41	NonLiqfble. NonLiqfble.
	43.49	8	24.8	1.37	135	5548	3329	18.8	13.2	6.22	3.1	65.0	0.80	75.2	94.0	0.497	0.157	0.205	0.41	NonLiqfble.
	43.59	8	24.4	1.31	135	5562	3337	18.5	13.0	6.06	3.1	65.0	0.80	73.9	92.4	0.497	0.153	0.199	0.40	NonLiqfble.
	43.69	8	21.7	1.24	135	5575	3344	16.4	11.3	6.56	3.2	70.0	0.80	65.7	82.1	0.497	0.131	0.171	0.34	NonLiqfble.
	43.79 43.89	8	20 18.4	1.19 1.15	135 135	5589 5602	3351 3358	15.1 13.9	10.3 9.3	6.92 7.37	3.2	73.6 77.7	0.80	60.5 55.6	75.6 69.5	0.498 0.498	0.120 0.111	0.156 0.145	0.31	NonLiqfble. NonLiqfble.
	43.99	8	17.9	1.13	135	5616	3366	13.5	9.0	7.49	3.3	79.0	0.80	54.0	67.5	0.498	0.109	0.143	0.28	NonLiqfble.
	44.08	8	17.7	1.17	135	5628	3372	13.3	8.8	7.86	3.3	66.0	0.80	53.3	66.7	0.498	0.108	0.140	0.28	NonLiqfble.
	44.18	8	19	1.24	135	5642	3380	14.3	9.6	7.66	3.3	66.0	0.80	57.2	71.5	0.498	0.114	0.148	0.30	NonLiqfble.
	44.28 44.38	8	19.7 21.2	1.29 1.29	135 135	5655 5669	3387 3394	14.8 15.9	10.0 10.8	7.65 7.02	3.2	66.0 66.0	0.80 0.80	59.2 63.7	74.1 79.6	0.498 0.498	0.118 0.127	0.153 0.165	0.31	NonLiqfble. NonLiqfble.
	44.48	8	21.7	1.25	135	5682	3401	16.3	11.1	6.63	3.2	66.0	0.80	65.1	81.4	0.498	0.127	0.169	0.34	NonLiqfble.
	44.58	8	21.7	1.21	135	5696	3409	16.3	11.1	6.42	3.2	66.0	0.80	65.1	81.3	0.499	0.130	0.169	0.34	NonLiqfble.
	44.69	8	20.9	1.16	135	5710	3417	15.6	10.6	6.43	3.2	66.0	0.80	62.6	78.2	0.499	0.125	0.162	0.32	NonLiqfble.
	44.79 44.89	8	19.9 18.6	1.08 1.03	135 135	5724 5737	3424 3431	14.9 13.9	9.9 9.2	6.34 6.55	3.2	66.0 66.0	0.80 0.80	59.5 55.6	74.4 69.5	0.499 0.499	0.118 0.111	0.154 0.145	0.31 0.29	NonLiqfble. NonLiqfble.
	44.99	8	17.1	0.98	135	5751	3438	12.8	8.3	6.89	3.3	66.0	0.80	51.0	63.8	0.499	0.111	0.145	0.29	NonLiqfble.
	45.09	8	16.5	0.94	125	5764	3446	12.3	7.9	6.90	3.3	66.0	0.80	49.2	61.5	0.499	0.102	0.132	0.26	NonLiqfble.
	45.19	8	16.4	0.92	125	5777	3452	12.2	7.8	6.81	3.3	66.0	0.80	48.9	61.1	0.499	0.101	0.132	0.26	NonLiqfble.
	45.3 45.4	8	16.1 16.1	0.89 0.82	125 125	5791 5803	3459 3465	12.0 12.0	7.6 7.6	6.74 6.21	3.3	66.0 66.0	0.80 0.80	47.9 47.9	59.9 59.8	0.499 0.500	0.100 0.100	0.130 0.130	0.26 0.26	NonLiqfble. NonLiqfble.
	45.5	8	16.1	0.75	125	5816	3471	12.0	7.6	5.69	3.3	66.0	0.80	47.8	59.8	0.500	0.100	0.130	0.26	NonLiqfble.
	45.6	8	16.6	0.71	125	5828	3478	12.3	7.9	5.19	3.2	74.6	0.80	49.3	61.6	0.500	0.102	0.132	0.26	NonLiqfble.
	45.69	8	14.9	0.7	125	5839	3483	11.0	6.9	5.84	3.3	80.9	0.80	44.2	55.2	0.500	0.096	0.124	0.25	NonLiqfble.
	45.81 45.91	8 8	21 19.3	0.72 0.73	125 125	5854 5867	3491 3497	15.6 14.3	10.3 9.4	3.98 4.46	3.1	62.4 67.0	0.80	62.2 57.1	77.8 71.4	0.500 0.501	0.124 0.114	0.161 0.148	0.32	NonLiqfble. NonLiqfble.
	46.01	8	18.5	0.73	125	5879	3503	13.7	8.9	4.63	3.1	69.1	0.80	54.7	68.4	0.501	0.114	0.143	0.28	NonLiqfble.
	46.11	8	17.8	0.67	125	5892	3509	13.1	8.5	4.51	3.2	69.8	0.80	52.6	65.7	0.501	0.106	0.138	0.28	NonLiqfble.
	46.21	8	16.6	0.59	125	5904	3516	12.2	7.8	4.32	3.2	71.3	0.80	49.0	61.2	0.501	0.101	0.132	0.26	NonLiqfble.
	46.32 46.42	8	14.9 14	0.53 0.48	125 125	5918 5931	3523 3529	11.0 10.3	6.8	4.44 4.35	3.2	75.6 77.5	0.80	43.9 41.2	54.9 51.6	0.501 0.501	0.095 0.093	0.124 0.121	0.25 0.24	NonLiqfble. NonLiqfble.
	46.52	8	13.7	0.46	125	5943	3535	10.3	6.1	4.33	3.3	77.2	0.80	40.3	50.4	0.501	0.093	0.121	0.24	NonLiqfble.
	46.63	8	12.7	0.42	125	5957	3542	9.3	5.5	4.32	3.3	81.2	0.80	37.3	46.7	0.502	0.089	0.116	0.23	NonLiqfble.
	46.73	8	12.6	0.41	125	5969	3548	9.3	5.4	4.26	3.3	81.3	0.80	37.0	46.3	0.502	0.089	0.116	0.23	NonLiqfble.
	46.84 46.94	8	11 10.7	0.41 0.42	115 115	5983 5995	3555 3560	8.1 7.8	4.5 4.3	5.12 5.45	3.4	91.0 93.7	0.80	32.3 31.4	40.4 39.2	0.502 0.502	0.086 0.086	0.112 0.111	0.22 0.22	NonLiqfble. NonLiqfble.
	47.04	8	10.7	0.42	115	6006	3566	7.9	4.4	5.52	3.4	8.2	0.09	0.7	8.7	0.503	0.080	0.111	0.22	NonLiqfble.
	47.14	8	11	0.44	115	6018	3571	8.1	4.5	5.51	3.4	8.2	0.09	0.8	8.8	0.503	0.080	0.104	0.21	NonLiqfble.
	47.25	8	12.3	0.47	125	6030	3577	9.0	5.2	5.06	3.4	8.2	0.09	0.8	9.8	0.503	0.080	0.104	0.21	NonLiqfble.
	47.35 47.45	8 8	11.9 11.9	0.47 0.46	125 125	6043 6055	3583 3589	8.7 8.7	5.0 4.9	5.29 5.19	3.4 3.4	8.2 8.2	0.09 0.09	0.8	9.5 9.5	0.503 0.503	0.080	0.104 0.104	0.21	NonLiqfble. NonLiqfble.
	47.45	8	11.2	0.43	115	6069	3596	8.2	4.5	5.19	3.4	8.2	0.09	0.8	8.9	0.504	0.080	0.104	0.21	NonLiqfble.
	47.66	8	11.9	0.41	115	6081	3601	8.7	4.9	4.63	3.4	8.2	0.09	0.8	9.5	0.504	0.080	0.104	0.21	NonLiqfble.
	47.76	8	11.9	0.41	115	6092	3607	8.7	4.9	4.63	3.4	8.2	0.09	0.8	9.5	0.504	0.080	0.104	0.21	NonLiqfble.
	47.87	8	12	0.41	115	6105	3612	8.7	5.0	4.58	3.4	8.2	0.09	0.8	9.6	0.504	0.080	0.104	0.21	NonLiqfble.
	47.97 48.07	8	12.2 11.8	0.42 0.41	125 115	6116 6129	3618 3624	8.9 8.6	5.1 4.8	4.59 4.69	3.3	8.2 38.0	0.09 0.80	0.8 34.3	9.7 42.9	0.504 0.505	0.080 0.087	0.104 0.114	0.21 0.23	NonLiqfble. NonLiqfble.
	48.17	8	12.2		115	6140	3629	8.9	5.0	4.27	3.3	38.0	0.80	35.4	44.3	0.505	0.088	0.115	0.23	NonLiqfble.
	48.27	8	11.9	0.39	115	6152	3634	8.6	4.9	4.42	3.4	38.0	0.80	34.5	43.2	0.505	0.087	0.114	0.23	NonLiqfble.
	48.38	8	11.5	0.4	115	6164	3640	8.3	4.6	4.75	3.4	38.0	0.80	33.4	41.7	0.505	0.087	0.113	0.22	NonLiqfble.
	48.48 48.58	8	10.9 11.8	0.41 0.42	115 115	6176 6187	3646 3651	7.9 8.5	4.3 4.8	5.25 4.82	3.4 3.4	38.0 38.0	0.80 0.80	31.6 34.2	39.5 42.7	0.505 0.506	0.086 0.087	0.111 0.113	0.22 0.22	NonLiqfble. NonLiqfble.
	48.68	8	12.2			6199	3656	8.8	5.0	5.49	3.4	38.0	0.80	35.3	44.1	0.506	0.088	0.113	0.23	NonLiqfble.

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 **MSF:** 1.30 CPT Number: 13

Depth to Groundwater: 8 feet

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	$\mathbf{q}_{\mathrm{c1N}}$	Q	F	Ic	(%)	Ксрт	Dqc1N	$(q_{c1N})_{cs}$	Ratio	M7.5	M6.50	Safety	Comments
																				-
	48.79	8	13.1	0.62	125	6213	3663	9.5	5.5	6.20	3.4	38.0	0.80	37.9	47.4	0.506	0.090	0.117	0.23	NonLiqfble.
	48.89	8	15.5	0.73	125	6225	3669	11.2	6.7	5.89	3.3	38.0	0.80	44.8	56.0	0.506	0.096	0.125	0.25	NonLiqfble.
	48.92	8	19.7	0.76	125	6229	3671	14.2	9.0	4.58	3.1	38.0	0.80	56.9	71.1	0.506	0.113	0.148	0.29	NonLiqfble.
	49	8	23.4	0.74	125	6239	3676	16.9	11.0	3.65	3.0	59.3	0.80	67.5	84.4	0.506	0.136	0.177	0.35	NonLiqfble.
	49.1	8	23.7	0.72	125	6251	3682	17.1	11.2	3.50	3.0	58.2	0.80	68.4	85.4	0.506	0.138	0.179	0.35	NonLiqfble.
	49.2	8	23	0.8	135	6264	3689	16.6	10.8	4.03	3.0	61.6	0.80	66.3	82.8	0.507	0.133	0.173	0.34	NonLiqfble.
	49.3	8	20.7	0.83	125	6277	3696	14.9	9.5	4.73	3.1	67.7	0.80	59.6	74.5	0.507	0.118	0.154	0.30	NonLiqfble.
	49.4	8	24.7	0.84	135	6290	3702	17.8	11.6	3.90	3.0	59.1	0.80	71.0	88.8	0.507	0.145	0.189	0.37	NonLiqfble.
	49.5	8	32.2	0.8	135	6303	3709	23.1	15.7	2.75	2.8	47.0	0.80	92.5	115.7	0.507	0.224	0.291	0.57	NonLiqfble.
	49.61	8	30	0.71	125	6318	3717	21.5	14.4	2.65	2.8	48.0	0.80	86.1	107.6	0.507	0.196	0.255	0.50	NonLiqfble.
	49.71	8	26.6	0.6	125	6331	3724	19.1	12.6	2.56	2.9	50.5	0.80	76.3	95.4	0.507	0.161	0.209	0.41	NonLiqfble.
	49.81	8	20	0.54	125	6343	3730	14.3	9.0	3.21	3.1	61.9	0.80	57.3	71.6	0.507	0.114	0.148	0.29	NonLiqfble.
	49.91	8	15.2	0.49	125	6356	3736	10.9	6.4	4.08	3.2	75.4	0.80	43.5	54.4	0.508	0.095	0.123	0.24	NonLiqfble.
	50.02	8	12.9	0.48	125	6369	3743	9.2	5.2	4.94	3.4	85.7	0.80	36.9	46.1	0.448	0.089	0.116	0.26	NonLiqfble.
	50.12	8	12.9	0.45	125	6382	3749	9.2	5.2	4.64	3.3	84.4	0.80	36.9	46.1	0.448	0.089	0.116	0.26	NonLiqfble.
	50.22	8	12.9	0.46	125	6394	3756	9.2	5.2	4.74	3.3	85.0	0.80	36.8	46.1	0.448	0.089	0.116	0.26	NonLiqfble.
	50.32	8	14.3	0.49	125	6407	3762	10.2	5.9	4.42	3.3	79.5	0.80	40.8	51.0	0.448	0.092	0.120	0.27	NonLiqfble.
	50.43	8	14.4	0.52	125	6421	3769	10.3	5.9	4.65	3.3	80.3	0.80	41.1	51.3	0.448	0.093	0.120	0.27	NonLiqfble.
	50.53	8	14	0.55	125	6433	3775	10.0	5.7	5.10	3.3	83.5	0.80	39.9	49.8	0.449	0.092	0.119	0.27	NonLiqfble.
	50.63	8	14.5	0.55	125	6446	3781	10.3	6.0	4.88	3.3	81.2	0.80	41.3	51.6	0.449	0.093	0.121	0.27	NonLiqfble.
	50.73	8	15.3	0.57	125	6458	3787	10.9	6.4	4.72	3.3	78.6	0.80	43.5	54.4	0.449	0.095	0.123	0.28	NonLiqfble.
	50.83	8	16	0.58	125	6471	3794	11.4	6.7	4.54	3.2	76.3	0.80	45.5	56.8	0.449	0.097	0.126	0.28	NonLiqfble.
	50.93	8	16.1	0.59	125	6483	3800	11.4	6.8	4.59	3.2	76.3	0.80	45.7	57.1	0.449	0.097	0.127	0.28	NonLiqfble.
	51.03	8	16	0.6	125	6496	3806	11.3	6.7	4.71	3.3	77.1	0.80	45.4	56.7	0.449	0.097	0.126	0.28	NonLiqfble.

Depth to Groundwater: 10 feet

Water Tip Sleeve

EQ Magnitude ( $M_w$ ): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 **MSF:** 1.30 CPT Number: 14

Total Effective Norm. Corr. Friction

Induced Liquef. Liquef. Factor

		Water	Tip	Sleeve			Effective										_	Liquef.		
	Depth	Table	Resist.	Frict.	g	Stress		Tip	Tip	Ratio		F.C.	V	Da	(~ )	Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	( <b>q</b> c1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	0.57	10	186.2	8.34	140	80	80	356.6	4663.7	4.48	1.9	10.0	0.13	54.4	411.0	0.351	6.538	8.499	24.21	Above W.T.
	0.67	10	164	7.91	140	94	94	314.1	3494.3	4.82	1.9	10.5	0.15	54.2	368.3	0.351	4.725	6.143	17.50	Above W.T.
	0.77	10	150.5	7.06		108	108	288.2	2790.0	4.69	1.9	10.2	0.14	46.4	334.6	0.351	3.564	4.633	13.20	Above W.T.
	0.86	10 10	137.7 129.3	6.1 5.4	140	120 134	120	263.7 247.6	2285.4 1922.3	4.43	1.9 1.9	9.7 9.2	0.12	37.7	301.4 279.2	0.351	2.626 2.104	3.413	9.72 7.79	Above W.T.
	0.96 1.05	10	129.3	4.71	140 135	147	134 147	231.7	1644.6	4.18 3.89	1.8	8.7	0.11	31.5 25.7	257.4	0.351 0.351	1.666	2.735 2.166	6.17	Above W.T. Above W.T.
	1.14	10	118.8	4.57	135	159	159	227.5	1491.3	3.85	1.8	8.8	0.10	25.4	252.9	0.351	1.585	2.061	5.87	Above W.T.
	1.23	10	115.6	4.21	135	171	171	221.4	1348.1	3.64	1.8	8.4	0.09	22.2	243.6	0.351	1.425	1.853	5.28	Above W.T.
	1.32	10	102.4	3.85	135	183	183	196.1	1114.9	3.76	1.8	9.1	0.11	24.1	220.2	0.351	1.073	1.395	3.98	Above W.T.
	1.41	10	91.1	3.41	135	196	196	174.5	930.1	3.75	1.9	9.5	0.12	23.9	198.3	0.351	0.806	1.047	2.98	Above W.T.
	1.51	10	73.2	2.68		209	209	140.2	698.9	3.67	1.9	10.2	0.14	22.5	162.6	0.351	0.480	0.624	1.78	Above W.T.
	1.6	10	60.4	1.97	135	221	221	115.7	544.8	3.27	1.9	10.0	0.13	17.8	133.5	0.351	0.301	0.391	1.11	Above W.T.
	1.69 1.91	10 10	48.4 48.6	1.52 1.48		233 263	233 263	92.7 93.1	413.6 368.3	3.15 3.05	1.9 1.9	10.8 11.1	0.16 0.16	17.1 18.2	109.8 111.3	0.351 0.351	0.203 0.208	0.264 0.270	0.75 0.77	Above W.T. Above W.T.
	2.01	10	53.1	0.46			277	101.7	382.8	0.87	1.5	2.3	0.00	0.0	101.7	0.351	0.208	0.270	0.66	Above W.T.
	2.1	10	62.8	0.82		287	287	120.3	436.5	1.31	1.6	3.9	0.00	0.0	120.3	0.351	0.242	0.314	0.90	Above W.T.
	2.19	10	88.4	0.98		298	298	169.3	591.6	1.11	1.4	2.1	0.00	0.0	169.3	0.351	0.531	0.691	1.97	Above W.T.
	2.28	10	63.3	1.37	135	309	309	121.2	407.9	2.17	1.8	7.7	0.07	9.3	130.5	0.351	0.287	0.373	1.06	Above W.T.
	2.38	10	62	1.47	135	323	323	118.7	382.8	2.38	1.8	8.7	0.10	13.0	131.7	0.351	0.292	0.380	1.08	Above W.T.
	2.47	10	44.1	1.54		335	335	84.5	262.1	3.51	2.1	14.5	0.25	28.6	113.0	0.351	0.214	0.279	0.79	Above W.T.
	2.57	10	35.6	1.54		349	349	68.2	203.2	4.35	2.2	18.7	0.37	39.4	107.6	0.351	0.196	0.255	0.73	Above W.T.
	2.66 2.76	10 10	28.4 24.4	1.52 1.53		361 374	361 374	54.4 46.7	156.4 129.3	5.39 6.32	2.3	23.7 27.9	0.50 0.61	54.2 73.1	108.6 119.9	0.351	0.199 0.240	0.259 0.312	0.74 0.89	Above W.T. Above W.T.
	2.86	10	19.6	1.51	135	388	388	37.5	100.1	7.78	2.6	34.0	0.77	129.2	166.7	0.351	0.511	0.664	1.89	Above W.T.
	2.96	10	17.4	1.47		401	401	33.3	85.7	8.55	2.6	37.6	0.80	133.3	166.6	0.351	0.510	0.663	1.89	Above W.T.
	3.06	10	16.2	1.5			415	31.0	77.1	9.38	2.7	40.7	0.80	124.1	155.1	0.351	0.427	0.555	1.58	Above W.T.
	3.16	10	16	1.54	135	428	428	30.6	73.7	9.76	2.7	42.0	0.80	122.6	153.2	0.351	0.414	0.539	1.54	Above W.T.
	3.26	10	15.5	1.54			442	29.7	69.1	10.08	2.8	43.6	0.80	118.7	148.4	0.351	0.384	0.499	1.42	Above W.T.
	3.36	10	14.4	1.51	135		455	27.6	62.2	10.65	2.8	46.2	0.80	110.3	137.9	0.351	0.324	0.421	1.20	Above W.T.
	3.46	10	13.8	1.48		469	469	26.4	57.9	10.91	2.8	47.8	0.80	105.7	132.1	0.351	0.295	0.383	1.09	Above W.T.
	3.56 3.66	10 10	13.1 14.3	1.45 1.48		482 496	482 496	25.1 27.4	53.3 56.7	11.28 10.53	2.9 2.8	49.8 47.4	0.80	100.4 109.5	125.4 136.9	0.351 0.351	0.264 0.319	0.343 0.414	0.98 1.18	Above W.T. Above W.T.
	3.76	10	16.8	1.55		509	509	32.2	65.0	9.37	2.7	43.0	0.80	128.7	160.9	0.351	0.467	0.607	1.73	Above W.T.
	3.87	10	20.1	1.67	135	524	524	38.4	75.7	8.42	2.7	38.9	0.80	153.7	192.1	0.351	0.739	0.961	2.74	Above W.T.
	3.97	10	21.2	1.79	135	538	538	40.0	77.8	8.55	2.7	38.8	0.80	160.0	200.0	0.351	0.824	1.072	3.05	Above W.T.
	4.07	10	21	1.85	135	551	551	39.1	75.2	8.93	2.7	40.1	0.80	156.6	195.7	0.351	0.777	1.010	2.88	Above W.T.
	4.18	10	21	1.85		566	566	38.6	73.2	8.93	2.7	40.5	0.80	154.5	193.1	0.351	0.750	0.975	2.78	Above W.T.
	4.28	10	20.1	1.81	135	579	579	36.5	68.3	9.14	2.7	41.8	0.80	146.1	182.7	0.351	0.647	0.841	2.40	Above W.T.
	4.38 4.48	10 10	17.9 16.3	1.73 1.63		593 606	593 606	32.2 29.0	59.4 52.7	9.83 10.19	2.8	45.3 47.9	0.80	128.7 115.8	160.8 144.8	0.351 0.351	0.467 0.362	0.607 0.471	1.73 1.34	Above W.T. Above W.T.
	4.59	10	14.9	1.54	135	621	621	26.2	46.9	10.19	2.9	50.5	0.80	104.6	130.8	0.351	0.302	0.471	1.07	Above W.T.
	4.69	10	13.9	1.45			635	24.1	42.8	10.68	2.9	52.3	0.80	96.6	120.7	0.351	0.244	0.317	0.90	Above W.T.
	4.79	10	13.4	1.37	135	648	648	23.0	40.3	10.48	2.9	52.9	0.80	92.1	115.1	0.351	0.222	0.289	0.82	Above W.T.
	4.89	10	12.7	1.32	135	662	662	21.6	37.4	10.67	2.9	54.7	0.80	86.4	108.0	0.351	0.197	0.256	0.73	Above W.T.
	5.11	10	14	1.29		692	692	23.3	39.5	9.45	2.9	51.1	0.80	93.2	116.5	0.351	0.227	0.295	0.84	Above W.T.
	5.22	10	12.4	1.25		706	706	20.4	34.1	10.38	3.0	55.7	0.80	81.7	102.1	0.351	0.179	0.233	0.66	Above W.T.
	5.33	10	12	1.22			721	19.6	32.3	10.48	3.0	57.0	0.80	78.2	97.8	0.351	0.167	0.217	0.62	Above W.T.
	5.43 5.53	10 10	11.5 10.6	1.19 1.17			734 746	18.6 17.0	30.3 27.4	10.69 11.44	3.0	58.6 62.1	0.80 0.80	74.3 67.9	92.9 84.9	0.351 0.351	0.155 0.137	0.201 0.178	0.57 0.51	Above W.T. Above W.T.
	5.64	10	10.3	1.14			760	16.3	26.1	11.49	3.1	63.2	0.80	65.4	81.7	0.351	0.137	0.178	0.48	Above W.T.
	5.74	10	9.3	1.1	125		772	14.6	23.1	12.34	3.1	67.5	0.80	58.6	73.2	0.351	0.116	0.151	0.43	Above W.T.
	5.85	10	7.4	1.07		786	786	11.5	17.8	15.27	3.3	78.7	0.80	46.2	57.7	0.351	0.098	0.127	0.36	Above W.T.
	5.95	10	8.1	1.03		799	799	12.5	19.3	13.38	3.2	73.5	0.80	50.2	62.7	0.351	0.103	0.134	0.38	Above W.T.
	6.06	10	8	1.01	125		812	12.3	18.7	13.30	3.2	74.1	0.80	49.1	61.4	0.351	0.102	0.132	0.38	Above W.T.
	6.16	10	8.3	0.99		825	825	12.6	19.1	12.55	3.2	72.1	0.80	50.6	63.2	0.351	0.103	0.135	0.38	Above W.T.
	6.27	10	8.7	0.98			839	13.1	19.7	11.84	3.2	70.0	0.80	52.6	65.7	0.351	0.106	0.138	0.39	Above W.T.
	6.37 6.48	10	8.9 8.7	0.98 0.98			851 865	13.3 12.9	19.9 19.1	11.56 11.85	3.2	69.2 70.7	0.80 0.80	53.4 51.8	66.7 64.7	0.351 0.351	0.108 0.105	0.140 0.137	0.40 0.39	Above W.T. Above W.T.
	6.58	10 10	8.7	0.98			865 877	11.8	17.2	12.96	3.2	70.7 75.3	0.80	47.3	64.7 59.1	0.351	0.103	0.137	0.39	Above W.T.
	6.69	10	8.3	0.96			891	12.2	17.6	12.22	3.2	73.4	0.80	48.7	60.8	0.351	0.101	0.123	0.37	Above W.T.
	6.79	10	8	0.92			904	11.6	16.7	12.19	3.2	74.6	0.80	46.6	58.2	0.351	0.098	0.128	0.36	Above W.T.
	6.89	10	6.6	0.86	125		916	9.5	13.4	14.00	3.3	83.6	0.80	38.2	47.7	0.351	0.090	0.117	0.33	Above W.T.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 14

Depth to Groundwater: 10 feet

**EQ Magnitude (M<sub>w</sub>):** 6.5 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve			Effective			Friction							•	Liquef.		
C	Depth	Table	Resist.	Frict.	g (DCE)	Stress	Stress	Tip	Tip	Ratio	τ.	F.C.	Ксрт	Da	(a)	Stress	Stress	Stress	of C-f-4	C
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> eIN	Q	F	Ic	(%)	KCPI	Dyeln	( <b>q</b> c1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	7	10	6	0.81	125	930	930	8.6	11.9	14.63	3.4	87.9	0.80	34.4	43.0	0.351	0.087	0.114	0.32	Above W.T.
	7.1	10	5.1	0.76	115	942	942	7.3	9.8	16.42	3.5	96.5	0.80	29.1	36.3	0.351	0.084	0.114	0.32	Above W.T.
	7.21	10	4.5	0.72	115	955	955	6.4	8.4	17.90	3.5	103.6	0.80	25.5	31.9	0.351	0.083	0.108	0.31	Above W.T.
	7.31 7.41	10 10	4.8 5	0.7 0.69	115 115	967 978	967 978	6.8 7.0	8.9 9.2	16.22 15.30	3.5 3.5	98.9 96.3	0.80	27.0 28.0	33.8 35.0	0.351 0.351	0.084 0.084	0.109 0.109	0.31	Above W.T. Above W.T.
	7.52	10	5.3	0.69	115	991	978	7.4	9.2	14.36	3.4	93.1	0.80	29.5	36.8	0.351	0.085	0.109	0.31	Above W.T.
	7.62	10	4.9	0.68	115	1002	1002	6.8	8.8	15.46	3.5	98.1	0.80	27.1	33.9	0.351	0.084	0.109	0.31	Above W.T.
	7.73	10	4.5	0.66	115	1015	1015	6.2	7.9	16.53	3.5	103.4	0.80	24.7	30.9	0.351	0.083	0.108	0.31	Above W.T.
	7.83 7.94	10 10	5.1 5.2	0.64 0.61	115 115	1026 1039	1026 1039	7.0 7.1	8.9 9.0	13.95 13.03	3.5 3.4	94.7 92.6	0.80	27.9 28.2	34.8 35.3	0.351	0.084 0.084	0.109 0.109	0.31	Above W.T. Above W.T.
	8.04	10	4.6	0.52	115	1051	1051	6.2	7.8	12.76	3.5	96.5	0.80	24.8	31.0	0.351	0.083	0.109	0.31	Above W.T.
	8.15	10	3.9	0.53	105	1063	1063	5.2	6.3	15.74	3.6	108.8	0.80	20.9	26.2	0.351	0.082	0.106	0.30	Above W.T.
	8.25	10	3.3	0.56	105	1074	1074	4.4	5.1	20.27	3.7	123.7	0.80	17.6	22.0	0.351	0.081	0.105	0.30	Above W.T.
	8.33 8.43	10 10	5.8 6.5	0.56 0.55	115 115	1082 1094	1082 1094	7.7 8.6	9.7 10.9	10.65 9.24	3.3	85.2 78.6	0.80	30.9 34.4	38.6 43.0	0.351	0.085 0.087	0.111 0.114	0.32	Above W.T. Above W.T.
	8.54	10	6.4	0.54	115	1106	1106	8.4	10.6	9.24	3.3	79.4	0.80	33.7	42.1	0.351	0.087	0.113	0.32	Above W.T.
	8.64	10	6.2	0.55	115	1118	1118	8.1	10.1	9.75	3.3	82.0	0.80	32.5	40.6	0.351	0.086	0.112	0.32	Above W.T.
	8.75	10	6.2	0.56	115	1130	1130	8.1	10.0	9.94	3.3	82.8	0.80	32.3	40.3	0.351	0.086	0.112	0.32	Above W.T.
	8.85 8.96	10 10	6.9 6.5	0.56 0.54	115 115	1142 1155	1142 1155	8.9 8.4	11.1 10.3	8.85 9.12	3.3	77.2 79.9	0.80	35.7 33.5	44.7 41.8	0.351	0.088 0.087	0.115 0.113	0.33	Above W.T. Above W.T.
	9.06	10	7.4	0.52	115	1166	1166	9.5	11.7	7.63	3.2	72.4	0.80	37.9	47.4	0.351	0.090	0.117	0.33	Above W.T.
	9.17	10	6.1	0.52	115	1179	1179	7.8	9.3	9.44	3.3	83.3	0.80	31.1	38.9	0.351	0.085	0.111	0.32	Above W.T.
	9.27	10	4.8 4	0.53	115	1190	1190	6.1	7.1	12.61	3.5	99.0	0.80	24.4	30.4	0.351	0.083	0.107	0.31	Above W.T.
	9.37 9.48	10 10	3.6	0.52 0.5	105 105	1202 1213	1202 1213	5.0 4.5	5.7 4.9	15.30 16.70	3.6 3.7	111.7 119.1	0.80	20.2 18.1	25.2 22.6	0.351 0.351	0.081	0.106 0.105	0.30	Above W.T. Above W.T.
	9.59	10	4	0.47	105	1225	1225	5.0	5.5	13.88	3.6	109.6	0.80	20.0	25.0	0.351	0.081	0.106	0.30	Above W.T.
	9.7	10	4	0.44	105	1236	1236	5.0	5.5	13.01	3.6	108.1	0.80	19.9	24.9	0.351	0.081	0.106	0.30	Above W.T.
	9.8 9.91	10 10	4 4.5	0.41 0.4	105 105	1247 1258	1247	5.0	5.4	12.14	3.6	106.5	0.80	19.8	24.8 27.8	0.351	0.081 0.082	0.106 0.107	0.30	Above W.T.
	10.01	10	4.3	0.39	105	1269	1258 1263	5.6 5.3	6.1 5.8	10.33 10.64	3.5 3.5	98.0 100.6	0.80	22.2 21.2	26.5	0.351 0.346	0.082	0.107	0.30	Above W.T. NonLiqfble.
	10.12	10	4.5	0.39	105	1280	1267	5.5	6.1	10.10	3.5	97.7	0.80	22.1	27.7	0.348	0.082	0.107	0.31	NonLiqfble.
	10.22	10	4.4	0.39	105	1291	1272	5.4	5.9	10.39	3.5	99.4	0.80	21.6	27.0	0.349	0.082	0.106	0.30	NonLiqfble.
	10.33 10.43	10 10	4.5 4.2	0.4 0.4	105 105	1303 1313	1276 1281	5.5 5.1	6.0 5.5	10.39 11.29	3.5 3.5	98.8 103.8	0.80	22.0 20.5	27.6 25.7	0.351 0.353	0.082 0.082	0.107 0.106	0.30	NonLiqfble. NonLiqfble.
	10.43	10	4.7	0.4	105	1325	1285	5.7	6.3	9.91	3.5	96.2	0.80	22.9	28.7	0.355	0.082	0.100	0.30	NonLiqfble.
	10.64	10	4.7	0.42	105	1335	1289	5.7	6.3	10.42	3.5	97.7	0.80	22.9	28.6	0.356	0.082	0.107	0.30	NonLiqfble.
	10.75	10	4.8	0.47	105	1347	1294	5.8	6.4	11.39	3.5	99.4	0.80	23.4	29.2	0.358	0.082	0.107	0.30	NonLiqfble.
	10.85 10.96	10 10	4.2 3.6	0.47 0.43	105 105	1357 1369	1298 1303	5.1 4.4	5.4 4.5	13.35 14.75	3.6 3.7	109.1 118.7	0.80	20.4 17.5	25.5 21.8	0.360 0.361	0.082 0.081	0.106 0.105	0.29 0.29	NonLiqfble. NonLiqfble.
	11.06	10	3.3	0.41	105	1379	1307	4.0	4.0	15.71	3.8	124.8	0.80	16.0	20.0	0.363	0.081	0.105	0.29	NonLiqfble.
	11.17	10	3	0.42	105	1391	1312	3.6	3.5	18.23	3.8	134.4	0.80	14.5	18.1	0.365	0.081	0.105	0.29	NonLiqfble.
	11.27	10	3.2	0.43	105	1401	1316	3.9	3.8	17.21	3.8	129.6	0.80	15.4	19.3	0.366	0.081	0.105	0.29	NonLiqfble.
	11.38 11.48	10 10	3.5 4.6	0.35 0.43	105 105	1413 1423	1321 1325	4.2 5.5	4.2 5.9	12.53 11.06	3.7	115.9 101.3	0.80	16.9 22.1	21.1 27.6	0.368	0.081 0.082	0.105 0.107	0.29 0.29	NonLiqfble. NonLiqfble.
	11.59	10	4.3	0.47	105	1435	1330	5.2	5.4	13.12	3.6	108.9	0.80	20.6	25.8	0.371	0.082	0.106	0.29	NonLiqfble.
	11.66	10	6.9	0.49	115	1442	1333	8.3	9.3	7.93	3.3	79.4	0.80	33.1	41.3	0.372	0.087	0.113	0.30	NonLiqfble.
	11.73	10	8.3	0.5	115	1450	1337	9.9	11.3	6.60	3.2	70.1	0.80	39.7	49.7	0.373	0.091	0.119	0.32	NonLiqfble.
	11.83 11.94	10 10	7.9 7.2	0.54 0.54	115 115	1462 1474	1342 1348	9.4 8.6	10.7 9.6	7.53 8.36	3.2	74.4 79.7	0.80	37.7 34.3	47.2 42.9	0.375 0.376	0.090 0.087	0.117 0.114	0.31	NonLiqfble. NonLiqfble.
	12.05	10	6.3	0.53	115	1487	1353	7.5	8.2	9.54	3.4	87.2	0.80	30.0	37.5	0.378	0.085	0.114	0.29	NonLiqfble.
	12.15	10	6.8	0.52	115	1499	1359	8.1	8.9	8.59	3.3	82.4	0.80	32.3	40.4	0.379	0.086	0.112	0.30	NonLiqfble.
	12.26	10	6.9	0.51	115	1511	1365	8.2	9.0	8.30	3.3	81.2	0.80	32.7	40.9	0.381	0.086	0.112	0.29	NonLiqfble.
	12.37 12.47	10 10	6.6 6.2	0.5 0.47	115 115	1524 1535	1370 1376	7.8 7.3	8.5 7.9	8.56 8.65	3.3	83.5 85.9	0.80	31.2 29.3	39.0 36.6	0.383 0.384	0.086 0.085	0.111 0.110	0.29 0.29	NonLiqfble. NonLiqfble.
	12.58	10	5.9	0.44	115	1548	1381	6.9	7.4	8.58	3.4	87.6	0.80	27.8	34.7	0.385	0.084	0.109	0.28	NonLiqfble.
	12.68	10	5.4	0.43	115	1559	1387	6.3	6.7	9.31	3.4	92.8	0.80	25.4	31.7	0.387	0.083	0.108	0.28	NonLiqfble.
	12.79	10	5.3	0.44	115	1572	1392	6.2	6.5	9.75	3.5	94.8	0.80	24.9	31.1	0.388	0.083	0.108	0.28	NonLiqfble.
	12.89 13	10 10	5 4.6	0.45 0.46	105 105	1584 1595	1398 1402	5.9 5.4	6.0 5.4	10.69 12.10	3.5 3.6	99.6 106.4	0.80	23.4 21.5	29.3 26.9	0.390 0.391	0.082 0.082	0.107 0.106	0.27 0.27	NonLiqfble. NonLiqfble.
	13.11	10	3.9	0.46	105	1607	1407	4.5	4.4	14.86	3.7	119.5	0.80	18.2	22.7	0.393	0.082	0.105	0.27	NonLiqfble.
	13.21	10	3.3	0.45	105	1617	1411	3.8	3.5	18.06	3.8	133.9	0.80	15.4	19.2	0.394	0.081	0.105	0.27	NonLiqfble.
	13.32	10	2.6	0.43	105 105	1629	1416	3.0	2.5	24.09	4.0	157.7	0.80	12.1	15.1	0.396	0.080	0.104	0.26	NonLiqfble.
	13 42	10	3	0.41	105	1639	1420	3.5	3.1	18 81	39	140.8	0.80	13.9	17.4	0.397	0.080	0.105	0.26	NonLiafble

17.4 0.397 0.080 0.105 0.26

NonLiqfble.

140.8 0.80 13.9

3.5

3.1 18.81 3.9

105 1639 1420

3 0.41

13.42

Date: September 2005 CPT Number: 14

Depth to Groundwater: 10 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress		Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qclN)cs	Ratio	M7.5	M6.50	Safety	Comments
	13.53	10	3.4	0.39	105	1651	1425	3.9	3.6	15.15	3.8	127.4	0.80	15.8	19.7	0.399	0.081	0.105	0.26	NonLiqfble.
	13.63	10	3.7	0.38	105	1661	1429	4.3	4.0	13.25	3.7	119.4	0.80	17.1	21.4	0.400	0.081	0.105	0.26	NonLiqfble.
	13.74 13.84	10 10	5.2 6.4	0.39 0.41	105 115	1673 1683	1434 1438	6.0 7.4	6.1 7.7	8.94 7.38	3.5	94.6 82.8	0.80 0.80	24.0 29.5	30.0 36.9	0.401 0.403	0.083 0.085	0.107 0.110	0.27 0.27	NonLiqfble. NonLiqfble.
	13.95	10	7	0.41	115	1696	1444	8.1	8.5	7.15	3.3	79.3	0.80	32.2	40.3	0.404	0.085	0.110	0.27	NonLiqfble.
	14.05	10	7.4	0.46	115	1708	1449	8.5	9.0	7.03	3.3	77.3	0.80	34.0	42.5	0.405	0.087	0.113	0.28	NonLiqfble.
	14.15	10	7.3	0.46	115	1719	1454	8.4	8.9	7.14	3.3	78.3	0.80	33.5	41.9	0.407	0.087	0.113	0.28	NonLiqfble.
	14.26 14.36	10 10	7.6 8.1	0.46 0.46	115 115	1732 1743	1460 1465	8.7 9.3	9.2 9.9	6.83 6.36	3.2	76.2 72.8	0.80 0.80	34.8 37.0	43.5 46.3	0.408 0.409	0.088 0.089	0.114 0.116	0.28	NonLiqfble. NonLiqfble.
	14.47	10	8.8	0.46	115	1756	1471	10.0	10.8	5.81	3.1	68.7	0.80	40.2	50.2	0.411	0.002	0.110	0.29	NonLiqfble.
	14.57	10	8.6	0.47	115	1767	1477	9.8	10.4	6.09	3.2	70.4	0.80	39.2	49.0	0.412	0.091	0.118	0.29	NonLiqfble.
	14.68	10	9	0.49	115	1780	1482	10.2	10.9	6.04	3.1	69.1	0.80	40.9	51.1	0.413	0.092	0.120	0.29	NonLiqfble.
	14.78 15.06	10 10	8.8 10.2	0.51 0.45	115 115	1791 1824	1488 1502	10.0 11.5	10.6 12.4	6.45 4.85	3.2	71.2 61.7	0.80 0.80	39.9 46.1	49.9 57.6	0.414 0.418	0.092 0.098	0.119 0.127	0.29	NonLiqfble. NonLiqfble.
	15.17	10	9.9	0.45	115	1836	1502	11.2	11.9	5.01	3.1	63.2	0.80	44.6	55.8	0.419	0.096	0.127	0.30	NonLiqfble.
	15.27	10	9.7	0.48	115	1848	1513	10.9	11.6	5.47	3.1	65.6	0.80	43.6	54.5	0.420	0.095	0.124	0.29	NonLiqfble.
	15.37	10	8.9	0.5	115	1859	1519	10.0	10.5	6.27	3.2	70.9	0.80	40.0	50.0	0.421	0.092	0.119	0.28	NonLiqfble.
	15.48	10	7.4	0.51	115	1872	1524	8.3	8.5	7.89	3.3	81.7	0.80	33.2	41.5	0.422	0.087	0.113	0.27	NonLiqfble.
	15.58 15.69	10 10	7.2 6.6	0.5 0.49	115 115	1883 1896	1530 1535	8.1 7.4	8.2 7.4	7.99 8.67	3.3	83.0 88.0	0.80 0.80	32.2 29.5	40.3 36.8	0.424 0.425	0.086 0.085	0.112 0.110	0.26 0.26	NonLiqfble. NonLiqfble.
	15.79	10	6.8	0.47	115	1908	1541	7.6	7.6	8.04	3.4	85.3	0.80	30.3	37.9	0.426	0.085	0.111	0.26	NonLiqfble.
	15.9	10	6	0.46	115	1920	1546	6.7	6.5	9.13	3.4	93.0	0.80	26.7	33.4	0.427	0.083	0.108	0.25	NonLiqfble.
	16.01	10	6.9	0.46	115	1933	1552	7.7	7.6	7.75	3.3	84.3	0.80	30.7	38.3	0.428	0.085	0.111	0.26	NonLiqfble.
	16.11 16.22	10 10	6.7 6.3	0.47 0.47	115 115	1944 1957	1558 1563	7.4 7.0	7.4 6.8	8.21 8.83	3.4	86.7 90.8	0.80	29.7 27.9	37.1 34.9	0.429 0.431	0.085 0.084	0.110 0.109	0.26 0.25	NonLiqfble. NonLiqfble.
	16.32	10	6.5	0.47	115	1969	1569	7.0	7.0	7.98	3.4	90.8 87.4	0.80	28.7	35.9	0.431	0.084	0.109	0.25	NonLiqfble.
	16.43	10	5.6	0.41	115	1981	1574	6.2	5.9	8.90	3.5	95.7	0.80	24.7	30.9	0.433	0.083	0.108	0.25	NonLiqfble.
	16.54	10	4.5	0.38	105	1994	1580	5.0	4.4	10.85	3.6	110.2	0.80	19.8	24.8	0.434	0.081	0.106	0.24	NonLiqfble.
	16.64	10	4.3	0.37	105	2004	1584	4.7	4.2	11.22	3.6	113.3	0.80	18.9	23.6	0.435	0.081	0.106	0.24	NonLiqfble.
	16.75 16.85	10 10	4 4.4	0.35 0.33	105 105	2016 2026	1589 1593	4.4 4.8	3.8 4.2	11.70 9.74	3.7	118.1 108.7	0.80 0.80	17.6 19.3	22.0 24.1	0.436 0.437	0.081	0.105 0.106	0.24	NonLiqfble. NonLiqfble.
	16.96	10	5.1	0.34	105	2038	1598	5.6	5.1	8.33	3.5	98.4	0.80	22.3	27.9	0.439	0.081	0.107	0.24	NonLiqfble.
	17.06	10	7.5	0.35	115	2048	1602	8.2	8.1	5.41	3.2	74.7	0.80	32.8	41.0	0.440	0.086	0.112	0.26	NonLiqfble.
	17.16	10	7	0.4	115	2060	1608	7.6	7.4	6.70	3.3	81.7	0.80	30.6	38.2	0.441	0.085	0.111	0.25	NonLiqfble.
	17.27 17.37	10	6.5	0.43	115 105	2073	1613	7.1	6.8	7.87	3.4	88.2 95.9	0.80	28.3	35.4 29.9	0.442	0.084	0.109	0.25	NonLiqfble.
	17.48	10 10	5.5 6.5	0.37 0.34	105	2084 2096	1619 1623	6.0 7.1	5.5 6.7	8.30 6.24	3.5 3.3	83.0	0.80	23.9 28.2	35.3	0.443 0.444	0.082 0.084	0.107 0.109	0.24 0.25	NonLiqfble. NonLiqfble.
	17.58	10	7.4	0.36	115	2106	1628	8.0	7.8	5.67	3.2	76.7	0.80	32.1	40.1	0.445	0.086	0.112	0.25	NonLiqfble.
	17.69	10	9.1	0.4	115	2119	1633	9.9	9.8	4.98	3.1	67.8	0.80	39.4	49.3	0.446	0.091	0.118	0.27	NonLiqfble.
	17.79	10	6.2	0.41	115	2130	1639	6.7	6.3	7.99	3.4	90.9	0.80	26.8	33.5	0.447	0.083	0.109	0.24	NonLiqfble.
	17.9 18	10 10	5.7 5.5	0.38 0.38	105 105	2143 2153	1644 1649	6.2 5.9	5.6 5.4	8.21 8.59	3.5	94.9 97.6	0.80 0.80	24.6 23.7	30.8 29.6	0.448 0.449	0.083 0.082	0.108 0.107	0.24	NonLiqfble. NonLiqfble.
	18.11	10	5.5	0.39	105	2165	1653	5.4	4.7	9.96	3.6	105.5	0.80	21.5	26.9	0.449	0.082	0.107	0.24	NonLiqfble.
	18.14	10	4.8	0.38	105	2168	1655	5.2	4.5	10.23	3.6	108.1	0.80	20.7	25.8	0.451	0.082	0.106	0.24	NonLiqfble.
	18.25	10	5.9	0.37	105	2180	1659	6.3	5.8	7.69	3.4	92.4	0.80	25.3	31.7	0.452	0.083	0.108	0.24	NonLiqfble.
	18.35 18.46	10 10	6.7 9	0.41 0.48	115 115	2190 2203	1664 1669	7.2 9.6	6.7 9.5	7.32 6.08	3.4	86.6 72.9	0.80	28.7 38.6	35.9 48.2	0.453	0.084	0.110	0.24	NonLiqfble.
	18.56	10	12.4	0.48	125	2214	1675	13.3	13.5	4.60	3.0	58.7	0.80	53.0	66.3	0.454 0.455	0.107	0.118	0.26 0.31	NonLiqfble. NonLiqfble.
	18.67	10	14	0.51	125	2228	1681	14.9	15.3	3.96	2.9	53.2	0.80	59.8	74.7	0.456	0.119	0.154	0.34	NonLiqfble.
	18.77	10	10.1	0.43	115	2241	1688	10.8	10.6	4.79	3.1	65.1	0.80	43.0	53.8	0.457	0.094	0.123	0.27	NonLiqfble.
	18.88	10	8.1	0.35	115	2253	1694	8.6	8.2	5.02	3.2	72.7	0.80	34.4	43.1	0.458	0.087	0.114	0.25	NonLiqfble.
	18.99 19.09	10	8.4 7.1	0.29 0.25	115 105	2266 2277	1699	8.9	8.5 7.0	3.99 4.19	3.1	67.2 73.6	0.80	35.7	44.6 37.6	0.459	0.088	0.115 0.110	0.25 0.24	NonLiqfble.
	19.09	10 10	6.6	0.23	105	2289	1705 1709	7.5 7.0	6.4	4.19	3.2	76.3	0.80	30.1 27.9	34.9	0.460 0.461	0.085 0.084	0.110	0.24	NonLiqfble. NonLiqfble.
	19.3	10	5	0.22	105	2299	1714	5.3	4.5	5.71	3.4	93.5	0.80	21.1	26.4	0.462	0.082	0.106	0.23	NonLiqfble.
	19.41	10	5.8	0.19	105	2311	1718	6.1	5.4	4.09	3.3	80.5	0.80	24.5	30.6	0.463	0.083	0.107	0.23	NonLiqfble.
	19.52	10	4.1	0.16	95	2323	1723	4.3	3.4	5.45	3.5	101.7	0.80	17.3	21.6	0.464	0.081	0.105	0.23	NonLiqfble.
	19.62 19.73	10 10	4.8 2.8	0.15 0.13	95 95	2332 2343	1726 1730	5.1 2.9	4.2 1.9	4.13 7.98	3.4	88.5 134.5	0.80	20.2 11.8	25.3 14.7	0.465 0.466	0.082 0.080	0.106 0.104	0.23	NonLiqfble. NonLiqfble.
	19.83	10	2.7	0.13	95	2352	1733	2.8	1.8	7.22	3.8	134.6	0.80	11.4	14.7	0.467	0.080	0.104	0.22	NonLiqfble.
	19.94	10	4.1	0.12	95	2362	1737	4.3	3.4	4.11	3.5	95.9	0.80	17.2	21.5	0.468	0.081	0.105	0.22	NonLiqfble.
	20.04	10	4	0.16	95	2372	1740	4.2	3.2	5.69	3.6	104.6	0.80	16.8	21.0	0.459	0.081	0.105	0.23	NonLiqfble.
	20.15	10	4.7	0.2	95	2382	1743	4.9	4.0	5.70	3.5	97.1	0.80	19.7	24.6	0.460	0.081	0.106	0.23	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 14 Depth to Groundwater: 10 feet EQ Magnitude (M<sub>w</sub>): 6.5 PGA (g): 0.54 MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm	Corr	Friction						Induced	Lianef	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress		Tip	Tip	Ratio		F.C.				Stress	Stress	•	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	20.26	10	6.8	0.19 0.15	105 95	2393	1747	7.1	6.4	3.39	3.2	72.0	0.80	28.5	35.6 31.4	0.462	0.084	0.109	0.24	NonLiqfble.
	20.36 20.47	10 10	6 5.5	0.15	95	2403 2414	1751 1755	6.3 5.7	5.5 4.9	3.13 3.26	3.2	75.0 79.1	0.80	25.1 23.0	28.7	0.462 0.463	0.083 0.082	0.108 0.107	0.23	NonLiqfble. NonLiqfble.
	20.57	10	4.8	0.15	95	2423	1758	5.0	4.1	4.18	3.4	89.8	0.80	20.0	25.0	0.464	0.081	0.106	0.23	NonLiqfble.
	20.67	10	5.2	0.21	105	2433	1761	5.4	4.5	5.27	3.4	91.5	0.80	21.7	27.1	0.465	0.082	0.106	0.23	NonLiqfble.
	20.78	10	7.6	0.28	105	2444	1766	7.9	7.2	4.39	3.2	73.6	0.80	31.7	39.6	0.466	0.086	0.111	0.24	NonLiqfble.
	20.88	10	9.4 12.4	0.33	115 115	2455	1770	9.8	9.2	4.04	3.1	65.5	0.80	39.1	48.9	0.467	0.091	0.118	0.25	NonLiqfble. NonLiqfble.
	21.01 21.11	10 10	14.5	0.47	125	2470 2481	1777 1782	12.9 15.0	12.6 14.9	3.58 3.54	3.0 2.9	55.9 52.0	0.80	51.5 60.1	64.3 75.1	0.468 0.469	0.105 0.119	0.136 0.155	0.29	NonLiqfble.
	21.22	10	16	0.49	125	2495	1789	16.5	16.5	3.32	2.8	48.8	0.80	66.2	82.7	0.470	0.133	0.173	0.37	NonLiqfble.
	21.32	10	15	0.47	125	2508	1796	15.5	15.3	3.42	2.9	50.8	0.80	62.0	77.4	0.471	0.123	0.160	0.34	NonLiqfble.
	21.43	10	15.2	0.45	125	2521	1802	15.7	15.5	3.23	2.9	49.7	0.80	62.7	78.3	0.471	0.125	0.162	0.34	NonLiqfble.
	21.53	10	15.1	0.45	125	2534	1809	15.5	15.3	3.25	2.9	50.0	0.80	62.1	77.7	0.472	0.124	0.161	0.34	NonLiqfble.
	21.63 21.74	10 10	15.9 17.7	0.59 0.85	125 125	2546 2560	1815 1822	16.3 18.1	16.1 18.0	4.03 5.18	2.9 2.9	52.5 54.5	0.80	65.3 72.6	81.6 90.7	0.473 0.473	0.131 0.149	0.170 0.194	0.36 0.41	NonLiqfble.
	21.74	10	17.7	2.08	135	2573	1828	19.4	19.4	11.74	3.2	70.2	0.80	77.8	97.2	0.473	0.149	0.194	0.41	NonLiqfble. NonLiqfble.
	21.88	10	22.4	2.6	135	2578	1831	22.9	23.0	12.32	3.1	67.5	0.80	91.6	114.5	0.474	0.220	0.286	0.60	NonLiqfble.
	21.92	10	22.6	2.88	135	2583	1834	23.1	23.2	13.52	3.2	69.5	0.80	92.4	115.5	0.475	0.223	0.290	0.61	NonLiqfble.
	22.01	10	37.9	3.89	135	2596	1840	38.7	39.8	10.63	2.9	53.5	0.80	154.6	193.3	0.475	0.751	0.977	2.06	NonLiqfble.
	22.07	10	65.7	4.03	135	2604	1845	66.9	69.8	6.26	2.6	34.9	0.80	264.7	331.6	0.476	3.472	4.514	9.49	
	22.13	10	100.3	4.59	135	2612	1849	102.1	107.0	4.64	2.4	25.3	0.54	121.3	223.3	0.476	1.116	1.451	3.05	
	22.19 22.27	10 10	158.2 186.1	5.45 5.99	135 135	2620 2631	1854 1859	160.8 188.8	169.2 198.7	3.47 3.24	2.2	17.5 15.5	0.33 0.28	80.6 73.7	241.4 262.5	0.476 0.477	1.388 1.763	1.804 2.292	3.79 4.81	
	22.37	10	205.6	5.83	135	2644	1867	208.2	218.8	2.85	2.0	13.5	0.23	61.3	269.5	0.477	1.901	2.471	5.18	
	22.45	10	197.7	5.23	135	2655	1872	199.9	209.7	2.66	2.0	13.1	0.22	55.4	255.3	0.478	1.628	2.116	4.43	
	22.55	10	223.8	4.66	135	2668	1880	225.9	236.6	2.09	1.9	10.2	0.14	36.2	262.1	0.478	1.754	2.281	4.77	
	22.64	10	254.9	5.11	135	2681	1886	256.8	268.7	2.02	1.8	9.1	0.11	31.8	288.6	0.479	2.315	3.010	6.28	
	22.72	10	267.8	4.39	135	2691	1892	269.4	281.5	1.65	1.8	7.3	0.06	17.9	287.3	0.479	2.285	2.971	6.20	
	22.81 22.91	10 10	287 261.7	4.14 4.49	135 135	2704 2717	1899 1906	288.2 262.3	300.8 273.1	1.45 1.72	1.7 1.8	6.1 7.8	0.03	8.9 21.4	297.1 283.7	0.480 0.480	2.519 2.204	3.275 2.865	6.83 5.96	
	23.01	10	242.5	3.87	135	2717	1913	242.6	252.0	1.60	1.8	7.7	0.08	19.1	261.7	0.481	1.746	2.270	4.72	
	23.11	10	233.4	3.67	135	2744	1920	233.0	241.6	1.58	1.8	7.9	0.08	19.3	252.3	0.481	1.574	2.046	4.25	
	23.19	10	228.3	3.92	135	2755	1926	227.6	235.5	1.73	1.8	8.7	0.10	24.6	252.2	0.482	1.572	2.044	4.24	
	23.26	10	226.1	4.46	135	2764	1931	225.1	232.6	1.98	1.9	9.8	0.13	33.3	258.4	0.482	1.686	2.191	4.54	
	23.35	10	228.4	3.62	135	2776	1938	227.0	234.2	1.59	1.8	8.1	0.08	20.4	247.4	0.483	1.489	1.936	4.01	
	23.45	10	235.2 216	4.45	135	2790	1945	233.3 213.9	240.3	1.90	1.9	9.3	0.11	30.3	263.6	0.483	1.783	2.318	4.80	
	23.54 23.63	10 10	220.5	5.78 5.27	135 135	2802 2814	1952 1958	213.9	219.8 223.7	2.69 2.41	2.0	12.9 11.7	0.21 0.18	57.4 47.9	271.3 265.9	0.484 0.484	1.937 1.828	2.518 2.377	5.21 4.91	
	23.72	10	215.2	4.28	135	2826	1965	212.4	217.5	2.00	1.9	10.3	0.14	35.1	247.5	0.485	1.491	1.938	4.00	
	23.82	10	183.4	4.26	135	2840	1972	180.7	184.5	2.34	2.0	12.8	0.21	47.4	228.1	0.485	1.184	1.539	3.17	
	23.91	10	188.3	3.85	135	2852	1978	185.2	188.8	2.06	1.9	11.5	0.17	38.7	224.0	0.486	1.125	1.462	3.01	
	24	10	203.1	3.12	135	2864	1985	199.5	203.1	1.55	1.8	8.7	0.10	21.9	221.4	0.486	1.089	1.415	2.91	
	24.09	10	200.8	2.95	135	2876	1991 1997	196.9	200.1	1.48	1.8	8.5	0.09	20.1	217.0 227.4	0.487	1.030	1.339	2.75	
	24.17 24.26	10 10	218.6 230.1	2.87 2.91	135 135	2887 2899	2004	214.0 224.9	217.4 228.1	1.32 1.27	1.8 1.7	7.2 6.7	0.06 0.04	13.3 10.6	235.5	0.487 0.488	1.173 1.294	1.525 1.683	3.13 3.45	
	24.25	10	235.6	3.37	135	2911	2010	229.9	232.8	1.44	1.8	7.4	0.04	15.7	245.6	0.488	1.458	1.895	3.88	
	24.44	10	243.9	3.52	135	2924	2017	237.6	240.3	1.45	1.8	7.3	0.06	15.4	253.0	0.488	1.587	2.063	4.22	
	24.53	10	261	2.89	125	2936	2023	253.9	256.4	1.11	1.7	5.3	0.01	1.7	255.6	0.489	1.633	2.123	4.34	
	24.61	10	277.7	2.97	125	2946	2028	269.8	272.2	1.08	1.6	4.8	0.00	0.0	269.8	0.489	1.906	2.478	5.06	
	24.69	10	290.2	4.09	135	2956	2033	281.6	283.9	1.42	1.7	6.3	0.03	9.7	291.3	0.490	2.379	3.093	6.32	
	24.81 24.9	10 10	285.5 246.6	4.38 4.41	135 135	2972 2984	2042 2049	276.4 238.4	278.0 239.2	1.54 1.80	1.7 1.8	6.9 8.9	0.05 0.10	15.0 27.6	291.5 265.9	0.490 0.491	2.383 1.829	3.097 2.378	6.32 4.85	
	25	10	234.9	4.41	135	2998	2056	226.7	227.0	1.89	1.9	9.6	0.10	31.6	258.2	0.491	1.682	2.186	4.45	
	25.09	10	246.4	4.67	135	3010	2062	237.4	237.4	1.91	1.9	9.4	0.12	31.5	268.9	0.492	1.888	2.454	4.99	
	25.17	10	249.5	4.65	135	3021	2068	240.0	239.7	1.88	1.8	9.2	0.11	30.3	270.3	0.492	1.917	2.492	5.06	
	25.25	10	269.5	4.93	135	3031	2074	258.9	258.3	1.84	1.8	8.6	0.10	27.7	286.6	0.492	2.270	2.951	5.99	
	25.34	10	259.6	4.71	135	3043	2081	249.0	248.0	1.83	1.8	8.8	0.10	28.0	277.0	0.493	2.057	2.674	5.43	
	25.43 25.51	10 10	292.3 333.6	6.03 5.68	135 135	3056 3066	2087 2093	279.9 319.1	278.5 317.2	2.07 1.71	1.8 1.7	9.2 7.0	0.11 0.05	35.0 18.1	314.9 337.2	0.493 0.494	2.985 3.646	3.881 4.739	7.87 9.60	
	25.6	10	308.8	5.57	135	3079	2093	294.9	292.6	1.71	1.7	7.8	0.03	24.2	319.1	0.494	3.102	4.033	8.16	
	25.69	10	307.8	5.4	135	3091	2106	293.5	290.7	1.76	1.8	7.7	0.07	22.5	316.0	0.495	3.014	3.918	7.92	
	25.78	10	323.8	4.95	135	3103	2113	308.2	305.0	1.54	1.7	6.4	0.04	12.4	320.6	0.495	3.146	4.090	8.26	
	25.87	10	343	4.82	135	3115	2119	326.0	322.1	1.41	1.7	5.6	0.02	5.6	331.6	0.495	3.472	4.513	9.11	

Project Number: 6600.3.001.01

Depth to Groundwater: 10 feet

Date: September 2005 MSF: 1.30 CPT Number: 14

		Water	Tip	Sleeve			Effective			Friction								Liquef.		
	Depth		Resist.	Frict.	g	Stress		Tip	Tip	Ratio		F.C.	**	_			Stress		of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqeIN	( <b>q</b> c1N)es	Ratio	M7.5	M6.50	Safety	Comments
	25.96	10	343.3	4.83	135	3127	2126	325.8	321.4	1.41	1.7	5.7	0.02	5.8	331.6	0.496	3.470	4.511	9.10	
	26.04	10	358.9	5.23	135	3138	2131	340.1	335.2	1.46	1.7	5.7	0.02	6.4	346.5	0.496	3.950	5.135	10.35	
	26.13	10	391.3	5.26	135	3150	2138	370.3	364.4	1.35	1.6	4.8	0.00	0.0	370.3	0.496	4.801	6.242	12.57	
	26.21	10		5.39	135	3161	2144	419.5	412.5	1.22	1.6	3.7	0.00	0.0	419.5	0.497	6.945	9.028	18.17	
	26.29	10	486	6.11	135	3172	2150	458.6	450.5	1.26	1.6	3.6	0.00	0.0	458.6	0.497	9.052	11.768	23.67	
	26.38	10		7.39	135	3184	2156	462.8	453.9	1.51	1.6	4.7	0.00	0.0	462.8	0.498	9.296	12.085	24.29	
	26.46	10	495.2	7.23	135	3195	2162	466.0	456.4	1.46	1.6	4.5	0.00	0.0	466.0	0.498	9.490	12.338	24.78	
	26.54	10		7.41	135	3205	2168	448.4	438.5	1.56	1.6	5.0	0.00	0.0	448.4	0.498	8,462	11.001	22.08	
	26.62	10	447.4	7.9	135	3216	2174	419.9	410.0	1.77	1.7	6.1	0.03	13.0	432.9	0.499	7.624	9.911	19.88	
	26.7	10	455.3	7.99	135	3227	2179	426.7	416.2	1.76	1.7	6.0	0.03	11.9	438.7	0.499	7.931	10.310	20.66	
	26.78	10	449.8	7.36	135	3238	2185	421.0	410.0	1.64	1.7	5.6	0.02	6.8	427.9	0.499	7.364	9.574	19.17	
	26.86	10	449.5	6.85	135	3249	2191	420.2	408.7	1.53	1.6	5.1	0.00	1.6	421.8	0.500	7.058	9.176	18.37	
	26.94	10	398.7	6.89	135	3259	2197	372.2	361.4	1.74	1.7	6.5	0.04	15.7	387.9	0.500	5.508	7.160	14.32	
	27.02	10	394.6	6.46	135	3270	2203	367.9	356.7	1.64	1.7	6.2	0.03	12.1	380.0	0.500	5.183	6.738	13.47	
	27.1	10	400.1	5.77	135	3281	2208	372.5	360.7	1.45	1.7	5.3	0.01	3.0	375.5	0.501	5.006	6.508	13.00	
	27.18	10	385.2	5.45	135	3292	2214	358.2	346.3	1.42	1.7	5.4	0.01	3.4	361.6	0.501	4.477	5.821	11.62	
	27.26	10	380.2	7.78	135	3303	2220	353.1	340.9	2.06	1.8	8.1	0.08	31.3	384.4	0.501	5.362	6.971	13.91	
	27.34	10	387.8	8.61	135	3313	2226	359.6	346.8	2.23	1.8	8.6	0.10	38.5	398.2	0.502	5.951	7.737	15.42	
	27.41	10	398.5	8.58	135	3323	2231	369.2	355.6	2.16	1.8	8.3	0.09	35.1	404.3	0.502	6.225	8.092	16.12	
	27.47	10	431.2	8.67	135	3331	2235	399.1	384.2	2.02	1.8	7.4	0.06	26.8	425.9	0.502	7.264	9.443	18.80	
	27.52	10	481.9	8.24	135	3338	2239	445.6	428.8	1.72	1.7	5.7	0.02	8.7	454.3	0.502	8.802	11.443	22.78	
	27.55	10	537.1	8.8	135	3342	2241	496.4	477.6	1.64	1.6	5.0	0.00	0.3	496.7	0.502	11.476	14.919	29.69	
	27.6	10	591.8	8.94	135	3349	2245	546.5	525.6	1.51	1.6	4.2	0.00	0.0	546.5	0.503	15.262	19.840	39.47	
	27.69	10	374.8	8.11	135	3361	2251	345.6	331.3	2.17	1.8	8.6	0.10	37.2	382.8	0.503	5.298	6.888	13.69	
	27.77	10	397.2	8.63	135	3372	2257	365.8	350.3	2.18	1.8	8.4	0.09	36.5	402.3	0.503	6.136	7.977	15.85	
	27.85	10	413.9	10.94	140	3382	2263	380.7	364.2	2.65	1.9	9.9	0.13	57.0	437.7	0.504	7.878	10.242	20.33	
	27.93	10		11.55	140	3394	2269	322.6	307.9	3.30	2.0	12.9	0.21	85.8	408.4	0.504	6.414	8.338	16.55	
	27.97	10	304.8	11.6	140	3399	2272	279.8	266.7	3.83	2.1	15.3	0.28	106.3	386.1	0.504	5.431	7.061	14.01	
	28.06	10	288.9	11.54	140	3412	2279	264.8	251.9	4.02	2.1	16.2	0.30	113.5	378.3	0.504	5.114	6.648	13.18	
	28.14	10	258.8	11.2	140	3423	2285	236.9	224.9	4.36	2.2	18.0	0.35	125.7	362.6	0.505	4.512	5.866	11.62	
	28.2	10	247.8		140	3431	2290	226.6	214.8	4.38	2.2	18.4	0.36	126.1	352.6	0.505	4.158	5.405	10.71	
	28.29	10	177.7	10.13	140	3444	2297	162.2	153.2	5.76	2.4	24.8	0.53	182.5	344.8	0.505	3.891	5.058	10.01	
	28.37	10	152.5	9.68	140	3455	2303	139.0	130.9	6.42	2.4	28.0	0.61	220.6	359.6	0.505	4.405	5.726	11.33	
	28.46	10	134.2	7.36	140	3468	2310	122.2	114.6	5.56	2.4	27.2	0.59	177.5	299.6	0.506	2.582	3.356	6.64	
	28.54	10	116.2	7.1	140	3479	2316	105.6	98.8	6.20	2.5	30.5	0.68	224.8	330.4	0.506	3.434	4.465	8.82	

EQ Magnitude ( $M_w$ ): 6.5

**PGA (g):** 0.54

Depth to Groundwater: 4 feet

**EQ Magnitude (M<sub>w</sub>):** 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 **MSF:** 1.30 CPT Number: 15

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	l Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	_	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	0.5	4		1.49	115	58	58	431.3	7828.8	0.66	1.1	-1.1	0.00	0.0	431.3	0.351	7.542	9.804	27.93	Above W.T.
	0.56	4		1.66	115	64	64	435.3	7055.1	0.73	1.1	-1.0	0.00	0.0	435.3	0.351	7.752	10.078	28.71	Above W.T.
	0.61	4		1.73	115	70	70	446.8	6647.7	0.74	1.1	-1.0	0.00	0.0	446.8	0.351	8.376	10.889	31.02	Above W.T.
	0.67 0.72	4	222.7 247.6	1.79 1.79	125 115	77 83	77 83	426.5 474.2	5777.2 5941.3	0.80 0.72	1.2 1.1	-0.8 -1.2	0.00	0.0	426.5 474.2	0.351	7.296 9.997	9.485 12.996	27.02 37.03	Above W.T. Above W.T.
	0.72	4		2.08	125	88	88	499.3	5928.3	0.80	1.2	-0.8	0.00	0.0	499.3	0.351		15.152	43.17	Above W.T.
	0.8	4	272.9	2.35	125	93	93	522.7	5871.7	0.86	1.2	-0.6	0.00	0.0	522.7	0.351	13.358	17.366	49.47	Above W.T.
	0.84	4	292.9	2.3	125	98	98	561.0	5980.2	0.79	1.2	-0.9	0.00	0.0	561.0	0.351	16.497	21.446	61.10	Above W.T.
	0.88	4	304	2.16	115	103	103	582.2	5905.2	0.71	1.1	-1.2	0.00	0.0	582.2	0.351		23.965	68.28	Above W.T.
	0.92	4	326.8	2.53	125	108	108	625.9	6076.5	0.77	1.2	-0.9	0.00	0.0	625.9	0.351		29.747		Above W.T.
	0.97	4	343.2	2.8	125	114	114	657.3	6030.8	0.82	1.2	-0.8	0.00	0.0	657.3	0.351	26.490	34.437	98.11	Above W.T.
	1 1.03	4	346.8 357.5	2.87 3.1	125 125	118 121	118 121	664.2 684.7	5899.5 5893.4	0.83 0.87	1.2 1.2	-0.7 -0.6	0.00	0.0	664.2 684.7	0.351		35.529 38.910	101.22	Above W.T. Above W.T.
	1.03	4	371.7	3.18	125	129	129	711.9	5770.6	0.86	1.2	-0.6	0.00	0.0	711.9	0.351			124.56	Above W.T.
	1.15	4		3.99	125	136	136	726.4	5564.4	1.05	1.3	0.1	0.00	0.0	726.4	0.351		46.451		Above W.T.
	1.18	4	381.2	4.16	125	140	140	730.1	5442.4	1.09	1.3	0.3	0.00	0.0	730.1	0.351		47.151		Above W.T.
	1.24	4	389.7	4.31	125	148	148	746.4	5280.9	1.11	1.3	0.3	0.00	0.0	746.4	0.351	38.745	50.368	143.50	Above W.T.
	1.27	4	359.3	4.39	135	151	151	688.1	4748.1	1.22	1.3	0.6	0.00	0.0	688.1	0.351	30.384	39.499	112.53	Above W.T.
	1.3	4	338	4.3	135	155	155	647.3	4350.0	1.27	1.3	0.8	0.00	0.0	647.3	0.351	25.308	32.900	93.73	Above W.T.
	1.36	4	288.5	4.09	135	163	163	552.5	3528.7	1.42	1.4	1.2	0.00	0.0	552.5	0.351	15.768	20.498	58.40	Above W.T.
	1.39 1.45	4	265 240.6	3.83 3.68	135 135	167 176	167 176	507.5 460.8	3162.8 2739.0	1.45 1.53	1.4	1.3	0.00	0.0	507.5 460.8	0.351	12.238 9.179	15.909 11.933	45.33 34.00	Above W.T.
	1.49	4	224	4.63	135	181	181	429.0	2473.8	2.07	1.4 1.5	1.6 3.4	0.00	0.0	429.0	0.351	7.423	9.650	27.49	Above W.T. Above W.T.
	1.55	4	188.5	4.89	135	189	189	361.0	1992.3	2.60	1.6	5.1	0.00	0.9	361.9	0.351	4.487	5.833	16.62	Above W.T.
	1.63	4	188.5	3.73	135	200	200	361.0	1884.6	1.98	1.5	3.3	0.00	0.0	361.0	0.351	4.456	5.793	16.50	Above W.T.
	1.72	4	221.2	3.12	135	212	212	423.6	2084.9	1.41	1.4	1.3	0.00	0.0	423.6	0.351	7.151	9.296	26.49	Above W.T.
	1.8	4	208.2	2.58	135	223	223	398.7	1867.2	1.24	1.3	0.7	0.00	0.0	398.7	0.351	5.976	7.769	22.13	Above W.T.
	1.89	4		2.11	125	235	235	407.0	1807.1	0.99	1.2	-0.2	0.00	0.0	407.0	0.351	6.349	8.254	23.52	Above W.T.
	2.07	4		1.23	115	257	257	341.3	1382.8	0.69	1.1	-1.2	0.00	0.0	341.3	0.351	3.777	4.910	13.99	Above W.T.
	2.14 2.21	4	175.9 168.7	1.08 1.01	115 115	266 274	266 274	336.9 323.1	1323.5 1231.9	0.61 0.60	1.1 1.1	-1.5 -1.5	0.00	0.0	336.9 323.1	0.351	3.636 3.217	4.726 4.182	13.47 11.91	Above W.T. Above W.T.
	2.29	4		1.01	115	283	283	295.1	1088.6	0.66	1.1	-1.1	0.00	0.0	295.1	0.351	2.471	3.212	9.15	Above W.T.
	2.37	4	139.3	0.95	115	292	292	266.8	952.9	0.68	1.2	-0.8	0.00	0.0	266.8	0.351	1.846	2.400	6.84	Above W.T.
	2.46	4	118.1	0.87	115	302	302	226.2	780.0	0.74	1.2	-0.3	0.00	0.0	226.2	0.351	1.156	1.503	4.28	Above W.T.
	2.55	4	97.1	0.7	115	313	313	186.0	619.9	0.72	1.3	0.1	0.00	0.0	186.0	0.351	0.678	0.882	2.51	Above W.T.
	2.65	4	78.8	0.72	125	324	324	150.9	485.0	0.92	1.4	1.7	0.00	0.0	150.9	0.351	0.400	0.520	1.48	Above W.T.
	2.74	4	65.7	0.63	125	335	335	125.8	390.6	0.96	1.5	2.7	0.00	0.0	125.8	0.351	0.265	0.345	0.98	Above W.T.
	2.84	4	54.2	0.61	125	348	348	103.8	310.5	1.13	1.6	4.4	0.00	0.0	103.8	0.351	0.184	0.239	0.68	Above W.T.
	2.93 3.03	4	46.4 37.7	0.59 0.5	125 125	359 372	359 372	88.9 72.2	257.3 201.8	1.28 1.33	1.7 1.8	6.1 7.7	0.03	2.6 5.6	91.5 77.8	0.351	0.151 0.124	0.197 0.161	0.56 0.46	Above W.T. Above W.T.
	3.13	4	33.1	0.43	125	384	384	63.4	171.3	1.31	1.8	8.6	0.10	6.7	70.1	0.351	0.112	0.146	0.41	Above W.T.
	3.22	4	29.4	0.46	125	395	395	56.3	147.6	1.58	1.9	11.0	0.16	10.7	67.0	0.351	0.108	0.140	0.40	Above W.T.
	3.32	4	25	0.48	125	408	408	47.9	121.5	1.94	2.0	14.3	0.25	15.7	63.6	0.351	0.104	0.135	0.38	Above W.T.
	3.41	4	21.5	0.56	125	419	419	41.2	101.5	2.63	2.2	18.9	0.37	24.4	65.5	0.351	0.106	0.138	0.39	Above W.T.
	3.51	4	19.2	0.69	125	432	432	36.8	87.9	3.63	2.3	24.2	0.51	38.8	75.5	0.351	0.120	0.156	0.44	Above W.T.
	3.61	4	16.6	0.81	125	444	444	31.8	73.7	4.95	2.5	30.5	0.68	68.0	99.8	0.351	0.172	0.224	0.64	Above W.T.
	3.7 3.8	4	18.7 20	0.97 1.15	135 135	455 469	455 469	35.8 38.3	81.1 84.3	5.25 5.82	2.5 2.5	30.2 31.3	0.67 0.70	74.1 90.9	109.9 129.2	0.351 0.351	0.203 0.281	0.265 0.365	0.75 1.04	Above W.T. Above W.T.
	3.9	4	21.8	1.13	135	482	482	41.8	89.3	5.98	2.5	31.3	0.70	95.8	137.6	0.351	0.322	0.303	1.19	Above W.T.
	4	4	23.8	1.35	135	496	496	45.6	94.9	5.73	2.5	29.7	0.66	88.5	134.0	0.351	0.304	0.395	1.13	Low F.S.
	4.1	4	23.9	1.33	135	509	503	45.8	93.9	5.62	2.5	29.6	0.66	87.1	132.9	0.355	0.298	0.388	1.09	Low F.S.
	4.2	4	22	1.28	135	523	510	42.1	85.1	5.89	2.5	31.4	0.71	100.8	142.9	0.360	0.351	0.457	1.27	
	4.3	4	20.3	1.22	135	536	518	38.9	77.4	6.09	2.6	33.1	0.75	117.2	156.1	0.364	0.434	0.564	1.55	
	4.4	4	19.2	1.12	135	550	525	36.7	72.1	5.92	2.6	33.6	0.76	117.9	154.6	0.368	0.424	0.551	1.50	
	4.5	4	18	1.03	135	563	532	34.1	66.6	5.81	2.6	34.3	0.78	123.2	157.4	0.372	0.443	0.575	1.55	N T
	4.6	4	16.9	0.97	125	577	539	31.8	61.6	5.84	2.6	35.5	0.80	127.3	159.2	0.375	0.455	0.592	1.58	NonLiqfble.
	4.7 4.81	4	16 14.3	0.91 0.9	125 125	589 603	546 553	30.0 26.6	57.5 50.6	5.79 6.43	2.6 2.7	36.3 39.9	0.80	119.9 106.5	149.8 133.1	0.379 0.383	0.393 0.299	0.511 0.389	1.35 1.02	NonLiqfble. NonLiqfble.
	4.91	4	13.2	0.88	125	616	559	24.4	46.1	6.83	2.7	42.4	0.80	97.7	122.2	0.383	0.259	0.324	0.84	NonLiqfble.
	5.02	4	12.6	0.86	125	629	566	23.2	43.4	7.00	2.8	43.8	0.80	92.7	115.9	0.390	0.225	0.292	0.75	NonLiqfble.
	5.12	4	13.2	0.85	125	642	572	24.1	45.0	6.60	2.7	42.1	0.80	96.6	120.7	0.394	0.244	0.317	0.80	NonLiqfble.
	5.23	4	13.1	0.83	125	656	579	23.8	44.1	6.50	2.7	42.2	0.80	95.3	119.1	0.398	0.237	0.308	0.78	NonLiqfble.

Date: September 2005

**CPT Number: 15** 

Depth to Groundwater: 4 feet

EQ Magnitude (Mw): 6.5 Project Number: 6600.3.001.01 PGA (g): 0.54 MSF: 1.30

Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Stress Stress Stress g (TSF) (TSF) (PCF) (PSF) (PSF) (%) KCPT DqcIN (qcIN)cs Ratio M7.5 M6.50 Safety (FT) (FT) **q**c1N 0 Comments Ic 5.52 4 14.3 0.84 125 692 597 25.6 46.7 6.02 2.7 40.0 0.80 102.4 128.0 0.407 0.275 0.358 0.88 NonLigfble. 5.62 4 13.5 0.81 125 704 603 24.0 43.6 6.16 2.7 41.4 0.80 96.2 120.2 0.410 0.242 0.314 0.77 NonLiqfble. 5.73 12.7 0.77 125 718 610 22.5 40.4 6.24 2.7 42.9 0.80 90.0 112.5 0.413 0.212 0.276 0.67 NonLiqfble. 5.83 12.1 0.72 125 731 616 21.3 38.1 6.14 2.8 43.6 0.80 85.3 106.6 0.416 0.193 0.251 0.60 NonLiqfble. 5.94 11.6 0.69 125 744 623 20.3 36.0 6.15 2.8 44.5 0.80 101.6 0.419 0.178 0.231 0.55 NonLiqfble. 6.04 11.3 0.71 125 757 630 19.7 34.7 6.50 2.8 46.2 0.80 78.8 98.5 0.422 0.169 0.220 0.52 NonLiqfble. 6.15 0.72 125 771 636 19.4 34.0 6.66 2.8 47.0 0.80 77.7 97.1 0.425 0.165 0.215 0.51 NonLiafble. 11.2 6.26 0.69 125 643 6.76 2.8 0.80 0.428 0.196 NonLiafble. 10.6 784 18.3 31.7 48.5 73.191.4 0.151 0.46 6.36 0.66 125 797 650 17.0 6.95 2.9 50.5 0.80 0.431 0.178 0.41 NonLiafble. 9.9 29.2 68.0 85.0 0.1376.47 9.4 0.61 125 811 657 16.1 27.4 6.78 2.9 51.2 0.80 64.2 80.3 0.433 0.1280.167 0.38 NonLigfble. 6.58 8.9 0.58 125 824 663 15.1 25.6 6.83 2.9 52.7 0.80 60.5 75.6 0.436 0.120 0.156 0.36 NonLigfble 6.19 6.69 9.3 0.55 125 838 670 26.5 2.9 50.2 0.80 62.9 78.6 0.439 0.125 0.163 0.37 NonLiqfble. 15.7 6.79 4 9.3 0.56 125 851 677 15.6 26.2 6.31 29 50.7 0.80 62.6 78.2 0.441 0.125 0.162 0.37 NonLiqfble. 6.88 9.4 0.56 125 862 682 15.7 26.3 6.24 2.9 50.5 0.80 63.0 78.7 0.443 0.125 0.163 0.37 NonLiqfble. 6.99 9.3 125 2.9 NonLiqfble. 4 0.56 876 689 15.5 25.7 6.32 51.1 0.80 62.0 77.5 0.446 0.123 0.160 0.36 7.09 9.7 0.56 125 888 695 16.1 26.6 6.05 2.9 49.6 0.80 64.4 80.5 0.448 0.128 0.167 0.37 NonLiqfble. 7.2 0.57 125 902 702 6.59 2.9 0.451 9.1 15.0 24.6 52.7 0.80 60.1 75.1 0.119 0.155 0.34 NonLiafble. 7.3 125 9.7 0.58 914 708 15.9 6.28 2.9 50.7 0.80 79.7 0.453 0.165 0.36 NonLigfble. 26.1 63.8 0.127 7.41 9 0.57 125 928 715 14.7 23.9 6.68 2.9 53.6 0.80 58.9 73.6 0.455 0.117 0.152 0.33 NonLigfble. 7.52 8.9 0.55 125 2.9 58.0 942 722 14.5 23.3 6.53 53.6 0.80 72.4 0.458 0.115 0.150 0.33 NonLigfble. 7.62 8.4 0.52 115 954 729 13.6 21.7 6.56 2.9 55.1 0.80 54.5 68.1 0.460 0.109 0.142 0.31 NonLigfble. 7 73 4 84 0.51 115 967 734 13.6 21.6 6 44 29 55.0 0.80 54 3 67.8 0.462 0.109 0.142 0.31 NonLiafble. 7.83 4 8.6 0.5 115 979 740 13.8 21.9 6.16 29 53.8 0.80 55 3 69.2 0.464 0.111 0.144 0.31 NonLiqfble. 7.94 4 8.9 0.5 115 991 745 14.3 22.5 5.95 2.9 52.5 0.80 57.1 71.3 0.467 0.114 0.148 0.32 NonLiqfble. 8.05 8.4 0.5 115 1004 751 13.4 21.0 6.33 2.9 55.1 0.80 53.6 67.1 0.469 0.108 0.140 0.30 NonLiqfble. 8.15 0.49 115 1015 756 12.7 19.8 6.54 3.0 57.0 0.80 50.9 63.6 0.471 0.104 0.135 0.29 NonLigfble. 8.26 8.4 0.47 115 1028 762 13.3 20.7 5.96 2.9 54.3 0.80 53.3 66.6 0.473 0.107 0.140 0.29 NonLiqfble. 8.36 4 8.2 0.44 115 1040 767 20.0 5.73 2.9 0.80 64.8 0.475 0.105 0.137 0.29 13.0 54.2 51.8 NonLigfble. 0.42 8.47 0.478 115 1052 773 12.6 19.3 5.62 2.9 40.9 0.80 50.4 62.9 0.103 0.134 0.28 NonLigfble. 0.36 2.9 8.73 8.4 1082 787 20.0 4.58 40.9 0.80 52.4 0.483 0.138 0.29 NonLiafble. 115 13.1 65.5 0.106 8.84 4 8.3 0.34 1095 793 12.9 19.6 4.39 2.9 40.9 0.80 51.6 64.5 0.485 0.136 0.28 NonLiafble. 115 0.105 8 94 4 8.3 0.35 115 1106 798 12.9 194 4 52 29 40.9 0.80 514 64 3 0.487 0.105 0.136 0.28 NonLiafble. 9.05 7.7 0.38 115 1119 804 11.9 17.8 5 32 3.0 40.9 0.80 47.5 59 4 0.4890.100 0.129 0.26 NonLiqfble. 9.15 7.8 0.41 115 1130 809 12.0 17.9 5.67 3.0 40.9 0.80 48.0 60.0 0.490 0.100 0.130 0.27 NonLiqfble. 9.26 7.1 0.43 115 1143 815 10.9 16.0 6.59 3.0 40.9 0.80 43.5 54.4 0.492 0.095 0.123 0.25 NonLiqfble. 9.37 7.8 0.44 6.09 3.0 40.9 0.494 NonLiqfble. 115 1156 821 11.9 17.6 0.80 47.7 59.6 0.100 0.130 0.26 9.47 8.1 0.44 115 1167 826 12.3 18.2 5.85 3.0 0.80 49.3 61.7 0.496 0.102 0.132 0.27 NonLigfble. 9.58 7.7 0.44 115 1180 11.7 17.1 6.19 3.0 40.9 0.80 46.7 0.498 0.099 0.128 0.26 NonLiqfble. 9.69 0.43 115 1192 837 10.6 15.3 6.72 3.1 40.9 0.80 42.3 52.9 0.500 0.094 0.122 0.24 NonLiqfble. 9.8 7.7 0.42 115 1205 843 11.6 5.92 3.0 40.9 0.80 46.4 58.0 0.502 0.098 0.128 0.25 NonLiafble. 16.8 9.91 0.503 4 7.7 0.4 115 1218 849 11.6 16.7 5.64 3.0 40.9 0.80 46.3 57.8 0.098 0.127 0.25 NonLiafble. 10.01 4 8.4 0.4 115 1229 854 12.6 18.2 5.14 2.9 40.9 0.80 50.3 62.9 0.495 0.103 0.134 0.27 NonLiafble. 10.12 8.9 0.4 115 1242 860 13.3 19.2 4.83 2.9 51.9 0.80 53.1 66.4 0.497 0.107 0.1390.28 NonLigfble. 10.23 8.7 0.42 115 1255 866 12.9 18.6 5.20 2.9 53.9 0.80 51.7 64.7 0.498 0.105 0.137 0.27 NonLigfble. 10.34 9.1 0.43 115 1267 872 13.5 19.4 5.08 2.9 52.6 0.80 53.9 67.4 0.500 0.109 0.141 0.28 NonLiqfble. 0.109 10.44 9.2 0.44 115 1279 877 13.6 19.5 5.14 2.9 52.7 0.80 54.4 68.0 0.502 0.142 0.28 NonLiqfble. 10.55 4 9.1 0.45 1291 19.1 5.32 2.9 53.8 0.80 53.6 67.0 0.503 0.140 0.28 NonLiqfble. 115 883 13.4 0.108 10.66 4 10.4 0.46 115 1304 888 15.3 21.9 4.72 2.8 48.9 0.80 61.1 76.3 0.505 0.121 0.158 0.31 NonLiqfble. 10.76 14.5 0.46 125 1316 21.2 31.0 3.32 2.6 37.2 0.80 84.9 106.1 0.506 0.191 0.248 0.49 NonLiqfble. 0.41 125 1329 901 2.59 2.5 0.71 60.2 84.2 0.508 0.136 0.176 0.35 10.87 16.5 24.1 35.2 31.8 Liquefaction 115 20.3 2.25 2.5 0.509 10.97 0.3 1342 907 29.4 32.8 0.74 58.3 78.6 0.163 0.32 Liquefaction 14 0.125 9.9 11.08 0.2 105 1354 913 14.3 20.2 2.17 2.7 38.7 0.80 57.4 71.7 0.511 0.114 0.149 0.29 NonLigfble. 11.18 8.1 0.17 105 1365 917 11.7 16.2 2.29 2.8 43.6 0.80 46.8 58.5 0.512 0.099 0.128 0.25 NonLigfble. 11.29 8.1 0.17 105 1376 922 11.7 16.1 2.29 2.8 43.8 0.80 46.7 58.4 0.514 0.098 0.128 0.25 NonLiqfble. 114 4 8 0.16 105 1388 926 11.5 15.8 2.19 2.8 43 5 0.80 46.0 57.5 0.515 0.098 0.127 0.25 NonLiafble. 11.5 4 82 02 105 1399 930 11.8 16.1 2.67 2.8 45.9 0.80 47.0 58.8 0.517 0.099 0.129 0.25 NonLiqfble. 11.61 4 8.8 0.26 105 1410 935 12.6 17.3 3.21 2.8 47.3 0.80 50.4 63.0 0.519 0.103 0.134 0.26 NonLiqfble. 2.8 0.520 NonLiqfble. 11.72 0.3 115 1422 940 12.8 17.6 3.62 48.8 0.80 51.4 64.2 0.105 0.136 0.26 4 8.7 0.38 2.9 NonLiqfble. 11.96 115 1449 952 12.3 16.7 4.76 54.6 0.80 49.3 61.7 0.523 0.102 0.132 0.25 12.06 8.5 0.36 115 1461 958 12.0 16.2 4.63 2.9 54.8 0.80 48.1 60.1 0.525 0.100 0.130 0.25 NonLiqfble. 12.17 4 9.2 0.36 115 1473 964 17.6 4.25 2.9 0.80 64.8 0.526 0.105 0.137 0.26 13.0 51.6 51.9 NonLigfble.

0.527

0.528

0.112

0.114

0.146

0.148

0.28

0.28

70.4

71.6

56.3

57.3

NonLigfble.

NonLiafble.

0.39

10 0.36

10.2

12.22

12.32

115

115

1479

1491

966

14.1

14.3

19.2

19.5

3.89

4.13

2.8

2.9

48.3

49 0

0.80

0.80

Depth to Groundwater: 4 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 **MSF:** 1.30 CPT Number: 15

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	q <sub>c1N</sub>	Q	F	Ic	(%)	Ксрт	Dqc1N	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	12.42	4	11.2	0.42	115	1502	977	15.7	21.4	4.02	2.8	46.7	0.80	62.7	78.4	0.529	0.125	0.162	0.31	NonLiqfble.
	12.51	4	11.8	0.45	125	1512	981	16.5	22.5	4.07	2.8	45.9	0.80	65.9	82.4	0.530	0.132	0.172	0.32	NonLiqfble.
	12.62	4	12.3	0.48	125	1526	988	17.1	23.3	4.16	2.8	45.6	0.80	68.5	85.6	0.531	0.138	0.180	0.34	NonLiqfble.
	12.72	4	12.3	0.51	125	1539	995	17.1	23.2	4.42	2.8	46.7	0.80	68.3	85.3	0.532	0.138	0.179	0.34	NonLiqfble.
	12.83 12.94	4	12.3 12.4	0.51 0.5	125 125	1552 1566	1001 1008	17.0 17.1	23.0 23.0	4.43 4.30	2.8 2.8	46.9 46.4	0.80	68.0 68.3	85.0 85.4	0.533 0.534	0.137 0.138	0.178 0.179	0.33 0.34	NonLiqfble. NonLiqfble.
	13.04	4	12.4	0.52	125	1579	1015	17.1	22.9	4.48	2.8	47.2	0.80	68.1	85.2	0.535	0.138	0.179	0.34	NonLiqfble.
	13.13	4	12.7	0.51	125	1590	1020	17.4	23.3	4.28	2.8	46.1	0.80	69.6	87.0	0.536	0.141	0.184	0.34	NonLiqfble.
	13.23	4	12.9	0.52	125	1602	1026	17.6	23.6	4.30	2.8	45.9	0.80	70.5	88.1	0.537	0.144	0.187	0.35	NonLiqfble.
	13.34	4	13.3	0.54	125	1616	1033	18.1	24.2	4.32	2.8	45.6	0.80	72.4	90.5	0.538	0.149	0.194	0.36	NonLiqfble.
	13.44	4	13.8	0.57	125	1629	1040	18.7	25.0	4.39	2.8	45.2	0.80	74.9	93.6	0.539	0.156	0.203	0.38	NonLiqfble.
	13.55	4	14	0.6	125	1642	1047	18.9	25.2	4.55	2.8	45.7	0.80	75.7	94.7	0.540	0.159	0.207	0.38	NonLiqfble.
	13.65 13.76	4	13.8 13.4	0.63 0.64	125 125	1655 1669	1053 1060	18.6 18.0	24.6 23.7	4.86 5.09	2.8 2.8	47.2 48.7	0.80	74.4 72.0	93.0 90.1	0.541 0.542	0.155 0.148	0.201 0.192	0.37 0.36	NonLiqfble.
	13.87	4	12.7	0.6	125	1682	1067	17.0	22.2	5.06	2.9	49.9	0.80	68.1	85.1	0.543	0.148	0.178	0.33	NonLiqfble. NonLiqfble.
	13.97	4	12.4	0.56	125	1695	1073	16.6	21.5	4.85	2.9	49.7	0.80	66.3	82.8	0.543	0.137	0.173	0.32	NonLiqfble.
	14.08	4	12.4	0.52	125	1709	1080	16.5	21.4	4.50	2.8	48.6	0.80	66.0	82.6	0.544	0.132	0.172	0.32	NonLiqfble.
	14.18	4	12.4	0.51	125	1721	1086	16.5	21.2	4.42	2.8	48.4	0.80	65.9	82.3	0.545	0.132	0.171	0.31	NonLiqfble.
	14.29	4	13.2	0.52	125	1735	1093	17.5	22.6	4.22	2.8	46.4	0.80	69.9	87.4	0.546	0.142	0.185	0.34	NonLiqfble.
	14.39	4	13.9	0.55	125	1747	1099	18.3	23.7	4.22	2.8	45.5	0.80	73.4	91.7	0.547	0.152	0.197	0.36	NonLiqfble.
	14.5	4	14.1	0.59	125	1761	1106	18.6	23.9	4.46	2.8	46.3	0.80	74.2	92.8	0.548	0.154	0.200	0.37	NonLiqfble.
	14.6	4	14.7	0.62 0.67	125 125	1774	1112	19.3	24.8	4.49	2.8	45.7	0.80	77.1	96.4	0.549	0.163	0.212	0.39	NonLiqfble.
	14.71 14.81	4	15.6 16.7	0.87	125	1787 1800	1119 1125	20.4 21.8	26.3 28.1	4.56 4.81	2.8 2.8	44.9 44.6	0.80	81.6 87.1	102.0 108.9	0.549 0.550	0.179 0.200	0.232	0.42 0.47	NonLiqfble. NonLiqfble.
	14.92	4	16.9	0.81	125	1814	1132	22.0	28.2	5.06	2.8	45.4	0.80	87.9	109.9	0.551	0.203	0.264	0.48	NonLiqfble.
	14.95	4	16.8	0.81	125	1817	1134	21.8	28.0	5.10	2.8	45.6	0.80	87.3	109.1	0.551	0.201	0.261	0.47	NonLiqfble.
	15.01	4	18	0.82	125	1825	1138	23.3	30.0	4.80	2.8	43.4	0.80	93.4	116.7	0.552	0.228	0.296	0.54	NonLiqfble.
	15.08	4	17.9	0.84	125	1834	1142	23.2	29.7	4.95	2.8	44.1	0.80	92.7	115.9	0.552	0.225	0.292	0.53	NonLiqfble.
	15.18	4	16.9	0.82	125	1846	1149	21.8	27.8	5.13	2.8	45.9	0.80	87.3	109.1	0.553	0.201	0.261	0.47	NonLiqfble.
	15.27	4	16.4	0.79	125	1857	1154	21.1	26.8	5.11	2.8	46.5	0.80	84.5	105.6	0.554	0.190	0.246	0.45	NonLiqfble.
	15.38 15.48	4	15.5 14.6	0.76 0.71	125 125	1871 1884	1161 1167	19.9 18.7	25.1 23.4	5.22 5.20	2.8 2.9	48.1 49.3	0.80	79.6 74.8	99.5 93.5	0.554 0.555	0.172 0.156	0.223	0.40 0.37	NonLiqfble. NonLiqfble.
	15.59	4	14.4	0.67	125	1897	1174	18.4	22.9	4.98	2.9	49.0	0.80	73.5	91.9	0.556	0.150	0.203	0.36	NonLiqfble.
	15.69	4	13.2	0.65	125	1910	1180	16.8	20.7	5.31	2.9	52.1	0.80	67.2	84.0	0.557	0.135	0.176	0.32	NonLiqfble.
	15.8	4	12.2	0.62	125	1924	1187	15.5	18.9	5.52	2.9	54.7	0.80	62.0	77.5	0.557	0.123	0.160	0.29	NonLiqfble.
	15.9	4	11.7	0.59	125	1936	1194	14.8	18.0	5.50	3.0	55.7	0.80	59.3	74.1	0.558	0.118	0.153	0.27	NonLiqfble.
	16.01	4	11.6	0.57	125	1950	1201	14.6	17.7	5.36	3.0	55.6	0.80	58.6	73.2	0.559	0.117	0.152	0.27	NonLiqfble.
	16.1	4	10.9	0.55	125	1961	1206	13.7	16.4	5.54	3.0	57.8	0.80	54.9	68.7	0.559	0.110	0.143	0.26	NonLiqfble.
	16.2 16.31	4	10.6 10.6	0.53 0.5	125 125	1974 1987	1212 1219	13.3 13.3	15.9 15.7	5.51 5.21	3.0	58.5 57.5	0.80	53.3 53.1	66.6 66.4	0.560 0.561	0.107 0.107	0.140 0.139	0.25 0.25	NonLiqfble.
	16.42	4	10.0	0.48	125	2001	1219	13.6	16.1	4.85	3.0	55.7	0.80	54.5	68.1	0.561	0.107	0.139	0.25	NonLiqfble. NonLiqfble.
	16.52	4	11	0.47	125	2014	1232	13.7	16.2	4.70	2.9	55.0	0.80	54.8	68.5	0.562	0.110	0.143	0.25	NonLiqfble.
	16.63	4	12.1	0.45	125	2027	1239	15.0	17.9	4.06	2.9	50.4	0.80	60.2	75.2	0.563	0.120	0.155	0.28	NonLiqfble.
	16.74	4	13.5	0.44	125	2041	1246	16.7	20.0	3.53	2.8	45.8	0.80	66.9	83.7	0.563	0.134	0.175	0.31	NonLiqfble.
	16.85	4	15	0.44	125	2055	1253	18.5	22.3	3.15	2.7	42.1	0.80	74.2	92.7	0.564	0.154	0.200	0.36	NonLiqfble.
	16.95	4	15.8	0.45	125	2067	1259	19.5	23.4	3.05	2.7	40.7	0.80	77.9	97.4	0.565	0.166	0.216	0.38	NonLiqfble.
	17.05 17.16	4	16.7 18.2	0.46 0.48	125 125	2080 2094	1266 1273	20.5 22.3	24.7 26.9	2.94 2.80	2.7 2.6	39.2 37.0	0.80	82.2 89.3	102.7 111.6	0.565 0.566	0.181	0.235 0.272	0.42 0.48	NonLiqfble.
	17.10	4	18.8	0.46	125	2107	1273	23.0	27.7	2.82	2.6	36.7	0.80	92.0	115.0	0.567	0.209	0.272	0.48	NonLiqfble. NonLiqfble.
	17.37	4	17.6	0.51	125	2120	1286	21.5	25.7	3.08	2.7	39.2	0.80	85.9	107.4	0.567	0.195	0.254	0.45	NonLiqfble.
	17.47	4	16.8	0.49	125	2132	1292	20.5	24.3	3.11	2.7	40.3	0.80	81.8	102.3	0.568	0.179	0.233	0.41	NonLiqfble.
	17.58	4	14.4	0.46	125	2146	1299	17.5	20.5	3.45	2.8	45.0	0.80	69.9	87.4	0.568	0.142	0.185	0.33	NonLiqfble.
	17.69	4	12.9	0.43	125	2160	1306	15.6	18.1	3.64	2.8	48.3	0.80	62.5	78.1	0.569	0.124	0.162	0.28	NonLiqfble.
	17.79	4	11.1	0.35	115	2172	1312	13.4	15.3	3.50	2.9	51.2	0.80	53.6	67.0	0.570	0.108	0.140	0.25	NonLiqfble.
	17.9	4	9.3	0.38	115	2185	1318	11.2	12.5	4.63	3.0	60.7	0.80	44.8	56.0	0.570	0.096	0.125	0.22	NonLiqfble.
	18 18.03	4	8.5 8	0.36 0.35	115 115	2197 2200	1323 1325	10.2 9.6	11.2 10.4	4.86 5.07	3.1	64.2 66.8	0.80	40.9 38.5	51.1 48.1	0.571 0.571	0.092 0.090	0.120 0.117	0.21 0.21	NonLiqfble. NonLiqfble.
	18.09	4	7.8	0.35	115	2207	1328	9.6	10.4	4.63	3.1	65.8	0.80	38.5 37.5	46.8	0.571	0.090	0.117	0.21	NonLiqible. NonLiqfble.
	18.15	4	7.5	0.28	105	2214	1328	9.0	9.6	4.38	3.1	66.0	0.80	36.0	45.0	0.572	0.030	0.115	0.20	NonLiqfble.
	18.25	4	7.1	0.24	105	2224	1335	8.5	9.0	4.01	3.1	66.1	0.80	34.0	42.5	0.573	0.087	0.113	0.20	NonLiqfble.
	18.35	4	6.6	0.22	105	2235	1339	7.9	8.2	4.01	3.1	68.5	0.80	31.6	39.5	0.574	0.086	0.111	0.19	NonLiqfble.
	18.46	4	6.9	0.21	105	2246	1344	8.2	8.6	3.64	3.1	65.4	0.80	32.9	41.2	0.575	0.086	0.112	0.20	NonLiqfble.
	18.56	4	8.2	0.2	105	2257	1348	9.8	10.5	2.83	3.0	56.2	0.80	39.1	48.9	0.576	0.091	0.118	0.21	NonLiqfble.

Date: September 2005 CPT Number: 15

Depth to Groundwater: 4 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 Project Number: 6600.3.001.01 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(q <sub>c1N</sub> ) <sub>cs</sub>	Ratio	M7.5	M6.50	Safety	Comments
	18.67	4	8.6	0.18	105	2268	1353	10.2	11.0	2.41	2.9	52.5	0.80	40.9	51.1	0.577	0.092	0.120	0.21	NonLiqfble.
	18.77	4	9.8	0.18	105	2279	1357	11.6	12.8	2.08	2.8	47.2	0.80	46.6	58.2	0.578	0.098	0.128	0.22	NonLiqfble.
	18.88	4	11.1	0.19	105	2291	1362	13.2	14.6	1.91	2.8	43.2	0.80	52.6	65.8	0.578	0.106	0.138	0.24	NonLiqfble.
	18.99	4	12.1	0.22	105	2302	1367	14.3	16.0	2.01	2.7	42.1	0.80	57.3	71.6	0.579	0.114	0.148	0.26	NonLiqfble.
	19.09	4	13.3	0.25	115	2313	1371	15.7	17.7	2.06	2.7	40.4	0.80	62.9	78.6	0.580	0.125	0.163	0.28	NonLiqfble.
	19.2	4	12.8	0.27	115	2325	1377	15.1	16.9	2.32	2.7	43.0	0.80	60.4	75.5	0.581	0.120	0.156	0.27	NonLiqfble.
	19.31 19.41	4	13 12.3	0.29 0.27	115 115	2338 2349	1383 1388	15.3 14.4	17.1 16.0	2.45 2.43	2.8 2.8	43.5 44.6	0.80 0.80	61.2 57.8	76.5 72.2	0.582 0.582	0.122 0.115	0.158 0.150	0.27 0.26	NonLiqfble. NonLiqfble.
	19.52	4	12.8	0.26	115	2362	1394	15.0	16.7	2.24	2.7	42.7	0.80	60.0	75.0	0.583	0.119	0.155	0.27	NonLiqfble.
	19.62	4	13	0.24	115	2374	1399	15.2	16.9	2.03	2.7	41.2	0.80	60.8	76.0	0.584	0.121	0.157	0.27	NonLiqfble.
	19.71	4	12.2	0.22	105	2384	1404	14.2	15.7	2.00	2.7	42.4	0.80	57.0	71.2	0.584	0.114	0.148	0.25	NonLiqfble.
	19.8	4	12.2	0.2	105	2393	1407	14.2	15.6	1.82	2.7	41.2	0.80	56.9	71.1	0.585	0.113	0.148	0.25	NonLiqfble.
	19.9	4	12.4	0.2	105	2404	1412	14.4	15.9	1.79	2.7	40.7	0.80	57.8	72.2	0.586	0.115	0.150	0.26	NonLiqfble.
	19.99 20.07	4	12.7 12.8	0.19 0.18	105 105	2413 2422	1415 1419	14.8 14.9	16.2 16.3	1.65 1.55	2.7 2.7	39.3 38.5	0.80 0.80	59.1 59.5	73.8 74.3	0.586 0.575	0.117 0.118	0.153 0.154	0.26 0.27	NonLiqfble.
	20.07	4	13.8	0.18	105	2422	1419	16.0	17.7	1.43	2.6	36.0	0.80	64.0	80.1	0.576	0.118	0.154	0.27	NonLiqfble. NonLiqfble.
	20.23	4	15.5	0.19	105	2438	1426	18.0	20.0	1.33	2.6	33.0	0.75	53.4	71.3	0.576	0.114	0.148	0.26	Liquefaction
	20.31	4	14.3	0.19	105	2447	1429	16.6	18.3	1.45	2.6	35.6	0.80	66.2	82.8	0.577	0.133	0.173	0.30	NonLiqfble.
	20.39	4	12.6	0.2	105	2455	1433	14.6	15.9	1.76	2.7	40.5	0.80	58.3	72.8	0.578	0.116	0.151	0.26	NonLiqfble.
	20.47	4	10.8	0.2	105	2464	1436	12.5	13.3	2.09	2.8	46.3	0.80	49.9	62.4	0.578	0.103	0.133	0.23	NonLiqfble.
	20.54	4	9.7	0.19	105	2471	1439	11.2	11.8	2.24	2.9	50.0	0.80	44.8	55.9	0.579	0.096	0.125	0.22	NonLiqfble.
	20.61 20.77	4	8.7 9.8	0.17 0.17	105 105	2478 2495	1442 1449	10.0 11.3	10.3 11.8	2.28 1.99	2.9 2.8	53.2 48.2	0.80 0.80	40.1 45.1	50.1 56.3	0.579 0.580	0.092 0.097	0.119 0.126	0.21 0.22	NonLiqfble.
	20.77	4	9.5	0.17	105	2500	1449	10.9	11.6	2.06	2.8	49.6	0.80	43.7	54.6	0.581	0.097	0.126	0.22	NonLiqfble. NonLiqfble.
	20.87	4	9.9	0.18	105	2506	1453	11.4	11.9	2.08	2.8	48.7	0.80	45.5	56.8	0.581	0.097	0.126	0.22	NonLiqfble.
	20.95	4	11.1	0.2	105	2514	1456	12.7	13.5	2.03	2.8	45.7	0.80	50.9	63.6	0.582	0.104	0.135	0.23	NonLiqfble.
	21.04	4	11.5	0.21	105	2524	1460	13.2	14.0	2.05	2.8	45.0	0.80	52.7	65.8	0.582	0.107	0.139	0.24	NonLiqfble.
	21.14	4	9.3	0.2	105	2534	1464	10.6	11.0	2.49	2.9	53.2	0.80	42.5	53.2	0.583	0.094	0.122	0.21	NonLiqfble.
	21.24	4	8.2	0.21	105	2545	1469	9.4	9.4	3.03	3.0	59.9	0.80	37.4	46.8	0.584	0.090	0.116	0.20	NonLiqfble.
	21.34 21.43	4	8.4 8.7	0.19 0.19	105 105	2555 2564	1473 1477	9.6 9.9	9.7 10.0	2.67 2.56	3.0	57.2 55.6	0.80 0.80	38.3 39.6	47.9 49.5	0.584 0.585	0.090 0.091	0.117 0.119	0.20 0.20	NonLiqfble. NonLiqfble.
	21.52	4	10	0.18	105	2574	1481	11.4	11.8	2.07	2.8	48.8	0.80	45.5	56.9	0.586	0.097	0.115	0.22	NonLiqfble.
	21.62	4	11.6	0.18	105	2584	1485	13.2	13.9	1.75	2.7	43.1	0.80	52.7	65.9	0.586	0.107	0.139	0.24	NonLiqfble.
	21.72	4	13.4	0.2	105	2595	1489	15.2	16.2	1.65	2.7	39.3	0.80	60.8	76.0	0.587	0.121	0.157	0.27	NonLiqfble.
	21.82	4	13.4	0.2	105	2605	1493	15.2	16.2	1.65	2.7	39.4	0.80	60.7	75.9	0.588	0.121	0.157	0.27	NonLiqfble.
	21.9	4	13.5	0.21	105	2614	1497	15.3	16.3	1.72	2.7	39.8	0.80	61.1	76.3	0.588	0.121	0.158	0.27	NonLiqfble.
	21.98 22.06	4	13.7 14.8	0.23 0.27	105 115	2622 2631	1500 1504	15.5 16.7	16.5 17.9	1.86 2.00	2.7 2.7	40.4 39.8	0.80 0.80	61.9 66.8	77.4 83.5	0.589 0.590	0.123 0.134	0.160 0.174	0.27	NonLiqfble.
	22.14	4	15.1	0.27	115	2640	1504	17.0	18.3	2.32	2.7	41.5	0.80	68.1	85.1	0.590	0.134	0.174	0.30	NonLiqfble. NonLiqfble.
	22.22	4	16	0.38	125	2649	1512	18.0	19.4	2.59	2.7	41.8	0.80	72.0	90.0	0.590	0.148	0.192	0.33	NonLiqfble.
	22.3	4	19.6	0.47	125	2659	1517	22.0	24.1	2.57	2.6	37.8	0.80	88.1	110.1	0.591	0.204	0.265	0.45	NonLiqfble.
	22.38	4	28.1	0.84	135	2669	1522	31.5	35.2	3.14	2.6	34.3	0.78	113.6	145.1	0.591	0.364	0.474	0.80	Liquefaction
	22.46	4	36.3	1.01	135	2680	1528	40.6	45.7	2.89	2.5	29.4	0.65	75.5	116.2	0.591	0.226	0.293	0.50	Liquefaction
	22.53	4	41.5	1.11	135	2689	1533	46.4	52.4	2.76	2.4	27.0	0.59	65.9	112.3	0.591	0.212	0.275	0.47	Liquefaction
	22.58 22.66	4	44.4 56.1	1.15 1.15	135 135	2696 2707	1537 1542	49.6 62.5	56.0 71.0	2.67 2.10	2.4	25.7 20.2	0.55 0.41	61.2 42.8	110.8 105.3	0.591 0.591	0.206 0.189	0.268 0.245	0.45 0.41	Liquefaction Liquefaction
	22.76	4	63	1.13	135	2720	1550	70.0	79.5	1.83	2.2	17.7	0.41	35.8	105.8	0.591	0.190	0.243	0.41	Liquefaction
	22.87	4	71.5	1.1	135		1558	79.3	90.0	1.57	2.1	15.0	0.27	29.0	108.3	0.592	0.198	0.257	0.44	Liquefaction
	22.97	4	75.6	1.05	125	2749	1565	83.6	94.8	1.41	2.0	13.7	0.23	25.2	108.9	0.592	0.200	0.260	0.44	Liquefaction
	23.08	4	77.7	1.03	125	2762	1572	85.8	97.1	1.35	2.0	13.1	0.22	23.7	109.4	0.592	0.202	0.262	0.44	Liquefaction
	23.18	4	77.5	0.99	125	2775	1578	85.4	96.4	1.30	2.0	12.9	0.21	22.7	108.1	0.593	0.197	0.257	0.43	Liquefaction
	23.29	4	71 52.0	0.82	125	2789	1585	78.0	87.8	1.18	2.0	12.9	0.21	21.0	99.0	0.593	0.170	0.221	0.37	Liquefaction
	23.39 23.5	4	52.9 32.7	0.54 0.31	125 115	2801 2815	1591 1598	58.0 35.8	64.7 39.1	1.05 0.99	2.1	15.0 20.2	0.27 0.41	21.0 24.6	79.1 60.4	0.593 0.594	0.126 0.100	0.164 0.131	0.28 0.22	Liquefaction Liquefaction
	23.6	4	21	0.19	105	2826	1603	22.9	24.4	0.97	2.4	26.7	0.58	31.6	54.5	0.594	0.100	0.131	0.22	Liquefaction
	23.7	4	15.2	0.14	95	2837	1608	16.6	17.1	1.02	2.6	33.0	0.75	49.1	65.7	0.595	0.106	0.138	0.23	Liquefaction
	23.81	4	13.9	0.14	95	2847	1611	15.2	15.5	1.12	2.6	35.9	0.80	60.6	75.8	0.595	0.120	0.157	0.26	NonLiqfble.
	23.91	4	13.4	0.14	95	2857	1614	14.6	14.8	1.17	2.6	37.1	0.80	58.4	73.0	0.596	0.116	0.151	0.25	NonLiqfble.
	24.02	4	13.4	0.18	105	2867	1618	14.6	14.8	1.50	2.7	40.0	0.80	58.3	72.9	0.597	0.116	0.151	0.25	NonLiqfble.
	24.12 24.23	4	12.8 10.7	0.21 0.19	105 105	2878 2889	1622 1627	13.9 11.6	14.0 11.4	1.85 2.05	2.8 2.9	43.7 49.5	0.80 0.80	55.6 46.4	69.5 58.0	0.598 0.598	0.111 0.098	0.145 0.128	0.24 0.21	NonLiqfble. NonLiqfble.
	24.23	4	10.7	0.19	95	2900	1631	11.0	10.8	1.58	2.8	47.1	0.80	44.6	55.8	0.598	0.098	0.128	0.21	NonLiqfble.
	24.43	4	8.9	0.14	95	2909	1635	9.6	9.1	1.88	2.9	53.4	0.80	38.5	48.2	0.600	0.090	0.118	0.20	NonLiqfble.
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Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 15

Depth to Groundwater: 4 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

MSF: 1.30

	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> e1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	()	()	()	(-2-)	()	()	(= 2= )					(,-,								
	24.54	4	9.4	0.18	105	2920	1638	10.2	9.7	2.27	2.9	54.6	0.80	40.6	50.8	0.601	0.092	0.120	0.20	NonLiqfble.
	24.64	4	11.4	0.32	115	2930	1642	12.3	12.1	3.22	2.9	55.0	0.80	49.2	61.5	0.601	0.102	0.132	0.22	NonLiqfble.
	24.74	4	13.8	0.36	115	2942	1648	14.9	15.0	2.92	2.8	48.8	0.80	59.5	74.4	0.602	0.118	0.154	0.26	NonLiqfble.
	24.84	4	14.9	0.39	125	2953	1653	16.0	16.2	2.91	2.8	47.0	0.80	64.1	80.2	0.602	0.128	0.166	0.28	NonLiqfble.
	24.89	4	16.5	0.41	125	2960	1656	17.7	18.1	2.73	2.8	43.9	0.80	71.0	88.7	0.602	0.145	0.188	0.31	NonLiqfble.
	25 25.1	4	16.9	0.46 0.44	125 125	2973 2986	1663	18.1	18.5	2.98	2.8	44.8	0.80	72.5	90.7 90.5	0.602	0.149	0.194	0.32	NonLiqfble.
	25.21	4	16.9 17.3	0.39	125	3000	1669 1676	18.1 18.5	18.5 18.8	2.86 2.47	2.8	44.2 41.7	0.80	72.4 74.0	90.5	0.603 0.603	0.149 0.153	0.194 0.200	0.32 0.33	NonLiqfble. NonLiqfble.
	25.21	4	17.3	0.32	115	3012	1682	18.6	18.9	2.47	2.7	38.9	0.80	74.0	92.4	0.603	0.153	0.201	0.33	NonLiqfble.
	25.41	4	16.1	0.33	115	3024	1688	17.1	17.3	2.26	2.7	42.2	0.80	68.6	85.7	0.604	0.139	0.180	0.30	NonLiqfble.
	25.52	4	16	0.33	115	3036	1693	17.0	17.1	2.28	2.7	42.5	0.80	68.0	85.1	0.604	0.137	0.178	0.30	NonLiqfble.
	25.62	4	16.2	0.36	125	3048	1699	17.2	17.3	2.45	2.8	43.3	0.80	68.8	86.0	0.605	0.139	0.181	0.30	NonLiqfble.
	25.73	4	19.2	0.36	125	3061	1705	20.3	20.7	2.04	2.6	37.4	0.80	81.4	101.7	0.605	0.178	0.231	0.38	NonLiqfble.
	25.83	4	21.4	0.43	125	3074	1712	22.6	23.2	2.16	2.6	36.2	0.80	90.5	113.2	0.605	0.215	0.279	0.46	NonLiqfble.
	25.94	4	21.1	0.51	125	3088	1719	22.3	22.7	2.61	2.7	39.0	0.80	89.1	111.3	0.605	0.208	0.271	0.45	NonLiqfble.
	26.05	4		0.46	125	3101	1726	26.8	27.6	1.93	2.5	31.9	0.72	67.9	94.6	0.606	0.159	0.206	0.34	Liquefaction
	26.15	4	33.9	0.37	115	3114	1732	35.6	37.3	1.14	2.3	22.1	0.46	29.9	65.6	0.606	0.106	0.138	0.23	Liquefaction
	26.26 26.37	4	33.2 25.8	0.33	115 125	3127 3139	1738 1743	34.8 27.0	36.4 27.8	1.04 1.61	2.3	21.6 29.7	0.44 0.66	27.8 52.4	62.7 79.5	0.606	0.103 0.127	0.134 0.165	0.22 0.27	Liquefaction
	26.47	4	25.6 19.4	0.39	125	3152	1743	20.3	20.4	2.41	2.7	39.9	0.80	81.2	101.5	0.607 0.607	0.127	0.165	0.27	Liquefaction NonLiqfble.
	26.58	4	19.7	0.45	125	3166	1757	20.5	20.4	1.93	2.6	36.8	0.80	82.3	102.8	0.607	0.177	0.235	0.39	NonLiqfble.
	26.68	4	18.6	0.28	115	3178	1763	19.4	19.3	1.65	2.6	36.1	0.80	77.5	96.9	0.607	0.165	0.214	0.35	NonLiqfble.
	26.79	4	16.1	0.25	115	3191	1769	16.8	16.4	1.72	2.7	39.6	0.80	67.0	83.8	0.608	0.135	0.175	0.29	NonLigfble.
	26.89	4	13.8	0.23	105	3202	1774	14.3	13.7	1.89	2.8	44.3	0.80	57.3	71.7	0.608	0.114	0.149	0.24	NonLiqfble.
	27	4	15.1	0.18	105	3214	1779	15.7	15.2	1.33	2.7	38.1	0.80	62.7	78.3	0.609	0.125	0.162	0.27	NonLiqfble.
	27.1	4	13.8	0.16	105	3224	1783	14.3	13.7	1.31	2.7	40.0	0.80	57.2	71.5	0.609	0.114	0.148	0.24	NonLiqfble.
	27.21	4	12.5	0.18	105	3236	1787	12.9	12.2	1.65	2.8	45.1	0.80	51.7	64.7	0.610	0.105	0.137	0.22	NonLiqfble.
	27.31	4	11.9	0.2	105	3246	1792	12.3	11.5	1.95	2.8	48.6	0.80	49.2	61.5	0.611	0.102	0.132	0.22	NonLiqfble.
	27.41	4	11.6	0.21	105	3257	1796	12.0	11.1	2.11	2.9	50.4	0.80	47.9	59.9	0.611	0.100	0.130	0.21	NonLiqfble.
	27.52	4	11.2	0.23	105	3268	1801	11.5	10.6	2.40	2.9	53.4	0.80	46.2	57.7	0.612	0.098	0.127	0.21	NonLiqfble.
	27.62 27.72	4	11.1 11.1	0.24 0.25	105 115	3279 3289	1805 1809	11.4 11.4	10.5 10.4	2.54 2.64	2.9 3.0	54.5 55.2	0.80	45.7 45.7	57.2 57.1	0.612 0.613	0.097 0.097	0.127 0.126	0.21 0.21	NonLiqfble. NonLiqfble.
	27.72	4	11.5	0.25	115	3302	1815	11.4	10.4	2.54	2.9	53.7	0.80	47.2	59.1	0.613	0.097	0.120	0.21	NonLiqfble.
	27.93	4	11.3	0.29	115	3313	1820	11.6	10.6	3.01	3.0	56.9	0.80	46.4	57.9	0.613	0.098	0.128	0.21	NonLiqfble.
	28.03	4	12.5	0.31	115	3325	1825	12.8	11.9	2.86	2.9	53.5	0.80	51.2	64.0	0.614	0.104	0.136	0.22	NonLigfble.
	28.13	4	11.9	0.31	115	3336	1831	12.2	11.2	3.03	3.0	55.8	0.80	48.7	60.8	0.614	0.101	0.131	0.21	NonLiqfble.
	28.21	4	12.4	0.3	115	3346	1835	12.7	11.7	2.80	2.9	53.5	0.80	50.7	63.3	0.614	0.104	0.135	0.22	NonLiqfble.
	28.32	4	11.8	0.29	115	3358	1841	12.0	11.0	2.87	3.0	55.3	0.80	48.1	60.2	0.615	0.100	0.130	0.21	NonLiqfble.
	28.42	4	11.2	0.26	115	3370	1846	11.4	10.3	2.73	3.0	56.0	0.80	45.6	57.0	0.615	0.097	0.126	0.21	NonLiqfble.
	28.53	4	11.1	0.23	105	3382	1852	11.3	10.2	2.44	2.9	54.6	0.80	45.1	56.4	0.615	0.097	0.126	0.20	NonLiqfble.
	28.63	4	10.8	0.22	105	3393	1856	11.0	9.8	2.42	3.0	55.3	0.80	43.9	54.8	0.616	0.095	0.124	0.20	NonLiqfble.
	28.74	4		0.19	105	3404	1861	10.0	8.8	2.32	3.0	57.2	0.80	40.2	50.2	0.617	0.092	0.119	0.19	NonLiqfble.
	28.84 28.93	4	9.9 10.6	0.2 0.19	105 105	3415 3424	1865 1869	10.0 10.7	8.8 9.5	2.44 2.14	3.0 2.9	58.1 54.2	0.80	40.1 42.9	50.2 53.6	0.617 0.617	0.092 0.094	0.119 0.123	0.19 0.20	NonLiqfble.
	29.03	4	9.5	0.18	105	3435	1873	9.6	8.3	2.14	3.0	58.7	0.80	38.4	48.0	0.617	0.094	0.123	0.20	NonLiqfble. NonLiqfble.
	29.14	4	10.8	0.18	105	3446	1878	10.9	9.7	1.98	2.9	52.7	0.80	43.6	54.5	0.618	0.090	0.117	0.19	NonLiqfble.
	29.24	4	10.3	0.18	105	3457	1882	10.4	9.1	2.10	2.9	55.0	0.80	41.6	51.9	0.619	0.093	0.121	0.20	NonLiqfble.
	29.35	4	10.3	0.18	105	3469	1887	10.4	9.1	2.10	2.9	55.0	0.80	41.5	51.9	0.619	0.093	0.121	0.20	NonLiqfble.
	29.45	4	10.3	0.19	105	3479	1891	10.4	9.0	2.22	3.0	53.5	0.80	41.5	51.8	0.620	0.093	0.121	0.19	NonLiqfble.
	29.56	4	10.7	0.19	105	3491	1896	10.8	9.4	2.12	2.9	53.5	0.80	43.0	53.8	0.620	0.094	0.123	0.20	NonLiqfble.
	29.67	4	10.8	0.19	105	3502	1900	10.8	9.5	2.10	2.9	53.5	0.80	43.4	54.2	0.621	0.095	0.123	0.20	NonLiqfble.
	29.77	4	10.2	0.19	105	3513	1905	10.2	8.9	2.25	3.0	53.5	0.80	40.9	51.1	0.621	0.092	0.120	0.19	NonLiqfble.
	29.88	4	10.9	0.19	105	3524	1909	10.9	9.6	2.08	2.9	53.5	0.80	43.7	54.6	0.622	0.095	0.124	0.20	NonLiqfble.
	29.98	4	11.1	0.18	105	3535	1914	11.1	9.7	1.93	2.9	53.5	0.80	44.4	55.5	0.622	0.096	0.125	0.20	NonLiqfble.
	30.09	4	10.8	0.19	105	3546	1918	10.8	9.4	2.10	2.9	53.5	0.80	43.2	53.9	0.597	0.095	0.123	0.21	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 16

Depth to Groundwater: 4 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA** (g): 0.54 **MSF:** 1.30

0.52	4	439.2	2.12	105	55	55	841.2	######	0.48	1.2	-0.8	0.00	0.0	841.2	0.351	55 /120	72.058	205.20	Above W.T.
0.58	4	385.3	2.12	115	61	61	737.9	######	0.55	1.1	-0.9	0.00	0.0	737.9	0.351	37.450	48.685	138.70	Above W.T.
0.63	4	360	2.35	115	67	67	689.5	######	0.65	1.2	-0.7	0.00	0.0	689.5	0.351	30.561	39.730	113.19	Above W.T.
0.69	4	341	2.32	115	74	74	653.1	9267.7	0.68	1.2	-0.8	0.00	0.0	653.1	0.351	25.985	33.781	96.24	Above W.T.
0.75	4	310.7	2.32	115	80	80	595.1	7719.8	0.75	1.2	-0.8	0.00	0.0	595.1	0.351		25.578	72.87	Above W.T.
0.81	4	287.6	1.87	115	87	87	550.8	6581.3	0.65	1.1	-1.4	0.00	0.0	550.8	0.351	15.621	20.308	57.86	Above W.T.
0.87 0.93	4 4	273.9 252.1	1.71 1.67	115 115	94 101	94 101	524.6 482.8	5808.8 4981.6	0.62 0.66	1.1 1.1	-1.6 -1.5	0.00	0.0	524.6 482.8	0.351		17.556 13.712	50.02 39.06	Above W.T. Above W.T.
0.99	4	226.9	1.72	115	108	108	434.6	4197.2	0.76	1.1	-1.2	0.00	0.0	434.6	0.351	7.712	10.025	28.56	Above W.T.
1.05	4	208.6	1.66	125	115	115	399.5	3626.9	0.80	1.1	-1.1	0.00	0.0	399.5	0.351	6.010	7.813	22.26	Above W.T.
1.11	4	184.9	1.57	125	122	122	354.1	3017.7	0.85	1.1	-1.0	0.00	0.0	354.1	0.351	4.210	5.473	15.59	Above W.T.
1.17	4	160.1	1.53	125	130	130	306.6	2462.0	0.96	1.2	-0.5	0.00	0.0	306.6	0.351	2.761	3.589	10.23	Above W.T.
1.23	4	142.7	1.45	125	137	137	273.3	2074.5	1.02	1.2	-0.2	0.00	0.0	273.3	0.351	1.978	2.572	7.33	Above W.T.
1.28	4	120.1 104.2	1.35	125 125	144 154	144	230.0	1669.8	1.12	1.3	0.4	0.00	0.0	230.0	0.351	1.212	1.575	4.49 3.03	Above W.T. Above W.T.
1.36 1.46	4	83.5	1.15 1.02	125	166	154 166	199.6 159.9	1354.3 1003.4	1.10 1.22	1.3 1.4	0.5 1.4	0.00	0.0	199.6 159.9	0.351	0.819 0.460	1.065 0.598	1.71	Above W.T.
1.56	4	60.5	0.97	135	179	179	115.9	675.8	1.61	1.6	3.8	0.00	0.0	115.9	0.351	0.225	0.292	0.83	Above W.T.
1.66	4	48.8	1.03	135	192	192	93.5	506.6	2.11	1.7	6.6	0.04	4.1	97.6	0.351	0.166	0.216	0.62	Above W.T.
1.76	4	38.3	1.09	135	206	206	73.4	371.2	2.85	1.9	10.4	0.15	12.5	85.8	0.351	0.139	0.180	0.51	Above W.T.
1.86	4	32.6	1.1	135	219	219	62.4	296.3	3.39	2.0	13.3	0.22	17.9	80.3	0.351	0.128	0.167	0.47	Above W.T.
1.95	4	30	1.2	135	231	231	57.5	258.2	4.02	2.1	16.1	0.30	24.1	81.5	0.351	0.130	0.170	0.48	Above W.T.
2.03 2.06	4	29.8 31.6	1.5 1.74	135 135	242 246	242 246	57.1 60.5	245.0 255.6	5.05 5.53	2.2	19.2 20.1	0.38	34.9 40.8	92.0 101.3	0.351	0.152 0.177	0.198 0.230	0.56 0.65	Above W.T.
2.17	4	28.8	1.84	135	261	261	55.2	219.6	6.42	2.2	23.3	0.49	52.6	107.7	0.351	0.177	0.255	0.03	Above W.T. Above W.T.
2.27	4	49.2	1.87	135	275	275	94.2	357.3	3.81	2.0	13.5	0.23	27.8	122.0	0.351	0.249	0.324	0.92	Above W.T.
2.37	4	24.3	1.87	135	288	288	46.5	167.7	7.74	2.4	28.5	0.63	78.1	124.6	0.351	0.260	0.338	0.96	Above W.T.
2.46	4	25.3	1.86	135	300	300	48.5	167.5	7.40	2.4	27.8	0.61	75.0	123.4	0.351	0.255	0.331	0.94	Above W.T.
2.56	4	24.6	1.52	135	314	314	47.1	155.8	6.22	2.4	25.8	0.56	58.8	105.9	0.351	0.190	0.248	0.71	Above W.T.
2.66	4	25.6	1.36	135	327	327	49.0	155.4	5.35	2.3	23.7	0.50	48.7	97.7	0.351	0.167	0.217	0.62	Above W.T.
2.76 2.86	4	24.4 23.5	1.31 1.3	135 135	341 354	341 354	46.7 45.0	142.2 131.6	5.41 5.57	2.4 2.4	24.6 25.8	0.52 0.56	51.5 56.3	98.2 101.3	0.351	0.168 0.177	0.219 0.230	0.62 0.65	Above W.T. Above W.T.
2.96	4	21.4	1.3	135	368	368	41.0	115.4	6.13	2.5	28.6	0.63	69.6	110.6	0.351	0.177	0.268	0.76	Above W.T.
3.06	4	19.1	1.3	135	381	381	36.6	99.2	6.87	2.5	32.1	0.72	95.4	131.9	0.351	0.294	0.382	1.09	Above W.T.
3.16	4	19.4	1.3	135	395	395	37.2	97.3	6.77	2.5	32.0	0.72	96.6	133.7	0.351	0.302	0.393	1.12	Above W.T.
3.26	4	19.8	1.33	135	408	408	37.9	96.0	6.79	2.5	32.2	0.73	101.2	139.1	0.351	0.330	0.430	1.22	Above W.T.
3.37	4	19	1.38	135	423	423	36.4	88.8	7.34	2.6	34.5	0.79	134.7	171.1	0.351	0.545	0.709	2.02	Above W.T.
3.47 3.57	4	17.8 17.2	1.42	135 135	437 450	437	34.1 32.9	80.5	8.08	2.6	37.4	0.80	136.4	170.5 164.7	0.351	0.541	0.703	2.00	Above W.T.
3.68	4	17.2	1.41 1.35	135	465	450 465	30.6	75.4 67.8	8.31 8.56	2.7 2.7	38.7 40.7	0.80	131.8 122.6	153.2	0.351	0.496 0.414	0.644	1.84 1.54	Above W.T. Above W.T.
3.78	4	15.2	1.29	135	478	478	29.1	62.5	8.62	2.7	42.0	0.80	116.4	145.6	0.351	0.367	0.477	1.36	Above W.T.
3.89	4	13.7	1.27	135	493	493	26.2	54.5	9.44	2.8	45.8	0.80	105.0	131.2	0.351	0.290	0.377	1.07	Above W.T.
3.99	4	13.4	1.28	135	507	507	25.7	51.9	9.74	2.8	47.2	0.80	102.7	128.3	0.351	0.276	0.359	1.02	Above W.T.
4.1	4	14.1	1.28	135	522	515	27.0	53.7	9.25	2.8	45.6	0.80	108.0	135.0	0.356	0.309	0.402	1.13	NonLiqfble.
4.2	4	14.7	1.27	135	535	522	28.2	55.3	8.80	2.8	44.2	0.80	112.6	140.8	0.360	0.339	0.441	1.23	NonLiqfble.
4.31 4.41	4	14.8 14.4	1.26 1.26	135 135	550 563	530 537	28.1 27.2	54.8 52.5	8.67 8.92	2.8 2.8	44.1 45.3	0.80	112.5 108.7	140.6 135.9	0.364 0.368	0.339 0.313	0.440 0.408	1.21 1.11	NonLiqfble. NonLiqfble.
4.51	4	15	1.27	135	577	545	28.1	54.0	8.63	2.8	44.2	0.80	112.5	140.6	0.372	0.313	0.440	1.11	NonLiqfble.
4.62	4	14.4	1.26	135	592	552	26.8	51.0	8.93	2.8	45.8	0.80	107.2	134.0	0.376	0.304	0.395	1.05	NonLiqfble.
4.72	4	14.6	1.25	135	605	560	27.0	51.1	8.74	2.8	45.3	0.80	108.0	135.0	0.380	0.309	0.401	1.06	NonLiqfble.
4.83	4	14.2	1.24	135	620	568	26.1	48.9	8.93	2.8	46.4	0.80	104.3	130.4	0.383	0.286	0.372	0.97	NonLiqfble.
4.93	4	13.8	1.22	135	634	575	25.2	46.9	9.05	2.8	47.4	0.80	100.7	125.9	0.387	0.266	0.345	0.89	NonLiqfble.
5.04	4	13.9	1.19	135	649	583	25.2	46.6	8.77	2.8	46.9	0.80	100.8	125.9	0.390	0.266	0.346	0.88	NonLiqfble.
5.14 5.25	4	14.2 13.7	1.17 1.15	135 135	662 677	590 598	25.6 24.5	47.0 44.7	8.44 8.61	2.8 2.8	46.0 47.2	0.80	102.3 98.0	127.9 122.5	0.394	0.274 0.251	0.357 0.326	0.91 0.82	NonLiqfble. NonLiqfble.
5.49	4	13.3	1.02	125	709	616	23.5	42.0	7.88	2.8	46.5	0.80	93.8	117.3	0.404	0.231	0.320	0.74	NonLiqfble.
5.6	4	12.8	0.97	125	723	623	22.4	39.9	7.80	2.8	47.2	0.80	89.8	112.2	0.408	0.211	0.275	0.67	NonLiqfble.
5.7	4	12.1	0.94	125	736	629	21.1	37.3	8.01	2.8	48.8	0.80	84.5	105.6	0.411	0.189	0.246	0.60	NonLiqfble.
5.81	4	12.1	0.92	125	749	636	21.0	36.9	7.85	2.8	48.6	0.80	84.0	105.0	0.414	0.188	0.244	0.59	NonLiqfble.
5.92	4	12.6	0.92	125	763	643	21.7	38.0	7.53	2.8	47.3	0.80	87.0	108.7	0.417	0.200	0.259	0.62	NonLiqfble.
6.02 6.13	4	12.3 12.4	0.92 0.91	125 125	776 789	649 656	21.1 21.2	36.7	7.72 7.58	2.8	48.4	0.80	84.5	105.6	0.420 0.422	0.190 0.191	0.247 0.248	0.59	NonLiqfble.
6.23	4	12.4	0.89	125	789 802	656 662	20.6	36.6 35.3	7.58 7.61	2.8 2.8	48.1 48.8	0.80	84.8 82.3	105.9 102.9	0.422	0.191	0.248	0.59 0.55	NonLiqfble. NonLiqfble.
5.20	-	1	0.00	.20	552	302	25.0	55.5	,1	2.0	.5.0	0.00	02.3	. 02.7	0.123	0.101	0.250	0.55	

Date: September 2005 CPT Number: 16

Depth to Groundwater: 4 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 Project Number: 6600.3.001.01 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth		Resist.		g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress	•	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	q <sub>c1N</sub>	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	6.34	4	11.2	0.85	125	816	669	18.9	32.3	7.88	2.9	51.1	0.80	75.8	94.7	0.428	0.159	0.207	0.48	NonLigfble.
	6.45	4	10	0.82	125	829	676	16.8	28.4	8.55	2.9	55.2	0.80	67.3	84.2	0.428	0.135	0.207	0.48	NonLiqfble.
	6.56	4	9.3	0.76	125	843	683	15.6	26.0	8.56	3.0	56.9	0.80	62.3	77.9	0.433	0.124	0.161	0.37	NonLiqfble.
	6.66	4	9.1	0.7	125	856	689	15.2	25.2	8.07	3.0	56.3	0.80	60.7	75.8	0.436	0.121	0.157	0.36	NonLiqfble.
	6.77	4	11	0.66	125	869	696	18.2	30.4	6.25	2.8	47.8	0.80	73.0	91.2	0.439	0.151	0.196	0.45	NonLiqfble.
	6.88	4	11 9.6	0.61	125	883	703	18.2	30.0	5.78	2.8	46.6	0.80	72.6	90.8	0.441	0.150	0.194	0.44	NonLiqfble.
	6.98 7.09	4	7.6	0.5 0.38	115 115	896 908	709 715	15.8 12.4	25.8 20.0	5.46 5.32	2.8	48.4 52.9	0.80	63.1 49.8	78.9 62.2	0.443 0.446	0.126 0.102	0.163 0.133	0.37 0.30	NonLiqfble. NonLiqfble.
	7.19	4	6.2	0.27	105	920	720	10.1	15.9	4.70	3.0	55.4	0.80	40.4	50.5	0.448	0.092	0.120	0.27	NonLiqfble.
	7.3	4	6.9	0.2	105	931	725	11.2	17.8	3.11	2.8	46.2	0.80	44.9	56.1	0.451	0.096	0.125	0.28	NonLiqfble.
	7.41	4	6.8	0.17	105	943	729	11.0	17.3	2.69	2.8	44.5	0.80	44.1	55.1	0.454	0.096	0.124	0.27	NonLiqfble.
	7.51	4	7 6.7	0.16	105	953	734	11.3	17.8	2.45	2.7	42.7	0.80	45.2	56.5	0.456	0.097	0.126	0.28	NonLiqfble.
	7.62 7.72	4	6.7 6.6	0.17 0.2	105 105	965 975	738 743	10.8 10.6	16.8 16.5	2.73 3.27	2.8	45.4 48.6	0.80	43.2 42.4	53.9 53.0	0.459 0.461	0.095 0.094	0.123 0.122	0.27 0.26	NonLiqfble. NonLiqfble.
	7.83	4	6.9	0.27	105	987	747	11.0	17.1	4.21	2.9	51.9	0.80	44.2	55.2	0.464	0.096	0.124	0.27	NonLiqfble.
	7.94	4	7.9	0.34	115	998	752	12.6	19.7	4.59	2.9	50.6	0.80	50.4	63.0	0.466	0.103	0.134	0.29	NonLiqfble.
	8.04	4	9	0.4	115	1010	757	14.3	22.4	4.71	2.8	48.4	0.80	57.2	71.6	0.468	0.114	0.148	0.32	NonLiqfble.
	8.15	4	10.7	0.41	115	1023	763	16.9	26.7	4.02	2.7	42.6	0.80	67.8	84.7	0.470	0.137	0.178	0.38	NonLiqfble.
	8.26 8.36	4	9.7 7.9	0.37 0.31	115 115	1035 1047	769 774	15.3 12.4	23.9 19.1	4.03 4.20	2.8	44.6 49.7	0.80	61.2 49.7	76.5 62.1	0.473 0.475	0.122 0.102	0.158 0.133	0.33 0.28	NonLiqfble. NonLiqfble.
	8.45	4	7.4	0.29	105	1057	779	11.6	17.6	4.22	2.9	40.9	0.80	46.4	58.0	0.476	0.102	0.133	0.27	NonLiqfble.
	8.56	4	7.3	0.3	105	1069	783	11.4	17.3	4.43	2.9	40.9	0.80	45.6	57.1	0.479	0.097	0.126	0.26	NonLiqfble.
	8.65	4	8.2		115	1078	787	12.8	19.5	4.31	2.9	40.9	0.80	51.1	63.9	0.481	0.104	0.136	0.28	NonLiqfble.
	8.7	4	8.8	0.35	115	1084	790	13.7	20.9	4.24	2.8	40.9	0.80	54.8	68.5	0.482	0.110	0.143	0.30	NonLiqfble.
	8.8 8.91	4	8.9 8.6	0.41 0.47	115 115	1095 1108	795 801	13.8 13.3	21.0 20.1	4.91 5.84	2.9 2.9	40.9 40.9	0.80	55.2 53.2	69.0 66.5	0.483 0.486	0.111 0.107	0.144 0.140	0.30 0.29	NonLiqfble. NonLiqfble.
	9.02	4	8.6	0.52	115	1121	807	13.3	19.9	6.47	3.0	40.9	0.80	53.2	66.2	0.488	0.107	0.140	0.29	NonLiqfble.
	9.13	4	9	0.54	115	1133	813	13.8	20.7	6.40	3.0	40.9	0.80	55.3	69.1	0.490	0.111	0.144	0.29	NonLiqfble.
	9.24	4	9.8	0.55	125	1146	818	15.0	22.5	5.96	2.9	40.9	0.80	60.0	74.9	0.492	0.119	0.155	0.32	NonLiqfble.
	9.34	4	10.5	0.57	125	1158	825	16.0	24.1	5.75	2.9	40.9	0.80	64.0	80.0	0.493	0.128	0.166	0.34	NonLiqfble.
	9.45 9.56	4	9.6 10.2		125 125	1172	831	14.6	21.7	6.43	2.9	40.9 40.9	0.80	58.3	72.8	0.495	0.116	0.151	0.30	NonLiqfble.
	9.66	4	10.2		125	1186 1198	838 845	15.4 15.4	22.9 22.7	6.04 6.15	2.9 2.9	40.9	0.80	61.7 61.4	77.1 76.8	0.497 0.498	0.123 0.122	0.159 0.159	0.32 0.32	NonLiqfble. NonLiqfble.
	9.77	4	10.6	0.6	125	1212	851	15.9	23.5	6.00	2.9	40.9	0.80	63.6	79.5	0.500	0.127	0.165	0.33	NonLiqfble.
	9.88	4	9.6	0.61	125	1226	858	14.3	20.9	6.79	3.0	40.9	0.80	57.3	71.7	0.501	0.114	0.149	0.30	NonLiqfble.
	9.99	4	9	0.62	125	1240	865	13.4	19.4	7.40	3.0	40.9	0.80	53.5	66.9	0.503	0.108	0.140	0.28	NonLiqfble.
	10.09	4	8.7	0.59	125	1252	872	12.9	18.5	7.31	3.0	40.9	0.80	51.6	64.5	0.494	0.105	0.136	0.28	NonLiqfble.
	10.2 10.31	4	8.9 9.3	0.56 0.54	125 125	1266 1280	878 885	13.1 13.7	18.8 19.6	6.77 6.24	3.0	58.8 56.3	0.80	52.6 54.7	65.7 68.4	0.496 0.497	0.106 0.110	0.138	0.28 0.29	NonLiqfble. NonLiqfble.
	10.42	4	8.9	0.52	115	1293	892	13.0	18.5	6.30	3.0	57.7	0.80	52.1	65.2	0.499	0.116	0.137	0.28	NonLiqfble.
	10.52	4	9.2	0.52	115	1305	897	13.4	19.0	6.08	3.0	56.4	0.80	53.7	67.2	0.500	0.108	0.141	0.28	NonLiqfble.
	10.63	4	8.4	0.55	115	1318	903	12.2	17.1	7.11	3.0	61.8	0.80	48.9	61.1	0.502	0.101	0.132	0.26	NonLiqfble.
	10.73	4	8.4	0.57	115	1329	908	12.2	17.0	7.37	3.1	62.7	0.80	48.8	61.0	0.503	0.101	0.131	0.26	NonLiqfble.
	10.84 10.95	4	8.2 9.3	0.58 0.6	115 125	1342 1354	914 920	11.9 13.4	16.5 18.7	7.70 6.96	3.1	64.4 59.4	0.80	47.5 53.7	59.3 67.1	0.505 0.506	0.099 0.108	0.129 0.140	0.26 0.28	NonLiqfble. NonLiqfble.
	11.05	4	8.7	0.61	125	1367	926	12.5	17.3	7.61	3.1	63.0	0.80	50.0	62.5	0.508	0.103	0.134	0.26	NonLiqfble.
	11.16	4	9.6	0.61	125	1381	933	13.7	19.1	6.85	3.0	58.7	0.80	55.0	68.7	0.509	0.110	0.143	0.28	NonLiqfble.
	11.26	4	10.7	0.62	125	1393	939	15.3	21.3	6.20	2.9	54.5	0.80	61.1	76.4	0.510	0.121	0.158	0.31	NonLiqfble.
	11.37	4	10.9	0.64	125	1407	946	15.5	21.5	6.28	2.9	54.5	0.80	62.0	77.5	0.511	0.123	0.160	0.31	NonLiqfble.
	11.47 11.58	4	10.7 11.6	0.66 0.54	125 125	1419 1433	953 959	15.2 16.4	21.0 22.7	6.61 4.96	3.0 2.9	56.0 49.1	0.80	60.7 65.5	75.8 81.9	0.513 0.514	0.121 0.131	0.157 0.170	0.31 0.33	NonLiqfble. NonLiqfble.
	11.69	4	11.6		125	1447	966	16.3	22.5	6.90	3.0	55.4	0.80	65.3	81.6	0.515	0.131	0.170	0.33	NonLiqfble.
	11.8	4	12.7	0.8	125	1461	973	17.8	24.6	6.68	2.9	53.0	0.80	71.2	89.1	0.516	0.146	0.189	0.37	NonLiqfble.
	11.89	4	11	0.83	125	1472	979	15.4	21.0	8.09	3.0	60.1	0.80	61.5	76.9	0.517	0.122	0.159	0.31	NonLiqfble.
	11.94	4	13.1	0.84	125	1478	982	18.3	25.2	6.80	2.9	52.9	0.80	73.2	91.5	0.518	0.151	0.196	0.38	NonLiqfble.
	12.04	4	13.2		125	1491	988	18.4	25.2	6.99	2.9	53.4	0.80	73.5	91.9	0.519	0.152	0.198	0.38	NonLiqfble.
	12.15 12.26	4	13.6 13.1	0.88 0.84	125 125	1504 1518	995 1002	18.9 18.1	25.8 24.6	6.85 6.81	2.9 2.9	52.6 53.4	0.80	75.5 72.4	94.3 90.5	0.520 0.521	0.158 0.149	0.205 0.194	0.40 0.37	NonLiqfble. NonLiqfble.
	12.36	4	13.1	0.79	125	1531	1002	18.1	24.5	6.40	2.9	52.3	0.80	72.4	90.3	0.521	0.149	0.194	0.37	NonLiqfble.
	12.47	4	13.3		125	1544	1015	18.3	24.7	5.91	2.9	50.6	0.80	73.1	91.3	0.523	0.151	0.196	0.37	NonLiqfble.
	12.58	4	13.6		125	1558	1022	18.6	25.1	5.46	2.8	48.9	0.80	74.5	93.1	0.524	0.155	0.201	0.38	NonLiqfble.
	12.68	4	13.9	0.69	125	1571	1028	19.0	25.5	5.26	2.8	47.9	0.80	75.9	94.8	0.525	0.159	0.207	0.39	NonLiqfble.
	12.79	4	14.1	0.7	125	1584	1035	19.2	25.7	5.26	2.8	47.8	0.80	76.7	95.9	0.526	0.162	0.211	0.40	NonLiqfble.

Date: September 2005 CPT Number: 16

Depth to Groundwater: 4 feet

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard **EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
Cone	Depth (FT)	Table (FT)	Resist. (TSF)	Frict. (TSF)	g (PCF)	Stress (PSF)	Stress (PSF)	Tip Qc1N	Tip Q	Ratio F	Ic	F.C. (%)	Ксрт	DqcIN	( <b>q</b> clN)es	Stress Ratio	Stress M7.5	Stress M6.50	of Safety	Comments
Conc	(11)	(11)	(151)	(151)	(1 (1)	(151)	(151)	1	V	•		(70)		- 1	(4)	Rutio	111115	110.00	Surcey	Comments
	12.9	4	14.1	0.73	125	1598	1042	19.1	25.5	5.49	2.8	48.7	0.80	76.4	95.6	0.527	0.161	0.209	0.40	NonLiqfble.
	13	4	14	0.75	125	1611	1048	18.9	25.2	5.68	2.9	49.6	0.80	75.7	94.6	0.528	0.159	0.206	0.39	NonLiqfble.
	13.11 13.22	4	14.1 13.7	0.79 0.83	125 125	1624 1638	1055	19.0	25.2 24.2	5.95 6.44	2.9	50.4 52.6	0.80	76.0 73.6	95.0 92.0	0.529 0.531	0.160	0.208 0.198	0.39 0.37	NonLiqfble.
	13.32	4	13.7	0.85	125	1651	1062 1068	18.4 17.8	23.3	6.81	2.9 2.9	54.4	0.80	71.2	92.0 89.0	0.531	0.152 0.146	0.198	0.36	NonLiqfble. NonLiqfble.
	13.43	4	13.3	0.85	125	1664	1075	17.7	23.2	6.82	2.9	54.6	0.80	71.0	88.7	0.532	0.145	0.188	0.35	NonLiqfble.
	13.54	4	13.4	0.81	125	1678	1082	17.8	23.2	6.45	2.9	53.5	0.80	71.3	89.1	0.533	0.146	0.190	0.36	NonLiqfble.
	13.65 13.75	4	13.7 13.9	0.77 0.73	125 125	1692 1704	1089 1095	18.2 18.4	23.6 23.8	5.99 5.59	2.9 2.9	51.8 50.3	0.80	72.7 73.5	90.8 91.9	0.534 0.535	0.150 0.152	0.195 0.198	0.36 0.37	NonLiqfble. NonLiqfble.
	13.75	4	13.9	0.73	125	1718	1102	18.3	23.7	5.37	2.9	49.7	0.80	73.3	91.9	0.536	0.152	0.198	0.37	NonLiqfble.
	13.96	4	14.1	0.69	125	1731	1108	18.5	23.9	5.21	2.9	49.0	0.80	74.1	92.6	0.537	0.154	0.200	0.37	NonLiqfble.
	14.07	4	14.2	0.68	125	1744	1115	18.6	23.9	5.10	2.8	48.6	0.80	74.4	93.0	0.538	0.155	0.201	0.37	NonLiqfble.
	14.17	4	14.7	0.7	125	1757	1122	19.2	24.6	5.06	2.8	47.9	0.80	76.8	96.0	0.539	0.162	0.211	0.39	NonLiqfble.
	14.28 14.38	4	14.9 15.3	0.73 0.76	125 125	1771 1783	1129 1135	19.4 19.9	24.8 25.4	5.21 5.27	2.8 2.8	48.2 48.1	0.80	77.6 79.5	97.0 99.4	0.540 0.541	0.165 0.171	0.214 0.223	0.40 0.41	NonLiqfble. NonLiqfble.
	14.49	4	15.6	0.78	125	1797	1142	20.2	25.7	5.44	2.8	48.3	0.80	80.8	101.0	0.541	0.171	0.229	0.42	NonLiqfble.
	14.59	4	16	0.84	125	1809	1148	20.7	26.3	5.56	2.8	48.3	0.80	82.6	103.3	0.542	0.183	0.237	0.44	NonLiqfble.
	14.7	4	16.6	0.87	125	1823	1155	21.4	27.2	5.55	2.8	47.7	0.80	85.5	106.9	0.543	0.194	0.252	0.46	NonLiqfble.
	14.8	4	16.1 15.2	0.89	125 125	1836	1161	20.7	26.1 24.4	5.86	2.9	49.4 51.4	0.80	82.7	103.4 97.3	0.544	0.183	0.238	0.44 0.40	NonLiqfble. NonLiqfble.
	14.91 15.01	4	14.5	0.87 0.9	125	1849 1862	1168 1174	19.5 18.5	23.1	6.09 6.63	2.9 2.9	54.1	0.80	77.8 74.1	97.3	0.545 0.545	0.166 0.154	0.215 0.200	0.40	NonLiqfble.
	15.12	4	14.2	0.91	125	1876	1181	18.1	22.4	6.86	3.0	55.4	0.80	72.3	90.4	0.546	0.134	0.193	0.35	NonLiqfble.
	15.22	4	13.8	0.92	125	1888	1187	17.5	21.6	7.16	3.0	56.9	0.80	70.1	87.6	0.547	0.143	0.185	0.34	NonLiqfble.
	15.31	4	14.3	0.93	125	1899	1193	18.1	22.4	6.97	3.0	55.7	0.80	72.5	90.6	0.548	0.149	0.194	0.35	NonLiqfble.
	15.42 15.53	4	14.3 14.1	0.94 0.93	125 125	1913 1927	1200 1207	18.1 17.8	22.2 21.8	7.04 7.08	3.0	56.1 56.6	0.80	72.3 71.0	90.3 88.8	0.548 0.549	0.149 0.145	0.193 0.189	0.35 0.34	NonLiqfble. NonLiqfble.
	15.63	4	14.2	0.93	125	1939	1213	17.8	21.8	6.80	3.0	55.8	0.80	71.4	89.2	0.550	0.145	0.190	0.35	NonLiqfble.
	15.74	4	14.1	0.86	125	1953	1220	17.7	21.5	6.55	3.0	55.3	0.80	70.7	88.3	0.551	0.144	0.187	0.34	NonLiqfble.
	15.84	4	14.1	0.84	125	1966	1226	17.6	21.4	6.40	2.9	55.0	0.80	70.5	88.1	0.551	0.144	0.187	0.34	NonLiqfble.
	15.95	4	14.1	0.83	125	1979	1233	17.6	21.3	6.33	2.9	54.9	0.80	70.3	87.8	0.552	0.143	0.186	0.34	NonLiqfble.
	16.05 16.16	4	13.4 14.2	0.8 0.74	125 125	1992 2006	1239 1246	16.7 17.6	20.0 21.2	6.45 5.61	3.0 2.9	56.5 52.7	0.80	66.6 70.4	83.3 88.0	0.553 0.554	0.134 0.143	0.174 0.186	0.31	NonLiqfble. NonLiqfble.
	16.27	4	13.9	0.68	125	2019	1253	17.2	20.6	5.28	2.9	52.7	0.80	68.7	85.9	0.554	0.143	0.181	0.33	NonLiqfble.
	16.37	4	13.3	0.61	125	2032	1259	16.4	19.5	4.97	2.9	52.1	0.80	65.6	82.0	0.555	0.131	0.171	0.31	NonLiqfble.
	16.48	4	12.6	0.55	125	2046	1266	15.5	18.3	4.75	2.9	52.7	0.80	62.0	77.5	0.556	0.123	0.160	0.29	NonLiqfble.
	16.59	4	11.9	0.51	125	2059	1273	14.6	17.1	4.69	2.9	53.9	0.80	58.4	73.0	0.556	0.116	0.151	0.27	NonLiqfble.
	16.69 16.8	4	11 11.1	0.48 0.47	125 125	2072 2086	1279 1286	13.5 13.5	15.6 15.6	4.82 4.67	3.0	56.4 55.7	0.80	53.8 54.2	67.3 67.7	0.557 0.558	0.108 0.109	0.141 0.142	0.25 0.25	NonLiqfble. NonLiqfble.
	16.91	4	11.8	0.48	125	2099	1293	14.4	16.6	4.47	2.9	53.6	0.80	57.4	71.8	0.558	0.114	0.149	0.27	NonLiqfble.
	17.01	4	12.2	0.49	125	2112	1299	14.8	17.1	4.40	2.9	52.6	0.80	59.2	74.0	0.559	0.118	0.153	0.27	NonLiqfble.
	17.12	4	11.9	0.5	125	2126	1306	14.4	16.6	4.61	2.9	54.2	0.80	57.6	72.0	0.560	0.115	0.149	0.27	NonLiqfble.
	17.22 17.33	4	11.1 10.8	0.49 0.46	125 115	2138 2152	1313 1319	13.4 13.0	15.3 14.7	4.89 4.73	3.0	57.0 57.2	0.80	53.6 52.0	67.0 65.0	0.560 0.561	0.108 0.106	0.140 0.137	0.25 0.24	NonLiqfble. NonLiqfble.
	17.33	4	10.3	0.43	115	2165	1325	12.4	13.9	4.67	3.0	58.3	0.80	49.5	61.9	0.562	0.100	0.137	0.24	NonLiqfble.
	17.54	4	10.1	0.39	115	2176	1330	12.1	13.5	4.33	3.0	57.5	0.80	48.5	60.6	0.563	0.101	0.131	0.23	NonLiqfble.
	17.64	4	9.7	0.36	115	2188	1336	11.6	12.9	4.18	3.0	58.0	0.80	46.5	58.1	0.563	0.098	0.128	0.23	NonLiqfble.
	17.75	4	9.5	0.33	115	2200	1342	11.3	12.5	3.93	3.0	57.6	0.80	45.4	56.7	0.564	0.097	0.126	0.22	NonLiqfble.
	17.86 17.96	4	8.5 8.9	0.3	115 115	2213 2224	1347 1353	10.1 10.6	11.0 11.5	4.06 3.98	3.0	61.3 59.8	0.80	40.5 42.4	50.7 52.9	0.565 0.566	0.092 0.094	0.120 0.122	0.21	NonLiqfble. NonLiqfble.
	18.07	4	8	0.27	105	2237	1358	9.5	10.1	3.92	3.1	62.6	0.80	38.0	47.5	0.566	0.090	0.122	0.21	NonLiqfble.
	18.17	4	7.9	0.29	115	2247	1363	9.4	9.9	4.28	3.1	64.7	0.80	37.5	46.8	0.567	0.090	0.116	0.21	NonLiqfble.
	18.28	4	8.2	0.31	115	2260	1368	9.7	10.3	4.39	3.1	64.2	0.80	38.8	48.5	0.568	0.091	0.118	0.21	NonLiqfble.
	18.39	4	9.7	0.33	115	2273	1374	11.4	12.5	3.85	3.0	57.4 52.7	0.80	45.8	57.2 65.1	0.569	0.097	0.127	0.22	NonLiqfble. NonLiqfble.
	18.68 18.79	4	11.1 10.9	0.35 0.35	115 115	2306 2319	1389 1395	13.0 12.8	14.3 14.0	3.52 3.59	2.9 2.9	52.7 53.6	0.80	52.1 51.1	65.1 63.8	0.571 0.572	0.106 0.104	0.137 0.135	0.24 0.24	NonLiqfble. NonLiqfble.
	18.87	4	10.9	0.34	115	2328	1399	12.7	13.9	3.49	2.9	53.2	0.80	51.0	63.7	0.572	0.104	0.135	0.24	NonLiqfble.
	18.98	4	10.8	0.34	115	2341	1405	12.6	13.7	3.53	2.9	53.7	0.80	50.4	63.0	0.573	0.103	0.134	0.23	NonLiqfble.
	19.09	4	10.8	0.36	115	2353	1411	12.6	13.6	3.74	2.9	54.8	0.80	50.3	62.9	0.574	0.103	0.134	0.23	NonLiqfble.
	19.19 19.3	4	10.4 10.7	0.38 0.37	115 115	2365 2377	1416 1422	12.1 12.4	13.0 13.4	4.12 3.89	3.0	57.6 55.9	0.80	48.4 49.7	60.5 62.1	0.574 0.575	0.101 0.102	0.131 0.133	0.23 0.23	NonLiqfble. NonLiqfble.
	19.3	4	10.7	0.36	115	2389	1422	12.4	13.4	3.89	2.9	55.9 54.7	0.80	50.5	63.1	0.576	0.102	0.133	0.23	NonLiqfble.
	19.51	4	11.2	0.35	115	2402	1433	12.9	13.9	3.50	2.9	53.2	0.80	51.8	64.7	0.576	0.105	0.137	0.24	NonLiqfble.
	19.62	4	11.9	0.35	115	2414	1439	13.7	14.9	3.27	2.9	50.7	0.80	54.9	68.6	0.577	0.110	0.143	0.25	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 16

Depth to Groundwater: 4 feet

Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. g Stress Stress Stress (TSF) (TSF) (PCF) (PSF) (PSF) (%) KCPT Dqcin (qcin)cs Ratio M7.5 M6.50 Safety (FT) (FT) Qc1N 0 Comments Ic 19.73 4 12.5 0.36 115 2427 1445 14.4 15.6 3.19 2.9 49.3 0.80 57.6 71.9 0.578 0.115 0.149 0.26 NonLigfble. 19.83 4 13.3 0.39 125 2438 1450 15.3 16.7 3.23 2.8 48.1 0.80 61.1 76.4 0.578 0.121 0.158 0.27 NonLiqfble. 19.94 12.9 0.4 125 2452 1457 14.8 16.0 3.43 2.9 49.9 0.80 59.2 73.9 0.579 0.118 0.153 0.26 NonLiqfble. 20.05 12.3 0.39 115 2466 1464 14.1 15.1 3.52 2.9 51.6 0.80 56.3 70.3 0.568 0.112 0.146 0.26 NonLiqfble. 20.15 12.1 115 2477 13.8 3.50 2.9 0.80 55.3 69.1 0.568 0.111 0.144 0.25 NonLiqfble. 20.26 4 12 0.35 115 2490 1475 13.7 14.6 3.25 2.9 51.0 0.80 54.7 68.4 0.569 0.110 0.143 0.25 NonLiqfble. 20.36 12.2 0.32 115 2502 1480 13.9 2.92 2.9 49.0 0.80 55.5 69.4 0.570 0.144 0.25 NonLiafble. 14.8 0.111 20.47 4 0.29 2514 2.47 2.8 0.80 59.0 73.8 0.570 0.153 0.27 NonLiafble. 13 115 1486 14.8 15.8 45.2 0.117 20.57 13 0.28 2526 1491 2.39 2.8 0.80 0.571 0.152 NonLiafble. 115 14.7 15.7 44.8 58.9 73.7 0.117 0.27 20.68 4 13.7 0.28 115 2538 1497 15.5 16.6 2.25 2.7 42.9 0.80 62.0 77.5 0.571 0.1230.160 0.28 NonLigfble. 20.79 4 13.4 0.28 115 2551 1503 15.1 16.1 2.31 2.8 43.8 0.80 60.5 75.6 0.572 0.120 0.156 0.27 NonLigfble 74.9 20.9 13.3 0.29 115 2564 1508 15.0 15.9 44.7 0.80 59.9 0.573 0.155 0.27 NonLiqfble. 2.41 2.8 0.119 21 4 12.6 0.3 115 2575 1514 14.2 14.9 2.65 2.8 47.4 0.80 56.7 70.9 0.573 0.113 0.147 0.26 NonLiqfble. 21.11 4 11.4 0.31 115 2588 1519 12.8 13.3 3.07 2.9 52.1 0.80 51.2 64.0 0.574 0.104 0.136 0.24 NonLiqfble. 2.9 21.21 4 11.3 0.32 115 2599 1525 12.7 13.1 3.20 53.1 0.80 50.6 63.3 0.574 0.104 0.135 0.23 NonLiafble 21.32 11.3 0.32 115 2612 1531 12.6 13.1 3.20 2.9 53.2 0.80 50.6 63.2 0.575 0.103 0.135 0.23 NonLiqfble. 0.576 21.42 11.5 2.9 0.32 115 2623 1536 12.8 13.3 3.14 52.5 0.80 51.4 64.2 0.105 0.136 0.24 NonLiafble. 49.6 0.577 21.67 12.4 0.32 115 2652 1549 13.8 2.89 2.9 0.80 68.9 0.144 0.25 NonLigfble. 14.3 55.1 0.110 21.77 4 11.4 0.3 115 2664 1554 12.7 13.0 2.98 2.9 52.2 0.80 50.6 63.3 0.578 0.104 0.135 0.23 NonLigfble. 0.28 2.9 51.2 0.578 21.88 4 11.4 115 2676 1560 12.6 12.9 2.78 0.80 50.5 63.1 0.103 0.134 0.23 NonLigfble. 21.98 10.8 0.25 115 2688 1565 11.9 12.1 2.64 2.9 51.9 0.80 47.8 59.7 0.579 0.1000.1300.22 NonLigfble. 22 09 4 11 0.26 115 2700 1571 12.1 12.3 2.69 29 51.8 0.80 48 6 60.7 0.579 0.101 0.131 0.23NonLiqfble. 22.19 4 12.8 0.29 115 2712 1576 14.1 14.5 2.53 2.8 47.3 0.80 56.4 70.5 0.580 0.113 0.146 0.25 NonLiqfble. 22.29 4 14.2 0.34 115 2723 1582 15.6 16.2 2.65 2.8 45.6 0.80 62.5 78.1 0.580 0.124 0.162 0.28 NonLiqfble. 22.39 16.1 0.53 125 2735 1587 17.7 18.6 3.60 2.8 47.7 0.80 70.7 88.4 0.581 0.144 0.188 0.32 NonLiqfble. 22.47 4 17.8 0.74 125 2745 1592 19.5 20.6 4.50 2.9 49.3 0.80 78.1 97.6 0.581 0.166 0.216 0.37 NonLigfble. 22.52 19.4 0.86 125 2751 1595 21.3 22.6 4.77 2.8 48.5 0.80 85.0 106.3 0.581 0.192 0.249 0.43 NonLiqfble. 22.57 4 0.93 135 1598 4.09 2.7 0.80 105.5 0.581 0.293 24.1 2757 28.4 41.8 131.9 0.381 0.66 NonLigfble. 26.4 22.62 29.3 1.02 135 0.582 0.601 2764 1602 32.0 34.8 3.65 2.6 36.6 0.80 128.1 160.2 0.462 1.03 NonLigfble. 22.66 32.5 2770 35.5 3.54 2.6 0.79 131.5 167.0 0.582 0.513 0.667 1.1 135 1605 38.8 34.5 1.15 Low F.S. 22.78 4 44.9 1.35 135 2786 1613 48.9 53.9 3.10 2.4 28.1 127.3 0.582 0.353 0.62 78.3 0.272 0.61 Liquefaction 22 89 4 476 1 48 135 2801 1621 51.7 57.0 3 20 2.4 27.8 0.61 80.1 131.8 0.582 0.293 0.381 0.65 Liquefaction 22 99 4 495 1.58 135 2814 1629 53.7 59.0 3 29 2.4 27.6 0.60 819 135 6 0.582 0.312 0.405 0.70 Liquefaction 23.1 55.5 1.57 135 2829 1637 60.0 66.1 2.90 2.4 24.7 0.53 66.5 126.5 0.582 0.268 0.349 0.60 Liquefaction 23.2 65.3 1.46 135 2843 1644 70.5 77.7 2.29 2.2 20.1 0.40 47.8 118.3 0.583 0.234 0.304 0.52 Liquefaction 4 23.3 79.2 1.29 0.297 135 2856 1651 85.3 94.2 1.66 2.1 15.1 0.27 31.5 116.8 0.583 0.228 0.51 Liquefaction 23.41 4 91.3 1.12 125 2871 1659 98.1 108.3 1.25 1.9 11.6 0.18 20.8 118.9 0.583 0.236 0.307 0.53 Liquefaction 23.51 99.5 0.95 125 2883 1665 106.7 117.7 13.3 120.0 0.583 0.241 0.313 0.54 Liquefaction 23.61 4 110.7 0.83 115 2896 1672 118.5 130.7 0.76 1.7 7.0 0.05 125.1 0.584 0.262 0.341 0.58 Liquefaction 6.6 23.71 125.5 115 2907 1677 134.1 147.9 0.81 1.7 0.04 139.7 0.584 0.334 0.434 0.74 6.5 5.6 Liquefaction 4 1.09 23.82 138.6 115 2920 1683 147.8 162.9 0.79 1.7 5.8 0.02 3.3 151.2 0.585 0.401 0.522 0.89 Liquefaction 23.92 4 152.1 1.04 115 2932 1688 162.0 178.4 0.69 1.6 4.6 0.00 0.0 162.0 0.585 0.475 0.618 1.06 Low F.S. 24.02 4 148.3 0.96 115 2943 1693 157.7 173.4 0.65 1.6 4.5 0.00 0.0 157.7 0.586 0.445 0.578 0.99 Liquefaction 24.12 155 1.04 115 2955 1698 164.6 180.7 0.68 1.6 4.4 0.00 0.0 164.6 0.586 0.494 0.643 1.10 Low F.S. 24.22 4 160.8 1.06 115 2966 1704 170.5 187.0 0.67 4.2 0.00 0.0 170.5 0.587 0.541 0.703 1.20 Low F.S. 1.6 175.4 24.32 4 165.7 1.09 115 2978 1709 192.1 0.66 1.6 4.0 0.00 0.0 175.4 0.587 0.582 0.756 1.29 24.42 4 170.2 179.9 179.9 0.588 0.808 1.03 115 2989 1714 196.8 0.61 1.5 3.5 0.00 0.0 0.621 1.37 24.52 4 172.7 0.92 115 3001 1719 182.2 199.1 0.54 1.5 3.0 0.00 0.0 182.2 0.588 0.643 0.836 1.42 24.62 171.7 0.78 105 3012 1725 180.9 197.3 0.46 1.5 2.4 0.00 0.0 180.9 0.588 0.631 0.820 1.39 24.71 4 105 3021 1729 178.5 0.40 2.0 178.5 0.589 0.791 169.6 0.67 194.4 1.4 0.00 0.0 0.609 1.34 24.81 0.590 0.788 1.34 169.5 0.54 95 3032 1733 178.2 193.8 0.32 0.00 178.2 1.4 1.4 0.0 0.606 95 24.91 169 0.43 3041 1736 177.5 192.9 0.26 1.3 0.8 0.00 0.0 177.5 0.590 0.600 0.780 1.32 25.01 4 160.3 0.47 95 3051 1739 168.2 182.5 0.30 1.4 1.4 0.00 0.0 168.2 0.591 0.522 0.679 1.15 Low F.S. 25.07 4 129.6 0.46 95 3057 1741 135.9 147.0 0.36 1.5 3.1 0.00 0.0 135.9 0.592 0.313 0.407 0.69 Liquefaction 25 19 4 128 7 0.55 105 3068 1745 134 8 145 7 0.43 16 3.8 0.00 0.0 134 8 0.592 0.308 0.400 0.68 Liquefaction

EQ Magnitude (Mw):

PGA (g):

6.5

0.54

MSF: 1.30

0.85

0.93

0.92

0.89

0.78

0.84

0.89

125 3080

125 3092

135 3105

135

135 3132

135

135

135 3171

3118

3145

3157

1750

1756

1762

1770

1777

1784

1791

1798

105.2

77.8

55.3

42.4

38.7

35.8

35.2

31.7

113.2

83.1

58.5

44.3

40.2

37.0

36.2

32.4

0.86

1.27

1.78

2.27

2.18

2.54

2.81

3.06

1.8

2.0

2.3

2.4

2.4

2.5

2.5

2.6

8.7

14.1

20.7

26.8

27.7

30.8

32.4

35.3

0.10

0.24

0.42

0.58

0.61

0.69

0.73

0.80

11.5

24.8

40.1

59.2

59.6

78.9

95.3

126.7

116.8

102.6

95.5

101.6

98.3

114.8

130.5

158.4

0.593

0.593

0.594

0.594

0.594

0.594

0.594

0.594

0.228

0.180

0.161

0.178

0.168

0.221

0.287

0.450

0.296

0.235

0.209

0.231

0.219

0.287

0.373

0.584

0.50

0.40

0.35

0.39

0.37

0.48

0.63

0.98

Liquefaction

Liquefaction

Liquefaction

Liquefaction

Liquefaction

Liquefaction

Liquefaction

Liquefaction

25.3

25.4

25.5

25.6

25.7

25.8

25.89

25 99

4 100.6

4

4 53.1

4

4 34.6

74.5

40.8

37.3

34 0.91

30.7

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 16

Depth to Groundwater: 4 feet

EQ Magnitude (Mw): 6.5 PGA (g): 0.54

MSF: 1.30

Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Stress Stress g Stress (TSF) (TSF) (PCF) (PSF) (PSF) (%) KCPT Dqcin (qcin)cs Ratio M7.5 M6.50 Safety (FT) (FT) **q**c1N 0 Comments Ic 26.09 4 26.3 0.76 135 3184 1805 27.1 27.4 3.08 2.7 38.1 0.80 108.3 135.4 0.594 0.311 0.404 0.68 NonLigfble. 26.19 4 22.3 0.64 125 3198 1812 22.9 22.8 3.09 2.7 41.4 0.80 91.7 114.6 0.595 0.220 0.286 0.48 NonLiqfble. 125 26.29 18.4 0.52 3210 1819 18.9 18.5 3.10 2.8 45.4 0.80 75.5 94.4 0.595 0.158 0.206 0.35 NonLiqfble. 26.39 15.1 0.4 125 3223 1825 15.5 14.8 2.97 2.9 49.3 0.80 61.9 77.3 0.595 0.123 0.160 0.27 NonLiqfble. 26.49 13 0.34 115 3235 1831 13.3 12.4 2.99 2.9 53.2 0.80 53.2 66.5 0.595 0.107 0.139 0.23 NonLiqfble. 26.59 12 0.32 115 3247 1837 12.3 11.3 3.08 3.0 55.9 0.80 49.0 61.3 0.596 0.101 0.132 0.22 NonLiqfble. 0.22 26.69 11.5 0.31 115 3258 1842 11.7 3.14 3.0 57.4 0.80 46.9 0.596 0.128 NonLiafble. 10.7 58.6 0.099 26.79 4 0.32 3270 1847 3.0 0.80 0.597 0.099 0.128 0.22 NonLiafble. 11.5 115 11.7 10.7 3.24 58.0 46.8 58.5 26.89 11.5 0.34 1852 3.0 59.1 0.80 0.597 0.099 0.128 0.21 NonLiafble. 115 3281 11.7 10.6 3.45 46.8 58.5 26.99 4 12.4 0.36 115 3293 1858 12.6 11.6 3.35 3.0 56.7 0.80 50.4 62.9 0.597 0.103 0.134 0.22 NonLigfble. 27.1 4 12.5 0.38 115 3305 1863 12.7 11.6 3.50 3.0 57.3 0.80 50.7 63.4 0.598 0.104 0.135 0.23 NonLigfble 27.2 12.9 0.4 125 3317 1869 3.56 0.80 65.3 0.598 0.138 0.23 NonLiqfble. 13.1 12.0 3.0 56.8 52.2 0.106 27.3 4 13.2 0.42 125 3329 1875 13.3 12.3 3.64 3.0 56.7 0.80 53.4 66.7 0.598 0.108 0.140 0.23 NonLiqfble. 27.4 4 13.8 0.45 125 3342 1881 13.9 12.9 3.71 3.0 55.9 0.80 55.7 69.6 0.599 0.111 0.145 0.24 NonLiqfble. 27.5 3.0 4 14.1 0.46 125 3354 1887 14.2 13.2 3.70 55.4 0.80 56.8 71.0 0.599 0.113 0.147 0.25 NonLiafble 27.6 15.5 0.47 125 3367 1894 15.6 14.6 3.40 2.9 51.7 0.80 62.3 77.9 0.599 0.124 0.161 0.27 NonLiqfble. 27.71 4 0.52 125 3381 3.33 2.8 0.599 17.3 1901 17.4 16.4 48.9 0.80 69.5 86.8 0.141 0.183 0.31 NonLiafble. 27.81 0.55 125 47.4 18.4 3393 1907 17.5 3.29 2.8 0.80 73.7 92.2 0.600 0.199 0.33 NonLigfble. 18.4 0.153 27.91 4 19.4 0.59 125 3406 1913 19.4 18.5 3.33 2.8 46.5 0.80 77.6 97.0 0.600 0.165 0.214 0.36 NonLigfble. 28.02 0.63 99.9 4 20 125 3419 1920 20.0 19.0 3.44 2.8 46.5 0.80 79.9 0.600 0.1730.224 0.37 NonLigfble. 28.12 4 20.2 0.71 125 3432 1926 20.1 19.2 3.84 2.8 48.1 0.80 80.6 100.7 0.600 0.175 0.227 0.38 NonLigfble. 28 23 4 20.3 0.72 125 3446 1933 20.2 19.2 3.88 2.8 48.2 0.80 80.8 101.0 0.601 0.176 0.229 0.38 NonLiafble. 28.33 4 20.8 0.75 125 3458 1939 20.7 197 3.93 2.8 48.0 0.80 82.7 103 3 0.601 0.183 0.237 0.40 NonLiqfble. 28.41 4 21 0.78 125 3468 1944 20.8 19.8 4.05 2.8 48.3 0.80 83.4 104.2 0.601 0.185 0.241 0.40 NonLiqfble. 28.52 20 0.78 125 3482 1951 19.8 18.7 4.27 2.9 50.3 0.80 79.2 99.1 0.601 0.170 0.221 0.37 NonLiqfble. 28.63 4 19.2 0.72 125 3496 1958 19.0 17.8 4.13 2.9 50.8 0.80 75.9 94.9 0.602 0.160 0.207 0.34 NonLigfble. 28.73 18.8 0.65 125 3508 1964 18.6 17.3 3.81 2.9 50.0 0.80 74.2 92.8 0.602 0.154 0.201 0.33 NonLiqfble. 28.84 4 18.6 0.58 125 3522 1971 3.44 2.8 0.80 91.6 0.602 0.197 18.3 17.1 48.6 73.3 0.152 0.33 NonLigfble. 28.94 17.3 0.52 125 0.179 3534 1978 17.0 15.7 3.35 2.9 49.9 0.80 68.1 85.10.602 0.1370.30 NonLigfble. 29.05 0.48 125 3548 1984 3.28 2.9 0.80 64.4 0.602 0.28 NonLiafble. 16.4 16.1 14.7 53.5 80.5 0.129 0.167 29.15 4 0.45 125 3561 1991 3.46 2.9 53.5 0.80 58.1 72.6 0.603 0.150 0.25 NonLiafble. 14.8 14.5 13.1 0.116 29 26 4 139 0.42 125 3574 1998 13.6 12.1 3 47 3.0 53.5 0.80 54 4 68.0 0.603 0.109 0.142 0.24NonLiafble. 29.36 4 12.8 0.38 115 3587 2004 12.5 11.0 3.45 3.0 53.5 0.80 50.0 62.6 0.603 0.103 0.134 0.22 NonLiqfble. 29.47 12.1 0.33 115 3600 2010 11.8 10.2 3.20 3.0 53.5 0.80 47.2 59.0 0.604 0.099 0.129 0.21 NonLiqfble. 29.57 12.2 0.29 115 3611 2015 11.9 10.3 2.79 3.0 53.5 0.80 47.6 59.5 0.604 0.100 0.129 0.21 NonLiqfble. 4 29.68 3.0 53.5 45.6 NonLiqfble. 11.7 0.27 115 3624 2021 11.4 9.8 2.73 0.80 56.9 0.604 0.097 0.126 0.21 29.79 10.9 0.23 105 3636 2026 10.6 9.0 2.53 3.0 53.: 0.80 42.4 53.0 0.605 0.094 0.122 0.20 NonLigfble 29.89 11.1 0.24 105 3647 2031 10.8 9.1 2.59 3.0 53.5 0.80 43.1 53.9 0.605 0.095 0.123 0.20 NonLiqfble. 29.98 12.3 0.28 115 3656 2035 11.9 10.3 2.67 3.0 53.5 0.80 47.7 59.7 0.606 0.100 0.130 0.21 NonLiqfble. 30.08 14.3 0.32 115 3668 2040 13.9 12.2 2.57 2.9 51.2 0.80 55.4 69.3 0.581 0.111 0.144 0.25 NonLiafble. 4 2.7 0.581 30.19 18.5 0.3 115 3680 2046 17.9 16.3 1.80 40.3 0.80 71.6 89.5 0.147 0.191 0.33 NonLiafble. 30.29 4 18.5 0.28 115 3692 2051 17.9 16.2 1.68 2.7 39.5 0.80 71.5 89.4 0.581 0.146 0.190 0.33 NonLiafble. 30.39 4 17.5 0.33 115 3703 2056 16.9 15.2 2.11 2.8 43.7 0.80 67.5 84.4 0.582 0.136 0.1770.30 NonLiqfble. 30.5 4 21.3 0.44 125 3716 2062 20.5 18.8 2.26 2.7 40.5 0.80 82.1 102.6 0.582 0.181 0.235 0.40 NonLigfble. 30.6 4 25.3 0.51 125 3729 2068 24.3 22.7 2.18 2.6 36.7 0.80 97.4 121.7 0.582 0.248 0.322 0.55 NonLiqfble. 30.71 4 27.1 0.6 125 3742 2075 26.0 24.3 2.38 2.6 36.6 0.80 104.1 130.2 0.582 0.285 0.371 0.64 NonLiqfble. 122.8 30.81 4 25.6 0.81 135 3755 22.8 3.41 2.7 42.9 0.583 0.252 0.328 0.56 NonLiqfble. 2081 24.6 0.80 98.2 30.91 4 26.9 0.99 135 3768 2089 25.8 23.9 3.96 2.8 44.3 0.80 103.0 128.8 0.583 0.279 0.362 0.62 NonLiqfble. 31.02 30.7 1.05 135 3783 2097 29.3 27.5 3.64 2.7 40.6 0.80 117.3 146.7 0.583 0.373 0.486 0.83 NonLiqfble. 31.12 4 1.04 135 3797 2104 32.5 30.6 3.23 2.6 0.80 0.583 0.480 0.624 NonLiqfble. 34.1 36.9 130.1 162.6 1.07 31.23 135 0.583 0.581 33.2 1.08 3812 2112 31.6 29.6 3.45 2.7 38.4 0.80 158.1 0.447 NonLigfble. 126.4 1.00 1.09 0.380 31.33 4 27.7 135 3825 2119 26.3 24.3 4.23 2.8 45.1 0.80 105.3 131.6 0.583 0.292 0.65 NonLigfble. 31.43 27.9 0.84 135 3839 2126 26.5 24.4 3.23 2.7 40.8 0.80 105.9 132.4 0.583 0.296 0.384 0.66 NonLigfble. 31.54 4 28.7 1.21 135 3853 2134 27.2 25.1 4.52 2.8 45.6 0.80 108.7 135.9 0.583 0.313 0.407 0.70 NonLiqfble. 31 64 4 29 2 1 15 135 3867 2142 27.6 25.5 4 22 2.8 44 2 0.80 1104 138.0 0.583 0.325 0.4220.72 NonLiafble 31.71 4 30.3 1.06 135 3876 2147 28.6 26.4 3.74 2.7 41.6 0.80 114.5 143.1 0.583 0.352 0.458 0.79 NonLiqfble. 0.583 31.78 4 44.9 135 3886 2152 42.4 39 9 2.33 2.5 28.6 0.63 71.9 114.3 0.219 0.284 0.49 Liquefaction 40.9 0.95 2.5 0.583 0.248 0.323 31.88 4 135 3899 2159 38.5 36.1 2.44 30.6 0.68 83.3 121.8 0.55 Liquefaction 31.99 135 3914 33.0 123.4 0.567 4 35.1 0.9 2167 30.6 2.72 2.6 34.6 0.79 156.4 0.583 0.436 0.97 Liquefaction 32.09 30.9 0.84 135 3928 2174 29.0 26.6 2.90 2.6 37.8 0.80 116.0 145.0 0.583 0.363 0.472 0.81 NonLiqfble. 32.19 4 30.4 0.72 135 3941 28.5 2.53 0.80 113.9 142.4 0.583 0.348 0.453 0.78 2181 26.1 2.6 36.3 NonLigfble. 32.3 125 27.5 137.5 0.583 0.322 0.418 29.4 0.63 3956 2189 25.0 2.30 2.6 35.6 0.80 110.0 0.72 NonLigfble.

0.58

125 3968 2196

25.9

23.4

2.26

0.80

36.6

103.5

0.584

129.3

0.281

0.365

0.63

NonLiafble.

27 7

32 4

Date: September 2005 CPT Number: 16

Depth to Groundwater: 4 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 Project Number: 6600.3.001.01 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Lianef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	$\mathbf{q}_{\mathrm{c1N}}$	Q	F	Ic	(%)	Ксрт	Dqc1N	(qclN)es	Ratio	M7.5	M6.50	Safety	Comments
	32.5	4	19.9	0.48	125	3981	2202	18.6	16.3	2.68	2.8	45.8	0.80	74.2	92.8	0.584	0.154	0.201	0.34	NonLiqfble.
	32.61	4	16.5	0.47	125	3995	2209	15.4	13.1	3.24	2.9	53.3	0.80	61.4	76.8	0.584	0.122	0.159	0.27	NonLiqfble.
	32.71	4	15.7	0.5	125	4007	2215	14.6	12.4	3.65	3.0	56.6	0.80	58.4	73.0	0.584	0.116	0.151	0.26	NonLiqfble.
	32.82	4	14.3	0.55	125	4021	2222	13.3	11.1	4.48	3.1	62.9	0.80	53.1	66.4	0.584	0.107	0.139	0.24	NonLiqfble.
	32.92	4	12.3	0.57	125	4033	2228	11.4	9.2	5.54	3.2	71.7	0.80	45.6	57.0	0.585	0.097	0.126	0.22	NonLiqfble.
	33.02	4	11.6		125	4046	2235	10.7	8.6	5.53	3.2	73.6	0.80	42.9	53.7	0.585	0.094	0.123	0.21	NonLiqfble.
	33.12 33.22	4	11.3 11.9	0.43 0.36	115 115	4058 4070	2241 2246	10.4 11.0	8.3 8.8	4.64 3.65	3.2	71.0 64.9	0.80	41.8 43.9	52.2 54.9	0.585 0.585	0.093 0.095	0.121 0.124	0.21 0.21	NonLiqfble. NonLiqfble.
	33.33	4	13	0.35	115	4083	2252	12.0	9.7	3.19	3.0	60.0	0.80	47.9	59.9	0.585	0.100	0.124	0.22	NonLiqfble.
	33.43	4	13.3	0.33	115	4094	2257	12.2	10.0	2.93	3.0	58.0	0.80	49.0	61.2	0.586	0.101	0.132	0.22	NonLiqfble.
	33.53	4	13	0.33	115	4106	2262	12.0	9.7	3.01	3.0	59.2	0.80	47.8	59.8	0.586	0.100	0.130	0.22	NonLiqfble.
	33.63	4	13.4	0.35	115	4117	2268	12.3	10.0	3.09	3.0	58.7	0.80	49.2	61.6	0.586	0.102	0.132	0.23	NonLiqfble.
	33.73	4	13.6		115	4129	2273	12.5	10.1	3.21	3.0	59.0	0.80	49.9	62.4	0.587	0.103	0.133	0.23	NonLiqfble.
	33.83 33.93	4	14.8 17.2	0.45 0.58	125 125	4140 4153	2278 2284	13.6 15.7	11.2 13.2	3.54 3.84	3.0	58.4 55.9	0.80	54.3 63.0	67.8 78.7	0.587 0.587	0.109 0.125	0.142 0.163	0.24 0.28	NonLiqfble.
	34.04	4	20.6	0.38	125	4166	2291	18.8	16.2	4.27	2.9	53.4	0.80	75.3	94.1	0.587	0.123	0.103	0.28	NonLiqfble. NonLiqfble.
	34.14	4	23.9	0.9	135	4179	2298	21.8	19.0	4.13	2.9	49.5	0.80	87.3	109.1	0.587	0.201	0.261	0.44	NonLiqfble.
	34.24	4	30	0.82	135	4192	2305	27.3	24.2	2.94	2.7	39.6	0.80	109.4	136.7	0.587	0.318	0.413	0.70	NonLiqfble.
	34.34	4	33.4	0.8	135	4206	2312	30.4	27.1	2.56	2.6	35.7	0.80	121.6	152.0	0.587	0.406	0.528	0.90	NonLiqfble.
	34.45	4	28.2		135	4221	2320	25.6	22.5	2.76	2.7	40.0	0.80	102.5	128.1	0.587	0.275	0.358	0.61	NonLiqfble.
	34.55	4	32.8		125	4234	2327	29.7	26.4	2.15	2.6	34.0	0.77	101.4	131.1	0.588	0.290	0.377	0.64	Liquefaction
	34.65 34.75	4	35 27.3	0.69 0.67	125 125	4247 4259	2334 2340	31.7 24.7	28.2 21.5	2.10 2.66	2.5 2.7	32.6 40.3	0.74 0.80	88.5 98.8	120.2 123.5	0.588 0.588	0.241 0.255	0.314 0.332	0.53 0.56	Liquefaction
	34.86	4	21.1	0.63	125	4239	2347	19.1	16.2	3.32	2.7	49.2	0.80	76.2	95.3	0.588	0.233	0.332	0.35	NonLiqfble. NonLiqfble.
	34.96	4	18.9	0.59	125	4285	2353	17.0	14.2	3.52	2.9	52.8	0.80	68.2	85.2	0.588	0.138	0.179	0.30	NonLiqfble.
	35.05	4	19.5	0.57	125	4297	2359	17.6	14.7	3.29	2.9	51.0	0.80	70.3	87.8	0.588	0.143	0.186	0.32	NonLiqfble.
	35.16	4	19.9	0.54	125	4310	2365	17.9	15.0	3.04	2.9	49.4	0.80	71.6	89.5	0.588	0.147	0.191	0.32	NonLiqfble.
	35.26	4	17	0.49	125	4323	2372	15.3	12.5	3.30	2.9	54.6	0.80	61.1	76.4	0.589	0.121	0.158	0.27	NonLiqfble.
	35.37	4	15.2	0.43	125	4337	2379	13.6	11.0	3.30	3.0	57.7	0.80	54.5	68.2	0.589	0.109	0.142	0.24	NonLiqfble.
	35.47 35.57	4	14 14	0.4 0.38	125 125	4349 4362	2385 2391	12.5 12.5	9.9 9.9	3.38 3.22	3.0	60.5 59.7	0.80 0.80	50.2 50.1	62.7 62.6	0.589 0.589	0.103	0.134 0.134	0.23 0.23	NonLiqfble. NonLiqfble.
	35.68	4	13.5	0.37	115	4375	2398	12.3	9.4	3.27	3.0	61.2	0.80	48.2	60.3	0.589	0.100	0.134	0.22	NonLiqfble.
	35.78	4	13.9	0.38	125	4387	2403	12.4	9.7	3.25	3.0	60.2	0.80	49.6	62.0	0.589	0.102	0.133	0.23	NonLiqfble.
	35.88	4	14.2	0.38	125	4399	2410	12.7	10.0	3.17	3.0	59.3	0.80	50.6	63.3	0.590	0.104	0.135	0.23	NonLiqfble.
	35.99	4	14.4	0.38	125	4413	2416	12.8	10.1	3.12	3.0	58.7	0.80	51.3	64.1	0.590	0.104	0.136	0.23	NonLiqfble.
	36.1	4	15	0.41	125	4427	2423	13.3	10.5	3.21	3.0	58.1	0.80	53.3	66.7	0.590	0.108	0.140	0.24	NonLiqfble.
	36.2 36.3	4	16.4 17.3	0.42 0.43	125 125	4439 4452	2430 2436	14.6 15.3	11.7 12.4	2.96 2.85	2.9 2.9	54.4 52.5	0.80 0.80	58.2 61.3	72.8 76.7	0.590 0.590	0.116 0.122	0.151 0.159	0.26 0.27	NonLiqfble. NonLiqfble.
	36.4	4	17.3	0.45	125	4464	2442	15.1	12.4	3.03	2.9	53.8	0.80	60.6	75.7	0.590	0.122	0.156	0.27	NonLiqfble.
	36.51	4	16.6		125	4478	2449	14.7	11.7	3.06	2.9	54.9	0.80	58.7	73.4	0.590	0.117	0.152	0.26	NonLiqfble.
	36.61	4	16.6	0.41	125	4491	2455	14.7	11.7	2.86	2.9	53.8	0.80	58.6	73.3	0.591	0.117	0.152	0.26	NonLiqfble.
	36.71	4	15.4	0.39	125	4503	2462	13.6	10.7	2.97	3.0	56.5	0.80	54.3	67.9	0.591	0.109	0.142	0.24	NonLiqfble.
	36.82	4	15.1	0.36	125	4517	2468	13.3	10.4	2.80	3.0	56.2	0.80	53.2	66.5	0.591	0.107	0.140	0.24	NonLiqfble.
	36.92	4	15.1	0.34	115	4529	2475	13.3	10.4	2.65	3.0	55.4	0.80	53.1	66.4	0.591	0.107	0.139	0.24	NonLiqfble.
	37.02 37.13	4	15.6 15.3	0.32 0.31	115 115	4541 4554	2480 2486	13.7 13.4	10.7 10.5	2.40 2.38	2.9 2.9	53.1 53.5	0.80	54.8 53.7	68.5 67.1	0.591 0.592	0.110 0.108	0.143 0.141	0.24 0.24	NonLiqfble. NonLiqfble.
	37.23	4	14.8	0.32	115	4565	2491	13.0	10.0	2.56	3.0	55.6	0.80	51.9	64.9	0.592	0.105	0.137	0.23	NonLiqfble.
	37.33	4	15.3		125	4577	2496	13.4	10.4	2.77	3.0	56.0	0.80	53.6	67.0	0.592	0.108	0.140	0.24	NonLiqfble.
	37.44	4	15.7	0.42	125	4590	2503	13.7	10.7	3.13	3.0	57.4	0.80	54.9	68.7	0.592	0.110	0.143	0.24	NonLiqfble.
	37.54	4	17.3		125	4603	2509	15.1	11.9	4.33	3.0	60.4	0.80	60.4	75.6	0.592	0.120	0.156	0.26	NonLiqfble.
	37.64	4	22.6		135	4615	2516	19.7	16.1	6.21	3.0	60.4	0.80	78.9	98.6	0.592	0.169	0.220	0.37	NonLiqfble.
	37.74 37.84	4	49.4	1.97 2	135 135	4629 4642	2523 2530	43.0 99.2	37.3 88.3	4.18	2.6	37.6 16.4	0.80	172.1 43.4	215.2 142.7	0.592 0.593	1.006 0.350	1.308	2.21	NonLiqfble.
	37.94	4	114.1 191.8		135	4656	2537	166.6	149.3	1.79 1.30	1.9	16.4 9.4	0.30 0.12	22.4	189.0	0.593	0.330	0.455 0.920	0.77 1.55	Liquefaction
	38.03	4	258.3		115	4668	2544	224.1	201.1	0.56	1.5	3.1	0.00	0.0	224.1	0.593	1.126	1.464	2.47	
	38.13	4	316.2		105	4680	2549	274.0	246.1	0.42	1.4	1.1	0.00	0.0	274.0	0.593	1.993	2.591	4.37	
	38.22	4	364.1	1.41	105	4689	2553	315.3	283.3	0.39	1.3	0.4	0.00	0.0	315.3	0.593	2.995	3.893	6.56	
	38.26	4	354		105	4693	2555	306.4	275.2	0.42	1.3	0.7	0.00	0.0	306.4	0.593	2.756	3.583	6.04	
	38.29	4	382.2		105	4696	2556	330.8	297.1	0.40	1.3	0.3	0.00	0.0	330.8	0.593	3.446	4.479	7.55	
	38.33 38.38	4	387.5 418.2		105 105	4701 4706	2558 2560	335.2 361.7	301.0 324.8	0.43 0.46	1.3	0.5 0.4	0.00	0.0	335.2 361.7	0.593 0.594	3.584 4.479	4.659 5.823	7.85 9.81	
	38.44	4	438.2		105	4712	2562	378.8	340.0	0.48	1.3	0.4	0.00	0.0	378.8	0.594	5.133	6.673	11.24	
	38.5	4	451.3		105	4718	2565	389.9	349.9	0.45	1.3	0.1	0.00	0.0	389.9	0.594	5.592	7.269	12.24	

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 16

Depth to Groundwater: 4 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

MSF: 1.30

		Water	Tip	Sleeve			Effective			Friction								Liquef.		
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	38.57	4	461.2	1.76	105	4726	2568	398.2	357.2	0.38	1.2	-0.4	0.00	0.0	398.2	0.594	5.952	7.738	13.02	
	38.63	4	465.1	1.59	105	4732	2571	401.4	359.9	0.34	1.2	-0.7	0.00	0.0	401.4	0.594	6.094	7.922	13.33	
	38.69	4	462.6	1.68	105	4738	2573	399.0	357.6	0.37	1.2	-0.5	0.00	0.0	399.0	0.595	5.988	7.785	13.09	
	38.75	4	464	1.91	105	4745	2576	400.0	358.3	0.41	1.2	-0.2	0.00	0.0	400.0	0.595	6.033	7.843	13.19	
	38.81	4	474.7	1.89	105	4751	2578	409.1	366.2	0.40	1.2	-0.3	0.00	0.0	409.1	0.595	6.445	8.379	14.08	
	38.88	4	486.7	1.8	105	4758	2581	419.2	375.1	0.37	1.2	-0.6	0.00	0.0	419.2	0.595	6.928	9.007	15.13	
	38.94	4	483.8	1.77	105	4765	2584	416.4	372.5	0.37	1.2	-0.6	0.00	0.0	416.4	0.595	6.797	8.836	14.84	
	39	4	467	1.77	105	4771	2586	401.8	359.1	0.38	1.2	-0.4	0.00	0.0	401.8	0.596	6.112	7.946	13.34	
	39.06	4	468.9	2.11	105	4777	2589	403.2	360.3	0.45	1.3	0.1	0.00	0.0	403.2	0.596	6.177	8.030	13.48	
	39.12	4	478.5	2.32	105	4783	2591	411.3	367.3	0.49	1.3	0.2	0.00	0.0	411.3	0.596	6.550	8.515	14.28	
	39.18	4	461.4	2.19	105	4790	2594	396.4	353.8	0.48	1.3	0.3	0.00	0.0	396.4	0.596	5.872	7.634	12.80	
	39.25	4	447.1	2.11	105	4797	2597	383.9	342.3	0.47	1.3	0.4	0.00	0.0	383.9	0.597	5.341	6.943	11.64	
	39.31	4	457.8	2.15	105	4803	2599	392.9	350.2	0.47	1.3	0.3	0.00	0.0	392.9	0.597	5.719	7.435	12.46	
	39.37	4	453.1	2.16	105	4810	2602	388.6	346.3	0.48	1.3	0.4	0.00	0.0	388.6	0.597	5.539	7.201	12.06	
	39.43	4	457.6	2.47	115	4816	2605	392.3	349.4	0.54	1.3	0.7	0.00	0.0	392.3	0.597	5.695	7.404	12.40	
	39.49	4	458.1	2.78	115	4823	2608	392.5	349.3	0.61	1.4	1.1	0.00	0.0	392.5	0.597	5.704	7.415	12.42	
	39.55	4	451.5	3.18	115	4830	2611	386.6	343.9	0.71	1.4	1.8	0.00	0.0	386.6	0.597	5.454	7.091	11.87	
	39.61	4	468.9	3.11	115	4837	2614	401.3	356.8	0.67	1.4	1.4	0.00	0.0	401.3	0.597	6.089	7.916	13.25	
	39.67	4	484.1	2.68	115	4844	2617	414.0	367.9	0.56	1.3	0.6	0.00	0.0	414.0	0.598	6.681	8.685	14.53	
	39.73	4	500.1	2.35	105	4851	2620	427.5	379.7	0.47	1.3	0.0	0.00	0.0	427.5	0.598	7.344	9.547	15.97	
	39.78	4	507.1	2.46	105	4856	2623	433.3	384.7	0.49	1.3	0.1	0.00	0.0	433.3	0.598	7.644	9.937	16.62	
	39.84	4	526.2	2.35	105	4862	2625	449.4	398.9	0.45	1.2	-0.3	0.00	0.0	449.4	0.598	8.519	11.074	18.52	
	39.91	4	555.3	2.7	105	4869	2628	473.9	420.6	0.49	1.2	-0.2	0.00	0.0	473.9	0.598	9.981	12.975	21.69	
	39.99	4	510.8	3.08	115	4878	2631	435.7	386.2	0.61	1.3	0.8	0.00	0.0	435.7	0.599	7.771	10.103	16.88	
	40.07	4	479.7	2.92	115	4887	2636	408.8	362.0	0.61	1.4	1.0	0.00	0.0	408.8	0.553	6.435	8.365	15.12	

Total Effective Norm. Corr. Friction

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 17

Depth to Groundwater: 6 feet

Water Tip Sleeve

EQ Magnitude ( $M_w$ ): 6.5 **PGA (g):** 0.54

MSF: 1.30

Induced Liquef. Liquef. Factor

	Donath	Water	Tip	Sleeve	_	Total			Corr.	Friction		E.C.					_	Liquef.		
Cone	Depth (FT)	Table (FT)	Resist.	Frict. (TSF)	g (PCF)	Stress (PSF)	Stress (PSF)	Tip Qc1N	Tip Q	Ratio F	Ic	F.C. (%)	Ксрт	Dacin	(qcIN)es	Stress Ratio	Stress M7.5	Stress M6.50	of Safety	Comments
Conc	(11)	(F 1)	(151)	(151)	(I CI)	(151)	(151)	qui	V		IC	(70)		D quii	(quit)u	Katio	1111.5	1110.50	Sarcty	Comments
	0.50	6	257.0	1 40	115	60	60	402.7	0617.5	0.55	1.1	1.5	0.00	0.0	402.7	0.251	11 274	14 656	41.75	Abovo W.T
	0.52 0.59	6 6	257.8 288.9	1.42 1.49	115 115	60 68	60 68	493.7 553.3	8617.5 8511.3	0.55 0.52	1.1 1.0	-1.5 -1.7	0.00	0.0	493.7 553.3	0.351	15.833	14.656 20.583	41.75 58.64	Above W.T. Above W.T.
	0.66	6	281.9	1.43	105	76	76	539.9	7424.1	0.51	1.0	-1.9	0.00	0.0	539.9	0.351		19.130	54.50	Above W.T.
	0.74	6	277.7	1.55	115	84	84	531.9	6584.6	0.56	1.0	-1.8	0.00	0.0	531.9	0.351	14.071	18.292	52.12	Above W.T.
	0.81	6	278	1.81	115	92	92	532.4	6017.1	0.65	1.1	-1.5	0.00	0.0	532.4	0.351		18.351	52.28	Above W.T.
	0.88 0.95	6 6	276 267.6	2.06 2.18	115 125		100 108	528.6 512.5	5494.7 4931.9	0.75 0.81	1.1 1.2	-1.1 -0.9	0.00	0.0	528.6 512.5	0.351	12.599	17.960 16.379	51.17 46.66	Above W.T. Above W.T.
	1.03	6	252.5	1.93	115	118	118	483.6	4260.6	0.76	1.1	-1.2	0.00	0.0	483.6	0.351	10.597	13.777	39.25	Above W.T.
	1.11	6	237.6	1.91	125	128	128	455.1	3720.1	0.80	1.1	-1.1	0.00	0.0	455.1	0.351	8.843	11.496	32.75	Above W.T.
	1.21	6	203.1	1.82	125	140	140	389.0	2896.1	0.90	1.2	-0.8	0.00	0.0	389.0	0.351	5.553	7.219	20.57	Above W.T.
	1.31 1.4	6 6	178.3 161.5	1.8 1.41	125 125	153 164	153 164	341.5 309.3	2334.1 1968.9	1.01 0.87	1.2 1.2	-0.3 -0.7	0.00	0.0	341.5 309.3	0.351 0.351	3.783 2.832	4.918 3.682	14.01 10.49	Above W.T. Above W.T.
	1.5	6	148.7	1.49	125	176	176	284.8	1684.2	1.00	1.2	-0.1	0.00	0.0	284.8	0.351	2.228	2.897	8.25	Above W.T.
	1.6	6	140.4	1.7	125	189	189	268.9	1484.9	1.21	1.3	0.8	0.00	0.0	268.9	0.351	1.888	2.455	6.99	Above W.T.
	1.69	6	134.4	1.72	135	200	200	257.4	1341.4	1.28	1.4	1.2	0.00	0.0	257.4	0.351	1.666	2.166	6.17	Above W.T.
	1.78	6	116	1.67	135		212	222.2	1091.3	1.44	1.4	2.1	0.00	0.0	222.2	0.351	1.100	1.430	4.07	Above W.T.
	1.88 1.97	6	106.4 100.6	1.36 1.11	125 125		226 237	203.8 192.7	941.0 847.4	1.28 1.10	1.4	1.7	0.00	0.0	203.8 192.7	0.351	0.867 0.745	1.127 0.969	3.21 2.76	Above W.T.
	2.07	6 6	98	1.03	125	250	250	187.7	784.1	1.05	1.4 1.4	1.2 1.2	0.00	0.0	187.7	0.351	0.743	0.909	2.70	Above W.T. Above W.T.
	2.13	6	98.5	1.16	125		257	188.6	765.1	1.18	1.4	1.8	0.00	0.0	188.6	0.351	0.704	0.916	2.61	Above W.T.
	2.24	6	99.1	1.4	135		271	189.8	730.6	1.41	1.5	2.8	0.00	0.0	189.8	0.351	0.716	0.931	2.65	Above W.T.
	2.34	6	95.2	1.44	135	284	284	182.3	668.4	1.51	1.5	3.4	0.00	0.0	182.3	0.351	0.644	0.837	2.38	Above W.T.
	2.43 2.52	6	92.6 96.8	1.42 1.25	135		296	177.3	623.5 626.1	1.54	1.6	3.7 2.7	0.00	0.0	177.3	0.351	0.599	0.778	2.22 2.49	Above W.T.
	2.52	6 6	107.8	1.51	125 135	320	309 320	185.4 206.5	672.8	1.29 1.40	1.5 1.5	3.0	0.00	0.0	185.4 206.5	0.351 0.351	0.673 0.898	0.874 1.168	3.33	Above W.T. Above W.T.
	2.7	6	128.4	1.7	135	332	332	245.9	772.2	1.33	1.5	2.3	0.00	0.0	245.9	0.351	1.463	1.902	5.42	Above W.T.
	2.8	6	129.5	1.98	135	346	346	248.0	748.3	1.53	1.5	3.2	0.00	0.0	248.0	0.351	1.499	1.948	5.55	Above W.T.
	2.89	6	109.3	2.52	135	358	358	209.3	610.0	2.31	1.7	6.6	0.04	9.3	218.7	0.351	1.052	1.368	3.90	Above W.T.
	2.98 3.07	6 6	119.4 131.1	1.74 1.8	135 135	370 382	370 382	228.7 251.1	644.5 685.2	1.46 1.38	1.5 1.5	3.3 2.8	0.00	0.0	228.7 251.1	0.351	1.192 1.552	1.550 2.018	4.42 5.75	Above W.T. Above W.T.
	3.16	6	147.7	1.65	125		394	282.9	748.2	1.12	1.4	1.5	0.00	0.0	282.9	0.351	2.185	2.841	8.09	Above W.T.
	3.25	6	121.2	1.38	125		405	232.1	596.8	1.14	1.5	2.2	0.00	0.0	232.1	0.351	1.243	1.616	4.60	Above W.T.
	3.34	6	121.2	1.31	125	417	417	232.1	580.6	1.08	1.4	2.0	0.00	0.0	232.1	0.351	1.243	1.616	4.60	Above W.T.
	3.44	6	106.3	1.18	125		429	203.6	494.2	1.11	1.5	2.6	0.00	0.0	203.6	0.351	0.865	1.124	3.20	Above W.T.
	3.53	6	91	1.47			440	174.3	412.1	1.62	1.7	5.5	0.01	2.3	176.6	0.351	0.592	0.770	2.19	Above W.T.
	3.63 3.72	6 6	69.4 46.4	1.47 1.44	135 135	454 466	454 466	132.9 88.9	304.7 198.1	2.13 3.12	1.8 2.1	8.9 15.1	0.10 0.27	15.4 32.9	148.3 121.8	0.351 0.351	0.383 0.248	0.498 0.322	1.42 0.92	Above W.T. Above W.T.
	3.82	6	26	1.35	135		480	49.8	107.4	5.24	2.4	27.0	0.59	71.1	120.9	0.351	0.244	0.318	0.90	Above W.T.
	3.91	6	20.1	1.31	135	492	492	38.5	80.7	6.60	2.6	33.9	0.77	129.8	168.3	0.351	0.523	0.680	1.94	Above W.T.
	4.01	6	18.9	1.12	135	505	505	36.2	73.8	6.01	2.6	33.5	0.76	115.3	151.5	0.351	0.403	0.524	1.49	Above W.T.
	4.1 4.2	6	18.8 21.3	1.09 1.09	135 135		517 531	36.0 40.5	71.7 79.2	5.88 5.18	2.6 2.5	33.5 30.3	0.76 0.68	115.3 84.5	151.3 125.0	0.351 0.351	0.402 0.262	0.523 0.340	1.49 0.97	Above W.T.
	4.29	6 6	23	1.17	135		543	43.2	83.7	5.15	2.5	29.6	0.66	82.4	125.6	0.351	0.264	0.344	0.97	Above W.T. Above W.T.
	4.39	6	24.8	1.22	135	556	556	46.0	88.1	4.98	2.4	28.5	0.63	77.3	123.3	0.351	0.254	0.330	0.94	Above W.T.
	4.48	6	26.3	1.19	135	569	569	48.3	91.5	4.57	2.4	26.9	0.58	67.6	115.9	0.351	0.225	0.292	0.83	Above W.T.
	4.58	6	24	1.16	135		582	43.5	81.4	4.89	2.5	29.2	0.64	79.1	122.6	0.351	0.251	0.327	0.93	Above W.T.
	4.68	6	22.6 20.9	1.18	135 135	596	596	40.5	74.9	5.29	2.5	31.3	0.70	96.1	136.6	0.351	0.317	0.412	1.17	Above W.T.
	4.77 4.87	6 6	18.8	1.16 1.14	135		608 621	37.1 33.0	67.7 59.5	5.63 6.17	2.6 2.6	33.6 36.8	0.76 0.80	119.7 132.0	156.8 165.0	0.351	0.438 0.498	0.570 0.647	1.62 1.84	Above W.T. Above W.T.
	4.97	6	18.9	1.11	135		635	32.8	58.5	5.97	2.6	36.5	0.80	131.3	164.1	0.351	0.491	0.638	1.82	Above W.T.
	5.07	6	17.2	1.07	135	648	648	29.6	52.0	6.34	2.7	39.2	0.80	118.2	147.8	0.351	0.380	0.494	1.41	Above W.T.
	5.17	6	17.6	1.03	135		662	29.9	52.2	5.96	2.7	38.2	0.80	119.7	149.7	0.351	0.392	0.509	1.45	Above W.T.
	5.27	6	18	1.03 1.12	135	675 706	675 706	30.3	52.3	5.83	2.6	37.7	0.80	121.2	151.5 148.2	0.351	0.404	0.525	1.49	Above W.T.
	5.5 5.61	6 6	18 18.3	1.12	135 135		706 721	29.6 29.8	49.9 49.7	6.35 6.30	2.7 2.7	39.9 39.8	0.80 0.80	118.5 119.3	148.2	0.351 0.351	0.383 0.388	0.497 0.505	1.42 1.44	Above W.T. Above W.T.
	5.71	6	18.1	1.13	135		735	29.2	48.3	6.37	2.7	40.4	0.80	116.9	146.1	0.351	0.370	0.481	1.37	Above W.T.
	5.81	6	17.9	1.13	135	748	748	28.6	46.8	6.45	2.7	41.1	0.80	114.5	143.2	0.351	0.353	0.459	1.31	Above W.T.
	5.91	6	17.2	1.11	135		762	27.3	44.1	6.60	2.7	42.4	0.80	109.1	136.3	0.351	0.316	0.410	1.17	Above W.T.
	6.02	6	15.8	1.09			770	24.9	40.0	7.07	2.8	45.3	0.80	99.7	124.6	0.354	0.260	0.338	0.95	NonLiqfble.
	6.12 6.22	6 6	15.1 14.4	1.07 1.02	135 125		777 784	23.7 22.5	37.8 35.7	7.28 7.29	2.8	46.8 47.8	0.80 0.80	94.8 90.0	118.5 112.5	0.357 0.360	0.235 0.212	0.305 0.276	0.86 0.77	NonLiqfble. NonLiqfble.
	6.32	6	14.3	0.93	125		790	22.3	35.1	6.69	2.8	46.5	0.80	89.0	111.3	0.362	0.208	0.270	0.75	NonLiqfble.
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Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 17

Depth to Groundwater: 6 feet

ge Yard EQ Magnitude (M<sub>w</sub>): 6.5 PGA (g): 0.54 MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm	Corr	Friction						Induced	Lianef	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	6.43	6	13.9	0.84	125	830	797	21.5	33.8	6.23	2.8	45.8	0.80	86.2	107.7	0.365	0.196	0.255	0.70	NonLiqfble.
	6.53	6	14.1	0.78	125	842	804	21.8	34.0	5.70	2.8	44.2	0.80	87.1	108.8	0.368	0.200	0.260	0.71	NonLiqfble.
	6.64	6	14.6	0.75	125	856	810	22.4	35.0	5.29	2.7	42.4	0.80	89.8	112.2	0.371	0.211	0.275	0.74	NonLiqfble.
	6.74	6	14.8	0.77	125	869	817	22.7	35.2	5.36	2.7	42.5	0.80	90.6	113.3	0.373	0.215	0.280	0.75	NonLiqfble.
	6.85 6.95	6 6		0.8 0.83	125 125	882 895	824 830	22.4 22.5	34.6 34.6	5.61 5.78	2.8 2.8	43.6 44.1	0.80	89.6 89.9	112.1 112.4	0.376 0.378	0.211 0.212	0.274 0.276	0.73 0.73	NonLiqfble. NonLiqfble.
	7.05	6		0.85	125	907	836	23.2	35.5	5.73	2.8	43.5	0.80	92.6	115.8	0.376	0.212	0.270	0.77	NonLiqfble.
	7.15	6	16	0.86	125	920	842	24.1	36.9	5.53	2.7	42.3	0.80	96.5	120.6	0.383	0.243	0.316	0.82	NonLiqfble.
	7.26	6		0.85	125	934	849	23.7	36.1	5.54	2.7	42.7	0.80	94.9	118.6	0.386	0.235	0.306	0.79	NonLiqfble.
	7.36	6		0.85	125	946	856	23.6	35.8	5.55	2.7	42.8	0.80	94.5	118.2	0.388	0.233	0.304	0.78	NonLiqfble.
	7.46	6	15.2	0.85	125	959	862	22.7	34.1	5.77	2.8	44.3	0.80	90.6	113.3	0.390	0.215	0.280	0.72	NonLiqfble.
	7.57 7.67	6 6		0.83	125 125	972 985	869 875	21.2 20.7	31.8 30.9	6.01 5.92	2.8 2.8	46.3 46.5	0.80	84.9 82.8	106.1 103.5	0.393 0.395	0.191 0.183	0.249 0.238	0.63	NonLiqfble. NonLiqfble.
	7.77	6	14.1	0.78	125	997	881	20.8	30.9	5.73	2.8	46.0	0.80	83.1	103.9	0.397	0.184	0.240	0.60	NonLiqfble.
	7.87	6		0.79	125	1010	887	20.6	30.4	5.85	2.8	46.6	0.80	82.2	102.8	0.399	0.181	0.235	0.59	NonLiqfble.
	7.97	6	13.2	0.78	125	1022	894	19.3	28.4	6.15	2.8	48.7	0.80	77.3	96.6	0.401	0.164	0.213	0.53	NonLiqfble.
	8.08	6		0.72	125	1036	901	17.9	26.2	6.11	2.9	50.1	0.80	71.7	89.7	0.404	0.147	0.191	0.47	NonLiqfble.
	8.18	6	11.5	0.64	125	1049	907	16.7	24.2	5.83	2.9	50.8	0.80	66.8	83.5	0.406	0.134	0.174	0.43	NonLiqfble.
	8.28 8.39	6 6		0.53 0.4	125 115	1061 1075	913 920	14.5 13.6	20.7 19.3	5.60 4.51	2.9 2.9	53.1 50.7	0.80	57.9 54.2	72.4 67.8	0.408 0.410	0.115	0.150 0.142	0.37 0.35	NonLiqfble. NonLiqfble.
	8.49	6		0.29	115	1075	925	11.5	16.1	3.89	2.9	40.9	0.80	46.0	57.5	0.410	0.109	0.142	0.33	NonLiqfble.
	8.73	6	5.4	0.16	95	1114	938	7.7	10.3	3.30	3.0	40.9	0.80	30.9	38.6	0.417	0.085	0.111	0.27	NonLiqfble.
	8.84	6	4.9	0.13	95	1124	941	7.0	9.2	3.00	3.0	40.9	0.80	27.9	34.9	0.419	0.084	0.109	0.26	NonLiqfble.
	8.94	6		0.13	95	1134	945	6.1	7.9	3.48	3.1	40.9	0.80	24.5	30.6	0.421	0.083	0.107	0.26	NonLiqfble.
	9.04	6	4	0.16	95	1143	948	5.7	7.2	4.67	3.2	40.9	0.80	22.7	28.4	0.423	0.082	0.107	0.25	NonLiqfble.
	9.15 9.25	6 6	5.1 7.5	0.2 0.26	105 105	1154 1164	952 956	7.2 10.6	9.5 14.5	4.42 3.76	3.1 2.9	40.9 40.9	0.80	28.9 42.5	36.2 53.1	0.426 0.428	0.084 0.094	0.110 0.122	0.26 0.29	NonLiqfble. NonLiqfble.
	9.36	6	8.7	0.20	115	1176	961	12.3	16.9	3.70	2.9	40.9	0.80	49.1	61.4	0.430	0.102	0.122	0.23	NonLiqfble.
	9.46	6	9.8	0.35	115	1187	966	13.8	19.1	3.80	2.8	40.9	0.80	55.2	69.0	0.432	0.111	0.144	0.33	NonLiqfble.
	9.56	6	9.7	0.37	115	1199	971	13.6	18.7	4.07	2.9	40.9	0.80	54.5	68.1	0.433	0.109	0.142	0.33	NonLiqfble.
	9.67	6		0.36	115	1211	977	12.2	16.6	4.45	2.9	40.9	0.80	48.7	60.9	0.435	0.101	0.131	0.30	NonLiqfble.
	9.77	6		0.33	115	1223	982	11.6	15.7	4.29	2.9	40.9	0.80	46.4	57.9	0.437	0.098	0.128	0.29	NonLiqfble.
	9.88 9.98	6 6	8.9 9.7	0.31 0.29	115 115	1236 1247	988 993	12.4 13.5	16.8 18.3	3.74 3.20	2.9 2.8	40.9 40.9	0.80	49.6 53.9	61.9 67.3	0.439 0.441	0.102 0.108	0.133 0.141	0.30	NonLiqfble. NonLiqfble.
	10.08	6		0.3	115	1259	998	14.0	19.0	3.17	2.8	40.9	0.80	55.9	69.9	0.434	0.112	0.145	0.34	NonLiqfble.
	10.19	6	9.8	0.32	115	1271	1004	13.5	18.2	3.49	2.8	47.5	0.80	54.1	67.7	0.435	0.109	0.141	0.32	NonLiqfble.
	10.29	6	9.6	0.36	115	1283	1009	13.2	17.7	4.02	2.9	50.4	0.80	52.9	66.1	0.437	0.107	0.139	0.32	NonLiqfble.
	10.4	6		0.39	115	1295	1015	13.9	18.6	4.13	2.9	49.9	0.80	55.5	69.3	0.439	0.111	0.144	0.33	NonLiqfble.
	10.5	6	10.5 11	0.4	115	1307	1020	14.4	19.3	4.06	2.8	48.9	0.80	57.5	71.9	0.441	0.115	0.149	0.34	NonLiqfble.
	10.6 10.71	6 6		0.42 0.44	115 115	1318 1331	1026 1032	15.0 15.3	20.2 20.4	4.06 4.18	2.8 2.8	48.0 48.2	0.80	60.1 61.0	75.1 76.3	0.442 0.444	0.119 0.121	0.155 0.158	0.35 0.36	NonLiqfble. NonLiqfble.
	10.81	6		0.43	115	1343	1032	15.9	21.3	3.90	2.8	46.3	0.80	63.6	79.5	0.445	0.127	0.156	0.37	NonLiqfble.
	10.91	6	12.2	0.39	115	1354	1042	16.5	22.1	3.38	2.8	43.3	0.80	66.1	82.7	0.447	0.133	0.172	0.39	NonLiqfble.
	11.02	6	11.6	0.36	115	1367	1048	15.7	20.8	3.30	2.8	44.0	0.80	62.7	78.4	0.449	0.125	0.162	0.36	NonLiqfble.
	11.12	6	11.3	0.34	115	1378	1053	15.2	20.1	3.20	2.8	44.2	0.80	60.9	76.2	0.450	0.121	0.157	0.35	NonLiqfble.
	11.22 11.33	6 6		0.33 0.36	115	1390 1402	1058 1064	15.1 15.2	19.8 19.9	3.14 3.40	2.8	44.2 45.4	0.80	60.3 60.6	75.3 75.8	0.452 0.453	0.120 0.120	0.156 0.157	0.34	NonLiqfble. NonLiqfble.
	11.43	6		0.38	115	1414	1069	15.8	20.7	3.43	2.8	44.7	0.80	63.2	78.9	0.455	0.126	0.157	0.36	NonLiqfble.
	11.53	6		0.41	125	1425	1075	16.7	21.9	3.48	2.8	43.9	0.80	66.7	83.4	0.456	0.120	0.174	0.38	NonLiqfble.
	11.64	6	12.9	0.44	125	1439	1082	17.2	22.5	3.61	2.8	44.0	0.80	68.7	85.8	0.458	0.139	0.180	0.39	NonLiqfble.
	11.74	6		0.47	125	1452	1088	17.2	22.6	3.83	2.8	44.9	0.80	69.0	86.2	0.459	0.140	0.182	0.40	NonLiqfble.
	11.99	6		0.48	125	1483	1103	18.2	23.7	3.68	2.8	43.4	0.80	72.7	90.9	0.462	0.150	0.195	0.42	NonLiqfble.
	12.09 12.2	6	13.7 14.6	0.49 0.49	125 125	1495 1509	1110	18.0	23.3 24.8	3.78	2.8	44.1 41.9	0.80	72.0 76.5	90.0 95.6	0.464	0.148	0.192 0.210	0.41 0.45	NonLiqfble.
	12.2	6 6		0.49	125	1509	1117 1123	19.1 19.1	24.8	3.54 3.54	2.7 2.7	41.9	0.80	76.3	95.6 95.3	0.465 0.466	0.161 0.161	0.210	0.45	NonLiqfble. NonLiqfble.
	12.4	6		0.5	125	1534	1129	19.3	24.8	3.56	2.7	42.0	0.80	77.1	96.4	0.467	0.163	0.212	0.45	NonLiqfble.
	12.51	6		0.52	125	1548	1136	18.0	23.1	3.96	2.8	45.0	0.80	72.2	90.2	0.469	0.148	0.193	0.41	NonLiqfble.
	12.61	6	13.2	0.53	125	1560	1142	17.1	21.7	4.27	2.8	47.4	0.80	68.4	85.4	0.470	0.138	0.179	0.38	NonLiqfble.
	12.71	6		0.54	125	1573	1149	16.9	21.4	4.39	2.8	48.1	0.80	67.7	84.6	0.471	0.136	0.177	0.38	NonLiqfble.
	12.82 12.92	6 6	12.9 12.4	0.53 0.51	125 125	1587 1599	1155 1162	16.6 15.9	20.9 20.0	4.38 4.40	2.8 2.9	48.5 49.5	0.80	66.4 63.7	83.0 79.6	0.472 0.474	0.133 0.127	0.173 0.165	0.37 0.35	NonLiqfble. NonLiqfble.
	13.03	6		0.51	125	1613	1162	16.8	21.0	4.40	2.9	49.3	0.80	67.1	83.8	0.474	0.127	0.165	0.33	NonLiqfble.
	13.13	6		0.5	125	1625	1175	17.0	21.2	4.00	2.8	46.7	0.80	67.9	84.9	0.476	0.137	0.178	0.37	NonLiqfble.
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Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 17

Depth to Groundwater: 6 feet

ace and Storage Yard EQ Magnitude  $(M_w)$ : 6.5 PGA (g): 0.54

MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth		Resist.		g	Stress	Stress	Tip	Tip	Ratio		F.C.					-	•	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	DqcIN	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	10.01		10.7	0.50	105	1.620	1102	17.4	21.0	4.11	2.0	46.7	0.00	60.7	07.2	0.477	0.142	0.104	0.20	N. T. 01
	13.24 13.34	6 6	13.7 14.1	0.53 0.56	125 125	1639 1652	1182 1188	17.4 17.9	21.8 22.3	4.11 4.22	2.8	46.7 46.6	0.80	69.7 71.6	87.2 89.5	0.477 0.478	0.142 0.147	0.184 0.191	0.39 0.40	NonLiqfble. NonLiqfble.
	13.45	6	14.1	0.58	125	1665	1195	17.7	22.0	4.40	2.8	47.6	0.80	70.9	88.6	0.478	0.147	0.191	0.40	NonLiqfble.
	13.55	6	14.7	0.59	125	1678	1201	18.6	23.1	4.26	2.8	46.2	0.80	74.2	92.8	0.481	0.154	0.201	0.42	NonLiqfble.
	13.65	6	14.7	0.59	125	1690	1207	18.5	22.9	4.26	2.8	46.3	0.80	74.0	92.6	0.482	0.154	0.200	0.41	NonLiqfble.
	13.75	6	14.2	0.6	125	1703	1214	17.8	22.0	4.49	2.8	48.0	0.80	71.3	89.2	0.483	0.146	0.190	0.39	NonLiqfble.
	13.86	6	14.2	0.61	125	1717	1221	17.8	21.9	4.57	2.8	48.4	0.80	71.1	88.9	0.484	0.145	0.189	0.39	NonLiqfble.
	13.96	6	14.5	0.64	125	1729	1227	18.1	22.2	4.69	2.8	48.6	0.80	72.5	90.6	0.485	0.149	0.194	0.40	NonLiqfble.
	14.06	6	14.3	0.67	125	1742	1233	17.8	21.8	4.99	2.9	50.0	0.80	71.3 74.6	89.1	0.486	0.146	0.189	0.39	NonLiqfble.
	14.17 14.27	6	15 15.1	0.67 0.64	125 125	1755 1768	1240 1246	18.6 18.7	22.8 22.8	4.74 4.50	2.8	48.3 47.3	0.80	74.0	93.2 93.6	0.487 0.488	0.155 0.156	0.202 0.203	0.41 0.42	NonLiqfble. NonLiqfble.
	14.37	6	16.3	0.61	125	1780	1252	20.2	24.6	3.96	2.8	43.8	0.80	80.6	100.8	0.489	0.175	0.203	0.47	NonLiqfble.
	14.47	6	15.8	0.6	125	1793	1259	19.5	23.7	4.03	2.8	44.8	0.80	77.9	97.4	0.490	0.166	0.216	0.44	NonLiqfble.
	14.58	6	16.1	0.6	125	1807	1266	19.8	24.0	3.95	2.8	44.2	0.80	79.2	99.0	0.491	0.170	0.221	0.45	NonLiqfble.
	14.68	6	16.2	0.59	125	1819	1272	19.9	24.0	3.86	2.8	43.8	0.80	79.5	99.4	0.492	0.171	0.223	0.45	NonLiqfble.
	14.78	6	16.2	0.6	125	1832	1278	19.8	23.9	3.93	2.8	44.2	0.80	79.3	99.1	0.493	0.171	0.222	0.45	NonLiqfble.
	14.89	6	15.7	0.6	125	1845	1285	19.2	23.0	4.06	2.8	45.5	0.80	76.7	95.8	0.494	0.162	0.210	0.43	NonLiqfble.
	14.99 15.26	6	15.5 13.7	0.61 0.53	125 125	1858 1892	1291 1308	18.9 16.6	22.6 19.5	4.19 4.16	2.8	46.3 49.1	0.80	75.5 66.3	94.4 82.9	0.495 0.497	0.158 0.133	0.206 0.173	0.42 0.35	NonLiqfble. NonLiqfble.
	15.36	6	12.2	0.5	125	1904	1314	14.7	17.1	4.45	2.9	52.9	0.80	58.9	73.6	0.498	0.133	0.173	0.31	NonLiqfble.
	15.47	6	12.3	0.46	125	1918	1321	14.8	17.2	4.06	2.9	51.2	0.80	59.2	74.0	0.499	0.118	0.153	0.31	NonLiqfble.
	15.57	6	12.8	0.42	125	1930	1328	15.4	17.8	3.55	2.8	48.3	0.80	61.5	76.9	0.500	0.122	0.159	0.32	NonLiqfble.
	15.67	6	12.1	0.39	115	1943	1334	14.5	16.7	3.50	2.9	49.4	0.80	58.0	72.5	0.501	0.115	0.150	0.30	NonLiqfble.
	15.78	6	12.3	0.38	115	1956	1340	14.7	16.9	3.36	2.8	48.4	0.80	58.8	73.5	0.502	0.117	0.152	0.30	NonLiqfble.
	15.88	6	12.7	0.38	115	1967	1345	15.2	17.4	3.24	2.8	47.3	0.80	60.6	75.8	0.503	0.120	0.157	0.31	NonLiqfble.
	15.98 16.09	6	13.3 13.7	0.4 0.45	125 125	1979 1992	1350 1357	15.8 16.3	18.2 18.7	3.25 3.54	2.8	46.4 47.2	0.80	63.3 65.1	79.2 81.4	0.504 0.505	0.126 0.130	0.164 0.169	0.33	NonLiqfble. NonLiqfble.
	16.19	6	14.2	0.43	125	2005	1363	16.8	19.4	3.94	2.8	48.3	0.80	67.3	84.1	0.506	0.135	0.109	0.35	NonLiqfble.
	16.3	6	14.2	0.58	125	2019	1370	16.8	19.2	4.40	2.9	50.3	0.80	67.1	83.9	0.507	0.135	0.175	0.35	NonLiqfble.
	16.4	6	14.5	0.6	125	2031	1376	17.1	19.6	4.45	2.9	50.1	0.80	68.4	85.5	0.508	0.138	0.180	0.35	NonLiqfble.
	16.5	6	15.6	0.61	125	2044	1383	18.4	21.1	4.18	2.8	47.6	0.80	73.4	91.8	0.508	0.152	0.197	0.39	NonLiqfble.
	16.61	6	15.3	0.6	125	2057	1390	18.0	20.5	4.20	2.8	48.2	0.80	71.8	89.8	0.509	0.147	0.192	0.38	NonLiqfble.
	16.71	6	14.7	0.6	125	2070	1396	17.2	19.6	4.39	2.9	49.9	0.80	68.9	86.1	0.510	0.139	0.181	0.36	NonLiqfble.
	16.81 16.92	6 6	14.2 13.6	0.61 0.61	125 125	2082 2096	1402 1409	16.6 15.9	18.8 17.8	4.64 4.86	2.9 2.9	51.7 53.6	0.80	66.4 63.4	83.0 79.3	0.511 0.512	0.133 0.126	0.173 0.164	0.34 0.32	NonLiqfble. NonLiqfble.
	17.02	6	13.5	0.61	125	2109	1415	15.7	17.6	4.90	2.9	54.1	0.80	62.8	78.5	0.512	0.125	0.162	0.32	NonLiqfble.
	17.12	6	13.6	0.62	125	2121	1421	15.8	17.6	4.94	2.9	54.1	0.80	63.1	78.9	0.513	0.126	0.163	0.32	NonLiqfble.
	17.22	6	12.9	0.62	125	2134	1428	14.9	16.6	5.24	3.0	56.5	0.80	59.8	74.7	0.514	0.119	0.154	0.30	NonLiqfble.
	17.33	6	12.2	0.62	125	2147	1435	14.1	15.5	5.57	3.0	59.2	0.80	56.4	70.5	0.515	0.113	0.146	0.28	NonLiqfble.
	17.43	6	12.1	0.6	125	2160	1441	13.9	15.3	5.44	3.0	59.0	0.80	55.8	69.7	0.516	0.112	0.145	0.28	NonLiqfble.
	17.53	6	11.4	0.56	125	2172	1447	13.1	14.2	5.43	3.0	60.6	0.80	52.4	65.6	0.516	0.106	0.138 0.140	0.27	NonLiqfble. NonLiqfble.
	17.64 17.74	6 6	11.6 12	0.5 0.45	125 125	2186 2199	1454 1460	13.3 13.7	14.4 14.9	4.76 4.13	3.0 2.9	57.8 54.5	0.80	53.2 55.0	66.6 68.7	0.517 0.518	0.107 0.110	0.140	0.27 0.28	NonLiqfble.
	17.84	6	10.8	0.41	115	2211	1467	12.3	13.2	4.23	3.0	57.7	0.80	49.4	61.7	0.519	0.102	0.132	0.26	NonLiqfble.
	17.94	6	10.8	0.36	115	2223	1472	12.3	13.2	3.72	3.0	55.5	0.80	49.3	61.6	0.519	0.102	0.132	0.25	NonLiqfble.
	18.05	6	9.7	0.31	115	2235	1478	11.0	11.6	3.61	3.0	57.9	0.80	44.2	55.2	0.520	0.096	0.124	0.24	NonLiqfble.
	18.15	6	10.4	0.28	115	2247	1483	11.8	12.5	3.02	2.9	53.2	0.80	47.3	59.1	0.521	0.099	0.129	0.25	NonLiqfble.
	18.25	6	9.4	0.27	115	2258	1488	10.7	11.1	3.26	3.0	57.2	0.80	42.6	53.3	0.522	0.094	0.122	0.23	NonLiqfble.
	18.29 18.4	6 6	10.6 11	0.27 0.26	115 115	2263 2275	1490 1496	12.0 12.4	12.7 13.2	2.85 2.64	2.9 2.9	51.9 49.9	0.80	48.1 49.8	60.1 62.2	0.522 0.523	0.100 0.102	0.130 0.133	0.25 0.25	NonLiqfble. NonLiqfble.
	18.5	6	10.8	0.25	115	2287	1501	12.4	12.9	2.59	2.9	50.2	0.80	48.8	61.0	0.524	0.102	0.133	0.25	NonLiqfble.
	18.6	6	11.3	0.25	115	2298	1507	12.7	13.5	2.46	2.8	48.4	0.80	51.0	63.7	0.525	0.104	0.135	0.26	NonLiqfble.
	18.71	6	11.3	0.26	115	2311	1512	12.7	13.4	2.56	2.9	49.1	0.80	50.9	63.6	0.526	0.104	0.135	0.26	NonLiqfble.
	18.81	6	10.7	0.26	115	2323	1518	12.0	12.6	2.73	2.9	51.5	0.80	48.1	60.1	0.526	0.100	0.130	0.25	NonLiqfble.
	18.91	6	10	0.24	105	2334	1523	11.2	11.6	2.72	2.9	53.2	0.80	44.8	56.1	0.527	0.096	0.125	0.24	NonLiqfble.
	19.02	6	9.3	0.21	105	2346	1528	10.4	10.6	2.58	2.9	54.4	0.80	41.6	52.1	0.528	0.093	0.121	0.23	NonLiqfble.
	19.12 19.23	6 6	9 8.7	0.19 0.17	105 105	2356 2368	1532 1536	10.1 9.7	10.2 9.8	2.43 2.26	2.9 2.9	54.4 54.4	0.80	40.2 38.8	50.3 48.6	0.529 0.530	0.092 0.091	0.119 0.118	0.23 0.22	NonLiqfble. NonLiqfble.
	19.23	6	8.8	0.17	95	2378	1541	9.7	9.8	1.71	2.9	50.2	0.80	39.2	49.0	0.530	0.091	0.118	0.22	NonLiqfble.
	19.44	6	8.5	0.11	95	2389	1544	9.5	9.5	1.51	2.9	49.5	0.80	37.9	47.3	0.532	0.090	0.117	0.22	NonLiqfble.
	19.54	6	8.7	0.11	95	2398	1548	9.7	9.7	1.47	2.8	48.6	0.80	38.7	48.4	0.533	0.091	0.118	0.22	NonLiqfble.
	19.64	6	8.7	0.11	95	2408	1551	9.7	9.7	1.47	2.8	48.7	0.80	38.7	48.3	0.534	0.090	0.118	0.22	NonLiqfble.
	19.75	6	9	0.12	95	2418	1554	10.0	10.0	1.54	2.8	48.5	0.80	40.0	49.9	0.535	0.092	0.119	0.22	NonLiqfble.

Date: September 2005 CPT Number: 17

Depth to Groundwater: 6 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	l Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	$q_{\rm c1N}$	Q	F	Ic	(%)	Ксрт	DqcIN	$(\mathbf{q}_{clN})_{cs}$	Ratio	M7.5	M6.50	Safety	Comments
	19.85	6	9.6	0.13	95	2428	1558	10.6	10.8	1.55	2.8	47.0	0.80	42.6	53.2	0.536	0.094	0.122	0.23	NonLiqfble.
	19.96	6	9.1	0.14	95	2438	1561	10.1	10.1	1.78	2.9	50.2	0.80	40.3	50.4	0.537	0.092	0.119	0.22	NonLiqfble.
	20.06	6	8.8	0.14	95	2448	1565	9.7	9.7	1.85	2.9	51.7	0.80	38.9	48.7	0.527	0.091	0.118	0.22	NonLiqfble.
	20.16	6	8.5	0.14	95	2457	1568	9.4	9.3	1.93	2.9	53.3	0.80	37.6	47.0	0.528	0.090	0.117	0.22	NonLiqfble.
	20.27 20.37	6 6	8.5 8.4	0.14 0.13	95 95	2467 2477	1571 1575	9.4 9.3	9.2 9.1	1.93 1.82	2.9 2.9	53.4 52.9	0.80	37.5 37.0	46.9 46.3	0.529 0.530	0.090 0.089	0.116 0.116	0.22 0.22	NonLiqfble. NonLiqfble.
	20.47	6	8.8	0.13	95	2486	1578	9.7	9.6	1.85	2.9	52.0	0.80	38.8	48.5	0.531	0.0091	0.118	0.22	NonLiqfble.
	20.58	6	8.9	0.15	105	2497	1581	9.8	9.7	1.96	2.9	52.5	0.80	39.2	49.0	0.532	0.091	0.118	0.22	NonLiqfble.
	20.68	6	8.9	0.16	105	2507	1586	9.8	9.6	2.09	2.9	53.6	0.80	39.1	48.9	0.533	0.091	0.118	0.22	NonLiqfble.
	20.78	6	8.5 8.4	0.16 0.14	105 95	2518 2529	1590	9.3 9.2	9.1	2.21	3.0 2.9	55.7	0.80	37.3	46.6	0.534	0.089	0.116	0.22	NonLiqfble.
	20.89 20.99	6 6	8.4	0.14	105	2539	1595 1598	9.2	8.9 8.9	1.96 2.10	3.0	54.4 55.5	0.80	36.8 36.8	46.0 46.0	0.534 0.535	0.089	0.116 0.116	0.22 0.22	NonLiqfble. NonLiqfble.
	21.09	6	9.3	0.17	105	2549	1602	10.2	10.0	2.12	2.9	52.8	0.80	40.7	50.8	0.536	0.092	0.120	0.22	NonLiqfble.
	21.2	6	9.9	0.2	105	2561	1607	10.8	10.7	2.32	2.9	52.6	0.80	43.2	54.0	0.537	0.095	0.123	0.23	NonLiqfble.
	21.46	6	12.5	0.21	105	2588	1618	13.6	13.8	1.87	2.8	44.1	0.80	54.4	68.0	0.539	0.109	0.142	0.26	NonLiqfble.
	21.56	6	11.9	0.21	105	2599	1622	12.9	13.1	1.98	2.8	46.0	0.80	51.7	64.6	0.540	0.105	0.137	0.25	NonLiqfble.
	21.67 21.78	6 6	11.8 12.8	0.2 0.2	105 105	2610 2622	1627 1632	12.8 13.9	12.9 14.1	1.91 1.74	2.8	45.8 42.8	0.80	51.2 55.5	64.0 69.3	0.541 0.541	0.104 0.111	0.136 0.144	0.25 0.27	NonLiqfble. NonLiqfble.
	21.88	6	14	0.22	105	2632	1636	15.1	15.5	1.73	2.7	40.8	0.80	60.6	75.7	0.542	0.120	0.156	0.29	NonLiqfble.
	21.98	6	14.3	0.25	115	2643	1640	15.4	15.8	1.93	2.7	41.7	0.80	61.8	77.2	0.543	0.123	0.160	0.29	NonLiqfble.
	22.09	6	15	0.29	115	2656	1646	16.2	16.6	2.12	2.7	42.1	0.80	64.7	80.9	0.544	0.129	0.168	0.31	NonLiqfble.
	22.19	6	14.7	0.33	115	2667	1651	15.8	16.2	2.47	2.8	44.7	0.80	63.3	79.1	0.544	0.126	0.164	0.30	NonLiqfble.
	22.29 22.4	6 6	14.1 13.2	0.34	115 115	2679 2691	1656 1662	15.2 14.2	15.4 14.3	2.66 2.78	2.8	46.8 49.1	0.80	60.6 56.7	75.8 70.8	0.545 0.546	0.120 0.113	0.157 0.147	0.29 0.27	NonLiqfble. NonLiqfble.
	22.5	6	12.7	0.3	115	2703	1667	13.6	13.6	2.64	2.9	49.3	0.80	54.4	68.0	0.546	0.109	0.142	0.26	NonLiqfble.
	22.61	6	12.1	0.27	115	2715	1673	12.9	12.8	2.51	2.9	49.8	0.80	51.8	64.7	0.547	0.105	0.137	0.25	NonLiqfble.
	22.71	6	11.5	0.23	105	2727	1679	12.3	12.1	2.27	2.9	49.6	0.80	49.1	61.4	0.547	0.102	0.132	0.24	NonLiqfble.
	22.81	6	12	0.21	105	2737	1683	12.8	12.6	1.98	2.8	46.7	0.80	51.2	64.0	0.548	0.104	0.136	0.25	NonLiqfble.
	22.92 23.02	6 6	12.5 13.2	0.22	105 105	2749 2759	1687 1692	13.3 14.0	13.2 14.0	1.98 1.95	2.8	45.8 44.4	0.80	53.3 56.2	66.6 70.2	0.549 0.550	0.107 0.112	0.140 0.146	0.25 0.27	NonLiqfble. NonLiqfble.
	23.12	6	13.9	0.24	115	2770	1696	14.8	14.8	1.92	2.7	43.1	0.80	59.1	73.8	0.550	0.117	0.153	0.28	NonLiqfble.
	23.22	6	14.2	0.25	115	2781	1701	15.1	15.1	1.95	2.7	42.9	0.80	60.3	75.3	0.551	0.120	0.156	0.28	NonLiqfble.
	23.33	6	13.4	0.24	115	2794	1707	14.2	14.1	2.00	2.8	44.6	0.80	56.8	71.0	0.552	0.113	0.147	0.27	NonLiqfble.
	23.43	6	12.3 12.4	0.22 0.2	105 105	2806	1712 1717	13.0 13.1	12.7	2.02	2.8 2.8	46.8	0.80	52.0	65.0	0.552	0.106	0.137	0.25	NonLiqfble.
	23.53 23.63	6 6	12.4	0.18	105	2816 2827	1721	12.8	12.8 12.4	1.82 1.68	2.8	45.3 44.9	0.80	52.4 51.0	65.5 63.8	0.553 0.553	0.106 0.104	0.138 0.135	0.25 0.24	NonLiqfble. NonLiqfble.
	23.74	6	12.9	0.16	105	2838	1726	13.6	13.3	1.39	2.7	41.2	0.80	54.4	67.9	0.554	0.109	0.142	0.26	NonLiqfble.
	23.84	6	13.3	0.17	105	2849	1730	14.0	13.7	1.43	2.7	40.9	0.80	56.0	70.0	0.555	0.112	0.145	0.26	NonLiqfble.
	23.94	6	14	0.18	105	2859	1734	14.7	14.5	1.43	2.7	39.8	0.80	58.8	73.6	0.556	0.117	0.152	0.27	NonLiqfble.
	24.04 24.15	6	14.3 14.3	0.18 0.16	105 105	2870 2881	1738 1743	15.0 15.0	14.8 14.7	1.40	2.7 2.7	39.1 37.9	0.80	60.0 59.9	75.0 74.9	0.556 0.557	0.119 0.119	0.155 0.155	0.28 0.28	NonLiqfble.
	24.15	6 6	14.6	0.16	115	2892	1743	15.0	15.1	1.24 1.98	2.7	43.1	0.80	61.1	76.4	0.558	0.119	0.155	0.28	NonLiqfble. NonLiqfble.
	24.35	6	15.7	0.4	125	2903	1752	16.4	16.3	2.81	2.8	46.5	0.80	65.6	82.0	0.558	0.131	0.171	0.31	NonLiqfble.
	24.45	6	16.8	0.54	125	2916	1759	17.5	17.4	3.52	2.8	48.6	0.80	70.1	87.6	0.559	0.143	0.185	0.33	NonLiqfble.
	24.69	6	32.5	0.86	135	2946	1774	33.8	35.0	2.77	2.5	32.7	0.74	96.2	129.9	0.560	0.284	0.369	0.66	Liquefaction
	24.79 24.9	6 6	28.1 27.6	0.82 0.69	135 125	2959 2974	1781 1789	29.1 28.6	29.9 29.2	3.08 2.64	2.6	36.7 34.9	0.80	116.5 113.8	145.7 142.4	0.560 0.560	0.367 0.349	0.478 0.453	0.85 0.81	NonLiqfble. Liquefaction
	25	6	28.3	0.6	125	2987	1795	29.2	29.9	2.24	2.5	32.4	0.73	80.1	109.3	0.561	0.202	0.262	0.47	Liquefaction
	25.1	6	28.1	0.56	125	2999	1802	29.0	29.5	2.11	2.5	31.9	0.72	73.5	102.5	0.561	0.180	0.234	0.42	Liquefaction
	25.21	6	26.9	0.48	125	3013	1808	27.7	28.1	1.89	2.5	31.4	0.70	65.9	93.6	0.561	0.156	0.203	0.36	Liquefaction
	25.31	6	26	0.38	125	3025	1815	26.7	27.0	1.55	2.5	29.8	0.66	52.2	78.9	0.562	0.126	0.163	0.29	Liquefaction
	25.41 25.51	6 6	22.1 20	0.31 0.29	115 115	3038 3049	1821 1826	22.7 20.5	22.6 20.2	1.51 1.57	2.5 2.6	32.3 34.7	0.73 0.79	61.1 78.2	83.8 98.7	0.562 0.563	0.135 0.169	0.175 0.220	0.31 0.39	Liquefaction Liquefaction
	25.62	6	20.5	0.29	115	3062	1832	21.0	20.2	1.63	2.6	34.7	0.79	80.8	101.8	0.563	0.109	0.220	0.39	Liquefaction
	25.72	6	21.5	0.35	125	3073	1837	21.9	21.7	1.75	2.6	34.7	0.79	84.5	106.4	0.564	0.170	0.250	0.44	Liquefaction
	25.83	6	21.4	0.34	125	3087	1844	21.8	21.5	1.71	2.6	34.6	0.79	82.3	104.1	0.564	0.185	0.240	0.43	Liquefaction
	25.93	6	20.7	0.3	115	3100	1850	21.1	20.7	1.57	2.6	34.3	0.78	75.2	96.3	0.564	0.163	0.212	0.38	Liquefaction
	26.03 26.13	6 6	19.3 19.7	0.3 0.35	115 125	3111 3123	1856 1861	19.6 20.0	19.1 19.5	1.69 1.93	2.6 2.6	36.6 37.8	0.80	78.4 79.9	98.0 99.9	0.565 0.565	0.168 0.173	0.218 0.225	0.39 0.40	NonLiqfble. NonLiqfble.
	26.24	6	21.3	0.33	125	3136	1868	21.6	21.1	3.65	2.8	45.4	0.80	86.3	107.8	0.566	0.173	0.223	0.40	NonLiqfble.
	26.34	6	25.6	0.9	135	3149	1874	25.9	25.6	3.75	2.7	42.2	0.80	103.5	129.4	0.566	0.281	0.366	0.65	NonLiqfble.
	26.44	6	31	1.1	135	3162	1881	31.3	31.3	3.74	2.7	38.7	0.80	125.1	156.4	0.566	0.435	0.566	1.00	NonLiqfble.
	26.5	6	45.3	1.21	135	3171	1886	45.6	46.3	2.77	2.5	28.6	0.63	78.0	123.6	0.567	0.256	0.332	0.59	Liquefaction

Date: September 2005 CPT Number: 17

Depth to Groundwater: 6 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve			Effective			Friction							-	Liquef.		
Cono	Depth	Table	Resist.	Frict.	g (DCE)	Stress	Stress	Tip	Tip	Ratio	Lo	F.C.	Ксрт	Dqc1N	(qcIN)es	Stress	Stress	Stress	of Cofoty	Comments
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> e1N	Q	F	Ic	(%)	KCFI	Dqein	(qcin)es	Katio	M7.5	M6.50	Sarety	Comments
	00.50		00.0		105	2101	1001	20.4	20.7	2.02	2.5	21.5	0.71	05.6	125.0	0.567	0.200	0.401	0.71	T: C :
	26.58 26.67	6 6	39.2 34.3	1.1 0.88	135 135	3181 3193	1891 1898	39.4 34.4	39.7 34.4	2.92 2.69	2.5 2.5	31.5 32.6	0.71 0.74	95.6 96.0	135.0 130.5	0.567 0.567	0.309 0.286	0.401 0.372	0.71 0.66	Liquefaction Liquefaction
	26.77	6	28.8	0.61	125	3207	1905	28.9	28.5	2.24	2.6	33.2	0.75	87.8	116.7	0.567	0.228	0.296	0.52	Liquefaction
	26.87	6	23.5	0.4	125	3219	1912	23.5	22.9	1.83	2.6	34.3	0.78	84.8	108.3	0.568	0.198	0.258	0.45	Liquefaction
	26.97	6	19.9	0.3	115	3232	1918	19.9	19.1	1.64	2.6	36.3	0.80	79.5	99.4	0.568	0.171	0.223	0.39	NonLiqfble.
	27.07 27.17	6 6	17.4 15.2	0.26 0.24	115 115	3243 3255	1923 1928	17.4 15.1	16.4 14.1	1.65 1.77	2.7 2.7	39.1 43.0	0.80	69.4 60.6	86.8 75.7	0.568 0.569	0.141 0.120	0.183 0.156	0.32 0.28	NonLiqfble. NonLiqfble.
	27.17	6	14	0.24	105	3266	1934	13.1	12.8	1.70	2.8	44.4	0.80	55.7	69.7	0.569	0.120	0.136	0.25	NonLiqfble.
	27.37	6	14.3	0.2	105	3277	1938	14.2	13.1	1.58	2.7	43.1	0.80	56.9	71.1	0.570	0.113	0.147	0.26	NonLiqfble.
	27.48	6	13.3	0.19	105	3289	1943	13.2	12.0	1.63	2.8	45.3	0.80	52.8	66.0	0.570	0.107	0.139	0.24	NonLiqfble.
	27.58	6	12.4	0.17	105	3299	1947	12.3	11.0	1.58	2.8	46.7	0.80	49.2	61.5	0.571	0.102	0.132	0.23	NonLiqfble.
	27.86 27.96	6	11.7 12.2	0.15 0.18	105 105	3328 3339	1959 1963	11.6 12.0	10.2 10.7	1.49 1.71	2.8 2.8	47.6 48.3	0.80	46.3 48.2	57.8 60.2	0.573 0.573	0.098	0.127 0.130	0.22 0.23	NonLiqfble. NonLiqfble.
	28.07	6	12.7	0.2	105	3350	1968	12.5	11.2	1.81	2.8	48.1	0.80	50.1	62.6	0.574	0.103	0.134	0.23	NonLiqfble.
	28.17	6	13.4	0.22	105	3361	1972	13.2	11.9	1.88	2.8	47.3	0.80	52.8	66.0	0.574	0.107	0.139	0.24	NonLiqfble.
	28.27	6	13.5	0.22	105	3371	1976	13.3	12.0	1.86	2.8	47.1	0.80	53.1	66.4	0.575	0.107	0.139	0.24	NonLiqfble.
	28.37 28.48	6 6	13.5 13.5	0.21 0.22	105 105	3382 3394	1980 1985	13.3 13.3	11.9 11.9	1.78 1.86	2.8 2.8	46.5 47.2	0.80	53.1 53.0	66.4 66.3	0.575 0.576	0.107 0.107	0.139 0.139	0.24 0.24	NonLiqfble. NonLiqfble.
	28.58	6	12.6	0.22	105	3404	1989	12.4	11.9	2.02	2.9	50.1	0.80	49.4	61.8	0.577	0.107	0.139	0.24	NonLiqfble.
	28.68	6	11.1	0.22	105	3415	1994	10.9	9.4	2.34	3.0	55.8	0.80	43.5	54.4	0.577	0.095	0.123	0.21	NonLiqfble.
	28.78	6	9.7	0.22	105	3425	1998	9.5	8.0	2.75	3.1	62.4	0.80	38.0	47.5	0.578	0.090	0.117	0.20	NonLiqfble.
	28.89	6	8.3	0.21	105	3437	2003	8.1	6.6	3.19	3.2	70.2	0.80	32.5	40.6	0.578	0.086	0.112	0.19	NonLiqfble.
	28.99 29.09	6 6	8.2 8.8	0.19 0.19	105 105	3447 3458	2007 2011	8.0 8.6	6.5 7.0	2.93 2.69	3.2	69.2 65.4	0.80	32.0 34.3	40.0 42.9	0.579 0.579	0.086 0.087	0.112 0.114	0.19 0.20	NonLiqfble. NonLiqfble.
	29.2	6	8.7	0.13	105	3469	2011	8.5	6.9	2.44	3.1	64.3	0.80	33.9	42.4	0.580	0.087	0.114	0.20	NonLigfble.
	29.3	6	8.5	0.14	95	3480	2020	8.3	6.7	2.07	3.1	62.5	0.80	33.1	41.4	0.580	0.087	0.113	0.19	NonLiqfble.
	29.4	6	8.4	0.12	95	3489	2023	8.2	6.6	1.80	3.0	60.9	0.80	32.7	40.9	0.581	0.086	0.112	0.19	NonLiqfble.
	29.51	6	8	0.11	95	3500	2027	7.8	6.2	1.76	3.1	53.5	0.80	31.1	38.9	0.582	0.085	0.111	0.19	NonLiqfble.
	29.61 29.71	6 6	7.7 7.5	0.1	95 95	3509 3519	2030 2033	7.5 7.3	5.9 5.6	1.68 1.57	3.1	53.5 53.5	0.80 0.80	29.9 29.1	37.4 36.4	0.582 0.583	0.085 0.084	0.110 0.110	0.19 0.19	NonLiqfble. NonLiqfble.
	29.81	6	7.8	0.07	95	3528	2037	7.6	5.9	1.16	3.0	53.5	0.80	30.2	37.8	0.584	0.085	0.111	0.19	NonLiqfble.
	29.92	6	7.4	0.06	95	3539	2040	7.2	5.5	1.07	3.0	53.5	0.80	28.7	35.8	0.584	0.084	0.110	0.19	NonLiqfble.
	30.02	6	7.8	0.06	95	3548	2044	7.5	5.9	1.00	3.0	53.5	0.80	30.2	37.7	0.561	0.085	0.111	0.20	NonLiqfble.
	30.12 30.22	6 6	7.9 8.7	0.07 0.09	95 95	3558 3567	2047 2050	7.6 8.4	6.0 6.7	1.14 1.30	3.0	57.2 55.8	0.80 0.80	30.6 33.6	38.2 42.0	0.561 0.562	0.085 0.087	0.111 0.113	0.20 0.20	NonLiqfble. NonLiqfble.
	30.32	6	9.4	0.03	95	3577	2053	9.1	7.4	1.45	2.9	54.8	0.80	36.3	45.4	0.562	0.089	0.115	0.20	NonLiqfble.
	30.43	6	10.4	0.13	95	3587	2057	10.0	8.4	1.51	2.9	52.4	0.80	40.1	50.2	0.563	0.092	0.119	0.21	NonLiqfble.
	30.53	6	11.2	0.14	95	3596	2060	10.8	9.1	1.49	2.9	50.2	0.80	43.2	54.0	0.564	0.095	0.123	0.22	NonLiqfble.
	30.63	6	11.4	0.15	105	3606	2063	11.0	9.3	1.56	2.9	50.4	0.80	43.9	54.9	0.564	0.095	0.124	0.22	NonLiqfble.
	30.73 30.83	6	12.3 13.1	0.16 0.2	105 105	3616 3627	2068 2072	11.8 12.6	10.1 10.9	1.53 1.77	2.8 2.8	48.1 48.4	0.80 0.80	47.3 50.4	59.2 63.0	0.565 0.565	0.099	0.129 0.134	0.23 0.24	NonLiqfble. NonLiqfble.
	30.99	6	14.8	0.23	105	3644	2079	14.2	12.5	1.77	2.8	45.5	0.80	56.8	71.0	0.566	0.113	0.147	0.26	NonLiqfble.
	31.04	6	15.5	0.24	115	3649	2081	14.9	13.1	1.76	2.8	44.3	0.80	59.5	74.3	0.566	0.118	0.154	0.27	NonLiqfble.
	31.13	6	17.7	0.25	115	3659	2086	17.0	15.2	1.58	2.7	40.0	0.80	67.8	84.8	0.567	0.137	0.178	0.31	NonLiqfble.
	31.23 31.31	6 6	18.7 19.9	0.3 0.36	115 125	3671 3680	2091 2095	17.9 19.0	16.1 17.2	1.78 1.99	2.7 2.7	40.4 40.5	0.80 0.80	71.6 76.1	89.5 95.1	0.567 0.567	0.147 0.160	0.191 0.208	0.34 0.37	NonLiqfble. NonLiqfble.
	31.42	6	23.8	0.30	125	3694	2102	22.7	20.9	2.14	2.7	37.9	0.80	90.9	113.6	0.567	0.100	0.208	0.50	NonLiqfble.
	31.52	6	29.7	0.63	125	3706	2108	28.3	26.4	2.26	2.6	34.6	0.79	106.0	134.3	0.568	0.305	0.397	0.70	Liquefaction
	31.62	6	34.5	0.78	135	3719	2114	32.8	30.9	2.39	2.5	32.7	0.74	93.8	126.6	0.568	0.269	0.349	0.61	Liquefaction
	31.72	6	38	0.91	135	3732	2122	36.1	34.0	2.52	2.5	31.9	0.72	91.8	127.9	0.568	0.275	0.357	0.63	Liquefaction
	31.82 31.93	6 6	39.8 41.6	0.87 0.76	135 135	3746 3761	2129 2137	37.7 39.4	35.6 37.2	2.29 1.91	2.5 2.4	30.0 27.3	0.67 0.60	76.2 58.0	113.9 97.4	0.568 0.568	0.218 0.166	0.283 0.216	0.50 0.38	Liquefaction Liquefaction
	32.03	6	41.9	0.59	125	3774	2144	39.6	37.3	1.47	2.4	24.5	0.52	43.0	82.6	0.568	0.132	0.172	0.30	Liquefaction
	32.13	6	37.5	0.48	125	3787	2151	35.4	33.1	1.35	2.4	25.3	0.54	41.7	77.1	0.569	0.123	0.159	0.28	Liquefaction
	32.24	6	34.3	0.6	125	3800	2157	32.3	30.0	1.85	2.5	30.1	0.67	65.6	97.9	0.569	0.167	0.217	0.38	Liquefaction
	32.34	6	32.3	0.77	135	3813	2164	30.4	28.1	2.53	2.6	35.0	0.80	121.5	151.9	0.569	0.406	0.528	0.93	Liquefaction
	32.44 32.54	6 6	39.4 44.8	0.81 0.99	135 135	3826 3840	2171 2178	37.0 42.0	34.5 39.4	2.16 2.31	2.5 2.5	29.8 28.7	0.66 0.63	72.4 72.2	109.4 114.2	0.569 0.569	0.202 0.218	0.262 0.284	0.46 0.50	Liquefaction Liquefaction
	32.64	6	43.2	1.3	135	3853	2185	40.4	37.8	3.15	2.6	33.3	0.03	124.6	165.0	0.569	0.498	0.647	1.14	Low F.S.
	32.75	6	45.8	1.44	135	3868	2193	42.8	40.0	3.28	2.6	33.0	0.75	126.5	169.3	0.569	0.531	0.691	1.21	
	32.85	6	54.4	1.34	135	3882	2201	50.7	47.7	2.55	2.4	27.3	0.59	74.3	125.0	0.570	0.262	0.340	0.60	Liquefaction
	32.95	6	53.2	1.43	135	3895	2208	49.5	46.4	2.79	2.5	28.7	0.63	85.5	135.0	0.570	0.309	0.401	0.70	Liquefaction
	33.05	6	51	1.53	135	3909	2215	47.4	44.3	3.12	2.5	30.8	0.69	105.2	152.6	0.570	0.411	0.534	0.94	Liquefaction

Date: September 2005 CPT Number: 17

Depth to Groundwater: 6 feet

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard **EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 Project Number: 6600.3.001.01 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth		Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\mathrm{CPT}}$	DqcIN	(qclN)cs	Ratio	M7.5	M6.50	Safety	Comments
	33.15	6	52.5	1.52	135	3922	2222	48.7	45.5	3.01	2.5	30.0	0.67	97.3	146.1	0.570	0.370	0.481	0.84	Liquefaction
	33.25	6	50.3	1.38	135	3936	2230	46.6	43.3	2.86	2.5	30.0	0.67	93.1	139.7	0.570	0.333	0.433	0.76	Liquefaction
	33.35	6	44.6	1.11	135	3949	2237	41.3	38.1	2.60	2.5	30.6	0.68	89.5	130.7	0.570	0.288	0.374	0.66	Liquefaction
	33.45 33.55	6 6	38.4 32.8	0.87 0.72	135 135	3963 3976	2244 2252	35.5 30.2	32.4 27.4	2.39 2.34	2.5	32.0 34.4	0.72 0.78	91.1 110.2	126.6 140.5	0.570 0.570	0.269 0.338	0.349 0.439	0.61 0.77	Liquefaction Liquefaction
	33.65	6	22.6	0.72	125	3990	2259	20.8	18.2	2.77	2.8	44.0	0.80	83.2	104.0	0.570	0.185	0.240	0.42	NonLiqfble.
	33.75	6	18.1	0.47	125	4002	2265	16.6	14.2	2.92	2.9	49.9	0.80	66.6	83.2	0.571	0.134	0.174	0.30	NonLiqfble.
	33.84	6	16.6	0.41	125	4013	2271	15.2	12.8	2.81	2.9	51.5	0.80	61.0	76.2	0.571	0.121	0.158	0.28	NonLiqfble.
	33.94	6	15.7	0.35	115	4026	2277	14.4	12.0	2.56	2.9	51.5	0.80	57.6	72.0	0.571	0.115	0.149	0.26	NonLiqfble.
	34.04 34.14	6 6	15.5 15.6	0.32 0.29	115 115	4037 4049	2282 2287	14.2 14.3	11.8 11.9	2.37 2.14	2.9 2.9	50.8 49.1	0.80	56.8 57.1	71.0 71.4	0.571 0.572	0.113 0.114	0.147 0.148	0.26 0.26	NonLiqfble. NonLiqfble.
	34.24	6	14.7	0.28	115	4060	2293	13.4	11.0	2.21	2.9	51.2	0.80	53.7	67.2	0.572	0.108	0.141	0.25	NonLiqfble.
	34.46	6	16.4	0.27	115	4086	2304	14.9	12.5	1.88	2.8	46.3	0.80	59.8	74.7	0.573	0.119	0.154	0.27	NonLiqfble.
	34.56	6	16.2	0.26	115	4097	2310	14.7	12.2	1.84	2.8	46.4	0.80	59.0	73.7	0.573	0.117	0.152	0.27	NonLiqfble.
	34.66	6	17	0.26	115	4109	2315	15.5	12.9	1.74	2.8	44.5	0.80	61.8	77.3	0.573	0.123	0.160	0.28	NonLiqfble.
	34.76 34.86	6 6	16.1 16.2	0.25 0.24	115 115	4120 4132	2320 2325	14.6 14.7	12.1 12.2	1.78 1.70	2.8 2.8	46.2 45.5	0.80	58.5 58.8	73.1 73.5	0.573 0.574	0.116 0.117	0.151 0.152	0.26 0.26	NonLiqfble. NonLiqfble.
	34.96	6	16.9	0.24	115	4143	2323	15.3	12.7	1.75	2.8	45.0	0.80	61.3	76.6	0.574	0.117	0.152	0.28	NonLiqfble.
	35.06	6	18.8	0.27	115	4155	2336	17.0	14.3	1.61	2.7	41.5	0.80	68.1	85.1	0.574	0.137	0.179	0.31	NonLiqfble.
	35.16	6	19.5	0.28	115	4166	2341	17.6	14.9	1.61	2.7	40.7	0.80	70.5	88.2	0.575	0.144	0.187	0.33	NonLiqfble.
	35.26	6	19.7	0.29	115	4178	2346	17.8	15.0	1.65	2.7	40.8	0.80	71.2	89.0	0.575	0.146	0.189	0.33	NonLiqfble.
	35.36 35.46	6 6	19.8 21.3	0.31 0.33	115 115	4189 4201	2352 2357	17.9 19.2	15.1 16.3	1.75 1.72	2.7 2.7	41.5 39.7	0.80	71.5 76.8	89.3 96.0	0.575 0.576	0.146 0.162	0.190 0.211	0.33 0.37	NonLiqfble. NonLiqfble.
	35.56	6	22	0.32	115	4212	2362	19.8	16.8	1.61	2.7	38.3	0.80	79.2	99.0	0.576	0.102	0.211	0.37	NonLiqfble.
	35.66	6	23.5	0.31	115	4224	2367	21.1	18.1	1.45	2.6	35.8	0.80	84.5	105.7	0.576	0.190	0.247	0.43	NonLiqfble.
	35.77	6	24.3	0.31	115	4236	2373	21.8	18.7	1.40	2.6	34.8	0.79	84.6	106.4	0.576	0.192	0.250	0.43	Liquefaction
	35.87	6	24	0.33	115	4248	2378	21.5	18.4	1.51	2.6	35.9	0.80	86.1	107.7	0.577	0.196	0.255	0.44	NonLiqfble.
	35.97 36.07	6	24.4 24.7	0.37 0.41	125 125	4259 4272	2384 2390	21.9 22.1	18.7	1.66	2.6 2.6	36.8	0.80	87.5 88.4	109.3	0.577	0.202	0.262 0.267	0.45	NonLiqfble.
	36.18	6 6	24.7 25.2	0.41	125	4272	2390	22.1	18.9 19.2	1.82 2.04	2.7	37.7 38.8	0.80	90.1	110.5 112.6	0.577 0.577	0.206	0.267	0.46 0.48	NonLiqfble. NonLiqfble.
	36.28	6	25	0.51	125	4298	2403	22.3	19.0	2.23	2.7	40.2	0.80	89.3	111.6	0.578	0.209	0.272	0.47	NonLiqfble.
	36.38	6	25.9	0.54	125	4311	2409	23.1	19.7	2.27	2.7	39.8	0.80	92.3	115.4	0.578	0.223	0.290	0.50	NonLiqfble.
	36.48	6	26.8	0.49	125	4323	2416	23.9	20.4	1.99	2.6	37.4	0.80	95.4	119.3	0.578	0.238	0.309	0.54	NonLiqfble.
	36.58	6	26.5 22.6	0.37	125 115	4336 4348	2422 2428	23.6 20.1	20.1	1.52	2.6 2.7	34.4	0.79	86.6 80.3	110.2 100.3	0.578	0.204	0.266 0.226	0.46	Liquefaction
	36.68 36.79	6 6	21.9	0.33 0.32	115	4361	2426	19.4	16.8 16.2	1.62 1.62	2.7	38.4 39.1	0.80	77.7	97.1	0.578 0.579	0.174 0.165	0.226	0.39 0.37	NonLiqfble. NonLiqfble.
	36.89	6	20.9	0.33	115	4372	2439	18.5	15.3	1.76	2.7	41.2	0.80	74.1	92.6	0.579	0.154	0.200	0.35	NonLiqfble.
	36.99	6	23.5	0.36	125	4384	2444	20.8	17.4	1.69	2.7	38.2	0.80	83.2	104.0	0.579	0.185	0.240	0.41	NonLiqfble.
	37.09	6	22.7	0.38	125	4396	2451	20.1	16.7	1.85	2.7	40.2	0.80	80.3	100.3	0.579	0.174	0.226	0.39	NonLiqfble.
	37.19	6	23 23.2	0.4	125	4409 4421	2457	20.3	16.9	1.92	2.7 2.7	40.4	0.80	81.2	101.5	0.579	0.177	0.230	0.40	NonLiqfble.
	37.29 37.39	6 6	23.2	0.39 0.27	125 115	4421	2463 2469	20.5 19.6	17.0 16.3	1.86 1.34	2.6	39.9 36.9	0.80	81.8 78.5	102.3 98.2	0.580 0.580	0.179 0.168	0.233 0.218	0.40 0.38	NonLiqfble. NonLiqfble.
	37.5	6	20.6	0.32	115	4446	2475	18.1	14.8	1.74	2.7	41.7	0.80	72.5	90.6	0.580	0.149	0.194	0.33	NonLiqfble.
	37.6	6	19.7	0.3	115	4458	2481	17.3	14.1	1.72	2.7	42.6	0.80	69.2	86.5	0.580	0.140	0.182	0.31	NonLiqfble.
	37.67	6	15.1	0.29	115	4466	2484	13.3	10.4	2.25	2.9	53.0	0.80	53.0	66.3	0.581	0.107	0.139	0.24	NonLiqfble.
	37.78 37.88	6 6	17.6 17.5	0.29 0.26	115 115	4479 4490	2490 2495	15.4 15.3	12.3 12.2	1.89 1.70	2.8 2.8	46.6 45.4	0.80	61.7 61.3	77.2 76.6	0.581 0.581	0.123 0.122	0.160 0.158	0.27 0.27	NonLiqfble.
	37.00	6	17.5	0.25	115	4503	2501	15.5	12.2	1.62	2.8	44.6	0.80	61.9	77.4	0.581	0.122	0.158	0.27	NonLiqfble. NonLiqfble.
	38.09	6	18.8		115	4514	2506	16.4	13.2	1.51	2.7	42.3	0.80	65.7	82.2	0.582	0.132	0.171	0.29	NonLiqfble.
	38.19	6	16.9	0.24	115	4526	2512	14.8	11.7	1.64	2.8	46.0	0.80	59.0	73.8	0.582	0.117	0.153	0.26	NonLiqfble.
	38.29	6	16.9	0.25	115	4537	2517	14.7	11.6	1.71	2.8	46.5	0.80	59.0	73.7	0.582	0.117	0.152	0.26	NonLiqfble.
	38.39	6	17.3	0.25	115	4549	2522	15.1	11.9	1.66	2.8	45.7	0.80	60.3	75.4	0.582	0.120	0.156	0.27	NonLiqfble.
	38.49 38.6	6 6	18.1 19.8	0.27 0.3	115 115	4560 4573	2527 2533	15.8 17.2	12.5 13.8	1.71 1.71	2.8 2.7	45.0 42.9	0.80	63.0 68.9	78.8 86.1	0.583 0.583	0.125 0.139	0.163 0.181	0.28	NonLiqfble. NonLiqfble.
	38.7	6	18.6	0.34	115	4584	2538	16.2	12.8	2.09	2.8	47.1	0.80	64.6	80.8	0.583	0.139	0.168	0.29	NonLiqfble.
	38.8	6	20.3	0.38	125	4596	2544	17.6	14.1	2.11	2.8	45.2	0.80	70.4	88.1	0.583	0.143	0.187	0.32	NonLiqfble.
	38.9	6	23.6	0.47	125	4608	2550	20.4	16.7	2.21	2.7	42.5	0.80	81.8	102.2	0.584	0.179	0.233	0.40	NonLiqfble.
	39.01	6	26.1	0.65	125	4622	2557	22.6	18.6	2.73	2.8	43.4	0.80	90.3	112.9	0.584	0.214	0.278	0.48	NonLiqfble.
	39.11 39.19	6 6	30 34.2	0.91 1.18	135 135	4635 4646	2563 2569	25.9 29.5	21.6 24.8	3.29 3.70	2.8 2.7	43.3 42.6	0.80	103.7 118.1	129.6 147.6	0.584 0.584	0.283	0.367 0.493	0.63 0.84	NonLiqfble. NonLiqfble.
	39.19	6	42.4	1.29	135	4659	2576	36.6	31.1	3.70	2.6	36.6	0.80	146.2	182.8	0.584	0.579	0.493	1.44	NonLiqfble.
	39.39	6			135	4673	2583	44.1	37.8	2.68	2.5	31.1	0.70	101.5	145.6	0.584	0.367	0.477	0.82	Liquefaction
	39.49	6	57.6	1.59	135	4686	2591	49.5	42.6	2.88	2.5	30.3	0.68	102.9	152.4	0.584	0.409	0.532	0.91	Liquefaction

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 **MSF:** 1.30 CPT Number: 17

Depth to Groundwater: 6 feet

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction							-	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	00.50	,	01.7	4 74	405	4700	2500	52.0	45.7	2.00	2.5	20.2	0.65	00.2	151.2	0.504	0.402	0.500	0.00	T: 6 :
	39.59	6	61.7	1.71	135	4700	2598	53.0	45.7	2.88	2.5	29.3	0.65	98.3	151.3	0.584	0.402	0.522	0.89	Liquefaction
	39.69	6	75.4	1.72	135	4713	2605	64.6	56.1	2.35	2.3	24.2	0.51	68.1	132.7	0.584	0.297	0.387	0.66	Liquefaction
	39.79	6	122.7	1.65	135	4727	2612	105.0	92.1	1.37	2.0	13.7	0.23	31.7	136.8	0.584	0.318	0.413	0.71	Liquefaction
	39.89	6	163	1.58	125	4740	2620	139.3	122.6	0.98	1.8	9.0	0.11	16.5	155.8	0.584	0.432	0.561	0.96	Liquefaction
	39.98	6	192.4	1.7	125	4751	2625	164.3	144.7	0.89	1.8	7.2	0.06	10.4	174.7	0.584	0.576	0.749	1.28	
	40.08	6	205.5	1 91	125	4764	2632	175 3	154 3	0.94	1.8	7.1	0.06	10.5	185.7	0.540	0.676	0.879	1.63	

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 18

Depth to Groundwater: 6 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

MSF: 1.30

Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Stress Stress Stress (TSF) (TSF) (PCF) (PSF) (PSF) (%) KCPT DqcIN (qcIN)cs Ratio M7.5 M6.50 Safety (FT) (FT) Qc1N 0 Ic Comments 0.58 6 165.2 1.14 115 67 67 316.4 4950.5 0.69 1.1 -1.4 0.00 0.0 316.4 0.351 3.025 3.933 11.21 Above W.T.

0.69 143.8 1.63 125 79 79 275.4 3621.9 1.13 1.3 0.2 0.00 0.0 275.4 0.351 2.023 2.629 7.49 Above W.T. 0.79 125 155.7 1.66 92 92 298.2 3387.9 1.07 1.2 -0.1 0.00 0.0 298.2 0.351 2.546 3.310 9.43 Above W.T. 6 0.89 191.6 1.67 125 104 367.0 3669.7 1.2 -0.8 0.00 0.0 367.0 0.351 4.675 6.078 17.32 Above W.T. 0.99 258.2 1.88 115 117 117 494.5 4416.5 0.73 1.1 -1.3 0.00 0.0 494.5 0.351 11.326 14.724 41.95 Above W.T. 6 1.09 279.1 2.32 125 128 128 534.5 4346.2 1.2 -0.9 534.5 0.351 14.284 18,569 52.90 Above W.T. 6 0.83 0.00 0.0 1.19 2.68 125 522.3 0.98 522.3 0.351 17.328 6 272.7 141 141 3869.6 1.2 -0.40.00 0.0 13.329 49.37 Above W.T. 1.29 2.66 125 0.00 471.1 0.351 12.748 246 153 153 471.1 3206.0 1.08 1.3 0.0 0.0 9.806 36.32 Above W.T. 1.4 6 232.2 2.63 125 167 167 444.7 2777.0 1.13 1.3 0.1 0.00 0.0 444.7 0.351 8.259 10.737 30.59 Above W.T. 1.5 207.5 2.52 135 180 180 397.4 2308.7 1.21 1.3 0.5 0.00 0.0 397.4 0.351 5.917 7.692 21.91 Above W.T. 6 167.1 2.59 135 193 193 320.0 1729.0 0.00 320.0 0.351 4.067 11.59 Above W.T 1.6 1.55 1.4 1.9 0.0 3.128 17 142 2 59 135 207 207 272.0 1373.1 1.83 1.5 3.1 0.00 0.0 272.00.351 1.951 2.536 7 22 Above W.T. 0.351 1.81 115.2 2.53 135 221 221 220.6 1039.0 2.20 1.6 4.8 0.00 0.0 220.6 1.079 1.402 4.00 Above W.T. 135 235 1.91 77.6 2.35 235 148.6 659.3 3.03 1.8 8.6 0.10 15.8 164.4 0.351 0.493 0.641 1.83 Above W.T. 2.01 58.5 2.09 135 248 248 112.0 469.7 3.58 1.9 11.5 0.17 23.6 135.6 0.351 0.312 0.406 Above W.T. 1.16 135 262 2.1 0.351 0.297 2.11 6 45.1 1.88 262 86.4 343.2 4.18 14.8 0.26 30.5 116.8 0.228 0.85 Above W.T. 135 0.351 2.18 32.5 1.75 271 271 62.2 238.4 2.2 20.3 0.41 42.9 105.2 0.245 0.70 Above W.T. 6 5.41 0.188 2.21 6 39.9 1.7 135 275 275 76.4 288.6 4.28 2.1 16.1 0.30 32.0 108.5 0.351 0.199 0.258 0.74 Above W.T. 1.44 2.2 0.351 2.31 33.9 135 289 289 64.9 233.5 4.27 17.5 0.33 32.4 97.3 0.166 0.215 0.61 Above W.T. 2.41 28 1.33 135 302 302 53.6 184.1 4.78 2.2 20.7 0.42 38.6 92.3 0.351 0.153 0.1990.57 Above W.T. 2.51 6 25 1 1 26 135 316 316 48 1 157.8 5.05 23 22.7 0.47 433 913 0.351 0.151 0.196 0.56 Above W.T. 2.61 6 23.5 1.19 135 329 329 45.0 141.6 5.10 23 23.9 0.50 45.7 90.7 0.351 0.149 0.194 0.55 Above W.T. 2.71 22 7 1.14 135 343 343 43.5 131.3 5.06 2.4 24.5 0.52 47.1 90.6 0.351 0.149 0.194 0.55 Above W.T. 2.8 22.1 1.11 135 355 355 42.3 123.4 5.06 2.4 25.1 0.54 49.0 91.3 0.351 0.151 0.196 0.56 Above W.T. 2.9 21.8 1.1 135 369 369 41.8 117.2 5.09 2.4 25.7 0.55 51.5 93.3 0.351 0.155 0.202 0.58 Above W.T. 21.9 1.09 135 382 382 41.9 113.6 5.02 2.4 25.8 0.56 52.5 94.5 0.351 0.158 0.206 0.59 Above W.T. 3.1 21.7 1.06 135 396 396 108.7 4.93 2.4 94.8 0.351 0.207 0.59 Above W.T. 6 41.6 26.0 0.56 53.2 0.159 3.2 135 40.6 102.6 0.351 0.210 21.2 1.03 409 409 4.91 2.4 26.6 0.58 55.2 95.8 0.1620.60 Above W.T. 3.3 1.06 135 423 423 42.9 105.0 2.4 0.56 54.5 97.4 0.351 6 22.4 4.78 26.0 0.166 0.216 0.61 Above W.T. 3.4 26.7 1.07 135 436 436 51.1 121.4 4.04 2.3 22.3 43.7 94.8 0.351 0.207 6 0.46 0.159 0.59 Above W.T. 3.5 2.3 6 248 1.08 135 450 450 47.5 109 3 4 39 24 4 0.52 51.0 98.5 0.351 0.169 0.220 0.63 Above W T 36 6 24.5 1.14 135 463 463 46 9 104 8 4.70 2.4 25.7 0.55 58.2 105.2 0.351 0.188 0.245 0.70 Above W.T. 3.7 22.5 1.21 135 477 477 43.1 93.4 5.44 2.5 29.1 0.64 77.8 120.9 0.351 0.244 0.318 0.91 Above W.T. 3.8 21 1.27 135 490 490 40.2 84.7 6.12 2.5 32.1 0.72 105.1 145.3 0.351 0.365 0.475 1.35 Above W.T 6 3.91 19.6 37.5 185.0 0.351 0.869 Above W.T 1.3 135 505 505 76.6 6.72 2.6 34.9 0.80 147.5 0.669 2.48 4.01 18.2 1.32 135 518 518 34.9 69.2 7.36 2.6 37.7 0.80 139.4 174.3 0.351 0.572 0.744 2.12 Above W.T. 4.11 17.8 1.31 135 532 532 33.8 65.9 7.47 2.7 38.7 0.80 135.1 168.8 0.351 0.528 0.686 Above W.T. 4.22 17.9 1.29 135 547 547 33.5 64.4 7.32 2.7 38.6 0.80 134.0 167.5 0.351 0.517 0.672 1.91 Above W.T. 6 4.32 1.27 135 560 560 33.3 63.2 7.17 2.7 38.5 0.80 133.1 0.351 0.508 0.661 Above W.T. 18 166.4 1.88 6 4.43 17.9 1.25 2.7 6 135 575 575 32.7 61.2 7.10 38.8 0.80 130.6 163.3 0.351 0.485 0.630 1.80 Above W.T. 4.53 6 17.9 1.25 135 589 589 32.3 59.8 7.10 2.7 39.2 0.80 129.1 161.4 0.351 0.471 0.612 1.74 Above W.T. 4.64 17.5 1.26 135 604 604 31.2 57.0 7.33 2.7 40.4 0.80 124.7 155.8 0.351 0.432 0.562 1.60 Above W.T. 4.74 6 17.2 1.24 135 617 617 30.3 54.7 7.34 2.7 41.0 0.80 121.2 151.5 0.351 0.403 0.524 1.49 Above W.T. 4.85 16.7 1.19 135 632 632 29.1 51.8 7.26 2.7 41.7 0.80 116.3 145.3 0.351 0.366 0.475 1.35 Above W.T. 4.95 15.8 1.14 135 645 645 27.2 47.9 7.37 2.7 43.1 0.80 108.9 136.1 0.351 0.314 0.409 1.16 Above W.T 135 125.2 Above W.T. 5.06 14.7 660 660 25.0 43.5 7.65 2.8 45.4 100.1 0.351 0.341 1.1 0.80 0.262 0.97 5.16 14.3 1.04 125 674 674 24.1 41.4 7.45 2.8 45.7 0.80 96.4 120.5 0.351 0.243 0.316 0.90 Above W.T. 5.27 13.9 0.98 125 687 687 23.2 39.4 7.23 2.8 45.9 0.80 92.8 116.0 0.351 0.225 0.293 0.83 Above W.T. 13.5 5.37 0.96 125 700 700 22.3 37.6 7.30 2.8 0.80 0.351 0.209 0.272 6 46.9 89.3 111.6 0.78 Above W.T. 5.48 125 0.351 12.8 0.92 714 714 21.0 34.9 7.39 2.8 48.5 0.80 83.9 104.8 0.243 0.69 Above W.T. 0.187 5.54 6 13.4 0.9 125 721 721 21.8 36.1 6.90 2.8 46.6 0.80 87.3 109.2 0.351 0.201 0.261 0.74 Above W.T. 5.57 13.6 0.89 125 725 725 22.1 36.5 6.72 2.8 45.9 0.80 88.4 110.5 0.351 0.205 0.267 0.76 Above W.T. 5.68 12.7 0.88 125 739 739 20.4 33.4 7.14 2.8 48.6 0.80 81.8 102.2 0.351 0.1790.233 0.66 Above W.T. 5 79 6 125 0.85 125 752 752 199 32.2 7.01 2.8 48 9 0.80 79.8 99 7 0.351 0.172 0.224 0.64 Above W.T. 5.89 12.8 0.83 125 765 765 20.2 32.5 6.68 2.8 47.8 0.80 81.0 101.2 0.351 0.177 0.229 0.65 Above W.T. 13.8 0.82 125 779 779 21.6 34.4 6.11 2.8 45.2 0.80 86.6 108.2 0.351 0.198 0.257 0.73 NonLiqfble. 6 2.8 102.3 0.354 0.233 NonLiqfble. 6.1 13.1 8.0 125 791 785 20.5 32.4 6.30 46.8 0.80 81.8 0.180 0.66 6.21 0.78 125 792 0.257 NonLiqfble. 13.9 805 21.6 34.1 5.78 2.8 44.4 0.80 86.5 108.1 0.357 0.197 0.72 6.32 13.8 0.76 125 819 799 21.4 33.5 5.68 2.8 44.3 0.80 85.5 106.8 0.360 0.193 0.251 0.70 NonLiqfble. 6.42 0.75 125 831 805 28.8 6.47 2.9 49.4 0.80 74.0 92.5 0.154 0.200 0.55 12 18.5 0.362 NonLigfble. 6 6.53 0.73 125 2.9 0.365 0.194 11.8 845 812 18.1 28.0 6.42 49.8 0.80 72.5 90.6 0.149 0.53 NonLigfble. 6

0.7

11.4

125 859

819

17.4

6.38

26.8

2.9

50.5

0.80

69.7

0.368

87.2

0.142

0.184

0.50

NonLiafble.

6 64

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 18

Depth to Groundwater: 6 feet

and Storage Yard EQ Magnitude  $(M_w)$ : 6.5 PGA (g): 0.54

MSF: 1.30

Control   Cont		Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
6.75 6 11.4 0.67 125 872 826 17.5 26.5 6.11 29 4.99 0.30 69.4 86.8 0.371 0.141 0.151 0.09 NonLights. 6.68 6 6 12.5 0.69 125 88 823 19.3 19.3 19.5 19.5 19.5 19.5 19.5 19.5 19.5 19.5	Cone	-								_		Ic		Ксрт	Dqc1N	(qclN)es					Comments
6.95 6 6 12.7 0.66 12.5 9.66 12.5 9.85 82 19.0 19.0 29.0 5.7 2.8 4.3 0.89 17.8 9.1 9.1 9.1 0.1 0.5 No.Lajnijsk. 6.96 6 12.7 0.6 13.3 0.72 125 91.2 846 20.0 30.4 5.01 2.8 4.59 0.80 10.0 10.1 0.1 0.1 0.1 0.5 No.Lajnijsk. 7.17 6 13.3 0.72 125 91.2 846 20.0 30.4 5.01 2.8 4.59 0.80 10.0 10.1 0.1 0.1 0.1 0.2 0.1 0.5 No.Lajnijsk. 7.18 6 13.8 0.72 125 91.2 846 20.0 10.4 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2																				•	
6.95																					
6.95		6.75	6	11.4	0.67	125	872	826	17.4	26.5	6.11	2.9	49.9	0.80	69.4	86.8	0.371	0.141	0.183	0.49	NonLiafble.
7,07 6 133 0.72 125 925 846 200 9.04 541 550 6 28. 459 0.80 9.00 10.1 0.379 0.173 0.275 0.29 0.00 0.00 0.00 0.00 0.00 0.00 0.00																					
7.17 6 183 0.12 125 225 852 207 31.3 5.40 28. 44.7 0.80 8.27 103.4 0.38 1.083 0.28 0.22 0.001.jphbc. 7.28 6 13.3 0.57 125 932 866 19.8 0.94 4.4 2.7 4.24 0.80 79.1 98.0 0.38 0.170 0.21 0.65 0.070 0.001.jphbc. 7.49 6 10.32 0.57 125 125 125 125 125 125 125 125 125 125																					-
7.28 6 1 43 0 06 128 999 899 899 189 214 912 479 479 1899 1895 214 914 919 919 898 938 94 1899 1895 1894 949 1899 1895 1895 1899 1899 1899 1899 189																					•
7.39 6 1 33. 0.57 125 973 886 198. 298. 298. 448 27. 424 0.80 791 98.9 0.38 0.170 0.25 0.57 Nonlajfile. 7.49 6 10.9 0.45 115 990 879 161 23.2 43.2 28 45.9 0.80 44.3 80.4 0.91 0.128 0.167 0.43 Nonlajfile. 7.79 6 8 0.0 0.41 115 1003 880 12.7 183. 43.2 19.1 4.82 2.9 8.11 0.38 8.0 1.00 0.25 0.00 1.01 0.13 0.147 0.37 Nonlajfile. 7.58 6 8 0.0 0.41 115 1003 880 12.7 183. 482 2.9 8.11 0.38 8.0 0.55 0.38 0.0 0.0 0.00 0.00 0.00 0.00 0.00 0																					-
7.6 6 10.9 0.45 115 979 879 16.1 23.7 4.25 2.8 4.59 0.80 64.3 80.4 0.39 0.128 0.167 0.43 NonLighbe. 7.81 6 9 0.44 115 9018 884 14.1 96.4 433 2.9 52.1 0.80 52.8 16.0 0.39 0.128 0.167 0.13 0.147 0.187																					-
7.77 6 9 96 0.44 115 900 884 1.1 9.00 4.8 3 2.9 50.6 0.80 50.5 7.0 0.039 0.113 0.147 0.37 NonLighbs. 7.89 6 9.9 0.44 115 1016 896 1.27 18.3 5.00 2.9 51.6 0.80 50.9 16.0 0.39 0.113 0.147 0.37 NonLighbs. 8.02 6 9.9 0.42 115 1037 901 1.44 20.7 4.88 2.9 4.91 0.80 57.7 7.22 0.0 11.5 0.149 0.37 NonLighbs. 8.23 6 10.6 0.95 90 0.42 115 1039 905 1.4 42 0.07 4.88 2.9 4.91 0.80 57.6 7.7 7.2 0.00 11.5 0.149 0.37 NonLighbs. 8.23 6 10.6 0.4 115 1016 918 1.62 2.22 1.397 2.8 4.8 2.9 4.91 0.80 57.6 7.7 12.0 0.00 11.2 0.149 0.37 NonLighbs. 8.23 6 11.4 0.4 125 1076 918 1.62 2.32 1.397 2.8 4.14 0.80 6.1 4.7 6.8 0.00 11.2 0.149 0.37 NonLighbs. 8.25 6 1.9 0.00 1.2 0.14 0.14 0.14 0.14 0.14 0.14 0.14 0.14																					
7.81 6 9 9. 044 115 1063 890 132 19.1 482 29. 52.1 0.80 52.8 66.0 0.396 10.07 0.139 0.35 Nonlights. 7.52 6 8.7 0.41 115 1015 1037 901 14.4 20.8 4.7 29. 49.0 0.80 57.7 72.2 0.00 115 0.149 0.37 Nonlights. 8.12 6 9.9 0.42 115 1039 905 14.4 20.8 4.7 29. 49.0 0.80 57.7 72.2 0.00 115 0.149 0.37 Nonlights. 8.23 6 10.6 0.4 115 1051 912 15.4 22.1 3.97 2.8 4.59 0.80 61.4 76.8 0.00 115 0.149 0.37 Nonlights. 8.34 6 11.2 0.42 115 1056 924 16.4 22.5 1.44 2.8 4.4 0.80 61.7 80.0 0.00 12.9 0.189 0.39 Nonlights. 8.55 6 11.4 0.45 125 1076 924 16.4 22.5 14.1 2.8 4.4 2.8 4.8 0.80 61.7 80.0 0.00 12.9 0.189 0.19 Nonlights. 8.56 6 1.8 0.4 115 1054 924 14.3 2.8 14.2 2.8 4.4 0.80 65.7 82.1 0.00 0.11 0.11 0.14 0.3 Nonlights. 8.57 7 0.0 10 0.45 115 1104 941 14.3 2.01 4.7 2.9 50.8 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0																					
1962   1963   1964   1965   1966   1966   1967   1961   1966   1967   1961   1965   1966   1967																					-
8.12 6 9, 99 0.42 115 039 90 044 125 039 90 045 142 201 370 048 029 410 080 0410 042 0115 0.49 039 NonLighbeles 8.45 6 114 045 125 1076 924 164 235 414 045 045 045 045 045 045 045 045 045 04																					•
8.22   6   10.6   0.4   115   1051   912   15.4   22.1   3.97   2.8   4.59   0.80   0.14   76.8   0.40   0.12   0.19   0.19   0.16   0.14   0.15   0.																					-
8.45 6 11.2 0.42 115 1064 918 16.2 23.2 3.94 2.8 44.8 0.80 6.47 80.9 0.407 0.129 0.168 0.41 NonLiphic.  8.65 6 19.9 0.36 115 1089 930 14.2 20.1 3.85 2.8 47.2 0.80 5.65 71.0 0.41 10.13 0.171 0.42 NonLiphic.  8.66 6 10.4 0.44 115 110 956 14.3 20.1 4.77 2.9 50.8 0.80 5.57 71.0 0.41 0.11 0.113 0.147 0.36 NonLiphic.  8.77 6 10 0.45 115 1114 941 14.3 20.1 4.77 2.9 50.8 0.80 5.57 71.3 0.415 0.114 0.148 0.36 NonLiphic.  8.84 6 6 5.0 0.4 115 1114 941 14.3 20.1 4.77 2.9 50.8 0.80 5.57 0.71.3 0.415 0.114 0.148 0.36 NonLiphic.  8.85 6 8 8.9 0.45 115 113 19.9 71 13.1 18.6 5.04 2.9 53.3 0.80 5.57 0.80 5.57 0.10 0.147 0.089 1.16 0.28 NonLiphic.  9.67 6 9.5 0.45 115 114 99.7 13.1 18.6 5.04 2.9 53.3 0.80 5.57 0.80 5.05 0.10 0.10 0.10 0.10 0.10 0.10 0.1																					-
8.45 6 1.14 0.45 1.25 1.070 9.24 16.4 23.5 4.14 2.38 45.4 0.80 6.57 82.1 0.400 0.31 0.171 0.42 NonLiphic B.65 6 19.0 0.36 11.5 10.29 9.05 14.2 0.10 3.8 0.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1																					-
8.66 6 10.4 0.44 11.5 1102 936 14.9 21.0 4.47 2.8 48.8 0.80 59.5 74.4 0.413 0.118 0.154 0.37 NonLiqphe. 8.77 6 10 0.45 115 1114 941 1.43 20.1 4.77 2.9 50.8 0.80 57.0 4.63 0.417 0.089 0.116 0.28 NonLiqphe. 8.894 6 8.9 0.45 115 1126 945 9.3 12.6 75.8 3.2 70.4 0.80 37.0 46.3 0.417 0.089 0.116 0.28 NonLiqphe. 9.907 6 9.5 0.45 115 1149 957 13.4 18.6 5.04 2.9 53.3 0.80 53.7 67.2 0.421 0.108 0.141 0.33 NonLiqphe. 9.18 6 11.4 0.45 125 1114 949 17.3 24.2 13.3 2.8 44.0 0.80 63.7 67.2 0.421 0.108 0.141 0.33 NonLiqphe. 9.28 6 12.3 0.46 125 1174 969 17.3 24.2 13.3 2.8 44.0 0.80 69.1 86.4 0.423 0.128 0.167 0.39 NonLiqphe. 9.93 6 12.3 0.46 125 1104 98.3 16.9 23.4 40.0 2.8 44.9 0.80 69.1 86.4 0.423 0.128 0.167 0.39 NonLiqphe. 9.61 6 12.5 0.47 125 125 990 17.3 24.2 13.3 2.8 44.0 0.80 69.1 86.4 0.423 0.139 0.181 0.42 NonLiqphe. 9.61 6 12.5 0.47 125 125 990 17.3 24.2 13.3 2.8 44.0 0.80 69.3 66.0 0.433 0.140 0.183 0.44 NonLiqphe. 9.62 6 11.1 0.66 125 0.47 125 125 990 17.3 24.9 12.9 12.5 2.8 44.0 0.80 69.5 86.0 0.431 0.141 0.183 0.43 NonLiqphe. 9.82 6 11.5 0.56 125 1238 966 17.3 23.9 4.29 2.8 45.7 0.80 6.5 8.4 0.427 0.13 0.141 0.183 0.43 NonLiqphe. 9.83 6 11.1 0.57 125 125 100 10.5 3.2 0.7 5.44 2.9 52.6 0.80 6.1 1. 76.4 0.433 0.129 0.13 0.14 NonLiqphe. 9.93 6 11.1 0.56 125 125 100 10 15.3 20.7 5.44 2.9 52.6 0.80 6.1 1. 76.4 0.435 0.129 0.15 0.3 NonLiqphe. 9.93 6 11.1 0.56 125 123 104 105 1.5 2.9 10.7 5.4 1.5 2.9 52.0 0.80 6.1 1. 76.4 0.435 0.129 0.15 0.3 NonLiqphe. 9.94 6 11.1 0.57 125 125 130 10.0 15.3 20.7 5.44 2.9 52.6 0.80 6.1 1. 76.4 0.435 0.129 0.15 0.3 NonLiqphe. 9.95 6 11.4 0.56 125 1333 10.4 15.6 22.5 4.8 2.9 4.0 0.80 62.4 77.9 0.444 0.18 0.14 0.18 0.44 NonLiqphe. 9.95 6 11.1 0.57 125 125 100 10.7 1.5 12.5 12.5 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10																					-
8.77   6   10   0.45   115   114   41   14.3   20.1   4.77   2.9   50.8   0.80   57.0   71.3   0.415   0.114   0.148   0.36   NonLiaphe.   8.89   6   8.9   0.45   115   115   0.95   12.6   17.5   5.40   3.0   55.9   0.80   50.5   63.1   0.14   0.133   0.32   NonLiaphe.   9.07   6   9.5   0.45   115   116   9.57   1.75   5.40   3.0   55.9   0.80   50.5   63.1   0.14   0.133   0.32   NonLiaphe.   9.18   6   11.4   0.45   125   116   0.63   16.1   22.5   41.6   2.8   46.3   0.80   64.3   80.4   0.423   0.128   0.167   0.39   NonLiaphe.   9.28   6   12.3   0.46   125   118   0.76   17.2   24.0   40.2   2.8   46.3   0.80   64.3   80.4   0.423   0.128   0.167   0.39   NonLiaphe.   9.5   6   12.1   0.46   125   120   0.83   16.1   22.5   41.6   0.80   69.5   68.9   86.1   0.427   0.139   0.181   0.42   NonLiaphe.   9.5   6   12.1   0.46   125   120   0.83   16.1   22.5   41.0   2.8   44.9   0.80   67.5   86.9   86.1   0.427   0.139   0.181   0.42   NonLiaphe.   9.5   6   12.1   0.46   125   120   0.83   16.1   22.5   40.0   2.8   44.9   0.80   67.5   86.9   0.411   0.183   0.43   NonLiaphe.   9.5   6   12.1   0.46   125   125   0.99   17.4   24.0   3.95   2.8   45.2   0.80   69.5   86.9   0.411   0.183   0.43   NonLiaphe.   9.5   6   12.1   0.5   0.51   125   125   0.90   17.4   24.0   3.95   2.8   44.2   0.80   69.5   86.9   0.411   0.183   0.43   NonLiaphe.   9.5   6   12.1   0.5   0.51   125   125   0.100   1.5   12.5			6																		-
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12.67 6 9.3 0.51 115 1597 1180 11.8 14.4 6.00 3.1 62.3 0.80 47.4 59.2 0.465 0.099 0.129 0.28 NonLighble.  12.78 6 8.7 0.46 115 1609 1186 11.1 13.3 5.83 3.1 63.6 0.80 44.2 55.3 0.467 0.096 0.124 0.27 NonLighble.  12.89 6 8.8 0.45 115 1622 1192 11.2 13.4 5.63 3.1 62.7 0.80 44.6 55.8 0.468 0.096 0.125 0.27 NonLighble.  12.99 6 8.6 0.44 115 1633 1197 10.9 13.0 5.65 3.1 62.6 0.80 43.5 54.4 0.469 0.095 0.123 0.26 NonLighble.  13.1 6 8.8 0.44 115 1646 1203 11.1 13.3 5.52 3.1 62.6 0.80 44.4 55.5 0.471 0.096 0.125 0.27 NonLighble.  13.21 6 9.1 0.47 115 1659 1209 11.5 13.7 5.68 3.1 62.4 0.80 45.8 57.3 0.472 0.097 0.127 0.27 NonLighble.																					
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12.89 6 8.8 0.45 115 1622 1192 11.2 13.4 5.63 3.1 62.7 0.80 44.6 55.8 0.468 0.096 0.125 0.27 NonLighble. 12.99 6 8.6 0.44 115 1633 1197 10.9 13.0 5.65 3.1 63.5 0.80 43.5 54.4 0.469 0.095 0.123 0.26 NonLighble. 13.1 6 8.8 0.44 115 1646 1203 11.1 13.3 5.52 3.1 62.6 0.80 44.4 55.5 0.471 0.096 0.125 0.26 NonLighble. 13.21 6 9.1 0.47 115 1659 1209 11.5 13.7 5.68 3.1 62.4 0.80 45.8 57.3 0.472 0.097 0.127 0.27 NonLighble.																					
13.1 6 8.8 0.44 115 1646 1203 11.1 13.3 5.52 3.1 62.6 0.80 44.4 55.5 0.471 0.096 0.125 0.26 NonLiqfble. 13.21 6 9.1 0.47 115 1659 1209 11.5 13.7 5.68 3.1 62.4 0.80 45.8 57.3 0.472 0.097 0.127 0.27 NonLiqfble.		12.89	6	8.8	0.45	115	1622	1192	11.2								0.468	0.096	0.125		
13.21 6 9.1 0.47 115 1659 1209 11.5 13.7 5.68 3.1 62.4 0.80 45.8 57.3 0.472 0.097 0.127 0.27 NonLiqtble.																					

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 18

Depth to Groundwater: 6 feet

EQ Magnitude (M<sub>w</sub>): 6.5 PGA (g): 0.54 MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth		Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	•	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	$(q_{c1N})_{es}$	Ratio	M7.5	M6.50	Safety	Comments
	13.42	6	8.7	0.52	115	1683	1220	10.9	12.9	6.62	3.1	66.9	0.80	43.6	54.5	0.475	0.095	0.124	0.26	NonLiqfble.
	13.53	6	9		115	1695	1226	11.2	13.3	6.38	3.1	65.4	0.80	45.0	56.2	0.476	0.097	0.126	0.26	NonLiqfble.
	13.64	6	9.4		115	1708	1231	11.7	13.9	5.97	3.1	63.1	0.80	46.9	58.6	0.477	0.099	0.128	0.27	NonLiqfble.
	13.75 13.85	6 6	9.8 9.9		115 125	1721 1732	1237 1242	12.2 12.3	14.4 14.5	5.59 5.65	3.0	60.8 60.9	0.80 0.80	48.8 49.2	61.0 61.4	0.478 0.480	0.101 0.102	0.131 0.132	0.27 0.28	NonLiqfble. NonLiqfble.
	13.96	6	9.9		125	1746	1249	12.3	14.4	5.76	3.0	61.4	0.80	49.0	61.3	0.481	0.102	0.132	0.27	NonLiqfble.
	14.06	6	9.9		125	1759	1256	12.2	14.4	5.88	3.1	61.9	0.80	48.9	61.1	0.482	0.101	0.132	0.27	NonLiqfble.
	14.17	6	10.1	0.55	125	1772	1262	12.4	14.6	5.97	3.0	61.9	0.80	49.7	62.2	0.483	0.102	0.133	0.28	NonLiqfble.
	14.27	6	10.1	0.57	125	1785	1269	12.4	14.5	6.19	3.1	62.8	0.80	49.6	62.0	0.484	0.102	0.133	0.27	NonLiqfble.
	14.38 14.49	6 6	9.8 9.4		125 125	1799 1812	1276 1282	12.0 11.5	13.9 13.2	6.52 6.71	3.1	64.7 66.6	0.80	48.0 45.9	60.0 57.4	0.485 0.486	0.100 0.098	0.130 0.127	0.27 0.26	NonLiqfble. NonLiqfble.
	14.59	6	8.8		125	1825	1289	10.7	12.2	7.10	3.2	69.7	0.80	42.9	53.6	0.487	0.094	0.127	0.25	NonLiqfble.
	14.7	6	8.3		115	1839	1296	10.1	11.4	7.18	3.2	71.7	0.80	40.4	50.4	0.488	0.092	0.120	0.24	NonLiqfble.
	14.8	6	8.3		115	1850	1301	10.1	11.3	6.64	3.2	70.2	0.80	40.3	50.3	0.489	0.092	0.119	0.24	NonLiqfble.
	14.91	6	8.7	0.46	115	1863	1307	10.5	11.9	5.92	3.1	66.6	0.80	42.1	52.7	0.490	0.094	0.122	0.25	NonLiqfble.
	15.01 15.12	6 6	9.1 9.5	0.44 0.45	115 115	1874 1887	1312 1318	11.0 11.5	12.4 13.0	5.39 5.26	3.1	63.6 62.1	0.80	44.0 45.8	55.0 57.3	0.491 0.493	0.095 0.097	0.124 0.127	0.25 0.26	NonLiqfble.
	15.12	6	9.3		115	1898	1323	11.3	12.6	5.03	3.1	61.9	0.80	44.7	55.9	0.493	0.097	0.127	0.25	NonLiqfble. NonLiqfble.
	15.33	6	9.7	0.47	115	1911	1329	11.6	13.2	5.38	3.1	62.2	0.80	46.6	58.2	0.495	0.098	0.128	0.26	NonLiqfble.
	15.42	6	9.9		115	1921	1333	11.9	13.4	5.37	3.0	61.8	0.80	47.4	59.3	0.496	0.099	0.129	0.26	NonLiqfble.
	15.52	6	10.1	0.48	115	1933	1339	12.1	13.6	5.26	3.0	61.0	0.80	48.3	60.4	0.497	0.100	0.131	0.26	NonLiqfble.
	15.63 15.73	6 6	9.9 9	0.47 0.43	115 115	1945 1957	1345 1350	11.8 10.7	13.3 11.9	5.27 5.36	3.0	61.6 64.6	0.80	47.3 42.9	59.1 53.6	0.498 0.499	0.099 0.094	0.129 0.123	0.26 0.25	NonLiqfble. NonLiqfble.
	15.73	6	8.7		115	1970	1356	10.7	11.4	4.93	3.1	64.0	0.80	41.4	51.7	0.500	0.094	0.123	0.23	NonLiqfble.
	15.95	6	8		115	1982	1361	9.5	10.3	4.85	3.1	66.2	0.80	37.9	47.4	0.501	0.090	0.117	0.23	NonLiqfble.
	16.05	6	7.6		105	1994	1367	9.0	9.7	4.39	3.1	65.9	0.80	36.0	45.0	0.502	0.088	0.115	0.23	NonLiqfble.
	16.16	6	7.5		105	2005	1371	8.9	9.5	4.00	3.1	64.6	0.80	35.4	44.3	0.503	0.088	0.115	0.23	NonLiqfble.
	16.26 16.37	6 6	8.2 8.5		105 105	2016 2027	1376 1380	9.7 10.0	10.5 10.8	3.62 3.61	3.0	60.4 59.5	0.80	38.7 40.0	48.4 50.1	0.504 0.505	0.091 0.092	0.118 0.119	0.23 0.24	NonLiqfble. NonLiqfble.
	16.48	6	8		115	2039	1385	9.4	10.8	4.15	3.1	63.8	0.80	37.6	47.0	0.506	0.092	0.119	0.24	NonLiqfble.
	16.59	6	8		115	2052	1391	9.4	10.0	4.16	3.1	63.9	0.80	37.5	46.9	0.507	0.090	0.116	0.23	NonLiqfble.
	16.67	6	8.4		105	2061	1395	9.8	10.6	3.80	3.0	61.0	0.80	39.4	49.2	0.508	0.091	0.118	0.23	NonLiqfble.
	16.78	6	8.9		105	2072	1400	10.4	11.2	3.43	3.0	57.8	0.80	41.6	52.0	0.509	0.093	0.121	0.24	NonLiqfble.
	16.88 16.99	6 6	8.6 7.6		105 105	2083 2094	1404 1409	10.0 8.9	10.8 9.3	3.44 3.66	3.0	58.8 63.5	0.80	40.2 35.4	50.2 44.3	0.510 0.511	0.092 0.088	0.119 0.115	0.23 0.22	NonLiqfble. NonLiqfble.
	17.1	6	7.6	0.23	105	2106	1413	8.8	9.3	3.51	3.1	62.9	0.80	35.4	44.2	0.511	0.088	0.113	0.22	NonLiqfble.
	17.2	6	8.1	0.23	105	2116	1418	9.4	9.9	3.27	3.0	59.9	0.80	37.7	47.1	0.514	0.090	0.117	0.23	NonLiqfble.
	17.31	6	8.7	0.23	105	2128	1422	10.1	10.7	3.01	3.0	56.7	0.80	40.4	50.5	0.515	0.092	0.120	0.23	NonLiqfble.
	17.42	6	9.7	0.24	105	2140	1427	11.2	12.1	2.78	2.9	52.6	0.80	44.9	56.2	0.516	0.096	0.125	0.24	NonLiqfble.
	17.52 17.63	6 6	10.4 10.9		115 115	2150 2163	1431 1437	12.0 12.6	13.0 13.7	2.79 2.75	2.9 2.9	51.0 49.8	0.80	48.1 50.3	60.1 62.9	0.517 0.518	0.100 0.103	0.130 0.134	0.25 0.26	NonLiqfble. NonLiqfble.
	17.74	6	11.7	0.28	115	2175	1443	13.5	14.7	2.64	2.8	47.6	0.80	53.9	67.4	0.519	0.103	0.134	0.27	NonLiqfble.
	17.84	6	13.3		115	2187	1448	15.3	16.9	2.38	2.8	43.3	0.80	61.2	76.5	0.519	0.122	0.158	0.30	NonLiqfble.
	17.95	6	12.8		115	2199	1454	14.7	16.1	2.56	2.8	45.3	0.80	58.8	73.4	0.520	0.117	0.152	0.29	NonLiqfble.
	18.05	6	12		115	2211	1459	13.7	14.9	2.94	2.8	48.9	0.80	55.0	68.7	0.521	0.110	0.143	0.27	NonLiqfble.
	18.16 18.26	6 6	13.3 13.9	0.34 0.41	115 125	2224 2235	1465 1470	15.2 15.9	16.6 17.4	2.79 3.21	2.8 2.8	45.9 47.2	0.80	60.8 63.4	76.0 79.3	0.522 0.523	0.121 0.126	0.157 0.164	0.30 0.31	NonLiqfble. NonLiqfble.
	18.37	6	13.5		125	2249	1477	15.4	16.8	3.96	2.9	51.3	0.80	61.5	76.8	0.524	0.120	0.159	0.30	NonLiqfble.
	18.47	6	16.2	0.58	125	2261	1483	18.4	20.3	3.85	2.8	47.0	0.80	73.6	92.0	0.524	0.152	0.198	0.38	NonLiqfble.
	18.58	6	19.9		125	2275	1490	22.6	25.2	3.84	2.7	42.9	0.80	90.2	112.8	0.525	0.213	0.277	0.53	NonLiqfble.
	18.69	6	19.2		125	2289	1497	21.7	24.1	3.77	2.8	43.4	0.80	86.8	108.6	0.526	0.199	0.259	0.49	NonLiqfble.
	18.74 18.79	6 6	17.8 15.6		125 125	2295 2301	1500 1503	20.1 17.6	22.2 19.2	3.84 4.01	2.8 2.8	45.2 48.8	0.80	80.4 70.4	100.5 88.0	0.526 0.527	0.175 0.143	0.227 0.186	0.43 0.35	NonLiqfble. NonLiqfble.
	18.89	6	15.1		125	2314	1510	17.0	18.5	3.59	2.8	47.7	0.80	68.0	85.0	0.527	0.143	0.178	0.34	NonLiqfble.
	19	6	14.7	0.48	125	2328	1516	16.5	17.8	3.55	2.8	48.2	0.80	66.1	82.6	0.528	0.132	0.172	0.33	NonLiqfble.
	19.11	6	15.6		125	2341	1523	17.5	18.9	3.74	2.8	47.9	0.80	70.0	87.4	0.529	0.142	0.185	0.35	NonLiqfble.
	19.21	6	16		125	2354	1530	17.9	19.4	3.91	2.8	48.2	0.80	71.6	89.5	0.529	0.147	0.191	0.36	NonLiqfble.
	19.32 19.43	6 6	16 15.4		125 125	2368 2381	1536 1543	17.9 17.2	19.3 18.4	3.98 4.01	2.8 2.9	48.6 49.6	0.80	71.4 68.6	89.3 85.8	0.530 0.531	0.146 0.139	0.190 0.180	0.36 0.34	NonLiqfble. NonLiqfble.
	19.53	6	14.8		125	2394	1550	16.5	17.5	3.97	2.9	50.4	0.80	65.8	82.3	0.531	0.132	0.171	0.32	NonLiqfble.
	19.64	6	15.5	0.49	125	2408	1556	17.2	18.4	3.43	2.8	47.1	0.80	68.8	86.0	0.532	0.139	0.181	0.34	NonLiqfble.
	19.75	6			125	2421	1563	16.3	17.2	3.26	2.8	47.6	0.80	65.1	81.3	0.533	0.130	0.169	0.32	NonLiqfble.
	19.85	6	13.4	0.41	125	2434	1570	14.8	15.5	3.37	2.9	50.3	0.80	59.2	74.0	0.533	0.118	0.153	0.29	NonLiqfble.

Date: September 2005

Depth to Groundwater: 6 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 Project Number: 6600.3.001.01 **MSF:** 1.30 CPT Number: 18

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	_	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\mathrm{CPT}}$	DqcIN	$(q_{c1N})_{cs}$	Ratio	M7.5	M6.50	Safety	Comments
	19.96	6	12.4	0.41	115	2448	1576	13.7	14.2	3.67	2.9	53.6	0.80	54.7	68.3	0.534	0.110	0.143	0.27	NonLiqfble.
	20.07	6	14.1	0.48	125	2460	1582	15.5	16.3	3.73	2.9	51.0	0.80	62.0	77.5	0.524	0.123	0.160	0.31	NonLiqfble.
	20.17	6	17.8	0.59	125	2473	1589	19.5	20.8	3.56	2.8	45.2	0.80	78.2	97.7	0.525	0.167	0.217	0.41	NonLiqfble.
	20.28 20.38	6 6	21.3 24.2	0.67 0.66	125 125	2487 2499	1595 1602	23.3 26.5	25.1 28.6	3.34 2.88	2.7	40.8 36.4	0.80	93.3 105.8	116.7 132.3	0.525 0.526	0.228 0.295	0.296 0.384	0.56 0.73	NonLiqfble. NonLiqfble.
	20.49	6	24.5	0.58	125	2513	1609	26.7	28.9	2.50	2.6	34.4	0.78	96.8	123.6	0.526	0.255	0.332	0.63	Liquefaction
	20.59	6	20.2	0.58	125	2525	1615	22.0	23.4	3.06	2.7	40.8	0.80	88.0	110.0	0.527	0.204	0.265	0.50	NonLiqfble.
	20.7	6	16.7	0.7	125	2539	1622	18.1	19.0	4.54	2.9	51.0	0.80	72.6	90.7	0.528	0.149	0.194	0.37	NonLiqfble.
	20.8	6	19.3	0.78	125	2552	1628	20.9	22.1	4.33	2.8	47.2	0.80	83.7	104.6	0.528	0.187	0.243	0.46	NonLiqfble.
	20.91 21.01	6	33.2 40.9	0.77 0.78	135 135	2565 2579	1635 1642	35.9 44.2	39.0 48.2	2.41 1.97	2.5	29.3 24.1	0.65 0.51	66.6 46.0	102.5 90.2	0.529 0.529	0.180 0.148	0.234 0.193	0.44 0.36	Liquefaction Liquefaction
	21.11	6	39	0.76	135	2592	1649	42.0	45.7	2.02	2.4	25.1	0.54	48.5	90.5	0.530	0.149	0.194	0.37	Liquefaction
	21.22	6	34.3	0.73	135	2607	1657	36.9	39.8	2.21	2.4	28.0	0.61	58.7	95.6	0.530	0.161	0.210	0.40	Liquefaction
	21.32	6	27.2	0.74	135	2621	1665	29.2	31.1	2.86	2.6	35.0	0.80	116.9	146.1	0.530	0.370	0.481	0.91	Liquefaction
	21.43	6	23.3	0.76	125	2635	1673	24.9	26.3	3.46	2.7	40.5	0.80	99.7	124.6	0.531	0.260	0.338	0.64	NonLiqfble.
	21.53 21.63	6 6	22.7 24.4	0.86 0.9	135 135	2648 2661	1679 1686	24.2 26.0	25.5 27.4	4.02 3.90	2.8	7.0 7.0	0.05 0.05	1.4 1.5	25.6 27.5	0.531 0.532	0.082 0.082	0.106 0.107	0.20 0.20	NonLiqfble. NonLiqfble.
	21.74	6	38.4	0.85	135	2676	1694	40.8	43.7	2.29	2.4	7.0	0.05	2.3	43.1	0.532	0.087	0.114	0.21	Liquefaction
	21.84	6	54.7	0.71	125	2690	1701	58.0	62.7	1.33	2.1	7.0	0.05	3.3	61.3	0.533	0.101	0.132	0.25	Liquefaction
	21.94	6	57.5	0.68	125	2702	1708	60.9	65.7	1.21	2.1	7.0	0.05	3.4	64.3	0.533	0.105	0.136	0.26	Liquefaction
	22.04	6	50 49.3	0.76 0.87	125 135	2715 2726	1714	52.8 52.0	56.7	1.56	2.2	7.0	0.05	3.0	55.8	0.534	0.096	0.125	0.23	Liquefaction
	22.13 22.23	6	41.4	1.06	135	2740	1720 1727	43.6	55.7 46.3	1.81 2.65	2.3	7.0 7.0	0.05 0.05	2.9 2.5	55.0 46.0	0.534 0.535	0.095 0.089	0.124 0.116	0.23 0.22	Liquefaction Liquefaction
	22.34	6	41	1.12	135	2754	1735	43.1	45.7	2.83	2.5	7.0	0.05	2.4	45.5	0.535	0.089	0.115	0.22	Liquefaction
	22.44	6	54.9	1.12	135	2768	1742	57.6	61.4	2.09	2.3	7.0	0.05	3.2	60.8	0.535	0.101	0.131	0.25	Liquefaction
	22.54	6	66.5	1.03	135	2781	1749	69.6	74.4	1.58	2.1	7.0	0.05	3.9	73.5	0.536	0.117	0.152	0.28	Liquefaction
	22.65 22.75	6	68.9 68.2	0.98 1.04	125 135	2796 2809	1757 1764	71.9 71.1	76.8 75.7	1.45 1.56	2.1	7.0 7.0	0.05 0.05	4.1 4.0	76.0 75.1	0.536 0.537	0.121 0.119	0.157 0.155	0.29 0.29	Liquefaction
	22.75	6	72.8	1.04	135	2822	1704	75.7	80.6	1.54	2.1	7.0	0.05	4.0	80.0	0.537	0.119	0.155	0.29	Liquefaction Liquefaction
	22.96	6	76.1	1.11	135	2837	1779	78.9	83.9	1.49	2.1	7.0	0.05	4.5	83.4	0.537	0.134	0.174	0.32	Liquefaction
	23.06	6	87.6	1.11	125	2851	1786	90.7	96.5	1.29	2.0	12.8	0.21	23.8	114.5	0.538	0.220	0.285	0.53	Liquefaction
	23.16	6	96.5	1.17	125	2863	1792	99.7	106.0	1.23	2.0	11.6	0.18	21.5	121.2	0.538	0.246	0.319	0.59	Liquefaction
	23.26 23.36	6 6	108.8 116.1	1.05 0.92	125 115	2876 2888	1799 1805	112.2 119.6	119.3 127.0	0.98 0.80	1.8	9.1 7.5	0.11 0.07	13.9 8.5	126.1 128.1	0.539 0.539	0.267 0.275	0.347 0.358	0.64 0.66	Liquefaction Liquefaction
	23.46	6	120.1	0.82	115	2900	1810	123.5	131.0	0.69	1.7	6.5	0.04	5.0	128.5	0.540	0.277	0.361	0.67	Liquefaction
	23.57	6	118.1	0.64	105	2912	1816	121.3	128.4	0.55	1.7	5.5	0.01	1.6	122.8	0.540	0.252	0.328	0.61	Liquefaction
	23.67	6	108.1	0.62	105	2923	1820	110.9	117.1	0.58	1.7	6.4	0.04	4.2	115.0	0.541	0.222	0.288	0.53	Liquefaction
	23.77	6	99.5	0.8	115	2933	1824	101.9	107.4	0.82	1.8	8.8	0.10	11.5	113.4	0.542	0.216	0.280	0.52	Liquefaction
	23.87 23.97	6	97.1 105.1	1.08 1.27	125 125	2945 2957	1830 1836	99.3 107.3	104.5 112.8	1.13 1.23	1.9 1.9	11.1 11.1	0.16 0.16	19.4 20.9	118.8 128.2	0.542 0.543	0.236 0.276	0.307 0.359	0.57 0.66	Liquefaction Liquefaction
	24.07	6	123.4	1.35	125	2970	1842	125.8	132.3	1.11	1.8	9.2	0.11	15.8	141.6	0.543	0.344	0.447	0.82	Liquefaction
	24.17	6	149.1	1.29	125	2982	1848	151.7	159.6	0.87	1.7	6.5	0.04	6.2	157.9	0.544	0.446	0.580	1.07	Low F.S.
	24.27	6	167.2	1.05	115	2995	1855	169.9	178.6	0.63	1.6	4.2	0.00	0.0	169.9	0.544	0.536	0.697	1.28	
	24.36 24.46	6	177.3 183.8	0.83 0.84	105 105	3005 3016	1859 1864	179.9 186.3	189.0 195.5	0.47 0.46	1.5 1.5	2.7 2.5	0.00	0.0	179.9 186.3	0.545 0.545	0.621 0.681	0.808 0.886	1.48 1.62	
	24.46	6	183.8	0.88	105	3026	1868	186.1	195.3	0.48	1.5	2.6	0.00	0.0	186.1	0.546	0.679	0.883	1.62	
	24.65	6	182.6	0.91	105	3036	1872	184.7	193.4	0.50	1.5	2.8	0.00	0.0	184.7	0.546	0.666	0.865	1.58	
	24.75	6	179.2	0.96	115	3046	1876	181.0	189.3	0.54	1.5	3.2	0.00	0.0	181.0	0.547	0.632	0.821	1.50	
	24.85	6	176.1	1.07	115	3058	1881	177.6	185.5	0.61	1.6	3.9	0.00	0.0	177.6	0.548	0.601	0.782	1.43	
	24.95 25.04	6 6	174.2 174.2		115 115	3069 3079	1887 1891	175.5 175.3	183.0 182.5	0.69 0.75	1.6 1.6	4.5 4.9	0.00	0.0	175.5 175.3	0.548 0.549	0.583 0.581	0.757 0.755	1.38 1.38	
	25.14	6	179		115	3091	1897	179.8	187.1	0.65	1.6	4.1	0.00	0.0	179.8	0.549	0.621	0.807	1.47	
	25.23	6	185	1.07	115		1901	185.6	192.9	0.58	1.5	3.4	0.00	0.0	185.6	0.550	0.675	0.877	1.60	
	25.33	6	197	1.21		3113	1907	197.4	204.9	0.62	1.5	3.4	0.00	0.0	197.4	0.550	0.795	1.034	1.88	
	25.39	6	199.3	1.2	115	3120	1910	199.5	207.0	0.61	1.5	3.3	0.00	0.0	199.5	0.550	0.819	1.065	1.93	
	25.49 25.59	6 6	225.1 252.5	1.07 1.05	105 105	3131 3142	1915 1919	225.1 252.2	233.4 261.4	0.48 0.42	1.4	1.8 0.9	0.00	0.0	225.1 252.2	0.551 0.552	1.140 1.572	1.482 2.043	2.69 3.70	
	25.68	6	283.3		105	3151	1923	282.7	292.9	0.42	1.3	0.3	0.00	0.0	282.7	0.552	2.180	2.834	5.13	
	25.77	6	304.2		105	3161	1927	303.2	314.0	0.37	1.3	-0.1	0.00	0.0	303.2	0.553	2.673	3.474	6.29	
	25.87	6	319.8		105	3171	1931	318.4	329.4	0.36	1.2	-0.3	0.00	0.0	318.4	0.553	3.082	4.007	7.24	
	25.96 26.05	6 6	336.2 354.8		105 105	3180 3190	1935 1939	334.4 352.6	345.7	0.37	1.2 1.2	-0.3 -0.4	0.00	0.0	334.4 352.6	0.554	3.558 4.155	4.625 5.402	8.35 9.74	
	26.05	6	363.1	1.39 1.52		3190	1939	360.4	364.2 372.0	0.39	1.2	-0.4	0.00	0.0	360.4	0.554 0.555	4.133	5.766	10.39	

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 18

Depth to Groundwater: 6 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

MSF: 1.30

	<b>D</b> 4	Water	Tip	Sleeve			Effective			Friction		E.C					-	Liquef.		
~	Depth		Resist.	Frict.	g	Stress		Tip	Tip	Ratio		F.C.	17	D.e.	(m )	Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DQcin	( <b>q</b> c1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	26.21	6	370.8	1.5	105	3207	1946	367.8	379.4	0.41	1.2	-0.4	0.00	0.0	367.8	0.555	4.708	6.120	11.02	
	26.3	6	386	1.81	105	3216	1949	382.5	394.2	0.47	1.2	-0.1	0.00	0.0	382.5	0.556	5.285	6.870	12.36	
	26.39	6	416.1	2.17	115	3226	1953	411.9	424.2	0.52	1.3	0.0	0.00	0.0	411.9	0.556	6.581	8.555	15.37	
	26.48	6	392.6	2.44	115	3236	1958	388.2	399.2	0.62	1.3	0.8	0.00	0.0	388.2	0.557	5.521	7.177	12.89	
	26.57	6	379.6	2.35	115	3246	1963	374.9	385.0	0.62	1.3	0.9	0.00	0.0	374.9	0.557	4.980	6.474	11.62	
	26.66	6	371.9	2.25	115	3257	1968	366.8	376.2	0.61	1.3	0.9	0.00	0.0	366.8	0.558	4.671	6.073	10.89	
	26.75	6	380.6	2.34	115	3267	1972	375.0	384.1	0.62	1.3	0.9	0.00	0.0	375.0	0.558	4.983	6.478	11.61	
	26.83	6	412.1	2.7	115	3276	1976	405.6	415.2	0.66	1.3	0.9	0.00	0.0	405.6	0.559	6.285	8.170	14.63	
	26.92	6	445.6	2.19	105	3287	1981	438.0	448.0	0.49	1.2	-0.3	0.00	0.0	438.0	0.559	7.896	10.265	18.36	
	27.01	6	461.3	2.89	115	3296	1985	453.0	462.9	0.63	1.3	0.4	0.00	0.0	453.0	0.560	8.726	11.344	20.28	
	27.09	6	452.9	3.96	125	3305	1989	444.3	453.5	0.88	1.4	1.8	0.00	0.0	444.3	0.560	8.237	10.708	19.12	
	27.17	6	440.3	3.46	125	3315	1994	431.4	439.7	0.79	1.4	1.4	0.00	0.0	431.4	0.560	7.546	9.810	17.51	
	27.26	6	474.1	2.94	115	3326	2000	463.9	472.3	0.62	1.3	0.3	0.00	0.0	463.9	0.560	9.362	12.170	21.71	
	27.34	6	444.9	2.89	115	3336	2004	434.8	442.1	0.65	1.3	0.6	0.00	0.0	434.8	0.561	7.726	10.044	17.91	
	27.42	6	441.8	3.25	125	3345	2008	431.3	438.1	0.74	1.4	1.1	0.00	0.0	431.3	0.561	7.544	9.807	17.47	
	27.51	6	402.1	3.65	125	3356	2014	392.0	397.5	0.91	1.5	2.4	0.00	0.0	392.0	0.562	5.684	7.389	13.16	
	27.59	6	372	3.78	125	3366	2019	362.2	366.7	1.02	1.5	3.2	0.00	0.0	362.2	0.562	4.501	5.851	10.41	
	27.68	6	339.3	3.89	135	3377	2025	329.9	333.4	1.15	1.6	4.3	0.00	0.0	329.9	0.562	3.420	4.446	7.91	
	27.76	6	292	3.79	135	3388	2030	283.5	285.8	1.31	1.7	5.7	0.02	5.3	288.9	0.562	2.322	3.018	5.37	
	27.85	6	242.6	3.22	135	3400	2037	235.2	236.4	1.34	1.7	6.8	0.05	11.9	247.1	0.563	1.484	1.929	3.43	
	27.93	6	236.4	2.45	125	3411	2043	228.9	229.7	1.04	1.7	5.4	0.01	2.7	231.5	0.563	1.234	1.604	2.85	
	28.02	6	251.3	1.84	115	3422	2048	242.9	243.6	0.74	1.5	3.3	0.00	0.0	242.9	0.563	1.414	1.838	3.26	
	28.1	6	297.7	1.36	105	3432	2053	287.5	288.3	0.46	1.3	0.8	0.00	0.0	287.5	0.563	2.290	2.977	5.28	
	28.19	6	344.2	1.38	105	3441	2056	332.1	332.9	0.40	1.3	0.0	0.00	0.0	332.1	0.564	3.486	4.532	8.04	
	28.27	6	333.4	1.34	105	3449	2060	321.4	321.9	0.40	1.3	0.1	0.00	0.0	321.4	0.564	3.168	4.119	7.30	
	28.35	6	296.7	1.37	105	3458	2063	285.8	285.8	0.46	1.3	0.9	0.00	0.0	285.8	0.565	2.251	2.926	5.18	
	28.44	6	272.3	1.38	105	3467	2067	262.1	261.7	0.51	1.4	1.6	0.00	0.0	262.1	0.565	1.754	2.280	4.03	
	28.53	6	237.8	1.66	115	3477	2071	228.6	227.9	0.70	1.5	3.4	0.00	0.0	228.6	0.566	1.192	1.549	2.74	
	28.61	6	195.4	2.29	125	3486	2075	187.7	186.6	1.18	1.8	7.4	0.06	12.6	200.3	0.566	0.827	1.075	1.90	
	28.72	6	140.9	2.2	135	3500	2082	135.1	133.6	1.58	2.0	11.7	0.18	29.7	164.8	0.566	0.496	0.645	1.14	Low F.S.
	28.81	6	123.4	1.81	135	3512	2089	118.1	116.4	1.49	2.0	12.3	0.20	28.8	147.0	0.567	0.375	0.488	0.86	Liquefaction
	28.91	6	152.1	1.56	125	3525	2096	145.4	143.4	1.04	1.8	8.2	0.09	13.6	158.9	0.567	0.453	0.589	1.04	Low F.S.
	28.99	6	218.9	1.23	115	3535	2101	209.0	206.6	0.57	1.5	3.0	0.00	0.0	209.0	0.567	0.929	1.207	2.13	
	29.08	6	256.5	0.99	105	3546	2106	244.6	241.9	0.39	1.4	1.0	0.00	0.0	244.6	0.567	1.441	1.873	3.30	
	29.17	6	250.8	0.97	105	3555	2109	238.9	236.0	0.39	1.4	1.1	0.00	0.0	238.9	0.568	1.349	1.753	3.09	
	29.26	6	250.6	1.26	105	3565	2113	238.5	235.4	0.51	1.4	2.0	0.00	0.0	238.5	0.568	1.342	1.745	3.07	
	29.36	6	261.1	1.23	105	3575	2117	248.3	244.8	0.47	1.4	1.6	0.00	0.0	248.3	0.569	1.503	1.954	3.43	
	29.44	6	286.1	1.18	105	3583	2121	271.8	268.0	0.42	1.3	0.8	0.00	0.0	271.8	0.569	1.948	2.532	4.45	
	29.53	6	278	0.89	95	3593	2125	263.9	259.9	0.32	1.3	0.2	0.00	0.0	263.9	0.570	1.789	2.326	4.08	
	29.62	6	260.5	0.89	95	3601	2128	247.1	243.1	0.34	1.3	0.6	0.00	0.0	247.1	0.570	1.483	1.928	3.38	
	29.72	6	234.2	1 25	105	3611	2131	222.0	218.0	0.43	1.4	1.7	0.00	0.0	222.0	0.571	1.097	1.427	2.50	
	29.81 29.9	6 6	220.9 243.3	1.25 1.87	115 115	3620 3631	2135 2139	209.2 230.1	205.2 225.7	0.57 0.77	1.5 1.6	3.0 3.9	0.00	0.0	209.2 230.1	0.571 0.572	0.931 1.214	1.211 1.578	2.12 2.76	
	29.99	6	237.7	1.07	105	3641	2139	224.6	219.9	0.77	1.6	2.0	0.00	0.0	224.6	0.572	1.214	1.378	2.76	
	30.08	6		1.03	105	3651	2144	264.2	258.8	0.47	1.4	0.6	0.00	0.0	264.2	0.549	1.796	2.335	4.25	
	30.08	0	219.9	1.03	105	3031	2146	204.2	230.8	0.57	1.5	0.0	0.00	0.0	204.2	0.349	1.790	2.333	4.23	

Total Effective Norm. Corr. Friction

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 19

Depth to Groundwater: 6 feet

Water Tip Sleeve

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

MSF: 1.30

Induced Liquef. Liquef. Factor

		Water	Tip	Sleeve			Effective		Corr.	Friction		F. 6					•	Liquef.		
C	Depth	Table	Resist.	Frict.	g (DCF)	Stress		Tip	Tip	Ratio	τ.	F.C.	Ксрт	Da .v.	(a m)	Stress	Stress	Stress	of C-f-4	C
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	KCFI	Dqein	( <b>q</b> cIN)cs	Ratio	M7.5	M6.50	Safety	Comments
	0.59	6	228.2	1.44	115	68	68	437.0	6722.8	0.63	1.1	-1.4	0.00	0.0	437.0	0.351	7.844	10.197	29.05	Above W.T.
	0.69	6	196.6	1.34	115	79	79	376.5	4952.2	0.68	1.1	-1.5	0.00	0.0	376.5	0.351	5.045	6.558	18.68	Above W.T.
	0.8 0.9	6 6	172 137.6	0.94 0.84	115 115	92 104	92 104	329.4 263.5	3736.6 2656.8	0.55 0.61	1.0 1.0	-2.2 -1.9	0.00	0.0	329.4 263.5	0.351 0.351	3.404 1.782	4.426 2.317	12.61 6.60	Above W.T. Above W.T.
	1.01	6	109.1	0.88	115	116	116	208.9	1876.8	0.81	1.1	-1.9	0.00	0.0	208.9	0.351	0.928	1.207	3.44	Above W.T.
	1.11	6	70.5	0.97	125	128	128	135.0	1103.1	1.38	1.4	1.8	0.00	0.0	135.0	0.351	0.309	0.402	1.14	Above W.T.
	1.22	6	41.2	1.03	135	141	141	78.9	581.5	2.50	1.8	7.4	0.06	5.4	84.3	0.351	0.136	0.176	0.50	Above W.T.
	1.32	6	31.4	1.09	135	155	155	60.1	404.3	3.48	2.0	11.9	0.19	13.7	73.8	0.351	0.117	0.153	0.43	Above W.T.
	1.42	6	27.1	1.13	135	168	168	51.9	320.7	4.18	2.1	15.2	0.27	19.3	71.2	0.351	0.114	0.148	0.42	Above W.T.
	1.53 1.63	6 6	26.4 22.5	0.99 0.93	135 135	183 197	183 197	50.6 43.1	287.0 227.6	3.76 4.15	2.1	14.7 17.3	0.26 0.33	17.6 21.1	68.1 64.2	0.351 0.351	0.109 0.105	0.142 0.136	0.41 0.39	Above W.T. Above W.T.
	1.73	6	19.8	0.92	135	210	210	37.9	187.3	4.67	2.2	20.3	0.33	26.1	64.0	0.351	0.103	0.136	0.39	Above W.T.
	1.76	6	19.6	0.92	135	214	214	37.5	181.8	4.72	2.2	20.6	0.42	26.9	64.4	0.351	0.105	0.136	0.39	Above W.T.
	1.8	6	18.8	0.94	135	220	220	36.0	170.1	5.03	2.3	22.0	0.45	30.0	66.0	0.351	0.107	0.139	0.40	Above W.T.
	1.89	6	18	1	135	232	232	34.5	154.2	5.59	2.3	24.4	0.52	36.9	71.3	0.351	0.114	0.148	0.42	Above W.T.
	1.97	6	17.9	1	135	243	243	34.3	146.5	5.62	2.4	24.9	0.53	38.9	73.2	0.351	0.116	0.151	0.43	Above W.T.
	2.05	6	18.2	0.9	125	253	253	34.9	142.6	4.98	2.3	23.5	0.49	33.9	68.8	0.351	0.110	0.143	0.41	Above W.T.
	2.16 2.26	6 6	17.2 16.8	0.95 1	125 135	267 280	267 280	32.9 32.2	127.7 119.1	5.57 6.00	2.4 2.4	26.1 27.9	0.56 0.61	42.5 50.8	75.5 83.0	0.351 0.351	0.120 0.133	0.156 0.173	0.44 0.49	Above W.T. Above W.T.
	2.35	6	15.1	1.01	125	292	292	28.9	102.4	6.75	2.5	31.4	0.71	69.2	98.1	0.351	0.155	0.173	0.49	Above W.T.
	2.43	6	15.3	1.01	125	302	302	29.3	100.3	6.67	2.5	31.4	0.71	70.3	99.7	0.351	0.172	0.224	0.64	Above W.T.
	2.53	6	15.4	1	125	314	314	29.5	96.9	6.56	2.5	31.6	0.71	72.1	101.6	0.351	0.178	0.231	0.66	Above W.T.
	2.61	6	14.8	0.97	125	324	324	28.3	90.2	6.63	2.5	32.6	0.74	79.3	107.6	0.351	0.196	0.255	0.73	Above W.T.
	2.71	6	14.4	0.94	125	337	337	27.6	84.5	6.61	2.6	33.3	0.76	85.8	113.3	0.351	0.215	0.280	0.80	Above W.T.
	2.81	6	14.1	0.92		349	349	27.0	79.7	6.61	2.6	34.1	0.78	93.6	120.7	0.351	0.243	0.316	0.90	Above W.T.
	2.92	6	13.6	0.91 0.92	125	363 377	363	26.0	73.9	6.78	2.6	35.5	0.80	104.2	130.2	0.351	0.285	0.371	1.06	Above W.T.
	3.03 3.13	6 6	13.7 13.1	0.92	125 125	389	377 389	26.2 25.1	71.7 66.3	6.81 7.05	2.6 2.6	35.9 37.6	0.80 0.80	105.0 100.4	131.2 125.4	0.351 0.351	0.290 0.264	0.377 0.343	1.07 0.98	Above W.T. Above W.T.
	3.24	6	12.7	0.91	125	403	403	24.3	62.0	7.28	2.7	39.1	0.80	97.3	121.6	0.351	0.247	0.321	0.92	Above W.T.
	3.34	6	12.4	0.9	125	416	416	23.7	58.6	7.38	2.7	40.1	0.80	95.0	118.7	0.351	0.236	0.306	0.87	Above W.T.
	3.45	6	12.6	0.87	125	429	429	24.1	57.7	7.02	2.7	39.5	0.80	96.5	120.7	0.351	0.243	0.316	0.90	Above W.T.
	3.56	6	12.6	0.85	125	443	443	24.1	55.8	6.87	2.7	39.6	0.80	96.5	120.7	0.351	0.243	0.316	0.90	Above W.T.
	3.66	6	12.2	0.82	125	456	456	23.4	52.5	6.85	2.7	40.4	0.80	93.5	116.8	0.351	0.228	0.297	0.85	Above W.T.
	3.77	6	11.9	0.78	125	469	469	22.8	49.7	6.69	2.7	40.8	0.80	91.2	114.0	0.351	0.218	0.283	0.81	Above W.T.
	3.88 3.98	6 6	11 10.8	0.61 0.63	125 125	483 496	483 496	21.1 20.7	44.5 42.6	5.67 5.97	2.7 2.7	39.7 41.3	0.80	84.3 82.7	105.3 103.4	0.351 0.351	0.189 0.183	0.245 0.238	0.70 0.68	Above W.T. Above W.T.
	4.09	6	10.5	0.63	125	509	509	20.1	40.2	6.15	2.7	42.7	0.80	80.4	100.5	0.351	0.175	0.227	0.65	Above W.T.
	4.13	6	10.3	0.62	125	514	514	19.7	39.0	6.17	2.8	43.3	0.80	78.9	98.6	0.351	0.169	0.220	0.63	Above W.T.
	4.17	6	10.7	0.62	125	519	519	20.5	40.2	5.94	2.7	42.1	0.80	82.0	102.5	0.351	0.180	0.234	0.67	Above W.T.
	4.24	6	10.8	0.63	125	528	528	20.6	39.9	5.98	2.7	42.3	0.80	82.3	102.8	0.351	0.181	0.235	0.67	Above W.T.
	4.34	6	11.4	0.62	125	541	541	21.5	41.2	5.57	2.7	40.6	0.80	85.8	107.3	0.351	0.195	0.253	0.72	Above W.T.
	4.45	6	11.1	0.6 0.58	125	554	554	20.6	39.0	5.54	2.7	41.4	0.80	82.5	103.1	0.351	0.182	0.237 0.212	0.67	Above W.T.
	4.56 4.66	6 6	10.5 10.5	0.56	125 125	568 581	568 581	19.3 19.1	35.9 35.2	5.68 5.49	2.7 2.7	43.2 42.9	0.80	77.1 76.3	96.4 95.3	0.351 0.351	0.163 0.161	0.212	0.60 0.59	Above W.T. Above W.T.
	4.77	6	10.8	0.54	125	594	594	19.4	35.3	5.14	2.7	41.8	0.80	77.5	96.9	0.351	0.165	0.209	0.61	Above W.T.
	4.87	6	11.1	0.54	125	607	607	19.7	35.6	5.00	2.7	41.2	0.80	78.9	98.6	0.351	0.169	0.220	0.63	Above W.T.
	4.98	6	11.6	0.55	125	621	621	20.4	36.4	4.87	2.7	40.4	0.80	81.5	101.9	0.351	0.178	0.232	0.66	Above W.T.
	5.09	6	11.2	0.58	125		634	19.5	34.3	5.33	2.7	42.9	0.80	77.8	97.3	0.351	0.166	0.215	0.61	Above W.T.
	5.19	6	11.1	0.58	125	647	647	19.1	33.3	5.38	2.8	43.5	0.80	76.4	95.5	0.351	0.161	0.209	0.60	Above W.T.
	5.23	6	11.4	0.59	125	652	652	19.5	34.0	5.33	2.7	43.0	0.80	78.1	97.7	0.351	0.167	0.217	0.62	Above W.T.
	5.32 5.42	6 6	11.5 10.9	0.59 0.57	125 125	663 676	663 676	19.5 18.3	33.7 31.3	5.28 5.40	2.7 2.8	43.0 44.7	0.80	78.2 73.4	97.7 91.7	0.351 0.351	0.167 0.152	0.217 0.197	0.62 0.56	Above W.T. Above W.T.
	5.53	6	10.9	0.57	125		689	18.2	30.6	5.21	2.8	44.4	0.80	72.7	90.8	0.351	0.152	0.197	0.55	Above W.T.
	5.64	6	11.1	0.52	125	703	703	18.3	30.6	4.84	2.8	43.2	0.80	73.3	91.6	0.351	0.151	0.197	0.56	Above W.T.
	5.75	6	10.2	0.48	115	717	717	16.7	27.4	4.88	2.8	45.3	0.80	66.7	83.3	0.351	0.134	0.174	0.50	Above W.T.
	5.85	6	9.4	0.44	115	728	728	15.2	24.8	4.87	2.8	47.1	0.80	61.0	76.2	0.351	0.121	0.157	0.45	Above W.T.
	5.96	6	9.5	0.41	115	741	741	15.3	24.6	4.49	2.8	45.8	0.80	61.1	76.3	0.351	0.121	0.158	0.45	Above W.T.
	6.07	6	9.2	0.38	115	754	747	14.7	23.6	4.31	2.8	45.9	0.80	58.9	73.7	0.354	0.117	0.152	0.43	NonLiqfble.
	6.18	6	9.3 10	0.37 0.37	115 115	766 778	753 759	14.8 15.9	23.7 25.4	4.15	2.8	45.3	0.80	59.3 63.6	74.2 79.5	0.357	0.118 0.127	0.153 0.165	0.43 0.46	NonLiqfble. NonLiqfble.
	6.28 6.39	6 6	9.6	0.37	115		758 764	15.9	24.1	3.85 4.02	2.7 2.8	42.8 44.4	0.80	63.6 60.8	76.0	0.360 0.363	0.127	0.163	0.46	NonLiqfble.
	6.5	6	9.3	0.38	115		769	14.7	23.1	4.27	2.8	46.2	0.80	58.7	73.3	0.366	0.121	0.157	0.43	NonLiqfble.

Date: September 2005 CPT Number: 19

Depth to Groundwater: 6 feet

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.		g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress	•	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	$\mathbf{q}_{\mathrm{clN}}$	Q	F	Ic	(%)	Ксрт	DqcIN	(q <sub>c1N</sub> ) <sub>cs</sub>	Ratio	M7.5	M6.50	Safety	Comments
	6.61	6	9.3	0.36	115	816	775	14.6	22.9	4.05	2.8	45.5	0.80	58.5	73.1	0.369	0.116	0.151	0.41	NonLigfble.
	6.72	6	9.4	0.32	115	828	781	14.7	23.0	3.56	2.8	43.4	0.80	58.9	73.6	0.372	0.117	0.152	0.41	NonLiqfble.
	6.82	6	9	0.27	115	840	786	14.0	21.8	3.15	2.7	42.5	0.80	56.2	70.2	0.375	0.112	0.146	0.39	NonLiqfble.
	6.93	6	10.1	0.28	115	853	792	15.7	24.4	2.89	2.7	39.2	0.80	62.8	78.5	0.378	0.125	0.163	0.43	NonLiqfble.
	7.04	6	10.9	0.31	115	865	798	16.9	26.2	2.96	2.7	38.3	0.80	67.5	84.4	0.381	0.136	0.177	0.46	NonLiqfble.
	7.14 7.25	6 6	11.9 11.7	0.36 0.41	115 115	877 889	803 809	18.4 18.0	28.5 27.8	3.14 3.64	2.6 2.7	37.7 40.3	0.80	73.5 72.0	91.9 90.0	0.383 0.386	0.152 0.148	0.198 0.192	0.52 0.50	NonLiqfble. NonLiqfble.
	7.25	6	10.7	0.41	115	901	814	16.4	25.2	4.00	2.8	43.6	0.80	65.6	82.0	0.388	0.131	0.172	0.44	NonLigfble.
	7.45	6	9.3	0.4	115	912	819	14.2	21.6	4.52	2.8	48.5	0.80	56.9	71.1	0.391	0.113	0.147	0.38	NonLiqfble.
	7.56	6	8.7	0.36	115	925	825	13.3	20.0	4.37	2.9	49.4	0.80	53.0	66.3	0.393	0.107	0.139	0.35	NonLiqfble.
	7.66	6	8.2	0.32	115	937	830	12.5	18.6	4.14	2.9	49.9	0.80	49.8	62.3	0.396	0.102	0.133	0.34	NonLiqfble.
	7.76	6	8.2	0.29	115	948	836	12.4	18.5	3.75	2.8	48.4	0.80	49.6	62.1	0.398	0.102	0.133	0.33	NonLiqfble.
	7.87	6	7.9	0.22	105	961	841	11.9	17.6	2.97	2.8	45.7	0.80	47.7	59.6	0.401	0.100	0.130	0.32	NonLiqfble.
	7.97 8.07	6 6	8.6 8.8	0.23 0.21	105 105	971 982	846 850	12.9 13.2	19.2 19.5	2.83 2.53	2.8	43.4 41.4	0.80	51.8 52.8	64.7 66.0	0.403 0.405	0.105 0.107	0.137 0.139	0.34 0.34	NonLiqfble. NonLiqfble.
	8.17	6	8	0.23	105	992	854	12.0	17.6	3.07	2.8	46.2	0.80	47.9	59.9	0.408	0.107	0.130	0.34	NonLiqfble.
	8.27	6	7.4	0.25	105	1003	859	11.1	16.1	3.62	2.9	50.7	0.80	44.2	55.3	0.410	0.096	0.124	0.30	NonLiqfble.
	8.37	6	9.4	0.25	105	1013	863	14.0	20.6	2.81	2.7	41.9	0.80	56.0	70.0	0.412	0.112	0.145	0.35	NonLiqfble.
	8.48	6	9.2	0.25	105	1025	867	13.7	20.0	2.88	2.7	42.8	0.80	54.7	68.3	0.415	0.110	0.143	0.34	NonLiqfble.
	8.58	6	9	0.25	105	1035	872	13.3	19.5	2.95	2.8	43.7	0.80	53.3	66.7	0.417	0.108	0.140	0.34	NonLiqfble.
	8.68	6	8.9	0.25	105	1046	876	13.2	19.1	2.98	2.8	44.2	0.80	52.6	65.8	0.419	0.106	0.138	0.33	NonLiqfble.
	8.79 8.89	6 6	8.8 9.1	0.24 0.24	105 105	1057 1068	881 885	13.0 13.4	18.8 19.4	2.90 2.80	2.8	44.1 43.0	0.80	51.9 53.5	64.9 66.9	0.421 0.424	0.105 0.108	0.137 0.140	0.33 0.33	NonLiqfble. NonLiqfble.
	8.99	6	9.4	0.24	105	1008	889	13.4	19.4	2.71	2.7	42.0	0.80	55.2	69.0	0.424	0.108	0.140	0.33	NonLiqfble.
	9.1	6	9.6	0.25	105	1090	894	14.0	20.3	2.76	2.7	41.9	0.80	56.2	70.2	0.428	0.112	0.146	0.34	NonLiqfble.
	9.21	6	9.8	0.23	105	1101	899	14.3	20.6	2.49	2.7	40.2	0.80	57.2	71.5	0.430	0.114	0.148	0.34	NonLiqfble.
	9.31	6	9.1	0.21	105	1112	903	13.3	18.9	2.46	2.7	41.6	0.80	53.0	66.3	0.432	0.107	0.139	0.32	NonLiqfble.
	9.42	6	9.5	0.21	105	1123	907	13.8	19.7	2.35	2.7	40.2	0.80	55.2	69.0	0.435	0.111	0.144	0.33	NonLiqfble.
	9.53	6	9	0.22	105	1135	912	13.0	18.5	2.61	2.7	42.9	0.80	52.2	65.2	0.437	0.106	0.137	0.31	NonLiqfble.
	9.64 9.75	6 6	8.8 8.6	0.23 0.25	105 105	1147 1158	917 922	12.7 12.4	17.9 17.4	2.80 3.12	2.8	44.4 46.7	0.80	50.9 49.6	63.6 62.0	0.439 0.441	0.104 0.102	0.135 0.133	0.31	NonLiqfble. NonLiqfble.
	9.86	6	8.3	0.23	105	1170	926	11.9	16.7	3.50	2.9	49.4	0.80	47.7	59.7	0.443	0.102	0.133	0.29	NonLiqfble.
	9.97	6	8.7	0.32	115	1181	931	12.5	17.4	3.95	2.9	50.5	0.80	49.9	62.4	0.445	0.103	0.133	0.30	NonLiqfble.
	10.08	6	8.4	0.34	115	1194	937	12.0	16.7	4.36	2.9	53.1	0.80	48.0	60.0	0.438	0.100	0.130	0.30	NonLiqfble.
	10.18	6	8.2	0.34	115	1205	942	11.7	16.1	4.48	2.9	54.3	0.80	46.8	58.4	0.440	0.099	0.128	0.29	NonLiqfble.
	10.29	6	7.9	0.33	115	1218	948	11.2	15.4	4.53	3.0	55.5	0.80	44.9	56.1	0.442	0.096	0.125	0.28	NonLiqfble.
	10.4	6	7.8	0.33	115	1231	954	11.1	15.1	4.59	3.0	56.2	0.80	44.2	55.3	0.444	0.096	0.124	0.28	NonLiqfble.
	10.51 10.61	6 6	6.9 7.5	0.33 0.34	115 115	1243 1255	959 965	9.7 10.6	13.1 14.2	5.26 4.95	3.1	61.9 58.8	0.80	39.0 42.3	48.7 52.8	0.446 0.447	0.091 0.094	0.118 0.122	0.26 0.27	NonLiqfble. NonLiqfble.
	10.72	6	7.7	0.35	115	1267	970	10.8	14.6	4.95	3.0	58.4	0.80	43.3	54.1	0.449	0.095	0.123	0.27	NonLiqfble.
	10.83	6	7.7	0.36	115	1280	976	10.8	14.5	5.10	3.0	59.1	0.80	43.1	53.9	0.451	0.095	0.123	0.27	NonLiqfble.
	10.93	6	7.7	0.38	115	1292	981	10.8	14.4	5.39	3.0	60.2	0.80	43.0	53.8	0.453	0.094	0.123	0.27	NonLiqfble.
	11.04	6	7.8	0.39	115	1304	987	10.9	14.5	5.46	3.0	60.3	0.80	43.4	54.3	0.454	0.095	0.123	0.27	NonLiqfble.
	11.15	6	7.8		115	1317	993	10.8	14.4	5.46	3.0	60.5	0.80	43.3	54.2	0.456	0.095	0.123	0.27	NonLiqfble.
	11.25 11.36	6 6	7.7 7.4	0.37 0.31	115 115	1328 1341	998 1004	10.7 10.2	14.1 13.4	5.26 4.61	3.0	60.2 58.9	0.80	42.7 40.9	53.3 51.1	0.458 0.459	0.094 0.092	0.122 0.120	0.27 0.26	NonLiqfble.
	11.46	6	7.4	0.33	115	1353	1004	9.9	12.9	5.06	3.0	61.5	0.80	39.7	49.6	0.459	0.092	0.120	0.26	NonLiqfble. NonLiqfble.
	11.57	6	7.7	0.33	115	1365	1015	10.6	13.8	4.70	3.0	58.6	0.80	42.3	52.9	0.463	0.094	0.122	0.26	NonLiqfble.
	11.6	6	7.6	0.33	115	1369	1017	10.4	13.6	4.77	3.0	59.2	0.80	41.7	52.1	0.463	0.093	0.121	0.26	NonLiqfble.
	11.68	6	8.5	0.34	115	1378	1021	11.6	15.3	4.35	2.9	54.9	0.80	46.6	58.2	0.464	0.098	0.128	0.28	NonLiqfble.
	11.78	6	8.4	0.36	115	1389	1026	11.5	15.0	4.67	3.0	56.6	0.80	45.9	57.4	0.466	0.098	0.127	0.27	NonLiqfble.
	11.89	6	8.8	0.39	115	1402	1032	12.0	15.7	4.82	3.0	56.2	0.80	47.9	59.9	0.467	0.100	0.130	0.28	NonLiqfble.
	12 12.11	6	8.7 8.7	0.41 0.42	115 115	1415 1427	1038 1043	11.8 11.8	15.4	5.13	3.0	57.8 58.4	0.80	47.3	59.1 58.9	0.469 0.470	0.099 0.099	0.129 0.129	0.27 0.27	NonLiqfble.
	12.11	6 6	8.7 9	0.42	115	1440	1043	12.2	15.3 15.8	5.26 5.19	3.0	58.4 57.5	0.80 0.80	47.1 48.6	60.8	0.470	0.099	0.129	0.27	NonLiqfble. NonLiqfble.
	12.32	6	9.8	0.42	115	1451	1055	13.2	17.2	4.63	2.9	53.5	0.80	52.8	66.0	0.472	0.107	0.131	0.29	NonLiqfble.
	12.43	6	9.6	0.43	115	1464	1060	12.9	16.7	4.85	2.9	54.9	0.80	51.6	64.5	0.475	0.105	0.136	0.29	NonLiqfble.
	12.54	6	10.4	0.45	115	1477	1066	13.9	18.1	4.66	2.9	52.5	0.80	55.7	69.7	0.476	0.111	0.145	0.30	NonLiqfble.
	12.65	6	10.1	0.45	115	1489	1072	13.5	17.4	4.81	2.9	53.9	0.80	54.0	67.5	0.478	0.109	0.141	0.30	NonLiqfble.
	12.76	6	9.9	0.48	115	1502	1078	13.2	17.0	5.25	3.0	56.1	0.80	52.8	66.0	0.479	0.107	0.139	0.29	NonLiqfble.
	12.85 12.9	6 6	9.8 10	0.51 0.52	125 125	1512 1519	1082 1086	13.0 13.3	16.7	5.64 5.63	3.0	57.8 57.3	0.80	52.1 53.1	65.2 66.4	0.481 0.481	0.106 0.107	0.137 0.139	0.29 0.29	NonLiqfble. NonLiqfble.
	12.96	6	10.2	0.52		1519	1089	13.5	17.0 17.3	5.63 5.62	3.0	56.9	0.80 0.80	54.1	67.6	0.481	0.107	0.139	0.29	NonLiqible. NonLiqfble.
		0		3.00	3		- 507	0	- /	2.02		2 3.7								

Date: September 2005 CPT Number: 19

Depth to Groundwater: 6 feet

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	$\mathbf{q}_{\mathrm{clN}}$	Q	F	Ic	(%)	Ксрт	DqcIN	(q <sub>c1N</sub> ) <sub>cs</sub>	Ratio	M7.5	M6.50	Safety	Comments
	13.01	6	10.4	0.53	125	1532	1092	13.8	17.6	5.50	3.0	56.1	0.80	55.1	68.8	0.483	0.110	0.143	0.30	NonLiqfble.
	13.08	6	11.2	0.53	125	1541	1097	14.8	19.0	5.08	2.9	53.1	0.80	59.2	74.0	0.483	0.118	0.153	0.32	NonLiqfble.
	13.18	6	10.5	0.54	125	1554	1103	13.8	17.6	5.55	3.0	56.3	0.80	55.3	69.2	0.484	0.111	0.144	0.30	NonLiqfble.
	13.28 13.39	6 6	11.8 11.5	0.54 0.52	125 125	1566 1580	1109 1116	15.5 15.1	19.9 19.2	4.90 4.86	2.9 2.9	51.5 52.1	0.80	62.0 60.2	77.5 75.3	0.486 0.487	0.123 0.120	0.160 0.156	0.33	NonLiqfble. NonLiqfble.
	13.5	6	11.7	0.51	125	1594	1123	15.3	19.4	4.68	2.9	51.2	0.80	61.1	76.4	0.488	0.121	0.158	0.32	NonLiqfble.
	13.6	6	12.2	0.5	125	1606	1129	15.9	20.2	4.39	2.9	49.3	0.80	63.5	79.4	0.489	0.127	0.165	0.34	NonLiqfble.
	13.71	6	12.2	0.49	125	1620	1136	15.8	20.0	4.30	2.9	49.1	0.80	63.3	79.2	0.490	0.126	0.164	0.33	NonLiqfble.
	13.82	6 6	13.2 13.6	0.5 0.49	125 125	1634 1647	1143 1150	17.1 17.5	21.7 22.2	4.04 3.84	2.8 2.8	46.5 45.2	0.80	68.3 70.2	85.4 87.7	0.492 0.493	0.138 0.143	0.179 0.186	0.36 0.38	NonLiqfble.
	13.93 14.03	6	14.2	0.49	125	1660	1156	18.3	23.1	3.66	2.8	43.7	0.80	73.1	91.4	0.493	0.143	0.186	0.38	NonLiqfble. NonLiqfble.
	14.14	6	13.2	0.49	125	1674	1163	16.9	21.2	3.96	2.8	46.6	0.80	67.7	84.7	0.495	0.136	0.177	0.36	NonLiqfble.
	14.25	6	12.9	0.48	125	1687	1170	16.5	20.6	3.98	2.8	47.3	0.80	66.0	82.5	0.496	0.132	0.172	0.35	NonLiqfble.
	14.35	6	12.7	0.45	125	1700	1176	16.2	20.1	3.80	2.8	46.9	0.80	64.8	81.0	0.497	0.129	0.168	0.34	NonLiqfble.
	14.46	6	12.2 12.4	0.41	115 115	1714	1183	15.5	19.2	3.61	2.8	47.1	0.80	62.1	77.6	0.498	0.123	0.160	0.32	NonLiqfble.
	14.56 14.83	6 6	13.5	0.37 0.38	115	1725 1756	1188 1203	15.7 17.0	19.4 21.0	3.21 3.01	2.8	45.0 42.5	0.80	63.0 68.1	78.7 85.2	0.499 0.502	0.125 0.137	0.163 0.179	0.33 0.36	NonLiqfble. NonLiqfble.
	14.94	6	13.8	0.38	125	1769	1208	17.4	21.4	2.94	2.7	41.9	0.80	69.5	86.8	0.503	0.141	0.183	0.36	NonLiqfble.
	15.05	6	14	0.38	125	1783	1215	17.6	21.6	2.90	2.7	41.5	0.80	70.3	87.9	0.505	0.143	0.186	0.37	NonLiqfble.
	15.16	6	13.7	0.37	115	1796	1222	17.1	20.9	2.89	2.7	42.0	0.80	68.6	85.7	0.506	0.139	0.180	0.36	NonLiqfble.
	15.27	6	15.2	0.39	125	1809	1228	19.0	23.3	2.73	2.7	39.2	0.80	75.9	94.9	0.507	0.159	0.207	0.41	NonLiqfble.
	15.37 15.48	6 6	15.7 15.9	0.45 0.49	125 125	1821 1835	1234 1241	19.6 19.7	24.0 24.1	3.04 3.27	2.7 2.7	40.3 41.2	0.80	78.2 79.0	97.8 98.7	0.508 0.509	0.167 0.170	0.217 0.220	0.43 0.43	NonLiqfble. NonLiqfble.
	15.59	6	15.5	0.49	125	1849	1241	19.7	23.3	3.57	2.7	43.1	0.80	76.8	96.0	0.510	0.170	0.220	0.43	NonLiqfble.
	15.7	6	14.9	0.53	125	1863	1255	18.4	22.3	3.79	2.8	45.0	0.80	73.6	92.0	0.511	0.152	0.198	0.39	NonLiqfble.
	15.8	6	14	0.54	125	1875	1261	17.2	20.7	4.13	2.8	47.8	0.80	69.0	86.2	0.511	0.140	0.182	0.35	NonLiqfble.
	15.91	6	14.3	0.54	125	1889	1268	17.6	21.1	4.04	2.8	47.1	0.80	70.3	87.9	0.512	0.143	0.186	0.36	NonLiqfble.
	16.02	6 6	14.2 13.6	0.53 0.52	125 125	1903 1916	1275 1282	17.4	20.8 19.7	4.00	2.8	47.2 48.7	0.80	69.6	87.0	0.513 0.514	0.141 0.133	0.184 0.173	0.36 0.34	NonLiqfble.
	16.13 16.23	6	13.3	0.52	125	1916	1282	16.6 16.2	19.7	4.11 4.05	2.8 2.9	49.0	0.80	66.5 64.9	83.1 81.1	0.514	0.133	0.173	0.34	NonLiqfble. NonLiqfble.
	16.34	6	13.6	0.47	125	1943	1295	16.5	19.5	3.72	2.8	47.2	0.80	66.1	82.7	0.516	0.133	0.172	0.33	NonLiqfble.
	16.45	6	13.1	0.42	125	1956	1302	15.9	18.6	3.46	2.8	47.0	0.80	63.5	79.4	0.517	0.127	0.165	0.32	NonLiqfble.
	16.56	6	12.5	0.38	115	1970	1309	15.1	17.6	3.30	2.8	47.4	0.80	60.5	75.6	0.518	0.120	0.156	0.30	NonLiqfble.
	16.66	6	13	0.33	115	1982	1314	15.7	18.3	2.75	2.8	43.8	0.80	62.8	78.5	0.519	0.125	0.162	0.31	NonLiqfble.
	16.75 16.85	6 6	13.1 13.7	0.34 0.4	115 125	1992 2004	1319 1324	15.8 16.5	18.3 19.2	2.81 3.15	2.8 2.8	44.1 44.9	0.80	63.1 65.9	78.9 82.4	0.520 0.521	0.126 0.132	0.163 0.172	0.31 0.33	NonLiqfble. NonLiqfble.
	16.96	6	12.7	0.45	125	2017	1324	15.2	17.6	3.85	2.9	49.9	0.80	60.9	76.2	0.521	0.132	0.172	0.30	NonLiqfble.
	17.07	6	13.1	0.5	125	2031	1338	15.7	18.1	4.14	2.9	50.5	0.80	62.7	78.4	0.522	0.125	0.162	0.31	NonLiqfble.
	17.17	6	13.1	0.53	125	2044	1344	15.6	18.0	4.39	2.9	51.6	0.80	62.5	78.2	0.523	0.124	0.162	0.31	NonLiqfble.
	17.28	6	13.3	0.52	125	2057	1351	15.8	18.2	4.24	2.9	50.8	0.80	63.3	79.2	0.524	0.126	0.164	0.31	NonLiqfble.
	17.38	6	13	0.53	125	2070	1357	15.4	17.6	4.43	2.9	52.2	0.80	61.8	77.2	0.525	0.123	0.160	0.30	NonLiqfble.
	17.49 17.59	6 6	12.2 11.5	0.5 0.49	125 125	2084 2096	1364 1370	14.5 13.6	16.4 15.2	4.48 4.69	2.9 3.0	54.0 56.3	0.80 0.80	57.8 54.4	72.3 68.0	0.525 0.526	0.115 0.109	0.150 0.142	0.28 0.27	NonLiqfble. NonLiqfble.
	17.7	6	10.5	0.43	115	2110	1377	12.4	13.7	4.55	3.0	58.2	0.80	49.5	61.9	0.527	0.102	0.133	0.25	NonLiqfble.
	17.76	6	10.2	0.39	115	2117	1380	12.0	13.2	4.27	3.0	57.8	0.80	48.0	60.1	0.527	0.100	0.130	0.25	NonLiqfble.
	17.84	6	10.1	0.34	115	2126	1385	11.9	13.0	3.76	3.0	55.9	0.80	47.5	59.4	0.528	0.099	0.129	0.24	NonLiqfble.
	17.94	6	10.2	0.28	115	2137	1390	12.0	13.1	3.07	2.9	52.3	0.80	47.9	59.9	0.529	0.100	0.130	0.25	NonLiqfble.
	18.18 18.29	6 6	10.6 10.2	0.25 0.25	105	2165 2178	1402 1408	12.4 11.9	13.6 12.9	2.63 2.74	2.9 2.9	49.2 50.9	0.80	49.5 47.6	61.9 59.5	0.531 0.532	0.102 0.100	0.133 0.129	0.25 0.24	NonLiqfble. NonLiqfble.
	18.4	6	11	0.26	115	2189	1413	12.8	14.0	2.62	2.8	48.5	0.80	51.2	64.0	0.532	0.104	0.125	0.25	NonLiqfble.
	18.51	6	12	0.28	115	2202	1419	13.9	15.4	2.57	2.8	46.3	0.80	55.8	69.7	0.534	0.111	0.145	0.27	NonLiqfble.
	18.61	6	12.9	0.28	115	2213	1424	15.0	16.6	2.37	2.8	43.7	0.80	59.8	74.8	0.535	0.119	0.155	0.29	NonLiqfble.
	18.72	6	13.3	0.28	115	2226	1430	15.4	17.0	2.30	2.7	42.7	0.80	61.6	76.9	0.536	0.122	0.159	0.30	NonLiqfble.
	18.83 18.94	6 6	14.1 15.1	0.3 0.32	115 115	2239 2251	1436 1441	16.3 17.4	18.1 19.4	2.31 2.29	2.7 2.7	41.6 40.2	0.80	65.1 69.6	81.4 87.0	0.536 0.537	0.130 0.141	0.169 0.184	0.32 0.34	NonLiqfble. NonLiqfble.
	19.04	6	17	0.32	115	2263	1441	17.4	21.9	2.29	2.7	36.3	0.80	78.2	97.8	0.538	0.141	0.184	0.40	NonLiqible. NonLiqfble.
	19.15	6	17.5	0.33	115	2275	1452	20.1	22.5	2.02	2.6	35.8	0.80	80.4	100.5	0.539	0.174	0.227	0.42	NonLiqfble.
	19.26	6	16.9	0.34	115	2288	1458	19.4	21.6	2.16	2.6	37.4	0.80	77.5	96.8	0.540	0.164	0.214	0.40	NonLiqfble.
	19.36	6	16.3	0.35	125	2300	1463	18.6	20.7	2.31	2.7	39.1	0.80	74.6	93.2	0.541	0.155	0.202	0.37	NonLiqfble.
	19.47	6	17.1	0.37	125	2313	1470	19.5	21.7	2.32	2.7	38.3	0.80	78.0	97.6	0.541	0.166	0.216	0.40	NonLiqfble.
	19.58 19.67	6 6	17.4 17.3	0.39 0.38	125 125	2327 2338	1477 1483	19.8 19.7	22.0 21.7	2.40 2.36	2.7 2.7	38.5 38.4	0.80 0.80	79.2 78.6	99.0 98.3	0.542 0.542	0.170 0.168	0.221 0.219	0.41 0.40	NonLiqfble. NonLiqfble.
	19.77	6	17.3	0.37	125	2351	1489	19.7	21.7	2.34	2.7	38.8	0.80	77.1	96.4	0.543	0.163	0.219	0.40	NonLiqfble.
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Date: September 2005 CPT Number: 19

Depth to Groundwater: 6 feet

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	q <sub>c1N</sub>	Q	F	Ic	(%)	Ксрт	DqcIN	(q <sub>c1N</sub> ) <sub>cs</sub>	Ratio	M7.5	M6.50	Safety	Comments
	19.88	6	17.2	0.44	125	2365	1496	19.5	21.4	2.75	2.7	40.8	0.80	77.8	97.3	0.544	0.166	0.215	0.40	NonLiqfble.
	19.98	6	16.4	0.47	125	2377	1502	18.5	20.2	3.09	2.8	43.6	0.80	74.1	92.6	0.544	0.154	0.200	0.37	NonLiqfble.
	20.03 20.07	6 6	15.9 15.5	0.46 0.45	125 125	2383 2388	1505 1508	17.9 17.5	19.5 19.0	3.13 3.15	2.8	44.5 45.1	0.80	71.7 69.9	89.7 87.3	0.533 0.534	0.147 0.142	0.191 0.185	0.36 0.35	NonLiqfble. NonLiqfble.
	20.1	6	15.8	0.45	125	2392	1510	17.8	19.3	3.08	2.8	44.4	0.80	71.2	89.0	0.534	0.145	0.189	0.35	NonLiqfble.
	20.18	6	16.3	0.43	125	2402	1515	18.3	19.9	2.85	2.7	42.7	0.80	73.3	91.6	0.534	0.152	0.197	0.37	NonLiqfble.
	20.28 20.39	6 6	18 18.2	0.42 0.42	125 125	2415 2428	1521 1528	20.2 20.4	22.1 22.2	2.50 2.47	2.7 2.7	39.0 38.7	0.80	80.8 81.5	101.0 101.9	0.535 0.536	0.176 0.178	0.228 0.232	0.43 0.43	NonLiqfble.
	20.48	6	19.2		125	2440	1534	21.5	23.4	2.45	2.6	37.6	0.80	85.8	107.3	0.536	0.178	0.252	0.43	NonLiqfble. NonLiqfble.
	20.59	6	18.6	0.45	125	2453	1540	20.7	22.5	2.59	2.7	39.1	0.80	82.9	103.7	0.537	0.184	0.239	0.44	NonLiqfble.
	20.69	6	19.4	0.45	125	2466	1547	21.6	23.5	2.48	2.6	37.7	0.80	86.3	107.9	0.537	0.197	0.256	0.48	NonLiqfble.
	20.8 21.11	6 6	19.3 17.1	0.45 0.39	125 125	2480 2518	1554 1573	21.4 18.9	23.2 20.1	2.49 2.46	2.7 2.7	38.0 40.4	0.80	85.7 75.5	107.1 94.3	0.538 0.539	0.194 0.158	0.253 0.205	0.47 0.38	NonLiqfble. NonLiqfble.
	21.21	6	15.6	0.35	115	2531	1579	17.2	18.1	2.44	2.7	42.3	0.80	68.7	85.9	0.540	0.139	0.181	0.33	NonLiqfble.
	21.32	6	14.7	0.3	115	2544	1585	16.2	16.9	2.23	2.7	42.4	0.80	64.6	80.8	0.541	0.129	0.168	0.31	NonLiqfble.
	21.43 21.54	6 6	13.5 12.7	0.26 0.24	115 115	2556 2569	1591 1597	14.8 13.9	15.4 14.3	2.13 2.10	2.8 2.8	43.7 7.0	0.80 0.05	59.2 0.8	74.0 14.7	0.541 0.542	0.118 0.080	0.153 0.104	0.28 0.19	NonLiqfble.
	21.64	6	11.7	0.24	105	2580	1602	12.8	13.0	1.92	2.8	7.0	0.05	0.8	13.5	0.542	0.080	0.104	0.19	NonLiqfble. NonLiqfble.
	21.75	6	10.6	0.17	105	2592	1607	11.6	11.6	1.83	2.8	7.0	0.05	0.7	12.2	0.544	0.080	0.104	0.19	NonLiqfble.
	21.85	6	10	0.14	95	2602	1611	10.9	10.8	1.61	2.8	7.0	0.05	0.6	11.5	0.544	0.080	0.104	0.19	NonLiqfble.
	21.96 22.07	6 6	9.8 9.1	0.1 0.09	95 95	2613 2623	1614 1618	10.7 9.9	10.5 9.6	1.18 1.16	2.8 2.8	7.0 7.0	0.05 0.05	0.6 0.6	11.3 10.5	0.545 0.546	0.080	0.104 0.104	0.19 0.19	NonLiqfble. NonLiqfble.
	22.18	6	8.5	0.08	95	2634	1622	9.2	8.9	1.11	2.8	7.0	0.05	0.5	9.8	0.547	0.080	0.104	0.19	NonLiqfble.
	22.29	6	8.9	0.08	95	2644	1625	9.7	9.3	1.06	2.8	7.0	0.05	0.5	10.2	0.548	0.080	0.104	0.19	NonLiqfble.
	22.39 22.5	6 6	9.4 9.6	0.09 0.12	95 95	2654 2664	1628 1632	10.2 10.4	9.9 10.1	1.11 1.45	2.8	7.0 7.0	0.05 0.05	0.6 0.6	10.8 11.0	0.549 0.550	0.080	0.104 0.104	0.19 0.19	NonLiqfble.
	22.5	6	10.2	0.12	105	2674	1635	11.0	10.1	2.03	2.8 2.9	7.0	0.05	0.6	11.7	0.551	0.080	0.104	0.19	NonLiqfble. NonLiqfble.
	22.71	6	11.6	0.24	105	2685	1640	12.5	12.5	2.34	2.9	7.0	0.05	0.7	13.2	0.552	0.080	0.104	0.19	NonLiqfble.
	22.82	6	12.9	0.28	115	2697	1645	13.9	14.0	2.42	2.8	7.0	0.05	0.8	14.7	0.553	0.080	0.104	0.19	NonLiqfble.
	22.92 23.03	6 6	13.9 14.1	0.31 0.33	115 115	2708 2721	1650 1656	15.0 15.2	15.2 15.4	2.47 2.59	2.8 2.8	7.0 46.4	0.05 0.80	0.8 60.6	15.8 75.8	0.553 0.554	0.080 0.121	0.104 0.157	0.19 0.28	NonLiqfble. NonLiqfble.
	23.13	6	14.6	0.31	115	2732	1661	15.7	15.9	2.34	2.8	44.3	0.80	62.7	78.4	0.554	0.125	0.162	0.29	NonLiqfble.
	23.24	6	14.9	0.33	115	2745	1667	16.0	16.2	2.44	2.8	44.5	0.80	63.9	79.8	0.555	0.127	0.166	0.30	NonLiqfble.
	23.35 23.44	6 6	15 14.7	0.34 0.35	115 115	2758 2768	1673 1677	16.0 15.7	16.3 15.9	2.50 2.63	2.8	44.7 46.0	0.80	64.2 62.8	80.2 78.5	0.556 0.556	0.128 0.125	0.166 0.163	0.30 0.29	NonLiqfble.
	23.54	6	14.7	0.33	115	2780	1683	15.7	15.8	2.48	2.8	45.2	0.80	62.7	78.4	0.557	0.125	0.163	0.29	NonLiqfble. NonLiqfble.
	23.64	6	13.5	0.3	115	2791	1688	14.4	14.3	2.48	2.8	47.2	0.80	57.5	71.9	0.557	0.115	0.149	0.27	NonLiqfble.
	23.75	6	12.9	0.25	115	2804	1694	13.7	13.6	2.17	2.8	46.5	0.80	54.9	68.6	0.558	0.110	0.143	0.26	NonLiqfble.
	23.85 24.1	6 6	12.3 14.2	0.21 0.15	105 105	2815 2841	1699 1709	13.1 15.0	12.8 14.9	1.93 1.17	2.8	46.0 37.0	0.80	52.2 60.1	65.3 75.1	0.558 0.560	0.106 0.119	0.138 0.155	0.25 0.28	NonLiqfble. NonLiqfble.
	24.21	6	13.8	0.14	95	2853	1714	14.6	14.4	1.13	2.6	37.3	0.80	58.3	72.9	0.561	0.116	0.151	0.27	NonLiqfble.
	24.32	6	13.5	0.15	105	2863	1718	14.3	14.0	1.24	2.7	38.8	0.80	57.0	71.3	0.562	0.114	0.148	0.26	NonLiqfble.
	24.42 24.52	6 6	13.7 13.4	0.15 0.16	105 105	2874 2884	1722 1726	14.4 14.1	14.2 13.8	1.22 1.34	2.7 2.7	38.4 39.9	0.80	57.8 56.4	72.2 70.6	0.562	0.115 0.113	0.150 0.146	0.27 0.26	NonLiqfble.
	24.63	6	13.4	0.10	105	2896	1720	13.9	13.6	1.45	2.7	41.2	0.80	55.5	69.4	0.563 0.564	0.113	0.146	0.26	NonLiqfble. NonLiqfble.
	24.74	6	13.2	0.17	105	2908	1736	13.9	13.5	1.45	2.7	41.3	0.80	55.5	69.3	0.564	0.111	0.144	0.26	NonLiqfble.
	24.84	6	12.5	0.18	105	2918	1740	13.1	12.7	1.63	2.8	44.1	0.80	52.4	65.6	0.565	0.106	0.138	0.24	NonLiqfble.
	24.95 25.05	6 6	11.8 11.8	0.18 0.18	105 105	2930 2940	1745 1749	12.4 12.3	11.8 11.8	1.74 1.74	2.8	46.4 46.5	0.80	49.4 49.4	61.8 61.7	0.566 0.566	0.102 0.102	0.133 0.132	0.23 0.23	NonLiqfble. NonLiqfble.
	25.16	6	11.6	0.17	105	2952	1754	12.1	11.5	1.68	2.8	46.5	0.80	48.5	60.6	0.567	0.101	0.131	0.23	NonLiqfble.
	25.26	6	11.2		105	2962	1758	11.7	11.1	1.65	2.8	47.1	0.80	46.8	58.4	0.568	0.099	0.128	0.23	NonLiqfble.
	25.5	6	11.5	0.17	105	2987	1768	12.0	11.3	1.70	2.8	47.0	0.80	47.9	59.8	0.569	0.100	0.130	0.23	NonLiqfble.
	25.61 25.71	6 6	12.1 11.9	0.15 0.13	105 95	2999 3009	1773 1777	12.6 12.4	12.0 11.7	1.42 1.25	2.8	43.6 42.6	0.80	50.3 49.4	62.9 61.8	0.570 0.571	0.103 0.102	0.134 0.132	0.24 0.23	NonLiqfble. NonLiqfble.
	25.82	6	11.5	0.12	95	3020	1781	11.9	11.2	1.20	2.7	43.0	0.80	47.7	59.6	0.571	0.100	0.130	0.23	NonLiqfble.
	25.93	6	11.6	0.12	95	3030	1784	12.0	11.3	1.19	2.7	42.7	0.80	48.1	60.1	0.572	0.100	0.130	0.23	NonLiqfble.
	26.03 26.14	6 6	11.8 12	0.11 0.13	95 95	3040 3050	1787 1791	12.2 12.4	11.5 11.7	1.07 1.24	2.7 2.7	5.7 5.7	0.02 0.02	0.2	12.4 12.6	0.573 0.574	0.080	0.104 0.104	0.18 0.18	NonLiqfble. NonLiqfble.
	26.14	6	12.7	0.13	105	3061	1791	13.1	12.4	1.52	2.7	5.7	0.02	0.2	13.4	0.575	0.080	0.104	0.18	NonLiqfble.
	26.35	6	13.3	0.2	105	3071	1799	13.7	13.1	1.70	2.8	5.7	0.02	0.3	14.0	0.575	0.080	0.104	0.18	NonLiqfble.
	26.46	6	14.1	0.23	105	3083	1804	14.5	13.9	1.83	2.8	5.7	0.02	0.3	14.8	0.576	0.080	0.104	0.18	NonLiqfble.
	26.57 26.67	6 6	14.6 14.5		115 115	3094 3106	1808 1813	15.0 14.9	14.4 14.3	1.92 2.09	2.8 2.8	5.7 5.7	0.02 0.02	0.3	15.3 15.2	0.577 0.577	0.080	0.104 0.104	0.18 0.18	NonLiqfble. NonLiqfble.
	_5.57	0		3.27						,										

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 19

Depth to Groundwater: 6 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA** (g): 0.54 **MSF**: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	qcIN	Q	F	Ic	(%)	Ксрт	DqcIN	$(q_{c1N})_{cs}$	Ratio	M7.5	M6.50	Safety	Comments
	26.78	6	14.9	0.27	115	3118	1819	15.3	14.7	2.02	2.8	5.7	0.02	0.3	15.6	0.578	0.080	0.104	0.18	NonLiqfble.
	26.89	6	15.3	0.25	115	3131	1825	15.7	15.0	1.82	2.7	5.7	0.02	0.3	16.0	0.578	0.080	0.104	0.18	NonLiqfble.
	26.99	6	16.5	0.25	115	3143	1830	16.9	16.3	1.67	2.7	5.7	0.02	0.3	17.2	0.579	0.080	0.105	0.18	NonLiqfble.
	27.1 27.2	6 6	16.6 16.4	0.24 0.24	115 115	3155 3167	1836 1841	17.0 16.7	16.4 16.1	1.60 1.62	2.7 2.7	5.7 5.7	0.02 0.02	0.3	17.3 17.0	0.579 0.580	0.080	0.105 0.105	0.18 0.18	NonLiqfble. NonLiqfble.
	27.31	6	16.8	0.26	115	3179	1847	17.1	16.5	1.71	2.7	5.7	0.02	0.3	17.4	0.580	0.080	0.105	0.18	NonLiqfble.
	27.42	6	16.8	0.26	115	3192	1853	17.1	16.4	1.71	2.7	5.7	0.02	0.3	17.4	0.580	0.080	0.105	0.18	NonLiqfble.
	27.52	6	17.2	0.25	115	3204	1858	17.5	16.8	1.60	2.7	5.7	0.02	0.3	17.8	0.581	0.081	0.105	0.18	NonLiqfble.
	27.61	6	18.7	0.24	115	3214	1863	19.0	18.3	1.40	2.6	35.2	0.80	75.8	94.8	0.581	0.159	0.207	0.36	Liquefaction
	27.71 27.79	6 6	17.3 16.1	0.18 0.15	105 105	3225 3234	1868 1872	17.5 16.3	16.8 15.5	1.15 1.04	2.6 2.6	34.6 35.0	0.79 0.80	65.9 65.1	83.4 81.4	0.582 0.582	0.134 0.130	0.174 0.169	0.30 0.29	Liquefaction
	27.79	6	14	0.13	95	3234	1876	14.1	13.3	1.04	2.7	38.2	0.80	56.6	70.7	0.583	0.130	0.109	0.29	Liquefaction NonLiqfble.
	28	6	13.1	0.16	105	3255	1880	13.2	12.2	1.39	2.7	43.0	0.80	52.9	66.1	0.584	0.107	0.139	0.24	NonLiqfble.
	28.11	6	13.6	0.2	105	3266	1884	13.7	12.7	1.67	2.8	44.4	0.80	54.8	68.5	0.584	0.110	0.143	0.24	NonLiqfble.
	28.21	6	13.9	0.24	115	3277	1888	14.0	13.0	1.96	2.8	46.0	0.80	56.0	70.0	0.585	0.112	0.145	0.25	NonLiqfble.
	28.32	6	14	0.27	115	3290	1894	14.1	13.0	2.19	2.8	47.4	0.80	56.3	70.4	0.585	0.112	0.146	0.25	NonLiqfble.
	28.48 28.59	6 6	15.4 15.6	0.29 0.32	115 115	3308 3321	1903 1908	15.4 15.6	14.4 14.6	2.11 2.30	2.8 2.8	44.8 45.7	0.80	61.8 62.5	77.2 78.1	0.586 0.586	0.123 0.124	0.160 0.162	0.27 0.28	NonLiqfble. NonLiqfble.
	28.7	6	16.1	0.35	115	3333	1914	16.1	15.1	2.43	2.8	45.9	0.80	64.4	80.5	0.587	0.124	0.167	0.28	NonLiqfble.
	28.79	6	16	0.36	125	3344	1919	16.0	14.9	2.51	2.8	46.6	0.80	63.9	79.9	0.587	0.127	0.166	0.28	NonLiqfble.
	28.89	6	16.7	0.36	125	3356	1925	16.7	15.6	2.40	2.8	45.0	0.80	66.6	83.3	0.587	0.134	0.174	0.30	NonLiqfble.
	29	6	16.6	0.36	125	3370	1932	16.5	15.4	2.41	2.8	45.3	0.80	66.1	82.6	0.588	0.132	0.172	0.29	NonLiqfble.
	29.1 29.2	6 6	16.3 16.1	0.36 0.35	125	3382 3395	1938 1945	16.2	15.1	2.46	2.8	46.1	0.80	64.8	81.0 79.9	0.588	0.129	0.168	0.29	NonLiqfble.
	29.31	6	15.9	0.33	115 115	3407	1943	16.0 15.8	14.8 14.6	2.43 2.40	2.8 2.8	46.3 46.4	0.80	63.9 63.0	78.8	0.588 0.589	0.127 0.125	0.166 0.163	0.28 0.28	NonLiqfble. NonLiqfble.
	29.41	6	16.1	0.31	115	3419	1956	15.9	14.7	2.15	2.8	44.7	0.80	63.7	79.6	0.589	0.127	0.165	0.28	NonLiqfble.
	29.51	6	16.3	0.27	115	3430	1961	16.1	14.9	1.85	2.7	42.5	0.80	64.4	80.5	0.589	0.129	0.167	0.28	NonLiqfble.
	29.61	6	16.5	0.29	115	3442	1966	16.3	15.0	1.96	2.7	43.0	0.80	65.1	81.4	0.590	0.130	0.169	0.29	NonLiqfble.
	29.72	6	17.7	0.35	125	3455	1972	17.4	16.2	2.19	2.7	43.0	0.80	69.8	87.2	0.590	0.142	0.184	0.31	NonLiqfble.
	29.82 29.92	6 6	19.1 21.5	0.43 0.5	125 125	3467 3480	1978 1984	18.8 21.1	17.5 19.9	2.48 2.53	2.7 2.7	43.1 41.0	0.80	75.2 84.5	93.9 105.6	0.591 0.591	0.157 0.189	0.204 0.246	0.35 0.42	NonLiqfble. NonLiqfble.
	30.02	6	24	0.56	125	3492	1991	23.5	22.3	2.52	2.7	5.9	0.02	0.6	24.1	0.566	0.189	0.106	0.19	NonLiqfble.
	30.11	6	25.6	0.59	125	3503	1996	25.1	23.9	2.47	2.6	5.9	0.02	0.6	25.7	0.567	0.082	0.106	0.19	NonLiqfble.
	30.22	6	24.8	0.61	125	3517	2003	24.2	23.0	2.65	2.7	5.9	0.02	0.6	24.8	0.567	0.081	0.106	0.19	NonLiqfble.
	30.32	6	26.2	0.56	125	3530	2010	25.6	24.3	2.29	2.6	5.9	0.02	0.6	26.2	0.567	0.082	0.106	0.19	NonLiqfble.
	30.43	6	25.5 23	0.45	125 125	3543	2016	24.8 22.4	23.5	1.90	2.6	5.9	0.02	0.6	25.5	0.567	0.082	0.106	0.19	Liquefaction
	30.53 30.64	6 6	20.2	0.35 0.3	115	3556 3570	2023 2030	19.6	21.0 18.1	1.65 1.63	2.6 2.6	5.9 5.9	0.02 0.02	0.6 0.5	22.9 20.1	0.568 0.568	0.081	0.105 0.105	0.19 0.18	Liquefaction NonLiqfble.
	30.74	6	18.4	0.38	125	3581	2035	17.8	16.3	2.29	2.8	5.9	0.02	0.4	18.3	0.568	0.081	0.105	0.18	NonLiqfble.
	30.85	6	19.3	0.53	125	3595	2042	18.7	17.1	3.03	2.8	5.9	0.02	0.5	19.1	0.569	0.081	0.105	0.18	NonLiqfble.
	30.95	6	20.3	0.68	125	3607	2048	19.6	18.1	3.68	2.8	5.9	0.02	0.5	20.1	0.569	0.081	0.105	0.18	NonLiqfble.
	31.05	6	23.1	0.77	135	3620	2054	22.3	20.7	3.62	2.8	5.9	0.02	0.5	22.8	0.569	0.081	0.105	0.19	NonLiqfble.
	31.16 31.25	6 6	25.6 29.4	0.7 0.71	125 125	3635 3646	2062 2068	24.7 28.3	23.1 26.7	2.94 2.57	2.7 2.6	5.9 5.9	0.02 0.02	0.6 0.7	25.3 29.0	0.569 0.569	0.082 0.082	0.106 0.107	0.19 0.19	NonLiqfble. NonLiqfble.
	31.33	6	32.2	0.71	135	3656	2073	30.9	29.3	2.57	2.6	5.9	0.02	0.7	31.7	0.570	0.082	0.107	0.19	Liquefaction
	31.4	6	32.7	0.84	135	3665	2078	31.4	29.7	2.72	2.6	5.9	0.02	0.8	32.2	0.570	0.083	0.108	0.19	Liquefaction
	31.46	6	31.8	0.87	135	3673	2082	30.5	28.8	2.90	2.6	5.9	0.02	0.8	31.2	0.570	0.083	0.108	0.19	NonLiqfble.
	31.69	6		0.67	125	3705	2099	57.0	55.1	1.16	2.2	17.5	0.33	28.5	85.5	0.570	0.138	0.179	0.31	Liquefaction
	31.73	6	63.3	0.66	125	3710	2102	60.4	58.5	1.07	2.1	16.2	0.30	25.8	86.2	0.570	0.140	0.182	0.32	Liquefaction
	31.78 31.84	6 6	68.2 72	0.69 0.73	125 125	3716 3723	2105 2108	65.0 68.6	63.0 66.5	1.04 1.04	2.1	15.2 14.6	0.27 0.26	24.3 23.8	89.3 92.4	0.570 0.570	0.146 0.153	0.190 0.199	0.33 0.35	Liquefaction Liquefaction
	31.91	6	74.9	0.73	125	3732	2113	71.3	69.1	1.00	2.0	14.0	0.24	22.4	93.7	0.570	0.156	0.203	0.36	Liquefaction
	31.95	6	77.7	0.72	125	3737	2115	73.9	71.7	0.95	2.0	13.2	0.22	20.8	94.7	0.571	0.159	0.207	0.36	Liquefaction
	32.01	6	78.1	0.71	125	3745	2119	74.2	71.9	0.93	2.0	13.1	0.22	20.4	94.6	0.571	0.159	0.206	0.36	Liquefaction
	32.06	6	77.2	0.71	125	3751	2122	73.3	71.0	0.94	2.0	13.3	0.22	20.8	94.1	0.571	0.158	0.205	0.36	Liquefaction
	32.11	6	76.4	0.72	125	3757 3762	2125	72.5	70.1	0.97	2.0	13.6	0.23	21.5	94.0	0.571	0.157	0.204	0.36	Liquefaction
	32.15 32.19	6 6	75 74.7	0.71 0.82	125 125	3767	2128 2130	71.1 70.8	68.7 68.3	0.97 1.13	2.0	13.8 15.0	0.23	21.8 25.7	93.0 96.5	0.571 0.571	0.155 0.164	0.201 0.213	0.35 0.37	Liquefaction Liquefaction
	32.19	6	71.8	1.01	125	3773	2133	68.0	65.5	1.13	2.1	17.5	0.27	34.0	102.0	0.571	0.104	0.213	0.37	Liquefaction
	32.3	6	67.3	1.27	135	3781	2137	63.7	61.2	1.94	2.3	21.1	0.43	47.9	111.6	0.571	0.209	0.272	0.48	Liquefaction
	32.35	6	63.7	1.42	135	3788	2141	60.2	57.7	2.30	2.3	23.6	0.50	59.3	119.5	0.571	0.239	0.310	0.54	Liquefaction
	32.41	6	69	1.42	135	3796	2145	65.2	62.5	2.12	2.3	21.7	0.45	52.6	117.8	0.571	0.232	0.302	0.53	Liquefaction
	32.51	6	59.2	1.2	135	3809	2152	55.8	53.2	2.09	2.3	23.5	0.50	54.8	110.6	0.571	0.206	0.268	0.47	Liquefaction

Date: September 2005 CPT Number: 19

Depth to Groundwater: 6 feet

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard **EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> clN	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es		M7.5	M6.50	Safety	Comments
				, ,	( - )	( /	( )					( ,			-					
	32.57	6	69.9	1.15	135	3817	2157	65.9	63.0	1.69	2.2	19.4	0.38	41.0	106.8	0.572	0.193	0.251	0.44	Liquefaction
	32.6	6	83.7	1.06	125	3821	2159	78.8	75.7	1.30	2.1	15.1	0.27	29.0	107.8	0.572	0.196	0.255	0.45	Liquefaction
	32.63	6	87.3	0.98	125	3825	2161	82.2	79.0	1.15	2.0	13.7	0.23	24.9	107.0	0.572	0.194	0.252	0.44	Liquefaction
	32.68	6	90.1	0.85	125	3831	2164	84.7	81.5	0.96	2.0	12.1	0.19	20.0	104.7	0.572	0.187	0.243	0.42	Liquefaction
	32.74 32.84	6 6	89.8 88.9	0.62 0.61	115 115	3839 3850	2168 2173	84.4 83.4	81.0 80.0	0.71 0.70	1.9 1.9	10.2 10.3	0.14 0.14	13.6 13.7	98.0 97.1	0.572 0.572	0.168 0.165	0.218 0.215	0.38 0.38	Liquefaction Liquefaction
	32.94	6	84.1	0.59	115	3862	2178	78.8	75.4	0.72	1.9	10.9	0.16	14.8	93.7	0.573	0.156	0.203	0.36	Liquefaction
	33.04	6	80.2	0.55	115	3873	2184	75.1	71.7	0.70	1.9	11.3	0.17	15.1	90.2	0.573	0.148	0.193	0.34	Liquefaction
	33.14	6	77	0.51	115	3885	2189	72.0	68.6	0.68	1.9	11.5	0.17	15.0	87.0	0.573	0.141	0.184	0.32	Liquefaction
	33.25 33.35	6 6	72.1 63.3	0.71 0.8	125 125	3897 3910	2195 2201	67.3 59.0	63.9 55.7	1.01 1.30	2.1	14.8 18.4	0.26 0.36	23.9 32.7	91.3 91.7	0.573 0.574	0.151 0.152	0.196 0.197	0.34 0.34	Liquefaction Liquefaction
	33.45	6	50.8	0.84	135	3922	2207	47.3	44.2	1.72	2.3	23.8	0.50	47.6	95.0	0.574	0.160	0.208	0.36	Liquefaction
	33.55	6	47	0.78	135	3936	2214	43.7	40.7	1.73	2.4	25.0	0.53	50.0	93.7	0.574	0.156	0.203	0.35	Liquefaction
	33.61	6	62	0.73	125	3944	2219	57.6	54.1	1.22	2.2	18.1	0.35	30.9	88.5	0.574	0.145	0.188	0.33	Liquefaction
	33.64 33.7	6 6	72.4 81.7	0.73 0.66	125 115	3948 3955	2221 2224	67.2 75.8	63.4 71.7	1.04 0.83	2.1	15.1 12.3	0.27 0.19	24.8 18.3	92.0 94.1	0.574 0.574	0.152 0.158	0.198 0.205	0.35 0.36	Liquefaction Liquefaction
	33.73	6	83.8	0.64	115	3959	2224	73.8 77.7	73.5	0.83	2.0	11.7	0.19	16.9	94.1	0.574	0.158	0.203	0.36	Liquefaction
	33.78	6	86.9	0.62	115	3964	2229	80.5	76.2	0.73	1.9	10.9	0.16	15.2	95.7	0.574	0.162	0.210	0.37	Liquefaction
	33.82	6	87.9	0.65	115	3969	2231	81.4	77.0	0.76	1.9	11.1	0.16	15.7	97.2	0.575	0.165	0.215	0.37	Liquefaction
	33.86	6	87.1	0.72	115	3974	2233	80.7	76.2	0.85	2.0	11.9	0.18	18.1	98.8	0.575	0.170	0.220	0.38	Liquefaction
	33.89 33.92	6 6	85.7 83.3	0.83 0.89	125 125	3977 3981	2234 2236	79.3 77.1	74.9 72.7	0.99 1.09	2.0	13.1 14.1	0.22 0.24	22.0 24.9	101.3 101.9	0.575 0.575	0.177 0.179	0.230 0.232	0.40 0.40	Liquefaction Liquefaction
	33.96	6	79	0.03	125	3986	2239	73.1	68.8	1.09	2.1	15.6	0.24	28.9	102.0	0.575	0.179	0.232	0.40	Liquefaction
	34	6	72.6	1.04	125	3991	2241	67.1	63.0	1.47	2.2	18.1	0.35	36.0	103.1	0.575	0.182	0.236	0.41	Liquefaction
	34.04	6	68.7	1.12	135	3996	2244	63.5	59.4	1.68	2.2	20.0	0.40	42.2	105.6	0.575	0.190	0.246	0.43	Liquefaction
	34.09	6	65.3	1.14	135	4003	2247	60.3	56.3	1.80	2.3	21.3	0.43	46.3	106.6	0.575	0.193	0.250	0.44	Liquefaction
	34.13 34.17	6 6	62.4 57.6	1.17 1.12	135 135	4008 4013	2250 2253	57.6 53.1	53.7 49.3	1.94 2.01	2.3	22.6 24.1	0.47 0.51	51.1 55.1	108.6 108.2	0.575 0.575	0.199 0.198	0.259 0.257	0.45 0.45	Liquefaction Liquefaction
	34.22	6	52.1	1.12	135	4020	2257	48.0	44.4	2.24	2.4	26.6	0.51	65.6	113.6	0.575	0.136	0.237	0.49	Liquefaction
	34.27	6	45.3	1.16	135	4027	2260	41.7	38.3	2.68	2.5	30.9	0.69	93.7	135.4	0.575	0.311	0.404	0.70	Liquefaction
	34.32	6	40.8	1.14	135	4034	2264	37.5	34.2	2.94	2.6	33.8	0.77	125.4	162.9	0.575	0.482	0.627	1.09	Low F.S.
	34.37	6	35.5	1.04	135	4040	2268	32.6	29.5	3.11	2.6	37.0	0.80	130.5	163.1	0.575	0.483	0.628	1.09	NonLiqfble.
	34.42 34.47	6	30.8 27.1	0.96 0.98	135 135	4047 4054	2271 2275	28.3 24.9	25.3 22.0	3.34 3.91	2.7 2.8	40.6 45.7	0.80	113.1 99.4	141.4 124.3	0.575 0.575	0.343 0.259	0.446 0.336	0.77 0.58	NonLiqfble. NonLiqfble.
	34.52	6	24.5	0.90	135	4061	2279	22.5	19.7	4.45	2.9	50.0	0.80	89.8	112.3	0.575	0.239	0.330	0.48	NonLiqfble.
	34.57	6	23.6	1.02	135	4067	2282	21.6	18.9	4.73	2.9	51.9	0.80	86.5	108.1	0.576	0.197	0.257	0.45	NonLiqfble.
	34.62	6	25	0.98	135	4074	2286	22.9	20.1	4.27	2.8	48.9	0.80	91.5	114.4	0.576	0.219	0.285	0.50	NonLiqfble.
	34.7	6	33.6	0.78	135	4085	2292	30.7	27.5	2.47	2.6	35.0	0.80	122.8	153.6	0.576	0.417	0.542	0.94	Liquefaction
	34.78 34.89	6 6	27.9 22.5	0.63 0.65	125 125	4096 4110	2297 2304	25.5 20.5	22.5 17.7	2.44 3.18	2.7 2.8	38.3 46.6	0.80	101.9 82.0	127.3 102.5	0.576 0.576	0.272 0.180	0.354 0.234	0.61 0.41	NonLiqfble. NonLiqfble.
	34.99	6	21.1	0.81	125	4122	2311	19.2	16.5	4.25	2.9	52.9	0.80	76.8	96.0	0.576	0.162	0.211	0.37	NonLiqfble.
	35.09	6	28.8	0.77	135	4135	2317	26.2	23.1	2.88	2.7	40.2	0.80	104.7	130.9	0.576	0.289	0.375	0.65	NonLiqfble.
	35.17	6	42	0.72	125	4145	2323	38.1	34.4	1.80	2.4	27.8	0.61	59.1	97.3	0.576	0.166	0.215	0.37	Liquefaction
	35.28	6	40.8 35.4	0.67	125 125	4159	2330	37.0	33.2	1.73	2.4	27.8	0.61	57.6	94.6 121.4	0.577	0.159	0.206	0.36	Liquefaction
	35.38 35.48	6 6	32.1	0.71 0.7	125	4172 4184	2336 2342	32.0 29.0	28.5 25.6	2.13 2.33	2.5 2.6	32.6 35.5	0.74 0.80	89.3 116.1	145.1	0.577 0.577	0.246 0.364	0.320 0.473	0.56 0.82	Liquefaction NonLiqfble.
	35.58	6	31.6	0.68	125	4197	2348	28.5	25.1	2.31	2.6	35.6	0.80	114.1	142.7	0.577	0.350	0.455	0.79	NonLiqfble.
	35.68	6	27.7	0.66	125	4209	2355	25.0	21.7	2.58	2.7	39.7	0.80	99.9	124.9	0.577	0.261	0.339	0.59	NonLiqfble.
	35.79	6	27.3	0.6	125	4223	2361	24.6	21.3	2.38	2.7	38.9	0.80	98.3	122.9	0.577	0.253	0.328	0.57	NonLiqfble.
	35.89 35.99	6 6	26.6 25.5	0.54 0.52	125 125	4235 4248	2368 2374	23.9 22.9	20.7 19.7	2.21 2.22	2.7	38.5 39.5	0.80	95.7	119.6	0.578 0.578	0.239 0.220	0.311 0.285	0.54 0.49	NonLiqfble. NonLiqfble.
	36.1	6	22.7	0.52	125	4262	2374	20.4	17.3	2.48	2.7 2.8	43.5	0.80	91.6 81.4	114.5 101.8	0.578	0.220	0.233	0.49	NonLiqfble.
	36.2	6	20.2		125	4274	2387	18.1	15.1	2.66	2.8	47.1	0.80	72.4	90.4	0.578	0.149	0.193	0.33	NonLiqfble.
	36.3	6	18.6	0.45	125	4287	2393	16.6	13.7	2.73	2.9	49.6	0.80	66.5	83.2	0.578	0.134	0.174	0.30	NonLiqfble.
	36.41	6	17.2		125	4300	2400	15.4	12.5	2.66	2.9	51.1	0.80	61.4	76.8	0.579	0.122	0.159	0.27	NonLiqfble.
	36.51 36.61	6 6	16.3 15.9	0.34 0.31	115 115	4313 4324	2407 2412	14.5 14.2	11.7 11.4	2.40 2.26	2.9 2.9	51.1 50.8	0.80 0.80	58.2 56.7	72.7 70.8	0.579 0.579	0.116 0.113	0.150 0.147	0.26 0.25	NonLiqfble. NonLiqfble.
	36.72	6	15.7	0.31	115	4324	2412	14.2	11.4	1.85	2.9	48.4	0.80	55.9	69.9	0.579	0.113	0.147	0.25	NonLiqfble.
	36.82	6	15.8	0.25	115	4348	2423	14.0	11.2	1.83	2.8	48.2	0.80	56.2	70.2	0.580	0.112	0.146	0.25	NonLiqfble.
	36.93	6	15.7	0.23	105	4361	2429	13.9	11.1	1.70	2.8	47.4	0.80	55.8	69.7	0.580	0.111	0.145	0.25	NonLiqfble.
	36.99	6	12.9	0.23	105	4367	2431	11.4	8.8	2.15	3.0	56.1	0.80	45.8	57.2	0.580	0.097	0.127	0.22	NonLiqfble.
	37.04 37.14	6 6	14 14.8	0.23 0.23	105 105	4373 4383	2433 2438	12.4 13.1	9.7 10.3	1.95 1.82	2.9 2.9	52.4 50.0	0.80 0.80	49.7 52.5	62.1 65.6	0.580 0.581	0.102 0.106	0.133 0.138	0.23 0.24	NonLiqfble. NonLiqfble.
	57.14	0	14.0	0.23	103	4303	4430	13.1	10.5	1.04	2.9	50.0	0.80	34.3	03.0	0.561	0.100	0.130	0.24	romaquie.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 19

Depth to Groundwater: 6 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	q <sub>c1N</sub>	Q	F	Ic	(%)	Ксрт	Dqc1N	(qcIN)cs	Ratio	M7.5	M6.50	Safety	Comments
	37.24	6	16.6	0.23	105	4394	2442	14.7	11.8	1.60	2.8	45.4	0.80	58.8	73.5	0.581	0.117	0.152	0.26	NonLiqfble.
	37.35	6	15.7	0.22	105	4405	2447	13.9	11.0	1.63	2.8	47.1	0.80	55.6	69.4	0.581	0.111	0.144	0.25	NonLiqfble.
	37.45	6	17.4	0.25	115	4416	2451	15.4	12.4	1.65	2.8	44.7	0.80	61.5	76.9	0.582	0.122	0.159	0.27	NonLiqfble.
	37.56	6	17	0.27	115	4428	2457	15.0	12.0	1.83	2.8	46.7	0.80	60.0	75.0	0.582	0.119	0.155	0.27	NonLiqfble.
	37.66	6	18.5	0.33	115	4440	2462	16.3	13.2	2.03	2.8	46.1	0.80	65.3	81.6	0.582	0.130	0.170	0.29	NonLiqfble.
	37.76	6	21	0.5	125	4451	2467	18.5	15.2	2.66	2.8	47.0	0.80	74.0	92.5	0.583	0.154	0.200	0.34	NonLiqfble.
	37.87	6	23.1	0.88	135	4465	2474	20.3	16.9	4.22	2.9	52.3	0.80	81.3	101.6	0.583	0.178	0.231	0.40	NonLiqfble.
	37.97	6	45.7	1.42	135	4479	2481	40.1	35.0	3.27	2.6	34.9	0.80	160.1	200.2	0.583	0.826	1.074	1.84	
	38.07	6	76.1	1.5	135	4492	2488	66.7	59.3	2.03	2.3	21.9	0.45	54.9	121.6	0.583	0.247	0.322	0.55	Liquefaction
	38.15	6	140.9	1.57	125	4503	2494	123.4	111.1	1.13	1.9	10.7	0.15	22.0	145.4	0.583	0.366	0.476	0.82	Liquefaction
	38.24	6	215.8	1.85	125	4514	2500	188.8	170.8	0.87	1.7	6.0	0.03	5.3	194.1	0.583	0.760	0.988	1.69	
	38.41	6	424.2	1.65	105	4535	2511	370.4	336.0	0.39	1.2	-0.1	0.00	0.0	370.4	0.583	4.807	6.249	10.71	
	38.45	6	396.8	1.61	105	4540	2512	346.4	314.0	0.41	1.3	0.2	0.00	0.0	346.4	0.584	3.945	5.128	8.79	
	38.48	6	411.2	1.57	105	4543	2514	358.9	325.2	0.38	1.3	-0.1	0.00	0.0	358.9	0.584	4.378	5.691	9.75	
	38.53	6	409	1.63	105	4548	2516	356.8	323.2	0.40	1.3	0.1	0.00	0.0	356.8	0.584	4.304	5.595	9.58	
	38.78	6	399.9	1.87	105	4574	2526	348.1	314.6	0.47	1.3	0.6	0.00	0.0	348.1	0.585	4.003	5.204	8.90	
	38.87	6	380.8	1.9	105	4584	2530	331.2	299.1	0.50	1.4	1.0	0.00	0.0	331.2	0.585	3.460	4.498	7.69	
	38.97	6	363.5	1.83	105	4594	2534	315.9	284.9	0.51	1.4	1.2	0.00	0.0	315.9	0.585	3.012	3.916	6.69	
	39.06	6	366.6	1.73	105	4604	2538	318.4	286.9	0.47	1.4	1.0	0.00	0.0	318.4	0.586	3.081	4.006	6.84	
	39.14	6	388.9	1.85	105	4612	2542	337.5	304.1	0.48	1.3	0.8	0.00	0.0	337.5	0.586	3.656	4.752	8.11	
	39.19	6	400.6	1.94	105	4617	2544	347.5	313.0	0.49	1.3	0.7	0.00	0.0	347.5	0.586	3.983	5.178	8.83	
	39.24	6	416.2	1.88	105	4623	2546	360.9	325.0	0.45	1.3	0.4	0.00	0.0	360.9	0.586	4.452	5.787	9.87	
	39.28	6	416.8	1.79	105	4627	2548	361.3	325.3	0.43	1.3	0.2	0.00	0.0	361.3	0.586	4.466	5.806	9.90	
	39.33	6	408.8	1.74	105	4632	2550	354.2	318.7	0.43	1.3	0.3	0.00	0.0	354.2	0.587	4.213	5.478	9.34	
	39.39	6	392.8	1.8	105	4638	2552	340.2	305.9	0.46	1.3	0.6	0.00	0.0	340.2	0.587	3.741	4.864	8.29	
	39.43	6	388.1	2.09	115	4643	2554	336.0	302.0	0.54	1.4	1.2	0.00	0.0	336.0	0.587	3.608	4.690	7.99	
	39.49	6	394.4	1.7	105	4649	2557	341.3	306.5	0.43	1.3	0.5	0.00	0.0	341.3	0.587	3.776	4.908	8.36	
	39.55	6	400.3	1.42	105	4656	2560	346.2	310.8	0.36	1.2	-0.1	0.00	0.0	346.2	0.587	3.938	5.120	8.72	
	39.6	6	411.2	1.86	105	4661	2562	355.5	319.1	0.45	1.3	0.5	0.00	0.0	355.5	0.588	4.257	5.534	9.42	
	39.65	6	418.7	1.91	105	4666	2564	361.8	324.6	0.46	1.3	0.4	0.00	0.0	361.8	0.588	4.484	5.829	9.92	
	39.69	6	425.1	2.06	105	4670	2566	367.2	329.4	0.49	1.3	0.6	0.00	0.0	367.2	0.588	4.685	6.090	10.36	
	39.73	6	439.4	2.13	105	4675	2567	379.4	340.3	0.49	1.3	0.5	0.00	0.0	379.4	0.588	5.160	6.708	11.41	
	39.76	6	447.2	2.28	115	4678	2569	386.1	346.2	0.51	1.3	0.6	0.00	0.0	386.1	0.588	5.431	7.061	12.01	
	39.79	6	444.2	2.34	115	4681	2570	383.4	343.7	0.53	1.3	0.7	0.00	0.0	383.4	0.588	5.320	6.916	11.76	
	39.83	6	441.7	2.41	115	4686	2572	381.0	341.5	0.55	1.3	0.8	0.00	0.0	381.0	0.588	5.225	6.793	11.55	
	39.87	6	441.4	2.38	115	4690	2574	380.6	340.9	0.54	1.3	0.8	0.00	0.0	380.6	0.588	5.209	6.771	11.51	
	39.9	6	442.9	2.34	115	4694	2576	381.8	341.9	0.53	1.3	0.7	0.00	0.0	381.8	0.588	5.256	6.833	11.61	
	39.94	6	444.2	2.32	115	4698	2578	382.8	342.6	0.53	1.3	0.7	0.00	0.0	382.8	0.588	5.296	6.884	11.70	
	39.97	6	445.5	2.16	105	4702	2580	383.8	343.4	0.49	1.3	0.4	0.00	0.0	383.8	0.589	5.337	6.938	11.79	
	40	6	443.2	1.93	105	4705	2581	381.7	341.5	0.44	1.3	0.1	0.00	0.0	381.7	0.544	5.252	6.827	12.55	
	-	-																		

Total Effective Norm. Corr. Friction

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 20

Depth to Groundwater: 6 feet

Water Tip Sleeve

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

PGA (g): 0.54 MSF: 1.30

Induced Liquef. Liquef. Factor

		Water	Tip	Sleeve			Effective		Corr.	Friction							•	Liquef.		
C	Depth	Table	Resist.	Frict.	g (DCE)	Stress		Tip	Tip	Ratio	τ.	F.C.	Ксрт	Da .v.	(a m)	Stress	Stress	Stress	of C-6-4	C
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	KCPI	DqcIN	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	0.58	6	299	2.63	125	73	73	572.6	8243.8	0.88	1.2	-0.1	0.00	0.0	572.6	0.351	17.544	22.807	64.98	Above W.T.
	0.68	6	249.7	3.49	135	85	85	478.2	5871.8	1.40	1.4	1.5	0.00	0.0	478.2	0.351	10.251	13.327	37.97	Above W.T.
	0.78	6	212.9	3.77	135	99	99	407.7	4320.0	1.77	1.5	2.5	0.00	0.0	407.7	0.351	6.385	8.300	23.65	Above W.T.
	0.89 0.99	6 6	221.9 218.4	4.73 5.34	135 135	113 127	113 127	425.0 418.3	3912.7 3441.0	2.13 2.45	1.6 1.6	3.6 4.5	0.00	0.0	425.0 418.3	0.351 0.351	7.218 6.886	9.384 8.952	26.73 25.50	Above W.T. Above W.T.
	1.08	6	267.8	5.86	135	139	139	512.9	3850.6	2.43	1.6	3.8	0.00	0.0	512.9	0.351	12.627	16.416	46.77	Above W.T.
	1.18	6	250.3	5.45	135	153	153	479.4	3280.3	2.18	1.6	3.7	0.00	0.0	479.4	0.351	10.325	13.422	38.24	Above W.T.
	1.25	6	262.9	4.99	135	162	162	503.5	3244.3	1.90	1.5	2.8	0.00	0.0	503.5	0.351	11.951	15.537	44.26	Above W.T.
	1.34	6	253	4.46	135	174	174	484.5	2904.2	1.76	1.5	2.4	0.00	0.0	484.5	0.351	10.660	13.858	39.48	Above W.T.
	1.42	6	222.5	3.53	135	185	185	426.1	2404.7	1.59	1.4	1.8	0.00	0.0	426.1	0.351	7.276	9.459	26.95	Above W.T.
	1.51 1.61	6 6	175.2 115.8	2.95 2.65	135 135	197 211	197 211	335.5 221.8	1776.5 1098.5	1.68 2.29	1.5 1.6	2.3 5.0	0.00	0.0	335.5 221.8	0.351 0.351	3.593 1.094	4.671 1.423	13.31 4.05	Above W.T. Above W.T.
	1.71	6	93	2.55	135	224	224	178.1	828.8	2.75	1.7	7.0	0.05	10.3	188.4	0.351	0.702	0.912	2.60	Above W.T.
	1.8	6	64.1	1.65	135	236	236	122.8	541.5	2.58	1.8	7.9	0.08	10.3	133.1	0.351	0.299	0.389	1.11	Above W.T.
	1.9	6	54.7	1.7	135	250	250	104.8	436.9	3.11	1.9	10.5	0.15	18.0	122.7	0.351	0.252	0.327	0.93	Above W.T.
	1.99	6	47.9	1.51	135	262	262	91.7	364.7	3.16	1.9	11.5	0.17	19.3	111.0	0.351	0.207	0.269	0.77	Above W.T.
	2.08	6	41	1.21	135	274	274	78.5	298.1	2.96	2.0	12.0	0.19	17.9	96.4	0.351	0.163	0.212	0.61	Above W.T.
	2.18 2.27	6	36.4 35.6	0.88 0.98	135 135	288 300	288 300	69.7 68.2	252.1 236.5	2.43 2.76	1.9 2.0	11.1	0.16	13.5 17.6	83.2 85.8	0.351 0.351	0.134 0.139	0.174 0.180	0.49 0.51	Above W.T.
	2.37	6 6	37.1	0.97	135	313	313	71.1	235.8	2.63	2.0	12.7 12.2	0.21 0.19	17.0	88.0	0.351	0.139	0.186	0.53	Above W.T. Above W.T.
	2.46	6	32.3	1.1	135	325	325	61.9	197.5	3.42	2.1	16.1	0.30	26.2	88.1	0.351	0.144	0.187	0.53	Above W.T.
	2.55	6	29.1	1.2	135	337	337	55.7	171.4	4.15	2.2	19.5	0.39	35.2	90.9	0.351	0.150	0.195	0.56	Above W.T.
	2.65	6	28.8	1.12	135	351	351	55.2	163.1	3.91	2.2	19.2	0.38	33.7	88.8	0.351	0.145	0.189	0.54	Above W.T.
	2.74	6	25	1.15	135	363	363	47.9	136.6	4.63	2.3	22.9	0.48	43.8	91.7	0.351	0.152	0.197	0.56	Above W.T.
	2.83	6	22.9	1.09	135	375	375	43.9	121.0	4.80	2.4	24.6	0.52	47.9	91.8	0.351	0.152	0.197	0.56	Above W.T.
	2.93 3.03	6 6	21.1 19.3	1.13 1.21	135 135	389 402	389 402	40.4 37.0	107.5 94.9	5.41 6.34	2.4 2.5	27.5 31.3	0.60 0.70	60.6 86.8	101.0 123.8	0.351 0.351	0.176 0.256	0.228 0.333	0.65 0.95	Above W.T. Above W.T.
	3.12	6	17.9	1.26	135	414	414	34.3	85.4	7.12	2.6	34.5	0.79	126.2	160.5	0.351	0.465	0.604	1.72	Above W.T.
	3.22	6	17.8	1.3	135	428	428	34.1	82.2	7.39	2.6	35.6	0.80	136.4	170.5	0.351	0.541	0.703	2.00	Above W.T.
	3.32	6	17.9	1.34	135	441	441	34.3	80.1	7.58	2.6	36.3	0.80	137.1	171.4	0.351	0.548	0.713	2.03	Above W.T.
	3.42	6	18.7	1.4	135	455	455	35.8	81.2	7.58	2.6	36.1	0.80	143.3	179.1	0.351	0.614	0.798	2.27	Above W.T.
	3.52	6	18.9 17.7	1.43	135	468	468	36.2	79.7	7.66	2.6	36.6	0.80	144.8	181.0	0.351	0.631	0.821	2.34	Above W.T.
	3.62 3.72	6 6	17.7	1.43 1.42	135 135	482 495	482 495	33.9 33.5	72.4 69.6	8.19 8.23	2.7 2.7	39.0 39.7	0.80 0.80	135.6 134.1	169.5 167.6	0.351 0.351	0.533 0.518	0.693 0.673	1.97 1.92	Above W.T. Above W.T.
	3.82	6	16.9	1.38	135	509	509	32.4	65.4	8.29	2.7	40.7	0.80	129.5	161.8	0.351	0.474	0.616	1.76	Above W.T.
	3.93	6	15.8	1.31	135	524	524	30.2	59.3	8.43	2.7	42.4	0.80	120.8	151.0	0.351	0.400	0.521	1.48	Above W.T.
	4.03	6	15.5	1.24	135	537	537	29.3	56.7	8.14	2.7	42.4	0.80	117.0	146.3	0.351	0.371	0.483	1.37	Above W.T.
	4.14	6	14.2	1.17	135	552	552	26.4	50.4	8.40	2.8	44.8	0.80	105.8	132.2	0.351	0.295	0.383	1.09	Above W.T.
	4.24	6	13.5	1.09	125	566	566	24.8	46.7	8.25	2.8	45.6	0.80	99.3	124.2	0.351	0.258	0.336	0.96	Above W.T.
	4.35 4.45	6 6	12.8 12	1.04 0.99	125 125	579 592	579 592	23.3 21.6	43.2 39.5	8.31 8.46	2.8 2.8	47.1 48.9	0.80 0.80	93.1 86.3	116.3 107.9	0.351	0.226 0.197	0.294 0.256	0.84 0.73	Above W.T. Above W.T.
	4.55	6	12.1	0.95	125	604	604	21.5	39.0	8.05	2.8	48.2	0.80	86.1	107.7	0.351	0.197	0.255	0.73	Above W.T.
	4.66	6	12.4	0.92	125	618	618	21.8	39.1	7.61	2.8	47.0	0.80	87.3	109.1	0.351	0.201	0.261	0.74	Above W.T.
	4.77	6	12.4	0.92	125	632	632	21.6	38.2	7.61	2.8	47.4	0.80	86.3	107.9	0.351	0.197	0.256	0.73	Above W.T.
	4.87	6	12.5	0.92	125	644	644	21.5	37.8	7.55	2.8	47.5	0.80	86.2	107.7	0.351	0.196	0.255	0.73	Above W.T.
	4.98	6	12.7	0.92	125	658	658	21.7	37.6	7.44	2.8	47.3	0.80	86.6	108.3	0.351	0.198	0.258	0.73	Above W.T.
	5.08 5.19	6	13 12.6	0.85 0.79	125 125	671 684	671 684	22.0 21.1	37.8 35.8	6.71 6.44	2.8	45.3 45.5	0.80 0.80	87.9 84.3	109.8 105.4	0.351	0.203	0.264	0.75 0.70	Above W.T. Above W.T.
	5.29	6	12.5	0.79	125	697	697	20.7	34.9	6.09	2.8	44.9	0.80	82.9	103.4	0.351	0.183	0.243	0.70	Above W.T.
	5.39	6	13.1	0.72	125	709	709	21.5	35.9	5.65	2.7	43.1	0.80	86.1	107.6	0.351	0.196	0.255	0.73	Above W.T.
	5.5	6	12.3	0.7	125	723	723	20.0	33.0	5.86	2.8	45.2	0.80	80.1	100.1	0.351	0.173	0.225	0.64	Above W.T.
	5.6	6	12.6	0.69	125	736	736	20.3	33.2	5.64	2.8	44.4	0.80	81.3	101.6	0.351	0.178	0.231	0.66	Above W.T.
	5.71	6	12.7	0.71	125	749	749	20.3	32.9	5.76	2.8	44.9	0.80	81.2	101.5	0.351	0.177	0.230	0.66	Above W.T.
	5.82	6	12.9	0.72	125	763	763	20.4	32.8	5.75	2.8	45.0	0.80	81.7	102.2	0.351	0.179	0.233	0.66	Above W.T.
	5.92 6.03	6 6	12.5 12.3	0.74 0.74	125 125	776 789	776 782	19.6 19.2	31.2 30.4	6.11 6.22	2.8 2.8	46.9 47.7	0.80 0.80	78.6 77.0	98.2 96.2	0.351 0.354	0.168 0.163	0.218 0.212	0.62 0.60	Above W.T. NonLiqfble.
	6.14	6	11.2	0.74	125	803	789	17.4	27.3	6.67	2.9	50.9	0.80	69.8	87.2	0.357	0.103	0.212	0.52	NonLiqfble.
	6.24	6	11.2	0.67	125	816	796	17.4	27.1	6.21	2.9	49.8	0.80	69.5	86.9	0.360	0.141	0.183	0.51	NonLiqfble.
	6.35	6	10.2	0.6	125	829	803	15.8	24.4	6.13	2.9	51.6	0.80	63.0	78.8	0.363	0.125	0.163	0.45	NonLiqfble.
	6.46	6	9.6	0.48	115	843	809	14.8	22.7	5.23	2.9	50.1	0.80	59.1	73.8	0.366	0.117	0.153	0.42	NonLiqfble.
	6.57	6	9.1	0.37	115	856	815	13.9	21.3	4.27	2.8	47.8	0.80	55.8	69.7	0.368	0.112	0.145	0.39	NonLiqfble.
	6.67	6	9.4	0.31	115	867	820	14.4	21.8	3.46	2.8	43.9	0.80	57.4	71.8	0.371	0.114	0.149	0.40	NonLiqfble.

Date: September 2005 CPT Number: 20

Depth to Groundwater: 6 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 Project Number: 6600.3.001.01 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Lianef.	Liquef.	Factor	
	Depth	Table		Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	Dqc1N	(qclN)cs	Ratio	M7.5	M6.50	Safety	Comments
	0.70			0.00		000	027		20.5	2.42	• •	45.0	0.00	540	<i></i>	0.254	0.400	0.1.12	0.20	
	6.78 6.89	6 6	8.9 8	0.29	115 115	880 893	826 832	13.5 12.1	20.5 18.1	3.43 3.97	2.8	45.0 49.7	0.80	54.2 48.5	67.7 60.7	0.374 0.377	0.109 0.101	0.142 0.131	0.38 0.35	NonLiqfble. NonLiqfble.
	7	6	8.1	0.31	115	905	838	12.1	18.2	4.05	2.9	50.0	0.80	49.0	61.2	0.377	0.101	0.131	0.35	NonLiqfble.
	7.1	6	7.6	0.31	115	917	843	11.5	16.9	4.34	2.9	52.7	0.80	45.8	57.3	0.382	0.097	0.127	0.33	NonLiqfble.
	7.21	6	7.8	0.32	115	929	849	11.7	17.3	4.36	2.9	52.4	0.80	46.9	58.6	0.384	0.099	0.128	0.33	NonLiqfble.
	7.32	6	8.5	0.3	115	942	855	12.7	18.8	3.74	2.8	48.0	0.80	50.9	63.6	0.387	0.104	0.135	0.35	NonLiqfble.
	7.42	6	7.8	0.29	105	954	860	11.6	17.0	3.96	2.9	51.0	0.80	46.6	58.2	0.389	0.098	0.128	0.33	NonLiqfble.
	7.53	6	7.8	0.3	115	965	865	11.6	16.9	4.10	2.9	51.7	0.80	46.4	58.0	0.392	0.098	0.128	0.33	NonLiqfble.
	7.64 7.74	6 6	7.5 7.3	0.31 0.33	115	978 989	870	11.1	16.1	4.42	2.9	54.1	0.80	44.5	55.6 54.0	0.394	0.096	0.125	0.32	NonLiqfble.
	7.74	6	7.3 8.2	0.34	115 115	1002	876 881	10.8 12.1	15.5 17.5	4.85 4.42	3.0 2.9	56.5 52.3	0.80	43.2 48.3	60.4	0.397 0.399	0.095 0.101	0.123 0.131	0.31 0.33	NonLiqfble. NonLiqfble.
	7.96	6	9.9	0.35	115	1015	887	14.5	21.2	3.73	2.8	45.7	0.80	58.2	72.7	0.401	0.101	0.151	0.37	NonLiqfble.
	8.06	6	10	0.36	115	1026	892	14.6	21.3	3.79	2.8	45.9	0.80	58.6	73.2	0.404	0.117	0.151	0.38	NonLiqfble.
	8.17	6	9.6	0.36	115	1039	898	14.0	20.2	3.96	2.8	47.6	0.80	56.1	70.1	0.406	0.112	0.146	0.36	NonLiqfble.
	8.27	6	9.4	0.36	115	1050	904	13.7	19.6	4.06	2.8	48.5	0.80	54.7	68.4	0.408	0.110	0.143	0.35	NonLiqfble.
	8.38	6	9.2	0.36	115	1063	909	13.3	19.1	4.15	2.9	49.5	0.80	53.4	66.7	0.410	0.108	0.140	0.34	NonLiqfble.
	8.49	6	8.7	0.35	115	1075	915	12.6	17.8	4.29	2.9	51.4	0.80	50.3	62.9	0.413	0.103	0.134	0.33	NonLiqfble.
	8.52 8.61	6 6	8.9 9.1	0.34 0.34	115 115	1079 1089	917 921	12.9 13.1	18.2 18.6	4.07 3.97	2.9 2.9	50.0 49.3	0.80	51.4 52.5	64.3 65.6	0.413 0.415	0.105 0.106	0.136 0.138	0.33	NonLiqfble. NonLiqfble.
	8.72	6	9.4	0.34	115	1102	927	13.5	19.1	3.84	2.8	48.2	0.80	54.0	67.5	0.417	0.100	0.136	0.34	NonLiqfble.
	8.82	6	9.3	0.33	115	1113	932	13.3	18.7	3.77	2.8	48.2	0.80	53.3	66.6	0.419	0.108	0.140	0.33	NonLiqfble.
	8.93	6	9.5	0.32	115	1126	938	13.6	19.0	3.58	2.8	47.1	0.80	54.3	67.9	0.421	0.109	0.142	0.34	NonLiqfble.
	9.03	6	9.4	0.31	115	1138	943	13.4	18.7	3.51	2.8	47.1	0.80	53.6	66.9	0.423	0.108	0.140	0.33	NonLiqfble.
	9.13	6	8.8	0.32	115	1149	949	12.5	17.3	3.89	2.9	50.3	0.80	50.0	62.5	0.425	0.103	0.134	0.31	NonLiqfble.
	9.24	6	8.5	0.33	115	1162	955	12.0	16.6	4.17	2.9	52.4	0.80	48.2	60.2	0.427	0.100	0.130	0.31	NonLiqfble.
	9.34 9.45	6 6	8.3 8.4	0.32 0.33	115 115	1173 1186	960 966	11.7 11.8	16.1 16.2	4.15 4.23	2.9 2.9	53.0 53.2	0.80	46.9 47.3	58.6 59.1	0.429 0.431	0.099 0.099	0.128 0.129	0.30 0.30	NonLiqfble. NonLiqfble.
	9.55	6	8.7	0.36	115	1197	971	12.2	16.7	4.44	2.9	53.4	0.80	48.9	61.1	0.431	0.101	0.129	0.30	NonLiqfble.
	9.66	6	8.9	0.38	115	1210	977	12.5	17.0	4.58	2.9	53.6	0.80	49.8	62.3	0.435	0.102	0.133	0.31	NonLiqfble.
	9.76	6	9.9	0.41	115	1222	982	13.8	18.9	4.41	2.9	50.7	0.80	55.3	69.1	0.437	0.111	0.144	0.33	NonLiqfble.
	9.87	6	10.7	0.44	115	1234	988	14.9	20.4	4.36	2.9	49.0	0.80	59.6	74.5	0.439	0.118	0.154	0.35	NonLiqfble.
	9.97	6	10	0.45	115	1246	993	13.9	18.9	4.80	2.9	52.2	0.80	55.5	69.4	0.440	0.111	0.144	0.33	NonLiqfble.
	10.08	6	9.9	0.47	115	1258	999	13.7	18.6	5.07	2.9	53.5	0.80	54.8	68.5	0.433	0.110	0.143	0.33	NonLiqfble.
	10.18 10.28	6 6	9.7 9	0.49 0.51	115 115	1270 1281	1004 1009	13.4 12.4	18.1 16.6	5.41 6.10	3.0	55.3 59.5	0.80	53.6 49.6	67.0 62.0	0.435 0.437	0.108 0.102	0.140 0.133	0.32	NonLiqfble. NonLiqfble.
	10.20	6	9.5	0.53	125	1294	1015	13.0	17.4	5.99	3.0	58.0	0.80	52.2	65.2	0.439	0.102	0.133	0.31	NonLiqfble.
	10.49	6	9.2	0.56	125	1306	1021	12.6	16.7	6.55	3.0	60.7	0.80	50.4	63.0	0.440	0.103	0.134	0.30	NonLiqfble.
	10.59	6	8.9	0.57	125	1319	1028	12.1	16.0	6.92	3.1	62.7	0.80	48.6	60.7	0.442	0.101	0.131	0.30	NonLiqfble.
	10.7	6	9.1	0.56	125	1333	1034	12.4	16.3	6.64	3.0	61.5	0.80	49.5	61.9	0.443	0.102	0.133	0.30	NonLiqfble.
	10.8	6	9.2	0.53	115	1345	1041	12.5	16.4	6.22	3.0	60.1	0.80	49.9	62.4	0.445	0.103	0.133	0.30	NonLiqfble.
	10.9	6	8.9 8.9	0.5 0.46	115	1357	1046	12.0	15.7	6.08	3.0	60.6 59.1	0.80	48.2	60.2	0.446	0.100	0.130	0.29 0.29	NonLiqfble.
	11 11.11	6 6	8.3	0.46	115 115	1368 1381	1051 1057	12.0 11.2	15.6 14.4	5.60 5.78	3.0	61.6	0.80	48.0 44.7	60.1 55.9	0.448 0.449	0.100 0.096	0.130 0.125	0.29	NonLiqfble. NonLiqfble.
	11.21	6	8.4	0.42	115	1392	1062	11.3	14.5	5.45	3.0	60.3	0.80	45.1	56.4	0.451	0.097	0.126	0.28	NonLiqfble.
	11.31	6	8.8	0.42	115	1404	1068	11.8	15.2	5.19	3.0	58.3	0.80	47.1	58.9	0.452	0.099	0.129	0.28	NonLiqfble.
	11.42	6	8.3	0.42	115	1417	1073	11.1	14.1	5.53	3.0	61.1	0.80	44.3	55.4	0.454	0.096	0.125	0.27	NonLiqfble.
	11.52	6	9.2	0.43	115	1428	1079	12.3	15.7	5.07	3.0	57.1	0.80	49.0	61.3	0.455	0.101	0.132	0.29	NonLiqfble.
	11.62 11.73	6	9.6	0.44	115	1440	1084	12.8	16.4	4.95	3.0	55.8	0.80	51.0	63.8	0.457	0.104	0.135	0.30	NonLiqfble.
	11.73	6 6	9.3 9.1	0.46 0.47	115 115	1452 1464	1090 1095	12.3 12.0	15.7 15.3	5.37 5.62	3.0	58.1 59.7	0.80	49.3 48.1	61.6 60.2	0.458 0.460	0.102 0.100	0.132 0.130	0.29 0.28	NonLiqfble. NonLiqfble.
	12.12	6	9.6	0.47	115	1497	1110	12.6	15.9	5.76	3.0	59.2	0.80	50.4	63.0	0.464	0.100	0.134	0.29	NonLiqfble.
	12.23	6	9.5	0.52	125	1510	1116	12.4	15.7	5.95	3.0	60.2	0.80	49.8	62.2	0.465	0.102	0.133	0.29	NonLiqfble.
	12.34	6	9.7	0.51	125	1523	1123	12.7	15.9	5.71	3.0	59.1	0.80	50.7	63.3	0.467	0.104	0.135	0.29	NonLiqfble.
	12.44	6	9.8	0.5	115	1536	1129	12.8	16.0	5.54	3.0	58.4	0.80	51.0	63.8	0.468	0.104	0.135	0.29	NonLiqfble.
	12.55	6	9.8	0.48	115	1549	1135	12.7	15.9	5.32	3.0	57.7	0.80	50.9	63.6	0.469	0.104	0.135	0.29	NonLiqfble.
	12.66	6	9.1	0.47	115		1141	11.8	14.6	5.65	3.0	60.8	0.80	47.2	58.9	0.471	0.099	0.129	0.27	NonLiqfble.
	12.76 12.87	6 6	9.6 9.8	0.48 0.48	115 115	1573 1585	1146 1152	12.4 12.6	15.4 15.6	5.45 5.33	3.0	58.9 58.1	0.80	49.6 50.5	62.0 63.2	0.472 0.474	0.102 0.103	0.133 0.134	0.28 0.28	NonLiqfble. NonLiqfble.
	12.98	6	10.1	0.48	115		1152	13.0	16.1	5.16	3.0	56.9	0.80	52.0	64.9	0.474	0.105	0.134	0.28	NonLiqfble.
	13.09	6	10.4	0.48	125	1611	1163	13.3	16.5	5.00	3.0	55.8	0.80	53.4	66.7	0.476	0.108	0.140	0.29	NonLiqfble.
	13.19	6	10.2		115	1623	1170	13.1	16.0	4.90	3.0	56.0	0.80	52.2	65.3	0.477	0.106	0.138	0.29	NonLiqfble.
	13.3	6	9.7	0.44	115		1175	12.4	15.1	4.95	3.0	57.5	0.80	49.5	61.9	0.479	0.102	0.133	0.28	NonLiqfble.
	13.41	6	9.5	0.42	115	1648	1181	12.1	14.7	4.84	3.0	57.7	0.80	48.4	60.5	0.480	0.101	0.131	0.27	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 20

Depth to Groundwater: 6 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

MSF: 1.30

0.532

0.533

0.117

0.130

0.29

0.32

0.152

0.168

NonLigfble.

NonLiafble.

Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Stress Stress Stress g (TSF) (TSF) (PCF) (PSF) (PSF) (%) KCPT DqcIN (qcIN)cs Ratio M7.5 M6.50 Safety (FT) (FT) **Q**c1N 0 Comments Ic 13.52 6 8.8 0.4 115 1661 1187 11.2 13.4 5.02 3.0 60.5 0.80 44.7 55.9 0.481 0.096 0.125 0.26 NonLigfble. 13.62 6 9.5 0.41 115 1673 1192 12.0 14.5 4.73 3.0 57.6 0.80 48.2 60.2 0.483 0.100 0.130 0.27 NonLiqfble. 13.73 10.7 0.44 115 1685 1198 13.5 16.5 4.46 2.9 53.8 0.80 54.1 67.6 0.484 0.109 0.141 0.29 NonLiqfble. 13.83 11.3 0.48 125 1697 1203 14.3 17.4 4.59 2.9 53.1 0.80 57.0 71.3 0.485 0.114 0.148 0.30 NonLiqfble. 13.94 11.3 0.52 125 1711 1210 14.2 17.3 4.98 2.9 54.7 0.80 56.9 0.486 0.113 0.147 0.30 NonLiqfble. 14.05 11.3 0.54 125 1724 1217 14.2 17.1 5.17 3.0 55.6 0.80 56.7 70.9 0.487 0.113 0.147 0.30 NonLiqfble. 6 14.15 10.9 0.53 125 1737 1223 13.6 5.28 3.0 56.9 0.80 54.5 68.2 0.488 0.142 0.29 NonLiafble. 6 16.4 0.109 14.26 0.51 125 1230 5.35 3.0 0.80 51.9 0.490 0.137 0.28 NonLiafble. 10.4 1751 13.0 15.5 58.5 64.9 0.105 14.36 0.45 115 1236 5.16 3.0 59.9 0.80 47.8 59.7 0.491 0.130 NonLiafble. 6 9.6 1763 11.9 14.1 0.1000.26 14.47 6 8.5 0.4 115 1776 1242 10.6 12.3 5.25 3.1 63.5 0.80 42.2 52.8 0.492 0.094 0.122 0.25 NonLigfble. 14.57 6 8.5 0.35 115 1787 1247 10.5 12.2 4.60 3.0 61.1 0.80 42.1 52.7 0.493 0.094 0.122 0.25 NonLigfble 14.68 8.4 0.31 115 1800 1253 12.0 4.13 59.5 0.80 41.5 51.9 0.494 0.093 0.121 0.24 NonLiqfble. 10.4 3.0 14.79 6 8.5 0.3 115 1812 1259 10.5 12.1 3.95 3.0 58.6 0.80 419 52.4 0.495 0.093 0.121 0.25 NonLiqfble. 14.89 8.3 0.26 105 1824 1264 10.2 11.7 3.52 3.0 57.3 0.80 40.9 51.1 0.496 0.092 0.120 0.24 NonLiqfble. 115 15 8.3 0.31 1836 1269 10.2 11.6 4.20 3.0 60.5 0.80 40.8 51.0 0.498 0.092 0.120 0.24 NonLiafble. 15.11 8.9 0.32 115 1848 1275 10.9 12.5 4.01 3.0 58.0 0.80 43.6 54.5 0.499 0.095 0.124 0.25 NonLiqfble. 6.3 0.33 1853 3.2 30.9 0.499 0.085 0.22 15.15 6 105 1277 7.7 8.4 6.14 76.3 0.80 38.6 0.111 NonLiafble. 15.19 0.500 9.3 0.34 115 1857 1279 11.4 4.06 3.0 57.2 0.80 45.5 0.097 0.126 0.25 NonLigfble. 6 13.1 56.9 15.3 6 8.9 0.36 115 1870 1284 10.9 12.4 4.52 3.0 60.3 0.80 43.5 54.3 0.501 0.095 0.123 0.25 NonLigfble. 15.41 0.37 0.502 6 7.9 115 1882 1290 9.6 10.8 5.32 3.1 66.8 0.80 38.5 48.1 0.090 0.117 0.23 NonLigfble. 15.51 8.3 0.38 115 1894 1295 10.1 11.3 5.17 3.1 65.0 0.80 40.4 50.5 0.503 0.092 0.1200.24NonLigfble. 15 62 6 8.5 0.38 115 1906 1301 10.3 11.6 5.04 3 1 64.0 0.80 41.2 51.6 0.504 0.093 0.121 0.24NonLiqfble. 15.73 6 8.6 0.4 115 1919 1307 10.4 11.7 5 24 3.1 64.6 0.80 41.6 52.0 0.505 0.093 0.121 0.24NonLiqfble. 15.83 9.1 0.41 115 1931 1312 11.0 12.4 5.04 3.1 62.4 0.80 44.0 55.0 0.506 0.095 0.124 0.25 NonLiqfble. 6 15.94 0.41 115 1943 1318 10.8 12.2 5.11 3.1 63.1 0.80 43.4 54.2 0.507 0.095 0.123 0.24 NonLiqfble. 16.05 9.2 0.42 115 1956 1324 11.1 12.4 5.11 3.1 62.6 0.80 44.3 55.3 0.508 0.096 0.124 0.24 NonLigfble. 16.15 9.3 0.42 115 1967 1329 11.2 12.5 5.05 3.1 62.2 0.80 44.6 55.8 0.509 0.096 0.125 0.25 NonLiqfble. 16.26 9.3 0.41 115 1980 1335 4.93 0.80 44.6 55.7 0.510 0.096 0.125 0.24 6 12.4 3.0 61.9 NonLigfble. 11.1 16.37 0.41 1341 6 9.1 115 1993 10.9 12.1 5.06 3.1 63.1 0.80 43.5 54.4 0.511 0.095 0.123 0.24 NonLigfble. 16.48 8.8 0.4 0.80 42.0 52.5 0.093 0.24 NonLiafble. 6 115 2005 1346 10.5 11.6 5.13 3.1 64.4 0.512 0.121 16.58 9.8 0.39 2017 1352 4.44 3.0 58.9 0.80 58.3 0.513 0.098 0.128 0.25 NonLiafble. 6 115 11.7 13.0 46.7 16 69 6 10 0.39 115 2029 1357 119 13.2 4 34 3.0 58.1 0.80 47.5 59 4 0.514 0.099 0.129 0.25 NonLiafble. 16.8 6 89 0.37 115 2042 1363 10.5 11.6 4.70 3.1 62.7 0.80 42.2 52.7 0.515 0.094 0.122 0.24NonLiqfble. 16.91 8.8 0.33 115 2055 1369 10.4 11.4 4.25 3.0 61.3 0.80 41.6 52.0 0.516 0.093 0.121 0.23 NonLiqfble. 17.01 8.5 0.28 115 2066 1374 10.0 10.9 3.75 3.0 60.1 0.80 40.1 50.2 0.517 0.092 0.119 0.23 NonLiqfble. 6 17.12 7.2 0.23 1380 NonLiqfble. 105 2079 8.5 8.9 3.73 3.1 64.9 0.80 33.9 42.4 0.518 0.087 0.113 0.22 17.23 7.3 0.21 105 2090 1385 8.6 9.0 3.36 3.1 62.7 0.80 34.3 42.9 0.519 0.087 0.114 0.22 NonLigfble 17.33 7.1 0.21 105 2101 1389 8.3 8.7 3.47 3.1 64.2 0.80 33.3 41.7 0.520 0.087 0.113 0.22 NonLiqfble. 17.44 7.4 0.2 105 2113 1394 8.7 9.1 3.15 3.0 0.80 34.7 43.4 0.521 0.088 0.114 0.22 NonLiqfble. 6 61.4 0.22 17.54 7.8 0.19 105 2123 1398 9.1 9.6 2.82 3.0 58.2 0.80 36.5 45.6 0.522 0.089 0.115 NonLiafble. 6 17.65 1403 9.7 0.523 6 8.3 0.2 105 2135 10.3 2.77 3.0 56.2 0.80 38.8 48.5 0.091 0.118 0.22 NonLiafble. 17.75 6 8.3 0.21 105 2145 1407 9.7 10.3 2.91 3.0 57.1 0.80 38.7 48.4 0.524 0.091 0.118 0.22 NonLiafble. 17.86 7.3 0.21 105 2157 1412 8.5 8.8 3.38 3.1 63.4 0.80 34.0 42.5 0.526 0.087 0.113 0.22 NonLiqfble. 17.97 6 8.8 0.2 105 2168 1416 10.2 10.9 2.59 2.9 53.9 0.80 40.9 51.2 0.527 0.092 0.120 0.23 NonLigfble. 0.089 18.07 7.9 0.2 105 2179 1420 9.2 9.6 2.94 3.0 58.9 0.80 36.7 45.9 0.528 0.116 0.22 NonLiqfble. 18.18 7.8 0.21 105 2190 1425 9.0 9.4 3.13 3.0 60.5 0.80 36.2 45.2 0.529 0.089 0.115 0.22 NonLiqfble. 18.29 7.6 0.21 105 2202 1430 3.23 3.0 0.80 35.2 44.0 0.530 0.114 0.22 NonLiqfble. 8.8 9.1 61.9 0.088 18.39 9.2 0.22 105 2212 1434 10.6 11.3 2.72 2.9 53.9 0.80 42.5 53.1 0.531 0.094 0.122 0.23 NonLiqfble. 18.68 13 0.33 115 2243 1446 15.0 16.4 2.78 2.8 46.1 0.80 59.8 74.8 0.533 0.119 0.155 0.29 NonLiqfble. 0.158 18.79 13.3 0.38 2255 1452 3.12 2.8 47.5 0.80 0.534 0.30 6 115 15.3 16.8 61.1 76.4 0.121 NonLiqfble. 125 49.0 0.535 13.1 0.4 2268 1458 15.0 3.34 2.9 0.80 60.0 75.1 0.155 0.29 NonLigfble. 18.9 16.4 0.119 6 19.01 0.43 6 13.1 125 2282 1465 15.0 16.3 3.60 2.9 50.3 0.80 59.9 74.9 0.536 0.119 0.155 0.29 NonLigfble. 19.11 6 13.6 0.45 125 2294 1471 15.5 16.9 3.61 2.9 49.6 0.80 62.1 77.6 0.536 0.1230.160 0.30 NonLigfble. 19.22 13.3 0.45 125 2308 1478 15.1 16.4 3.71 2.9 50.6 0.80 60.5 75.7 0.537 0.1200.156 0.29 NonLiqfble. 19 33 6 13 1 0 44 125 2322 1485 149 16.1 3 69 29 51.0 0.80 59 5 74 4 0.538 0.118 0.154 0.29 NonLiafble 19.43 12.1 0.43 125 2334 1491 13.7 147 3.93 29 54 1 0.80 54 8 68.5 0.538 0.110 0.143 0.27 NonLiqfble. 6 19.54 11.7 0.4 115 2348 1498 13.2 14.0 3.80 2.9 54.4 0.80 52.9 66.1 0.539 0.107 0.139 0.26 NonLiqfble. 6 19.65 55.6 0.540 NonLiqfble. 11.3 0.39 115 2361 1504 12.7 13.5 3.85 3.0 0.80 51.0 63.7 0.104 0.135 0.25 19.76 2373 3.65 2.9 0.541 NonLiqfble. 11.6 0.38 115 1510 13.1 13.8 54.1 0.80 52.3 65.3 0.106 0.138 0.25 19.86 12.2 0.38 115 2385 1515 13.7 14.5 3.45 2.9 52.1 0.80 54.9 68.6 0.541 0.110 0.143 0.26 NonLiqfble. 19.97 12.2 0.38 115 2397 1521 14.5 3.45 2.9 52.2 0.80 54.8 68.4 0.542 0.110 0.143 0.26 13.7 NonLigfble. 6

2.94

2.48

2.8

48.1

43.4

0.80

0.80

58.7

64.8

73.4

81.1

15.6

17.3

0.35

0.33

13.1

14.5

6

115 2410

115

2422

1527

1532

14.7

16.2

20.08

20.18

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 20

Depth to Groundwater: 6 feet

**EQ Magnitude (M<sub>w</sub>):** 6.5 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress		Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqeIN	( <b>q</b> c1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	20.29	6	14.7	0.32	115	2434	1538	16.4	17.5	2.37	2.7	42.6	0.80	65.6	82.0	0.533	0.131	0.171	0.32	NonLiqfble.
	20.4	6	14.8	0.31	115	2447	1543	16.5	17.6	2.28	2.7	42.0	0.80	65.9	82.4	0.534	0.132	0.172	0.32	NonLiqfble.
	20.5 20.61	6 6	15.2 14.5	0.31	115 115	2458 2471	1549 1554	16.9 16.1	18.0 17.1	2.22 2.26	2.7 2.7	41.1 42.4	0.80 0.80	67.6 64.4	84.5 80.5	0.535 0.536	0.136 0.128	0.177 0.167	0.33	NonLiqfble. NonLiqfble.
	20.71	6	14.2	0.28	115	2483	1560	15.7	16.6	2.16	2.7	42.3	0.80	62.9	78.7	0.536	0.125	0.163	0.30	NonLiqfble.
	20.82	6	14	0.26	115	2495	1565	15.5	16.3	2.04	2.7	41.9	0.80	61.9	77.4	0.537	0.123	0.160	0.30	NonLiqfble.
	20.92 21.03	6 6	13.2 13	0.25 0.25	115 115	2507 2519	1571 1576	14.6 14.3	15.2 14.9	2.09 2.13	2.8 2.8	24.5 24.5	0.52 0.52	15.8 15.6	30.4 29.9	0.538 0.538	0.083 0.082	0.107 0.107	0.20 0.20	NonLiqfble. NonLiqfble.
	21.13	6	13	0.25	115	2531	1582	14.3	14.8	2.13	2.8	24.5	0.52	15.5	29.8	0.539	0.082	0.107	0.20	NonLiqfble.
	21.24	6	13.2	0.24	115	2544	1588	14.5	15.0	2.01	2.8	24.5	0.52	15.7	30.2	0.540	0.083	0.107	0.20	NonLiqfble.
	21.34	6	13.3	0.24	115	2555	1593	14.6	15.1	2.00	2.7	24.5	0.52	15.8	30.4	0.541	0.083	0.107	0.20	NonLiqfble.
	21.45 21.56	6 6	13.5 13.5	0.24 0.31	115 115	2568 2580	1599 1604	14.8 14.7	15.3 15.2	1.96 2.54	2.7 2.8	24.5 24.5	0.52 0.52	16.0 16.0	30.8 30.8	0.541 0.542	0.083	0.108 0.108	0.20	NonLiqfble. NonLiqfble.
	21.66	6	14.6	0.33	115	2592	1610	15.9	16.5	2.48	2.8	24.5	0.52	17.3	33.2	0.543	0.083	0.108	0.20	NonLiqfble.
	21.76	6	14.3	0.33	115	2603	1615	15.6	16.1	2.54	2.8	24.5	0.52	16.9	32.5	0.543	0.083	0.108	0.20	NonLiqfble.
	21.8	6	15.8	0.33	115	2608	1617	17.2	17.9	2.28	2.7	24.5	0.52	18.7	35.9	0.543	0.084	0.110	0.20	NonLiqfble.
	21.91 22.02	6 6	15.6 15.5	0.31 0.29	115 115	2621 2633	1623 1629	16.9 16.8	17.6 17.4	2.17 2.04	2.7 2.7	24.5 24.5	0.52 0.52	18.4 18.3	35.3 35.1	0.544 0.545	0.084 0.084	0.109 0.109	0.20	NonLiqfble. NonLiqfble.
	22.13	6	15.6	0.26	115	2646	1634	16.9	17.5	1.82	2.7	24.5	0.52	18.3	35.1	0.546	0.084	0.109	0.20	NonLiqfble.
	22.23	6	15.6	0.24	115	2657	1640	16.9	17.4	1.68	2.7	24.5	0.52	18.3	35.2	0.546	0.084	0.109	0.20	NonLiqfble.
	22.34	6	15.1	0.22	105	2670	1645	16.3	16.7	1.60	2.7	24.5	0.52	17.7	34.0	0.547	0.084	0.109	0.20	NonLiqfble.
	22.45 22.55	6 6	14.6 13.5	0.2 0.17	105 105	2682 2692	1650 1654	15.7 14.5	16.1 14.7	1.51 1.40	2.7 2.7	24.5 39.3	0.52 0.80	17.1 58.1	32.8 72.6	0.548 0.548	0.083 0.116	0.108 0.150	0.20 0.27	NonLiqfble. NonLiqfble.
	22.66	6	12.4	0.17	105	2704	1659	13.3	13.3	1.54	2.7	42.4	0.80	53.3	66.6	0.549	0.110	0.130	0.27	NonLiqfble.
	22.77	6	12.4	0.18	105	2715	1664	13.3	13.3	1.63	2.7	43.1	0.80	53.2	66.5	0.550	0.107	0.140	0.25	NonLiqfble.
	22.87	6	12.4	0.19	105	2726	1668	13.3	13.2	1.72	2.8	43.9	0.80	53.1	66.4	0.551	0.107	0.139	0.25	NonLiqfble.
	22.98 23.09	6 6	12.7 13.3	0.21 0.23	105 105	2737 2749	1673 1677	13.6 14.2	13.5 14.2	1.85 1.93	2.8 2.8	44.4 43.9	0.80 0.80	54.3 56.8	67.9 71.0	0.551 0.552	0.109 0.113	0.142 0.147	0.26 0.27	NonLiqfble. NonLiqfble.
	23.19	6	13.4	0.24	115	2759	1682	14.3	14.3	2.00	2.8	44.3	0.80	57.2	71.5	0.553	0.113	0.148	0.27	NonLiqfble.
	23.3	6	13.4	0.25	115	2772	1687	14.3	14.2	2.08	2.8	44.9	0.80	57.1	71.4	0.554	0.114	0.148	0.27	NonLiqfble.
	23.41	6	13.4	0.26	115	2785	1693	14.2	14.2	2.17	2.8	45.5	0.80	57.0	71.2	0.554	0.114	0.148	0.27	NonLiqfble.
	23.51 23.62	6 6	14.4 16.7	0.27 0.29	115 115	2796 2809	1698 1704	15.3 17.7	15.3 17.9	2.08 1.90	2.8 2.7	43.4 39.1	0.80 0.80	61.2 70.8	76.4 88.5	0.555 0.555	0.122 0.144	0.158 0.188	0.28 0.34	NonLiqfble. NonLiqfble.
	23.73	6	18.5	0.23	115	2821	1710	19.6	20.0	1.76	2.6	36.2	0.80	78.3	97.9	0.556	0.144	0.217	0.39	NonLiqfble.
	23.83	6	19.3	0.34	115	2833	1715	20.4	20.8	1.90	2.6	36.4	0.80	81.6	101.9	0.557	0.179	0.232	0.42	NonLiqfble.
	23.94	6	21.6	0.38	125	2846	1721	22.8	23.4	1.88	2.6	34.3	0.78	81.7	104.5	0.557	0.186	0.242	0.43	Liquefaction
	24.04 24.14	6 6	23.4 24.3	0.45 0.55	125 125	2858 2871	1727 1734	24.6 25.5	25.4 26.4	2.05 2.41	2.6 2.6	33.9 35.4	0.77 0.80	83.7 102.1	108.4 127.7	0.558 0.558	0.198 0.274	0.258 0.356	0.46 0.64	Liquefaction NonLiqfble.
	24.25	6	27.2	0.65	125	2884	1740	28.5	29.6	2.52	2.6	34.1	0.78	99.6	128.1	0.558	0.275	0.358	0.64	Liquefaction
	24.36	6	28.4	0.66	125	2898	1747	29.7	30.8	2.45	2.6	33.1	0.75	88.9	118.6	0.559	0.235	0.306	0.55	Liquefaction
	24.46	6	27.4	0.63	125	2911	1754	28.6	29.6	2.43	2.6	33.6	0.76	92.7	121.4	0.559	0.246	0.320	0.57	Liquefaction
	24.57 24.67	6 6	26.2 26.5	0.63 0.62	125 125	2924 2937	1760 1767	27.3 27.6	28.1 28.3	2.55 2.48	2.6 2.6	35.1 34.6	0.80 0.79	109.3 103.6	136.6 131.2	0.560 0.560	0.317 0.290	0.412 0.377	0.74 0.67	Liquefaction Liquefaction
	24.78	6	28.2	0.64	125	2951	1774	29.3	30.1	2.39	2.6	33.1	0.75	88.6	117.9	0.561	0.233	0.302	0.54	Liquefaction
	24.88	6	28.5	0.7	125	2963	1780	29.6	30.3	2.59	2.6	34.1	0.78	102.2	131.7	0.561	0.293	0.380	0.68	Liquefaction
	24.99	6	29	0.95	135	2977	1787	30.0	30.8	3.45	2.6	37.8	0.80	120.1	150.1	0.561	0.394	0.513	0.91	NonLiqfble.
	25.09 25.14	6 6	30.5 36.1	1.05 1.08	135 135	2990 2997	1794 1798	31.5 37.3	32.3 38.5	3.62 3.12	2.6 2.5	37.7 32.9	0.80 0.74	126.0 108.3	157.5 145.5	0.562 0.562	0.444	0.577 0.477	1.03 0.85	NonLiqfble. Liquefaction
	25.2	6	32.6	1.07	135	3005	1802	33.6	34.5	3.44	2.6	35.9	0.80	134.4	168.0	0.562	0.521	0.677	1.21	NonLiqfble.
	25.26	6	29.8	1.03	135	3013	1806	30.7	31.3	3.64	2.7	38.3	0.80	122.7	153.4	0.562	0.416	0.540	0.96	NonLiqfble.
	25.32	6	28.2	0.94	135	3021	1811	29.0	29.5	3.52	2.7	38.8	0.80	116.0	145.0	0.562	0.363	0.472	0.84	NonLiqfble.
	25.42 25.52	6 6	25.3 22.9	0.76 0.73	135 125	3035 3048	1818 1825	26.0 23.5	26.2 23.4	3.20 3.42	2.7 2.7	39.4 42.4	0.80	103.8 93.8	129.8 117.3	0.562 0.563	0.283 0.230	0.368 0.299	0.66 0.53	NonLiqfble. NonLiqfble.
	25.63	6	22.5	0.79	135	3062	1832	23.0	22.9	3.77	2.8	44.4	0.80	92.0	117.3	0.563	0.230	0.288	0.53	NonLiqfble.
	25.73	6	23.7	0.85	135	3076	1839	24.2	24.1	3.84	2.8	43.7	0.80	96.7	120.9	0.563	0.244	0.318	0.56	NonLiqfble.
	25.84	6	26.9	0.86	135	3090	1847	27.4	27.4	3.39	2.7	39.5	0.80	109.5	136.9	0.564	0.319	0.414	0.74	NonLiqfble.
	25.95 26.05	6 6	26.2 24.1	0.83 0.78	135 135	3105 3119	1855 1863	26.6 24.4	26.6 24.2	3.37 3.46	2.7 2.7	39.9 42.0	0.80	106.5 97.7	133.1 122.2	0.564 0.564	0.299 0.250	0.389 0.324	0.69 0.58	NonLiqfble. NonLiqfble.
	26.16	6	23.8	0.76	135	3134	1871	24.4	23.8	3.40	2.7	42.0	0.80	96.3	120.4	0.564	0.230	0.324	0.56	NonLiqfble.
	26.26	6	24.4	0.81	135	3147	1878	24.6	24.3	3.55	2.7	42.3	0.80	98.5	123.2	0.565	0.254	0.330	0.58	NonLiqfble.
	26.37	6	25.2	0.88	135	3162	1886	25.4	25.0	3.73	2.7	42.5	0.80	101.6	126.9	0.565	0.270	0.351	0.62	NonLiqfble.
	26.47 26.58	6 6	28 26.5	0.98 0.98	135 135	3175 3190	1893 1901	28.2 26.6	27.9 26.2	3.71 3.94	2.7 2.7	40.6 42.6	0.80	112.6 106.4	140.8 133.0	0.565 0.565	0.340 0.299	0.441 0.388	0.78 0.69	NonLiqfble. NonLiqfble.
	20.00	0	20.5	0.30	100	5190	1701	20.0	20.2	3.74	2.1	42.0	0.80	100.4	155.0	0.505	0.499	0.500	0.09	Homzquie.

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 20

Depth to Groundwater: 6 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

PGA (g): 0.54 MSF: 1.30

	Depth	Water Table	Tip Resist.	Sleeve Frict.	a	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	g (PCF)	(PSF)	(PSF)	q <sub>e1N</sub>	Q	F	Ic	(%)	Ксрт	Dacin	(QcIN)cs		M7.5	M6.50	Safety	Comments
Conc	(11)	(F1)	(151)	(151)	(I CI)	(151)	(151)	qui	V		ıc	(10)		Dqui	(40.0)	Katio	1417.5	1110.50	Sarcty	Comments
	00.00		00.0	0.05	405	2201	1000	22.6	22.0	4.05	2.0	46.0	0.00	00.5		0.566	0.215	0.250	0.40	
	26.68 26.79	6 6	22.6 21.2	0.85 0.66	135 125	3204 3219	1908 1916	22.6 21.2	22.0 20.4	4.05 3.37	2.8 2.8	46.3 44.7	0.80	90.5 84.8	113.2 105.9	0.566 0.566	0.215 0.191	0.279 0.248	0.49 0.44	NonLiqfble. NonLiqfble.
	26.89	6	19.4	0.53	125	3231	1923	19.4	18.5	2.98	2.8	44.8	0.80	77.4	96.8	0.566	0.164	0.214	0.38	NonLiqfble.
	27	6	17.2	0.49	125	3245	1930	17.1	16.1	3.15	2.8	48.4	0.80	68.5	85.7	0.567	0.138	0.180	0.32	NonLiqfble.
	27.1	6	16.7	0.49	125	3257	1936	16.6	15.6	3.25	2.9	49.6	0.80	66.4	83.0	0.567	0.133	0.173	0.31	NonLiqfble.
	27.21 27.31	6 6	18.5 18.6	0.46 0.41	125 125	3271 3284	1943 1949	18.4 18.4	17.4 17.4	2.73 2.42	2.8 2.7	44.7 43.0	0.80	73.5 73.7	91.8 92.2	0.567 0.568	0.152 0.153	0.198 0.199	0.35 0.35	NonLiqfble. NonLiqfble.
	27.42	6	17.2		125	3297	1956	17.0	15.9	2.64	2.8	46.0	0.80	68.1	85.1	0.568	0.133	0.178	0.33	NonLigfble.
	27.52	6	16.9	0.48	125	3310	1962	16.7	15.5	3.15	2.9	49.2	0.80	66.8	83.5	0.568	0.134	0.174	0.31	NonLiqfble.
	27.62	6	17.8		125	3322	1968	17.6	16.4	3.10	2.8	47.8	0.80	70.2	87.8	0.569	0.143	0.186	0.33	NonLiqfble.
	27.73 27.83	6 6	21.3 19.8	0.41 0.39	125 125	3336 3349	1975 1981	21.0 19.5	19.9 18.3	2.09 2.15	2.7 2.7	38.5 40.4	0.80	83.9 77.8	104.8 97.3	0.569 0.569	0.187 0.166	0.243 0.215	0.43 0.38	NonLiqfble. NonLiqfble.
	27.94	6	15.1	0.33	125	3362	1988	14.8	13.5	2.76	2.9	50.1	0.80	59.3	74.1	0.570	0.118	0.153	0.38	NonLiqfble.
	28.04	6	14.4	0.57	125	3375	1995	14.1	12.7	4.48	3.0	59.6	0.80	56.4	70.5	0.570	0.113	0.146	0.26	NonLiqfble.
	28.15	6	15	0.86	125	3389	2001	14.7	13.3	6.46	3.1	65.7	0.80	58.7	73.3	0.570	0.117	0.152	0.27	NonLiqfble.
	28.25 28.48	6 6	15.9 47.3	1.21 2.01	135 135	3401 3432	2008 2024	15.5 46.0	14.1 45.0	8.52 4.41	3.2 2.6	70.2 35.5	0.80	62.1 184.0	77.6 230.0	0.571 0.571	0.124 1.211	0.161 1.575	0.28 2.76	NonLiqfble. NonLiqfble.
	28.58	6	51.2	2.14	135	3446	2024	49.7	48.7	4.41	2.6	34.1	0.78	172.5	222.2	0.571	1.100	1.430	2.50	NonLiqibie.
	28.69	6	50.2		135	3461	2040	48.6	47.5	4.15	2.6	33.8	0.77	161.9	210.5	0.572	0.948	1.232	2.16	
	28.79	6	47.6	1.78	135	3474	2047	46.0	44.8	3.88	2.6	33.7	0.77	150.6	196.6	0.572	0.787	1.023	1.79	
	28.89 29	6	43.1	1.36 1.03	135 135	3488	2054 2062	41.6	40.2	3.29	2.5	32.9	0.75	121.7	163.3 114.0	0.572	0.485	0.631	1.10	Low F.S.
	29.1	6 6	44.8 28.9	1.05	135	3502 3516	2062	43.2 27.8	41.7 26.2	2.39 3.87	2.4 2.7	28.3 42.3	0.62 0.80	70.9 111.2	139.0	0.572 0.572	0.218	0.283 0.429	0.50 0.75	Liquefaction NonLiqfble.
	29.21	6	25.3	1.26	135	3531	2077	24.3	22.6	5.35	2.9	50.5	0.80	97.1	121.4	0.573	0.247	0.320	0.56	NonLiqfble.
	29.31	6	30.5	1.45	135	3544	2085	29.2	27.5	5.05	2.8	45.8	0.80	116.9	146.1	0.573	0.370	0.481	0.84	NonLiqfble.
	29.41	6	37.8	1.44	135	3558	2092	36.2	34.4	4.00	2.7	38.2	0.80	144.6	180.8	0.573	0.630	0.819	1.43	NonLiqfble.
	29.52 29.62	6 6	55.6 75.1	1.29 1	135 125	3573 3586	2100 2107	53.1 71.6	51.2 69.5	2.40 1.36	2.4	25.6 16.4	0.55	64.6 31.1	117.6 102.7	0.573 0.573	0.231 0.181	0.301 0.235	0.52 0.41	Liquefaction Liquefaction
	29.72	6	82.1	0.71	125	3599	2113	78.1	76.0	0.88	2.0	12.2	0.19	18.6	96.7	0.574	0.164	0.213	0.37	Liquefaction
	29.82	6	84.6	0.55	115	3611	2120	80.4	78.1	0.66	1.9	10.2	0.14	12.9	93.3	0.574	0.155	0.202	0.35	Liquefaction
	29.92	6	86.6		105	3623	2125	82.2	79.8	0.60	1.9	9.4	0.12	11.1	93.2	0.574	0.155	0.202	0.35	Liquefaction
	30.02 30.06	6 6	76 91.3	0.5 0.48	115 105	3633 3638	2129 2131	72.1 86.5	69.7 83.9	0.67 0.54	1.9 1.8	11.3 8.4	0.17 0.09	14.5 8.7	86.6 95.3	0.551 0.551	0.140 0.160	0.182 0.208	0.33 0.38	Liquefaction Liquefaction
	30.17	6	94	0.51	105	3649	2136	89.0	86.3	0.55	1.8	8.4	0.09	8.8	97.8	0.552	0.167	0.217	0.39	Liquefaction
	30.27	6	92.7	0.58	115	3660	2140	87.7	84.9	0.64	1.9	9.2	0.11	11.2	98.9	0.552	0.170	0.221	0.40	Liquefaction
	30.36	6	91.8	0.59	115	3670	2145	86.7	83.8	0.66	1.9	9.5	0.12	11.8	98.6	0.553	0.169	0.220	0.40	Liquefaction
	30.46 30.56	6 6	96 98.6	0.58 0.52	105 105	3682 3692	2150 2155	90.6 92.9	87.5 89.8	0.62 0.54	1.8 1.8	8.8 7.9	0.10	10.2 7.8	100.8 100.8	0.553 0.553	0.175 0.175	0.228 0.228	0.41 0.41	Liquefaction Liquefaction
	30.66	6	96.7	0.41	105	3703	2159	91.1	87.8	0.43	1.7	7.1	0.06	5.4	96.4	0.554	0.173	0.212	0.38	Liquefaction
	30.76	6	91.2		95	3713	2163	85.8	82.6	0.43	1.8	7.5	0.07	6.1	91.9	0.554	0.152	0.198	0.36	Liquefaction
	30.86	6	81.7	0.5	105	3723	2166	76.8	73.7	0.63	1.9	10.3	0.14	12.8	89.6	0.555	0.147	0.191	0.34	Liquefaction
	30.97 31.07	6 6	70.8 67.1	0.65 0.88	125 125	3734 3747	2171 2177	66.5 62.9	63.5 59.9	0.94 1.35	2.1	14.4 17.8	0.25 0.34	22.2 32.8	88.7 95.8	0.555 0.556	0.145 0.162	0.188 0.210	0.34 0.38	Liquefaction Liquefaction
	31.16	6	69.3	1.07	135	3758	2183	64.9	61.7	1.59	2.2	19.0	0.37	38.7	103.6	0.556	0.102	0.238	0.43	Liquefaction
	31.27	6	78.5	1	125	3773	2191	73.4	69.9	1.31	2.1	15.9	0.29	30.2	103.6	0.556	0.183	0.238	0.43	Liquefaction
	31.37	6	94.7	0.79	115	3785	2197	88.4	84.4	0.85	1.9	11.0	0.16	16.9	105.3	0.556	0.188	0.245	0.44	Liquefaction
	31.47 31.56	6	102.2 101.3	0.53 0.43	105 105	3797 3806	2202 2206	95.3 94.4	91.0 90.1	0.53 0.43	1.8 1.7	7.7 6.9	0.07 0.05	7.5 5.0	102.7 99.4	0.557 0.557	0.181 0.171	0.235 0.223	0.42 0.40	Liquefaction Liquefaction
	31.66	6	100.4	0.43	105	3817	2211	93.4	89.1	0.43	1.7	6.8	0.05	4.8	98.2	0.558	0.171	0.223	0.39	Liquefaction
	31.76	6	101.1	0.49	105	3827	2215	94.0	89.5	0.49	1.8	7.5	0.07	6.8	100.8	0.558	0.175	0.228	0.41	Liquefaction
	31.86	6	105.9	0.92	125	3838	2219	98.4	93.7	0.88	1.9	10.4	0.14	16.5	114.8	0.558	0.221	0.287	0.51	Liquefaction
	31.96 32.06	6	101.3 88		135 135	3850 3864	2225 2233	94.0 81.5	89.3 77.1	1.40 2.13	2.0	14.1 19.5	0.24 0.39	30.3	124.3 132.8	0.559	0.259 0.298	0.336 0.387	0.60	Liquefaction
	32.06	6 6	77.8	2.09	135	3864 3877	2233	81.5 71.9	67.7	2.13	2.2	23.8	0.50	51.3 72.3	132.8	0.559 0.559	0.298	0.387	0.69 0.83	Liquefaction Liquefaction
	32.26	6	72.5		135	3891	2247	66.9	62.8	3.03	2.4	25.8	0.56	84.0	150.9	0.559	0.399	0.519	0.93	Liquefaction
	32.36	6	65.3		135	3904	2254	60.2	56.2	2.81	2.4	26.3	0.57	79.2	139.3	0.559	0.332	0.431	0.77	Liquefaction
	32.45	6	58.2		135	3916	2261	53.6	49.7	2.08	2.3	24.3	0.52	57.1	110.6	0.559	0.206	0.268	0.48	Liquefaction
	32.55 32.65	6 6	57 57.4	1.11 0.96	135 135	3930 3943	2268 2275	52.4 52.7	48.5 48.7	2.02 1.73	2.3	24.3 22.6	0.52 0.47	55.7 46.9	108.0 99.5	0.560 0.560	0.197 0.172	0.256 0.223	0.46 0.40	Liquefaction Liquefaction
	32.75	6	51.5		135	3957	2283	47.2	43.4	1.92	2.4	25.2	0.54	55.3	102.5	0.560	0.172	0.234	0.42	Liquefaction
	32.85	6	47.3	0.91	135	3970	2290	43.2	39.6	2.01	2.4	27.0	0.59	61.4	104.6	0.560	0.187	0.243	0.43	Liquefaction
	32.95	6	42.7	0.84	135	3984	2297	39.0	35.4	2.06	2.5	28.9	0.64	68.4	107.4	0.560	0.195	0.254	0.45	Liquefaction
	33.05	6	40	0.79	135	3997	2304	36.5	33.0	2.08	2.5	30.0	0.67	73.3	109.8	0.560	0.203	0.264	0.47	Liquefaction

Date: September 2005 CPT Number: 20

Depth to Groundwater: 6 feet

	Depth	Water Table	Tip Resist.	Sleeve Frict.	•	Total Stress	Effective Stress		Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	g (PCF)	(PSF)	(PSF)	Tip Qc1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es		M7.5	M6.50		Comments
	()	()	()	(-2-)	()	(= == )	(= == )	-				(,-,							~	
	33.15	6	39	0.67	125	4011	2312	35.5	32.0	1.81	2.5	28.9	0.64	62.4	97.9	0.560	0.167	0.217	0.39	Liquefaction
	33.24	6	41	0.6	125	4022	2317	37.3	33.6	1.54	2.4	26.4	0.57	49.6	86.8	0.560	0.107	0.183	0.33	Liquefaction
	33.34	6	36.9	0.5	125	4035	2324	33.5	30.0	1.43	2.4	27.3	0.60	49.3	82.8	0.561	0.133	0.173	0.31	Liquefaction
	33.44	6	36.6	0.43	125	4047	2330	33.2	29.7	1.24	2.4	26.1	0.56	42.6	75.8	0.561	0.121	0.157	0.28	Liquefaction
	33.54 33.66	6 6	36.6 31	0.46 0.44	125 125	4060 4075	2336 2344	33.1 28.0	29.6 24.7	1.33 1.52	2.4	26.8 30.9	0.58 0.69	46.0 63.2	79.1 91.2	0.561 0.561	0.126 0.151	0.164 0.196	0.29	Liquefaction Liquefaction
	33.76	6	22.9	0.33	115	4087	2350	20.7	17.7	1.58	2.6	37.1	0.80	82.7	103.3	0.562	0.183	0.237	0.42	NonLiqfble.
	33.86	6	15.9	0.25	115	4099	2355	14.3	11.8	1.81	2.8	47.0	0.80	57.3	71.7	0.562	0.114	0.149	0.26	NonLiqfble.
	33.96	6	11.9	0.21	105 105	4110	2360	10.7	8.3	2.13	3.0	57.3	0.80	42.9	53.6	0.562	0.094	0.123	0.22	NonLiqfble.
	34.06 34.17	6 6	11.2 11.1	0.19 0.18	105	4121 4132	2365 2369	10.1 10.0	7.7 7.6	2.08 1.99	3.0	58.8 58.6	0.80	40.3 39.9	50.4 49.9	0.563 0.563	0.092	0.119 0.119	0.21	NonLiqfble. NonLiqfble.
	34.27	6	11.3	0.19	105	4143	2374	10.1	7.8	2.06	3.0	58.5	0.80	40.6	50.7	0.564	0.092	0.120	0.21	NonLiqfble.
	34.37	6	11.1	0.2	105	4153	2378	10.0	7.6	2.22	3.0	60.3	0.80	39.8	49.8	0.564	0.091	0.119	0.21	NonLiqfble.
	34.47	6	10.9	0.23	105	4164	2382	9.8	7.4	2.61	3.1	63.5	0.80	39.1	48.9	0.564	0.091	0.118	0.21	NonLiqfble.
	34.57 34.66	6 6	12.2 12.7	0.25 0.23	115 105	4174 4184	2386 2391	10.9 11.4	8.5 8.9	2.47 2.17	3.0	59.2 56.1	0.80	43.7 45.5	54.6 56.8	0.565 0.565	0.095 0.097	0.124 0.126	0.22 0.22	NonLiqfble. NonLiqfble.
	34.76	6	13.1	0.2	105	4195	2395	11.7	9.2	1.82	2.9	52.7	0.80	46.8	58.6	0.566	0.099	0.128	0.23	NonLiqfble.
	34.86	6	13.4	0.17	105	4205	2400	12.0	9.4	1.50	2.9	49.6	0.80	47.9	59.8	0.566	0.100	0.130	0.23	NonLiqfble.
	34.97	6	12.5	0.15	105	4217	2404	11.2	8.6	1.44	2.9	51.0	0.80	44.6	55.8	0.566	0.096	0.125	0.22	NonLiqfble.
	35.07 35.18	6 6	11.9 11.7	0.15 0.16	105 105	4228 4239	2409 2413	10.6 10.4	8.1 7.9	1.53 1.67	2.9 2.9	53.3 55.0	0.80	42.4 41.7	53.0 52.1	0.567 0.567	0.094	0.122 0.121	0.22 0.21	NonLiqfble. NonLiqfble.
	35.28	6	12.2	0.16	105	4250	2418	10.4	8.3	1.59	2.9	53.2	0.80	43.4	54.3	0.568	0.095	0.123	0.22	NonLiqfble.
	35.38	6	12.2	0.17	105	4260	2422	10.8	8.3	1.69	2.9	54.0	0.80	43.4	54.2	0.568	0.095	0.123	0.22	NonLiqfble.
	35.49	6	12.3	0.17	105	4272	2426	10.9	8.4	1.67	2.9	53.7	0.80	43.7	54.6	0.568	0.095	0.124	0.22	NonLiqfble.
	35.59 35.7	6 6	11.4 12.2	0.17 0.17	105 105	4282 4294	2431 2435	10.1 10.8	7.6 8.3	1.84 1.69	3.0 2.9	57.4 54.2	0.80	40.5 43.3	50.6 54.1	0.569 0.569	0.092 0.095	0.120 0.123	0.21 0.22	NonLiqfble. NonLiqfble.
	35.8	6	12.8	0.17	105	4304	2440	11.3	8.7	1.60	2.9	52.1	0.80	45.4	56.7	0.570	0.093	0.125	0.22	NonLiqfble.
	35.91	6	12.3	0.17	105	4316	2444	10.9	8.3	1.68	2.9	54.0	0.80	43.5	54.4	0.570	0.095	0.123	0.22	NonLiqfble.
	36.01	6	12.5	0.17	105	4326	2449	11.1	8.4	1.64	2.9	53.3	0.80	44.2	55.3	0.571	0.096	0.124	0.22	NonLiqfble.
	36.11 36.22	6 6	12.3 12.2	0.17 0.17	105 105	4337 4348	2453 2458	10.9 10.8	8.3 8.2	1.68 1.70	2.9 2.9	54.1 54.6	0.80	43.5 43.1	54.3 53.8	0.571 0.571	0.095 0.095	0.123 0.123	0.22	NonLiqfble.
	36.33	6	12.7	0.17	115	4360	2462	11.2	8.5	2.28	3.0	57.8	0.80	44.8	56.0	0.571	0.093	0.125	0.22	NonLiqfble. NonLiqfble.
	36.43	6	15.6	0.29	115	4371	2468	13.7	10.9	2.16	2.9	51.3	0.80	55.0	68.7	0.572	0.110	0.143	0.25	NonLiqfble.
	36.53	6	18	0.31	115	4383	2473	15.8	12.8	1.96	2.8	46.3	0.80	63.4	79.2	0.572	0.126	0.164	0.29	NonLiqfble.
	36.64	6	17.1	0.39	125	4395	2479	15.0	12.0	2.62	2.9	51.8	0.80	60.1	75.1	0.573	0.119	0.155	0.27	NonLiqfble.
	36.75 36.85	6 6	18.6 23.1	0.41 0.47	125 125	4409 4422	2485 2492	16.3 20.2	13.2 16.8	2.50 2.25	2.9 2.7	49.1 42.7	0.80	65.3 81.0	81.6 101.2	0.573 0.573	0.131 0.177	0.170 0.229	0.30 0.40	NonLiqfble. NonLiqfble.
	36.88	6	20.7	0.46	125	4425	2494	18.1	14.8	2.49	2.8	46.6	0.80	72.5	90.7	0.573	0.149	0.194	0.34	NonLiqfble.
	36.99	6	16.1	0.57	125	4439	2500	14.1	11.1	4.11	3.0	61.2	0.80	56.3	70.4	0.573	0.113	0.146	0.26	NonLiqfble.
	37.1	6	39.2	0.9	135	4453	2507	34.3	29.5	2.43	2.6	33.7	0.77	112.4	146.6	0.573	0.373	0.485	0.85	Liquefaction
	37.19 37.29	6 6	148.3 252.1	0.94 1.24	115 105	4465 4477	2514 2519	129.4 219.8	116.2 198.3	0.64 0.50	1.7 1.5	6.9 2.7	0.05	7.0 0.0	136.4 219.8	0.574 0.574	0.316 1.067	0.411 1.387	0.72 2.42	Liquefaction
	37.39	6	315.3	1.25	105	4487	2523	274.6	248.0	0.40	1.4	1.0	0.00	0.0	274.6	0.574	2.006	2.608	4.54	
	37.49	6	356.1	1.35	105	4498	2528	309.9	279.9	0.38	1.3	0.4	0.00	0.0	309.9	0.575	2.848	3.702	6.44	
	37.59	6	354.5	1.55	105	4508	2532	308.3	278.1	0.44	1.3	0.8	0.00	0.0	308.3	0.575	2.804	3.645	6.34	
	37.68 37.78	6 6	377.1 372.7	1.66 1.67	105 105	4518 4528	2536 2540	327.7 323.6	295.5 291.6	0.44 0.45	1.3 1.3	0.6 0.7	0.00	0.0	327.7 323.6	0.575 0.576	3.351 3.230	4.357 4.199	7.57 7.29	
	37.88	6	378.8	2.16	115	4539	2544	328.6	295.9	0.43	1.4	1.5	0.00	0.0	328.6	0.576	3.379	4.393	7.63	
	37.98	6	381.3	1.93	105	4550	2550	330.4	297.2	0.51	1.4	1.1	0.00	0.0	330.4	0.576	3.435	4.465	7.75	
	38.08	6	406.9	1.91	105		2554	352.3	316.7	0.47	1.3	0.6	0.00	0.0	352.3	0.577	4.146	5.390	9.35	
	38.18 38.27	6 6	404.2 384.4	1.96 2.02	105 115	4571 4581	2558 2562	349.7 332.3	314.1 298.2	0.49 0.53	1.3 1.4	0.7 1.2	0.00	0.0	349.7 332.3	0.577 0.577	4.056 3.492	5.273 4.540	9.14 7.86	
	38.37	6	391	1.76	105		2567	337.6	302.7	0.33	1.3	0.6	0.00	0.0	337.6	0.578	3.660	4.758	8.24	
	38.46	6	381.3	1.68	105		2571	329.0	294.7	0.44	1.3	0.7	0.00	0.0	329.0	0.578	3.393	4.410	7.63	
	38.55	6	401.7	1.99	105	4611	2575	346.4	310.1	0.50	1.3	0.8	0.00	0.0	346.4	0.578	3.945	5.128	8.87	
	38.65	6	402.8	2.23	115		2579	347.0	310.4	0.56	1.4	1.2	0.00	0.0	347.0	0.579	3.967	5.157	8.91	
	38.74 38.83	6 6	405.6 414.3	2.27 2.2	115 115		2584 2589	349.1 356.3	312.0 318.2	0.56 0.53	1.4 1.4	1.2 1.0	0.00	0.0	349.1 356.3	0.579 0.579	4.038 4.286	5.249 5.572	9.07 9.62	
	38.92	6	442.2	3.03	115	4652	2593	379.9	339.1	0.69	1.4	1.7	0.00	0.0	379.9	0.579	5.180	6.735	11.62	
	39.01	6		3	115		2598	373.2	332.8	0.69	1.4	1.8	0.00	0.0	373.2	0.580	4.915	6.390	11.03	
	39.1	6	446.4	3.35	125	4673	2603	382.8	341.1	0.75	1.4	2.1	0.00	0.0	382.8	0.580	5.299	6.888	11.88	
	39.18 39.27	6 6	446.7 449.7	3.18 2.97	115 115	4683 4694	2608 2613	382.7 385.0	340.7 342.3	0.72 0.66	1.4 1.4	1.8 1.5	0.00	0.0	382.7 385.0	0.580 0.580	5.294 5.385	6.882 7.001	11.87 12.07	
	237	Ü		,													2.202			

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 20

Depth to Groundwater: 6 feet

**EQ Magnitude (M<sub>w</sub>):** 6.5 **PGA (g):** 0.54 MSF: 1.30

362.0 0.543 4.490 5.837 10.76

		Water	Tip	Sleeve			Effective			Friction							-	Liquef.		
~	Depth	Table	Resist.		g	Stress		Tip	Tip	Ratio	_	F.C.	17	D.«	(m )		Stress		of	~
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DQc1N	(q <sub>c1N</sub> ) <sub>cs</sub>	Ratio	M7.5	M6.50	Safety	Comments
	39.35	6	462	2.6	115	4703	2617	395.2	351.2	0.57	1.3	0.9	0.00	0.0	395.2	0.580	5.819	7.564	13.03	
	39.43	6		2.64	115	4712	2621	411.7	365.6	0.55	1.3	0.6	0.00	0.0	411.7	0.581	6.569	8.540	14.71	
	39.52	6		2.45	115	4722	2626	385.7	342.1	0.55	1.3	0.8	0.00	0.0	385.7	0.581	5.416	7.041	12.12	
	39.6	6	438.3	1.99	105	4731	2630	374.0	331.4	0.46	1.3	0.3	0.00	0.0	374.0	0.581	4.943	6.427	11.06	
	39.68	6	420.1	1.82	105	4740	2633	358.2	317.1	0.44	1.3	0.4	0.00	0.0	358.2	0.581	4.354	5.660	9.74	
	39.77	6	403.4	1.93	105	4749	2637	343.7	304.0	0.48	1.3	0.8	0.00	0.0	343.7	0.582	3.856	5.013	8.62	
	39.85	6	373.7	1.88	105	4758	2641	318.2	281.1	0.51	1.4	1.3	0.00	0.0	318.2	0.582	3.076	3.999	6.87	
	39.93	6	369.5	1.66	105	4766	2644	314.4	277.6	0.45	1.3	0.9	0.00	0.0	314.4	0.582	2.971	3.862	6.63	
	40.02	6	347.3	1.74	105	4776	2648	295.3	260.4	0.50	1.4	1.5	0.00	0.0	295.3	0.538	2.475	3.218	5.98	
	40.1	6	316.3	1.64	115	4784	2651	268.8	236.7	0.52	1.4	2.1	0.00	0.0	268.8	0.538	1.886	2.452	4.55	
	40.18	6	282.4	1.71	115	4793	2655	239.8	210.8	0.61	1.5	3.2	0.00	0.0	239.8	0.539	1.362	1.771	3.29	
	40.27	6	290.4	2.06	115	4804	2660	246.4	216.4	0.72	1.6	3.8	0.00	0.0	246.4	0.539	1.471	1.912	3.55	
	40.36	6	313.3	2.42	125	4814	2665	265.5	233.2	0.78	1.6	3.8	0.00	0.0	265.5	0.539	1.821	2.368	4.39	
	40.45	6	352.1	2.5	115	4825	2670	298.1	261.8	0.71	1.5	2.9	0.00	0.0	298.1	0.539	2.544	3.307	6.14	
	40.53	6	403.5	2.46	115	4834	2675	341.4	299.8	0.61	1.4	1.7	0.00	0.0	341.4	0.539	3.780	4.913	9.11	
	40.61	6	405.6	2.46	115	4844	2679	342.9	300.9	0.61	1.4	1.7	0.00	0.0	342.9	0.539	3.829	4.977	9.23	
	40.7	6	425.8	2.15	105	4854	2684	359.6	315.4	0.51	1.3	0.8	0.00	0.0	359.6	0.540	4.406	5.728	10.61	
	40.78	6	447.3	2.07	105	4862	2687	377.6	331.0	0.47	1.3	0.4	0.00	0.0	377.6	0.540	5.085	6.611	12.24	
	40.86	6	453.4	1.97	105	4871	2690	382.5	335.1	0.44	1.3	0.2	0.00	0.0	382.5	0.540	5.283	6.868	12.72	
	40.94	6	470.2	1.96	105	4879	2694	396.4	347.1	0.42	1.3	0.0	0.00	0.0	396.4	0.540	5.872	7.633	14.13	
	41.01	6	503.2	2.18	105	4886	2697	424.0	371.2	0.44	1.2	-0.1	0.00	0.0	424.0	0.541	7.167	9.317	17.24	
	41.07	6	509.1	2.85	115	4893	2699	428.7	375.2	0.56	1.3	0.6	0.00	0.0	428.7	0.541	7.409	9.632	17.81	
	41.15	6	482.1	3.11	115	4902	2704	405.7	354.7	0.65	1.4	1.3	0.00	0.0	405.7	0.541	6.289	8.176	15.11	
	41.22	6	490.4	2.76	115	4910	2707	412.4	360.3	0.57	1.3	0.8	0.00	0.0	412.4	0.541	6.602	8.583	15.86	
	41.3	6	440.9	2.38	115	4919	2711	370.5	323.3	0.54	1.4	1.0	0.00	0.0	370.5	0.541	4.809	6.251	11.55	
	41.39	6	362.4	2.22	115	4930	2716	304.2	264.9	0.62	1.5	2.2	0.00	0.0	304.2	0.541	2.699	3.509	6.48	
	41.47	6	351.9	2.26	115	4939	2720	295.2	256.8	0.65	1.5	2.5	0.00	0.0	295.2	0.542	2.472	3.214	5.93	
	41.55	6	350.4	2.57	115	4948	2725	293.7	255.3	0.74	1.5	3.1	0.00	0.0	293.7	0.542	2.436	3.167	5.85	
	41.63	6	366.8	2.95	125	4957	2729	307.2	266.9	0.81	1.5	3.4	0.00	0.0	307.2	0.542	2.777	3.610	6.66	
	41.71	6	409.5	3.56	125	4967	2734	342.7	297.6	0.87	1.5	3.3	0.00	0.0	342.7	0.542	3.822	4.969	9.17	
	41.79	6	453.8	3.7	125	4977	2739	379.4	329.4	0.82	1.5	2.6	0.00	0.0	379.4	0.542	5.159	6.707	12.37	
	41.86	6	448.9	3.22	115	4986	2743	375.0	325.3	0.72	1.4	2.1	0.00	0.0	375.0	0.542	4.984	6.480	11.95	
	41.93	6		2.86	115	4994	2747	372.2	322.7	0.65	1.4	1.6	0.00	0.0	372.2	0.542	4.877	6.340	11.69	
	40.01			2.00		5002	2751	262.0	212.5	0.60	1.4	2.0	0.00	0.0	262.0	0.542	4.400	5 927	10.76	

115 5003 2751 362.0 313.5 0.69

2.0

0.00

0.0

6 433.9 2.98

42.01

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 21

Depth to Groundwater: 7 feet

EQ Magnitude (M<sub>w</sub>): 6.5 PGA (g): 0.54 MSF: 1.30

0.51	7	204.9	1.11	115	59	59	392.4	6983.3	0.54	1.0	-1.8	0.00	0.0	392.4	0.351	5.700	7.410	21.11	Above W.T.
0.51	7	144.5	1.15	115	63	63	276.7	4566.3	0.80	1.1	-1.0	0.00	0.0	276.7	0.351	2.051	2.667	7.60	Above W.T.
0.59	7	185.2	1.21	115	68	68	354.7	5455.8	0.65	1.1	-1.5	0.00	0.0	354.7	0.351	4.230	5.499	15.67	Above W.T.
0.68	7	183.9	1.33	115	78	78	352.2	4700.4	0.72	1.1	-1.3	0.00	0.0	352.2	0.351	4.143	5.386	15.35	Above W.T.
0.77	7	185.5	1.28	115	89	89	355.3	4187.0	0.69	1.1	-1.5	0.00	0.0	355.3	0.351	4.250	5.525	15.74	Above W.T.
0.85	7	184.3	1.27	115	98	98	353.0	3768.3	0.69	1.1	-1.6	0.00	0.0	353.0	0.351	4.170	5.421	15.44	Above W.T.
0.92	7	182.8	1.32	115	106	106	350.1	3453.1	0.72	1.1	-1.4	0.00	0.0	350.1	0.351	4.071	5.292	15.08	Above W.T.
1.01	7	186.8	1.3	115	116	116	357.8	3214.2	0.70	1.1	-1.6	0.00	0.0	357.8	0.351	4.338	5.640	16.07	Above W.T.
1.09	7	174.6	1.32	115	125	125	334.4	2783.6	0.76	1.1	-1.3	0.00	0.0	334.4	0.351	3.557	4.625	13.18	Above W.T.
1.18 1.26	7 7	160.2	1.29	115	136	136	306.8	2359.1	0.81	1.1	-1.1	0.00	0.0	306.8	0.351	2.766	3.596	10.24	Above W.T.
1.26	7	152.6 131.5	1.21 1.01	115 115	145 154	145 154	292.3 251.8	2104.4 1705.0	0.79 0.77	1.1 1.1	-1.1 -1.1	0.00	0.0	292.3 251.8	0.351	2.402 1.566	3.122 2.035	8.89 5.80	Above W.T. Above W.T.
1.43	7	121.5	0.89	115	164	164	232.7	1476.0	0.73	1.1	-1.1	0.00	0.0	232.7	0.351	1.252	1.627	4.64	Above W.T.
1.51	7	105.4	0.76	115	174	174	201.9	1212.4	0.72	1.1	-1.0	0.00	0.0	201.9	0.351	0.845	1.098	3.13	Above W.T.
1.6	7	96.4	0.64	115	184	184	184.6	1046.4	0.66	1.1	-1.1	0.00	0.0	184.6	0.351	0.665	0.865	2.46	Above W.T.
1.68	7	88.3	0.57	115	193	193	169.1	912.7	0.65	1.1	-0.9	0.00	0.0	169.1	0.351	0.530	0.689	1.96	Above W.T.
1.76	7	81.9	0.55	115	202	202	156.9	808.0	0.67	1.2	-0.6	0.00	0.0	156.9	0.351	0.439	0.571	1.63	Above W.T.
1.85	7	69.5	0.5	115	213	213	133.1	652.1	0.72	1.3	0.0	0.00	0.0	133.1	0.351	0.299	0.389	1.11	Above W.T.
1.93	7	61.2	0.6	125	222	222	117.2	550.2	0.98	1.4	1.7	0.00	0.0	117.2	0.351	0.230	0.299	0.85	Above W.T.
2	7	62.2	0.74	125	231	231	119.1	538.0	1.19	1.5	2.7	0.00	0.0	119.1	0.351	0.237	0.308	0.88	Above W.T.
2.17 2.26	7	78.3	1.01	125 125	252	252	150.0	620.3	1.29	1.5	2.7	0.00	0.0	150.0	0.351	0.394	0.512	1.46	Above W.T.
2.26	7 7	87.7 90.6	1.05 0.9	125	263 273	263 273	168.0 173.5	665.1 662.0	1.20 0.99	1.5 1.4	2.2 1.3	0.00	0.0	168.0 173.5	0.351	0.521 0.566	0.677 0.736	1.93 2.10	Above W.T. Above W.T.
2.4	7	86.5	1.09	125	281	281	165.7	615.1	1.26	1.5	2.6	0.00	0.0	165.7	0.351	0.503	0.654	1.86	Above W.T.
2.45	7	89.3	1.18	125	287	287	171.0	621.1	1.32	1.5	2.9	0.00	0.0	171.0	0.351	0.545	0.709	2.02	Above W.T.
2.52	7	106.7	1.23	125	296	296	204.4	720.4	1.15	1.4	1.8	0.00	0.0	204.4	0.351	0.874	1.136	3.24	Above W.T.
2.55	7	107.6	1.26	125	299	299	206.1	717.4	1.17	1.4	1.9	0.00	0.0	206.1	0.351	0.894	1.162	3.31	Above W.T.
2.63	7	139.8	1.34	125	309	309	267.7	902.2	0.96	1.3	0.5	0.00	0.0	267.7	0.351	1.865	2.425	6.91	Above W.T.
2.66	7	143	1.36	125	313	313	273.9	911.8	0.95	1.3	0.4	0.00	0.0	273.9	0.351	1.990	2.588	7.37	Above W.T.
2.71	7	172.8	1.34	115	319	319	330.9	1080.4	0.78	1.2	-0.6	0.00	0.0	330.9	0.351	3.451	4.486	12.78	Above W.T.
2.75	7	184.8	1.28	115	324	324	353.9	1139.1	0.69	1.1	-1.0	0.00	0.0	353.9	0.351	4.203	5.464	15.57	Above W.T.
2.79 2.85	7 7	207.6 216.3	1.23 1.19	115 115	329 336	329 336	397.6 414.3	1261.8 1287.7	0.59 0.55	1.1 1.0	-1.6 -1.8	0.00	0.0	397.6 414.3	0.351	5.925 6.691	7.703 8.699	21.95 24.78	Above W.T. Above W.T.
2.63	7	215.3	1.19	105	341	341	411.8	1258.4	0.50	1.0	-2.0	0.00	0.0	411.8	0.351	6.573	8.545	24.76	Above W.T.
2.96	7	208.5	0.98	105	348	348	399.3	1198.2	0.47	1.0	-2.1	0.00	0.0	399.3	0.351	6.002	7.802	22.23	Above W.T.
3.01	7	195.4	0.86	105	353	353	374.2	1106.1	0.44	1.0	-2.1	0.00	0.0	374.2	0.351	4.954	6.440	18.35	Above W.T.
3.07	7	182.1	0.74	105	359	359	348.8	1012.6	0.41	1.0	-2.2	0.00	0.0	348.8	0.351	4.025	5.233	14.91	Above W.T.
3.13	7	165.9	0.74	105	365	365	317.7	906.5	0.45	1.0	-1.9	0.00	0.0	317.7	0.351	3.063	3.982	11.34	Above W.T.
3.18	7	144.2	0.64	105	371	371	276.2	776.7	0.44	1.0	-1.7	0.00	0.0	276.2	0.351	2.039	2.651	7.55	Above W.T.
3.24	7	121.5	0.57	105	377	377	232.7	643.3	0.47	1.1	-1.2	0.00	0.0	232.7	0.351	1.252	1.627	4.64	Above W.T.
3.3	7	106.2	0.68	115	383	383	203.4	552.9	0.64	1.3	0.0	0.00	0.0	203.4	0.351	0.863	1.121	3.19	Above W.T.
3.36	7	94.9	0.84	125	390	390	181.8	485.2	0.89	1.4	1.6	0.00	0.0	181.8	0.351	0.638	0.830	2.36	Above W.T.
3.41 3.47	7 7	80.9 69.3	0.76 0.67	125 125	396 404	396 404	154.9 132.7	407.0 342.0	0.94 0.97	1.5 1.5	2.4 3.2	0.00	0.0	154.9 132.7	0.351	0.426 0.297	0.554 0.387	1.58 1.10	Above W.T. Above W.T.
3.52	7	59.5	0.68	125	410	410	114.0	289.0	1.15	1.6	4.9	0.00	0.0	114.0	0.351	0.237	0.283	0.81	Above W.T.
3.58	7	45.3	0.69	125	418	418	86.8	215.8	1.53	1.8	8.3	0.09	8.3	95.0	0.351	0.160	0.208	0.59	Above W.T.
3.64	7	31.5	0.7	125	425	425	60.3	147.1	2.24	2.0	14.0	0.24	19.2	79.5	0.351	0.127	0.165	0.47	Above W.T.
3.69	7	26	0.69	125	431	431	49.8	119.5	2.68	2.2	17.6	0.34	25.2	75.0	0.351	0.119	0.155	0.44	Above W.T.
3.75	7	22.2	0.66	125	439	439	42.5	100.1	3.00	2.2	20.5	0.42	30.2	72.7	0.351	0.116	0.150	0.43	Above W.T.
3.81	7	18.7	0.64	125	446	446	35.8	82.7	3.46	2.3	24.3	0.51	38.0	73.8	0.351	0.117	0.153	0.43	Above W.T.
3.86	7	16.7	0.62	125	453	453	32.0	72.7	3.76	2.4	26.8	0.58	44.7	76.7	0.351	0.122	0.159	0.45	Above W.T.
3.92	7	15.3	0.66	125	460	460	29.3	65.5	4.38	2.5	30.2	0.67	60.6	89.9	0.351	0.148	0.192	0.55	Above W.T.
3.97 4.15	7 7	14.3 11.8	0.7 0.7	125 125	466 489	466 489	27.4 22.6	60.3 47.2	4.98 6.06	2.6 2.7	33.3 33.3	0.76 0.76	84.7 69.9	112.1 92.5	0.351 0.351	0.211 0.154	0.274 0.200	0.78 0.57	Above W.T. Above W.T.
4.13	7	11.4	0.72	125	494	494	21.8	45.1	6.46	2.7	33.3	0.76	67.5	89.3	0.351	0.134	0.190	0.54	Above W.T.
4.13	7	11.7	0.63	125	500	500	22.4	45.8	5.50	2.7	33.3	0.76	69.3	91.7	0.351	0.152	0.190	0.54	Above W.T.
4.3	7	11	0.61	125	508	508	21.1	42.3	5.68	2.7	33.3	0.76	65.1	86.2	0.351	0.140	0.181	0.52	Above W.T.
4.36	7	10.2	0.57	125	515	515	19.5	38.6	5.73	2.7	33.3	0.76	60.4	79.9	0.351	0.127	0.166	0.47	Above W.T.
4.42	7	8	0.55	115	523	523	15.3	29.6	7.11	2.9	33.3	0.76	47.3	62.6	0.351	0.103	0.134	0.38	Above W.T.
4.47	7	9.2	0.53	115	528	528	17.5	33.8	5.93	2.8	33.3	0.76	54.1	71.7	0.351	0.114	0.148	0.42	Above W.T.
4.51	7	7.9	0.47	115	533	533	15.0	28.6	6.16	2.8	33.3	0.76	46.3	61.3	0.351	0.101	0.132	0.38	Above W.T.
4.57	7	8.9	0.52	115	540	540	16.8	32.0	6.03	2.8	33.3	0.76	51.8	68.6	0.351	0.110	0.143	0.41	Above W.T.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 21

Depth to Groundwater: 7 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

PGA (g): 0.54 MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth		Resist.		g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress	•	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	DqcIN	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	4.0	-	0.0	0.50	445	540	5.12	16.7	21.7	6.00	2.0	22.2	0.76	51.6	60.4	0.251	0.110	0.142	0.41	41 W.T.
	4.6 4.64	7 7	8.9 9.7	0.52 0.52	115 125	543 548	543 548	16.7 18.1	31.7 34.4	6.03 5.52	2.8	33.3 33.3	0.76 0.76	51.6 56.1	68.4 74.2	0.351	0.110 0.118	0.143 0.153	0.41 0.44	Above W.T. Above W.T.
	4.67	7	10.2		125	552	552	19.0	36.0	5.34	2.7	33.3	0.76	58.7	77.7	0.351	0.118	0.155	0.44	Above W.T.
	4.72	7	10.9		125	558	558	20.2	38.1	5.18	2.7	33.3	0.76	62.4	82.6	0.351	0.132	0.172	0.49	Above W.T.
	4.76	7	11.5	0.58	125	563	563	21.2	39.8	5.17	2.7	33.3	0.76	65.6	86.8	0.351	0.141	0.183	0.52	Above W.T.
	4.79	7	11.1	0.61	125	567	567	20.4	38.2	5.64	2.7	33.3	0.76	63.1	83.5	0.351	0.134	0.174	0.50	Above W.T.
	4.82	7	11.8	0.64	125	571	571	21.6	40.3	5.56	2.7	33.3	0.76	66.8	88.4	0.351	0.144	0.188	0.53	Above W.T.
	4.86	7	11.9	0.66	125	576	576	21.7	40.3	5.68	2.7	33.3	0.76	67.1	88.8	0.351	0.145	0.189	0.54	Above W.T.
	4.9 4.94	7 7	12.1 12.3	0.66 0.67	125 125	581 586	581	22.0 22.2	40.7 41.0	5.59	2.7 2.7	33.3	0.76 0.76	67.9 68.8	89.9 91.0	0.351	0.148	0.192 0.195	0.55 0.56	Above W.T.
	4.94	7	12.5		125	589	586 589	22.5	41.4	5.58 5.57	2.7	33.3 33.3	0.76	69.7	92.2	0.351	0.150 0.153	0.193	0.57	Above W.T. Above W.T.
	5.01	7	12.5		125	594	594	22.4	41.1	5.57	2.7	33.3	0.76	69.4	91.8	0.351	0.153	0.198	0.56	Above W.T.
	5.11	7	13.1	0.7	125	607	607	23.3	42.2	5.47	2.7	33.3	0.76	71.9	95.2	0.351	0.160	0.208	0.59	Above W.T.
	5.19	7	13.1	0.7	125	617	617	23.1	41.5	5.47	2.7	33.3	0.76	71.4	94.4	0.351	0.158	0.206	0.59	Above W.T.
	5.28	7	12.5		125	628	628	21.8	38.8	5.58	2.7	33.3	0.76	67.5	89.3	0.351	0.146	0.190	0.54	Above W.T.
	5.37	7	13	0.65	125	639	639	22.5	39.7	5.13	2.7	33.3	0.76	69.6	92.1	0.351	0.153	0.198	0.56	Above W.T.
	5.46	7 7	12.7	0.63	125	651	651	21.8	38.0	5.09	2.7	33.3	0.76	67.4	89.1	0.351	0.146	0.190	0.54	Above W.T.
	5.54 5.63	7	12.5 12.6		125 125	661 672	661 672	21.3 21.3	36.8 36.5	5.09 4.97	2.7 2.7	33.3 40.7	0.76 0.80	65.8 85.1	87.1 106.4	0.351	0.141 0.192	0.184 0.249	0.52 0.71	Above W.T. Above W.T.
	5.72	7	12.5		125	683	683	20.9	35.6	4.85	2.7	40.7	0.80	83.7	104.6	0.351	0.132	0.243	0.69	Above W.T.
	5.8	7	11.8	0.57	125	693	693	19.6	33.0	4.98	2.7	42.3	0.80	78.4	98.1	0.351	0.168	0.218	0.62	Above W.T.
	5.89	7	11.2	0.57	125	704	704	18.5	30.8	5.25	2.8	44.5	0.80	73.9	92.3	0.351	0.153	0.199	0.57	Above W.T.
	5.98	7	11.2		125	716	716	18.3	30.3	5.07	2.8	44.2	0.80	73.3	91.6	0.351	0.151	0.197	0.56	Above W.T.
	6.07	7	11.1	0.52	125	727	727	18.0	29.5	4.84	2.8	43.8	0.80	72.1	90.1	0.351	0.148	0.192	0.55	Above W.T.
	6.16	7	11	0.52	125	738	738	17.7	28.8	4.89	2.8	44.4	0.80	70.9	88.6	0.351	0.145	0.188	0.54	Above W.T.
	6.24 6.33	7 7	11.2 11.2		125 125	748 759	748 759	17.9 17.8	28.9 28.5	4.90 4.99	2.8	44.4 45.0	0.80	71.7 71.1	89.6 88.9	0.351	0.147 0.145	0.191 0.189	0.54 0.54	Above W.T. Above W.T.
	6.42	7	11.2		125	771	771	17.7	28.1	5.09	2.8	45.6	0.80	70.6	88.3	0.351	0.143	0.187	0.53	Above W.T.
	6.51	7	11.3		125	782	782	17.7	27.9	5.13	2.8	45.8	0.80	70.7	88.4	0.351	0.144	0.188	0.53	Above W.T.
	6.6	7	11.1	0.58	125	793	793	17.2	27.0	5.42	2.8	47.4	0.80	69.0	86.2	0.351	0.140	0.182	0.52	Above W.T.
	6.69	7	11.3	0.58	125	804	804	17.4	27.1	5.32	2.8	47.0	0.80	69.7	87.2	0.351	0.142	0.184	0.52	Above W.T.
	6.78	7	11.3	0.58	125	816	816	17.3	26.7	5.32	2.8	47.3	0.80	69.3	86.6	0.351	0.140	0.182	0.52	Above W.T.
	6.87	7	10.8		125	827	827	16.4	25.1	5.58	2.9	49.3	0.80	65.7	82.2	0.351	0.132	0.171	0.49	Above W.T.
	6.96 7.04	7 7	10.6 10.2	0.57 0.56	125 125	838 848	838 843	16.0 15.4	24.3 23.2	5.60 5.73	2.9 2.9	50.0 51.3	0.80	64.1 61.5	80.1 76.9	0.351 0.353	0.128 0.122	0.166 0.159	0.47 0.45	Above W.T. NonLiqfble.
	7.13	7	10.2	0.53	125	859	849	15.0	22.5	5.54	2.9	51.2	0.80	60.1	75.1	0.355	0.122	0.155	0.44	NonLiqfble.
	7.22	7	9.6		115	871	854	14.4	21.4	5.35	2.9	51.6	0.80	57.5	71.9	0.358	0.115	0.149	0.42	NonLiqfble.
	7.31	7	9.8	0.47	115	881	859	14.6	21.8	5.02	2.9	50.1	0.80	58.5	73.1	0.360	0.116	0.151	0.42	NonLiqfble.
	7.4	7	10.2		115	891	864	15.2	22.6	4.31	2.8	46.8	0.80	60.7	75.9	0.362	0.121	0.157	0.43	NonLiqfble.
	7.48	7	9.9	0.33	115	900	868	14.7	21.8	3.49	2.8	44.1	0.80	58.8	73.5	0.364	0.117	0.152	0.42	NonLiqfble.
	7.57	7	9.5		115	911	873	14.1	20.7	3.87	2.8	46.7	0.80	56.3	70.4	0.366	0.112	0.146	0.40	NonLiqfble.
	7.66 7.73	7 7	9.2 7.3	0.38 0.38	115 115	921 929	877 881	13.6 10.8	19.9 15.5	4.35 5.56	2.9 3.0	49.4 59.1	0.80	54.4 43.0	67.9 53.8	0.368 0.370	0.109 0.094	0.142 0.123	0.39	NonLiqfble. NonLiqfble.
	7.78	7	9.4	0.39	115	935	884	13.8	20.2	4.37	2.9	49.2	0.80	55.3	69.2	0.371	0.111	0.144	0.39	NonLiqfble.
	7.83	7	10.3	0.4	115	941	886	15.1	22.2	4.07	2.8	46.2	0.80	60.5	75.7	0.372	0.120	0.156	0.42	NonLiqfble.
	7.88	7	10.7	0.41	115	946	889	15.7	23.0	4.01	2.8	45.3	0.80	62.8	78.5	0.374	0.125	0.163	0.43	NonLiqfble.
	7.93	7	11.2		115	952	892	16.4	24.0	3.82	2.8	43.7	0.80	65.6	82.1	0.375	0.131	0.171	0.46	NonLiqfble.
	8	7	10.8	0.4	115	960	895	15.8	23.0	3.88	2.8	44.7	0.80	63.2	79.0	0.376	0.126	0.164	0.43	NonLiqfble.
	8.09 8.17	7 7	10.3 10.1	0.39	115 115	971 980	900 904	15.0 14.7	21.8 21.2	3.97 4.06	2.8 2.8	46.1 47.0	0.80	60.1 58.8	75.1 73.5	0.378 0.380	0.119 0.117	0.155 0.152	0.41 0.40	NonLiqfble. NonLiqfble.
	8.26	7	8.9	0.39	115	990	909	12.9	18.5	4.76	2.9	52.5	0.80	51.7	64.6	0.382	0.117	0.132	0.40	NonLiqfble.
	8.35	7	8.3		115	1000	914	12.0	17.1	5.13	3.0	55.5	0.80	48.1	60.1	0.384	0.100	0.130	0.34	NonLiqfble.
	8.44	7	8.3		115	1011	918	12.0	17.0	5.13	3.0	55.7	0.80	47.9	59.9	0.386	0.100	0.130	0.34	NonLiqfble.
	8.53	7	7.6		115	1021	923	10.9	15.4	5.36	3.0	58.7	0.80	43.8	54.7	0.388	0.095	0.124	0.32	NonLiqfble.
	8.62	7	8.2		115	1032	928	11.8	16.6	4.55	2.9	54.0	0.80	47.1	58.9	0.390	0.099	0.129	0.33	NonLiqfble.
	8.71	7	7.6		115	1042	933	10.9	15.2	4.80	3.0	56.9	0.80	43.6	54.4	0.392	0.095	0.124	0.31	NonLiqfble.
	8.79 8.88	7 7	8 7.4	0.34 0.35	115 115	1051 1061	937 942	11.4 10.6	15.9 14.6	4.55 5.10	2.9 3.0	54.8 58.8	0.80	45.7 42.2	57.2 52.8	0.394 0.396	0.097 0.094	0.127 0.122	0.32 0.31	NonLiqfble. NonLiqfble.
	8.97	7	7.4		115	1072	942	10.0	13.7	5.72	3.1	62.6	0.80	39.8	49.8	0.398	0.094	0.122	0.30	NonLiqfble.
	9.06	7	7.3		115	1082	951	10.4	14.2	5.47	3.0	60.8	0.80	41.4	51.8	0.399	0.093	0.121	0.30	NonLiqfble.
	9.15	7	7.2		115	1092	956	10.2	13.9	5.56	3.0	61.6	0.80	40.8	50.9	0.401	0.092	0.120	0.30	NonLiqfble.
	9.24	7			115	1103	961	10.4	14.3	5.40	3.0	60.5	0.80	41.8	52.2	0.403	0.093	0.121	0.30	NonLiqfble.
	9.33	7	7.3	0.35	115	1113	965	10.3	14.0	5.19	3.0	60.2	0.80	41.1	51.4	0.405	0.093	0.120	0.30	NonLiqfble.

Date: September 2005

CPT Number: 21

Depth to Groundwater: 7 feet

	Depth	Water Table	Tip Resist.	Sleeve Frict.	•	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	g (PCF)	(PSF)	(PSF)	q <sub>c1N</sub>	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es		M7.5	M6.50		Comments
	()	()	(-2-)	(-2-)	()	(-2-)	(= == )	•				(,-,							~,	
	9.42	7	7.3	0.32	115	1124	970	10.3	13.9	4.75	3.0	58.6	0.80	41.0	51.3	0.407	0.093	0.120	0.30	NonLigfble.
	9.51	7	7.7	0.31	115	1134	975	10.8	14.6	4.35	3.0	55.9	0.80	43.2	54.0	0.408	0.095	0.123	0.30	NonLiqfble.
	9.6	7	7.6	0.31	115	1144	979	10.6	14.3	4.41	3.0	56.6	0.80	42.5	53.1	0.410	0.094	0.122	0.30	NonLiqfble.
	9.69 9.77	7 7	7.5 7.3	0.31	115 115	1155	984	10.5	14.1	4.48	3.0	57.3	0.80	41.8	52.3	0.412	0.093	0.121	0.29	NonLiqfble.
	9.77	7	7.3 7.7	0.31 0.32	115	1164 1174	988 993	10.2 10.7	13.6 14.3	4.61 4.50	3.0	58.6 57.0	0.80	40.6 42.8	50.8 53.5	0.413 0.415	0.092 0.094	0.120 0.122	0.29	NonLiqfble. NonLiqfble.
	9.95	7	7.9	0.33	115	1184	998	10.9	14.6	4.52	3.0	56.5	0.80	43.8	54.7	0.417	0.095	0.124	0.30	NonLiqfble.
	10.04	7	8.1	0.33	115	1195	1003	11.2	15.0	4.40	3.0	55.6	0.80	44.8	56.0	0.410	0.096	0.125	0.31	NonLiqfble.
	10.13	7	8.4	0.35	115	1205	1007	11.6	15.5	4.49	3.0	55.2	0.80	46.3	57.9	0.412	0.098	0.127	0.31	NonLiqfble.
	10.22 10.3	7 7	8.5 8.2	0.37 0.39	115 115	1216 1225	1012 1016	11.7 11.3	15.6 14.9	4.69 5.14	3.0	55.8 58.5	0.80	46.8 45.0	58.5 56.3	0.413 0.415	0.099 0.097	0.128 0.126	0.31	NonLiqfble. NonLiqfble.
	10.39	7	8.7	0.39	115	1235	1021	11.9	15.8	4.83	3.0	56.0	0.80	47.7	59.6	0.416	0.100	0.130	0.31	NonLiqfble.
	10.48	7	9	0.4	115	1245	1026	12.3	16.3	4.77	2.9	55.2	0.80	49.2	61.5	0.418	0.102	0.132	0.32	NonLiqfble.
	10.57	7	9.8	0.41	115	1256	1030	13.4	17.8	4.47	2.9	52.2	0.80	53.4	66.8	0.419	0.108	0.140	0.33	NonLiqfble.
	10.66 10.74	7 7	10.8 11.5	0.42 0.43	115 115	1266 1275	1035 1039	14.7 15.6	19.6 20.9	4.13 3.96	2.8 2.8	48.8 46.9	0.80	58.7 62.4	73.4 78.0	0.421 0.422	0.117 0.124	0.152 0.161	0.36	NonLiqfble. NonLiqfble.
	10.83	7	12	0.46	125	1286	1044	16.2	21.7	4.05	2.8	46.5	0.80	65.0	81.2	0.424	0.124	0.169	0.40	NonLiqfble.
	10.92	7	11.9	0.49	125	1297	1050	16.1	21.4	4.36	2.8	48.0	0.80	64.3	80.3	0.425	0.128	0.167	0.39	NonLiqfble.
	11.01	7	11.7	0.52	125	1308	1055	15.8	20.9	4.71	2.9	49.8	0.80	63.0	78.8	0.426	0.125	0.163	0.38	NonLiqfble.
	11.09 11.18	7 7	11 10.5	0.51 0.53	125 125	1318 1329	1060 1066	14.8 14.1	19.5 18.4	4.93 5.39	2.9 2.9	52.0 54.8	0.80	59.1 56.3	73.9 70.4	0.428 0.429	0.118 0.112	0.153 0.146	0.36 0.34	NonLiqfble. NonLiqfble.
	11.26	7	11	0.53	125	1339	1071	14.7	19.3	5.13	2.9	53.0	0.80	58.8	73.5	0.430	0.112	0.152	0.35	NonLiqfble.
	11.35	7	11.1	0.52	125	1351	1077	14.8	19.4	4.99	2.9	52.4	0.80	59.2	74.0	0.431	0.118	0.153	0.35	NonLiqfble.
	11.43	7	10.8	0.52	125	1361	1082	14.4	18.7	5.14	2.9	53.6	0.80	57.5	71.8	0.433	0.114	0.149	0.34	NonLiqfble.
	11.52 11.61	7 7	10.8 11.3	0.53 0.55	125 125	1372 1383	1087 1093	14.3 15.0	18.6 19.4	5.24 5.18	2.9 2.9	54.1 53.0	0.80	57.3 59.8	71.7 74.8	0.434 0.435	0.114 0.119	0.148 0.155	0.34	NonLiqfble. NonLiqfble.
	11.69	7	11.3	0.58	125	1393	1093	14.9	19.4	5.47	2.9	54.1	0.80	59.7	74.6	0.436	0.119	0.153	0.35	NonLiqfble.
	11.77	7	11.3	0.58	125	1403	1103	14.9	19.2	5.47	2.9	54.2	0.80	59.5	74.4	0.438	0.118	0.154	0.35	NonLiqfble.
	11.85	7	. 11	0.57	125	1413	1108	14.5	18.6	5.54	2.9	55.1	0.80	57.8	72.3	0.439	0.115	0.150	0.34	NonLiqfble.
	11.93 12.02	7 7	11.1 10.5	0.54 0.51	125 125	1423 1434	1113 1119	14.6 13.7	18.7 17.5	5.20 5.21	2.9 3.0	53.9 55.3	0.80	58.2 54.9	72.8 68.7	0.440 0.441	0.116 0.110	0.151 0.143	0.34	NonLiqfble. NonLiqfble.
	12.02	7	9.6	0.48	115	1444	1119	12.5	15.8	5.41	3.0	58.2	0.80	50.1	62.7	0.441	0.110	0.143	0.32	NonLiqfble.
	12.19	7	9.2	0.45	115	1455	1128	12.0	15.0	5.31	3.0	59.0	0.80	47.9	59.9	0.443	0.100	0.130	0.29	NonLiqfble.
	12.28	7	8.8	0.43	115	1465	1133	11.4	14.2	5.33	3.0	60.3	0.80	45.8	57.2	0.445	0.097	0.127	0.28	NonLiqfble.
	12.37 12.46	7 7	8.5 9.2	0.46 0.46	115 115	1475 1486	1138 1143	11.0 11.9	13.6 14.8	5.93 5.44	3.1	63.3 59.8	0.80	44.1 47.6	55.1 59.5	0.446 0.447	0.096 0.100	0.124 0.130	0.28	NonLiqfble.
	12.40	7	9.7	0.46	115	1496	1143	12.5	15.6	4.92	3.0	56.7	0.80	50.1	62.6	0.447	0.100	0.130	0.29	NonLiqfble. NonLiqfble.
	12.64	7	9.7	0.52	125	1507	1152	12.5	15.5	5.81	3.0	60.0	0.80	50.0	62.5	0.450	0.103	0.134	0.30	NonLiqfble.
	12.72	7	10	0.54	125	1517	1157	12.9	16.0	5.84	3.0	59.4	0.80	51.5	64.3	0.451	0.105	0.136	0.30	NonLiqfble.
	12.79 12.82	7 7	9.7 9.4	0.54 0.54	125 125	1525 1529	1161	12.5	15.4	6.04	3.0	60.9	0.80	49.8	62.3	0.452	0.102	0.133	0.29	NonLiqfble.
	12.86	7	9.4	0.53	125	1534	1163 1166	12.1 11.9	14.8 14.6	6.25 6.21	3.1	62.4 62.6	0.80	48.2 47.7	60.3 59.6	0.452 0.453	0.100 0.100	0.130 0.130	0.29	NonLiqfble. NonLiqfble.
	12.93	7	10.1	0.52	125	1543	1170	12.9	15.9	5.57	3.0	58.6	0.80	51.7	64.6	0.453	0.105	0.137	0.30	NonLiqfble.
	13.01	7	10.3	0.49	125	1553	1175	13.1	16.2	5.15	3.0	56.7	0.80	52.6	65.7	0.454	0.106	0.138	0.30	NonLiqfble.
	13.1	7 7	10.2 10.2	0.49	125	1564	1181	13.0	15.9	5.20	3.0	57.3	0.80	51.9	64.9	0.456	0.105	0.137	0.30	NonLiqfble.
	13.19 13.28	7	10.2	0.49 0.51	125 125	1575 1587	1186 1192	13.0 13.3	15.9 16.3	5.21 5.25	3.0	57.4 57.0	0.80	51.8 53.2	64.8 66.5	0.457 0.458	0.105 0.107	0.137 0.140	0.30	NonLiqfble. NonLiqfble.
	13.37	7	10.7	0.54	125	1598	1198	13.5	16.5	5.45	3.0	57.4	0.80	54.1	67.6	0.459	0.109	0.141	0.31	NonLiqfble.
	13.45	7	10.8	0.56	125	1608	1203	13.6	16.6	5.60	3.0	57.8	0.80	54.5	68.1	0.460	0.109	0.142	0.31	NonLiqfble.
	13.54	7	11.2	0.56	125	1619	1208	14.1	17.2	5.39	3.0	56.3	0.80	56.4	70.5	0.461	0.113	0.146	0.32	NonLiqfble.
	13.63 13.72	7 7	10.9 10.6	0.55 0.55	125 125	1630 1642	1214 1220	13.7 13.3	16.6 16.0	5.45 5.62	3.0	57.3 58.6	0.80	54.8 53.1	68.4 66.4	0.462 0.463	0.110 0.107	0.143 0.139	0.31	NonLiqfble. NonLiqfble.
	13.8	7	10.9	0.54	125	1652	1225	13.6	16.4	5.36	3.0	57.1	0.80	54.5	68.1	0.464	0.109	0.142	0.31	NonLiqfble.
	13.89	7	10.8	0.53	125	1663	1230	13.5	16.2	5.32	3.0	57.3	0.80	53.9	67.4	0.465	0.108	0.141	0.30	NonLiqfble.
	13.98	7	11.2	0.49	125	1674	1236	13.9	16.8	4.73	2.9	54.4	0.80	55.8	69.7	0.466	0.111	0.145	0.31	NonLiqfble.
	14.07 14.16	7 7	11 11.2	0.53 0.52	125 125	1685 1697	1242 1247	13.7 13.9	16.4 16.6	5.22 5.02	3.0	56.8 55.7	0.80	54.6 55.5	68.3 69.4	0.467 0.468	0.110 0.111	0.143 0.144	0.31	NonLiqfble. NonLiqfble.
	14.24	7	11.5	0.53	125	1707	1252	14.2	17.0	4.98	2.9	55.1	0.80	56.9	71.1	0.469	0.111	0.144	0.31	NonLiqfble.
	14.27	7	11.8	0.52	125	1710	1254	14.6	17.4	4.75	2.9	53.7	0.80	58.3	72.9	0.469	0.116	0.151	0.32	NonLiqfble.
	14.35	7	12.4	0.51	125	1720	1259	15.3	18.3	4.42	2.9	51.4	0.80	61.2	76.4	0.470	0.122	0.158	0.34	NonLiqfble.
	14.44 14.53	7 7	11.9 11.2	0.51 0.49	125 125	1732 1743	1265 1270	14.6 13.7	17.4 16.3	4.62 4.74	2.9 2.9	53.2 55.1	0.80	58.6 55.0	73.2 68.7	0.471 0.472	0.116 0.110	0.151 0.143	0.32 0.30	NonLiqfble. NonLiqfble.
	14.61	7		0.43		1753	1275	13.2	15.6	4.74	3.0	56.1	0.80	52.9	66.2	0.472	0.110	0.143	0.29	NonLiqfble.

Date: September 2005

CPT Number: 21 Depth to Groundwater: 7 feet

Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

**EQ Magnitude** (M<sub>w</sub>): 6.5

	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	l Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	q <sub>c1N</sub>	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es		M7.5	M6.50	Safety	Comments
		,		( )	( - /	, , ,	( )					()			-					
	447	-	40.0	0.45	445	1764	1201	12.0	15.0	4.62	2.0	56.0	0.00	51.0	64.0	0.474	0.105	0.127	0.20	N. T. 01
	14.7 14.79	7 7	10.6 10.3	0.45 0.44	115 115	1764 1774	1281 1286	13.0 12.6	15.2 14.6	4.63 4.67	3.0	56.2 57.2	0.80	51.8 50.3	64.8 62.8	0.474 0.475	0.105 0.103	0.137 0.134	0.29 0.28	NonLiqfble. NonLiqfble.
	14.88	7	10.7	0.44	115	1785	1290	13.0	15.2	4.49	3.0	55.6	0.80	52.1	65.2	0.476	0.106	0.137	0.29	NonLiqfble.
	14.96	7	10.8	0.43	115	1794	1295	13.1	15.3	4.34	2.9	54.9	0.80	52.5	65.7	0.477	0.106	0.138	0.29	NonLiqfble.
	15.05	7	10.2	0.41	115	1804	1299	12.4	14.3	4.41	3.0	56.6	0.80	49.5	61.9	0.478	0.102	0.133	0.28	NonLiqfble.
	15.14	7	9.9		115	1815	1304	12.0	13.8	4.89	3.0	59.4	0.80	48.0	60.0	0.479	0.100	0.130	0.27	NonLiqfble.
	15.23 15.3	7 7	9.6 9.1	0.44 0.44	115 115	1825 1833	1309 1313	11.6 11.0	13.3 12.5	5.06 5.38	3.0	60.9 63.5	0.80	46.4 44.0	58.1 54.9	0.480 0.480	0.098 0.095	0.128 0.124	0.27 0.26	NonLiqfble. NonLiqfble.
	15.37	7	10.3	0.44	115	1841	1316	12.4	14.2	4.69	3.0	57.8	0.80	49.7	62.1	0.481	0.102	0.133	0.28	NonLiqfble.
	15.46	7	10.3	0.44	115	1851	1321	12.4	14.2	4.69	3.0	57.9	0.80	49.6	62.0	0.482	0.102	0.133	0.28	NonLiqfble.
	15.55	7	10.2		115	1862	1326	12.3	14.0	4.64	3.0	58.1	0.80	49.0	61.3	0.483	0.101	0.132	0.27	NonLiqfble.
	15.64	7	10.7	0.43	115	1872	1330	12.8	14.7	4.40	3.0	56.0	0.80	51.3	64.2	0.484	0.105	0.136	0.28	NonLiqfble.
	15.73 15.82	7 7	10.8 10.6		115 115	1882 1893	1335 1340	12.9 12.7	14.8 14.4	4.46 4.77	3.0	56.1 57.9	0.80	51.7 50.7	64.7 63.4	0.485 0.486	0.105 0.104	0.137 0.135	0.28 0.28	NonLiqfble. NonLiqfble.
	15.9	7	10.7	0.48	125	1902	1344	12.8	14.5	4.92	3.0	58.3	0.80	51.1	63.8	0.487	0.104	0.135	0.28	NonLiqfble.
	15.99	7	10.4	0.47	115	1913	1350	12.4	14.0	4.98	3.0	59.4	0.80	49.5	61.9	0.488	0.102	0.133	0.27	NonLiqfble.
	16.08	7	10.6		115	1924	1355	12.6	14.2	4.77	3.0	58.2	0.80	50.4	63.0	0.489	0.103	0.134	0.27	NonLiqfble.
	16.17	7	10.8	0.45	115	1934	1359	12.8	14.5	4.58	3.0	57.0	0.80	51.3	64.1	0.489	0.104	0.136	0.28	NonLiqfble.
	16.26 16.35	7 7	10.6 10.6	0.44 0.43	115 115	1944 1955	1364 1369	12.6 12.5	14.1 14.1	4.57 4.47	3.0	57.6 57.3	0.80	50.2 50.1	62.8 62.7	0.490 0.491	0.103 0.103	0.134	0.27 0.27	NonLiqfble. NonLiqfble.
	16.44	7	10.6		115	1965	1373	12.5	14.0	4.37	3.0	56.9	0.80	50.1	62.6	0.492	0.103	0.134	0.27	NonLiqfble.
	16.52	7	10.9	0.42	115	1974	1378	12.8	14.4	4.24	3.0	55.8	0.80	51.4	64.2	0.493	0.105	0.136	0.28	NonLiqfble.
	16.59	7	10.7	0.42	115	1982	1381	12.6	14.1	4.33	3.0	56.7	0.80	50.4	63.0	0.494	0.103	0.134	0.27	NonLiqfble.
	16.67	7	10.6		115	1991	1386	12.5	13.9	4.37	3.0	57.2	0.80	49.8	62.3	0.494	0.102	0.133	0.27	NonLiqfble.
	16.76 16.85	7 7	10.6 10.5	0.4 0.38	115 115	2002 2012	1390 1395	12.4 12.3	13.8 13.6	4.17 4.00	3.0	56.4 56.0	0.80	49.8 49.2	62.2 61.5	0.495 0.496	0.102 0.102	0.133 0.132	0.27 0.27	NonLiqfble. NonLiqfble.
	16.93	7	10.6	0.36	115	2021	1399	12.4	13.7	3.75	2.9	54.8	0.80	49.6	62.0	0.497	0.102	0.132	0.27	NonLiqfble.
	17.02	7	10.7	0.34	115	2032	1404	12.5	13.8	3.51	2.9	53.5	0.80	50.0	62.5	0.498	0.103	0.133	0.27	NonLiqfble.
	17.11	7	10.8	0.32	115	2042	1409	12.6	13.9	3.27	2.9	52.2	0.80	50.4	63.0	0.499	0.103	0.134	0.27	NonLiqfble.
	17.2	7	10.8	0.32	115	2052	1413	12.6	13.8	3.27	2.9	52.3	0.80	50.3	62.8	0.499	0.103	0.134	0.27	NonLiqfble.
	17.29 17.38	7 7	11.4 11.1	0.31 0.31	115 115	2063 2073	1418 1423	13.2 12.9	14.6 14.1	2.99 3.08	2.9 2.9	49.6 50.8	0.80	53.0 51.5	66.2 64.4	0.500 0.501	0.107 0.105	0.139 0.136	0.28 0.27	NonLiqfble. NonLiqfble.
	17.46	7	11.8	0.31	115	2082	1423	13.7	15.1	2.88	2.8	48.4	0.80	54.7	68.3	0.502	0.103	0.130	0.27	NonLiqfble.
	17.55	7	11.4	0.31	115	2093	1432	13.2	14.5	2.99	2.9	49.9	0.80	52.7	65.9	0.503	0.107	0.139	0.28	NonLiqfble.
	17.64	7	11.7	0.33	115	2103	1437	13.5	14.8	3.10	2.9	49.9	0.80	54.0	67.5	0.504	0.109	0.141	0.28	NonLiqfble.
	17.73	7	11	0.34	115	2113	1441	12.7	13.8	3.42	2.9	53.0	0.80	50.7	63.4	0.504	0.104	0.135	0.27	NonLiqfble.
	17.81 17.9	7 7	11 11.2	0.35 0.35	115 115	2123 2133	1446 1450	12.7 12.9	13.7 14.0	3.52 3.45	2.9 2.9	53.6 52.9	0.80	50.6 51.5	63.3 64.3	0.505 0.506	0.104 0.105	0.135 0.136	0.27 0.27	NonLiqfble. NonLiqfble.
	17.99	7	11.3	0.34	115	2143	1455	13.0	14.1	3.32	2.9	52.2	0.80	51.8	64.8	0.507	0.105	0.137	0.27	NonLiqfble.
	18.08	7	11.4	0.34	115	2154	1460	13.1	14.1	3.29	2.9	51.9	0.80	52.2	65.3	0.507	0.106	0.138	0.27	NonLiqfble.
	18.17	7	11.6		115	2164	1464	13.3	14.4	3.14	2.9	50.8	0.80	53.1	66.3	0.508	0.107	0.139	0.27	NonLiqfble.
	18.25	7	12.2		115	2173	1469	13.9	15.1	2.88	2.8	48.3	0.80	55.7	69.6	0.509	0.111	0.145	0.28	NonLiqfble.
	18.34 18.43	7 7	12.5 12.1	0.33 0.34	115 115	2184 2194	1473 1478	14.2 13.8	15.5 14.9	2.89 3.09	2.8	47.9 49.8	0.80	57.0 55.1	71.2 68.9	0.510 0.511	0.114 0.110	0.148 0.143	0.29 0.28	NonLiqfble. NonLiqfble.
	18.52	7	12.5		115	2204	1483	14.2	15.4	3.07	2.9	49.0	0.80	56.8	71.0	0.511	0.113	0.143	0.29	NonLiqfble.
	18.61	7	12.9	0.35	115	2215	1488	14.6	15.8	2.97	2.8	47.8	0.80	58.5	73.2	0.512	0.116	0.151	0.30	NonLiqfble.
	18.81	7	13.8	0.33	115	2238	1498	15.6	16.9	2.60	2.8	44.5	0.80	62.4	78.0	0.514	0.124	0.161	0.31	NonLiqfble.
	18.91	7	12.8	0.31	115	2249	1503	14.4	15.5	2.66	2.8	46.6	0.80	57.8	72.2	0.515	0.115	0.150	0.29	NonLiqfble.
	18.99 19.06	7 7	12.5 12.4		115 115	2258 2266	1508 1511	14.1 14.0	15.1 14.9	2.55 2.40	2.8 2.8	46.6 45.9	0.80	56.3 55.8	70.4 69.8	0.515 0.516	0.112 0.112	0.146 0.145	0.28 0.28	NonLiqfble. NonLiqfble.
	19.15	7	11.7	0.29	115	2277	1516	13.1	13.9	2.75	2.9	49.4	0.80	52.6	65.7	0.517	0.112	0.138	0.27	NonLiqfble.
	19.24	7	11.8		115	2287	1521	13.2	14.0	3.00	2.9	50.6	0.80	53.0	66.2	0.517	0.107	0.139	0.27	NonLiqfble.
	19.33	7	12.6		115	2297	1525	14.1	15.0	2.88	2.8	48.5	0.80	56.5	70.6	0.518	0.113	0.147	0.28	NonLiqfble.
	19.42	7	13.4		115	2308	1530	15.0	16.0	2.94	2.8	47.5	0.80	60.0	74.9	0.519	0.119	0.155	0.30	NonLiqfble.
	19.51 19.59	7 7	13.9 13.7	0.38	125 125	2318 2328	1535 1540	15.5 15.3	16.6 16.3	2.98 3.11	2.8	47.0 48.0	0.80	62.1 61.1	77.6 76.4	0.519 0.520	0.123 0.121	0.161 0.158	0.31	NonLiqfble. NonLiqfble.
	19.68	7	14.1	0.33	125	2339	1546	15.7	16.7	3.17	2.8	47.8	0.80	62.8	78.5	0.521	0.121	0.158	0.30	NonLiqfble.
	19.78	7	15.4		125	2352	1552	17.1	18.3	2.95	2.8	44.8	0.80	68.4	85.5	0.521	0.138	0.180	0.34	NonLiqfble.
	19.86	7	15.9		125	2362	1557	17.6	18.9	2.79	2.8	43.4	0.80	70.5	88.2	0.522	0.144	0.187	0.36	NonLiqfble.
	19.95	7	16.3		125	2373	1562	18.0	19.3	2.71	2.7	42.6	0.80	72.2	90.2	0.522	0.148	0.193	0.37	NonLiqfble.
	20.04 20.12	7 7	16.1 15.8	0.41 0.42	125 125	2384 2394	1568 1573	17.8 17.4	19.0 18.6	2.75 2.88	2.7 2.8	43.1 44.2	0.80	71.2 69.7	88.9 87.1	0.512 0.513	0.145 0.142	0.189 0.184	0.37 0.36	NonLiqfble. NonLiqfble.
	20.12	7			125		1578	17.4	18.4	2.90	2.8	44.5	0.80	69.2	86.5	0.513	0.142	0.184	0.35	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 21

Depth to Groundwater: 7 feet

**EQ Magnitude (M<sub>w</sub>):** 6.5 **PGA (g):** 0.54 MSF: 1.30

	D 4	Water	Tip	Sleeve			Effective			Friction		r c					•	Liquef.		
Cone	Depth (FT)	Table (FT)	Resist.	Frict. (TSF)	g (PCF)	Stress (PSF)	Stress (PSF)	Tip Qc1N	Tip Q	Ratio F	Ic	F.C. (%)	Ксрт	Dqc1N	(qcIN)cs	Stress Ratio	Stress M7.5	Stress M6.50	of Safety	Comments
Conc	(11)	(11)	(151)	(151)	(1 (1)	(101)	(151)	1	V			(70)		- 1	(4)	Rutio	141710	1110.20	Surety	Comments
	20.28	7	15.3	0.41	125	2414	1583	16.8	17.8	2.91	2.8	45.2	0.80	67.3	84.1	0.514	0.135	0.176	0.34	NonLiqfble.
	20.36	7	14.9	0.39		2424	1588	16.4	17.3	2.85	2.8	45.5	0.80	65.4	81.8	0.514	0.133	0.170	0.33	NonLiqfble.
	20.44	7	15.1	0.37	125	2434	1593	16.6	17.4	2.67	2.8	44.3	0.80	66.2	82.8	0.515	0.133	0.173	0.34	NonLiqfble.
	20.51	7	15.3	0.35		2443	1598	16.7	17.6	2.49	2.7	43.1	0.80	67.0	83.7	0.515	0.135	0.175	0.34	NonLiqfble.
	20.6	7	15.9	0.33		2453	1602	17.4	18.3	2.25	2.7	41.0	0.80	69.5	86.9	0.516	0.141	0.183	0.36	NonLiqfble.
	20.68 20.77	7 7	15.3 14.4	0.3 0.28		2463 2473	1606 1611	16.7 15.7	17.5 16.3	2.13 2.13	2.7 2.7	41.1 42.4	0.80 0.80	66.8 62.8	83.5 78.5	0.517 0.517	0.134 0.125	0.174 0.162	0.34 0.31	NonLiqfble. NonLiqfble.
	20.77	7	13.3	0.26	115	2483	1616	14.5	14.9	2.13	2.8	44.9	0.80	57.9	72.4	0.517	0.123	0.162	0.31	NonLiqfble.
	20.95	7	13.1	0.27	115	2494	1621	14.2	14.6	2.28	2.8	45.6	0.80	57.0	71.2	0.518	0.114	0.148	0.28	NonLiqfble.
	21.03	7	12.6	0.28	115	2503	1625	13.7	14.0	2.47	2.8	47.7	0.80	54.7	68.4	0.519	0.110	0.143	0.27	NonLiqfble.
	21.12	7	12.6	0.3		2513	1630	13.7	13.9	2.64	2.8	48.8	0.80	54.6	68.3	0.520	0.110	0.142	0.27	NonLiqfble.
	21.2	7	12.2	0.32		2522	1634	13.2	13.4	2.93	2.9	51.2	0.80	52.8	66.0	0.520	0.107	0.139	0.27	NonLiqfble.
	21.29 21.37	7 7	12.3 11.9	0.32 0.32		2533 2542	1639 1643	13.3 12.8	13.5 12.9	2.90 3.01	2.9 2.9	50.9 52.4	0.80 0.80	53.2 51.4	66.5 64.2	0.521 0.521	0.107 0.105	0.140 0.136	0.27 0.26	NonLiqfble. NonLiqfble.
	21.46	7	11.1	0.32		2552	1648	12.0	11.9	3.26	3.0	55.5	0.80	47.9	59.8	0.521	0.103	0.130	0.25	NonLiqfble.
	21.55	7	11.1	0.31	115	2563	1652	11.9	11.9	3.16	2.9	55.1	0.80	47.8	59.7	0.523	0.100	0.130	0.25	NonLiqfble.
	21.63	7	11.1	0.31	115	2572	1656	11.9	11.8	3.16	2.9	55.2	0.80	47.7	59.7	0.523	0.100	0.130	0.25	NonLiqfble.
	21.71	7	11.2	0.3		2581	1661	12.0	11.9	3.03	2.9	54.3	0.80	48.1	60.1	0.524	0.100	0.130	0.25	NonLiqfble.
	21.95	7	13.2	0.28	115	2609	1673	14.1	14.2	2.35	2.8	46.7	0.80	56.5	70.6	0.525	0.113	0.147	0.28	NonLiqfble.
	22.04	7	12.1	0.28		2619	1678	12.9	12.9	2.60	2.9	50.2	0.80	51.7	64.6	0.526	0.105	0.137	0.26	NonLiqfble.
	22.13 22.22	7 7	12.8 13.2	0.28 0.28	115 115	2629 2640	1683 1687	13.7 14.1	13.6 14.1	2.44 2.36	2.8 2.8	48.0 46.9	0.80 0.80	54.6 56.2	68.3 70.3	0.527 0.527	0.110 0.112	0.142 0.146	0.27 0.28	NonLiqfble. NonLiqfble.
	22.31	7	13.4	0.28	115	2650	1692	14.3	14.3	2.32	2.8	46.4	0.80	57.0	71.3	0.528	0.112	0.148	0.28	NonLiqfble.
	22.4	7	11.9	0.26		2660	1697	12.6	12.5	2.46	2.9	50.1	0.80	50.6	63.2	0.528	0.103	0.135	0.25	NonLiqfble.
	22.47	7	12	0.26	115	2668	1701	12.7	12.5	2.44	2.9	49.8	0.80	50.9	63.7	0.529	0.104	0.135	0.26	NonLiqfble.
	22.56	7	12	0.28	115	2679	1705	12.7	12.5	2.63	2.9	51.0	0.80	50.9	63.6	0.529	0.104	0.135	0.26	NonLiqfble.
	22.64	7	13.4	0.34	115	2688	1710	14.2	14.1	2.82	2.9	49.5	0.80	56.7	70.9	0.530	0.113	0.147	0.28	NonLiqfble.
	22.72 22.8	7 7	16.3 20.5	0.41 0.49	125 125	2697 2707	1714 1719	17.2 21.6	17.4 22.3	2.74 2.56	2.8 2.7	44.7 39.1	0.80	68.9	86.1 108.2	0.530 0.531	0.139 0.198	0.181 0.257	0.34 0.48	NonLiqfble.
	22.87	7	25.7	0.49		2716	1719	27.1	28.2	2.26	2.6	33.4	0.80 0.76	86.5 85.5	112.6	0.531	0.198	0.237	0.48	NonLiqfble. Liquefaction
	22.93	7	32.5	0.67	125	2723	1727	34.2	36.0	2.15	2.5	29.1	0.64	61.8	96.0	0.531	0.162	0.211	0.40	Liquefaction
	22.99	7	38.5	1.05	135	2731	1731	40.5	42.9	2.83	2.5	30.0	0.67	81.0	121.5	0.532	0.247	0.321	0.60	Liquefaction
	23.07	7	47.5	1.32		2742	1736	49.9	53.1	2.86	2.4	10.4	0.14	8.4	58.3	0.532	0.098	0.128	0.24	Liquefaction
	23.15	7	54.6	1.46		2753	1742	57.2	61.1	2.74	2.4	10.4	0.14	9.6	66.9	0.532	0.108	0.140	0.26	Liquefaction
	23.22	7	60.8	1.63		2762	1747	63.6	68.0	2.74	2.3	10.4	0.14	10.7	74.4	0.533	0.118	0.154	0.29	Liquefaction
	23.3 23.39	7 7	48.5 59.2	1.68 1.68	135 135	2773 2785	1753 1760	50.7 61.7	53.7 65.7	3.57 2.91	2.5 2.4	10.4 10.4	0.14 0.14	8.5 10.4	59.2 72.1	0.533 0.533	0.099 0.115	0.129 0.149	0.24 0.28	Liquefaction Liquefaction
	23.48	7	70.3	1.59		2797	1766	73.2	78.0	2.31	2.2	10.4	0.14	12.3	85.5	0.534	0.113	0.149	0.28	Liquefaction
	23.55	7	82.6	1.42		2807	1771	85.9	91.6	1.75	2.1	10.4	0.14	14.5	100.3	0.534	0.174	0.226	0.42	Liquefaction
	23.61	7	107.8	1.33	125	2815	1776	111.9	119.8	1.25	1.9	10.4	0.14	18.9	130.8	0.534	0.288	0.374	0.70	Liquefaction
	23.67	7	126.1	1.3		2822	1779	130.8	140.1	1.04	1.8	10.4	0.14	22.0	152.8	0.534	0.412	0.536	1.00	Low F.S.
	23.75	7	147.3	1.44	125	2832	1784	152.6	163.4	0.99	1.7	10.4	0.14	25.7	178.3	0.535	0.607	0.789	1.48	
	23.84 23.91	7 7	156.8 163.6	1.57 1.79	125 125	2843 2852	1790 1794	162.2 169.0	173.5 180.7	1.01 1.10	1.7	10.4 10.4	0.14	27.3 28.5	189.5 197.4	0.535 0.536	0.713	0.926 1.035	1.73	
	23.99	7	175.5	1.79	125	2862	1794	181.0	193.4	1.08	1.8 1.7	10.4	0.14 0.14	30.5	211.5	0.536	0.796 0.960	1.248	1.93 2.33	
	24.07	7	188.9	1.77	125	2872	1804	194.6	207.7	0.94	1.7	10.4	0.14	32.8	227.3	0.536	1.173	1.525	2.84	
	24.14	7	202.6	1.7	125	2881	1809	208.4	222.3	0.85	1.6	10.4	0.14	35.1	243.5	0.537	1.423	1.850	3.45	
	24.21	7	225.4	1.55	115	2890	1813	231.6	246.9	0.69	1.5	10.4	0.14	39.0	270.6	0.537	1.923	2.500	4.66	
	24.29	7		1.8		2899	1817	251.3	267.8	0.74	1.5	10.4	0.14	42.3	293.7	0.537	2.436	3.167	5.89	
	24.35	7	263.4	1.82			1821	270.1	287.6	0.69	1.5	10.4	0.14	45.5	315.6	0.538	3.004	3.905	7.26	
	24.38 24.45	7 7	264.9 300.5	1.72 1.75		2909 2917	1822 1826	271.5 307.7	289.0 327.4	0.65 0.59	1.4 1.4	10.4 10.4	0.14 0.14	45.7	317.3 359.5	0.538 0.538	3.050 4.402	3.965 5.723	7.37 10.63	
	24.45	7	314.8	1.75			1830	322.0	342.4	0.59	1.4	1.1	0.14	51.8 0.0	322.0	0.538	3.185	4.141	7.69	
	24.59	7	335.7	1.63		2933	1833	343.1	364.5	0.49	1.3	0.2	0.00	0.0	343.1	0.539	3.835	4.985	9.25	
	24.66	7	362.6	1.73		2941	1836	370.2	393.2	0.48	1.3	0.0	0.00	0.0	370.2	0.540	4.800	6.240	11.56	
	24.72	7	388.4	1.75		2947	1839	396.3	420.7	0.45	1.2	-0.4	0.00	0.0	396.3	0.540	5.869	7.629	14.13	
	24.78	7	383.9	1.72		2953	1841	391.4	415.2	0.45	1.2	-0.4	0.00	0.0	391.4	0.540	5.658	7.356	13.61	
	24.87	7	404.3	1.9			1845	411.8	436.4	0.47	1.2	-0.4	0.00	0.0	411.8	0.541	6.575	8.548	15.80	
	24.95	7 7	385.6 385.9	1.91 1.85	105 105	2971 2980	1849 1852	392.4	415.4 415.0	0.50 0.48	1.3 1.2	-0.1 -0.2	0.00	0.0	392.4 392.3	0.542 0.542	5.699 5.697	7.409 7.406	13.68 13.66	
	25.03 25.11	7		1.69			1852	392.3 358.4	378.5	0.48	1.2	0.1	0.00	0.0	358.4	0.542	4.360	5.668	10.45	
	25.11	7		1.09		2006	1950	336.4	370.3	0.48	1.3	0.1	0.00	0.0	226.7	0.543	2 621	4.720	8 60	

1.59

1.58

105 2996

105 3003

1859 336.7

1861 329.7 347.6 0.49

355.2 0.48

1.3

0.00

0.00

0.0

0.0

0.3

0.4

336.7 0.543 3.631 4.720

329.7 0.544 3.413 4.437

8.69

8.16

25.19

25.25

7 331.8

7 325.1

Date: September 2005 CPT Number: 21

Depth to Groundwater: 7 feet

	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> cin	Q	F	Ic	(%)	Ксрт	DqcIN	(qc1N)es			M6.50		Comments
Conc	(1 1)	(1 1)	(101)	(101)	(101)	(151)	(101)	-	·			(,0)			(1 )	14410	1,1,10	1120100	Survey	Comments
	05.00	-	000.0	4.40	105	2010	1064	222.7	251.5	0.45	1.2	0.1	0.00	0.0	222.7	0.544	2.526	4.506	0.45	
	25.32 25.39	7 7		1.49 1.28	105 105	3010 3017	1864 1867	333.7 342.4	351.5 360.5	0.45 0.38	1.3 1.2	0.1 -0.4	0.00	0.0	333.7 342.4	0.544 0.544	3.536 3.814	4.596 4.959	8.45 9.11	
	25.46	7	340.7	1.05	95	3025	1870	344.7	362.6	0.31	1.2	-0.9	0.00	0.0	344.7	0.545	3.889	5.055	9.28	
	25.53	7		1.18	105	3031	1873	347.1	364.9	0.35	1.2	-0.7	0.00	0.0	347.1	0.545	3.969	5.160	9.46	
	25.61	7	352.8	1.47	105	3040	1876	356.4	374.3	0.42	1.2	-0.3	0.00	0.0	356.4	0.546	4.290	5.577	10.21	
	25.67 25.74	7 7	363 357.7	1.59 1.35	105 105	3046 3053	1879 1882	366.4 360.8	384.7 378.4	0.44 0.38	1.2 1.2	-0.2 -0.6	0.00	0.0	366.4 360.8	0.546 0.547	4.656 4.448	6.053 5.783	11.08 10.58	
	25.81	7	366.2		105	3061	1885	369.1	386.9	0.38	1.3	0.0	0.00	0.0	369.1	0.547	4.756	6.183	11.30	
	25.88	7	375	1.71	105	3068	1887	377.7	395.6	0.46	1.2	-0.2	0.00	0.0	377.7	0.548	5.090	6.616	12.08	
	25.94	7		1.65	105	3074	1890	379.1	396.8	0.44	1.2	-0.3	0.00	0.0	379.1	0.548	5.148	6.692	12.21	
	26.01 26.08	7 7	381.5 390.5	1.5 1.6	105 105	3082 3089	1893 1896	383.6 392.4	401.3 410.1	0.39 0.41	1.2 1.2	-0.6 -0.6	0.00	0.0	383.6 392.4	0.549 0.549	5.331 5.699	6.931 7.408	12.63 13.49	
	26.15	7			105	3096	1899	403.9	421.9	0.38	1.2	-0.8	0.00	0.0	403.9	0.549	6.209	8.072	14.69	
	26.22	7	409.3	1.62	105	3104	1902	410.6	428.6	0.40	1.2	-0.8	0.00	0.0	410.6	0.550	6.519	8.475	15.41	
	26.29	7	407	1.63	105	3111	1905	408.0	425.5	0.40	1.2	-0.7	0.00	0.0	408.0	0.550	6.397	8.316	15.11	
	26.36 26.43	7 7	408.2 415		105 105	3119 3126	1908 1911	408.9 415.4	426.1 432.5	0.40 0.42	1.2 1.2	-0.7 -0.7	0.00	0.0	408.9 415.4	0.551 0.551	6.438 6.745	8.369 8.769	15.20 15.91	
	26.5	7		1.43	105	3133	1911	421.4	438.4	0.42	1.1	-1.2	0.00	0.0	421.4	0.551	7.037	9.148	16.58	
	26.56	7		1.5	105	3140	1916	413.3	429.7	0.36	1.1	-1.0	0.00	0.0	413.3	0.552	6.645	8.638	15.65	
	26.63	7	403	1.65	105	3147	1919	402.5	418.1	0.41	1.2	-0.6	0.00	0.0	402.5	0.552	6.143	7.986	14.46	
	26.7	7			105 105	3154 3162	1922	402.4	417.7 432.4	0.43	1.2	-0.5	0.00	0.0	402.4	0.553	6.138	7.979	14.43	
	26.77 26.83	7	418 441.6	2.02	105	3168	1925 1928	416.8 440.0	456.3	0.45 0.46	1.2 1.2	-0.5 -0.6	0.00	0.0	416.8 440.0	0.553 0.554	6.814 8.004	8.858 10.406	16.01 18.79	
	26.9	7			105	3175	1931	444.4	460.4	0.50	1.2	-0.4	0.00	0.0	444.4	0.554	8.241	10.714	19.34	
	26.96	7	441.2		105	3182	1934	439.0	454.5	0.50	1.2	-0.3	0.00	0.0	439.0	0.554	7.949	10.334	18.64	
	27.03	7 7	415	2.47	115	3189	1936 1940	412.6	426.8	0.60	1.3	0.4	0.00	0.0	412.6	0.555	6.614	8.598	15.49	
	27.1 27.17	7	397.4 390.9	1.98 2.22	105 115	3197 3204	1940	394.8 388.0	407.8 400.5	0.50 0.57	1.3 1.3	0.0 0.5	0.00	0.0	394.8 388.0	0.555 0.556	5.801 5.512	7.541 7.166	13.58 12.90	
	27.23	7			115	3211	1946	409.3	422.3	0.55	1.3	0.2	0.00	0.0	409.3	0.556	6.457	8.394	15.10	
	27.3	7	416		115	3219	1950	412.2	424.8	0.59	1.3	0.4	0.00	0.0	412.2	0.556	6.593	8.571	15.41	
	27.36	7 7	428.3	2.51	115	3226	1953	424.0	436.7	0.59	1.3	0.3	0.00	0.0	424.0	0.557	7.170	9.322	16.75	
	27.42 27.47	7		2.37 2.63	115 115	3233 3239	1956 1959	421.5 426.3	433.8 438.4	0.56 0.61	1.3 1.3	0.2 0.4	0.00	0.0	421.5 426.3	0.557 0.557	7.045 7.283	9.158 9.469	16.45 17.00	
	27.51	7	440.4		115	3243	1961	435.1	447.3	0.62	1.3	0.4	0.00	0.0	435.1	0.557	7.742	10.065	18.06	
	27.56	7			115	3249	1964	422.4	433.9	0.61	1.3	0.5	0.00	0.0	422.4	0.558	7.089	9.216	16.53	
	27.63	7	377.3	2.49	115	3257	1967	372.2	381.7	0.66	1.4	1.2	0.00	0.0	372.2	0.558	4.875	6.337	11.36	
	27.7 27.77	7	347.9 301.6	2.46 2.18	115 115	3265 3273	1971 1975	342.9 297.0	351.2 303.7	0.71 0.73	1.4 1.5	1.7 2.3	0.00	0.0	342.9 297.0	0.558 0.559	3.828 2.515	4.977 3.270	8.92 5.85	
	27.84	7	268.5	1.85	115	3281	1978	264.1	269.7	0.69	1.5	2.6	0.00	0.0	264.1	0.559	1.794	2.332	4.17	
	27.91	7		1.5	115	3289	1982	236.6	241.1	0.63	1.5	2.7	0.00	0.0	236.6	0.559	1.311	1.704	3.05	
	27.99	7	223.1	1.29	115	3299	1986	219.0	222.9	0.58	1.5	6.4	0.04	8.5	227.5	0.560	1.175	1.528	2.73	
	28.06 28.24	7 7	210.4 197.7	1.37 1.52	115 115	3307 3327	1990 1999	206.4 193.5	209.7 196.0	0.66 0.78	1.5 1.6	6.4 6.4	0.04 0.04	8.0 7.5	214.4 201.0	0.560 0.561	0.996 0.835	1.295 1.085	2.31 1.94	
	28.32	7		1.41	115	3337	2004	197.2	199.6	0.70	1.6	6.4	0.04	7.7	204.8	0.561	0.879	1.143	2.04	
	28.4	7	196.7	1.49	115	3346	2008	192.1	194.2	0.76	1.6	6.4	0.04	7.5	199.5	0.561	0.819	1.064	1.90	
	28.47	7 7		1.37	115	3354	2012	168.2	169.7	0.80	1.7	6.4	0.04	6.5	174.7	0.562	0.576	0.749	1.33	
	28.54 28.61	7		1.39 1.23	115 115	3362 3370	2015 2019	171.3 162.4	172.7 163.5	0.80 0.74	1.7 1.7	6.4	0.04 0.04	6.7 6.3	178.0 168.7	0.562 0.562	0.604 0.527	0.786 0.685	1.40 1.22	
	28.68	7		1.29	125	3378	2023	150.3	151.0	0.84	1.7	6.4	0.04	5.8	156.1	0.563	0.434	0.564	1.00	Low F.S.
	28.75	7	141.2		125	3387	2027	137.2	137.6	1.01	1.8	6.4	0.04	5.3	142.6	0.563	0.349	0.454	0.81	Liquefaction
	28.83	7	130.7	1.35	125	3397	2032	126.9	126.9	1.05	1.8	6.4	0.04	4.9	131.8	0.563	0.293	0.381	0.68	Liquefaction
	28.91 28.99	7 7	131.8 119.9	1.25 1.27	125 125	3407 3417	2037 2042	127.8 116.1	127.7 115.7	0.96 1.07	1.8 1.9	6.4 6.4	0.04 0.04	5.0 4.5	132.7 120.6	0.564 0.564	0.297 0.243	0.387 0.316	0.69 0.56	Liquefaction Liquefaction
	29.06	7		1.31	125	3425	2042	110.1	110.0	1.16	1.9	6.4	0.04	4.3	114.8	0.564	0.243	0.287	0.51	Liquefaction
	29.14	7	111.1	1.26	125	3435	2051	107.3	106.6	1.15	1.9	6.4	0.04	4.2	111.5	0.564	0.209	0.272	0.48	Liquefaction
	29.22	7	109.1	1.22	125	3445	2056	105.3	104.4	1.14	1.9	6.4	0.04	4.1	109.4	0.565	0.202	0.262	0.46	Liquefaction
	29.3 29.37	7 7		1.16 1.07	125 125	3455 3464	2061 2066	99.6 95.0	98.6 93.8	1.14 1.10	2.0	6.4 6.4	0.04 0.04	3.9 3.7	103.5 98.7	0.565 0.565	0.183 0.169	0.238 0.220	0.42 0.39	Liquefaction Liquefaction
	29.45	7	93.9	0.93	125	3474	2071	90.3	89.0	1.10	2.0	6.4	0.04	3.5	93.8	0.565	0.169	0.220	0.39	Liquefaction
	29.53	7			125	3484	2076	86.0	84.6	0.92	1.9	6.4	0.04	3.3	89.4	0.566	0.146	0.190	0.34	Liquefaction
	29.61	7	84.1	0.72	115	3494	2081	80.7	79.1	0.87	2.0	11.7	0.18	17.7	98.4	0.566	0.169	0.219	0.39	Liquefaction
	29.69 29.77	7 7	73.4 64.1	0.68 0.78	125 125	3503 3513	2085 2090	70.3 61.3	68.7 59.6	0.95 1.25	2.0	13.6 17.2	0.23	21.1 29.8	91.4 91.1	0.566 0.566	0.151 0.150	0.196 0.196	0.35 0.35	Liquefaction Liquefaction
	23.11	/	04.1	0.70	123	5515	2070	01.3	57.0	1.43	2.1	11.4	0.55	27.0	/1.1	0.500	0.130	0.170	0.55	Liqueraction

Depth to Groundwater: 7 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 **MSF:** 1.30 CPT Number: 21

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	DqcIN	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	00.05	_	540	0.00	405	2522	2005	51.0	50.1	1.60	2.2		0.46	40.4	05.0	0.565	0.160	0.200	0.25	
	29.85 29.93	7 7	54.3 50.4	0.89 0.84	135 135	3523 3534	2095 2101	51.9 48.1	50.1 46.3	1.69 1.73	2.3	22.1 23.3	0.46 0.49	43.4 45.7	95.3 93.9	0.567 0.567	0.160 0.157	0.209 0.204	0.37 0.36	Liquefaction
	30.01	7	60.5	0.74	125	3545	2107	57.7	55.7	1.75	2.3	18.1	0.49	30.8	88.5	0.543	0.137	0.204	0.35	Liquefaction Liquefaction
	30.09	7	61.1	0.66	125	3555	2112	58.2	56.2	1.11	2.1	16.9	0.32	27.2	85.4	0.544	0.138	0.179	0.33	Liquefaction
	30.17	7	60.6	0.64	125	3565	2117	57.6	55.6	1.09	2.1	16.9	0.32	26.7	84.4	0.544	0.136	0.177	0.32	Liquefaction
	30.26	7	53.6	0.65	125	3576	2122	50.9	48.8	1.25	2.2	19.5	0.39	32.3	83.2	0.544	0.134	0.174	0.32	Liquefaction
	30.34	7	49.2	0.63	125	3586	2127	46.7	44.6	1.33	2.3	21.2	0.43	35.5	82.2	0.544	0.132	0.171	0.31	Liquefaction
	30.42	7 7	47.9	0.66	125	3596	2132	45.4	43.2	1.43	2.3	22.3	0.46	38.8	84.2	0.545	0.135	0.176	0.32	Liquefaction
	30.5 30.58	7	55.1 68.9	0.33 0.38	105 105	3606 3615	2137 2141	52.1 65.2	49.9 62.7	0.62 0.57	2.0 1.9	14.1 11.3	0.24 0.17	16.7 13.1	68.8 78.2	0.545 0.545	0.110 0.125	0.143 0.162	0.26 0.30	Liquefaction Liquefaction
	30.66	7	91.7	0.48	105	3623	2144	86.6	83.8	0.53	1.8	8.4	0.09	8.7	95.4	0.546	0.123	0.209	0.38	Liquefaction
	30.74	7	110.7	0.51	105	3631	2148	104.5	101.4	0.47	1.7	6.4	0.04	4.0	108.5	0.546	0.199	0.258	0.47	Liquefaction
	30.77	7	113.2	0.44	95	3635	2149	106.8	103.6	0.40	1.7	5.5	0.01	1.5	108.4	0.546	0.198	0.258	0.47	Liquefaction
	30.82	7	114.3	0.44	95	3639	2150	107.8	104.6	0.39	1.7	5.4	0.01	1.3	109.1	0.546	0.201	0.261	0.48	Liquefaction
	30.89	7	125.5	0.49	105	3646	2153	118.3	114.9	0.40	1.6	4.9	0.00	0.0	118.3	0.547	0.234	0.304	0.56	Liquefaction
	30.97	7	125.6	0.47	95	3654	2156	118.4	114.8	0.38	1.6	4.7	0.00	0.0	118.4	0.547	0.234	0.304	0.56	Liquefaction
	31.04 31.12	7	122.9 114.6	0.49 0.51	105 105	3661 3669	2158 2162	115.7 107.8	112.1 104.3	0.40 0.45	1.6 1.7	5.1 6.0	0.00	0.3 3.0	116.0 110.9	0.548 0.548	0.225 0.207	0.293 0.269	0.53 0.49	Liquefaction Liquefaction
	31.2	7	106.2	0.46	105	3678	2165	99.9	96.4	0.44	1.7	6.5	0.03	4.1	104.0	0.549	0.185	0.240	0.44	Liquefaction
	31.28	7	99.1	0.43	105	3686	2169	93.1	89.7	0.44	1.7	7.0	0.05	5.3	98.4	0.549	0.169	0.219	0.40	Liquefaction
	31.35	7	91.1	0.43	105	3694	2172	85.5	82.2	0.48	1.8	8.1	0.08	7.7	93.2	0.549	0.155	0.202	0.37	Liquefaction
	31.43	7	82.9	0.45	105	3702	2175	77.8	74.5	0.56	1.9	9.6	0.12	10.9	88.7	0.550	0.145	0.188	0.34	Liquefaction
	31.51	7	75.2	0.47	105	3710	2178	70.5	67.3	0.64	1.9	11.3	0.17	14.2	84.7	0.550	0.137	0.178	0.32	Liquefaction
	31.59	7 7	71.7	0.52	115	3719	2182	67.2	64.0	0.74	2.0	12.7	0.21	17.3	84.5	0.550	0.136	0.177	0.32	Liquefaction
	31.67 31.75	7	71.5 78	0.53 0.57	115 115	3728 3737	2186 2190	66.9 72.9	63.7 69.5	0.76 0.75	2.0	12.9 11.9	0.21 0.19	17.8 16.6	84.7 89.5	0.551 0.551	0.137 0.147	0.178 0.191	0.32 0.35	Liquefaction Liquefaction
	31.82	7	90.7	0.59	115	3745	2194	84.7	80.9	0.66	1.9	9.9	0.13	12.6	97.4	0.551	0.147	0.171	0.39	Liquefaction
	31.9	7	112.6	0.48	105	3754	2198	105.1	100.7	0.43	1.7	6.1	0.03	3.2	108.3	0.552	0.198	0.257	0.47	Liquefaction
	31.93	7	91.6	0.53	105	3758	2199	85.5	81.6	0.59	1.8	9.2	0.11	10.7	96.1	0.552	0.163	0.211	0.38	Liquefaction
	32.02	7	138.1	0.74	105	3767	2203	128.7	123.6	0.54	1.7	5.7	0.02	2.4	131.1	0.552	0.290	0.377	0.68	Liquefaction
	32.1	7	145.7	0.94	115	3775	2207	135.7	130.3	0.65	1.7	6.2	0.03	4.6	140.3	0.552	0.337	0.438	0.79	Liquefaction
	32.17 32.25	7	147.8 145.8	0.99 0.98	115	3783 3793	2210 2215	137.6	132.0 129.9	0.68	1.7	6.3	0.04	5.0	142.6 141.0	0.553	0.350	0.454	0.82	Liquefaction
	32.23	7	133.1	1.02	115 115	3802	2219	135.6 123.6	118.2	0.68 0.78	1.7 1.8	6.4 7.8	0.04 0.07	5.4 10.0	133.6	0.553 0.553	0.341 0.302	0.443 0.393	0.80 0.71	Liquefaction Liquefaction
	32.42	7	126.5	0.94	115	3812	2223	117.4	112.0	0.75	1.8	8.0	0.08	10.3	127.7	0.554	0.274	0.356	0.64	Liquefaction
	32.5	7	121.7	0.73	115	3821	2228	112.8	107.5	0.61	1.8	7.2	0.06	7.0	119.8	0.554	0.240	0.312	0.56	Liquefaction
	32.58	7	116.5	0.56	105	3831	2232	107.9	102.6	0.49	1.7	6.5	0.04	4.4	112.3	0.554	0.212	0.275	0.50	Liquefaction
	32.67	7	111.9	0.48	105	3840	2236	103.5	98.3	0.44	1.7	6.3	0.03	3.7	107.3	0.555	0.195	0.253	0.46	Liquefaction
	32.75	7	106.3	0.44	105	3848	2239	98.3	93.2	0.42	1.7	6.5	0.04	4.2	102.5	0.555	0.180	0.234	0.42	Liquefaction
	32.83 32.92	7 7	96.3 79	0.44 0.54	105 115	3857 3866	2243 2246	89.0 72.9	84.1 68.6	0.47 0.70	1.8	7.7 11.6	0.07 0.18	7.0 15.7	96.0 88.7	0.555 0.556	0.162 0.145	0.211 0.188	0.38 0.34	Liquefaction Liquefaction
	33	7	55.3	0.71	125	3876	2251	51.0	47.4	1.33	2.2	20.4	0.41	35.7	86.7	0.556	0.143	0.183	0.33	Liquefaction
	33.08	7	36.6	0.77	135	3886	2256	33.7	30.7	2.22	2.5	31.9	0.72	86.0	119.7	0.556	0.239	0.311	0.56	Liquefaction
	33.17	7	26.7	0.73	135	3898	2262	24.6	21.9	2.95	2.7	41.5	0.80	98.2	122.8	0.556	0.252	0.328	0.59	NonLiqfble.
	33.25	7	20.8	0.67	125	3908	2268	19.1	16.6	3.56	2.9	49.7	0.80	76.4	95.6	0.557	0.161	0.209	0.38	NonLiqfble.
	33.34	7	15.9	0.57	125	3920	2274	14.6	12.3	4.09	3.0	58.8	0.80	58.4	73.0	0.557	0.116	0.151	0.27	NonLiqfble.
	33.42 33.51	7	14.6 13.8	0.4 0.28	125 115	3930 3941	2279 2284	13.4 12.6	11.1 10.4	3.17 2.37	3.0 2.9	56.7 53.7	0.80	53.5 50.5	66.9 63.2	0.557 0.557	0.108	0.140 0.134	0.25 0.24	NonLiqfble. NonLiqfble.
	33.59	7			105	3950	2288	12.6	10.3	1.69	2.9	49.0	0.80	50.5	63.1	0.557	0.103	0.134	0.24	NonLiqfble.
	33.68	7	12.7	0.16	105	3960	2292	11.6	9.3	1.49	2.9	49.6	0.80	46.4	58.0	0.558	0.098	0.128	0.23	NonLiqfble.
	33.76	7	13	0.16	105	3968	2296	11.9	9.6	1.45	2.8	48.7	0.80	47.5	59.4	0.558	0.099	0.129	0.23	NonLiqfble.
	33.84	7		0.15	105	3976	2299	12.7	10.4	1.26	2.8	45.3	0.80	50.7	63.4	0.559	0.104	0.135	0.24	NonLiqfble.
	33.93	7		0.14	95	3986	2303	13.5	11.1	1.09	2.7	42.1	0.80	54.0	67.5	0.559	0.109	0.141	0.25	NonLiqfble.
	34.01 34.1	7 7	14.4 14.4	0.13 0.14	95 95	3993 4002	2306 2308	13.1 13.1	10.8 10.7	1.05	2.7	42.4 43.2	0.80	52.5 52.5	65.6 65.6	0.559	0.106 0.106	0.138 0.138	0.25 0.25	NonLiqfble.
	34.18	7			105	4002	2311	12.6	10.7	1.13 1.36	2.8 2.8	46.5	0.80	50.2	62.8	0.560 0.560	0.106	0.138	0.23	NonLiqfble. NonLiqfble.
	34.27	7	14.2		105	4019	2315	12.9	10.5	1.48	2.8	46.8	0.80	51.7	64.6	0.561	0.105	0.137	0.24	NonLiqfble.
	34.35	7	14.7	0.2	105	4027	2318	13.4	10.9	1.58	2.8	46.8	0.80	53.4	66.8	0.561	0.108	0.140	0.25	NonLiqfble.
	34.44	7			105	4037	2322	14.1	11.6	1.63	2.8	46.0	0.80	56.3	70.4	0.561	0.112	0.146	0.26	NonLiqfble.
	34.52	7		0.23	105	4045	2326	14.8	12.3	1.61	2.8	44.6	0.80	59.2	73.9	0.562	0.118	0.153	0.27	NonLiqfble.
	34.61	7	16.6		115	4055	2329	15.0	12.5	1.72	2.8	45.0	0.80	60.2	75.2	0.562	0.120	0.156	0.28	NonLiqfble.
	34.69 34.78	7 7		0.27 0.3	115 115	4064 4074	2334 2338	15.9 16.2	13.3 13.6	1.73 1.89	2.8 2.8	43.8 44.6	0.80	63.8 64.8	79.7 81.0	0.562 0.563	0.127 0.129	0.165 0.168	0.29 0.30	NonLiqfble. NonLiqfble.
	U+./O	,	17.9	0.3	113	70/4	2330	10.2	13.0	1.07	2.0	77.0	0.00	07.0	01.0	0.505	0.127	0.100	0.50	romaquic.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 21

Depth to Groundwater: 7 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	$(q_{c1N})_{cs}$	Ratio	M7.5	M6.50	Safety	Comments
	34.86	7	18.3	0.31	115	4084	2343	16.5	13.9	1.91	2.8	44.2	0.80	66.2	82.7	0.563	0.133	0.172	0.31	NonLiqfble.
	34.95	7	18.2	0.35	125	4094	2347	16.4	13.8	2.17	2.8	46.2	0.80	65.7	82.2	0.563	0.132	0.171	0.30	NonLiqfble.
	35.03	7	19	0.43	125	4104	2352	17.1	14.4	2.54	2.8	47.5	0.80	68.6	85.7	0.563	0.139	0.180	0.32	NonLiqfble.
	35.12 35.21	7 7	20.2 19.3	0.45 0.38	125 125	4115 4126	2358 2364	18.2 17.4	15.4 14.6	2.48 2.20	2.8 2.8	45.8 45.2	0.80 0.80	72.8 69.5	91.0 86.8	0.564 0.564	0.150 0.141	0.195 0.183	0.35 0.32	NonLiqfble. NonLiqfble.
	35.37	7	18.4	0.34	115	4146	2374	16.5	13.8	2.08	2.8	45.6	0.80	66.1	82.6	0.564	0.132	0.172	0.31	NonLiqfble.
	35.46	7	16.8	0.31	115	4157	2378	15.1	12.4	2.11	2.8	48.0	0.80	60.3	75.4	0.564	0.120	0.156	0.28	NonLiqfble.
	35.55 35.64	7 7	16.1 16.4	0.28 0.27	115 115	4167 4177	2383 2388	14.4 14.7	11.8 12.0	2.00 1.89	2.8 2.8	48.4 47.2	0.80 0.80	57.7 58.7	72.2 73.4	0.565 0.565	0.115 0.117	0.149 0.152	0.26 0.27	NonLiqfble.
	35.73	7	16.6	0.27	115	4177	2393	14.7	12.0	1.86	2.8	46.8	0.80	59.4	74.2	0.565	0.117	0.152	0.27	NonLiqfble. NonLiqfble.
	35.81	7	16.9	0.27	115	4197	2397	15.1	12.3	1.82	2.8	46.1	0.80	60.4	75.5	0.565	0.120	0.156	0.28	NonLiqfble.
	35.9	7	17.9	0.26	115	4207	2401	16.0	13.1	1.65	2.8	43.5	0.80	63.9	79.9	0.566	0.127	0.166	0.29	NonLiqfble.
	35.99	7	18.2	0.25	115	4218	2406	16.2	13.4	1.55	2.7	42.4	0.80	64.9	81.2	0.566	0.130	0.169	0.30	NonLiqfble.
	36.08 36.16	7 7	17.5 16.5	0.27 0.29	115 115	4228 4237	2411 2415	15.6 14.7	12.8 11.9	1.75 2.02	2.8	44.9 48.3	0.80	62.4 58.8	78.0 73.5	0.566 0.567	0.124 0.117	0.161 0.152	0.28 0.27	NonLiqfble. NonLiqfble.
	36.25	7	15.9	0.29	115	4248	2420	14.1	11.4	2.11	2.9	49.8	0.80	56.6	70.7	0.567	0.117	0.132	0.26	NonLiqfble.
	36.34	7	14.9	0.29	115	4258	2425	13.2	10.5	2.27	2.9	52.7	0.80	53.0	66.2	0.567	0.107	0.139	0.25	NonLiqfble.
	36.43	7	14.6	0.28	115	4268	2429	13.0	10.3	2.25	2.9	53.1	0.80	51.8	64.8	0.567	0.105	0.137	0.24	NonLiqfble.
	36.52	7	14.7 14.6	0.26	115	4279	2434	13.0	10.3 10.2	2.07	2.9	51.8	0.80	52.1	65.2	0.568	0.106	0.137	0.24	NonLiqfble.
	36.69	7 7	15.2	0.25 0.27	115 115	4288 4298	2438 2443	12.9 13.5	10.2	2.01 2.07	2.9 2.9	51.6 51.0	0.80	51.7 53.8	64.7 67.3	0.568 0.568	0.105 0.108	0.137 0.141	0.24 0.25	NonLiqfble. NonLiqfble.
	36.78	7	16.1	0.3	115	4309	2448	14.2	11.4	2.15	2.9	50.1	0.80	57.0	71.2	0.568	0.114	0.148	0.26	NonLiqfble.
	36.87	7	16.1	0.3	115	4319	2452	14.2	11.4	2.15	2.9	50.2	0.80	56.9	71.1	0.569	0.113	0.147	0.26	NonLiqfble.
	36.96	7	16.1	0.29	115	4329	2457	14.2	11.3	2.08	2.9	49.8	0.80	56.8	71.1	0.569	0.113	0.147	0.26	NonLiqfble.
	37.03 37.1	7 7	16.5 15.5	0.27 0.27	115 115	4337 4345	2461 2465	14.6 13.7	11.6 10.8	1.88 2.03	2.8 2.9	47.8 50.5	0.80	58.2 54.6	72.8 68.3	0.569 0.569	0.116 0.110	0.151 0.143	0.26 0.25	NonLiqfble. NonLiqfble.
	37.19	7	15.2	0.27	115	4356	2469	13.4	10.5	2.07	2.9	51.3	0.80	53.5	66.9	0.570	0.110	0.140	0.25	NonLiqfble.
	37.27	7	14.8	0.27	115	4365	2474	13.0	10.2	2.14	2.9	52.6	0.80	52.1	65.1	0.570	0.106	0.137	0.24	NonLiqfble.
	37.34	7	14.3	0.27	115	4373	2477	12.6	9.8	2.23	2.9	54.2	0.80	50.3	62.9	0.570	0.103	0.134	0.24	NonLiqfble.
	37.42	7	14.6	0.27	115	4382	2481	12.8	10.0	2.18	2.9	53.3	0.80	51.3	64.1	0.570	0.105	0.136	0.24	NonLiqfble.
	37.51 37.6	7 7	14.2 14	0.28 0.29	115 115	4392 4403	2486 2491	12.5 12.3	9.7 9.5	2.33 2.46	2.9 3.0	55.1 56.4	0.80	49.8 49.1	62.3 61.4	0.571 0.571	0.102 0.101	0.133 0.132	0.23	NonLiqfble. NonLiqfble.
	37.68	7	14	0.3	115	4412	2495	12.3	9.4	2.54	3.0	57.0	0.80	49.1	61.3	0.571	0.101	0.132	0.23	NonLiqfble.
	37.77	7	14.4	0.31	115	4422	2500	12.6	9.7	2.54	3.0	56.2	0.80	50.4	63.0	0.571	0.103	0.134	0.23	NonLiqfble.
	37.85	7	14.4	0.29	115	4432	2504	12.6	9.7	2.38	3.0	55.3	0.80	50.4	63.0	0.571	0.103	0.134	0.23	NonLiqfble.
	37.94 38.03	7 7	15.9 14.4	0.31 0.29	115 115	4442 4452	2509 2513	13.9 12.6	10.9 9.7	2.27 2.38	2.9 3.0	51.9 55.4	0.80	55.6 50.3	69.4 62.8	0.572 0.572	0.111	0.144 0.134	0.25 0.23	NonLiqfble. NonLiqfble.
	38.11	7	14.3	0.29	115	4461	2518	12.5	9.7	2.38	3.0	56.3	0.80	49.9	62.3	0.572	0.103	0.134	0.23	NonLiqfble.
	38.2	7	14.9	0.33	115	4472	2522	13.0	10.0	2.61	3.0	55.9	0.80	51.9	64.9	0.572	0.105	0.137	0.24	NonLiqfble.
	38.29	7	17.1	0.42	125	4482	2527	14.9	11.8	2.83	2.9	53.5	0.80	59.5	74.4	0.573	0.118	0.154	0.27	NonLiqfble.
	38.37	7	18.7	0.7	125	4492	2532	16.3	13.0	4.25	3.0	58.2	0.80	65.0	81.3	0.573	0.130	0.169	0.29	NonLiqfble.
	38.46 38.55	7 7	21.2 35.7	1.02 1.65	135 135	4503 4516	2538 2544	18.4 31.0	14.9 26.3	5.38 4.93	3.0 2.8	59.4 46.2	0.80	73.7 123.9	92.1 154.8	0.573 0.573	0.153 0.425	0.198 0.553	0.35 0.96	NonLiqfble. NonLiqfble.
	38.61	7	44.5	2.07	135	4524	2549	38.6	33.1	4.90	2.7	42.0	0.80	154.3	192.8	0.573	0.747	0.971	1.69	NonLiqfble.
	38.68	7	64.7	2.35	135	4533	2554	56.0	48.9	3.76	2.5	32.0	0.72	144.7	200.7	0.573	0.832	1.081	1.89	-
	38.76	7	98.7	2.37	135	4544	2560	85.4	75.3	2.46	2.3	21.3	0.43	65.5	150.8	0.573	0.399	0.519	0.91	Liquefaction
	38.85 38.93	7	141.4 205.1	2.62 3.02	135 135	4556 4567	2566 2572	122.1 177.0	108.4 157.6	1.88 1.49	2.1 1.9	15.0 10.1	0.27 0.14	44.4 27.7	166.5 204.7	0.573 0.573	0.509 0.877	0.662 1.140	1.16 1.99	Low F.S.
	39.01	7	311.2	2.91	125	4578	2578	268.2	239.6	0.94	1.6	4.6	0.14	0.0	268.2	0.573	1.874	2.436	4.25	
	39.09	7	352.6	2.86	125	4588	2583	303.6	271.2	0.82	1.5	3.3	0.00	0.0	303.6	0.574	2.682	3.486	6.08	
	39.16	7	389.1	2.72	115	4596	2587	334.7	298.9	0.70	1.5	2.3	0.00	0.0	334.7	0.574	3.567	4.638	8.08	
	39.23	7	405.2	2.26	115	4604	2591	348.3	310.9	0.56	1.4	1.2	0.00	0.0	348.3	0.574	4.010	5.213	9.08	
	39.29 39.37	7 7	412.1 411.4	2.13	115 115	4611 4621	2594 2598	354.0 353.1	315.8 314.8	0.52 0.56	1.3 1.4	0.9 1.2	0.00	0.0	354.0 353.1	0.574 0.574	4.207 4.176	5.469 5.428	9.53 9.45	
	39.45	7	423.9	2.56	115	4630	2602	363.6	323.9	0.61	1.4	1.4	0.00	0.0	363.6	0.574	4.176	5.914	10.30	
	39.53	7	428.1	2.82		4639	2607	366.9	326.6	0.66	1.4	1.7	0.00	0.0	366.9	0.575	4.673	6.074	10.57	
	39.61	7	430.6	2.35	115	4648	2611	368.7	327.9	0.55	1.4	1.0	0.00	0.0	368.7	0.575	4.742	6.165	10.72	
	39.68	7	456.3	3.52	125	4656	2614	390.5	347.1	0.78	1.4	2.1	0.00	0.0	390.5	0.575	5.616	7.301	12.70	
	39.76 39.8	7 7	532.9 533.5	3.31 3.35	115	4666 4671	2619 2622	455.6 455.9	404.9 405.1	0.62 0.63	1.3 1.3	0.7 0.8	0.00	0.0	455.6 455.9	0.575 0.575	8.873 8.892	11.535 11.560	20.05 20.09	
	39.84	7	551.9	3.49	115	4675	2624	471.4	418.7	0.64	1.3	0.7	0.00	0.0	471.4	0.575		12.771	22.19	
	39.88	7	582.3	4.04	115	4680	2626	497.2	441.6	0.70	1.3	0.9	0.00	0.0	497.2	0.576	11.511	14.964	26.00	
	39.92	7	559.1	4.74	125	4685	2628	477.2	423.6	0.85	1.4	1.8	0.00	0.0	477.2	0.576	10.186	13.242	23.00	

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 MSF: 1.30

CPT Number: 21

Depth to Groundwater: 7 feet

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	g (PCF)		Effective Stress (PSF)		Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	Ксрт	Dqcin	( <b>q</b> clN)cs	Stress	Stress	Liquef. Stress M6.50	of	Comments
	39.96	7	532.7	5.14	125	4690	2630	454.5	403.1	0.97	1.5	2.6	0.00	0.0	454.5	0.576	8.809	11.451	19.89	
	39.99	7	550.7	5.18	125	4693	2632	469.6	416.5	0.94	1.5	2.4	0.00	0.0	469.6	0.576	9.713	12.627	21.93	
	40.02	7	565.7	5.25	125	4697	2634	482.3	427.5	0.93	1.5	2.2	0.00	0.0	482.3	0.532	10.511	13.664	25.68	

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 22 Depth to Groundwater: 7 feet 

0.54	7	284.6	2.25	125	68	68	545.1	8428.1	0.79	1.2	-0.5	0.00	0.0	545.1	0.351	15.140	19.682	56.07	Above W.T.
0.64	7	240.2	2.49	125	80	80	460.0	6001.5	1.04	1.3	0.1	0.00	0.0	460.0	0.351	9.134	11.874	33.83	Above W.T.
0.73	7	185.4	2.59	135	91	91	355.1	4060.9	1.40	1.4	1.2	0.00	0.0	355.1	0.351	4.243	5.516	15.72	Above W.T.
0.82	7	180.5	2.39	135	103	103	345.7	3488.8	1.32	1.3	0.9	0.00	0.0	345.7	0.351	3.922	5.099	14.53	Above W.T.
0.91 1	7 7	181.1 153.7	2.13 1.96	125 135	116 127	116 127	346.8 294.4	3132.3 2422.3	1.18 1.28	1.3 1.3	0.3 0.7	0.00	0.0	346.8 294.4	0.351	3.960 2.452	5.149 3.188	14.67 9.08	Above W.T. Above W.T.
1.09	7	130.7	1.79	135	139	139	249.0	1869.4	1.38	1.4	1.2	0.00	0.0	249.0	0.351	1.515	1.970	5.61	Above W.T.
1.18	7	113.6	1.54	135	151	151	217.6	1502.0	1.36	1.4	1.3	0.00	0.0	217.6	0.351	1.038	1.349	3.84	Above W.T.
1.26	7	102.2	1.65	135	162	162	195.7	1261.0	1.62	1.5	2.5	0.00	0.0	195.7	0.351	0.777	1.011	2.88	Above W.T.
1.35 1.44	7 7	91.6 89.4	1.56	135	174 186	174	175.4 171.2	1051.1	1.70	1.5	3.1	0.00	0.0	175.4	0.351	0.582	0.757 0.711	2.16	Above W.T.
1.52	7	68.9	1.76 1.88	135 135	197	186 197	132.0	958.9 698.2	1.97 2.73	1.6 1.8	4.2 7.5	0.00	0.0 9.5	171.2 141.4	0.351	0.547 0.343	0.711	2.03 1.27	Above W.T. Above W.T.
1.61	7	65	1.83	135	209	209	124.5	620.3	2.82	1.8	8.2	0.08	11.5	136.0	0.351	0.314	0.408	1.16	Above W.T.
1.7	7	49.2	1.78	135	221	221	94.2	443.5	3.63	2.0	11.9	0.18	21.3	115.5	0.351	0.223	0.290	0.83	Above W.T.
1.78	7	41.8	1.77	135	232	232	80.1	359.0	4.25	2.1	14.7	0.26	27.9	108.0	0.351	0.197	0.256	0.73	Above W.T.
1.87 1.95	7 7	40.8 35.6	1.76 1.76	135 135	244 255	244 255	78.1 68.2	332.9 278.0	4.33 4.96	2.1 2.2	15.3 18.1	0.28	29.8 36.7	107.9 104.9	0.351	0.197 0.187	0.256 0.243	0.73 0.69	Above W.T. Above W.T.
2.19	7	34.5	1.77	135	287	287	66.1	238.9	5.15	2.2	19.6	0.39	42.4	108.5	0.351	0.199	0.258	0.74	Above W.T.
2.28	7	32.6	1.75	135	300	300	62.4	216.5	5.39	2.3	21.0	0.43	46.5	108.9	0.351	0.200	0.260	0.74	Above W.T.
2.36	7	31.5	1.68	135	310	310	60.3	201.9	5.36	2.3	21.5	0.44	47.3	107.6	0.351	0.196	0.255	0.73	Above W.T.
2.45 2.54	7 7	29.6 30	1.65 1.55	135 135	323 335	323 335	56.7 57.5	182.5 178.2	5.60 5.20	2.3 2.3	22.9 22.1	0.48 0.46	51.9 48.1	108.6 105.5	0.351	0.199 0.189	0.259 0.246	0.74 0.70	Above W.T. Above W.T.
2.63	7	30.5	1.34	135	347	347	58.4	174.8	4.42	2.2	20.1	0.40	39.5	97.9	0.351	0.167	0.240	0.62	Above W.T.
2.71	7	33.8	1.15	135	358	358	64.7	187.9	3.42	2.1	16.5	0.31	28.7	93.5	0.351	0.156	0.203	0.58	Above W.T.
2.8	7	33	1.11	135	370	370	63.2	177.4	3.38	2.1	16.8	0.32	29.2	92.4	0.351	0.153	0.199	0.57	Above W.T.
2.89 2.98	7 7	39 43	1.16 1.17	135 135	382 394	382	74.7 82.4	203.1 217.1	2.99	2.1	14.5	0.25	25.4 22.9	100.1 105.2	0.351	0.173	0.225	0.64	Above W.T.
3.07	7	36.5	1.17	135	406	394 406	69.9	178.6	2.73 3.14	2.0 2.1	13.1 16.0	0.22 0.29	28.9	98.9	0.351	0.188 0.170	0.245 0.221	0.70 0.63	Above W.T. Above W.T.
3.16	7	34.7	1.11	135	418	418	66.5	164.8	3.22	2.1	16.9	0.32	30.8	97.3	0.351	0.166	0.215	0.61	Above W.T.
3.25	7	36.6	1.13	135	431	431	70.1	168.9	3.11	2.1	16.3	0.30	30.2	100.3	0.351	0.174	0.226	0.64	Above W.T.
3.34	7	38.5	1.09	135	443	443	73.7	172.9	2.85	2.1	15.2	0.27	27.5	101.3	0.351	0.177	0.230	0.65	Above W.T.
3.44 3.53	7 7	30.5 26.1	1.25 1.42	135 135	456 468	456 468	58.4 50.0	132.7 110.4	4.13 5.49	2.3 2.4	21.7 27.4	0.45 0.60	46.9 74.4	105.3 124.4	0.351	0.189 0.259	0.245 0.337	0.70 0.96	Above W.T. Above W.T.
3.62	7	23.2	1.49	135	481	481	44.4	95.5	6.49	2.5	31.6	0.71	108.6	153.0	0.351	0.413	0.537	1.53	Above W.T.
3.72	7	20.4	1.43	135	494	494	39.1	81.6	7.10	2.6	35.0	0.80	156.3	195.4	0.351	0.774	1.006	2.87	Above W.T.
3.81	7	19.7	1.48	135	506	506	37.7	76.8	7.61	2.6	36.9	0.80	150.9	188.6	0.351	0.704	0.916	2.61	Above W.T.
3.9 4	7 7	19.4 19	1.43 1.43	135 135	518 532	518 532	37.2 36.0	73.8 70.4	7.47 7.63	2.6 2.7	37.1 38.1	0.80	148.6 144.2	185.8 180.2	0.351	0.676 0.625	0.879 0.812	2.50 2.31	Above W.T. Above W.T.
4.09	7	18.9	1.42	135	544	544	35.5	68.5	7.62	2.7	38.5	0.80	141.8	177.3	0.351	0.598	0.778	2.22	Above W.T.
4.18	7	18.6	1.4	135	556	556	34.5	65.9	7.64	2.7	39.1	0.80	138.0	172.6	0.351	0.558	0.725	2.07	Above W.T.
4.27	7	18	1.4	135	568	568	33.0	62.3	7.90	2.7	40.5	0.80	132.2	165.2	0.351	0.499	0.649	1.85	Above W.T.
4.37 4.46	7 7	17.3 16.6	1.39 1.36	135 135	582 594	582 594	31.4 29.8	58.5 54.9	8.17 8.34	2.7 2.8	42.0 43.3	0.80 0.80	125.5 119.2	156.9 149.0	0.351	0.439 0.388	0.571 0.504	1.63 1.44	Above W.T.
4.46	7	16.3	1.33	135	606	606	29.0	52.8	8.31	2.8	43.9	0.80	115.9	144.9	0.351	0.363	0.304	1.34	Above W.T. Above W.T.
4.65	7	16.6	1.3	135	620	620	29.2	52.6	7.98	2.8	43.2	0.80	116.7	145.9	0.351	0.369	0.479	1.37	Above W.T.
4.74	7	16.3	1.26	135	632	632	28.4	50.6	7.88	2.8	43.5	0.80	113.5	141.9	0.351	0.346	0.449	1.28	Above W.T.
4.83	7	16.9	1.24	135	644	644	29.1	51.5	7.48	2.7	42.3	0.80	116.6	145.7	0.351	0.368	0.478	1.36	Above W.T.
4.92 5.02	7 7	17.1 16.8	1.2 1.2	135 135	656 670	656 670	29.2 28.4	51.1 49.2	7.15 7.29	2.7 2.7	41.6 42.5	0.80 0.80	116.8 113.6	146.1 142.0	0.351	0.370 0.347	0.481 0.450	1.37 1.28	Above W.T. Above W.T.
5.11	7	17.3	1.18	135	682	682	29.0	49.7	6.96	2.7	41.5	0.80	116.0	145.0	0.351	0.363	0.472	1.35	Above W.T.
5.21	7	17	1.08	135	695	695	28.2	47.9	6.49	2.7	40.9	0.80	112.8	141.1	0.351	0.341	0.443	1.26	Above W.T.
5.3	7	16.9	1.03	135	707	707	27.8	46.8	6.22	2.7	40.5	0.80	111.2	139.0	0.351	0.330	0.429	1.22	Above W.T.
5.39 5.46	7 7	16 17.1	0.97 0.92	125 125	719 728	719 728	26.1	43.5 45.9	6.20 5.50	2.7	41.6 38.7	0.80 0.80	104.4 110.9	130.5 138.6	0.351	0.287 0.328	0.373 0.426	1.06 1.21	Above W.T.
5.56	7	14.7	0.92	125	741	741	27.7 23.6	38.7	5.86	2.7 2.7	42.5	0.80	94.5	118.2	0.351	0.328	0.426	0.86	Above W.T. Above W.T.
5.66	7	13.6	0.76	125	753	753	21.7	35.1	5.75	2.8	43.8	0.80	86.7	108.4	0.351	0.198	0.258	0.74	Above W.T.
5.75	7	13.7	0.73	125	764	764	21.7	34.8	5.48	2.7	43.1	0.80	86.7	108.4	0.351	0.198	0.258	0.74	Above W.T.
5.85	7	14.7	0.72	125	777	777	23.1	36.8	5.03	2.7	40.7	0.80	92.3	115.4	0.351	0.223	0.290	0.83	Above W.T.
5.94 6.04	7 7	15.5 16.3	0.75 0.76	125 125	788 801	788 801	24.2 25.2	38.3 39.7	4.97 4.78	2.7 2.7	39.9 38.7	0.80	96.6 100.8	120.8 126.0	0.351	0.244 0.266	0.317 0.346	0.90 0.99	Above W.T. Above W.T.
6.13	7	16.2	0.76	125	812	812	24.9	38.9	4.69	2.7	38.7	0.80	99.5	124.4	0.351	0.259	0.340	0.99	Above W.T.
6.23	7	16.2	0.71	125	824	824	24.7	38.3	4.50	2.7	38.3	0.80	98.7	123.4	0.351	0.255	0.331	0.94	Above W.T.

Project Number: 6600.3.001.01 Date: September 2005

Depth to Groundwater: 7 feet

CPT Number: 22

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA** (g): 0.54 **MSF**: 1.30

		Water	Tip	Sleeve			Effective			Friction							Liquef.	•		
Cono	Depth (FT)	Table	Resist.	Frict.	g (PCF)	Stress (PSF)	Stress	Tip Galv	Tip	Ratio F	Io	F.C. (%)	Ксрт	DqcIN	(qclN)es	Stress	Stress M7.5	Stress M6.50	of Sofoty	Comments
Cone	(F1)	(FT)	(TSF)	(TSF)	(FCF)	(FSF)	(PSF)	<b>q</b> e1N	Q	Г	Ic	(%)	TKCI I	Dqeix	(qeix)es	Katio	W17.5	M6.50	Salety	Comments
	6.32	7	15.1	0.67	125	836	836	22.9	25.1	4.56	2.7	39.9	0.80	91.4	114.3	0.351	0.219	0.284	0.81	Above W.T.
	6.42	7	13.7	0.6	125	848	848	20.6	35.1 31.3	4.52	2.7 2.7	41.7	0.80	82.3	102.9	0.351	0.219	0.236	0.67	Above W.T.
	6.52	7	11.8	0.54	125	861	861	17.6	26.4	4.75	2.8	45.5	0.80	70.4	88.0	0.351	0.143	0.186	0.53	Above W.T.
	6.61	7	11	0.5	125	872	872	16.3	24.2	4.73	2.8	47.1	0.80	65.2	81.5	0.351	0.130	0.169	0.48	Above W.T.
	6.71	7	10.6	0.48	125	884	884	15.6	23.0	4.73	2.8	48.0	0.80	62.4	78.0	0.351	0.124	0.161	0.46	Above W.T.
	6.81 6.9	7 7	9.8 10.4	0.46 0.42	115 115	897 907	897 907	14.3 15.1	20.8 21.9	4.92 4.22	2.9 2.8	50.6 47.0	0.80	57.3 60.4	71.6 75.5	0.351 0.351	0.114 0.120	0.148 0.156	0.42	Above W.T. Above W.T.
	7	7	11.2	0.42	115	919	919	16.2	23.4	3.82	2.8	44.2	0.80	64.7	80.8	0.351	0.120	0.156	0.44	NonLiqfble.
	7.09	7	12.2	0.38	115	929	924	17.6	25.4	3.24	2.7	40.1	0.80	70.3	87.8	0.353	0.143	0.186	0.53	NonLiqfble.
	7.19	7	11.8	0.36	115	941	929	16.9	24.4	3.18	2.7	40.6	0.80	67.8	84.7	0.355	0.137	0.177	0.50	NonLiqfble.
	7.28	7	11.9	0.35	115	951	934	17.0	24.5	3.06	2.7	40.0	0.80	68.2	85.2	0.358	0.138	0.179	0.50	NonLiqfble.
	7.38 7.48	7 7	11.8 10.6	0.32 0.28	115 115	963 974	939 944	16.9 15.1	24.1 21.4	2.83 2.77	2.7 2.7	39.1 40.9	0.80	67.4 60.4	84.3 75.5	0.360 0.362	0.136 0.120	0.176 0.156	0.49	NonLiqfble. NonLiqfble.
	7.57	7	9.8	0.26	115	984	949	13.1	19.6	2.79	2.7	42.7	0.80	55.7	69.6	0.364	0.120	0.136	0.40	NonLiqfble.
	7.67	7	9.8	0.27	115	996	954	13.9	19.5	2.90	2.8	43.4	0.80	55.5	69.4	0.366	0.111	0.144	0.39	NonLiqfble.
	7.76	7	10.5	0.29	115	1006	959	14.8	20.8	2.90	2.7	42.1	0.80	59.3	74.2	0.368	0.118	0.153	0.42	NonLiqfble.
	7.86	7	11.1	0.35	115	1018	964	15.6	22.0	3.30	2.7	43.1	0.80	62.6	78.2	0.371	0.124	0.162	0.44	NonLiqfble.
	7.96	7 7	12.2	0.45	125	1029	969	17.1	24.1	3.85	2.8	43.7	0.80	68.6	85.7	0.373	0.139	0.180	0.48	NonLiqfble.
	8.05 8.15	7	13.2 14.6	0.54 0.63	125 125	1040 1053	975 981	18.5 20.4	26.0 28.7	4.26 4.48	2.8 2.7	44.0 43.0	0.80	74.0 81.6	92.5 102.0	0.375 0.377	0.154 0.179	0.200 0.232	0.53 0.62	NonLiqfble. NonLiqfble.
	8.24	7	15.1	0.69	125	1064	987	21.0	29.5	4.74	2.8	43.5	0.80	84.1	105.2	0.379	0.188	0.245	0.65	NonLiqfble.
	8.34	7	15.2	0.75	125	1077	993	21.1	29.5	5.12	2.8	44.8	0.80	84.4	105.5	0.381	0.189	0.246	0.65	NonLiqfble.
	8.43	7	15.4	0.77	125	1088	999	21.3	29.7	5.18	2.8	44.9	0.80	85.3	106.6	0.382	0.193	0.250	0.66	NonLiqfble.
	8.53	7	15.4	0.74	125	1100	1005	21.3	29.5	4.98	2.8	44.3	0.80	85.0	106.3	0.384	0.192	0.249	0.65	NonLiqfble.
	8.62 8.72	7 7	15.3 15.2	0.75 0.77	125 125	1112 1124	1011 1017	21.1 20.9	29.2 28.8	5.09 5.26	2.8 2.8	44.9 45.7	0.80	84.2 83.4	105.3 104.3	0.386 0.388	0.189 0.185	0.245 0.241	0.63 0.62	NonLiqfble. NonLiqfble.
	8.79	7	15.2	0.77	125	1133	1017	20.9	28.8	5.29	2.8	45.8	0.80	83.8	104.3	0.389	0.183	0.241	0.62	NonLiqfble.
	8.89	7	13.7	0.69	125	1145	1028	18.7	25.5	5.26	2.8	47.9	0.80	74.8	93.5	0.391	0.156	0.203	0.52	NonLiqfble.
	8.99	7	11.3	0.53	125	1158	1034	15.4	20.7	4.94	2.9	50.8	0.80	61.5	76.9	0.393	0.122	0.159	0.40	NonLiqfble.
	9.08	7	9.7	0.39	115	1169	1039	13.2	17.5	4.28	2.9	51.7	0.80	52.7	65.8	0.395	0.107	0.138	0.35	NonLiqfble.
	9.18 9.28	7 7	8.2 7.2	0.29 0.25	115 105	1181	1045	11.1 9.7	14.6	3.81	2.9 3.0	53.7 56.8	0.80	44.4	55.5	0.397	0.096 0.091	0.125	0.31	NonLiqfble.
	9.20	7	7.4	0.25	105	1192 1202	1050 1054	10.0	12.6 12.9	3.79 3.82	3.0	56.4	0.80	38.9 39.9	48.6 49.9	0.399	0.091	0.118 0.119	0.30	NonLiqfble. NonLiqfble.
	9.47	7	6.9	0.3	105	1212	1058	9.3	11.9	4.77	3.1	62.3	0.80	37.1	46.4	0.402	0.089	0.116	0.29	NonLiqfble.
	9.57	7	7	0.32	115	1223	1062	9.4	12.0	5.01	3.1	63.0	0.80	37.6	47.0	0.404	0.090	0.117	0.29	NonLiqfble.
	9.66	7	6.8	0.36	115	1233	1067	9.1	11.6	5.82	3.1	66.9	0.80	36.4	45.5	0.406	0.089	0.115	0.28	NonLiqfble.
	9.76	7	6.6 6.2	0.37	115 115	1245	1072	8.8	11.1	6.19	3.1	69.1	0.80	35.3	44.1	0.407	0.088	0.114	0.28	NonLiqfble.
	9.86 9.95	7 7	7.3	0.37 0.37	115	1256 1266	1078 1082	8.3 9.7	10.3 12.3	6.64 5.55	3.2	72.5 64.4	0.80	33.1 38.8	41.3 48.5	0.409 0.411	0.087 0.091	0.113 0.118	0.28	NonLiqfble. NonLiqfble.
	10.05	7	7.6	0.37	115	1278	1088	10.1	12.8	5.32	3.1	62.7	0.80	40.3	50.4	0.404	0.092	0.119	0.30	NonLiqfble.
	10.15	7	7.4	0.36	115	1289	1093	9.8	12.4	5.33	3.1	63.6	0.80	39.2	49.0	0.406	0.091	0.118	0.29	NonLiqfble.
	10.24	7	7.4	0.33	115	1300	1098	9.8	12.3	4.89	3.1	62.0	0.80	39.1	48.9	0.407	0.091	0.118	0.29	NonLiqfble.
	10.34	7	7.5	0.3	115	1311	1103	9.9	12.4	4.38	3.0	59.8	0.80	39.5	49.4	0.409	0.091	0.119	0.29	NonLiqfble.
	10.44 10.53	7 7	7.7 8.2	0.28 0.27	105 105	1323 1332	1108 1112	10.1 10.8	12.7 13.5	3.98 3.58	3.0 2.9	57.5 54.2	0.80	40.5 43.0	50.6 53.8	0.411 0.412	0.092 0.094	0.120 0.123	0.29	NonLiqfble. NonLiqfble.
	10.63	7	8.3	0.27	105	1343	1116	10.9	13.7	3.54	2.9	53.8	0.80	43.5	54.4	0.414	0.095	0.123	0.30	NonLiqfble.
	10.73	7	8.2	0.3	115	1353	1120	10.7	13.4	3.99	3.0	56.3	0.80	42.9	53.6	0.415	0.094	0.123	0.30	NonLiqfble.
	10.82	7	8.7	0.31	115	1364	1125	11.3	14.2	3.87	2.9	54.4	0.80	45.4	56.7	0.417	0.097	0.126	0.30	NonLiqfble.
	10.92	7	9.1	0.32	115	1375	1130	11.8	14.9	3.80	2.9	53.2	0.80	47.4	59.2	0.418	0.099	0.129	0.31	NonLiqfble.
	11.01 11.11	7 7	9.8 10	0.33 0.35	115 115	1385 1397	1135 1140	12.7 13.0	16.0 16.3	3.62 3.76	2.9 2.9	50.8 51.0	0.80	50.9 51.8	63.6 64.8	0.420 0.421	0.104 0.105	0.135 0.137	0.32	NonLiqfble. NonLiqfble.
	11.21	7	11.6	0.38	115	1408	1146	15.0	19.0	3.49	2.8	46.7	0.80	60.0	75.0	0.423	0.103	0.157	0.32	NonLiqfble.
	11.3	7	12.9	0.42	125	1419	1150	16.6	21.2	3.45	2.8	44.4	0.80	66.6	83.2	0.424	0.134	0.174	0.41	NonLiqfble.
	11.4	7	14.1	0.48	125	1431	1157	18.1	23.1	3.59	2.8	43.4	0.80	72.6	90.7	0.426	0.149	0.194	0.46	NonLiqfble.
	11.49	7	15.6	0.53	125	1442	1162	20.0	25.6	3.56	2.7	41.4	0.80	80.1	100.1	0.427	0.173	0.225	0.53	NonLiqfble.
	11.59	7	16.7	0.58	125	1455	1169	21.4	27.3	3.63	2.7	40.6	0.80	85.5	106.9	0.428	0.194	0.252	0.59	NonLiqfble.
	11.68 11.78	7 7	16.6 16.2	0.62 0.64	125 125	1466 1479	1174 1180	21.2 20.6	27.0 26.2	3.91 4.14	2.7 2.8	41.9 43.4	0.80	84.8 82.5	106.0 103.2	0.430 0.431	0.191 0.182	0.248 0.237	0.58 0.55	NonLiqfble. NonLiqfble.
	11.87	7	15.8	0.68	125	1490	1186	20.1	25.4	4.52	2.8	45.4	0.80	80.3	100.4	0.432	0.174	0.226	0.52	NonLiqfble.
	11.97	7	15.7	0.71	125	1502	1192	19.9	25.1	4.75	2.8	46.5	0.80	79.6	99.5	0.433	0.172	0.223	0.51	NonLiqfble.
	12.07	7	15.5	0.74	125	1515	1199	19.6	24.6	5.02	2.8	47.8	0.80	78.4	97.9	0.435	0.167	0.218	0.50	NonLiqfble.
	12.3	7	15.7	0.81	125	1544	1213	19.7	24.6	5.43	2.9	49.1	0.80	78.9	98.6	0.438	0.169	0.220	0.50	NonLiqfble.
	12.4	7	15.5	0.83	125	1556	1219	19.4	24.1	5.64	2.9	50.2	0.80	77.7	97.1	0.439	0.165	0.215	0.49	NonLiqfble.

Date: September 2005 CPT Number: 22

Depth to Groundwater: 7 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 Project Number: 6600.3.001.01 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress		of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	DqcIN	$(q_{c1N})_{cs}$	Ratio	M7.5	M6.50	Safety	Comments
																				,
	10.10	_	45.4	0.00	405		1225	10.0	22.0	- co	2.0	50.6	0.00	<b>55</b> 0	06.0	0.440	0.162		0.40	
	12.49 12.59	7 7	15.4 14.1	0.83 0.82	125 125	1567 1580	1225 1231	19.3 17.6	23.9 21.6	5.68 6.16	2.9 2.9	50.6 54.0	0.80	77.0 70.3	96.3 87.9	0.440 0.441	0.163 0.143	0.212 0.186	0.48 0.42	NonLiqfble. NonLiqfble.
	12.68	7	14	0.77	125	1591	1237	17.4	21.3	5.83	2.9	53.3	0.80	69.7	87.1	0.443	0.143	0.184	0.42	NonLiqfble.
	12.78	7	13.7	0.72	125	1604	1243	17.0	20.7	5.58	2.9	53.0	0.80	68.0	85.0	0.444	0.137	0.178	0.40	NonLiqfble.
	12.87	7	13.8	0.69	125	1615	1249	17.1	20.8	5.31	2.9	52.0	0.80	68.3	85.4	0.445	0.138	0.179	0.40	NonLiqfble.
	12.97	7	13.4	0.66	125	1627	1255	16.6	20.1	5.24	2.9	52.6	0.80	66.2	82.8	0.446	0.133	0.173	0.39	NonLiqfble.
	13.07	7 7	13.3	0.62	125	1640	1261	16.4	19.8	4.97	2.9	51.9	0.80	65.5	81.9	0.447	0.131	0.170	0.38	NonLiqfble.
	13.16 13.26	7	14.1 14	0.61 0.63	125 125	1651 1664	1267 1273	17.3 17.2	20.9 20.7	4.60 4.78	2.9 2.9	49.3 50.3	0.80	69.3 68.7	86.7 85.8	0.448 0.450	0.141 0.139	0.183 0.180	0.41 0.40	NonLiqfble. NonLiqfble.
	13.36	7	13.6	0.66	125	1676	1279	16.6	19.9	5.17	2.9	52.4	0.80	66.5	83.2	0.451	0.134	0.174	0.39	NonLiqfble.
	13.45	7	13.9	0.67	125	1687	1285	17.0	20.3	5.13	2.9	51.9	0.80	67.9	84.8	0.452	0.137	0.178	0.39	NonLiqfble.
	13.55	7	13.5	0.66	125	1700	1291	16.4	19.6	5.22	2.9	52.9	0.80	65.8	82.2	0.453	0.132	0.171	0.38	NonLiqfble.
	13.64	7	13.5	0.67	125	1711	1297	16.4	19.5	5.30	2.9	53.3	0.80	65.6	82.0	0.454	0.131	0.171	0.38	NonLiqfble.
	13.74 13.83	7 7	12.7 12.9	0.68 0.67	125 125	1724 1735	1303 1309	15.4 15.6	18.2 18.4	5.74 5.57	3.0	56.3 55.5	0.80	61.6 62.4	77.0 78.0	0.455 0.456	0.122 0.124	0.159 0.161	0.35 0.35	NonLiqfble. NonLiqfble.
	13.93	7	13.1	0.66	125	1747	1315	15.8	18.6	5.40	2.9	54.7	0.80	63.2	79.0	0.457	0.124	0.164	0.36	NonLiqfble.
	14.02	7	13.6	0.65	125	1759	1321	16.4	19.3	5.11	2.9	52.9	0.80	65.5	81.9	0.458	0.131	0.170	0.37	NonLiqfble.
	14.12	7	13.9	0.62	125	1771	1327	16.7	19.6	4.76	2.9	51.3	0.80	66.8	83.5	0.459	0.134	0.174	0.38	NonLiqfble.
	14.21	7	14.1	0.6	125	1782	1333	16.9	19.8	4.54	2.9	50.2	0.80	67.6	84.5	0.460	0.136	0.177	0.38	NonLiqfble.
	14.31	7	13.8	0.58	125	1795	1339	16.5	19.3	4.50	2.9	50.6	0.80	66.0	82.5	0.461	0.132	0.172	0.37	NonLiqfble.
	14.4 14.5	7 7	13 13.3	0.57 0.56	125 125	1806 1819	1344 1351	15.5 15.8	18.0 18.3	4.71 4.52	2.9 2.9	52.9 51.7	0.80	62.1 63.3	77.6 79.2	0.462 0.463	0.123 0.126	0.160 0.164	0.35 0.35	NonLiqfble. NonLiqfble.
	14.59	7	12.8	0.58	125	1830	1356	15.2	17.5	4.88	2.9	54.1	0.80	60.8	76.0	0.464	0.120	0.157	0.34	NonLiqfble.
	14.69	7	12.7	0.56	125	1842	1363	15.1	17.3	4.75	2.9	53.9	0.80	60.2	75.3	0.465	0.120	0.156	0.33	NonLiqfble.
	14.78	7	11.8	0.55	125	1854	1368	14.0	15.9	5.06	3.0	56.8	0.80	55.8	69.8	0.466	0.112	0.145	0.31	NonLiqfble.
	14.88	7	12.3	0.53	125	1866	1374	14.5	16.5	4.66	2.9	54.5	0.80	58.1	72.6	0.467	0.116	0.150	0.32	NonLiqfble.
	14.97	7 7	11.3 11.4	0.49	125 125	1877	1380	13.3	15.0	4.73	3.0	56.8	0.80	53.2	66.5	0.468	0.107	0.140	0.30	NonLiqfble.
	15.07 15.16	7	11.4	0.48 0.46	125	1890 1901	1386 1392	13.4 13.1	15.1 14.7	4.59 4.49	3.0	56.2 56.3	0.80	53.6 52.5	67.0 65.7	0.469 0.470	0.108 0.106	0.140 0.138	0.30 0.29	NonLiqfble. NonLiqfble.
	15.26	7	11.4	0.47	125	1914	1398	13.3	14.9	4.50	3.0	56.0	0.80	53.4	66.7	0.471	0.108	0.140	0.30	NonLiqfble.
	15.36	7	11.3	0.43	115	1926	1405	13.2	14.7	4.16	2.9	55.0	0.80	52.8	66.0	0.472	0.107	0.139	0.29	NonLiqfble.
	15.45	7	10.9	0.42	115	1937	1409	12.7	14.1	4.23	3.0	56.2	0.80	50.8	63.5	0.473	0.104	0.135	0.29	NonLiqfble.
	15.48	7	11.1	0.43	115	1940	1411	12.9	14.4	4.24	3.0	55.9	0.80	51.7	64.7	0.473	0.105	0.137	0.29	NonLiqfble.
	15.55 15.64	7 7	11.3 11.5	0.43 0.44	115 125	1948 1958	1415 1419	13.1 13.4	14.6 14.8	4.16 4.18	2.9 2.9	55.2 54.9	0.80	52.6 53.4	65.7 66.8	0.474 0.475	0.106 0.108	0.138 0.140	0.29 0.29	NonLiqfble. NonLiqfble.
	15.74	7	11.2	0.44	125	1971	1426	13.4	14.3	4.50	3.0	57.0	0.80	51.9	64.9	0.476	0.105	0.140	0.29	NonLiqfble.
	15.84	7	11.3	0.48	125	1983	1432	13.1	14.4	4.66	3.0	57.5	0.80	52.3	65.3	0.477	0.106	0.138	0.29	NonLiqfble.
	15.93	7	11.2	0.47	125	1995	1437	12.9	14.2	4.61	3.0	57.6	0.80	51.7	64.6	0.477	0.105	0.137	0.29	NonLiqfble.
	16.03	7	11.6	0.46	125	2007	1444	13.4	14.7	4.34	3.0	55.8	0.80	53.4	66.8	0.478	0.108	0.140	0.29	NonLiqfble.
	16.13	7	11.4	0.46	125	2020	1450	13.1	14.3	4.43	3.0	56.7	0.80	52.4	65.5	0.479	0.106	0.138	0.29	NonLiqfble.
	16.22 16.32	7 7	11.4 11.3	0.44 0.42	115 115	2031 2042	1456 1461	13.1 12.9	14.3 14.1	4.24 4.09	3.0	56.0 55.6	0.80	52.3 51.7	65.4 64.7	0.480 0.481	0.106 0.105	0.138 0.137	0.29 0.28	NonLiqfble. NonLiqfble.
	16.42	7	10.8	0.42	115	2054	1466	12.3	13.3	4.09	3.0	56.9	0.80	49.4	61.7	0.482	0.103	0.137	0.27	NonLigfble.
	16.51	7	10.7	0.38	115	2064	1471	12.2	13.1	3.93	3.0	56.5	0.80	48.8	61.0	0.483	0.101	0.131	0.27	NonLiqfble.
	16.61	7	10.6	0.38	115	2076	1476	12.1	13.0	3.97	3.0	57.0	0.80	48.3	60.4	0.484	0.100	0.131	0.27	NonLiqfble.
	16.71	7	10.5	0.37	115	2087	1481	11.9	12.8	3.91	3.0	57.1	0.80	47.7	59.7	0.485	0.100	0.130	0.27	NonLiqfble.
	16.8 16.9	7	10.5 10.9	0.36 0.37	115 115	2098	1486 1491	11.9 12.3	12.7 13.2	3.81 3.76	3.0	56.7 55.6	0.80	47.7 49.4	59.6 61.7	0.486	0.100 0.102	0.130 0.132	0.27 0.27	NonLiqfble.
	17	7	11.2	0.38	115	2109 2121	1491	12.7	13.5	3.75	2.9	55.0	0.80	50.7	63.3	0.486 0.487	0.102	0.132	0.27	NonLiqfble. NonLiqfble.
	17.09	7	11.9	0.39	115	2131	1501	13.4	14.4	3.60	2.9	52.9	0.80	53.8	67.2	0.488	0.104	0.141	0.29	NonLigfble.
	17.19	7	13.1	0.42	125		1507	14.8	16.0	3.49	2.9	50.3	0.80	59.1	73.8	0.489	0.117	0.153	0.31	NonLiqfble.
	17.29	7	13.6	0.48	125		1513	15.3	16.5	3.83	2.9	51.0	0.80	61.2	76.5	0.490	0.122	0.158	0.32	NonLiqfble.
	17.38	7	14.2	0.51	125	2166	1518	15.9	17.3	3.89	2.9	50.4	0.80	63.8	79.7	0.491	0.127	0.165	0.34	NonLiqfble.
	17.48 17.57	7 7	14.4 14.8	0.53 0.54	125 125	2179 2190	1525 1530	16.1 16.6	17.5 17.9	3.98 3.94	2.9 2.9	50.6 49.9	0.80	64.5 66.2	80.7 82.8	0.492 0.492	0.129 0.133	0.167 0.173	0.34 0.35	NonLiqfble. NonLiqfble.
	17.57	7	14.8	0.54	125	2202	1537	16.5	17.9	4.09	2.9	50.6	0.80	66.1	82.6	0.492	0.133	0.173	0.35	NonLiqfble.
	17.76	7	15.6	0.57	125	2214	1542	17.4	18.8	3.93	2.8	48.9	0.80	69.5	86.9	0.494	0.132	0.172	0.37	NonLiqfble.
	17.86	7	16	0.6	125	2226	1549	17.8	19.2	4.03	2.8	48.8	0.80	71.2	88.9	0.495	0.145	0.189	0.38	NonLiqfble.
	17.95	7	15.5	0.63	125	2237	1554	17.2	18.5	4.38	2.9	51.0	0.80	68.8	86.0	0.495	0.139	0.181	0.37	NonLiqfble.
	18.05	7	15	0.64	125	2250	1560	16.6	17.8	4.61	2.9	52.7	0.80	66.5	83.1	0.496	0.133	0.173	0.35	NonLiqfble.
	18.14	7	14.1	0.63	125	2261	1566	15.6	16.6	4.86	2.9	55.2 55.0	0.80	62.4	77.9 76.1	0.497	0.124	0.161	0.32	NonLiqfble.
	18.24 18.33	7 7	13.8 13.5	0.59 0.55	125 125	2274 2285	1572 1578	15.2 14.9	16.1 15.7	4.66 4.45	2.9 2.9	55.0 54.8	0.80	60.9 59.5	76.1 74.3	0.497 0.498	0.121 0.118	0.157 0.154	0.32 0.31	NonLiqfble. NonLiqfble.
	10.00	,	10.5	0.00	123	2200	1370	17.7	13.1	T. TJ	2.7	5-1.0	0.00	57.5	17.3	0.770	0.110	0.154	0.51	. tomaquic.

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Depth to Groundwater: 7 feet

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(q <sub>c1N</sub> ) <sub>cs</sub>	Ratio	M7.5	M6.50	Safety	Comments
	18.43	7	13.7	0.52	125	2297	1584	15.1	15.8	4.14	2.9	53.3	0.80	60.2	75.3	0.499	0.120	0.156	0.31	NonLiqfble.
	18.52	7	13.1	0.51	125	2309	1590	14.4	15.0	4.27	2.9	55.0	0.80	57.5	71.9	0.500	0.115	0.149	0.30	NonLiqfble.
	18.62 18.71	7 7	11.8 10.9	0.48 0.47	125 125	2321 2332	1596 1602	12.9 11.9	13.3 12.1	4.51 4.83	3.0	58.6 62.1	0.80	51.7 47.7	64.6 59.6	0.500 0.501	0.105 0.100	0.137 0.130	0.27 0.26	NonLiqfble. NonLiqfble.
	18.81	7	11	0.42	115	2345	1602	12.0	12.1	4.83	3.0	59.7	0.80	48.0	60.0	0.502	0.100	0.130	0.26	NonLiqfble.
	18.87	7	10.7	0.39	115	2352	1611	11.7	11.8	4.10	3.0	59.7	0.80	46.7	58.3	0.502	0.098	0.128	0.25	NonLiqfble.
	18.99	7	10.8	0.34	115	2366	1617	11.7	11.9	3.54	3.0	57.0	0.80	47.0	58.7	0.503	0.099	0.129	0.26	NonLiqfble.
	19.08 19.18	7 7	10.2 10.2		115 115	2376 2388	1622 1627	11.1 11.1	11.1 11.1	3.22 3.00	3.0	56.9 55.9	0.80	44.3 44.3	55.4 55.3	0.504 0.505	0.096 0.096	0.125 0.124	0.25 0.25	NonLiqfble. NonLiqfble.
	19.28	7	10.7	0.27	115	2399	1633	11.6	11.6	2.84	2.9	53.9	0.80	46.3	57.9	0.505	0.098	0.124	0.25	NonLiqfble.
	19.37	7	11	0.25	115	2409	1637	11.9	12.0	2.55	2.9	51.6	0.80	47.6	59.5	0.506	0.100	0.129	0.26	NonLiqfble.
	19.47	7	11.1	0.24	105	2421	1643	12.0	12.0	2.43	2.9	50.7	0.80	47.9	59.9	0.507	0.100	0.130	0.26	NonLiqfble.
	19.56 19.66	7 7	11.2 10.6	0.24 0.24	105 105	2430 2441	1647 1651	12.1 11.4	12.1 11.4	2.40 2.56	2.9 2.9	50.4 52.8	0.80	48.3 45.7	60.4 57.1	0.508 0.509	0.100 0.097	0.131 0.126	0.26 0.25	NonLiqfble. NonLiqfble.
	19.76	7	9.8	0.23	105	2451	1655	10.5	10.4	2.68	3.0	55.6	0.80	42.2	52.7	0.509	0.094	0.120	0.23	NonLiqfble.
	19.85	7	9.4	0.23	105	2461	1659	10.1	9.8	2.82	3.0	57.6	0.80	40.4	50.5	0.510	0.092	0.120	0.23	NonLiqfble.
	19.95	7	8.9	0.24	105	2471	1663	9.5	9.2	3.13	3.0	61.0	0.80	38.2	47.7	0.511	0.090	0.117	0.23	NonLiqfble.
	20.05	7	7.7	0.23	105	2482	1667	8.3	7.7	3.56	3.1	67.7	0.80	33.0	41.3	0.502	0.087	0.112	0.22	NonLiqfble.
	20.14 20.24	7 7	7.2 6.9	0.22 0.2	105 105	2491 2502	1671 1676	7.7 7.4	7.1 6.7	3.70 3.54	3.2	70.7 71.4	0.80	30.8 29.5	38.5 36.9	0.502 0.503	0.085 0.085	0.111 0.110	0.22 0.22	NonLiqfble. NonLiqfble.
	20.34	7	6.5	0.2	105	2512	1680	6.9	6.2	3.81	3.2	74.9	0.80	27.8	34.7	0.504	0.083	0.110	0.22	NonLiqfble.
	20.43	7	6.4	0.2	105	2522	1684	6.8	6.1	3.89	3.2	76.0	0.80	27.3	34.1	0.505	0.084	0.109	0.22	NonLiqfble.
	20.53	7	5.7	0.2	105	2532	1688	6.1	5.3	4.51	3.3	83.4	0.80	24.3	30.4	0.506	0.083	0.107	0.21	NonLiqfble.
	20.63 20.72	7 7	5.5 5.1	0.2 0.18	105 95	2543 2552	1692 1696	5.9 5.4	5.0	4.73 4.71	3.4 3.4	85.9 89.1	0.80	23.4 21.7	29.3 27.1	0.506 0.507	0.082 0.082	0.107 0.106	0.21 0.21	NonLiqfble.
	20.72	7	5.3	0.18	95	2562	1699	5.6	4.5 4.7	4.71	3.4	85.3	0.80	22.5	28.1	0.508	0.082	0.100	0.21	NonLiqfble. NonLiqfble.
	20.91	7	5.4	0.15	95	2570	1702	5.7	4.8	3.65	3.3	81.6	0.80	22.9	28.6	0.509	0.082	0.107	0.21	NonLiqfble.
	21.01	7	5.9	0.15	95	2580	1705	6.3	5.4	3.25	3.2	76.1	0.80	25.0	31.3	0.510	0.083	0.108	0.21	NonLiqfble.
	21.1	7	6.6	0.15	95	2588	1708	7.0	6.2	2.83	3.2	69.6	0.80	27.9	34.9	0.511	0.084	0.109	0.21	NonLiqfble.
	21.2 21.29	7 7	7.1 7.6	0.15 0.14	95 95	2598 2606	1712 1715	7.5 8.0	6.8 7.3	2.59 2.22	3.1	65.7 61.2	0.80	30.0 32.1	37.5 40.2	0.511 0.512	0.085 0.086	0.110 0.112	0.22 0.22	NonLiqfble. NonLiqfble.
	21.39	7	8.4	0.16	105	2616	1718	8.9	8.3	2.26	3.0	58.4	0.80	35.5	44.3	0.512	0.088	0.112	0.22	NonLiqfble.
	21.48	7	8.6	0.17	105	2625	1722	9.1	8.5	2.33	3.0	58.3	0.80	36.3	45.3	0.514	0.089	0.115	0.22	NonLiqfble.
	21.58	7	8.4	0.16	105	2636	1726	8.8	8.2	2.26	3.0	58.6	0.80	35.4	44.2	0.515	0.088	0.114	0.22	NonLiqfble.
	21.68	7 7	8.5	0.14 0.12	95 95	2646	1730	8.9	8.3	1.95	3.0	56.1	0.80	35.8	44.7	0.515	0.088	0.115	0.22	NonLiqfble.
	21.77 21.87	7	8.9 9.2	0.12	95	2655 2664	1733 1736	9.4 9.7	8.7 9.1	1.58 1.53	2.9 2.9	52.0 50.7	0.80	37.4 38.6	46.8 48.3	0.516 0.517	0.090 0.090	0.116 0.118	0.23 0.23	NonLiqfble. NonLiqfble.
	21.96	7	9.6	0.11	95	2673	1739	10.1	9.5	1.33	2.8	47.9	0.80	40.3	50.4	0.518	0.092	0.119	0.23	NonLiqfble.
	22.06	7	10.3	0.13	95	2682	1743	10.8	10.3	1.45	2.8	47.1	0.80	43.2	54.0	0.519	0.095	0.123	0.24	NonLiqfble.
	22.15	7	10.9	0.14	95	2691	1745	11.4	10.9	1.47	2.8	45.9	0.80	45.7	57.1	0.519	0.097	0.126	0.24	NonLiqfble.
	22.25 22.32	7 7	12.1 14.3	0.17 0.18	105 105	2700 2708	1749 1752	12.7 14.9	12.3 14.8	1.58 1.39	2.8	44.4 39.1	0.80	50.6 59.8	63.3 74.7	0.520 0.521	0.104 0.119	0.135 0.154	0.26 0.30	NonLiqfble. NonLiqfble.
	22.42	7	14.8	0.18	105	2718	1756	15.5	15.3	1.34	2.7	38.0	0.80	61.8	77.3	0.522	0.113	0.160	0.31	NonLiqfble.
	22.52	7	13.9	0.17	105	2729	1760	14.5	14.2	1.36	2.7	53.8	0.80	58.0	72.5	0.522	0.115	0.150	0.29	NonLiqfble.
	22.61	7	12	0.17	105	2738	1764	12.5	12.0	1.60	2.8	53.8	0.80	50.0	62.5	0.523	0.103	0.134	0.26	NonLiqfble.
	22.71 22.81	7 7	9.8 9	0.16 0.15	105 105	2749 2759	1768 1773	10.2 9.4	9.5 8.6	1.90 1.97	2.9 3.0	53.8 53.8	0.80 0.80	40.8 37.4	51.0 46.8	0.524	0.092 0.090	0.120 0.116	0.23	NonLiqfble.
	22.9	7	8.3		105	2769	1776	8.6	7.8	2.17	3.0	53.8	0.80	34.5	43.1	0.524 0.525	0.090	0.116	0.22	NonLiqfble. NonLiqfble.
	23	7	8.3	0.15	105	2779	1781	8.6	7.8	2.17	3.0	53.8	0.80	34.4	43.0	0.526	0.087	0.114	0.22	NonLiqfble.
	23.1	7	8.2		95	2790	1785	8.5	7.6	2.06	3.0	53.8	0.80	34.0	42.5	0.527	0.087	0.113	0.22	NonLiqfble.
	23.19	7	7.9	0.13	95	2798	1788	8.2	7.3	2.00	3.0	53.8	0.80	32.7	40.9	0.527	0.086	0.112	0.21	NonLiqfble.
	23.29 23.38	7 7	7.8 7.7	0.14	95 95	2808 2816	1791 1794	8.1	7.1 7.0	2.19	3.0	53.8	0.80	32.3	40.3	0.528	0.086	0.112 0.112	0.21 0.21	NonLiqfble.
	23.48	7	7.7	0.13 0.14	95	2826	1794	8.0 8.3	7.0	2.07 2.13	3.0	53.8 53.8	0.80 0.80	31.8 33.0	39.8 41.3	0.529 0.530	0.086 0.087	0.112	0.21	NonLiqfble. NonLiqfble.
	23.58	7	8	0.14	95	2835	1801	8.2	7.3	2.13	3.0	53.8	0.80	33.0	41.2	0.531	0.087	0.112	0.21	NonLiqfble.
	23.67	7	7.7	0.14	95	2844	1804	7.9	7.0	2.23	3.1	53.8	0.80	31.7	39.7	0.531	0.086	0.112	0.21	NonLiqfble.
	23.77	7	8.3	0.14	95	2853	1807	8.5	7.6	2.04	3.0	53.8	0.80	34.2	42.7	0.532	0.087	0.113	0.21	NonLiqfble.
	23.87 23.96	7 7	7.9 8.3	0.15 0.15	105 105	2863 2872	1810 1814	8.1 8.5	7.1 7.6	2.32 2.19	3.1	53.8 53.8	0.80 0.80	32.5 34.1	40.6 42.6	0.533 0.534	0.086 0.087	0.112 0.113	0.21 0.21	NonLiqfble. NonLiqfble.
	24.06	7	8.9	0.17	105	2883	1818	9.1	8.2	2.28	3.0	53.8	0.80	36.5	45.7	0.534	0.089	0.115	0.21	NonLiqfble.
	24.15	7	9.4	0.17	105	2892	1822	9.6	8.7	2.14	3.0	56.2	0.80	38.5	48.2	0.535	0.090	0.118	0.22	NonLiqfble.
	24.25	7	10.2		105	2903	1826	10.4	9.6	2.06	2.9	53.5	0.80	41.8	52.2	0.536	0.093	0.121	0.23	NonLiqfble.
	24.34	7	10.4	0.18	105	2912	1830	10.6	9.8	2.01	2.9	52.7	0.80	42.5	53.2	0.536	0.094	0.122	0.23	NonLiqfble.

Date: September 2005 CPT Number: 22

Depth to Groundwater: 7 feet

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.	**	_		Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	( <b>q</b> clN)es	Ratio	M7.5	M6.50	Safety	Comments
	24.44	7	10.4	0.18	105	2923	1834	10.6	9.7	2.01	2.9	52.8	0.80	42.5	53.1	0.537	0.094	0.122	0.23	NonLiqfble.
	24.53 24.63	7 7	10.4 10.3	0.17 0.16	105 105	2932 2943	1838 1842	10.6 10.5	9.7 9.6	1.90 1.81	2.9 2.9	52.0 51.7	0.80	42.5 42.0	53.1 52.5	0.537 0.538	0.094	0.122 0.121	0.23 0.23	NonLiqfble. NonLiqfble.
	24.72	7	10.5	0.16	105	2952	1846	10.7	9.8	1.77	2.9	50.9	0.80	42.8	53.5	0.539	0.094	0.122	0.23	NonLiqfble.
	24.82	7	9.8	0.15	105	2963	1851	10.0	9.0	1.80	2.9	53.1	0.80	39.9	49.8	0.539	0.092	0.119	0.22	NonLiqfble.
	24.91	7	10	0.15	105	2972	1854	10.2	9.2	1.76	2.9	52.3	0.80	40.6	50.8	0.540	0.092	0.120	0.22	NonLiqfble.
	25	7	9.4	0.14	95	2981	1858	9.5	8.5	1.77	2.9	54.1	0.80	38.2	47.7	0.541	0.090	0.117	0.22	NonLiqfble.
	25.1 25.19	7 7	9.3 9.6	0.13	95 95	2991 2999	1861 1864	9.4 9.7	8.4 8.7	1.67 1.61	2.9 2.9	53.7 52.3	0.80	37.7 38.9	47.2 48.6	0.541 0.542	0.090 0.091	0.117 0.118	0.22 0.22	NonLiqfble. NonLiqfble.
	25.29	7	8.8	0.11	95	3009	1868	8.9	7.8	1.51	2.9	54.0	0.80	35.6	44.5	0.543	0.031	0.115	0.21	NonLiqfble.
	25.38	7	8.6	0.13	95	3018	1871	8.7	7.6	1.83	3.0	57.5	0.80	34.8	43.5	0.544	0.088	0.114	0.21	NonLiqfble.
	25.48	7	8	0.14	95	3027	1874	8.1	6.9	2.16	3.1	62.3	0.80	32.3	40.4	0.544	0.086	0.112	0.21	NonLiqfble.
	25.57	7	8	0.13	95	3036	1877	8.1	6.9	2.01	3.0	61.2	0.80	32.3	40.4	0.545	0.086	0.112	0.21	NonLiqfble.
	25.78 25.87	7 7	9.8 9.6	0.11 0.11	95	3056 3064	1884	9.9	8.8	1.33	2.9 2.9	49.6 50.6	0.80	39.5	49.4	0.547	0.091 0.091	0.119	0.22 0.22	NonLiqfble.
	25.97	7	9.6	0.11	95 95	3074	1887 1890	9.7 9.4	8.5 8.2	1.36 1.55	2.9	53.1	0.80	38.7 37.4	48.4 46.8	0.547 0.548	0.091	0.118 0.116	0.22	NonLiqfble. NonLiqfble.
	26.06	7	9.3	0.12	95	3082	1893	9.4	8.2	1.29	2.9	50.9	0.80	37.4	46.8	0.549	0.090	0.116	0.21	NonLiqfble.
	26.16	7	9.7	0.1	95	3092	1896	9.7	8.6	1.23	2.9	49.1	0.80	39.0	48.7	0.549	0.091	0.118	0.21	NonLiqfble.
	26.25	7	9.8	0.11	95	3100	1899	9.8	8.7	1.33	2.9	49.9	0.80	39.4	49.2	0.550	0.091	0.118	0.22	NonLiqfble.
	26.34	7	10.4	0.12	95	3109	1902	10.4	9.3	1.36	2.8	48.6	0.80	41.7	52.2	0.551	0.093	0.121	0.22	NonLiqfble.
	26.43 26.53	7 7	11.5 11.8	0.13 0.14	95 95	3117 3127	1905 1908	11.5 11.8	10.4 10.7	1.31 1.37	2.8	45.5 45.5	0.80	46.1 47.3	57.6 59.1	0.551 0.552	0.098 0.099	0.127 0.129	0.23	NonLiqfble. NonLiqfble.
	26.62	7	12.7	0.16	105	3135	1911	12.7	11.6	1.44	2.8	44.3	0.80	50.8	63.6	0.553	0.104	0.125	0.24	NonLiqfble.
	26.72	7	13	0.15	105	3146	1915	13.0	11.9	1.31	2.7	42.7	0.80	52.0	65.0	0.553	0.106	0.137	0.25	NonLiqfble.
	26.81	7	13.2	0.17	105	3155	1919	13.2	12.1	1.46	2.8	43.7	0.80	52.7	65.9	0.554	0.107	0.139	0.25	NonLiqfble.
	26.91	7	12.7	0.2	105	3166	1923	12.7	11.6	1.80	2.8	47.3	0.80	50.7	63.4	0.555	0.104	0.135	0.24	NonLiqfble.
	27 27.09	7 7	12.7 15.1	0.26	115 115	3175 3186	1927	12.7	11.5 14.0	2.34	2.9	51.1	0.80	50.6	63.3 75.2	0.555 0.556	0.104	0.135	0.24	NonLiqfble.
	27.09	7	21.5	0.33	115	3196	1932 1937	15.0 21.4	20.5	2.22 1.66	2.8 2.6	46.2 35.0	0.80	60.1 85.5	106.9	0.556	0.119 0.194	0.155 0.252	0.28 0.45	NonLiqfble. Liquefaction
	27.27	7	22.1	0.3	115	3206	1941	21.9	21.1	1.46	2.6	33.2	0.75	66.5	88.4	0.556	0.144	0.188	0.34	Liquefaction
	27.37	7	17.2	0.27	115	3218	1947	17.1	16.0	1.73	2.7	40.2	0.80	68.2	85.3	0.557	0.138	0.179	0.32	NonLiqfble.
	27.46	7	12.4	0.21	105	3228	1951	12.3	11.0	1.95	2.9	49.4	0.80	49.1	61.4	0.557	0.102	0.132	0.24	NonLiqfble.
	27.56	7 7	12.3 11.5	0.16 0.16	105 105	3239	1956	12.2	10.9	1.50	2.8	46.2	0.80	48.7	60.8	0.558	0.101 0.097	0.131	0.24	NonLiqfble.
	27.65 27.74	7	11.2	0.16	105	3248 3258	1959 1963	11.4 11.1	10.1 9.7	1.62 1.67	2.9 2.9	49.0 50.2	0.80	45.5 44.2	56.8 55.3	0.559 0.559	0.097	0.126 0.124	0.23 0.22	NonLiqfble. NonLiqfble.
	27.84	7	11.4	0.15	105	3268	1968	11.2	9.9	1.54	2.8	48.7	0.80	45.0	56.2	0.560	0.097	0.125	0.22	NonLiqfble.
	27.93	7	11.4	0.16	105	3277	1971	11.2	9.9	1.64	2.9	49.6	0.80	44.9	56.2	0.560	0.096	0.125	0.22	NonLiqfble.
	28.02	7	11.5	0.16	105	3287	1975	11.3	10.0	1.62	2.9	49.3	0.80	45.3	56.6	0.561	0.097	0.126	0.22	NonLiqfble.
	28.12	7	11.5	0.15	105	3297	1980	11.3	9.9	1.52	2.8	48.5	0.80	45.2	56.5	0.561	0.097	0.126	0.22	NonLiqfble.
	28.21 28.3	7 7	11.8 12.2	0.15 0.15	105 105	3307	1983 1987	11.6	10.2 10.6	1.48 1.42	2.8	47.5 46.2	0.80	46.4 47.9	58.0 59.9	0.562 0.562	0.098	0.128	0.23	NonLiqfble.
	28.4	7	11.9	0.15	95	3316 3327	1987	12.0 11.7	10.6	1.42	2.8 2.8	46.4	0.80	46.7	58.3	0.563	0.100	0.130 0.128	0.23	NonLiqfble. NonLiqfble.
	28.49	7	11.8	0.15	105	3335	1994	11.6	10.2	1.48	2.8	47.7	0.80	46.2	57.8	0.564	0.098	0.127	0.23	NonLiqfble.
	28.58	7	12.3	0.15	105	3345	1998	12.0	10.6	1.41	2.8	46.1	0.80	48.2	60.2	0.564	0.100	0.130	0.23	NonLiqfble.
	28.68	7	11.8	0.18	105	3355	2002	11.5	10.1	1.78	2.9	50.2	0.80	46.2	57.7	0.565	0.098	0.127	0.23	NonLiqfble.
	28.77 28.86	7 7	11.8 12.2	0.19 0.19	105 105	3365 3374	2006 2010	11.5 11.9	10.1 10.5	1.88 1.81	2.9 2.9	51.0 49.6	0.80	46.1 47.6	57.6 59.5	0.565	0.098	0.127	0.22 0.23	NonLiqfble.
	28.92	7	13.2	0.19	105	3381	2010	12.9	11.4	1.65	2.8	46.5	0.80	51.5	64.4	0.566 0.566	0.100	0.130 0.136	0.23	NonLiqfble. NonLiqfble.
	29.01	7	12.8	0.2	105	3390	2017	12.5	11.0	1.80	2.8	48.4	0.80	49.9	62.4	0.566	0.103	0.133	0.24	NonLiqfble.
	29.11	7	13.5	0.2	105	3400	2021	13.1	11.7	1.70	2.8	46.3	0.80	52.6	65.7	0.567	0.106	0.138	0.24	NonLiqfble.
	29.2	7	12.9	0.2	105	3410	2025	12.5	11.1	1.79	2.8	48.2	0.80	50.2	62.7	0.568	0.103	0.134	0.24	NonLiqfble.
	29.3	7	12.7	0.19	105	3420	2029	12.3	10.8	1.73	2.8	48.2	0.80	49.3	61.7	0.568	0.102	0.132	0.23	NonLiqfble.
	29.39 29.49	7 7	12.4 12	0.18 0.17	105 105	3430 3440	2033 2037	12.0 11.6	10.5 10.1	1.68 1.65	2.8 2.9	48.6 49.2	0.80	48.1 46.5	60.2 58.2	0.569 0.569	0.100 0.098	0.130 0.128	0.23 0.22	NonLiqfble. NonLiqfble.
	29.49	7	11	0.17	105	3450	2041	10.7	9.1	1.73	2.9	52.2	0.80	42.6	53.3	0.570	0.098	0.128	0.22	NonLiqfble.
	29.68	7	10.6	0.16	105	3460	2045	10.3	8.7	1.80	2.9	53.9	0.80	41.0	51.3	0.570	0.093	0.120	0.21	NonLiqfble.
	29.77	7	10.8	0.14	95	3470	2049	10.4	8.8	1.54	2.9	51.4	0.80	41.8	52.2	0.571	0.093	0.121	0.21	NonLiqfble.
	29.87	7	9.8	0.12	95	3479	2052	9.5	7.9	1.49	2.9	53.7	0.80	37.9	47.3	0.571	0.090	0.117	0.20	NonLiqfble.
	29.96	7	10.3	0.12	95	3488	2055	9.9	8.3	1.40	2.9	51.6	0.80	39.8	49.7	0.572	0.091	0.119	0.21	NonLiqfble.
	30.06 30.16	7 7	10.2 10.2	0.13 0.18	95 105	3497 3507	2058 2062	9.8 9.8	8.2 8.2	1.54 2.13	2.9 3.0	53.1 57.8	0.80	39.3 39.3	49.2 49.1	0.549 0.549	0.091 0.091	0.118 0.118	0.22 0.22	NonLiqfble. NonLiqfble.
	30.16	7	11	0.18	105	3516	2062	10.6	8.9	1.84	2.9	53.5	0.80	42.4	53.0	0.550	0.091	0.118	0.22	NonLiqfble.
	30.35	7	11.7	0.19	105	3527	2070	11.3	9.6	1.91	2.9	52.4	0.80	45.0	56.3	0.550	0.097	0.126	0.23	NonLiqfble.

Date: September 2005 CPT Number: 22

Depth to Groundwater: 7 feet

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	30.44	7	13.7	0.21	105	3536	2074	13.2	11.5	1.76	2.8	47.2	0.80	52.7	65.8	0.551	0.107	0.138	0.25	NonLiqfble.
	30.54	7	13.8	0.23	105	3547	2078	13.2	11.6	1.91	2.8	48.1	0.80	53.0	66.2	0.551	0.107	0.139	0.25	NonLiqfble.
	30.61	7	14.5	0.24	115	3554	2081	13.9	12.2	1.89	2.8	46.8	0.80	55.6	69.5	0.552	0.111	0.145	0.26	NonLiqfble.
	30.71	7	13.4	0.24	115	3566	2086	12.8	11.1	2.07	2.9	50.1	0.80	51.3	64.2	0.552	0.105	0.136	0.25	NonLiqfble.
	30.8 30.89	7 7	13.4 13.2	0.23 0.23	105 105	3576 3585	2091 2095	12.8 12.6	11.1 10.9	1.98 2.02	2.9 2.9	49.5 50.2	0.80	51.3 50.5	64.1 63.1	0.552 0.553	0.105 0.103	0.136 0.134	0.25 0.24	NonLiqfble. NonLiqfble.
	30.99	7	12.8	0.21	105	3596	2099	12.2	10.5	1.91	2.9	50.2	0.80	48.9	61.1	0.553	0.101	0.134	0.24	NonLiqfble.
	31.08	7	12.8	0.22	105	3605	2103	12.2	10.5	2.00	2.9	51.0	0.80	48.9	61.1	0.554	0.101	0.132	0.24	NonLiqfble.
	31.18	7	13.2	0.25	115	3616	2107	12.6	10.8	2.19	2.9	51.6	0.80	50.3	62.9	0.554	0.103	0.134	0.24	NonLiqfble.
	31.27	7 7	13.1 13.6	0.25 0.25	115 115	3626 3637	2112 2116	12.5 12.9	10.7 11.1	2.22 2.12	2.9 2.9	52.0 50.5	0.80	49.9	62.4	0.555 0.555	0.103	0.133 0.137	0.24 0.25	NonLiqfble.
	31.36 31.46	7	15.2	0.23	115	3648	2110	14.4	12.6	2.02	2.8	47.0	0.80	51.7 57.8	64.7 72.2	0.555	0.105 0.115	0.137	0.23	NonLiqfble. NonLiqfble.
	31.55	7	15.3	0.29	115	3658	2126	14.5	12.7	2.15	2.8	47.8	0.80	58.1	72.6	0.556	0.116	0.150	0.27	NonLiqfble.
	31.64	7	16	0.28	115	3669	2131	15.2	13.3	1.98	2.8	45.6	0.80	60.7	75.8	0.556	0.121	0.157	0.28	NonLiqfble.
	31.74	7	16.9	0.24	115	3680	2136	16.0	14.1	1.59	2.7	41.6	0.80	64.0	80.0	0.556	0.128	0.166	0.30	NonLiqfble.
	31.83	7	15.5	0.21	105	3691	2141	14.7	12.7	1.54	2.8	43.2	0.80	58.6	73.3	0.557	0.117	0.152	0.27	NonLiqfble.
	31.93 32.02	7 7	14.9 13.7	0.2 0.21	105 105	3701 3711	2145 2149	14.1 12.9	12.2 11.0	1.53 1.77	2.8 2.8	44.2 48.2	0.80	56.3 51.7	70.4 64.6	0.557 0.557	0.112 0.105	0.146 0.137	0.26 0.25	NonLiqfble. NonLiqfble.
	32.11	7	12.9	0.21	105	3720	2153	12.2	10.3	1.90	2.9	50.8	0.80	48.7	60.8	0.558	0.101	0.131	0.24	NonLiqfble.
	32.21	7	13.1	0.22	105	3730	2157	12.3	10.4	1.96	2.9	50.8	0.80	49.4	61.7	0.558	0.102	0.132	0.24	NonLiqfble.
	32.51	7	15.6	0.24	115	3762	2170	14.7	12.6	1.75	2.8	45.1	0.80	58.6	73.3	0.560	0.117	0.152	0.27	NonLiqfble.
	32.6	7	15.7	0.23	105	3772	2175	14.7	12.7	1.67	2.8	44.3	0.80	58.9	73.6	0.560	0.117	0.152	0.27	NonLiqfble.
	32.65 32.73	7 7	16.1 16.2	0.22 0.21	105 105	3778 3786	2177 2180	15.1 15.2	13.0 13.1	1.55 1.47	2.7 2.7	42.8 42.1	0.80	60.4 60.7	75.5 75.9	0.560 0.561	0.120 0.121	0.156 0.157	0.28 0.28	NonLiqfble. NonLiqfble.
	32.82	7	15.3	0.21	105	3795	2184	14.3	12.3	1.57	2.8	44.3	0.80	57.3	71.6	0.561	0.121	0.137	0.26	NonLiqfble.
	32.92	7	14.6	0.21	105	3806	2188	13.7	11.6	1.65	2.8	46.2	0.80	54.6	68.3	0.562	0.110	0.142	0.25	NonLiqfble.
	33.01	7	13.3	0.2	105	3815	2192	12.4	10.4	1.76	2.9	49.4	0.80	49.7	62.1	0.562	0.102	0.133	0.24	NonLiqfble.
	33.08	7	13.5	0.21	105	3823	2195	12.6	10.6	1.81	2.9	49.4	0.80	50.4	63.0	0.562	0.103	0.134	0.24	NonLiqfble.
	33.13 33.16	7 7	12.4 12.9	0.18 0.17	105 105	3828 3831	2197 2199	11.6 12.0	9.5 10.0	1.72 1.55	2.9	51.0 48.6	0.80	46.3 48.1	57.9 60.2	0.563 0.563	0.098 0.100	0.127 0.130	0.23 0.23	NonLiqfble.
	33.10	7	12.5	0.17	105	3835	2200	11.7	9.6	1.53	2.8	49.2	0.80	46.6	58.3	0.563	0.100	0.130	0.23	NonLiqfble. NonLiqfble.
	33.25	7	12.2	0.16	105	3841	2203	11.4	9.3	1.56	2.9	50.2	0.80	45.5	56.9	0.563	0.097	0.126	0.22	NonLiqfble.
	33.3	7	11.8	0.16	105	3846	2205	11.0	9.0	1.62	2.9	51.7	0.80	44.0	55.0	0.563	0.095	0.124	0.22	NonLiqfble.
	33.36	7	12.9	0.15	105	3852	2207	12.0	9.9	1.37	2.8	47.2	0.80	48.1	60.1	0.564	0.100	0.130	0.23	NonLiqfble.
	33.42	7 7	10.9 11.7	0.14 0.14	95 95	3858	2210	10.1	8.1	1.56	2.9	53.6	0.80	40.6	50.7 54.4	0.564	0.092	0.120	0.21	NonLiqfble.
	33.47 33.51	7	11.7	0.14	95	3863 3867	2211 2213	10.9 10.2	8.8 8.2	1.43 1.43	2.9 2.9	50.4 52.2	0.80	43.5 40.9	51.2	0.564 0.564	0.095 0.092	0.123 0.120	0.22 0.21	NonLiqfble. NonLiqfble.
	33.58	7	11	0.13	95	3874	2215	10.2	8.2	1.43	2.9	52.3	0.80	40.9	51.1	0.565	0.092	0.120	0.21	NonLiqfble.
	33.66	7	10.9	0.12	95	3881	2218	10.1	8.1	1.34	2.9	51.7	0.80	40.5	50.6	0.565	0.092	0.120	0.21	NonLiqfble.
	33.7	7	10.3	0.12	95	3885	2219	9.6	7.5	1.44	2.9	54.3	0.80	38.3	47.8	0.565	0.090	0.117	0.21	NonLiqfble.
	33.77	7	11	0.12	95	3892	2221	10.2	8.1	1.33	2.9	51.4	0.80	40.8	51.1	0.566	0.092	0.120	0.21	NonLiqfble.
	33.84 33.9	7 7	10.4 10.3	0.11 0.11	95 95	3898 3904	2223 2225	9.7 9.6	7.6 7.5	1.30 1.32	2.9 2.9	52.8 53.3	0.80	38.6 38.2	48.3 47.8	0.566 0.566	0.090 0.090	0.118 0.117	0.21 0.21	NonLiqfble. NonLiqfble.
	33.97	7	9.8	0.09	95	3911	2228	9.1	7.0	1.15	2.9	53.1	0.80	36.3	45.4	0.567	0.089	0.115	0.20	NonLiqfble.
	34.06	7	10.1	0.09	95	3919	2231	9.4	7.3	1.11	2.9	51.8	0.80	37.4	46.8	0.567	0.090	0.116	0.21	NonLiqfble.
	34.15	7	10.1	0.09	95	3928	2234	9.4	7.3	1.11	2.9	51.9	0.80	37.4	46.8	0.568	0.090	0.116	0.20	NonLiqfble.
	34.24	7	10.5	0.09	95	3936	2237	9.7	7.6	1.05	2.9	50.2	0.80	38.9	48.6	0.568	0.091	0.118	0.21	NonLiqfble.
	34.3 34.35	7 7	10.5 10.4	0.09 0.1	95 95	3942 3947	2238 2240	9.7 9.6	7.6 7.5	1.06 1.19	2.9 2.9	50.2 51.9	0.80	38.8 38.5	48.6 48.1	0.569 0.569	0.091	0.118 0.117	0.21 0.21	NonLiqfble. NonLiqfble.
	34.4	7	10.7	0.12	95	3951	2242	9.9	7.8	1.38	2.9	52.9	0.80	39.6	49.4	0.569	0.091	0.117	0.21	NonLiqfble.
	34.47	7	11.2	0.13	95	3958	2244	10.3	8.2	1.41	2.9	51.9	0.80	41.4	51.7	0.570	0.093	0.121	0.21	NonLiqfble.
	34.54	7	11.2	0.13	95	3965	2246	10.3	8.2	1.41	2.9	52.0	0.80	41.4	51.7	0.570	0.093	0.121	0.21	NonLiqfble.
	34.63	7	12	0.13	95	3973	2249	11.1	8.9	1.30	2.9	49.0	0.80	44.3	55.4	0.570	0.096	0.125	0.22	NonLiqfble.
	34.71 34.8	7 7	12.9 12.5	0.13 0.14	95 95	3981 3989	2252 2255	11.9 11.5	9.7 9.3	1.19 1.33	2.8 2.8	46.1 48.3	0.80	47.6 46.1	59.5 57.6	0.571 0.571	0.100 0.098	0.129	0.23 0.22	NonLiqfble.
	34.88	7	13.1	0.14	105	3989 3997	2255	12.1	9.3	1.33	2.8	48.3	0.80	46.1 48.3	60.3	0.571	0.098	0.127 0.131	0.22	NonLiqfble. NonLiqfble.
	34.97	7	12.9	0.15	105	4007	2261	11.9	9.6	1.38	2.8	47.9	0.80	47.5	59.3	0.572	0.100	0.131	0.23	NonLiqfble.
	35.05	7	12.9	0.17	105	4015	2265	11.9	9.6	1.56	2.9	49.6	0.80	47.4	59.3	0.573	0.099	0.129	0.23	NonLiqfble.
	35.14	7	15.1	0.18	105	4024	2268	13.9	11.5	1.38	2.8	44.0	0.80	55.5	69.4	0.573	0.111	0.144	0.25	NonLiqfble.
	35.22	7	15	0.19	105	4033	2272	13.8	11.4	1.46	2.8	44.9	0.80	55.1	68.8	0.573	0.110	0.143	0.25	NonLiqfble.
	35.31 35.39	7 7	14.8 15.7	0.21 0.24	105 115	4042 4051	2276 2279	13.6 14.4	11.2 12.0	1.64 1.76	2.8 2.8	46.8 46.2	0.80	54.3 57.6	67.9 71.9	0.574 0.574	0.109 0.115	0.142 0.149	0.25 0.26	NonLiqfble. NonLiqfble.
	35.48	7		0.25	115	4061	2284	13.5	11.1	1.70	2.9	49.5	0.80	53.8	67.3	0.574	0.113	0.149	0.25	NonLiqfble.
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Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 22

Depth to Groundwater: 7 feet

EQ Magnitude (Mw): 6.5 PGA (g): 0.54 MSF: 1.30

Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Stress Stress Stress g (TSF) (TSF) (PCF) (PSF) (PSF) (%) KCPT Dqcin (qcin)cs Ratio M7.5 M6.50 Safety (FT) (FT) **q**c1N 0 Comments Ic 35.72 7 17.3 0.21 105 4089 2296 15.8 13.3 1.38 2.7 41.1 0.80 63.2 79.0 0.575 0.126 0.164 0.28 NonLigfble. 35.8 17.7 0.2 105 4097 2300 16.1 13.6 1.28 2.7 39.7 0.80 64.6 80.7 0.575 0.129 0.168 0.29 NonLiqfble. 35.89 7 15 0.17 105 4106 2304 13.7 11.2 1.31 2.8 44.0 0.80 54.7 68.4 0.576 0.110 0.143 0.25 NonLiqfble. 35.99 13.5 0.17 105 4117 2308 12.3 1.49 2.8 48.3 0.80 49.2 61.5 0.576 0.102 0.132 0.23 NonLiqfble. 36.08 13.7 0.17 105 4126 2312 12.5 10.1 1.46 2.8 47.7 0.80 49.9 62.3 0.576 0.103 0.133 0.23 NonLiqfble. 36.18 12.5 0.15 105 4137 2316 11.4 9.0 1.44 2.9 50.0 0.80 45.5 56.8 0.577 0.097 0.126 0.22 NonLiqfble. 0.22 36.27 0.14 95 4146 2320 9.4 1.28 2.8 47.6 0.80 47.2 59.0 0.577 0.099 0.129 NonLiafble. 13 11.8 36.37 11.9 105 2323 1.53 2.9 0.80 0.578 0.095 0.123 0.21 NonLiafble. 0.15 4156 10.8 8.5 52.3 43.2 54.0 36.46 95 4165 2327 1.49 2.9 53.0 0.80 0.578 NonLiafble. 11.5 0.14 10.4 8.1 41.7 52.2 0.093 0.121 0.21 36.56 7 11.9 0.12 95 4175 2330 10.8 8.4 1.22 2.9 49.6 0.80 43.1 53.9 0.579 0.095 0.1230.21 NonLigfble. 36.65 11.3 0.11 95 4183 2333 10.2 7.9 1.19 2.9 50.9 0.80 40.9 51.2 0.579 0.092 0.120 0.21 NonLigfble 36.75 10.9 0.11 95 4193 2336 9.9 1.25 2.9 52.5 0.80 39.5 49.3 0.579 0.091 0.119 0.20 NonLiqfble. 7.5 36.84 10.6 0.11 95 4201 2339 9.6 7.3 1.29 29 53.8 0.80 38.4 47 9 0.580 0.090 0.117 0.20 NonLiqfble. 36.94 7 10.5 0.12 95 4211 2343 9.5 7.2 1.43 3.0 55.5 0.80 38.0 47.5 0.580 0.090 0.117 0.20 NonLiqfble. 37.03 95 7.3 10.7 0.13 4219 2346 9.7 1.51 3.0 55.7 0.80 38.7 48.3 0.581 0.091 0.118 0.20 NonLiafble 37.13 11.1 0.13 95 4229 2349 10.0 7.6 1.45 2.9 54.0 0.80 40.1 50.1 0.581 0.092 0.119 0.21 NonLiqfble. 0.125 37.22 95 4237 2352 1.36 2.9 0.80 44.8 0.582 12.4 0.14 11.2 8.7 50.0 55.9 0.096 0.22 NonLiafble. 37.32 95 4247 2355 44.0 0.582 12.2 0.14 1.39 2.9 50.8 0.80 55.0 0.095 0.124 0.21 NonLigfble. 11.0 8.6 37.41 12 0.13 95 4256 2358 10.8 8.4 1.32 2.9 50.6 0.80 43.3 54.1 0.583 0.095 0.123 0.21 NonLigfble. 37.5 95 2.9 0.583 11.5 0.12 4264 2361 10.4 7.9 1.28 51.6 0.80 41.4 51.8 0.093 0.121 0.21 NonLigfble. 37.6 11.8 0.12 95 4274 2364 10.6 8.2 1.24 2.9 50.5 0.80 42.5 53.1 0.584 0.094 0.122 0.21 NonLigfble. 37 69 118 0.11 95 4282 2367 10.6 8 2 1 14 29 49 5 0.80 42.4 53.1 0.584 0.094 0.122 0.21 NonLiafble. 37.78 7 10.7 0.1 95 4291 2370 9.6 7.2 1.17 29 52.7 0.80 38.5 48.1 0.585 0.090 0.117 0.20 NonLiqfble. 37.88 11.4 0.1 95 4300 2373 10.2 7.8 1.08 2.9 50.0 0.80 41.0 51.2 0.585 0.092 0.120 0.21 NonLiqfble. 37.97 10.8 0.11 95 4309 2376 9.7 7.3 1.27 2.9 53.6 0.80 38.8 48.5 0.586 0.091 0.118 0.20 NonLiqfble. 38.06 11.2 0.11 95 4317 2379 10.0 7.6 1.22 2.9 52.0 0.80 40.2 50.2 0.586 0.092 0.119 0.20 NonLigfble. 38.16 10.9 0.11 95 4327 2382 9.8 7.3 1.26 2.9 53.3 0.80 39.1 48.9 0.586 0.091 0.118 0.20 NonLiqfble. 38.25 11.9 95 4335 2385 10.7 1.23 2.9 0.80 42.6 53.3 0.587 0.094 0.122 0.12 8.2 50.4 0.21 NonLigfble. 38.34 95 49.8 0.587 0.122 11.8 0.11 4344 2388 10.6 8.1 1.14 2.9 0.80 42.3 52.8 0.094 0.21 NonLigfble. 38.44 95 4353 2392 2.9 50.2 0.80 41.9 52.3 0.588 0.093 0.121 NonLiafble. 11.7 0.11 10.5 8.0 1.16 0.21 38.53 7 95 4362 2394 2.9 51.0 0.80 41.1 51.4 0.588 0.093 0.120 0.20 NonLiafble. 11.5 0.11 10.3 7.8 1.18 0.589 38 71 7 118 0.1 95 4379 2400 10.5 8.0 1 04 2.8 48 9 0.80 42.2 52.7 0.094 0.122 0.21 NonLiafble. 38.8 11 0.1 95 4388 2403 98 7.3 1.14 29 52.0 0.80 393 49 1 0.590 0.091 0.118 0.20 NonLiqfble. 38.9 7 11 0.08 95 4397 2407 9.8 7.3 0.91 2.9 49.5 0.80 39.2 49.1 0.590 0.091 0.118 0.20 NonLiqfble. 38.99 10.4 0.09 95 4406 2409 9.3 6.8 1.10 2.9 53.5 0.80 37.1 46.4 0.590 0.089 0.116 0.20 NonLiqfble. 39.09 95 4415 2.9 51.0 49.0 0.591 NonLiqfble. 11 0.09 2413 9.8 7.3 1.02 0.80 39.2 0.091 0.118 0.20 39.18 11.1 0.1 95 4424 2416 9.9 7.4 1.13 2.9 51.8 0.80 39.5 49.4 0.591 0.091 0.119 0.20 NonLigfble 39.28 12.1 0.11 95 4433 2419 10.8 8.2 1.11 2.9 49.2 0.80 43.1 53.8 0.592 0.094 0.123 0.21 NonLiqfble. 39.37 12.2 0.12 95 4442 2422 10.8 8.2 1.20 2.9 49.9 0.80 43.4 54.2 0.592 0.095 0.123 0.21 NonLiqfble. 39.47 13.6 0.14 95 4451 2425 12.1 1.23 2.8 47.2 0.80 48.3 60.4 0.593 0.131 0.22 NonLiafble. 9.4 0.101 2428 2.8 0.593 39.56 14.2 0.14 95 4460 12.6 9.9 1.17 45.5 0.80 50.4 63.0 0.103 0.134 0.23 NonLiafble. 39.65 7 14.4 0.15 105 4468 2431 12.8 10.0 1.23 2.8 45.8 0.80 51.1 63.9 0.594 0.104 0.136 0.23 NonLiafble. 39.75 7 14.2 0.15 105 4479 2435 12.6 9.8 1.25 2.8 46.4 0.80 50.4 63.0 0.594 0.103 0.134 0.23 NonLiqfble. 39.84 13.7 0.15 105 4488 2439 12.1 9.4 1.31 2.8 47.9 0.80 48.5 60.7 0.594 0.101 0.131 0.22 NonLigfble. 39.94 7 13.5 0.15 105 4499 2443 11.9 9.2 1.33 2.8 48.6 0.80 47.8 59.7 0.595 0.100 0.130 0.22 NonLiqfble. 40.04 13 0.16 105 4509 2448 11.5 8.8 1.49 2.9 51.1 0.80 46.0 57.5 0.550 0.098 0.127 0.23 NonLiqfble. 40.13 7 13.6 105 4519 2451 9.2 1.50 2.9 49 0 0.80 48.1 0.550 0.130 0.24 NonLiqfble. 0.17 12.0 60.1 0.100 105 40.22 14.8 0.17 4528 2455 13.1 10.2 1.36 2.8 46.5 0.80 52.3 65.3 0.550 0.106 0.138 0.25 NonLiqfble. 40.32 15.2 0.21 105 4539 2460 13.4 10.5 1.62 2.8 48.1 0.80 53.6 67.1 0.551 0.108 0.140 0.26 NonLiqfble. 40.41 0.22 105 4548 2463 1.65 2.8 47.7 0.80 55.0 0.551 0.143 0.26 15.6 13.8 10.8 68.8 0.110 NonLiqfble. 40.51 0.22 105 0.551 15.8 4559 2468 13.9 11.0 1.63 2.8 0.80 55.7 69.6 0.145 0.26 NonLigfble. 0.111 40.6 15.5 0.2 105 4568 2471 13.6 10.7 1.51 2.8 46.8 0.80 54.6 68.2 0.551 0.110 0.142 0.26 NonLigfble. 40.7 15.3 0.19 105 4579 2476 13.5 10.5 1.46 2.8 46.7 0.80 53.8 67.3 0.552 0.108 0.141 0.26 NonLigfble. 40.79 7 15 0.2 105 4588 2480 13.2 10.2 1.57 2.8 48.3 0.80 52.7 65.9 0.552 0.107 0.1390.25 NonLiqfble. 15.2 40.88 0.23 105 4597 2483 133 10.4 1 78 29 49 6 0.80 53 4 66.7 0.552 0.108 0.140 0.25 NonLiafble 40.98 7 16.4 0.25 115 4608 2488 144 11.3 1.77 2.8 47.6 0.80 57.5 71.9 0.553 0.115 0.149 0.27 NonLiqfble. 41.07 17.5 0.28 115 4618 2492 15.3 12.2 1.84 2.8 46.5 0.80 61.3 76.7 0.553 0.122 0.159 0.29 NonLiqfble. 41.14 7 0.32 2.8 0.553 NonLiqfble. 18.5 115 4626 2496 16.2 13.0 1.98 46.1 0.80 64.8 81.0 0.129 0.168 0.30 2500 1.97 2.8 41.21 19.6 0.34 115 4634 17.2 13.8 44.7 0.80 68.6 85.8 0.553 0.139 0.180 0.33 NonLigfble 41.26 7 21 0.34 125 4640 2502 18.4 14.9 1.82 2.7 42.2 0.80 73.5 91.8 0.553 0.152 0.198 0.36 NonLiqfble. 41.31 21.8 0.34 125 2506 19.1 1.75 2.7 40.8 0.80 95.3 0.553 0.160 0.209 0.38 4646 15.5 76.2 NonLigfble.

97.0

101.3

77.6

81.0

0.553

0.553

0.214

0.230

0.165

0.177

0.39

0.42

NonLigfble.

NonLiafble.

0.39

0.45

22.2

23.2

125

125 4655

4651

2508

2510

19.4

20.3

1.96

2.16

15.8

16.6

2.7

42.0

42.3

0.80

0.80

41.35

41.38

Date: September 2005

CPT Number: 22

Depth to Groundwater: 7 feet

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard **EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 Project Number: 6600.3.001.01 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	$(q_{c1N})_{cs}$	Ratio	M7.5	M6.50	Safety	Comments
	41.42	7	23.9	0.48	125	4660	2512	20.9	17.2	2.23	2.7	42.1	0.80	83.5	104.3	0.553	0.186	0.241	0.44	NonLiqfble.
	41.46	7	24.2	0.47	125	4665	2515	21.1	17.4	2.15	2.7	41.4	0.80	84.5	105.6	0.553	0.189	0.246	0.44	NonLiqfble.
	41.49	7	24.9	0.45	125	4669	2517	21.7	17.9	1.99	2.7	39.8	0.80	86.9	108.6	0.553	0.199	0.259	0.47	NonLiqfble.
	41.55	7	25.4 26.2	0.44	125 125	4676	2521	22.1	18.3	1.91	2.7	38.9	0.80	88.5	110.7	0.554	0.206	0.268	0.48	NonLiqfble.
	41.61 41.69	7 7	32.1	0.44 0.47	125	4684 4694	2524 2529	22.8 27.9	18.9 23.5	1.84 1.58	2.6 2.5	37.8 32.2	0.80 0.73	91.3 73.9	114.1 101.9	0.554 0.554	0.218 0.178	0.284 0.232	0.51 0.42	NonLiqfble. Liquefaction
	41.78	7	27.1	0.45	125	4705	2535	23.6	19.5	1.82	2.6	37.1	0.80	94.2	117.8	0.554	0.232	0.301	0.54	NonLiqfble.
	41.88	7	25.2	0.42	125	4718	2541	21.9	18.0	1.84	2.7	38.7	0.80	87.5	109.4	0.554	0.202	0.262	0.47	NonLiqfble.
	41.97	7	24.3	0.41	125	4729	2547	21.1	17.2	1.87	2.7	39.7	0.80	84.3	105.3	0.554	0.189	0.245	0.44	NonLiqfble.
	42.07	7	22.9	0.41	125	4741	2553	19.8	16.1	2.00	2.7	41.9	0.80	79.3	99.1	0.554	0.171	0.222	0.40	NonLiqfble.
	42.16	7	22.4	0.42	125	4753	2559	19.4	15.6	2.10	2.7	43.1	0.80	77.5	96.9	0.554	0.165	0.214	0.39	NonLiqfble.
	42.25 42.35	7 7	22.8 23.4	0.43 0.41	125 125	4764 4776	2564 2571	19.7 20.2	15.9 16.3	2.11 1.95	2.7 2.7	42.8 41.3	0.80	78.8 80.8	98.5 101.0	0.554 0.554	0.169 0.176	0.220 0.228	0.40 0.41	NonLiqfble. NonLiqfble.
	42.44	7	23.2	0.41	125	4788	2576	20.2	16.1	1.92	2.7	41.3	0.80	80.0	100.0	0.554	0.173	0.225	0.41	NonLiqfble.
	42.53	7	22.1	0.38	125	4799	2582	19.0	15.3	1.93	2.7	42.5	0.80	76.1	95.2	0.555	0.160	0.208	0.38	NonLiqfble.
	42.61	7	21.4	0.36	125	4809	2587	18.4	14.7	1.90	2.7	43.0	0.80	73.6	92.0	0.555	0.153	0.198	0.36	NonLiqfble.
	42.7	7	21.2	0.35	125	4820	2593	18.2	14.5	1.86	2.7	43.1	0.80	72.9	91.1	0.555	0.150	0.195	0.35	NonLiqfble.
	42.79	7	21	0.36	125	4831	2598	18.0	14.3	1.94	2.8	43.8	0.80	72.1	90.1	0.555	0.148	0.193	0.35	NonLiqfble.
	42.89 42.98	7 7	19.9 21.5	0.35 0.35	125 125	4844 4855	2604 2610	17.1 18.4	13.4 14.6	2.00 1.84	2.8 2.7	45.6 42.7	0.80 0.80	68.2 73.7	85.3 92.1	0.555 0.555	0.138 0.153	0.179 0.198	0.32 0.36	NonLiqfble. NonLiqfble.
	43.08	7	21.5	0.36	125	4868	2616	20.5	16.5	1.67	2.7	39.2	0.80	82.1	102.6	0.555	0.133	0.198	0.30	NonLiqfble.
	43.17	7	25.7	0.37	125	4879	2622	22.0	17.7	1.59	2.6	37.2	0.80	87.8	109.8	0.555	0.203	0.264	0.48	NonLiqfble.
	43.26	7	26.8	0.42	125	4890	2628	22.9	18.5	1.72	2.6	37.4	0.80	91.5	114.4	0.555	0.219	0.285	0.51	NonLiqfble.
	43.36	7	26.1	0.47	125	4903	2634	22.3	17.9	1.99	2.7	39.7	0.80	89.0	111.3	0.555	0.208	0.271	0.49	NonLiqfble.
	43.45	7	27	0.58	125	4914	2639	23.0	18.6	2.36	2.7	41.4	0.80	92.0	115.0	0.555	0.221	0.288	0.52	NonLiqfble.
	43.54 43.64	7 7	34.9 48.7	0.69 0.78	125 125	4925 4938	2645 2651	29.7 41.4	24.5 34.9	2.13	2.6 2.4	35.0 26.8	0.80 0.58	118.8 57.9	148.5 99.3	0.556 0.556	0.384 0.171	0.500 0.222	0.90 0.40	Liquefaction
	43.73	7	62.3	0.78	125	4949	2657	52.9	45.0	1.69 1.35	2.4	21.2	0.38	40.4	93.3	0.556	0.171	0.222	0.40	Liquefaction Liquefaction
	43.82	7	71.3	0.78	125	4960	2663	60.5	51.7	1.13	2.2	18.0	0.35	32.2	92.7	0.556	0.154	0.200	0.36	Liquefaction
	43.91	7	77.1	0.78	125	4971	2668	65.3	55.9	1.05	2.1	16.5	0.31	28.9	94.2	0.556	0.158	0.205	0.37	Liquefaction
	44	7	82.4	0.79	125	4983	2674	69.7	59.7	0.99	2.1	15.3	0.28	26.6	96.3	0.556	0.163	0.212	0.38	Liquefaction
	44.09	7	87	0.78	125	4994	2680	73.5	63.0	0.92	2.0	14.3	0.25	24.2	97.8	0.556	0.167	0.217	0.39	Liquefaction
	44.18 44.27	7 7	84.9 79.5	0.71 0.65	115 115	5005 5016	2685 2690	71.7 67.1	61.3 57.2	0.86 0.84	2.0	14.1 14.7	0.24 0.26	22.9 23.3	94.6 90.3	0.556 0.556	0.159 0.149	0.206 0.193	0.37 0.35	Liquefaction Liquefaction
	44.37	7	68.8	0.5	115	5027	2695	58.0	49.2	0.75	2.1	15.5	0.28	22.6	80.6	0.556	0.149	0.153	0.30	Liquefaction
	44.46	7	53.9	0.42	115	5037	2700	45.4	38.0	0.82	2.2	19.1	0.38	27.4	72.8	0.557	0.116	0.151	0.27	Liquefaction
	44.55	7	39	0.4	115	5048	2705	32.8	27.0	1.10	2.4	26.3	0.57	43.2	76.1	0.557	0.121	0.157	0.28	Liquefaction
	44.64	7	27.1	0.38	125	5058	2709	22.8	18.1	1.55	2.6	36.5	0.80	91.1	113.9	0.557	0.217	0.283	0.51	NonLiqfble.
	44.74	7	20.1	0.37	125	5071	2716	16.9	12.9	2.11	2.8	47.1	0.80	67.5	84.4	0.557	0.136	0.177	0.32	NonLiqfble.
	44.83 44.92	7 7	16.2 14	0.33 0.28	115 115	5082 5092	2721 2726	13.6 11.7	10.0 8.4	2.42 2.44	2.9 3.0	54.8 59.2	0.80	54.4 46.9	67.9 58.7	0.557 0.557	0.109 0.099	0.142 0.128	0.25 0.23	NonLiqfble. NonLiqfble.
	45.01	7	13.3	0.26	115	5103	2731	11.1	7.9	2.42	3.0	60.7	0.80	44.5	55.7	0.557	0.096	0.125	0.23	NonLiqfble.
	45.1	7	11.8	0.24	105	5113	2735	9.9	6.8	2.60	3.1	65.9	0.80	39.5	49.4	0.558	0.091	0.119	0.21	NonLiqfble.
	45.18	7	10.8	0.25	115	5121	2739	9.0	6.0	3.03	3.2	71.8	0.80	36.1	45.1	0.558	0.089	0.115	0.21	NonLiqfble.
	45.22	7	12.1	0.27	115	5126	2741	10.1	7.0	2.83	3.1	66.5	0.80	40.4	50.6	0.558	0.092	0.120	0.21	NonLiqfble.
	45.29 45.38	7 7	12.5 13.1	0.3 0.34	115 115	5134 5144	2745 2749	10.4 10.9	7.2 7.7	3.02 3.23	3.1	66.6 66.3	0.80	41.8 43.7	52.2 54.7	0.558 0.558	0.093 0.095	0.121 0.124	0.22 0.22	NonLiqfble. NonLiqfble.
	45.48	7	15.3	0.34	115	5156	2749	12.8	9.2	2.52	3.0	57.4	0.80	51.0	63.8	0.558	0.104	0.124	0.22	NonLiqfble.
	45.57	7	17.8	0.27	115	5166	2759	14.8	11.0	1.77	2.8	48.2	0.80	59.3	74.1	0.559	0.118	0.153	0.27	NonLiqfble.
	45.66	7	17.3	0.23	115	5176	2764	14.4	10.6	1.56	2.8	47.3	0.80	57.6	72.0	0.559	0.115	0.149	0.27	NonLiqfble.
	45.75	7	15.2	0.21	105	5187	2769	12.6	9.1	1.67	2.9	51.7	0.80	50.6	63.2	0.559	0.103	0.135	0.24	NonLiqfble.
	45.84	7	13.5	0.21	105	5196	2773	11.2	7.9	1.93	3.0	57.3	0.80	44.9	56.1	0.559	0.096	0.125	0.22	NonLiqfble.
	45.93	7	12.5	0.2	105	5206	2777	10.4	7.1	2.02	3.0	60.5	0.80	41.5	51.9	0.559	0.093	0.121	0.22	NonLiqfble.
	46.03 46.12	7 7	11.9 10.9	0.18 0.17	105 105	5216 5226	2781 2785	9.9 9.0	6.7 5.9	1.94 2.05	3.0	61.5 65.5	0.80 0.80	39.5 36.2	49.4 45.2	0.560 0.560	0.091 0.089	0.119 0.115	0.21 0.21	NonLiqfble. NonLiqfble.
	46.21	7	10.6	0.17	105	5235	2788	8.8	5.7	1.88	3.1	65.2	0.80	35.1	43.9	0.560	0.088	0.113	0.20	NonLiqfble.
	46.3	7	10.5	0.15	105	5245	2792	8.7	5.6	1.90	3.1	65.8	0.80	34.8	43.5	0.560	0.088	0.114	0.20	NonLiqfble.
	46.39	7	11.3	0.16	105	5254	2796	9.4	6.2	1.85	3.1	62.8	0.80	37.4	46.8	0.561	0.090	0.116	0.21	NonLiqfble.
	46.49	7	11.2	0.17	105	5265	2800	9.3	6.1	1.98	3.1	64.2	0.80	37.0	46.3	0.561	0.089	0.116	0.21	NonLiqfble.
	46.58	7	11.2	0.18	105	5274	2804	9.3	6.1	2.10	3.1	65.2	0.80	37.0	46.3	0.561	0.089	0.116	0.21	NonLiqfble.
	46.67 46.77	7 7	11 11.3	0.2 0.22	105 105	5283 5294	2808 2812	9.1 9.3	5.9 6.2	2.39 2.54	3.1	68.0 68.1	0.80 0.80	36.3 37.3	45.4 46.6	0.561 0.562	0.089	0.115 0.116	0.21	NonLiqfble. NonLiqfble.
	46.86	7		0.25	115	5303	2816	10.0	6.7	2.65	3.1	66.4	0.80	39.9	49.9	0.562	0.009	0.110	0.21	NonLiqfble.
																				4

Date: September 2005 CPT Number: 22

Depth to Groundwater: 7 feet

	Depth	Water Table	Tip Resist.	Sleeve Frict.	a	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	g (PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)cs		M7.5	M6.50	Safety	Comments
Conc	()	(1 1)	(101)	(101)	(101)	(101)	(101)	-	¥			(,0)		-	(1 )	14410	1,2,10	1120120	surcej	Comments
	40 OF	7	10.0	0.00	115	5214	2021	10.5	7.0	2.56	2.1	(4.0	0.90	42.2	50.7	0.562	0.004	0.122	0.22	NI I : - 0-1-
	46.95 47.05	7 7	12.8 13.2	0.26 0.26	115 115	5314 5325	2821 2826	10.5 10.9	7.2 7.5	2.56 2.47	3.1	64.0 62.4	0.80 0.80	42.2 43.5	52.7 54.3	0.562 0.562	0.094 0.095	0.122 0.123	0.22 0.22	NonLiqfble. NonLiqfble.
	47.14	7	13.2		115	5336	2831	10.9	7.4	2.75	3.1	64.3	0.80	43.4	54.3	0.562	0.095	0.123	0.22	NonLiqfble.
	47.23	7	13.7	0.29	115	5346	2836	11.3	7.8	2.63	3.1	62.4	0.80	45.0	56.3	0.562	0.097	0.126	0.22	NonLiqfble.
	47.33	7	13.8	0.26	115	5357	2841	11.3	7.8	2.34	3.0	60.3	0.80	45.3	56.6	0.563	0.097	0.126	0.22	NonLiqfble.
	47.42 47.51	7 7	13.2 12.5	0.23 0.21	105 105	5368 5377	2846 2849	10.8 10.2	7.4 6.9	2.19 2.14	3.0	60.8 62.3	0.80 0.80	43.3 41.0	54.1 51.2	0.563 0.563	0.095	0.123 0.120	0.22 0.21	NonLiqfble.
	47.51	7	12.3	0.21	105	5387	2853	10.2	6.7	2.14	3.1	63.9	0.80	40.3	50.4	0.563	0.093	0.120	0.21	NonLiqfble. NonLiqfble.
	47.7	7	13	0.23	105	5397	2858	10.6	7.2	2.23	3.0	61.7	0.80	42.6	53.2	0.564	0.094	0.122	0.22	NonLiqfble.
	47.79	7	14.3	0.23	105	5407	2861	11.7	8.1	1.98	3.0	57.0	0.80	46.8	58.5	0.564	0.099	0.128	0.23	NonLiqfble.
	47.88	7	14.3	0.22	105	5416	2865	11.7	8.1	1.90	3.0	56.4	0.80	46.8	58.4	0.564	0.099	0.128	0.23	NonLiqfble.
	47.97 48.07	7 7	13.7 13.1	0.22	105 115	5426 5436	2869 2873	11.2 10.7	7.7 7.2	2.00 3.08	3.0	58.5 67.0	0.80 0.80	44.8 42.8	56.0 53.5	0.564 0.564	0.096 0.094	0.125 0.122	0.22 0.22	NonLiqfble. NonLiqfble.
	48.16	7	13.1	0.53	125	5446	2878	10.7	7.2	5.11	3.2	76.7	0.80	42.7	53.4	0.565	0.094	0.122	0.22	NonLiqfble.
	48.25	7	34.6	0.97	135	5458	2884	28.2	22.1	3.04	2.7	41.7	0.80	112.8	141.0	0.565	0.340	0.443	0.78	NonLiqfble.
	48.34	7	50.3	1.21	135	5470	2890	40.9	32.9	2.54	2.5	32.5	0.74	113.7	154.7	0.565	0.424	0.551	0.98	Liquefaction
	48.43	7	99.6		135	5482	2897	81.0	66.8	1.53	2.2	17.8	0.34	41.9	122.8	0.565	0.252	0.328	0.58	Liquefaction
	48.52 48.61	7 7	111.9 101.1	1.67 2.11	135 135	5494 5506	2903 2910	90.9 82.0	75.2 67.6	1.53 2.15	2.1	16.6 21.0	0.31 0.43	40.6 61.1	131.4 143.1	0.565 0.565	0.291 0.353	0.379 0.458	0.67 0.81	Liquefaction Liquefaction
	48.7	7	87.5	2.1	135	5518	2916	70.9	58.1	2.48	2.3	24.4	0.52	75.9	146.8	0.565	0.374	0.486	0.86	Liquefaction
	48.75	7	98.4	2.1	135	5525	2920	79.7	65.5	2.20	2.3	21.6	0.44	63.4	143.1	0.565	0.352	0.458	0.81	Liquefaction
	48.82	7	100.9	2.1	135	5535	2925	81.6	67.1	2.14	2.3	21.0	0.43	61.2	142.8	0.565	0.351	0.456	0.81	Liquefaction
	48.91	7	104	2.04	135	5547	2932	84.0	69.0	2.02	2.2	20.1	0.40	56.8	140.8	0.565	0.340	0.442	0.78	Liquefaction
	49 49.1	7 7	105.9 100.6	2.07 2.05	135 135	5559 5572	2938 2945	85.5 81.1	70.2 66.4	2.01 2.10	2.2	19.9 20.9	0.40 0.43	56.3 60.1	141.8 141.2	0.564 0.564	0.345 0.342	0.449 0.444	0.80 0.79	Liquefaction Liquefaction
	49.19	7	83.1	2.09	135	5585	2952	66.9	54.4	2.60	2.4	25.8	0.55	83.2	150.1	0.564	0.395	0.513	0.91	Liquefaction
	49.28	7	75.4	2.13	135	5597	2958	60.7	49.1	2.93	2.5	28.6	0.63	103.2	163.9	0.564	0.489	0.636	1.13	Low F.S.
	49.37	7	90.5	2.14	135	5609	2965	72.7	59.1	2.44	2.3	24.0	0.51	74.6	147.3	0.564	0.377	0.491	0.87	Liquefaction
	49.46	7	134.7 159.7	2.24 2.25	135	5621	2971	108.1	88.7	1.70	2.1	15.9	0.29	44.2	152.3	0.564	0.409	0.531	0.94	Liquefaction
	49.55 49.63	7	183.1	2.25	135 125	5633 5644	2978 2984	128.0 146.7	105.3 120.8	1.43 1.16	2.0 1.9	12.9 10.2	0.21 0.14	34.1 23.5	162.2 170.2	0.564 0.564	0.477 0.538	0.620 0.700	1.10 1.24	Low F.S.
	49.72	7	216.2		125	5655	2989	173.0	142.7	0.90	1.8	7.4	0.06	11.8	184.8	0.564	0.667	0.867	1.54	
	49.81	7	251.6	1.65	115	5666	2995	201.2	166.0	0.66	1.6	4.8	0.00	0.0	201.2	0.564	0.837	1.088	1.93	
	49.89	7	286.7	1.52	115	5676	2999	229.1	189.2	0.54	1.5	3.2	0.00	0.0	229.1	0.565	1.198	1.557	2.76	
	49.98 50.04	7 7	317.7 332.2	1.43 1.4	105 105	5686 5692	3004 3007	253.6 265.1	209.5 219.0	0.45 0.43	1.4 1.4	2.1	0.00	0.0	253.6 265.1	0.565 0.498	1.597 1.812	2.076 2.356	3.68 4.73	
	50.04	7	345.6	1.36	105	5696	3007	275.7	227.8	0.40	1.4	1.3	0.00	0.0	275.7	0.498	2.029	2.637	5.29	
	50.12	7	359.3	1.29	105	5701	3010	286.5	236.7	0.36	1.3	0.9	0.00	0.0	286.5	0.499	2.268	2.948	5.91	
	50.17	7	378.5	1.33	105	5706	3012	301.7	249.3	0.35	1.3	0.6	0.00	0.0	301.7	0.499	2.635	3.426	6.87	
	50.22	7	370.7	1.43	105	5711	3014	295.4	244.0	0.39	1.4	1.0	0.00	0.0	295.4	0.499	2.478	3.221	6.46	
	50.27 50.34	7 7	363.2 351.7	1.57 1.71	105 105	5716 5724	3016 3019	289.3 280.0	238.8 231.0	0.44 0.49	1.4 1.4	1.4 1.9	0.00	0.0	289.3 280.0	0.499 0.499	2.333 2.123	3.033 2.759	6.08 5.53	
	50.42	7	332.3	1.92	115	5732	3023	264.4	217.9	0.58	1.5	2.8	0.00	0.0	264.4	0.499	1.800	2.340	4.69	
	50.51	7	277.8	2.38	125	5743	3028	220.9	181.5	0.87	1.7	5.7	0.02	4.0	224.9	0.499	1.137	1.478	2.96	
	50.6	7	210.4	2.61	135	5754	3033	167.2	136.8	1.26	1.9	9.8	0.13	24.8	191.9	0.499	0.737	0.958	1.92	
	50.68	7	170.6	2.35 2.08	135 125	5765	3039 3045	135.4 149.0	110.3	1.40	2.0 1.9	12.3	0.20	32.8 22.5	168.2	0.499	0.523 0.549	0.680	1.36	
	50.76 50.84	7	187.9 257.9	1.93	115	5775 5785	3050	204.3	121.5 167.2	1.12 0.76	1.7	9.9 5.4	0.13	2.3	171.5 206.7	0.499 0.499	0.549	0.714 1.171	1.43 2.35	
	50.93	7	314.3	1.91		5796	3055	248.8	203.8	0.61	1.5	3.4	0.00	0.0	248.8	0.499	1.513	1.966	3.94	
	51	7	328.7	1.95	115	5804	3058	260.1	213.0	0.60	1.5	3.1	0.00	0.0	260.1	0.500	1.716	2.231	4.46	
	51.08	7	339.8		115	5813	3062	268.7	219.9	0.57	1.5	2.7	0.00	0.0	268.7	0.500	1.883	2.449	4.90	
	51.16 51.23	7 7	337.8 333.5		115 115	5822 5830	3067 3070	266.9 263.3	218.3 215.3	0.56 0.55	1.5 1.5	2.7 2.7	0.00	0.0	266.9 263.3	0.500 0.500	1.848 1.778	2.403 2.312	4.81 4.62	
	51.23	7	332.4		105	5839	3075	262.3	214.2	0.33	1.5	2.7	0.00	0.0	262.3	0.500	1.778	2.286	4.62	
	51.39	7	332.7		105	5848	3078	262.4	214.2	0.44	1.4	1.9	0.00	0.0	262.4	0.500	1.760	2.288	4.57	
	51.46	7	344.1	1.5	105	5855	3081	271.2	221.4	0.44	1.4	1.7	0.00	0.0	271.2	0.500	1.936	2.517	5.03	
	51.53	7	339.5		105	5863	3084	267.5	218.2	0.43	1.4	1.8	0.00	0.0	267.5	0.500	1.860	2.418	4.83	
	51.61 51.68	7 7	323.8 314.9		105 105	5871 5878	3087 3090	255.0 247.9	207.8 201.8	0.47 0.45	1.5 1.5	2.2 2.2	0.00	0.0	255.0 247.9	0.501 0.501	1.622 1.496	2.108 1.945	4.21 3.88	
	51.76	7	293.8		105	5887	3094	231.1	188.0	0.43	1.5	2.5	0.00	0.0	231.1	0.501	1.228	1.597	3.19	
	51.84	7	284.3	1.26	105	5895	3097	223.5	181.6	0.45	1.5	2.7	0.00	0.0	223.5	0.501	1.119	1.454	2.90	
	51.91	7	266.7	1.1	105	5902	3100	209.6	170.1	0.42	1.5	2.8	0.00	0.0	209.6	0.501	0.936	1.217	2.43	
	51.99	7	257.8	0.96	105	5911	3103	202.5	164.2	0.38	1.5	2.6	0.00	0.0	202.5	0.501	0.852	1.108	2.21	

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Depth to Groundwater: 7 feet

nance and Storage Yard  $\begin{array}{ccc} \textbf{EQ Magnitude } (\textbf{M}_w) \text{:} & 6.5 \\ \textbf{PGA } (\textbf{g}) \text{:} & 0.54 \\ \textbf{MSF:} & 1.30 \\ \end{array}$ 

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth		Resist.	Frict.	g	Stress		Tip	Tip	Ratio		F.C.					Stress	-	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	DqcIN	(qclN)cs	Ratio	M7.5	M6.50	Safety	Comments
	F0.00	_	055.0	0.07	0.5	5010	2106	200.2	162.2	0.04			0.00	0.0	200.2	0.500	0.000	1.076	2.15	
	52.06 52.14	7 7	255.2 244.3	0.87 0.74	95 95	5918 5926	3106 3109	200.3 191.7	162.3 155.2	0.34 0.31	1.5	2.4 2.3	0.00	0.0	200.3 191.7	0.502 0.502	0.828 0.735	1.076 0.956	2.15 1.90	
	52.14	7		0.74	95	5932	3111	183.5	148.4	0.31	1.5 1.5	2.2	0.00	0.0	183.5	0.502	0.755	0.950	1.69	
	52.29	7	225	0.65	95	5940	3114	176.4	142.5	0.29	1.5	2.6	0.00	0.0	176.4	0.502	0.591	0.768	1.53	
	52.36	7	213.7	0.73	95	5947	3116	167.5	135.2	0.35	1.5	3.4	0.00	0.0	167.5	0.502	0.517	0.672	1.34	
	52.43	7	224.8	0.71	95	5953	3119	176.1	142.2	0.32	1.5	2.9	0.00	0.0	176.1	0.503	0.588	0.765	1.52	
	52.5	7	243.8	0.89	105	5960	3121	190.9	154.3	0.37	1.5	2.9	0.00	0.0	190.9	0.503	0.727	0.946	1.88	
	52.58	7	262.7	1.15	105	5968	3124	205.6	166.2	0.44	1.5	3.1	0.00	0.0	205.6	0.503	0.889	1.155	2.30	
	52.65	7 7		1.37	105	5976	3127	211.6	171.0	0.51	1.5	3.5	0.00	0.0	211.6	0.503	0.961	1.249	2.48	
	52.72 52.8	7	277.3 303.2	1.47 1.49	115 105	5983 5992	3130 3134	216.9 237.0	175.2 191.5	0.54 0.50	1.6 1.5	3.6 2.8	0.00	0.0	216.9 237.0	0.503 0.503	1.028 1.317	1.337 1.713	2.66 3.40	
	52.87	7	349	1.53	105	6000	3137	272.6	220.5	0.44	1.4	1.8	0.00	0.0	272.6	0.503	1.964	2.554	5.07	
	52.93	7	396.6	1.76	105	6006	3140	309.7	250.6	0.45	1.4	1.3	0.00	0.0	309.7	0.504	2.842	3.695	7.34	
	52.98	7	438.1	1.94	105	6011	3142	342.0	276.8	0.45	1.3	0.9	0.00	0.0	342.0	0.504	3.799	4.939	9.81	
	53.03	7	458.2	2.09	105	6016	3144	357.5	289.4	0.46	1.3	0.8	0.00	0.0	357.5	0.504	4.330	5.630	11.18	
	53.09	7	275.1	2.04	115	6023	3147	214.6	172.9	0.75	1.6	5.2	0.00	1.1	215.6	0.504	1.012	1.316	2.61	
	53.14	7 7	486.1	2.16 2	105 105	6028	3149	379.0 402.0	306.7 325.2	0.45	1.3	0.5 0.0	0.00	0.0	379.0 402.0	0.504	5.143	6.685	13.27	
	53.2 53.24	7	515.8 513.8	2.25	105	6035 6039	3152 3154	402.0	323.8	0.39 0.44	1.3	0.0	0.00	0.0	402.0	0.504 0.504	6.121 6.046	7.957 7.860	15.79 15.59	
	53.28	7	511	2.45	105	6043	3155	398.0	321.8	0.48	1.3	0.6	0.00	0.0	398.0	0.504	5.944	7.728	15.33	
	53.32	7		2.42	105	6047	3157	402.9	325.7	0.47	1.3	0.5	0.00	0.0	402.9	0.504	6.163	8.011	15.89	
	53.35	7	525.4	2.33	105	6051	3158	409.1	330.7	0.45	1.3	0.3	0.00	0.0	409.1	0.504	6.445	8.379	16.61	
	53.4	7	539	2.18	105	6056	3160	419.5	339.0	0.41	1.3	-0.1	0.00	0.0	419.5	0.504	6.946	9.029	17.90	
	53.43	7	545.1	2.11	105	6059	3162	424.2	342.8	0.39	1.2	-0.2	0.00	0.0	424.2	0.504	7.177	9.330	18.49	
	53.5	7	570 578.4	2.06 2.14	105	6066	3165	443.3	358.2	0.36	1.2	-0.5	0.00	0.0	443.3	0.505	8.183	10.638	21.08	
	53.54 53.59	7	591.2	2.14	105 105	6070 6076	3166 3169	449.7 459.5	363.3 371.1	0.37 0.40	1.2 1.2	-0.5 -0.4	0.00	0.0	449.7 459.5	0.505 0.505	8.540 9.105	11.102 11.837	22.00 23.45	
	53.63	7	595.5	2.56	105	6080	3170	462.8	373.6	0.43	1.2	-0.4	0.00	0.0	462.8	0.505	9.296	12.085	23.94	
	53.71	7		2.79	105	6088	3174	485.0	391.5	0.45	1.2	-0.2	0.00	0.0	485.0	0.505		13.899	27.52	
	53.75	7	544	3.14	115	6093	3175	422.4	340.6	0.58	1.4	1.0	0.00	0.0	422.4	0.505	7.089	9.215	18.24	
	53.79	7	644.5	2.83	105	6097	3177	500.3	403.6	0.44	1.2	-0.3	0.00	0.0	500.3	0.505		15.240	30.17	
	53.82	7	476.6	2.64	115	6100	3179	369.9	297.8	0.56	1.4	1.4	0.00	0.0	369.9	0.505	4.786	6.221	12.31	
	53.86 53.89	7 7	639.9 644.3	2.71 2.76	105 105	6105 6108	3181 3182	496.4 499.7	400.3 402.9	0.43 0.43	1.2 1.2	-0.4 -0.4	0.00	0.0	496.4 499.7	0.505 0.505	11.458 11.687	14.895 15.193	29.48 30.07	
	53.92	7	648.6	2.76	105	6111	3183	503.0	405.4	0.43	1.2	-0.4	0.00	0.0	503.0	0.505	11.914		30.65	
	53.96	7	647.3	2.57	105	6115	3185	501.8	404.4	0.40	1.2	-0.6	0.00	0.0	501.8	0.505	11.833		30.44	
	53.99	7	630.6	2.38	105	6119	3186	488.8	393.7	0.38	1.2	-0.7	0.00	0.0	488.8	0.505	10.940		28.14	
	54.02	7	621.1	2.54	105	6122	3188	481.3	387.6	0.41	1.2	-0.4	0.00	0.0	481.3	0.506	10.451	13.586	26.87	
	54.06	7	617.4	2.39	105	6126	3189	478.3	385.1	0.39	1.2	-0.5	0.00	0.0	478.3	0.506	10.258	13.336	26.37	
	54.09	7	611.6	2.21	105	6129	3191	473.7	381.3	0.36	1.2	-0.7	0.00	0.0	473.7	0.506	9.968	12.959	25.63	
	54.14 54.17	7	573.6 551.3	2.44 2.51	105 105	6134 6137	3193 3194	444.2 426.8	357.2 343.1	0.43 0.46	1.3	-0.1 0.2	0.00	0.0	444.2 426.8	0.506 0.506	8.229 7.311	10.698 9.504	21.15 18.79	
	54.17	7		2.3	105	6142	3194	408.3	328.1	0.44	1.3	0.3	0.00	0.0	408.3	0.506	6.409	8.332	16.47	
	54.24	7	521.2	1.78	105	6145	3197	403.3	324.0	0.34	1.2	-0.3	0.00	0.0	403.3	0.506	6.181	8.036	15.88	
	54.27	7	503.4	1.65	95	6148	3198	389.5	312.7	0.33	1.2	-0.3	0.00	0.0	389.5	0.506	5.574	7.246	14.32	
	54.31	7	489.7	1.13	95	6152	3200	378.8	304.0	0.23	1.1	-1.0	0.00	0.0	378.8	0.506	5.134	6.675	13.19	
	54.35	7	469.7	1.17	95	6156	3201	363.2	291.4	0.25	1.2	-0.7	0.00	0.0	363.2	0.506	4.537	5.899	11.65	
	54.39 54.45	7 7	457 424.5	1.32 1.52	95 105	6159 6165	3202 3204	353.4 328.1	283.4 262.9	0.29 0.36	1.2	-0.3 0.5	0.00	0.0	353.4 328.1	0.506 0.507	4.183 3.365	5.438 4.375	10.74 8.64	
	54.51	7	403.7	1.49	105	6171	3207	311.9	249.8	0.30	1.3	0.7	0.00	0.0	311.9	0.507	2.902	3.773	7.45	
	54.54	7	393.4	1.55	105	6174	3208	303.9	243.2	0.40	1.4	1.0	0.00	0.0	303.9	0.507	2.690	3.497	6.90	
	54.58	7	368.6	1.67	105	6179	3210	284.7	227.7	0.46	1.4	1.8	0.00	0.0	284.7	0.507	2.225	2.893	5.71	
	54.65	7		1.75	105	6186	3213	279.5	223.4	0.49	1.4	2.1	0.00	0.0	279.5	0.507	2.111	2.744	5.41	
	54.73	7		1.54	105	6194	3216	283.2	226.3	0.42	1.4	1.5	0.00	0.0	283.2	0.507	2.193	2.851	5.62	
	54.8	7	359.3	1.56	105	6202	3219	277.1	221.2	0.44	1.4	1.7	0.00	0.0	277.1	0.507	2.058	2.676	5.28	
	54.88 54.95	7	349.9 338.9	1.47 1.26	105 105	6210 6218	3222 3225	269.7 261.1	215.1 208.1	0.42 0.38	1.4 1.4	1.7 1.5	0.00	0.0	269.7 261.1	0.507 0.507	1.904 1.735	2.475 2.256	4.88 4.45	
	55.03	7	343.4	1.08	95	6226	3229	264.4	210.7	0.38	1.4	29.4	0.65	494.3	758.7	0.507	40.694		104.22	
	55.1	7		1.5	105	6233	3231	267.4	213.0	0.44	1.4	29.4	0.65	499.9	767.3	0.508	42.085		107.74	
	55.18	7	332.9	1.21	105	6241	3235	256.1	203.8	0.37	1.4	29.4	0.65	478.7	734.8	0.508	36.983		94.65	
	55.25	7	320.3	1.13	105	6248	3238	246.3	195.9	0.36	1.4	29.4	0.65	460.4	706.7	0.508	32.904		84.19	
	55.32	7		1.04	105	6256	3241	222.4	176.5	0.36	1.5	29.4	0.65	415.7	638.0	0.508	24.233		61.99	
	55.39	7	264	1.02	105	6263	3244	202.8	160.8	0.39	1.5	29.4	0.65	379.1	581.9	0.508	18.409	23.932	47.08	

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 22

Depth to Groundwater: 7 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio	_	F.C.	V	Da	(0 )	Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	55.46	7	233.9	1.03	105	6270	3246	179.6	142.1	0.45	1.6	29.4	0.65	335.7	515.4	0.508	12.810	16.653	32.75	
	55.54	7	183.1	1.13	115	6279	3250	140.5	110.7	0.63	1.8	29.4	0.65	262.7	403.2	0.509	6.177	8.030	15.79	
	55.62 55.7	7 7	133.1 84	1.54 1.7	125 135	6288 6298	3254 3259	102.1 64.4	79.8 49.6	1.19 2.10	2.0 2.4	29.4 29.4	0.65 0.65	190.8 120.3	292.9 184.7	0.509 0.509	2.417 0.666	3.143 0.866	6.18 1.70	
	55.77	7	61.5	1.66	135	6307	3264	47.1	35.7	2.85	2.5	29.4	0.65	88.0	135.1	0.509	0.310	0.402	0.79	Liquefaction
	55.85	7	42.8	1.48	135	6318	3270	32.7	24.2	3.73	2.7	29.4	0.65	61.2	94.0	0.509	0.157	0.204	0.40	NonLiqfble.
	55.93	7	26.2	1.28	135	6329	3276	20.0	14.1	5.56	3.0	29.4	0.65	37.4	57.5	0.509	0.098	0.127	0.25	NonLiqfble.
	56	7	21.4	1.03	135	6338	3281	16.3	11.1	5.65	3.1	29.4	0.65	30.6	46.9	0.509	0.090	0.116	0.23	NonLiqfble.
	56.08	7	21.4	0.64	125	6349	3287	16.3	11.1	3.51	3.0	29.4	0.65	30.5	46.9	0.509	0.090	0.116	0.23	NonLiqfble.
	56.16	7	21.3	0.42	125	6359	3292	16.2	11.0	2.32	2.9	29.4	0.65	30.4	46.6	0.509	0.089	0.116	0.23	NonLiqfble.
	56.23	7	22.4	0.35	125	6368	3296	17.1	11.7	1.82	2.8	29.4	0.65	31.9	49.0	0.509	0.091	0.118	0.23	NonLiqfble.
	56.31	7	22.2 20.8	0.32	115	6378	3301	16.9	11.5	1.68	2.8	29.4	0.65	31.6	48.5	0.509	0.091	0.118	0.23	NonLiqfble.
	56.39 56.47	7	19.8	0.32 0.33	115 115	6387 6396	3305 3310	15.8 15.1	10.6 10.0	1.82 1.99	2.9 2.9	29.4 29.4	0.65 0.65	29.6 28.1	45.4 43.2	0.509 0.509	0.089 0.088	0.115 0.114	0.23 0.22	NonLiqfble. NonLiqfble.
	56.55	7	18.8	0.38	125	6406	3314	14.3	9.4	2.44	3.0	29.4	0.65	26.7	41.0	0.509	0.086	0.114	0.22	NonLiqfble.
	56.64	7	18.8	0.47	125	6417	3319	14.3	9.4	3.01	3.0	59.9	0.80	57.1	71.4	0.509	0.114	0.112	0.22	NonLiqfble.
	56.72	7	18.1	0.55	125	6427	3324	13.7	9.0	3.69	3.1	64.6	0.80	54.9	68.7	0.509	0.110	0.143	0.28	NonLiqfble.
	56.81	7	18.3	0.55	125	6438	3330	13.9	9.1	3.65	3.1	64.1	0.80	55.5	69.4	0.509	0.111	0.144	0.28	NonLiqfble.
	56.89	7	19	0.56	125	6448	3335	14.4	9.5	3.55	3.1	62.5	0.80	57.6	72.0	0.509	0.115	0.149	0.29	NonLiqfble.
	56.98	7	18.2	0.4	125	6459	3341	13.8	9.0	2.67	3.0	59.1	0.80	55.1	68.9	0.509	0.110	0.144	0.28	NonLiqfble.
	57.07	7	18.9	0.46	125	6471	3346	14.3	9.4	2.94	3.0	59.5	0.80	57.2	71.5	0.509	0.114	0.148	0.29	NonLiqfble.
	57.16	7	20.1	0.54	125	6482	3352	15.2	10.1	3.20	3.0	59.2	0.80	60.8	76.0	0.509	0.121	0.157	0.31	NonLiqfble.
	57.25	7	21.7	0.64	125	6493	3358	16.4	11.0	3.47	3.0	58.5	0.80	65.5	81.9	0.509	0.131	0.170	0.33	NonLiqfble.
	57.31	7 7	22.2 22.7	0.78 0.96	125 135	6501	3361 3365	16.8 17.1	11.3 11.6	4.12 4.94	3.0	60.9 63.7	0.80	67.0 68.5	83.8 85.6	0.509 0.509	0.135 0.138	0.175 0.180	0.34 0.35	NonLiqfble.
	57.37 57.47	7	30.5	0.96	135	6508 6522	3372	23.0	16.1	3.67	2.9	50.8	0.80	91.9	85.6 114.9	0.509	0.138	0.180	0.56	NonLiqfble. NonLiqfble.
	57.56	7	34	1.05	135	6534	3379	25.6	18.2	3.42	2.8	47.2	0.80	102.4	128.0	0.509	0.275	0.357	0.70	NonLiqfble.
	57.65	7	34.8	1.23	135	6546	3385	26.2	18.6	3.90	2.8	48.9	0.80	104.7	130.8	0.509	0.288	0.375	0.74	NonLiqfble.
	57.75	7	32.9	1.28	135	6559	3393	24.7	17.5	4.32	2.9	52.0	0.80	98.9	123.6	0.509	0.255	0.332	0.65	NonLiqfble.
	57.84	7	35	1.06	135	6572	3399	26.3	18.7	3.34	2.8	46.4	0.80	105.1	131.3	0.509	0.291	0.378	0.74	NonLiqfble.
	57.93	7	38.7	0.81	135	6584	3406	29.0	20.8	2.29	2.7	38.9	0.80	116.1	145.1	0.509	0.364	0.473	0.93	NonLiqfble.
	58.02	7	37.1	0.78	135	6596	3412	27.8	19.8	2.31	2.7	39.9	0.80	111.2	138.9	0.509	0.329	0.428	0.84	NonLiqfble.
	58.12	7	30.3	0.85	135	6609	3420	22.7	15.8	3.15	2.8	48.8	0.80	90.7	113.4	0.509	0.215	0.280	0.55	NonLiqfble.
	58.21 58.3	7 7	26.6 27.6	1.07 1.08	135 135	6622 6634	3426 3433	19.9 20.6	13.6 14.1	4.59 4.45	3.0	58.5 57.0	0.80	79.5 82.4	99.4 103.1	0.509 0.509	0.171 0.182	0.223 0.236	0.44 0.46	NonLiqfble.
	58.4	7	32.9	0.91	135	6647	3440	24.5	17.2	3.08	2.8	46.7	0.80	98.2	122.7	0.509	0.162	0.230	0.40	NonLiqfble. NonLiqfble.
	58.49	7	34	0.93	135	6659	3446	25.3	17.8	3.03	2.8	45.8	0.80	101.4	126.7	0.509	0.252	0.350	0.69	NonLiqfble.
	58.59	7	30.2	0.89	135	6673	3454	22.5	15.5	3.31	2.9	50.0	0.80	89.9	112.4	0.509	0.212	0.276	0.54	NonLiqfble.
	58.68	7	27.3	0.88	135	6685	3460	20.3	13.8	3.67	2.9	54.2	0.80	81.2	101.5	0.509	0.177	0.231	0.45	NonLiqfble.
	58.77	7	25.6	0.9	135	6697	3467	19.0	12.8	4.04	3.0	57.5	0.80	76.1	95.1	0.509	0.160	0.208	0.41	NonLiqfble.
	58.87	7	25.6	0.95	135	6711	3474	19.0	12.8	4.27	3.0	58.6	0.80	76.0	95.0	0.509	0.160	0.208	0.41	NonLiqfble.
	58.96	7	27.1	0.96	135	6723	3480	20.1	13.6	4.04	3.0	56.2	0.80	80.4	100.5	0.508	0.174	0.227	0.45	NonLiqfble.
	59.05	7	27.9	0.98	135	6735	3487	20.7	14.1	3.99	3.0	55.3	0.80	82.7	103.4	0.508	0.183	0.238	0.47	NonLiqfble.
	59.15	7 7	27.6 27.2	0.98	135	6748	3494	20.4	13.9	4.05	3.0	55.8	0.80	81.7	102.1	0.508	0.179	0.233	0.46	NonLiqfble.
	59.24 59.33	7	26.4	0.91 0.9	135 135	6761 6773	3501 3507	20.1 19.5	13.6 13.1	3.82 3.91	3.0	55.2 56.4	0.80	80.5 78.0	100.6 97.5	0.508 0.508	0.175 0.166	0.227 0.216	0.45 0.43	NonLiqfble. NonLiqfble.
	59.42	7	27.1	0.91	135	6785	3514	20.0	13.1	3.84	3.0	55.5	0.80	80.0	100.0	0.508	0.100	0.216	0.43	NonLiqfble.
	59.51	7	27.5	0.91	135	6797	3520	20.3	13.7	3.78	2.9	54.9	0.80	81.1	101.4	0.508	0.177	0.230	0.45	NonLiqfble.
	59.6	7	28.2	0.98	135	6809	3527	20.8	14.1	3.95	2.9	55.1	0.80	83.1	103.9	0.508	0.184	0.240	0.47	NonLiqfble.
	59.7	7	29.6	1.03	135	6823	3534	21.8	14.8	3.93	2.9	53.8	0.80	87.1	108.9	0.508	0.200	0.260	0.51	NonLiqfble.
	59.79	7	29.1	0.96	135	6835	3541	21.4	14.5	3.74	2.9	53.4	0.80	85.6	107.0	0.508	0.194	0.252	0.50	NonLiqfble.
	59.88	7	27.9	0.92	135	6847	3547	20.5	13.8	3.76	2.9	54.6	0.80	82.0	102.5	0.508	0.180	0.234	0.46	NonLiqfble.
	59.97	7	26.2	0.85	135	6859	3554	19.2	12.8	3.73	3.0	56.2	0.80	76.9	96.1	0.508	0.163	0.211	0.42	NonLiqfble.
	60.06	7	25.2	0.76	135	6871	3560	18.5	12.2	3.49	3.0	56.1	0.80	73.9	92.4	0.447	0.153	0.199	0.45	NonLiqfble.

Date: September 2005 CPT Number: 23

Depth to Groundwater: 11 feet

**EQ Magnitude (M<sub>w</sub>):** 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	$(q_{c1N})_{cs}$	Ratio	M7.5	M6.50	Safety	Comments
	0.57	11	106.9	1.03	125	71	71	204.7	2998.4	0.96	1.2	-0.5	0.00	0.0	204.7	0.351	0.878	1.142	3.25	Above W.T.
	0.66	11	107.5	1.27	125	83	83	205.9	2604.0	1.18	1.3	0.3	0.00	0.0	205.9	0.351	0.892	1.159	3.30	Above W.T.
	0.75	11	124.5	1.64	135	94	94	238.4	2653.9	1.32	1.3	0.8	0.00	0.0	238.4	0.351	1.341	1.743	4.97	Above W.T.
	0.84 0.93	11 11	140.3 155.1	1.76 1.94	135 135	106 118	106	268.7 297.0	2647.6 2625.6	1.25 1.25	1.3	0.6 0.6	0.00	0.0	268.7 297.0	0.351	1.884 2.518	2.450 3.273	6.98 9.32	Above W.T.
	1.01	11	200.3	2.75	135	129	118 129	383.6	3106.7	1.23	1.3 1.4	1.0	0.00	0.0	383.6	0.351	5.330	6.929	19.74	Above W.T. Above W.T.
	1.08	11	204.6	4.03	135	138	138	391.8	2956.5	1.97	1.5	3.0	0.00	0.0	391.8	0.351	5.676	7.378	21.02	Above W.T.
	1.15	11	210.6	3.56	135	148	148	403.3	2848.6	1.69	1.4	2.1	0.00	0.0	403.3	0.351	6.182	8.037	22.90	Above W.T.
	1.22	11	190.6	3.31	135	157	157	365.0	2422.9	1.74	1.5	2.3	0.00	0.0	365.0	0.351	4.604	5.985	17.05	Above W.T.
	1.26	11	168.8	3.29	135	163	163	323.3	2074.4	1.95	1.5	3.1	0.00	0.0	323.3	0.351	3.222	4.189	11.93	Above W.T.
	1.31 1.36	11 11	136.8 123.2	3.07 2.72	135 135	169 176	169 176	262.0 236.0	1613.9 1397.6	2.25 2.21	1.6 1.6	4.2 4.3	0.00	0.0	262.0 236.0	0.351	1.753 1.302	2.278 1.692	6.49 4.82	Above W.T. Above W.T.
	1.4	11	134.4	2.68	135	182	182	257.4	1479.4	2.00	1.5	3.6	0.00	0.0	257.4	0.351	1.666	2.166	6.17	Above W.T.
	1.48	11	142.7	2.67	135	192	192	273.3	1482.5	1.87	1.5	3.2	0.00	0.0	273.3	0.351	1.978	2.572	7.33	Above W.T.
	1.56	11	163.8	2.65	135	203	203	313.7	1611.3	1.62	1.5	2.2	0.00	0.0	313.7	0.351	2.951	3.837	10.93	Above W.T.
	1.65	11	175.6	2.58	135	215	215	336.3	1629.9	1.47	1.4	1.7	0.00	0.0	336.3	0.351	3.618	4.703	13.40	Above W.T.
	1.73	11	181.5	2.45	135	226	226	347.6	1604.2	1.35	1.4	1.2	0.00	0.0	347.6	0.351	3.986	5.182	14.76	Above W.T.
	1.82	11	178.8	2.51	135	238	238	342.4	1499.6	1.40	1.4	1.5	0.00	0.0	342.4	0.351	3.814	4.959	14.13	Above W.T.
	1.9 1.98	11 11	204.5 229.6	2.39 2.33	125 125	249 259	249 259	391.7 439.7	1640.9 1771.2	1.17 1.02	1.3 1.2	0.5 -0.1	0.00	0.0	391.7 439.7	0.351	5.667 7.988	7.368 10.384	20.99 29.58	Above W.T. Above W.T.
	2.02	11	222.8	2.24	125	264	264	426.7	1686.2	1.02	1.2	-0.1	0.00	0.0	426.7	0.351	7.306	9.497	27.06	Above W.T.
	2.06	11	220.4	2.21	125	269	269	422.1	1637.0	1.00	1.2	-0.1	0.00	0.0	422.1	0.351	7.075	9.197	26.20	Above W.T.
	2.11	11	226.4	2.16	125	275	275	433.6	1643.4	0.95	1.2	-0.3	0.00	0.0	433.6	0.351	7.661	9.960	28.38	Above W.T.
	2.16	11	216.1	1.99	125	282	282	413.9	1533.7	0.92	1.2	-0.4	0.00	0.0	413.9	0.351	6.673	8.675	24.72	Above W.T.
	2.21	11	213.3	1.86	125	288	288	408.5	1480.9	0.87	1.2	-0.5	0.00	0.0	408.5	0.351	6.420	8.346	23.78	Above W.T.
	2.24 2.3	11 11	212 213	1.95 2	125 125	292 299	292 299	406.0 407.9	1452.9 1423.2	0.92 0.94	1.2 1.2	-0.3 -0.2	0.00	0.0	406.0 407.9	0.351	6.305 6.393	8.196 8.311	23.35 23.68	Above W.T.
	2.38	11	214.3	1.99	125	309	309	410.4	1385.5	0.94	1.2	-0.2	0.00	0.0	410.4	0.351	6.510	8.463	24.11	Above W.T. Above W.T.
	2.47	11	202.7	2.02	125	320	320	388.2	1264.4	1.00	1.3	0.1	0.00	0.0	388.2	0.351	5.521	7.177	20.45	Above W.T.
	2.56	11	193.7	1.57	125	332	332	371.0	1167.1	0.81	1.2	-0.5	0.00	0.0	371.0	0.351	4.828	6.276	17.88	Above W.T.
	2.64	11	187.3	1.23	115	342	342	358.7	1095.5	0.66	1.1	-1.1	0.00	0.0	358.7	0.351	4.373	5.685	16.20	Above W.T.
	2.73	11	188.2	1.2	115	352	352	360.4	1068.3	0.64	1.1	-1.2	0.00	0.0	360.4	0.351	4.435	5.765	16.43	Above W.T.
	2.82	11	194.7	1.22	115	362	362	372.9	1073.6	0.63	1.1	-1.3	0.00	0.0	372.9	0.351	4.902	6.373	18.16	Above W.T.
	2.9 2.99	11 11	208.5 229.3	1.24 1.39	115 115	371 382	371 382	399.3 439.2	1121.3 1199.8	0.60 0.61	1.1 1.1	-1.5 -1.5	0.00	0.0	399.3 439.2	0.351	6.002 7.957	7.802 10.344	22.23 29.47	Above W.T. Above W.T.
	3.07	11	247.5	1.57	115	391	391	474.0	1264.6	0.63	1.1	-1.4	0.00	0.0	474.0	0.351	9.985	12.980	36.98	Above W.T.
	3.15	11	261.2	1.93	115	400	400	500.3	1304.0	0.74	1.1	-1.0	0.00	0.0	500.3	0.351	11.722	15.239	43.42	Above W.T.
	3.23	11	280.1	2.46	125	409	409	536.4	1366.9	0.88	1.2	-0.4	0.00	0.0	536.4	0.351	14.437	18.768	53.47	Above W.T.
	3.32	11	283	2.63	125	421	421	542.0	1344.1	0.93	1.2	-0.2	0.00	0.0	542.0	0.351	14.888	19.354	55.14	Above W.T.
	3.4	11	263.8	2.65	125	431	431	505.2	1223.8	1.01	1.3	0.2	0.00	0.0	505.2	0.351	12.074	15.696	44.72	Above W.T.
	3.48 3.57	11 11	218.7 178.1	2.46 2.2	125 135	441 452	441 452	418.9 341.1	991.3 787.0	1.13 1.24	1.4 1.4	1.0 1.9	0.00	0.0	418.9 341.1	0.351	6.914 3.771	8.988 4.902	25.61 13.97	Above W.T. Above W.T.
	3.66	11	150.2	1.73	125	464	464	287.7	646.1	1.15	1.4	2.0	0.00	0.0	287.7	0.351	2.294	2.982	8.50	Above W.T.
	3.74	11	115.9	1.16	125	474	474	222.0	487.8	1.00	1.5	2.2	0.00	0.0	222.0	0.351	1.097	1.426	4.06	Above W.T.
	3.83	11	85	1	125	485	485	162.8	349.2	1.18	1.6	4.2	0.00	0.0	162.8	0.351	0.481	0.626	1.78	Above W.T.
	3.91	11	62.8	0.94	125	495	495	120.3	252.5	1.50	1.8	7.3	0.06	7.7	128.0	0.351	0.275	0.357	1.02	Above W.T.
	3.99	11	45.4	0.86	135	505	505	87.0	178.6	1.90	1.9	11.2	0.17	17.2	104.1	0.351	0.185	0.241	0.69	Above W.T.
	4.08	11 11	32.6 25	0.85 0.89	135 135	517 528	517	62.4 47.6	125.0 93.6	2.63	2.1	33.3 33.3	0.76 0.76	193.0 147.2	255.5 194.7	0.351	1.631 0.767	2.120 0.997	6.04 2.84	Above W.T. Above W.T.
	4.16 4.24	11	20.1	0.89	135	539	528 539	37.9	73.6	3.60 4.49	2.3 2.5	33.3	0.76	117.1	155.0	0.351	0.767	0.554	1.58	Above W.T.
	4.33	11	18.5	0.86	125	551	551	34.5	66.1	4.72	2.5	33.3	0.76	106.6	141.1	0.351	0.341	0.443	1.26	Above W.T.
	4.41	11	16.7	0.85	125	561	561	30.8	58.5	5.18	2.6	33.3	0.76	95.4	126.2	0.351	0.267	0.347	0.99	Above W.T.
	4.49	11	15.5	0.82	125	571	571	28.4	53.3	5.39	2.6	33.3	0.76	87.7	116.1	0.351	0.226	0.293	0.84	Above W.T.
	4.57	11	13	0.78	125	581	581	23.6	43.7	6.14	2.7	33.3	0.76	73.0	96.5	0.351	0.164	0.213	0.61	Above W.T.
	4.65	11	11.4	0.75	125	591	591	20.5	37.6	6.75	2.8	33.3	0.76	63.4	83.9	0.351	0.135	0.176	0.50	Above W.T.
	4.74 4.82	11 11	11.1 10.5	0.73 0.73	125 125	602 612	602 612	19.8 18.6	35.8 33.3	6.76 7.16	2.8 2.8	33.3 33.3	0.76 0.76	61.2 57.4	81.0 76.0	0.351 0.351	0.129 0.121	0.168 0.157	0.48 0.45	Above W.T. Above W.T.
	4.02	11	10.5	0.73	125	622	622	19.1	34.0	6.80	2.8	33.3	0.76	59.1	78.2	0.351	0.121	0.157	0.45	Above W.T.
	4.99	11	10.4	0.71	125	634	634	18.1	31.8	7.04	2.9	33.3	0.76	55.9	74.0	0.351	0.118	0.153	0.44	Above W.T.
	5.07	11	10.5	0.69	125	644	644	18.1	31.6	6.78	2.8	33.3	0.76	56.0	74.1	0.351	0.118	0.153	0.44	Above W.T.
	5.16	11	10.1	0.68	125	655	655	17.3	29.8	6.96	2.9	33.3	0.76	53.4	70.7	0.351	0.113	0.147	0.42	Above W.T.
	5.24	11	10.2	0.66	125	665	665	17.3	29.7	6.69	2.9	33.3	0.76	53.5	70.8	0.351	0.113	0.147	0.42	Above W.T.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 23

Depth to Groundwater: 11 feet

nance and Storage Yard EQ Magnitude (M<sub>w</sub>): 6.5
PGA (g): 0.54
MSF: 1.30

Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Stress Stress Stress (TSF) (TSF) (PCF) (PSF) (PSF) (%) KCPT Dqcin (qcin)cs Ratio M7.5 M6.50 Safety (FT) (FT) Qc1N 0 Comments Ic 5.33 11 10.5 0.64 125 676 676 17.7 30.0 6.30 2.8 33.3 0.76 54.6 72.3 0.351 0.115 0.150 0.43 Above W.T. 5.41 11 10.8 0.62 125 686 686 18.0 30.5 5.93 2.8 33.3 0.76 55.8 73.8 0.351 0.117 0.153 0.43 Above W.T. 5.5 11 10.9 0.6 125 697 697 18.1 30.2 5.69 2.8 33.3 0.76 55.8 73.9 0.351 0.118 0.153 0.44 Above W.T. 5.71 11 12.7 0.54 125 724 724 20.7 34.1 4.38 2.7 39.7 0.80 82.6 103.3 0.351 0.182 0.237 0.68 Above W.T. 5.8 13 0.52 125 735 735 21.0 34.4 4.12 2.7 38.7 0.80 83.9 104.9 0.351 0.187 0.244 0.69 Above W.T. 5.89 11 13.3 0.51 125 746 746 21.3 34.6 3.95 2.7 37.9 0.80 85.2 106.5 0.351 0.192 0.250 0.71 Above W.T. 5.98 13.7 0.51 125 757 757 21.8 35.2 3.83 2.6 37.2 0.80 87.1 108.9 0.351 0.260 0.74 Above W.T. 11 0.200 6.07 0.53 125 35.9 3.84 2.6 0.80 112.0 0.351 0.211 0.274 11 14.2 769 769 22.4 36.9 89.6 0.78 Above W.T. 0.55 125 23.5 37.5 35.9 0.80 94.0 117.5 0.351 0.300 6.16 11 15 780 780 3.76 2.6 0.231 0.86 Above W.T. 6.25 11 15 0.58 125 791 791 23.3 36.9 3.97 2.6 37.0 0.80 93.3 116.7 0.351 0.228 0.296 0.84 Above W.T. 6.34 11 14.9 0.58 125 802 802 23.0 36.1 4.00 2.6 37.4 0.80 92.1 115.1 0.351 0.222 0.288 0.82 Above W.T. 23.5 36.6 6.43 15.3 0.6 125 814 4.03 0.80 93.9 117.3 0.351 0.230 0.299 0.85 Above W.T 11 814 2.6 37.3 6.52 11 15.2 0.61 125 825 825 23.2 35.8 4.13 2.7 38.0 0.80 92.6 115.8 0.351 0.224 0.292 0.83 Above W.T. 6.62 11 14.7 0.6 125 837 837 22.2 34.1 4.20 2.7 39.1 0.80 88.9 111.1 0.351 0.208 0.270 0.77 Above W.T. 125 21.0 2.7 6.71 11 14 0.59 849 849 32.0 4.35 40.7 0.80 84.1 105.1 0.351 0.188 0.245 0.70 Above W.T. 6.8 11 13.1 0.55 125 860 860 19.5 29.5 4.34 2.7 42.1 0.80 78.2 97.7 0.351 0.167 0.217 0.62 Above W.T. 6.89 0.52 125 871 871 2.8 0.351 11 12 17.8 26.5 4.50 44.5 0.80 71.2 88.9 0.145 0.189 0.54 Above W.T. 125 0.351 6.98 11.4 0.49 882 882 24.8 4.47 2.8 45.6 0.80 84.0 0.176 0.50 Above W.T. 11 16.8 67.2 0.135 7.07 11 10.7 0.45 115 894 894 15.7 22.9 4.39 2.8 46.8 0.80 62.6 78.3 0.351 0.125 0.162 0.46 Above W.T. 0.42 77.9 0.351 7.16 11 10.7 115 904 904 15.6 22.7 4.10 2.8 45.9 0.80 62.3 0.1240.161 0.46 Above W.T. 7.25 11 10.3 0.39 115 914 914 14.9 21.5 3.96 2.8 46.3 0.80 59.6 74.5 0.351 0.118 0.154 0.44 Above W.T. 7.34 11 98 0.38 115 925 925 14 1 20.2 4.07 2.8 48.0 0.80 56.4 70.5 0.351 0.113 0.146 0.42 Above W.T. 7.44 11 97 0.36 115 936 936 13.9 197 3.90 2.8 47.8 0.80 55 5 69 4 0.351 0.111 0.144 0.41 Above W.T. 7.53 11 9.7 0.35 115 947 947 13.8 19.5 3.79 2.8 47.5 0.80 55.2 69.0 0.351 0.111 0.144 0.41 Above W.T. 7.61 11 10 0.36 115 956 956 14.2 19.9 3.78 2.8 47.1 0.80 56.6 70.8 0.351 0.113 0.147 0.42 Above W.T. 7.71 11 9.9 0.37 115 967 967 13.9 19.5 3.93 2.8 48.2 0.80 55.7 69.6 0.351 0.111 0.145 0.41 Above W.T. 7.8 11 10.5 0.38 115 978 978 14.7 20.5 3.80 2.8 46.6 0.80 58.8 73.5 0.351 0.117 0.152 0.43 Above W.T. 7.89 0.38 115 988 988 3.76 2.8 46.5 59.0 0.351 0.117 Above W.T. 11 10.6 14.8 20.4 0.80 73.8 0.153 0.43 7.97 0.351 11 11 0.38 115 997 997 15.2 21.1 3.62 2.8 45.3 0.80 61.0 76.2 0.1210.158 0.45 Above W.T. 8.06 11.7 0.38 1008 1008 3.39 2.8 0.80 0.351 11 115 16.1 22.2 43.3 64.5 80.6 0.129 0.167 0.48 Above W.T. 8.15 11.7 0.39 1018 1018 22.0 3.48 2.8 43.9 0.80 80.2 0.351 0.47 11 115 16.0 64.2 0.128 0.166 Above W.T. 8 24 11 119 0.42 115 1028 1028 16.2 22.1 3 69 2.8 44 6 0.80 65.0 81.2 0.351 0.130 0.169 0.48 Above W T 8.33 11 13.1 0.46 125 1039 1039 17.8 24.2 3.66 2.7 42.8 0.80 71.1 88 9 0.351 0.145 0.189 0.54 Above W.T. 8.42 11 13.6 0.52 125 1050 1050 18.4 24.9 3.98 2.8 43.7 0.80 73.5 91.8 0.351 0.152 0.198 0.56 Above W.T. 8.51 11 13.5 0.55 125 1061 1061 18.1 24.4 4.24 2.8 45.0 0.80 72.5 90.7 0.351 0.149 0.194 0.55 Above W.T 8.6 125 0.351 Above W.T. 11 12.6 0.51 1072 1072 16.8 22.5 4.23 2.8 46.6 0.80 67.3 84.2 0.135 0.176 0.50 8.69 11 12.9 0.44 125 1084 1084 17.1 22.8 3.56 2.8 43.5 0.80 68.6 85.7 0.351 0.139 0.180 0.51 Above W.T. 8.78 11.5 0.43 115 1095 1095 15.2 20.0 3.93 2.8 47.6 0.80 60.8 76.0 0.351 0.121 0.157 0.45 Above W.T. 8.87 11 0.42 115 1105 1105 14.5 18.9 4.02 2.9 49.1 0.80 57.9 72.4 0.351 0.115 0.150 0.43 Above W.T. 11 8.91 11 10.5 0.42 115 1110 1110 13.8 17.9 4.22 2.9 51.0 0.80 55.2 69.0 0.351 0.144 0.41 Above W.T. 0.110 9 11 11 0.41 115 1120 1120 14.4 18.6 3.93 2.9 49.0 0.80 57.5 71.9 0.351 0.115 0.149 0.42 Above W.T. 9.09 11 8.7 0.38 115 1130 1130 11.3 14.4 4.67 3.0 57.5 0.80 45.3 56.6 0.351 0.097 0.126 0.36 Above W.T. 9.18 11 7.2 0.33 115 1141 1141 9.3 11.6 4.98 3.1 63.7 0.80 37.3 46.6 0.351 0.089 0.116 0.33 Above W.T. 9.27 11 6.9 0.26 105 1151 1151 8.9 11.0 4.11 3.0 61.5 0.80 35.6 44.5 0.351 0.088 0.115 0.33 Above W.T. 9.36 11 6.4 0.21 105 1161 1161 8.2 10.0 3.61 3.0 0.80 32.9 41.1 0.351 0.086 0.112 0.32 Above W.T. 61.4 9.45 11 5.8 0.17 95 1170 1170 7.4 8.9 3.26 3.1 62.5 0.80 29.7 37.1 0.351 0.085 0.110 0.31 Above W.T 0.80 Above W.T. 9.54 0.15 95 1179 2.99 35.7 0.351 0.109 11 5.6 1179 7.1 8.5 3.1 62.3 28.5 0.084 0.31 9.63 11 5.9 0.14 95 1187 1187 7.5 8.9 2.64 3.0 58.9 0.80 30.0 37.5 0.351 0.085 0.110 0.31 Above W.T. 9.73 11 5.6 0.15 95 1197 1197 7.1 8.4 3.00 3.1 62.7 0.80 28.3 35.4 0.351 0.084 0.109 0.31 Above W.T. 9.82 95 7.7 3.09 0.80 0.351 0.085 0.111 11 6.1 0.17 1205 1205 9.1 3.0 61.0 30.8 38.4 0.32 Above W.T. 105 9.91 6.5 0.18 1214 1214 8.2 9.7 3.05 0.80 32.7 40.8 0.351 0.086 0.112 0.32 Above W.T. 11 3.0 59.3 10 11 6.5 0.2 105 1223 1223 8.1 9.6 3.40 3.0 61.3 0.80 32.5 40.7 0.344 0.086 0.112 0.33 Above W.T. 10.09 11 6.5 0.22 105 1233 1233 8.1 9.5 3.74 3.1 63.2 0.80 32.4 40.5 0.3440.086 0.112 0.33 Above W.T. 10.18 11 5.9 0.23 105 1242 1242 7.3 8.5 4.36 3.1 69.0 0.80 29.3 36.6 0.3440.085 0.110 0.32 Above W.T. 10 27 11 56 0.23 105 1252 1252 69 79 4.62 32 72.0 0.80 27.7 34 6 0.344 0.084 0.109 0.32 Above W.T. 10.36 11 6 0.24 105 1261 1261 7.4 8.5 4.47 3.2 69 5 0.80 29 6 37.0 0.344 0.085 0.110 0.32 Above W.T. 10.45 11 5.9 0.22 105 1270 1270 7.2 8.3 4.18 3.1 68.9 0.80 29.0 36.2 0.344 0.084 0.110 0.32 Above W.T. 10.55 0.344 0.110 Above W.T. 11 5.9 0.2 105 1281 1281 7.2 8.2 3.80 3.1 67.4 0.80 28.9 36.1 0.084 0.32 105 6.3 3.54 0.344 10.64 11 0.2 1290 1290 7.7 8.8 3.1 64.4 0.80 30.7 38.4 0.085 0.111 0.32 Above W.T. 10.73 11 6.5 0.2 105 1300 1300 7.9 9.0 3.42 3.1 63.1 0.80 31.6 39.4 0.344 0.086 0.111 0.32 Above W.T. 5.4 0.19 105 1309 7.2 4.00 0.80 32.6 0.344 0.083 0.108 0.31 Above W.T. 10.82 11 1309 6.5 3.2 71.7 26.1

0.344

0.344

34.3

40.8

0.109

0.112

0.32

0.33

Above W.T.

NonLiafble.

0.084

0.086

0.18

0.18

105

105 1328

1319

1319

1328

6.9

8 2

3.57

2.93

3.1

3.0

68.1

59.8

7.6

92

0.80

0.80

27.5

32.7

5.7

6.8

11

10.91

11

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 23

Depth to Groundwater: 11 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm	Corr	Friction						Induced	Lianef	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(q <sub>c1N</sub> ) <sub>cs</sub>	Ratio	M7.5	M6.50	Safety	Comments
	11.09	11	7.2	0.2	105	1338	1332	8.6	9.8	3.06	3.0	59.1	0.80	34.5	43.2	0.345	0.087	0.114	0.33	NonLiqfble.
	11.18	11	7.2	0.22	105	1347	1336	8.6	9.8	3.37	3.0	60.8	0.80	34.5	43.1	0.347	0.087	0.114	0.33	NonLiqfble.
	11.27	11	7.2	0.24	105	1357	1340	8.6	9.7	3.68	3.1	62.4	0.80	34.4	43.0	0.348	0.087	0.114	0.33	NonLiqfble.
	11.36	11	7.6	0.27	105	1366	1344	9.1	10.3	3.90	3.1	62.1	0.80	36.3	45.4	0.350	0.089	0.115	0.33	NonLiqfble.
	11.45 11.54	11 11	8.2 8.5	0.29 0.31	115 115	1375 1386	1347 1352	9.8 10.1	11.1 11.5	3.86 3.97	3.0	60.0 59.7	0.80 0.80	39.1 40.5	48.9 50.6	0.351 0.353	0.091 0.092	0.118 0.120	0.34 0.34	NonLiqfble. NonLiqfble.
	11.63	11	8.4	0.32	115	1396	1357	10.1	11.3	4.15	3.0	60.9	0.80	39.9	49.9	0.354	0.092	0.120	0.34	NonLiqfble.
	11.72	11	8.4	0.33	115	1407	1362	10.0	11.3	4.29	3.0	61.6	0.80	39.8	49.8	0.355	0.091	0.119	0.33	NonLiqfble.
	11.81	11	7.6	0.33	115	1417	1366	9.0	10.1	4.79	3.1	66.5	0.80	36.0	45.0	0.357	0.088	0.115	0.32	NonLiqfble.
	11.9	11	7.8	0.33	115	1427	1371	9.2	10.3	4.66	3.1	65.3	0.80	36.9	46.1	0.358	0.089	0.116	0.32	NonLiqfble.
	11.99 12.08	11	8.5 9	0.33	115	1438 1448	1376 1381	10.0	11.3 12.0	4.24 3.99	3.0	61.4 58.9	0.80	40.1	50.1 53.0	0.359	0.092 0.094	0.119 0.122	0.33 0.34	NonLiqfble.
	12.08	11 11	9.1	0.33	115 115	1448	1386	10.6 10.7	12.0	3.99 4.06	3.0	59.0	0.80 0.80	42.4 42.8	53.5	0.361 0.362	0.094	0.122	0.34	NonLiqfble. NonLiqfble.
	12.26	11	9.3	0.35	115	1469	1390	10.9	12.3	4.09	3.0	58.7	0.80	43.7	54.6	0.363	0.095	0.124	0.34	NonLiqfble.
	12.36	11	9.2	0.39	115	1480	1395	10.8	12.1	4.61	3.0	61.2	0.80	43.1	53.9	0.365	0.095	0.123	0.34	NonLiqfble.
	12.42	11	9.7	0.41	115	1487	1398	11.3	12.8	4.58	3.0	59.8	0.80	45.4	56.7	0.366	0.097	0.126	0.34	NonLiqfble.
	12.51	11	10.7	0.45	115	1497	1403	12.5	14.2	4.52	3.0	57.3	0.80	50.0	62.5	0.367	0.103	0.134	0.36	NonLiqfble.
	12.6 12.7	11 11	10.8 10.8	0.49 0.46	125 115	1508 1520	1408 1414	12.6 12.6	14.3 14.2	4.88 4.58	3.0	58.5 57.5	0.80 0.80	50.4 50.3	63.0 62.8	0.368 0.370	0.103	0.134 0.134	0.36 0.36	NonLiqfble. NonLiqfble.
	12.79	11	10.8	0.48	125	1531	1419	12.5	14.1	4.78	3.0	58.4	0.80	50.3	62.7	0.370	0.103	0.134	0.36	NonLiqfble.
	12.88	11	10.7	0.5	125	1542	1424	12.4	13.9	5.04	3.0	59.7	0.80	49.6	62.0	0.372	0.102	0.133	0.36	NonLiqfble.
	12.96	11	10.2	0.49	125	1552	1429	11.8	13.2	5.20	3.0	61.6	0.80	47.2	59.0	0.373	0.099	0.129	0.35	NonLiqfble.
	13.01	11	9.3	0.48	115	1558	1433	10.8	11.9	5.63	3.1	65.6	0.80	43.0	53.8	0.374	0.094	0.123	0.33	NonLiqfble.
	13.11	11	10.1	0.48	115	1570	1438	11.7	13.0	5.15	3.0	61.8	0.80	46.6	58.3	0.375	0.098	0.128	0.34	NonLiqfble.
	13.19 13.28	11 11	9.5 9.7	0.48 0.47	115 115	1579 1589	1442 1447	10.9 11.2	12.1 12.3	5.51 5.28	3.1	64.8 63.5	0.80 0.80	43.8 44.6	54.7 55.8	0.377 0.378	0.095 0.096	0.124 0.125	0.33	NonLiqfble. NonLiqfble.
	13.37	11	9.5	0.46	115	1599	1452	10.9	12.0	5.29	3.1	64.1	0.80	43.6	54.5	0.379	0.095	0.124	0.33	NonLiqfble.
	13.46	11	9.5	0.45	115	1610	1456	10.9	11.9	5.18	3.1	63.8	0.80	43.6	54.5	0.380	0.095	0.124	0.32	NonLiqfble.
	13.55	11	9.3	0.43	115	1620	1461	10.6	11.6	5.07	3.1	64.1	0.80	42.6	53.2	0.381	0.094	0.122	0.32	NonLiqfble.
	13.65	11	9.3	0.41	115	1632	1466	10.6	11.6	4.83	3.1	63.3	0.80	42.5	53.1	0.383	0.094	0.122	0.32	NonLiqfble.
	13.74 13.83	11 11	8.9 8.4	0.39 0.38	115 115	1642 1652	1471 1476	10.2 9.6	11.0 10.3	4.83 5.02	3.1	64.5 66.9	0.80	40.6 38.3	50.8 47.8	0.384 0.385	0.092 0.090	0.120 0.117	0.31	NonLiqfble. NonLiqfble.
	13.92	11	8.7	0.38	115	1663	1480	9.9	10.5	4.83	3.1	65.3	0.80	39.6	49.5	0.386	0.091	0.117	0.31	NonLiqfble.
	14.01	11	8.9	0.38	115	1673	1485	10.1	10.9	4.71	3.1	64.3	0.80	40.4	50.5	0.387	0.092	0.120	0.31	NonLiqfble.
	14.1	11	9.4	0.38	115	1683	1490	10.7	11.5	4.44	3.0	61.8	0.80	42.6	53.3	0.389	0.094	0.122	0.31	NonLiqfble.
	14.19	11	9.4	0.39	115	1694	1495	10.6	11.4	4.56	3.1	62.4	0.80	42.6	53.2	0.390	0.094	0.122	0.31	NonLiqfble.
	14.28 14.37	11 11	9.8 8.7	0.4 0.41	115 115	1704 1714	1499 1504	11.1 9.8	11.9 10.4	4.47 5.23	3.0	61.0 67.4	0.80 0.80	44.3 39.3	55.4 49.1	0.391 0.392	0.096 0.091	0.125 0.118	0.32 0.30	NonLiqfble. NonLiqfble.
	14.46	11	8.9	0.42	115	1725	1509	10.0	10.4	5.23	3.1	66.8	0.80	40.1	50.1	0.393	0.092	0.119	0.30	NonLiqfble.
	14.55	11	8.6	0.42	115	1735	1514	9.7	10.2	5.43	3.1	68.6	0.80	38.7	48.4	0.394	0.091	0.118	0.30	NonLiqfble.
	14.64	11	8.9	0.41	115	1746	1518	10.0	10.6	5.11	3.1	66.5	0.80	40.0	50.0	0.395	0.092	0.119	0.30	NonLiqfble.
	14.73	11	8.8	0.38	115	1756	1523	9.9	10.4	4.80	3.1	65.7	0.80	39.5	49.3	0.397	0.091	0.119	0.30	NonLiqfble.
	14.82 14.91	11 11	8.8 8.2	0.36 0.33	115 115	1766 1777	1528 1533	9.9 9.2	10.4 9.5	4.55 4.51	3.1	64.8 66.7	0.80 0.80	39.4 36.7	49.3 45.8	0.398	0.091	0.118 0.116	0.30 0.29	NonLiqfble. NonLiqfble.
	15	11	7.6	0.33	115	1787	1535	8.5	8.7	4.62	3.2	69.5	0.80	33.9	42.4	0.400	0.087	0.110	0.29	NonLiqfble.
	15.09	11	7.6	0.31	115	1797	1542	8.5	8.7	4.63	3.2	69.6	0.80	33.9	42.3	0.401	0.087	0.113	0.28	NonLiqfble.
	15.18	11	7.4	0.31		1808	1547	8.2	8.4	4.77	3.2	71.1	0.80	32.9	41.2	0.402	0.086	0.112	0.28	NonLiqfble.
	15.27	11	7.5	0.32	115	1818	1552	8.3	8.5	4.86	3.2	71.2	0.80	33.3	41.7	0.403	0.087	0.113	0.28	NonLiqfble.
	15.36	11	7.7 7.6	0.29	105	1828 1838	1556	8.5	8.7	4.27 4.49	3.1	68.0 69.4	0.80	34.2	42.7 42.1	0.404	0.087	0.113 0.113	0.28	NonLiqfble.
	15.45 15.54	11 11	8.1	0.31	115 115	1848	1560 1565	8.4 9.0	8.6 9.2	4.49	3.2	66.9	0.80	33.7 35.8	44.8	0.405 0.406	0.087 0.088	0.115	0.28 0.28	NonLiqfble. NonLiqfble.
	15.63	11	8	0.31	115	1858	1570	8.8	9.0	4.38	3.1	67.6	0.80	35.3	44.2	0.407	0.088	0.113	0.28	NonLiqfble.
	15.67	11	8.3	0.31	115	1863	1572	9.2	9.4	4.21	3.1	65.8	0.80	36.6	45.8	0.408	0.089	0.116	0.28	NonLiqfble.
	15.75	11	8.6	0.32	115	1872	1576	9.5	9.7	4.18	3.1	64.8	0.80	37.9	47.4	0.409	0.090	0.117	0.29	NonLiqfble.
	15.84	11	7.8	0.31	115	1883	1581	8.6	8.7	4.52	3.2	69.2	0.80	34.3	42.9	0.410	0.087	0.114	0.28	NonLiqfble.
	15.93 16.02	11 11	8.2 9.3	0.32 0.33	115 115	1893 1903	1585 1590	9.0 10.2	9.1 10.5	4.41 3.95	3.1	67.4 61.9	0.80	36.0 40.8	45.1 51.0	0.411 0.412	0.089 0.092	0.115 0.120	0.28 0.29	NonLiqfble. NonLiqfble.
	16.11	11	9.5	0.34	115	1914	1595	9.9	10.3	4.23	3.1	64.1	0.80	39.4	49.3	0.412	0.092	0.120	0.29	NonLiqfble.
	16.2	11	9.4	0.36	115	1924	1600	10.3	10.5	4.27	3.1	63.2	0.80	41.1	51.4	0.414	0.093	0.120	0.29	NonLiqfble.
	16.29	11	9.8	0.36	115	1934	1604	10.7	11.0	4.08	3.0	61.3	0.80	42.8	53.5	0.415	0.094	0.123	0.30	NonLiqfble.
	16.38	11	9.2	0.37	115	1945	1609	10.0	10.2	4.50	3.1	64.9	0.80	40.1	50.2	0.416	0.092	0.119	0.29	NonLiqfble.
	16.48 16.57	11 11	8.6 8.4	0.35 0.32	115 115	1956 1967	1614 1619	9.4 9.1	9.4 9.2	4.59 4.31	3.1	67.3 66.9	0.80	37.5 36.5	46.8 45.7	0.417 0.418	0.090 0.089	0.116 0.116	0.28 0.28	NonLiqfble. NonLiqfble.
	10.07	11	0.4	0.02	113	1/0/	1017	7.1	1.4	7.31	J.1	00.7	0.00	50.5	73.1	0.710	0.007	0.110	0.20	. wiinaqibic.

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Depth to Groundwater: 11 feet

e and Storage Yard EQ Magnitude  $(M_w)$ : 6.5 PGA (g): 0.54

MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.	V	Da	(m )	Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	(qc1N)es	Ratio	M7.5	M6.50	Safety	Comments
	40.00		0.4	0.0	445	1077	1604	0.0	0.0	4.22	2.1	(7.4	0.00	25.2	44.0	0.410	0.000	0.114	0.07	N. 1: 01
	16.66 16.75	11 11	8.1 8.2	0.3 0.27	115 105	1977 1987	1624 1628	8.8 8.9	8.8 8.8	4.22 3.75	3.1	67.6 65.2	0.80	35.2 35.6	44.0 44.5	0.419 0.420	0.088	0.114 0.115	0.27 0.27	NonLiqfble. NonLiqfble.
	16.84	11	7.7	0.24	105	1997	1632	8.3	8.2	3.58	3.1	66.3	0.80	33.4	41.7	0.421	0.087	0.113	0.27	NonLiqfble.
	16.93	11	8.3	0.25	105	2006	1636	9.0	8.9	3.43	3.1	63.4	0.80	35.9	44.9	0.422	0.088	0.115	0.27	NonLiqfble.
	17.02	11 11	8.2 8.1	0.26 0.28	105 105	2016 2025	1640 1644	8.9	8.8	3.62	3.1	64.8	0.80	35.4	44.3	0.423 0.424	0.088	0.115 0.114	0.27 0.27	NonLiqfble.
	17.11 17.2	11	8.8	0.27	105	2025	1648	8.7 9.5	8.6 9.4	3.95 3.47	3.1	66.8 62.2	0.80	35.0 37.9	43.7 47.4	0.424	0.088	0.114	0.27	NonLiqfble. NonLiqfble.
	17.29	11	8	0.27	105	2044	1651	8.6	8.4	3.87	3.1	67.0	0.80	34.5	43.1	0.426	0.087	0.114	0.27	NonLiqfble.
	17.38	11	8	0.26	105	2053	1655	8.6	8.4	3.73	3.1	66.4	0.80	34.4	43.0	0.427	0.087	0.114	0.27	NonLiqfble.
	17.48 17.57	11 11	7.4 7.6	0.26 0.26	105 105	2064 2073	1660 1663	7.9 8.2	7.7 7.9	4.08 3.96	3.2	70.5 69.2	0.80	31.8 32.6	39.7 40.8	0.428 0.429	0.086 0.086	0.112 0.112	0.26 0.26	NonLiqfble. NonLiqfble.
	17.66	11	7.6	0.28	105	2083	1667	8.1	7.9	4.27	3.2	70.7	0.80	32.6	40.7	0.430	0.086	0.112	0.26	NonLiqfble.
	17.75	11	7.9	0.29	115	2092	1671	8.5	8.2	4.23	3.2	69.4	0.80	33.8	42.3	0.431	0.087	0.113	0.26	NonLiqfble.
	17.84	11	7.4	0.29	105	2103	1676	7.9	7.6	4.57	3.2	73.1	0.80	31.6	39.5	0.432	0.086	0.111	0.26	NonLiqfble.
	17.93 18.02	11 11	7.8 7.2	0.28 0.29	105 105	2112 2122	1680 1683	8.3 7.7	8.0 7.3	4.15 4.72	3.2 3.2	69.6 74.8	0.80	33.3 30.7	41.6 38.4	0.433 0.433	0.087 0.085	0.113	0.26 0.26	NonLiqfble. NonLiqfble.
	18.11	11	7.2	0.23	115	2131	1687	8.4	8.1	4.72	3.2	71.1	0.80	33.7	42.1	0.434	0.083	0.111	0.26	NonLiqfble.
	18.2	11	8	0.34	115	2141	1692	8.5	8.2	4.91	3.2	72.4	0.80	34.0	42.5	0.435	0.087	0.113	0.26	NonLiqfble.
	18.28	11	8.5	0.35	115	2151	1696	9.0	8.8	4.71	3.2	69.8	0.80	36.1	45.2	0.436	0.089	0.115	0.26	NonLiqfble.
	18.37	11 11	9 9.5	0.35 0.35	115 115	2161 2171	1701	9.5 10.1	9.3 9.9	4.42	3.1	67.0	0.80	38.2	47.7	0.437	0.090 0.092	0.117	0.27	NonLiqfble.
	18.46 18.55	11	9.8	0.33	115	2171	1706 1710	10.1	10.2	4.16 3.90	3.1	64.3 62.4	0.80	40.3 41.5	50.3 51.8	0.438 0.439	0.092	0.119 0.121	0.27 0.28	NonLiqfble. NonLiqfble.
	18.64	11	9.7	0.33	115	2192	1715	10.2	10.0	3.84	3.1	62.4	0.80	41.0	51.2	0.440	0.093	0.120	0.27	NonLiqfble.
	18.73	11	9.3	0.31	115	2202	1720	9.8	9.5	3.78	3.1	63.5	0.80	39.2	49.1	0.440	0.091	0.118	0.27	NonLiqfble.
	18.82	11	9.5	0.3	115	2213 2223	1725	10.0	9.7	3.57	3.1	61.9	0.80	40.0	50.0	0.441	0.092	0.119	0.27	NonLiqfble.
	18.91 19	11 11	9.7 9.5	0.3 0.31	115 115	2223	1729 1734	10.2 10.0	9.9 9.7	3.49 3.70	3.0	61.0 62.7	0.80	40.8 39.9	51.0 49.9	0.442 0.443	0.092 0.092	0.120 0.119	0.27 0.27	NonLiqfble. NonLiqfble.
	19.09	11	9.5	0.31	115	2244	1739	10.0	9.6	3.70	3.1	62.8	0.80	39.9	49.8	0.444	0.092	0.119	0.27	NonLiqfble.
	19.27	11	9.9	0.31	115	2264	1748	10.4	10.0	3.54	3.0	61.0	0.80	41.4	51.8	0.446	0.093	0.121	0.27	NonLiqfble.
	19.36	11	9.5	0.3	115	2275	1753	9.9	9.5	3.59	3.1	62.5	0.80	39.7	49.6	0.446	0.091	0.119	0.27	NonLiqfble.
	19.45 19.54	11 11	9.2 8.8	0.28 0.28	115 115	2285 2295	1758 1763	9.6 9.2	9.2 8.7	3.48 3.66	3.1	62.9 65.2	0.80	38.4 36.7	48.0 45.9	0.447 0.448	0.090 0.089	0.117 0.116	0.26 0.26	NonLiqfble. NonLiqfble.
	19.63	11	8.4	0.28	105	2306	1767	8.7	8.2	3.86	3.1	67.7	0.80	35.0	43.7	0.449	0.088	0.114	0.25	NonLiqfble.
	19.72	11	8.1	0.27	105	2315	1771	8.4	7.8	3.89	3.1	69.0	0.80	33.7	42.1	0.450	0.087	0.113	0.25	NonLiqfble.
	19.81	11	8.3	0.26	105	2325	1775	8.6	8.0	3.64	3.1	67.1	0.80	34.5	43.1	0.451	0.087	0.114	0.25	NonLiqfble.
	19.9 20	11 11	8.4 8.8	0.25 0.25	105 105	2334 2345	1779 1783	8.7 9.1	8.1 8.6	3.46 3.28	3.1	65.9 63.7	0.80	34.9 36.5	43.6 45.6	0.451 0.443	0.088	0.114 0.115	0.25 0.26	NonLiqfble. NonLiqfble.
	20.09	11	9.1	0.24	105	2354	1787	9.4	8.9	3.03	3.0	61.4	0.80	37.7	47.1	0.444	0.000	0.117	0.26	NonLiqfble.
	20.18	11	8.7	0.24	105	2364	1791	9.0	8.4	3.19	3.1	63.7	0.80	36.0	45.0	0.445	0.088	0.115	0.26	NonLiqfble.
	20.27	11	8.5	0.24	105	2373	1795	8.8	8.1	3.28	3.1	64.9	0.80	35.1	43.9	0.446	0.088	0.114	0.26	NonLiqfble.
	20.36 20.45	11 11	8.5 8.4	0.23 0.22	105 105	2382 2392	1798 1802	8.8 8.7	8.1 8.0	3.15 3.05	3.1	64.3 64.2	0.80	35.1 34.6	43.9 43.3	0.446 0.447	0.088	0.114 0.114	0.26 0.25	NonLiqfble.
	20.43	11	8.3	0.22	105	2401	1806	8.5	7.9	2.96	3.1	64.1	0.80	34.0	42.7	0.447	0.087	0.114	0.25	NonLiqfble. NonLiqfble.
	20.63	11	7.4	0.19	105	2411	1810	7.6	6.8	3.07	3.1	68.4	0.80	30.4	38.1	0.449	0.085	0.111	0.25	NonLiqfble.
	20.72	11	6.3	0.18	105	2420	1814	6.5	5.6	3.54	3.2	76.6	0.80	25.9	32.4	0.450	0.083	0.108	0.24	NonLiqfble.
	20.81 20.9	11 11	6.1 5.7	0.16 0.15	95 95	2430 2438	1818 1820	6.3 5.8	5.4 4.9	3.28 3.35	3.2	76.4 79.4	0.80	25.0 23.4	31.3 29.2	0.450 0.451	0.083 0.082	0.108 0.107	0.24 0.24	NonLiqfble. NonLiqfble.
	20.99	11	5.6	0.13	95	2447	1823	5.7	4.8	2.97	3.3	78.0	0.80	23.4	28.7	0.451	0.082	0.107	0.24	NonLiqfble.
	21.08	11	6.2	0.13	95	2455	1826	6.3	5.4	2.61	3.2	72.0	0.80	25.4	31.7	0.453	0.083	0.108	0.24	NonLiqfble.
	21.17	11	5.8	0.13	95	2464	1829	5.9	5.0	2.85	3.2	76.0	0.80	23.7	29.7	0.454	0.082	0.107	0.24	NonLiqfble.
	21.26 21.35	11 11	6 6.5	0.14 0.14	95 95	2472 2481	1832 1835	6.1 6.6	5.2 5.7	2.94 2.66	3.2	75.4 70.8	0.80	24.5 26.6	30.7 33.2	0.455 0.456	0.083	0.107 0.108	0.24	NonLiqfble. NonLiqfble.
	21.33	11	6.7	0.14	95	2490	1838	6.8	5.9	2.75	3.2	70.8	0.80	27.4	34.2	0.456	0.083	0.108	0.24	NonLiqfble.
	21.53	11	7.1	0.15	95	2498	1841	7.2	6.4	2.56	3.1	67.3	0.80	29.0	36.2	0.457	0.084	0.110	0.24	NonLiqfble.
	21.62	11	7.7	0.15	105	2507	1844	7.8	7.0	2.33	3.1	63.2	0.80	31.4	39.2	0.458	0.086	0.111	0.24	NonLiqfble.
	21.71	11	8.1	0.16	105	2516	1848	8.2	7.4	2.34	3.0	61.8	0.80	33.0	41.2	0.459	0.087	0.112	0.25	NonLiqfble.
	21.8 21.89	11 11	8.9 8.7	0.16 0.15	105 105	2526 2535	1852 1855	9.0 8.8	8.2 8.0	2.10 2.02	3.0	57.3 57.5	0.80	36.2 35.3	45.2 44.2	0.460 0.460	0.089 0.088	0.115 0.114	0.25 0.25	NonLiqfble. NonLiqfble.
	21.98	11	8.2	0.13	95	2544	1859	8.3	7.4	2.02	3.0	59.3	0.80	33.3	41.6	0.461	0.087	0.114	0.23	NonLiqfble.
	22.07	11	8.4	0.14	95	2553	1862	8.5	7.6	1.97	3.0	58.3	0.80	34.1	42.6	0.462	0.087	0.113	0.25	NonLiqfble.
	22.16	11	8.4	0.15	105	2562	1865	8.5	7.6	2.11	3.0	59.4	0.80	34.0	42.6	0.463	0.087	0.113	0.24	NonLiqfble.
	22.25 22.34	11 11	9.8 11.2	0.26 0.38	115 115	2571 2581	1869 1874	9.9 11.3	9.1 10.6	3.05 3.83	3.0	60.9 61.2	0.80	39.7 45.3	49.6 56.6	0.464 0.464	0.091 0.097	0.119 0.126	0.26 0.27	NonLiqfble. NonLiqfble.
	04	11	11.2	5.55	113	2501	10/7	11.5	10.0	5.05	5.0	01.2	0.00	73.3	50.0	0.707	0.071	0.120	0.27	. tomzquic.

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Depth to Groundwater: 11 feet

		Water	Tip	Sleeve		Total	Effective	Norm	Corr	Friction						Induced	Lianef	Lianef	Factor	
	Depth	Table	Resist.	Frict.	g	Stress		Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	22.43 22.64	11 11	16.6 22.4	0.54 0.69	125 125	2592 2618	1878 1892	16.8 22.5	16.3 22.3	3.53	2.9	50.0 42.7	0.80	67.0 90.1	83.8 112.7	0.465 0.466	0.135	0.175 0.277	0.38	NonLiqfble.
	22.73	11	22.4	0.69	125	2629	1892	22.3	21.9	3.27 3.37	2.7 2.8	43.4	0.80 0.80	88.8	111.0	0.466	0.213 0.207	0.277	0.59 0.58	NonLiqfble. NonLiqfble.
	22.82	11	22.8	0.71	125	2640	1903	22.9	22.6	3.31	2.7	42.6	0.80	91.5	114.3	0.468	0.219	0.285	0.61	NonLiqfble.
	22.91	11	24.4	0.6	125	2652	1908	24.4	24.2	2.60	2.7	37.9	0.80	97.8	122.2	0.468	0.250	0.325	0.69	NonLiqfble.
	23	11	23.5	0.47	125	2663	1914	23.5	23.2	2.12	2.6	36.0	0.80	94.0	117.5	0.469	0.231	0.300	0.64	NonLiqfble.
	23.09	11	21.7	0.44	125	2674	1920	21.7	21.2	2.16	2.6	37.7	0.80	86.7	108.3	0.469	0.198	0.258	0.55	NonLiqfble.
	23.18	11	16	0.4	125	2685	1925	16.0	15.2	2.73	2.8	47.4	0.80	63.8	79.8	0.470	0.127	0.165	0.35	NonLiqfble.
	23.27 23.36	11 11	12.3 9.8	0.24 0.18	105 105	2697 2706	1931 1935	12.2 9.7	11.3 8.7	2.19 2.13	2.9 3.0	50.5 56.2	0.80 0.80	49.0 39.0	61.2 48.7	0.471 0.471	0.101 0.091	0.132 0.118	0.28 0.25	NonLiqfble.
	23.45	11	8.2	0.10	105	2716	1933	8.1	7.1	2.13	3.1	64.0	0.80	32.6	40.7	0.471	0.091	0.118	0.23	NonLiqfble. NonLiqfble.
	23.54	11	7.9	0.17	105	2725	1943	7.8	6.7	2.75	3.1	67.0	0.80	31.4	39.2	0.472	0.086	0.112	0.24	NonLiqfble.
	23.63	11	8.4	0.19	105	2734	1946	8.3	7.2	2.70	3.1	64.7	0.80	33.3	41.7	0.473	0.087	0.113	0.24	NonLiqfble.
	23.73	11	9.4	0.22	105	2745	1951	9.3	8.2	2.74	3.0	61.6	0.80	37.2	46.6	0.474	0.089	0.116	0.25	NonLiqfble.
	23.82	11	10.8	0.27	115	2754	1954	10.7	9.6	2.87	3.0	58.4	0.80	42.8	53.4	0.475	0.094	0.122	0.26	NonLiqfble.
	23.91	11	11.7	0.28	115	2765	1959	11.6	10.5	2.71	3.0	55.4	0.80	46.3	57.8	0.476	0.098	0.127	0.27	NonLiqfble.
	24	11	12.5	0.3	115	2775	1964	12.3	11.3	2.70	2.9	53.7	0.80	49.4	61.7	0.476	0.102	0.132	0.28	NonLiqfble.
	24.09 24.18	11 11	12.3 12.2	0.31 0.32	115 115	2785 2796	1969 1973	12.1 12.0	11.1 10.9	2.84 2.96	2.9 3.0	55.0 55.9	0.80 0.80	48.5 48.1	60.6 60.1	0.477 0.477	0.101 0.100	0.131 0.130	0.27 0.27	NonLiqfble. NonLiqfble.
	24.10	11	12.2	0.32	115	2806	1978	11.8	10.7	2.93	3.0	56.2	0.80	47.2	59.0	0.477	0.100	0.130	0.27	NonLiqfble.
	24.36	11	12	0.3	115	2816	1983	11.8	10.7	2.83	3.0	55.8	0.80	47.2	59.0	0.479	0.099	0.129	0.27	NonLiqfble.
	24.45	11	11.5	0.29	115	2827	1988	11.3	10.1	2.88	3.0	57.2	0.80	45.1	56.4	0.479	0.097	0.126	0.26	NonLiqfble.
	24.54	11	11.3	0.29	115	2837	1992	11.1	9.9	2.93	3.0	58.1	0.80	44.3	55.4	0.480	0.096	0.125	0.26	NonLiqfble.
	24.63	11	10.7	0.28	115	2848	1997	10.5	9.3	3.02	3.0	60.2	0.80	41.9	52.4	0.480	0.093	0.121	0.25	NonLiqfble.
	24.71	11	10.7	0.28	115	2857	2001	10.5	9.3	3.02	3.0	60.3	0.80	41.9	52.3	0.481	0.093	0.121	0.25	NonLiqfble.
	24.8	11	10.4	0.27	115	2867	2006	10.2	8.9	3.01	3.0	61.1	0.80	40.6	50.8	0.482	0.092	0.120	0.25	NonLiqfble.
	24.89 24.96	11 11	10.1	0.26 0.25	115 115	2877 2885	2011	9.9	8.6	3.00	3.1	62.0	0.80	39.4	49.3	0.482	0.091 0.092	0.118	0.25	NonLiqfble.
	24.90	11	10.3 10.2	0.23	105	2890	2014 2017	10.0 9.9	8.8 8.7	2.82 2.74	3.0	60.4 60.3	0.80 0.80	40.2 39.8	50.2 49.7	0.483 0.483	0.092	0.119 0.119	0.25 0.25	NonLiqfble. NonLiqfble.
	25.09	11	9.6	0.23	105	2900	2020	9.3	8.1	2.82	3.1	62.6	0.80	37.4	46.7	0.484	0.031	0.116	0.24	NonLiqfble.
	25.18	11	9.1	0.23	105	2909	2024	8.8	7.6	3.01	3.1	65.4	0.80	35.4	44.2	0.484	0.088	0.114	0.24	NonLiqfble.
	25.24	11	9.3	0.22	105	2915	2027	9.0	7.7	2.81	3.1	63.6	0.80	36.2	45.2	0.485	0.089	0.115	0.24	NonLiqfble.
	25.33	11	9	0.21	105	2925	2031	8.7	7.4	2.79	3.1	64.5	0.80	35.0	43.7	0.485	0.088	0.114	0.24	NonLiqfble.
	25.39	11	9.3	0.21	105	2931	2033	9.0	7.7	2.68	3.1	62.9	0.80	36.1	45.1	0.486	0.089	0.115	0.24	NonLiqfble.
	25.48	11	9.1	0.21	105	2940	2037	8.8	7.5	2.75	3.1	64.1	0.80	35.3	44.1	0.486	0.088	0.114	0.24	NonLiqfble.
	25.56 25.64	11 11	9.3 8.6	0.21 0.21	105 105	2949 2957	2040 2044	9.0 8.3	7.7 7.0	2.68 2.95	3.1	63.1 67.2	0.80 0.80	36.0 33.3	45.0 41.6	0.487 0.488	0.088 0.087	0.115 0.113	0.24 0.23	NonLiqfble. NonLiqfble.
	25.73	11	7.9	0.19	105	2967	2044	7.6	6.3	2.96	3.2	70.2	0.80	30.6	38.2	0.488	0.087	0.113	0.23	NonLiqfble.
	25.81	11	7.5	0.17	105	2975	2051	7.2	5.9	2.83	3.2	71.2	0.80	29.0	36.2	0.489	0.084	0.110	0.22	NonLiqfble.
	25.89	11	8.1	0.17	105	2984	2054	7.8	6.4	2.57	3.1	67.0	0.80	31.3	39.1	0.489	0.086	0.111	0.23	NonLiqfble.
	26.12	11	8.2	0.17	105	3008	2064	7.9	6.5	2.54	3.1	66.6	0.80	31.6	39.5	0.491	0.086	0.111	0.23	NonLiqfble.
	26.21	11	8.7	0.16	105	3017	2068	8.4	7.0	2.23	3.1	62.6	0.80	33.5	41.9	0.492	0.087	0.113	0.23	NonLiqfble.
	26.3	11	7.8	0.14	95	3027	2072	7.5	6.1	2.23	3.1	66.3	0.80	30.0	37.5	0.492	0.085	0.110	0.22	NonLiqfble.
	26.39	11	8.3	0.15	105	3035	2075	8.0	6.5	2.21	3.1	64.2	0.80	31.9	39.9	0.493	0.086	0.112	0.23	NonLiqfble.
	26.48	11 11	7.3 7.9	0.15 0.15	95 105	3045 3053	2079 2082	7.0 7.6	5.6 6.1	2.60 2.35	3.2	71.3 66.9	0.80 0.80	28.0 30.3	35.0 37.9	0.494 0.494	0.084 0.085	0.109 0.111	0.22 0.22	NonLiqfble. NonLiqfble.
	26.57 26.66	11	8.3	0.13	95	3063	2082	8.0	6.5	2.33	3.1	63.3	0.80	31.8	39.8	0.494	0.086	0.111	0.22	NonLiqfble.
	26.76	11	7.7	0.14	95	3072	2089	7.4	5.9	2.27	3.1	67.4	0.80	29.5	36.9	0.496	0.085	0.112	0.22	NonLiqfble.
	26.84	11	7.5	0.13	95	3080	2091	7.2	5.7	2.18	3.1	67.7	0.80	28.7	35.9	0.496	0.084	0.110	0.22	NonLiqfble.
	26.93	11	7.2	0.13	95	3088	2094	6.9	5.4	2.30	3.2	70.1	0.80	27.5	34.4	0.497	0.084	0.109	0.22	NonLiqfble.
	27.03	11	7.8	0.13	95	3098	2097	7.5	6.0	2.08	3.1	65.7	0.80	29.8	37.3	0.498	0.085	0.110	0.22	NonLiqfble.
	27.12	11	7.2	0.13	95	3106	2100	6.9	5.4	2.30	3.2	70.2	0.80	27.5	34.4	0.498	0.084	0.109	0.22	NonLiqfble.
	27.21	11	7.1	0.13	95	3115	2103	6.8	5.3	2.35	3.2	71.1	0.80	27.1	33.9	0.499	0.084	0.109	0.22	NonLiqfble.
	27.3 27.39	11	6.9	0.12	95	3123 3132	2106	6.6	5.1	2.25	3.2	71.5	0.80	26.3	32.9	0.500	0.083	0.108	0.22	NonLiqfble. NonLiqfble.
	27.48	11 11	6.7 7.6	0.12 0.13	95 95	3140	2109 2112	6.4 7.2	4.9 5.7	2.34 2.16	3.2	73.3 67.4	0.80 0.80	25.5 28.9	31.9 36.2	0.500 0.501	0.083 0.084	0.108 0.110	0.22 0.22	NonLiqfble. NonLiqfble.
	27.46	11	8.4	0.13	95 95	3149	2112	8.0	6.5	1.90	3.1	62.2	0.80	32.0	40.0	0.501	0.084	0.110	0.22	NonLiqible. NonLiqfble.
	27.66	11	9.2	0.13	95	3158	2118	8.7	7.2	1.84	3.0	58.8	0.80	35.0	43.7	0.502	0.088	0.112	0.22	NonLiqfble.
	27.75	11	10.4	0.15	105	3166	2121	9.9	8.3	1.70	2.9	54.2	0.80	39.5	49.4	0.503	0.091	0.119	0.24	NonLiqfble.
	27.84	11	10.1	0.15	105	3176	2125	9.6	8.0	1.76	3.0	55.5	0.80	38.3	47.9	0.504	0.090	0.117	0.23	NonLiqfble.
	27.93	11	10.1	0.15	105	3185	2129	9.6	8.0	1.76	3.0	55.6	0.80	38.3	47.9	0.504	0.090	0.117	0.23	NonLiqfble.
	28.02	11	9.8	0.16	105	3194	2132	9.3	7.7	1.95	3.0	58.0	0.80	37.1	46.4	0.505	0.089	0.116	0.23	NonLiqfble.
	28.11	11	10.7	0.15	105	3204	2136	10.1	8.5	1.65	2.9	53.1	0.80	40.5	50.6	0.505	0.092	0.120	0.24	NonLiqfble.

**EQ Magnitude** (M<sub>w</sub>): 6.5

**PGA (g):** 0.54

**MSF:** 1.30

Date: September 2005 CPT Number: 23

Depth to Groundwater: 11 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Lianef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress		Tip	Tip	Ratio		F.C.				Stress	•	•	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
																			·	
	28.2 28.29	11 11	9.7 9.7	0.15 0.16	105 105	3213 3223	2140 2144	9.2 9.2	7.6 7.5	1.85 1.98	3.0	57.7 58.7	0.80	36.7 36.7	45.9 45.8	0.506 0.507	0.089	0.116 0.116	0.23 0.23	NonLiqfble. NonLiqfble.
	28.38	11	9.6	0.16	105	3232	2148	9.1	7.4	2.00	3.0	59.3	0.80	36.3	45.3	0.507	0.089	0.115	0.23	NonLiqfble.
	28.47	11	9.3	0.15	105	3242	2152	8.8	7.1	1.95	3.0	59.9	0.80	35.1	43.9	0.508	0.088	0.114	0.22	NonLiqfble.
	28.56	11	10	0.14	95	3251	2155	9.4	7.8	1.67	3.0	55.6	0.80	37.7	47.1	0.508	0.090	0.117	0.23	NonLiqfble.
	28.65	11	10.4	0.14	95	3260	2158	9.8	8.1	1.60	2.9	53.8	0.80	39.2	49.0	0.509	0.091	0.118	0.23	NonLiqfble.
	28.74	11	10.5	0.12	95	3268	2161	9.9	8.2	1.35	2.9	51.5	0.80	39.5	49.4	0.510	0.091	0.119	0.23	NonLiqfble.
	28.82 28.91	11 11	10.4 11.2	0.13 0.15	95 105	3276 3284	2164 2167	9.8 10.5	8.1 8.8	1.48 1.57	2.9 2.9	53.0 51.7	0.80 0.80	39.1 42.1	48.9 52.6	0.510 0.511	0.091 0.094	0.118 0.122	0.23 0.24	NonLiqfble. NonLiqfble.
	29	11	10.3	0.15	105	3294	2171	9.7	8.0	1.73	3.0	55.4	0.80	38.7	48.4	0.511	0.091	0.118	0.23	NonLiqfble.
	29.09	11	10.9	0.18	105	3303	2175	10.2	8.5	1.95	3.0	55.5	0.80	40.9	51.1	0.512	0.092	0.120	0.23	NonLiqfble.
	29.18	11	12.7	0.21	105	3313	2178	11.9	10.1	1.90	2.9	51.0	0.80	47.6	59.5	0.512	0.100	0.130	0.25	NonLiqfble.
	29.27	11	12.1	0.23	105	3322	2182	11.3	9.6	2.20	2.9	54.5	0.80	45.3	56.7	0.513	0.097	0.126	0.25	NonLiqfble.
	29.55 29.64	11 11	17.5 16.5	0.23	115 105	3352 3362	2194 2199	16.3 15.4	14.4 13.5	1.45 1.35	2.7 2.7	40.1 40.6	0.80	65.4 61.6	81.7 77.0	0.515 0.515	0.131 0.122	0.170 0.159	0.33	NonLiqfble. NonLiqfble.
	29.73	11	14.3	0.17	105	3371	2203	13.4	11.4	1.35	2.8	43.9	0.80	53.3	66.7	0.516	0.122	0.139	0.27	NonLiqfble.
	29.82	11	14.1	0.17	105	3381	2207	13.1	11.2	1.37	2.8	44.5	0.80	52.5	65.7	0.516	0.106	0.138	0.27	NonLiqfble.
	29.91	11	12.5	0.16	105	3390	2210	11.6	9.8	1.48	2.8	48.5	0.80	46.5	58.2	0.517	0.098	0.128	0.25	NonLiqfble.
	30	11	11.4	0.15	105	3400	2214	10.6	8.8	1.55	2.9	51.6	0.80	42.4	53.0	0.496	0.094	0.122	0.25	NonLiqfble.
	30.09	11	11.6	0.16	105	3409	2218	10.8	8.9	1.62	2.9	51.8	0.80	43.1	53.9	0.496	0.095	0.123	0.25	NonLiqfble.
	30.18 30.27	11 11	11.8 12.2	0.16 0.2	105 105	3419 3428	2222 2226	11.0 11.3	9.1 9.4	1.59 1.91	2.9 2.9	51.1 52.8	0.80 0.80	43.8 45.3	54.8 56.6	0.497 0.497	0.095 0.097	0.124 0.126	0.25 0.25	NonLiqfble. NonLiqfble.
	30.36	11	14.2	0.26	115	3438	2230	13.2	11.2	2.08	2.9	50.1	0.80	52.6	65.8	0.498	0.106	0.120	0.28	NonLiqfble.
	30.45	11	15.8	0.39	125	3448	2234	14.6	12.6	2.77	2.9	51.7	0.80	58.5	73.1	0.498	0.116	0.151	0.30	NonLiqfble.
	30.55	11	20.3	0.52	125	3460	2241	18.8	16.6	2.80	2.8	46.0	0.80	75.1	93.8	0.499	0.157	0.204	0.41	NonLiqfble.
	30.63	11	26.1	0.63	125	3470	2246	24.1	21.7	2.59	2.7	39.7	0.80	96.4	120.5	0.499	0.243	0.316	0.63	NonLiqfble.
	30.71	11	35.6	0.74 0.83	135 135	3480 3493	2251	32.8	30.1 37.9	2.19	2.5	32.0	0.72	85.1	118.0	0.499	0.233	0.302	0.61	Liquefaction
	30.8 30.89	11 11	44.5 52.5	0.85	135	3505	2257 2264	41.0 48.3	44.8	1.94 1.67	2.4	27.2 23.3	0.59 0.49	59.7 46.4	100.7 94.7	0.500 0.500	0.175 0.159	0.227 0.207	0.45 0.41	Liquefaction Liquefaction
	30.98	11	60.4	0.85	125	3517	2270	55.5	51.6	1.45	2.2	20.2	0.41	37.8	93.3	0.500	0.156	0.202	0.40	Liquefaction
	31.07	11	64.6	0.76	125	3528	2276	59.2	55.2	1.21	2.2	17.8	0.34	30.8	90.0	0.501	0.148	0.192	0.38	Liquefaction
	31.16	11	60	0.67	125	3539	2281	55.0	51.0	1.15	2.2	18.3	0.35	30.2	85.2	0.501	0.137	0.179	0.36	Liquefaction
	31.24	11	52.5	0.66	125	3549	2286	48.0	44.4	1.30	2.3	21.0	0.43	36.0	84.0	0.501	0.135	0.176	0.35	Liquefaction
	31.33 31.42	11 11	41.2 32	0.53 0.46	125 125	3561 3572	2292 2298	37.7 29.2	34.4 26.3	1.34 1.52	2.4	24.7 30.0	0.53 0.67	41.8 58.5	79.5 87.7	0.502 0.502	0.127 0.143	0.165 0.186	0.33 0.37	Liquefaction Liquefaction
	31.51	11	24.7	0.45	125	3583	2303	22.5	19.9	1.96	2.6	37.7	0.80	90.1	112.6	0.502	0.143	0.180	0.55	NonLiqfble.
	31.6	11	21.2	0.36	125	3594	2309	19.3	16.8	1.86	2.7	40.1	0.80	77.2	96.5	0.503	0.164	0.213	0.42	NonLiqfble.
	31.69	11	20.8	0.38	125	3606	2315	18.9	16.4	2.00	2.7	41.5	0.80	75.7	94.6	0.503	0.159	0.206	0.41	NonLiqfble.
	31.78	11	21.4	0.63	125	3617	2320	19.4	16.9	3.22	2.8	47.8	0.80	77.8	97.2	0.503	0.165	0.215	0.43	NonLiqfble.
	31.87	11	19	0.9	135	3628	2326	17.2	14.8	5.24	3.0	59.1	0.80	69.0	86.2	0.504	0.140	0.181	0.36	NonLiqfble.
	31.95 32.01	11 11	25.4 49.5	0.93 0.97	135 135	3639 3647	2332 2336	23.0 44.8	20.2 40.8	3.94 2.03	2.8 2.4	47.5 26.7	0.80 0.58	92.1 61.7	115.1 106.5	0.504 0.504	0.222 0.192	0.288 0.250	0.57 0.50	NonLiqfble. Liquefaction
	32.09	11	68.1	1.09	135	3658	2342	61.6	56.6	1.64	2.2	20.7	0.36	42.6	104.2	0.504	0.192	0.241	0.48	Liquefaction
	32.15	11	70.5	1.22	135	3666	2346	63.7	58.5	1.78	2.2	20.7	0.42	45.9	109.6	0.505	0.202	0.263	0.52	Liquefaction
	32.2	11	59.9	0.99	135	3673	2350	54.1	49.4	1.71	2.3	22.3	0.46	46.4	100.5	0.505	0.174	0.227	0.45	Liquefaction
	32.27	11	45.9	0.94	135	3682	2355	41.4	37.4	2.13	2.4	28.5	0.63	69.4	110.8	0.505	0.207	0.268	0.53	Liquefaction
	32.36 32.44	11 11	34.1 25.3	0.92 0.81	135 135	3694 3705	2361 2367	30.7 22.8	27.3 19.8	2.85 3.45	2.6 2.8	37.1 45.7	0.80 0.80	122.8 91.0	153.5 113.8	0.505 0.505	0.416 0.217	0.541 0.282	1.07 0.56	NonLiqfble.
	32.48	11	28.7	0.74	135	3710	2370	25.8	22.6	2.76	2.7	39.9	0.80	103.2	129.0	0.506	0.217	0.262	0.72	NonLiqfble. NonLiqfble.
	32.57	11	22.1	0.64	125	3723	2377	19.8	17.0	3.16	2.8	47.4	0.80	79.3	99.2	0.506	0.171	0.222	0.44	NonLiqfble.
	32.66	11	18.7	0.59	125	3734	2382	16.8	14.1	3.51	2.9	52.9	0.80	67.1	83.8	0.506	0.135	0.175	0.35	NonLiqfble.
	32.75	11	17.3	0.58	125	3745	2388	15.5	12.9	3.76	3.0	56.1	0.80	62.0	77.4	0.506	0.123	0.160	0.32	NonLiqfble.
	32.84	11	18.9	0.54	125	3756	2394	16.9	14.2	3.17	2.9	51.2	0.80	67.6	84.5	0.507	0.136	0.177	0.35	NonLiqfble.
	32.92 33	11 11	19.7 19.6	0.47 0.39	125 125	3766 3776	2399 2404	17.6 17.5	14.8 14.7	2.64 2.20	2.8 2.8	47.4 45.0	0.80 0.80	70.4 70.0	88.0 87.5	0.507 0.507	0.143 0.142	0.186 0.185	0.37 0.36	NonLiqfble. NonLiqfble.
	33.07	11	19.6	0.39	115	3785	2404	16.9	14.7	1.93	2.8	43.9	0.80	67.8	84.7	0.507	0.142	0.185	0.35	NonLiqfble.
	33.16	11	16	0.32	115	3795	2413	14.3	11.7	2.27	2.9	50.3	0.80	57.0	71.3	0.508	0.114	0.148	0.29	NonLiqfble.
	33.25	11	14.8	0.29	115	3806	2417	13.2	10.7	2.25	2.9	52.3	0.80	52.7	65.9	0.508	0.107	0.139	0.27	NonLiqfble.
	33.34	11	13	0.28	115	3816	2422	11.6	9.2	2.52	3.0	57.6	0.80	46.2	57.8	0.509	0.098	0.127	0.25	NonLiqfble.
	33.42	11	13	0.26	115	3825	2426	11.5	9.1	2.35	3.0	56.5	0.80	46.2	57.7	0.509	0.098	0.127	0.25	NonLiqfble.
	33.51 33.6	11 11	12.3	0.26	115	3836 3846	2431	10.9	8.5	2.50	3.0	59.2	0.80	43.7	54.6 57.2	0.509	0.095	0.124	0.24	NonLiqfble.
	33.69	11	12.9 12.6	0.24 0.22	115 105	3846 3856	2436 2441	11.4 11.2	9.0 8.7	2.19 2.06	3.0	55.8 55.7	0.80 0.80	45.7 44.6	57.2 55.8	0.510 0.510	0.097 0.096	0.127 0.125	0.25 0.24	NonLiqfble. NonLiqfble.
	55.55	11	.2.0	5.22	100	2320	~ 1-11		0.7	2.50	2.0	55.1	0.00	. 1.0	55.0	0.010	0.070	0.120	0.24	

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 23

Depth to Groundwater: 11 feet

**EQ Magnitude (M<sub>w</sub>):** 6.5 **PGA (g):** 0.54 **MSF:** 1.30

		***	TO:	CI.		m . 1	Dee	<b>N</b> 7		T							T. 6	T. 6	F. 4	
	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Stress	Stress	Liquef. Stress	ractor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	q <sub>c1N</sub>	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)cs		M7.5	M6.50	Safety	Comments
		,	, ,	, ,	,	, , ,	( )					( ,			-					
	00.70		40.0	0.04	405	2066	2444				2.0	52.0	0.00		50.4	0.511	0.000	0.120	0.25	
	33.78 33.87	11 11	13.2 13.2	0.21 0.2	105 105	3866 3875	2444 2448	11.7 11.7	9.2 9.2	1.86 1.78	2.9 2.9	53.0 52.3	0.80	46.7 46.7	58.4 58.4	0.511 0.511	0.099	0.128 0.128	0.25 0.25	NonLiqfble. NonLiqfble.
	33.95	11	12.2	0.19	105	3884	2452	10.8	8.4	1.85	3.0	55.2	0.80	43.1	53.9	0.511	0.095	0.123	0.24	NonLiqfble.
	34.04	11	11.5	0.19	105	3893	2456	10.2	7.8	1.99	3.0	58.0	0.80	40.6	50.8	0.512	0.092	0.120	0.23	NonLiqfble.
	34.13	11	11.2	0.19	105	3903	2459	9.9	7.5	2.05	3.0	59.4	0.80	39.5	49.4	0.512	0.091	0.119	0.23	NonLiqfble.
	34.22	11	10.6	0.17	105	3912	2463	9.3	7.0	1.97	3.0	60.5	0.80	37.4	46.7	0.513	0.089	0.116	0.23	NonLiqfble.
	34.31 34.4	11 11	9.5 9.3	0.15 0.14	105 95	3922 3931	2467 2471	8.4 8.2	6.1 5.9	1.99 1.91	3.1	64.3 64.5	0.80	33.5 32.7	41.8 40.9	0.513 0.514	0.087 0.086	0.113 0.112	0.22	NonLiqfble. NonLiqfble.
	34.49	11	7.6	0.12	95	3940	2474	6.7	4.5	2.13	3.2	75.3	0.80	26.7	33.4	0.514	0.083	0.109	0.21	NonLiqfble.
	34.57	11	7.3	0.11	95	3947	2476	6.4	4.3	2.07	3.2	75.3	0.80	25.7	32.1	0.515	0.083	0.108	0.21	NonLiqfble.
	34.66	11	8.4	0.11	95	3956	2479	7.4	5.2	1.71	3.1	75.3	0.80	29.5	36.9	0.515	0.085	0.110	0.21	NonLiqfble.
	34.75 34.84	11 11	7 6.6	0.1 0.11	95 95	3964 3973	2482 2485	6.1 5.8	4.0 3.7	1.99 2.38	3.2 3.3	75.3 75.3	0.80 0.80	24.6 23.2	30.7 29.0	0.516 0.516	0.083 0.082	0.108 0.107	0.21 0.21	NonLiqfble. NonLiqfble.
	34.93	11	7.4	0.11	95	3981	2488	6.5	4.3	2.03	3.2	75.3	0.80	26.0	32.5	0.517	0.083	0.108	0.21	NonLiqfble.
	35.02	11	6.6	0.11	95	3990	2491	5.8	3.7	2.39	3.3	75.3	0.80	23.1	28.9	0.517	0.082	0.107	0.21	NonLiqfble.
	35.1	11	7.1	0.11	95	3997	2494	6.2	4.1	2.16	3.3	75.3	0.80	24.9	31.1	0.518	0.083	0.108	0.21	NonLiqfble.
	35.19 35.28	11 11	7.7 6.6	0.12 0.1	95 95	4006 4015	2497 2500	6.7 5.8	4.6 3.7	2.11 2.18	3.2	75.3	0.80 0.80	27.0 23.1	33.7 28.9	0.518 0.519	0.084 0.082	0.109 0.107	0.21 0.21	NonLiqfble.
	35.37	11	6.2	0.1	95	4023	2502	5.4	3.3	2.39	3.4	75.3 75.3	0.80	21.7	27.1	0.519	0.082	0.107	0.21	NonLiqfble. NonLiqfble.
	35.46	11	5.9	0.09	95	4032	2505	5.2	3.1	2.32	3.4	75.3	0.80	20.6	25.8	0.520	0.082	0.106	0.20	NonLiqfble.
	35.55	11	5.7	0.09	95	4040	2508	5.0	2.9	2.45	3.4	75.3	0.80	19.9	24.9	0.520	0.081	0.106	0.20	NonLiqfble.
	35.64	11	6.1	0.1	95	4049	2511	5.3	3.2	2.45	3.4	75.3	0.80	21.3	26.6	0.521	0.082	0.106	0.20	NonLiqfble.
	35.73 35.82	11 11	5.9 6	0.11	95 95	4057 4066	2514 2517	5.1 5.2	3.1 3.2	2.84 2.77	3.4	75.3 75.3	0.80 0.80	20.6 20.9	25.7 26.2	0.521 0.522	0.082 0.082	0.106 0.106	0.20	NonLiqfble. NonLiqfble.
	35.91	11	6.9	0.11	95	4074	2520	6.0	3.9	2.26	3.3	75.3	0.80	24.1	30.1	0.522	0.083	0.100	0.21	NonLiqfble.
	36.13	11	8.9	0.12	95	4095	2527	7.7	5.4	1.75	3.1	65.7	0.80	31.0	38.7	0.523	0.085	0.111	0.21	NonLiqfble.
	36.22	11	8.5	0.12	95	4104	2530	7.4	5.1	1.86	3.1	68.3	0.80	29.6	37.0	0.524	0.085	0.110	0.21	NonLiqfble.
	36.3 36.39	11 11	8.8 8.6	0.12 0.11	95 95	4111 4120	2533 2536	7.7 7.5	5.3 5.2	1.78 1.68	3.1	66.4 66.5	0.80	30.6 29.9	38.3 37.4	0.524 0.525	0.085 0.085	0.111 0.110	0.21	NonLiqfble. NonLiqfble.
	36.46	11	9.7	0.11	95	4127	2538	8.4	6.0	1.31	3.0	58.8	0.80	33.7	42.1	0.525	0.083	0.110	0.21	NonLiqfble.
	36.55	11	8.6	0.09	95	4135	2541	7.5	5.1	1.38	3.1	63.7	0.80	29.9	37.3	0.526	0.085	0.110	0.21	NonLiqfble.
	36.64	11	7.8	0.11	95	4144	2544	6.8	4.5	1.92	3.2	72.4	0.80	27.1	33.8	0.526	0.084	0.109	0.21	NonLiqfble.
	36.73	11	7.9	0.13	95	4152	2547	6.8	4.6	2.23	3.2	74.4	0.80	27.4	34.2	0.526	0.084	0.109	0.21	NonLiqfble.
	36.82 36.91	11 11	8.6 9.6	0.16 0.16	105 105	4161 4170	2550 2554	7.5 8.3	5.1 5.9	2.45 2.13	3.2	72.7 66.4	0.80	29.8 33.2	37.3 41.6	0.527 0.527	0.085 0.087	0.110 0.113	0.21	NonLiqfble. NonLiqfble.
	37	11	10.9	0.17	105	4180	2557	9.4	6.9	1.93	3.0	60.7	0.80	37.7	47.2	0.528	0.090	0.117	0.22	NonLiqfble.
	37.09	11	13	0.16	105	4189	2561	11.2	8.5	1.47	2.9	51.6	0.80	45.0	56.2	0.528	0.097	0.125	0.24	NonLiqfble.
	37.18	11	12	0.14	95	4199	2565	10.4	7.7	1.41	2.9	53.5	0.80	41.5	51.8	0.529	0.093	0.121	0.23	NonLiqfble.
	37.27 37.36	11 11	11.1 11.3	0.11 0.1	95 95	4207 4216	2568 2571	9.6 9.8	7.0 7.1	1.22 1.09	2.9 2.9	54.0 52.1	0.80	38.3 39.0	47.9 48.8	0.529 0.530	0.090 0.091	0.117 0.118	0.22	NonLiqfble. NonLiqfble.
	37.45	11	9.9	0.08	95	4224	2574	8.5	6.0	1.03	3.0	55.6	0.80	34.2	42.7	0.530	0.091	0.113	0.22	NonLiqfble.
	37.54	11	6.9	0.09	95	4233	2577	5.9	3.7	1.88	3.3	78.0	0.80	23.8	29.7	0.530	0.082	0.107	0.20	NonLiqfble.
	37.63	11	6.5	0.09	95	4241	2580	5.6	3.4	2.06	3.3	82.3	0.80	22.4	28.0	0.531	0.082	0.107	0.20	NonLiqfble.
	37.72	11	6.3	0.09	95	4250	2583	5.4	3.2	2.16	3.3	84.8	0.80	21.7	27.1	0.531	0.082	0.106	0.20	NonLiqfble.
	37.81 37.9	11 11	7.2 7.2	0.1 0.1	95 95	4259 4267	2586 2589	6.2 6.2	3.9 3.9	1.97 1.97	3.3	77.1 77.1	0.80	24.8 24.8	31.0 31.0	0.532 0.532	0.083	0.108 0.108	0.20	NonLiqfble. NonLiqfble.
	37.99	11	7.2	0.11	95	4276	2591	6.0	3.8	2.26	3.3	80.8	0.80	24.1	30.1	0.533	0.083	0.107	0.20	NonLiqfble.
	38.08	11	6.9	0.1	95	4284	2594	5.9	3.7	2.10	3.3	80.2	0.80	23.7	29.6	0.533	0.082	0.107	0.20	NonLiqfble.
	38.17	11	6.6	0.11	95	4293	2597	5.7	3.4	2.47	3.3	85.2	0.80	22.7	28.3	0.534	0.082	0.107	0.20	NonLiqfble.
	38.26 38.35	11 11	6.6 6.1	0.12 0.11	95 95	4301 4310	2600 2603	5.7 5.2	3.4 3.0	2.70 2.79	3.4 3.4	86.9 91.6	0.80	22.7 20.9	28.3 26.2	0.534 0.535	0.082 0.082	0.107 0.106	0.20 0.20	NonLiqfble. NonLiqfble.
	38.44	11	6.4	0.11	95	4318	2606	5.5	3.3	2.59	3.4	87.9	0.80	21.9	27.4	0.535	0.082	0.106	0.20	NonLiqfble.
	38.53	11	6.6	0.12	95	4327	2609	5.7	3.4	2.71	3.4	87.2	0.80	22.6	28.3	0.536	0.082	0.107	0.20	NonLiqfble.
	38.61	11	6.6	0.12	95	4335	2612	5.7	3.4	2.71	3.4	87.2	0.80	22.6	28.3	0.536	0.082	0.107	0.20	NonLiqfble.
	38.7	11	6.8	0.13	95	4343	2615	5.8	3.5	2.81	3.4	86.5	0.80	23.3	29.1	0.536	0.082	0.107	0.20	NonLiqfble.
	38.79 38.88	11 11	8 8.8	0.12 0.13	95 95	4352 4360	2618 2620	6.8 7.5	4.4 5.0	2.06 1.96	3.2 3.2	73.9 69.4	0.80	27.4 30.1	34.2 37.6	0.537 0.537	0.084 0.085	0.109 0.110	0.20 0.21	NonLiqfble. NonLiqfble.
	38.97	11	8.9	0.13	95	4369	2623	7.6	5.1	1.94	3.1	68.8	0.80	30.4	38.0	0.538	0.085	0.110	0.21	NonLiqfble.
	39.06	11	8	0.12	95	4377	2626	6.8	4.4	2.07	3.2	74.1	0.80	27.3	34.2	0.538	0.084	0.109	0.20	NonLiqfble.
	39.15	11	8.2	0.11	95	4386	2629	7.0	4.6	1.83	3.2	71.3	0.80	28.0	35.0	0.539	0.084	0.109	0.20	NonLiqfble.
	39.23 39.32	11	8.5 7.4	0.11	95 95	4393 4402	2632 2635	7.2 6.3	4.8 3.9	1.75	3.1	69.1	0.80	29.0	36.2	0.539 0.540	0.084	0.110 0.108	0.20 0.20	NonLiqfble.
	39.32	11 11	7.4 7.5	0.09	95 95	4402	2638	6.4	4.0	1.73 1.51	3.2	74.8 72.2	0.80	25.2 25.6	31.5 31.9	0.540	0.083	0.108	0.20	NonLiqfble. NonLiqfble.
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Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 23

Depth to Groundwater: 11 feet

Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Stress Stress Stress (TSF) (TSF) (PCF) (PSF) (PSF) (%) KCPT Dqcin (qcin)cs Ratio M7.5 M6.50 Safety (FT) (FT) **q**c1N 0 Comments Ic 39.45 11 4 0.08 95 4414 2639 3.4 1.4 4.46 3.8 133.3 0.80 13.6 17.0 0.540 0.080 0.105 0.19 NonLigfble. 39.54 11 7.8 0.09 95 4423 2642 6.6 4.2 1.61 3.2 71.6 0.80 26.6 33.2 0.541 0.083 0.108 0.20 NonLiqfble. 39.63 11 7.8 0.09 95 4431 2645 6.6 4.2 1.61 3.2 71.7 0.80 26.5 33.2 0.541 0.083 0.108 0.20 NonLiqfble. 39.72 11 7.6 0.09 95 4440 2648 6.5 4.1 1.67 3.2 73.4 0.80 25.8 32.3 0.541 0.083 0.108 0.20 NonLiqfble. 39.81 7.7 0.08 95 4449 2651 4.1 1.46 3.2 70.9 0.80 26.2 32.7 0.542 0.083 0.108 0.20 NonLiqfble. 39.9 11 8 0.08 95 4457 2654 6.8 4.3 1.39 3.1 68.6 0.80 27.2 34.0 0.542 0.084 0.109 0.20 NonLiqfble. 39.99 8.2 0.08 95 4466 2657 7.0 4.5 1.34 3.1 67.2 0.80 27.8 34.8 0.543 0.109 0.20 NonLiafble. 11 0.084 40.08 8.2 0.09 95 4474 7.0 4.5 1.51 0.80 27.8 0.502 0.109 0.22 NonLiafble. 11 2660 3.1 68.9 34.8 0.084 40.17 9.2 0.09 95 4483 2663 5.2 1.29 0.80 39.0 0.502 0.111 0.22 NonLiafble. 11 7.8 3.1 62.4 31.2 0.086 40.26 11 9.5 0.1 95 4491 2665 8.1 5.4 1.38 3.1 62.2 0.80 32.2 40.3 0.503 0.086 0.112 0.22 NonLigfble. 40.35 11 9.8 0.13 95 4500 2668 8.3 5.7 1.72 3.1 64.3 0.80 33.2 41.5 0.503 0.087 0.113 0.22 NonLigfble 2671 40.44 10.8 0.14 95 4508 9.1 60.2 0.80 45.7 0.504 0.089 0.116 0.23 NonLiqfble. 11 6.4 1.64 3.0 36.6 40.53 11 11.2 0.14 95 4517 2674 9 5 6.7 1.57 3.0 58.5 0.80 37.9 47 4 0.504 0.090 0.117 0.23 NonLiqfble. 40.62 11 11.9 0.15 105 4525 2677 10.1 7.2 1.56 3.0 56.5 0.80 40.3 50.3 0.504 0.092 0.119 0.24 NonLiqfble. 105 40.71 11 12.4 0.16 4535 2681 10.5 7.6 1.58 3.0 55.5 0.80 41.9 52.4 0.505 0.093 0.121 0.24 NonLiafble. 40.8 11 12.3 0.16 105 4544 2685 10.4 7.5 1.60 3.0 55.9 0.80 41.5 51.9 0.505 0.093 0.121 0.24 NonLiqfble. 40.89 105 4554 3.0 0.80 41.5 0.505 0.093 11 12.3 0.16 2689 10.4 7.5 1.60 56.0 51.9 0.121 0.24 NonLiafble. 0.17 105 40.98 4563 2693 11.0 1.59 2.9 54.3 0.80 43.8 54.8 0.506 0.095 0.124 0.25 NonLigfble. 11 13 8.0 41.07 11 13.2 0.18 105 4573 2696 11.1 8.1 1.65 2.9 54.4 0.80 44.5 55.6 0.506 0.096 0.125 0.25 NonLigfble. 41.17 105 2701 2.9 54.5 0.506 11 13.6 0.2 4583 11.5 8.4 1.77 0.80 45.8 57.3 0.097 0.1270.25 NonLigfble. 41.25 11 13.9 0.2 105 4592 2704 11.7 8.6 1.72 2.9 53.6 0.80 46.8 58.5 0.507 0.099 0.128 0.25 NonLigfble. 41 34 11 136 0.22 105 4601 2708 114 83 1 95 3.0 56.0 0.80 45.7 57.2 0.507 0.097 0.127 0.25 NonLiafble. 41.43 11 14.5 0.26 115 4611 2712 12.2 9.0 2.13 3.0 55.5 0.80 48 7 60.9 0.507 0.101 0.131 0.26 NonLiqfble. 41.52 11 15.6 0.31 115 4621 2716 13.1 9.8 2.33 2.9 54.8 0.80 52.4 65.5 0.508 0.106 0.138 0.27 NonLiqfble. 41.61 11 16.7 0.33 115 4631 2721 14.0 10.6 2.29 2.9 52.8 0.80 56.0 70.0 0.508 0.112 0.146 0.29 NonLiqfble. 41.7 11 18.1 0.37 125 4642 2726 15.2 11.6 2.35 2.9 51.0 0.80 60.7 75.8 0.508 0.121 0.157 0.31 NonLigfble. 41.79 11 18.9 0.4 125 4653 2732 15.8 12.1 2.41 2.9 50.4 0.80 63.3 79.1 0.508 0.126 0.164 0.32 NonLiqfble. 41.88 0.42 125 4664 2737 15.9 2.52 2.9 0.80 63.6 79.4 0.508 0.32 11 19 12.2 51.0 0.127 0.165 NonLigfble. 41.97 19.5 0.46 125 4675 2743 0.509 11 16.3 12.5 2.68 2.9 51.3 0.80 65.2 81.5 0.130 0.169 0.33 NonLigfble. 42.06 20.5 0.49 125 4687 2748 2.70 2.9 0.80 0.509 0.35 NonLiafble. 11 17.1 13.2 50.2 68.4 85 5 0.138 0.180 42.14 21.5 0.5 125 4697 2753 17.9 2.61 2.8 48.6 0.80 0.509 0.191 0.38 NonLiafble. 11 13.9 71.7 89.6 0.147 0.53 0.509 42 23 11 222 125 4708 2759 18.5 14 4 2.67 2.8 48 3 0.80 74.092.5 0.154 0.200 0.39 NonLiafble. 42 32 11 226 0.58 125 4719 2765 18.8 14 6 2.87 29 49 0 0.80 75.2 94.0 0.509 0.157 0.205 0.40 NonLiqfble. 42.41 11 23.5 0.62 125 4730 2770 19.5 15.3 2.93 2.8 48.5 0.80 78.1 97.7 0.509 0.167 0.217 0.43 NonLiqfble. 42.5 11 26.1 0.63 125 4742 2776 21.7 17.1 2.66 2.8 44.6 0.80 86.7 108.4 0.510 0.198 0.258 0.51 NonLiqfble. 125 42.58 2.7 0.289 NonLiqfble. 11 27.8 0.64 4752 2781 23.1 18.3 2.52 42.6 0.80 92.3 115.3 0.510 0.223 0.57 42.66 11 28.1 0.66 125 4762 2786 23.3 18.5 2.57 2.7 42.7 0.80 93.2 116.5 0.510 0.227 0.295 0.58 NonLigfble 42.74 27.5 0.68 125 4772 2791 22.8 18.0 2.71 2.8 43.9 0.80 91.1 113.9 0.510 0.217 0.283 0.55 NonLiqfble. 43.02 11 29.3 0.89 135 4807 2809 24.2 19.1 3.31 2.8 45.7 0.80 96.8 121.0 0.511 0.245 0.318 0.62 NonLiqfble. 43.11 11 29.3 0.91 135 4819 2815 24.2 19.1 3.38 2.8 46.1 0.80 96.6 120.8 0.511 0.244 0.317 0.62 NonLiafble. 0.88 2822 2.8 123.6 43.2 11 30 135 4831 24.7 19.5 3.19 44.8 0.80 98.8 0.511 0.255 0.332 0.65 NonLiafble. 43.29 11 30.6 0.85 135 4843 2828 25.2 19.9 3.02 2.8 43.6 0.80 100.7 125.9 0.511 0.266 0.345 0.68 NonLiafble. 43.37 11 29.2 0.88 135 4854 2834 24.0 18.9 3.29 2.8 45.9 0.80 96.0 120.0 0.511 0.2410.313 0.61 NonLiqfble. 43.46 11 28.4 0.99 135 4866 2840 23.3 18.3 3.81 2.8 48.9 0.80 93.3 116.6 0.511 0.227 0.296 0.58 NonLigfble. 43.55 11 30.9 0.99 135 4878 2847 25.3 20.0 3.48 2.8 45.7 0.80 101.4 126.7 0.511 0.269 0.350 0.68 NonLiqfble. 43.64 11 40.6 1.03 135 4890 2854 33.3 26.7 2.70 2.6 36.7 0.80 133.0 166.3 0.511 0.508 0.660 1.29 NonLiqfble. 43.73 56.5 4902 2860 46.2 37.8 2.4 27.4 68.4 0.511 0.220 0.286 Liquefaction 11 1.06 135 1.96 0.60 114.7 0.56 43.8 11 66.7 1.08 135 4912 2865 54.5 44.8 1.68 2.3 23.4 0.49 52.6 107.1 0.511 0.194 0.252 0.49 Liquefaction 43.89 11 77.9 1.04 125 4924 2872 63.6 52.5 1.38 2.2 19.5 0.39 40.3 103.9 0.512 0.184 0.240 0.47 Liquefaction 0.172 43.97 0.84 125 4934 2877 72.5 0.97 2.1 15.2 0.27 27.0 99.5 0.223 0.44 11 88.9 60.1 0.512 Liquefaction 44.06 4945 77.3 96.7 0.42 94.9 0.67 115 2882 64.1 0.72 2.0 12.5 0.20 19.4 0.512 0.164 0.213 Liquefaction 11 44.15 100.4 2887 11 0.61 115 4956 81.8 67.8 0.62 1.9 11.1 0.16 15.8 97.5 0.512 0.166 0.216 0.42 Liquefaction 44.24 11 104 0.6 105 4966 2892 84.6 70.2 0.59 1.9 10.5 0.15 14.4 99.0 0.512 0.1700.221 0.43 Liquefaction 44.32 11 107.6 0.57 105 4974 2895 87.5 72.6 0.54 1.9 9.7 0.13 12.6 100.1 0.513 0.1730.225 0.44 Liquefaction 44 41 11 1104 0.5 105 4984 2899 89.7 74 4 0.46 1.8 87 0.10 99 99 6 0.513 0.172 0.223 0.44 Liquefaction 44 5 11 112.3 0.56 105 4993 2903 91.2 75.6 0.51 1.8 9.0 0.11 11.0 102.2 0.513 0.179 0.233 0.45 Liquefaction 44.59 11 107.1 0.54 105 5003 2907 86.9 71.9 0.52 1.9 9 5 0.12 12.0 98.9 0.513 0.170 0.221 0.43 Liquefaction 44.68 0.52 0.55 0.202 11 97.4 105 5012 2911 79.0 65.2 1.9 10.7 0.15 14.2 93.2 0.514 0.155 0.39 Liquefaction 44.76 125 5021 0.90 0.195 11 79 0.69 2914 64.0 52.5 2.1 16.1 0.30 26.8 90.8 0.514 0.150 0.38 Liquefaction

EQ Magnitude (Mw):

PGA (g):

6.5

0.54

MSF: 1.30

0.85

0.62

125 5032

135 5043

135

125 5066

5054

2920

2925

2931

2938

44.5

29.9

23.4

18.8

35.9

23.6

18.1

14.1

1.62

2.67

2.87

2.99

2.4

2.7

2.8

2.9

26.0

38.7

44.7

50.3

0.56

0.80

0.80

0.80

56.7

119.7

93.7

75.2

101.2

149.7

117.2

94.0

0.514

0.514

0.514

0.515

0.176

0.392

0.230

0.157

0.229

0.509

0.299

0.205

0.45

0.99

0.58

0.40

Liquefaction

NonLigfble.

NonLigfble.

NonLiafble.

44.85

44.94

45.02

45.11

11

11

11

11

55

37 0.92

29 0.76

23.3

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 23

Depth to Groundwater: 11 feet

EQ Magnitude (M<sub>w</sub>): 6.5 PGA (g): 0.54

PGA (g): 0.54 MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qc1N)es	Ratio	M7.5	M6.50	Safety	Comments
	45.2	11	21.4 21.1	0.46 0.39	125 125	5077 5087	2943 2948	17.3 17.0	12.8 12.6	2.44	2.9 2.8	49.4 47.6	0.80	69.0 68.0	86.3 85.0	0.515 0.515	0.140 0.137	0.182 0.178	0.35	NonLiqfble.
	45.28 45.37	11 11	17.4	0.39	115	5099	2948	14.0	10.1	2.10 2.22	2.8	53.5	0.80	56.0	70.0	0.515	0.137	0.178	0.35 0.28	NonLiqfble. NonLiqfble.
	45.45	11	14.3	0.3	115	5108	2958	11.5	7.9	2.55	3.0	61.4	0.80	46.0	57.5	0.515	0.098	0.127	0.25	NonLiqfble.
	45.54	11	13.6	0.29	115	5118	2963	10.9	7.4	2.63	3.1	63.5	0.80	43.7	54.7	0.515	0.095	0.124	0.24	NonLiqfble.
	45.62 45.71	11 11	13 12.7	0.29 0.28	115 115	5127 5138	2967 2972	10.4 10.2	7.0 6.8	2.78	3.1	65.9 66.7	0.80	41.8	52.2 51.0	0.516 0.516	0.093	0.121 0.120	0.24	NonLiqfble.
	45.71	11	13.2	0.28	115	5147	2972	10.2	7.1	2.76 2.64	3.1	64.6	0.80	40.8 42.3	52.9	0.516	0.092 0.094	0.120	0.23	NonLiqfble. NonLiqfble.
	45.88	11	13.4	0.28	115	5157	2981	10.7	7.3	2.59	3.1	63.9	0.80	43.0	53.7	0.516	0.094	0.123	0.24	NonLiqfble.
	45.97	11	13.5	0.3	115	5168	2985	10.8	7.3	2.75	3.1	64.7	0.80	43.2	54.1	0.516	0.095	0.123	0.24	NonLiqfble.
	46.05	11	13.8	0.31	115	5177	2990	11.0	7.5	2.77	3.1	64.2	0.80	44.2	55.2	0.517	0.096	0.124	0.24	NonLiqfble.
	46.14 46.22	11 11	14 14.4	0.31 0.32	115 115	5187 5196	2994 2999	11.2 11.5	7.6 7.9	2.72 2.71	3.1	63.5 62.6	0.80	44.8 46.0	56.0 57.5	0.517 0.517	0.096 0.098	0.125 0.127	0.24	NonLiqfble. NonLiqfble.
	46.32	11	15.7	0.33	115	5208	3004	12.5	8.7	2.52	3.0	58.8	0.80	50.1	62.7	0.517	0.103	0.134	0.26	NonLiqfble.
	46.39	11	16	0.33	115	5216	3008	12.8	8.9	2.46	3.0	57.9	0.80	51.1	63.8	0.517	0.104	0.135	0.26	NonLiqfble.
	46.47	11	16.7	0.33	115	5225	3012	13.3	9.4	2.34	3.0	56.0	0.80	53.3	66.6	0.518	0.107	0.140	0.27	NonLiqfble.
	46.55 46.64	11 11	16.7 16.6	0.31 0.3	115 115	5234 5245	3016 3021	13.3 13.2	9.3 9.3	2.20 2.15	2.9 2.9	55.1 54.9	0.80	53.2 52.9	66.5 66.1	0.518 0.518	0.107 0.107	0.140 0.139	0.27 0.27	NonLiqfble. NonLiqfble.
	46.73	11	16.2	0.28	115	5255	3021	12.9	9.0	2.13	2.9	55.1	0.80	51.5	64.4	0.518	0.107	0.139	0.27	NonLiqfble.
	46.82	11	16.1	0.28	115	5265	3030	12.8	8.9	2.08	3.0	55.4	0.80	51.2	64.0	0.518	0.104	0.136	0.26	NonLiqfble.
	46.91	11	16.2	0.29	115	5276	3035	12.9	8.9	2.14	3.0	55.7	0.80	51.5	64.3	0.519	0.105	0.136	0.26	NonLiqfble.
	46.99	11	17	0.31	115	5285	3039	13.5	9.4	2.16	2.9	54.5	0.80	54.0	67.5	0.519	0.109	0.141	0.27	NonLiqfble.
	47.08 47.17	11 11	17.4 17.4	0.34 0.37	115 125	5295 5306	3044 3049	13.8 13.8	9.7 9.7	2.30 2.51	2.9 3.0	54.9 56.2	0.80	55.2 55.2	69.0 68.9	0.519 0.519	0.111 0.110	0.144 0.144	0.28 0.28	NonLiqfble. NonLiqfble.
	47.26	11	17.7	0.41	125	5317	3054	14.0	9.8	2.73	3.0	57.1	0.80	56.1	70.1	0.519	0.110	0.144	0.28	NonLiqfble.
	47.35	11	17.6	0.43	125	5328	3060	13.9	9.8	2.88	3.0	58.2	0.80	55.7	69.6	0.520	0.111	0.145	0.28	NonLiqfble.
	47.44	11	17.5	0.43	125	5339	3065	13.8	9.7	2.90	3.0	58.5	0.80	55.3	69.1	0.520	0.111	0.144	0.28	NonLiqfble.
	47.53	11	16.8	0.41	125	5351	3071	13.3	9.2	2.90	3.0	59.8	0.80	53.1	66.3	0.520	0.107	0.139	0.27	NonLiqfble.
	47.62 47.71	11 11	16.5 15.7	0.4 0.39	125 125	5362 5373	3077 3082	13.0 12.4	9.0 8.4	2.89 3.00	3.0	60.3 62.5	0.80	52.1 49.5	65.1 61.9	0.520 0.520	0.106 0.102	0.137 0.133	0.26 0.26	NonLiqfble. NonLiqfble.
	47.8	11	15.6	0.37	125	5384	3088	12.3	8.4	2.87	3.1	62.0	0.80	49.1	61.4	0.520	0.102	0.132	0.25	NonLiqfble.
	47.88	11	14.9	0.36	125	5394	3093	11.7	7.9	2.95	3.1	63.9	0.80	46.9	58.6	0.520	0.099	0.128	0.25	NonLiqfble.
	47.97	11	14.5	0.36	125	5406	3099	11.4	7.6	3.05	3.1	65.4	0.80	45.6	57.0	0.520	0.097	0.126	0.24	NonLiqfble.
	48.06 48.15	11 11	14.4 14.8	0.36 0.37	115 125	5417 5427	3104 3109	11.3 11.6	7.5 7.8	3.08 3.06	3.1	65.9 64.9	0.80 0.80	45.2 46.5	56.5 58.1	0.521 0.521	0.097 0.098	0.126 0.128	0.24 0.25	NonLiqfble. NonLiqfble.
	48.24	11	14.5	0.37	125	5438	3115	11.4	7.6	3.14	3.1	66.1	0.80	45.5	56.8	0.521	0.097	0.126	0.24	NonLiqfble.
	48.33	11	14.5	0.36	125	5450	3120	11.4	7.5	3.06	3.1	65.7	0.80	45.4	56.8	0.521	0.097	0.126	0.24	NonLiqfble.
	48.42	11	15.1	0.36	125	5461	3126	11.8	7.9	2.91	3.1	63.6	0.80	47.3	59.1	0.521	0.099	0.129	0.25	NonLiqfble.
	48.51 48.59	11 11	16.2 18	0.39 0.44	125 125	5472 5482	3132 3137	12.7 14.1	8.6 9.7	2.90 2.88	3.0	61.4 58.3	0.80 0.80	50.7 56.3	63.3 70.3	0.521 0.521	0.104 0.112	0.135 0.146	0.26 0.28	NonLiqfble. NonLiqfble.
	48.68	11	19.4	0.44	125	5493	3142	15.1	10.6	2.76	3.0	55.6	0.80	60.6	75.7	0.521	0.112	0.146	0.20	NonLiqfble.
	48.77	11	20.2	0.46	125	5505	3148	15.8	11.1	2.64	2.9	53.8	0.80	63.0	78.8	0.522	0.125	0.163	0.31	NonLiqfble.
	48.86	11	20.2	0.42	125	5516	3153	15.7	11.1	2.41	2.9	52.5	0.80	63.0	78.7	0.522	0.125	0.163	0.31	NonLiqfble.
	48.94	11	20.1 19	0.4 0.39	125 125	5526 5537	3158	15.6	11.0	2.31	2.9 2.9	52.0	0.80	62.6	78.2 73.9	0.522 0.522	0.125	0.162	0.31	NonLiqfble.
	49.03 49.12	11 11	18.1	0.39	125	5548	3164 3170	14.8 14.1	10.3 9.7	2.40 2.54	3.0	54.2 56.4	0.80	59.1 56.3	70.3	0.522	0.118 0.112	0.153 0.146	0.29 0.28	NonLiqfble. NonLiqfble.
	49.21	11	17.9	0.37	125	5560	3175	13.9	9.5	2.45	3.0	56.2	0.80	55.6	69.5	0.522	0.111	0.145	0.28	NonLiqfble.
	49.3	11	17.4	0.34	115	5571	3181	13.5	9.2	2.33	3.0	56.3	0.80	54.0	67.5	0.523	0.109	0.141	0.27	NonLiqfble.
	49.38	11	16.9	0.33	115	5580	3185	13.1	8.9	2.34	3.0	57.2	0.80	52.4	65.5	0.523	0.106	0.138	0.26	NonLiqfble.
	49.47 49.56	11 11	16.7 17.6	0.34 0.36	115 125	5590 5601	3190 3195	12.9 13.6	8.7 9.3	2.45 2.43	3.0	58.3 56.8	0.80 0.80	51.7 54.5	64.7 68.1	0.523 0.523	0.105 0.109	0.137 0.142	0.26 0.27	NonLiqfble. NonLiqfble.
	49.6	11	17.5	0.35	125	5606	3197	13.5	9.2	2.38	3.0	56.6	0.80	54.2	67.7	0.523	0.109	0.142	0.27	NonLiqfble.
	49.67	11	17.5	0.35	125	5615	3202	13.5	9.2	2.38	3.0	56.7	0.80	54.1	67.7	0.523	0.109	0.141	0.27	NonLiqfble.
	49.72	11	17.3	0.34	115	5621	3205	13.4	9.0	2.35	3.0	56.8	0.80	53.5	66.9	0.523	0.108	0.140	0.27	NonLiqfble.
	49.78	11	17.4	0.34	115	5628	3208	13.4	9.1	2.33	3.0	56.6	0.80	53.8	67.2	0.523	0.108	0.141	0.27	NonLiqfble.
	49.84 49.91	11 11	17 16.8	0.32 0.29	115 115	5635 5643	3211 3215	13.1 13.0	8.8 8.7	2.26 2.07	3.0	56.8 55.9	0.80	52.5 51.9	65.6 64.8	0.524 0.524	0.106 0.105	0.138 0.137	0.26 0.26	NonLiqfble. NonLiqfble.
	49.97	11	16.3	0.28	115	5650	3218	12.6	8.4	2.08	3.0	56.8	0.80	50.3	62.9	0.524	0.103	0.134	0.26	NonLiqfble.
	50.03	11	16.3	0.28	115	5656	3221	12.6	8.4	2.08	3.0	56.9	0.80	50.3	62.8	0.462	0.103	0.134	0.29	NonLiqfble.
	50.09	11	16.3	0.27	115	5663	3224	12.6	8.4	2.00	3.0	56.4	0.80	50.2	62.8	0.462	0.103	0.134	0.29	NonLiqfble.
	50.15 50.21	11 11	16.3 15.9	0.27 0.27	115 115	5670 5677	3227 3230	12.6 12.2	8.3 8.1	2.01 2.07	3.0	56.4 57.6	0.80	50.2 49.0	62.8 61.2	0.463 0.463	0.103 0.101	0.134 0.132	0.29 0.28	NonLiqfble. NonLiqfble.
	50.21	11	16.2	0.27	115		3233	12.5	8.3	2.10	3.0	57.3	0.80	49.0	62.3	0.463	0.101	0.132	0.28	NonLiqible. NonLiqfble.
				3																1

Date: September 2005

CPT Number: 23

Depth to Groundwater: 11 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

		Depth	Water Table	Tip Resist.	Sleeve Frict.	a	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
Section   Sect	Cone	-				g (PCF)			-	_		Ic		Ксрт	DqcIN	(QcIN)es					Comments
Section   Sect		()	()	()	(-2-)	()	(-2-)	()	•				(,-,)								
Section   Sect																					
Section   Sect		50.31	11	16.1	0.28	115	5680	2226	12.4	82	2 11	3.0	57.6	0.80	40.5	61.0	0.463	0.102	0.122	0.20	NonLiafhla
Secondary   11																					•
96.952 11 17,72 0.94 175 7913 347 12-2 8.8 2.37 30 57.5 0.80 52.8 66.0 0.463 0.107 0.109 0.30 NonLighbors   60.7 11 17.4 0.95 125 5734 3257 13.6 9.2 4.3 3.0 57.5 0.80 53.4 66.7 0.463 0.108 0.109 0.10 NonLighbors   60.87 11 17.5 0.34 115 5734 326 13.4 8.9 2.31 3.0 56.9 1.00 53.4 66.7 0.463 0.108 0.107 0.109 0.30 NonLighbors   60.88 11 17.5 0.34 115 5734 326 13.4 8.9 2.31 3.0 56.9 1.00 3.34 67.7 0.40 0.104 0.135 0.30 NonLighbors   60.88 11 17.5 0.34 115 5734 326 13.4 8.9 2.33 3.0 56.9 1.00 3.34 67.0 0.404 0.118 0.104 0.135 0.30 NonLighbors   60.88 11 17.5 0.34 115 5734 326 13.4 8.9 2.33 3.0 56.9 1.00 3.34 67.0 0.404 0.118 0.104 0.135 0.30 NonLighbors   60.88 11 17.5 0.35 12.5 378 3277 1.7 0.2 0.2 1.2 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0																					•
90.61   11   174   0.06   125   732   325   13.6   9.1   2.43   0.0   57.1   0.80   5.3   67.9   0.40   0.10   0.14   0.30   NonLighbors   50.86   11   175   0.34   115   576   3.25   3.25   3.3   0.5   0.8   3.27   6.79   0.46   0.10   0.10   0.10   0.00   NonLighbors   50.86   11   175   0.3   15   576   3.25   3.25   3.3   0.5   0.8   3.27   6.79   0.46   0.10   0.10   0.30   0.00   NonLighbors   50.86   11   1.60   0.34   115   576   3.27   12.8   8.2   3.7   0.3   0.5   0.8   0.8   0.8   0.8   0.10   0.10   0.10   0.10   0.00   0.																					
50.7 11 17.4 0.35 125 734 137 147 0.36 125 734 137 137 137 0.3 8.9 2.41 3.0 57.5 180 3.1 46.7 0.43 0.108 0.109 0.30 0.001.aphic. Solution 1.1 17.5 0.34 115 376 2.36 13.2 8.8 2.47 3.0 5.0 6.9 0.0 3.5 6.7 0.0 0.46 0.108 0.10 0.10 0.30 0.001.aphic. Solution 1.1 16.6 0.34 115 376 377 0.27 0.27 12.7 8.8 1.5 0.48 0.0 5.0 5.0 0.0 5.0 0.5 0.0 5.0 0.0 0.0																					-
50.79   11   17.20   0.34   115   5746   32.61   31.20   8.81   2.77   30.0   57.7   0.80   52.7   65.9   0.464   0.107   0.139   0.30   NonLighble- 50.93   11   16.86   0.34   115   5762   32.70   32.74   12.80   8.21   3.05   3.05   0.50   0.80   3.08   3.08   3.05   0.05   0.05   51.07   11   17.39   0.35   125   5778   3277   13.7   9.2   3.23   3.0   5.0   4.00   3.05   6.00   5.04   6.101   0.135   0.29   NonLighble- 51.10   11   18.30   0.35   125   5778   3277   13.7   9.2   3.23   3.0   5.0   4.00   5.05   7.7   3.07   0.00   0.101   0.15   0.13   0.29   NonLighble- 51.10   11   18.30   0.35   125   5778   3277   13.7   9.2   2.2   5.14   0.00   3.7   0.00																					-
59.93 11 1 16.6 0.34 115 5762 270 1270 1270 1370 1390 9390 8390 830 830 836 836 836 836 836 836 836 836 836 836																					-
51																					
51.07 11 1 739 0.35 125 578 327 13.7 9.2 2.33 1.09 504 0.80 54.7 8.34 0.44 0.11 0.143 0.31 NonLightlys. 51.19 11 183 0.36 125 579 328 14.4 9.7 2.19 2.9 53.4 0.80 57.7 72.1 0.464 0.115 0.19 0.32 NonLightlys. 51.19 11 18.3 0.35 125 580 3289 14.3 9.7 2.20 0.5 5.2 0.80 57.4 71.7 0.464 0.115 0.19 0.32 NonLightlys. 51.34 11 18.3 0.35 125 580 3289 14.3 9.3 1.2 0.10 1.2 0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.15																					
51.12 11 18.30 0.36 126 5784 3281 14.7 10.0 2.19 2.9 54.0 0.80 57.7 72.1 0.464 0.117 0.152 0.33 NonLightles   51.26 11 18.80 0.35 126 5802 3239 14.3 9.7 2.19 2.9 54.0 0.80 57.7 72.1 0.464 0.114 0.149 0.32 NonLightles   51.36 11 18.80 0.39 125 5812 3294 14.0 9.7 2.19 2.9 54.0 0.80 57.4 71.7 0.464 0.114 0.149 0.32 NonLightles   51.41 11 18.0 0.4 125 5830 3299 13.7 9.1 2.65 3.0 57.2 0.80 57.4 71.7 0.464 0.114 0.149 0.32 NonLightles   51.41 11 18.40 0.4 125 5830 3394 14.0 9.4 2.65 3.0 58.4 0.80 54.8 68.6 0.464 0.110 0.143 0.31 NonLightles   51.56 11 17.7 0.41 125 5839 3381 13.5 8.9 2.77 3.0 59.7 0.80 55.9 70.3 0.65 70.0 0.144 0.114 0.149 0.31 NonLightles   51.66 11 17.0 0.41 125 5832 3314 14.4 9.7 2.74 3.0 57.5 0.80 57.3 0.65 70.0 0.65 0.112 0.164 0.31 NonLightles   51.67 11 18.9 0.44 125 5839 3318 151 10.2 2.99 3.0 57.5 0.80 57.3 0.465 0.102 0.169 0.33 NonLightles   51.88 11 18.9 0.44 125 5839 3318 151 10.2 2.99 3.0 57.5 0.80 57.3 7.0 0.65 71.7 0.465 0.114 0.149 0.33 NonLightles   51.68 11 18.5 0.42 125 5892 3334 14.6 9.8 2.57 3.0 55.2 0.80 57.3 1.0 0.65 0.104 0.104 0.30 NonLightles   51.69 11 18.5 0.42 125 5892 3339 15.0 10.1 2.85 0.0 58.2 0.80 56.3 70.0 0.65 73.6 0.104 0.104 0.30 NonLightles   52.00 11 19.8 0.44 125 5892 3339 15.0 10.1 2.85 0.0 57.2 0.80 57.3 1.0 0.65 0.104 0.104 0.3 NonLightles   52.00 11 19.8 0.44 125 5892 3339 15.0 10.1 2.85 0.0 57.2 0.80 57.3 1.0 0.65 0.104 0.104 0.3 NonLightles   52.00 11 19.8 0.44 125 5892 3339 15.0 10.1 2.85 0.0 57.2 0.80 57.3 1.0 0.65 0.104 0.104 0.3 NonLightles   52.00 11 19.8 0.44 125 5892 3339 15.0 10.1 2.85 0.0 57.2 0.80 57.3 1.0 0.65 0.104 0.104 0.3 NonLightles   52.00 11 19.8 0.44 125 5892 3339 15.0 10.1 2.85 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.																					
51.26 11 1 18.8 0.35 125 802 1329 14.3 9.7 2.30 2.9 54.2 0.80 57.4 71.7 0.464 0.114 0.149 0.32 NonLaphe.  51.44 11 18 0.4 125 5820 1329 13.7 0.2 0.5 58.4 0.80 58.4 0.80 54.8 0.60 0.464 0.112 0.145 0.31 NonLaphe.  51.65 11 1 17.7 0.41 125 5839 3340 14.0 9.4 2.65 3.0 57.8 0.0 55.0 0.60 0.464 0.112 0.145 0.31 NonLaphe.  51.66 11 1 7.7 0.41 125 5839 3340 14.0 9.4 2.65 3.0 57.8 0.0 55.0 0.60 0.465 0.112 0.146 0.31 NonLaphe.  51.66 11 1 18.0 0.4 125 5882 3318 1.4 1.4 9.4 2.70 3.0 58.0 50.0 50.0 50.3 0.465 0.108 0.141 0.30 NonLaphe.  51.67 11 18.9 0.44 125 5882 3318 1.4 1.4 9.4 2.70 3.0 58.0 50.0 50.5 7.7 2.2 0.465 0.115 0.156 0.34 NonLaphe.  51.87 11 18.9 0.44 125 5889 3318 1.1 10.2 2.59 3.0 55.4 0.0 50.5 5.7 7.2 0.465 0.115 0.156 0.34 NonLaphe.  51.88 11 18.9 0.42 125 5880 3329 14.0 9.3 2.70 3.0 58.2 0.0 55.1 7.7 1.0 0.465 0.114 0.149 0.32 NonLaphe.  51.98 11 18.5 0.42 125 5880 3329 14.0 9.3 2.70 3.0 58.2 0.0 55.1 7.7 1.0 0.465 0.114 0.149 0.32 NonLaphe.  51.98 11 18.9 0.42 125 5880 3329 14.0 9.3 2.70 3.0 58.2 0.0 55.1 7.7 1.0 0.465 0.114 0.149 0.32 NonLaphe.  52.04 11 18.3 0.42 125 5892 3318 1.3 9.6 1.0 1.2 2.85 0.0 55.2 0.0 55.1 7.7 1.0 0.465 0.114 0.149 0.32 NonLaphe.  52.15 11 20.4 0.71 125 5913 334 1.4 1.4 0.7 3.1 6.2 0.0 0.0 0.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0																					
51.34 11 18.3 0.39 1.25 S812 13.24 14.0 9.3 2.53 3.0 57.2 0.80 5.84 69.8 0.44 0.112 0.143 0.31 NonLiphic.  51.49 11 18.4 0.41 12.5 S830 3304 14.0 9.4 2.65 3.0 58.4 0.80 5.48 69.8 0.46 0.110 0.143 0.31 NonLiphic.  51.62 11 17.7 0.41 12.5 S830 3308 13.8 1.3 0.9 2.70 3.0 57.8 0.80 5.80 0.70 0.46 0.10 0.10 1.40 0.31 NonLiphic.  51.62 11 18.5 0.42 12.5 S847 3312 14.1 9.4 2.70 3.0 57.8 0.80 5.80 0.70 0.66 0.10 0.10 1.06 0.11 0.00 1.00 1.0																					-
51.44																					-
51.49 11 18.4 0.41 125 S830 3304 14.0 9.4 2.65 3.0 57.8 0.80 5.60 70.0 0.465 0.102 0.14 0.30 NonLisphic. 51.65 11 19.5 0.44 125 S830 3308 13.0 14.1 9.7 2.7 3.0 59.7 8.0 0.80 5.30 6.3 70.3 0.465 0.108 0.14 0.30 NonLisphic. 51.66 11 19.9 0.44 125 S850 3314 14.1 9.4 2.70 3.0 57.8 0.80 57.8 0.80 57.8 0.20 0.50 51.2 0.10 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.																					-
51.62   11   18.5   0.42   125   5847   3312   14.1   9.4   2.70   3.0   58.0   0.80   56.3   70.3   0.46   0.12   0.14   0.31   NonLaphe.   51.62   11   19.9   0.44   125   5859   3338   15.1   10.2   2.59   3.0   55.4   0.80   60.5   75.6   0.45   0.12   0.15   0.50   0.34   NonLaphe.   51.89   11   18.5   0.42   125   5880   3323   14.0   9.3   2.70   3.0   58.2   0.80   56.1   70.1   0.465   0.12   0.15   0.34   NonLaphe.   51.89   11   19.8   0.48   125   5892   3334   16.0   9.3   2.70   3.0   52.2   0.80   56.1   70.1   0.465   0.112   0.146   0.31   NonLaphe.   51.89   11   19.8   0.48   125   5912   3339   15.0   10.1   2.55   3.0   57.2   0.80   57.3   1.0   0.465   0.12   0.15   0.33   NonLaphe.   52.15   11   20.4   0.71   125   5912   3339   15.0   10.1   2.55   3.0   57.2   0.80   56.1   70.1   0.465   0.112   0.15   0.33   NonLaphe.   52.15   11   20.4   0.71   125   3.33   15.0   10.1   2.55   3.0   57.2   0.80   57.3   0.465   0.119   0.155   0.33   NonLaphe.   52.15   11   20.4   0.71   125   3.39   13.5   17.6   12.1   50.6   3.1   63.0   0.80   70.4   88.1   0.465   0.119   0.155   0.33   NonLaphe.   52.36   11   35.6   1.22   135   5940   3359   41.1   30.7   2.33   2.5   32.5   32.5   0.73   11.3   15.0   0.465   0.140   0.151   0.33   NonLaphe.   52.48   11   94.5   1.2   1.15   5968   3374   16.27   12.6   2.0   2.0   3.1   0.75   0.1   0.16   0.15   0.33   0.15   0.14   0.15   0.33   0.15   0.14   0.15   0.33   0.15   0.14   0.15   0.33   0.15   0.14   0.15   0.33   0.15   0.14   0.15   0.33   0.15   0.14   0.15   0.33   0.15   0.14   0.15   0.33   0.15   0.14   0.15   0.33   0.15   0.14   0.15   0.33   0.15   0.14   0.15   0.33   0.15   0.14   0.15   0.33   0.15   0.14   0.15   0.33   0.15   0.14   0.15																					
51.66   11   19   0.44   125   5852   3314   14.4   9.7   2.74   3.0   57.5   0.80   57.8   72.2   0.465   0.115   0.150   0.32   NonLiphe.   51.89   11   18.9   0.43   125   5869   3313   14.3   9.6   2.69   3.0   57.5   0.80   57.4   71.7   0.465   0.114   0.149   0.32   NonLiphe.   51.89   11   18.9   0.43   125   5869   3323   14.3   9.6   2.69   3.0   57.5   0.80   57.4   71.7   0.465   0.114   0.149   0.32   NonLiphe.   51.89   11   18.3   0.42   125   5892   3334   14.6   9.8   2.57   3.0   56.2   0.80   58.5   73.1   0.465   0.116   0.151   0.33   NonLiphe.   51.89   11   19.3   0.42   125   5892   3334   14.6   9.8   2.57   3.0   56.2   0.80   58.5   73.1   0.465   0.116   0.151   0.33   NonLiphe.   52.15   11   20.4   0.71   125   5913   3345   15.4   10.4   4.07   3.1   6.26   0.80   58.5   73.1   0.465   0.120   0.160   0.34   NonLiphe.   52.24   11   20.3   0.103   135   5940   3359   14.5   10.4   4.07   3.1   6.26   0.80   61.7   77.2   0.465   0.123   0.160   0.34   NonLiphe.   52.36   11   36.6   1.22   135   5940   3359   41.1   30.7   2.33   2.2   32.5   0.75   0.465   0.150   0.465   0.270   0.351   0.75   NonLiphe.   52.65   11   24.5   1.25   1.55   5978   3378   187.8   18.5   0.465   0.270   0.351   0.465   0.260   0.505   0.665   0.270   0.265   0.270   0.265   0.270   0.265   0.270   0.265   0.270   0.265   0.270   0.265   0.270   0.265   0.270   0.265   0.270   0.265   0.270   0.265   0.270   0.265   0.270   0.265   0.270   0.2																					-
51.72   11   19.9   0.44   125   5859   3318   15.1   10.2   2.59   3.0   55.4   0.80   60.5   75.6   0.65   0.120   0.150   0.34   NonLiphle.   51.89   11   18.5   0.42   125   5880   3329   14.0   9.3   2.70   3.0   58.2   0.80   56.1   70.1   0.465   0.112   0.146   0.31   NonLiphle.   51.89   11   19.8   0.48   125   5892   3338   15.0   10.1   2.85   3.0   57.2   0.80   56.1   70.1   0.465   0.112   0.146   0.31   NonLiphle.   52.06   11   19.8   0.48   125   5902   3339   15.0   10.1   2.85   3.0   57.2   0.80   60.0   75.0   0.465   0.119   0.155   0.33   NonLiphle.   52.15   11   20.4   0.71   125   5913   3345   15.4   10.4   4.07   3.1   6.26   0.80   6.1   77.2   0.465   0.129   0.155   0.33   NonLiphle.   52.31   11   33.6   1.22   135   5934   3350   25.4   18.2   3.98   2.9   4.97   0.80   10.5   15.0   0.465   0.120   0.160   0.34   NonLiphle.   52.31   11   94.7   1.14   125   5946   3362   71.5   54.5   12.4   2.2   18.2   3.35   2.5   0.31   3.5   0.465   0.150   0.465   0.100   0.35   0.05   0.05   52.63   11   246.5   1.25   10.5   5974   3376   18.5   14.42   0.51   1.6   4.5   0.00   0.0   18.5   0.466   0.050   0.066   0.075   0.465   0.140																					•
51.88   11   18.9   0.43   125   5869   3323   14.3   9.6   2.69   3.0   57.5   0.80   57.4   71.7   0.465   0.114   0.149   0.32   NonLiphic   51.89   11   19.3   0.42   125   5890   3333   14.6   9.8   2.57   3.0   56.2   0.80   58.5   73.1   0.465   0.112   0.146   0.31   NonLiphic   52.96   11   19.8   0.48   125   5902   3334   14.6   9.8   2.57   3.0   56.2   0.80   58.5   73.1   0.465   0.116   0.151   0.33   NonLiphic   52.15   11   20.4   0.71   125   5912   3334   15.4   10.4   4.07   3.1   62.6   0.80   61.7   77.2   0.465   0.129   0.160   0.34   NonLiphic   52.15   11   20.4   0.71   125   5913   3345   15.4   10.4   4.07   3.1   62.6   0.80   61.7   77.2   0.465   0.129   0.160   0.34   NonLiphic   52.31   11   30.8   1.22   135   5944   3356   25.4   18.2   3.98   2.9   4.0   4.0   7.0   4.																					
State																					-
Second   11   19.8   0.48   125   5912   334   15.5   10.1   2.85   3.0   57.2   0.80   60.0   75.0   0.465   0.129   0.160   0.34   NonLighbe.																					-
52.15         II         20.4         0.71         125         5913         33.45         15.4         10.4         4.07         3.1         62.6         0.80         61.7         77.2         0.465         0.14         0.187         0.04         NonLighbe.           52.31         11         33.6         1.22         135         5944         3359         41.1         30.7         2.33         2.5         32.5         0.73         115.0         0.465         0.14         0.85         1.75         NonLighbe.           52.36         11         54.5         1.14         22         18.2         1.38         10.2         0.66         0.20         0.266         0.25         0.26         0.57         Low R.S.           52.58         11         246         1.25         10.5         594         33.6         18.2         1.8         1.8         1.0         0.0         0.66         0.05         0.06         0.05         1.41         1.5         2.8         1.8         1.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>																					
52.24         11         23.3         1.03         155         59.4         33.51         1.76         12.1         5.06         3.1         63.0         0.80         70.4         88.1         0.465         0.13         0.43         0.45         0.20         0.351         0.75         NonLiqhbe.           52.36         11         54.5         1.2         135         5940         335         21.7         54.5         1.24         2.2         18.2         0.35         31.8         11.2         0.46         0.00         0.05         0.26         0.57         Liquefaction           52.58         11         216         1.21         11.5         596         336         18.5         14.2         15.7         59.5         1.24         2.2         18.2         0.53         31.8         10.46         0.00         0.00         18.5         0.466         0.07         0.00         0.00         18.5         0.466         0.07         0.00         0.00         18.5         0.466         0.07         0.00         1.00         2.2         1.2         1.00         0.00         1.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>																					
52 36         11         54,5         1.2         135         5940         3359         41.1         30,7         2.33         2.5         32.5         0.35         0.46         0.25         59.46         0.75         Low Ex.           52.58         11         216         1.21         115         5968         3374         162.7         126.2         0.57         1.7         5.8         0.02         3.3         160.0         0.66         0.50         0.65         1.4           52.63         11         246.5         1.25         105         5974         3376         185.6         144.2         0.61         1.6         4.5         0.00         0.0         185.6         0.46         0.679         0.907         1.908         1.94         1.5         98.8         1.81         1.5         0.00         0.0         1.94         0.466         0.097         1.90         1.9         1.5         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         1.1         0.0         0.0         1.1         0.0         0.0         1.1         2.0         0.0																					
52.4         11         94,7         1.14         125         594.6         3362         71,5         54.5         1.24         2.2         18.2         0.35         38.8         110.2         0.466         0.50         0.266         0.57         Liquefaction           52.68         11         246.5         1.25         105         5974         3376         185.0         1.42         0.51         1.6         4.5         0.00         0.0         185.6         0.466         0.67         0.877         1.88           52.67         11         249.5         1.45         115         5978         3378         181.8         145.9         0.59         1.6         4.7         0.00         0.0         187.9         0.466         0.69         0.906         1.94         1.6         5.7         1.0         0.00         0.0         187.9         0.466         0.090         1.1         1.0         5.99         338         1.96         1.51         0.57         1.6         4.7         0.00         0.0         1.96         0.466         0.090         1.1         1.1         1.1         1.1         1.1         1.1         1.1         1.1         1.1         1.1         1.1			11												101.5						
52.58         11         246         1.21         115         5968         3374         162.7         126.2         0.57         1.7         5.8         0.02         3.3         16.0         0.466         0.675         0.877         1.88           52.67         11         249.5         1.46         115         5978         3378         187.8         145.9         0.59         1.6         4.5         0.00         0.0         185.6         0.466         0.697         0.906         1.94           52.73         11         259         1.46         115         5978         3381         186         16.4         0.09         0.0         0.0         194         0.466         0.699         0.00         1.15         0.05         0.05         381         0.0         1.0         0.0         0.0																					
52.63         11         246.5         1.25         105         5974         3376         187.6         14.2         0.51         1.6         4.5         0.00         0.0         187.9         0.466         0.677         0.877         1.18         52.77         11         259         1.46         115         5982         3380         187.9         151.4         0.57         1.6         4.7         0.00         0.0         187.9         0.466         0.697         0.906         1.00         2.15           52.73         11         263.9         1.29         105         5985         3381         198.6         154.3         0.49         1.6         3.9         0.00         0.0         198.6         0.466         0.902         1.173         2.25           52.79         11         275.2         1.21         105         5996         3885         206.9         160.7         0.44         1.5         3.3         0.00         0.0         206.9         0.466         0.901         1.176         2.52           52.89         11         282.7         0.99         105         6003         388         212.5         165.0         0.3         1.0         0.0         0.12.5																					Liquetaction
52.7         11         259         1.46         115         5982         3380         194,9         151.4         0.57         1.6         4.7         0.00         0.0         194,9         0.466         0.769         1.00         2.15           52.79         11         274.9         1.18         105         5991         3384         206.8         160.6         0.43         1.5         3.2         0.00         0.0         206.8         0.466         0.904         1.173         2.52           52.83         11         275.2         1.21         105         5999         3387         207.7         161.3         0.40         1.5         3.3         0.00         0.0         206.9         0.466         0.904         1.176         2.52           52.89         11         284.8         1.01         105         5099         3388         212.5         165.0         0.35         1.5         2.4         0.00         0.0         212.5         0.466         0.992         1.264         2.71           52.94         11         284.8         1.01         105         6007         3392         218.1         1693.0         0.34         1.5         2.2         0.00 <td></td>																					
52.73         11         263.9         1.29         105         598.5         3381         108.6         154.3         0.49         1.6         3.9         0.00         0.0         198.6         0.466         0.808         1.051         2.25           52.79         11         275.2         1.21         105         5996         3388         206.9         160.0         0.44         1.5         3.3         0.00         0.00         206.9         0.466         0.904         1.173         2.52           52.86         11         276.2         1.1         105         5999         3388         206.5         165.0         0.35         1.5         2.4         0.00         0.0         207.7         0.466         0.913         1.187         2.54           52.99         11         282.7         0.99         105         6007         3399         214.0         166.3         0.36         1.5         2.4         0.00         0.0         214.0         0.466         0.992         1.288         2.99           53.07         11         290.3         0.88         105         6020         3395         212.5         164.9         0.00         0.0         217.5         0												1.6									
52.79         11         274.9         1.18         105         5991         3384         206.8         160.6         0.43         1.5         3.2         0.00         0.0         206.8         0.466         0.904         1.173         2.52           52.86         11         275.2         1.21         105         5999         3387         207.7         161.3         0.44         1.5         3.3         0.00         0.0         206.9         0.466         0.904         1.176         2.52           52.99         11         282.7         0.99         105         6003         338         212.5         165.0         0.35         1.5         2.4         0.00         0.0         212.5         0.466         0.992         1.264         2.71           52.99         11         280.3         0.98         95         6012         3392         218.1         169.3         0.34         1.5         2.2         0.00         0.0         217.8         0.466         0.992         1.284         2.71           53.03         11         280         0.92         95         6016         3393         212.5         164.9         0.35         1.5         2.4         0.00																					
52.83         11         275.2         1.21         105         5996         3385         206.9         16.07         0.44         1.5         3.3         0.00         0.0         206.9         0.466         0.904         1.176         2.52           52.86         11         276.2         1.1         105         5999         3387         207.7         161.3         0.40         1.5         2.4         0.00         0.0         207.7         0.466         0.972         1.264         2.71           52.94         11         284.8         1.01         105         6007         3390         214.0         166.2         0.36         1.5         2.4         0.00         0.0         214.0         0.466         0.992         1.264         2.71           52.99         11         290.3         0.98         95         6012         3392         217.8         16.01         0.32         1.5         2.4         0.00         0.0         217.8         0.467         1.041         1.358         2.90           53.07         11         283         0.98         105         6024         3396         212.5         16.9         0.35         1.5         2.4         0.00																					
52.9         11         282.7         0.99         105         6003         3388         212.5         165.0         0.35         1.5         2.4         0.00         0.0         212.5         0.466         0.972         1.264         2.71           52.94         11         284.8         1.01         105         6007         3390         214.0         166.2         0.36         1.5         2.4         0.00         0.0         214.0         0.466         0.992         2.289         2.76           53.03         11         290         0.92         95         6016         3393         217.8         169.1         0.32         1.4         2.0         0.00         0.0         212.5         0.467         1.041         1.353         2.90           53.07         11         280.8         1.05         105         6024         3396         21.5         164.9         0.35         1.5         2.7         0.00         0.0         212.5         0.467         0.951         1.237         2.65           53.15         11         271.9         1.07         105         6024         3396         204.1         1.58.2         0.40         0.0         0.0         212.5 <td></td>																					
52.94         11         284.8         1.01         105         6007         3390         214.0         166.2         0.36         1.5         2.4         0.00         0.0         214.0         0.466         0.992         1.289         2.76           52.99         11         290.3         0.98         95         6012         3393         218.1         169.1         0.32         1.4         2.0         0.00         0.0         217.8         0.467         1.045         1.358         2.91           53.07         11         283         0.98         105         6020         3395         212.5         164.9         0.35         1.5         2.4         0.00         0.0         212.5         0.467         0.973         1.264         2.71           53.15         11         271.9         1.07         105         6028         3398         204.1         158.2         0.40         1.5         3.0         0.00         0.0         201.1         0.467         0.951         1.237         2.65           53.15         11         271.9         1.07         105         6028         3398         204.1         158.2         0.40         1.5         3.0         0.00 <td></td>																					
52.99         11         290.3         0.98         95         6012         3392         218.1         169.3         0.34         1.5         2.2         0.00         0.0         218.1         0.467         1.045         1.358         2.91           53.07         11         283         0.98         105         6020         3395         212.5         164.9         0.35         1.5         2.4         0.00         0.0         217.8         0.467         1.041         1.353         2.90           53.07         11         280.8         1.05         6024         3396         212.5         164.9         0.35         1.5         2.7         0.00         0.0         212.5         0.467         0.973         1.264         2.71           53.15         11         271.9         1.07         105         6028         3398         204.1         158.2         0.40         1.5         3.0         0.00         0.0         204.1         0.467         0.65         9.818         1.75         2.42           53.2         11         240.9         1.09         105         6034         3400         1180.8         149.2         0.00         0.0         180.8         0.467																					
53.03         11         290         0.92         95         6016         3393         217.8         169.1         0.32         1.4         2.0         0.00         0.0         217.8         0.467         1.041         1.353         2.90           53.07         11         2883         0.98         105         6020         3395         212.5         164.9         0.35         1.5         2.4         0.00         0.0         212.8         0.467         0.973         1.264         2.71           53.15         11         271.9         1.07         105         6028         3398         204.1         158.2         0.40         1.5         2.7         0.00         0.0         204.1         0.467         0.879         1.132         2.42           53.2         11         240.9         1.09         105         6034         3400         180.8         139.9         0.46         1.6         4.2         0.00         0.0         180.8         0.467         0.629         0.818         1.75           53.24         11         202         1.21         115         6038         3402         151.5         116.9         0.61         1.7         6.6         0.04																					
53.11         11         280.8         1.05         105         6024         3396         210.8         163.5         0.38         1.5         2.7         0.00         0.0         210.8         0.467         0.951         1.237         2.65           53.15         11         271.9         1.07         105         6028         3398         204.1         158.2         0.40         1.5         3.0         0.00         0.0         204.1         0.467         0.670         0.132         2.42           53.2         11         240.9         1.09         105         6034         3400         180.8         139.9         0.46         1.6         4.2         0.00         0.0         180.8         0.467         0.629         0.818         1.75           53.24         11         202         1.21         115         6038         3402         151.5         116.9         0.61         1.7         6.6         0.04         6.7         158.2         0.467         0.448         0.583         1.25           53.32         11         147.1         1.51         125         6047         3401         715.5         54.1         1.93         2.3         22.4         0.47 <td></td>																					
53.15         11         271.9         1.07         105         6028         3398         204.1         158.2         0.40         1.5         3.0         0.00         0.0         204.1         0.467         0.870         1.132         2.42           53.2         11         240.9         1.09         105         6034         3400         180.8         139.9         0.46         1.6         4.2         0.00         0.0         180.8         0.467         0.629         0.818         1.75           53.24         11         202         1.21         115         6038         3402         151.5         116.9         0.61         1.7         6.6         0.04         6.7         158.2         0.467         0.448         0.583         1.25           53.32         11         147.1         1.51         125         6047         3406         110.3         84.6         1.05         2.0         12.4         0.20         27.2         137.5         0.467         0.333         0.383         1.32         2.42           53.49         11         69.2         1.73         135         6089         3418         51.8         38.7         2.61         2.5         30.5 <td></td> <td></td> <td>11</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1.5</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>			11									1.5									
53.2         11         240.9         1.09         105         6034         3400         180.8         139.9         0.46         1.6         4.2         0.00         0.0         180.8         0.467         0.629         0.818         1.75           53.24         11         202         1.21         115         6038         3402         151.5         116.9         0.61         1.7         6.6         0.04         6.7         158.2         0.467         0.448         0.583         1.25           53.32         11         147.1         1.51         125         6047         3406         110.3         84.6         1.05         2.0         12.4         0.20         27.2         137.5         0.467         0.322         0.418         0.89         Liquefaction           53.49         11         69.2         1.73         135         6069         3418         51.8         38.7         2.61         2.5         30.5         0.68         109.8         161.6         0.467         0.473         0.614         1.31           53.58         11         63.9         1.68         135         6081         3442         47.8         35.5         2.76         2.5																					
53.24         11         202         1.21         115         6038         3402         151.5         116.9         0.61         1.7         6.6         0.04         6.7         158.2         0.467         0.448         0.583         1.25           53.32         11         147.1         1.51         125         6047         3406         110.3         84.6         1.05         2.0         12.4         0.20         27.2         137.5         0.467         0.322         0.418         0.89         Liquefaction           53.4         11         95.4         1.78         135         6057         3411         71.5         54.1         1.93         2.3         22.4         0.47         62.3         133.8         0.467         0.322         0.418         0.89         Liquefaction           53.49         11         69.2         1.73         135         6069         3418         51.8         38.7         2.61         2.5         30.5         0.68         109.8         161.6         0.467         0.473         0.614         1.31           53.58         11         63.9         1.68         135         6081         3424         47.8         35.5         2.76																					
53.4         11         95.4         1.78         135         6057         3411         71.5         54.1         1.93         2.3         22.4         0.47         62.3         133.8         0.467         0.303         0.393         0.84         Liquefaction           53.49         11         69.2         1.73         135         6069         3418         51.8         38.7         2.61         2.5         30.5         0.68         109.8         161.6         0.467         0.473         0.614         1.31           53.58         11         63.9         1.68         135         6081         3424         47.8         35.5         2.76         2.5         32.4         0.73         130.7         178.4         0.468         0.608         0.791         1.69           53.86         11         29.7         0.97         135         6119         3445         22.1         15.5         3.64         2.9         51.6         0.80         88.6         110.7         0.468         0.206         0.268         0.57         NonLiqible.           53.98         11         26.1         0.85         135         6124         3448         19.4         13.4         3.69																					
53.49         11         69.2         1.73         135         6069         3418         51.8         38.7         2.61         2.5         30.5         0.68         109.8         161.6         0.467         0.473         0.614         1.31           53.58         11         63.9         1.68         135         6081         3424         47.8         35.5         2.76         2.5         32.4         0.73         130.7         178.4         0.468         0.608         0.791         1.69           53.66         11         46.7         1.52         135         6092         3430         34.9         25.4         3.48         2.7         41.2         0.80         139.6         174.4         0.468         0.574         0.746         1.60         NonLiqfble.           53.98         11         26.1         0.85         135         6124         3448         19.4         13.4         3.69         2.9         55.0         0.80         77.8         97.2         0.468         0.166         0.215         0.46         NonLiqfble.           53.98         11         25.4         0.7         125         6135         3453         18.9         12.9         3.13																					
53.58         11         63.9         1.68         135         6081         3424         47.8         35.5         2.76         2.5         32.4         0.73         13.07         178.4         0.468         0.608         0.791         1.69           53.66         11         46.7         1.52         135         6092         3430         34.9         25.4         3.48         2.7         41.2         0.80         139.6         174.4         0.468         0.574         0.746         1.60         NonLiqfble.           53.86         11         29.7         0.97         135         6119         3445         22.1         15.5         3.64         2.9         51.6         0.80         88.6         110.7         0.468         0.206         0.268         0.57         NonLiqfble.           53.98         11         25.4         0.7         125         6133         3453         18.9         12.9         3.13         2.9         53.1         0.80         75.6         94.6         0.468         0.166         0.215         0.44         NonLiqfble.           54.04         11         24.8         0.6         125         6143         3457         18.5         12.6																					Liquefaction
53.66         11         46.7         1.52         135         6092         3430         34.9         25.4         3.48         2.7         41.2         0.80         139.6         174.4         0.468         0.574         0.746         1.60         NonLiqfble.           53.86         11         29.7         0.97         135         6119         3445         22.1         15.5         3.64         2.9         51.6         0.80         88.6         110.7         0.468         0.206         0.268         0.57         NonLiqfble.           53.98         11         26.1         0.85         135         6124         3448         19.4         13.4         3.69         2.9         55.0         0.80         75.6         94.6         0.468         0.150         0.206         0.44         NonLiqfble.           54.04         11         24.8         0.6         125         6143         3457         18.5         12.6         2.76         2.9         51.7         0.80         75.6         94.6         0.468         0.153         0.199         0.43         NonLiqfble.           54.1         11         23.4         0.51         125         6150         3461         17.4 </td <td></td>																					
53.86         11         29.7         0.97         135         6119         3445         22.1         15.5         3.64         2.9         51.6         0.80         88.6         110.7         0.468         0.206         0.268         0.57         NonLighble.           53.98         11         25.4         0.7         125         6135         3453         18.9         12.9         3.13         2.9         53.1         0.80         75.6         94.6         0.468         0.159         0.206         0.44         NonLighble.           54.04         11         24.8         0.6         125         6143         3457         18.5         12.6         2.76         2.9         51.7         0.80         75.6         94.6         0.468         0.159         0.206         0.44         NonLighble.           54.04         11         24.8         0.6         125         6143         3457         18.5         12.6         2.76         2.9         51.7         0.80         73.8         92.3         0.468         0.159         0.206         0.43         NonLighble.           54.15         11         23.4         0.51         125         6157         3461         17.4																					NonLigfble.
53.98       11       25.4       0.7       125       6135       3453       18.9       12.9       3.13       2.9       53.1       0.80       75.6       94.6       0.468       0.159       0.206       0.44       NonLighbe.         54.04       11       24.8       0.6       125       6143       3457       18.5       12.6       2.76       2.9       51.7       0.80       73.8       92.3       0.468       0.153       0.199       0.43       NonLighbe.         54.1       11       23.4       0.51       125       6150       3461       17.4       11.7       2.51       2.9       51.7       0.80       69.6       87.0       0.468       0.141       0.184       0.39       NonLighbe.         54.15       11       23       0.5       125       6157       3464       17.1       11.5       2.51       2.9       52.2       0.80       68.4       85.5       0.468       0.138       0.180       0.38       NonLighbe.         54.2       11       22.6       0.49       125       6163       3467       16.8       11.3       2.51       2.9       52.7       0.80       67.2       84.0       0.468       0.13		53.86	11	29.7	0.97	135	6119	3445	22.1	15.5	3.64	2.9	51.6	0.80	88.6	110.7	0.468	0.206	0.268	0.57	NonLiqfble.
54.04         11         24.8         0.6         125         6143         3457         18.5         12.6         2.76         2.9         51.7         0.80         73.8         92.3         0.468         0.153         0.199         0.43         NonLighble.           54.1         11         23.4         0.51         125         6150         3461         17.4         11.7         2.51         2.9         51.7         0.80         69.6         87.0         0.468         0.141         0.184         0.39         NonLighble.           54.15         11         23         0.5         125         6167         3464         17.1         11.5         2.51         2.9         52.2         0.80         68.4         85.5         0.468         0.138         0.180         0.38         NonLighble.           54.2         11         22.6         0.49         125         6163         3467         16.8         11.3         2.51         2.9         52.7         0.80         68.4         85.5         0.468         0.135         0.176         0.38         NonLighble.           54.2         11         22.6         0.46         125         6163         3478         18.2																					
54.1       11       23.4       0.51       125       6150       3461       17.4       11.7       2.51       2.9       51.7       0.80       69.6       87.0       0.468       0.141       0.184       0.39       NonLighbe.         54.15       11       23       0.5       125       6157       3464       17.1       11.5       2.51       2.9       52.2       0.80       68.4       85.5       0.468       0.138       0.180       0.38       NonLighbe.         54.2       11       22.6       0.49       125       6163       3467       16.8       11.3       2.51       2.9       52.7       0.80       67.2       84.0       0.468       0.135       0.176       0.38       NonLighble.         54.38       11       24.5       0.46       125       6185       3478       18.2       12.3       2.15       2.8       48.4       0.80       72.7       90.9       0.468       0.150       0.195       0.42       NonLighble.         54.38       11       24.2       0.46       125       6195       3483       17.9       12.1       2.18       2.9       49.0       0.80       71.8       89.7       0.468																					
54.15       11       23       0.5       125       6157       3464       17.1       11.5       2.51       2.9       52.2       0.80       68.4       85.5       0.468       0.138       0.180       0.38       NonLighble.         54.2       11       22.6       0.49       125       6163       3467       16.8       11.3       2.51       2.9       52.7       0.80       67.2       84.0       0.468       0.135       0.176       0.38       NonLighble.         54.38       11       24.5       0.46       125       6185       3478       18.2       12.3       2.15       2.8       48.4       0.80       72.7       90.9       0.468       0.150       0.195       0.42       NonLighble.         54.46       11       24.2       0.46       125       6195       3483       17.9       12.1       2.18       2.9       49.0       0.80       71.8       89.7       0.468       0.147       0.191       0.41       NonLighble.																					
54.38 11 24.5 0.46 125 6185 3478 18.2 12.3 2.15 2.8 48.4 0.80 72.7 90.9 0.468 0.150 0.195 0.42 NonLigible. 54.46 11 24.2 0.46 125 6195 3483 17.9 12.1 2.18 2.9 49.0 0.80 71.8 89.7 0.468 0.147 0.191 0.41 NonLigible.				23		125								0.80							
54.46 11 24.2 0.46 125 6195 3483 17.9 12.1 2.18 2.9 49.0 0.80 71.8 89.7 0.468 0.147 0.191 0.41 NonLiqtble.																					
1 1 1 1 1 1 1 1 1 1.		54.55	11	24.4		125		3489	18.1	12.1	2.16	2.8	48.7	0.80	72.3	90.4	0.468	0.147	0.191	0.41	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 23

Depth to Groundwater: 11 feet

EQ Magnitude (M<sub>w</sub>): 6.5 PGA (g): 0.54

MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth		Resist.		g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress	•	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qc1N)es	Ratio	M7.5	M6.50	Safety	Comments
	54.64	11	24.6	0.43	125	6218	3495	18.2	12.3	2.00	2.8	47.4	0.80	72.8	91.0	0.468	0.150	0.195	0.42	NonLiqfble.
	54.72	11	24.7	0.43	125	6228	3500	18.3	12.3	1.95	2.8	47.4	0.80	73.1	91.3	0.468	0.150	0.195	0.42	NonLiqfble.
	54.8	11	23.6	0.43	125	6238	3505	17.4	11.7	2.10	2.9	49.2	0.80	69.8	87.2	0.469	0.142	0.184	0.39	NonLiqfble.
	54.89	11	23.5	0.42	125	6249	3510	17.4	11.6	2.06	2.9	49.1	0.80	69.4	86.8	0.469	0.141	0.183	0.39	NonLiqfble.
	54.98	11	23.6	0.44	125	6260	3516	17.4	11.6	2.15	2.9	49.6	0.80	69.7	87.1	0.469	0.141	0.184	0.39	NonLiqfble.
	55.06	11	23.8 23.8	0.54 0.69	125 125	6270	3521 3527	17.5 17.5	11.7	2.61	2.9	52.4 56.3	0.80	70.2 70.1	87.7 87.7	0.469	0.143	0.186 0.185	0.40	NonLiqfble.
	55.15 55.23	11 11	24.8	0.09	135	6282 6292	3532	18.3	11.7 12.3	3.34 3.56	3.0	56.3	0.80	73.0	91.3	0.469 0.469	0.143 0.151	0.183	0.40 0.42	NonLiqfble. NonLiqfble.
	55.32	11	25.1	0.79	135	6304	3538	18.5	12.4	3.60	3.0	56.3	0.80	73.9	92.3	0.469	0.153	0.199	0.42	NonLiqfble.
	55.4	11	23.2	0.78	135	6314	3544	17.1	11.3	3.89	3.0	59.8	0.80	68.2	85.3	0.469	0.138	0.179	0.38	NonLiqfble.
	55.49	11	21.3	0.76	125	6327	3550	15.6	10.2	4.19	3.1	63.6	0.80	62.6	78.2	0.469	0.124	0.162	0.34	NonLiqfble.
	55.58	11 11	19.9 19.8	0.77 0.75	125	6338	3556	14.6	9.4	4.60	3.1	67.5	0.80	58.4	73.0	0.469	0.116	0.151	0.32	NonLiqfble.
	55.66 55.75	11	20.7	0.73	125 125	6348 6359	3561 3567	14.5 15.2	9.3 9.8	4.51 4.17	3.1	67.3 64.5	0.80	58.1 60.7	72.6 75.8	0.469 0.469	0.116 0.121	0.150 0.157	0.32 0.33	NonLiqfble. NonLiqfble.
	55.84	11	21	0.76	125	6370	3572	15.4	10.0	4.27	3.1	64.5	0.80	61.5	76.9	0.469	0.122	0.159	0.34	NonLiqfble.
	55.92	11	20.1	0.81	125	6380	3577	14.7	9.4	4.79	3.1	68.1	0.80	58.8	73.5	0.470	0.117	0.152	0.32	NonLiqfble.
	56.01	11	19.7	0.79	125	6392	3583	14.4	9.2	4.79	3.1	68.8	0.80	57.6	72.0	0.470	0.115	0.149	0.32	NonLiqfble.
	56.1	11	20.6	0.71	125	6403	3589	15.0	9.7	4.08	3.1	64.4	0.80	60.2	75.2	0.470	0.120	0.155	0.33	NonLiqfble.
	56.19 56.28	11 11	19.1 17.7	0.61 0.5	125 125	6414 6425	3594 3600	13.9 12.9	8.8 8.0	3.84 3.45	3.1	65.6 66.1	0.80	55.8 51.6	69.7 64.5	0.470 0.470	0.111 0.105	0.145 0.136	0.31 0.29	NonLiqfble. NonLiqfble.
	56.36	11	16.7	0.42	125	6435	3605	12.2	7.5	3.12	3.1	66.3	0.80	48.7	60.8	0.470	0.103	0.130	0.28	NonLiqfble.
	56.45	11	16.4	0.39	125	6447	3611	11.9	7.3	2.96	3.1	66.0	0.80	47.8	59.7	0.470	0.100	0.130	0.28	NonLiqfble.
	56.54	11	17.2	0.39	125	6458	3616	12.5	7.7	2.79	3.1	63.5	0.80	50.1	62.6	0.470	0.103	0.134	0.28	NonLiqfble.
	56.62	11	17.9	0.4	125	6468	3621	13.0	8.1	2.73	3.1	61.9	0.80	52.1	65.1	0.470	0.106	0.137	0.29	NonLiqfble.
	56.71 56.8	11 11	19.8 18.9	0.4 0.37	125 125	6479 6490	3627 3632	14.4 13.7	9.1 8.6	2.42 2.36	3.0	57.0 58.1	0.80	57.5 54.9	71.9 68.6	0.470 0.470	0.115 0.110	0.149 0.143	0.32 0.30	NonLiqfble. NonLiqfble.
	56.88	11	18.6	0.39	125	6500	3637	13.7	8.4	2.54	3.0	59.7	0.80	54.9	67.5	0.470	0.110	0.143	0.30	NonLiqfble.
	56.97	11	17.6	0.41	125	6512	3643	12.8	7.9	2.86	3.1	63.4	0.80	51.0	63.8	0.471	0.104	0.135	0.29	NonLiqfble.
	57.06	11	18.3	0.43	125	6523	3649	13.3	8.2	2.86	3.1	62.3	0.80	53.0	66.3	0.471	0.107	0.139	0.30	NonLiqfble.
	57.14	11	19.9	0.41	125	6533	3654	14.4	9.1	2.47	3.0	57.4	0.80	57.6	72.0	0.471	0.115	0.149	0.32	NonLiqfble.
	57.23 57.32	11	21.7 22.3	0.45	125 125	6544	3659	15.7	10.1	2.44	2.9	54.8 59.3	0.80	62.8	78.5	0.471	0.125	0.162	0.35	NonLiqfble.
	57.32	11 11	33.4	0.64 0.82	135	6555 6565	3665 3670	16.1 24.1	10.4 16.4	3.36 2.72	3.0 2.8	59.5 45.8	0.80	64.5 96.5	80.6 120.6	0.471 0.471	0.129 0.243	0.167 0.316	0.36 0.67	NonLiqfble. NonLiqfble.
	57.49	11	45.8	1.14	135	6578	3677	33.0	23.1	2.68	2.7	39.1	0.80	132.2	165.2	0.471	0.500	0.650	1.38	NonLiqfble.
	57.73	11	63.2	1.1	135	6610	3694	45.5	32.4	1.84	2.5	28.8	0.64	79.6	125.1	0.471	0.262	0.341	0.72	Liquefaction
	57.82	11	62.7	1.02	135	6622	3701	45.1	32.1	1.72	2.4	28.2	0.62	73.7	118.8	0.471	0.236	0.307	0.65	Liquefaction
	57.91	11	53.6		135	6634	3707	38.5	27.1	2.15	2.6	33.5	0.76	122.1	160.6	0.471	0.465	0.605	1.28	N1:-6-1-
	57.99 58.08	11 11	43.8 37.4	1.21 1.26	135 135	6645 6657	3713 3719	31.5 26.8	21.8 18.3	2.99 3.70	2.7 2.8	41.7 48.4	0.80	125.8 107.3	157.3 134.2	0.471 0.471	0.442 0.305	0.574 0.396	1.22 0.84	NonLiqfble. NonLiqfble.
	58.17	11	37.2		135	6669	3726	26.7	18.2	3.34	2.8	46.9	0.80	106.7	133.3	0.471	0.300	0.391	0.83	NonLiqfble.
	58.25	11	37.5	0.89	135	6680	3732	26.9	18.3	2.61	2.7	43.0	0.80	107.4	134.3	0.471	0.305	0.397	0.84	NonLiqfble.
	58.34	11	36.8	0.83	135	6692	3738	26.3	17.9	2.48	2.7	42.8	0.80	105.3	131.7	0.471	0.292	0.380	0.81	NonLiqfble.
	58.43	11	36.8	0.88	135	6704	3745	26.3	17.9	2.63	2.8	43.7	0.80	105.2	131.6	0.471	0.292	0.379	0.80	NonLiqfble.
	58.51 58.6	11 11	36 34.8	0.88 0.85	135 135	6715 6727	3751 3757	25.7 24.8	17.4 16.7	2.70 2.70	2.8 2.8	44.5 45.3	0.80	102.9 99.4	128.6 124.2	0.471 0.471	0.278 0.258	0.361 0.336	0.77 0.71	NonLiqfble. NonLiqfble.
	58.69	11	33.4	0.83	135	6740	3764	23.8	16.0	2.76	2.8	46.6	0.80	95.3	119.1	0.471	0.237	0.308	0.65	NonLiqfble.
	58.78	11	31.6		135	6752	3770	22.5	15.0	2.87	2.8	48.5	0.80	90.1	112.6	0.471	0.213	0.277	0.59	NonLiqfble.
	58.86	11	30.5	8.0	135	6762	3776	21.7	14.4	2.95	2.9	49.8	0.80	86.9	108.6	0.471	0.199	0.259	0.55	NonLiqfble.
	58.95	11	29.9	0.8	135	6775	3783	21.3	14.0	3.02	2.9	50.7	0.80	85.1	106.4	0.471	0.192	0.249	0.53	NonLiqfble.
	59.04 59.12	11 11	29.6 30.3		135 135	6787 6798	3789 3795	21.0 21.5	13.8 14.2	3.17 3.16	2.9 2.9	51.7 51.2	0.80	84.2 86.1	105.2 107.6	0.472 0.472	0.188 0.196	0.245 0.255	0.52 0.54	NonLiqfble. NonLiqfble.
	59.21	11	30.8		135	6810	3801	21.9	14.4	3.10	2.9	50.5	0.80	87.4	109.3	0.472	0.201	0.262	0.56	NonLiqfble.
	59.3	11	30.8	0.88	135	6822	3808	21.8	14.4	3.21	2.9	51.1	0.80	87.4	109.2	0.472	0.201	0.261	0.55	NonLiqfble.
	59.38	11	31.4		135	6833	3814	22.2	14.7	3.36	2.9	51.4	0.80	89.0	111.2	0.472	0.208	0.270	0.57	NonLiqfble.
	59.47	11	33.5		135	6845	3820	23.7	15.7	3.29	2.9	49.6	0.80	94.9	118.6	0.472	0.235	0.306	0.65	NonLiqfble.
	59.55 59.64	11	35.7	1.02	135	6856	3826	25.3	16.9	3.16	2.8	47.5 47.5	0.80	101.0	126.3	0.472	0.267	0.347	0.74	NonLiqfble.
	59.64 59.72	11 11	36.2 35.5		135 135	6868 6879	3833 3838	25.6 25.1	17.1 16.7	3.20 3.28	2.8 2.8	47.5 48.3	0.80	102.3 100.3	127.9 125.4	0.472 0.472	0.275 0.263	0.357 0.342	0.76 0.73	NonLiqfble. NonLiqfble.
	59.81	11	34.5		135	6891	3845	24.3	16.1	3.28	2.9	49.0	0.80	97.4	121.7	0.472	0.248	0.342	0.73	NonLiqfble.
	59.89	11	33	1	135	6902	3851	23.3	15.3	3.38	2.9	50.6	0.80	93.1	116.3	0.472	0.226	0.294	0.62	NonLiqfble.
	59.98	11	31.7		135	6914	3857	22.3	14.6	3.61	2.9	52.7	0.80	89.3	111.7	0.472	0.209	0.272	0.58	NonLiqfble.
	60.06	11	31.1	1.08	135	6924	3863	21.9	14.3	3.91	2.9	54.5	0.80	87.6	109.5	0.415	0.202	0.263	0.63	NonLiqfble.
	60.13	11	31.6	1.07	135	6934	3868	22.2	14.5	3.80	2.9	53.7	0.80	88.9	111.2	0.415	0.208	0.270	0.65	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

EQ Magnitude ( $M_w$ ): 6.5 **PGA (g):** 0.54

MSF: 1.30 CPT Number: 23 Depth to Groundwater: 11 feet Induced Liquef. Liquef. Factor Total Effective Norm. Corr. Friction Water Tip Sleeve Stress Stress Of Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Co

Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> e1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qcln)es	Ratio	M7.5	M6.50	Safety	Comments
	60.2	11	31.9	1	135	6943	3873	22.4	14.7	3.52	2.9	52.2	0.80	89.7	112.1	0.415	0.211	0.274	0.66	NonLiqfble.
	60.26	11	32.1	0.88	135	6951	3878	22.4	14.8	3.07	2.9	49.9	0.80	90.2	112.1	0.415	0.211	0.274	0.67	NonLiqfble.
	60.33	11	30.1	0.68	125	6961	3883	21.1	13.7	2.55	2.8	48.6	0.80	84.5	105.7	0.415	0.190	0.247	0.59	NonLiqfble.
	60.4	11	27.9	0.56	125	6970	3887	19.6	12.6	2.29	2.8	48.9	0.80	78.3	97.9	0.415	0.167	0.217	0.52	NonLiqfble.
	60.47	11	24.7	0.46	125	6978	3892	17.3	10.9	2.17	2.9	51.2	0.80	69.3	86.6	0.415	0.140	0.183	0.44	NonLiqfble.
	60.54	11	20.3	0.38	125	6987	3896	14.2	8.6	2.26	3.0	57.4	0.80	56.9	71.2	0.415	0.113	0.148	0.36	NonLiqfble.
	60.61	11	17.5	0.32	115	6996	3900	12.3	7.2	2.29	3.1	62.2	0.80	49.0	61.3	0.416	0.101	0.132	0.32	NonLiqfble.
	60.68	11	15.9	0.28	115	7004	3904	11.1	6.3	2.26	3.1	65.3	0.80	44.5	55.7	0.416	0.096	0.125	0.30	NonLiqfble.
	60.75	11	14.9	0.26	115	7012	3908	10.4	5.8	2.28	3.1	67.8	0.80	41.7	52.1	0.416	0.093	0.121	0.29	NonLiqfble.
	60.82	11 11	14.7 16.4	0.24 0.23	115 105	7020 7030	3911 3916	10.3	5.7	2.15 1.79	3.1	67.3 60.7	0.80	41.1 45.9	51.4 57.3	0.416 0.416	0.093	0.120 0.127	0.29	NonLiqfble.
	60.91 60.99	11	16.2	0.23	105	7030	3919	11.5 11.3	6.6 6.5	1.74	3.0	60.8	0.80 0.80	45.3	56.6	0.416	0.098 0.097	0.127	0.30 0.30	NonLiqfble. NonLiqfble.
	61.08	11	16	0.21	105	7048	3923	11.2	6.4	1.68	3.0	60.8	0.80	44.7	55.9	0.416	0.096	0.125	0.30	NonLiqfble.
	61.17	11	15.8	0.21	105	7058	3927	11.0	6.2	1.71	3.0	61.5	0.80	44.1	55.2	0.416	0.096	0.124	0.30	NonLiqfble.
	61.26	11	15.6	0.21	105	7067	3931	10.9	6.1	1.74	3.1	62.2	0.80	43.5	54.4	0.416	0.095	0.123	0.30	NonLiqfble.
	61.34	11	16.4	0.22	105	7076	3934	11.4	6.5	1.71	3.0	60.3	0.80	45.8	57.2	0.417	0.097	0.127	0.30	NonLiqfble.
	61.43	11	16.4	0.23	105	7085	3938	11.4	6.5	1.79	3.0	61.0	0.80	45.7	57.2	0.417	0.097	0.127	0.30	NonLiqfble.
	61.51	11	16.5	0.25	115	7093	3942	11.5	6.6	1.93	3.1	61.9	0.80	46.0	57.5	0.417	0.098	0.127	0.30	NonLiqfble.
	61.6	11	16.6	0.26	115	7104	3946	11.6	6.6	1.99	3.1	62.2	0.80	46.2	57.8	0.417	0.098	0.127	0.31	NonLiqfble.
	61.67	11	17	0.26	115	7112	3950	11.8	6.8	1.93	3.0	61.0	0.80	47.3	59.2	0.417	0.099	0.129	0.31	NonLiqfble.
	61.74	11	16.8	0.26 0.26	115 115	7120	3954	11.7 11.6	6.7	1.96	3.0	61.7	0.80	46.8	58.5	0.417	0.099	0.128	0.31	NonLiqfble.
	61.82 61.91	11 11	16.7 16.9	0.26	115	7129 7139	3958 3963	11.7	6.6 6.7	1.98 1.95	3.1	62.0 61.5	0.80	46.5 47.0	58.1 58.7	0.417 0.417	0.098 0.099	0.128 0.128	0.31	NonLiqfble. NonLiqfble.
	62	11	16.1	0.26	115	7150	3967	11.7	6.3	2.08	3.1	64.1	0.80	44.7	55.9	0.417	0.099	0.125	0.30	NonLiqfble.
	62.08	11	15.7	0.25	115	7159	3972	10.9	6.1	2.06	3.1	64.9	0.80	43.6	54.5	0.418	0.095	0.124	0.30	NonLiqfble.
	62.17	11	15.7	0.25	115	7169	3976	10.9	6.1	2.06	3.1	65.0	0.80	43.6	54.5	0.418	0.095	0.124	0.30	NonLiqfble.
	62.26	11	15.9	0.24	115	7180	3981	11.0	6.2	1.95	3.1	63.7	0.80	44.1	55.1	0.418	0.096	0.124	0.30	NonLiqfble.
	62.35	11	15.5	0.24	115	7190	3986	10.7	6.0	2.02	3.1	65.1	0.80	43.0	53.7	0.418	0.094	0.123	0.29	NonLiqfble.
	62.43	11	15.3	0.25	115	7199	3990	10.6	5.9	2.14	3.1	66.6	0.80	42.4	53.0	0.418	0.094	0.122	0.29	NonLiqfble.
	62.52	11	14.9	0.25	115	7210	3995	10.3	5.7	2.21	3.1	68.1	0.80	41.3	51.6	0.418	0.093	0.121	0.29	NonLiqfble.
	62.6	11	15.4	0.26	115	7219	3999	10.7	5.9	2.21	3.1	66.9	0.80	42.6	53.3	0.418	0.094	0.122	0.29	NonLiqfble.
	62.69	11	16	0.29	115	7229	4004	11.1	6.2	2.34	3.1	66.6	0.80	44.3	55.3	0.418	0.096	0.124	0.30	NonLiqfble.
	62.78 62.87	11 11	17.1 16.6	0.32 0.35	115 125	7239 7250	4008 4013	11.8 11.5	6.7 6.5	2.37 2.70	3.1	64.5 67.7	0.80	47.3 45.9	59.1 57.3	0.418 0.418	0.099 0.098	0.129 0.127	0.31 0.30	NonLiqfble. NonLiqfble.
	62.95	11	18.4	0.38	125	7260	4018	12.7	7.3	2.57	3.1	63.5	0.80	50.8	63.5	0.419	0.104	0.127	0.32	NonLiqfble.
	63.04	11	20	0.45	125	7271	4024	13.8	8.1	2.75	3.1	62.0	0.80	55.2	69.0	0.419	0.111	0.144	0.34	NonLiqfble.
	63.12	11	22.3	0.55	125	7281	4029	15.4	9.3	2.95	3.0	59.9	0.80	61.5	76.9	0.419	0.122	0.159	0.38	NonLiqfble.
	63.21	11	24.1	0.65	125	7292	4034	16.6	10.1	3.18	3.0	58.9	0.80	66.4	83.0	0.419	0.133	0.173	0.41	NonLiqfble.
	63.3	11	26.7	0.78	135	7304	4040	18.4	11.4	3.38	3.0	57.2	0.80	73.5	91.9	0.419	0.152	0.198	0.47	NonLiqfble.
	63.38	11	31	0.96	135	7314	4046	21.3	13.5	3.51	2.9	53.9	0.80	85.3	106.6	0.419	0.193	0.251	0.60	NonLiqfble.
	63.47	11	37	1.18	135	7327	4052	25.4	16.4	3.54	2.9	49.9	0.80	101.7	127.2	0.419	0.271	0.353	0.84	NonLiqfble.
	63.55	11	41.7	1.39	135	7337	4058	28.6	18.7	3.66	2.8	47.7	0.80	114.6	143.2	0.419	0.353	0.459	1.10	NonLiqfble.
	63.64 63.72	11 11	45.3 46.5	1.54 1.73	135 135	7349 7360	4065 4071	31.1 31.9	20.5 21.0	3.70 4.04	2.8 2.8	46.2 47.1	0.80	124.4 127.6	155.4 159.4	0.419 0.419	0.429 0.457	0.558 0.594	1.33 1.42	NonLiqfble.
	63.81	11	46.3	1.84	135	7372	4077	31.5	20.7	4.35	2.8	48.6	0.80	126.1	157.6	0.419	0.444	0.577	1.38	NonLiqfble. NonLiqfble.
	63.89	11	44.5	1.83	135	7383	4083	30.5	20.0	4.48	2.9	49.9	0.80	121.9	152.4	0.419	0.409	0.532	1.27	NonLiqfble.
	63.98	11	47.1	1.82	135	7395	4089	32.2	21.2	4.19	2.8	47.5	0.80	128.9	161.1	0.419	0.469	0.610	1.46	NonLiqfble.
	64.06	11	49.8	1.86	135	7406	4095	34.0	22.5	4.04	2.8	45.8	0.80	136.2	170.2	0.419	0.539	0.701	1.67	NonLiqfble.
	64.15	11	50.8	2	135	7418	4102	34.7	23.0	4.25	2.8	46.2	0.80	138.8	173.5	0.419	0.566	0.736	1.76	NonLiqfble.
	64.23	11	47	2.13	135	7429	4108	32.1	21.1	4.92	2.9	50.4	0.80	128.3	160.4	0.419	0.464	0.603	1.44	NonLiqfble.
	64.32	11	45.5	2.53	135	7441	4114	31.0	20.3	6.06	2.9	55.0	0.80	124.2	155.2	0.419	0.428	0.556	1.33	NonLiqfble.
	64.53	11	66.2	2.82	135	7470	4129	45.1	30.2	4.51	2.7	42.3	0.80	180.3	225.4	0.419	1.145	1.488	3.55	NonLiqfble.
	64.62	11	92	2.75	135	7482	4136	62.6	42.7	3.12	2.5	31.3	0.70	148.1	210.7	0.419	0.950	1.235	2.95	
	64.7 64.79	11	120 143.8	2.58	135 135	7493 7505	4142 4148	81.6 97.7	56.1 67.5	2.22	2.3 2.2	23.5	0.49	79.9 55.3	161.5 153.0	0.419	0.472 0.413	0.613 0.537	1.46 1.28	
	64.79	11 11	167.3	2.35 2.12	135	7516	4148	113.6	78.7	1.68 1.30	2.2	18.5 14.7	0.36 0.26	39.7	153.0	0.419 0.419	0.415	0.537	1.28	
	64.95	11	190.3	1.97	125	7526	4160	129.1	89.6	1.06	2.0	11.9	0.19	29.4	158.5	0.419	0.413	0.585	1.40	
	65.03	11	211.3	1.89	125	7536	4165	143.3	99.6	0.91	1.9	10.1	0.14	22.4	165.6	0.419	0.502	0.653	1.56	
	65.11	11	224.7	1.78	125	7546	4170	152.3	105.9	0.81	1.8	8.8	0.10	17.3	169.5	0.419	0.533	0.693	1.65	
	65.19	11	229.4	1.7	115	7556	4175	155.3	108.0	0.75	1.8	8.3	0.09	14.9	170.3	0.419	0.539	0.701	1.67	
	65.27	11	229	1.7	115	7566	4179	155.0	107.7	0.75	1.8	8.3	0.09	15.0	170.0	0.419	0.537	0.698	1.67	
	65.35	11	228.7	1.73	115	7575	4183	154.7	107.5	0.77	1.8	8.4	0.09	15.6	170.3	0.419	0.540	0.702	1.67	
	65.43	11	225.5	1.73	115	7584	4188	152.5	105.8	0.78	1.8	8.6	0.10	16.4	168.9	0.420	0.528	0.686	1.64	

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 23

Depth to Groundwater: 11 feet

EQ Magnitude ( $M_w$ ): 6.5 **PGA (g):** 0.54 MSF: 1.30

		Water	Tip	Sleeve			Effective			Friction		P. 6					•	Liquef.		
Cone	Depth (FT)	Table (FT)	Resist.	Frict. (TSF)	g (PCF)	Stress (PSF)	Stress (PSF)	Tip q <sub>e1N</sub>	Tip Q	Ratio F	Ic	F.C. (%)	Ксрт	DqcIN	(qcIN)cs	Stress Ratio	Stress M7.5	Stress M6.50	of Safety	Comments
	()	()	(-2-)	(-2-)	()	(= == )	(-2-)					(11)								
	65.52	11	220.7	1.75	125	7594	4192	149.1	103.4	0.81	1.8	9.0	0.11	17.9	167.0	0.420	0.513	0.667	1.59	
	65.6	11	212.8 208.2	1.81	125	7604	4197	143.7	99.5	0.87	1.9	9.7	0.13	20.8	164.6	0.420	0.494	0.643	1.53	
	65.68 65.76	11 11	199.3	1.86 1.87	125 125	7614 7624	4202 4207	140.5 134.4	97.2 92.9	0.91 0.96	1.9 1.9	10.2 11.0	0.14 0.16	22.9 25.4	163.4 159.9	0.420 0.420	0.486 0.460	0.632 0.598	1.50 1.42	
	65.84	11	184.5	1.87	125	7634	4212	124.4	85.8	1.03	2.0	12.2	0.19	29.5	153.9	0.420	0.419	0.545	1.30	
	65.92 66	11 11	172.2 163	1.87 1.92	125 125	7644 7654	4217 4222	116.0 109.8	79.8 75.4	1.11 1.21	2.0	13.4 14.5	0.22 0.25	33.3 37.5	149.3 147.3	0.420 0.420	0.390 0.377	0.507 0.490	1.21 1.17	Low F.S.
	66.08	11	158.9	1.97	135	7664	4227	106.9	73.4	1.27	2.1	15.2	0.23	40.1	147.3	0.420	0.376	0.490	1.17	Low F.S.
	66.16	11	160.7	1.86	125	7675	4233	108.1	74.1	1.19	2.1	14.6	0.26	37.1	145.2	0.420	0.364	0.474	1.13	Low F.S.
	66.23 66.31	11 11	169 174.7	1.75 1.71	125 125	7684 7694	4237 4243	113.6 117.4	77.9 80.5	1.06 1.00	2.0	13.2 12.5	0.22 0.20	32.0 29.5	145.6 146.8	0.420 0.420	0.367 0.374	0.477 0.487	1.14 1.16	Low F.S. Low F.S.
	66.39	11	171.4	1.71	125	7704	4248	115.1	78.9	1.00	2.0	12.8	0.20	30.5	145.6	0.420	0.367	0.477	1.14	Low F.S.
	66.47	11	149.4	2.01	135	7714	4253	100.2	68.4	1.38	2.1	16.6	0.31	45.1	145.4	0.420	0.366	0.475	1.13	Low F.S.
	66.55 66.62	11 11	119.9 81.3	2.09 1.87	135 135	7725 7734	4258 4263	80.4 54.5	54.5 36.3	1.80 2.42	2.3 2.5	21.7 30.4	0.45	64.5	144.9 169.2	0.420 0.420	0.363 0.530	0.471 0.689	1.12	Low F.S.
	66.7	11	56.4	1.73		7745	4269	37.8	24.6	3.29	2.7	41.0	0.68 0.80	114.7 151.1	188.8	0.420	0.706	0.089	1.64 2.18	NonLiqfble.
	66.79	11	32.9	1.62		7757	4276	22.0	13.6	5.58	3.1	62.3	0.80	88.1	110.1	0.420	0.204	0.265	0.63	NonLiqfble.
	66.86	11	26.5	1.2		7766	4281	17.7	10.6	5.31	3.1	67.3	0.80	70.9	88.6	0.420	0.145	0.188	0.45	NonLiqfble.
	66.94 67.02	11 11	25.7 24.2	0.76 0.56	135 125	7777 7788	4287 4292	17.2 16.2	10.2 9.5	3.48 2.76	3.0	60.4 58.2	0.80 0.80	68.7 64.6	85.9 80.8	0.420 0.420	0.139 0.129	0.181 0.168	0.43 0.40	NonLiqfble. NonLiqfble.
	67.1	11	21.2	0.51	125	7798	4297	14.1	8.0	2.95	3.1	63.4	0.80	56.6	70.7	0.420	0.113	0.147	0.35	NonLiqfble.
	67.18	11	20	0.5	125	7808	4302	13.3	7.5	3.11	3.1	66.2	0.80	53.4	66.7	0.420	0.108	0.140	0.33	NonLiqfble.
	67.26 67.34	11 11	21.2 21	0.49 0.5	125 125	7818 7828	4307 4312	14.1 14.0	8.0 7.9	2.83 2.93	3.1	62.8 63.7	0.80	56.5 56.0	70.7 70.0	0.420 0.421	0.113 0.112	0.147 0.145	0.35 0.35	NonLiqfble. NonLiqfble.
	67.42	11	21.5	0.51	125	7838	4317	14.3	8.1	2.90	3.1	62.8	0.80	57.3	71.6	0.421	0.112	0.143	0.35	NonLiqfble.
	67.49	11	22.4	0.53	125	7847	4322	14.9	8.5	2.87	3.0	61.4	0.80	59.6	74.5	0.421	0.119	0.154	0.37	NonLiqfble.
	67.57	11	23.7	0.56	125	7857	4327	15.8	9.1	2.83	3.0	59.5	0.80	63.1	78.8	0.421	0.126	0.163	0.39	NonLiqfble.
	67.65 67.73	11 11	25.2 24	0.59 0.57	125 125	7867 7877	4332 4337	16.8 15.9	9.8 9.2	2.77 2.84	3.0	57.4 59.3	0.80 0.80	67.0 63.8	83.8 79.7	0.421 0.421	0.135 0.127	0.175 0.165	0.42 0.39	NonLiqfble. NonLiqfble.
	67.95	11	24.4	0.61	125	7904	4351	16.2	9.4	2.98	3.0	59.7	0.80	64.7	80.9	0.421	0.129	0.168	0.40	NonLiqfble.
	68.04	11	25.7	0.64	125	7916	4356	17.0	10.0	2.94	3.0	58.0	0.80	68.1	85.2	0.421	0.137	0.179	0.42	NonLiqfble.
	68.12 68.21	11 11	26.8 27.7	0.63 0.61	125 125	7926 7937	4361 4367	17.8 18.3	10.5 10.9	2.76 2.57	3.0 2.9	55.8 53.9	0.80 0.80	71.0 73.4	88.8 91.7	0.421 0.421	0.145 0.152	0.189 0.197	0.45 0.47	NonLiqfble. NonLiqfble.
	68.29	11	28.7	0.64	125	7947	4372	19.0	11.3	2.59	2.9	53.0	0.80	76.0	95.0	0.421	0.160	0.208	0.49	NonLiqfble.
	68.38	11	30.3	0.69	125	7958	4378	20.0	12.0	2.62	2.9	51.9	0.80	80.1	100.2	0.421	0.174	0.226	0.54	NonLiqfble.
	68.46 68.55	11 11	33.5 35.3	0.72 0.72	135 125	7968 7980	4383 4389	22.1 23.3	13.5 14.3	2.44 2.30	2.8 2.8	48.3 50.9	0.80	88.6 93.3	110.7 116.6	0.421 0.421	0.206 0.227	0.268 0.295	0.64 0.70	NonLiqfble. NonLiqfble.
	68.63	11	36.2	0.72	125	7990	4394	23.9	14.7	2.20	2.8	50.9	0.80	95.6	119.5	0.421	0.239	0.233	0.74	NonLiqfble.
	68.71	11	36.6	0.71	125	8000	4399	24.1	14.8	2.18	2.8	50.9	0.80	96.6	120.7	0.421	0.244	0.317	0.75	NonLiqfble.
	68.8 68.88	11 11	36.8 38.7	0.71 0.72	125 125	8011 8021	4405 4410	24.3 25.5	14.9 15.7	2.17 2.08	2.8 2.7	50.9 50.9	0.80 0.80	97.0 102.0	121.3 127.5	0.421 0.421	0.246 0.273	0.320 0.355	0.76 0.84	NonLiqfble. NonLiqfble.
	68.97	11	37.7	0.72	135	8033	4415	24.8	15.7	2.20	2.8	50.9	0.80	99.3	124.1	0.421	0.273	0.335	0.80	NonLiqfble.
	69.05	11	35.9	0.75	135	8044	4421	23.6	14.4	2.35	2.8	50.9	0.80	94.5	118.1	0.421	0.233	0.303	0.72	NonLiqfble.
	69.14	11	32.8	0.72		8056	4428	21.6	13.0	2.50	2.9	50.9 50.9	0.80	86.3	107.8	0.421	0.197	0.256	0.61	NonLiqfble.
	69.23 69.31	11 11	29.7 28.4	0.71 0.69	125 125	8068 8078	4434 4439	19.5 18.6	11.6 11.0	2.77 2.83	2.9 2.9	50.9	0.80 0.80	78.1 74.6	97.6 93.2	0.421 0.422	0.166 0.155	0.216 0.202	0.51 0.48	NonLiqfble. NonLiqfble.
	69.4	11	26.5	0.66	125	8089	4445	17.4	10.1	2.94	3.0	50.9	0.80	69.6	87.0	0.422	0.141	0.183	0.44	NonLiqfble.
	69.48	11	25.4	0.66		8099	4450	16.7	9.6	3.09	3.0	50.9	0.80	66.6	83.3	0.422	0.134	0.174	0.41	NonLiqfble.
	69.57 69.65	11 11	25.5 25	0.67 0.64	125 125	8110 8120	4456 4461	16.7 16.4	9.6 9.4	3.12 3.06	3.0 3.0	50.9 50.9	0.80 0.80	66.9 65.5	83.6 81.9	0.422 0.422	0.134 0.131	0.175 0.170	0.41 0.40	NonLiqfble. NonLiqfble.
	69.74	11	24.2	0.62		8132	4466	15.8	9.0	3.08	3.0	50.9	0.80	63.4	79.2	0.422	0.126	0.164	0.39	NonLiqfble.
	69.82	11	23.6	0.6	125	8142	4471	15.4	8.7	3.07	3.1	50.9	0.80	61.8	77.2	0.422	0.123	0.160	0.38	NonLiqfble.
	69.91 70	11 11	22.2 21.8	0.58 0.55	125 125	8153 8164	4477 4482	14.5 14.2	8.1 7.9	3.20 3.10	3.1	50.9 50.9	0.80 0.80	58.1 57.0	72.6 71.2	0.422 0.377	0.116 0.114	0.150 0.148	0.36 0.39	NonLiqfble. NonLiqfble.
	70.08	11	22.3	0.53	125	8174	4482	14.2	8.1	2.91	3.1	63.0	0.80	58.3	72.8	0.377	0.114	0.148	0.39	NonLiqfble.
	70.16	11	22.2	0.51	125	8184	4493	14.5	8.1	2.82	3.1	62.6	0.80	58.0	72.5	0.377	0.115	0.150	0.40	NonLiqfble.
	70.25	11	22.7	0.5	125	8195	4498	14.8	8.3	2.69	3.0	61.2	0.80	59.2	74.0	0.377	0.118	0.153	0.41	NonLigfble.
	70.33 70.42	11 11	22.5 22.2	0.49 0.48	125 125	8205 8217	4503 4509	14.7 14.5	8.2 8.0	2.66 2.65	3.0 3.0	61.3 61.7	0.80	58.7 57.9	73.4 72.3	0.377 0.377	0.117 0.115	0.152 0.150	0.40 0.40	NonLiqfble. NonLiqfble.
	70.5	11	22.3	0.49	125	8227	4514	14.5	8.1	2.69	3.0	61.9	0.80	58.1	72.6	0.377	0.116	0.150	0.40	NonLiqfble.
	70.59	11	21	0.49	125	8238	4519	13.7	7.5	2.90	3.1	65.1	0.80	54.7	68.3	0.377	0.110	0.143	0.38	NonLiqfble.
	70.67 70.76	11 11	20.6 21.3	0.47 0.47	125 125	8248 8259	4524 4530	13.4 13.8	7.3 7.6	2.85 2.74	3.1	65.5 63.7	0.80	53.6 55.4	67.0 69.2	0.378 0.378	0.108 0.111	0.140 0.144	0.37 0.38	NonLiqfble. NonLiqfble.
	. 3.7 0			3.47	.20	020)	.550	15.0		2.77	J.1	03.1	0.00	55.4	07.2	0.570	V11	U.1-T-T	0.50	

Project Number: 6600.3.001.01 Date: September 2005 rd EQ Magnitude (M<sub>w</sub>): 6.5 PGA (g): 0.54 MSF: 1.30

Date:	Septem	ber 200	JO													MSF:	1.30			
CPT N	lumber:	23																		
Depth	to Grou	ındwate	er: 11 f	eet																
		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{CPT}$	DqcIN	(qc1N)cs	Ratio	M7.5	M6.50	Safety	

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	l Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	70.84	11	22.4	0.51	125	8269	4535	14.6	8.1	2.79	3.1	62.5	0.80	58.2	72.8	0.378	0.116	0.151	0.40	NonLiqfble.
	70.92	11	23.8	0.5	125	8279	4540	15.5	8.7	2.54	3.0	59.1	0.80	61.8	77.3	0.378	0.123	0.160	0.42	NonLiqfble.
	71.01	11	26.4	0.61	125	8290	4546	17.1	9.8	2.74	3.0	57.3	0.80	68.5	85.7	0.378	0.138	0.180	0.48	NonLiqfble.
	71.09	11	29.7	0.82	135	8300	4551	19.3	11.2	3.21	3.0	56.7	0.80	77.1	96.3	0.378	0.163	0.212	0.56	NonLiqfble.
	71.18	11	34.8	0.98	135	8312	4557	22.6	13.4	3.20	2.9	52.5	0.80	90.2	112.8	0.378	0.213	0.277	0.73	NonLiqfble.
	71.25	11	41.3	1.1	135	8322	4562	26.8	16.3	2.96	2.8	47.3	0.80	107.0	133.8	0.378	0.303	0.393	1.04	NonLiqfble.
	71.33	11	42.6	1.22	135	8333	4568	27.6	16.8	3.17	2.8	47.7	0.80	110.3	137.9	0.378	0.324	0.421	1.11	NonLiqfble.
	71.42	11 11	41.1	1.28 1.25	135	8345	4575	26.6	16.1	3.47	2.9	49.9	0.80	106.3	132.9 130.3	0.378	0.298	0.388	1.03 0.98	NonLiqfble.
	71.51 71.59	11	40.3 39.5	1.23	135 135	8357 8368	4581 4587	26.1 25.5	15.8 15.4	3.46 3.43	2.9 2.9	50.4 50.7	0.80	104.2 102.1	127.6	0.378 0.378	0.286 0.273	0.371 0.355	0.98	NonLiqfble. NonLiqfble.
	71.68	11	40.6	1.16	135	8380	4594	26.2	15.4	3.19	2.9	48.9	0.80	104.8	131.1	0.378	0.273	0.333	1.00	NonLiqfble.
	71.76	11	37.9	1.13	135	8391	4599	24.5	14.6	3.35	2.9	51.4	0.80	97.8	122.3	0.378	0.250	0.376	0.86	NonLiqfble.
	71.85	11	36.8	1.18	135	8403	4606	23.7	14.1	3.62	2.9	53.4	0.80	94.9	118.6	0.378	0.235	0.306	0.81	NonLiqfble.
	71.93	11	37.5	1.21	135	8414	4612	24.2	14.4	3.63	2.9	53.1	0.80	96.6	120.8	0.378	0.244	0.317	0.84	NonLiqfble.
	72.02	11	38.1	1.28	135	8426	4618	24.5	14.7	3.78	2.9	53.4	0.80	98.1	122.7	0.378	0.252	0.327	0.87	NonLiqfble.
	72.1	11	41	1.44	135	8437	4624	26.4	15.9	3.92	2.9	52.2	0.80	105.5	131.9	0.378	0.293	0.381	1.01	NonLiqfble.
	72.19	11	41.3	1.78	135	8449	4631	26.6	16.0	4.80	3.0	55.7	0.80	106.2	132.8	0.378	0.298	0.387	1.02	NonLiqfble.
	72.28	11	45.2	2	135	8461	4637	29.0	17.7	4.88	2.9	53.9	0.80	116.2	145.2	0.378	0.365	0.474	1.25	NonLiqfble.
	72.36	11	61.8	2.33	135	8472	4643	39.7	24.8	4.05	2.8	44.0	0.80	158.7	198.4	0.378	0.806	1.048	2.77	NonLiqfble.
	72.44	11	99.6	3	135	8483	4649	63.9	41.0	3.15	2.5	32.0	0.72	165.8	229.7	0.378	1.207	1.569	4.15	•
	72.53	11	171.1	3.25	135	8495	4655	109.7	71.7	1.95	2.2	19.3	0.38	68.1	177.9	0.378	0.603	0.784	2.08	
	72.61	11	213.3	3.24	135	8506	4661	136.7	89.7	1.55	2.1	15.0	0.27	49.6	186.3	0.378	0.681	0.885	2.34	
	72.69	11	229.8	2.75	135	8516	4667	147.2	96.6	1.22	2.0	12.4	0.20	35.9	183.1	0.378	0.651	0.846	2.24	
	72.77	11	239.1	2.54	125	8527	4673	153.0	100.5	1.08	1.9	11.1	0.16	30.0	183.1	0.378	0.651	0.846	2.24	
	72.84	11	260.9	2.45	125	8536	4677	166.9	109.7	0.95	1.9	9.6	0.12	23.4	190.3	0.378	0.721	0.937	2.48	
	72.92	11	278.1	2.37	125	8546	4682	177.8	116.9	0.87	1.8	8.5	0.09	18.4	196.2	0.378	0.783	1.017	2.69	
	73	11	310.7	2.37	125	8556	4687	198.6	130.7	0.77	1.7	7.1	0.06	11.7	210.2	0.378	0.944	1.228	3.25	
	73.08	11	308.1	3.68	135	8566	4692	196.8	129.4	1.21	1.9	10.0	0.13	30.1	226.9	0.378	1.166	1.516	4.01	
	73.16	11	333	3.26	125	8577	4698	212.6	139.9	0.99	1.8	8.1	0.08	19.1	231.6	0.378	1.236	1.607	4.25	
	73.24	11	344.1	2.79	125	8587	4703	219.5	144.4	0.82	1.7	6.8	0.05	10.8	230.3	0.378	1.216	1.581	4.18	
	73.3	11	378.5	2.45	115	8594	4707	241.4	158.9	0.65	1.6	5.0	0.00	0.0	241.4	0.378	1.388	1.805	4.77	
	73.36	11	359.3	2.14	115	8601	4710	229.1	150.7	0.60	1.6	4.9	0.00	0.0	229.1	0.378	1.198	1.557	4.12	
	73.43	11	372	2.07	115	8609	4714	237.1	156.0	0.56	1.6	4.4	0.00	0.0	237.1	0.378	1.319	1.715	4.53	
	73.51	11	372.5	1.82	105	8618	4718	237.3	156.0	0.49	1.6	3.9	0.00	0.0	237.3	0.378	1.323	1.719	4.54	
	73.58	11	373.8	1.69	105	8626	4721	238.0	156.5	0.46	1.5	3.6	0.00	0.0	238.0	0.378	1.334	1.735	4.58	
	73.66	11	365	1.57	105	8634	4724	232.4	152.6	0.44	1.5	3.5	0.00	0.0	232.4	0.378	1.247	1.621	4.28	
	73.73	11	336.1	1.33	105	8641	4727	213.9	140.3	0.40	1.6	3.7	0.00	0.0	213.9	0.379	0.990	1.287	3.40	
	73.8	11	341.4 346.1	1.7	105	8649	4730	217.2	142.5	0.50	1.6	4.5	0.00	0.0	217.2	0.379	1.033	1.343	3.55	
	73.88	11		1.84	115	8657	4733	220.1	144.3	0.54	1.6	4.7	0.00		220.1	0.379	1.072	1.393	3.68	
	73.95 74.02	11 11	352.8 335	1.36 1.46	105 105	8665 8673	4737 4740	224.3 212.9	147.1 139.5	0.39 0.44	1.5	3.3 4.1	0.00	0.0	224.3 212.9	0.379 0.379	1.129 0.977	1.468 1.271	3.88 3.35	
	74.02	11	332.1	1.34	105	8680	4740	212.9	139.5	0.44	1.6 1.6	3.9	0.00	0.0	211.0	0.379	0.977	1.271	3.27	
	74.09	11	320.7	1.46	105	8688	4743	203.7	133.2	0.41	1.6	4.5	0.00	0.0	203.7	0.379	0.955	1.125	2.97	
	74.17	11	304	0.88	95	8696	4750	193.0	126.1	0.40	1.5	3.3	0.00	0.0	193.0	0.379	0.749	0.973	2.57	
	74.24	11	288.4	0.76	95	8702	4752	183.1	119.5	0.29	1.5	3.4	0.00	0.0	183.1	0.379	0.650	0.846	2.23	
	74.31	11	289.4	0.70	95	8710	4754	183.6	119.9	0.27	1.5	3.4	0.00	0.0	183.6	0.379	0.656	0.853	2.25	
	74.46	11	299.8	0.72	95	8717	4757	190.2	124.2	0.27	1.5	3.1	0.00	0.0	190.2	0.379	0.720	0.936	2.47	
	74.53	11	305.8	0.75	95	8723	4759	194.0	126.6	0.32	1.5	3.6	0.00	0.0	194.0	0.380	0.759	0.986	2.60	
	74.57	11	292.8	1.11	105		4760	185.7	121.1	0.38	1.6	4.4	0.00	0.0	185.7	0.380	0.675	0.878	2.31	
	74.6	11		1.39	105		4762	179.1	116.7	0.50	1.7	5.7	0.02	3.4	182.4	0.380	0.645	0.838	2.21	
	74.64	11	278.2	1.66	115		4763	176.4	114.9	0.61	1.7	6.7	0.05	8.3	184.7	0.380	0.666	0.866	2.28	
	74.69	11	314.8	1.61	115		4766	199.5	130.2	0.52	1.6	5.1	0.00	0.8	200.3	0.380	0.827	1.076	2.83	
	74.73	11		1.43			4768	215.2	140.6	0.43	1.6	3.9	0.00	0.0	215.2	0.380	1.007	1.309	3.45	
	74.77	11	355.6	1.66	105		4770	225.3	147.2	0.47	1.6	4.0	0.00	0.0	225.3	0.380	1.143	1.486	3.91	
	74.82	11	367.6	2.83	125		4772	232.8	152.2	0.78	1.7	6.1	0.03	7.3	240.1	0.380	1.368	1.778	4.68	
	74.89	11		3.87	125		4776	260.3	170.3	0.95	1.7	6.6	0.04	11.4	271.7	0.380	1.945	2.529	6.66	
	74.93	11	432.3	3.82			4779	273.6	179.0	0.89	1.7	5.9	0.02	6.8	280.4	0.380	2.131	2.770	7.29	
	74.97	11	436.3	3.53			4781	276.1	180.6	0.82	1.7	5.4	0.01	2.8	278.9	0.380	2.098	2.727	7.18	
	75.01	11	444	3.47	125	8778	4784	280.9	183.7	0.79	1.6	5.1	0.00	0.8	281.6	0.380	2.158	2.805	7.38	
		11	419.6	3.29	125	8782	4786	265.4	173.5	0.79	1.7	5.4	0.01	3.2	268.6	0.380	1.882	2.447	6.44	
	75.04	11															4 454	1.010	- 0-	
	75.04 75.09	11	381	2.9	125	8788	4789	240.9	157.2	0.77	1.7	5.9	0.02	5.8	246.7	0.380	1.476	1.919	5.05	
				2.9 2.48	125 115		4789 4791	240.9 226.0	157.2 147.3	0.77 0.70	1.7 1.7	5.9	0.02	5.8 4.9	246.7 230.9	0.380	1.476	1.592	5.05 4.19	

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 23

Depth to Groundwater: 11 feet

ns - Maintenance and Storage Yard  $\begin{array}{ccc} \textbf{EQ Magnitude } (M_w) \text{:} & 6.5 \\ \textbf{PGA } (\textbf{g}) \text{:} & 0.54 \\ \textbf{MSF:} & 1.30 \\ \end{array}$ 

		Water	Tip	Sleeve			Effective			Friction		T. C.					l Liquef.	•		
one	(FT)	(FT)	Resist.	Frict. (TSF)	g (PCF)	Stress (PSF)	Stress (PSF)	Tip Qcin	Tip Q	Ratio F	Ic	F.C. (%)	Ксрт	Dacin	(qcIN)es		Stress M7.5	M6.50	of Safety	Comment
one	(F 1)	(F 1)	(151)	(151)	(I CF)	(131)	(131)	quiv	Ų	F	К	(70)	11011	Dquit	(qui)is	Katio	1417.5	1410.50	Safety	Comment
	75.21	11	354.2	2.25	115	8802	4795	223.8	145.8	0.64	1.7	5.4	0.01	2.6	226.4	0.380	1.159	1.507	3.96	
	75.25	11	355.8	2.45	115	8807	4798	224.8	146.4	0.70	1.7	5.8	0.02	4.9	229.7	0.380	1.207	1.569	4.13	
	75.29	11	372	2.57	115	8811	4800	234.9	153.1	0.70	1.7	5.5	0.01	3.4	238.4	0.380	1.340	1.742	4.58	
	75.32	11	379.7	2.4	115	8815	4801	239.8	156.3	0.64	1.6	5.0	0.00	0.0	239.8	0.380	1.362	1.770	4.66	
	75.35 75.39	11 11	365.8 368.9	2.29 2.28	115 115	8818 8823	4803 4805	230.9 232.9	150.4 151.7	0.63 0.63	1.6 1.6	5.2 5.1	0.00	1.1 0.4	232.0 233.2	0.380 0.380	1.241 1.260	1.614 1.638	4.24 4.31	
	75.44	11	390.4	2.44	115	8829	4808	246.4	160.5	0.63	1.6	4.8	0.00	0.0	246.4	0.380	1.471	1.912	5.03	
	75.51	11	405.4	2.4	115	8837	4811	255.7	166.6	0.60	1.6	4.3	0.00	0.0	255.7	0.380	1.635	2.126	5.59	
	75.55	11	347.5	2.67	125	8841	4813	219.2	142.5	0.78	1.7	6.5	0.04	9.4	228.6	0.380	1.191	1.548	4.07	
	75.58	11	349.6	2.64	125	8845	4815	220.4	143.3	0.76	1.7	6.4	0.04	8.7	229.1	0.380	1.198	1.558	4.09	
	75.61	11	373.1	2.51	115	8849	4817	235.2	153.0	0.68	1.7	5.4	0.01	2.6	237.8	0.380	1.331	1.731	4.55	
	75.65	11	384.5	2.44	115	8853	4819	242.3	157.7	0.64	1.6	5.0	0.00	0.0	242.3	0.380	1.404	1.825	4.80	
	75.69	11	360.8	2.19	115	8858	4821	227.4	147.8	0.61	1.6	5.1	0.00	0.8	228.2	0.380	1.185	1.540	4.05	
	75.73 75.77	11 11	359.4 368	1.98 1.84	115 105	8863	4823 4826	226.4 231.8	147.1 150.6	0.56	1.6	4.7 4.2	0.00	0.0	226.4	0.381	1.160 1.238	1.507	3.96	
	75.81	11	368.8	1.82		8867 8871	4827	232.3	150.0	0.51 0.50	1.6 1.6	4.1	0.00	0.0	231.8 232.3	0.381	1.236	1.610 1.619	4.23 4.25	
	75.85	11	355.1	1.57	105	8876	4829	223.6	145.2	0.45	1.6	3.9	0.00	0.0	223.6	0.381	1.119	1.455	3.82	
	75.89	11	366	1.45	105	8880	4831	230.4	149.6	0.40	1.5	3.3	0.00	0.0	230.4	0.381	1.218	1.583	4.16	
	75.92	11	374.9	1.4	105	8883	4832	236.0	153.3	0.38	1.5	3.0	0.00	0.0	236.0	0.381	1.302	1.693	4.45	
	75.96	11	391.5	1.34	105	8887	4834	246.4	160.1	0.35	1.5	2.5	0.00	0.0	246.4	0.381	1.471	1.912	5.02	
	76	11	403.8	1.28	95	8891	4835	254.1	165.1	0.32	1.4	2.1	0.00	0.0	254.1	0.381	1.605	2.087	5.48	
	76.04	11	426.7	1.36	95	8895	4837	268.5	174.5	0.32	1.4	1.9	0.00	0.0	268.5	0.381	1.879	2.443	6.41	
	76.09	11	450.2	1.42		8900	4838	283.2	184.2	0.32	1.4	1.6	0.00	0.0	283.2	0.381	2.192	2.850	7.48	
	76.14	11	470.8	1.49	95	8905	4840	296.1	192.6	0.32	1.4	1.4	0.00	0.0	296.1	0.381	2.494	3.243	8.51	
	76.19 76.22	11 11	499.5 502.3	1.87 1.95	105 105	8909 8912	4841 4843	314.1 315.8	204.4 205.5	0.38	1.4 1.4	1.6 1.7	0.00	0.0	314.1 315.8	0.381	2.962 3.009	3.850 3.912	10.10 10.27	
	76.28	11		2.45	105	8919	4845	315.9	205.5	0.39	1.5	2.5	0.00	0.0	315.9	0.381	3.012	3.916	10.27	
	76.33	11	510.3	2.28	105	8924	4847	320.7	208.6	0.45	1.4	2.1	0.00	0.0	320.7	0.381	3.147	4.091	10.73	
	76.36	11	515.5	2.28	105	8927	4849	323.9	210.7	0.45	1.4	2.0	0.00	0.0	323.9	0.381	3.241	4.213	11.05	
	76.39	11	547.5	2.21	105	8930	4850	344.0	223.8	0.41	1.4	1.4	0.00	0.0	344.0	0.381	3.865	5.025	13.18	
	76.43	11	543.9	2	105	8935	4852	341.7	222.3	0.37	1.4	1.2	0.00	0.0	341.7	0.381	3.789	4.926	12.92	
	76.47	11	510.3	1.87	105	8939	4853	320.5	208.4	0.37	1.4	1.5	0.00	0.0	320.5	0.381	3.142	4.084	10.71	
	76.52	11	493	2.1	105	8944	4856	309.6	201.1	0.43	1.4	2.1	0.00	0.0	309.6	0.381	2.839	3.690	9.67	
	76.57	11	482.7	2.24	105	8949	4858	303.0	196.8	0.47	1.5	2.5	0.00	0.0	303.0	0.382	2.668	3.468	9.09	
	76.62	11	450	2.04	105	8954	4860	282.4	183.3	0.46	1.5	2.8	0.00	0.0	282.4	0.382	2.175	2.828	7.41	
	76.66 76.7	11 11	438.9 422.1	2.03	105	8959	4862	275.4	178.6	0.47	1.5	3.0	0.00	0.0	275.4	0.382 0.382	2.023 1.807	2.630	6.89	
	76.74	11	404.1	2.14 2.44	115 115	8963 8967	4863 4865	264.8 253.5	171.7 164.2	0.51 0.61	1.5 1.6	3.5 4.5	0.00	0.0	264.8 253.5	0.382	1.595	2.350 2.073	6.16 5.43	
	76.79	11	383	2.45	115	8973	4868	240.2	155.4	0.65	1.6	5.1	0.00	0.5	240.7	0.382	1.377	1.790	4.69	
	76.84	11	354.1	2.14	115	8979	4871	222.0	143.5	0.61	1.7	5.3	0.01	1.7	223.7	0.382	1.122	1.458	3.82	
	76.88	11	348.8	2.05	115	8984	4873	218.6	141.3	0.60	1.7	5.3	0.01	1.5	220.2	0.382	1.072	1.394	3.65	
	76.93	11	355.3	1.83	115	8989	4875	222.6	143.8	0.52	1.6	4.6	0.00	0.0	222.6	0.382	1.106	1.438	3.77	
	76.97	11	352.4	1.79	115	8994	4877	220.8	142.6	0.51	1.6	4.6	0.00	0.0	220.8	0.382	1.081	1.405	3.68	
	77.01	11	347	1.77	115	8999	4880	217.3	140.3	0.52	1.6	4.7	0.00	0.0	217.3	0.382	1.035	1.345	3.52	
	77.05	11	340.8	1.75	115	9003	4882	213.4	137.7	0.52	1.6	4.8	0.00	0.0	213.4	0.382	0.984	1.279	3.35	
	77.09	11	346.3	1.67	105	9008	4884	216.8	139.9	0.49	1.6	4.5	0.00	0.0	216.8	0.382	1.028	1.336	3.50	
	77.13 77.17	11 11	345.3 345.9	1.66 1.42	105 105	9012 9016	4885 4887	216.2 216.5	139.5 139.7	0.49 0.42	1.6 1.6	4.5 3.9	0.00	0.0	216.2 216.5	0.382 0.382	1.019 1.024	1.325 1.331	3.47 3.48	
	77.17	11	347.7	1.38	105	9020	4889	217.6	140.3	0.42	1.6	3.7	0.00	0.0	217.6	0.382	1.024	1.349	3.53	
	77.27	11	348.1	1.22	105	9027	4891	217.8	140.4	0.36	1.5	3.3	0.00	0.0	217.8	0.382	1.040	1.353	3.54	
	77.33	11	364.5	0.97	95	9033	4894	228.0	147.1	0.27	1.5	2.2	0.00	0.0	228.0	0.382	1.182	1.536	4.02	
	77.38	11	352.2	0.93	95	9038	4896	220.2	142.0	0.27	1.5	2.4	0.00	0.0	220.2	0.382	1.074	1.396	3.65	
	77.41	11	358.3	0.96	95	9041	4897	224.0	144.4	0.27	1.5	2.3	0.00	0.0	224.0	0.382	1.126	1.463	3.83	
	77.47	11	351.1	1.08	95	9046	4899	219.5	141.4	0.31	1.5	2.8	0.00	0.0	219.5	0.382	1.063	1.382	3.61	
	77.5	11		1.17	105	9049	4900	217.0	139.8	0.34	1.5	3.2	0.00	0.0	217.0	0.382	1.031	1.340	3.50	
	77.53	11		1.22		9052	4901	207.4	133.5	0.37	1.6	3.7	0.00	0.0	207.4	0.383	0.909	1.182	3.09	
	77.57	11	325.7	1.2		9056	4902	203.5	131.0	0.37	1.6	3.8	0.00	0.0	203.5	0.383	0.864	1.123	2.94	
	77.6 77.67	11	319.4	1.22	105	9060	4904	199.6	128.4	0.39	1.6	4.1	0.00	0.0	199.6	0.383	0.819	1.065	2.78	
	77.67 77.73	11 11		1.38 1.77	105 115	9067 9073	4907 4909	196.1 197.1	126.0 126.7	0.45	1.6	4.7 5.7	0.00	0.0 3.9	196.1 201.1	0.383	0.781 0.836	1.015 1.087	2.65 2.84	
		- 11	J15./	1.//	110	90/3	4909	19/.1	140./	0.57	1.7	5.1	0.02	5.9	201.I	0.583	0.630	1.08/	4.04	

1.87

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2.80

77.81

77.88

77.95

11 316.7

11 310.4

11 305.8

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 23

Depth to Groundwater: 11 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\mathrm{CPT}}$	Dqc1N	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	78.02	11	309.7	1.51	105	9106	4924	193.1	123.9	0.49	1.7	5.3	0.01	1.4	194.5	0.383	0.764	0.993	2.59	
	78.09	11	358.6	1.77	105	9113	4927	223.5	143.7	0.50	1.6	4.4	0.00	0.0	223.5	0.383	1.119	1.454	3.80	
	78.15	11	394.4	2.04	115	9120	4929	245.8	158.1	0.52	1.6	4.0	0.00	0.0	245.8	0.383	1.461	1.899	4.96	
	78.21	11	386.5	2.17	115	9126	4933	240.8	154.8	0.57	1.6	4.5	0.00	0.0	240.8	0.383	1.378	1.792	4.68	
	78.28	11	391.5	2.05	115	9134	4936	243.8	156.7	0.53	1.6	4.1	0.00	0.0	243.8	0.383	1.428	1.856	4.84	
	78.34	11	343.3	2.05	115	9141	4939	213.7	137.1	0.61	1.7	5.5	0.01	3.0	216.7	0.383	1.027	1.335	3.48	
	78.41	11	338.2	2.23	115	9149	4943	210.5	134.9	0.67	1.7	6.1	0.03	6.4	216.9	0.383	1.028	1.337	3.49	
	78.48	11	308.1	2.19	115	9157	4947	191.7	122.7	0.72	1.8	7.1	0.06	11.6	203.2	0.383	0.861	1.119	2.92	
	78.54	11	308.8	1.84	115	9164	4950	192.0	122.9	0.60	1.7	6.2	0.03	6.5	198.5	0.383	0.808	1.050	2.74	
	78.61	11	304.4	1.49	105	9172	4954	189.2	121.0	0.50	1.7	5.4	0.01	2.2	191.4	0.383	0.733	0.952	2.48	
	78.68	11	294.7	1.64	115	9180	4957	183.1	117.0	0.57	1.7	6.2	0.03	6.2	189.4	0.384	0.712	0.925	2.41	
	78.74	11	278.6	1.58	115	9187	4960	173.1	110.4	0.58	1.7	6.7	0.05	8.3	181.4	0.384	0.635	0.826	2.15	
	78.81	11	269.9	1.54	115	9195	4963	167.6	106.9	0.58	1.7	7.0	0.05	9.4	177.0	0.384	0.596	0.775	2.02	
	78.88	11	267.7	1.46	115	9203	4967	166.2	105.9	0.55	1.7	6.8	0.05	8.6	174.8	0.384	0.576	0.749	1.95	
	78.94	11	256.1	1.46	115	9210	4970	158.9	101.2	0.58	1.8	7.4	0.06	10.8	169.7	0.384	0.535	0.695	1.81	
	79.01	11	247.3	1.49	115	9218	4974	153.4	97.5	0.61	1.8	7.9	0.08	13.1	166.5	0.384	0.509	0.662	1.72	
	79.08	11	233	1.4	115	9226	4978	144.5	91.7	0.61	1.8	8.4	0.09	14.4	158.9	0.384	0.453	0.589	1.54	
	79.15	11	219	1.35	115	9234	4981	135.8	86.0	0.63	1.8	9.1	0.11	16.5	152.3	0.384	0.408	0.531	1.38	
	79.21	11	208.1	1.31	115	9241	4984	129.0	81.6	0.64	1.9	9.6	0.12	18.1	147.1	0.384	0.376	0.489	1.27	
	79.28	11	195	1.39	115	9249	4988	120.8	76.3	0.73	1.9	10.9	0.16	22.7	143.5	0.384	0.355	0.461	1.20	
	79.36	11	185.9	1.48	125	9258	4992	115.1	72.6	0.82	2.0	12.1	0.19	26.8	142.0	0.384	0.346	0.450	1.17	Low F.S.
	79.43	11	175.6	1.53	125	9267	4997	108.7	68.4	0.89	2.0	13.3	0.22	30.8	139.5	0.384	0.332	0.432	1.12	Low F.S.
	79.48	11	169.4	1.6	125	9273	5000	104.8	65.9	0.97	2.0	14.2	0.25	34.2	139.0	0.384	0.330	0.429	1.12	Low F.S.
	79.54	11	161.9	1.6	125	9280	5004	100.1	62.8	1.02	2.1	15.0	0.27	36.7	136.8	0.384	0.318	0.414	1.08	Low F.S.
	79.61	11	160.2	1.77	125	9289	5008	99.0	62.1	1.14	2.1	16.0	0.29	41.3	140.4	0.384	0.337	0.439	1.14	Low F.S.
	79.69	11	163.9	2.03	135	9299	5013	101.3	63.5	1.27	2.1	16.7	0.31	46.2	147.4	0.384	0.378	0.492	1.28	
	79.76	11	175.6	2.09	125	9309	5018	108.5	68.1	1.22	2.1	15.7	0.28	43.1	151.6	0.384	0.404	0.525	1.37	
	79.83	11	199.8	2.13	125	9317	5022	123.4	77.7	1.09	2.0	13.5	0.23	36.1	159.5	0.384	0.457	0.594	1.55	
	79.9	11	242.4	2.07	125	9326	5027	149.6	94.5	0.87	1.9	10.2	0.14	24.1	173.7	0.384	0.567	0.737	1.92	
	79.97	11	304.3	2.05	115	9335	5031	187.7	119.1	0.68	1.7	7.1	0.05	10.9	198.6	0.384	0.809	1.051	2.74	
	80.03	11	344.7	2.32	115	9342	5034	212.6	135.0	0.68	1.7	6.2	0.03	7.0	219.6	0.358	1.065	1.385	3.86	

Date: September 2005 CPT Number: 24

Depth to Groundwater: 11 feet

EQ Magnitude ( $M_w$ ): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	0.53	11	140.7	1.23	125	66	66	269.5	4244.8	0.87	1.2	-0.8	0.00	0.0	269.5	0.351	1.900	2.470	7.04	Above W.T.
	0.56 0.61	11 11	131 120.2	1.23 1.25	125 125	70 76	70 76	250.9 230.2	3740.3 3150.5	0.94 1.04	1.2	-0.6 -0.2	0.00	0.0	250.9 230.2	0.351 0.351	1.549 1.215	2.013 1.579	5.74 4.50	Above W.T. Above W.T.
	0.66	11	110.5	1.29	125	83	83	211.6	2676.7	1.17	1.2	0.3	0.00	0.0	211.6	0.351	0.961	1.250	3.56	Above W.T.
	0.71	11	105.3	1.26	125	89	89	201.7	2371.0	1.20	1.3	0.4	0.00	0.0	201.7	0.351	0.843	1.096	3.12	Above W.T.
	0.78	11	93.7	1.14	125	98	98	179.5	1920.2	1.22	1.3	0.6	0.00	0.0	179.5	0.351	0.617	0.803	2.29	Above W.T.
	0.87	11	87.7	1.37	135	109	109	168.0	1611.2	1.56	1.4	2.0	0.00	0.0	168.0	0.351	0.521	0.677	1.93	Above W.T.
	0.97 1.05	11 11	98.3 131.1	1.73 2.24	135 135	122 133	122 133	188.3 251.1	1606.5 1968.9	1.76 1.71	1.5 1.5	2.7 2.3	0.00	0.0	188.3 251.1	0.351	0.701 1.552	0.911 2.018	2.59 5.75	Above W.T. Above W.T.
	1.14	11	182.6	3.11	135	145	145	349.7	2513.1	1.70	1.5	2.2	0.00	0.0	349.7	0.351	4.058	5.275	15.03	Above W.T.
	1.18	11	210.1	3.1	135	151	151	402.4	2788.0	1.48	1.4	1.4	0.00	0.0	402.4	0.351	6.139	7.981	22.74	Above W.T.
	1.21	11	223.5	3	135	155	155	428.0	2888.2	1.34	1.3	0.9	0.00	0.0	428.0	0.351	7.374	9.586	27.31	Above W.T.
	1.25	11	189.8	2.87	135	160	160	363.5	2369.8	1.51	1.4	1.6	0.00	0.0	363.5	0.351	4.547	5.911	16.84	Above W.T.
	1.29 1.34	11 11	185.4 188.2	3.12 3.34	135 135	165 172	165 172	355.1 360.4	2239.2 2183.9	1.68 1.78	1.5 1.5	2.2 2.5	0.00	0.0	355.1 360.4	0.351	4.243 4.435	5.516 5.765	15.72 16.43	Above W.T. Above W.T.
	1.38	11	180.3	3.51	135	178	178	345.3	2028.6	1.95	1.5	3.1	0.00	0.0	345.3	0.351	3.909	5.082	14.48	Above W.T.
	1.42	11	196.8	3.43	135	183	183	376.9	2148.9	1.74	1.5	2.4	0.00	0.0	376.9	0.351	5.060	6.578	18.74	Above W.T.
	1.46	11	218	3.27	135	188	188	417.5	2312.3	1.50	1.4	1.5	0.00	0.0	417.5	0.351	6.849	8.903	25.36	Above W.T.
	1.5	11	231.6 240.9	3.33	135	194	194	443.6	2388.1	1.44	1.4	1.3	0.00	0.0	443.6	0.351	8.196	10.655	30.36	Above W.T.
	1.55 1.59	11 11	239.3	3.04 2.44	135 125	201 206	201 206	461.4 458.3	2400.4 2321.9	1.26 1.02	1.3	0.7 -0.2	0.00	0.0	461.4 458.3	0.351 0.351	9.213 9.033	11.978 11.742	34.12 33.45	Above W.T. Above W.T.
	1.63	11	220.3	2.56	125	211	211	421.9	2086.8	1.16	1.3	0.3	0.00	0.0	421.9	0.351	7.065	9.185	26.17	Above W.T.
	1.68	11	183.7	2.53	135	217	217	351.8	1689.8	1.38	1.4	1.3	0.00	0.0	351.8	0.351	4.130	5.369	15.30	Above W.T.
	1.72	11	176.7	2.35	135	223	223	338.4	1585.9	1.33	1.4	1.2	0.00	0.0	338.4	0.351	3.684	4.790	13.65	Above W.T.
	1.77 1.81	11 11	163.2 155.6	2.17 1.99	135 135	229 235	229 235	312.6 298.0	1421.6 1324.1	1.33 1.28	1.4 1.4	1.3 1.2	0.00	0.0	312.6 298.0	0.351	2.920 2.541	3.796 3.304	10.81 9.41	Above W.T. Above W.T.
	1.86	11	113.3	0.42	95	242	242	217.0	936.9	0.37	0.9	-2.3	0.00	0.0	217.0	0.351	1.030	1.339	3.82	Above W.T.
	1.9	11	103.5	0.42	105	245	245	198.2	842.5	0.41	1.0	-2.0	0.00	0.0	198.2	0.351	0.804	1.046	2.98	Above W.T.
	1.93	11	88.2	0.42	105	248	248	168.9	708.7	0.48	1.1	-1.4	0.00	0.0	168.9	0.351	0.528	0.687	1.96	Above W.T.
	1.97	11	80.2		115	253	253	153.6	633.6	0.72	1.3	0.1	0.00	0.0	153.6	0.351	0.417	0.542	1.54	Above W.T.
	2.01 2.06	11 11	70.3 59.4	0.68 0.64	125 125	257 264	257 264	134.6 113.8	545.3 449.7	0.97 1.08	1.4 1.5	1.7 2.8	0.00	0.0	134.6 113.8	0.351	0.307 0.217	0.399 0.282	1.14 0.80	Above W.T. Above W.T.
	2.00	11	49.9	0.63	125	269	269	95.6	370.5	1.08	1.6	4.4	0.00	0.0	95.6	0.351	0.161	0.282	0.60	Above W.T.
	2.16	11	43.8	0.76	135	276	276	83.9	316.3	1.74	1.8	7.2	0.06	5.1	89.0	0.351	0.146	0.189	0.54	Above W.T.
	2.19	11	41.9	0.77	135	280	280	80.2	298.1	1.84	1.8	7.9	0.08	6.7	86.9	0.351	0.141	0.183	0.52	Above W.T.
	2.26	11	28.4	0.83	135	290	290	54.4	195.1	2.94	2.1	14.6	0.26	18.8	73.2	0.351	0.116	0.151	0.43	Above W.T.
	2.29 2.37	11 11	26.8 25.9	0.9 0.56	135 125	294 304	294 304	51.3 49.6	181.5 169.1	3.38 2.17	2.1	16.6 12.7	0.31 0.21	23.1 12.9	74.5 62.5	0.351	0.118 0.103	0.154 0.134	0.44	Above W.T. Above W.T.
	2.44	11	24.9	0.53	125	313	313	47.7	158.0	2.14	2.0	13.1	0.22	13.1	60.8	0.351	0.101	0.131	0.37	Above W.T.
	2.49	11	24.6	0.53	125	319	319	47.1	153.0	2.17	2.0	13.5	0.23	13.7	60.8	0.351	0.101	0.131	0.37	Above W.T.
	2.52	11	21.4	0.54	125	323	323	41.0	131.4	2.54	2.1	16.2	0.30	17.5	58.5	0.351	0.099	0.128	0.37	Above W.T.
	2.59	11	19.5	0.53	125	332	332	37.3	116.5	2.74	2.2	18.1	0.35	20.0	57.4	0.351	0.098	0.127	0.36	Above W.T.
	2.66 2.73	11 11	17.4 18.3	0.53 0.53	125 125	341 349	341 349	33.3 35.0	101.1 103.7	3.08 2.92	2.3	20.7 19.9	0.42 0.40	24.1 23.1	57.4 58.2	0.351	0.098 0.098	0.127 0.128	0.36 0.36	Above W.T. Above W.T.
	2.81	11	16.4	0.52	125	359	359	31.4	90.2	3.21	2.3	22.4	0.46	27.2	58.6	0.351	0.099	0.128	0.37	Above W.T.
	2.87	11	17.9	0.51	125	367	367	34.3	96.5	2.88	2.2	20.4	0.41	24.0	58.3	0.351	0.098	0.128	0.36	Above W.T.
	2.96	11	16.8	0.49	125	378	378	32.2	87.8	2.95	2.3	21.7	0.45	25.8	58.0	0.351	0.098	0.128	0.36	Above W.T.
	3.05 3.14	11 11	15.8 13.2	0.45 0.45	125 125	389 401	389	30.3	80.1 64.9	2.88	2.3	22.4 27.1	0.46 0.59	26.3	56.5 61.8	0.351	0.097 0.102	0.126 0.133	0.36 0.38	Above W.T. Above W.T.
	3.14	11	11.5	0.43	115	412	401 412	25.3 22.0	54.8	3.46 3.72	2.4 2.5	30.3	0.59	36.5 45.6	67.6	0.351	0.102	0.133	0.38	Above W.T.
	3.32	11	12.4	0.42	125	422	422	23.7	57.7	3.45	2.5	28.5	0.63	40.2	63.9	0.351	0.104	0.136	0.39	Above W.T.
	3.42	11	20	0.52	125	435	435	38.3	91.0	2.63	2.2	20.0	0.40	25.6	63.9	0.351	0.104	0.136	0.39	Above W.T.
	3.51	11	18.9	0.48	125	446	446	36.2	83.7	2.57	2.2	20.6	0.42	25.9	62.1	0.351	0.102	0.133	0.38	Above W.T.
	3.6 3.69	11 11	18.4 11.3	0.46 0.49	125 125	457 468	457 468	35.2 21.6	79.5 47.2	2.53 4.43	2.3	21.0 34.9	0.43 0.80	26.3 85.2	61.5 106.9	0.351	0.102 0.193	0.132 0.252	0.38 0.72	Above W.T. Above W.T.
	3.78	11	11.4	0.49	125	480	480	21.8	46.5	4.43	2.6	36.2	0.80	87.3	100.9	0.351	0.193	0.252	0.72	Above W.T.
	3.87	11	11.2		115	491	491	21.5	44.6	3.74	2.6	33.2	0.75	65.6	87.0	0.351	0.141	0.184	0.52	Above W.T.
	3.96	11	11	0.44	115	501	501	21.1	42.9	4.09	2.6	35.1	0.80	84.3	105.3	0.351	0.189	0.245	0.70	Above W.T.
	4.06	11	10	0.46	115	513	513	19.2	38.0	4.72	2.7	39.2	0.80	76.6	95.8	0.351	0.162	0.210	0.60	Above W.T.
	4.15 4.24	11 11	10.6 10.7	0.5 0.52	125 125	523 534	523 534	20.3 20.3	39.5 39.0	4.84 4.98	2.7 2.7	39.0 39.6	0.80 0.80	81.1 81.0	101.4 101.3	0.351	0.177 0.177	0.230 0.230	0.66 0.65	Above W.T. Above W.T.
	4.24	11	10.7		125	546	546	19.3	36.7	5.19	2.7	41.3	0.80	77.2	96.5	0.351	0.177	0.230	0.63	Above W.T.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 24

Depth to Groundwater: 11 feet

**EQ Magnitude (M<sub>w</sub>):** 6.5 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	$\mathbf{q}_{\mathrm{c1N}}$	Q	F	Ic	(%)	Ксрт	Dqc1N	(qcIN)cs	Ratio	M7.5	M6.50	Safety	Comments
	4.42	11	10	0.51	125	557	557	18.5	34.9	5.25	2.7	42.3	0.80	74.2	92.7	0.351	0.154	0.200	0.57	Above W.T.
	4.51	11	9.6	0.5	115	568	568	17.6	32.8	5.37	2.8	43.8	0.80	70.5	88.1	0.351	0.144	0.187	0.53	Above W.T.
	4.61	11	9.2	0.5	115	580	580	16.7	30.7	5.61	2.8	45.7	0.80	66.9	83.6	0.351	0.134	0.175	0.50	Above W.T.
	4.7	11	9.9	0.51	125	590	590	17.8	32.5	5.31	2.8	43.7	0.80	71.3	89.2	0.351	0.146	0.190	0.54	Above W.T.
	4.79	11	10.1	0.51	125	601	601	18.0	32.6	5.20	2.8	43.3	0.80	72.1	90.1	0.351	0.148	0.192	0.55	Above W.T.
	4.88	11	9.9	0.52	125	613	613	17.5	31.3	5.42	2.8	44.7	0.80	70.0	87.5	0.351	0.142	0.185	0.53	Above W.T.
	4.97 5.07	11 11	9.5 9.5	0.5 0.47	115 115	624 635	624 635	16.6 16.5	29.4 28.9	5.44 5.12	2.8	45.9 45.2	0.80 0.80	66.6 66.0	83.2 82.5	0.351	0.134 0.132	0.174 0.172	0.49 0.49	Above W.T. Above W.T.
	5.16	11	10	0.47	115	646	646	17.2	30.0	4.55	2.8	42.5	0.80	68.9	86.1	0.351	0.132	0.172	0.49	Above W.T.
	5.25	11	10.2	0.45	115	656	656	17.4	30.1	4.56	2.7	42.5	0.80	69.7	87.1	0.351	0.142	0.184	0.52	Above W.T.
	5.34	11	10.4	0.45	115	666	666	17.6	30.2	4.47	2.7	42.1	0.80	70.5	88.1	0.351	0.144	0.187	0.53	Above W.T.
	5.43	11	9.9	0.46	115	677	677	16.7	28.2	4.81	2.8	44.5	0.80	66.6	83.3	0.351	0.134	0.174	0.50	Above W.T.
	5.48	11	7.2	0.46	115	682	682	12.1	20.1	6.71	3.0	57.2	0.80	48.2	60.3	0.351	0.100	0.131	0.37	Above W.T.
	5.53	11	10.5	0.47	115	688	688	17.5	29.5	4.63	2.7	43.1	0.80	70.1	87.6	0.351	0.142	0.185	0.53	Above W.T.
	5.62	11	8.6	0.45	115	699	699	14.2	23.6	5.45	2.9	50.0	0.80	56.9	71.2	0.351	0.114	0.148	0.42	Above W.T.
	5.71	11	7.6	0.45	115	709	709	12.5	20.4	6.21	3.0	55.3	0.80	50.0	62.4	0.351	0.103	0.133	0.38	Above W.T.
	5.8 5.9	11 11	9 10.3	0.43 0.43	115 115	719 731	719 731	14.7 16.7	24.0 27.2	4.98 4.33	2.8 2.8	48.1 43.4	0.80	58.7 66.7	73.4 83.4	0.351 0.351	0.117 0.134	0.152 0.174	0.43 0.50	Above W.T. Above W.T.
	5.99	11	11.9	0.42	115	741	741	19.1	31.1	3.64	2.7	38.4	0.80	76.5	95.6	0.351	0.161	0.210	0.60	Above W.T.
	6.08	11	11.6	0.43	115	751	751	18.5	29.9	3.83	2.7	39.9	0.80	74.1	92.6	0.351	0.154	0.200	0.57	Above W.T.
	6.18	11	12	0.44	125	763	763	19.0	30.4	3.79	2.7	39.4	0.80	76.0	95.0	0.351	0.160	0.208	0.59	Above W.T.
	6.27	11	12.6	0.44	125	774	774	19.8	31.5	3.60	2.7	38.0	0.80	79.3	99.1	0.351	0.170	0.222	0.63	Above W.T.
	6.36	11	13.2	0.44	125	785	785	20.6	32.6	3.44	2.6	36.8	0.80	82.4	103.0	0.351	0.182	0.236	0.67	Above W.T.
	6.45	11	13.9	0.44	125	797	797	21.5	33.9	3.26	2.6	35.4	0.80	86.2	107.7	0.351	0.196	0.255	0.73	Above W.T.
	6.55	11	14.8	0.44	125	809	809	22.8	35.6	3.06	2.6	33.8	0.77	75.5	98.3	0.351	0.168	0.219	0.62	Above W.T.
	6.64 6.73	11 11	15.8 16.6	0.47 0.49	125 125	820 832	820 832	24.1 25.2	37.5 38.9	3.05 3.03	2.5 2.5	33.0 32.3	0.75 0.73	71.1 67.6	95.2 92.8	0.351	0.160 0.154	0.208 0.201	0.59 0.57	Above W.T.
	6.83	11	17	0.49	125	844	844	25.6	39.3	2.96	2.5	31.8	0.73	64.7	90.3	0.351	0.134	0.201	0.57	Above W.T. Above W.T.
	6.92	11	16.8	0.48	125	855	855	25.1	38.3	2.93	2.5	32.1	0.72	65.8	91.0	0.351	0.150	0.195	0.56	Above W.T.
	7.01	11	16.4	0.48	125	867	867	24.4	36.8	3.01	2.6	33.0	0.75	72.4	96.7	0.351	0.164	0.213	0.61	Above W.T.
	7.1	11	15.6	0.45	125	878	878	23.0	34.5	2.97	2.6	33.8	0.77	77.1	100.1	0.351	0.173	0.225	0.64	Above W.T.
	7.2	11	14.3	0.41	125	890	890	21.0	31.1	2.96	2.6	35.4	0.80	83.9	104.8	0.351	0.187	0.243	0.69	Above W.T.
	7.29	11	13.7	0.35	115	902	902	20.0	29.4	2.64	2.6	34.8	0.80	78.1	98.1	0.351	0.168	0.218	0.62	Above W.T.
	7.38	11	12.5	0.31	115	912	912	18.1	26.4	2.57	2.6	36.3	0.80	72.4	90.6	0.351	0.149	0.194	0.55	Above W.T.
	7.48	11	11.4	0.26	115	924	924	16.4	23.7	2.38	2.6	37.1	0.80	65.7	82.1	0.351	0.131	0.171	0.49	Above W.T.
	7.57 7.66	11 11	11.7 13.3	0.25 0.26	115 115	934 944	934 944	16.8 18.9	24.0 27.2	2.23 2.03	2.6 2.5	35.9 32.7	0.80 0.74	67.0 54.0	83.8 73.0	0.351	0.135 0.116	0.175 0.151	0.50 0.43	Above W.T. Above W.T.
	7.75	11	14.8	0.29	115	955	955	21.0	30.0	2.03	2.5	31.1	0.74	48.5	69.4	0.351	0.110	0.131	0.43	Above W.T.
	7.84	11	15.7	0.34	115	965	965	22.1	31.5	2.23	2.5	31.6	0.71	54.0	76.1	0.351	0.121	0.157	0.45	Above W.T.
	7.94	11	15.8	0.41	125	976	976	22.1	31.4	2.68	2.6	34.0	0.77	75.5	97.6	0.351	0.167	0.217	0.62	Above W.T.
	8.03	11	16.6	0.46	125	988	988	23.1	32.6	2.86	2.6	34.2	0.78	81.9	105.0	0.351	0.188	0.244	0.70	Above W.T.
	8.12	11	17	0.46	125	999	999	23.5	33.0	2.79	2.6	33.7	0.77	77.0	100.5	0.351	0.174	0.227	0.65	Above W.T.
	8.21	11	17.1	0.38	125	1010	1010	23.5	32.8	2.29	2.5	31.2	0.70	55.1	78.6	0.351	0.125	0.163	0.46	Above W.T.
	8.3	11	14.9	0.28	115	1021	1021	20.4	28.2	1.95	2.5	31.7	0.71	50.4	70.8	0.351	0.113	0.147	0.42	Above W.T.
	8.39 8.48	11 11	11.5 9.7	0.23 0.21	105 105	1032 1041	1032 1041	15.7 13.2	21.3 17.6	2.09 2.29	2.6 2.7	37.3 41.9	0.80	62.7 52.6	78.3 65.8	0.351	0.125 0.106	0.162 0.138	0.46 0.39	Above W.T. Above W.T.
	8.58	11	9.3	0.21	105	1052	1052	12.5	16.7	2.28	2.7	43.0	0.80	50.2	62.7	0.351	0.100	0.134	0.39	Above W.T.
	8.67	11	9.6	0.23	105	1061	1061	12.9	17.1	2.54	2.8	44.0	0.80	51.6	64.5	0.351	0.105	0.136	0.39	Above W.T.
	8.76	11	9.5	0.31		1071	1071	12.7	16.7	3.46	2.9	49.1	0.80	50.8	63.5	0.351	0.104	0.135	0.38	Above W.T.
	8.85	11	9.8	0.31	115	1081	1081	13.0	17.1	3.35	2.8	48.1	0.80	52.2	65.2	0.351	0.106	0.138	0.39	Above W.T.
	8.94	11	10.1	0.32	115	1091	1091	13.4	17.5	3.35	2.8	47.7	0.80	53.5	66.9	0.351	0.108	0.140	0.40	Above W.T.
	9.02	11	11.1	0.31		1101	1101	14.6	19.2	2.94	2.8	43.9	0.80	58.6	73.2	0.351	0.116	0.151	0.43	Above W.T.
	9.12	11	11.1	0.3		1112	1112	14.6	19.0	2.85	2.8	43.6	0.80	58.3	72.8	0.351	0.116	0.151	0.43	Above W.T.
	9.21	11	10.1	0.25		1122	1122	13.2	17.0	2.62	2.8	44.6	0.80	52.8	66.0	0.351	0.107	0.139	0.40	Above W.T.
	9.3 9.4	11 11	9.5 8.8	0.23 0.23		1132 1142	1132 1142	12.4 11.4	15.8 14.4	2.57 2.80	2.8	45.8 48.9	0.80	49.4 45.6	61.8 57.0	0.351 0.351	0.102 0.097	0.133 0.126	0.38 0.36	Above W.T. Above W.T.
	9.49	11	o.o 9	0.23		1152	1152	11.4	14.4	2.85	2.8	48.9	0.80	46.4	58.0	0.351	0.097	0.128	0.36	Above W.T.
	9.58	11	9.1	0.24		1161	1161	11.7	14.7	2.82	2.8	48.6	0.80	46.7	58.4	0.351	0.098	0.128	0.36	Above W.T.
	9.68	11	9	0.26		1172	1172	11.5	14.4	3.09	2.9	50.5	0.80	46.0	57.5	0.351	0.098	0.127	0.36	Above W.T.
	9.77	11	9	0.29		1181	1181	11.5	14.2	3.45	2.9	52.5	0.80	45.8	57.3	0.351	0.097	0.127	0.36	Above W.T.
	9.86	11	9.1	0.3		1192	1192	11.5	14.3	3.53	2.9	52.8	0.80	46.1	57.7	0.351	0.098	0.127	0.36	Above W.T.
	9.95	11	9.1	0.31		1202	1202	11.5	14.1	3.65	2.9	53.6	0.80	45.9	57.4	0.351	0.098	0.127	0.36	Above W.T.
	10.05	11	9.3	0.31	115	1213	1213	11.7	14.3	3.57	2.9	52.9	0.80	46.7	58.4	0.344	0.099	0.128	0.37	Above W.T.

Date: September 2005 CPT Number: 24

Depth to Groundwater: 11 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 Project Number: 6600.3.001.01 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table		Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress		of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	10.14	11	9.1	0.3	115	1224	1224	11.4	13.9	3.53	2.9	53.5	0.80	45.5	56.9	0.344	0.097	0.126	0.37	Above W.T.
	10.14	11	9.1	0.29	115	1234	1234	11.3	13.7	3.42	2.9	53.1	0.80	45.3	56.7	0.344	0.097	0.126	0.37	Above W.T.
	10.33	11	8.5	0.27	105	1246	1246	10.5	12.6	3.43	2.9	55.0	0.80	42.2	52.7	0.344	0.094	0.122	0.35	Above W.T.
	10.43	11	7.8	0.25	105	1256	1256	9.6	11.4	3.49	3.0	57.7	0.80	38.5	48.1	0.344	0.090	0.117	0.34	Above W.T.
	10.52	11	7.7	0.21	105	1266	1266	9.5	11.2	2.97	3.0	55.5	0.80	37.9	47.4	0.344	0.090	0.117	0.34	Above W.T.
	10.61	11	7.2	0.2	105	1275	1275	8.8	10.3	3.05	3.0	57.8	0.80	35.3	44.1	0.344	0.088	0.114	0.33	Above W.T.
	10.7 10.8	11 11	7.2 7.8	0.19 0.22	105 105	1284 1295	1284 1295	8.8 9.5	10.2 11.0	2.90 3.08	3.0	57.2 56.3	0.80	35.2 37.9	44.0 47.4	0.344	0.088	0.114 0.117	0.33 0.34	Above W.T. Above W.T.
	10.89	11	7.6	0.26	105	1304	1304	9.2	10.6	3.74	3.0	60.5	0.80	36.8	46.0	0.344	0.089	0.116	0.34	Above W.T.
	10.98	11	7.7	0.29	105	1314	1314	9.3	10.7	4.12	3.1	62.1	0.80	37.2	46.5	0.344	0.089	0.116	0.34	Above W.T.
	11.07	11	8	0.31	115	1323	1318	9.6	11.1	4.22	3.0	61.7	0.80	38.6	48.2	0.345	0.090	0.118	0.34	NonLiqfble.
	11.16	11	8.1	0.33	115	1334	1322	9.7	11.2	4.44	3.1	62.3	0.80	39.0	48.7	0.347	0.091	0.118	0.34	NonLiqfble.
	11.26	11	8.3	0.34	115	1345	1328	10.0	11.5	4.46	3.0	61.9	0.80	39.9	49.8	0.349	0.092	0.119	0.34	NonLiqfble.
	11.35 11.44	11 11	8.7 9	0.33 0.34	115 115	1355 1366	1332 1337	10.4 10.8	12.0 12.4	4.11 4.09	3.0	59.3 58.4	0.80	41.7 43.1	52.1 53.8	0.350 0.351	0.093 0.095	0.121 0.123	0.35 0.35	NonLiqfble. NonLiqfble.
	11.53	11	8.8	0.33	115	1376	1342	10.5	12.1	4.07	3.0	59.0	0.80	42.0	52.6	0.353	0.094	0.122	0.34	NonLiqfble.
	11.62	11	8.7	0.33	115	1387	1347	10.4	11.9	4.12	3.0	59.6	0.80	41.5	51.9	0.354	0.093	0.121	0.34	NonLiqfble.
	11.71	11	8.6	0.32	115	1397	1351	10.2	11.7	4.05	3.0	59.7	0.80	40.9	51.2	0.356	0.092	0.120	0.34	NonLiqfble.
	11.81	11	8.6	0.33	115	1408	1357	10.2	11.6	4.18	3.0	60.4	0.80	40.9	51.1	0.357	0.092	0.120	0.34	NonLiqfble.
	11.9 11.99	11 11	8.5 9.1	0.36	115 115	1419	1361	10.1 10.8	11.4 12.3	4.62	3.1	62.7	0.80	40.3 43.1	50.4 53.9	0.358	0.092 0.095	0.119	0.33 0.34	NonLiqfble.
	12.08	11	8.9	0.38 0.41	115	1429 1439	1366 1371	10.5	11.9	4.53 5.01	3.0	60.6 63.2	0.80	42.1	52.6	0.360 0.361	0.093	0.123 0.122	0.34	NonLiqfble. NonLiqfble.
	12.14	11	9.1	0.44	115	1446	1374	10.7	12.2	5.25	3.1	63.6	0.80	43.0	53.7	0.362	0.094	0.123	0.34	NonLiqfble.
	12.24	11	8.9	0.45	115	1458	1379	10.5	11.8	5.51	3.1	65.2	0.80	41.9	52.4	0.364	0.093	0.121	0.33	NonLiqfble.
	12.33	11	8.8	0.43	115	1468	1384	10.4	11.7	5.33	3.1	65.0	0.80	41.4	51.8	0.365	0.093	0.121	0.33	NonLiqfble.
	12.42	11	8.1	0.4	115	1479	1389	9.5	10.6	5.43	3.1	67.7	0.80	38.0	47.6	0.366	0.090	0.117	0.32	NonLiqfble.
	12.52 12.61	11 11	8.4 9.1	0.37 0.35	115 115	1490 1500	1394 1399	9.8 10.6	11.0 11.9	4.83 4.19	3.1	64.5 59.9	0.80	39.4 42.6	49.2 53.2	0.368	0.091 0.094	0.118 0.122	0.32 0.33	NonLiqfble. NonLiqfble.
	12.7	11	10.1	0.36	115	1511	1403	11.8	13.3	3.85	3.0	55.9	0.80	47.2	59.0	0.370	0.099	0.122	0.35	NonLiqfble.
	12.79	11	11.3	0.41	115	1521	1408	13.2	15.0	3.89	2.9	53.4	0.80	52.7	65.9	0.372	0.107	0.139	0.37	NonLiqfble.
	12.89	11	12.1	0.46	125	1533	1413	14.1	16.0	4.06	2.9	52.7	0.80	56.3	70.4	0.373	0.112	0.146	0.39	NonLiqfble.
	12.98	11	13.5	0.52	125	1544	1419	15.7	17.9	4.09	2.9	50.5	0.80	62.7	78.4	0.374	0.125	0.162	0.43	NonLiqfble.
	13.07 13.16	11 11	15.3 15.6	0.61 0.68	125 125	1555 1566	1425 1430	17.7 18.0	20.4 20.7	4.20 4.59	2.8	48.4 49.5	0.80	70.9 72.2	88.7 90.2	0.375 0.377	0.145 0.148	0.188 0.193	0.50 0.51	NonLiqfble. NonLiqfble.
	13.16	11	15.8	0.75	125	1579	1437	18.2	20.7	5.00	2.9	50.9	0.80	73.0	91.2	0.378	0.148	0.195	0.51	NonLiqfble.
	13.35	11	15.4	0.8	125	1590	1442	17.7	20.2	5.48	2.9	53.2	0.80	71.0	88.7	0.379	0.145	0.188	0.50	NonLiqfble.
	13.44	11	14.8	0.79	125	1601	1448	17.0	19.3	5.64	2.9	54.7	0.80	68.1	85.1	0.380	0.137	0.178	0.47	NonLiqfble.
	13.54	11	14.3	0.77	125	1614	1454	16.4	18.6	5.71	3.0	55.7	0.80	65.6	82.0	0.382	0.131	0.171	0.45	NonLiqfble.
	13.63	11	13.5	0.76	125	1625	1460	15.5	17.4	5.99	3.0	58.1	0.80	61.8	77.3	0.383	0.123	0.160	0.42	NonLiqfble.
	13.72 13.81	11 11	12.3 11.4	0.72 0.7	125 125	1636 1648	1465 1471	14.1 13.0	15.7 14.4	6.27 6.62	3.0	61.3 64.3	0.80	56.2 52.0	70.3 65.0	0.384 0.385	0.112 0.106	0.146 0.137	0.38 0.36	NonLiqfble. NonLiqfble.
	13.9	11	10.5	0.69	125	1659	1477	12.0	13.1	7.14	3.1	68.1	0.80	47.8	59.8	0.386	0.100	0.130	0.34	NonLiqfble.
	14	11	9.8	0.64	125	1671	1483	11.1	12.1	7.14	3.2	70.1	0.80	44.5	55.7	0.388	0.096	0.125	0.32	NonLiqfble.
	14.09	11	9.7	0.57	125	1683	1488	11.0	11.9	6.43	3.1	68.3	0.80	44.0	55.0	0.389	0.095	0.124	0.32	NonLiqfble.
	14.18	11	10.2	0.54	125	1694	1494	11.5	12.5	5.77	3.1	64.8	0.80	46.2	57.7	0.390	0.098	0.127	0.33	NonLiqfble.
	14.27 14.36	11 11	10.4 10.5	0.5 0.46	125 115	1705 1716	1500 1505	11.8 11.8	12.7 12.8	5.24 4.77	3.1	62.5 60.6	0.80	47.0 47.4	58.8 59.2	0.391 0.392	0.099	0.129 0.129	0.33	NonLiqfble. NonLiqfble.
	14.45	11	10.2	0.44	115	1727	1510	11.5	12.4	4.71	3.0	61.2	0.80	45.9	57.4	0.393	0.098	0.127	0.32	NonLiqfble.
	14.54	11	9.5	0.39	115	1737	1515	10.7	11.4	4.52	3.1	62.4	0.80	42.7	53.4	0.394	0.094	0.122	0.31	NonLiqfble.
	14.64	11	9.9	0.39	115	1749	1520	11.1	11.9	4.32	3.0	60.5	0.80	44.4	55.5	0.396	0.096	0.125	0.32	NonLiqfble.
	14.73	11	10.3	0.4	115	1759	1525	11.5	12.4	4.25	3.0	59.3	0.80	46.2	57.7	0.397	0.098	0.127	0.32	NonLiqfble.
	14.82 14.91	11 11	10.2 10.6	0.42 0.45	115 115	1769 1780	1530 1534	11.4 11.8	12.2 12.7	4.51 4.63	3.0	60.7 60.3	0.80	45.6 47.4	57.1 59.2	0.398	0.097 0.099	0.126 0.129	0.32 0.32	NonLiqfble. NonLiqfble.
	15	11	10.0	0.43	115	1790	1534	11.3	12.7	5.32	3.1	64.3	0.80	45.1	56.3	0.399	0.099	0.129	0.32	NonLiqfble.
	15.09	11	10.2	0.49	125	1800	1544	11.4	12.0	5.27	3.1	64.0	0.80	45.4	56.8	0.401	0.097	0.126	0.31	NonLiqfble.
	15.18	11	10.5	0.49	125	1812	1549	11.7	12.4	5.11	3.1	62.7	0.80	46.7	58.4	0.402	0.098	0.128	0.32	NonLiqfble.
	15.27	11	11.1	0.49	125	1823	1555	12.3	13.1	4.81	3.0	60.2	0.80	49.3	61.6	0.403	0.102	0.132	0.33	NonLiqfble.
	15.37	11	10.9	0.5	125	1835	1561	12.1	12.8	5.01	3.0	61.6	0.80	48.3	60.3	0.404	0.100	0.131	0.32	NonLiqfble.
	15.46 15.72	11 11	11.3 10.2	0.5 0.51	125 125	1847 1879	1567 1583	12.5 11.2	13.2 11.7	4.82 5.51	3.0	60.0 65.5	0.80	50.0 44.9	62.5 56.1	0.405 0.408	0.103 0.096	0.133 0.125	0.33	NonLiqfble. NonLiqfble.
	15.72	11	9.6	0.31	115	1890	1589	10.5	10.9	5.43	3.1	67.0	0.80	42.2	52.7	0.408	0.090	0.123	0.31	NonLiqfble.
	15.89	11	8.7	0.44	115	1899	1593	9.5	9.7	5.68	3.2	70.8	0.80	38.1	47.7	0.410	0.090	0.117	0.29	NonLiqfble.
	15.98	11	9.5	0.4	115	1910	1598	10.4	10.7	4.68	3.1	64.6	0.80	41.6	52.0	0.411	0.093	0.121	0.29	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 24

Depth to Groundwater: 11 feet

**EQ Magnitude (M<sub>w</sub>):** 6.5 **PGA (g):** 0.54 MSF: 1.30

Part																					
				-														_	•		
16.07	Cono	-				-			_	-		Io		Ксет	Daan	(GoIN)or					Comments
16.77   11   104   0.39   15   1932   1069   1.3   1.7   4.13   3.0   6.00   0.89   45.5   5.0   4.14   0.07   0.120   0.31   0.5001   1.6001   1.6101   1.6	Cone	(F 1)	(F I)	(151)	(131)	(I CF)	(I SF)	(1.51)	quiv	Ų	г	К	(70)	11011	Dquix	(quiv)is	Katio	1417.3	W10.50	Saicty	Comments
16.77   11   104   0.39   15   1932   1069   1.3   1.7   4.13   3.0   6.00   0.89   45.5   5.0   4.14   0.07   0.120   0.31   0.5001   1.6001   1.6101   1.6																					
16.77   11   104   0.39   15   1932   1069   1.3   1.7   4.13   3.0   6.00   0.89   45.5   5.0   4.14   0.07   0.120   0.31   0.5001   1.6001   1.6101   1.6		16.07	11	9.6	0.30	115	1920	1603	10.5	10.8	4.51	3.1	63.7	0.80	42.0	52.5	0.412	0.003	0.121	0.20	NonLiafble
16.35 11 10.30 0.86 115 1932 1617 12.2 11.5 13.86 3.0 932 0.80 14.8 95.0 0.415 0.906 0.123 0.30 NomeLaphbe. 16.63 11 10 0.31 15 10 0.31 15 1935 1627 1085 11.1 3.4 3.0 93.1 93.1 93.0 14.3 14.2 0.417 0.905 0.123 0.30 NomeLaphbe. 16.63 11 10 0.32 115 1935 1637 1612 10.8 11.1 3.4 3.0 93.1 93.1 93.1 93.1 93.1 93.1 93.1 93.1																					
16.44 11 10 0.34 115 1903 1622 1090 11.1 3.77 3.0 59.6 1080 41.5 15.1 0.31 0.905 1.23 0.30 NonLaphke. 16.53 11 10 0.28 115 1905 1632 1030 11.0 3.11 3.47 3.0 56.5 10.30 44.5 15.2 0.418 0.905 0.123 0.30 NonLaphke. 16.72 11 10.2 0.26 115 1905 1632 1637 11.0 11.0 3.11 3.0 56.5 10.30 43.3 14.5 15.2 0.418 0.905 0.123 0.30 NonLaphke. 16.91 11 10.5 0.24 10.5 0.206 1642 11.4 11.7 2.50 2.5 15.8 0.30 43.8 15.5 0.20 0.007 0.012 0.30 0.012 0.30 0.0014.8 11.5 11.5 11.5 11.5 11.5 11.5 11.5 11		16.26	11	10.2		115	1942	1613	11.1	11.4	4.23		61.0	0.80	44.5	55.6	0.414			0.30	NonLiqfble.
16.63 11 1 00 0.31 115 1973 1672 1673 1674 1794 1795 1675 1675 1675 1795 1675 1875 1875 1875 1875 1875 1875 1875 18																					
16.63 11 1 00 0.28 115 1985 1632 1637 140 150 0.58 163 163 160 151 160 141 161 0.50 161 161 161 161 161 161 161 161 161 16																					
16.82																					
16.91   11   10.5																					
176   11   102   0.28   115   202   165   110   11.1   3.07   3.0   5.00   0.80   4.39   5.49   0.422   0.095   0.124   0.29   NonLigghbe.   17.18   11   11   10.3   115   2017   1655   11.0   11.3   3.27   3.00   2.9   5.40   0.80   4.73   5.95   0.80   5.124   0.99   0.129   0.30   NonLigghbe.   17.78   11   11.1   10.3   115   2017   1665   11.9   11.2   3.38   3.0   5.25   0.80   4.75   5.95   0.80   4.75   0.90   0.129   0.30   NonLigghbe.   17.78   11   11.1   0.3   115   2016   1670   1.22   12.4   3.28   2.9   5.70   0.80   4.85   6.60   0.80   0.80   0.120   0.10   0.120   0.30   NonLigghbe.   17.78   11   11.1   0.30   115   2016   1670   1.22   12.4   3.28   2.9   5.70   0.80   4.85   6.60   0.80   0.80   0.130																					
17.18   11   11   0.3   115   2047   1660   11.8   12.0   3.01   2.9   3.10   3.05   3.0																					-
17.27 11 11.4 0.34 115 207 1670 1670 17.2 11 11.4 0.34 115 207 1670 17.2 12.4 3.28 3.0 3.0 5.8 0.8 0.4 76 59.5 0.425 0.10 0.129 0.30 NonLighble. 17.5 11 11 12.1 0.34 115 207 1674 11.7 11.8 3.45 3.0 50.7 0.80 4.6 88 6.0 4.8 8.0 4.7 10.0 10.2 0.30 NonLighble. 17.5 11 11 12.1 0.34 115 207 16.0 16.0 16.0 16.0 16.0 16.0 11.0 11.0																					
17.37 11 11.4 0.34 115 2009 1670 12.2 12.4 3.28 2.9 54.7 0.80 4.86 51.0 0.420 0.10 0.131 0.31 0.31 NonLaphbe. 17.51 11 12.1 0.34 115 2008 1670 1674 11.8 3.43 0.0 56.7 0.20 4.66 58.3 0.20 0.08 0.132 0.30 0.30 NonLaphbe. 17.51 11 12.1 0.34 115 2008 1682 12.5 12.7 3.10 2.9 53.3 0.80 51.7 0.40 0.40 0.42 0.10 0.31 0.31 0.32 NonLaphbe. 17.69 11 11.7 0.33 115 2106 1692 11.9 12.0 2.00 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0																					
17.44   11   10.9   0.34   115   0.07   10.74   11.7   11.8   3.45   3.0   5.67   0.80   4.66   5.83   0.427   0.098   0.128   0.30   0.001   0.101   0.151																					-
17.6   11   11.7   0.33   115   206   1882   12.5   12.7   31.0   2.9   53.3   0.80   49.9   62.4   0.428   0.13   0.13   0.31   0.31   NonLighbe.   17.87   11   11.6   0.3   11.5   21.6   16.92   11.9   12.0   2.9   53.8   0.80   49.9   62.4   0.428   0.10   0.13   0.31   0.31   NonLighbe.   17.87   11   11.6   0.2   11.5   21.6   16.92   11.9   12.0   2.9   53.8   0.80   47.7   59.6   0.438   0.10   0.13   0.31   0.31   NonLighbe.   17.87   11   11.6   0.29   11.5   21.6   16.92   11.9   12.0   2.9   53.8   0.80   47.7   59.6   0.438   0.11   0.145   0.30   NonLighbe.   18.0   11.1   13.1   0.31   11.5   21.7   17.0   13.9   14.1   2.58   2.8   48.1   0.80   55.6   69.5   0.432   0.11   0.145   0.33   NonLighbe.   18.0   11.1   13.5   0.31   11.5   21.7   17.1   14.3   14.5   2.50   2.8   47.1   0.80   55.6   69.5   0.432   0.11   0.145   0.33   NonLighbe.   18.2   11.1   13.6   0.31   11.5   21.7   17.1   14.3   14.5   2.50   2.8   47.1   0.80   56.6   69.5   0.432   0.11   0.145   0.33   NonLighbe.   18.2   11.1   13.6   0.31   11.5   21.7   17.1   14.3   14.5   2.50   2.8   47.1   0.80   56.6   69.5   0.432   0.11   0.145   0.34   NonLighbe.   18.2   11.1   13.6   0.31   11.5   21.7   17.0   13.1   13.2   2.6   2.8   45.0   0.80   57.1   71.4   0.434   0.14   0.148   0.34   NonLighbe.   18.2   11.1   13.6   0.29   11.5   21.7   21.7   21.3   13.2   2.4   2.8   45.0   0.80   56.6   67.7   0.436   0.14   0.149   0.34   NonLighbe.   18.6   11.1   12.5   0.38   11.5   22.0   17.3   13.1   13.2   2.6   2.9   2.8   45.0   0.80   5.6   67.7   0.436   0.14   0.149   0.3   0.10   0.138   0.2   0.10   0.		17.44	11	10.9		115			11.7	11.8			56.7								
17.68																					
17.78 11 11.2 0.3 11.5 216 1692 11.9 12.0 2.96 2.9 53.8 0.80 47.7 59.6 0.30 0.30 0.00 0.130 0.30 NonLighbe. 17.86 11 13.1 0.31 11.5 2137 1701 13.9 14.1 2.58 2.8 41. 0.80 55.6 69.5 0.40 0.33 0.10 0.130 0.30 NonLighbe. 18.16 11 13.1 0.32 115 2147 1706 13.9 14.1 2.58 2.8 41. 0.80 55.6 69.5 0.40 0.33 0.10 0.13 0.30 NonLighbe. 18.14 11 13.5 0.31 11.5 2147 1701 13.9 14.1 2.58 2.8 41. 0.80 55.6 69.5 0.40 0.33 0.11 0.14 0.33 NonLighbe. 18.18 11 13.6 0.32 115 2168 1715 14.3 14.5 2.50 2.8 47.1 0.80 57.1 71.7 0.8 0.33 0.11 0.14 0.38 NonLighbe. 18.23 11 13.6 0.29 115 2178 1710 14.3 14.5 2.50 2.8 47.1 0.80 57.1 71.7 0.8 0.33 0.11 0.14 0.34 NonLighbe. 18.24 11 12.5 0.28 115 2178 1720 14.3 14.5 2.50 2.8 47.1 0.80 57.1 71.7 0.8 0.33 0.11 0.14 0.34 NonLighbe. 18.41 1 12.5 0.28 115 2179 1725 13.2 13.2 2.2 2.8 40.0 0.8 57.4 71.7 0.36 0.11 0.14 0.34 NonLighbe. 18.51 11 12.5 0.38 115 2200 1730 13.1 13.2 2.63 2.9 49.0 0.8 52.6 65.7 0.38 0.37 0.10 0.13 0.3 NonLighbe. 18.68 11 12.4 0.37 115 2201 1735 13.1 13.1 3.3 3.3 2.9 3.7 0.80 52.6 65.7 0.38 0.13 0.0 0.13 0.3 NonLighbe. 18.69 11 12.4 0.37 115 220 1747 14.9 15.0 2.91 2.8 48.7 0.80 57.0 0.40 0.10 0.10 0.13 0.3 NonLighbe. 18.89 11 16.4 0.42 125 2.23 1747 14.9 15.0 2.91 2.8 48.7 0.80 57.0 0.40 0.10 0.10 0.13 0.13 0.14 0.14 0.14 0.14 0.14 0.14 0.14 0.14																					-
17.96																					-
18.05																					
18.14   11   13.5   0.31   115   2157   771   14.3   14.5   2.50   2.8   47.4   0.80   57.1   71.4   0.434   0.147   0.147   0.34   NonLighbe.																					
18.23   11   13.4   0.31   115   2168   715   14.2   14.4   2.52   2.8   47.4   0.80   56.6   70.8   0.435   0.113   0.147   0.34   NonLighbe.   18.42   11   12.5   0.28   115   219   1725   13.2   13.2   2.46   2.8   48.8   0.80   57.4   71.7   0.436   0.114   0.149   0.34   NonLighbe.   18.42   11   12.5   0.28   115   210   1735   13.1   13.1   3.33   2.9   4.99   0.80   52.5   65.7   0.437   0.107   0.139   0.32   NonLighbe.   18.69   11   12.4   0.37   115   2210   1735   13.1   13.1   3.33   2.9   3.77   0.80   52.5   65.7   0.437   0.106   0.138   0.32   NonLighbe.   18.77   11   12   0.37   115   2230   1748   12.6   12.5   3.40   2.9   53.7   0.80   52.5   65.7   0.437   0.106   0.138   0.32   NonLighbe.   18.77   11   12   0.37   115   2230   1748   12.6   12.5   3.40   2.9   53.7   0.80   52.5   65.7   0.437   0.106   0.138   0.32   NonLighbe.   18.78   11   14.2   0.38   125   2234   1733   17.1   17.4   17.5   17.5   2.24   1739   13.0   13.																					-
18.42		18.23		13.4	0.31		2168	1715	14.2	14.4	2.52		47.4					0.113	0.147		
18.55																					-
18.6																					
18.77   11   12   0.37   115   2230   1744   1.26   1.25   3.40   2.9   5.52   0.80   5.03   62.9   0.440   0.103   0.134   0.30   NonLiqfible.     18.93   11   16.4   0.42   125   2249   1753   17.1   17.4   2.75   2.8   48.7   0.80   5.05   74.3   0.441   0.118   0.154   0.35   NonLiqfible.     19.02   11   16.1   0.42   125   2260   1759   16.8   17.0   2.81   2.8   45.5   0.80   67.2   84.0   0.442   0.135   0.176   0.40   NonLiqfible.     19.11   11   12.5   0.34   115   2273   1764   14.3   14.2   2.87   2.9   49.5   4.8   0.80   68.6   85.7   0.441   0.139   0.180   0.41   NonLiqfible.     19.21   11   12.5   0.34   115   2273   1769   13.0   12.8   2.99   2.9   51.4   0.80   52.0   65.0   0.444   0.105   0.107   0.139   0.31   NonLiqfible.     19.33   11   12.9   0.34   115   2293   1774   13.2   13.0   2.86   2.9   51.4   0.80   53.5   66.0   0.445   0.107   0.139   0.31   NonLiqfible.     19.39   11   12.9   0.34   115   2293   1774   13.2   13.0   2.86   2.9   51.4   0.80   53.5   66.0   0.445   0.107   0.139   0.31   NonLiqfible.     19.48   11   14   0.37   115   2314   1784   14.5   14.4   2.88   2.9   49.4   0.80   58.0   72.5   0.446   0.115   0.150   0.34   NonLiqfible.     19.66   11   15.1   0.48   125   2336   1794   15.6   15.5   3.45   2.9   50.6   0.80   62.4   78.0   0.448   0.124   0.161   0.36   NonLiqfible.     19.75   11   14.3   0.51   125   2379   1806   14.7   14.5   3.89   2.9   54.1   0.80   58.9   73.6   0.449   0.117   0.152   0.34   NonLiqfible.     19.85   11   14.3   0.51   125   2379   1806   14.7   14.5   3.89   2.9   54.1   0.80   58.9   73.6   0.449   0.117   0.152   0.34   NonLiqfible.     20.03   11   12.4   0.4   115   2416   1834   11.5   11.0   3.57   3.0   56.7   0.80   58.9   73.6   0.449   0.117   0.152   0.34   NonLiqfible.     20.12   11   13   0.46   125   2393   1823   13.3   12.9   3.90   3.0   56.7   0.80   58.9   73.6   0.449   0.117   0.152   0.34   NonLiqfible.     20.34   11   13   0.46   125   2416   1834   11.5   11.0   3.57   3.0   56.7   0.80   5																					-
18.84   11   14.2   0.38   125   2238   1747   14.9   15.0   2.91   2.8   48.7   0.80   59.5   74.3   0.441   0.118   0.154   0.35   NonLiqible.     18.93   11   16.1   0.42   125   2249   1753   17.1   17.4   2.75   2.8   44.8   0.80   68.6   85.7   0.441   0.139   0.180   0.41     19.11   11   13.7   0.36   115   2272   1764   14.3   14.2   2.87   2.9   49.5   0.80   67.2   84.0   0.42   0.135   0.176   0.40   NonLiqible.     19.11   11   12.7   0.36   115   2272   1764   14.3   14.2   2.87   2.9   49.5   0.80   57.1   71.4   0.43   0.114   0.148   0.33   NonLiqible.     19.31   11   12.7   0.33   115   2293   1744   13.2   13.0   2.86   2.9   51.4   0.80   58.0   66.0   0.445   0.107   0.139   0.31   NonLiqible.     19.39   11   12.9   0.34   115   2304   1779   13.4   13.2   2.89   2.9   51.3   0.80   53.5   66.9   0.445   0.107   0.139   0.31   NonLiqible.     19.48   11   14.7   0.44   125   2324   1788   15.2   15.1   3.25   2.9   50.2   0.80   58.0   72.5   0.446   0.115   0.150   0.34   NonLiqible.     19.57   11   14.7   0.44   125   2324   1788   15.2   15.1   3.25   2.9   50.2   0.80   6.8   6.9   0.445   0.108   0.140   0.31   NonLiqible.     19.75   11   14.3   0.51   125   2347   1800   14.7   14.6   3.89   2.9   54.0   0.80   58.0   73.7   0.449   0.117   0.152   0.35   NonLiqible.     19.85   11   14.3   0.51   125   2359   1806   14.7   14.5   3.89   2.9   54.0   0.80   59.0   73.7   0.449   0.117   0.152   0.34   NonLiqible.     20.03   11   12.2   0.44   125   2382   1817   13.5   13.2   4.00   3.0   56.7   0.80   53.3   66.6   0.442   0.109   0.142   0.32   NonLiqible.     20.13   11   12.7   0.44   125   2404   1828   13.0   12.6   3.83   3.0   56.7   0.80   53.3   66.6   0.442   0.109   0.142   0.32   NonLiqible.     20.24   11   12.7   0.44   125   2404   1828   13.0   12.6   3.83   3.0   56.7   0.80   57.0   0.80   57.7   0.444   0.16   0.36   0.34   NonLiqible.     20.35   11   12.4   0.4   115   2416   1834   12.7   12.2   3.57   3.0   59.0   0.80   57.7   0.444   0.16   0.16   0.32																					-
18.93   11   16.4   0.42   125   2294   1753   17.1   17.4   2.75   2.8   44.8   0.80   68.6   88.7   0.441   0.139   0.180   0.41   NonLiqfibe.     19.02   11   16.1   0.42   125   2260   1759   16.8   17.0   2.81   2.87   2.9   4.95   0.80   67.2   84.0   0.442   0.145   0.145   0.146   0.135   0.176   0.40   NonLiqfibe.     19.11   11   12.5   0.34   115   2283   1769   13.0   12.8   2.99   2.9   52.5   0.80   57.1   71.4   0.443   0.114   0.148   0.33   NonLiqfibe.     19.33   11   12.9   0.34   115   2293   1774   13.2   13.0   2.86   2.9   51.4   0.80   52.8   66.0   0.445   0.106   0.137   0.31   NonLiqfibe.     19.48   11   14   0.37   115   2314   1788   15.2   15.1   3.25   2.9   51.4   0.80   52.8   66.0   0.445   0.108   0.140   0.31   NonLiqfibe.     19.66   11   15.1   0.48   125   2336   1794   15.6   15.5   3.45   2.9   50.6   0.80   67.2   84.0   0.447   0.121   0.157   0.35   NonLiqfibe.     19.75   11   14.3   0.51   125   2347   1800   14.7   14.5   3.88   2.9   51.4   0.80   58.0   72.5   0.446   0.115   0.150   0.34   NonLiqfibe.     19.94   11   13.8   0.5   125   2371   1812   14.2   13.3   3.96   3.0   55.7   0.80   57.7   0.449   0.117   0.152   0.34   NonLiqfibe.     19.94   11   13.8   0.5   125   2371   1812   14.2   13.3   3.96   3.0   55.7   0.80   54.2   67.7   0.449   0.117   0.152   0.34   NonLiqfibe.     20.01   11   12.7   0.44   125   2382   1817   13.5   13.2   4.00   3.0   55.3   0.80   55.3   66.6   0.442   0.109   0.142   0.32   NonLiqfibe.     20.12   11   13   0.46   125   2393   1823   13.3   12.9   3.90   3.0   56.7   0.80   53.3   66.6   0.442   0.109   0.142   0.32   NonLiqfibe.     20.13   11   12.7   0.44   125   2382   1817   13.5   13.2   4.00   3.0   57.0   0.80   57.0   0.80   57.0   0.40   0.109   0.142   0.32   NonLiqfibe.     20.13   11   13   0.46   125   2383   1831   13.3   12.9   3.90   3.0   56.7   0.80   53.3   66.6   0.442   0.109   0.142   0.32   NonLiqfibe.     20.14   11   13   0.46   125   2382   1818   13.3   12.9   3.90   3.0   56.7   0.80																					
19.02																					-
19.21 11 12.5 0.34 115 2283 1769 13.0 12.8 2.99 2.9 52.5 0.80 52.0 65.0 0.444 0.106 0.137 0.31 NonLiqfble. 19.3 11 12.7 0.33 115 2293 1774 13.2 13.0 2.86 2.9 51.3 0.80 52.8 66.0 0.445 0.107 0.139 0.31 NonLiqfble. 19.48 11 14 0.37 115 2314 1784 14.5 14.4 2.88 2.9 51.3 0.80 53.5 66.9 0.445 0.108 0.140 0.31 NonLiqfble. 19.48 11 14.7 0.44 125 2324 1788 15.2 15.1 3.25 2.9 50.0 0.80 60.8 76.0 0.447 0.121 0.157 0.35 NonLiqfble. 19.66 11 15.1 0.48 125 2336 1794 15.6 15.5 3.45 2.9 50.6 0.80 60.8 76.0 0.447 0.121 0.157 0.35 NonLiqfble. 19.75 11 14.3 0.51 125 2336 1794 15.6 15.5 3.45 2.9 50.6 0.80 60.8 76.0 0.447 0.121 0.157 0.35 NonLiqfble. 19.85 11 14.3 0.51 125 2337 1812 14.2 13.9 3.96 30. 53.9 50.0 73.7 0.449 0.117 0.152 0.34 NonLiqfble. 19.94 11 13.8 0.5 125 2371 1812 14.2 13.9 3.96 30. 55.3 0.80 50. 70.9 0.450 0.113 0.147 0.33 NonLiqfble. 20.03 11 13.2 0.48 125 2339 1823 13.3 12.9 3.00 3.0 56.7 0.80 54.2 77.0 0.440 0.107 0.152 0.34 NonLiqfble. 20.12 11 13 0.46 125 2393 1823 13.3 12.9 3.00 3.0 56.7 0.80 54.2 67.7 0.442 0.109 0.142 0.32 NonLiqfble. 20.21 11 12.7 0.44 125 2404 1828 13.0 12.6 3.83 3.0 5.0 56.7 0.80 53.3 66.6 0.443 0.106 0.137 0.31 NonLiqfble. 20.38 11 12.4 0.4 115 2434 1843 11.1 10.5 3.77 3.0 56.5 0.80 50.0 7.7 0.44 0.080 0.127 0.29 NonLiqfble. 20.38 11 11.3 0.36 115 2434 1843 11.1 10.5 3.7 3.0 56.5 0.80 50.0 50.0 4.43 0.106 0.137 0.31 NonLiqfble. 20.46 11 10.9 0.33 115 2434 1843 11.1 10.5 3.7 3.0 56.5 0.80 50.0 50.0 4.43 0.106 0.137 0.31 NonLiqfble. 20.54 11 10.3 0.36 115 2434 1843 11.1 10.5 3.7 3.0 56.5 0.80 50.0 50.0 4.43 0.106 0.137 0.31 NonLiqfble. 20.54 11 10.3 0.36 115 2434 1843 11.1 10.5 3.7 3.0 56.5 0.80 50.0 4.44 0.009 0.121 0.27 NonLiqfble. 20.54 11 10.3 0.36 115 2434 1843 11.1 10.5 3.7 3.0 56.5 0.80 50.0 4.44 0.009 0.121 0.27 NonLiqfble. 20.59 11 9.9 0.28 115 2449 1889 9.7 8.9 3.31 3.0 16.2 0.80 40.7 50.9 0.446 0.099 0.121 0.27 NonLiqfble. 20.60 11 9.6 0.29 115 2493 1869 9.7 8.9 3.32 3.0 6.0 0.80 40.7 50.9 0.446 0.099 0.121 0.27 NonLiqfble. 20.71 11 0.9 0.20 115 2493 1869 9.7 8.9 3.33 3.0 6.			11	16.1					16.8	17.0		2.8					0.442	0.135	0.176	0.40	
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21.15       11       9.4       0.25       105       2513       1879       9.5       8.7       3.07       3.1       62.2       0.80       38.0       47.4       0.451       0.090       0.117       0.26       NonLiqfble.         21.24       11       9.1       0.23       105       2523       1883       9.2       8.3       2.93       3.1       62.4       0.80       36.7       45.9       0.452       0.089       0.116       0.26       NonLiqfble.         21.33       11       8.9       0.22       105       2532       1887       9.0       8.1       2.88       3.1       62.9       0.80       35.9       44.8       0.452       0.088       0.115       0.25       NonLiqfble.         21.42       11       8.5       0.21       105       2542       1890       8.6       7.6       2.91       3.1       64.5       0.80       34.2       42.8       0.453       0.087       0.113       0.25       NonLiqfble.         21.51       11       8.5       0.22       105       2551       1894       8.5       7.6       3.05       3.1       65.4       0.80       34.2       42.8       0.453       0.087 <td></td> <td>20.97</td> <td>11</td> <td>9.6</td> <td>0.29</td> <td>115</td> <td>2493</td> <td>1869</td> <td>9.7</td> <td>8.9</td> <td></td> <td>3.1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>0.091</td> <td>0.118</td> <td>0.26</td> <td>NonLiqfble.</td>		20.97	11	9.6	0.29	115	2493	1869	9.7	8.9		3.1						0.091	0.118	0.26	NonLiqfble.
21.24       11       9.1       0.23       105       2523       1883       9.2       8.3       2.93       3.1       62.4       0.80       36.7       45.9       0.452       0.089       0.116       0.26       NonLiqfble.         21.33       11       8.9       0.22       105       2532       1887       9.0       8.1       2.88       3.1       62.9       0.80       35.9       44.8       0.452       0.088       0.115       0.25       NonLiqfble.         21.42       11       8.5       0.21       105       2542       1890       8.6       7.6       2.91       3.1       64.5       0.80       34.2       42.8       0.453       0.087       0.113       0.25       NonLiqfble.         21.51       11       8.5       0.22       105       2551       1894       8.5       7.6       3.05       3.1       65.4       0.80       34.2       42.8       0.453       0.087       0.113       0.25       NonLiqfble.																					
21.33       11       8.9       0.22       105       2532       1887       9.0       8.1       2.88       3.1       62.9       0.80       35.9       44.8       0.452       0.088       0.115       0.25       NonLiqfble.         21.42       11       8.5       0.21       105       2542       1890       8.6       7.6       2.91       3.1       64.5       0.80       34.2       42.8       0.453       0.087       0.113       0.25       NonLiqfble.         21.51       11       8.5       0.22       105       2551       1894       8.5       7.6       3.05       3.1       65.4       0.80       34.2       42.7       0.454       0.087       0.113       0.25       NonLiqfble.																					
21.42 11 8.5 0.21 105 2542 1890 8.6 7.6 2.91 3.1 64.5 0.80 34.2 42.8 0.453 0.087 0.113 0.25 NonLiqfble. 21.51 11 8.5 0.22 105 2551 1894 8.5 7.6 3.05 3.1 65.4 0.80 34.2 42.7 0.454 0.087 0.113 0.25 NonLiqfble.																					
		21.42													34.2						NonLiqfble.
		21.51 21.61	11 11	8.5 8.6	0.22 0.22			1894 1898	8.5 8.6	7.6 7.7	3.05 3.01	3.1	65.4 64.8	0.80	34.2 34.5	42.7 43.2	0.454 0.455	0.087	0.113 0.114	0.25	NonLiqfble. NonLiqfble.

7.6 7.7

NonLiqfble.

43.2 0.455 0.087 0.114

11 11

Depth to Groundwater: 11 feet

 Project Number: 6600.3.001.01
 PGA (g): 0.54

 Date: September 2005
 MSF: 1.30

 CPT Number: 24

**EQ Magnitude** (M<sub>w</sub>): 6.5

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	$\mathbf{q}_{\mathrm{clN}}$	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	DqcIN	(qclN)es	Ratio	M7.5	M6.50	Safety	Comments
	21.7	11	8.3	0.24	105	2571	1902	8.3	7.4	3.42	3.1	68.3	0.80	33.3	41.6	0.455	0.087	0.113	0.25	NonLiqfble.
	21.79	11	9	0.26	105	2581	1906	9.0	8.1	3.37	3.1	65.6	0.80	36.1	45.1	0.456	0.089	0.115	0.25	NonLiqfble.
	21.88	11	9.2	0.27	115	2590	1910	9.2	8.3	3.42	3.1	65.2	0.80	36.8	46.1	0.457	0.089	0.116	0.25	NonLiqfble.
	21.93	11	9.5	0.28	115	2596	1913	9.5	8.6	3.41	3.1	64.3	0.80	38.0	47.5	0.457	0.090	0.117	0.26	NonLiqfble.
	22.02	11	9.2	0.29	115	2606	1917	9.2	8.2	3.67	3.1	66.7	0.80	36.8	46.0	0.458	0.089	0.116	0.25	NonLiqfble.
	22.11	11	9.5	0.29	115	2617	1922	9.5	8.5	3.54	3.1	65.1	0.80	37.9	47.4	0.459	0.090	0.117	0.25	NonLiqfble.
	22.2 22.27	11 11	9.4 9.6	0.29	115 115	2627 2635	1927 1930	9.4 9.6	8.4 8.6	3.59 3.62	3.1	65.7 65.4	0.80	37.5 38.2	46.8 47.8	0.459 0.460	0.090 0.090	0.116 0.117	0.25 0.25	NonLiqfble. NonLiqfble.
	22.36	11	9.4	0.31	115	2645	1935	9.3	8.3	3.84	3.1	67.1	0.80	37.4	46.7	0.461	0.090	0.117	0.25	NonLiqfble.
	22.45	11	9.4	0.32	115	2656	1940	9.3	8.3	3.96	3.1	67.8	0.80	37.4	46.7	0.461	0.089	0.116	0.25	NonLiqfble.
	22.54	11	9.5	0.32	115	2666	1945	9.4	8.4	3.92	3.1	67.4	0.80	37.7	47.1	0.462	0.090	0.117	0.25	NonLiqfble.
	22.63	11	9.4	0.33	115	2676	1949	9.3	8.3	4.09	3.1	68.6	0.80	37.3	46.6	0.463	0.089	0.116	0.25	NonLiqfble.
	22.72	11	9.5	0.32	115	2687	1954	9.4	8.3	3.92	3.1	67.5	0.80	37.6	47.0	0.463	0.090	0.117	0.25	NonLiqfble.
	22.82	11	9.6	0.31	115	2698	1959	9.5	8.4	3.76	3.1	66.5	0.80	38.0	47.4	0.464	0.090	0.117	0.25	NonLiqfble.
	22.91	11	9.8	0.3	115	2709	1964	9.7	8.6	3.55	3.1	64.9	0.80	38.7	48.4	0.465	0.091	0.118	0.25	NonLiqfble.
	23 23.09	11 11	9.6 10	0.31 0.33	115 115	2719 2729	1969 1974	9.5 9.8	8.4 8.7	3.76 3.82	3.1	66.7 65.8	0.80	37.9 39.4	47.3 49.2	0.465 0.466	0.090 0.091	0.117 0.118	0.25 0.25	NonLiqfble. NonLiqfble.
	23.18	11	9.9	0.35	115	2740	1974	9.7	8.6	4.10	3.1	67.5	0.80	39.4	48.7	0.467	0.091	0.118	0.25	NonLiqfble.
	23.28	11	10.2	0.36	115	2751	1984	10.0	8.9	4.08	3.1	66.6	0.80	40.1	50.1	0.467	0.092	0.119	0.26	NonLiqfble.
	23.37	11	10.5	0.38	115	2761	1988	10.3	9.2	4.17	3.1	66.2	0.80	41.2	51.5	0.468	0.093	0.121	0.26	NonLiqfble.
	23.46	11	10.4	0.38	115	2772	1993	10.2	9.0	4.22	3.1	66.8	0.80	40.8	51.0	0.469	0.092	0.120	0.26	NonLiqfble.
	23.54	11	10.7	0.36	115	2781	1997	10.5	9.3	3.87	3.1	64.4	0.80	41.9	52.4	0.469	0.093	0.121	0.26	NonLiqfble.
	23.63	11	10.6	0.35	115	2791	2002	10.4	9.2	3.80	3.1	64.5	0.80	41.5	51.8	0.470	0.093	0.121	0.26	NonLiqfble.
	23.71	11	10.4	0.32	115	2801	2006	10.2	9.0	3.56	3.1	63.9	0.80	40.6	50.8	0.470	0.092	0.120	0.25	NonLiqfble.
	23.8 23.89	11 11	10.2 10	0.29 0.28	115 115	2811 2821	2011 2016	10.0 9.7	8.7 8.5	3.30 3.26	3.1	63.2 63.7	0.80	39.8 39.0	49.8 48.7	0.471 0.472	0.091 0.091	0.119 0.118	0.25 0.25	NonLiqfble. NonLiqfble.
	23.98	11	10	0.27	115	2832	2020	9.7	8.5	3.15	3.1	63.1	0.80	38.9	48.7	0.472	0.091	0.118	0.25	NonLiqfble.
	24.07	11	10	0.25	105	2842	2025	9.7	8.5	2.91	3.0	61.9	0.80	38.9	48.6	0.473	0.091	0.118	0.25	NonLiqfble.
	24.15	11	9.8	0.23	105	2850	2029	9.5	8.3	2.75	3.0	61.6	0.80	38.1	47.6	0.473	0.090	0.117	0.25	NonLiqfble.
	24.24	11	9.9	0.21	105	2860	2032	9.6	8.3	2.48	3.0	59.7	0.80	38.4	48.0	0.474	0.090	0.117	0.25	NonLiqfble.
	24.33	11	10.1	0.19	105	2869	2036	9.8	8.5	2.19	3.0	57.2	0.80	39.2	49.0	0.475	0.091	0.118	0.25	NonLiqfble.
	24.42	11	8.6	0.17	105	2879	2040	8.3	7.0	2.37	3.1	63.4	0.80	33.3	41.7	0.475	0.087	0.113	0.24	NonLiqfble.
	24.51 24.6	11 11	7.8 8	0.15 0.14	105 95	2888 2898	2044 2048	7.5 7.7	6.2 6.4	2.36 2.14	3.1	66.5 64.2	0.80	30.2 30.9	37.7 38.7	0.476 0.477	0.085 0.085	0.111 0.111	0.23 0.23	NonLiqfble. NonLiqfble.
	24.69	11	8	0.14	95	2906	2048	7.7	6.4	1.83	3.0	61.9	0.80	30.9	38.6	0.477	0.085	0.111	0.23	NonLiqfble.
	24.78	11	8.1	0.11	95	2915	2054	7.8	6.5	1.66	3.0	60.1	0.80	31.3	39.1	0.478	0.086	0.111	0.23	NonLiqfble.
	24.87	11	8.5	0.1	95	2923	2057	8.2	6.8	1.42	3.0	56.5	0.80	32.8	41.0	0.479	0.086	0.112	0.23	NonLiqfble.
	24.96	11	8.4	0.1	95	2932	2059	8.1	6.7	1.44	3.0	57.2	0.80	32.4	40.5	0.480	0.086	0.112	0.23	NonLiqfble.
	25.05	11	9	0.11	95	2940	2062	8.7	7.3	1.46	3.0	55.3	0.80	34.7	43.4	0.480	0.088	0.114	0.24	NonLiqfble.
	25.14	11	9.9	0.15	105	2949	2065	9.5	8.2	1.78	3.0	55.2	0.80	38.1	47.7	0.481	0.090	0.117	0.24	NonLiqfble.
	25.23	11	11.2	0.25	115	2958	2069	10.8	9.4	2.57	3.0	57.3	0.80	43.1	53.9	0.482	0.095	0.123	0.26	NonLiqfble.
	25.28 25.37	11 11	13.1 18.6	0.33 0.46	115 125	2964 2974	2072 2077	12.6 17.9	11.2 16.5	2.84 2.69	2.9 2.8	54.7 45.6	0.80	50.4 71.4	63.0 89.3	0.482 0.483	0.103 0.146	0.134 0.190	0.28 0.39	NonLiqfble. NonLiqfble.
	25.46	11	22.2	0.52	125	2986	2082	21.3	19.9	2.51	2.7	40.9	0.80	85.1	106.4	0.483	0.192	0.250	0.52	NonLiqfble.
	25.55	11	24.1	0.54	125	2997	2088	23.1	21.6	2.39	2.7	38.7	0.80	92.3	115.4	0.484	0.223	0.290	0.60	NonLiqfble.
	25.64	11	28.2	0.49	125	3008	2093	27.0	25.5	1.84	2.5	32.6	0.74	75.3	102.3	0.484	0.180	0.233	0.48	Liquefaction
	25.73	11	38.5	0.49	125	3019	2099	36.8	35.2	1.32	2.3	24.2	0.51	38.8	75.6	0.485	0.120	0.156	0.32	Liquefaction
	25.82	11	47.3	0.45	115		2105	45.1	43.5	0.98	2.2	18.9	0.37	26.6	71.7	0.485	0.114	0.149	0.31	Liquefaction
	25.91	11	40	0.38	115	3041	2109	38.1	36.5	0.99	2.3	21.1	0.43	28.8	66.9	0.486	0.108	0.140	0.29	Liquefaction
	26 26.09	11 11	33 28.2	0.33	115 115	3051 3062	2114 2119	31.4 26.8	29.8 25.2	1.05 1.12	2.4 2.4	24.4 27.6	0.52 0.60	33.9 40.7	65.3 67.5	0.486 0.487	0.106 0.109	0.138 0.141	0.28 0.29	Liquefaction Liquefaction
	26.18	11	22.3	0.3	115	3072	2124	21.2	19.5	1.44	2.6	34.3	0.78	76.6	97.8	0.487	0.167	0.217	0.45	Liquefaction
	26.27	11	19.2	0.29	115	3082	2128	18.2	16.6	1.64	2.7	38.8	0.80	72.8	91.0	0.488	0.150	0.195	0.40	NonLiqfble.
	26.36	11	19.3	0.29	115	3093	2133	18.3	16.6	1.63	2.7	38.7	0.80	73.1	91.4	0.489	0.151	0.196	0.40	NonLiqfble.
	26.45	11	20.2	0.25	115	3103	2138	19.1	17.4	1.34	2.6	35.6	0.80	76.5	95.6	0.489	0.161	0.210	0.43	NonLiqfble.
	26.54	11	16.9	0.18	105	3114	2143	16.0	14.3	1.17	2.6	37.8	0.80	63.9	79.9	0.490	0.127	0.166	0.34	NonLiqfble.
	26.64	11	15.7	0.25	115	3124	2147	14.8	13.2	1.77	2.8	44.3	0.80	59.3	74.1	0.490	0.118	0.153	0.31	NonLiqfble.
	26.73 26.82	11 11	16.8 19.7	0.38 0.36	125 125	3134 3146	2152 2157	15.8 18.6	14.2 16.8	2.49 1.99	2.8 2.7	47.6 41.0	0.80	63.4 74.2	79.2 92.8	0.491 0.491	0.126 0.154	0.164 0.201	0.33 0.41	NonLiqfble.
	26.02	11	20.7	0.36	125	3157	2163	19.5	17.7	2.14	2.7	41.0	0.80	77.9	92.8 97.4	0.491	0.154	0.201	0.41	NonLiqfble. NonLiqfble.
	20.31	11	26.4	0.52	125	3168	2168	24.8	22.9	2.14	2.6	36.0	0.80	99.2	124.0	0.492	0.100	0.335	0.68	NonLiqfble.
	27.09	11	31.6	0.63	125	3179	2174	29.7	27.6	2.10	2.5	32.9	0.75	86.7	116.3	0.493	0.226	0.294	0.60	Liquefaction
	27.17	11	49.9	0.57	125	3189	2179	46.8	44.3	1.18	2.2	20.2	0.41	31.9	78.6	0.493	0.125	0.163	0.33	Liquefaction

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 24

Depth to Groundwater: 11 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

PGA (g): 0.54 MSF: 1.30

		Water	Tip	Sleeve		T-4-1	Effective	N	C	Friction						T., J.,	T : e	Liquef.	F4	
	Depth	Table	Resist.	Frict.		Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
	-				g (DCF)			-	-				Ксрт	Da	(a)					<b>a</b>
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	q <sub>c1N</sub>	Q	F	Ic	(%)	KCPI	DqcIN	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	27.23	11	86.3	0.55	115	3197	2183	80.8	77.6	0.65	1.9	10.1	0.14	12.7	93.6	0.493	0.156	0.203	0.41	Liquefaction
	27.29	11	126	0.67	105	3204	2186	117.9	113.8	0.54	1.7	6.2	0.03	3.9	121.8	0.494	0.130	0.322	0.65	Liquefaction
	27.32	11	149.2	0.71	105	3207	2187	139.6	134.9	0.48	1.6	4.6	0.00	0.0	139.6	0.494	0.333	0.433	0.88	Liquefaction
	27.37	11	173.9	0.71	105	3212	2189	162.6	157.3	0.42	1.5	3.3	0.00	0.0	162.6	0.494	0.480	0.624	1.26	Liquetaction
	27.41	11	194.2	0.75	105	3216	2191	181.5	175.7	0.39	1.5	2.4	0.00	0.0	181.5	0.495	0.636	0.827	1.67	
	27.5	11	206.8	0.75	105	3226	2195	193.1	186.9	0.37	1.5	2.3	0.00	0.0	193.1	0.495	0.750	0.975	1.97	
	27.58	11	200.0	1.07	115	3234	2198	193.2	186.8	0.52	1.5	3.1	0.00	0.0	193.2	0.496	0.750	0.975	1.97	
	27.66	11	200.6	1.18	115	3243	2203	187.0	180.6	0.52	1.6	3.8	0.00	0.0	187.0	0.496	0.730	0.895	1.80	
	27.75	11	186.2	1.16	115	3254	2203	173.4	167.2	0.59	1.6	4.9	0.00	0.0	173.4	0.490	0.565	0.893	1.48	
	27.84	11	174.5	1.28	115	3264	2212	162.3	156.2	0.74	1.7	5.7	0.02	3.1	165.5	0.497	0.501	0.652	1.31	
	27.92	11	171.9	1.26	115	3273	2216	159.8	153.6	0.74	1.7	5.8	0.02	3.5	163.3	0.498	0.485	0.631	1.27	
	28.01	11	176.2	0.78	105	3284	2221	163.6	157.1	0.45	1.5	3.5	0.00	0.0	163.6	0.498	0.487	0.633	1.27	
	28.08	11	189.5	0.9	105	3291	2224	175.8	168.9	0.48	1.5	3.3	0.00	0.0	175.8	0.499	0.585	0.761	1.53	
	28.14	11	205.9	0.98	105	3297	2227	190.9	183.4	0.48	1.5	2.9	0.00	0.0	190.9	0.499	0.727	0.945	1.89	
	28.2	11	214	1.01	105	3304	2229	198.3	190.4	0.48	1.5	2.7	0.00	0.0	198.3	0.499	0.805	1.047	2.10	
	28.27	11	195.8	0.97	105	3311	2232	181.3	173.9	0.50	1.5	3.3	0.00	0.0	181.3	0.500	0.635	0.825	1.65	
	28.34	11	180.4	0.84	105	3318	2235	167.0	159.9	0.47	1.5	3.6	0.00	0.0	167.0	0.500	0.513	0.667	1.33	
	28.43	11	144.7	0.8	105	3328	2239	133.8	127.7	0.56	1.7	5.6	0.02	2.2	136.0	0.501	0.314	0.408	0.81	Liquefaction
	28.52	11	107.1	0.79	115	3337	2243	99.0	94.0	0.75	1.9	9.3	0.12	12.9	111.9	0.501	0.210	0.273	0.54	Liquefaction
	28.61	11	73.7	0.83	125	3348	2247	68.0	64.1	1.15	2.1	15.8	0.29	27.6	95.6	0.502	0.161	0.210	0.42	Liquefaction
	28.7	11	47.5	0.84	135	3359	2253	43.8	40.7	1.83	2.4	25.6	0.55	53.5	97.2	0.502	0.166	0.215	0.43	Liquefaction
	28.78	11	30.7	0.74	135	3370	2259	28.3	25.7	2.55	2.6	36.6	0.80	113.0	141.3	0.503	0.342	0.445	0.89	NonLiqfble.
	28.87	11	22.7	0.62	125	3382	2265	20.9	18.5	2.95	2.8	44.6	0.80	83.5	104.3	0.503	0.186	0.241	0.48	NonLiqfble.
	28.96	11	21.1	0.53	125	3393	2271	19.4	17.1	2.73	2.8	45.1	0.80	77.5	96.9	0.503	0.165	0.214	0.42	NonLiqfble.
	29.04	11	20.1	0.38	125	3403	2276	18.4	16.2	2.07	2.7	42.2	0.80	73.7	92.2	0.504	0.153	0.199	0.39	NonLiqfble.
	29.13	11	20.3	0.27	115	3414	2282	18.6	16.3	1.45	2.6	37.7	0.80	74.4	93.0	0.504	0.155	0.201	0.40	NonLiqfble.
	29.21	11	20.7	0.25	115	3423	2286	18.9	16.6	1.32	2.6	36.3	0.80	75.8	94.7	0.505	0.159	0.207	0.41	NonLiqfble.
	29.26	11	20.9	0.25	115	3429	2289	19.1	16.8	1.30	2.6	36.0	0.80	76.5	95.6	0.505	0.161	0.210	0.42	NonLiqfble.
	29.32	11	21	0.24	115	3436	2292	19.2	16.8	1.24	2.6	35.4	0.80	76.8	96.0	0.505	0.162	0.211	0.42	NonLigfble.
	29.37	11	21	0.25	115	3442	2294	19.2	16.8	1.30	2.6	35.9	0.80	76.7	95.9	0.505	0.162	0.211	0.42	NonLiqfble.
	29.41	11	20.1	0.26	115	3446	2296	18.4	16.0	1.41	2.6	37.8	0.80	73.4	91.8	0.506	0.152	0.197	0.39	NonLiqfble.
	29.45	11	22	0.26	115	3451	2299	20.1	17.6	1.28	2.6	34.9	0.80	79.1	99.2	0.506	0.132	0.127	0.44	Liquefaction
	29.52	11	23.7	0.26	115	3459	2302	21.6	19.1	1.18	2.5	32.6	0.74	60.8	82.4	0.506	0.171	0.222	0.34	Liquefaction
			23.7					21.6				33.1								
	29.61	11		0.27	115	3469	2307		19.0	1.23	2.6		0.75	64.6	86.2	0.507	0.139	0.181	0.36	Liquefaction
	29.69	11	25.1	0.29	115	3479	2311	22.8	20.2	1.24	2.5	32.1	0.72	60.1	82.9	0.507	0.133	0.173	0.34	Liquefaction
	29.77	11	26.8	0.35	115	3488	2315	24.4	21.6	1.40	2.5	32.2	0.73	64.9	89.3	0.508	0.146	0.190	0.37	Liquefaction
	29.85	11	27.9	0.45	125	3497	2320	25.3	22.5	1.72	2.6	33.9	0.77	85.3	110.7	0.508	0.206	0.268	0.53	Liquefaction
	29.93	11	30.4	0.52	125	3507	2325	27.6	24.6	1.82	2.6	33.0	0.75	81.8	109.4	0.508	0.202	0.262	0.52	Liquefaction
	30	11	33.8	0.6	125	3516	2329	30.6	27.5	1.87	2.5	31.6	0.71	75.0	105.6	0.487	0.190	0.247	0.51	Liquefaction

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 25

Depth to Groundwater: 11 feet

**EQ Magnitude (M<sub>w</sub>):** 6.5 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tin	Clears		Total	Effective	Norm	Com	Friction						Induced	Lianof	Lianof	Footon	
	Depth	Table	Tip Resist.	Sleeve Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	l Liquef. Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	$\mathbf{q}_{\mathrm{clN}}$	Q	F	Ic	(%)	Ксрт	DqcIN	$(q_{\rm clN})_{\rm es}$	Ratio	M7.5	M6.50	Safety	Comments
	0.57	11	358.3	4.34	135	77	77	686.2	9307.7	1.21	1.4	1.5	0.00	0.0	686.2	0.351	30.131	39.171	111.60	Above W.T.
	0.57	11	341.2	4.39	135	90	90	653.5	7540.3	1.29	1.4	1.4	0.00	0.0	653.5	0.351	26.031	33.840	96.41	Above W.T.
	0.77	11	321.5	4.39	135	104	104	615.7	6182.1	1.37	1.4	1.4	0.00	0.0	615.7	0.351		28.328	80.71	Above W.T.
	0.86	11	302.6	3.9	135	116	116	579.5	5209.6	1.29	1.4	1.0	0.00	0.0	579.5	0.351	18.182	23.637	67.34	Above W.T.
	0.96 1.06	11 11	237.7 191.7	4.41 4.28	135 135	130 143	130 143	455.2 367.1	3665.7 2677.1	1.86 2.23	1.5 1.6	2.7 3.9	0.00	0.0	455.2 367.1	0.351 0.351	8.854 4.682	11.511 6.087	32.79 17.34	Above W.T. Above W.T.
	1.15	11	168	3.67	135	155	155	321.8	2162.3	2.19	1.6	3.8	0.00	0.0	321.8	0.351	3.178	4.131	11.77	Above W.T.
	1.25	11	163.9	3.24	135	169	169	313.9	1940.7	1.98	1.5	3.2	0.00	0.0	313.9	0.351	2.956	3.843	10.95	Above W.T.
	1.33	11	159.1	3.26	135	180	180	304.7	1770.5	2.05	1.5	3.5	0.00	0.0	304.7	0.351	2.711	3.524	10.04	Above W.T.
	1.42 1.51	11 11	160.9 149.7	3.12 2.85	135 135	192 204	192 204	308.2 286.7	1677.0 1467.1	1.94 1.91	1.5 1.5	3.2 3.3	0.00	0.0	308.2 286.7	0.351 0.351	2.801 2.272	3.642 2.953	10.38 8.41	Above W.T. Above W.T.
	1.6	11	136.2	2.69	135	216	216	260.7	1259.6	1.98	1.6	3.7	0.00	0.0	260.7	0.351	1.731	2.250	6.41	Above W.T.
	1.69	11	115.5	2.38	135	228	228	221.2	1011.1	2.06	1.6	4.4	0.00	0.0	221.2	0.351	1.087	1.413	4.02	Above W.T.
	1.77	11	104.3	1.88	135	239	239	199.8	871.6	1.80	1.6	3.9	0.00	0.0	199.8	0.351	0.821	1.068	3.04	Above W.T.
	1.86	11	94.4	1.22	125	251	251	180.8	750.6	1.29	1.5	2.3	0.00	0.0	180.8	0.351	0.630	0.818	2.33	Above W.T.
	1.94 2.03	11 11	84.6 75.1	0.99 0.92	125 125	261 272	261 272	162.0 143.8	646.8 550.3	1.17 1.23	1.4	2.1 2.8	0.00	0.0	162.0 143.8	0.351 0.351	0.476 0.357	0.618 0.464	1.76 1.32	Above W.T. Above W.T.
	2.21	11	61.2	1.15	135	295	295	117.2	414.0	1.88	1.7	6.5	0.04	5.0	122.2	0.351	0.250	0.324	0.92	Above W.T.
	2.29	11	62.5	1.16	135	306	306	119.7	407.8	1.86	1.7	6.5	0.04	5.0	124.7	0.351	0.260	0.338	0.96	Above W.T.
	2.37	11	42.3	1.14	135	316	316	81.0	266.2	2.71	2.0	11.8	0.18	17.8	98.8	0.351	0.170	0.221	0.63	Above W.T.
	2.45 2.54	11 11	44 38.8	1.24 1.32	135 135	327 339	327 339	84.3 74.3	267.8 227.5	2.83 3.42	2.0	12.1 15.1	0.19 0.27	19.9 27.5	104.1 101.8	0.351 0.351	0.185 0.178	0.241 0.232	0.69 0.66	Above W.T. Above W.T.
	2.63	11	34.3	1.19	135	352	352	65.7	194.1	3.42	2.1	16.5	0.27	29.1	94.8	0.351	0.178	0.232	0.59	Above W.T.
	2.71	11	30.2	1.33	135	362	362	57.8	165.6	4.43	2.2	20.6	0.42	41.3	99.1	0.351	0.171	0.222	0.63	Above W.T.
	2.8	11	26.3	1.48	135	375	375	50.4	139.4	5.67	2.4	25.5	0.55	60.9	111.3	0.351	0.208	0.271	0.77	Above W.T.
	2.89	11	24.6	1.64	135	387	387	47.1	126.2	6.72	2.5	29.1	0.64	84.5	131.7	0.351	0.292	0.380	1.08	Above W.T.
	2.98 3.06	11 11	24 22.7	1.73 1.81	135 135	399 410	399 410	46.0 43.5	119.3 109.8	7.27 8.05	2.5 2.6	30.9 33.5	0.69 0.76	103.0 138.6	149.0 182.1	0.351 0.351	0.387 0.641	0.504 0.834	1.43 2.37	Above W.T. Above W.T.
	3.15	11	21.4	1.81	135	422	422	41.0	100.4	8.54	2.6	35.6	0.80	163.9	204.9	0.351	0.880	1.144	3.26	Above W.T.
	3.25	11	19.7	1.82	135	435	435	37.7	89.5	9.34	2.7	38.6	0.80	150.9	188.6	0.351	0.704	0.916	2.61	Above W.T.
	3.34	11	20.2	1.81	135	447	447	38.7	89.3	9.06	2.7	38.1	0.80	154.7	193.4	0.351	0.753	0.979	2.79	Above W.T.
	3.44 3.53	11 11	21.2 23.1	1.88 1.89	135 135	461 473	461 473	40.6 44.2	91.0 96.6	8.97 8.27	2.6 2.6	37.7 35.5	0.80	162.4 177.0	203.0 221.2	0.351 0.351	0.858 1.087	1.116 1.413	3.18 4.02	Above W.T. Above W.T.
	3.63	11	23.2	1.9	135	487	487	44.4	94.3	8.28	2.6	35.8	0.80	177.7	222.2	0.351	1.100	1.430	4.07	Above W.T.
	3.72	11	23.6	1.81	135	499	499	45.2	93.6	7.75	2.6	34.8	0.79	174.7	219.9	0.351	1.069	1.389	3.96	Above W.T.
	3.82	11	22.1	1.73	135	512	512	42.3	85.3	7.92	2.6	36.3	0.80	169.3	211.6	0.351	0.961	1.250	3.56	Above W.T.
	3.92 4.01	11	23 23.7	1.65 1.68	135 135	526 538	526 538	43.9 44.7	86.5 87.1	7.26 7.17	2.6	34.6	0.79	165.7	209.6 205.9	0.351	0.936 0.891	1.217 1.159	3.47 3.30	Above W.T.
	4.11	11 11	26.5	1.74	135	551	551	49.4	95.1	6.64	2.6	34.3 32.0	0.78 0.72	161.1 127.3	176.7	0.351	0.593	0.771	2.20	Above W.T. Above W.T.
	4.21	11	28.6	1.83	135	565	565	52.7	100.2	6.46	2.5	31.0	0.69	118.9	171.5	0.351	0.549	0.714	2.03	Above W.T.
	4.31	11	30.5	1.88	135	578	578	55.5	104.4	6.22	2.5	29.9	0.66	110.1	165.6	0.351	0.502	0.653	1.86	Above W.T.
	4.41	11	32	1.89	135	592	592	57.6	107.1	5.96	2.5	29.0	0.64	102.2	159.8	0.351	0.459	0.597	1.70	Above W.T.
	4.51 4.6	11 11	32.6 32.2	1.88 1.84	135 135	605 618	605 618	58.0 56.7	106.7 103.2	5.82 5.77	2.5 2.5	28.6 28.9	0.63 0.64	99.3 99.6	157.3 156.3	0.351	0.442	0.574 0.566	1.64 1.61	Above W.T. Above W.T.
	4.7	11	31.7	1.78	135	631	631	55.2	99.4	5.67	2.5	29.0	0.64	98.9	154.1	0.351	0.420	0.546	1.56	Above W.T.
	4.8	11	29.7	1.73	135	645	645	51.2	91.1	5.89	2.5	30.6	0.68	110.6	161.8	0.351	0.474	0.616	1.76	Above W.T.
	4.9	11	27.9	1.66	135	658	658	47.6	83.8	6.02	2.5	32.0	0.72	122.2	169.8	0.351	0.535	0.696	1.98	Above W.T.
	5 5.1	11 11	25.1 23.1	1.49 1.25	135 135	672 685	672 685	42.4 38.6	73.7 66.4	6.02 5.49	2.6	33.5 33.5	0.76 0.76	135.8 122.2	178.2 160.8	0.351	0.606 0.467	0.788 0.607	2.24 1.73	Above W.T. Above W.T.
	5.2	11	20.1	1.26	135	699	699	33.3	56.5	6.38	2.7	38.1	0.80	133.1	166.4	0.351	0.508	0.661	1.88	Above W.T.
	5.26	11	18.6	1.23	135	707	707	30.6	51.6	6.74	2.7	40.4	0.80	122.5	153.1	0.351	0.414	0.538	1.53	Above W.T.
	5.31	11	17.9	1.21	135	713	713	29.3	49.2	6.90	2.7	41.5	0.80	117.3	146.6	0.351	0.373	0.485	1.38	Above W.T.
	5.4 5.48	11 11	17.5 17.1	1.2 1.18	135 135	726 736	726 736	28.4 27.6	47.2 45.4	7.00 7.05	2.7 2.8	42.4 43.2	0.80	113.7 110.3	142.1 137.9	0.351	0.347	0.451 0.421	1.29 1.20	Above W.T. Above W.T.
	5.57	11	17	1.14	135	748	748	27.0	44.4	6.86	2.7	43.0	0.80	108.8	135.9	0.351	0.314	0.421	1.16	Above W.T.
	5.67	11	17.3	1.05	135	762	762	27.4	44.4	6.21	2.7	41.3	0.80	109.7	137.1	0.351	0.320	0.416	1.18	Above W.T.
	5.77	11	16.9	1.02	135	775	775	26.6	42.6	6.18	2.7	41.9	0.80	106.2	132.8	0.351	0.298	0.387	1.10	Above W.T.
	5.86	11	17.4	0.98	135	788	788	27.1	43.2	5.76	2.7	40.4	0.80	108.5	135.6	0.351	0.312	0.406	1.16	Above W.T. Above W.T.
	5.96 6.06	11 11	16.9 17.1	1 1.02	135 135	801 815	801 815	26.1 26.2	41.2 41.0	6.06 6.11	2.7 2.7	42.1 42.3	0.80	104.5 104.9	130.6 131.1	0.351 0.351	0.287 0.289	0.373 0.376	1.06 1.07	Above W.T.
	6.16	11	16.3	1.01	135	828	828	24.8	38.4	6.36	2.8	44.1	0.80	99.1	123.9	0.351	0.257	0.334	0.95	Above W.T.
	6.26	11	16.8	1	135	842	842	25.3	38.9	6.11	2.7	43.1	0.80	101.4	126.7	0.351	0.269	0.350	1.00	Above W.T.
	6.36	11	17.5	0.94	125	855	855	26.2	39.9	5.51	2.7	40.9	0.80	104.7	130.9	0.351	0.289	0.375	1.07	Above W.T.
	6.47 6.57	11 11	17.2 17.3	0.9 0.86	125 125	869 881	869 881	25.5 25.5	38.6 38.2	5.37 5.10	2.7 2.7	41.0 40.3	0.80	102.1 102.0	127.7 127.5	0.351 0.351	0.273 0.273	0.356 0.354	1.01 1.01	Above W.T. Above W.T.
	6.67	11	16.7	0.85	125	894	881 894	23.3	36.4	5.10	2.7	40.3	0.80	97.8	127.5	0.351	0.273	0.325	0.92	Above W.T.
	6.77	11	16.3	0.83	125	906	906	23.7	35.0	5.24	2.7	42.3	0.80	94.8	118.4	0.351	0.235	0.305	0.87	Above W.T.
	6.87	11	15.4	0.81	125	919	919	22.2	32.5	5.42	2.8	44.1	0.80	88.9	111.1	0.351	0.208	0.270	0.77	Above W.T.
	6.97	11	15.1	0.79	125	931	931	21.6	31.4	5.40	2.8	44.6	0.80	86.6	108.2	0.351	0.198	0.257	0.73	Above W.T.
	7.08 7.18	11 11	14.8 14.9	0.79 0.81	125 125	945 958	945 958	21.1 21.1	30.3 30.1	5.51 5.62	2.8 2.8	45.6 46.0	0.80	84.3 84.3	105.3 105.3	0.351 0.351	0.189 0.189	0.245 0.245	0.70 0.70	Above W.T. Above W.T.
	7.10	11	15.4	0.83	125	970	970	21.6	30.7	5.56	2.8	45.5	0.80	86.5	108.2	0.351	0.198	0.257	0.73	Above W.T.

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 25 Depth to Groundwater: 11 feet

 $\begin{tabular}{ll} EQ \ Magnitude \ (M_w): & 6.5 \\ PGA \ (g): & 0.54 \\ MSF: & 1.30 \\ \end{tabular}$ 

		Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
7.88   11   176   0.88   125   995   935   344   345	Cone	-							_	_		Ic		Ксрт	$Dq_{\rm clN}$	$(q_{\rm clN})_{\rm es}$					Comments
7.88   11   176   0.88   125   995   935   344   345																					
7.88   11   176   0.88   125   995   935   344   345		7.38	11	16	0.87	125	983	983	22.3	31.6	5.61	2.8	45.2	0.80	89.3	111.7	0.351	0.209	0.272	0.78	Above W.T.
7.88   11   249   0.62   25   190   102   341   478   254   248   278   0.99   491   835   0.31   0.174   0.79   400   0.77   778   11   227   0.04   125   1081   0.05   0.35   0.35   0.35   0.125   0.157   0.05		7.48	11	17.6	0.88	125	995	995	24.4	34.4	5.15	2.7	42.2	0.80	97.6	122.1	0.351	0.249	0.324	0.92	Above W.T.
7.88   11   250   0.59   0.59   125   103   103   0.53   0.54   0.57   2.52   2.48   2.75   0.55   0																					
7.88   11   227   75   75   75   75   75   75   7																					
8.08   11   16.5																					
8.29   11   14.3   0.44   125   1084   1084   19.0   25.4   3.20   2.7   40.0   0.80   0.80   0.80   0.80   0.80   0.81   0.10   0.20   0.80																					
8.99   11   13																					
8.48   11   125   0.49   125   120   120   120   130   130   130   130   130   0.48   Above W.T.   8.51   11   13.1   0.52   125   1136   1130   173   22.4   4.08   2.8   4.61   0.30   0.31   0.31   0.35   0.35   0.140   0.15   0.22   Above W.T.   8.51   11   14.3   0.52   125   1136   1130   173   22.4   4.08   2.8   4.61   0.30   0.31   0.31   0.35   0.35   0.140   0.15   0.22   Above W.T.   8.51   11   14.3   0.52   125   1136   1130   173   22.4   4.08   2.35   1.30   0.35   0.35   0.140   0.15   0.25   0.24   Above W.T.   9.   11   12.23   0.61   125   1173   1173   27.7   3.00   2.39   2.38   2.3   1.30   0.15   0.140   0.15   0.15   0.10																					
8.51   11   13.1   0.5   128   114   115   17.1   22.3   3.99   2.8   4.58   0.80   6.8.   8.5   0.51   0.18   0.18   0.51   0.5																					
8.61   11   133   052   126   116   136   173   22.4   408   2.8   46.1   0.80   9.1   86.5   0.51   0.140   0.181   9.0   0.52   Above W.T.   8.83   11   17.8   0.59   125   116   1161   12.9   29.6   7.43   2.7   38.3   0.80   9.1   1143   0.51   0.219   0.22   0.31   0.45   0.80   0.7   8.93   11   12.9   0.61   12.5   1.111   1.																					
8.81 11 17.8 0.59 125 1161 1161 22.9 29.6 1.34 2.7 8.8.3 0.80 91.4 114.3 0.51 0.219 0.234 0.81 Above W.T. 9 11 22.0 0.63 1 25 1173 1173 2.7.7 0.0 2.89 2.5 31.9 0.72 7.38 10.29 0.51 0.181 0.236 0.67 Above W.T. 9 11 12 22.3 0.61 125 1173 1199 282 0.62 2.81 2.5 31.9 0.72 7.38 10.29 0.51 0.181 0.236 0.67 Above W.T. 9 11 12 13 0.35 0.5 12 111 121 2.0 3.0 3.4 2.0 2.81 2.5 31.9 0.72 7.38 10.29 0.51 0.181 0.236 0.67 Above W.T. 9 11 11 168 0.37 125 1211 121 2.0 3.0 34.2 2.0 2.29 2.29 2.29 2.29 2.29 0.20 0.20																					
9   11   217   061   129   137   147																					
9   11   229   0.63   125   119   119   282   0.52   319   312   0.52   0.75   0.76   0.78   0.77   0.78   0.72   0.75																					
9.21 11 11 9.7																					
9.31   11   19.7																					
9.41 11 11 134 028 175 1296 1296 1296 1297 029 260 348 080 82.0 103.0 0351 0.181 0.236 067 Above W.T. 9.62 11 9.7 0.22 105 1262 1262 129 144 221 2.8 45.5 0.80 47.8 9.7 0.511 0.33 0.170 0.33 Above W.T. 9.62 11 7.6 0.16 105 1276 1272 9.3 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0																					
9.51 11 13.4 0.28 115 1249 1249 16.6 20.5 21.9 27 38.6 0.80 64.8 30.0 351 0.133 0.173 0.49 Abrew W.T. 9.62 111 9.7 0.2 105 1262 1262 11.9 14.4 2.21 28. 45.5 0.80 47.8 59.7 351 0.103 0.37 Abrew W.T. 9.82 11. 6.2 0.13 95 1233 1283 7.6 8.7 2.34 3.0 57.8 0.80 37.3 46.6 0.351 0.059 0.116 0.33 Abrew W.T. 19.03 11. 5.5 0.12 95 1293 1293 6.7 7.5 2.47 3.1 6.2 0.80 37.3 46.6 0.351 0.059 0.116 0.33 Abrew W.T. 10.03 11. 5.5 0.12 95 1293 1293 6.7 7.5 2.47 3.1 6.2 0.80 38.0 3.0 3.3 3.0 3.5 0.05 0.31 0.055 0.11 0.32 Abrew W.T. 10.03 11. 5.1 0.14 95 1312 1312 6.2 6.8 3.1 3.1 6.2 0.8 3.1 6.2 0.8 0.2 4.2 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.0 0.3 0.1 0.0 0.3 1 Abrew W.T. 10.04 11. 5.1 0.14 95 1312 1312 6.2 6.8 3.1 3.1 6.2 0.8 0.3 1.3 0.3 0.3 0.3 0.3 0.3 0.3 0.0 0.3 0.1 0.0 0.3 1 Abrew W.T. 10.04 11. 5.2 0.1 9.5 1312 1312 6.2 6.8 3.1 3.1 0.2 0.2 0.2 0.2 0.0 1.0 9.5 1312 1312 6.2 6.2 6.8 3.1 3.1 0.2 0.2 0.2 0.2 0.0 1.0 9.5 1312 1312 6.2 6.7 4.42 3.2 7.5 0.0 0.2 4.5 0.3 0.3 0.3 0.3 0.0 0.0 0.1 4. 0.0 0.3 0.0 0.0 0.1 4. 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0																					
9.72 11 7.6 0.16 105 1272 1272 9.3 10.9 2.30 2.9 2.9 1.0 1.0 1.0 1.0 11 0.32 Above W.T. 19.33 11 5.5 0.12 95 1293 1293 6.7 7.5 2.47 3.1 0.2.3 0.80 2.42 3.0 3.5 7.8 0.0 2.4 3.5 0.8 3.1 0.8 0.3 1.0 0.3 1.0 0.8 0.11 0.3 Above W.T. 19.0 11 1.5 1.0 1.4 95 1312 1312 6.2 6.8 3.15 3.1 0.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1		9.51	11	13.4	0.28	115	1249	1249	16.6	20.5	2.19	2.7	38.6	0.80	66.4	83.0	0.351	0.133	0.173	0.49	Above W.T.
9.92   11   5.2   0.12   95   1283   1283   7.6   8.7   2.34   3.0   57.8   0.80   30.3   37.9   0.351   0.085   0.11   0.32   Above W.T.   10.03   11   5.5   0.12   95   1932   1932   6.7   7.5   2.47   3.1   62.3   0.80   2.42   30.3   0.34   0.083   0.19   0.31   Above W.T.   10.13   11   5.1   0.14   95   13.2   1312   512   6.6   8.8   3.15   3.1   6.9   0.80   2.45   30.8   0.34   0.083   0.19   0.31   Above W.T.   10.24   11   5.1   0.15   95   1322   1322   6.1   6.7   3.08   3.2   70.6   0.30   24.5   30.6   0.34   0.083   0.107   0.31   Above W.T.   10.44   11   5.2   0.2   0.15   1311   1341   6.2   6.7   4.46   5.2   7.5   0.30   24.8   31.1   3.4   0.083   0.107   0.31   Above W.T.   10.44   11   5.6   0.25   105   1341   1341   6.2   6.7   4.46   3.2   75.6   0.30   24.8   31.1   3.4   0.083   0.107   0.31   Above W.T.   10.64   11   7.6   0.3   115   1362   1362   9.0   10.2   4.34   3.1   64.4   0.30   3.6   4.50   3.44   0.083   0.108   0.31   Above W.T.   10.64   11   7.6   0.3   115   1362   1362   9.0   10.2   4.34   3.1   64.4   0.30   3.6   4.50   3.44   0.089   0.115   0.34   Above W.T.   10.85   11   8.4   0.34   115   1387   1387   9.9   11.2   4.11   3.1   62.5   0.30   39.5   49.4   0.34   0.099   0.115   0.34   Above W.T.   10.85   11   8.4   0.34   115   1387   1387   9.9   11.2   4.11   3.0   61.3   0.30   39.5   49.4   0.34   0.099   0.115   0.34   Above W.T.   11.05   11   8.3   0.32   115   1410   1403   9.7   10.8   4.21   3.1   62.3   0.30   38.8   48.5   0.34   0.099   0.115   0.34   Above W.T.   11.15   11   9.2   0.33   115   1433   1414   10.7   12.0   3.89   3.0   58.4   0.30   3.5   0.30   0.09   0.12   0.35   0.30   0.3																					
9.93 11 5.5 0.12 95 1293 1293 6.7 7.5 2.47 3.1 62.3 0.80 2.68 33.5 0.351 0.083 0.107 0.31 Above W.T. 10.101 11 5.1 0.14 95 1312 1312 6.2 6.8 3.15 3.1 69.1 0.80 24.6 30.8 0.44 0.083 0.107 0.31 Above W.T. 10.24 11 5.1 0.18 95 1312 1312 6.2 6.8 3.15 3.1 69.1 0.80 24.6 30.8 0.44 0.083 0.107 0.31 Above W.T. 10.44 11 5.2 0.15 95 1312 1312 6.2 6.8 3.15 3.1 69.1 0.80 24.6 30.8 0.44 0.083 0.107 0.31 Above W.T. 10.44 11 5.2 0.2 105 1312 1312 6.2 6.6 7. 4.06 3.2 74.3 0.80 24.5 30.6 0.344 0.083 0.107 0.31 Above W.T. 10.44 11 5.2 0.2 105 1312 1312 6.2 6.7 4.06 3.2 74.3 0.80 24.5 30.6 0.344 0.083 0.107 0.31 Above W.T. 10.44 11 7.6 0.25 105 1332 1312 6.2 71.7 9 4.70 3.2 72.6 0.80 24.6 33.7 0.344 0.083 0.108 0.31 Above W.T. 10.54 11 7.6 0.33 115 1312 1362 1362 9.0 10.2 4.31 3.1 64.1 0.80 3.06 0.34 0.08 0.11 0.33 Above W.T. 10.55 11 7.7 0.33 115 1375 1375 9.1 10.2 4.71 3.1 6.8 0.80 3.6 3.6 3.4 4.0 0.34 0.08 0.15 0.33 Above W.T. 10.55 11 8.4 0.34 115 1387 1387 9.9 11.1 4.41 3.1 0.25 0.80 39.5 4.9 0.344 0.089 0.15 0.33 Above W.T. 10.55 11 8.5 0.34 115 1398 1398 9.9 11.2 4.36 3.1 6.2 0.80 39.8 4.97 0.344 0.089 0.15 0.33 Above W.T. 10.55 11 8.5 0.34 115 1398 1398 9.9 11.2 4.36 3.1 6.2 0.80 39.8 4.97 0.344 0.091 0.11 0.35 Above W.T. 11.05 11 8.8 0.32 115 141 440 9.0 1.1 4.1 3.1 0.25 0.80 39.8 4.97 0.344 0.091 0.11 0.35 Above W.T. 11.05 11 8.8 0.32 115 141 440 9.0 1.1 4.1 3.1 0.25 0.80 39.8 4.97 0.34 0.091 0.11 0.13 0.35 Above W.T. 11.15 11 8.2 0.32 0.34 0.34 0.34 0.34 0.34 0.34 0.34 0.34																					
10.13		9.93	11	5.5	0.12	95	1293	1293	6.7	7.5	2.47	3.1	62.3	0.80	26.8	33.5	0.351	0.083	0.109	0.31	Above W.T.
10.24 11 5.1 0.15 95 1322 1322 6.1 6.7 3.38 3.2 70.6 0.80 24.5 30.7 0.344 0.083 0.107 0.31 Above W.T. 10.44 11 5.2 0.2 105 1341 1341 6.2 6.7 4.82 3.2 75.6 0.80 24.8 31.1 0.344 0.083 0.107 0.31 Above W.T. 10.54 11 6 0.25 105 1341 1341 6.2 6.7 4.82 3.2 75.6 0.80 24.8 31.1 0.344 0.083 0.107 0.31 Above W.T. 10.54 11 6.6 0.25 105 1341 1341 6.2 6.7 4.82 3.2 75.6 0.80 24.8 31.1 0.344 0.083 0.108 0.31 Above W.T. 10.54 11 7.6 0.3 115 1362 1362 9.0 10.2 4.34 3.1 64.4 0.80 3.6 45.0 0.344 0.084 0.110 0.32 Above W.T. 10.55 11 8.4 0.34 115 1362 1362 9.0 10.2 4.34 3.1 64.4 0.80 3.6 45.0 0.344 0.084 0.110 0.32 Above W.T. 10.85 11 8.4 0.34 115 1387 1387 9.9 11.2 4.34 3.1 62.5 0.80 30.5 45.0 0.344 0.089 0.115 0.33 Above W.T. 10.85 11 8.5 0.34 115 1387 1387 9.9 11.2 4.36 3.1 6.25 0.80 30.5 49.4 0.344 0.091 0.119 0.34 Above W.T. 11.05 11 8.3 0.32 115 1410 1403 9.7 10.8 421 3.1 62.5 0.80 30.5 49.4 0.344 0.091 0.119 0.34 Above W.T. 11.05 11 8.3 0.32 115 1410 1403 9.7 10.8 421 3.1 62.3 0.80 3.8 45.5 0.340 0.091 0.119 0.34 Above W.T. 11.05 11 8.3 0.32 115 1410 1403 9.7 10.8 421 3.1 62.3 0.80 3.8 45.5 0.340 0.091 0.119 0.34 Above W.T. 11.25 11 9.2 0.33 115 1433 1414 10.7 12.0 3.89 3.0 58.4 0.80 42.8 3.5 0.340 0.091 0.119 0.34 NonLighbe. 11.55 11 9.2 0.34 115 1435 1435 1435 1435 1435 1435 143																					
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10.95   11   8.5   0.34   115   1398   1398   99   11.2   4.36   3.1   62.2   0.80   39.8   49.7   0.344   0.091   0.119   0.35   Above W.T.   11.15   11   8.5   0.32   115   1410   1409   99   11.1   4.11   3.0   61.3   0.80   3.6   49.5   0.347   0.091   0.119   0.34   NonLiaghbe.   11.25   11   9.2   0.33   115   1431   1414   10.7   12.0   3.89   3.0   58.4   8.6   3.5   0.349   0.094   0.123   0.35   NonLiaghbe.   11.35   11   9   0.34   115   1446   1419   10.5   11.7   4.11   3.0   60.0   8.0   41.8   52.3   0.350   0.093   0.121   0.35   NonLiaghbe.   11.45   11   10   0.34   115   1468   1430   12.0   13.5   3.83   3.0   55.4   0.80   42.8   53.5   0.350   0.093   0.121   0.35   NonLiaghbe.   11.66   11   10.4   0.37   115   1468   1430   12.0   13.5   3.83   3.0   55.4   0.80   48.1   60.2   0.353   0.100   0.130   0.37   NonLiaghbe.   11.66   11   10.9   0.4   115   1480   1435   12.6   14.2   3.94   2.9   54.9   0.80   50.4   62.9   0.355   0.103   0.134   0.38   NonLiaghbe.   11.94   11   13.1   0.55   125   1314   1452   15.0   17.0   4.6   2.9   53.1   0.80   6.0   75.2   0.359   0.100   0.130   0.37   NonLiaghbe.   12.05   11   13   0.6   125   1556   1472   16.2   18.2   4.47   2.9   54.1   0.80   64.8   81.0   0.36																					
11.05   11   8.3   0.32   115   1410   1403   9.7   10.8   4.21   3.1   6.23   0.80   38.8   48.5   0.346   0.091   0.118   0.34   NonLighble.   11.25   11   9.2   0.33   115   1431   1414   10.7   12.0   3.89   3.0   58.4   0.80   42.8   53.5   0.349   0.094   0.123   0.35   NonLighble.   11.35   11   9.0   0.34   115   1456   1424   11.6   13.0   3.67   3.0   55.5   0.80   46.4   58.0   0.352   0.098   0.128   0.36   NonLighble.   11.45   11   10   0.34   115   1456   1424   11.6   13.0   3.67   3.0   55.5   0.80   46.4   58.0   0.352   0.098   0.128   0.36   NonLighble.   11.56   11   10.9   0.4   115   1480   1435   12.6   14.2   3.94   2.9   54.9   0.80   48.1   60.2   0.355   0.103   0.10   0.37   NonLighble.   11.66   11   10.9   0.4   115   1480   1435   12.6   14.2   3.94   2.9   54.9   0.80   60.2   75.2   0.355   0.103   0.134   0.38   NonLighble.   11.76   11   11.9   0.47   125   1491   1441   13.7   15.5   4.21   2.9   54.9   0.80   60.2   75.2   0.355   0.103   0.134   0.38   NonLighble.   11.94   11   13.1   0.55   1514   1452   15.0   17.0   4.46   2.9   53.1   0.80   60.2   75.2   0.359   0.100   0.13   0.134   0.38   NonLighble.   12.05   11   13.8   0.6   125   1544   1452   15.0   17.0   4.46   2.9   53.1   0.80   60.2   75.2   0.359   0.100   0.15   0.43   NonLighble.   12.26   11   14.2   0.6   125   1544   1472   16.2   18.2   4.47   2.9   51.7   0.80   63.1   78.9   0.360   0.120   0.155   0.46   NonLighble.   12.26   11   13.9   0.65   125   1549   1494   15.2   17.0   17.0   51.5   5																					
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13.04 11 11 0.59 125 1651 1521 12.3 13.4 5.80 3.1 63.3 0.80 49.4 61.7 0.373 0.102 0.132 0.35 NonLigfble.  13.14 11 10.1 0.57 125 1664 1527 11.3 12.1 6.15 3.1 66.9 0.80 45.2 56.5 0.375 0.097 0.126 0.34 NonLigfble.  13.23 11 9.7 0.56 125 1675 1533 10.8 11.6 6.32 3.1 68.6 0.80 43.4 54.2 0.376 0.095 0.123 0.33 NonLigfble.  13.33 11 9.4 0.54 125 1687 1539 10.5 11.1 6.31 3.2 69.6 0.80 41.9 52.4 0.377 0.093 0.121 0.32 NonLigfble.  13.43 11 9.7 0.52 125 1700 1545 10.8 11.4 5.88 3.1 67.4 0.80 43.2 54.0 0.378 0.095 0.123 0.33 NonLigfble.  13.53 11 8.9 0.45 115 1712 1551 9.9 10.4 6.22 3.2 71.0 0.80 39.5 49.4 0.380 0.091 0.119 0.31 NonLigfble.  13.63 11 8.9 0.45 115 1724 1557 9.9 10.3 5.60 3.1 69.0 0.80 39.5 49.3 0.381 0.091 0.119 0.31 NonLigfble.  13.73 11 8.4 0.45 115 1735 1562 9.3 9.6 5.97 3.2 72.1 0.80 37.2 46.5 0.382 0.089 0.116 0.30 NonLigfble.  13.83 11 10 0 0.44 115 1747 1567 11.1 11.6 4.82 3.1 63.1 0.80 44.2 55.3 0.383 0.096 0.124 0.32 NonLigfble.  13.94 11 10.1 0.46 115 1760 1573 11.1 11.7 4.99 3.1 63.6 0.80 44.6 55.7 0.385 0.096 0.124 0.32 NonLigfble.  14.14 11 9.9 0.49 115 1783 1584 10.9 11.4 5.44 3.1 66.0 0.80 43.5 54.4 0.387 0.095 0.123 0.32 NonLigfble.  14.24 11 10.1 0.5 125 1794 1589 11.1 11.6 5.43 3.1 66.0 0.80 44.1 55.1 0.386 0.096 0.125 0.32 NonLigfble.  14.24 11 10.1 0.5 125 1794 1589 11.1 11.6 5.43 3.1 66.0 0.80 44.3 55.4 0.388 0.096 0.125 0.32 NonLigfble.  14.34 11 9.2 0.48 115 188 1600 10.0 10.2 5.37 3.1 68.4 0.80 43.8 48.0 0.392 0.090 0.117 0.30 NonLigfble.  14.54 11 8.8 0.43 115 1830 1606 9.6 9.8 5.45 3.2 69.7 0.80 38.4 48.0 0.392 0.090 0.117 0.30 NonLigfble.																					
13.14 11 10.1 0.57 125 1664 1527 11.3 12.1 6.15 3.1 66.9 0.80 45.2 56.5 0.375 0.097 0.126 0.34 NonLighble. 13.23 11 9.7 0.56 125 1675 1533 10.8 11.6 6.32 3.1 68.6 0.80 43.4 54.2 0.376 0.095 0.123 0.33 NonLighble. 13.43 11 9.4 0.54 125 1687 1539 10.5 11.1 6.31 3.2 69.6 0.80 41.9 52.4 0.377 0.093 0.121 0.32 NonLighble. 13.63 11 8.9 0.55 115 1712 1551 9.9 10.4 6.22 3.2 71.0 0.80 39.5 49.3 0.38 0.091 0.119 0.31 NonLighble. 13.63 11 8.9 0.45 115 1724 1557 9.9 10.3 5.60 3.1 69.0 0.80 39.5 49.3 0.381 0.091 0.119 0.31 NonLighble. 13.83 11 10 0.44 115 1747 1567 11.1 11.6 4.82 3.1 63.1 0.80 44.2 55.3 0.383 0.096 0.124 0.32 NonLighble. 13.84 11 10.1 0.46 115 1760 1573 11.1 11.7 4.99 3.1 63.6 0.80 44.6 55.7 0.385 0.096 0.124 0.32 NonLighble. 14.14 11 9.9 0.49 115 1783 1584 10.9 11.4 5.44 3.1 66.0 0.80 43.5 54.4 0.387 0.096 0.123 0.32 NonLighble. 14.24 11 10.1 0.5 125 1794 1589 11.1 11.6 5.43 3.1 65.5 0.80 44.3 55.4 0.388 0.096 0.124 0.32 NonLighble. 14.34 11 9.2 0.48 115 1887 1595 10.1 10.4 5.79 3.2 69.5 0.80 40.3 50.4 0.39 0.090 0.091 0.119 0.31 NonLighble. 14.54 11 8.8 0.43 115 1880 1606 9.6 9.8 5.45 3.2 69.7 0.80 38.4 48.0 0.392 0.090 0.117 0.30 NonLighble. 14.54 11 8.8 0.43 115 1880 1606 9.6 9.8 5.45 3.2 69.7 0.80 38.4 48.0 0.392 0.090 0.117 0.30 NonLighble.																					
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13.43 11 9.7 0.52 125 1700 1545 10.8 11.4 5.88 3.1 67.4 0.80 43.2 54.0 0.378 0.095 0.123 0.33 NonLigfble. 13.53 11 8.9 0.5 115 1712 1551 9.9 10.4 6.22 3.2 71.0 0.80 39.5 49.4 0.380 0.091 0.119 0.31 NonLigfble. 13.63 11 8.9 0.45 115 1735 1562 9.3 9.6 5.97 3.2 72.1 0.80 37.2 46.5 0.382 0.089 0.116 0.30 NonLigfble. 13.83 11 10 0.44 115 1747 1567 11.1 11.6 4.82 3.1 63.1 0.80 44.2 55.3 0.383 0.096 0.124 0.32 NonLigfble. 13.94 11 10.1 0.46 115 1760 1573 11.1 11.7 4.99 3.1 63.6 0.80 44.6 55.7 0.385 0.096 0.124 0.32 NonLigfble. 14.14 11 9.9 0.49 115 1783 1584 10.9 11.4 5.44 3.1 66.0 0.80 43.5 54.4 0.387 0.095 0.123 0.32 NonLigfble. 14.24 11 10.1 0.5 125 1794 1589 11.1 11.6 5.43 3.1 65.5 0.80 44.3 55.4 0.386 0.096 0.124 0.32 NonLigfble. 14.34 11 9.2 0.48 115 188 1600 10.0 10.2 5.37 3.1 68.4 0.80 40.3 50.4 0.39 0.092 0.090 0.117 0.30 NonLigfble. 14.54 11 8.8 0.43 115 1880 1606 9.6 9.8 5.45 3.2 69.7 0.80 38.4 48.0 0.392 0.090 0.117 0.30 NonLigfble.																					
13.53																					
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13.73																					
13.94 11 10.1 0.46 115 1760 1573 11.1 11.7 4.99 3.1 63.6 0.80 44.6 55.7 0.385 0.096 0.125 0.32 NonLiqfble. 14.04 11 10 0.46 115 1771 1578 11.0 11.5 5.05 3.1 64.1 0.80 44.1 55.1 0.386 0.096 0.125 0.32 NonLiqfble. 14.14 11 9.9 0.49 115 1783 1584 10.9 11.4 5.44 3.1 66.0 0.80 44.1 55.1 0.386 0.096 0.124 0.32 NonLiqfble. 14.24 11 10.1 0.5 125 1794 1589 11.1 11.6 5.43 3.1 65.5 0.80 44.3 55.4 0.388 0.096 0.125 0.32 NonLiqfble. 14.34 11 9.2 0.48 115 1807 1595 10.1 10.4 5.79 3.2 69.5 0.80 40.3 50.4 0.390 0.092 0.119 0.31 NonLiqfble. 14.44 11 9.1 0.44 115 1818 1600 10.0 10.2 5.37 3.1 68.4 0.80 39.8 49.8 0.391 0.091 0.119 0.30 NonLiqfble. 14.54 11 8.8 0.43 115 1830 1606 9.6 9.8 5.45 3.2 69.7 0.80 38.4 48.0 0.392 0.090 0.117 0.30 NonLiqfble.		13.73	11	8.4	0.45	115	1735	1562	9.3	9.6	5.97	3.2	72.1	0.80	37.2	46.5	0.382	0.089	0.116	0.30	NonLiqfble.
14.04       11       10       0.46       115       1771       1578       11.0       11.5       5.05       3.1       64.1       0.80       44.1       55.1       0.386       0.096       0.124       0.32       NonLiqfble.         14.14       11       9.9       0.49       115       1783       1584       10.9       11.4       5.44       3.1       66.0       0.80       43.5       54.4       0.387       0.095       0.123       0.32       NonLiqfble.         14.24       11       10.1       0.5       125       1794       1589       11.1       11.6       5.43       3.1       65.5       0.80       44.3       55.4       0.388       0.096       0.125       0.32       NonLiqfble.         14.34       11       9.2       0.48       115       1807       1595       10.1       10.4       5.79       3.2       69.5       0.80       44.3       55.4       0.388       0.096       0.125       0.3       NonLiqfble.         14.34       11       9.1       0.44       115       1818       1600       10.0       10.2       2.37       3.1       68.4       0.80       39.8       49.8       0.391																					
14.14       11       9.9       0.49       115       1783       1584       10.9       11.4       5.44       3.1       66.0       0.80       43.5       54.4       0.387       0.095       0.123       0.32       NonLigfble.         14.24       11       10.1       0.5       125       1794       1589       11.1       11.6       5.43       3.1       65.5       0.80       44.3       55.4       0.388       0.096       0.125       0.32       NonLigfble.         14.34       11       9.2       0.48       115       1807       1595       10.1       10.4       5.79       3.2       69.5       0.80       40.3       50.4       0.390       0.092       0.119       0.31       NonLigfble.         14.44       11       9.1       0.44       115       1818       1600       10.0       10.2       5.37       3.1       68.4       0.80       39.8       49.8       0.391       0.091       0.119       0.30       NonLigfble.         14.54       11       8.8       0.43       115       1830       1606       9.6       9.8       5.45       3.2       69.7       0.80       38.4       48.0       0.392																					
14.34     11     9.2     0.48     115     1807     1595     10.1     10.4     5.79     3.2     69.5     0.80     40.3     50.4     0.390     0.092     0.119     0.31     NonLigfble.       14.44     11     9.1     0.44     115     1818     1600     10.0     10.2     5.37     3.1     68.4     0.80     39.8     49.8     0.391     0.091     0.119     0.30     NonLigfble.       14.54     11     8.8     0.43     115     1830     1606     9.6     9.8     5.45     3.2     69.7     0.80     38.4     48.0     0.392     0.090     0.117     0.30     NonLigfble.		14.14	11	9.9	0.49	115	1783	1584	10.9	11.4	5.44	3.1	66.0	0.80	43.5	54.4	0.387	0.095	0.123	0.32	NonLiqfble.
14.44     11     9.1     0.44     115     1818     1600     10.0     10.2     5.37     3.1     68.4     0.80     39.8     49.8     0.391     0.091     0.119     0.30     NonLiqfble.       14.54     11     8.8     0.43     115     1830     1606     9.6     9.8     5.45     3.2     69.7     0.80     38.4     48.0     0.392     0.090     0.117     0.30     NonLiqfble.																					
14.54 11 8.8 0.43 115 1830 1606 9.6 9.8 5.45 3.2 69.7 0.80 38.4 48.0 0.392 0.090 0.117 0.30 NonLigible.																					
14.65 11 8.4 0.4 115 1842 1611 9.2 9.3 5.35 3.2 70.8 0.80 36.6 45.8 0.393 0.089 0.116 0.29 NonLiqfble.		14.54	11	8.8	0.43	115	1830	1606	9.6	9.8	5.45	3.2	69.7	0.80	38.4	48.0	0.392	0.090	0.117	0.30	
		14.65	11	8.4	0.4	115	1842	1611	9.2	9.3	5.35	5.2	70.8	0.80	36.6	45.8	0.393	0.089	0.116	0.29	NonLiqtble.

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 25 Depth to Groundwater: 11 feet

 $\begin{tabular}{ll} EQ \ Magnitude \ (M_w): & 6.5 \\ PGA \ (g): & 0.54 \\ MSF: & 1.30 \\ \end{tabular}$ 

		Water	Tip	Sleeve			Effective			Friction								Liquef.		
Cone	Depth (FT)	Table (FT)	Resist. (TSF)	Frict. (TSF)	g (PCF)	Stress (PSF)	Stress (PSF)	Tip Qein	Tip Q	Ratio F	Ic	F.C. (%)	Ксрт	DqcIN	(qcIN)es	Stress Ratio	Stress M7.5	Stress M6.50	of Safety	Comments
Conc	(F1)	(F1)	(151)	(151)	(I CI)	(151)	(151)	1	Ų		К	(70)		- 4	(4)	Katio	117.5	1410.50	Salety	Comments
	14.75	11	8.3	0.41	115	1854	1617	9.0	9.1	5.56	3.2	72.1	0.80	36.1	45.2	0.394	0.089	0.115	0.29	NonLiqfble.
	14.85	11	8.8	0.42	115	1865	1622	9.6	9.7	5.34	3.2	69.6	0.80	38.2	47.8	0.396	0.090	0.117	0.30	NonLiqfble.
	14.95	11	8.7	0.41	115	1877	1627	9.4	9.5	5.28	3.2	69.8	0.80	37.7	47.2	0.397	0.090	0.117	0.29	NonLiqfble.
	14.99 15.1	11 11	9.2 9.4	0.41 0.39	115 115	1881 1894	1629 1635	10.0 10.2	10.1 10.3	4.96 4.61	3.1	67.0 65.1	0.80	39.9 40.7	49.9 50.9	0.397 0.398	0.092 0.092	0.119 0.120	0.30	NonLiqfble. NonLiqfble.
	15.2	11	9.1	0.39	115	1906	1640	9.8	9.9	4.79	3.1	66.8	0.80	39.3	49.2	0.400	0.091	0.118	0.30	NonLiqfble.
	15.3	11	8.5	0.36	115	1917	1646	9.2	9.2	4.77	3.1	68.9	0.80	36.7	45.8	0.401	0.089	0.116	0.29	NonLiqfble.
	15.4 15.51	11 11	8.3 8.6	0.34	115 115	1929 1941	1651 1657	8.9 9.2	8.9 9.2	4.64 4.33	3.1	69.1 66.8	0.80	35.8 37.0	44.7 46.2	0.402 0.403	0.088	0.115 0.116	0.29	NonLiqfble. NonLiqfble.
	15.61	11	8.7	0.34	115	1953	1662	9.3	9.3	4.40	3.1	66.9	0.80	37.4	46.7	0.404	0.089	0.116	0.29	NonLiqfble.
	15.71	11	9.2	0.34	115	1964	1667	9.9	9.9	4.14	3.1	64.3	0.80	39.4	49.3	0.405	0.091	0.118	0.29	NonLiqfble.
	15.82 15.92	11 11	9.1 9.3	0.35 0.36	115 115	1977 1988	1673 1678	9.7 9.9	9.7 9.9	4.32 4.33	3.1	65.5 65.0	0.80	38.9 39.7	48.7 49.7	0.406 0.408	0.091	0.118	0.29	NonLiqfble. NonLiqfble.
	16.02	11	9.4	0.38	115	2000	1683	10.0	10.0	4.52	3.1	65.6	0.80	40.1	50.1	0.409	0.091	0.119	0.29	NonLiqfble.
	16.12	11	10.2	0.4	115	2011	1689	10.9	10.9	4.35	3.1	62.7	0.80	43.4	54.3	0.410	0.095	0.123	0.30	NonLiqfble.
	16.23	11	10.2	0.42	115	2024	1694	10.8	10.8	4.57	3.1	63.8	0.80	43.4	54.2	0.411	0.095 0.094	0.123	0.30	NonLiqfble.
	16.33 16.43	11 11	10 10.3	0.42 0.41	115 115	2035 2047	1700 1705	10.6 10.9	10.6 10.9	4.68 4.42	3.1	64.8 63.1	0.80	42.5 43.7	53.1 54.6	0.412 0.413	0.094	0.122 0.124	0.30	NonLiqfble. NonLiqfble.
	16.54	11	10.7	0.38	115	2060	1711	11.3	11.3	3.93	3.0	60.0	0.80	45.3	56.6	0.414	0.097	0.126	0.30	NonLiqfble.
	16.64	11	11.4	0.34	115	2071	1716	12.0	12.1	3.28	3.0	55.3	0.80	48.2	60.2	0.415	0.100	0.130	0.31	NonLiqfble.
	16.74 16.85	11 11	12 11.5	0.29 0.26	115 115	2083 2095	1721 1727	12.7 12.1	12.7 12.1	2.65 2.49	2.9 2.9	50.7 50.9	0.80	50.6 48.4	63.3 60.5	0.416 0.417	0.104 0.101	0.135 0.131	0.32 0.31	NonLiqfble. NonLiqfble.
	16.95	11	10.5	0.27	115	2107	1732	11.0	10.9	2.86	3.0	55.4	0.80	44.2	55.2	0.418	0.096	0.124	0.30	NonLiqfble.
	17.05	11	11	0.3	115	2118	1738	11.5	11.4	3.02	3.0	55.2	0.80	46.2	57.7	0.419	0.098	0.127	0.30	NonLiqfble.
	17.15 17.25	11 11	10.6 10.4	0.31 0.34	115 115	2130 2141	1743 1748	11.1 10.9	10.9 10.7	3.25 3.64	3.0	57.5 60.0	0.80	44.4 43.5	55.5 54.4	0.420 0.421	0.096 0.095	0.125 0.123	0.30 0.29	NonLiqfble. NonLiqfble.
	17.23	11	10.4	0.34	115	2154	1754	10.9	10.7	3.80	3.0	61.1	0.80	43.0	53.8	0.421	0.093	0.123	0.29	NonLiqfble.
	17.46	11	9.9	0.35	115	2165	1759	10.3	10.0	3.97	3.1	63.1	0.80	41.3	51.6	0.423	0.093	0.121	0.28	NonLiqfble.
	17.56	11	10.2	0.35	115	2177	1764	10.6	10.3	3.84	3.0	61.8	0.80	42.5	53.1	0.424	0.094	0.122	0.29	NonLiqfble.
	17.66 17.76	11 11	9.9 9.9	0.33	115 115	2188 2200	1770 1775	10.3 10.3	9.9 9.9	3.75 3.41	3.1	62.2 60.7	0.80	41.2 41.1	51.5 51.4	0.425 0.426	0.093	0.120 0.120	0.28 0.28	NonLiqfble. NonLiqfble.
	17.86	11	10.2	0.3	115	2211	1780	10.6	10.2	3.30	3.0	59.4	0.80	42.3	52.9	0.427	0.094	0.122	0.29	NonLiqfble.
	17.97	11	10.2	0.31	115	2224	1786	10.6	10.2	3.41	3.0	60.0	0.80	42.2	52.8	0.428	0.094	0.122	0.28	NonLiqfble.
	18.07 18.17	11 11	10.6 11.1	0.34 0.34	115 115	2236 2247	1791 1797	11.0 11.5	10.6 11.1	3.59 3.41	3.0	59.9 57.9	0.80	43.8 45.8	54.8 57.3	0.429 0.430	0.095 0.097	0.124 0.127	0.29	NonLiqfble. NonLiqfble.
	18.27	11	10.6	0.36	115	2259	1802	10.9	10.5	3.80	3.0	61.1	0.80	43.7	54.6	0.431	0.095	0.124	0.29	NonLiqfble.
	18.37	11	11	0.37	115	2270	1807	11.3	10.9	3.75	3.0	60.0	0.80	45.3	56.6	0.432	0.097	0.126	0.29	NonLiqfble.
	18.46 18.57	11 11	11.7 12.1	0.41 0.43	115 125	2280 2293	1812 1818	12.0 12.4	11.7 12.0	3.88 3.93	3.0	59.1 58.5	0.80	48.1 49.7	60.1 62.1	0.433 0.434	0.100 0.102	0.130 0.133	0.30	NonLiqfble. NonLiqfble.
	18.67	11	11.8	0.45	125	2306	1824	12.1	11.7	4.23	3.0	60.5	0.80	48.4	60.4	0.435	0.102	0.133	0.30	NonLiqfble.
	18.77	11	11.9	0.42	115	2318	1830	12.2	11.7	3.91	3.0	59.0	0.80	48.7	60.9	0.436	0.101	0.131	0.30	NonLiqfble.
	18.88 18.98	11 11	10.9 11	0.38 0.36	115 115	2331 2342	1836 1841	11.1 11.2	10.6 10.7	3.90 3.66	3.0	61.4 60.1	0.80	44.5 44.9	55.7 56.1	0.437 0.438	0.096 0.096	0.125 0.125	0.29	NonLiqfble. NonLiqfble.
	19.08	11	10.8	0.35	115	2354	1846	11.0	10.7	3.64	3.0	60.6	0.80	44.0	55.0	0.438	0.095	0.123	0.29	NonLiqfble.
	19.18	11	10.8	0.38	115	2365	1852	11.0	10.4	3.95	3.1	62.1	0.80	43.9	54.9	0.439	0.095	0.124	0.28	NonLiqfble.
	19.29 19.39	11 11	11 11.5	0.4 0.4	115 115	2378 2389	1857 1863	11.2 11.7	10.6 11.1	4.08 3.88	3.1	62.3 60.3	0.80	44.7 46.6	55.8 58.3	0.440 0.441	0.096 0.098	0.125 0.128	0.28 0.29	NonLiqfble.
	19.49	11	11.6	0.4	115	2401	1868	11.7	11.1	3.56	3.0	58.6	0.80	47.0	58.7	0.441	0.098	0.128	0.29	NonLiqfble. NonLiqfble.
	19.59	11	11.6	0.35	115	2412	1873	11.7	11.1	3.37	3.0	57.7	0.80	46.9	58.6	0.443	0.099	0.128	0.29	NonLiqfble.
	19.7	11	11.9	0.34	115	2425	1879	12.0	11.4	3.18	3.0	56.2	0.80	48.0	60.1	0.444	0.100	0.130	0.29	NonLiqfble.
	19.8 19.9	11 11	12.2 11.9	0.33 0.34	115 115	2437 2448	1884 1890	12.3 12.0	11.7 11.3	3.01 3.18	2.9 3.0	54.7 56.4	0.80	49.2 47.9	61.5 59.9	0.445 0.446	0.102 0.100	0.132 0.130	0.30 0.29	NonLiqfble. NonLiqfble.
	20.01	11	11.6	0.35	115	2461	1895	11.7	10.9	3.38	3.0	58.1	0.80	46.6	58.3	0.437	0.098	0.128	0.29	NonLiqfble.
	20.11	11	11.3 11	0.36 0.37	115	2472	1901 1906	11.3	10.6 10.2	3.58	3.0	59.9	0.80	45.4	56.7	0.438	0.097 0.096	0.126 0.124	0.29	NonLiqfble.
	20.21 20.31	11 11	10.8	0.37	115 115	2484 2495	1906	11.0 10.8	10.2	3.79 3.87	3.0	61.7 62.7	0.80	44.1 43.2	55.1 54.0	0.439 0.440	0.096	0.124	0.28 0.28	NonLiqfble. NonLiqfble.
	20.42	11	11.3	0.38	115	2508	1917	11.3	10.5	3.78	3.0	61.1	0.80	45.2	56.5	0.441	0.097	0.126	0.29	NonLiqfble.
	20.52	11	11.6	0.39	115	2519	1922	11.6	10.8	3.77	3.0	60.4	0.80	46.3	57.9	0.442	0.098	0.127	0.29	NonLiqfble.
	20.62 20.72	11 11	11.9 12.3	0.39 0.38	115 115	2531 2542	1927 1933	11.9 12.2	11.0 11.4	3.67 3.45	3.0	59.3 57.5	0.80	47.4 49.0	59.3 61.2	0.442 0.443	0.099 0.101	0.129 0.132	0.29 0.30	NonLiqfble. NonLiqfble.
	20.82	11	12.7	0.37	115	2554	1938	12.6	11.8	3.24	3.0	55.7	0.80	50.5	63.1	0.444	0.103	0.134	0.30	NonLiqfble.
	20.92	11	13.4	0.36	115	2565	1943	13.3	12.5	2.97	2.9	53.0	0.80	53.2	66.5	0.445	0.107	0.140	0.31	NonLiqfble.
	21.02 21.12	11 11	13.4 14	0.36 0.36	115 115	2577 2588	1948 1954	13.3 13.9	12.4 13.0	2.97 2.83	2.9 2.9	17.6 17.6	0.34	6.7 7.0	20.0 20.9	0.446 0.446	0.081	0.105 0.105	0.24 0.24	NonLiqfble. NonLiqfble.
	21.12	11	14.9	0.36	125	2601	1959	14.7	13.9	2.65	2.8	17.6	0.34	7.5	22.2	0.447	0.081	0.105	0.24	NonLiqfble.
	21.33	11	15.6	0.36	125	2613	1966	15.4	14.5	2.52	2.8	17.6	0.34	7.8	23.2	0.448	0.081	0.106	0.24	NonLiqfble.
	21.43	11	15.4	0.38	125	2626	1972	15.2	14.3	2.70	2.8	17.6	0.34	7.7	22.9	0.449	0.081	0.105	0.24	NonLiqfble.
	21.53 21.63	11 11	14.9 16	0.4 0.42	125 125	2638 2651	1978 1985	14.7 15.7	13.7 14.8	2.95 2.86	2.9 2.8	17.6 48.7	0.34 0.80	7.4 62.9	22.1 78.6	0.449 0.450	0.081 0.125	0.105 0.163	0.23 0.36	NonLiqfble. NonLiqfble.
	21.72	11	17.6	0.47	125	2662	1990	17.3	16.3	2.89	2.8	46.8	0.80	69.0	86.3	0.451	0.140	0.182	0.40	NonLiqfble.
	21.93	11	19.7	0.59	125	2688	2003	19.3	18.3	3.21	2.8	46.1	0.80	77.0	96.3	0.452	0.163	0.212	0.47	NonLiqfble.
	22.02 22.11	11 11	19 25.5	0.81 1.01	125 135	2700 2711	2009 2015	18.5 24.9	17.6 24.0	4.59 4.18	2.9 2.8	52.9 45.2	0.80	74.2 99.4	92.7 124.3	0.453 0.453	0.154 0.259	0.200 0.336	0.44 0.74	NonLiqfble. NonLiqfble.
								-			-									4

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 25

Depth to Groundwater: 11 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA** (g): 0.54 **MSF**: 1.30

		XX.4	m.	C1		T-4-1	T-00 41	NT	G	Estation						Y		T	F4	
	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Stress Stress	Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	q <sub>c1N</sub>	Q	F	Ic	(%)	Ксрт	$Dq_{\rm c1N}$	(qclN)cs	Ratio	M7.5	M6.50	Safety	Comments
	22.16	11	40.5	1.14	135	2718	2018	39.4	38.8	2.91	2.5	31.8	0.72	99.5	139.0	0.454	0.330	0.429	0.94	Liquefaction
	22.2	11	56.9	1.24	135	2723	2021	55.4	54.9	2.23	2.3	23.9	0.72	56.2	111.6	0.454	0.209	0.429	0.60	Liquefaction
	22.28	11	88.7	1.33	135	2734	2027	86.2	86.1	1.52	2.1	15.2	0.27	32.2	118.4	0.454	0.234	0.305	0.67	Liquefaction
	22.38	11	109	1.38	125	2747	2034	105.7	105.8	1.28	2.0	12.0	0.19	24.2	129.9	0.455	0.284	0.369	0.81	Liquefaction
	22.47 22.56	11 11	119.5 127.9	1.22 1.11	125 125	2759 2770	2040 2045	115.8 123.7	115.8 123.7	1.03 0.88	1.9	9.7 8.2	0.13	16.6 11.5	132.4 135.3	0.456 0.456	0.296 0.310	0.385 0.403	0.84 0.88	Liquefaction Liquefaction
	22.65	11	137.9	0.99	115	2781	2043	133.2	133.1	0.73	1.7	6.6	0.09	6.0	139.2	0.457	0.310	0.430	0.88	Liquefaction
	22.75	11	150.1	1.29	125	2793	2056	144.8	144.6	0.87	1.7	7.1	0.05	8.4	153.3	0.458	0.415	0.539	1.18	Low F.S.
	22.83	11	162.2	1.27	115	2803	2061	156.3	155.9	0.79	1.7	6.1	0.03	4.6	160.9	0.458	0.467	0.607	1.33	
	22.93 23.03	11 11	184.7 187	1.17 1.06	115 115	2814 2826	2067 2072	177.8 179.8	177.3 179.1	0.64 0.57	1.6 1.6	4.3 3.7	0.00	0.0	177.8 179.8	0.459 0.460	0.602 0.620	0.783 0.806	1.71 1.75	
	23.13	11	186.1	0.93	105	2837	2077	178.7	177.7	0.50	1.5	3.3	0.00	0.0	178.7	0.460	0.610	0.793	1.72	
	23.23	11	175.6	0.87	105	2848	2081	168.4	167.3	0.50	1.5	3.5	0.00	0.0	168.4	0.461	0.524	0.681	1.48	
	23.33	11	158.5	0.8	105	2858	2086	151.9	150.6	0.51	1.6	4.2	0.00	0.0	151.9	0.462	0.406	0.527	1.14	Low F.S.
	23.43	11	132.8 111.1	1.14	125	2869 2881	2090	127.1 106.2	125.7 104.6	0.87	1.8	8.0	0.08	11.1	138.2	0.463	0.326	0.423	0.91	Liquefaction
	23.53 23.63	11 11	97.8	1.51 1.79	135 135	2895	2096 2103	93.3	91.6	1.38 1.86	2.0	12.6 16.4	0.20	27.1 40.8	133.3 134.1	0.463 0.464	0.300 0.304	0.390 0.396	0.84 0.85	Liquefaction Liquefaction
	23.73	11	83.1	1.91	135	2908	2111	79.1	77.3	2.34	2.2	20.4	0.41	55.5	134.6	0.464	0.307	0.399	0.86	Liquefaction
	23.82	11	82.7	2.2	135	2920	2117	78.6	76.7	2.71	2.3	22.2	0.46	66.4	145.1	0.465	0.364	0.473	1.02	Low F.S.
	23.91	11	84.9	2.28	135	2932	2124	80.6	78.5	2.73	2.3	22.0	0.45	67.0	147.6	0.465	0.379	0.493	1.06	Low F.S.
	24 24.09	11 11	80.4 88.6	2.14 1.95	135 135	2945 2957	2130 2137	76.2 83.9	74.1 81.5	2.71 2.24	2.3	22.6 19.4	0.47 0.38	67.2 52.4	143.5 136.3	0.466 0.466	0.355 0.316	0.461 0.410	0.99 0.88	Liquefaction Liquefaction
	24.18	11	128.5	1.91	135	2969	2143	121.4	118.5	1.50	2.0	12.3	0.19	29.4	150.8	0.467	0.399	0.519	1.11	Low F.S.
	24.26	11	158.1	1.72	125	2980	2149	149.2	145.7	1.10	1.8	8.5	0.09	15.2	164.4	0.467	0.493	0.641	1.37	
	24.34	11	175.8	1.5	125	2990	2154	165.7	161.8	0.86	1.7	6.3	0.03	6.0	171.7	0.468	0.551	0.716	1.53	
	24.4 24.45	11 11	183.3 188.2	1.33 1.33	115 115	2997 3003	2158 2161	172.6 177.2	168.4 172.8	0.73 0.71	1.6 1.6	5.2 4.9	0.01	1.0 0.0	173.6 177.2	0.468 0.468	0.567 0.597	0.737 0.776	1.57 1.66	
	24.51	11	196.7	1.25	115	3010	2164	185.0	180.4	0.64	1.6	4.2	0.00	0.0	185.0	0.469	0.669	0.870	1.86	
	24.59	11	211.9	0.95	105	3019	2168	199.1	194.0	0.45	1.5	2.4	0.00	0.0	199.1	0.469	0.814	1.059	2.26	
	24.68	11	233.5	0.64	95	3029	2172	219.2	213.5	0.28	1.3	0.6	0.00	0.0	219.2	0.470	1.060	1.378	2.93	
	24.76 24.96	11 11	245.5 233.6	0.76 0.99	95 105	3036 3055	2174 2181	230.4 218.9	224.3 212.7	0.31 0.43	1.3 1.4	0.7 1.8	0.00	0.0	230.4 218.9	0.471 0.472	1.217 1.055	1.582 1.371	3.36 2.91	
	24.99	11	210.6	0.99	105	3058	2182	197.3	191.5	0.43	1.5	2.7	0.00	0.0	197.3	0.472	0.794	1.032	2.19	
	25.05	11	199.1	1	105	3065	2185	186.4	180.8	0.51	1.5	3.2	0.00	0.0	186.4	0.473	0.682	0.887	1.88	
	25.13	11	219.8	1.2	115	3073	2188	205.6	199.4	0.55	1.5	3.0	0.00	0.0	205.6	0.473	0.888	1.155	2.44	
	25.22 25.29	11 11	223.3 225.8	1.6 1.79	115 125	3083 3091	2193 2197	208.6 210.8	202.2 204.1	0.72 0.80	1.6 1.6	4.1 4.6	0.00	0.0	208.6 210.8	0.474 0.474	0.925 0.951	1.202 1.237	2.54 2.61	
	25.25	11	238	1.73	115	3101	2202	221.9	214.7	0.73	1.6	3.9	0.00	0.0	221.9	0.474	1.097	1.426	3.00	
	25.46	11	251.9	1.61	115	3112	2206	234.6	226.8	0.64	1.5	3.1	0.00	0.0	234.6	0.475	1.282	1.666	3.51	
	25.52	11	272.7	1.59	115	3119	2209	253.8	245.3	0.59	1.5	2.3	0.00	0.0	253.8	0.476	1.601	2.081	4.38	
	25.69 25.69	11 11	309.6 336	1.54 1.53	105 105	3128 3137	2214 2217	287.9 312.2	278.2 301.5	0.50 0.46	1.4	1.3 0.7	0.00	0.0	287.9 312.2	0.476 0.477	2.300 2.910	2.989 3.783	6.28 7.93	
	25.75	11	341.2	1.51	105	3144	2220	316.8	305.8	0.44	1.3	0.7	0.00	0.0	316.8	0.477	3.038	3.950	8.28	
	25.83	11	324.8	1.54	105	3152	2223	301.4	290.6	0.48	1.3	0.9	0.00	0.0	301.4	0.478	2.626	3.414	7.15	
	25.91	11	306.2	1.44	105	3160	2227	283.9	273.5	0.47	1.4	1.1	0.00	0.0	283.9	0.478	2.208	2.871	6.00	
	25.99 26.07	11 11	300.8 304.7	1.3 1.28	105 105	3169 3177	2230 2234	278.7 282.1	268.2 271.3	0.43 0.42	1.3 1.3	0.9 0.8	0.00	0.0	278.7 282.1	0.479 0.479	2.093 2.167	2.721 2.818	5.68 5.88	
	26.14	11	310.2	1.13	105	3185	2234	287.0	275.8	0.42	1.3	0.3	0.00	0.0	287.0	0.479	2.278	2.962	6.17	
	26.22	11	311.9	1.21	105	3193	2240	288.3	276.9	0.39	1.3	0.5	0.00	0.0	288.3	0.480	2.309	3.002	6.25	
	26.29	11	301.6	1.5	105	3200	2243	278.6	267.4	0.50	1.4	1.4	0.00	0.0	278.6	0.481	2.092	2.719	5.66	
	26.36	11	292.1 274.9	1.6	115	3208	2246 2250	269.7 253.6	258.6	0.55	1.4	1.9 2.1	0.00	0.0	269.7	0.481	1.904	2.475 2.075	5.14	
	26.44 26.52	11 11	257.7	1.48 1.33	115 115	3217 3226	2254	237.5	242.8 227.1	0.54 0.52	1.4 1.5	2.1	0.00	0.0	253.6 237.5	0.482 0.482	1.596 1.325	1.723	4.31 3.57	
	26.61	11		1.26	115	3236	2259	221.8	211.7	0.53	1.5	2.6	0.00	0.0	221.8	0.483	1.094	1.422	2.95	
	26.68	11	221.8	1.1	105	3244	2263	204.0	194.5	0.50	1.5	2.8	0.00	0.0	204.0	0.483	0.870	1.131	2.34	
	26.76	11		0.88	105	3253	2266	197.1	187.7	0.41	1.5	2.3	0.00	0.0	197.1	0.484	0.792	1.029	2.13	
	26.83 26.9	11 11		0.74 0.71	105 105	3260 3268	2269 2272	189.0 184.3	179.9 175.2	0.36 0.36	1.4 1.4	2.1 2.1	0.00	0.0	189.0 184.3	0.484 0.485	0.708 0.662	0.921 0.861	1.90 1.78	
	26.98	11	190.1	0.81	105	3276	2276	174.4	165.6	0.43	1.5	3.0	0.00	0.0	174.4	0.485	0.573	0.745	1.54	
	27.07	11	179.5	0.97	115	3285	2279	164.5	156.0	0.55	1.6	4.3	0.00	0.0	164.5	0.486	0.494	0.642	1.32	
	27.15	11		1.08	115	3295	2284	164.9	156.2	0.61	1.6	4.7	0.00	0.0	164.9	0.486	0.497	0.646	1.33	
	27.23 27.32	11 11	171.4 175.9	1.06 1.11	115 115	3304 3314	2288 2293	156.8 160.7	148.3 151.9	0.62 0.64	1.6 1.6	5.2 5.1	0.00	0.8	157.6 161.3	0.487 0.487	0.444 0.470	0.577 0.612	1.19 1.26	Low F.S.
	27.32	11	175.1	1.27	115	3323	2297	159.9	151.9	0.73	1.7	5.9	0.00	3.8	163.6	0.488	0.470	0.634	1.30	
	27.49	11	162.2	1.28	115	3334	2302	147.9	139.4	0.80	1.7	6.8	0.05	7.5	155.5	0.488	0.430	0.558	1.14	Low F.S.
	27.57	11		0.91	115	3343	2306	126.9	119.3	0.66	1.7	6.9	0.05	6.7	133.6	0.489	0.302	0.392	0.80	Liquefaction
	27.66	11	118.6	0.88	115	3353	2310	108.0	101.2	0.75	1.8	8.8	0.10	12.1	120.0	0.489	0.241	0.313	0.64	Liquefaction
	27.75 27.88	11 11	101.4 104.6	0.83 0.87	115 115	3364 3379	2315 2322	92.2 95.0	86.1 88.6	0.83 0.85	1.9 1.9	10.7 10.5	0.15 0.15	16.5 16.5	108.7 111.5	0.490 0.490	0.200 0.209	0.259 0.271	0.55	Liquefaction Liquefaction
	28.1	11	103.4	1.33	125	3404	2334	93.7	87.1	1.31	2.0	13.8	0.24	28.8	122.5	0.491	0.251	0.326	0.66	Liquefaction
	28.17	11	97.3	1.41	135	3413	2338	88.0	81.7	1.48	2.1	15.4	0.28	33.9	122.0	0.492	0.249	0.323	0.66	Liquefaction
	28.24	11	95.6	1.51	135	3422	2343	86.4	80.1	1.61	2.1	16.4	0.30	37.7	124.1	0.492	0.258	0.335	0.68	Liquefaction
	28.3	11	92.1	1.66	135	3430	2347	83.2	77.0	1.84	2.2	18.0	0.35	44.3	127.5	0.492	0.273	0.354	0.72	Liquefaction

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 25 Depth to Groundwater: 11 feet

 $\begin{tabular}{ll} EQ \ Magnitude \ (M_w): & 6.5 \\ PGA \ (g): & 0.54 \\ MSF: & 1.30 \\ \end{tabular}$ 

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	$\mathbf{q}_{^{\mathrm{clN}}}$	Q	F	Ic	(%)	Ксрт	DqeIN	$(q_{\rm clN})_{\rm cs}$	Ratio	M7.5	M6.50	Safety	Comments
	00.00		00.0	4 70	405	2442	2254	00.5		1.00	2.2	10.1	0.20	40.6	120.1	0.402	0.200	0.264	0.74	** 6
	28.39 28.51	11 11	89.3 86	1.73 1.78	135 135	3442 3458	2354 2363	80.5 77.4	74.4 71.3	1.98 2.11	2.2	19.1 20.2	0.38	48.6 53.1	129.1 130.5	0.493 0.493	0.280 0.287	0.364 0.372	0.74 0.76	Liquefaction Liquefaction
	28.57	11	82	1.81	135	3467	2367	73.7	67.8	2.26	2.3	21.5	0.44	58.0	131.7	0.493	0.293	0.372	0.77	Liquefaction
	28.65	11	92.9	1.79	135	3477	2373	83.4	76.8	1.96	2.2	18.7	0.37	48.1	131.5	0.494	0.292	0.379	0.77	Liquefaction
	28.87	11	96.4	1.72	135	3507	2389	86.3	79.2	1.82	2.2	17.6	0.34	43.9	130.2	0.495	0.285	0.371	0.75	Liquefaction
	28.9 29	11 11	96.5 89.5	1.76 1.99	135 135	3511 3525	2391 2398	86.3 80.0	79.2 73.1	1.86 2.27	2.2	17.8 20.7	0.34 0.42	45.0 57.8	131.3 137.7	0.495 0.495	0.291 0.323	0.378 0.420	0.76 0.85	Liquefaction Liquefaction
	29.1	11	75.8	2.33	135	3538	2406	67.6	61.5	3.15	2.4	26.6	0.42	91.7	159.3	0.495	0.323	0.420	1.20	Low F.S.
	29.19	11	63.1	2.51	135	3550	2412	56.2	50.8	4.09	2.5	32.7	0.74	158.6	214.8	0.496	1.002	1.302	2.63	
	29.29	11	58.2	2.39	135	3564	2419	51.8	46.6	4.24	2.6	34.4	0.78	188.7	240.5	0.496	1.373	1.786	3.60	
	29.38	11	60.9	2.18	135	3576	2426	54.1 60.9	48.7	3.69	2.5	31.8	0.71	135.3	189.4	0.497	0.712	0.926	1.86	I E C
	29.48 29.56	11 11	68.7 77.6	2.06 1.94	135 135	3589 3600	2433 2439	68.8	55.0 62.1	3.08 2.56	2.4	27.7 23.9	0.61 0.51	93.8 70.2	154.8 138.9	0.497 0.497	0.425 0.329	0.552 0.428	1.11 0.86	Low F.S. Liquefaction
	29.6	11	86.3	1.84	135	3606	2442	76.4	69.2	2.18	2.3	20.9	0.42	56.3	132.7	0.498	0.297	0.386	0.78	Liquefaction
	29.7	11	91.7	1.63	135	3619	2449	81.1	73.4	1.81	2.2	18.4	0.36	45.1	126.2	0.498	0.267	0.347	0.70	Liquefaction
	29.79	11	92.4	1.66	135	3631	2456	81.6	73.7	1.83	2.2	18.4	0.36	45.7	127.2	0.498	0.272	0.353	0.71	Liquefaction
	29.88 29.98	11 11	84.1 74.5	1.55 1.79	135 135	3643 3657	2462 2469	74.2 65.6	66.8 58.8	1.88 2.46	2.2	19.8 24.1	0.39 0.51	48.3 68.5	122.5 134.1	0.499 0.499	0.251 0.304	0.326 0.396	0.65 0.79	Liquefaction Liquefaction
	30.07	11	65.7	2.21	135	3669	2476	57.8	51.6	3.46	2.5	30.1	0.67	117.3	175.1	0.479	0.579	0.753	1.57	Liqueraction
	30.17	11	67.2	2.34	135	3683	2483	59.0	52.6	3.58	2.5	30.3	0.68	122.6	181.6	0.479	0.637	0.828	1.73	
	30.26	11	76.7	2.42	135	3695	2490	67.3	60.1	3.23	2.4	27.2	0.59	97.8	165.0	0.479	0.498	0.648	1.35	
	30.35	11	89.2	1.88	135	3707	2496	78.1	70.0	2.15	2.2	20.6	0.42	56.0	134.1	0.480	0.304	0.396	0.83	Liquefaction
	30.45 30.54	11 11	97.7 105.3	1.35 1.3	135 125	3720 3732	2504 2510	85.4 92.0	76.5 82.4	1.41 1.26	2.1	15.7 14.0	0.28	34.0 29.2	119.4 121.1	0.480 0.480	0.238 0.245	0.310 0.319	0.65 0.66	Liquefaction Liquefaction
	30.76	11	98.7	2.04	135	3760	2524	86.0	76.7	2.11	2.2	19.4	0.39	53.8	139.8	0.481	0.334	0.434	0.90	Liquefaction
	30.85	11	99	2.46	135	3772	2530	86.1	76.7	2.53	2.3	21.4	0.44	67.0	153.1	0.481	0.414	0.538	1.12	Low F.S.
	30.95	11	92.5	2.59	135	3786	2538	80.3	71.4	2.86	2.3	23.6	0.50	79.2	159.6	0.482	0.458	0.595	1.24	
	31.04 31.14	11 11	86.1 114.2	2.81 3.23	135 135	3798 3811	2544 2551	74.7 98.9	66.2 88.0	3.34 2.88	2.4	26.4 21.4	0.57 0.44	99.7 76.8	174.4 175.7	0.482 0.482	0.573 0.585	0.745 0.760	1.55 1.58	
	31.22	11	196.3	3.68	135	3822	2557	169.8	152.0	1.89	2.0	12.3	0.19	41.0	210.9	0.483	0.952	1.237	2.56	
	31.31	11	252.6	4.08	135	3834	2564	218.3	195.5	1.63	1.9	9.3	0.12	28.5	246.8	0.483	1.478	1.921	3.98	
	31.39	11	307.2	3.87	135	3845	2570	265.2	237.5	1.27	1.7	6.4	0.04	10.6	275.8	0.483	2.030	2.639	5.46	
	31.48	11	365.6	3.8	125	3857	2576	315.2	282.2	1.04	1.6	4.4	0.00	0.0	315.2	0.484	2.991	3.889	8.04	
	31.56 31.64	11 11	431.8 490.3	3.54 3.99	125 125	3867 3877	2581 2586	371.9 421.8	332.9 377.5	0.82 0.82	1.5 1.4	2.5 2.1	0.00	0.0	371.9 421.8	0.484 0.484	4.863 7.061	6.321 9.180	13.07 18.96	
	31.72	11	523.8	4.35	125	3887	2591	450.2	402.6	0.83	1.4	1.9	0.00	0.0	450.2	0.484	8.568	11.138	22.99	
	31.79	11	566.1	3.97	115	3896	2596	486.2	434.5	0.70	1.4	1.0	0.00	0.0	486.2	0.485	10.767	13.998	28.88	
	31.87	11	594.2	3.55	115	3905	2600	509.9	455.4	0.60	1.3	0.3	0.00	0.0	509.9	0.485	12.409	16.132	33.26	
	31.95 32.03	11 11	589.5 599.3	2.64 2.76	105 105	3914 3923	2604 2607	505.5 513.5	451.1 458.0	0.45 0.46	1.2	-0.6 -0.5	0.00	0.0	505.5 513.5	0.485 0.486	12.090 12.674	15.717 16.476	32.38 33.91	
	32.11	11	571.7	2.78	105	3931	2611	489.6	436.3	0.49	1.2	-0.3	0.00	0.0	489.6	0.486	10.992	14.289	29.39	
	32.19	11	524.8	2.32	105	3940	2614	449.1	399.8	0.44	1.2	-0.3	0.00	0.0	449.1	0.487	8.504	11.055	22.72	
	32.26	11	537.7	2.19	105	3947	2617	459.9	409.2	0.41	1.2	-0.6	0.00	0.0	459.9	0.487	9.125	11.862	24.36	
	32.35	11	399.8	3.02	125	3956	2621	341.7	303.4	0.76	1.5	2.5	0.00	0.0	341.7	0.487	3.790	4.927	10.11	
	32.44 32.53	11 11	328.6 226.3	3.65 4.47	125 135	3968 3979	2627 2632	280.5 193.0	248.6 170.4	1.12 1.99	1.7 2.0	5.4 11.9	0.01	3.2 43.6	283.8 236.6	0.488 0.488	2.205 1.311	2.866 1.705	5.88 3.49	
	32.62	11	156.6	5.13	135	3991	2639	133.4	117.1	3.32	2.2	20.2	0.41	90.9	224.3	0.488	1.130	1.469	3.01	
	32.72	11	117.1	5.66	140	4004	2646	99.6	87.0	4.92	2.4	28.5	0.63	166.9	266.5	0.489	1.841	2.393	4.90	
	32.81	11	84.9	5.31	140	4017	2653	72.1	62.5	6.41	2.6	36.8	0.80	288.5	360.6	0.489	4.441	5.773	11.81	NonLiqfble.
	32.88 32.97	11 11	69.6 69.8	4.73 3.97	135 135	4027 4039	2658 2665	59.1 59.2	50.8 50.8	7.00 5.86	2.7 2.7	41.3 38.2	0.80	236.2 236.6	295.3 295.8	0.489 0.489	2.475 2.487	3.218 3.233	6.58 6.61	NonLiqfble. NonLiqfble.
	33.05	11	97.4	3.62	135	4050	2671	82.5	71.4	3.80	2.4	27.2	0.59	119.7	202.2	0.490	0.849	1.104	2.25	NonLiquie.
	33.14	11	137.3	3.92	135	4062	2677	116.1	101.0	2.90	2.2	20.1	0.40	78.0	194.1	0.490	0.760	0.988	2.02	
	33.22	11	154.7	4.38	135	4073	2683	130.7	113.7	2.87	2.2	18.8	0.37	76.2	206.9	0.490	0.904	1.175	2.40	
	33.3	11	123.7	4.24	135	4084	2689	104.4	90.4	3.49	2.3	23.4	0.49	100.6	205.0	0.490	0.881	1.146	2.34	
	33.39 33.47	11 11	99.1 88.3	3.91 3.86	135 135	4096 4107	2695 2701	83.5 74.3	72.0 63.8	4.03 4.48	2.4	27.9 30.9	0.61	131.2 166.3	214.8 240.6	0.491 0.491	1.001 1.375	1.302 1.788	2.65 3.64	
	33.55	11	77.1	3.41	135	4117	2707	64.8	55.4	4.54	2.6	33.0	0.75	191.9	256.7	0.491	1.653	2.149	4.38	
	33.64	11	51.9	2.87	135	4130	2714	43.6	36.7	5.76	2.7	43.1	0.80	174.4	218.0	0.491	1.043	1.356	2.76	NonLiqfble.
	33.72	11	37.7	2.61	135	4140	2719	31.6	26.2	7.33	2.9	53.6	0.80	126.5	158.2	0.492	0.448	0.582	1.18	NonLiqfble.
	33.81 33.89	11 11	34.9 36.4	2.28 1.8	135 135	4152 4163	2726 2732	29.2 30.5	24.1 25.1	6.95 5.25	2.9	54.2 48.2	0.80	117.0 121.9	146.2 152.4	0.492 0.492	0.371 0.409	0.482 0.532	0.98 1.08	NonLiqfble. NonLiqfble.
	33.97	11	39.2	1.55	135	4174	2738	32.8	27.1	4.18	2.8 2.7	42.9	0.80	131.1	163.9	0.492	0.489	0.532	1.29	NonLiqfble.
	34.06	11	39.2	1.5	135	4186	2744	32.7	27.0	4.04	2.7	42.4	0.80	131.0	163.7	0.493	0.488	0.634	1.29	NonLiqfble.
	34.15	11	37.8	2.86	135	4198	2751	31.5	25.9	8.01	3.0	55.6	0.80	126.1	157.7	0.493	0.445	0.578	1.17	NonLiqfble.
	34.25	11	62 140 5	2.25	135	4212	2758	51.7	43.4	3.76	2.6	33.7	0.77	168.6	220.3	0.493	1.074	1.396	2.83	
	34.35 34.42	11 11	140.5 281.1	2.69 2.95	135 125	4225 4235	2765 2770	116.9 233.7	100.1 201.3	1.94 1.06	2.1 1.7	16.0 6.2	0.29	48.6 7.8	165.5 241.5	0.493 0.494	0.502 1.390	0.652 1.807	1.32 3.66	
	34.49	11	414.8	2.87	115	4244	2775	344.5	297.3	0.70	1.5	2.2	0.00	0.0	344.5	0.494	3.884	5.049	10.22	
	34.52	11	291	2.71	125	4247	2776	241.6	208.0	0.94	1.7	5.3	0.01	2.3	243.9	0.494	1.429	1.858	3.76	
	34.59	11	444.7	2.74	115	4256	2781	369.0	318.2	0.62	1.4	1.5	0.00	0.0	369.0	0.494	4.752	6.178	12.50	
	34.66 34.73	11 11	474.4 522.1	2.89 3.34	115	4264 4272	2784 2788	393.4 432.6	339.1 372.8	0.61 0.64	1.4 1.4	1.3 1.1	0.00	0.0	393.4 432.6	0.495 0.495	5.741 7.611	7.463 9.894	15.09 20.00	
	J+./J	11	ا ،کان	3.34	113	7212	2100	452.0	312.0	0.04	1.4	1.1	0.00	0.0	732.0	0.473	7.011	2.074	20.00	

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 25 Depth to Groundwater: 11 feet

 $\begin{tabular}{ll} EQ \ Magnitude \ (M_w): & 6.5 \\ PGA \ (g): & 0.54 \\ MSF: & 1.30 \\ \end{tabular}$ 

		Water	Tin	Sleeve		Total	Effective	Norm	Com	Eviation						Induced	Liquof	Liquof	Faston	
	Depth	Table	Tip Resist.	Frict.	g	Stress	Stress	Tip	Tip	Friction Ratio		F.C.				Stress	Liquef. Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> cIN	Q	F	Ic	(%)	Ксрт	DqcIN	$(q_{\rm clN})_{\rm es}$	Ratio	M7.5	M6.50	Safety	Comments
	34.81	11	535.7	3.13	115	4281	2792	443.6	382.0	0.59	1.3	0.7	0.00	0.0	443.6	0.495	8.197	10.656	21.52	
	34.88 34.94	11 11	556.4 576.3	3.04 3.11	115 115	4289 4296	2796 2799	460.4 476.6	396.3 410.1	0.55 0.54	1.3 1.3	0.4	0.00	0.0	460.4 476.6	0.495 0.496	9.157 10.149	11.903 13.193	24.03 26.62	
	35.01	11	589.6	2.62	105	4304	2803	487.3	419.0	0.45	1.2	-0.4	0.00	0.0	487.3	0.496	10.841	14.093	28.42	
	35.08	11	602.3	2.54	105	4311	2806	497.5	427.6	0.42	1.2	-0.6	0.00	0.0	497.5	0.496	11.533	14.993	30.21	
	35.16	11	620	2.68	105	4320	2809	511.8	439.7	0.43	1.2	-0.6	0.00	0.0	511.8	0.497	12.550	16.315	32.85	
	35.23 35.31	11 11	618.4 597.4	2.86 2.75	105 105	4327 4336	2812 2815	510.2 492.6	438.1 422.7	0.46 0.46	1.2 1.2	-0.4 -0.3	0.00	0.0	510.2 492.6	0.497 0.497	12.434 11.197	16.164 14.556	32.53 29.27	
	35.39	11	578.2	1.32	95	4344	2819	476.5	408.5	0.40	1.0	-0.3	0.00	0.0	476.5	0.497	10.141	13.184	26.49	
	35.47	11	569.2	1.59	95	4352	2822	468.9	401.8	0.28	1.1	-1.4	0.00	0.0	468.9	0.498	9.665	12.565	25.23	
	35.55	11	548.8	1.37	95	4359	2824	451.8	386.9	0.25	1.1	-1.5	0.00	0.0	451.8	0.498	8.659	11.257	22.58	
	35.6	11 11	491.6 426.4	1.42	95 105	4364	2826	404.6	346.3 299.9	0.29	1.2	-0.9	0.00	0.0	404.6	0.499	6.241	8.114	16.27	
	35.66 35.75	11	455.3	1.53 1.63	105 105	4370 4379	2828 2832	350.8 374.4	319.9	0.36 0.36	1.3 1.2	0.0 -0.2	0.00	0.0	350.8 374.4	0.499 0.499	4.096 4.960	5.325 6.448	10.67 12.91	
	35.84	11	437.1	1.32	95	4389	2835	359.2	306.6	0.30	1.2	-0.5	0.00	0.0	359.2	0.500	4.389	5.706	11.42	
	35.92	11	417.4	1.08	95	4396	2838	342.8	292.5	0.26	1.2	-0.6	0.00	0.0	342.8	0.500	3.827	4.975	9.95	
	36.01	11	386.7	1.06	95	4405	2841	317.4	270.6	0.28	1.2	-0.3	0.00	0.0	317.4	0.501	3.055	3.971	7.93	
	36.09 36.18	11 11	378.1 367	1.44 1.53	105 105	4412 4422	2844 2847	310.2 300.9	264.3 256.1	0.38	1.3 1.4	0.6 1.0	0.00	0.0	310.2 300.9	0.501 0.501	2.857 2.614	3.714 3.399	7.41 6.78	
	36.26	11	338.1	1.43	105	4430	2851	277.1	235.5	0.43	1.4	1.4	0.00	0.0	277.1	0.502	2.058	2.675	5.33	
	36.35	11	276.9	1.43	115	4440	2855	226.8	192.4	0.52	1.5	3.0	0.00	0.0	226.8	0.502	1.164	1.514	3.01	
	36.43	11	259.4	1.41	115	4449	2859	212.3	179.8	0.55	1.5	3.5	0.00	0.0	212.3	0.503	0.970	1.260	2.51	
	36.51 36.59	11 11	265.5 322.3	1.53 1.84	115 115	4458 4467	2863 2867	217.1 263.4	183.8 223.2	0.58 0.57	1.6 1.5	3.7 2.7	0.00	0.0	217.1 263.4	0.503 0.503	1.032 1.779	1.341 2.312	2.67 4.60	
	36.67	11	365.4	1.86	115	4476	2871	298.4	252.8	0.51	1.4	1.7	0.00	0.0	298.4	0.503	2.550	3.315	6.59	
	36.73	11	391.7	1.85	105	4483	2875	319.7	270.9	0.48	1.4	1.2	0.00	0.0	319.7	0.504	3.118	4.053	8.05	
	36.78	11	391	1.9	105	4489	2877	319.0	270.2	0.49	1.4	1.3	0.00	0.0	319.0	0.504	3.098	4.027	7.99	
	36.83 36.88	11 11	360.4 346	2.81 3.37	125 125	4494 4500	2879 2882	293.9 282.0	248.7 238.5	0.78 0.98	1.5 1.6	3.5 4.9	0.00	0.0	293.9 282.0	0.504 0.504	2.441 2.166	3.173 2.815	6.29 5.58	
	36.93	11	344.3	3.07	125	4506	2885	280.5	237.0	0.90	1.6	4.4	0.00	0.0	280.5	0.504	2.132	2.771	5.49	
	36.98	11	305.4	3.23	125	4513	2888	248.6	209.8	1.07	1.7	6.0	0.03	7.0	255.7	0.505	1.635	2.125	4.21	
	37.03	11	303.8	2.41	125	4519	2891	247.2	208.5	0.80	1.6	4.5	0.00	0.0	247.2	0.505	1.485	1.930	3.82	
	37.08 37.13	11 11	304.3 275.9	1.74 1.5	115 115	4525 4531	2894 2897	247.5 224.3	208.6 188.8	0.58 0.55	1.5 1.5	3.0 3.3	0.00	0.0	247.5 224.3	0.505 0.505	1.490 1.129	1.936 1.468	3.84 2.91	
	37.13	11	282	1.5	115	4535	2899	229.2	192.9	0.54	1.5	3.1	0.00	0.0	229.2	0.505	1.129	1.559	3.09	
	37.21	11	281.2	1.65	115	4540	2901	228.4	192.2	0.59	1.5	3.5	0.00	0.0	228.4	0.505	1.188	1.545	3.06	
	37.25	11	278.7	2	115	4545	2903	226.3	190.3	0.72	1.6	4.5	0.00	0.0	226.3	0.505	1.158	1.505	2.98	
	37.29 37.33	11 11	275.9 281.8	2.23 2.06	125 115	4549 4554	2906 2908	224.0 228.6	188.3 192.2	0.81 0.74	1.6	5.1	0.00	0.8	224.8 228.6	0.506 0.506	1.136 1.192	1.477 1.549	2.92 3.06	
	37.38	11	272.7	1.95	115	4560	2911	221.2	185.7	0.74	1.6 1.6	4.5 4.6	0.00	0.0	221.2	0.506	1.086	1.412	2.79	
	37.43	11	266.7	1.87	115	4566	2913	216.2	181.4	0.71	1.6	4.6	0.00	0.0	216.2	0.506	1.020	1.326	2.62	
	37.49	11	215.9	1.89	125	4573	2916	174.9	146.4	0.88	1.8	7.1	0.06	10.3	185.3	0.506	0.671	0.873	1.72	
	37.56	11	181.9 155.6	2.28	135	4581	2921	147.3	122.9	1.27	1.9	10.7	0.15	26.4	173.7	0.506	0.567	0.737	1.46	
	37.63 37.71	11 11	115	2.6 2.54	135 135	4591 4602	2926 2932	125.9 92.9	104.7 76.8	1.70 2.25	2.1	14.3 20.1	0.25	41.8 62.8	167.7 155.7	0.507 0.507	0.519 0.431	0.674 0.561	1.33 1.11	Low F.S.
	37.79	11	72.5	2.29	135	4612	2938	58.5	47.8	3.26	2.5	30.3	0.68	122.5	181.1	0.507	0.632	0.822	1.62	
	37.88	11	46.5	1.95	135	4625	2944	37.5	30.0	4.41	2.7	42.0	0.80	150.0	187.5	0.507	0.693	0.901	1.78	NonLiqfble.
	37.97 38.05	11 11	28.6 22.8	1.61 0.98	135 135	4637 4647	2951 2956	23.0 18.3	17.8 13.8	6.13 4.79	3.0 3.0	58.0 58.9	0.80	92.1 73.4	115.2 91.7	0.507 0.508	0.222 0.152	0.289 0.197	0.57 0.39	NonLiqfble. NonLiqfble.
	38.14	11	21.2	0.50	125	4660	2963	17.0	12.7	3.23	2.9	53.9	0.80	68.2	85.2	0.508	0.132	0.179	0.35	NonLiqfble.
	38.23	11	20.3	0.62	125	4671	2969	16.3	12.1	3.45	3.0	56.1	0.80	65.2	81.5	0.508	0.130	0.169	0.33	NonLiqfble.
	38.32	11	23.4	0.7	125	4682	2974	18.8	14.2	3.32	2.9	52.0	0.80	75.1	93.9	0.508	0.157	0.204	0.40	NonLiqfble.
	38.41 38.51	11 11	27 28.9	0.78 0.56	135 125	4693 4707	2980 2987	21.6 23.1	16.5 17.8	3.16 2.11	2.8 2.7	47.9 40.7	0.80	86.6 92.5	108.2 115.7	0.509 0.509	0.198 0.224	0.257 0.291	0.51 0.57	NonLiqfble. NonLiqfble.
	38.6	11	25.7	0.34	115	4718	2993	20.6	15.6	1.46	2.7	38.6	0.80	82.2	102.8	0.509	0.181	0.235	0.46	NonLiqfble.
	38.69	11	21.2	0.17	105	4728	2997	16.9	12.6	0.90	2.6	37.7	0.80	67.8	84.7	0.509	0.137	0.177	0.35	NonLiqfble.
	38.94	11	13.8	0.03	83	4755	3008	11.0	7.6	0.26	2.7	38.7	0.80	44.0	55.0	0.510	0.096	0.124	0.24	NonLiqfble.
	39.04 39.15	11 11	12.9 12.8	0.03 0.05	83 88	4763 4772	3010 3012	10.3 10.2	7.0 6.9	0.29 0.48	2.7 2.8	41.1 44.9	0.80	41.1 40.8	51.4 51.0	0.511 0.512	0.093	0.120 0.120	0.24 0.23	NonLiqfble. NonLiqfble.
	39.24	11	13.4	0.05	88	4780	3015	10.7	7.3	0.45	2.8	43.2	0.80	42.7	53.4	0.512	0.092	0.120	0.24	NonLiqfble.
	39.34	11	14.3	0.06	88	4789	3017	11.4	7.9	0.50	2.7	42.3	0.80	45.6	57.0	0.513	0.097	0.126	0.25	NonLiqfble.
	39.44	11	14.5	0.07	88	4798	3020	11.5	8.0	0.58	2.7	43.1	0.80	46.2	57.7	0.513	0.098	0.127	0.25	NonLiqfble.
	39.54 39.64	11 11	14.6 15	0.07 0.07	88 88	4806 4815	3022 3025	11.6 11.9	8.1 8.3	0.57 0.56	2.7 2.7	42.8 41.9	0.80	46.5 47.7	58.1 59.7	0.514 0.514	0.098	0.128 0.130	0.25 0.25	NonLiqfble. NonLiqfble.
	39.75	11	14.9	0.07	88	4825	3028	11.8	8.2	0.36	2.7	40.9	0.80	47.7	59.7	0.514	0.100	0.130	0.25	NonLiqfble.
	39.85	11	14	0.05	88	4834	3030	11.1	7.6	0.43	2.7	41.8	0.80	44.5	55.6	0.515	0.096	0.125	0.24	NonLiqfble.
	39.95	11	13.7	0.04	88	4843	3033	10.9	7.4	0.35	2.7	41.0	0.80	43.5	54.4	0.516	0.095	0.123	0.24	NonLiqfble.
	40.05	11 11	13.8 14	0.04	88 88	4851 4860	3035 3038	11.0 11.1	7.5 7.6	0.35	2.7 2.7	40.8 40.3	0.80	43.8 44.5	54.8 55.6	0.477	0.095 0.096	0.124 0.125	0.26 0.26	NonLiqfble.
	40.15 40.26	11	14	0.04 0.03	83	4870	3038	11.1	7.6	0.35 0.26	2.7	38.6	0.80	44.5	55.6 55.5	0.477 0.478	0.096	0.125	0.26	NonLiqfble. NonLiqfble.
	40.36	11	14	0.04	88	4878	3043	11.1	7.6	0.35	2.7	40.4	0.80	44.4	55.5	0.478	0.096	0.125	0.26	NonLiqfble.
	40.46	11	14.7	0.04	88	4887	3045	11.7	8.0	0.33	2.7	38.7	0.80	46.6	58.3	0.479	0.098	0.128	0.27	NonLiqfble.
	40.56	11	14	0.04	88	4896	3048	11.1	7.6	0.35	2.7	40.4	0.80	44.4	55.5	0.479	0.096	0.125	0.26	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 25

Depth to Groundwater: 11 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA** (g): 0.54 **MSF**: 1.30

		Water	Tip	Sleeve			Effective			Friction								Liquef.		
Cone	Depth (FT)	Table (FT)	Resist. (TSF)	Frict. (TSF)	g (PCF)	Stress (PSF)	Stress (PSF)	Tip Qcin	Tip Q	Ratio F	Ic	F.C. (%)	Ксрт	DqcIN	(qclN)cs	Stress Ratio	Stress M7.5	Stress M6.50	of Safety	Comments
Cone	(F I)	(F I)	(15F)	(15F)	(PCF)	(PSF)	(PSF)	qen	Ų	г	IC	(%)	<b>IX</b> CF1	Dqui	( <b>q</b> enya	Katio	W17.5	W10.50	Salety	Comments
	40.66	11	13.8	0.04	88	4905	3051	10.9	7.4	0.35	2.7	41.0	0.80	43.7	54.7	0.480	0.095	0.124	0.26	NonLiqfble.
	40.76	11	14.2	0.04	88	4913	3053	11.2	7.7	0.34	2.7	40.0	0.80	45.0	56.2	0.480	0.097	0.125	0.26	NonLiqfble.
	40.86	11	13.7	0.03	83	4922	3056	10.8	7.4	0.27	2.7	39.5	0.80	43.4	54.2	0.481	0.095	0.123	0.26	NonLiqfble.
	40.97 41.07	11 11	13.6 13.7	0.03	83 83	4931 4940	3058 3060	10.8 10.8	7.3 7.3	0.27 0.27	2.7 2.7	39.8 39.6	0.80	43.0 43.3	53.8 54.2	0.481 0.482	0.094 0.095	0.123 0.123	0.26 0.26	NonLiqfble. NonLiqfble.
	41.17	11	13.3	0.03	83	4948	3062	10.5	7.1	0.28	2.7	40.6	0.80	42.1	52.6	0.482	0.094	0.122	0.25	NonLiqfble.
	41.27	11	12.9	0.03	83	4956	3064	10.2	6.8	0.29	2.7	41.7	0.80	40.8	51.0	0.483	0.092	0.120	0.25	NonLiqfble.
	41.37	11	12.7	0.02	83	4964	3066	10.0	6.7	0.20	2.7	40.2	0.80	40.1	50.2	0.483	0.092	0.119	0.25	NonLiqfble.
	41.47 41.57	11 11	12.9 13.5	0.02 0.02	83 83	4973 4981	3068 3070	10.2 10.7	6.8 7.2	0.19 0.18	2.7 2.7	39.7 38.3	0.80	40.8 42.6	50.9 53.3	0.484 0.484	0.092 0.094	0.120 0.122	0.25 0.25	NonLiqfble. NonLiqfble.
	41.67	11	13.6	0.02	83	4989	3072	10.7	7.2	0.18	2.7	38.1	0.80	42.9	53.7	0.484	0.094	0.123	0.25	NonLiqfble.
	41.78	11	13.8	0.03	83	4998	3075	10.9	7.3	0.27	2.7	39.5	0.80	43.6	54.4	0.485	0.095	0.124	0.25	NonLiqfble.
	41.88	11	13.9	0.02	83 80	5007	3077	11.0	7.4	0.18	2.6	37.4	0.80	43.9	54.8	0.486	0.095	0.124	0.26	NonLiqfble.
	41.98 42.08	11 11	13.9 14.7	0.01 0.07	88	5015 5023	3079 3081	11.0 11.6	7.4 7.9	0.09 0.57	2.6 2.8	35.7 43.3	0.80	43.8 46.4	54.8 57.9	0.486 0.486	0.095 0.098	0.124 0.128	0.25	NonLiqfble. NonLiqfble.
	42.18	11	13.9	0.08	95	5032	3083	11.0	7.4	0.70	2.8	46.7	0.80	43.8	54.8	0.487	0.095	0.124	0.25	NonLiqfble.
	42.22	11	15.7	0.07	88	5036	3084	12.4	8.5	0.53	2.7	40.9	0.80	49.5	61.8	0.487	0.102	0.133	0.27	NonLiqfble.
	42.27 42.35	11 11	17.4 16.9	0.07 0.07	88 88	5040 5047	3086 3088	13.7 13.3	9.6 9.3	0.47 0.49	2.6 2.7	37.4 38.4	0.80	54.8 53.2	68.5	0.487 0.488	0.110 0.107	0.143	0.29	NonLiqfble. NonLiqfble.
	42.45	11	16.9	0.07	88	5056	3090	12.6	8.7	0.49	2.7	40.3	0.80	50.4	66.5 63.0	0.488	0.107	0.140 0.134	0.29	NonLiqfble.
	42.56	11	15.5	0.06	88	5066	3093	12.2	8.4	0.46	2.7	40.3	0.80	48.8	61.0	0.489	0.101	0.131	0.27	NonLiqfble.
	42.66	11	15	0.05	88	5074	3096	11.8	8.0	0.40	2.7	40.1	0.80	47.2	59.0	0.489	0.099	0.129	0.26	NonLiqfble.
	42.76 42.86	11 11	15.2 14.7	0.05 0.06	88 88	5083 5092	3098 3101	11.9 11.6	8.2 7.8	0.40 0.49	2.7 2.7	39.7 42.2	0.80	47.8 46.2	59.7 57.8	0.489 0.490	0.100 0.098	0.130 0.127	0.27 0.26	NonLiqfble. NonLiqfble.
	42.96	11	15.2	0.06	88	5101	3103	11.9	8.1	0.47	2.7	41.1	0.80	47.8	59.7	0.490	0.100	0.127	0.26	NonLiqfble.
	43.06	11	14.9	0.06	88	5110	3106	11.7	7.9	0.49	2.7	41.8	0.80	46.8	58.5	0.491	0.099	0.128	0.26	NonLiqfble.
	43.16	11	14.9	0.07	88	5118	3108	11.7	7.9	0.57	2.7	43.1	0.80	46.8	58.5	0.491	0.099	0.128	0.26	NonLiqfble.
	43.27 43.37	11 11	14.9 15.2	0.07 0.07	88 88	5128 5137	3111 3114	11.7 11.9	7.9 8.1	0.57 0.55	2.7 2.7	43.1 42.4	0.80	46.8 47.7	58.4 59.6	0.492 0.492	0.099	0.128 0.130	0.26 0.26	NonLiqfble. NonLiqfble.
	43.47	11	15.3	0.07	88	5146	3116	12.0	8.2	0.55	2.7	42.2	0.80	48.0	60.0	0.493	0.100	0.130	0.26	NonLiqfble.
	43.57	11	14.4	0.05	88	5154	3119	11.3	7.6	0.42	2.7	41.8	0.80	45.1	56.4	0.493	0.097	0.126	0.25	NonLiqfble.
	43.67	11	13.6	0.04	88	5163	3122	10.7	7.1	0.36	2.7	42.3	0.80	42.6	53.3	0.493	0.094	0.122	0.25	NonLiqfble.
	43.78 43.88	11 11	13.4 13.6	0.04	88 83	5173 5182	3124 3127	10.5 10.6	6.9 7.0	0.37 0.27	2.7 2.7	42.9 40.6	0.80	42.0 42.6	52.4 53.2	0.494 0.494	0.093 0.094	0.121 0.122	0.25 0.25	NonLiqfble. NonLiqfble.
	43.98	11	13.1	0.03	83	5190	3129	10.2	6.7	0.29	2.7	42.0	0.80	41.0	51.2	0.495	0.093	0.120	0.24	NonLiqfble.
	44.08	11	13.1	0.03	83	5198	3131	10.2	6.7	0.29	2.7	42.0	0.80	41.0	51.2	0.495	0.092	0.120	0.24	NonLiqfble.
	44.18	11 11	13.5 13.8	0.03 0.05	83 88	5207 5215	3133 3135	10.6 10.8	7.0 7.1	0.28	2.7 2.8	41.0 43.6	0.80	42.2 43.1	52.8 53.9	0.496	0.094 0.095	0.122 0.123	0.25 0.25	NonLiqfble.
	44.28 44.38	11	14.3	0.05	88	5224	3138	11.2	7.1	0.45 0.43	2.7	42.3	0.80	44.7	55.8	0.496 0.497	0.093	0.125	0.25	NonLiqfble. NonLiqfble.
	44.49	11	14.6	0.05	88	5233	3141	11.4	7.6	0.42	2.7	41.6	0.80	45.6	57.0	0.497	0.097	0.126	0.25	NonLiqfble.
	44.58	11	14.6	0.06	88	5241	3143	11.4	7.6	0.50	2.7	43.0	0.80	45.6	57.0	0.498	0.097	0.126	0.25	NonLiqfble.
	44.69 44.79	11 11	14.8 15.1	0.05 0.07	88 88	5251 5260	3146 3148	11.5 11.8	7.7 7.9	0.41 0.56	2.7 2.7	41.1 43.1	0.80	46.2 47.1	57.7 58.9	0.498 0.498	0.098	0.127 0.129	0.26	NonLiqfble. NonLiqfble.
	44.89	11	15.2	0.09	95	5269	3151	11.8	8.0	0.72	2.8	45.1	0.80	47.4	59.2	0.499	0.099	0.129	0.26	NonLiqfble.
	44.99	11	16.1	0.1	95	5278	3154	12.5	8.5	0.74	2.8	43.9	0.80	50.2	62.7	0.499	0.103	0.134	0.27	NonLiqfble.
	45.09	11	16.4	0.1	95	5288	3157	12.8	8.7	0.73	2.8	43.2	0.80	51.1	63.9	0.500	0.104	0.135	0.27	NonLiqfble.
	45.19 45.29	11 11	16.4 16.9	0.12 0.19	95 105	5297 5307	3161 3164	12.8 13.1	8.7 9.0	0.87 1.33	2.8 2.9	45.1 49.1	0.80	51.1 52.6	63.8 65.7	0.500 0.500	0.104 0.106	0.135 0.138	0.27 0.28	NonLiqfble. NonLiqfble.
	45.39	11	16.9	0.16	105	5317	3168	13.1	9.0	1.12	2.8	47.1	0.80	52.5	65.7	0.501	0.106	0.138	0.28	NonLiqfble.
	45.45	11	18.2	0.14	95	5323	3171	14.1	9.8	0.90	2.7	42.8	0.80	56.6	70.7	0.501	0.113	0.147	0.29	NonLiqfble.
	45.53 45.63	11 11	18.9 15.4	0.11 0.11	95 95	5331 5341	3173	14.7 12.0	10.2 8.0	0.68	2.7 2.8	39.2	0.80	58.7	73.4 59.8	0.501	0.117 0.100	0.152 0.130	0.30	NonLiqfble.
	45.73	11	14.7	0.11	95	5350	3176 3180	11.4	7.6	0.86 0.75	2.8	46.9 46.7	0.80	47.8 45.6	57.0	0.502 0.502	0.100	0.130	0.26	NonLiqfble. NonLiqfble.
	45.83	11	15.3	0.1	95	5360	3183	11.9	7.9	0.79	2.8	46.2	0.80	47.5	59.3	0.502	0.099	0.129	0.26	NonLiqfble.
	45.94	11	16.4	0.11	95	5370	3187	12.7	8.6	0.80	2.8	44.5	0.80	50.8	63.6	0.503	0.104	0.135	0.27	NonLiqfble.
	46.02 46.12	11 11	17.4 19.9	0.13 0.15	95 95	5378 5387	3189 3192	13.5 15.4	9.2 10.8	0.88 0.87	2.8 2.7	43.9 40.4	0.80	53.9 61.6	67.4 77.1	0.503 0.503	0.108 0.123	0.141 0.159	0.28	NonLiqfble. NonLiqfble.
	46.22	11	22.1	0.17	105	5397	3196	17.1	12.1	0.88	2.7	38.1	0.80	68.4	85.5	0.504	0.123	0.139	0.36	NonLiqfble.
	46.32	11	23.8	0.18	105	5407	3200	18.4	13.2	0.85	2.6	36.2	0.80	73.6	92.0	0.504	0.153	0.198	0.39	NonLiqfble.
	46.42	11	25.3	0.16	95	5418	3204	19.6	14.1	0.71	2.6	33.2	0.75	60.0	79.5	0.504	0.127	0.165	0.33	Liquefaction
	46.52 46.62	11 11	23.7 19.6	0.13 0.09	95 95	5427 5437	3208 3211	18.3 15.1	13.1 10.5	0.62 0.53	2.6 2.6	33.5 36.6	0.76 0.80	58.5 60.5	76.8 75.7	0.505 0.505	0.122 0.120	0.159 0.156	0.31	Liquefaction NonLiqfble.
	46.73	11	16.5	0.06	88	5447	3214	12.7	8.6	0.44	2.7	39.3	0.80	50.9	63.7	0.506	0.120	0.135	0.27	NonLiqfble.
	46.83	11	16.2	0.04	88	5456	3217	12.5	8.4	0.30	2.6	37.3	0.80	50.0	62.5	0.506	0.103	0.133	0.26	NonLiqfble.
	46.93	11	14.2	0.03	83	5465	3219	10.9	7.1	0.26	2.7	40.1	0.80	43.8	54.7	0.506	0.095	0.124	0.24	NonLiqfble.
	47.03 47.13	11 11	14.1 14	0.04 0.04	88 88	5473 5482	3222 3224	10.9 10.8	7.1 7.0	0.35 0.36	2.7 2.7	42.2 42.4	0.80	43.5 43.2	54.3 53.9	0.507 0.507	0.095 0.095	0.123 0.123	0.24	NonLiqfble. NonLiqfble.
	47.23	11	13.8	0.05	88	5491	3227	10.6	6.8	0.45	2.8	44.6	0.80	42.5	53.1	0.508	0.094	0.122	0.24	NonLiqfble.
	47.33	11	14.9	0.08	95	5499	3229	11.5	7.5	0.66	2.8	45.6	0.80	45.9	57.4	0.508	0.098	0.127	0.25	NonLiqfble.
	47.43	11	16.3	0.1	95 95	5509	3232	12.5	8.4	0.74	2.8	44.3	0.80	50.2	62.7	0.508	0.103	0.134	0.26	NonLiqfble.
	47.53 47.63	11 11	15.9 15.6	0.1 0.12	95 95	5518 5528	3236 3239	12.2 12.0	8.1 7.9	0.76 0.93	2.8 2.8	45.3 48.0	0.80	48.9 48.0	61.2 60.0	0.509 0.509	0.101 0.100	0.132 0.130	0.26 0.26	NonLiqfble. NonLiqfble.
	47.73	11	15.4	0.12	95	5537	3242	11.8	7.8	0.95	2.8	48.5	0.80	47.3	59.2	0.510	0.099	0.129	0.25	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 25

Depth to Groundwater: 11 feet

**EQ Magnitude (M<sub>w</sub>):** 6.5 PGA (g): 0.54 MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	$\mathbf{q}_{\mathrm{clN}}$	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	$\mathbf{Dq}_{clN}$	$(q_{clN})_{cs}$	Ratio	M7.5	M6.50	Safety	Comments
	47.84	11	14.8	0.12	95	5548	3246	11.4	7.4	1.00	2.9	50.3	0.80	45.5	56.8	0.510	0.097	0.126	0.25	NonLigfble.
	47.94	11	14.9	0.13	95	5557	3249	11.4	7.5	1.07	2.9	50.9	0.80	45.7	57.2	0.510	0.097	0.127	0.25	NonLiqfble.
	48.04	11	15.1	0.12	95	5567	3252	11.6	7.6	0.97	2.9	49.5	0.80	46.3	57.9	0.511	0.098	0.127	0.25	NonLiqfble.
	48.14	11	15.7	0.13	95	5576	3256	12.0	7.9	1.01	2.8	48.8	0.80	48.2	60.2	0.511	0.100	0.130	0.26	NonLiqfble.
	48.23	11	16.5	0.14	95	5585	3259	12.6	8.4	1.02	2.8	47.5	0.80	50.6	63.2	0.511	0.104	0.135	0.26	NonLiqfble.
	48.32	11	16.7	0.13	95	5593	3261	12.8	8.5	0.94	2.8	46.3	0.80	51.2	64.0	0.512	0.104	0.136	0.27	NonLiqfble.
	48.42	11	16.5	0.13	95	5603	3265	12.6	8.4	0.95	2.8	46.8	0.80	50.5	63.2	0.512	0.103	0.134	0.26	NonLiqfble.
	48.52	11	16.6	0.12	95	5612	3268	12.7	8.4	0.87	2.8	45.7	0.80	50.8	63.5	0.512	0.104	0.135	0.26	NonLiqfble.
	48.6	11	15.9	0.12	95	5620	3271	12.2	8.0	0.92	2.8	47.5	0.80	48.7	60.8	0.513	0.101	0.131	0.26	NonLiqfble.
	48.84	11	16.8	0.15	105	5643	3278	12.8	8.5	1.07	2.8	47.8	0.80	51.4	64.2	0.514	0.105	0.136	0.26	NonLiqfble.
	48.95	11	17.4	0.17	105	5654	3283	13.3	8.9	1.17	2.8	47.8	0.80	53.1	66.4	0.514	0.107	0.139	0.27	NonLiqfble.
	49.05	11	18	0.19	105	5665	3287	13.7	9.2	1.25	2.8	47.8	0.80	54.9	68.7	0.514	0.110	0.143	0.28	NonLiqfble.
	49.15	11	19.6	0.17	105	5675	3292	14.9	10.2	1.01	2.8	43.2	0.80	59.8	74.7	0.514	0.119	0.154	0.30	NonLiqfble.
	49.25	11	20.4	0.14	95	5686	3296	15.5	10.6	0.80	2.7	39.8	0.80	62.2	77.7	0.515	0.124	0.161	0.31	NonLiqfble.
	49.35	11	20.1	0.13	95	5695	3299	15.3	10.5	0.75	2.7	39.7	0.80	61.2	76.6	0.515	0.122	0.158	0.31	NonLiqfble.
	49.45	11	18	0.15	95	5705	3302	13.7	9.2	0.99	2.8	45.2	0.80	54.8	68.5	0.515	0.110	0.143	0.28	NonLiqfble.
	49.55	11	18.5	0.18	105	5714	3306	14.1	9.5	1.15	2.8	46.2	0.80	56.3	70.4	0.516	0.112	0.146	0.28	NonLiqfble.
	49.65	11	21.5	0.16	95	5725	3310	16.4	11.3	0.86	2.7	39.4	0.80	65.4	81.8	0.516	0.131	0.170	0.33	NonLiqfble.
	49.75	11	21.1	0.13	95	5734	3313	16.0	11.0	0.71	2.7	38.1	0.80	64.2	80.2	0.516	0.128	0.166	0.32	NonLiqfble.
	49.85	11	18.8	0.12	95	5744	3316	14.3	9.6	0.75	2.7	41.5	0.80	57.1	71.4	0.517	0.114	0.148	0.29	NonLiqfble.
	49.96	11	16.9	0.13	95	5754	3320	12.8	8.4	0.93	2.8	46.4	0.80	51.3	64.2	0.517	0.105	0.136	0.26	NonLiqfble.
	50.06	11	17.1	0.13	95	5764	3323	13.0	8.6	0.91	2.8	46.0	0.80	51.9	64.9	0.457	0.105	0.137	0.30	NonLiqfble.
	50.16	11	17	0.13	95	5773	3327	12.9	8.5	0.92	2.8	46.2	0.80	51.6	64.5	0.457	0.105	0.136	0.30	NonLiqfble.
	50.26	11	17.5	0.13	95	5783	3330	13.3	8.8	0.89	2.8	45.1	0.80	53.1	66.3	0.457	0.107	0.139	0.30	NonLiqfble.
	50.36	11	17.4	0.14	95	5792	3333	13.2	8.7	0.97	2.8	46.1	0.80	52.7	65.9	0.457	0.107	0.139	0.30	NonLiqfble.
	50.46	11	17.3	0.15	105	5802	3336	13.1	8.6	1.04	2.8	47.2	0.80	52.4	65.5	0.458	0.106	0.138	0.30	NonLiqfble.
	50.56	11	17.8	0.15	95	5812	3341	13.5	8.9	1.01	2.8	46.1	0.80	53.9	67.4	0.458	0.108	0.141	0.31	NonLiqfble.
	50.66	11	17.6	0.15	95	5822	3344	13.3	8.8	1.02	2.8	46.5	0.80	53.3	66.6	0.458	0.107	0.140	0.30	NonLiqfble.
	50.76	11	17.8	0.14	95	5831	3347	13.5	8.9	0.94	2.8	45.4	0.80	53.8	67.3	0.459	0.108	0.141	0.31	NonLiqfble.
	50.86	11	17.9	0.14	95	5841	3350	13.5	8.9	0.93	2.8	45.2	0.80	54.1	67.7	0.459	0.109	0.141	0.31	NonLiqfble.
	50.96	11	17.6	0.14	95	5850	3354	13.3	8.7	0.95	2.8	45.9	0.80	53.2	66.5	0.459	0.107	0.140	0.30	NonLiqfble.
	51.06	11	17.2	0.13	95	5860	3357	13.0	8.5	0.91	2.8	46.1	0.80	52.0	64.9	0.460	0.105	0.137	0.30	NonLiqfble.

Total Effective Norm. Corr. Friction

Project Number: 6600.3.001.01 Date: September 2005

Depth to Groundwater: 10 feet

CPT Number: 26

Water Tip Sleeve

EQ Magnitude ( $M_w$ ): 6.5 **PGA (g):** 0.54 MSF: 1.30

Induced Liquef. Liquef. Factor

		Water	Tip	Sleeve			Effective					F. G					d Liquef.	-		
Cono	Depth	Table	Resist.	Frict.	g (DCF)	Stress		Tip	Tip	Ratio F	To.	F.C.	Ксрт	Daw	(qcIN)es	Stress Ratio	Stress	Stress	of Sofoty	Commonto
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	г	Ic	(%)	TKC11	Dqeix	(qeix)es	Katio	M7.5	M6.50	Safety	Comments
	0.55		050	0.04	405			450.0	5240.5	0.00		0.6	0.00		450.0	0.051	10.200	12.255	20.10	
	0.55 0.64	10 10	250 267	2.01 1.79	125 115	69 80	69 80	478.8 511.4	7268.7 6671.2	0.80 0.67	1.2	-0.6 -1.3	0.00	0.0	478.8 511.4	0.351	10.288 12.515	13.375 16.270	38.10 46.35	Above W.T. Above W.T.
	0.72	10	337.3	2.13	115	89	89	646.0	7558.6	0.63	1.1	-1.3	0.00	0.0	646.0	0.351	25.151		93.15	Above W.T.
	0.81	10	346.3	3.31	125	100	100	663.2	6953.4	0.96	1.3	0.0	0.00	0.0	663.2	0.351	27.212		100.79	Above W.T.
	0.89	10	387.7	3.67	125	110	110	742.5	7074.1	0.95	1.3	0.0	0.00	0.0	742.5	0.351	38.153		141.31	Above W.T.
	0.98	10	388.5	3.42	125	121	121	744.1	6428.4	0.88	1.2	-0.4	0.00	0.0	744.1	0.351	38.389	49.905		Above W.T.
	1.06 1.13	10 10	385.7 367.7	3.34 3.47	125 125	131 140	131 140	738.7 704.2	5894.1 5266.6	0.87 0.94	1.2 1.2	-0.6 -0.4	0.00	0.0	738.7 704.2	0.351	37.566 32.559	48.836 42.327	139.13 120.59	Above W.T. Above W.T.
	1.21	10	310.8	3.48	125	150	150	595.2	4153.7	1.12	1.3	0.2	0.00	0.0	595.2	0.351	19.694		72.94	Above W.T.
	1.29	10	285.5	2.81	125	160	160	546.8	3576.3	0.98	1.2	-0.4	0.00	0.0	546.8	0.351	15.284	19.869	56.61	Above W.T.
	1.38	10	271.2	2.3	125	171	171	519.4	3173.3	0.85	1.1	-1.0	0.00	0.0	519.4	0.351	13.111	17.045	48.56	Above W.T.
	1.46	10	231	2.71	125	181	181	442.4	2553.2	1.17	1.3	0.3	0.00	0.0	442.4	0.351	8.133	10.573	30.12	Above W.T.
	1.54	10	216.1	2.74	135	191	191	413.9	2263.3	1.27	1.3	0.7	0.00	0.0	413.9	0.351	6.673	8.675	24.72	Above W.T.
	1.63 1.71	10 10	216.2 162.7	2.24 2.06	125 135	203 213	203 213	414.1 311.6	2128.7 1526.4	1.04 1.27	1.2 1.4	-0.1 1.0	0.00	0.0	414.1 311.6	0.351	6.682 2.894	8.687 3.762	24.75 10.72	Above W.T. Above W.T.
	1.8	10	136	1.82	135	225	225	260.5	1206.8	1.34	1.4	1.5	0.00	0.0	260.5	0.351	1.723	2.240	6.38	Above W.T.
	1.88	10	151.4	1.53	125	236	236	290.0	1282.1	1.01	1.3	0.2	0.00	0.0	290.0	0.351	2.347	3.051	8.69	Above W.T.
	1.96	10	138.5	1.18	125	246	246	265.3	1125.0	0.85	1.2	-0.3	0.00	0.0	265.3	0.351	1.816	2.360	6.72	Above W.T.
	2.04	10	92.3	0.84	125	256	256	176.8	720.1	0.91	1.3	0.7	0.00	0.0	176.8	0.351	0.594	0.772	2.20	Above W.T.
	2.13	10	75.7	0.74	125	267	267	145.0	565.5	0.98	1.4	1.6	0.00	0.0	145.0	0.351	0.363	0.472	1.35	Above W.T.
	2.21 2.4	10 10	64.7 30.1	1.06 0.88	135 135	277 303	277 303	123.9 57.6	465.7 197.7	1.64 2.94	1.6 2.1	5.1 14.5	0.00 0.25	0.4 19.6	124.3 77.3	0.351	0.258 0.123	0.336 0.160	0.96 0.46	Above W.T. Above W.T.
	2.48	10	17.4	0.88	125	314	314	33.3	109.9	5.39	2.4	27.2	0.23	48.5	81.8	0.351	0.123	0.170	0.48	Above W.T.
	2.52	10	13.6	0.95		319	319	26.0	84.3	7.07	2.6	34.5	0.79	96.3	122.3	0.351	0.250	0.325	0.93	Above W.T.
	2.59	10	16.8	0.92	125	327	327	32.2	101.6	5.53	2.4	28.4	0.63	53.7	85.8	0.351	0.139	0.180	0.51	Above W.T.
	2.67	10	15.9	0.86	125	337	337	30.5	93.2	5.47	2.5	29.2	0.65	55.7	86.1	0.351	0.139	0.181	0.52	Above W.T.
	2.72	10	15.4	0.79	125	344	344	29.5	88.6	5.19	2.5	29.0	0.64	52.7	82.2	0.351	0.132	0.171	0.49	Above W.T.
	2.8	10	15.2	0.72	125	354	354	29.1	84.9	4.79	2.4	28.4	0.62	48.2	77.4	0.351	0.123	0.160	0.46	Above W.T.
	2.89 2.97	10 10	14.4 13.4	0.7 0.7	125 125	365 375	365 375	27.6 25.7	77.9 70.5	4.92 5.30	2.5 2.5	29.8 32.1	0.66 0.72	53.9 67.4	81.5 93.1	0.351	0.130 0.155	0.169 0.202	0.48 0.57	Above W.T. Above W.T.
	3.04	10	12.4	0.7	125	384	384	23.7	63.6	5.73	2.6	34.7	0.79	91.2	114.9	0.351	0.221	0.287	0.82	Above W.T.
	3.13	10	13.1	0.69	125	395	395	25.1	65.3	5.35	2.6	33.3	0.75	77.1	102.2	0.351	0.179	0.233	0.66	Above W.T.
	3.22	10	13.9	0.71	125	406	406	26.6	67.4	5.18	2.5	32.4	0.73	72.2	98.8	0.351	0.170	0.221	0.63	Above W.T.
	3.3	10	13.4	0.73	125	416	416	25.7	63.4	5.53	2.6	34.2	0.78	90.8	116.4	0.351	0.227	0.295	0.84	Above W.T.
	3.39	10	14.8	0.73	125	427	427	28.3	68.2	5.00	2.5	31.7	0.71	70.2	98.5	0.351	0.169	0.220	0.63	Above W.T.
	3.48 3.57	10 10	14.9 15.3	0.73 0.79	125 125	439 450	439 450	28.5 29.3	66.9 67.0	4.97 5.24	2.5 2.5	31.8 32.6	0.72 0.74	72.1 82.2	100.6 111.5	0.351 0.351	0.175 0.209	0.227 0.272	0.65 0.77	Above W.T. Above W.T.
	3.66	10	13.2	0.77	125	461	461	25.3	56.2	5.94	2.6	37.0	0.80	101.1	126.4	0.351	0.268	0.348	0.99	Above W.T.
	3.75	10	13.6	0.74	125	472	472	26.0	56.6	5.54	2.6	35.8	0.80	104.2	130.2	0.351	0.285	0.371	1.06	Above W.T.
	3.84	10	11.4	0.7	125	484	484	21.8	46.1	6.27	2.7	40.9	0.80	87.3	109.2	0.351	0.201	0.261	0.74	Above W.T.
	3.93	10	11.9	0.68	125	495	495	22.8	47.1	5.84	2.7	39.3	0.80	91.2	114.0	0.351	0.218	0.283	0.81	Above W.T.
	4.03	10	13.2	0.68	125	507	507	25.3	51.0	5.25	2.6	36.4	0.80	101.1	126.4	0.351	0.268	0.348	0.99	Above W.T.
	4.12 4.21	10 10	14.2 14.6	0.66 0.72	125 125	519 530	519 530	27.2 27.8	53.7 54.1	4.73 5.02	2.6 2.6	34.0 34.9	0.78 0.80	93.8 109.1	121.0 136.9	0.351	0.245 0.318	0.318 0.414	0.91 1.18	Above W.T. Above W.T.
	4.3	10	16.3	0.72	125	541	541	30.7	59.2	4.74	2.5	32.7	0.74	87.4	118.0	0.351	0.233	0.303	0.86	Above W.T.
	4.39	10	18.8	0.78	125	552	552	35.0	67.0	4.21	2.5	29.4	0.65	65.3	100.3	0.351	0.174	0.226	0.64	Above W.T.
	4.48	10	17.4	0.83	125	564	564	32.1	60.7	4.85	2.5	32.7	0.74	91.4	123.5	0.351	0.255	0.332	0.95	Above W.T.
	4.57	10	17.5	0.87	125		575	31.9	59.9	5.05	2.6	33.6	0.76	102.5	134.4	0.351	0.306	0.398	1.13	Above W.T.
	4.66	10	16.4	0.9	125	586	586	29.6	54.9	5.59	2.6	36.3	0.80	118.6	148.2	0.351	0.383	0.498	1.42	Above W.T.
	4.75 4.85	10	16.2	0.92	125	597	597 610	29.0	53.2	5.79	2.6	37.4 37.6	0.80	116.0	145.0	0.351	0.364	0.473	1.35 1.37	Above W.T. Above W.T.
	4.65	10 10	16.5 17.9	0.95 0.95	125 135	610 621	610 621	29.2 31.4	53.1 56.6	5.87 5.40	2.6 2.6	35.4	0.80 0.80	116.9 125.7	146.2 157.1	0.351 0.351	0.370 0.441	0.482 0.573	1.63	Above W.T.
	5.03	10	18	0.96	135		633	31.3	55.8	5.43	2.6	35.6	0.80	125.7	156.5	0.351	0.436	0.567	1.62	Above W.T.
	5.12	10	18.1	0.97	135		645	31.2	55.1	5.46	2.6	35.9	0.80	124.7	155.9	0.351	0.432	0.562	1.60	Above W.T.
	5.21	10	18.3	0.94	135	658	658	31.2	54.6	5.23	2.6	35.4	0.80	124.9	156.1	0.351	0.434	0.564	1.61	Above W.T.
	5.3	10	17.7	0.94	125	670	670	29.9	51.8	5.41	2.6	36.7	0.80	119.7	149.6	0.351	0.392	0.509	1.45	Above W.T.
	5.34	10	17.9	0.94	135		675	30.2	52.0	5.35	2.6	36.4	0.80	120.6	150.8	0.351	0.399	0.518	1.48	Above W.T.
	5.43 5.53	10 10	17.5 17.8	0.93 0.92	125 125	687 699	687 600	29.2 29.5	49.9 49.9	5.42 5.27	2.6	37.2 36.8	0.80 0.80	116.9 117.8	146.1 147.3	0.351 0.351	0.370 0.377	0.481 0.490	1.37 1.40	Above W.T. Above W.T.
	5.62	10	18.3	0.92	135	711	699 711	30.0	50.5	5.13	2.6 2.6	36.2	0.80	120.1	150.2	0.351	0.377	0.490	1.46	Above W.T.
	5.71	10	18.2	0.89	125	723	723	29.6	49.3	4.99	2.6	36.1	0.80	118.5	148.1	0.351	0.382	0.497	1.42	Above W.T.
	5.8	10	18.9	0.88	125		734	30.5	50.5	4.75	2.6	35.0	0.80	122.3	152.8	0.351	0.412	0.535	1.53	Above W.T.

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 26

Depth to Groundwater: 10 feet

EQ Magnitude ( $M_w$ ): 6.5 **PGA (g):** 0.54 MSF: 1.30

	D4h	Water	Tip	Sleeve	_		Effective			Friction		E C					-	Liquef.		
one	Depth (FT)	Table (FT)	Resist. (TSF)	Frict. (TSF)	g (PCF)	Stress (PSF)	Stress (PSF)	Tip Qcin	Tip Q	Ratio F	Ic	F.C. (%)	Ксрт	Dqc1N	(qcIN)es	Stress Ratio	Stress M7.5	Stress M6.50	of Safety	Comments
	5.9	10	19	0.88	125	747	747	30.4	49.9	4.72	2.6	35.1	0.80	121.7	152.1	0.351	0.407	0.530	1.51	Above W.T
	5.99	10	19.2	0.89	135	758	758	30.5	49.7	4.73	2.6	35.1	0.80	122.1	152.6	0.351	0.410	0.534	1.52	Above W.T
	6.08 6.17	10 10	19.3 20	0.9 0.9	135 135	770 782	770 782	30.4 31.3	49.1 50.1	4.76 4.59	2.6 2.6	35.4 34.6	0.80 0.79	121.7 117.0	152.2 148.3	0.351 0.351	0.408 0.383	0.530 0.498	1.51 1.42	Above W.T Above W.T
	6.26	10	21.1	0.89	135	794	794	32.8	52.1	4.30	2.6	33.0	0.75	97.3	130.1	0.351	0.285	0.370	1.05	Above W.T
	6.35	10	22.7	0.91	135	806	806	35.0	55.3	4.08	2.5	31.5	0.71	84.1	119.1	0.351	0.237	0.308	0.88	Above W.7
	6.44 6.51	10 10	23.7 24.6	0.87 0.86	135 135	819 828	819 828	36.2 37.4	56.9 58.4	3.74 3.56	2.5 2.5	29.8 28.8	0.66 0.64	71.3 65.3	107.5 102.7	0.351 0.351	0.196 0.181	0.254 0.235	0.72 0.67	Above W.7 Above W.7
	6.56	10	23.9	0.85	135	835	835	36.2	56.2	3.62	2.5	29.5	0.66	68.8	105.0	0.351	0.188	0.233	0.70	Above W.1
	6.64	10	25.7	0.82	135	846	846	38.7	59.8	3.24	2.4	27.3	0.60	56.9	95.6	0.351	0.161	0.210	0.60	Above W.T
	6.74	10	25.3	0.81	135	859	859	37.8	57.9	3.26	2.4	27.8	0.61	58.5	96.3	0.351	0.163	0.212	0.60	Above W.7
	6.83 6.92	10 10	25.5 25.2	0.81 0.84	135 135	871 883	871 883	37.8 37.1	57.5 56.0	3.23 3.39	2.4 2.5	27.7 28.7	0.61 0.63	58.5 64.1	96.3 101.2	0.351 0.351	0.163 0.176	0.212 0.229	0.60 0.65	Above W.7 Above W.7
	7.01	10	23.7	0.85	135	895	895	34.7	51.9	3.66	2.5	30.8	0.69	76.3	110.9	0.351	0.170	0.269	0.03	Above W.1
	7.1	10	21.3	0.88	135	908	908	30.9	45.9	4.22	2.6	34.6	0.79	115.8	146.8	0.351	0.374	0.486	1.39	Above W.T
	7.19	10	20.2	0.9	135	920	920	29.1	42.9	4.56	2.6	36.7	0.80	116.6	145.7	0.351	0.368	0.478	1.36	Above W.1
	7.28	10	18.8	0.9	135	932	932	26.9	39.3	4.91	2.7	39.3	0.80	107.8	134.7	0.351	0.307	0.400	1.14	Above W.T
	7.37 7.47	10 10	17.1 19	0.93 0.89	125 125	944 957	944 957	24.4 26.9	35.2 38.7	5.59 4.81	2.8	43.3 39.2	0.80	97.4 107.5	121.8 134.4	0.351 0.351	0.248 0.306	0.322 0.397	0.92 1.13	Above W.7 Above W.7
	7.55	10	21.9	0.77	125	967	967	30.8	44.3	3.60	2.5	32.8	0.74	88.2	119.0	0.351	0.237	0.308	0.88	Above W.7
	7.65	10	27.2	0.68	125	979	979	38.0	54.5	2.55	2.4	25.5	0.55	45.8	83.8	0.351	0.135	0.175	0.50	Above W.7
	7.74	10	33.8	0.56	125	990	990	47.0	67.2	1.68	2.2	18.6	0.36	26.8	73.8	0.351	0.117	0.153	0.43	Above W.7
	7.81 7.85	10	40.4 41.5	0.46	125 115	999	999	55.9	79.8 81.6	1.15	2.0	13.6 12.7	0.23	16.8 14.9	72.7	0.351	0.116	0.150	0.43	Above W.7
	7.83	10 10	47.7	0.43 0.38	115	1004 1012	1004 1012	57.3 65.6	93.2	1.05 0.81	2.0 1.9	9.8	0.21 0.13	9.7	72.2 75.3	0.351	0.115 0.120	0.150 0.156	0.43	Above W.
	8.01	10	52.1	0.32	105	1022	1022	71.3	100.9	0.62	1.8	7.7	0.07	5.6	76.9	0.351	0.122	0.159	0.45	Above W.
	8.1	10	55.7	0.31	105	1032	1032	75.9	106.9	0.56	1.7	6.8	0.05	3.9	79.8	0.351	0.127	0.165	0.47	Above W.
	8.18	10	59.9	0.29	105	1040	1040	81.3	114.1	0.49	1.7	5.7	0.02	1.6	82.9	0.351	0.133	0.173	0.49	Above W.
	8.27 8.36	10 10	61.5 62.3	0.26 0.24	95 95	1050 1058	1050 1058	83.1 83.8	116.1 116.7	0.43	1.6 1.6	5.1 4.7	0.00	0.2	83.2 83.8	0.351 0.351	0.134 0.135	0.174 0.175	0.49 0.50	Above W.
	8.58	10	59.2	0.22	95	1079	1079	78.8	108.7	0.38	1.6	5.0	0.00	0.0	78.9	0.351	0.133	0.173	0.47	Above W.
	8.67	10	56.6	0.22	95	1088	1088	75.1	103.0	0.39	1.7	5.5	0.01	1.1	76.2	0.351	0.121	0.157	0.45	Above W.
	8.76	10	53.6	0.23	95	1096	1096	70.8	96.7	0.43	1.7	6.4	0.04	2.7	73.5	0.351	0.117	0.152	0.43	Above W.
	8.85	10	49.2	0.29	105	1105	1105	64.8	88.0	0.60	1.8	8.6	0.10	6.9	71.6	0.351	0.114	0.148	0.42	Above W.
	8.94 9.03	10 10	42.9 35.6	0.4 0.55	115 125	1114 1125	1114 1125	56.2 46.4	76.0 62.3	0.94 1.57	2.0	12.6 18.8	0.20 0.37	14.4 27.0	70.7 73.5	0.351 0.351	0.113 0.117	0.147 0.152	0.42 0.43	Above W.
	9.13	10	25.9	0.65	125	1137	1137	33.6	44.5	2.57	2.4	28.2	0.62	54.9	88.5	0.351	0.117	0.132	0.53	Above W.
	9.22	10	20.5	0.65	125	1148	1148	26.5	34.7	3.26	2.6	35.1	0.80	105.9	132.3	0.351	0.296	0.384	1.09	Above W.
	9.31	10	16.3	0.58	125	1160	1160	20.9	27.1	3.69	2.7	41.0	0.80	83.8	104.7	0.351	0.187	0.243	0.69	Above W.
	9.4	10	14.2	0.48	125	1171	1171	18.2	23.2	3.53	2.7	43.0	0.80	72.6	90.8	0.351	0.150	0.194	0.55	Above W.
	9.49 9.58	10 10	13.7 10.9	0.39	125 115	1182 1193	1182 1193	17.4 13.8	22.2 17.3	2.98 2.91	2.7 2.8	41.3 45.8	0.80	69.7 55.2	87.2 69.0	0.351 0.351	0.142 0.111	0.184 0.144	0.52 0.41	Above W.
	9.67	10	10.3	0.29	115	1204	1204	13.0	16.1	2.99	2.8	47.6	0.80	52.0	64.9	0.351	0.105	0.137	0.39	Above W.
	9.77	10	10.9	0.39	115	1215	1215	13.7	16.9	3.79	2.9	50.4	0.80	54.7	68.4	0.351	0.110	0.143	0.41	Above W.
	9.86	10	13.4	0.51	125	1226	1226	16.7	20.9	3.99	2.8	47.0	0.80	67.0	83.7	0.351	0.135	0.175	0.50	Above W.
	9.94 10.03	10 10	24.5 51.6	0.58 0.59	125 125	1236 1247	1236 1241	30.5 64.1	38.6 82.1	2.43 1.16	2.5 2.0	29.6 13.4	0.66 0.22	58.0 18.5	88.5 82.6	0.351 0.346	0.145 0.132	0.188 0.172	0.54 0.50	Above W. Liquefaction
	10.03	10	74.2	0.58	115	1258	1241	91.9	118.0	0.79	1.8	7.9	0.22	7.7	99.7	0.340	0.132	0.172	0.64	Liquefacti
	10.21	10	85.6	0.51	105	1268	1252	105.9	135.7	0.60	1.7	5.5	0.01	1.6	107.4	0.349	0.195	0.254	0.73	Liquefacti
	10.3	10	89.6	0.44	105	1278	1255	110.6	141.7	0.49	1.6	4.4	0.00	0.0	110.6	0.350	0.206	0.268	0.76	Liquefaction
	10.39	10	86.8	0.43	105	1287	1259	107.0	136.8	0.50	1.6	4.7	0.00	0.0	107.0	0.352	0.194	0.252	0.72	Liquefacti
	10.48	10	77 62.9	0.44	105	1297	1263	94.8	120.8	0.58	1.7	6.1	0.03	2.9	97.7	0.353	0.167	0.217	0.61	Liquefacti
	10.57 10.66	10 10	62.8 47.8	0.46 0.52	115 125	1306 1317	1267 1272	77.2 58.6	98.1 74.1	0.74 1.10	1.8	8.9 14.0	0.10 0.24	9.0 18.6	86.2 77.2	0.355 0.356	0.140 0.123	0.181 0.160	0.51 0.45	Liquefacti Liquefacti
	10.75	10	32.7	0.61	125	1328	1277	40.0	50.1	1.90	2.3	23.3	0.49	38.1	78.1	0.358	0.123	0.160	0.45	Liquefacti
	10.84	10	23.1	0.62	125	1339	1283	28.2	35.0	2.76	2.5	32.7	0.74	80.1	108.3	0.359	0.198	0.257	0.72	Liquefacti
	10.93	10	17.5	0.53	125	1350	1289	21.3	26.1	3.15	2.7	39.3	0.80	85.3	106.7	0.360	0.193	0.251	0.70	NonLiqfb
	11.02	10	13.4	0.35	115	1362	1294	16.3	19.6	2.75	2.7	42.5	0.80	65.2	81.5	0.362	0.130	0.169	0.47	NonLiqfb
	11.11 11.2	10 10	10.9 10.7	0.28 0.26	115 115	1372 1382	1299 1304	13.2 13.0	15.7 15.3	2.74 2.60	2.8	46.8 46.5	0.80	52.9 51.9	66.2 64.8	0.363 0.365	0.107 0.105	0.139 0.137	0.38 0.38	NonLiqfbl
	11.29	10	9.4	0.26	105	1393	1304	11.4	13.3	2.64	2.8	46.5 49.8	0.80	45.5	56.9	0.365	0.105	0.137	0.38	NonLiqfbl NonLiqfbl
	11.38	10	9.4	0.22	105	1402	1312	11.4	13.3	2.53	2.9	49.2	0.80	45.4	56.8	0.368	0.097	0.126	0.34	NonLiqfbl
	11.47	10	9.9	0.23	105	1412	1316	11.9	14.0	2.50	2.8	47.9	0.80	47.8	59.7	0.369	0.100	0.130	0.35	NonLiqfbl

Date: September 2005 CPT Number: 26

Depth to Groundwater: 10 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	q <sub>c1N</sub>	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es		M7.5	M6.50		Comments
	()	()	()	()	()	(= == )	()	-				(,,,							20017	
	11.56	10	9.2	0.25	105	1421	1320	11.1	12.9	2.94	2.9	52.2	0.80	44.3	55.4	0.370	0.096	0.125	0.34	NonLigfble.
	11.65	10	9.6	0.23	115	1430	1324	11.5	13.4	3.04	2.9	51.7	0.80	46.2	57.7	0.370	0.098	0.123	0.34	NonLiqfble.
	11.74	10	10	0.28	115	1441	1328	12.0	14.0	3.02	2.9	50.8	0.80	48.0	60.0	0.373	0.100	0.130	0.35	NonLiqfble.
	11.83	10	9.6	0.29	115	1451	1333	11.5	13.3	3.27	2.9	53.1	0.80	46.0	57.5	0.374	0.098	0.127	0.34	NonLiqfble.
	12.04 12.13	10 10	8.4 8.3	0.31 0.32	115 115	1475 1486	1344 1349	10.0 9.9	11.4 11.2	4.05 4.23	3.0	60.3 61.6	0.80	40.1 39.6	50.1 49.4	0.378 0.379	0.092	0.119 0.119	0.32	NonLiqfble. NonLiqfble.
	12.13	10	8.8	0.36	115	1496	1354	10.5	11.9	4.47	3.0	61.1	0.80	41.9	52.3	0.379	0.091	0.119	0.31	NonLiqfble.
	12.32	10	8	0.36	115	1508	1359	9.5	10.7	4.97	3.1	65.8	0.80	38.0	47.5	0.382	0.090	0.117	0.31	NonLiqfble.
	12.41	10	7.2	0.38	115	1518	1364	8.5	9.4	5.90	3.2	72.4	0.80	34.1	42.7	0.383	0.087	0.113	0.30	NonLiqfble.
	12.5 12.59	10 10	7.8 6.4	0.36 0.35	115 115	1528 1539	1368 1373	9.2 7.6	10.3 8.2	5.12 6.22	3.1	67.3 77.3	0.80	36.9 30.2	46.1 37.8	0.384 0.385	0.089 0.085	0.116 0.111	0.30	NonLiqfble. NonLiqfble.
	12.59	10	7	0.33	115	1549	1378	8.3	9.0	5.46	3.2	71.9	0.80	33.0	41.3	0.387	0.083	0.111	0.29	NonLiqfble.
	12.77	10	8.1	0.32	115	1559	1383	9.5	10.6	4.37	3.1	63.5	0.80	38.1	47.7	0.388	0.090	0.117	0.30	NonLiqfble.
	12.87	10	8.2	0.29	115	1571	1388	9.6	10.7	3.91	3.0	61.3	0.80	38.5	48.2	0.389	0.090	0.117	0.30	NonLiqfble.
	12.96	10	8.9	0.27	105	1581	1393	10.4	11.6	3.33	3.0	56.4	0.80	41.7	52.2	0.391	0.093	0.121	0.31	NonLiqfble.
	13.05 13.14	10 10	8 7.6	0.27 0.23	105 105	1591 1600	1396 1400	9.4 8.9	10.3 9.7	3.75 3.38	3.0	61.3 61.0	0.80	37.5 35.5	46.8 44.4	0.392 0.393	0.090 0.088	0.116 0.115	0.30	NonLiqfble. NonLiqfble.
	13.23	10	7.1	0.23	105	1609	1404	8.3	9.0	3.65	3.1	64.4	0.80	33.2	41.5	0.394	0.087	0.113	0.29	NonLiqfble.
	13.33	10	7.6	0.27	105	1620	1408	8.9	9.6	3.98	3.1	64.1	0.80	35.4	44.3	0.396	0.088	0.115	0.29	NonLiqfble.
	13.42	10	6.5	0.28	105	1629	1412	7.6	8.0	4.93	3.2	72.9	0.80	30.3	37.8	0.397	0.085	0.111	0.28	NonLiqfble.
	13.51	10	7	0.31	105	1639	1416	8.1	8.7	5.02	3.2	71.1	0.80	32.6	40.7	0.398	0.086	0.112	0.28	NonLiqfble.
	13.61 13.7	10 10	7.1 7.7	0.33 0.35	115 115	1649 1660	1420 1425	8.2 8.9	8.8 9.6	5.26 5.09	3.2	71.8 68.8	0.80	33.0 35.7	41.2 44.6	0.399 0.401	0.087 0.088	0.112 0.115	0.28	NonLiqfble. NonLiqfble.
	13.79	10	8.1	0.37	115	1670	1430	9.4	10.2	5.09	3.1	67.5	0.80	37.5	46.9	0.402	0.090	0.116	0.29	NonLiqfble.
	13.88	10	7.8	0.39	115	1680	1435	9.0	9.7	5.60	3.2	70.6	0.80	36.0	45.1	0.403	0.089	0.115	0.29	NonLiqfble.
	13.98	10	8.2	0.39	115	1692	1440	9.5	10.2	5.30	3.1	68.2	0.80	37.8	47.3	0.404	0.090	0.117	0.29	NonLiqfble.
	14.07	10	8.5	0.38	115	1702	1445	9.8	10.6	4.97	3.1	66.0	0.80	39.1	48.9	0.405	0.091	0.118	0.29	NonLiqfble.
	14.16 14.25	10 10	8.6 9.3	0.38	115 115	1713 1723	1449 1454	9.9 10.7	10.7 11.6	4.91 4.62	3.1	65.5 62.3	0.80	39.5 42.7	49.4 53.4	0.406 0.408	0.091 0.094	0.119 0.122	0.29	NonLiqfble. NonLiqfble.
	14.34	10	9.2	0.41	115	1733	1459	10.7	11.4	4.92	3.1	63.9	0.80	42.2	52.7	0.409	0.094	0.122	0.30	NonLiqfble.
	14.43	10	9.6	0.43	115	1744	1463	11.0	11.9	4.93	3.1	62.9	0.80	43.9	54.9	0.410	0.095	0.124	0.30	NonLiqfble.
	14.52	10	10.1	0.45	115	1754	1468	11.5	12.6	4.88	3.0	61.5	0.80	46.1	57.7	0.411	0.098	0.127	0.31	NonLiqfble.
	14.62	10	10.3	0.47	115	1766	1473	11.7	12.8	4.99	3.0	61.5	0.80	47.0	58.7	0.412	0.099	0.128	0.31	NonLiqfble.
	14.71 14.8	10 10	9.7 9.4	0.48 0.47	115 115	1776 1786	1478 1483	11.0 10.7	11.9 11.5	5.45 5.53	3.1	64.9 66.1	0.80	44.2 42.7	55.2 53.4	0.413 0.414	0.096 0.094	0.124 0.122	0.30 0.30	NonLiqfble. NonLiqfble.
	14.89	10	9.5	0.47	115	1797	1488	10.8	11.6	5.46	3.1	65.7	0.80	43.1	53.9	0.415	0.095	0.123	0.30	NonLiqfble.
	14.98	10	10.1	0.47	115	1807	1492	11.4	12.3	5.11	3.1	62.8	0.80	45.8	57.2	0.416	0.097	0.127	0.30	NonLiqfble.
	15.07	10	9.7	0.48	115	1817	1497	11.0	11.7	5.46	3.1	65.3	0.80	43.9	54.8	0.418	0.095	0.124	0.30	NonLiqfble.
	15.17	10	10.5	0.45	115	1829	1502	11.9	12.8	4.69	3.0	60.4	0.80	47.4	59.3	0.419	0.099	0.129	0.31	NonLiqfble.
	15.26 15.35	10 10	10.1 9.8	0.4 0.42	115 115	1839 1849	1507 1512	11.4 11.0	12.2 11.7	4.36 4.73	3.0	60.1 62.5	0.80	45.5 44.1	56.9 55.1	0.420 0.421	0.097 0.096	0.126 0.124	0.30	NonLiqfble. NonLiqfble.
	15.44	10	9.8	0.44	115	1860	1517	11.0	11.7	4.96	3.1	63.5	0.80	44.0	55.1	0.422	0.096	0.124	0.29	NonLiqfble.
	15.49	10	9.7	0.45	115	1866	1519	10.9	11.5	5.13	3.1	64.5	0.80	43.6	54.4	0.422	0.095	0.124	0.29	NonLiqfble.
	15.58	10	9.5	0.47	115	1876	1524	10.6	11.2	5.49	3.1	66.5	0.80	42.6	53.2	0.423	0.094	0.122	0.29	NonLiqfble.
	15.67 15.77	10	9.8 8.9	0.48	115 115	1886 1898	1529	11.0 9.9	11.6	5.42	3.1	65.5	0.80	43.9	54.8	0.424	0.095	0.124	0.29	NonLiqfble.
	15.86	10 10	8.9	0.48 0.45	115	1908	1534 1539	9.9	10.4 10.3	6.04 5.66	3.2 3.2	70.4 69.2	0.80	39.8 39.7	49.7 49.6	0.426 0.427	0.091	0.119 0.119	0.28	NonLiqfble. NonLiqfble.
	15.95	10	9	0.42	115	1918	1543	10.0	10.4	5.22	3.1	67.4	0.80	40.1	50.1	0.428	0.092	0.119	0.28	NonLiqfble.
	16.04	10	8.9	0.41	115	1929	1548	9.9	10.2	5.17	3.1	67.5	0.80	39.6	49.5	0.429	0.091	0.119	0.28	NonLiqfble.
	16.14	10	8.8	0.39	115	1940	1553	9.8	10.1	4.98	3.1	67.3	0.80	39.1	48.8	0.430	0.091	0.118	0.27	NonLiqfble.
	16.23 16.32	10 10	9.5 10.2	0.38 0.4	115 115	1951 1961	1558 1563	10.5 11.3	10.9 11.8	4.46 4.34	3.1	63.1 60.8	0.80	42.1 45.2	52.7 56.4	0.431 0.432	0.094 0.097	0.122 0.126	0.28	NonLiqfble. NonLiqfble.
	16.41	10	10.2	0.44	115	1971	1568	11.4	11.9	4.72	3.1	62.2	0.80	45.5	56.9	0.432	0.097	0.126	0.29	NonLiqfble.
	16.51	10	11	0.5	125	1983	1573	12.1	12.7	5.00	3.0	61.6	0.80	48.5	60.7	0.434	0.101	0.120	0.30	NonLiqfble.
	16.6	10	11.8	0.59	125	1994	1579	13.0	13.7	5.46	3.0	61.6	0.80	52.0	65.0	0.435	0.106	0.137	0.32	NonLiqfble.
	16.69	10	12.5	0.67	125	2005	1584	13.7	14.5	5.83	3.0	61.6	0.80	55.0	68.7	0.435	0.110	0.143	0.33	NonLiqfble.
	16.78 16.88	10	13.1 13.6	0.74 0.79	125 125	2017 2029	1590 1596	14.4 14.9	15.2	6.12 6.28	3.0	61.5 61.1	0.80	57.5 59.6	71.9	0.436 0.437	0.115 0.118	0.149 0.154	0.34 0.35	NonLiqfble.
	16.88	10 10	12.1	0.79	125	2029	1602	13.2	15.8 13.8	7.22	3.0	67.1	0.80	59.6 52.9	74.5 66.1	0.437	0.118	0.134	0.35	NonLiqfble. NonLiqfble.
	17.06	10	11.7	0.77	125	2052	1607	12.8	13.3	7.21	3.1	68.0	0.80	51.1	63.8	0.439	0.104	0.135	0.31	NonLiqfble.
	17.15	10	10.3	0.71	125	2063	1613	11.2	11.5	7.66	3.2	72.9	0.80	44.9	56.1	0.440	0.096	0.125	0.28	NonLiqfble.
	17.25	10	9.3	0.64	125	2075	1619	10.1	10.2	7.75	3.2	76.3	0.80	40.4	50.6	0.441	0.092	0.120	0.27	NonLiqfble.
	17.34	10	9.6	0.57	125	2087	1625	10.4	10.5	6.66	3.2	72.1	0.80	41.7	52.1	0.442	0.093	0.121	0.27	NonLiqfble.

Date: September 2005

Depth to Groundwater: 10 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30 CPT Number: 26

	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	l Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	q <sub>c1N</sub>	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es		M7.5	M6.50		Comments
	()	()	()	()	()	()	(= == )	-				(,,,							~	
	17.40	10	0.4	0.50	445	2000	1620	10.2	10.2	6.22	2.2	71.4	0.00	40.7	50.0	0.442	0.002	0.120	0.27	N. T. 01
	17.43 17.52	10 10	9.4 9.3	0.52 0.48	115 115	2098 2108	1630 1635	10.2 10.1	10.2 10.1	6.23 5.82	3.2	71.4 70.4	0.80	40.7 40.3	50.9 50.3	0.443	0.092 0.092	0.120 0.119	0.27 0.27	NonLiqfble. NonLiqfble.
	17.61	10	9.2		115	2119	1640	9.9	9.9	5.53	3.2	69.7	0.80	39.8	49.7	0.444	0.091	0.119	0.27	NonLiqfble.
	17.7	10	8.6	0.45	115	2129	1645	9.3	9.2	5.97	3.2	73.4	0.80	37.1	46.4	0.445	0.089	0.116	0.26	NonLiqfble.
	17.8	10	7.8	0.45	115	2140	1650	8.4	8.2	6.69	3.3	79.0	0.80	33.6	42.0	0.446	0.087	0.113	0.25	NonLiqfble.
	17.89	10	7.4	0.43	115	2151	1655	8.0	7.6	6.80	3.3	81.2	0.80	31.8	39.8	0.447	0.086	0.112	0.25	NonLiqfble.
	17.98 18.07	10 10	7.6 8.2	0.41 0.4	115 115	2161 2171	1659 1664	8.2 8.8	7.9 8.5	6.29 5.62	3.3	78.7 27.7	0.80 0.61	32.7 13.5	40.8 22.3	0.448 0.449	0.086 0.081	0.112 0.105	0.25 0.23	NonLiqfble. NonLiqfble.
	18.16	10	8.6	0.38	115	2182	1669	9.2	9.0	5.06	3.2	27.7	0.61	14.2	23.4	0.450	0.081	0.106	0.23	NonLiqfble.
	18.25	10	9.2	0.38	115	2192	1674	9.8	9.7	4.69	3.1	27.7	0.61	15.1	25.0	0.451	0.081	0.106	0.24	NonLiqfble.
	18.34	10	10.3	0.4	115	2203	1678	11.0	11.0	4.35	3.1	27.7	0.61	16.9	27.9	0.451	0.082	0.107	0.24	NonLiqfble.
	18.44	10	10.9	0.42	115	2214	1684	11.6	11.6	4.29	3.0	27.7	0.61	17.9	29.5	0.452	0.082	0.107	0.24	NonLiqfble.
	18.53 18.62	10 10	11.5 12.6	0.44 0.42	125 125	2224 2236	1688 1694	12.2 13.4	12.3 13.6	4.24 3.66	3.0 2.9	27.7 27.7	0.61 0.61	18.8 20.6	31.1 34.0	0.453 0.454	0.083 0.084	0.108 0.109	0.24 0.24	NonLiqfble. NonLiqfble.
	18.71	10	12.6		125	2247	1700	13.4	13.5	3.57	2.9	27.7	0.61	20.6	33.9	0.455	0.084	0.109	0.24	NonLiqfble.
	18.8	10	13.3	0.45	125	2258	1705	14.1	14.3	3.70	2.9	27.7	0.61	21.7	35.8	0.456	0.084	0.110	0.24	NonLiqfble.
	18.89	10	13.4	0.4	125	2269	1711	14.2	14.3	3.26	2.9	27.7	0.61	21.8	36.0	0.456	0.084	0.110	0.24	NonLiqfble.
	18.95	10	14.1	0.35	115	2277	1715	14.9	15.1	2.70	2.8	27.7	0.61	22.9	37.8	0.457	0.085	0.111	0.24	NonLiqfble.
	18.98 19.05	10 10	14.6 14.4	0.33	115 115	2280 2288	1716 1720	15.4 15.2	15.7 15.4	2.45 2.19	2.8 2.8	27.7 27.7	0.61 0.61	23.7 23.4	39.1 38.6	0.457 0.458	0.086 0.085	0.111 0.111	0.24 0.24	NonLiqfble. NonLiqfble.
	19.14	10	13.4		115	2299	1725	14.1	14.2	2.37	2.8	27.7	0.61	21.7	35.8	0.458	0.084	0.111	0.24	NonLiqfble.
	19.23	10	12.7	0.31	115	2309	1729	13.4	13.3	2.69	2.9	27.7	0.61	20.6	33.9	0.459	0.084	0.109	0.24	NonLiqfble.
	19.33	10	12.3	0.34	115	2321	1735	12.9	12.8	3.05	2.9	27.7	0.61	19.9	32.8	0.460	0.083	0.108	0.24	NonLiqfble.
	19.42	10	12.5		115	2331	1739	13.1	13.0	3.44	2.9	27.7	0.61	20.2	33.3	0.461	0.083	0.108	0.24	NonLiqfble.
	19.51 19.6	10 10	13.2 13.3	0.43 0.46	125 125	2341 2353	1744 1750	13.8 13.9	13.8 13.9	3.57 3.79	2.9 2.9	27.7 54.7	0.61 0.80	21.3 55.6	35.1 69.6	0.462 0.462	0.084 0.111	0.109 0.145	0.24 0.31	NonLiqfble. NonLiqfble.
	19.69	10	13.9		125	2364	1755	14.5	14.5	3.62	2.9	52.9	0.80	58.1	72.6	0.463	0.111	0.143	0.32	NonLiqfble.
	19.79	10	13.6		125	2376	1762	14.2	14.1	3.71	2.9	53.9	0.80	56.7	70.9	0.464	0.113	0.147	0.32	NonLiqfble.
	19.88	10	13.8	0.43	125	2388	1767	14.4	14.3	3.41	2.9	52.3	0.80	57.5	71.8	0.465	0.114	0.149	0.32	NonLiqfble.
	19.96	10	13.2		115	2398	1772	13.7	13.5	3.17	2.9	52.2	0.80	54.9	68.6	0.465	0.110	0.143	0.31	NonLiqfble.
	20.05 20.15	10 10	12.7 11.8	0.32 0.27	115 115	2408 2419	1777 1782	13.2 12.2	12.9 11.9	2.78 2.55	2.9 2.9	51.2 51.7	0.80	52.7 48.9	65.9 61.1	0.457 0.457	0.107 0.101	0.139 0.132	0.30 0.29	NonLiqfble. NonLiqfble.
	20.13	10	11.5		105	2430	1787	11.9	11.5	2.24	2.9	50.5	0.80	47.6	59.5	0.458	0.101	0.132	0.28	NonLiqfble.
	20.33	10	11.9	0.21	105	2439	1791	12.3	11.9	1.97	2.8	47.9	0.80	49.2	61.5	0.459	0.102	0.132	0.29	NonLiqfble.
	20.43	10	12.5		105	2450	1795	12.9	12.6	1.95	2.8	46.6	0.80	51.6	64.5	0.460	0.105	0.137	0.30	NonLiqfble.
	20.51	10	13	0.25	115	2458	1798	13.4	13.1	2.12	2.8	46.9	0.80	53.6	67.1	0.461	0.108	0.140	0.31	NonLiqfble.
	20.61 20.7	10 10	12.9 12.5	0.24 0.25	115 115	2470 2480	1804 1808	13.3 12.9	12.9 12.4	2.06 2.22	2.8 2.8	46.8 48.6	0.80	53.2 51.4	66.4 64.3	0.461 0.462	0.107 0.105	0.139 0.136	0.30	NonLiqfble. NonLiqfble.
	20.79	10	12.4	0.23	115	2490	1813	12.7	12.4	2.42	2.9	50.2	0.80	51.4	63.7	0.463	0.103	0.135	0.29	NonLiqfble.
	20.88	10	12.5		115	2501	1818	12.8	12.4	2.67	2.9	51.5	0.80	51.3	64.1	0.463	0.105	0.136	0.29	NonLiqfble.
	20.97	10	12.8	0.32	115	2511	1823	13.1	12.7	2.77	2.9	51.6	0.80	52.5	65.6	0.464	0.106	0.138	0.30	NonLiqfble.
	21.07	10	13		115	2522	1828	13.3	12.8	2.98	2.9	52.4	0.80	53.2	66.5	0.465	0.107	0.140	0.30	NonLiqfble.
	21.16 21.25	10 10	12.8 12.2	0.37 0.39	115 115	2533 2543	1833 1837	13.1 12.5	12.6 11.9	3.21 3.57	2.9 3.0	54.0 57.1	0.80	52.3 49.8	65.4 62.3	0.466 0.466	0.106 0.102	0.138 0.133	0.30 0.29	NonLiqfble. NonLiqfble.
	21.23	10	11	0.42	115	2554	1842	11.2	10.6	4.32	3.1	63.4	0.80	44.9	56.1	0.467	0.102	0.133	0.27	NonLiqfble.
	21.43	10	9.8	0.44	115	2564	1847	10.0	9.2	5.17	3.2	70.3	0.80	39.9	49.9	0.468	0.092	0.119	0.25	NonLiqfble.
	21.52	10	8.8	0.41	115	2574	1852	8.9	8.1	5.46	3.2	74.8	0.80	35.8	44.7	0.468	0.088	0.115	0.25	NonLiqfble.
	21.61	10	7.4	0.37	115	2585	1856	7.5	6.6	6.06	3.3	83.0	0.80	30.1	37.6	0.469	0.085	0.110	0.24	NonLiqfble.
	21.7 21.79	10 10	7.6 7		115 105	2595 2605	1861 1866	7.7 7.1	6.8	5.08 4.74	3.3	78.4 79.9	0.80	30.8 28.4	38.5 35.5	0.470 0.471	0.085 0.084	0.111 0.109	0.24 0.23	NonLiqfble. NonLiqfble.
	21.89	10	7	0.26	105	2616	1870	7.1	6.1	4.57	3.3	79.3	0.80	28.3	35.4	0.471	0.084	0.109	0.23	NonLiqfble.
	21.98	10	8.5		115	2625	1874	8.6	7.7	4.31	3.2	71.6	0.80	34.4	43.0	0.472	0.087	0.114	0.24	NonLiqfble.
	22.07	10	9.3		115	2636	1879	9.4	8.5	4.13	3.1	68.1	0.80	37.6	46.9	0.473	0.090	0.117	0.25	NonLiqfble.
	22.16	10	10.4		115	2646	1883	10.5	9.6	3.97	3.1	64.1	0.80	41.9	52.4	0.473	0.093	0.121	0.26	NonLiqfble.
	22.25 22.34	10 10	11.6 13.3		115 125	2656 2667	1888 1893	11.7 13.4	10.9 12.6	3.80 3.43	3.0 2.9	60.3 55.0	0.80	46.7 53.5	58.4 66.9	0.474 0.475	0.099 0.108	0.128 0.140	0.27 0.30	NonLiqfble. NonLiqfble.
	22.43	10	14.1	0.41	125	2678	1898	14.2	13.4	3.45	2.9	53.8	0.80	56.6	70.8	0.475	0.108	0.140	0.30	NonLiqfble.
	22.69	10	17.2		125	2710	1915	17.2	16.5	3.09	2.8	47.6	0.80	68.8	86.0	0.477	0.139	0.181	0.38	NonLiqfble.
	22.78	10	18		125	2722	1920	18.0	17.3	2.94	2.8	45.9	0.80	71.9	89.9	0.478	0.147	0.192	0.40	NonLiqfble.
	22.87	10	19.3		125	2733	1926	19.2	18.6	2.68	2.7	43.1	0.80	77.0	96.2	0.478	0.163	0.212	0.44	NonLiqfble.
	22.96 23.05	10 10	19.5 19.1	0.47 0.48	125 125	2744 2755	1932 1937	19.4 19.0	18.8 18.3	2.59 2.71	2.7 2.8	42.5 43.6	0.80	77.7 75.9	97.1 94.9	0.479 0.479	0.165 0.160	0.215 0.207	0.45 0.43	NonLiqfble. NonLiqfble.
	23.14	10	18.6			2767	1943	18.5	17.7	2.90	2.8	45.3	0.80	73.9	92.3	0.480	0.153	0.199	0.43	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54

**MSF:** 1.30 CPT Number: 26 Depth to Groundwater: 10 feet

	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	l Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es		M7.5	M6.50	Safety	Comments
Conc	(1 1)	(1 1)	(101)	(101)	(101)	(151)	(101)	-	·			(,0)		-	(1 )	14410	1/1/10	1120100	Survey	Comments
	00.00	10	40.4	0.5	105	2770	1040	17.0	17.1	2.00	2.0	46.4	0.00	71.0	00.7	0.400	0.147	0.101	0.40	N. T. 01
	23.23 23.32	10 10	18.1 16.6	0.5 0.5	125 125	2778 2789	1949 1954	17.9 16.4	17.1 15.6	2.99 3.29	2.8 2.9	46.4 49.8	0.80	71.8 65.7	89.7 82.2	0.480 0.481	0.147 0.132	0.191 0.171	0.40 0.36	NonLiqfble. NonLiqfble.
	23.41	10	15.6	0.51	125	2800	1960	15.4	14.5	3.59	2.9	52.8	0.80	61.7	77.1	0.481	0.123	0.159	0.33	NonLiqfble.
	23.5	10	15.1	0.5	125	2812	1965	14.9	13.9	3.65	2.9	53.9	0.80	59.6	74.5	0.482	0.118	0.154	0.32	NonLiqfble.
	23.59	10	15.1	0.46	125	2823	1971	14.9	13.9	3.36	2.9	52.6	0.80	59.5	74.4	0.483	0.118	0.154	0.32	NonLiqfble.
	23.69	10	14.4	0.45	125	2835	1977	14.2	13.1	3.47	2.9	54.4	0.80	56.7	70.8	0.483	0.113	0.147	0.30	NonLiqfble.
	23.78 23.87	10 10	14.8 14.9	0.45 0.44	125 125	2847 2858	1983 1989	14.5 14.6	13.5 13.5	3.36 3.27	2.9 2.9	53.3 52.7	0.80	58.2 58.5	72.7 73.1	0.484 0.484	0.116 0.116	0.150 0.151	0.31	NonLiqfble. NonLiqfble.
	23.96	10	14.6	0.42	125	2869	1994	14.3	13.2	3.19	2.9	52.9	0.80	57.2	71.5	0.485	0.114	0.148	0.31	NonLiqfble.
	24.05	10	15.1	0.4	125	2880	2000	14.8	13.7	2.93	2.9	50.8	0.80	59.1	73.9	0.485	0.117	0.153	0.31	NonLiqfble.
	24.14	10	15.7	0.39	125	2892	2006	15.3	14.2	2.74	2.8	48.9	0.80	61.4	76.7	0.486	0.122	0.159	0.33	NonLiqfble.
	24.23 24.32	10	15.9	0.39	125 125	2903 2914	2011	15.5	14.4	2.70	2.8	48.4	0.80	62.1	77.6	0.486	0.123	0.160	0.33	NonLiqfble.
	24.32	10 10	16.4 17.4	0.39	125	2914	2017 2022	16.0 16.9	14.8 15.8	2.61 2.45	2.8 2.8	47.3 45.1	0.80	63.9 67.7	79.9 84.6	0.487 0.487	0.127 0.136	0.166 0.177	0.34 0.36	NonLiqfble. NonLiqfble.
	24.5	10	17.3	0.38	125	2937	2028	16.8	15.6	2.40	2.8	45.0	0.80	67.2	84.0	0.488	0.135	0.176	0.36	NonLiqfble.
	24.59	10	17.2	0.37	125	2948	2034	16.7	15.5	2.35	2.8	44.9	0.80	66.8	83.4	0.488	0.134	0.174	0.36	NonLiqfble.
	24.68	10	16.8	0.35	125	2959	2039	16.3	15.0	2.28	2.8	45.1	0.80	65.1	81.4	0.489	0.130	0.169	0.35	NonLiqfble.
	24.77	10	16.5	0.34	115	2970	2045	16.0	14.7	2.26	2.8	45.4	0.80	63.9	79.8	0.489	0.127	0.165	0.34	NonLiqfble.
	24.86 24.95	10 10	16.1 16.7	0.33 0.35	115 125	2981 2991	2050 2054	15.6 16.1	14.2 14.8	2.26 2.30	2.8 2.8	46.0 45.5	0.80	62.2 64.5	77.8 80.6	0.490 0.491	0.124 0.129	0.161 0.167	0.33 0.34	NonLiqfble. NonLiqfble.
	25.04	10	17.2	0.39	125	3002	2060	16.6	15.2	2.48	2.8	46.0	0.80	66.3	82.9	0.491	0.133	0.173	0.35	NonLiqfble.
	25.13	10	19.5	0.56	125	3014	2066	18.8	17.4	3.11	2.8	46.7	0.80	75.1	93.9	0.492	0.157	0.204	0.41	NonLiqfble.
	25.21	10	26.2	0.9	135	3024	2071	25.2	23.8	3.65	2.7	43.1	0.80	100.8	126.0	0.492	0.266	0.346	0.70	NonLiqfble.
	25.29	10	35.5	1.32	135	3034	2077	34.1	32.7	3.88	2.7	38.6	0.80	136.3	170.4	0.492	0.540	0.703	1.43	NonLiqfble.
	25.36 25.42	10 10	46.5 67.5	1.65 1.94	135 135	3044 3052	2082 2086	44.6 64.7	43.2 63.2	3.67 2.94	2.6 2.4	33.4 25.4	0.76 0.54	140.0 77.1	184.6 141.8	0.493 0.493	0.665 0.345	0.864 0.449	1.75 0.91	Liquefaction
	25.51	10	100.1	2.34	135	3064	2092	95.7	94.2	2.37	2.2	18.6	0.36	54.4	150.1	0.493	0.395	0.513	1.04	Low F.S.
	25.59	10	117.3	2.64	135	3075	2098	112.0	110.3	2.28	2.1	16.7	0.31	50.7	162.7	0.494	0.481	0.625	1.27	
	25.68	10	122.7	2.66	135	3087	2105	117.0	115.1	2.20	2.1	15.9	0.29	48.1	165.1	0.494	0.499	0.648	1.31	
	25.77 25.86	10 10	126.2 118.3	2.72 2.25	135 135	3099 3111	2111 2118	120.2 112.5	118.0 110.2	2.18 1.93	2.1	15.6 15.1	0.28	47.6 41.3	167.8 153.7	0.495 0.495	0.519 0.418	0.675 0.543	1.36 1.10	Low F.S.
	25.93	10	122.9	2.23	135	3121	2118	116.7	114.3	1.93	2.1	14.7	0.27	40.8	157.5	0.495	0.418	0.576	1.16	Low F.S.
	25.97	10	123.5	2.36	135	3126	2126	117.2	114.7	1.94	2.1	14.7	0.26	41.2	158.4	0.496	0.450	0.585	1.18	Low F.S.
	26.05	10	120.2	2.39	135	3137	2132	113.9	111.3	2.01	2.1	15.4	0.28	43.7	157.6	0.496	0.444	0.577	1.16	Low F.S.
	26.14	10	118.9	2.38	135	3149	2138	112.5	109.7	2.03	2.1	15.6	0.28	44.2	156.7	0.496	0.438	0.570	1.15	Low F.S.
	26.22 26.3	10 10	123 123.9	2.28 1.97	135 135	3160 3171	2144 2150	116.2 116.9	113.2 113.7	1.88 1.61	2.1	14.6 13.2	0.26 0.22	39.9 32.7	156.2 149.7	0.497 0.497	0.434 0.392	0.564 0.509	1.14 1.02	Low F.S. Low F.S.
	26.39	10	116.7	1.66	135	3183	2156	110.9	106.7	1.44	2.0	12.8	0.22	29.0	139.0	0.497	0.332	0.428	0.86	Liquefaction
	26.47	10	103.5	1.53	135	3194	2162	97.4	94.2	1.50	2.0	14.2	0.25	31.9	129.3	0.498	0.281	0.365	0.73	Liquefaction
	26.52	10	95.9	1.56	135	3200	2166	90.2	87.0	1.65	2.1	15.8	0.29	36.6	126.8	0.498	0.270	0.350	0.70	Liquefaction
	26.58	10	90.1	1.49	135	3209	2170	84.6	81.5	1.68	2.1	16.6	0.31	38.0	122.7	0.498	0.252	0.327	0.66	Liquefaction
	26.67 26.75	10 10	76.4 67.1	1.45 1.52	135 135	3221 3231	2177 2183	71.6 62.8	68.7 60.0	1.94 2.32	2.2	19.8 23.2	0.39 0.49	46.6 59.6	118.2 122.4	0.499 0.499	0.234 0.251	0.304 0.326	0.61 0.65	Liquefaction Liquefaction
	26.82	10	60.7	1.52	135	3241	2188	56.8	54.0	2.57	2.4	25.7	0.55	70.3	127.1	0.499	0.271	0.352	0.71	Liquefaction
	26.9	10	54.4	1.43	135	3252	2193	50.8	48.1	2.71	2.4	27.9	0.61	79.6	130.4	0.500	0.286	0.372	0.74	Liquefaction
	26.99	10	43.4	1.26	135	3264	2200	40.5	38.0	3.02	2.5	32.6	0.74	113.6	154.0	0.500	0.420	0.546	1.09	Low F.S.
	27.07	10	29 22.8	1.07 0.89	135 135	3275 3287	2206 2212	27.0 21.2	24.8	3.91	2.8	43.5 49.6	0.80	108.1	135.1	0.500	0.309	0.402	0.80	NonLiqfble.
	27.16 27.25	10 10	17.9	0.89	125	3299	2212	16.6	19.1 14.6	4.21 4.43	3.0	56.2	0.80	84.8 66.5	106.0 83.1	0.501 0.501	0.191 0.133	0.248 0.173	0.50 0.35	NonLiqfble. NonLiqfble.
	27.34	10	14.8	0.6	125	3310	2224	13.7	11.8	4.56	3.0	61.7	0.80	54.9	68.6	0.501	0.110	0.143	0.29	NonLiqfble.
	27.42	10	13.8	0.5	125	3320	2229	12.8	10.9	4.12	3.0	61.7	0.80	51.2	63.9	0.502	0.104	0.136	0.27	NonLiqfble.
	27.5	10	12.4	0.43	125	3330	2234	11.5	9.6	4.01	3.1	27.7	0.61	17.7	29.1	0.502	0.082	0.107	0.21	NonLiqfble.
	27.58 27.66	10 10	11.3 11	0.41 0.36	115 115	3340 3349	2239 2244	10.4 10.2	8.6 8.3	4.26 3.86	3.1	27.7 27.7	0.61	16.1 15.6	26.5 25.8	0.503 0.503	0.082 0.082	0.106 0.106	0.21 0.21	NonLiqfble. NonLiqfble.
	27.74	10	10.7	0.36	115	3359	2244	9.9	8.0	3.22	3.1	27.7	0.61 0.61	15.0	25.8	0.503	0.082	0.106	0.21	NonLiqible. NonLiqfble.
	27.82	10	10.3	0.26	115	3368	2252	9.5	7.6	3.02	3.1	27.7	0.61	14.6	24.1	0.504	0.081	0.106	0.21	NonLiqfble.
	27.91	10	9.6	0.24	105	3378	2257	8.8	7.0	3.03	3.1	27.7	0.61	13.6	22.4	0.504	0.081	0.105	0.21	NonLiqfble.
	27.99	10	9.8	0.22	105	3387	2260	9.0	7.2	2.71	3.1	27.7	0.61	13.9	22.9	0.505	0.081	0.105	0.21	NonLiqfble.
	28.07 28.15	10 10	9.6 9.3	0.19 0.17	105 105	3395 3403	2264 2267	8.8 8.5	7.0 6.7	2.40 2.24	3.1	63.7 63.7	0.80	35.3 34.2	44.1 42.7	0.505 0.506	0.088 0.087	0.114 0.113	0.23 0.22	NonLiqfble. NonLiqfble.
	28.24	10	9.3	0.17	105	3413	2207	8.4	6.5	2.24	3.1	63.9	0.80	33.4	41.8	0.506	0.087	0.113	0.22	NonLiqible. NonLiqfble.
	28.32	10	8.8	0.14	95	3421	2274	8.1	6.2	1.97	3.1	63.7	0.80	32.3	40.4	0.507	0.086	0.112	0.22	NonLiqfble.
	28.41	10	8.7	0.14	95	3430	2277	8.0	6.1	2.00	3.1	64.3	0.80	31.9	39.9	0.507	0.086	0.112	0.22	NonLiqfble.

**EQ Magnitude** (M<sub>w</sub>): 6.5

Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> eIN	Q	F	Ic	(%)	Ксрт	DqcIN	(qc1N)es	Ratio	M7.5	M6.50	Safety	Comments
	28.5	10	8.9	0.15	105	3438	2280	8.2	6.3	2.09	3.1	64.3	0.80	32.6	40.8	0.508	0.086	0.112	0.22	NonLiqfble.
	28.58	10	9.4	0.17	105	3447	2284	8.6	6.7	2.21	3.1	63.4	0.80	34.4	43.0	0.509	0.087	0.114	0.22	NonLiqfble.
	28.67	10	11.7	0.2	105	3456	2287	10.7	8.7	2.01	3.0	55.3	0.80	42.8	53.5	0.509	0.094	0.123	0.24	NonLiqfble.
	28.76 28.85	10 10	13.2 12.8	0.23 0.28	105 115	3466 3475	2291 2295	12.1 11.7	10.0 9.6	2.01 2.53	2.9 3.0	52.1 56.4	0.80 0.80	48.3 46.8	60.3 58.5	0.510 0.510	0.100 0.099	0.131 0.128	0.26 0.25	NonLiqfble. NonLiqfble.
	28.94	10	14.6	0.39	125	3485	2300	13.3	11.2	3.03	3.0	55.8	0.80	53.3	66.6	0.511	0.107	0.140	0.27	NonLiqfble.
	29.03	10	17.6	0.47	125	3497	2305	16.0	13.7	2.97	2.9	50.8	0.80	64.2	80.2	0.511	0.128	0.166	0.33	NonLiqfble.
	29.12	10	19.7	0.5	125	3508	2311	17.9	15.5	2.79	2.8	47.3	0.80	71.7	89.6	0.511	0.147	0.191	0.37	NonLiqfble.
	29.16	10	19.7	0.52	125	3513	2314	17.9	15.5	2.90	2.8	47.9	0.80	71.7	89.6	0.512	0.147	0.191	0.37	NonLiqfble.
	29.22 29.28	10 10	21.2 21.4	0.57 0.61	125 125	3520 3528	2317 2321	19.3 19.4	16.8 16.9	2.93 3.11	2.8 2.8	46.5 47.2	0.80	77.1 77.7	96.3 97.2	0.512 0.512	0.163 0.165	0.212 0.215	0.41 0.42	NonLiqfble. NonLiqfble.
	29.34	10	21.5	0.65	125	3535	2325	19.5	17.0	3.29	2.8	48.1	0.80	78.0	97.6	0.512	0.166	0.216	0.42	NonLiqfble.
	29.43	10	23.7	0.74	125	3547	2330	21.5	18.8	3.37	2.8	46.4	0.80	85.9	107.4	0.513	0.195	0.254	0.49	NonLiqfble.
	29.52	10	27.6	8.0	135	3558	2336	25.0	22.1	3.10	2.7	42.0	0.80	99.9	124.9	0.513	0.261	0.340	0.66	NonLiqfble.
	29.61	10	31.4	0.81	135	3570	2343	28.4	25.3	2.74	2.6	37.8	0.80	113.5	141.9	0.514	0.346	0.450	0.88	NonLiqfble.
	29.7 29.79	10 10	34 33.1	0.8 0.81	135 135	3582 3594	2349 2356	30.7 29.8	27.4 26.6	2.48 2.59	2.6 2.6	35.2 36.2	0.80	122.8 119.4	153.5 149.2	0.514 0.514	0.416 0.389	0.541 0.506	1.05 0.98	Low F.S. NonLiqfble.
	29.88	10	31.4	0.8	135	3607	2362	28.3	25.0	2.70	2.6	37.8	0.80	113.1	141.3	0.514	0.343	0.300	0.87	NonLiqfble.
	29.97	10	33.3	0.87	135	3619	2369	29.9	26.6	2.76	2.6	37.1	0.80	119.7	149.7	0.515	0.392	0.509	0.99	NonLiqfble.
	30.06	10	31	1.01	135	3631	2375	27.8	24.6	3.46	2.7	41.7	0.80	111.3	139.2	0.494	0.331	0.430	0.87	NonLiqfble.
	30.15	10	28.8	1.02	135	3643	2382	25.8	22.6	3.78	2.8	44.6	0.80	103.3	129.1	0.494	0.280	0.364	0.74	NonLiqfble.
	30.25	10	28.4	0.97	135	3656	2389	25.4	22.2	3.65	2.8	44.4	0.80	101.7	127.1	0.494	0.271	0.352	0.71	NonLiqfble.
	30.34 30.43	10 10	29.1 31.1	1.04 1.01	135 135	3669 3681	2396 2402	26.0 27.8	22.8 24.4	3.81 3.45	2.8 2.7	44.7 41.9	0.80 0.80	104.1 111.1	130.1 138.8	0.495 0.495	0.285 0.329	0.370 0.427	0.75 0.86	NonLiqfble. NonLiqfble.
	30.52	10	32.3	1.13	135	3693	2409	28.8	25.3	3.71	2.7	42.3	0.80	115.2	144.0	0.495	0.358	0.465	0.80	NonLiqfble.
	30.61	10	42.7	1.25	135	3705	2415	38.0	33.8	3.06	2.6	34.6	0.79	142.8	180.8	0.495	0.630	0.819	1.65	r von Enquere.
	30.68	10	51	1.29	135	3715	2420	45.4	40.6	2.63	2.5	29.8	0.66	89.0	134.4	0.496	0.306	0.397	0.80	Liquefaction
	30.72	10	64.8	1.35	135	3720	2423	57.6	51.9	2.14	2.3	24.1	0.51	60.0	117.6	0.496	0.231	0.301	0.61	Liquefaction
	30.8	10	67.4	1.46	135	3731	2429	59.8	53.9	2.23	2.3	24.1	0.51	62.0	121.9	0.496	0.248	0.323	0.65	Liquefaction
	30.9 30.99	10 10	69.3 69.1	1.34 1.3	135 135	3744 3756	2436 2443	61.4 61.2	55.3 55.0	1.99 1.93	2.3 2.3	22.5 22.3	0.47 0.46	53.9 52.4	115.3 113.6	0.496 0.497	0.223 0.216	0.289 0.281	0.58 0.57	Liquefaction Liquefaction
	31.07	10	64.7	1.23	135	3767	2449	57.2	51.3	1.96	2.3	23.3	0.49	54.5	111.7	0.497	0.210	0.273	0.55	Liquefaction
	31.16	10	55.1	1.03	135	3779	2455	48.7	43.3	1.94	2.4	25.3	0.54	57.7	106.4	0.497	0.192	0.250	0.50	Liquefaction
	31.25	10	42.6	0.77	135	3791	2462	37.6	33.1	1.89	2.5	28.9	0.64	66.1	103.6	0.497	0.184	0.239	0.48	Liquefaction
	31.34	10	33.7	0.67	125	3804	2468	29.7	25.8	2.11	2.6	34.1	0.78	103.1	132.7	0.498	0.298	0.387	0.78	Liquefaction
	31.43	10	26.1	0.66	125	3815	2474	23.0	19.5	2.73	2.7	42.4	0.80	91.8	114.8	0.498	0.221	0.287	0.58	NonLiqfble.
	31.52 31.62	10 10	21.4 20.4	0.63 0.57	125 125	3826 3839	2480 2486	18.8 17.9	15.7 14.9	3.23 3.08	2.9 2.9	49.3 7.1	0.80 0.06	75.2 1.1	94.0 19.0	0.498 0.499	0.157 0.081	0.204 0.105	0.41 0.21	NonLiqfble. NonLiqfble.
	31.7	10	19.3	0.53	125	3849	2491	16.9	13.9	3.05	2.9	7.1	0.06	1.0	17.9	0.499	0.081	0.105	0.21	NonLiqfble.
	31.79	10	19.1	0.47	125	3860	2496	16.7	13.7	2.74	2.9	7.1	0.06	1.0	17.7	0.499	0.081	0.105	0.21	NonLiqfble.
	31.88	10	19.7	0.4	125	3871	2502	17.2	14.2	2.25	2.8	7.1	0.06	1.0	18.3	0.500	0.081	0.105	0.21	NonLiqfble.
	31.97	10	19.5	0.41	125	3882	2508	17.0	14.0	2.34	2.8	7.1	0.06	1.0	18.0	0.500	0.081	0.105	0.21	NonLiqfble.
	32.06 32.15	10 10	16.6 14.4	0.42 0.38	125 125	3894 3905	2513 2519	14.5 12.6	11.7 9.9	2.87 3.05	2.9 3.0	7.1 7.1	0.06	0.9 0.7	15.3 13.3	0.500 0.501	0.080	0.104 0.104	0.21	NonLiqfble.
	32.13	10	10.4	0.38	105	3937	2535	9.0	6.6	2.73	3.1	7.1	0.06	0.7	9.6	0.501	0.080	0.104	0.21	NonLiqfble. NonLiqfble.
	32.5	10	9.6	0.2	105	3947	2539	8.3	6.0	2.62	3.2	7.1	0.06	0.5	8.8	0.502	0.080	0.104	0.21	NonLiqfble.
	32.59	10	10.3	0.19	105	3956	2543	8.9	6.5	2.28	3.1	7.1	0.06	0.5	9.5	0.502	0.080	0.104	0.21	NonLiqfble.
	32.68	10	10	0.18	105	3966	2547	8.7	6.3	2.25	3.1	7.1	0.06	0.5	9.2	0.503	0.080	0.104	0.21	NonLiqfble.
	32.77	10	10.1	0.16	105	3975	2551	8.8	6.4	1.97	3.1	7.1	0.06	0.5	9.3	0.503	0.080	0.104	0.21	NonLiqfble.
	32.86	10	11.2	0.18	105	3985	2554	9.7	7.2	1.96	3.0	7.1	0.06	0.6	10.3	0.504	0.080	0.104	0.21	NonLiqfble.
	32.95 33.04	10 10	12.4 13.8	0.21	105 115	3994 4004	2558 2562	10.7 11.9	8.1 9.2	2.02	3.0 2.9	7.1 54.2	0.06	0.6 47.7	11.4 59.6	0.504	0.080	0.104	0.21	NonLiqfble. NonLiqfble.
	33.13	10	14.2	0.27	115	4014	2567	12.3	9.5	2.21	2.9	54.7	0.80	49.1	61.3	0.505	0.101	0.132	0.26	NonLiqfble.
	33.2	10	13.4	0.29	115	4022	2570	11.6	8.9	2.55	3.0	58.6	0.80	46.3	57.8	0.505	0.098	0.127	0.25	NonLiqfble.
	33.29	10	13	0.31	115	4032	2575	11.2	8.5	2.82	3.0	61.2	0.80	44.8	56.0	0.506	0.096	0.125	0.25	NonLiqfble.
	33.38	10	14	0.31	115	4043	2580	12.1	9.3	2.59	3.0	57.7	0.80	48.2	60.3	0.506	0.100	0.131	0.26	NonLiqfble.
	33.47 33.56	10 10	14.5 14.4	0.3 0.34	115 115	4053 4063	2585 2589	12.5 12.4	9.6 9.5	2.41 2.75	3.0	55.6 58.0	0.80	49.9 49.5	62.4 61.9	0.506 0.507	0.103 0.102	0.133 0.133	0.26 0.26	NonLiqfble. NonLiqfble.
	33.65	10	13.4	0.34	115	4003	2594	11.5	8.8	2.73	3.0	60.5	0.80 0.80	46.0	57.6	0.507	0.102	0.133	0.26	NonLiqible. NonLiqfble.
	33.74	10	13.9	0.28	115	4084	2599	11.9	9.1	2.36	3.0	56.7	0.80	47.7	59.6	0.507	0.100	0.130	0.26	NonLiqfble.
	33.83	10	14.5	0.28	115	4094	2604	12.4	9.6	2.25	2.9	54.8	0.80	49.7	62.2	0.508	0.102	0.133	0.26	NonLiqfble.
	33.92	10	14.2	0.27	115	4105	2608	12.2	9.3	2.22	3.0	55.3	0.80	48.7	60.8	0.508	0.101	0.131	0.26	NonLiqfble.
	34.01	10	13.2	0.26	115	4115	2613	11.3	8.5	2.33	3.0	58.1	0.80	45.2	56.5	0.509	0.097	0.126	0.25	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

Depth to Groundwater: 10 feet

CPT Number: 26

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA** (g): 0.54 **MSF**: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.		g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress	•	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	$\mathbf{q}_{^{\mathrm{c1N}}}$	Q	F	Ic	(%)	Ксрт	DqcIN	(q <sub>c1N</sub> ) <sub>cs</sub>	Ratio	M7.5	M6.50	Safety	Comments
	34.1	10	13.7	0.26	115	4125	2618	11.7	8.9	2.23	3.0	56.5	0.80	46.9	58.6	0.509	0.099	0.128	0.25	NonLigfble.
	34.2	10	14.3	0.27	115	4137	2623	12.2	9.3	2.21	2.9	55.1	0.80	48.9	61.1	0.509	0.101	0.132	0.26	NonLiqfble.
	34.29	10	14.6	0.28	115	4147	2628	12.5	9.5	2.24	2.9	54.8	0.80	49.8	62.3	0.510	0.102	0.133	0.26	NonLiqfble.
	34.38	10	13.9	0.28	115	4158	2633	11.9	9.0	2.37	3.0	57.1	0.80	47.4	59.3	0.510	0.099	0.129	0.25	NonLiqfble.
	34.47	10	13.4	0.29	115	4168	2637	11.4	8.6	2.56	3.0	59.5	0.80	45.7	57.1	0.510	0.097	0.126	0.25	NonLiqfble.
	34.56 34.65	10 10	12.6 12.1	0.32	115 115	4178 4189	2642 2647	10.7 10.3	8.0 7.6	3.04 2.90	3.1	64.2 64.7	0.80	42.9 41.2	53.6 51.5	0.511 0.511	0.094 0.093	0.123 0.120	0.24 0.24	NonLiqfble. NonLiqfble.
	34.74	10	11.6		115	4199	2651	9.9	7.0	2.74	3.1	65.2	0.80	39.4	49.3	0.511	0.093	0.120	0.24	NonLiqfble.
	34.83	10	12.5		105	4209	2656	10.6	7.8	2.12	3.0	58.8	0.80	42.4	53.1	0.512	0.094	0.122	0.24	NonLiqfble.
	34.92	10	12.2	0.21	105	4219	2660	10.3	7.6	2.08	3.0	59.3	0.80	41.4	51.7	0.512	0.093	0.121	0.24	NonLiqfble.
	35.01	10	13.5	0.23	105	4228	2664	11.4	8.5	2.02	3.0	55.9	0.80	45.8	57.2	0.513	0.097	0.127	0.25	NonLiqfble.
	35.1	10	15.1	0.3	115	4238	2668	12.8	9.7	2.31	2.9	54.8	0.80	51.2	64.0	0.513	0.104	0.136	0.26	NonLiqfble.
	35.19	10	16.2		125	4248	2672	13.7	10.5	2.70	3.0	55.3	0.80	54.8	68.6	0.513	0.110	0.143	0.28	NonLiqfble.
	35.28 35.37	10 10	17.9 20.2	0.48 0.56	125 125	4259 4271	2678 2684	15.1 17.1	11.8 13.5	3.04 3.10	2.9 2.9	54.7 52.0	0.80	60.5 68.2	75.7 85.3	0.514 0.514	0.120 0.138	0.156 0.179	0.30 0.35	NonLigfble.
	35.46	10	21.9	0.65	125	4282	2689	18.5	14.7	3.10	2.9	51.1	0.80	73.9	92.4	0.514	0.158	0.179	0.39	NonLiqfble. NonLiqfble.
	35.55	10	22.3	0.72	125	4293	2695	18.8	14.9	3.57	2.9	52.0	0.80	75.2	94.0	0.514	0.157	0.204	0.40	NonLiqfble.
	35.78	10	25.1	0.82	135	4322	2709	21.1	16.9	3.57	2.9	49.4	0.80	84.4	105.5	0.515	0.189	0.246	0.48	NonLiqfble.
	35.87	10	25.4	0.85	135	4334	2716	21.3	17.1	3.66	2.9	49.6	0.80	85.3	106.6	0.515	0.193	0.251	0.49	NonLiqfble.
	35.95	10	26	0.64	125	4345	2722	21.8	17.5	2.69	2.8	44.3	0.80	87.2	109.0	0.515	0.201	0.261	0.51	NonLiqfble.
	36.03	10	28.2	1.5	135	4355	2727	23.6	19.1	5.76	3.0	55.3	0.80	94.5	118.1	0.516	0.233	0.303	0.59	NonLiqfble.
	36.11	10	32.1	1.88	135	4366	2733	26.9	21.9	6.28	2.9	54.2	0.80	107.5	134.3	0.516	0.305	0.397	0.77	NonLiqfble.
	36.15 36.18	10 10	96.7 142.9	1.72 1.55	135 125	4371 4375	2735 2738	80.9 119.5	69.1 102.8	1.82 1.10	2.2 1.9	19.1 11.1	0.38 0.16	48.7 23.2	129.6 142.7	0.516 0.516	0.282 0.350	0.367 0.455	0.71 0.88	Liquefaction Liquefaction
	36.22	10	180.8	1.98	125	4380	2740	151.1	130.3	1.10	1.9	9.3	0.10	19.6	170.7	0.516	0.543	0.706	1.37	Liqueraction
	36.27	10	254.2		125	4386	2743	212.4	183.7	1.04	1.7	6.7	0.04	9.9	222.2	0.516	1.101	1.431	2.77	
	36.33	10	331.2	2.87	125	4394	2747	276.5	239.4	0.87	1.6	4.2	0.00	0.0	276.5	0.516	2.046	2.659	5.15	
	36.37	10	369.3	2.71	115	4399	2750	308.2	266.9	0.74	1.5	2.9	0.00	0.0	308.2	0.517	2.801	3.642	7.05	
	36.41	10	416.3	3.01	115	4403	2752	347.2	300.9	0.73	1.5	2.4	0.00	0.0	347.2	0.517	3.974	5.166	10.00	
	36.48	10	433.7	3.51	125	4411	2755	361.5	313.1	0.81	1.5	2.7	0.00	0.0	361.5	0.517	4.474	5.816	11.25	
	36.54 36.57	10 10	418.7 417.2	3.58 3.54	125 125	4419 4423	2759 2761	348.8 347.4	301.8 300.5	0.86 0.85	1.5 1.5	3.1 3.1	0.00	0.0	348.8 347.4	0.517 0.517	4.025 3.979	5.233 5.173	10.12 10.00	
	36.61	10	424.6		125	4428	2763	353.4	305.6	0.88	1.5	3.2	0.00	0.0	353.4	0.517	4.185	5.440	10.51	
	36.65	10	416.5	3.99	125	4433	2766	346.5	299.4	0.96	1.6	3.7	0.00	0.0	346.5	0.518	3.949	5.134	9.92	
	36.69	10	413.5	3.41	125	4438	2768	343.9	297.0	0.83	1.5	3.0	0.00	0.0	343.9	0.518	3.861	5.019	9.70	
	36.72	10	411.6	3.22	125	4441	2770	342.2	295.4	0.79	1.5	2.8	0.00	0.0	342.2	0.518	3.805	4.947	9.56	
	36.75	10	404	3.17	125	4445	2772	335.7	289.7	0.79	1.5	2.9	0.00	0.0	335.7	0.518	3.599	4.679	9.04	
	36.8	10	426.6	2.97	115	4451	2775	354.3	305.7	0.70	1.5	2.2	0.00	0.0	354.3	0.518	4.216	5.481	10.58	
	36.84 36.88	10 10	442.1 455.2	2.78 2.48	115 115	4456 4461	2777 2780	367.0 377.8	316.6 325.8	0.63 0.55	1.4 1.4	1.6 1.0	0.00	0.0	367.0 377.8	0.518 0.518	4.679 5.094	6.082 6.622	11.74 12.78	
	36.93	10	468.4	2.61	115	4466	2782	388.5	335.0	0.56	1.4	1.0	0.00	0.0	388.5	0.518	5.535	7.196	13.88	
	36.99	10	484.6		115	4473	2785	401.8	346.2	0.52	1.3	0.6	0.00	0.0	401.8	0.519	6.111	7.944	15.32	
	37.02	10	502.8	1.96	105	4477	2787	416.7	359.1	0.39	1.2	-0.3	0.00	0.0	416.7	0.519	6.810	8.853	17.07	
	37.1	10	521.4	1.78	105	4485	2790	431.9	372.0	0.34	1.2	-0.7	0.00	0.0	431.9	0.519	7.571	9.843	18.96	
	37.15	10	529	1.86	105	4490	2792	438.0	377.1	0.35	1.2	-0.7	0.00	0.0	438.0	0.519	7.895	10.263	19.77	
	37.18	10	537.5 525.4	1.74	95 95	4494 4497	2794 2795	444.9	383.0 374.2	0.33	1.1	-0.9	0.00	0.0	444.9	0.519	8.272	10.754	20.70	
	37.22 37.26	10 10	483.5	1.59 1.47	95	4501	2796	434.8 400.1	344.1	0.30 0.31	1.1 1.2	-1.0 -0.8	0.00	0.0	434.8 400.1	0.520 0.520	7.726 6.034	10.044 7.845	19.33 15.09	
	37.32	10	504.2	1.35	95	4507	2798	417.0	358.6	0.27	1.1	-1.2	0.00	0.0	417.0	0.520	6.825	8.873	17.06	
	37.37	10	506.3	1.54	95	4512	2800	418.7	359.9	0.31	1.2	-0.9	0.00	0.0	418.7	0.520	6.904	8.975	17.25	
	37.42	10	494.7	1.5	95	4516	2802	408.9	351.4	0.30	1.2	-0.9	0.00	0.0	408.9	0.521	6.440	8.372	16.08	
	37.58	10	460.3	1.73	105	4532	2807	380.1	326.2	0.38	1.2	-0.1	0.00	0.0	380.1	0.521	5.189	6.746	12.94	
	37.62	10	471.1	1.67	105	4536	2808	389.0	333.7	0.36	1.2	-0.3	0.00	0.0	389.0	0.522	5.552	7.218	13.84	
	37.67	10	475.3		105	4541	2811	392.3	336.5	0.41	1.3	0.0	0.00	0.0	392.3	0.522	5.694	7.402	14.19	
	37.73 37.77	10 10	458.4 430.1	2.04 1.99	105 105	4547 4551	2813 2815	378.2 354.7	324.1 303.8	0.45 0.47	1.3	0.4 0.7	0.00	0.0	378.2 354.7	0.522 0.522	5.109 4.230	6.642 5.499	12.72 10.53	
	37.77	10	430.1	2.1	105	4555	2816	352.9	302.2	0.47	1.3	0.7	0.00	0.0	352.9	0.522	4.230	5.417	10.33	
	37.83	10	425.4		105	4558	2817	350.7	300.2	0.47	1.3	0.7	0.00	0.0	350.7	0.522	4.090	5.317	10.18	
	37.88	10	416.4		105	4563	2820	343.1	293.6	0.44	1.3	0.7	0.00	0.0	343.1	0.523	3.837	4.988	9.54	
	37.91	10	413		105	4566	2821	340.2	291.1	0.44	1.3	0.6	0.00	0.0	340.2	0.523	3.743	4.866	9.31	
	37.95	10	401.9		105	4570	2823	331.0	283.0	0.42	1.3	0.6	0.00	0.0	331.0	0.523	3.452	4.488	8.58	
	37.98	10	400.6		105	4574	2824	329.8	282.0	0.40	1.3	0.5	0.00	0.0	329.8	0.523	3.417	4.443	8.49	
	38.03	10	388.8	1.74	105	4579	2826	320.0	273.4	0.45	1.4	1.0	0.00	0.0	320.0	0.523	3.128	4.066	7.77	

Date: September 2005 CPT Number: 27

Depth to Groundwater: 12 feet

**EQ Magnitude (M<sub>w</sub>):** 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 MSF: 1.30

		•••	-	CI.			Dec .1	•											<b>.</b>	
	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Stress	l Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> elN	Q	F	Ic	(%)	$\mathbf{K}_{\mathrm{CPT}}$	DqcIN	(qcIN)cs			M6.50		Comments
	0.56	12	363.8	0.92	95	53	53	696.7	######	0.25	0.9	-2.4	0.00	0.0	696.7	0.351	31.537	40.998	116.80	Above W.T.
	0.64	12	355.3	1.02	95	61	61	680.5	######	0.29	0.9	-2.4	0.00	0.0	680.5	0.351	29.383	38.198	108.83	Above W.T.
	0.73 0.81	12 12	319 276.2	1.03 0.86	95 95	69 77	69 77	610.9 529.0	9194.9 7174.7	0.32	0.9 0.8	-2.5 -2.8	0.00	0.0	610.9 529.0	0.351	21.288 13.846	27.674 17.999	78.84 51.28	Above W.T. Above W.T.
	0.9	12	241.4	0.77	95	86	86	462.3	5643.4	0.32	0.8	-2.9	0.00	0.0	462.3	0.351	9.270	12.052	34.34	Above W.T.
	0.99	12	208	0.8	105	94	94	398.4	4420.3	0.38	0.8	-2.8	0.00	0.0	398.4	0.351	5.959	7.747	22.07	Above W.T.
	1.08 1.17	12 12	175.1 137.8	0.73 0.84	105 115	104 113	104 113	335.4 263.9	3381.2 2438.0	0.42	0.8 1.0	-2.7 -1.9	0.00	0.0	335.4 263.9	0.351 0.351	3.587 1.790	4.664 2.326	13.29 6.63	Above W.T. Above W.T.
	1.25	12	89.8	1.02	125	122	122	172.0	1468.7	1.14	1.3	0.5	0.00	0.0	172.0	0.351	0.553	0.719	2.05	Above W.T.
	1.34	12	62.2	0.93	125	133	133	119.1	931.1	1.50	1.5	2.6	0.00	0.0	119.1	0.351	0.237	0.308	0.88	Above W.T.
	1.43	12	49.7	0.97	135	145	145	95.2	685.9	1.95	1.6	5.0	0.00	0.0	95.2	0.351	0.160	0.208	0.59	Above W.T.
	1.51 1.6	12 12	39 32.5	1.03 1.11	135 135	155 168	155 168	74.7 62.2	500.6 386.7	2.65 3.42	1.8 2.0	8.4 12.0	0.09 0.19	7.5 14.3	82.2 76.5	0.351	0.132 0.122	0.171 0.158	0.49 0.45	Above W.T. Above W.T.
	1.68	12	32.5	1.24	135	178	178	70.9	413.6	3.36	1.9	11.5	0.19	14.3	85.7	0.351	0.122	0.138	0.43	Above W.T.
	1.77	12	45.1	1.59	135	191	191	86.4	472.2	3.53	1.9	11.4	0.17	17.7	104.0	0.351	0.185	0.240	0.68	Above W.T.
	1.85	12	42.7	1.46	135	201	201	81.8	423.0	3.43	1.9	11.6	0.18	17.4	99.2	0.351	0.171	0.222	0.63	Above W.T.
	1.94	12	44.1	1.49	135	214	214	84.5	411.9	3.39	1.9	11.6	0.18	18.0	102.4	0.351	0.180	0.234	0.67	Above W.T.
	2.02 2.11	12 12	29.6 30.9	1.31 1.37	135 135	224 236	224 236	56.7 59.2	262.8 260.3	4.44 4.45	2.1	17.1 17.2	0.32 0.33	27.2 28.7	83.8 87.8	0.351	0.135 0.143	0.175 0.186	0.50 0.53	Above W.T. Above W.T.
	2.19	12	36.4	1.27	135	247	247	69.7	293.3	3.50	2.0	13.8	0.23	21.3	91.0	0.351	0.150	0.195	0.56	Above W.T.
	2.22	12	30.3	1.14	135	251	251	58.0	240.0	3.78	2.1	15.9	0.29	23.7	81.7	0.351	0.131	0.170	0.48	Above W.T.
	2.27	12	26	1.04	135	258	258	49.8	200.4	4.02	2.2	17.9	0.34	26.1	75.9	0.351	0.121	0.157	0.45	Above W.T.
	2.36 2.44	12 12	23.2 29.2	1.01 1.05	135 135	270 281	270	44.4 55.9	170.7 206.7	4.38	2.2	20.2	0.41	30.4	74.8 80.4	0.351	0.119	0.155	0.44 0.48	Above W.T.
	2.53	12	28.9	0.87	135	293	281 293	55.3	196.1	3.61 3.03	2.1	16.4 14.9	0.30 0.26	24.5 19.8	75.2	0.351	0.128 0.120	0.167 0.155	0.44	Above W.T. Above W.T.
	2.61	12	27.3	0.81	135	304	304	52.3	178.6	2.98	2.1	15.4	0.28	20.2	72.5	0.351	0.115	0.150	0.43	Above W.T.
	2.7	12	22.1	0.79	125	316	316	42.3	138.8	3.60	2.2	19.6	0.39	27.0	69.3	0.351	0.111	0.144	0.41	Above W.T.
	2.79	12	16.7	0.78	125	327	327	32.0	101.0	4.72	2.4	26.2	0.57	41.7	73.7	0.351	0.117	0.152	0.43	Above W.T.
	2.87 2.96	12 12	15.2 12.9	0.69 0.72	125 125	337 349	337 349	29.1 24.7	89.1 73.0	4.59 5.66	2.4	27.2 32.7	0.59 0.74	42.4 70.2	71.5 94.9	0.351	0.114 0.159	0.148 0.207	0.42 0.59	Above W.T. Above W.T.
	3.04	12	14	0.69	125	359	359	26.8	77.0	4.99	2.5	30.1	0.67	54.6	81.4	0.351	0.130	0.169	0.48	Above W.T.
	3.13	12	12.2	0.71	125	370	370	23.4	64.9	5.91	2.6	34.9	0.80	92.8	116.2	0.351	0.226	0.294	0.84	Above W.T.
	3.21	12	12.7	0.73	125	380	380	24.3	65.8	5.84	2.6	34.5	0.79	90.7	115.0	0.351	0.222	0.288	0.82	Above W.T.
	3.3 3.39	12 12	12.1 13.1	0.71 0.72	125 125	391 402	391 402	23.2 25.1	60.9 64.1	5.96 5.58	2.6 2.6	36.0 34.2	0.80 0.78	92.7 88.6	115.9 113.7	0.351	0.225 0.217	0.292 0.282	0.83 0.80	Above W.T. Above W.T.
	3.48	12	10.1	0.72	125	414	414	19.2	47.3	7.35	2.8	43.3	0.78	76.6	95.8	0.351	0.162	0.210	0.60	Above W.T.
	3.57	12	11.2	0.73	125	425	425	21.5	51.7	6.64	2.7	40.1	0.80	85.8	107.3	0.351	0.195	0.253	0.72	Above W.T.
	3.66	12	11.4	0.74	125	436	436	21.8	51.3	6.62	2.7	40.2	0.80	87.3	109.2	0.351	0.201	0.261	0.74	Above W.T.
	3.74	12	11.1	0.69	125	446	446	21.3	48.7	6.34	2.7	40.2	0.80	85.0	106.3	0.351	0.192	0.249	0.71	Above W.T.
	3.83 3.92	12 12	13.2 13.4	0.7 0.7	125 125	457 469	457 469	25.3 25.7	56.7 56.2	5.40 5.32	2.6 2.6	35.3 35.2	0.80	101.1 102.7	126.4 128.3	0.351	0.268 0.276	0.348 0.359	0.99 1.02	Above W.T. Above W.T.
	4.01	12	15.7	0.68	125	480	480	30.1	64.4	4.40	2.5	30.5	0.68	64.2	94.3	0.351	0.158	0.205	0.59	Above W.T.
	4.1	12	11.9	0.76	125	491	491	22.8	47.4	6.52	2.7	41.1	0.80	91.2	114.0	0.351	0.218	0.283	0.81	Above W.T.
	4.19	12	14	0.72	125	502	502	26.8	54.7	5.24	2.6	35.4	0.80	107.3	134.1	0.351	0.304	0.395	1.13	Above W.T.
	4.28 4.37	12 12	17.9 14.9	0.71 0.7	125 125	514 525	514 525	34.3 28.5	68.7 55.8	4.02 4.78	2.4 2.6	28.4 33.7	0.63 0.77	57.4 93.0	91.7 121.5	0.351 0.351	0.152 0.247	0.197 0.321	0.56 0.91	Above W.T. Above W.T.
	4.45	12	14.8	0.72	125	535	535	28.0	54.3	4.95	2.6	34.6	0.77	105.3	133.3	0.351	0.300	0.321	1.11	Above W.T.
	4.54	12	14.6	0.71	125	546	546	27.3	52.4	4.96	2.6	35.1	0.80	109.3	136.7	0.351	0.317	0.413	1.18	Above W.T.
	4.63	12	13.2	0.76	125	557	557	24.5	46.3	5.88	2.7	39.7	0.80	97.9	122.3	0.351	0.250	0.325	0.93	Above W.T.
	4.72	12	15.1	0.77	125	569	569	27.7	52.1	5.20	2.6	35.9	0.80	110.8	138.5	0.351	0.327	0.425	1.21	Above W.T.
	4.81 4.9	12 12	11.7 10.8	0.77 0.74	125 125	580 591	580 591	21.3 19.4	39.3 35.5	6.75 7.04	2.8 2.8	44.7 47.2	0.80	85.0 77.7	106.3 97.2	0.351 0.351	0.192 0.165	0.249 0.215	0.71 0.61	Above W.T. Above W.T.
	4.99	12	10.6	0.75	125	602	602	18.9	34.2	7.28	2.8	48.5	0.80	75.6	94.5	0.351	0.158	0.215	0.59	Above W.T.
	5.07	12	8.7	0.69	125	612	612	15.4	27.4	8.22	2.9	55.0	0.80	61.5	76.9	0.351	0.122	0.159	0.45	Above W.T.
	5.16	12	13.3	0.74	125	624	624	23.3	41.6	5.70	2.7	40.8	0.80	93.2	116.5	0.351	0.227	0.295	0.84	Above W.T.
	5.25	12	17.9	0.77	125	635	635	31.1	55.4	4.38	2.5	32.5	0.73	85.4	116.5	0.351	0.227	0.295	0.84	Above W.T.
	5.34 5.43	12 12	16.4 15.6	0.73 0.69	125 125	646 657	646 657	28.2 26.6	49.7 46.4	4.54 4.52	2.6 2.6	34.5 35.4	0.79 0.80	104.7 106.5	132.9 133.1	0.351 0.351	0.298 0.299	0.388 0.389	1.10 1.11	Above W.T. Above W.T.
	5.48	12	17.3	0.69	125	664	664	29.4	51.1	4.07	2.5	32.5	0.73	80.9	110.3	0.351	0.205	0.266	0.76	Above W.T.
		10	00.0	0.00	105			25.2	(1.2	2.22	2.4	27.2	0.60	51.0	07.0	0.251	0.141	0.104	0.50	41 337 TD

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0.168 0.218

98.1 0.351

91.3 114.1 0.351 0.218 0.284

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Above W.T.

Above W.T.

Above W.T.

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12

12

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 27

Depth to Groundwater: 12 feet

Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Stress Stress Stress g (TSF) (TSF) (PCF) (PSF) (PSF) (%) KCPT Dqcin (qcin)cs Ratio M7.5 M6.50 Safety (FT) (FT) Qc1N 0 Comments Ic 5.78 12 15.6 0.61 125 701 701 25.8 43.5 4.00 2.6 34.6 0.79 96.6 122.4 0.351 0.250 0.325 0.93 Above W.T. 5.87 12 17.6 0.71 125 712 712 28.9 48.4 4.12 2.6 33.4 0.76 90.9 119.8 0.351 0.240 0.312 0.89 Above W.T. 5.96 12 18.2 0.7 125 724 724 29.6 49.3 3.92 2.5 32.5 0.73 81.5 111.1 0.351 0.208 0.270 0.77 Above W.T. 6.05 12 20.7 0.74 125 735 735 33.4 55.3 3.64 2.5 29.8 0.66 65.8 99.2 0.351 0.171 0.222 0.63 Above W.T. 6.14 12 22.6 0.83 135 746 746 36.2 59.6 3.73 2.5 29.2 0.65 66.3 102.5 0.351 0.180 0.234 0.67 Above W.T. Above W.T. 6.23 12 27 0.88 135 758 758 42.9 70.2 3.31 2.4 25.6 0.55 52.3 95.2 0.351 0.160 0.208 0.59 6.32 12 27.7 0.96 135 770 770 43.7 70.9 3.51 2.4 26.2 0.57 57.3 100.9 0.351 0.228 Above W.T. 0.176 0.65 6.41 12 783 42.7 3.72 2.4 105.9 0.351 0.248 0.71 27.3 135 783 68.7 27.4 0.60 63.2 0.191 Above W.T. 25.4 1.04 135 795 39.4 4.16 2.5 30.0 0.67 118.8 0.351 0.306 6.5 12 795 62.9 79.3 0.236 0.87 Above W.T. 6.59 2.5 12 26.3 1.08 135 807 807 40.5 64.2 4.17 29.8 0.66 79.4 119.9 0.351 0.2400.313 0.89 Above W.T. 6.68 12 21.5 1.13 135 819 819 32.9 51.5 5.36 2.6 36.6 0.80 131.5 164.4 0.351 0.493 0.641 1.83 Above W.T. 6.77 23 135 831 831 34.9 5.22 0.80 139.6 174.5 0.351 0.574 0.747 Above W.T 12 1.18 54.3 2.6 35.4 2.13 6.86 12 25 1.24 135 843 843 37.7 58.3 5.05 2.6 33.9 0.77 127.2 164.8 0.351 0.496 0.645 1.84 Above W.T. 6.95 12 27.3 1.28 135 855 855 40.8 62.8 4.76 2.5 32.0 0.72 105.7 146.5 0.351 0.373 0.484 1.38 Above W.T. 7.04 2.4 12 33.5 1.31 135 868 868 49.8 76.2 3.96 27.0 0.59 70.7 120.5 0.351 0.243 0.315 0.90 Above W.T. 7.12 12 32.9 1.35 135 878 878 48.6 73.9 4.16 2.4 28.0 0.61 77.4 126.0 0.351 0.266 0.346 0.98 Above W.T. 7.21 12 35.2 1.35 135 2.4 0.57 0.351 0.317 891 891 51.6 78.0 3.88 26.4 69.1 120.7 0.243 0.90 Above W.T. 7.3 135 0.52 0.351 38 1.33 903 903 55.3 3.54 2.4 24.5 115.5 0.223 0.290 Above W.T. 12 83.2 60.2 0.83 7.39 12 37.9 1.34 135 915 915 54.8 81.8 3.58 2.4 24.8 0.53 61.6 116.5 0.351 0.227 0.295 0.84 Above W.T. 7.48 55.6 0.351 12 38.7 1.37 135 927 927 82.5 3.58 2.4 24.7 0.53 62.0 117.6 0.231 0.301 0.86 Above W.T. 7.57 12 37.5 1.46 135 939 939 53.5 78.8 3.94 2.4 26.5 0.57 72.3 125.8 0.351 0.265 0.345 0.98 Above W.T. 7 65 12 34 1 1 55 135 950 950 48 4 70.8 4 61 2.5 30.0 0.67 97.2 145 6 0.351 0.367 0.477 1 36 Above W.T. 7.74 12 34.9 1.58 135 962 962 49 2 71.5 4.59 2.5 29.8 0.66 96.6 145.8 0.351 0.368 0.479 1.36 Above W.T. 7.83 12 37.1 1.54 135 974 974 52.0 75.1 4.21 2.4 28.0 0.61 82.5 134.5 0.351 0.306 0.398 1.13 Above W.T. 7.92 12 39.4 1.44 135 986 986 54.9 78.9 3.70 2.4 25.7 0.55 67.6 122.5 0.351 0.251 0.326 0.93 Above W.T. 12 41 1.36 135 997 997 56.8 81.2 3.36 2.3 24.1 0.51 59.1 115.9 0.351 0.225 0.292 0.83 Above W.T. 8.08 12 40.7 1.35 135 1008 1008 56.1 79.7 3.36 2.3 24.3 0.52 59.7 115.8 0.351 0.224 0.292 0.83 Above W.T. 8.17 12 37.8 1.31 135 1020 1020 51.8 3.51 2.4 25.9 65.3 117.0 0.351 0.298 Above W.T. 73.1 0.56 0.229 0.85 8.26 135 0.347 12 33.9 1.3 1032 1032 46.2 64.7 3.89 2.5 28.7 0.63 80.0 126.2 0.351 0.267 0.99 Above W.T. 4.22 2.5 8.34 12 42.4 0.70 97.2 139.6 0.351 0.433 1.23 31.3 1.3 135 1043 1043 59.0 31.1 0.333 Above W.T. 8.43 1.28 135 1055 1055 40.3 55.6 4.36 2.5 0.73 108.5 148.8 0.351 0.502 12 29.9 32.3 0.386 1.43 Above W.T. 8 52 1 26 12 26.9 135 1067 1067 36.0 49 4 4 78 2.6 35 4 0.80 144 1 180.1 0.351 0.624 0.811 2.31 Above W T 8.61 12 30 1.12 135 1080 1080 39 9 54 6 3.80 2.5 30.6 0.68 86.6 126.5 0.351 0.268 0.349 0.99 Above W.T. 8.69 12 31.9 1.01 135 1090 1090 42.3 57.5 3.22 2.4 27.7 0.61 65.1 107.4 0.351 0.195 0.254 0.72 Above W.T. 8.78 12 31.9 0.92 135 1103 1103 42.0 56.8 2.93 2.4 26.7 0.58 57.7 99.7 0.351 0.172 0.224 0.64 Above W.T 41.8 0.351 Above W.T 8.86 12 0.86 135 1113 1113 54.8 74.1 2.09 2.2 19.7 0.39 35.4 90.2 0.148 0.193 0.55 8.95 12 37.3 0.92 135 1125 1125 48.6 65.3 2.50 2.3 23.1 0.48 45.5 94.1 0.351 0.157 0.205 0.58 Above W.T. 9.04 12 28.9 135 1138 1138 37.5 49.8 3.53 2.5 30.8 0.69 83.5 121.0 0.351 0.245 0.318 0.91 Above W.T. 9.12 12 23.8 1.09 135 1148 1148 30.7 40.4 4.69 2.7 38.1 0.80 122.9 153.6 0.351 0.417 0.543 1.55 Above W.T. 6.42 9.21 12 1.17 135 1161 1161 24.1 31.4 2.8 47.7 0.80 120.7 0.351 0.244 0.317 0.90 Above W.T. 18.8 96.6 2.8 9.3 12 20.8 1.3 135 1173 1173 26.6 34.5 6.43 46.1 0.80 106.3 132.9 0.351 0.298 0.388 1.10 Above W.T. 9.39 12 24.3 1.46 135 1185 1185 30.9 40.0 6.16 2.7 42.8 0.80 123.6 154.4 0.351 0.423 0.549 1.57 Above W.T. 1.59 9.48 12 27.4 135 1197 1197 34.7 44.8 5.93 2.7 40.4 0.80 138.6 173.3 0.351 0.564 0.733 2.09 Above W.T. 9.56 12 25.4 1.61 135 1208 1208 32.0 41.0 6.49 2.8 43.3 0.80 127.9 159.9 0.351 0.460 0.598 1.70 Above W.T. 9.65 12 29.6 1.48 135 1220 1220 37.1 47.5 5.11 2.6 37.0 0.80 148.3 185.4 0.351 0.673 0.874 2.49 Above W.T. Above W.T 9.74 12 38.3 1.25 135 1232 1232 47.7 61.1 3.32 2.4 27.3 0.60 70.3 118.1 0.351 0.233 0.303 0.86 135 Above W.T. 9.82 47.2 0.99 1243 1243 58.6 2.2 0.39 0.351 0.213 12 74.9 2.13 19.8 38.1 96.7 0.164 0.61 9.91 12 49.5 0.79 125 1255 1255 61.1 77.8 1.62 2.1 16.7 0.31 27.8 88.9 0.351 0.145 0.189 0.54 Above W.T. 10 12 41.8 0.77 135 1266 1266 51.4 65.0 1.87 20.0 0.40 34.4 85.8 0.344 0.139 0.180 0.52 Above W.T. 10.09 12 31.6 135 1278 1278 2.55 2.4 0.59 93.9 0.344 0.204 0.59 0.79 38.7 48.4 27.0 55.2 0.157 Above W.T. 0.75 125 142.5 0.344 10.18 23.4 1291 1291 28.5 35.2 3.30 2.6 35.0 0.80 114.0 0.349 0.454 1.32 Above W.T. 12 10.27 12 19.3 0.71 125 1302 1302 23.4 28.6 3.81 2.7 40.5 0.80 93.6 117.0 0.344 0.229 0.298 0.87 Above W.T. 10.35 12 18.2 0.67 125 1312 1312 22.0 26.7 3.82 2.7 41.7 0.80 87.9 109.9 0.3440.204 0.265 0.77 Above W.T. 10.44 12 18.6 0.65 125 1323 1323 22.4 27.1 3.62 2.7 40.7 0.80 89.5 111.9 0.3440.210 0.273 0.79 Above W.T. 10.53 12 127 0.47 125 1334 1334 15.2 18.0 3 91 29 49 6 0.80 60.8 76.1 0.344 0.121 0.157 0.46 Above W.T. 10.62 12 10.8 0.35 115 1346 1346 12.9 15.0 3.46 29 51.3 0.80 51.5 64.4 0.344 0.105 0.136 0.40 Above W.T. 10.71 12 8.7 0.34 115 1356 1356 10.3 11.8 4.24 3.0 60.3 0.80 41.3 51.7 0.344 0.093 0.121 0.35 Above W.T. 0.344 Above W.T. 10.8 12 6.9 0.39 115 1366 1366 8.2 9.1 6.27 3.2 74.7 0.80 32.7 40.8 0.086 0.112 0.33

EQ Magnitude (Mw):

PGA (g):

0.344

0.344

0.344

0.344

0.344

0.085

0.093

0.085

0.084

0.083

0.110

0.121

0.110

0.109

0.107

0.32

0.35

0.32

0.32

0.31

Above W.T.

Above W.T.

Above W.T.

Above W.T.

Above W.T.

37.2

51.7

37.5

33.8

30.2

6.5

0.54

MSF: 1.30

0.4

0.43

0.41

0.41

0.38

115 1376

115 1386

115 1396

115 1407

105

1416

1376

1386

1396

1407

1416

7.4

10.3

7.5

6.8

6.0

8.2

11.7

8.2

7.2

6.3

7.13

5.30

7.19

8.04

8 46

3.3

3.1

3.3

3.4

34

80.5

64.8

80.6

86.7

91.9

0.80

0.80

0.80

0.80

0.80

29.7

41.4

30.0

27.1

24.2

10.88

10.97

11.06

11.15

11.23

12

12

12

12

6.3

8.8

6.4

5.8

52

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 27

Depth to Groundwater: 12 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA** (g): 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth		Resist.	Frict.	g	Stress		Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> e1N	Q	F	Ic	(%)	Ксрт	DqcIN	(q <sub>c1N</sub> ) <sub>cs</sub>	Ratio	M7.5	M6.50	Safety	Comments
	11.32 11.41	12 12	5 5	0.38	105 105	1425 1435	1425 1435	5.8 5.8	6.0 6.0	8.86 9.11	3.5	94.7 95.7	0.80	23.2 23.1	29.0 28.9	0.344	0.082 0.082	0.107 0.107	0.31	Above W.T. Above W.T.
	11.41	12	5.2	0.39	105	1433	1433	6.0	6.2	9.11	3.5	95.7	0.80	23.1	29.9	0.344	0.082	0.107	0.31	Above W.T.
	11.59	12	5.5	0.48	115	1454	1454	6.3	6.6	10.06	3.5	95.2	0.80	25.2	31.6	0.344	0.083	0.108	0.31	Above W.T.
	11.67	12	5.1	0.42	105	1463	1463	5.8	6.0	9.61	3.5	97.0	0.80	23.3	29.2	0.344	0.082	0.107	0.31	Above W.T.
	11.76	12	4.9	0.42	105	1472	1472	5.6	5.7	10.09	3.5	100.0	0.80	22.4	27.9	0.344	0.082	0.107	0.31	Above W.T.
	11.85 11.93	12	5.1	0.45 0.42	115 105	1482 1491	1482 1491	5.8	5.9	10.32	3.5	99.4	0.80	23.2	29.0	0.344	0.082	0.107	0.31	Above W.T.
	12.04	12 12	4.4 3.7	0.42	105	1502	1491	5.0 4.2	4.9 3.9	11.49 15.94	3.6 3.8	108.3 125.7	0.80	19.9 16.7	24.9 20.9	0.344 0.346	0.081	0.106 0.105	0.31 0.30	Above W.T. NonLiqfble.
	12.13	12	3.5	0.5	105	1512	1499	4.0	3.7	18.22	3.8	132.8	0.80	15.8	19.8	0.347	0.081	0.105	0.30	NonLiqfble.
	12.22	12	4.7	0.5	115	1521	1503	5.3	5.2	12.69	3.6	108.8	0.80	21.2	26.5	0.348	0.082	0.106	0.31	NonLiqfble.
	12.31	12	5.2	0.5	115	1532	1508	5.9	5.9	11.28	3.5	101.8	0.80	23.4	29.3	0.349	0.082	0.107	0.31	NonLiqfble.
	12.4 12.49	12 12	5.3 5.9	0.52 0.51	115 115	1542 1552	1513 1517	6.0 6.6	6.0 6.8	11.48 9.95	3.5 3.4	101.7 94.1	0.80	23.8 26.5	29.8 33.1	0.351 0.352	0.082 0.083	0.107 0.108	0.31	NonLiqfble. NonLiqfble.
	12.58	12	7	0.55	115	1563	1522	7.9	8.2	8.84	3.4	85.5	0.80	31.4	39.3	0.352	0.086	0.111	0.31	NonLiqfble.
	12.67	12	7.1	0.54	115	1573	1527	8.0	8.3	8.55	3.3	84.4	0.80	31.8	39.8	0.354	0.086	0.112	0.31	NonLiqfble.
	12.76	12	7.3	0.54	115	1583	1532	8.2	8.5	8.30	3.3	82.9	0.80	32.6	40.8	0.356	0.086	0.112	0.32	NonLiqfble.
	12.85	12	7.9	0.51	115	1594	1536	8.8	9.2	7.18	3.3	77.2	0.80	35.3	44.1	0.357	0.088	0.114	0.32	NonLiqfble.
	12.94	12	9.5 7.1	0.49 0.47	115	1604	1541	10.6	11.3 8.1	5.63	3.1	66.9	0.80	42.4	52.9	0.358	0.094	0.122	0.34	NonLiqfble.
	13.03 13.12	12 12	9.2	0.47	115 115	1614 1625	1546 1551	7.9 10.2	10.8	7.47 5.84	3.1	81.6 68.7	0.80	31.6 40.9	39.5 51.1	0.359	0.086	0.111 0.120	0.31	NonLiqfble. NonLiqfble.
	13.21	12	10.5	0.54	125	1635	1555	11.6	12.4	5.58	3.1	64.3	0.80	46.6	58.2	0.362	0.098	0.128	0.35	NonLiqfble.
	13.31	12	10.3	0.61	125	1648	1562	11.4	12.1	6.44	3.1	67.8	0.80	45.6	57.0	0.363	0.097	0.126	0.35	NonLiqfble.
	13.4	12	9.4	0.66	125	1659	1567	10.4	10.9	7.70	3.2	74.3	0.80	41.6	51.9	0.364	0.093	0.121	0.33	NonLiqfble.
	13.49	12	9.7	0.74	125	1670	1573	10.7	11.3	8.35	3.2	75.4	0.80	42.8	53.5	0.365	0.094	0.123	0.34	NonLiqfble.
	13.58 13.67	12 12	9 8.9	0.79 0.77	125 125	1681 1693	1578 1584	9.9 9.8	10.3 10.2	9.68 9.56	3.3	81.2 81.3	0.80	39.6 39.1	49.6 48.9	0.366	0.091	0.119 0.118	0.32	NonLiqfble. NonLiqfble.
	13.76	12	9.4	0.78	125	1704	1590	10.3	10.7	9.13	3.3	78.7	0.80	41.3	51.6	0.369	0.093	0.110	0.32	NonLiqfble.
	13.85	12	9.2	0.74	125	1715	1595	10.1	10.5	8.87	3.3	78.8	0.80	40.3	50.4	0.370	0.092	0.119	0.32	NonLiqfble.
	13.94	12	8.3	0.72	125	1726	1601	9.1	9.3	9.68	3.3	84.1	0.80	36.3	45.4	0.371	0.089	0.115	0.31	NonLiqfble.
	14.03	12	8.8	0.72	125	1738	1607	9.6	9.9	9.08	3.3	80.8	0.80	38.4	48.0	0.372	0.090	0.117	0.32	NonLiqfble.
	14.11 14.2	12 12	8.6 8.2	0.72 0.71	125 125	1748 1759	1612 1617	9.4 8.9	9.6 9.0	9.32 9.70	3.3	82.3 84.9	0.80	37.5 35.7	46.9 44.6	0.373 0.374	0.090	0.116 0.115	0.31	NonLiqfble. NonLiqfble.
	14.29	12	9.7	0.7	125	1770	1623	10.5	10.9	7.94	3.2	75.2	0.80	42.1	52.7	0.375	0.094	0.113	0.31	NonLiqfble.
	14.38	12	9.3	0.69	125	1781	1629	10.1	10.3	8.21	3.3	77.3	0.80	40.3	50.4	0.376	0.092	0.119	0.32	NonLiqfble.
	14.47	12	7.9	0.67	125	1793	1634	8.6	8.6	9.57	3.4	86.1	0.80	34.2	42.8	0.377	0.087	0.113	0.30	NonLiqfble.
	14.56	12	7.9	0.66	125	1804	1640	8.5	8.5	9.43	3.4	85.8	0.80	34.1	42.7	0.378	0.087	0.113	0.30	NonLiqfble.
	14.65 14.74	12 12	6.1 6.3	0.64 0.63	115 115	1815 1826	1645 1650	6.6 6.8	6.3 6.5	12.33 11.70	3.5 3.5	101.9 99.4	0.80	26.3 27.1	32.9 33.9	0.379 0.381	0.083 0.084	0.108 0.109	0.29 0.29	NonLiqfble. NonLiqfble.
	14.82	12	6.2	0.58	115	1835	1654	6.7	6.4	10.98	3.5	98.4	0.80	26.7	33.3	0.381	0.083	0.108	0.28	NonLiqfble.
	14.91	12	8.3	0.57	115	1845	1659	8.9	8.9	7.73	3.3	79.9	0.80	35.7	44.6	0.383	0.088	0.115	0.30	NonLiqfble.
	15	12	8.7	0.6	125	1855	1664	9.3	9.3	7.72	3.3	78.6	0.80	37.3	46.7	0.384	0.089	0.116	0.30	NonLiqfble.
	15.09	12	10.5	0.64	125	1867	1669	11.2	11.5	6.69	3.2	70.1	0.80	45.0	56.2	0.385	0.097	0.125	0.33	NonLiqfble.
	15.18 15.27	12 12	10.8 10.8	0.71 0.78	125 125	1878 1889	1675 1681	11.5 11.5	11.8 11.7	7.20 7.91	3.2	71.0 73.1	0.80	46.2 46.1	57.7 57.6	0.386 0.387	0.098 0.098	0.127 0.127	0.33	NonLiqfble. NonLiqfble.
	15.35	12	11.5	0.79	125	1899	1686	12.3	12.5	7.49	3.2	70.3	0.80	49.0	61.3	0.388	0.101	0.132	0.34	NonLiqfble.
	15.46	12	12.5	0.78	125	1913	1693	13.3	13.6	6.76	3.1	66.0	0.80	53.2	66.5	0.389	0.107	0.140	0.36	NonLiqfble.
	15.56	12	8	0.79	125	1925	1699	8.5	8.3	11.23	3.4	91.1	0.80	34.0	42.5	0.390	0.087	0.113	0.29	NonLiqfble.
	15.65	12	10.7	0.77	125	1937	1705	11.3	11.4	7.91	3.2	73.8	0.80	45.4	56.7	0.391	0.097	0.126	0.32	NonLiqfble.
	15.74 15.83	12 12	9.7 10	0.74 0.7	125 125	1948 1959	1710 1716	10.3 10.6	10.2 10.5	8.48 7.76	3.3	78.4 75.5	0.80	41.1 42.3	51.3 52.8	0.392 0.393	0.093 0.094	0.120 0.122	0.31	NonLiqfble. NonLiqfble.
	15.91	12	10.5	0.67	125	1969	1721	11.1	11.1	7.04	3.2	72.1	0.80	44.3	55.4	0.394	0.096	0.125	0.31	NonLiqfble.
	16	12	11.3	0.62	125	1980	1726	11.9	11.9	6.01	3.1	66.8	0.80	47.6	59.5	0.395	0.100	0.129	0.33	NonLiqfble.
	16.09	12	9.1	0.61	125	1992	1732	9.6	9.4	7.53	3.3	77.9	0.80	38.3	47.8	0.396	0.090	0.117	0.30	NonLiqfble.
	16.18	12	10.5	0.59	125	2003	1738	11.0	10.9	6.21	3.2	69.7	0.80	44.1	55.1	0.396	0.096	0.124	0.31	NonLiqfble.
	16.27	12	10.6	0.53	125	2014	1743	11.1	11.0	5.53	3.1	67.1	0.80	44.4 26.8	55.5	0.397	0.096	0.125	0.31	NonLiqfble.
	16.36 16.45	12 12	6.4 9.8	0.55 0.53	115 125	2025 2036	1749 1754	6.7 10.2	6.2 10.0	10.21 6.04	3.5 3.2	97.6 71.3	0.80	26.8 41.0	33.5 51.2	0.398	0.083	0.109 0.120	0.27	NonLiqfble. NonLiqfble.
	16.54	12	10.7	0.55	125	2047	1759	11.2	11.0	5.17	3.1	65.8	0.80	44.6	55.8	0.400	0.092	0.125	0.30	NonLiqfble.
	16.63	12	9.3	0.5	115	2058	1765	9.7	9.4	6.05	3.2	73.1	0.80	38.7	48.4	0.401	0.091	0.118	0.29	NonLiqfble.
	16.72	12	10.4	0.49	125	2069	1770	10.8	10.6	5.23	3.1	67.0	0.80	43.3	54.1	0.402	0.095	0.123	0.31	NonLiqfble.
	16.81	12	11.1	0.5	125	2080	1775	11.5	11.3	4.97	3.1	64.3	0.80	46.1	57.6	0.403	0.098	0.127	0.32	NonLiqfble.
	16.9	12	11.5	0.49	125	2091	1781	11.9	11.7	4.69	3.1	62.3	0.80	47.7	59.6	0.404	0.100	0.130	0.32	NonLiqfble.

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Depth to Groundwater: 12 feet

	Donath	Water	Tip	Sleeve			Effective		Corr.			F.C					-	Liquef.		
Cone	Depth (FT)	Table (FT)	Resist.	Frict. (TSF)	g (PCF)	Stress (PSF)	Stress (PSF)	Tip Qc1N	Tip Q	Ratio F	Ic	F.C. (%)	Ксрт	DqcIN	(QcIN)es	Stress Ratio	Stress M7.5	Stress M6.50	of Safety	Comments
	()	()	(-5-)	(101)	(= ==)	(= == )	()					(1-)								
	16.99	12	12.1	0.48	125	2102	1787	12.5	12.4	4.34	3.0	59.7	0.80	50.1	62.6	0.405	0.103	0.134	0.33	NonLiqfble.
	17.08	12	6.5	0.54	115	2114	1792	6.7	6.1	9.92	3.5	97.3	0.80	26.9	33.6	0.406	0.084	0.109	0.27	NonLiqfble.
	17.17 17.26	12 12	8.8 10.6	0.56 0.55	125 125	2124 2135	1797 1803	9.1 10.9	8.6 10.6	7.24 5.77	3.3 3.1	79.3 69.0	0.80	36.3 43.7	45.4 54.6	0.407 0.407	0.089 0.095	0.115 0.124	0.28	NonLiqfble. NonLiqfble.
	17.25	12	9.1	0.55	125	2146	1808	9.4	8.9	6.85	3.3	77.3	0.80	37.5	46.8	0.408	0.093	0.124	0.30	NonLiqfble.
	17.44	12	11.5	0.52	125	2158	1814	11.8	11.5	4.99	3.1	64.0	0.80	47.3	59.1	0.409	0.099	0.129	0.32	NonLiqfble.
	17.53	12	9.6	0.49	115	2169	1820	9.8	9.4	5.75	3.2	72.1	0.80	39.4	49.2	0.410	0.091	0.118	0.29	NonLiqfble.
	17.61 17.7	12 12	10.6 10.5	0.47 0.45	115 115	2178 2189	1824 1828	10.9 10.7	10.4 10.3	4.94 4.78	3.1	66.2 66.0	0.80	43.4 43.0	54.3 53.7	0.411 0.412	0.095 0.094	0.123 0.123	0.30 0.30	NonLiqfble. NonLiqfble.
	17.79	12	11.7	0.46	125	2199	1833	12.0	11.6	4.34	3.0	61.2	0.80	47.8	59.8	0.413	0.100	0.123	0.31	NonLiqfble.
	17.88	12	11.6	0.42	115	2210	1839	11.8	11.4	4.00	3.0	60.1	0.80	47.3	59.2	0.413	0.099	0.129	0.31	NonLiqfble.
	17.97	12	12.3	0.37	115	2220	1844	12.5	12.1	3.31	3.0	55.4	0.80	50.1	62.7	0.414	0.103	0.134	0.32	NonLiqfble.
	18.06 18.14	12 12	10.4 11.3	0.33 0.31	115 115	2231 2240	1848 1852	10.6 11.5	10.0 11.0	3.55 3.05	3.0	61.1 56.3	0.80	42.3 45.9	52.9 57.4	0.415 0.416	0.094 0.098	0.122 0.127	0.29	NonLiqfble. NonLiqfble.
	18.23	12	12.1	0.28	115	2250	1857	12.3	11.8	2.55	2.9	51.8	0.80	49.1	61.4	0.417	0.102	0.127	0.31	NonLiqfble.
	18.32	12	11.8	0.31	115	2261	1862	12.0	11.5	2.91	2.9	54.6	0.80	47.9	59.8	0.418	0.100	0.130	0.31	NonLiqfble.
	18.41	12	11.6	0.36	115	2271	1867	11.7	11.2	3.44	3.0	57.9	0.80	47.0	58.7	0.418	0.099	0.128	0.31	NonLiqfble.
	18.5	12 12	12.3	0.38 0.36	115 115	2281 2292	1871	12.4 12.4	11.9 11.9	3.41	3.0	56.3	0.80	49.8	62.2	0.419	0.102	0.133	0.32 0.32	NonLiqfble.
	18.59 18.76	12	12.3 13.5	0.30	125	2311	1876 1885	13.6	13.1	3.23 3.56	3.0 2.9	55.4 54.9	0.80	49.7 54.4	62.1 68.0	0.420 0.422	0.102	0.133 0.142	0.34	NonLiqfble. NonLiqfble.
	18.85	12	13.5	0.48	125	2323	1891	13.6	13.0	3.89	3.0	56.5	0.80	54.3	67.9	0.423	0.109	0.142	0.34	NonLiqfble.
	18.94	12	11.2	0.51	125	2334	1896	11.3	10.6	5.08	3.1	66.4	0.80	45.0	56.3	0.423	0.097	0.126	0.30	NonLiqfble.
	19.03	12	13.9	0.56	125	2345	1902	13.9	13.4	4.40	3.0	58.1	0.80	55.8	69.7	0.424	0.112	0.145	0.34	NonLiqfble.
	19.12 19.21	12 12	16.3 16.3	0.59 0.6	125 125	2356 2368	1908 1913	16.3 16.3	15.8 15.8	3.90 3.97	2.9 2.9	52.3 52.6	0.80	65.3 65.2	81.6 81.5	0.425 0.426	0.131 0.130	0.170 0.170	0.40 0.40	NonLiqfble. NonLiqfble.
	19.3	12	15.9	0.54	125	2379	1919	15.9	15.3	3.67	2.9	51.9	0.80	63.5	79.4	0.426	0.130	0.170	0.40	NonLiqfble.
	19.39	12	13.3	0.44	125	2390	1925	13.3	12.6	3.64	3.0	56.1	0.80	53.1	66.3	0.427	0.107	0.139	0.33	NonLiqfble.
	19.48	12	13.1	0.35	115	2401	1930	13.0	12.3	2.94	2.9	53.1	0.80	52.2	65.2	0.428	0.106	0.138	0.32	NonLiqfble.
	19.57	12	12.9	0.31	115	2412	1935	12.8	12.1	2.65	2.9	51.9	0.80	51.3	64.2	0.429	0.105	0.136	0.32	NonLiqfble.
	19.66 19.75	12 12	12.9 12.5	0.3	115 115	2422 2432	1940 1944	12.8 12.4	12.0 11.6	2.57 2.66	2.9 2.9	51.5 52.9	0.80	51.3 49.6	64.1 62.0	0.430 0.430	0.104 0.102	0.136 0.133	0.32 0.31	NonLiqfble. NonLiqfble.
	19.84	12	13	0.34	115	2443	1949	12.9	12.1	2.89	2.9	53.2	0.80	51.5	64.4	0.431	0.105	0.136	0.32	NonLiqfble.
	19.93	12	13.2	0.42	125	2453	1954	13.1	12.3	3.51	3.0	56.1	0.80	52.3	65.3	0.432	0.106	0.138	0.32	NonLiqfble.
	20.02	12	13.4	0.46	125	2464	1959	13.2	12.4	3.78	3.0	57.1	0.80	53.0	66.2	0.424	0.107	0.139	0.33	NonLiqfble.
	20.11	12 12	12 12.5	0.49 0.51	125 125	2476 2487	1965 1971	11.8 12.3	10.9 11.4	4.55 4.53	3.1	63.5 62.3	0.80	47.4 49.3	59.2 61.6	0.424 0.425	0.099	0.129 0.132	0.30 0.31	NonLiqfble. NonLiqfble.
	20.29	12	12.1	0.51	125	2498	1976	11.9	11.4	4.70	3.1	64.0	0.80	47.6	59.5	0.426	0.102	0.132	0.30	NonLiqfble.
	20.38	12	12.6	0.49	125	2509	1982	12.4	11.4	4.32	3.0	61.4	0.80	49.5	61.9	0.427	0.102	0.133	0.31	NonLiqfble.
	20.47	12	12.2	0.49	125	2521	1988	12.0	11.0	4.48	3.1	63.0	0.80	47.9	59.9	0.427	0.100	0.130	0.30	NonLiqfble.
	20.56	12	10.1	0.52	125	2532	1993	9.9	8.9	5.89	3.2	74.0	0.80	39.6	49.5	0.428	0.091	0.119	0.28	NonLiqfble.
	20.65 20.73	12 12	10.3 9.9	0.48 0.46	115 115	2543 2552	1999 2003	10.1 9.7	9.0 8.6	5.32 5.33	3.2	71.4 72.7	0.80	40.3 38.7	50.4 48.4	0.429 0.429	0.092 0.091	0.119 0.118	0.28 0.27	NonLiqfble. NonLiqfble.
	20.82	12	10.2	0.47	115	2563	2008	10.0	8.9	5.27	3.2	71.7	0.80	39.8	49.8	0.430	0.091	0.119	0.28	NonLiqfble.
	20.91	12	12.7	0.44	125	2573	2013	12.4	11.3	3.86	3.0	59.6	0.80	49.5	61.9	0.431	0.102	0.133	0.31	NonLiqfble.
	21	12	10.2	0.45	115	2584	2018	9.9	8.8	5.05	3.2	71.0	0.80	39.7	49.7	0.431	0.091	0.119	0.28	NonLiqfble.
	21.09 21.18	12 12	10.7 10.7	0.42 0.41	115 115	2595 2605	2023 2028	10.4 10.4	9.3 9.3	4.47 4.36	3.1	67.2 66.8	0.80	41.6 41.6	52.0 52.0	0.432 0.433	0.093	0.121 0.121	0.28 0.28	NonLiqfble. NonLiqfble.
	21.26	12	9.7	0.42	115	2614	2032	9.4	8.3	5.00	3.2	72.5	0.80	37.7	47.1	0.434	0.090	0.121	0.27	NonLiqfble.
	21.35	12	9.3	0.42	115	2624	2037	9.0	7.8	5.26	3.2	75.0	0.80	36.1	45.1	0.434	0.089	0.115	0.27	NonLiqfble.
	21.44	12	9.6	0.42	115	2635	2041	9.3	8.1	5.07	3.2	73.3	0.80	37.2	46.5	0.435	0.089	0.116	0.27	NonLiqfble.
	21.53	12	8.7	0.41	115	2645	2046	8.4	7.2	5.56	3.3	78.5	0.80	33.7	42.1	0.436	0.087	0.113	0.26	NonLigfble.
	21.78 21.87	12 12	10.1 8.4	0.41 0.38	115 115	2674 2684	2059 2064	9.7 8.1	8.5 6.8	4.68 5.38	3.2	70.4 79.3	0.80	39.0 32.4	48.7 40.4	0.438 0.438	0.091 0.086	0.118 0.112	0.27 0.26	NonLiqfble. NonLiqfble.
	21.96	12	10.3	0.4	115	2695	2069	9.9	8.7	4.47	3.1	69.1	0.80	39.6	49.5	0.439	0.091	0.119	0.27	NonLiqfble.
	22.05	12	12.5	0.4	115	2705	2073	12.0	10.7	3.59	3.0	59.6	0.80	48.0	60.1	0.440	0.100	0.130	0.30	NonLiqfble.
	22.14	12	14	0.4	125	2715	2078	13.4	12.2	3.16	2.9	54.6	0.80	53.7	67.2	0.440	0.108	0.141	0.32	NonLiqfble.
	22.23 22.32	12 12	8.5 11.4	0.4 0.37	115 115	2727 2737	2084 2089	8.1 10.9	6.8 9.6	5.61 3.69	3.3 3.1	80.1 62.8	0.80	32.6 43.7	40.7 54.6	0.441 0.442	0.086 0.095	0.112 0.124	0.25 0.28	NonLiqfble. NonLiqfble.
	22.32	12	9.6	0.36	115	2747	2089	9.2	9.6 7.9	4.38	3.1	71.2	0.80	36.7	45.9	0.442	0.095	0.124	0.28	NonLiqfble.
	22.5	12	8.7	0.37	115	2758	2098	8.3	7.0	5.05	3.3	77.4	0.80	33.2	41.6	0.443	0.087	0.113	0.25	NonLiqfble.
	22.59	12	11.5	0.39	115	2768	2103	11.0	9.6	3.86	3.1	63.6	0.80	43.9	54.9	0.444	0.095	0.124	0.28	NonLiqfble.
	22.68	12	11.7	0.38	115	2778	2108	11.2	9.8	3.69	3.1	62.4	0.80	44.6	55.8	0.444	0.096	0.125	0.28	NonLiqfble.
	22.77	12	9.4	0.37	115	2789	2112	8.9	7.6	4.62	3.2	73.3	0.80	35.8	44.7	0.445	0.088	0.115	0.26	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 27

Depth to Groundwater: 12 feet

Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Stress Stress Stress g (TSF) (TSF) (PCF) (PSF) (PSF) (%) KCPT Dqcin (qcin)cs Ratio M7.5 M6.50 Safety (FT) (FT) **q**c1N 0 Comments Ic 22.86 12 9.6 0.38 115 2799 2117 9.1 7.7 4.63 3.2 72.7 0.80 36.5 45.6 0.446 0.089 0.115 0.26 NonLigfble. 22.95 12 9.8 0.38 115 2809 2122 9.3 7.9 4.53 3.2 71.7 0.80 37.2 46.5 0.446 0.089 0.116 0.26 NonLiqfble. 125 23.04 12 10.1 0.5 2820 2126 9.6 8.2 5.75 3.2 75.7 0.80 38.3 47.9 0.447 0.090 0.117 0.26 NonLiqfble. 23.13 12 13.1 0.6 125 2831 2132 12.4 11.0 5.14 3.1 65.8 0.80 49.7 62.1 0.447 0.102 0.133 0.30 NonLiqfble. 23.22 12 19.5 0.65 125 2842 2138 18.5 16.9 3.60 2.9 0.80 73.8 92.3 0.448 0.153 0.199 0.44 NonLiafble. 23.29 12 30.7 0.7 125 2851 2142 29.0 27.3 2.39 2.6 34.7 0.79 111.3 140.4 0.448 0.337 0.438 0.98 Liquefaction 23.38 12 37.1 0.77 135 2862 2148 35.0 33.2 2.16 2.5 30.4 73.4 108.5 0.449 0.199 0.258 0.58 Liquefaction 0.68 23.47 12 33.2 0.62 125 2874 2154 31.3 29.5 1.95 2.5 31.0 0.69 70.9 102.2 0.450 0.233 0.52 0.179 Liquefaction 23.56 22.6 0.49 125 2886 2160 2.32 2.7 40.1 0.80 106.4 0.450 0.250 0.55 NonLiafble. 12 21.3 19.6 85.1 0.19223.64 12 19.2 0.43 125 2896 2165 18.1 16.4 2.42 2.8 44.2 0.80 72.2 90.3 0.451 0.1480.1930.43 NonLigfble. 23.73 12 17.1 0.38 125 2907 2171 16.1 14.4 2.43 2.8 46.8 0.80 64.2 80.3 0.451 0.128 0.167 0.37 NonLigfble. 23.82 14.9 0.41 125 2918 2176 12.3 3.05 2.9 53.6 0.80 55.9 69.9 0.452 0.145 0.32 NonLiqfble. 12 14.0 0.112 23.91 12 14.6 0.42 125 2929 2182 13.7 12.0 3.20 29 55.0 0.80 54.7 68.4 0.452 0.110 0.143 0.32 NonLiqfble. 24 12 14.3 0.42 125 2941 2187 13.4 11.7 3.27 3.0 56.0 0.80 53.5 66.9 0.453 0.108 0.140 0.31 NonLiqfble. 24.09 3.0 12 12.2 0.35 115 2952 2193 11.4 9.8 3.26 60.2 0.80 45.6 57.0 0.454 0.097 0.126 0.28 NonLiafble. 24.18 12 14.4 0.29 115 2962 2198 13.4 11.8 2.24 2.9 50.1 0.80 53.8 67.2 0.454 0.108 0.141 0.31 NonLiqfble. 24.27 12 12.5 0.23 2973 2.9 0.455 0.128 105 2203 11.7 10.0 2.09 52.7 0.80 46.6 58.3 0.098 0.28 NonLiafble. 24.35 105 9.9 0.19 2981 2206 9.2 2.26 3.0 60.5 0.80 36.9 46.1 0.455 0.089 0.116 0.25 NonLigfble. 12 7.6 24.44 12 9.2 0.15 105 2990 2210 8.6 7.0 1.95 3.0 60.5 0.80 34.3 42.8 0.456 0.087 0.113 0.25 NonLigfble. 24.53 2214 1.92 3.0 12 8.8 0.14 95 3000 8.2 6.6 61.7 0.80 32.7 40.9 0.457 0.086 0.112 0.25 NonLigfble. 24.62 12 7.9 0.19 105 3008 2217 7.3 5.8 2.97 3.2 72.6 0.80 29.4 36.7 0.457 0.085 0.110 0.24NonLigfble. 24 71 12 123 0.18 105 3018 2220 114 97 1.67 29 50.2 0.80 45.7 57.1 0.458 0.097 0.127 0.28 NonLiqfble. 24.79 12 9.3 0.26 105 3026 2224 8.6 7.0 3.34 3.2 69.3 0.80 34 5 43 1 0.459 0.087 0.114 0.25 NonLiqfble. 24.88 12 9.9 0.34 115 3036 2228 9.2 7.5 4.06 3.2 70.9 0.80 36.7 45.9 0.459 0.089 0.116 0.25 NonLiqfble. 24.97 12 9.2 0.45 115 3046 2232 8.5 6.9 5.86 3.3 81.0 0.80 34.1 42.6 0.460 0.087 0.113 0.25 NonLiqfble. 25.18 12 28.5 0.42 125 3070 2243 26.3 24.0 1.56 2.5 31.7 0.71 65.1 91.5 0.461 0.151 0.197 0.43 Liquefaction 25.27 12 35.1 0.37 115 3081 2249 32.4 29.8 1.10 2.4 24.9 0.53 36.5 68.9 0.462 0.110 0.144 0.31 Liquefaction 25.36 12 34.7 0.36 115 3092 2254 32.0 29.4 1.09 2.4 0.53 36.3 0.462 0.143 24.9 68.3 0.110 0.31 Liquefaction 25.45 28.3 0.38 125 2259 0.463 12 3102 26.1 23.7 1.42 2.5 30.9 0.69 58.5 84.6 0.136 0.177 0.38 Liquefaction 25.54 12 22.6 0.32 2264 20.8 1.52 2.6 0.80 103.9 0.463 0.240 0.52 115 3113 18.6 35.8 83.1 0.184 NonLiafble. 25.63 12 19.7 0.28 2269 18.1 1.54 2.7 38.8 0.80 90.5 0.464 0.194 0.42 NonLiafble. 115 3124 16.0 72.4 0.149 0.28 25.72 12 17 1 115 3134 2274 15.7 13.7 1.80 2.8 43.8 0.80 62.8 78 5 0.464 0.125 0.162 0.35 NonLiafble. 25.81 12 15 0.29 115 3144 2278 13.7 11.8 2.16 29 49 4 0.80 55.0 68.7 0.465 0.110 0.143 0.31 NonLiqfble. 25.9 12 13.5 0.31 115 3155 2283 12.4 10.4 2.60 2.9 55.0 0.80 49.4 61.8 0.466 0.102 0.133 0.28 NonLiqfble. 25.99 12 12.3 0.29 115 3165 2288 11.3 9.4 2.71 3.0 58.2 0.80 45.0 56.3 0.466 0.097 0.126 0.27 NonLiqfble. 26.08 13.6 3.0 NonLiqfble. 12 0.32 115 3176 2293 12.4 10.5 2.66 55.3 0.80 49.7 62.1 0.467 0.102 0.133 0.28 26.16 12 14.6 0.36 125 3185 2297 13.3 11.3 2.77 2.9 54.1 0.80 53.3 66.6 0.467 0.108 0.140 0.30 NonLigfble 26.26 12 15.6 0.35 115 3197 2303 14.2 12.2 2.50 2.9 50.9 0.80 56.9 71.1 0.468 0.113 0.147 0.32 NonLiqfble. 26.35 12 16.3 0.33 115 3208 2308 14.8 12.7 2.25 2.8 48.3 0.80 59.4 74.2 0.468 0.118 0.153 0.33 NonLiqfble. 26.43 12 16.3 0.35 125 3217 2312 14.8 12.7 2.38 2.9 49.2 0.80 59.3 74.2 0.469 0.118 0.153 0.33 NonLiafble. 26.52 0.35 2.9 12 15.8 115 3228 2318 14.4 12.2 2.47 50.5 0.80 57.4 71.8 0.469 0.114 0.149 0.32 NonLiafble. 26.61 12 16.9 0.34 115 3238 2322 15.3 13.2 2.23 2.8 47.5 0.80 61.4 76.7 0.470 0.122 0.159 0.34 NonLiafble. 26.7 12 15.6 0.31 115 3249 2327 14.1 12.0 2.22 2.9 49.4 0.80 56.6 70.7 0.470 0.113 0.1470.31 NonLiqfble. 26.79 12 15.6 0.32 115 3259 2332 14.1 12.0 2.29 2.9 49.9 0.80 56.5 70.7 0.471 0.113 0.147 0.31 NonLigfble. 26.88 12 18.6 0.33 115 3269 2337 16.8 14.5 1.95 2.8 43.6 0.80 67.3 84.2 0.471 0.135 0.176 0.37 NonLiqfble. 26.97 12 14.8 0.33 115 3280 2341 13.4 11.2 2.51 2.9 52.7 0.80 53.5 66.9 0.472 0.108 0.140 0.30 NonLiqfble. 2346 27.06 12 14.5 3290 13.1 2.57 2.9 53.6 0.80 52.4 65.5 0.473 0.138 0.29 NonLiqfble. 0.33 115 11.0 0.106 27.15 12 13.4 0.32 115 3300 2351 12.1 10.0 2.72 3.0 56.7 0.80 48.4 60.5 0.473 0.101 0.131 0.28 NonLiqfble. 27.23 12.1 0.31 115 3310 2355 10.9 8.9 2.97 3.0 61.0 0.80 43.6 54.5 0.474 0.095 0.124 0.26 NonLiqfble. 27.32 12 0.34 3320 2360 12.9 10.7 2.69 2.9 0.80 64.4 0.474 0.105 0.29 NonLiqfble. 14.3 115 54.9 51.5 0.136 27.41 0.33 0.475 13.9 115 3330 2364 10.3 2.70 3.0 55.7 0.80 50.0 62.5 0.134 0.28 NonLigfble. 12 12.5 0.103 27.5 0.33 12 12.4 115 3341 2369 11.1 9.1 3.08 3.0 61.1 0.80 44.6 55.7 0.475 0.096 0.125 0.26 NonLigfble. 27.58 12 14.4 0.36 115 3350 2373 12.9 10.7 2.83 3.0 55.7 0.80 51.7 64.7 0.476 0.105 0.1370.29 NonLigfble. 27.67 12 14.8 0.39 125 3360 2378 13.3 11.0 2.97 3.0 55.8 0.80 53.1 66.4 0.476 0.107 0.1390.29 NonLiqfble. 27 76 12 15.3 0.41 125 3372 2384 13.7 114 3.01 3.0 55.2 0.80 54.8 68 6 0.477 0.110 0.143 0.30 NonLiafble 27.85 12 13.5 0.41 125 3383 2389 12.1 99 3.47 3.0 61.0 0.80 48 3 60.4 0.477 0.101 0.131 0.27NonLiqfble. 27.94 12 14.3 0.42 125 3394 2395 12.8 10.5 3.33 3.0 58.8 0.80 51.1 63.9 0.478 0.104 0.136 0.28 NonLiqfble. 28.03 14.7 0.42 3405 3.23 NonLiqfble. 12 125 2401 13.1 10.8 3.0 57.6 0.80 52.5 65.6 0.478 0.106 0.138 0.29 0.42 125 3415 NonLiqfble. 28.11 12 16.1 2406 14.4 12.0 2.92 2.9 53.6 0.80 57.4 71.8 0.478 0.114 0.149 0.31 28.32 12 13.4 0.42 125 3442 2419 11.9 9.7 3.60 3.1 62.2 0.80 47.7 59.6 0.479 0.100 0.130 0.27 NonLiqfble. 28.39 13.5 0.42 125 3450 2423 9.7 3.57 0.80 48.0 60.0 0.480 0.100 0.130 0.27 12 12.0 3.1 61.9 NonLigfble. 28.48 12.3 0.42 125 2429 3.97 0.480 0.124 NonLigfble. 3462 10.9 3.1 0.80 43.7 54.6 0.095 0.26 12 8.7 66.7 28 57 12.5 0.37 115 3473 2434 3 44 0.80 44 3 0.481 0.096 0.125 0.26 NonLiafble. 11.1 8.8 3 1 63.7

EQ Magnitude (Mw):

PGA (g):

6.5

0.54

MSF: 1.30

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 27

Depth to Groundwater: 12 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
~	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio	_	F.C.	TZ.	D.e.	(m )	Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>Q</b> c1N	Q	F	Ic	(%)	Ксрт	Dq <sub>c1N</sub>	( <b>q</b> clN)cs	Ratio	M7.5	M6.50	Safety	Comments
	28.66 28.75	12 12	13.3 13.2	0.35 0.34	115 115	3483 3493	2439 2444	11.8 11.7	9.5 9.4	3.03 2.97	3.0	59.7 59.7	0.80	47.1 46.7	58.9 58.4	0.481 0.482	0.099	0.129 0.128	0.27 0.27	NonLiqfble. NonLiqfble.
	28.84	12	12.2	0.34	115	3504	2444	10.8	8.5	3.16	3.1	63.1	0.80	43.1	53.9	0.482	0.099	0.128	0.27	NonLiqfble.
	28.93	12	13.1	0.31	115	3514	2453	11.6	9.2	2.73	3.0	58.7	0.80	46.3	57.9	0.483	0.098	0.127	0.26	NonLiqfble.
	29.02	12	13.6	0.34	115	3525	2458	12.0	9.6	2.87	3.0	23.5	0.49	11.7	23.7	0.483	0.081	0.106	0.22	NonLiqfble.
	29.11	12	12.4	0.56	125	3535	2463	10.9	8.6	5.27	3.2	23.5	0.49	10.7	21.6	0.484	0.081	0.105	0.22	NonLiqfble.
	29.19 29.27	12 12	18.4 36.4	0.95 1.42	135 135	3545 3556	2468 2474	16.2 32.0	13.5 28.0	5.71 4.10	3.1 2.7	23.5 23.5	0.49 0.49	15.8 31.3	32.0 63.3	0.484 0.484	0.083	0.108 0.135	0.22 0.28	NonLiqfble. NonLiqfble.
	29.33	12	111.2	1.77	135	3564	2474	97.7	88.3	1.62	2.1	23.5	0.49	95.4	193.1	0.485	0.750	0.133	2.01	NonLiquie.
	29.42	12	125.5	2.17	135	3576	2485	110.2	99.5	1.75	2.1	23.5	0.49	107.5	217.7	0.485	1.039	1.351	2.79	
	29.51	12	103.6	2.42	135	3588	2491	90.8	81.7	2.38	2.2	23.5	0.49	88.6	179.5	0.485	0.618	0.803	1.65	
	29.59	12	87.7	2.45	135	3599	2497	76.8	68.8	2.85	2.3	23.5	0.49	75.0	151.7	0.486	0.405	0.526	1.08	Low F.S.
	29.68 29.77	12 12	75.6 68.3	2.27 2.05	135 135	3611 3623	2503 2510	66.1 59.6	58.9 53.0	3.08 3.08	2.4 2.4	23.5 23.5	0.49 0.49	64.5 58.2	130.6 117.9	0.486 0.486	0.287 0.232	0.374 0.302	0.77 0.62	Liquefaction Liquefaction
	29.86	12	71	1.77	135	3635	2516	61.9	55.0	2.56	2.4	23.5	0.49	60.4	122.4	0.487	0.250	0.326	0.67	Liquefaction
	29.95	12	81.7	1.55	135	3647	2523	71.2	63.3	1.94	2.2	23.5	0.49	69.5	140.6	0.487	0.339	0.440	0.90	Liquefaction
	30.03	12	92.2	1.41	135	3658	2529	80.2	71.4	1.56	2.1	23.5	0.49	78.3	158.5	0.467	0.450	0.586	1.25	
	30.12	12	94.8	1.39	135	3670	2535	82.4	73.3	1.50	2.1	23.5	0.49	80.4	162.8	0.467	0.481	0.626	1.34	
	30.21 30.29	12 12	89.8 73.8	1.49 1.38	135 135	3683 3693	2542 2548	77.9 64.0	69.2 56.5	1.69 1.92	2.2	23.5 23.5	0.49 0.49	76.1 62.4	154.0 126.4	0.468 0.468	0.420 0.268	0.546 0.348	1.17 0.74	Low F.S. Liquefaction
	30.38	12	56.1	1.3	135	3706	2554	48.6	42.5	2.40	2.4	23.5	0.49	47.4	96.0	0.468	0.162	0.211	0.45	Liquefaction
	30.47	12	42.7	1.38	135	3718	2561	36.9	31.9	3.38	2.6	23.5	0.49	36.0	73.0	0.469	0.116	0.151	0.32	NonLiqfble.
	30.55	12	45.4	1.42	135	3728	2567	39.2	33.9	3.26	2.6	23.5	0.49	38.3	77.5	0.469	0.123	0.160	0.34	NonLiqfble.
	30.64	12	56.9	1.39	135	3741	2573	49.1	42.8	2.53	2.5	28.6	0.63	83.6	132.7	0.469	0.297	0.386	0.82	Liquefaction
	30.73 30.81	12 12	69.4 81.3	1.25 0.95	135 125	3753 3764	2580 2585	59.8 70.0	52.3 61.4	1.85 1.20	2.3 2.1	22.4 16.6	0.47 0.31	52.1 31.2	111.9 101.2	0.470 0.470	0.210 0.176	0.273 0.229	0.58 0.49	Liquefaction Liquefaction
	30.89	12	79.7	0.94	125	3774	2590	68.5	60.1	1.20	2.1	16.9	0.31	31.8	100.3	0.470	0.174	0.229	0.49	Liquefaction
	30.98	12	68.5	0.9	125	3785	2596	58.8	51.3	1.35	2.2	19.6	0.39	37.7	96.5	0.471	0.164	0.213	0.45	Liquefaction
	31.06	12	60.4	1.14	135	3795	2601	51.8	45.0	1.95	2.4	24.9	0.53	58.8	110.6	0.471	0.206	0.268	0.57	Liquefaction
	31.15	12	56.7	1.22	135	3807	2608	48.6	42.0	2.23	2.4	27.3	0.60	71.7	120.3	0.471	0.242	0.315	0.67	Liquefaction
	31.23 31.32	12 12	61.1 62.1	1.29 1.12	135 135	3818 3830	2613 2620	52.3 53.1	45.3 45.9	2.18 1.86	2.4 2.3	26.1 24.1	0.56 0.51	67.2 55.5	119.5 108.5	0.472 0.472	0.239 0.199	0.310 0.259	0.66 0.55	Liquefaction Liquefaction
	31.4	12	53.4	0.76	125	3841	2626	45.6	39.2	1.48	2.3	23.8	0.50	46.2	91.7	0.472	0.152	0.239	0.33	Liquefaction
	31.49	12	41.3	0.6	125	3852	2631	35.2	29.9	1.52	2.4	28.0	0.61	56.0	91.3	0.473	0.151	0.196	0.41	Liquefaction
	31.57	12	30.4	0.62	125	3862	2636	25.9	21.6	2.18	2.6	37.5	0.80	103.6	129.5	0.473	0.282	0.367	0.78	NonLiqfble.
	31.66	12	24.2	0.71	125	3873	2642	20.6	16.8	3.19	2.8	47.7	0.80	82.4	103.0	0.473	0.182	0.236	0.50	NonLiqfble.
	31.74 31.82	12 12	19.2 14.7	0.6 0.48	125 125	3883 3893	2647 2652	16.3 12.5	13.0 9.6	3.48 3.76	2.9 3.1	54.6 63.2	0.80 0.80	65.3 50.0	81.6 62.4	0.474 0.474	0.131 0.103	0.170 0.133	0.36 0.28	NonLiqfble. NonLiqfble.
	31.91	12	16.6	0.38	125	3904	2658	14.1	11.0	2.59	2.9	53.7	0.80	56.4	70.4	0.474	0.103	0.133	0.28	NonLiqfble.
	32	12	14.4	0.32	115	3916	2663	12.2	9.3	2.57	3.0	57.4	0.80	48.8	61.0	0.475	0.101	0.132	0.28	NonLiqfble.
	32.09	12	13.7	0.29	115	3926	2668	11.6	8.8	2.47	3.0	58.3	0.80	46.4	58.0	0.475	0.098	0.128	0.27	NonLiqfble.
	32.17	12	13	0.27	115	3935	2672	11.0	8.3	2.45	3.0	59.7	0.80	44.0	55.0	0.476	0.095	0.124	0.26	NonLiqfble.
	32.26 32.34	12 12	13.2 13.4	0.28 0.31	115 115	3946 3955	2677 2681	11.2 11.3	8.4 8.5	2.49 2.71	3.0	59.6 60.6	0.80	44.7 45.3	55.8 56.6	0.476 0.476	0.096 0.097	0.125 0.126	0.26 0.26	NonLiqfble. NonLiqfble.
	32.43	12	14.6	0.31	115	3965	2686	12.3	9.4	2.46	3.0	56.6	0.80	49.3	61.6	0.477	0.102	0.120	0.28	NonLiqfble.
	32.52	12	15.2	0.35	115	3976	2691	12.8	9.8	2.65	3.0	56.7	0.80	51.3	64.1	0.477	0.105	0.136	0.28	NonLiqfble.
	32.6	12	16.7	0.4	125	3985	2695	14.1	10.9	2.72	2.9	54.6	0.80	56.3	70.4	0.477	0.112	0.146	0.31	NonLiqfble.
	32.69	12	19.1	0.46	125	3996	2701	16.1	12.7	2.69	2.9	51.1	0.80	64.3	80.4	0.478	0.128	0.167	0.35	NonLiqfble.
	32.78 32.86	12 12	21.5 23.8	0.57 0.71	125 125	4007 4017	2706 2711	18.1 20.0	14.4 16.1	2.92 3.26	2.9 2.9	49.6 49.0	0.80	72.3 80.0	90.4 100.0	0.478 0.478	0.149 0.173	0.193 0.225	0.40 0.47	NonLiqfble. NonLiqfble.
	32.95	12	26.4	0.71	135	4017	2717	22.2	17.9	3.53	2.8	48.0	0.80	88.6	110.8	0.478	0.173	0.223	0.47	NonLiqfble.
	33.04	12	27.8	0.95	135	4041	2723	23.3	18.9	3.69	2.8	47.7	0.80	93.2	116.5	0.479	0.227	0.295	0.62	NonLiqfble.
	33.12	12	27.9	0.97	135	4051	2729	23.4	19.0	3.75	2.8	47.9	0.80	93.5	116.8	0.479	0.228	0.297	0.62	NonLiqfble.
	33.21	12	26.9	0.86	135	4064	2736	22.5	18.2	3.46	2.8	47.4	0.80	90.0	112.5	0.480	0.212	0.276	0.58	NonLiqfble.
	33.3 33.39	12 12	26.6	0.72	135	4076	2742	22.2	17.9	2.93	2.8	45.2	0.80	88.9	111.1	0.480	0.208	0.270	0.56	NonLiqfble.
	33.39	12	25.3 24.3	0.68 0.69	125 125	4088 4098	2749 2754	21.1 20.3	16.9 16.2	2.92 3.10	2.8 2.8	46.3 48.1	0.80	84.5 81.0	105.6 101.3	0.480 0.481	0.189 0.177	0.246 0.230	0.51 0.48	NonLiqfble. NonLiqfble.
	33.54	12	23.6	0.69	125	4107	2758	19.7	15.6	3.20	2.9	49.3	0.80	78.6	98.3	0.481	0.177	0.230	0.46	NonLiqfble.
	33.63	12	23.6	0.62	125	4118	2764	19.6	15.6	2.88	2.8	47.7	0.80	78.6	98.2	0.481	0.168	0.219	0.45	NonLiqfble.
	33.72	12	23.3	0.53	125	4129	2769	19.4	15.3	2.50	2.8	45.9	0.80	77.5	96.9	0.481	0.165	0.214	0.44	NonLiqfble.
	33.8	12	21.8	0.48	125	4139	2774	18.1	14.2	2.43	2.8	47.1	0.80	72.4	90.5	0.482	0.149	0.194	0.40	NonLiqfble.
	33.89 33.98	12 12	19.9 18.1	0.41 0.35	125 125	4150 4162	2780 2786	16.5 15.0	12.8 11.5	2.30 2.18	2.8 2.9	48.5 50.2	0.80	66.1 60.0	82.6 75.0	0.482 0.482	0.132 0.119	0.172 0.155	0.36 0.32	NonLiqfble. NonLiqfble.
	55.56	12	10.1	0.33	123	4102	2100	15.0	11.3	2.10	2.9	50.2	0.80	00.0	73.0	0.402	0.119	0.133	0.32	romaquoie.

Project Number: 6600.3.001.01 Date: September 2005

Depth to Groundwater: 12 feet

**PGA (g):** 0.54 **MSF:** 1.30 CPT Number: 27

**EQ Magnitude** (M<sub>w</sub>): 6.5

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Lianef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	•	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	34.07	12	16.5	0.33	115	4173	2791	13.7	10.3	2.29	2.9	53.3	0.80	54.7	68.3	0.483	0.110	0.143	0.30	NonLiqfble.
	34.15	12	14.6	0.32	115	4182	2796	12.1	8.9	2.56	3.0	58.4	0.80	48.3	60.4	0.483	0.101	0.131	0.27	NonLiqfble.
	34.24	12	14.9	0.33	115	4192	2800	12.3	9.1	2.58	3.0	58.0	0.80	49.3	61.6	0.483	0.102	0.132	0.27	NonLiqfble.
	34.33	12	15.9	0.36	125	4203	2805	13.1	9.8	2.61	3.0	56.4	0.80	52.5	65.7	0.484	0.106	0.138	0.29	NonLiqfble.
	34.42	12	16.6	0.39	125	4214	2811	13.7	10.3	2.69	3.0	55.8	0.80	54.8	68.5	0.484	0.110	0.143	0.30	NonLiqfble.
	34.51 34.59	12 12	19 20.8	0.45 0.47	125 125	4225 4235	2816 2821	15.7 17.1	12.0 13.2	2.66 2.52	2.9 2.9	52.2 49.1	0.80	62.7 68.5	78.3 85.7	0.484 0.485	0.125 0.138	0.162 0.180	0.33 0.37	NonLiqfble. NonLiqfble.
	34.68	12	21.1	0.45	125	4247	2827	17.4	13.4	2.37	2.8	48.0	0.80	69.5	86.8	0.485	0.136	0.183	0.38	NonLiqfble.
	34.77	12	19.3	0.41	125	4258	2833	15.9	12.1	2.39	2.9	50.3	0.80	63.5	79.3	0.485	0.126	0.164	0.34	NonLiqfble.
	34.86	12	19.2	0.67	125	4269	2838	15.8	12.0	3.93	3.0	58.5	0.80	63.1	78.8	0.486	0.126	0.163	0.34	NonLiqfble.
	34.94	12	28.8	1.38	135	4279	2843	23.6	18.7	5.18	2.9	53.7	0.80	94.5	118.2	0.486	0.233	0.303	0.62	NonLiqfble.
	35.03	12	43.4	1.57	135	4291	2850	35.6	28.9	3.81	2.7	40.3	0.80	142.3	177.9	0.486	0.603	0.784	1.61	NonLiqfble.
	35.11	12	179.6	2.79	135	4302	2856	147.1	124.2	1.57	2.0	12.3	0.19	35.4	182.5	0.486	0.645	0.839	1.72	
	35.17 35.25	12 12	310.4 393.7	3.19 3.29	125 125	4310 4320	2860 2865	254.0 321.8	215.5 273.2	1.03 0.84	1.7 1.5	5.7 3.5	0.02	5.0 0.0	258.9 321.8	0.487 0.487	1.694 3.180	2.202 4.134	4.53 8.49	
	35.33	12	463.1	3.59	125	4330	2870	378.2	321.1	0.78	1.5	2.4	0.00	0.0	378.2	0.487	5.112	6.646	13.64	
	35.41	12	453	3.33	115	4340	2875	369.7	313.5	0.74	1.5	2.3	0.00	0.0	369.7	0.487	4.778	6.211	12.74	
	35.49	12	474.6	2.74	115	4349	2879	387.0	328.0	0.58	1.4	1.2	0.00	0.0	387.0	0.488	5.470	7.112	14.58	
	35.57	12	488.7	2.55	115	4358	2883	398.2	337.3	0.52	1.3	0.7	0.00	0.0	398.2	0.488	5.952	7.738	15.85	
	35.65	12	484.8	2.53	115	4368	2888	394.7	334.1	0.52	1.3	0.8	0.00	0.0	394.7	0.488	5.800	7.541	15.44	
	35.73	12	452.8	2.3	115	4377	2892	368.4	311.5	0.51	1.3	0.9	0.00	0.0	368.4	0.489	4.731	6.150	12.58	
	35.81	12	407.8	2.18	115	4386	2896	331.6	280.0	0.54	1.4	1.5	0.00	0.0	331.6	0.489	3.470	4.511	9.22	
	35.89 35.97	12	362.7 362.4	2.05	115	4395 4404	2900 2904	294.7 294.2	248.5 247.9	0.57	1.5	2.2	0.00	0.0	294.7	0.489	2.460	3.198	6.53 6.50	
	36.05	12 12	396.3	1.7 1.64	105 105	4413	2904	321.6	270.9	0.47 0.42	1.4	1.5 0.8	0.00	0.0	294.2 321.6	0.490 0.490	2.449 3.172	3.183 4.124	8.41	
	36.13	12	403.4	1.58	105	4421	2911	327.1	275.5	0.39	1.3	0.5	0.00	0.0	327.1	0.490	3.336	4.336	8.84	
	36.21	12	426.1	1.72	105	4430	2915	345.3	290.8	0.41	1.3	0.4	0.00	0.0	345.3	0.491	3.910	5.083	10.36	
	36.28	12	444	1.93	105	4437	2918	359.7	302.7	0.44	1.3	0.5	0.00	0.0	359.7	0.491	4.407	5.729	11.67	
	36.35	12	467.8	1.89	105	4444	2921	378.7	318.7	0.41	1.3	0.1	0.00	0.0	378.7	0.491	5.133	6.672	13.58	
	36.43	12	472.9	1.97	105	4453	2924	382.6	321.8	0.42	1.3	0.2	0.00	0.0	382.6	0.492	5.291	6.878	13.99	
	36.5	12	489.3	1.99	105	4460	2927	395.7	332.7	0.41	1.3	0.0	0.00	0.0	395.7	0.492	5.843	7.596	15.44	
	36.57 36.65	12 12	474.3 474.8	2.2 2.15	105 105	4467 4476	2930 2933	383.4 383.6	322.1 322.1	0.47 0.45	1.3	0.5 0.4	0.00	0.0	383.4 383.6	0.492 0.493	5.321 5.328	6.917 6.927	14.05 14.06	
	36.72	12	475.9	2.03	105	4483	2936	384.3	322.5	0.43	1.3	0.3	0.00	0.0	384.3	0.493	5.357	6.964	14.12	
	36.79	12	492.1	1.9	105	4491	2939	397.1	333.2	0.39	1.2	-0.1	0.00	0.0	397.1	0.493	5.905	7.677	15.56	
	36.86	12	488.8	2.03	105	4498	2942	394.3	330.6	0.42	1.3	0.1	0.00	0.0	394.3	0.494	5.780	7.514	15.22	
	36.93	12	497.2	1.8	105	4505	2945	400.9	336.0	0.36	1.2	-0.3	0.00	0.0	400.9	0.494	6.070	7.891	15.98	
	37	12	477.8	2.18	105	4513	2948	385.0	322.5	0.46	1.3	0.4	0.00	0.0	385.0	0.494	5.388	7.004	14.17	
	37.07	12	463.4	2.33	105	4520	2951	373.2	312.4	0.51	1.3	0.9	0.00	0.0	373.2	0.495	4.915	6.390	12.92	
	37.14 37.21	12 12	444.6 474.8	2.71 3.54	115 125	4527 4535	2954 2958	357.9 382.0	299.3 319.4	0.61 0.75	1.4 1.5	1.7 2.3	0.00	0.0	357.9 382.0	0.495 0.495	4.344 5.263	5.647 6.842	11.41 13.82	
	37.28	12	492.5	3.42	115	4544	2962	395.9	330.8	0.70	1.4	1.8	0.00	0.0	395.9	0.495	5.852	7.607	15.36	
	37.34	12	417.4	3.25	125	4551	2965	335.4	279.9	0.78	1.5	3.0	0.00	0.0	335.4	0.496	3.588	4.664	9.41	
	37.41	12	371	2.98	125	4560	2970	297.9	248.2	0.81	1.6	3.7	0.00	0.0	297.9	0.496	2.538	3.299	6.65	
	37.48	12	335.6	2.93	125	4569	2974	269.2	224.0	0.88	1.6	4.6	0.00	0.0	269.2	0.496	1.895	2.464	4.97	
	37.54	12	312.9	2.43	125	4576	2978	250.9	208.5	0.78	1.6	4.4	0.00	0.0	250.9	0.496	1.549	2.013	4.06	
	37.61	12	292	2.26	125	4585	2982	233.9 238.5	194.2	0.78	1.6	4.7	0.00	0.0	233.9	0.496	1.271	1.652	3.33	
	37.67 37.72	12 12	297.9 311	2.01 2.11	115	4592 4598	2986 2989	248.9	197.9 206.5	0.68 0.68	1.6 1.6	4.0 3.8	0.00	0.0	238.5 248.9	0.497 0.497	1.342 1.514	1.745 1.968	3.51 3.96	
	37.77	12		2.37	125	4604	2991	247.4	205.1	0.77	1.6	4.4	0.00	0.0	247.4	0.497	1.488	1.934	3.89	
	37.81	12	313	2.23	115	4609	2994	250.3	207.5	0.72	1.6	4.0	0.00	0.0	250.3	0.497	1.538	2.000	4.02	
	37.87	12			115	4616	2997	279.1	231.4	0.68	1.5	3.2	0.00	0.0	279.1	0.497	2.102	2.732	5.49	
	37.93	12	359.5	3.04	125	4623	3000	287.2	238.0	0.85	1.6	4.1	0.00	0.0	287.2	0.498	2.282	2.967	5.96	
	37.99	12	349.2		125	4630	3004	278.8	230.9	0.92	1.6	4.7	0.00	0.0	278.8	0.498	2.095	2.723	5.47	
	38.06	12	345.7	3.2	125	4639	3008	275.8	228.2	0.93	1.6	4.8	0.00	0.0	275.8	0.498	2.031	2.640	5.30	
	38.12	12	354.6		125	4646	3012	282.7	233.8	0.83	1.6	4.1	0.00	0.0	282.7	0.498	2.181	2.835	5.69	
	38.19 38.26	12	352.1 325.3	2.23	115	4655	3016	280.5	231.8	0.64	1.5	2.9	0.00	0.0	280.5	0.498	2.133	2.772	5.56	
	38.26	12 12	325.3	1.93 1.84	115 115	4663 4669	3020 3023	259.0 259.8	213.8 214.3	0.60 0.57	1.5 1.5	3.0 2.8	0.00	0.0	259.0 259.8	0.499 0.499	1.696 1.710	2.204 2.223	4.42 4.46	
	38.38	12	328	1.83	115	4677	3026	260.9	215.1	0.56	1.5	2.8	0.00	0.0	260.9	0.499	1.731	2.250	4.51	
	38.42	12	303.3	1.71	115	4682	3029	241.1	198.7	0.57	1.5	3.2	0.00	0.0	241.1	0.499	1.384	1.799	3.60	
	38.49	12	303.3	1.68	115	4690	3032	241.0	198.4	0.56	1.5	3.1	0.00	0.0	241.0	0.499	1.382	1.796	3.60	
	38.57	12	302	1.78	115	4699	3036	239.8	197.3	0.59	1.5	3.4	0.00	0.0	239.8	0.500	1.362	1.771	3.54	

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 27

Depth to Groundwater: 12 feet

EQ Magnitude ( $M_w$ ): 6.5 **PGA (g):** 0.54 MSF: 1.30

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	g (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip q <sub>c1N</sub>	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	Ксрт	DqcIN	(qcIN)es	Stress	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
	38.65	12	296.2	1.73	115	4708	3041	235.0	193.2	0.59	1.5	3.5	0.00	0.0	235.0	0.500	1.287	1.674	3.35	
	38.72	12	324.6	1.86	115	4716	3044	257.4	211.6	0.58	1.5	2.9	0.00	0.0	257.4	0.500	1.666	2.166	4.33	
	38.78	12	365.4	2.01	115	4723	3047	289.6	238.2	0.55	1.5	2.2	0.00	0.0	289.6	0.500	2.339	3.041	6.08	
	38.85 38.92	12 12	388.6 415.8	2.04 2.23	115 115	4731 4739	3051 3055	307.8 329.2	253.1 270.6	0.53 0.54	1.4 1.4	1.8 1.6	0.00	0.0	307.8 329.2	0.501 0.501	2.792 3.397	3.630 4.416	7.25 8.81	
	38.99	12	445.5	2.23	105	4747	3059	352.5	289.6	0.34	1.4	0.9	0.00	0.0	352.5	0.501	4.152	5.398	10.77	
	39.06	12	468.2		105	4754	3061	370.2	304.2	0.47	1.3	0.7	0.00	0.0	370.2	0.501	4.800	6.240	12.44	
	39.12	12	481.8	2.2	105	4761	3064	380.8	312.8	0.46	1.3	0.6	0.00	0.0	380.8	0.502	5.217	6.782	13.52	
	39.19	12	500.4	2.26	105	4768	3067	395.3	324.6	0.45	1.3	0.4	0.00	0.0	395.3	0.502	5.827	7.575	15.09	
	39.25	12 12		2.52	105 105	4774	3070	399.4	327.8	0.50	1.3	0.7	0.00	0.0	399.4	0.502	6.004	7.805	15.54	
	39.32 39.39	12	499	1.72 2.22	105	4782 4789	3073 3076	397.8 393.7	326.3 322.8	0.34 0.45	1.2	-0.4 0.4	0.00	0.0	397.8 393.7	0.503 0.503	5.932 5.755	7.712 7.481	15.35 14.88	
	39.45	12	507.7	1.82	105	4795	3078	400.4	328.2	0.36	1.2	-0.3	0.00	0.0	400.4	0.503	6.049	7.864	15.63	
	39.52	12	510	2.25	105	4803	3081	402.0	329.4	0.44	1.3	0.3	0.00	0.0	402.0	0.503	6.122	7.959	15.81	
	39.59	12	491.3	2.19	105	4810	3084	387.1	316.9	0.45	1.3	0.4	0.00	0.0	387.1	0.504	5.474	7.116	14.13	
	39.66	12	454.3	1.86	105	4817	3087	357.8	292.6	0.41	1.3	0.5	0.00	0.0	357.8	0.504	4.338	5.640	11.19	
	39.73 39.8	12 12	444.9 430.6	2.35 2.69	115 115	4825 4833	3090 3094	350.2 338.7	286.3 276.7	0.53 0.63	1.4 1.4	1.4 2.1	0.00	0.0	350.2 338.7	0.504 0.504	4.074 3.694	5.296 4.803	10.50 9.52	
	39.87	12	430.6	2.26	115	4841	3094	338.8	276.6	0.63	1.4	1.5	0.00	0.0	338.8	0.505	3.698	4.807	9.52	
	39.94	12	440.8	2.25	115	4849	3101	346.3	282.6	0.51	1.4	1.3	0.00	0.0	346.3	0.505	3.944	5.127	10.15	
	40.01	12	400.4	2.25	115	4857	3105	314.4	256.3	0.57	1.4	2.0	0.00	0.0	314.4	0.467	2.970	3.862	8.27	
	40.09	12	348.4	2.37	115	4866	3109	273.4	222.5	0.69	1.5	3.4	0.00	0.0	273.4	0.467	1.980	2.575	5.51	
	40.16	12	319.4	2.14	115	4874	3113	250.5	203.6	0.68	1.6	3.8	0.00	0.0	250.5	0.467	1.542	2.004	4.29	
	40.23 40.3	12 12	300.6 301.2	1.64 1.51	115 105	4882 4890	3116 3120	235.6 235.9	191.3 191.4	0.55 0.51	1.5 1.5	3.2 2.9	0.00	0.0	235.6 235.9	0.467 0.468	1.296 1.301	1.685 1.692	3.61 3.62	
	40.37	12	291.8	1.62	115	4898	3123	228.5	185.2	0.56	1.5	3.5	0.00	0.0	228.5	0.468	1.189	1.546	3.30	
	40.44	12	289.9	1.61	115	4906	3127	226.8	183.8	0.56	1.5	3.5	0.00	0.0	226.8	0.468	1.166	1.515	3.24	
	40.51	12	296.3	1.66	115	4914	3130	231.7	187.7	0.56	1.5	3.4	0.00	0.0	231.7	0.468	1.237	1.608	3.43	
	40.58	12	301.2	1.25	105	4922	3134	235.4	190.6	0.42	1.5	2.3	0.00	0.0	235.4	0.469	1.293	1.681	3.59	
	40.65	12	319.4	1.51	105	4929	3137	249.5	202.0	0.48	1.5	2.4	0.00	0.0	249.5	0.469	1.525	1.982	4.23	
	40.71 40.77	12 12	349.3 378	1.51 1.61	105 105	4935 4942	3140 3142	272.8 295.1	220.8 238.9	0.44 0.43	1.4 1.4	1.7 1.3	0.00	0.0	272.8 295.1	0.469 0.469	1.967 2.469	2.557 3.209	5.45 6.84	
	40.77	12	380.5	1.82	105	4946	3144	296.9	240.4	0.43	1.4	1.7	0.00	0.0	296.9	0.469	2.514	3.269	6.96	
	40.84	12	259.1	1.86	115	4949	3145	202.1	163.1	0.72	1.7	5.3	0.01	1.9	204.0	0.469	0.870	1.131	2.41	
	40.9	12	392.2	1.99	115	4956	3148	305.8	247.5	0.51	1.4	1.8	0.00	0.0	305.8	0.470	2.740	3.563	7.59	
	40.97	12	400.1	2.09	115	4964	3152	311.8	252.2	0.53	1.4	1.8	0.00	0.0	311.8	0.470	2.899	3.769	8.02	
	41.03	12	408.6	2.03	105	4971	3155	318.3	257.3	0.50	1.4	1.6	0.00	0.0	318.3	0.470	3.079	4.002	8.51	
	41.09 41.16	12 12	411.4 416.7	1.88 2.16	105 115	4977 4985	3158 3161	320.3 324.3	258.9 262.0	0.46 0.52	1.4 1.4	1.2 1.6	0.00	0.0	320.3 324.3	0.470 0.471	3.137 3.252	4.078 4.228	8.67 8.99	
	41.22	12	427.5	1.97	105	4992	3164	332.5	268.6	0.46	1.4	1.1	0.00	0.0	332.5	0.471	3.500	4.550	9.67	
	41.27	12	432.9	2.09	105	4997	3166	336.6	271.8	0.49	1.4	1.2	0.00	0.0	336.6	0.471	3.628	4.716	10.02	
	41.3	12	433.3	2.01	105	5000	3167	336.9	271.9	0.47	1.4	1.1	0.00	0.0	336.9	0.471	3.635	4.726	10.03	
	41.34	12		1.9	105	5004	3169	344.1	277.7	0.43	1.3	0.8	0.00	0.0	344.1	0.471	3.869	5.029	10.68	
	41.39	12		1.63	105	5009	3171	334.0	269.4	0.38	1.3	0.5	0.00	0.0	334.0	0.471	3.546	4.610	9.78	
	41.43 41.46	12 12	427.4 434.2	1.57 1.62	105 105	5014 5017	3173 3174	332.0 337.2	267.7 271.9	0.37 0.38	1.3	0.5 0.5	0.00	0.0	332.0 337.2	0.471 0.472	3.483 3.646	4.528 4.740	9.60 10.05	
	41.5	12	422.7	1.74	105	5021	3176	328.2	264.5	0.41	1.3	0.8	0.00	0.0	328.2	0.472	3.367	4.378	9.28	
	41.54	12	414	1.85	105	5025	3177	321.4	258.9	0.45	1.4	1.2	0.00	0.0	321.4	0.472	3.166	4.116	8.72	
	41.57	12	421.5	1.95	105	5028	3179	327.1	263.5	0.47	1.4	1.2	0.00	0.0	327.1	0.472	3.335	4.335	9.19	
	41.6	12		2	105	5031	3180	329.6	265.5	0.47	1.4	1.2	0.00	0.0	329.6	0.472	3.410	4.433	9.39	
	41.65 41.72	12 12	379.9 452.9	2.06 1.93	115 105	5037 5045	3182	294.7	237.1 282.6	0.55 0.43	1.5	2.2	0.00	0.0	294.7	0.472 0.472	2.459 4.104	3.197 5.336	6.77	
	41.72	12		2.09	105	5052	3186 3189	351.1 355.7	286.2	0.45	1.3	0.7 0.9	0.00	0.0	351.1 355.7	0.472	4.104	5.546	11.29 11.73	
	41.86	12		1.98	105	5052	3192	364.4	293.1	0.42	1.3	0.5	0.00	0.0	364.4	0.473	4.579	5.953	12.59	
	41.93	12	440	2	105	5067	3195	340.6	273.8	0.46	1.4	1.0	0.00	0.0	340.6	0.473	3.755	4.881	10.32	
	42	12	441.2		105	5074	3198	341.4	274.2	0.46	1.4	1.0	0.00	0.0	341.4	0.473	3.780	4.914	10.38	
	42.07	12		2.29	115	5081	3201	331.5	266.2	0.54	1.4	1.7	0.00	0.0	331.5	0.474	3.469	4.510	9.52	
	42.13	12		2.12	115	5088	3204	318.2	255.3	0.52	1.4	1.7	0.00	0.0	318.2	0.474	3.078	4.001	8.44	
	42.2 42.27	12 12		1.86 1.63	105 105	5096 5104	3208 3211	316.1 322.2	253.5 258.3	0.46 0.39	1.4	1.3 0.8	0.00	0.0	316.1 322.2	0.474 0.474	3.018 3.192	3.924 4.149	8.28 8.75	
	42.27	12			105	5110	3211	303.8	243.3	0.39	1.3	1.2	0.00	0.0	303.8	0.474	2.688	3.494	7.36	
	42.39	12		1.79	105	5116	3216	306.5	245.3	0.45	1.4	1.4	0.00	0.0	306.5	0.475	2.757	3.584	7.55	
	42.46	12		1.52		5124	3219	304.4	243.6	0.39	1.4	1.0	0.00	0.0	304.4	0.475	2.703	3.514	7.40	

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 27

Depth to Groundwater: 12 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

		Water	Tip	Sleeve			Effective			Friction							•	Liquef.		
Cono	Depth	Table	Resist.	Frict. (TSF)	g (PCF)	Stress (PSF)	Stress (PSF)	Tip Gain	Tip	Ratio F	Ic	F.C. (%)	Ксрт	Daan	(qcIN)es	Stress	Stress M7.5	Stress M6 50	of Sofoty	Comments
Cone	(FT)	(FT)	(1 <b>5</b> F)	(131)	(FCF)	(FSF)	(FSF)	<b>q</b> c1N	Q	r	ic	(%)	TKCI I	Dqeix	( <b>q</b> eix)is	Katio	W17.5	M6.50	Salety	Comments
	42.53	12	382.2	1.45	105	5131	3222	294.6	235.6	0.38	1.4	1.0	0.00	0.0	294.6	0.475	2.458	3.196	6.73	
	42.59	12	389	1.49	105	5137	3224	299.7	239.6	0.39	1.4	1.0	0.00	0.0	299.7	0.475	2.585	3.360	7.07	
	42.65	12	380.7	1.36	105	5144	3227	293.2	234.3	0.36	1.3	0.9	0.00	0.0	293.2	0.476	2.425	3.152	6.63	
	42.71	12	384.1	1.99	115	5150	3229	295.7	236.2	0.52	1.4	2.1	0.00	0.0	295.7	0.476	2.486	3.231	6.79	
	42.77	12	391.3	2.45	115	5157	3232	301.1	240.4	0.63	1.5	2.7	0.00	0.0	301.1	0.476	2.620	3.405	7.15	
	42.84 42.88	12 12	383.8 393.9	2.31 2.11	115 115	5165 5170	3236 3238	295.2 302.9	235.5 241.6	0.61 0.54	1.5 1.4	2.7 2.1	0.00	0.0	295.2 302.9	0.476 0.476	2.472 2.664	3.214 3.463	6.75 7.27	
	42.92	12	382.5	2.1	115	5174	3240	294.0	234.4	0.55	1.5	2.3	0.00	0.0	294.0	0.476	2.443	3.176	6.67	
	42.98	12	361.7	2.18	115	5181	3243	277.9	221.3	0.61	1.5	2.9	0.00	0.0	277.9	0.477	2.076	2.698	5.66	
	43.04	12	383.2	2.66	115	5188	3247	294.3	234.4	0.70	1.5	3.3	0.00	0.0	294.3	0.477	2.450	3.184	6.68	
	43.07	12	390.2	2.72	115	5191	3248	299.6	238.6	0.70	1.5	3.2	0.00	0.0	299.6	0.477	2.580	3.354	7.03	
	43.15 43.22	12 12	451.8 477.8	2.39 2.37	115 105	5201 5209	3252 3256	346.6 366.4	276.1 291.8	0.53 0.50	1.4 1.4	1.5 1.1	0.00	0.0	346.6 366.4	0.477 0.477	3.953 4.653	5.139 6.049	10.77 12.68	
	43.27	12	471.4	2.43	115	5214	3258	361.3	287.6	0.52	1.4	1.2	0.00	0.0	361.3	0.477	4.468	5.808	12.17	
	43.31	12	460.8	2.41	115	5218	3260	353.1	281.0	0.53	1.4	1.4	0.00	0.0	353.1	0.478	4.174	5.427	11.36	
	43.35	12	451.9	2.4	115	5223	3262	346.2	275.3	0.53	1.4	1.5	0.00	0.0	346.2	0.478	3.938	5.119	10.72	
	43.4	12	438.7	2.38	115	5229	3265	335.9	267.0	0.55	1.4	1.7	0.00	0.0	335.9	0.478	3.605	4.687	9.81	
	43.46 43.52	12 12	422.6 420	2.28 2.09	115 105	5236 5243	3268 3271	323.4 321.3	256.9 255.1	0.54 0.50	1.4 1.4	1.9	0.00	0.0	323.4 321.3	0.478 0.478	3.227 3.164	4.195 4.114	8.78 8.60	
	43.58	12	405.6	2.09	105	5249	3274	310.2	246.1	0.50	1.4	1.6 1.7	0.00	0.0	310.2	0.478	2.855	3.711	7.76	
	43.65	12	399.9	2.01	105	5256	3277	305.7	242.4	0.51	1.4	1.8	0.00	0.0	305.7	0.479	2.736	3.556	7.43	
	43.72	12	371	2.02	115	5264	3280	283.4	224.5	0.55	1.5	2.5	0.00	0.0	283.4	0.479	2.198	2.857	5.97	
	43.78	12	358.2	1.91	115	5271	3283	273.5	216.5	0.54	1.5	2.6	0.00	0.0	273.5	0.479	1.983	2.578	5.38	
	43.85	12	361.4	1.92	115	5279	3287	275.8	218.2	0.54	1.5	2.5	0.00	0.0	275.8	0.479	2.031	2.641	5.51	
	43.92 43.98	12 12	374 389.1	1.85 1.94	105 105	5287 5293	3290 3293	285.3 296.7	225.6 234.6	0.50 0.50	1.4 1.4	2.1 1.9	0.00	0.0	285.3 296.7	0.479 0.480	2.239 2.508	2.911 3.261	6.07 6.80	
	44.05	12	406.7	1.95	105	5300	3296	310.0	245.1	0.48	1.4	1.6	0.00	0.0	310.0	0.480	2.849	3.704	7.72	
	44.11	12	424.4	2.29	115	5307	3299	323.3	255.6	0.54	1.4	1.9	0.00	0.0	323.3	0.480	3.223	4.190	8.73	
	44.17	12	446	2.47	115	5313	3302	339.6	268.4	0.56	1.4	1.8	0.00	0.0	339.6	0.480	3.723	4.840	10.08	
	44.21	12	449.6	2.4	115	5318	3304	342.2	270.4	0.54	1.4	1.6	0.00	0.0	342.2	0.480	3.808	4.951	10.31	
	44.24 44.28	12 12	451.5 448	2.35 2.27	115 115	5322 5326	3305 3307	343.6 340.8	271.5 269.2	0.52 0.51	1.4 1.4	1.5 1.4	0.00	0.0	343.6 340.8	0.480 0.480	3.853 3.762	5.009 4.891	10.43 10.18	
	44.32	12	447.4	2.57	115	5331	3310	340.3	268.6	0.51	1.4	1.9	0.00	0.0	340.3	0.481	3.744	4.867	10.13	
	44.36	12	440.8	2.57	115	5335	3312	335.1	264.5	0.59	1.4	2.0	0.00	0.0	335.1	0.481	3.581	4.655	9.69	
	44.44	12	488.4	2.25	105	5345	3316	371.1	292.8	0.46	1.3	0.8	0.00	0.0	371.1	0.481	4.833	6.283	13.07	
	44.5	12	519.8	2.58	105	5351	3318	394.8	311.5	0.50	1.3	0.8	0.00	0.0	394.8	0.481	5.803	7.544	15.68	
	44.56 44.6	12 12	537.3 527.5	3.12 3.31	115 115	5357 5362	3321 3323	407.9 400.4	321.8 315.7	0.58 0.63	1.4 1.4	1.3 1.6	0.00	0.0	407.9 400.4	0.481 0.481	6.394 6.049	8.312 7.863	17.27 16.34	
	44.64	12	529.3	3.39	115	5366	3325	401.6	316.6	0.63	1.4	1.7	0.00	0.0	401.6	0.481	6.104	7.936	16.48	
	44.68	12	531.3	3.67	115	5371	3327	403.0	317.6	0.69	1.4	2.0	0.00	0.0	403.0	0.482	6.167	8.017	16.65	
	44.73	12	526.5	3.73	115	5377	3330	399.2	314.5	0.71	1.4	2.1	0.00	0.0	399.2	0.482	5.997	7.796	16.18	
	44.78	12	502.9	3.39	115	5382	3333	381.2	300.1	0.68	1.4	2.1	0.00	0.0	381.2	0.482	5.230	6.799	14.11	
	44.82	12	486.4	3.21	115	5387	3335	368.5	290.0	0.66	1.4	2.1	0.00	0.0	368.5	0.482	4.735	6.156	12.77	
	44.87 44.92	12 12	470.2 450.4	2.87 2.52	115 115	5393 5399	3337 3340	356.1 341.0	280.1 268.0	0.61 0.56	1.4 1.4	2.0 1.8	0.00	0.0	356.1 341.0	0.482 0.482	4.280 3.767	5.564 4.898	11.54 10.16	
	44.97	12	441	2.46	115	5404	3343	333.7	262.1	0.56	1.4	1.9	0.00	0.0	333.7	0.482	3.537	4.598	9.53	
	45.01	12	436.7	2.31	115	5409	3345	330.4	259.4	0.53	1.4	1.7	0.00	0.0	330.4	0.482	3.434	4.464	9.25	
	45.05	12	442.4	2.15	105	5413	3347	334.6	262.6	0.49	1.4	1.4	0.00	0.0	334.6	0.483	3.564	4.633	9.60	
	45.09	12	430.3	2.15	105	5418	3348	325.4	255.3	0.50	1.4	1.6	0.00	0.0	325.4	0.483	3.283	4.268	8.84	
	45.12 45.19	12 12	408.4 438.2	2.17 2.24	115 115	5421 5429	3350 3353	308.7 331.1	242.1 259.6	0.53 0.51	1.4 1.4	2.0 1.6	0.00	0.0	308.7 331.1	0.483 0.483	2.817 3.455	3.662 4.492	7.58 9.30	
	45.26	12	448.6	1.97	105	5437	3357	338.8	265.5	0.44	1.4	1.0	0.00	0.0	338.8	0.483	3.695	4.804	9.94	
	45.34	12	476.9	1.87	105	5445	3361	359.9	282.1	0.39	1.3	0.5	0.00	0.0	359.9	0.483	4.417	5.742	11.88	
	45.41	12	502.7	1.81	105	5453	3363	379.3	297.2	0.36	1.3	0.1	0.00	0.0	379.3	0.484	5.153	6.699	13.85	
	45.48	12	491.6	2.28	105	5460	3366	370.7	290.3	0.47	1.3	0.9	0.00	0.0	370.7	0.484	4.818	6.264	12.94	
	45.55 45.62	12	456.3	2.72	115	5467	3369	343.9	269.1	0.60	1.4	2.0	0.00	0.0	343.9	0.484	3.864	5.023	10.38	
	45.62 45.68	12 12	448.5 444.4	2.41 2.26	115 115	5475 5482	3373 3376	337.9 334.6	264.2 261.5	0.54 0.51	1.4 1.4	1.7 1.6	0.00	0.0	337.9 334.6	0.484 0.484	3.667 3.565	4.767 4.634	9.84 9.57	
	45.75	12	429.7	1.85	105	5490	3380	323.4	252.5	0.43	1.4	1.2	0.00	0.0	323.4	0.485	3.225	4.193	8.65	
	45.81	12	434.5	1.85	105	5497	3383	326.9	255.2	0.43	1.4	1.1	0.00	0.0	326.9	0.485	3.328	4.327	8.92	
	45.87	12	399.2	2	105	5503	3385	300.2	234.1	0.50	1.4	2.0	0.00	0.0	300.2	0.485	2.596	3.375	6.96	
	45.94	12	372.4	1.73	105	5510	3388	279.9	218.1	0.47	1.4	2.0	0.00	0.0	279.9	0.485	2.120	2.756	5.68	
	46	12	366.9	1.66	105	5517	3391	275.7	214.7	0.46	1.4	2.0	0.00	0.0	275.7	0.485	2.029	2.637	5.43	

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 27

Depth to Groundwater: 12 feet

EQ Magnitude (M<sub>w</sub>): 6.5 PGA (g): 0.54 MSF: 1.30

Cone	Depth (FT)	(FT)	Resist.	Frict.		Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Liquef. Stress	of	
			(TSF)	(TSF)	g (PCF)	(PSF)	(PSF)	<b>q</b> elN	Q	F	Ic	(%)	Ксрт	DqcIN	(qc1N)es	Ratio	M7.5	M6.50		Comments
	46.07	12		1.67	105	5524	3394	284.3	221.3	0.44	1.4	1.8	0.00	0.0	284.3	0.486	2.217	2.882	5.93	
	46.13	12	356.3	1.38	105	5530	3396	267.5	208.1	0.39	1.4	1.6	0.00	0.0	267.5	0.486	1.860	2.418	4.98	
	46.19	12	333.7	1.34	105	5537	3399	250.4	194.7	0.40	1.4	2.0	0.00	0.0	250.4	0.486	1.541	2.003	4.12	
	46.26 46.33	12 12	305.9 292.9	1.25 1	105 105	5544 5551	3402 3405	229.5 219.6	178.1 170.4	0.41 0.34	1.5 1.5	2.5 2.2	0.00	0.0	229.5 219.6	0.486 0.486	1.204 1.065	1.565 1.385	3.22 2.85	
	46.4	12	295.6	0.97	95	5559	3408	221.6	171.8	0.34	1.4	2.0	0.00	0.0	221.6	0.487	1.003	1.419	2.92	
	46.46	12	320.6	0.92	95	5564	3410	240.2	186.3	0.29	1.4	1.3	0.00	0.0	240.2	0.487	1.369	1.780	3.66	
	46.52	12	340.6	1.24	105	5570	3412	255.1	198.0	0.37	1.4	1.7	0.00	0.0	255.1	0.487	1.625	2.112	4.34	
	46.55	12	341.5	1.62	105	5573	3413	255.8	198.4	0.48	1.5	2.5	0.00	0.0	255.8	0.487	1.636	2.127	4.37	
	46.61	12	351.5	1.89	115	5579	3415	263.2	204.1	0.54	1.5	2.9	0.00	0.0	263.2	0.487	1.775	2.307	4.73	
	46.65	12	349.3	1.32	105	5584	3418	261.4	202.7	0.38	1.4	1.7	0.00	0.0	261.4	0.487	1.742	2.264	4.64	
	46.71	12	367.6	2.09	115	5590	3420	275.0	213.2	0.57	1.5	2.9	0.00	0.0	275.0	0.488	2.015	2.619	5.37	
	46.77 46.83	12 12	382.4 381.3	2.27 2.44	115 115	5597 5604	3423 3426	286.0 285.0	221.7 220.8	0.60 0.64	1.5 1.5	2.9 3.2	0.00	0.0	286.0 285.0	0.488 0.488	2.255 2.233	2.931 2.903	6.01 5.95	
	46.88	12	378.8	2.79	115	5610	3429	283.0	219.2	0.74	1.6	3.9	0.00	0.0	283.0	0.488	2.189	2.845	5.83	
	46.91	12	381	2.84	125	5613	3431	284.6	220.4	0.75	1.6	3.9	0.00	0.0	284.6	0.488	2.224	2.891	5.92	
	46.94	12	386.2	2.72	115	5617	3432	288.4	223.3	0.71	1.6	3.6	0.00	0.0	288.4	0.488	2.311	3.005	6.15	
	46.98	12	390.2	2.7	115	5622	3435	291.3	225.5	0.70	1.5	3.5	0.00	0.0	291.3	0.488	2.379	3.093	6.33	
	47.05	12	431.5	3.02	115	5630	3438	322.0	249.3	0.70	1.5	3.0	0.00	0.0	322.0	0.489	3.184	4.140	8.47	
	47.11	12	405.4	3.45	125	5637	3441	302.4	233.9	0.86	1.6	4.3	0.00	0.0	302.4	0.489	2.651	3.446	7.05	
	47.17	12	418.8	3.38	125	5644	3445	312.2	241.4	0.81	1.6	3.9	0.00	0.0	312.2	0.489	2.910	3.783	7.74	
	47.23	12		2.94	115	5652	3449	310.2	239.7	0.71	1.5	3.3	0.00	0.0	310.2	0.489	2.855	3.711	7.59	
	47.29	12	412.4	2.61	115	5659	3452	307.1	237.2	0.64	1.5	2.8	0.00	0.0	307.1	0.489	2.774	3.606	7.37	
	47.36	12	367.3	2.02	115	5667	3456	273.4	210.8	0.55	1.5	2.8	0.00	0.0	273.4	0.489	1.980	2.574	5.26	
	47.42 47.49	12 12	345.3 314.7	2.05 2.09	115 115	5674 5682	3459 3463	256.9 234.0	197.9 180.1	0.60 0.67	1.5 1.6	3.4 4.4	0.00	0.0	256.9 234.0	0.489 0.490	1.657 1.272	2.154 1.653	4.40 3.38	
	47.56	12		1.72	115	5690	3466	231.3	177.9	0.56	1.6	3.7	0.00	0.0	231.3	0.490	1.232	1.601	3.27	
	47.63	12	302.9	1.88	115	5698	3470	225.0	172.9	0.63	1.6	4.3	0.00	0.0	225.0	0.490	1.139	1.481	3.02	
	47.7	12	333	3.08	125	5706	3474	247.2	190.0	0.93	1.7	5.8	0.02	5.5	252.7	0.490	1.581	2.055	4.19	
	47.77	12	362.6	3.38	125	5714	3478	269.0	206.8	0.94	1.7	5.4	0.01	2.8	271.8	0.490	1.948	2.532	5.17	
	47.83	12	410.9	3.97	125	5722	3482	304.7	234.3	0.97	1.6	4.9	0.00	0.0	304.7	0.490	2.710	3.524	7.19	
	47.9	12	473.9	3.97	125	5731	3486	351.2	270.1	0.84	1.5	3.5	0.00	0.0	351.2	0.490	4.108	5.340	10.89	
	47.96	12		3.69	125	5738	3490	337.1	259.1	0.82	1.5	3.5	0.00	0.0	337.1	0.491	3.641	4.734	9.65	
	48.02	12	448.7	3.55	125	5746	3494	332.1	255.1	0.80	1.5	3.5	0.00	0.0	332.1	0.491	3.488	4.534	9.24	
	48.09 48.15	12 12	436.7 437.3	3.41 2.88	125 115	5754 5762	3498 3502	323.1 323.3	247.9 248.0	0.79 0.66	1.5 1.5	3.6 2.8	0.00	0.0	323.1 323.3	0.491 0.491	3.216 3.224	4.180 4.191	8.52 8.54	
	48.21	12	437.3	2.49	115	5769	3502	331.8	254.5	0.56	1.4	2.0	0.00	0.0	331.8	0.491	3.478	4.191	9.21	
	48.28	12		1.87	105	5777	3509	337.5	258.7	0.41	1.3	0.9	0.00	0.0	337.5	0.491	3.655	4.752	9.67	
	48.34	12	466.8	1.36	95	5783	3511	344.7	264.1	0.29	1.3	-0.1	0.00	0.0	344.7	0.491	3.888	5.055	10.29	
	48.41	12	457.5	1.48	95	5790	3513	337.7	258.7	0.33	1.3	0.3	0.00	0.0	337.7	0.492	3.662	4.760	9.68	
	48.48	12	433.1	1.73	105	5797	3516	319.6	244.6	0.40	1.4	1.1	0.00	0.0	319.6	0.492	3.116	4.050	8.23	
	48.53	12	390.7	1.81	105	5802	3518	288.2	220.4	0.47	1.4	2.0	0.00	0.0	288.2	0.492	2.307	2.999	6.09	
	48.58	12	380.9	1.88	105	5807	3520	280.9	214.7	0.50	1.5	2.3	0.00	0.0	280.9	0.492	2.141	2.784	5.66	
	48.65	12	379.5	1.84	105	5814	3523	279.8	213.7	0.49	1.5	2.3	0.00	0.0	279.8	0.492	2.116	2.751	5.59	
	48.73 48.8	12 12	381.3 378.2	1.83 1.57	105	5823 5830	3526	280.9 278.5	214.5 212.6	0.48 0.42	1.5	2.2	0.00	0.0	280.9	0.493 0.493	2.142 2.090	2.785	5.65	
	48.88	12		1.85	105 105		3529 3533	280.7	214.1	0.42	1.4 1.5	1.8 2.3	0.00	0.0	278.5 280.7	0.493	2.137	2.717 2.778	5.51 5.63	
	48.95	12		1.81	105	5846	3536	292.8	223.3	0.46	1.4	1.8	0.00	0.0	292.8	0.493	2.414	3.138	6.36	
	49.02	12	411	1.74	105	5853	3539	302.3	230.5	0.43	1.4	1.5	0.00	0.0	302.3	0.493	2.649	3.444	6.98	
	49.09	12	420.4	1.73	105	5861	3542	309.1	235.6	0.41	1.4	1.3	0.00	0.0	309.1	0.494	2.826	3.674	7.44	
	49.16	12	414.3	1.92	105	5868	3545	304.5	232.0	0.47	1.4	1.7	0.00	0.0	304.5	0.494	2.705	3.516	7.12	
	49.24	12		1.96	105	5876	3548	319.8	243.7	0.45	1.4	1.4	0.00	0.0	319.8	0.494	3.122	4.059	8.21	
	49.3	12	459.5	2.02	105	5883	3551	337.4	257.1	0.44	1.4	1.2	0.00	0.0	337.4	0.494	3.652	4.748	9.61	
	49.37	12	468.4	2.02	105	5890	3554	343.8	261.8	0.43	1.4	1.0	0.00	0.0	343.8	0.494	3.859	5.017	10.14	
	49.43	12		2.27	105	5896	3556	349.5	266.2	0.48	1.4	1.3	0.00	0.0	349.5	0.495	4.052	5.267	10.65	
	49.5	12		2.08	105	5904	3559	348.7	265.4	0.44	1.4	1.0	0.00	0.0	348.7	0.495	4.022	5.228	10.56	
	49.56 49.62	12 12	472.4 437.3	1.55 1.36	95 95	5910 5916	3562 3564	346.3 320.5	263.5 243.7	0.33	1.3	0.2	0.00	0.0	346.3 320.5	0.495 0.495	3.943 3.142	5.126 4.085	10.36 8.25	
	49.69	12	437.3	1.59	105	5922	3566	327.5	248.9	0.36	1.3	0.4	0.00	0.0	327.5	0.495	3.347	4.351	8.78	
	49.72	12	435.7	1.81	105	5925	3567	319.2	242.5	0.42	1.4	1.2	0.00	0.0	319.2	0.496	3.104	4.035	8.14	
	49.76	12	425.6	2.15	105	5930	3569	311.7	236.7	0.51	1.4	2.0	0.00	0.0	311.7	0.496	2.897	3.765	7.60	
	49.8	12	423.7	2.53	115	5934	3571	310.2	235.6	0.60	1.5	2.6	0.00	0.0	310.2	0.496	2.857	3.714	7.49	
	49.86	12	384.4	2.97	125	5941	3574	281.3	213.4	0.78	1.6	4.2	0.00	0.0	281.3	0.496	2.151	2.796	5.64	

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 27

Depth to Groundwater: 12 feet

e and Storage Yard EQ Magnitude (M<sub>w</sub>): 6.5 PGA (g): 0.54 MSF: 1.30

	Donth	Water	Tip Posist	Sleeve	~		Effective			Friction		F.C					-	Liquef.		
Cone	Depth (FT)	Table (FT)	Resist. (TSF)	Frict. (TSF)	g (PCF)	Stress (PSF)	Stress (PSF)	Tip Qc1N	Tip Q	Ratio F	Ic	F.C. (%)	Ксрт	DqcIN	(qclN)es	Stress Ratio	Stress M7.5	Stress M6.50	of Safety	Comments
	49.92	12	363.8	3.1	125	5948	3578	266.1	201.6	0.86	1.6	5.0	0.00	0.3	266.4	0.496	1.838	2.390	4.82	
	49.99	12	363.5	3.27	125	5957	3582	265.7	201.2	0.91	1.7	5.3	0.01	2.4	268.2	0.496	1.874	2.436	4.91	
	50.05	12	367.7	3.17	125	5964	3586	268.7	203.3	0.87	1.6	5.1	0.00	0.4	269.1	0.438	1.892	2.459	5.62	
	50.11	12	365.2	3.01	125	5972	3590	266.7	201.7	0.83	1.6	4.9	0.00	0.0	266.7	0.438	1.844	2.398	5.47	
	50.16 50.2	12 12	358.5 366	2.46 2.04	115	5978 5983	3593	261.7 267.1	197.8 201.9	0.69 0.56	1.6	4.1 3.1	0.00	0.0	261.7 267.1	0.438	1.747 1.852	2.271 2.408	5.18 5.50	
	50.23	12	367.4	1.71	115 105	5986	3595 3596	268.1	202.6	0.30	1.5 1.5	2.4	0.00	0.0	268.1	0.438 0.438	1.871	2.433	5.55	
	50.27	12	356.8	1.61	105	5990	3598	260.3	196.6	0.46	1.5	2.4	0.00	0.0	260.3	0.438	1.719	2.235	5.10	
	50.31	12	350.9	1.57	105	5995	3600	255.9	193.2	0.45	1.5	2.4	0.00	0.0	255.9	0.438	1.638	2.130	4.86	
	50.35	12	344.6	1.66	105	5999	3601	251.2	189.6	0.49	1.5	2.8	0.00	0.0	251.2	0.438	1.555	2.021	4.61	
	50.39	12	338.9	1.69	105	6003	3603	247.0	186.4	0.50	1.5	3.0	0.00	0.0	247.0	0.439	1.482	1.926	4.39	
	50.42	12	333	1.69	115	6006	3604	242.7	183.0	0.51	1.5	3.2	0.00	0.0	242.7	0.439	1.409	1.832	4.18	
	50.46	12	323	1.64	115	6011	3607	235.3	177.4	0.51	1.5	3.3	0.00	0.0	235.3	0.439	1.292	1.680	3.83	
	50.51	12	301.3	1.58	115	6017	3609	219.4	165.2	0.53	1.6	3.8	0.00	0.0	219.4	0.439	1.063	1.382	3.15	
	50.57	12	317.1	1.57	105	6023	3612	230.8	173.8	0.50	1.5	3.3	0.00	0.0	230.8	0.439	1.224	1.591	3.63	
	50.64	12	310.5	1.65	115	6031	3615	225.9	170.0	0.54	1.6	3.7	0.00	0.0	225.9	0.439	1.153	1.499	3.41	
	50.71	12	289.7	1.65	115	6039	3619	210.7	158.4	0.58	1.6	4.4	0.00	0.0	210.7	0.439	0.950	1.235	2.81	
	50.78	12	280.1	1.76	115	6047	3623	203.6	152.9	0.64	1.6	5.1	0.00	0.5	204.1	0.439	0.871	1.132	2.58	
	50.84	12	277.4	1.99	115	6054	3626	201.6	151.3	0.73	1.7	5.8	0.02	4.4	206.0	0.440	0.893	1.160	2.64	
	50.91	12	288.2	1.93	115	6062	3629	209.3	157.1	0.68	1.7	5.2	0.01	1.3	210.6	0.440	0.949	1.233	2.81	
	50.97 51.03	12 12	307.5 327.5	1.65 1.56	115 105	6069 6076	3633 3636	223.2 237.6	167.6 178.4	0.54 0.48	1.6 1.5	3.9 3.1	0.00	0.0	223.2 237.6	0.440 0.440	1.115 1.328	1.449 1.727	3.29 3.92	
	51.09	12	320.5	1.4	105	6082	3638	232.5	174.4	0.44	1.5	2.9	0.00	0.0	232.5	0.440	1.249	1.623	3.69	
	51.15	12	322.8	1.29	105	6088	3641	234.1	175.6	0.40	1.5	2.5	0.00	0.0	234.1	0.440	1.273	1.654	3.76	
	51.21	12	324.5	1.32	105	6095	3643	235.2	176.4	0.41	1.5	2.6	0.00	0.0	235.2	0.440	1.290	1.677	3.81	
	51.26	12	293.8	1.46	105	6100	3646	212.9	159.4	0.50	1.6	3.8	0.00	0.0	212.9	0.440	0.977	1.271	2.88	
	51.33	12	221.9	1.93	125	6107	3649	160.7	119.9	0.88	1.8	8.4	0.09	16.3	177.0	0.441	0.596	0.774	1.76	
	51.41	12	143.2	2.14	135	6117	3654	103.7	76.7	1.53	2.1	16.3	0.30	45.0	148.7	0.441	0.386	0.501	1.14	Low F.S.
	51.48	12	95.1	2.09	135	6127	3659	68.8	50.3	2.27	2.4	25.2	0.54	80.2	149.0	0.441	0.388	0.504	1.14	Low F.S.
	51.56	12	70	1.53	135	6137	3664	50.6	36.5	2.29	2.5	29.6	0.66	97.2	147.8	0.441	0.381	0.495	1.12	Low F.S.
	51.63	12	45.9	1.64	135	6147	3670	33.2	23.3	3.83	2.8	44.3	0.80	132.6	165.8	0.441	0.504	0.655	1.48	NonLiqfble.
	51.71	12	33.2	1.55	135	6158	3675	24.0	16.4	5.15	3.0	56.5	0.80	95.8	119.8	0.441	0.240	0.312	0.71	NonLiqfble.
	51.78	12	29.6	1.36	135	6167	3680	21.3	14.4	5.13	3.0	59.3	0.80	85.4	106.7	0.441	0.193	0.251	0.57	NonLiqfble.
	51.85	12	28.5	0.96	135	6177	3686	20.5	13.8	3.78	2.9	54.7	0.80	82.2	102.7	0.441	0.181	0.235	0.53	NonLiqfble.
	51.91	12	27.3	0.75	135	6185	3690	19.7	13.1	3.10	2.9	52.5	0.80	78.7	98.3	0.441	0.168	0.219	0.50	NonLiqfble.
	51.99	12	24.8	0.63	125 125	6195	3696	17.8	11.7	2.90	2.9	54.0	0.80	71.4	89.2	0.441 0.441	0.146	0.190	0.43	NonLiqfble.
	52.06 52.14	12 12	23.6 23.9	0.57 0.53	125	6204 6214	3700 3705	17.0 17.2	11.1 11.2	2.78 2.55	2.9 2.9	54.6 53.0	0.80	67.9 68.7	84.9 85.9	0.441	0.137 0.139	0.178 0.181	0.40 0.41	NonLiqfble. NonLiqfble.
	52.14	12	25.8	0.53	125	6224	3710	18.5	12.2	2.34	2.9	49.8	0.80	74.1	92.7	0.442	0.154	0.200	0.45	NonLiqfble.
	52.29	12	26.5	0.57	125	6233	3714	19.0	12.6	2.44	2.9	49.8	0.80	76.1	95.1	0.442	0.160	0.208	0.47	NonLiqfble.
	52.37	12	25.8	0.6	125	6243	3719	18.5	12.2	2.65	2.9	51.7	0.80	74.0	92.5	0.442	0.154	0.200	0.45	NonLiqfble.
	52.45	12	26.3	0.61	125	6253	3725	18.9	12.4	2.63	2.9	51.2	0.80	75.4	94.3	0.442	0.158	0.205	0.46	NonLiqfble.
	52.53	12	25.2	0.62	125	6263	3730	18.1	11.8	2.81	2.9	53.3	0.80	72.2	90.3	0.442	0.148	0.193	0.44	NonLiqfble.
	52.61	12	23.9	0.61	125	6273	3735	17.1	11.1	2.94	3.0	55.4	0.80	68.4	85.6	0.442	0.138	0.180	0.41	NonLiqfble.
	52.69	12	24.6	0.59	125	6283	3740	17.6	11.5	2.75	2.9	53.7	0.80	70.4	88.0	0.442	0.143	0.186	0.42	NonLiqfble.
	52.77	12	24.3	0.56	125	6293	3745	17.4	11.3	2.65	2.9	53.4	0.80	69.5	86.9	0.442	0.141	0.183	0.41	NonLiqfble.
	52.85	12	21.4	0.55	125	6303	3750	15.3	9.7	3.01	3.0	59.0	0.80	61.2	76.5	0.443	0.122	0.158	0.36	NonLiqfble.
	52.93	12	26.1	0.49	125	6313	3755	18.6	12.2	2.14	2.8	48.5	0.80	74.5	93.2	0.443	0.155	0.202	0.46	NonLiqfble.
	53.02	12	26.8	0.48	125	6324	3760	19.1	12.6	2.03	2.8	47.2	0.80	76.5	95.6	0.443	0.161	0.210	0.47	NonLiqfble.
	53.1	12	26.9	0.54	125	6334	3765	19.2	12.6	2.28	2.8	48.7	0.80	76.7	95.9	0.443	0.162	0.211	0.48	NonLiqfble.
	53.18	12	28.8	0.58	125	6344	3770	20.5	13.6	2.26	2.8	47.0	0.80	82.1	102.6	0.443	0.180	0.235	0.53	NonLiqfble.
	53.25 53.33	12 12	31.4 33.6	0.63 0.69	125 125	6353 6363	3775 3780	22.4	14.9 16.1	2.23 2.27	2.8	44.9 43.6	0.80	89.4 95.7	111.8 119.6	0.443 0.443	0.210 0.239	0.273 0.311	0.62 0.70	NonLiqfble.
	53.42	12	34.9	0.69	125	6374	3780 3785	23.9 24.8	16.1	2.27	2.8 2.7	43.6	0.80	95.7 99.3	119.6	0.443	0.258	0.311	0.76	NonLiqfble. NonLiqfble.
	53.51	12	35.3	0.69	125	6385	3791	25.1	16.7	2.18	2.7	42.4	0.80	100.3	124.1	0.443	0.258	0.333	0.76	NonLiqible.
	53.59	12	32.5	0.72	135	6395	3796	23.1	15.4	2.46	2.8	45.6	0.80	92.3	115.4	0.444	0.204	0.290	0.65	NonLiqfble.
	53.68	12	33.9	0.67	125	6408	3802	24.1	16.1	2.18	2.7	43.0	0.80	96.2	120.3	0.444	0.242	0.314	0.03	NonLiqfble.
	53.77	12	34.5	0.73	135	6419	3808	24.5	16.4	2.33	2.8	43.6	0.80	97.8	122.3	0.444	0.250	0.325	0.73	NonLiqfble.
	53.85	12	34.2	0.94	135	6430	3814	24.2	16.2	3.03	2.8	47.7	0.80	96.9	121.2	0.444	0.245	0.319	0.72	NonLiqfble.
	53.94	12	40	1.4	135	6442	3820	28.3	19.2	3.81	2.8	47.9	0.80	113.3	141.6	0.444	0.344	0.447	1.01	NonLiqfble.
	54.03	12	43.9			6454	3827	31.0	21.2	4 43	2.8	48.4	0.80	124.2	155.2	0 444	0.428	0.556	1.25	NonLiafble

1.8

2.03

2.65

135 6454

135 6466

135 6477

3827

3833

3839

31.0

38.4

39.8

21.2

26.6

27.6

4.43

3.98

2.8

2.7

48.4

42.4

45.5

0.80

0.80

0.80

124.2

153.5

155.2

191.9

159.0 198.8

0.444

0.444

0.444

0.428

0.737

0.810

0.556

0.958

1.054

1.25

2.16

NonLiqfble.

NonLiqfble.

NonLiqfble.

54.03

54.12

54.2

12 43.9

12

54.3

56.3

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 **MSF:** 1.30 CPT Number: 27

Depth to Groundwater: 12 feet

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	DqcIN	(qcIN)cs	Ratio	M7.5	M6.50	Safety	Comments
																			-	
	54.29	12	82.6	3.39	135	6489	3846	58.3	41.3	4.27	2.6	36.3	0.80	233.1	291.4	0.444	2.381	3.095	6.97	NonLiqfble.
	54.38	12	103	4.04	135	6501	3852	72.6	51.8	4.05	2.5	32.2	0.73	193.8	266.4	0.444	1.838	2.389	5.38	1
	54.46	12	165.6	4.51	135	6512	3858	116.7	84.1	2.78	2.3	21.4	0.44	91.3	208.0	0.444	0.917	1.191	2.68	
	54.55	12	218.6	4.46	135	6524	3865	153.9	111.4	2.07	2.1	15.6	0.28	61.0	214.8	0.444	1.002	1.303	2.93	
	54.63	12	291.8	4.55	135	6535	3870	205.2	149.0	1.58	1.9	10.9	0.16	38.5	243.7	0.444	1.426	1.854	4.17	
	54.71	12	358.9	4.43	135	6546	3876	252.2	183.4	1.25	1.8	7.8	0.07	20.4	272.6	0.445	1.965	2.554	5.75	
	54.79	12	406.6	4.29	125	6557	3882	285.5	207.7	1.06	1.7	6.1	0.03	8.5	294.0	0.445	2.443	3.176	7.14	
	54.87	12	450.1	4.07	125	6567	3887	315.9	229.8	0.91	1.6	4.7	0.00	0.0	315.9	0.445	3.011	3.914	8.80	
	54.94	12	471.2	3.67	125	6575	3891	330.5	240.4	0.78	1.6	3.7	0.00	0.0	330.5	0.445	3.437	4.468	10.05	
	55.02	12	486.1	3.55	115	6585	3896	340.7	247.7	0.74	1.5	3.3	0.00	0.0	340.7	0.445	3.759	4.886	10.98	
	55.1	12	481.6	3.2	115	6595	3901	337.4	245.1	0.67	1.5	2.9	0.00	0.0	337.4	0.445	3.652	4.747	10.67	
	55.18	12	489.7	2.9	115	6604	3905	342.9	249.0	0.60	1.5	2.3	0.00	0.0	342.9	0.445	3.829	4.978	11.18	
	55.26	12	481.6	2.75	115	6613	3909	337.0	244.6	0.57	1.5	2.3	0.00	0.0	337.0	0.445	3.640	4.732	10.63	
	55.33	12		2.58	115	6621	3913	333.2	241.7	0.55	1.4	2.1	0.00	0.0	333.2	0.445	3.521	4.578	10.28	
	55.41	12		2.65	115	6630	3917	337.9	245.0	0.55	1.4	2.1	0.00	0.0	337.9	0.446	3.669	4.770	10.71	
	55.49	12		2.63	115	6639	3921	344.0	249.3	0.54	1.4	1.9	0.00	0.0	344.0	0.446	3.865	5.025	11.27	
	55.56	12		2.77	115	6647	3925	364.5	264.1	0.53	1.4	1.7	0.00	0.0	364.5	0.446	4.584	5.959	13.36	
	55.63	12		3.29	115	6655	3929	378.8	274.5	0.61	1.4	2.0	0.00	0.0	378.8	0.446	5.137	6.678	14.97	
	55.7	12		3.84	115	6664	3932	406.7	294.7	0.66	1.4	2.1	0.00	0.0	406.7	0.446	6.337	8.238	18.47	
	55.76	12		3.91	115	6670	3935	397.3	287.7	0.69	1.5	2.3	0.00	0.0	397.3	0.446	5.911	7.685	17.22	
	55.81	12	574	4.05	115	6676	3938	400.2	289.7	0.71	1.5	2.4	0.00	0.0	400.2	0.446	6.041	7.854	17.60	
	55.88	12	571.5	3.79	115	6684	3942	398.3	288.2	0.67	1.5	2.2	0.00	0.0	398.3	0.446	5.956	7.742	17.34	
	55.95	12		3.01	115	6692	3945	383.7	277.4	0.55	1.4	1.6	0.00	0.0	383.7	0.447	5.335	6.936	15.53	
	56.01	12		2.87	115	6699	3949	362.5	261.9	0.55	1.4	1.9	0.00	0.0	362.5	0.447	4.510	5.863	13.13	
	56.08	12	504.5	2.93	115	6707	3952	351.1	253.5	0.58	1.5	2.2	0.00	0.0	351.1	0.447	4.106	5.338	11.95	
	56.14	12		2.76	115	6714	3955	340.4	245.6	0.57	1.5	2.2	0.00	0.0	340.4	0.447	3.748	4.873	10.90	
	56.19	12		2.57	115	6720	3958	335.8	242.2	0.54	1.4	2.1	0.00	0.0	335.8	0.447	3.603	4.684	10.48	
	56.24	12		2.36	115	6726	3961	273.0	196.5	0.61	1.5	3.5	0.00	0.0	273.0	0.447	1.973	2.564	5.74	
	56.29	12		2.07	105	6731	3963	334.0	240.7	0.43	1.4	1.4	0.00	0.0	334.0	0.447	3.544	4.607	10.30	
	56.35	12		1.72	105	6738	3966	330.5	238.1	0.36	1.3	0.9	0.00	0.0	330.5	0.447	3.438	4.469	9.99	
	56.4	12		1.77	105	6743	3968	309.7	222.9	0.40	1.4	1.4	0.00	0.0	309.7	0.447	2.841	3.694	8.26	
	56.43	12	420.9	1.85	105	6746	3969	292.3	210.3	0.44	1.4	2.0	0.00	0.0	292.3	0.447	2.403	3.124	6.98	
	56.49	12	427.1	1.9	105	6752	3972	296.5	213.3	0.45	1.4	2.0	0.00	0.0	296.5	0.448	2.505	3.256	7.28	

56.55 12 419.2 1.36 95 6759 3974 290.9 209.2 0.33 1.4 1.1 0.00 0.0 290.9 0.448 2.370 3.081 6.88

Project Number: 6600.3.001.01 Date: September 2005

Water Tip Sleeve

CPT Number: 28 Depth to Groundwater: 10 feet

Total Effective Norm. Corr. Friction

EQ Magnitude ( $M_w$ ): 6.5

**PGA (g):** 0.54

MSF: 1.30

Induced Liquef. Liquef. Factor

	Donth	Water	Tip Design	Sleeve			Effective			Friction		F.C					Liquef.	•		
Cono	Depth	Table (FT)	Resist.	Frict.	(DCF)	Stress	Stress	Tip Gain	Tip	Ratio F	To.	F.C. (%)	Ксрт	Daan	(qclN)es	Stress		Stress M6 50	of Sofoty	Comments
Cone	(FT)	(F I)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	Г	Ic	(%)	TC 1	Dqeix	(qeix)es	Katio	M7.5	M6.50	Safety	Comments
	0.54	10	230.9	3.24	135	73	73	442.2	6331.1	1.40	1.4	1.6	0.00	0.0	442.2	0.351	8.123	10.559	30.08	Above W.T.
	0.64	10	258.7	3.03	135	86	86	495.5	5984.9	1.17	1.3	0.7	0.00	0.0	495.5	0.351	11.391	14.809	42.19	Above W.T.
	0.73	10	259.5	2.57	125	99	99	497.0	5263.2	0.99	1.2	-0.2	0.00	0.0	497.0	0.351	11.497	14.946	42.58	Above W.T.
	0.83	10	226.3	1.94	125	111	111	433.4	4072.9	0.86	1.2	-0.9	0.00	0.0	433.4	0.351	7.651	9.947	28.34	Above W.T.
	0.92 1.02	10 10	237.2 255	1.58 1.27	115 105	122	122 134	454.3 488.4	3876.4 3809.1	0.67	1.1 0.9	-1.6	0.00	0.0	454.3 488.4	0.351 0.351	8.799 10.913	11.439 14.187	32.59 40.42	Above W.T. Above W.T.
	1.11	10	260.8	1.26	105	134 143	143	499.5	3638.7	0.50 0.48	0.9	-2.3 -2.4	0.00	0.0	499.5	0.351		15.170	43.22	Above W.T.
	1.2	10	248.6	1.16	105	153	153	476.1	3253.7	0.47	0.9	-2.5	0.00	0.0	476.1	0.351	10.118	13.173	37.47	Above W.T.
	1.29	10	224.6	1.12	105	162	162	430.2		0.50	0.9	-2.4	0.00	0.0	430.2	0.351	7.482	9.727	27.71	Above W.T.
	1.39	10	194.3	1.12	115	173	173	372.1	2248.9	0.58	1.0	-2.0	0.00	0.0	372.1	0.351	4.872	6.334	18.05	Above W.T.
	1.48	10	172.4	0.9	105	183	183	330.2	1882.4	0.52	1.0	-2.2	0.00	0.0	330.2	0.351	3.428	4.456	12.69	Above W.T.
	1.57	10	157.1	0.68	105	192	192	300.9	1631.0	0.43	0.9	-2.5	0.00	0.0	300.9	0.351	2.613	3.397	9.68	Above W.T.
	1.67	10	138.8	0.55	105	203	203	265.8	1366.3	0.40	0.9	-2.5	0.00	0.0	265.8	0.351	1.827	2.375	6.77	Above W.T.
	1.91	10	108.1 98.6	0.4	95	228 237	228	207.0	946.2	0.37	0.9	-2.3	0.00	0.0	207.0 188.8	0.351	0.905	1.177	3.35	Above W.T.
	2 2.08	10 10	87	0.34 0.31	95 95	244	237 244	188.8 166.6	831.8 710.9	0.35 0.36	0.9 1.0	-2.3 -2.0	0.00	0.0	166.6	0.351	0.706 0.510	0.918 0.663	2.62 1.89	Above W.T. Above W.T.
	2.16	10	76.6	0.27	95	252	252	146.7	606.9	0.35	1.0	-1.8	0.00	0.0	146.7	0.351	0.374	0.486	1.38	Above W.T.
	2.26	10	66.3	0.25	95	261	261	127.0	506.1	0.38	1.1	-1.3	0.00	0.0	127.0	0.351	0.270	0.352	1.00	Above W.T.
	2.35	10	57.7	0.23	95	270	270	110.5	426.3	0.40	1.2	-0.7	0.00	0.0	110.5	0.351	0.206	0.267	0.76	Above W.T.
	2.44	10	50.3	0.21	95	279	279	96.3	360.1	0.42	1.2	-0.2	0.00	0.0	96.3	0.351	0.163	0.212	0.60	Above W.T.
	2.53	10	46.6	0.2	95	287	287	89.2	323.5	0.43	1.3	0.3	0.00	0.0	89.2	0.351	0.146	0.190	0.54	Above W.T.
	2.62	10	41.6	0.19	95	296	296	79.7	280.3	0.46	1.3	0.9	0.00	0.0	79.7	0.351	0.127	0.165	0.47	Above W.T.
	2.72	10	38.3	0.21	95	305	305	73.4	250.0	0.55	1.4	2.0	0.00	0.0	73.4	0.351	0.117	0.152	0.43	Above W.T.
	2.81 2.9	10 10	35.4 33.5	0.23 0.14	105 95	314 323	314 323	67.8 64.2	224.6 206.3	0.65 0.42	1.5 1.4	3.2 1.9	0.00	0.0	67.8 64.2	0.351 0.351	0.109 0.105	0.142 0.136	0.40	Above W.T. Above W.T.
	3	10	31.2	0.14	105	333	333	59.8	186.5	0.77	1.6	4.9	0.00	0.0	59.8	0.351	0.100	0.130	0.37	Above W.T.
	3.09	10	31.9	0.52	125	342	342	61.1	185.4	1.64	1.9	9.7	0.13	8.8	69.9	0.351	0.112	0.145	0.41	Above W.T.
	3.18	10	38.9	0.55	125	353	353	74.5	219.1	1.42	1.8	7.6	0.07	5.7	80.2	0.351	0.128	0.166	0.47	Above W.T.
	3.27	10	55.1	0.5	115	365	365	105.5	301.2	0.91	1.5	3.4	0.00	0.0	105.5	0.351	0.189	0.246	0.70	Above W.T.
	3.36	10	88.9	0.79	125	375	375	170.3	473.1	0.89	1.4	1.7	0.00	0.0	170.3	0.351	0.539	0.701	2.00	Above W.T.
	3.46	10	101.5	1.34	125	387	387	194.4	522.8	1.32	1.5	3.4	0.00	0.0	194.4	0.351	0.763	0.992	2.83	Above W.T.
	3.55	10	84.5 75.3	1.47 1.29	135 135	399	399	161.8	422.8	1.74	1.7	5.9	0.02	3.9	165.8	0.351	0.504	0.655	1.87	Above W.T.
	3.65 3.74	10 10	43.2	1.18	135	412 424	412 424	144.2 82.7	364.2 202.5	1.72 2.74	1.7 2.0	6.4 13.7	0.04 0.23	5.6 24.9	149.9 107.6	0.351	0.393 0.196	0.511 0.255	1.46 0.73	Above W.T. Above W.T.
	3.84	10	23.2	1.05	135	438	438	44.4	104.9	4.57	2.4	25.3	0.54	52.8	97.3	0.351	0.156	0.235	0.61	Above W.T.
	3.94	10	19.3	0.82	125	451	451	37.0	84.5	4.30	2.4	26.9	0.58	52.0	89.0	0.351	0.145	0.189	0.54	Above W.T.
	4.04	10	13.2	0.75	125	464	464	25.3	55.9	5.78	2.6	36.6	0.80	101.1	126.4	0.351	0.268	0.348	0.99	Above W.T.
	4.13	10	16	0.93	125	475	475	30.6	66.3	5.90	2.6	34.6	0.79	115.7	146.4	0.351	0.372	0.483	1.38	Above W.T.
	4.23	10	25.7	1.15	135	488	488	49.2	104.4	4.52	2.4	25.2	0.54	57.9	107.1	0.351	0.194	0.253	0.72	Above W.T.
	4.33	10	38	1.45	135	501	501	72.8	150.6	3.84	2.2	19.7	0.39	46.8	119.5	0.351	0.239	0.310	0.88	Above W.T.
	4.42 4.52	10 10	41.1 41.5	1.72 1.84	135 135	513 527	513 527	78.7 79.1	159.1 156.5	4.21 4.46	2.2	20.3 21.2	0.41 0.43	54.4 60.2	133.1 139.3	0.351 0.351	0.299 0.331	0.389 0.431	1.11 1.23	Above W.T. Above W.T.
	4.62	10	39.6	1.72	135	540	540	74.5	145.6	4.37	2.3	21.6	0.43	59.1	133.7	0.351	0.302	0.393	1.12	Above W.T.
	4.72	10	37.1	1.56	135	554	554	69.0	133.0	4.24	2.3	22.0	0.45	57.3	126.3	0.351	0.267	0.347	0.99	Above W.T.
	4.81	10	33.8	1.45	135	566	566	62.2	118.4	4.33	2.3	23.4	0.49	59.9	122.1	0.351	0.249	0.324	0.92	Above W.T.
	5.05	10	37.5	1.35	135	598	598	67.1	124.3	3.63	2.2	20.7	0.42	48.4	115.4	0.351	0.223	0.290	0.83	Above W.T.
	5.15	10	41.2	1.34	135	612	612	72.9	133.6	3.28	2.2	18.8	0.37	42.7	115.5	0.351	0.223	0.291	0.83	Above W.T.
	5.24	10	41.5	1.33	135		624	72.7	132.0	3.23	2.2	18.8	0.37	42.3	115.0	0.351	0.221	0.288	0.82	Above W.T.
	5.34	10	40.2	1.28	135	637	637	69.7	125.1	3.21	2.2	19.2	0.38	42.5	112.1	0.351	0.211	0.275	0.78	Above W.T.
	5.44 5.54	10 10	37 35.7	1.21 1.09	135 135	651 664	651	63.5 60.6	112.6 106.4	3.30 3.08	2.2	20.5 20.2	0.41 0.41	44.7	108.2 102.2	0.351	0.198 0.179	0.257 0.233	0.73 0.66	Above W.T. Above W.T.
	5.64	10	33.1	0.97	135	678	664 678	55.6	96.6	2.96	2.3	20.2	0.41	41.6 40.3	96.0	0.351	0.179	0.233	0.60	Above W.T.
	5.74	10	30.2	0.9	135	691	691	50.3	86.3	3.01	2.3	22.1	0.46	42.3	92.6	0.351	0.154	0.200	0.57	Above W.T.
	5.83	10	27.7	0.85	135	704	704	45.7	77.7	3.11	2.3	23.6	0.50	45.3	91.0	0.351	0.150	0.195	0.56	Above W.T.
	5.93	10	25	0.83	135	717	717	40.8	68.7	3.37	2.4	26.1	0.56	52.6	93.4	0.351	0.156	0.203	0.58	Above W.T.
	6.02	10	23.2	0.83	135	729	729	37.6	62.6	3.63	2.4	28.2	0.62	61.3	98.9	0.351	0.170	0.221	0.63	Above W.T.
	6.12	10	23.6	0.83	135	743	743	37.9	62.5	3.57	2.4	28.0	0.61	60.3	98.2	0.351	0.168	0.219	0.62	Above W.T.
	6.22	10	22.2	0.81	135	756	756	35.3	57.7	3.71	2.5	29.6	0.66	67.2	102.6	0.351	0.180	0.234	0.67	Above W.T.
	6.32	10 10	21 21.1	0.81 0.84	125 135	770 781	770 781	33.1 33.0	53.5 53.0	3.93	2.5	31.3	0.70	78.5 84.6	111.7 117.6	0.351	0.209	0.272	0.78 0.86	Above W.T. Above W.T.
	6.41 6.51	10	21.1	0.64	135	781 794	781 794	33.2	53.0 52.9	4.06 4.29	2.5 2.5	31.9 32.8	0.72 0.74	95.4	128.6	0.351	0.231 0.278	0.301 0.361	1.03	Above W.T.
	6.61	10	19.8	0.92	135		808	30.5	48.0	4.74	2.6	35.7	0.80	121.9	152.4	0.351	0.409	0.532	1.52	Above W.T.
														-				-		

Date: September 2005

CPT Number: 28

Depth to Groundwater: 10 feet

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard **EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress		Tip	Tip	Ratio		F.C.					Stress	•	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	$(q_{c1N})_{es}$	Ratio	M7.5	M6.50	Safety	Comments
	6.7	10	17.6	0.91	125	820	820	26.9	41.9	5.29	2.7	39.5	0.80	107.6	134.5	0.351	0.306	0.398	1.13	Above W.T.
	6.8	10	16.9	0.88	125	833	833	25.6	39.6	5.34	2.7	40.5	0.80	102.5	128.1	0.351	0.276	0.358	1.02	Above W.T.
	6.9	10	15.5	0.83	125	845	845	23.3	35.7	5.50	2.7	42.8	0.80	93.3	116.6	0.351	0.228	0.296	0.84	Above W.T.
	6.99 7.09	10 10	15.8 16.6	8.0 8.0	125 125	856 869	856 869	23.6 24.6	35.9 37.2	5.20 4.95	2.7 2.7	41.7 40.3	0.80	94.5 98.6	118.1 123.2	0.351 0.351	0.233 0.254	0.303 0.330	0.86 0.94	Above W.T. Above W.T.
	7.19	10	16.4	0.83	125	881	881	24.0	36.2	5.20	2.7	41.6	0.80	96.7	120.9	0.351	0.234	0.330	0.90	Above W.T.
	7.29	10	16.8	0.82	125	894	894	24.6	36.6	5.01	2.7	40.8	0.80	98.3	122.9	0.351	0.253	0.329	0.94	Above W.T.
	7.38	10	17.4	0.85	125	905	905	25.3	37.4	5.02	2.7	40.4	0.80	101.2	126.5	0.351	0.268	0.349	0.99	Above W.T.
	7.48	10	17.4	0.88	125	918	918	25.1	36.9	5.19	2.7	41.2	0.80	100.5	125.7	0.351	0.265	0.344	0.98	Above W.T.
	7.58 7.68	10 10	15.2 15.3	0.86 0.81	125 125	930 943	930 943	21.8 21.8	31.7 31.4	5.84 5.46	2.8 2.8	45.8 44.8	0.80	87.2 87.2	109.0 109.0	0.351	0.201 0.201	0.261 0.261	0.74 0.74	Above W.T. Above W.T.
	7.77	10	15.9	0.76	125	954	954	22.5	32.3	4.93	2.7	42.6	0.80	90.1	112.6	0.351	0.201	0.277	0.79	Above W.T.
	7.87	10	15.9	0.72	125	966	966	22.4	31.9	4.67	2.7	41.9	0.80	89.5	111.9	0.351	0.210	0.273	0.78	Above W.T.
	7.97	10	16.3	0.77	125	979	979	22.8	32.3	4.87	2.7	42.4	0.80	91.2	114.0	0.351	0.218	0.283	0.81	Above W.T.
	8.07	10	16.5	0.73	125	991	991	22.9	32.3	4.56	2.7	41.3	0.80	91.7	114.6	0.351	0.220	0.286	0.82	Above W.T.
	8.17 8.27	10 10	15 15.2	0.69 0.65	125 125	1004 1016	1004 1016	20.7 20.9	28.9 28.9	4.76 4.42	2.8 2.7	43.9 42.7	0.80 0.80	82.9 83.4	103.6 104.3	0.351	0.183 0.186	0.238 0.241	0.68 0.69	Above W.T. Above W.T.
	8.33	10	10.8	0.62	125	1024	1024	14.8	20.1	6.03	2.9	55.1	0.80	59.1	73.8	0.351	0.117	0.153	0.43	Above W.T.
	8.42	10	14.5	0.58	125	1035	1035	19.7	27.0	4.15	2.7	42.9	0.80	78.9	98.6	0.351	0.169	0.220	0.63	Above W.T.
	8.52	10	13.8	0.54	125	1048	1048	18.7	25.3	4.07	2.8	43.7	0.80	74.6	93.3	0.351	0.155	0.202	0.58	Above W.T.
	8.62	10	14.1	0.49	125	1060	1060	18.9	25.6	3.61	2.7	41.7	0.80	75.8	94.7	0.351	0.159	0.207	0.59	Above W.T.
	8.72 8.82	10 10	14.3 10.4	0.46 0.41	125 115	1073 1085	1073 1085	19.1 13.8	25.7 18.2	3.34 4.16	2.7 2.9	40.4 50.5	0.80 0.80	76.4 55.3	95.5 69.1	0.351	0.161 0.111	0.209 0.144	0.60 0.41	Above W.T. Above W.T.
	8.92	10	8.7	0.36	115	1097	1097	11.5	14.9	4.42	3.0	55.8	0.80	46.0	57.5	0.351	0.098	0.144	0.36	Above W.T.
	9.02	10	7.3	0.33	115	1108	1108	9.6	12.2	4.89	3.1	62.3	0.80	38.4	48.0	0.351	0.090	0.117	0.33	Above W.T.
	9.12	10	7.2	0.33	115	1120	1120	9.4	11.9	4.97	3.1	63.2	0.80	37.7	47.1	0.351	0.090	0.117	0.33	Above W.T.
	9.22	10	7.5	0.34	115	1131	1131	9.8	12.3	4.90	3.1	62.1	0.80	39.0	48.8	0.351	0.091	0.118	0.34	Above W.T.
	9.32 9.42	10 10	8 8.9	0.34	115 115	1143 1154	1143 1154	10.4 11.5	13.0 14.4	4.58 3.97	3.0 2.9	59.5 54.6	0.80 0.80	41.4 45.9	51.8 57.3	0.351	0.093 0.098	0.121 0.127	0.34 0.36	Above W.T. Above W.T.
	9.52	10	9.2	0.33	115	1166	1166	11.8	14.8	3.48	2.9	51.8	0.80	47.2	59.0	0.351	0.098	0.127	0.37	Above W.T.
	9.62	10	7.8	0.26	105	1177	1177	9.9	12.2	3.61	3.0	56.6	0.80	39.8	49.7	0.351	0.091	0.119	0.34	Above W.T.
	9.72	10	6.3	0.22	105	1188	1188	8.0	9.6	3.86	3.1	63.6	0.80	32.0	40.0	0.351	0.086	0.112	0.32	Above W.T.
	9.82	10	6.6	0.2	105	1198	1198	8.3	10.0	3.33	3.0	60.0	0.80	33.4	41.7	0.351	0.087	0.113	0.32	Above W.T.
	9.92 10.02	10 10	6.2 6	0.2 0.21	105 105	1209 1219	1209 1213	7.8 7.5	9.3 8.9	3.57 3.90	3.1	63.2 65.8	0.80	31.2 30.2	39.0 37.7	0.351 0.346	0.086 0.085	0.111 0.110	0.32 0.32	Above W.T. NonLiqfble.
	10.13	10	6.1	0.23	105	1231	1218	7.6	9.0	4.19	3.1	66.8	0.80	30.6	38.2	0.348	0.085	0.110	0.32	NonLiqfble.
	10.23	10	6.2	0.25	105	1241	1222	7.8	9.1	4.48	3.1	67.7	0.80	31.0	38.8	0.349	0.085	0.111	0.32	NonLiqfble.
	10.33	10	4.8	0.27	105	1252	1226	6.0	6.8	6.47	3.3	83.5	0.80	24.0	30.0	0.351	0.083	0.107	0.31	NonLiqfble.
	10.43	10	5.1	0.27	105	1262	1230	6.4	7.3	6.04	3.3	80.1	0.80	25.4	31.8	0.353	0.083	0.108	0.31	NonLiqfble.
	10.53 10.63	10 10	5.5 5.6	0.26 0.28	105 105	1273 1283	1235 1239	6.8 7.0	7.9 8.0	5.35 5.65	3.2	75.2 75.9	0.80	27.4 27.8	34.2 34.8	0.355 0.356	0.084 0.084	0.109 0.109	0.31 0.31	NonLiqfble. NonLiqfble.
	10.73	10	5.3	0.29	105	1294	1243	6.6	7.5	6.23	3.3	79.9	0.80	26.3	32.9	0.358	0.083	0.108	0.30	NonLiqfble.
	10.83	10	4.9	0.31	105	1304	1247	6.1	6.8	7.30	3.4	86.2	0.80	24.3	30.4	0.360	0.083	0.107	0.30	NonLiqfble.
	10.93	10	5.9	0.31	105	1315	1252	7.3	8.4	5.91	3.2	75.6	0.80	29.2	36.5	0.361	0.085	0.110	0.30	NonLiqfble.
	11.03	10	5.7	0.32	105	1325	1256	7.0	8.0	6.35	3.3	78.4	0.80	28.1	35.2	0.363	0.084	0.109	0.30	NonLiqfble.
	11.12 11.23	10 10	5.6 6.3	0.34 0.35	105 105	1335 1346	1260 1264	6.9 7.8	7.8 8.9	6.89 6.22	3.3 3.2	80.9 75.1	0.80	27.6 31.0	34.5 38.8	0.364 0.366	0.084 0.085	0.109 0.111	0.30	NonLiqfble. NonLiqfble.
	11.33	10	7.6	0.38	115	1357	1269	9.3	10.9	5.49	3.1	67.2	0.80	37.3	46.7	0.368	0.089	0.116	0.32	NonLiqfble.
	11.42	10	8.1	0.41	115	1367	1273	9.9	11.6	5.53	3.1	65.7	0.80	39.7	49.7	0.369	0.091	0.119	0.32	NonLiqfble.
	11.52	10	8.2	0.43	115	1379	1279	10.0	11.7	5.73	3.1	66.2	0.80	40.1	50.2	0.371	0.092	0.119	0.32	NonLiqfble.
	11.63 11.73	10 10	8.3 9.5	0.45 0.46	115 115	1391 1403	1284 1290	10.1 11.6	11.8 13.6	5.92 5.23	3.1	66.7 60.9	0.80	40.5 46.3	50.7 57.9	0.373 0.374	0.092 0.098	0.120 0.127	0.32 0.34	NonLiqfble. NonLiqfble.
	11.73	10	11.2	0.46	125	1403	1302	13.6	16.1	4.39	2.9	53.9	0.80	54.3	67.9	0.374	0.109	0.127	0.34	NonLiqfble.
	12.06	10	10.9	0.44	115	1442	1308	13.2	15.6	4.32	2.9	54.4	0.80	52.7	65.9	0.379	0.107	0.139	0.37	NonLiqfble.
	12.16	10	11.8	0.43	125	1453	1313	14.2	16.9	3.88	2.9	50.9	0.80	57.0	71.2	0.381	0.114	0.148	0.39	NonLiqfble.
	12.26	10	13	0.47	125	1466	1320	15.7	18.6	3.83	2.8	48.7	0.80	62.6	78.3	0.382	0.125	0.162	0.42	NonLiqfble.
	12.36 12.46	10 10	13.8 12.6	0.51 0.55	125 125	1478 1491	1326 1332	16.6 15.1	19.7 17.8	3.90	2.8	47.8 52.8	0.80	66.3 60.4	82.9 75.5	0.383 0.385	0.133 0.120	0.173 0.156	0.45 0.41	NonLiqfble. NonLiqfble.
	12.46	10	12.6	0.58	125	1503	1332	14.8	17.8	4.64 4.98	2.9	54.6	0.80	59.3	74.2	0.385	0.120	0.156	0.41	NonLiqible. NonLiqfble.
	12.66	10	12.1	0.57	125	1516	1345	14.4	16.9	5.03	3.0	55.4	0.80	57.8	72.2	0.388	0.115	0.149	0.39	NonLiqfble.
	12.76	10	12.2	0.57	125	1528	1351	14.5	16.9	4.98	2.9	55.2	0.80	58.1	72.6	0.389	0.116	0.150	0.39	NonLiqfble.
	12.86	10	13	0.57	125		1357	15.4	18.0	4.66	2.9	52.6	0.80	61.8	77.2	0.390	0.123	0.160	0.41	NonLiqfble.
	12.96	10	13.5	0.57	125	1553	1363	16.0	18.7	4.48	2.9	51.2	0.80	64.0	80.0	0.392	0.128	0.166	0.42	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 28

Depth to Groundwater: 10 feet

Part			Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Lianef.	Lianef.	Factor	
13.06   10   13.1   0.58   125   156   1370   15.5   18.0   4.71   2.9   52.9   0.80   61.9   77.4   0.93   0.12   0.160   0.41   NonLaphe.   13.10   10   13.1   0.09   125   1378   1378   1379		Depth		•		g							F.C.					-	•		
13.16   10	Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	(qcIN)cs	Ratio	M7.5	M6.50	Safety	Comments
13.16   10																					
13.16   10																					
1328   10																					
13.86   10																					
13.46   10																					•
13.66   10   147   0.75   126   163   1417   17.1																					
1376   10   156   0.77   125   163   141   182   2.90   2.12   2.94   1.6   0.80   7.26   9.08   0.00   0.150   0.194   0.48   NonLigiphs   1306   10   16.5   0.08   125   1678   1420   183   0.194   0.18   NonLigiphs   1406   10   16.5   0.08   125   1678   1420   1432   191   0.18   1.094   0.18   0.18   0.194   0.18   0.18   0.194   0.18   0.18   0.194   0.18   0.18   0.194   0.18   0.18   0.194   0.18   0.18   0.194   0.18   0.18   0.194   0.18   0.18   0.194   0.18   0.18   0.194   0.18   0.18   0.194   0.18   0.18   0.194   0.184		13.56	10	15.3	0.71	125	1628	1401	17.9	20.7	4.90	2.9	50.7	0.80	71.5	89.4	0.400	0.147	0.190	0.48	NonLiqfble.
1386   10   1549   0.79			10					1407	17.1		5.40	2.9	53.4	0.80	68.6		0.401	0.139	0.180	0.45	NonLiqfble.
1396   10   16.2   0.8   125   1678   1420   1432   191   211																					
14.06   10   16.5   0.8   125   109   1432   191   2.10   5.11   2.9   5.04   0.80   76.3   9.54   0.40   0.16   0.200   0.5   NonLighbe.   14.26   10   16.7   0.79   125   1716   1445   10   16.4   0.75   1.55   1716   145   192   2.10   4.99   2.9   4.99   0.80   7.99   6.10   0.10   0.16   0.200   0.15   NonLighbe.   14.55   10   16.4   0.76   125   172   1457   179   2.02   5.11   2.9   5.21   0.80   71.5   0.80   7.5   0.80   0.10   0.10   0.16   0.10   0.16																					-
14.16   10   16.7   0.81   12.5   17.0   14.5   17.0   14.5   17.0   14.5   17.0   14.5   17.0   14.5   17.0   14.5   17.0   18.5   17.1   14.5   10   16.6   0.7   12.5   17.7   14.5   17.5   18.5   17.2   14.5   17.5																					-
1426 10 167 0.79 128 1716 1415 172 1429 183 143 143 143 143 143 143 143 144 145 10 167 0.79 142 143 143 10 167 0.79 143 143 144 145 10 167 0.79 143 143 143 144 145 10 167 0.79 143 143 143 144 145 10 167 0.79 143 143 143 144 145 10 167 0.79 143 143 143 144 145 10 167 0.79 143 143 143 144 145 10 167 0.79 143 143 143 144 145 10 167 0.79 143 145 145 145 145 145 145 145 145 145 145																					
14.45 10 16.4 0.76 125 127 1450 18.8 21.4 4.89 2.9 50.0 10.8 0.75 54.2 4.0 1.0 10.15 0.00 6.0 50.0 14.1 14.5 10 16.5 10.76 12.5 12.5 14.6 17.0 19.2 5.28 2.9 52.1 0.8 0.0 12.5 10.1 14.5 10 14.4 0.14 0.19 0.19 0.19 0.4 Northighby. 14.5 17.5 15.5 17.2 5.28 2.9 51.0 10.1 14.5 10 12.2 0.6 0.6 125 177 1475 15.5 17.2 5.27 3.0 55.8 10.0 12.9 0.6 12.5 17.7 1475 15.5 17.2 5.27 3.0 55.8 10.0 12.9 0.0 12.2 10.0 10.1 14.5 10.1 12.2 14.0 14.0 14.2 14.0 14.1 14.0 14.0 14.0 14.0 14.0 14.0																					
14.55 10 14.9 0.74 125 1752 1483 170 1912 5.28 2.9 54.0 0.80 6.58 2.52 0.412 0.138 0.179 0.43 NonLiphic.  14.65 10 12.4 0.67 125 177 1475 15.5 17.2 5.27 3.0 5.8 0.80 6.20 77.5 0.414 0.123 0.160 0.39 NonLiphic.  14.65 10 12.9 0.66 125 180 1487 14.1 15.5 5.65 3.0 5.8 0.80 0.50 5.7 7.5 0.414 0.123 0.160 0.39 NonLiphic.  15.04 10 12.4 0.65 125 180 1487 14.1 15.5 5.65 3.0 5.8 0.80 0.5 8.7 7.3 0.415 0.112 0.13 0.39 NonLiphic.  15.04 10 11.2 0.66 125 180 1487 14.1 15.5 5.65 3.0 5.8 0.80 0.50 5.7 0.30 0.415 0.112 0.13 0.39 NonLiphic.  15.14 10 11.7 0.68 125 183 1506 12.5 1.35 0.29 3.1 64.7 0.80 5.2 66.1 0.419 0.10 0.13 0.33 NonLiphic.  15.24 10 11.1 0.68 125 183 1506 12.5 1.35 0.29 3.1 64.7 0.80 5.1 0.40 0.40 0.10 1.30 0.33 NonLiphic.  15.24 10 11.4 0.53 125 183 1506 12.5 1.35 0.29 3.1 64.0 0.80 5.5 6.3 0.40 0.40 0.10 1.30 0.33 NonLiphic.  15.24 10 11.4 0.53 125 183 1502 12.3 1.35 0.29 1.30 6.1 0.80 5.1 0.40 0.40 0.10 1.30 0.33 NonLiphic.  15.24 10 11.4 0.53 125 183 1512 12.8 13.8 5.66 0.30 6.0 0.80 5.1 0.40 0.40 0.10 0.13 0.32 NonLiphic.  15.24 10 11.4 0.53 125 188 1512 12.8 13.8 5.66 3.0 6.0 0.80 5.1 0.60 0.42 0.10 0.13 0.32 NonLiphic.  15.24 10 11.2 0.5 125 188 1512 12.8 13.8 5.66 3.0 6.0 0.80 5.1 0.60 0.42 0.10 0.13 0.32 NonLiphic.  15.24 10 11.2 0.5 125 188 1512 12.8 13.8 5.66 3.0 6.0 0.80 5.1 0.60 0.42 0.10 0.10 0.13 0.32 NonLiphic.  15.24 10 11.2 0.4 125 19.8 158 0.1 1.3 1.4 1.4 1.8 1.3 1.4 1.4 1.8 1.3 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4																					
14.65   10   14.4   0.7   125   176   1469   16.4   18.4   5.18   2.9   54.1   0.80   65.8   8.22   0.413   0.132   0.171   0.41   0.013   0.171   0.41   0.013   0.171   0.41   0.013   0.14   0.013   0.14   0.013   0.14   0.013   0.14   0.013   0.14   0.013   0.14   0.013   0.14   0.013   0.14   0.013   0.14   0.013		14.45	10	15.6	0.76	125	1739	1457	17.9	20.2	5.16	2.9	52.1	0.80	71.5	89.4	0.411	0.146	0.190	0.46	NonLiqfble.
14.75   10   13.6   0.67   125   177   1475   15.5   17.2   5.27   3.0   5.88   0.80   0.20   77.5   0.414   0.123   0.100   0.39   NonLighburs   14.94   10   12.4   0.65   125   1801   1487   14.1   15.5   5.65   3.0   9.55   0.80   5.87   70.3   0.416   0.112   0.146   0.35   NonLighburs   15.44   10   11.7   0.68   125   180   1487   14.1   15.5   5.65   3.0   9.55   0.80   5.85   70.3   0.416   0.112   0.146   0.35   NonLighburs   15.44   10   11.7   0.68   125   1836   1500   13.2   14.4   6.30   3.1   6.37   0.80   5.25   6.61   0.419   0.110   1.14   0.34   0.31   0.011   0.141   0.14   0.1		14.55	10	14.9	0.74	125	1752	1463	17.0	19.2	5.28	2.9	53.6	0.80	68.2	85.2	0.412	0.138	0.179	0.43	NonLiqfble.
14,88																					
14.94   10																					
15.04   10																					
15.14   10																					
15.24																					
15.27																					
15.44   10		15.27	10	11.2	0.63	125	1842	1508	12.6	13.6	6.13	3.1	64.0	0.80	50.5	63.1	0.420	0.103	0.134	0.32	NonLiqfble.
15.54   10		15.34	10	11.4	0.58	125	1851	1512	12.8	13.8	5.54	3.0	61.6	0.80	51.3	64.1	0.421	0.105	0.136	0.32	NonLiqfble.
15.64   10																					
15.74   10																					-
15.84																					•
15.94   10																					
16.04   10																					-
16.14   10																					
16.33   10   12.5   0.49   125   1974   1574   13.8   14.6   4.26   3.0   55.5   0.80   55.1   68.9   0.431   0.110   0.144   0.33   NonLighbe.		16.14	10	11.8	0.46	125	1951	1562	13.1	13.8	4.25	3.0	56.7	0.80	52.2	65.3	0.429	0.106	0.138	0.32	-
16.44   10			10	12.1	0.48			1569	13.4	14.2	4.32	3.0	56.5	0.80	53.5	66.8	0.430	0.108	0.140	0.33	NonLiqfble.
16.54   10																					-
16.64   10   10.9   0.45   115   2013   1594   11.9   12.4   4.55   3.0   60.4   0.80   47.8   59.7   0.434   0.100   0.130   0.30   NonLiqfble.																					
16.74   10																					
16.83   10   10.1   0.36   115   2035   1604   11.0   11.3   3.96   3.0   60.1   0.80   44.1   55.2   0.436   0.096   0.124   0.28   NonLighble.																					
16.93   10   10.5   0.34   115   2046   1609   11.5   11.8   3.59   3.0   57.4   0.80   45.8   57.3   0.437   0.097   0.127   0.29   NonLiqfble   17.03   10   10.6   0.32   115   2058   1614   11.5   11.9   3.34   3.0   56.1   0.80   46.2   57.7   0.439   0.098   0.127   0.29   NonLiqfble   17.14   10   10.2   0.32   115   2071   1620   11.1   11.3   3.49   3.0   57.9   0.80   44.4   55.4   0.440   0.096   0.125   0.28   NonLiqfble   17.23   10   11.3   0.29   115   2081   1625   12.3   12.6   2.83   2.9   51.9   0.80   49.1   61.3   0.441   0.101   0.132   0.30   NonLiqfble   17.33   10   11.2   0.26   115   2092   1630   12.1   12.5   2.56   2.9   50.7   0.80   48.6   60.7   0.442   0.101   0.131   0.30   NonLiqfble   17.53   10   10.4   0.25   115   2104   1635   11.3   11.4   2.67   2.9   53.3   0.80   45.0   56.3   0.443   0.097   0.126   0.28   NonLiqfble   17.53   10   10.2   0.27   115   2115   1641   11.0   11.1   2.925   3.0   55.5   0.80   44.4   55.5   0.444   0.096   0.124   0.28   NonLiqfble   17.73   10   10.9   0.33   115   2127   1646   11.1   11.2   3.25   3.0   56.9   0.80   44.4   55.5   0.445   0.096   0.125   0.28   NonLiqfble   17.73   10   10.9   0.35   115   2138   1651   11.7   11.9   3.56   3.0   57.1   0.80   46.9   58.7   0.446   0.099   0.128   0.29   NonLiqfble   17.83   10   10.9   0.35   115   2150   1656   11.7   11.9   3.56   3.0   57.1   0.80   46.9   58.6   0.446   0.099   0.128   0.29   NonLiqfble   18.22   10   10.4   0.35   115   2183   1672   11.5   11.5   3.75   3.0   59.4   0.80   44.7   55.8   0.447   0.096   0.125   0.28   NonLiqfble   18.22   10   10.4   0.35   115   2195   1656   11.7   11.8   3.67   3.0   57.1   0.80   46.9   58.6   0.446   0.099   0.128   0.29   NonLiqfble   18.22   10   11.7   0.4   115   2183   1672   11.5   11.5   3.75   3.0   58.8   0.80   46.7   58.4   0.448   0.099   0.128   0.29   NonLiqfble   18.22   10   11.7   0.4   115   2195   1656   11.7   11.8   3.67   3.0   57.1   0.80   53.7   66.1   0.444   0.099   0.128   0.29   NonLiqfble   1																					•
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17.33 10 11.2 0.26 115 2092 1630 12.1 12.5 2.56 2.9 50.7 0.80 48.6 60.7 0.442 0.101 0.131 0.30 NonLighble. 17.43 10 10.4 0.25 115 2104 1635 11.3 11.4 2.67 2.9 53.3 0.80 45.0 56.3 0.443 0.097 0.126 0.28 NonLighble. 17.53 10 10.2 0.27 115 2115 1641 11.0 11.1 2.95 3.0 55.5 0.80 44.1 55.1 0.444 0.096 0.124 0.28 NonLighble. 17.63 10 10.3 0.3 115 2127 1646 11.1 11.2 2.53 3.0 56.9 0.80 44.4 55.5 0.445 0.096 0.125 0.28 NonLighble. 17.73 10 10.9 0.33 115 2128 1651 11.7 11.9 3.36 3.0 56.0 0.80 44.4 55.5 0.445 0.096 0.125 0.28 NonLighble. 17.83 10 10.9 0.35 115 2150 1656 11.7 11.9 3.56 3.0 57.1 0.80 46.9 58.7 0.446 0.099 0.128 0.29 NonLighble. 17.92 10 10.4 0.35 115 2160 1661 11.2 11.2 3.76 3.0 59.4 0.80 44.7 55.8 0.447 0.096 0.125 0.28 NonLighble. 18.12 10 10.7 0.36 115 2183 1672 11.5 11.5 3.75 3.0 58.8 0.80 45.8 57.3 0.448 0.099 0.128 0.29 NonLighble. 18.22 10 11.7 0.47 11.5 2183 1672 11.5 11.5 3.75 3.0 58.8 0.80 45.8 57.3 0.449 0.097 0.127 0.28 NonLighble. 18.22 10 11.7 0.4 115 2206 1682 12.5 12.6 3.77 3.0 58.8 0.80 45.8 57.3 0.449 0.097 0.127 0.28 NonLighble. 18.22 10 11.7 0.4 115 2206 1682 12.5 12.6 3.77 3.0 58.8 0.80 45.8 57.3 0.449 0.097 0.129 0.29 NonLighble. 18.51 10 13.1 0.48 125 2218 1687 13.4 13.6 3.83 3.0 55.2 0.80 55.7 69.7 0.453 0.111 0.145 0.32 NonLighble. 18.51 10 12.8 0.49 125 2229 1693 13.9 14.2 4.01 2.9 55.2 0.80 55.7 69.7 0.453 0.111 0.145 0.32 NonLighble. 18.56 10 12.5 0.47 125 2248 1702 13.3 13.4 4.13 3.0 57.0 0.80 53.0 66.3 0.454 0.107 0.139 0.31 NonLighble. 18.66 10 12.5 0.47 125 2248 1702 13.3 13.4 4.13 3.0 57.0 0.80 53.0 66.3 0.454 0.107 0.139 0.31 NonLighble. 18.66 10 13.6 0.47 125 2243 1715 14.4 14.5 3.77 2.9 53.5 0.80 55.7 7.8 0.455 0.117 0.153 0.33 NonLighble. 18.86 10 13.6 0.47 125 2223 1715 14.4 14.5 3.77 2.9 53.5 0.80 55.7 7.8 0.455 0.107 0.117 0.153 0.33 NonLighble. 18.86 10 13.6 0.47 125 2223 1715 14.4 14.5 3.77 2.9 53.5 0.80 55.7 7.8 0.455 0.107 0.117 0.153 0.33 NonLighble.		17.14	10	10.2	0.32	115	2071	1620	11.1	11.3	3.49	3.0	57.9	0.80	44.4	55.4	0.440	0.096	0.125	0.28	NonLiqfble.
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17.63 10 10.3 0.3 115 2127 1646 11.1 11.2 3.25 3.0 56.9 0.80 44.4 55.5 0.445 0.096 0.125 0.28 NonLiqtble. 17.73 10 10.9 0.33 115 2138 1651 11.7 11.9 3.36 3.0 56.0 0.80 46.9 58.7 0.446 0.099 0.128 0.29 NonLiqtble. 17.83 10 10.9 0.35 115 2150 1656 11.7 11.9 3.56 3.0 57.1 0.80 46.9 58.6 0.446 0.099 0.128 0.29 NonLiqtble. 17.92 10 10.4 0.35 115 2150 1666 11.7 11.8 3.67 3.0 57.8 0.80 46.9 58.6 0.446 0.099 0.128 0.29 NonLiqtble. 18.02 10 10.9 0.36 115 2172 1666 11.7 11.8 3.67 3.0 57.8 0.80 46.7 58.4 0.448 0.099 0.128 0.29 NonLiqtble. 18.12 10 10.7 0.36 115 2183 1672 11.5 11.5 3.75 3.0 58.8 0.80 45.8 57.3 0.449 0.097 0.127 0.28 NonLiqtble. 18.22 10 11 0.37 115 2195 1677 11.8 11.8 3.74 3.0 58.1 0.80 47.0 58.8 0.450 0.099 0.129 0.29 NonLiqtble. 18.32 10 11.7 0.4 115 2206 1682 12.5 12.6 3.77 3.0 56.8 0.80 49.9 62.4 0.451 0.103 0.133 0.30 NonLiqtble. 18.51 10 13.1 0.48 125 2229 1693 13.9 14.2 4.01 2.9 55.2 0.80 53.7 67.1 0.452 0.108 0.141 0.31 NonLiqtble. 18.57 10 12.8 0.49 125 2237 1697 13.6 13.8 4.19 3.0 56.6 0.80 54.4 68.0 0.453 0.109 0.142 0.31 NonLiqtble. 18.66 10 12.5 0.47 125 2248 1702 13.3 13.4 4.13 3.0 56.7 0.80 55.9 66.2 0.455 0.107 0.139 0.31 NonLiqtble. 18.76 10 12.5 0.47 125 2243 1715 14.4 14.5 3.77 2.9 53.5 0.80 59.1 73.8 0.457 0.117 0.153 0.33 NonLiqtble. 18.86 10 13.6 0.47 125 2273 1715 14.4 14.5 3.77 2.9 53.5 0.80 57.7 71.8 0.457 0.117 0.153 0.33 NonLiqtble. 18.86 10 13.6 0.47 125 2273 1715 14.4 14.5 3.77 2.9 53.5 0.80 59.1 73.8 0.457 0.117 0.153 0.33 NonLiqtble.																					
17.73 10 10.9 0.33 115 2138 1651 11.7 11.9 3.36 3.0 56.0 0.80 46.9 58.7 0.446 0.099 0.128 0.29 NonLighble. 17.83 10 10.9 0.35 115 2150 1656 11.7 11.9 3.56 3.0 57.1 0.80 46.9 58.6 0.446 0.099 0.128 0.29 NonLighble. 17.92 10 10.4 0.35 115 2160 1661 11.2 11.2 3.76 3.0 59.4 0.80 44.7 55.8 0.447 0.096 0.125 0.28 NonLighble. 18.02 10 10.9 0.36 115 2172 1666 11.7 11.8 3.67 3.0 57.8 0.80 46.7 58.4 0.448 0.099 0.128 0.29 NonLighble. 18.12 10 10.7 0.36 115 2183 1672 11.5 11.5 3.75 3.0 58.8 0.80 45.8 57.3 0.449 0.097 0.127 0.28 NonLighble. 18.22 10 11 0.37 115 2195 1677 11.8 11.8 3.74 3.0 58.1 0.80 47.0 58.8 0.450 0.099 0.129 0.29 NonLighble. 18.32 10 11.7 0.4 115 2206 1682 12.5 12.6 3.77 3.0 56.8 0.80 49.9 62.4 0.451 0.103 0.133 0.30 NonLighble. 18.42 10 12.6 0.44 125 2218 1687 13.4 13.6 3.83 3.0 55.2 0.80 53.7 67.1 0.452 0.108 0.141 0.31 NonLighble. 18.51 10 13.1 0.48 125 2229 1693 13.9 14.2 4.01 2.9 55.2 0.80 55.7 69.7 0.453 0.111 0.145 0.32 NonLighble. 18.56 10 12.5 0.47 125 2248 1702 13.3 13.4 4.13 3.0 57.0 0.80 54.4 68.0 0.453 0.109 0.142 0.31 NonLighble. 18.66 10 12.5 0.46 125 22260 1709 13.2 13.3 13.4 4.13 3.0 57.0 0.80 54.4 68.0 0.453 0.109 0.142 0.31 NonLighble. 18.76 10 13.6 0.47 125 2248 1702 13.3 13.4 4.13 3.0 57.0 0.80 53.0 66.3 0.454 0.107 0.139 0.31 NonLighble. 18.86 10 13.6 0.47 125 2273 1715 14.4 14.5 3.77 2.9 53.5 0.80 57.5 71.8 0.456 0.114 0.149 0.33 NonLighble. 18.86 10 13.6 0.47 125 2273 1715 14.4 14.5 3.77 2.9 53.5 0.80 57.5 71.8 0.456 0.114 0.149 0.33 NonLighble.																					
17.83 10 10.9 0.35 115 2150 1656 11.7 11.9 3.56 3.0 57.1 0.80 46.9 58.6 0.446 0.099 0.128 0.29 NonLiqtble. 17.92 10 10.4 0.35 115 2160 1661 11.2 11.2 3.76 3.0 59.4 0.80 44.7 55.8 0.447 0.096 0.125 0.28 NonLiqtble. 18.02 10 10.9 0.36 115 2172 1666 11.7 11.8 3.67 3.0 57.8 0.80 46.7 58.4 0.448 0.099 0.128 0.29 NonLiqtble. 18.12 10 10.7 0.36 115 2183 1672 11.5 11.5 3.75 3.0 58.8 0.80 45.8 57.3 0.449 0.097 0.127 0.28 NonLiqtble. 18.22 10 11 0.37 115 2195 1677 11.8 11.8 3.74 3.0 58.1 0.80 47.0 58.8 0.409 0.099 0.129 0.29 NonLiqtble. 18.32 10 11.7 0.4 115 2206 1682 12.5 12.6 3.77 3.0 56.8 0.80 49.9 62.4 0.451 0.103 0.133 0.30 NonLiqtble. 18.42 10 12.6 0.44 125 2218 1687 13.4 13.6 3.83 3.0 55.2 0.80 55.7 67.1 0.452 0.108 0.141 0.31 NonLiqtble. 18.51 10 13.1 0.48 125 2229 1693 13.9 14.2 4.01 2.9 55.2 0.80 55.7 69.7 0.453 0.111 0.145 0.32 NonLiqtble. 18.66 10 12.5 0.47 125 2248 1702 13.3 13.4 4.13 3.0 57.0 0.80 54.4 68.0 0.453 0.109 0.142 0.31 NonLiqtble. 18.66 10 12.5 0.47 125 2248 1702 13.3 13.4 4.13 3.0 57.0 0.80 53.0 66.3 0.454 0.107 0.139 0.31 NonLiqtble. 18.76 10 12.5 0.46 125 2229 1715 14.4 14.5 3.77 2.9 53.5 0.80 57.5 71.8 0.455 0.107 0.139 0.31 NonLiqtble. 18.86 10 13.6 0.47 125 2273 1715 14.4 14.5 3.77 2.9 53.5 0.80 59.1 73.8 0.457 0.117 0.153 0.33 NonLiqtble. 18.86 10 13.6 0.47 125 2273 1715 14.4 14.5 3.77 2.9 53.5 0.80 59.1 73.8 0.457 0.117 0.153 0.33 NonLiqtble.																					
17.92 10 10.4 0.35 115 2160 1661 11.2 11.2 3.76 3.0 59.4 0.80 44.7 55.8 0.447 0.096 0.125 0.28 NonLighble. 18.02 10 10.9 0.36 115 2172 1666 11.7 11.8 3.67 3.0 57.8 0.80 46.7 58.4 0.448 0.099 0.128 0.29 NonLighble. 18.12 10 10.7 0.36 115 2183 1672 11.5 11.5 3.75 3.0 58.8 0.80 45.8 57.3 0.449 0.097 0.127 0.28 NonLighble. 18.22 10 11 0.37 115 2195 1677 11.8 11.8 3.67 3.0 58.8 0.80 45.8 57.3 0.449 0.097 0.127 0.28 NonLighble. 18.32 10 11.7 0.4 115 2206 1682 12.5 12.6 3.77 3.0 56.8 0.80 49.9 62.4 0.451 0.103 0.133 0.30 NonLighble. 18.42 10 12.6 0.44 125 2218 1687 13.4 13.6 3.83 3.0 55.2 0.80 53.7 67.1 0.452 0.108 0.141 0.31 NonLighble. 18.51 10 13.1 0.48 125 2229 1693 13.9 14.2 4.01 2.9 55.2 0.80 55.7 69.7 0.453 0.111 0.145 0.32 NonLighble. 18.66 10 12.5 0.47 125 2248 1702 13.3 13.4 4.13 3.0 57.0 0.80 53.0 66.3 0.454 0.107 0.139 0.31 NonLighble. 18.76 10 12.5 0.46 125 2243 1705 13.2 13.3 4.05 3.0 56.7 0.80 53.0 66.3 0.454 0.107 0.139 0.31 NonLighble. 18.86 10 13.6 0.47 125 2273 1715 14.4 14.5 3.77 2.9 53.5 0.80 55.7 71.8 0.455 0.107 0.139 0.31 NonLighble. 18.86 10 13.6 0.47 125 2273 1715 14.4 14.5 3.77 2.9 53.5 0.80 55.7 71.8 0.455 0.117 0.153 0.33 NonLighble.																					
18.02       10       10.9       0.36       115       2172       1666       11.7       11.8       3.67       3.0       57.8       0.80       46.7       58.4       0.448       0.099       0.128       0.29       NonLiqfble.         18.12       10       10.7       0.36       115       2183       1672       11.5       11.5       3.75       3.0       58.8       0.80       45.8       57.3       0.449       0.097       0.127       0.28       NonLiqfble.         18.22       10       11       0.37       115       2195       1677       11.8       11.8       3.74       3.0       58.1       0.80       47.0       58.8       0.450       0.099       0.129       0.29       NonLiqfble.         18.32       10       11.7       0.4       115       2206       1682       12.5       12.6       3.77       3.0       56.8       0.80       49.9       62.4       0.451       0.103       0.133       0.30       NonLiqfble.         18.42       10       12.6       0.44       125       2218       1687       13.4       13.6       3.83       3.0       55.2       0.80       53.7       67.1       0.452																					
18.22       10       11       0.37       115       2195       1677       11.8       11.8       3.74       3.0       58.1       0.80       47.0       58.8       0.450       0.099       0.129       0.29       NonLiqfble.         18.32       10       11.7       0.4       115       2206       1682       12.5       12.6       3.77       3.0       56.8       0.80       49.9       62.4       0.451       0.103       0.133       0.30       NonLiqfble.         18.42       10       12.6       0.44       125       2218       1687       13.4       13.6       3.83       3.0       55.2       0.80       53.7       67.1       0.452       0.108       0.141       0.31       NonLiqfble.         18.57       10       13.1       0.48       125       2229       1693       13.9       14.2       4.01       2.9       55.2       0.80       55.7       69.7       0.453       0.111       0.145       0.32       NonLiqfble.         18.57       10       12.8       0.49       125       2237       1697       13.6       13.8       4.19       3.0       56.6       0.80       54.4       68.0       0.453			10	10.9	0.36	115		1666	11.7	11.8		3.0	57.8		46.7	58.4		0.099	0.128	0.29	
18.32       10       11.7       0.4       115       2206       1682       12.5       12.6       3.77       3.0       56.8       0.80       49.9       62.4       0.451       0.103       0.133       0.30       NonLighble.         18.42       10       12.6       0.44       125       2218       1687       13.4       13.6       3.83       3.0       55.2       0.80       53.7       67.1       0.452       0.108       0.141       0.31       NonLighble.         18.51       10       13.1       0.48       125       2229       1693       13.9       14.2       4.01       2.9       55.2       0.80       55.7       69.7       0.453       0.111       0.145       0.32       NonLighble.         18.57       10       12.8       0.49       125       2237       1697       13.6       13.8       4.19       3.0       56.6       0.80       54.4       68.0       0.453       0.111       0.145       0.31       NonLighble.         18.66       10       12.5       0.46       125       2248       1702       13.3       13.4       4.13       3.0       57.0       0.80       53.0       66.2       0.455		18.12	10	10.7	0.36	115	2183	1672	11.5	11.5	3.75	3.0	58.8	0.80	45.8	57.3	0.449	0.097	0.127	0.28	NonLiqfble.
18.42       10       12.6       0.44       125       2218       1687       13.4       13.6       3.83       3.0       55.2       0.80       53.7       67.1       0.452       0.108       0.141       0.31       NonLiqfble.         18.51       10       13.1       0.48       125       2229       1693       13.9       14.2       4.01       2.9       55.2       0.80       55.7       69.7       0.453       0.111       0.145       0.32       NonLiqfble.         18.57       10       12.8       0.49       125       2237       1697       13.6       13.8       4.19       3.0       56.6       0.80       54.4       68.0       0.453       0.109       0.142       0.31       NonLiqfble.         18.66       10       12.5       0.47       125       2248       1702       13.3       13.4       4.13       3.0       57.0       0.80       53.0       66.2       0.453       0.109       0.142       0.31       NonLiqfble.         18.76       10       12.5       0.46       125       2260       1709       13.2       13.3       4.05       3.0       56.7       0.80       52.9       66.2       0.455																					
18.51       10       13.1       0.48       125       2229       1693       13.9       14.2       4.01       2.9       55.2       0.80       55.7       69.7       0.453       0.111       0.145       0.32       NonLiqfble.         18.57       10       12.8       0.49       125       2237       1697       13.6       13.8       4.19       3.0       56.6       0.80       54.4       68.0       0.453       0.109       0.142       0.31       NonLiqfble.         18.66       10       12.5       0.47       125       2248       1702       13.3       13.4       4.13       3.0       57.0       0.80       53.0       66.3       0.454       0.107       0.139       0.31       NonLiqfble.         18.76       10       12.5       0.46       125       2260       1709       13.2       13.3       4.05       3.7       2.9       53.5       0.80       57.5       71.8       0.455       0.107       0.139       0.31       NonLiqfble.         18.86       10       13.6       0.47       125       2273       1715       14.4       14.5       3.77       2.9       53.5       0.80       57.5       71.8																					
18.57       10       12.8       0.49       125       2237       1697       13.6       13.8       4.19       3.0       56.6       0.80       54.4       68.0       0.453       0.109       0.142       0.31       NonLigfble.         18.66       10       12.5       0.47       125       2248       1702       13.3       13.4       4.13       3.0       57.0       0.80       53.0       66.3       0.454       0.107       0.139       0.31       NonLigfble.         18.76       10       12.5       0.46       125       2260       1709       13.2       13.3       4.05       3.0       56.7       0.80       52.9       66.2       0.455       0.107       0.139       0.31       NonLigfble.         18.86       10       13.6       0.47       125       2273       1715       14.4       14.5       3.77       2.9       53.5       0.80       57.5       71.8       0.456       0.114       0.149       0.33       NonLigfble.         18.96       10       14       0.5       125       2285       1721       14.8       14.9       3.89       2.9       53.5       0.80       59.1       73.8       0.457																					
18.66       10       12.5       0.47       125       2248       1702       13.3       13.4       4.13       3.0       57.0       0.80       53.0       66.3       0.454       0.107       0.139       0.31       NonLighble.         18.76       10       12.5       0.46       125       2260       1709       13.2       13.3       4.05       3.0       56.7       0.80       52.9       66.2       0.455       0.107       0.139       0.31       NonLighble.         18.86       10       13.6       0.47       125       2273       1715       14.4       14.5       3.77       2.9       53.5       0.80       57.5       71.8       0.456       0.114       0.149       0.33       NonLighble.         18.96       10       14       0.5       125       2285       1721       14.8       14.9       3.89       2.9       53.5       0.80       59.1       73.8       0.457       0.117       0.153       0.33       NonLighble.																					
18.76     10     12.5     0.46     125     2260     1709     13.2     13.3     4.05     3.0     56.7     0.80     52.9     66.2     0.455     0.107     0.139     0.31     NonLigfble.       18.86     10     13.6     0.47     125     2273     1715     14.4     14.5     3.77     2.9     53.5     0.80     57.5     71.8     0.456     0.114     0.149     0.33     NonLigfble.       18.96     10     14     0.5     125     2285     1721     14.8     14.9     3.89     2.9     53.5     0.80     59.1     73.8     0.457     0.117     0.153     0.33     NonLigfble.																					
18.86 10 13.6 0.47 125 2273 1715 14.4 14.5 3.77 2.9 53.5 0.80 57.5 71.8 0.456 0.114 0.149 0.33 NonLiqfble. 18.96 10 14 0.5 125 2285 1721 14.8 14.9 3.89 2.9 53.5 0.80 59.1 73.8 0.457 0.117 0.153 0.33 NonLiqfble.																					-
18.96 10 14 0.5 125 2285 1721 14.8 14.9 3.89 2.9 53.5 0.80 59.1 73.8 0.457 0.117 0.153 0.33 NonLigible.																					
19.06 10 13.3 0.56 125 2298 1727 14.0 14.1 4.61 3.0 57.8 0.80 56.0 70.0 0.458 0.112 0.145 0.32 NonLiqfble.		18.96	10	14	0.5	125	2285	1721		14.9			53.5			73.8	0.457	0.117	0.153	0.33	
		19.06	10	13.3	0.56	125	2298	1727	14.0	14.1	4.61	3.0	57.8	0.80	56.0	70.0	0.458	0.112	0.145	0.32	NonLiqfble.

**EQ Magnitude** (M<sub>w</sub>): 6.5

**PGA (g):** 0.54

**MSF:** 1.30

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 28

Depth to Groundwater: 10 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Lianef.	Liquef.	Factor	
	Depth	Table		Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	Dqc1N	(qclN)cs	Ratio	M7.5	M6.50	Safety	Comments
	10.10	10	10	0.57	105	2210	1724	10.6	10.5	5.00	2.1	62.0	0.00	50.4	(2.0	0.450	0.102	0.124	0.20	N. 1: 01
	19.16 19.25	10 10	12 11.2	0.57 0.57	125 125	2310 2322	1734 1739	12.6 11.8	12.5 11.5	5.26 5.68	3.1	63.0 66.5	0.80	50.4 47.0	63.0 58.8	0.458 0.459	0.103	0.134 0.129	0.29 0.28	NonLiqfble. NonLiqfble.
	19.35	10	10.8	0.56	125	2334	1746	11.3	11.0	5.81	3.1	68.1	0.80	45.2	56.6	0.459	0.099	0.126	0.28	NonLiqfble.
	19.45	10	10.7	0.53	125	2347	1752	11.2	10.9	5.56	3.1	67.5	0.80	44.7	55.9	0.461	0.096	0.125	0.27	NonLiqfble.
	19.55	10	10.3	0.53	125	2359	1758	10.7	10.4	5.81	3.2	69.6	0.80	43.0	53.7	0.462	0.094	0.123	0.27	NonLiqfble.
	19.65	10	10.2	0.53	125	2372	1764	10.6	10.2	5.88	3.2	70.3	0.80	42.5	53.1	0.462	0.094	0.122	0.26	NonLiqfble.
	19.75	10	10	0.53	125	2384	1771	10.4	9.9	6.02	3.2	71.4	0.80	41.6	52.0	0.463	0.093	0.121	0.26	NonLiqfble.
	19.85	10	10.2	0.52	125	2397	1777	10.6	10.1	5.78	3.2	70.1	0.80	42.3	52.9	0.464	0.094	0.122	0.26	NonLiqfble.
	19.94 20.04	10 10	10.3 10.5	0.52 0.52	125 125	2408 2420	1783 1789	10.7 10.9	10.2 10.4	5.72 5.60	3.2	69.7 68.8	0.80	42.7 43.4	53.4 54.3	0.465 0.456	0.094 0.095	0.122 0.123	0.26 0.27	NonLiqfble.
	20.04	10	10.5	0.52	125	2420	1795	10.9	10.4	5.49	3.1	68.6	0.80	43.4	54.3	0.457	0.095	0.123	0.27	NonLiqfble. NonLiqfble.
	20.24	10	9.9	0.5	125	2445	1801	10.2	9.6	5.76	3.2	71.4	0.80	40.8	51.0	0.457	0.092	0.120	0.26	NonLiqfble.
	20.34	10	9.4	0.5	115	2458	1808	9.7	9.0	6.12	3.2	74.3	0.80	38.7	48.4	0.458	0.091	0.118	0.26	NonLiqfble.
	20.44	10	8.9	0.48	115	2469	1813	9.1	8.5	6.26	3.2	76.6	0.80	36.6	45.7	0.459	0.089	0.116	0.25	NonLiqfble.
	20.54	10	8.9	0.45	115	2481	1818	9.1	8.4	5.88	3.2	75.3	0.80	36.5	45.7	0.460	0.089	0.116	0.25	NonLiqfble.
	20.63	10	8.6	0.44	115	2491	1823	8.8	8.1	5.98	3.2	76.9	0.80	35.3	44.1	0.460	0.088	0.114	0.25	NonLiqfble.
	20.73	10	9.1	0.43	115	2503	1828	9.3	8.6 9.9	5.48	3.2	73.4	0.80	37.2	46.6	0.461	0.089	0.116	0.25	NonLiqfble.
	20.83 20.93	10 10	10.3 11.3	0.44 0.43	115 115	2514 2526	1833 1839	10.5 11.5	10.9	4.87 4.28	3.1	67.3 62.4	0.80	42.1 46.1	52.6 57.7	0.462 0.463	0.094 0.098	0.122 0.127	0.26 0.27	NonLiqfble. NonLiqfble.
	21.03	10	11.6	0.42	115	2537	1844	11.8	11.2	4.07	3.0	60.8	0.80	47.3	59.1	0.464	0.099	0.127	0.28	NonLiqfble.
	21.12	10	11.5	0.42	115	2548	1849	11.7	11.1	4.11	3.0	61.3	0.80	46.8	58.5	0.464	0.099	0.128	0.28	NonLiqfble.
	21.22	10	11.6	0.39	115	2559	1854	11.8	11.1	3.78	3.0	59.7	0.80	47.2	58.9	0.465	0.099	0.129	0.28	NonLiqfble.
	21.32	10	12.7	0.38	115	2571	1859	12.9	12.3	3.33	3.0	55.2	0.80	51.5	64.4	0.466	0.105	0.136	0.29	NonLiqfble.
	21.41	10	14	0.38	125	2581	1864	14.2	13.6	2.99	2.9	51.1	0.80	56.8	70.9	0.467	0.113	0.147	0.32	NonLiqfble.
	21.51	10	13.6	0.37	115	2593	1870	13.8	13.2	3.01	2.9	52.0	0.80	55.0	68.8	0.467	0.110	0.143	0.31	NonLiqfble.
	21.61 21.71	10 10	13.1 13.1	0.38	115 115	2605 2616	1875 1881	13.2 13.2	12.6 12.5	3.22 3.31	2.9 2.9	54.1 54.6	0.80	52.9 52.9	66.2 66.1	0.468 0.469	0.107 0.107	0.139 0.139	0.30	NonLiqfble. NonLiqfble.
	21.81	10	13.4	0.39	125	2628	1886	13.5	12.8	3.23	2.9	53.7	0.80	54.0	67.5	0.470	0.107	0.137	0.30	NonLiqfble.
	21.94	10	16.3	0.41	125	2644	1894	16.4	15.8	2.74	2.8	46.7	0.80	65.5	81.9	0.470	0.131	0.171	0.36	NonLiqfble.
	22.04	10	17.1	0.42	125	2657	1900	17.2	16.6	2.66	2.8	45.3	0.80	68.7	85.8	0.471	0.139	0.180	0.38	NonLiqfble.
	22.14	10	17.6	0.46	125	2669	1907	17.6	17.1	2.83	2.8	45.6	0.80	70.5	88.2	0.472	0.144	0.187	0.40	NonLiqfble.
	22.24	10	17.8	0.47	125	2682	1913	17.8	17.2	2.86	2.8	45.6	0.80	71.2	89.0	0.472	0.146	0.189	0.40	NonLiqfble.
	22.34	10	16.1	0.49	125	2694	1919	16.1	15.4	3.32	2.9	50.2	0.80	64.3	80.4	0.473	0.128	0.167	0.35	NonLiqfble.
	22.44 22.54	10 10	13.9 12.6	0.52 0.51	125 125	2707 2719	1925 1932	13.9 12.5	13.0 11.6	4.14 4.54	3.0	57.6 61.9	0.80	55.4 50.2	69.3 62.7	0.474 0.474	0.111	0.144 0.134	0.30 0.28	NonLiqfble. NonLiqfble.
	22.63	10	11.6	0.49	125	2730	1937	11.5	10.6	4.79	3.1	65.3	0.80	46.1	57.7	0.475	0.103	0.134	0.27	NonLiqfble.
	22.73	10	11.3	0.44	115	2743	1944	11.2	10.2	4.43	3.1	64.7	0.80	44.9	56.1	0.476	0.096	0.125	0.26	NonLiqfble.
	22.83	10	10.6	0.38	115	2754	1949	10.5	9.5	4.12	3.1	65.2	0.80	42.0	52.5	0.476	0.093	0.122	0.26	NonLiqfble.
	22.93	10	10.3	0.35	115	2766	1954	10.2	9.1	3.93	3.1	65.2	0.80	40.8	51.0	0.477	0.092	0.120	0.25	NonLiqfble.
	23.03	10	10.6	0.33	115	2777	1959	10.5	9.4	3.58	3.1	62.8	0.80	41.9	52.4	0.478	0.093	0.121	0.25	NonLiqfble.
	23.13	10	10.6	0.33	115	2789	1965	10.5	9.4	3.59	3.1	62.9	0.80	41.9	52.3	0.478	0.093	0.121	0.25	NonLiqfble.
	23.23 23.33	10 10	11 11.2	0.33 0.32	115 115	2800 2812	1970 1975	10.8 11.0	9.7 9.9	3.44 3.27	3.0	61.2 59.9	0.80	43.4 44.1	54.2 55.1	0.479 0.480	0.095 0.096	0.123 0.124	0.26 0.26	NonLiqfble. NonLiqfble.
	23.43	10	10.9	0.33	115	2823	1980	10.7	9.6	3.48	3.0	61.8	0.80	42.9	53.6	0.480	0.094	0.123	0.26	NonLiqfble.
	23.53	10	11.3	0.34	115	2835	1986	11.1	9.9	3.44	3.0	60.7	0.80	44.4	55.5	0.481	0.096	0.125	0.26	NonLiqfble.
	23.63	10	11.3	0.32	115	2846	1991	11.1	9.9	3.24	3.0	59.8	0.80	44.3	55.4	0.482	0.096	0.125	0.26	NonLiqfble.
	23.72	10	11.7	0.3	115	2857	1996	11.5	10.3	2.92	3.0	57.2	0.80	45.8	57.3	0.482	0.097	0.127	0.26	NonLiqfble.
	23.82	10	11.2	0.29	115	2868	2001	11.0	9.8	2.97	3.0	58.7	0.80	43.8	54.8	0.483	0.095	0.124	0.26	NonLiqfble.
	23.92 24.02	10 10	10.9 9.9	0.27 0.28	115 115	2880 2891	2006 2011	10.6 9.7	9.4 8.4	2.85 3.31	3.0	58.9 64.3	0.80	42.6 38.6	53.2 48.3	0.484 0.484	0.094	0.122 0.118	0.25 0.24	NonLiqfble. NonLiqfble.
	24.12	10	9.5	0.26	105	2903	2017	9.3	8.0	3.23	3.1	65.2	0.80	37.0	46.3	0.485	0.090	0.116	0.24	NonLiqfble.
	24.21	10	9.1	0.23	105	2912	2020	8.9	7.6	3.01	3.1	65.4	0.80	35.4	44.3	0.486	0.088	0.115	0.24	NonLiqfble.
	24.31	10	10.1	0.23	105	2923	2025	9.8	8.5	2.66	3.0	60.2	0.80	39.3	49.1	0.486	0.091	0.118	0.24	NonLiqfble.
	24.41	10	10	0.2	105	2933	2029	9.7	8.4	2.34	3.0	58.6	0.80	38.9	48.6	0.487	0.091	0.118	0.24	NonLiqfble.
	24.51	10	9.8	0.18	105	2944	2033	9.5	8.2	2.16	3.0	58.0	0.80	38.0	47.5	0.488	0.090	0.117	0.24	NonLiqfble.
	24.61	10	9.9	0.2	105	2954	2037	9.6	8.3	2.37	3.0	59.2	0.80	38.4	48.0	0.489	0.090	0.117	0.24	NonLiqfble.
	24.7 24.8	10 10	11 13.1	0.23 0.27	105 115	2964 2974	2041 2046	10.7 12.7	9.3 11.3	2.42 2.33	3.0 2.9	56.5 51.3	0.80	42.6 50.7	53.3 63.4	0.489 0.490	0.094 0.104	0.122 0.135	0.25 0.28	NonLiqfble. NonLiqfble.
	24.0	10	15.8	0.27	115	2974	2040	15.3	13.9	2.33	2.9	46.3	0.80	61.1	76.3	0.490	0.104	0.153	0.28	NonLiqfble.
	25	10	18.4	0.39	125	2997	2056	17.8	16.4	2.31	2.8	43.4	0.80	71.0	88.8	0.491	0.145	0.189	0.38	NonLiqfble.
	25.09	10	19.9	0.45	125	3008	2062	19.2	17.8	2.45	2.7	42.6	0.80	76.7	95.9	0.492	0.162	0.211	0.43	NonLiqfble.
	25.19	10	22.2	0.48	125	3021	2068	21.4	20.0	2.32	2.7	39.7	0.80	85.4	106.8	0.492	0.193	0.251	0.51	NonLiqfble.
	25.23	10	24	0.48	125	3026	2071	23.1	21.7	2.13	2.6	37.2	0.80	92.3	115.4	0.492	0.223	0.290	0.59	NonLiqfble.

Date: September 2005

Depth to Groundwater: 10 feet

Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30 CPT Number: 28

**EQ Magnitude** (M<sub>w</sub>): 6.5

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	( <b>q</b> c1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	25.28	10	26.1	0.49	125	3032	2074	25.1	23.7	1.99	2.6	34.8	0.80	97.4	122.5	0.493	0.251	0.326	0.66	Liquefaction
	25.38	10	25	0.47	125	3045	2080	24.0	22.6	2.00	2.6	35.7	0.80	95.9	119.9	0.493	0.231	0.313	0.63	NonLiqfble.
	25.47	10	22.1	0.45	125	3056	2086	21.2	19.7	2.19	2.7	39.2	0.80	84.7	105.9	0.494	0.190	0.247	0.50	NonLigfble.
	25.57	10	17.8	0.41	125	3068	2092	17.0	15.5	2.52	2.8	45.8	0.80	68.1	85.1	0.494	0.137	0.179	0.36	NonLiqfble.
	25.67	10	14.5	0.38	125	3081	2098	13.9	12.3	2.93	2.9	53.0	0.80	55.4	69.3	0.495	0.111	0.144	0.29	NonLiqfble.
	25.77	10	11.6	0.34	115	3093	2104	11.1	9.6	3.38	3.0	61.4	0.80	44.3	55.3	0.495	0.096	0.124	0.25	NonLiqfble.
	25.87	10	9.7	0.31	115	3105	2110	9.2	7.7	3.81	3.1	69.0	0.80	37.0	46.2	0.496	0.089	0.116	0.23	NonLiqfble.
	25.97	10	8.6	0.26	105	3116	2115	8.2	6.7	3.69	3.2	72.5	0.80	32.7	40.9	0.497	0.086	0.112	0.23	NonLiqfble.
	26.07	10	8.3	0.24	105	3127	2119	7.9	6.4	3.56	3.2	73.1	0.80	31.6	39.4	0.497	0.086	0.111	0.22	NonLiqfble.
	26.16	10	8.7	0.22	105	3136	2123	8.3	6.7	3.09	3.1	69.0	0.80	33.0	41.3	0.498	0.087	0.113	0.23	NonLiqfble.
	26.26	10	8.8	0.2	105	3147	2127	8.3	6.8	2.77	3.1	66.8	0.80	33.4	41.7	0.498	0.087	0.113	0.23	NonLiqfble.
	26.36	10 10	9.3 9.4	0.2	105	3157	2131	8.8	7.2	2.59	3.1	64.0	0.80	35.3	44.1 44.5	0.499	0.088	0.114 0.115	0.23	NonLiqfble.
	26.46 26.56	10	10	0.19 0.18	105 105	3168 3178	2136 2140	8.9 9.5	7.3 7.9	2.43 2.14	3.0	62.7 58.9	0.80	35.6 37.8	47.3	0.500 0.500	0.088	0.113	0.23	NonLiqfble. NonLiqfble.
	26.66	10	9.6	0.16	105	3189	2144	9.1	7.5	2.00	3.0	59.1	0.80	36.3	45.4	0.501	0.090	0.117	0.23	NonLiqfble.
	26.76	10	10.2	0.17	105	3199	2148	9.6	8.0	1.98	3.0	57.2	0.80	38.5	48.1	0.502	0.000	0.117	0.23	NonLiqfble.
	26.86	10	10.1	0.17	105	3210	2153	9.5	7.9	2.12	3.0	58.6	0.80	38.1	47.6	0.502	0.090	0.117	0.23	NonLiqfble.
	26.96	10	10.6	0.19	105	3220	2157	10.0	8.3	2.11	3.0	57.2	0.80	39.9	49.9	0.503	0.092	0.119	0.24	NonLigfble.
	27.05	10	11.4	0.22	105	3230	2161	10.7	9.1	2.25	3.0	8.3	0.09	1.0	11.8	0.504	0.080	0.104	0.21	NonLiqfble.
	27.15	10	13	0.27	115	3240	2165	12.2	10.5	2.37	2.9	8.3	0.09	1.2	13.4	0.504	0.080	0.104	0.21	NonLiqfble.
	27.25	10	14.6	0.31	115	3252	2170	13.7	12.0	2.39	2.9	8.3	0.09	1.3	15.0	0.505	0.080	0.104	0.21	NonLiqfble.
	27.35	10	17.6	0.37	125	3263	2176	16.5	14.7	2.32	2.8	8.3	0.09	1.6	18.1	0.505	0.081	0.105	0.21	NonLiqfble.
	27.44	10	23.9	0.57	125	3274	2181	22.4	20.4	2.56	2.7	8.3	0.09	2.2	24.6	0.506	0.081	0.106	0.21	NonLiqfble.
	27.54	10	27	0.91	135	3287	2188	25.3	23.2	3.59	2.8	8.3	0.09	2.4	27.7	0.506	0.082	0.107	0.21	NonLiqfble.
	27.63	10	37	1.08	135	3299	2194	34.6	32.2	3.06	2.6	8.3	0.09	3.3	37.9	0.507	0.085	0.111	0.22	Liquefaction
	27.72	10	45.7	1.39	135	3311	2201	42.6	40.0	3.16	2.5	8.3	0.09	4.1	46.7	0.507	0.089	0.116	0.23	Liquefaction
	27.82	10	59.3	1.65	135	3325	2208	55.2	52.2	2.86	2.4	8.3	0.09	5.3	60.6	0.507	0.101	0.131	0.26	Liquefaction
	27.92	10	66.1	1.79	135	3338	2215	61.4	58.1	2.78	2.4	8.3	0.09	5.9	67.4	0.508	0.108	0.141	0.28	Liquefaction
	28.01 28.11	10 10	70.6 76.3	1.84 1.33	135 135	3350 3364	2222 2229	65.5 70.7	62.0 66.9	2.67 1.78	2.4 2.2	8.3 8.3	0.09 0.09	6.3 6.8	71.9 77.5	0.508 0.509	0.115 0.123	0.149 0.160	0.29 0.32	Liquefaction Liquefaction
	28.2	10	64.7	1.37	135	3376	2229	59.9	56.4	2.17	2.2	8.3	0.09	5.8	65.7	0.509	0.123	0.100	0.32	Liquefaction
	28.3	10	52.8	1.6	135	3390	2243	48.8	45.6	3.13	2.5	8.3	0.09	4.7	53.5	0.509	0.100	0.138	0.24	Liquefaction
	28.33	10	54.7	1.68	135	3394	2245	50.5	47.2	3.17	2.5	8.3	0.09	4.9	55.4	0.509	0.096	0.125	0.24	Liquefaction
	28.42	10	52.3	1.78	135	3406	2251	48.2	44.9	3.52	2.5	8.3	0.09	4.7	52.9	0.510	0.094	0.122	0.24	Liquefaction
	28.52	10	45.6		135	3419	2259	42.0	38.8	4.12	2.6	8.3	0.09	4.1	46.0	0.510	0.089	0.116	0.23	NonLiqfble.
	28.61	10	43.7	1.6	135	3431	2265	40.2	37.1	3.81	2.6	36.3	0.80	160.7	200.9	0.510	0.834	1.084	2.12	NonLiqfble.
	28.71	10	51.5	1.5	135	3445	2272	47.3	43.8	3.01	2.5	30.5	0.68	101.0	148.2	0.511	0.383	0.498	0.97	Liquefaction
	28.81	10	58.7	1.52	135	3458	2280	53.8	50.0	2.67	2.4	27.2	0.59	77.9	131.7	0.511	0.293	0.380	0.74	Liquefaction
	28.9	10	48.6	1.42	135	3471	2286	44.5	41.0	3.03	2.5	31.5	0.71	108.1	152.6	0.512	0.410	0.533	1.04	Low F.S.
	29	10	39.2	1.14	135	3484	2294	35.8	32.7	3.04	2.6	35.1	0.80	143.3	179.1	0.512	0.614	0.798	1.56	
	29.09	10	32.6		135	3496	2300	29.7	26.8	4.12	2.7	42.9	0.80	119.0	148.7	0.512	0.386	0.502	0.98	NonLiqfble.
	29.19	10	29.4	1.57	135	3510	2307	26.8	24.0	5.68	2.9	50.5	0.80	107.1	133.9	0.513	0.303	0.394	0.77	NonLiqfble.
	29.28	10	35.5	1.52	135	3522	2314	32.3	29.2	4.51	2.7	42.9	0.80	129.2	161.5	0.513	0.471	0.613	1.19	NonLiqfble.
	29.37	10	64.1	1.45	135	3534	2320	58.2	53.7	2.33	2.4	24.6	0.52	64.0	122.2	0.513	0.250	0.325	0.63	Liquefaction
	29.45	10	109	1.42	135	3545	2326	98.9	92.2	1.32	2.0	13.4	0.22	28.6	127.5	0.513	0.273	0.355	0.69	Liquefaction
	29.55	10	135.2 146.7	1.34	125	3558	2333	122.5	114.3	1.00	1.9	9.6	0.12	17.2	139.7	0.514	0.333	0.433	0.84	Liquefaction
	29.64 29.73	10 10	146.7 153.1	1.28 1.27	125 125	3570 3581	2339 2345	132.7 138.3	123.9 129.0	0.88 0.84	1.8 1.8	8.2 7.6	0.09 0.07	12.5 10.4	145.2 148.8	0.514 0.515	0.365 0.386	0.474	0.92	Liquefaction Liquefaction
	29.73	10	153.1	1.27	125	3592	2345	138.3	132.7	0.84	1.8	7.6	0.07	10.4 9.4	148.8	0.515	0.386	0.502	1.02	Liquefaction Low F.S.
	29.62	10	163.7	1.32	125	3603	2356	142.4	137.4	0.82	1.8	7.0	0.06	8.5	151.8	0.515	0.405	0.564	1.02	Low F.S.
	30	10	167.2		115	3615	2362	150.5	140.0	0.82	1.7	6.6	0.03	6.8	157.4	0.313	0.434	0.575	1.16	Low F.S.
	30.09	10	161.1	1.23	115	3625	2366	144.9	134.6	0.77	1.7	6.9	0.05	7.6	152.5	0.495	0.410	0.533	1.08	Low F.S.
		- 0		0																

Total Effective Norm. Corr. Friction

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 29

Depth to Groundwater: 12 feet

Water Tip Sleeve

**EQ Magnitude (M<sub>w</sub>):** 6.5 **PGA (g):** 0.54 MSF: 1.30

Induced Liquef. Liquef. Factor

	Donth	Table	Dogiet	Sieeve	~	Ctross	Effective	Norm.	COIT.	Potio		F.C.					Stress	Etwass	of	
	Depth		Resist.	Frict.	g (DCF)	Stress	Stress	Tip	Tip	Ratio			Ксрт	Da	(a)	Stress		Stress		G .
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	KCPI	Dqe1N	( <b>q</b> cIN)es	Ratio	M7.5	M6.50	Safety	Comments
	0.54		0404	0.70	405					0.05			0.00			0.051	21 200	25 500	<b>5</b> 0.00	
	0.51	12	319.1	2.72	125	64	64	611.1	######	0.85	1.3	0.1	0.00	0.0	611.1	0.351		27.700	78.92	Above W.T.
	0.55	12	310.4	2.56	125	69	69	594.5	9025.0	0.82	1.2	-0.2	0.00	0.0	594.5	0.351		25.504	72.66	Above W.T.
	0.6	12	304.9	2.37	125	75	75	583.9	8126.3	0.78	1.2	-0.6	0.00	0.0	583.9	0.351		24.178	68.88	Above W.T.
	0.65	12 12	293.2	2.46	125	81	81	561.5	7213.2	0.84	1.2	-0.5	0.00	0.0	561.5	0.351		21.511 19.497	61.29	Above W.T.
	0.7 0.74	12	283.7 275.2	1.97 1.79	115 115	88 92	88 92	543.3 527.1	6480.9 5972.6	0.69	1.1	-1.2 -1.5	0.00	0.0	543.3 527.1	0.351	14.998 13.697	17.806	55.55 50.73	Above W.T. Above W.T.
	0.74	12	265	1.65	115	98	98	507.5	5413.2	0.65 0.62	1.1 1.0	-1.7	0.00	0.0	507.5	0.351		15.909	45.33	Above W.T.
	0.73	12	258.7	1.53	115	104	104	495.5	4991.1	0.59	1.0	-1.8	0.00	0.0	495.5	0.351	11.391	14.809	42.19	Above W.T.
	0.89	12	252.7	1.47	115	109	109	484.0	4618.9	0.58	1.0	-1.9	0.00	0.0	484.0	0.351	10.622	13.809	39.34	Above W.T.
	0.92	12	244.8	1.43	115	113	113	468.8	4337.6	0.58	1.0	-1.9	0.00	0.0	468.8	0.351	9.664	12.564	35.79	Above W.T.
	0.97	12	238.4	1.36	115	119	119	456.6	4019.3	0.57	1.0	-2.0	0.00	0.0	456.6	0.351	8.932	11.612	33.08	Above W.T.
	1.04	12	237.4	1.26	115	127	127	454.7	3747.8	0.53	1.0	-2.2	0.00	0.0	454.7	0.351	8.821	11.467	32.67	Above W.T.
	1.13	12	236.7	1.17	105	137	137	453.3	3454.3	0.49	0.9	-2.4	0.00	0.0	453.3	0.351	8.744	11.367	32.39	Above W.T.
	1.22	12	232.5	1.15	105	146	146	445.3	3173.9	0.49	0.9	-2.4	0.00	0.0	445.3	0.351	8.291	10.778	30.71	Above W.T.
	1.3	12	215.3	1.17	115	155	155	412.3	2779.5	0.54	1.0	-2.2	0.00	0.0	412.3	0.351	6.600	8.580	24.44	Above W.T.
	1.39	12	185	1.23	115	165	165	354.3	2238.5	0.67	1.0	-1.7	0.00	0.0	354.3	0.351	4.217	5.482	15.62	Above W.T.
	1.48	12	160.2	1.36	125	176	176	306.8	1823.9	0.85	1.2	-0.8	0.00	0.0	306.8	0.351	2.766	3.596	10.24	Above W.T.
	1.56	12	138.8	1.38	125	186	186	265.8	1494.9	0.99	1.3	-0.1	0.00	0.0	265.8	0.351	1.827	2.375	6.77	Above W.T.
	1.65	12	113.4	1.33	125	197	197	217.2	1151.3	1.17	1.4	1.0	0.00	0.0	217.2	0.351	1.033	1.343	3.82	Above W.T.
	1.73	12	86.2	1.41	135	207	207	165.1	832.5	1.64	1.5	3.4	0.00	0.0	165.1	0.351	0.498	0.648	1.85	Above W.T.
	1.82	12	67.9	1.45	135	219	219	130.0	619.1	2.14	1.7	6.0	0.03	3.5	133.5	0.351	0.301	0.392	1.12	Above W.T.
	1.9	12	52.6	1.24	135	230	230	100.7	456.8	2.36	1.8	7.9	0.08	8.3	109.1	0.351	0.201	0.261	0.74	Above W.T.
	1.99	12	41	1.16	135	242	242	78.5	337.9	2.84	1.9	10.9	0.16	14.6	93.1	0.351	0.155	0.202	0.57	Above W.T.
	2.07	12	33.4	1.18	135	253	253	64.0	263.3	3.55	2.1	14.6	0.26	21.9	85.9	0.351	0.139	0.181	0.51	Above W.T.
	2.13	12	30.3	1.19	135	261	261	58.0	231.3	3.94	2.1	16.6	0.31	26.1	84.1	0.351	0.135	0.176	0.50	Above W.T.
	2.21	12	30.1	1.17	135	272	272	57.6	220.6	3.90	2.1	16.8	0.32	26.6	84.3	0.351	0.136	0.176	0.50	Above W.T.
	2.3	12	32.3	1.11	135	284	284	61.9	226.6	3.45	2.1	15.3	0.27	23.3	85.2	0.351	0.138	0.179	0.51	Above W.T.
	2.38 2.47	12 12	26 22.6	1.12 1.09	135 135	295 307	295 307	49.8 43.3	175.5 146.3	4.33 4.86	2.2 2.3	19.8 22.9	0.40 0.48	32.7 39.6	82.5 82.9	0.351 0.351	0.132 0.133	0.172 0.173	0.49 0.49	Above W.T. Above W.T.
	2.55	12	21.7	1.03	135	317	317	41.6	135.7	4.78	2.3	23.4	0.48	40.1	81.7	0.351	0.133	0.173	0.49	Above W.T.
	2.63	12	22.1	1.09	135	328	328	42.3	133.6	4.78	2.3	24.1	0.49	43.9	86.2	0.351	0.131	0.170	0.52	Above W.T.
	2.72	12	25.6	1.14	135	340	340	49.0	149.3	4.48	2.3	21.7	0.44	39.3	88.3	0.351	0.144	0.187	0.53	Above W.T.
	2.8	12	27.6	1.23	135	351	351	52.9	156.1	4.49	2.3	21.3	0.43	40.6	93.5	0.351	0.156	0.203	0.58	Above W.T.
	2.88	12	29.6	1.32	135	362	362	56.7	162.5	4.49	2.3	20.9	0.43	42.0	98.6	0.351	0.169	0.220	0.63	Above W.T.
	2.97	12	30.1	1.56	135	374	374	57.6	159.8	5.22	2.3	23.1	0.48	53.7	111.3	0.351	0.208	0.271	0.77	Above W.T.
	3.05	12	31.2	1.48	135	385	385	59.8	161.0	4.77	2.3	21.8	0.45	48.6	108.4	0.351	0.198	0.258	0.73	Above W.T.
	3.14	12	35.4	1.37	135	397	397	67.8	177.2	3.89	2.2	18.5	0.36	38.0	105.8	0.351	0.190	0.247	0.70	Above W.T.
	3.23	12	26.8	1.27	135	409	409	51.3	129.9	4.78	2.3	23.8	0.50	51.7	103.0	0.351	0.182	0.236	0.67	Above W.T.
	3.32	12	26.9	1.27	135	421	421	51.5	126.6	4.76	2.3	24.0	0.51	53.0	104.5	0.351	0.186	0.242	0.69	Above W.T.
	3.41	12	27	1.18	135	434	434	51.7	123.5	4.41	2.3	23.2	0.49	48.9	100.6	0.351	0.175	0.227	0.65	Above W.T.
	3.49	12	26.4	1.26	135	444	444	50.6	117.8	4.81	2.4	24.9	0.53	57.1	107.7	0.351	0.196	0.255	0.73	Above W.T.
	3.58	12	29.1	1.47	135	457	457	55.7	126.4	5.09	2.4	24.9	0.53	63.4	119.1	0.351	0.237	0.308	0.88	Above W.T.
	3.67	12	30.7	1.68	135	469	469	58.8	130.0	5.51	2.4	25.8	0.56	73.4	132.2	0.351	0.295	0.383	1.09	Above W.T.
	3.76	12	35.2	1.93	135	481	481	67.4	145.4	5.52	2.4	24.7	0.53	75.0	142.4	0.351	0.349	0.453	1.29	Above W.T.
	3.85	12	40.5	2.18	135	493	493	77.6	163.2	5.42	2.3	23.4	0.49	74.8	152.4	0.351	0.409	0.532	1.52	Above W.T.
	3.94	12	45.7	2.38	135	505	505	87.5	179.9	5.24	2.3	22.1	0.46	73.5	161.0	0.351	0.468	0.608	1.73	Above W.T.
	4.03	12	48.1	2.48	135	517	517	92.1	184.9	5.18	2.3	21.7	0.45	74.3	166.4	0.351	0.509	0.661	1.88	Above W.T.
	4.12	12	50.3	2.52	135	529	529	95.7	188.9	5.04	2.3	21.2	0.43	72.6	168.3	0.351	0.523	0.680	1.94	Above W.T.
	4.21	12	49.9	2.47	135	542	542	93.8	183.2	4.98	2.3	21.3	0.43	72.0	165.8	0.351	0.504	0.655	1.87	Above W.T.
	4.3	12	51.1	2.37	135	554	554	95.0	183.5	4.66	2.2	20.4	0.41	66.4	161.4	0.351	0.471	0.612	1.74	Above W.T.
	4.38 4.47	12	50.4	2.29 2.25	135	565	565	92.8 93.3	177.5 176.5	4.57	2.2	20.4	0.41	64.9	157.7	0.351	0.445	0.578	1.65	Above W.T.
		12 12	51.2 52.8	2.18	135 135	577 589	577		178.3	4.42	2.2	20.0 19.2	0.40	62.6 58.0	155.9	0.351 0.351	0.432 0.415	0.562	1.60 1.54	Above W.T. Above W.T.
	4.56 4.65	12	52.6 55	2.16	135	601	589 601	95.2 98.2	182.0	4.15 3.91	2.2 2.2	18.3	0.38 0.36	54.1	153.2 152.3	0.351	0.413	0.539 0.531	1.54	Above W.T.
	4.74	12	57.7	2.09	135	613	613	102.0	187.1	3.64	2.1	17.3	0.33	49.6	151.5	0.351	0.404	0.525	1.49	Above W.T.
	4.83	12	56.4	2.1	135	625	625	98.7	179.3	3.74	2.2	17.9	0.34	51.9	150.6	0.351	0.397	0.523	1.47	Above W.T.
	4.91	12	54.5	2.13	135	636	636	94.6	170.3	3.93	2.2	18.9	0.37	55.8	150.3	0.351	0.396	0.517	1.47	Above W.T.
	5	12	52.6	2.12	135	648	648	90.4	161.2	4.06	2.2	19.7	0.39	58.6	149.0	0.351	0.388	0.504	1.44	Above W.T.
	5.09	12	48.6	1.96	135	660	660	82.7	146.1	4.06	2.2	20.6	0.42	59.0	141.8	0.351	0.345	0.449	1.28	Above W.T.
	5.18	12	46.4	1.74	135	673	673	78.3	136.9	3.78	2.2	20.3	0.41	54.0	132.3	0.351	0.295	0.384	1.09	Above W.T.
	5.27	12	42.2	1.39	135	685	685	70.6	122.2	3.32	2.2	19.8	0.39	46.1	116.6	0.351	0.228	0.296	0.84	Above W.T.
	5.36	12	39.1	1.13	135	697	697	64.8	111.2	2.92	2.2	19.2	0.38	39.6	104.4	0.351	0.186	0.241	0.69	Above W.T.

Date: September 2005 CPT Number: 29

Depth to Groundwater: 12 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress	•	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	DqcIN	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	F 4F	10	00	0.07	105	700	700	40.2	02.6	2.27	2.2	22.5	0.40	47.0	07.2	0.251	0.165	0.215	0.61	41 W.T.
	5.45 5.54	12 12	30 26.2	0.97 0.92	135 135	709 721	709 721	49.3 42.7	83.6 71.6	3.27 3.56	2.3	23.5 26.3	0.49 0.57	47.9 56.2	97.2 98.9	0.351	0.165 0.170	0.215 0.221	0.61 0.63	Above W.T. Above W.T.
	5.63	12	25.3	0.96	135	733	733	40.9	68.0	3.85	2.4	28.0	0.61	64.8	105.7	0.351	0.170	0.247	0.70	Above W.T.
	5.72	12	28.2		135	745	745	45.2	74.6	4.24	2.4	28.2	0.62	73.2	118.4	0.351	0.234	0.305	0.87	Above W.T.
	5.81	12	33.2	1.38	135	758	758	52.8	86.6	4.20	2.4	26.3	0.57	69.6	122.4	0.351	0.251	0.326	0.93	Above W.T.
	5.9	12	43.8	1.49	135	770	770	69.1	112.8	3.43	2.3	20.9	0.43	51.2	120.3	0.351	0.242	0.314	0.90	Above W.T.
	5.99	12	57.9	1.54	135	782 793	782	90.6	147.0	2.68	2.1	15.8	0.29	36.8	127.4	0.351	0.272 0.277	0.354	1.01	Above W.T. Above W.T.
	6.07 6.16	12 12	61.5 65.7	1.5 1.31	135 135	805	793 805	95.6 101.3	154.1 162.2	2.45 2.01	2.1	14.6 12.3	0.26 0.20	32.8 24.6	128.4 125.9	0.351 0.351	0.277	0.360 0.345	1.03 0.98	Above W.T.
	6.25	12	66.9	1.15	135	817	817	102.4	162.7	1.73	1.9	11.0	0.16	19.7	122.1	0.351	0.249	0.324	0.92	Above W.T.
	6.34	12	64.3	1.03	135	829	829	97.7	154.0	1.61	1.9	10.9	0.16	18.1	115.8	0.351	0.224	0.292	0.83	Above W.T.
	6.42	12	60.6	0.92	125	840	840	91.5	143.2	1.53	1.9	11.0	0.16	17.3	108.8	0.351	0.200	0.260	0.74	Above W.T.
	6.51	12	58.5	0.85	125	851	851	87.7	136.4	1.46	1.9	11.0	0.16	16.7	104.4	0.351	0.186	0.242	0.69	Above W.T.
	6.6 6.69	12 12	58.6 60.3	0.84 0.81	125 125	862 874	862 874	87.3 89.3	134.8 137.0	1.44 1.35	1.9 1.9	11.0 10.4	0.16 0.14	16.5 14.9	103.8 104.1	0.351	0.184 0.185	0.239 0.241	0.68 0.69	Above W.T. Above W.T.
	6.78	12	62.1	0.8	125	885	885	91.3	139.3	1.30	1.9	9.9	0.13	13.8	105.2	0.351	0.188	0.245	0.70	Above W.T.
	6.87	12	64.1	0.76	125	896	896	93.7	142.0	1.19	1.8	9.2	0.11	11.8	105.5	0.351	0.189	0.246	0.70	Above W.T.
	6.96	12	65.4	0.69	125	907	907	95.0	143.1	1.06	1.8	8.4	0.09	9.4	104.4	0.351	0.186	0.241	0.69	Above W.T.
	7.04	12	66	0.64	125	917	917	95.3	142.8	0.98	1.8	7.8	0.08	7.8	103.2	0.351	0.182	0.237	0.67	Above W.T.
	7.13 7.22	12	65.8	0.58	125	929	929	94.5	140.7	0.89	1.8	7.4	0.06	6.4	100.9	0.351	0.175	0.228	0.65	Above W.T. Above W.T.
	7.22	12 12	65.2 63.8	0.54 0.52	115 115	940 950	940 950	93.1 90.6	137.7 133.2	0.83 0.82	1.8 1.8	7.2 7.3	0.06 0.06	5.7 5.9	98.7 96.4	0.351 0.351	0.170 0.163	0.220 0.212	0.63 0.61	Above W.T.
	7.39	12	61.8	0.47	115	959	959	87.3	127.8	0.77	1.8	7.2	0.06	5.4	92.7	0.351	0.154	0.200	0.57	Above W.T.
	7.48	12	57.1	0.48	115	970	970	80.2	116.7	0.85	1.8	8.4	0.09	8.0	88.2	0.351	0.144	0.187	0.53	Above W.T.
	7.57	12	52.3	0.6	125	980	980	73.1	105.7	1.16	1.9	11.2	0.17	14.6	87.6	0.351	0.143	0.185	0.53	Above W.T.
	7.66	12	47.2	0.74	125	991	991	65.6	94.2	1.58	2.1	14.7	0.26	22.9	88.5	0.351	0.145	0.188	0.54	Above W.T.
	7.75 7.83	12 12	39.2 34.2	0.83 0.87	135 135	1003 1013	1003 1013	54.2 47.0	77.2 66.5	2.14 2.58	2.2	19.5 23.2	0.39 0.49	34.4 44.6	88.5 91.6	0.351	0.145 0.151	0.188 0.197	0.54 0.56	Above W.T. Above W.T.
	7.92	12	32.6	0.86	135	1015	1015	44.5	62.5	2.68	2.3	24.4	0.49	47.8	92.3	0.351	0.151	0.197	0.57	Above W.T.
	8.01	12	37.4	0.86	135	1038	1038	50.8	71.0	2.33	2.3	21.3	0.44	39.2	90.0	0.351	0.148	0.192	0.55	Above W.T.
	8.09	12	38.6	0.85	135	1049	1049	52.2	72.6	2.23	2.2	20.6	0.42	37.3	89.5	0.351	0.147	0.191	0.54	Above W.T.
	8.18	12	31.9	0.85	135	1061	1061	42.9	59.1	2.71	2.4	25.2	0.54	50.2	93.0	0.351	0.155	0.201	0.57	Above W.T.
	8.27	12	23.5	0.8	135	1073	1073	31.4	42.8	3.48	2.5	32.8	0.74	90.6	122.0	0.351	0.249	0.323	0.92	Above W.T.
	8.36 8.44	12 12	20 16.8	0.8 0.75	125 125	1085 1095	1085 1095	26.6 22.2	35.9 29.7	4.11 4.61	2.7 2.7	37.9 42.9	0.80 0.80	106.3 88.9	132.8 111.1	0.351 0.351	0.298 0.207	0.387 0.270	1.10 0.77	Above W.T. Above W.T.
	8.53	12	16.8	0.78	125	1106	1106	22.1	29.4	4.80	2.8	43.8	0.80	88.4	110.5	0.351	0.207	0.270	0.76	Above W.T.
	8.62	12	18.6	0.77	125	1118	1118	24.3	32.3	4.27	2.7	40.3	0.80	97.4	121.7	0.351	0.248	0.322	0.92	Above W.T.
	8.67	12	18.3	0.74	125	1124	1124	23.9	31.6	4.17	2.7	40.3	0.80	95.5	119.4	0.351	0.238	0.310	0.88	Above W.T.
	8.75	12	15.8	0.74	125	1134	1134	20.5	26.9	4.86	2.8	45.6	0.80	82.1	102.7	0.351	0.181	0.235	0.67	Above W.T.
	8.85	12 12	14.2	0.66	125	1146	1146	18.4	23.8	4.84	2.8	47.8	0.80	73.4	91.8	0.351	0.152	0.197	0.56	Above W.T.
	8.93 9.02	12	12.7 11.9	0.56 0.52	125 125	1156 1168	1156 1168	16.3 15.2	21.0 19.4	4.62 4.60	2.9 2.9	49.4 50.9	0.80 0.80	65.4 61.0	81.7 76.2	0.351	0.131 0.121	0.170 0.157	0.48 0.45	Above W.T. Above W.T.
	9.11	12	11.3	0.61	125	1179	1179	14.4	18.2	5.70	3.0	56.1	0.80	57.6	72.0	0.351	0.115	0.149	0.42	Above W.T.
	9.2	12	12.5	0.7	125	1190	1190	15.9	20.0	5.88	2.9	54.7	0.80	63.4	79.3	0.351	0.126	0.164	0.47	Above W.T.
	9.29	12	17.8	0.63	125	1201	1201	22.5	28.6	3.66	2.7	39.9	0.80	89.9	112.4	0.351	0.212	0.275	0.78	Above W.T.
	9.38	12	29.1	0.54	125	1213	1213	36.6	47.0	1.90	2.3	24.0	0.51	37.8	74.4	0.351	0.118	0.154	0.44	Above W.T.
	9.47 9.56	12 12	39.2 38.5	0.46 0.45	125 125	1224 1235	1224 1235	49.0 47.9	63.0 61.3	1.19 1.19	2.1	16.2 16.5	0.30 0.31	21.0 21.3	70.1 69.2	0.351	0.112 0.111	0.146 0.144	0.41 0.41	Above W.T.
	9.65	12	31.4	0.45	115		1235	38.9	49.4	1.14	2.1	18.6	0.36	22.1	61.0	0.351	0.111	0.144	0.41	Above W.T. Above W.T.
	9.74	12	25.2	0.43	125	1257	1257	31.1	39.1	1.75	2.4	25.6	0.55	38.1	69.2	0.351	0.111	0.144	0.41	Above W.T.
	9.83	12	17.5	0.41	125	1268	1268	21.5	26.6	2.43	2.6	35.4	0.80	86.0	107.5	0.351	0.196	0.254	0.72	Above W.T.
	9.92	12	13.4	0.35	115		1279	16.4	19.9	2.74	2.7	42.1	0.80	65.6	82.0	0.351	0.131	0.171	0.49	Above W.T.
	10.01	12	10.4	0.33	115	1289	1289	12.7	15.1	3.38	2.9	50.9	0.80	50.7	63.4	0.344	0.104	0.135	0.39	Above W.T.
	10.1 10.19	12 12	8.8 7.6	0.32	115 115	1300 1310	1300 1310	10.7 9.2	12.5 10.6	3.93 4.32	3.0	57.5 63.3	0.80 0.80	42.7 36.7	53.4 45.9	0.344	0.094 0.089	0.122 0.116	0.36 0.34	Above W.T. Above W.T.
	10.13	12	7.3	0.29	105	1321	1321	8.8	10.0	4.37	3.1	64.8	0.80	35.2	43.9	0.344	0.089	0.110	0.34	Above W.T.
	10.37	12	6.9	0.31	105	1330	1330	8.3	9.4	4.97	3.1	69.1	0.80	33.1	41.4	0.344	0.087	0.113	0.33	Above W.T.
	10.46	12	6.5	0.35	115	1339	1339	7.8	8.7	6.00	3.2	74.9	0.80	31.1	38.9	0.344	0.085	0.111	0.32	Above W.T.
	10.55	12	6.5	0.34	105	1350	1350	7.7	8.6	5.84	3.2	74.5	0.80	31.0	38.7	0.344	0.085	0.111	0.32	Above W.T.
	10.64	12	6.5	0.33	105	1359	1359	7.7	8.6	5.67	3.2	74.1	0.80	30.9	38.6	0.344	0.085	0.111	0.32	Above W.T.
	10.72 10.82	12 12	6.7 6.2	0.35 0.35	115 105	1368 1379	1368 1379	7.9 7.3	8.8 8.0	5.82 6.35	3.2	74.0 78.5	0.80 0.80	31.7 29.2	39.6 36.5	0.344 0.344	0.086 0.085	0.112 0.110	0.32 0.32	Above W.T. Above W.T.
	10.62	12		0.35	105	1379	1379	7.0	7.6	6.79	3.3	81.2	0.80	28.2	35.2	0.344	0.083	0.110	0.32	Above W.T.
			·																	

Date: September 2005 CPT Number: 29

Depth to Groundwater: 12 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.		g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress	•	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(q <sub>c1N</sub> ) <sub>cs</sub>	Ratio	M7.5	M6.50	Safety	Comments
	10.99	12	6.1	0.37	115	1397	1397	7.1	7.7	6.85	3.3	81.1	0.80	28.6	35.7	0.344	0.084	0.110	0.32	Above W.T.
	11.08	12	5.6	0.37	105	1407	1407	6.5	7.0	7.56	3.4	86.4	0.80	26.1	32.7	0.344	0.083	0.110	0.31	Above W.T.
	11.17	12	6	0.37	105	1417	1417	7.0	7.5	6.99	3.3	82.5	0.80	27.9	34.9	0.344	0.084	0.109	0.32	Above W.T.
	11.26	12	6	0.37	105	1426	1426	7.0	7.4	7.00	3.3	82.8	0.80	27.8	34.8	0.344	0.084	0.109	0.32	Above W.T.
	11.35	12	6.2	0.37	115	1436	1436	7.2	7.6	6.75	3.3	81.1	0.80	28.6	35.8	0.344	0.084	0.110	0.32	Above W.T.
	11.44 11.53	12 12	6.1 5.7	0.38	115 105	1446 1456	1446 1456	7.0 6.5	7.4 6.8	7.07 7.84	3.3	82.9 87.9	0.80	28.1 26.1	35.1 32.7	0.344 0.344	0.084 0.083	0.109 0.108	0.32	Above W.T. Above W.T.
	11.62	12	6.1	0.39	115	1466	1466	7.0	7.3	7.27	3.3	84.0	0.80	27.9	34.9	0.344	0.083	0.108	0.31	Above W.T.
	11.71	12	6.7	0.41	115	1476	1476	7.6	8.1	6.88	3.3	79.9	0.80	30.5	38.2	0.344	0.085	0.111	0.32	Above W.T.
	11.8	12	6.9	0.42	115	1487	1487	7.8	8.3	6.82	3.3	79.1	0.80	31.3	39.2	0.344	0.086	0.111	0.32	Above W.T.
	11.89	12	7.3	0.44	115	1497	1497	8.3	8.7	6.72	3.3	77.2	0.80	33.0	41.3	0.344	0.087	0.113	0.33	Above W.T.
	11.96	12	8.7	0.45	115	1505	1505	9.8	10.6	5.66	3.1	68.6	0.80	39.3	49.1	0.344	0.091	0.118	0.34	Above W.T.
	12.05 12.15	12 12	9.2 9.3	0.43 0.42	115 115	1515 1527	1510 1515	10.4 10.5	11.2 11.3	5.09 4.92	3.1	65.1 64.2	0.80	41.4 41.8	51.8 52.3	0.345 0.347	0.093	0.121 0.121	0.35 0.35	NonLiqfble. NonLiqfble.
	12.13	12	9.5	0.42	115	1537	1520	10.7	11.5	4.70	3.1	62.9	0.80	42.7	53.3	0.347	0.093	0.121	0.35	NonLiqfble.
	12.33	12	9.4	0.39	115	1547	1524	10.5	11.3	4.52	3.1	62.5	0.80	42.1	52.7	0.349	0.094	0.122	0.35	NonLiqfble.
	12.42	12	10.3	0.4	115	1558	1529	11.5	12.4	4.20	3.0	58.9	0.80	46.1	57.6	0.350	0.098	0.127	0.36	NonLiqfble.
	12.51	12	10.3	0.49	125	1568	1534	11.5	12.4	5.15	3.1	62.8	0.80	46.0	57.5	0.352	0.098	0.127	0.36	NonLiqfble.
	12.6	12	11.3	0.55	125	1579	1539	12.6	13.6	5.23	3.0	60.9	0.80	50.4	63.0	0.353	0.103	0.134	0.38	NonLiqfble.
	12.69	12	11	0.61	125	1591	1545	12.2	13.2	5.98	3.1	64.3	0.80	49.0	61.2	0.354	0.101	0.132	0.37	NonLiqfble.
	12.78 12.87	12 12	10.9 10.6	0.66 0.69	125 125	1602 1613	1551 1556	12.1 11.8	13.0 12.6	6.54 7.05	3.1	66.4 68.8	0.80	48.4 47.0	60.6 58.8	0.355 0.357	0.101 0.099	0.131 0.129	0.37 0.36	NonLiqfble. NonLiqfble.
	12.96	12	11	0.66	125	1624	1562	12.2	13.0	6.48	3.1	66.2	0.80	48.7	60.9	0.358	0.101	0.123	0.37	NonLiqfble.
	13.05	12	10.7	0.65	125	1636	1568	11.8	12.6	6.58	3.1	67.3	0.80	47.3	59.1	0.359	0.099	0.129	0.36	NonLiqfble.
	13.14	12	10.8	0.63	125	1647	1573	11.9	12.7	6.32	3.1	66.4	0.80	47.7	59.6	0.360	0.100	0.130	0.36	NonLiqfble.
	13.23	12	10.8	0.62	125	1658	1579	11.9	12.6	6.22	3.1	66.1	0.80	47.6	59.5	0.361	0.100	0.129	0.36	NonLiqfble.
	13.32	12	11.1	0.62	125	1669	1585	12.2	13.0	6.04	3.1	64.9	0.80	48.8	61.0	0.362	0.101	0.131	0.36	NonLiqfble.
	13.41	12	10.8	0.63	125 125	1681 1693	1590	11.9	12.5	6.33	3.1	66.7	0.80	47.4	59.3	0.364	0.099	0.129	0.36	NonLiqfble.
	13.51 13.6	12 12	11.7 11.3	0.64 0.65	125	1704	1596 1602	12.8 12.4	13.6 13.0	5.90 6.22	3.1	63.3 65.4	0.80	51.2 49.4	64.1 61.8	0.365 0.366	0.104 0.102	0.136 0.132	0.37 0.36	NonLiqfble. NonLiqfble.
	13.68	12	10.4	0.66	125	1714	1607	11.4	11.9	6.92	3.2	69.9	0.80	45.4	56.8	0.367	0.097	0.126	0.34	NonLiqfble.
	13.78	12	10.7	0.65	125	1727	1613	11.7	12.2	6.61	3.1	68.3	0.80	46.6	58.3	0.368	0.098	0.128	0.35	NonLiqfble.
	13.86	12	10.8	0.61	125	1737	1618	11.7	12.3	6.14	3.1	66.6	0.80	47.0	58.7	0.369	0.099	0.128	0.35	NonLiqfble.
	13.95	12	10.6	0.6	125	1748	1624	11.5	12.0	6.17	3.1	67.3	0.80	46.0	57.5	0.370	0.098	0.127	0.34	NonLiqfble.
	14.04	12	10.4	0.62	125	1759	1630	11.3	11.7	6.51	3.1	69.0	0.80	45.1	56.4	0.371	0.097	0.126	0.34	NonLiqfble.
	14.13 14.22	12 12	11.5 11.8	0.65 0.65	125 125	1771 1782	1635 1641	12.4 12.7	13.0 13.3	6.12 5.96	3.1	65.2 64.0	0.80	49.8 51.0	62.2 63.7	0.372 0.374	0.102 0.104	0.133 0.135	0.36 0.36	NonLiqfble. NonLiqfble.
	14.31	12	11.1	0.65	125	1793	1647	12.7	12.4	6.37	3.1	67.1	0.80	47.9	59.8	0.374	0.104	0.130	0.35	NonLiqfble.
	14.4	12	10.8	0.64	125	1804	1652	11.6	12.0	6.47	3.1	68.2	0.80	46.5	58.1	0.376	0.098	0.128	0.34	NonLiqfble.
	14.49	12	10.4	0.62	125	1816	1658	11.2	11.4	6.53	3.2	69.6	0.80	44.7	55.9	0.377	0.096	0.125	0.33	NonLiqfble.
	14.58	12	10.6	0.61	125	1827	1663	11.4	11.6	6.30	3.1	68.4	0.80	45.5	56.9	0.378	0.097	0.126	0.33	NonLiqfble.
	14.67	12	10.6	0.62	125	1838	1669	11.4	11.6	6.40	3.1	68.8	0.80	45.4	56.8	0.379	0.097	0.126	0.33	NonLiqfble.
	14.75	12 12	11 11.1	0.67 0.65	125 125	1848 1859	1674 1680	11.8 11.9	12.0 12.1	6.65 6.39	3.1	68.7 67.7	0.80	47.1 47.4	58.8 59.3	0.380	0.099	0.129 0.129	0.34 0.34	NonLiqfble.
	14.84 14.93	12	11.1	0.59	125	1871	1685	11.9	12.1	5.80	3.1	65.8	0.80	47.4	59.3	0.381 0.382	0.099	0.129	0.34	NonLiqfble. NonLiqfble.
	15.02	12	12	0.64	125	1882	1691	12.8	13.1	5.79	3.1	63.8	0.80	51.1	63.8	0.383	0.104	0.135	0.35	NonLiqfble.
	15.11	12	12.3	0.6	125	1893	1697	13.1	13.4	5.28	3.0	61.5	0.80	52.3	65.3	0.384	0.106	0.138	0.36	NonLiqfble.
	15.18	12	11.2	0.56	125	1902	1701	11.9	12.0	5.46	3.1	64.7	0.80	47.5	59.4	0.385	0.100	0.129	0.34	NonLiqfble.
	15.24	12	10.9	0.52	125	1909	1705	11.6	11.7	5.23	3.1	64.6	0.80	46.2	57.8	0.385	0.098	0.127	0.33	NonLiqfble.
	15.33	12	10.4	0.49	125	1921	1710	11.0	11.0	5.19	3.1	65.8	0.80	44.0	55.0	0.386	0.095	0.124	0.32	NonLiqfble.
	15.42 15.51	12 12	10.9 10.4	0.48 0.48	125 125	1932 1943	1716 1722	11.5 11.0	11.6 10.9	4.83 5.09	3.1	63.2 65.6	0.80	46.1 43.9	57.6 54.8	0.387 0.388	0.098 0.095	0.127 0.124	0.33 0.32	NonLiqfble. NonLiqfble.
	15.6	12	10.4	0.49	125	1943	1727	10.7	10.9	5.31	3.1	67.1	0.80	43.9	53.7	0.389	0.093	0.124	0.32	NonLiqfble.
	15.69	12	10.1	0.52	125	1966	1733	10.6	10.5	5.70	3.1	68.9	0.80	42.5	53.1	0.390	0.094	0.123	0.31	NonLiqfble.
	15.78	12	10.9	0.54	125	1977	1739	11.4	11.4	5.45	3.1	66.0	0.80	45.8	57.2	0.391	0.097	0.127	0.32	NonLiqfble.
	15.87	12	11.2	0.55	125	1988	1744	11.7	11.7	5.39	3.1	65.1	0.80	46.9	58.7	0.392	0.099	0.128	0.33	NonLiqfble.
	15.96	12	11.7	0.57	125	1999	1750	12.2	12.2	5.33	3.1	63.8	0.80	49.0	61.2	0.393	0.101	0.132	0.34	NonLiqfble.
	16.05	12	11.2	0.58	125	2011	1755	11.7	11.6	5.69	3.1	66.4	0.80	46.8	58.5	0.394	0.099	0.128	0.33	NonLiqfble.
	16.14 16.23	12 12	10.4 10.1	0.55 0.52	125 125	2022 2033	1761 1767	10.8 10.5	10.7 10.3	5.86 5.72	3.1	69.1 69.5	0.80	43.4 42.1	54.2 52.6	0.395 0.396	0.095 0.094	0.123 0.122	0.31	NonLiqfble. NonLiqfble.
	16.32	12	10.1	0.32	115	2033	1772	10.5	10.3	5.40	3.1	68.4	0.80	42.1	52.5	0.390	0.094	0.122	0.31	NonLiqfble.
	16.41	12	9.7	0.46	115	2055	1777	10.1	9.8	5.30	3.2	69.3	0.80	40.3	50.3	0.398	0.092	0.119	0.30	NonLiqfble.
	16.5	12	9.7	0.47	115	2065	1782	10.1	9.7	5.42	3.2	69.9	0.80	40.2	50.3	0.399	0.092	0.119	0.30	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

Depth to Groundwater: 12 feet

**PGA (g):** 0.54 **MSF:** 1.30 CPT Number: 29

**EQ Magnitude** (M<sub>w</sub>): 6.5

Part			Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
16.59   12		Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
16.88   12	Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(q <sub>c1N</sub> ) <sub>cs</sub>	Ratio	M7.5	M6.50	Safety	Comments
16.88   12																					
16.88   12																					
16.67   12   9.8   0.47   115   9.09   179   170   1		16.59	12	9.1	0.46	115	2075	1787	9.4	9.0	5.71	3.2	72.9	0.80	37.7	47.1	0.400	0.090	0.117	0.29	NonLiqfble.
18.86   12   10.90   0.48   125   10.90   0.48   10.90   10.		16.68	12		0.46		2086	1791	9.2	8.8	5.85	3.2	74.2	0.80	36.8	46.0	0.401	0.089	0.116	0.29	NonLiqfble.
1969   12																					-
17.04   12   119																					
17.33   12   12.1   0.4																					-
17.31   12   12.8   0.55   125   216   139   131   128   4.99   3.0   6.03   6.08   5.24   6.55   0.49   0.10   0.143   0.15																					-
17.4																					
17.48   12   13.5   0.52   12.5   13.4   13.8   13.5   14.9   3.0   57.0   0.80   53.1   68.9   0.40   0.110   0.143   0.35   NonLighbe, 17.66   12   14.1   0.5   12.5   2207   1851   14.3   14.0   3.85   2.9   54.6   0.80   57.4   71.7   0.410   0.114   0.149   0.36   NonLighbe, 17.75   12   14.5   0.5   12.5   2207   1851   14.3   14.0   3.85   2.9   54.2   0.80   57.4   71.7   0.410   0.114   0.149   0.36   NonLighbe, 17.75   12   14.5   0.81   12.5   12.5   12.5   18.0   14.6   14.3   3.81   2.9   54.2   0.80   58.9   73.0   0.412   0.116   0.114   0.127   0.127   NonLighbe, 17.75   12.5   13.7   0.44   12.5   22.5   18.0   14.6   14.3   3.81   2.9   54.3   0.80   55.5   69.4   0.410   0.116   0.116   0.137   NonLighbe, 18.1   12.5   13.1   0.44   12.5   22.5   18.0   18.8   13.9   13.5   3.0   3.0   5.8   0.80   55.5   69.4   0.410   0.116   0.14   0.15   0.35   NonLighbe, 18.1   12.5   13.1   0.44   12.5   22.5   18.73   13.7   13.3   3.3   2.9   54.3   0.80   55.0   68.7   0.415   0.116   0.14   0.13   0.34   NonLighbe, 18.3   0.14   0.14   0.14   0.15   0.15   0.14   0.14   0.15   0.15   0.14   0.14   0.15   0.15   0.14   0.14   0.15   0.15   0.14   0.14   0.15																					-
17.57   12   14.2   0.5   125   219   18.5   14.5   14.2   3.82   2.9   54.6   0.80   57.4   71.6   0.11   0.115   0.150   0.3   NonLighble   17.75   12   14.5   0.52   125   2218   18.5   14.7   14.4   3.84   2.9   54.6   0.80   58.4   73.6   0.411   0.114   0.15   0.3   NonLighble   17.84   17.84   17.84   18.6																					-
1775 12 145 0.52 125 218 1850 147 14.9 14.9 14.9 14.9 14.9 14.9 14.9 14.9																					•
1784 12 14.4 0.51 125 229 1862 13, 13, 13, 13, 13, 13, 13, 13, 13, 13,																					NonLiqfble.
18.02   13.7   0.49   125   2240   1886   13.9   13.5   3.90   3.0   5.88   0.80   5.55   6.94   0.413   0.111   0.144   0.35   NonLighbe.   18.11   12   13.1   0.42   125   2263   1879   13.2   12.7   3.51   3.0   5.3   0.80   5.50   6.0   6.1   0.415   0.107   0.139   0.34   NonLighbe.   18.2   12   13.2   0.4   125   2263   1879   13.2   12.7   3.51   3.0   5.3   0.80   5.50   6.61   0.415   0.107   0.139   0.34   NonLighbe.   18.4   12   14   0.44   125   2292   1889   13.1   13.6   3.19   2.9   5.23   0.80   5.63   0.80   5.04   0.101   0.140   0.35   NonLighbe.   18.6   12   14.3   0.49   125   2381   1907   14.1   13.6   3.79   2.9   5.17   0.80   5.64   0.80   5.14   0.101   0.140   0.35   NonLighbe.   18.6   12   14.2   0.49   125   2381   1907   14.1   13.6   3.79   2.9   5.17   0.80   5.64   0.80   5.44   0.41   0.14   0.35   NonLighbe.   18.6   12   14.5   0.56   125   2339   1917   14.0   13.4   4.36   3.0   5.78   0.80   5.44   0.80   4.04   0.101   0.14   0.35   NonLighbe.   18.2   12   14.2   0.56   125   2339   1917   14.0   13.4   4.36   3.0   5.78   0.80   5.64   0.80   5.04   0.101   0.14   0.35   NonLighbe.   18.2   12   14.2   0.56   125   2339   1917   14.0   13.4   4.36   3.0   5.78   0.80   5.64   0.80   0.41   0.101   0.14   0.35   NonLighbe.   18.2   12   14.2   0.56   125   2339   1917   14.0   13.4   4.36   3.0   5.73   0.80   5.64   0.80   0.41   0.101   0.14   0.																					-
18.02																					-
18.11   12   13.1																					-
18.34   12																					
18.45   12																					-
18.55   12																					-
18.64   12   13.6   0.52   125   239   1912   13.6   13.0   4.18   30   57.8   0.80   54.4   68.0   0.419   0.109   0.142   0.34   0.35   NonLiqhbe.																					
18.82																					-
18.91		18.72	12					1917	14.0	13.4	4.36	3.0	57.9	0.80	56.0	69.9	0.420	0.112		0.35	NonLiqfble.
18.99																					
19.08																					-
19.17   12   15.2   16.6   125   2995   1945   15.1   14.4   4.36   3.0   56.3   0.80   60.3   75.4   0.424   0.115   0.156   0.37   NonLiphe.																					•
19.55   12   13.9   0.52   125   2418   1957   13.7   13.0   4.10   3.0   57.5   0.80   55.0   68.7   0.425   0.110   0.143   0.34   NonLighbe.     19.63   12   14.8   0.46   125   2430   1963   14.5   13.7   3.63   2.9   52.2   0.80   58.4   73.0   0.427   0.116   0.151   0.35   NonLighbe.     19.62   12   14.4   0.45   125   2452   1974   14.2   13.3   3.42   2.9   53.8   0.80   56.7   70.9   0.427   0.116   0.151   0.35   NonLighbe.     19.71   12   12.5   0.48   125   2452   1974   14.2   13.3   3.42   2.9   53.8   0.80   56.7   70.9   0.427   0.113   0.147   0.34   NonLighbe.     19.81   12   11   0.47   125   2474   1985   10.8   9.8   4.81   3.1   67.2   0.80   43.2   54.0   0.429   0.095   0.123   0.31   NonLighbe.     19.88   12   10   0.4   115   2496   1995   8.6   7.6   4.50   3.2   72.8   0.80   33.2   4.2   0.40   0.429   0.095   0.123   0.29   NonLighbe.     19.88   12   18.8   0.34   115   2506   2000   8.2   7.1   4.76   3.2   75.5   0.80   32.9   41.1   0.422   0.086   0.112   0.27   NonLighbe.     20.07   12   8.4   0.34   115   2506   2000   8.2   7.1   4.76   3.2   75.5   0.80   33.2   41.1   0.422   0.086   0.112   0.27   NonLighbe.     20.25   12   8.9   0.37   115   2527   2009   8.7   7.6   4.85   3.2   74.2   0.80   33.9   42.4   0.424   0.088   0.113   0.27   NonLighbe.     20.43   12   8.7   0.41   115   2588   2024   8.8   7.6   5.68   3.2   7.60   0.80   33.9   42.4   0.424   0.088   0.114   0.27   NonLighbe.     20.61   12   9.2   0.47   115   2588   2024   8.8   7.6   5.64   3.3   77.2   0.80   35.8   44.7   0.427   0.086   0.115   0.27   NonLighbe.     20.61   12   8.7   0.43   115   2609   2056   8.2   7.0   5.88   3.3   77.0   0.80   35.2   44.1   0.429   0.088   0.115   0.27   NonLighbe.     20.61   12   9.2   0.47   115   2588   2024   8.8   7.6   5.64   3.3   77.2   0.80   35.2   44.1   0.429   0.088   0.115   0.27   NonLighbe.     20.61   12   9.2   0.47   115   2589   2042   8.8   7.6   5.64   3.3   77.2   0.80   35.8   44.7   0.427   0.086   0.115   0.27   NonLighbe.																					-
19.45   12																					-
19.53   12   14.8   0.46   125   2440   1968   14.6   13.8   3.39   2.9   52.9   0.80   58.4   73.0   0.427   0.116   0.151   0.35   NonLighbe.     19.61   19.71   12   12.5   0.48   125   2452   1974   14.2   13.3   3.42   2.9   53.8   0.80   56.7   70.9   0.427   0.113   0.147   0.13   NonLighbe.     19.81   12   11   0.47   125   2474   1985   10.8   9.8   4.81   3.1   67.2   0.80   4.2   51.5   0.428   0.102   0.132   0.31   NonLighbe.     19.88   12   11   0.47   125   2474   1985   10.8   9.8   4.81   3.1   67.2   0.80   4.2   54.0   0.429   0.095   0.123   0.29   NonLighbe.     19.89   12   8.8   0.34   115   2496   1995   8.6   7.6   4.50   3.2   72.8   0.80   34.5   43.1   0.400   0.087   0.114   0.26   NonLighbe.     20.07   12   8.4   0.34   115   2506   2000   8.2   7.1   4.76   3.2   75.5   0.80   32.9   41.1   0.422   0.086   0.112   0.27   NonLighbe.     20.16   12   8.5   0.34   115   2517   2009   8.7   7.6   4.85   3.2   7.4   2.80   3.7   4.1   0.422   0.086   0.112   0.27   NonLighbe.     20.25   12   8.9   0.37   115   2527   2009   8.7   7.6   4.85   3.2   7.4   2.80   3.3   42.4   0.424   0.088   0.114   0.27   NonLighbe.     20.43   12   8.7   0.41   115   2538   2014   8.5   7.4   5.79   3.3   78.7   8.08   33.9   42.4   0.424   0.088   0.114   0.27   NonLighbe.     20.61   12   9.2   0.45   115   2588   2024   8.9   7.8   5.64   3.3   77.7   0.80   35.8   44.7   0.425   0.087   0.113   0.27   NonLighbe.     20.69   12   8.9   0.48   115   2588   2037   9.0   7.9   5.75   5.31   3.3   7.7   0.80   34.6   43.2   0.427   0.087   0.113   0.27   NonLighbe.     20.69   12   8.9   0.48   115   2588   2037   9.0   7.9   5.75   5.31   3.3   7.7   0.80   34.6   43.2   0.427   0.087   0.114   0.27   NonLighbe.     20.69   12   8.9   0.48   115   2588   2037   9.0   7.9   5.75   5.31   3.3   7.7   0.80   34.6   43.2   0.429   0.089   0.115   0.27   NonLighbe.     20.69   12   8.9   0.44   115   2588   2037   9.0   7.9   5.75   5.31   3.3   7.7   0.80   33.8   44.7   0.429   0.089   0.115   0.27																					-
19.62   12																					-
19.8   12																					
19.89   12		19.71	12	12.5	0.48	125	2463	1979	12.3	11.4	4.26	3.0	61.3	0.80	49.2		0.428	0.102	0.132	0.31	-
19.98   12   8.8   0.34   115   2496   1995   8.6   7.6   4.50   3.2   72.8   0.80   34.5   43.1   0.430   0.087   0.114   0.26   NonLiqfble.																					•
20.07   12																					
20.16   12   8.5   0.34   115   2516   2005   8.3   7.2   4.70   3.2   74.9   0.80   33.2   41.5   0.423   0.087   0.113   0.27   NonLiqfble.																					-
20.34   12   8.7   0.41   115   2537   2014   8.5   7.4   5.52   3.3   77.7   0.80   33.9   42.4   0.424   0.087   0.113   0.27   NonLiqfible. 20.52   12   9.2   0.45   115   2558   2024   8.9   7.8   5.68   3.2   76.6   0.80   33.9   42.4   0.425   0.087   0.113   0.27   NonLiqfible. 20.52   12   9.2   0.45   115   2558   2024   8.9   7.8   5.68   3.2   76.6   0.80   35.8   44.7   0.426   0.088   0.115   0.27   NonLiqfible. 20.61   12   9.2   0.47   115   2568   2028   8.9   7.8   5.68   3.2   76.6   0.80   35.8   44.7   0.427   0.088   0.115   0.27   NonLiqfible. 20.69   12   8.9   0.48   115   2577   2032   8.6   7.5   6.31   3.3   80.1   0.80   34.6   43.2   0.427   0.087   0.114   0.27   NonLiqfible. 20.78   12   9.3   0.46   115   2588   2037   9.0   7.9   5.75   3.2   76.8   0.80   36.1   45.1   0.428   0.089   0.115   0.27   NonLiqfible. 20.87   12   9.1   0.44   115   2598   2042   8.8   7.6   5.64   3.3   77.7   0.80   35.2   44.1   0.429   0.088   0.115   0.27   NonLiqfible. 20.96   12   8.9   0.43   115   2608   2047   8.6   7.4   5.66   3.3   78.1   0.80   34.4   43.0   0.429   0.088   0.114   0.26   NonLiqfible. 21.05   12   8.7   0.43   115   2638   2057   8.7   7.5   5.60   3.3   77.7   0.80   33.6   42.0   0.430   0.087   0.113   0.26   NonLiqfible. 21.14   12   8.8   0.43   115   2638   2060   8.7   7.5   5.60   3.3   77.7   0.80   34.4   43.0   0.429   0.088   0.114   0.26   NonLiqfible. 21.44   12   9   0.41   115   2692   2056   8.5   7.2   5.75   3.3   79.1   0.80   34.6   43.3   0.433   0.088   0.114   0.26   NonLiqfible. 21.44   12   9   0.41   115   2692   2056   8.5   7.2   5.75   3.3   79.1   0.80   34.6   43.3   0.433   0.088   0.114   0.26   NonLiqfible. 21.49   12   9   0.41   115   2692   2056   8.6   7.4   5.35   3.3   79.1   0.80   34.6   43.3   0.433   0.088   0.114   0.26   NonLiqfible. 21.49   12   9   0.41   115   2692   2056   8.6   7.4   5.35   3.3   79.1   0.80   34.6   43.3   0.433   0.088   0.114   0.26   NonLiqfible. 21.49   12   9   0.41   115   2692   2056   8.6   7.																					-
20.43																					•
20.52   12   9.2   0.45   115   2558   2024   8.9   7.8   5.68   3.2   76.6   0.80   35.8   44.7   0.426   0.088   0.115   0.27   NonLiqfble. 20.61   12   9.2   0.47   115   2568   2028   8.9   7.8   5.94   3.3   77.7   0.80   35.8   44.7   0.427   0.088   0.115   0.27   NonLiqfble. 20.69   12   8.9   0.48   115   2577   2032   8.6   7.5   6.31   3.3   80.1   0.80   34.6   43.2   0.427   0.087   0.014   0.27   NonLiqfble. 20.78   12   9.1   0.44   115   2598   2042   8.8   7.6   5.64   3.3   77.2   0.80   35.2   44.1   0.429   0.088   0.114   0.27   NonLiqfble. 20.87   12   8.9   0.43   115   2608   2047   8.6   7.4   5.66   3.3   78.1   0.80   34.4   43.0   0.429   0.087   0.114   0.26   NonLiqfble. 21.05   12   8.7   0.43   115   2619   2051   8.4   7.2   5.82   3.3   79.5   0.80   33.6   42.0   0.430   0.087   0.113   0.26   NonLiqfble. 21.14   12   8.5   0.43   115   2649   2056   8.2   7.0   5.98   3.3   77.7   0.80   34.7   43.4   0.431   0.088   0.114   0.26   NonLiqfble. 21.31   12   8.8   0.43   115   2669   2075   8.6   7.4   5.35   3.2   76.9   0.80   33.9   42.4   0.432   0.087   0.113   0.26   NonLiqfble. 21.49   12   9   0.41   115   2669   2075   8.6   7.4   5.35   3.3   77.0   0.80   34.7   43.4   0.431   0.088   0.114   0.26   NonLiqfble. 21.49   12   9   0.41   115   2669   2075   8.6   7.4   5.35   3.3   77.0   0.80   34.5   43.2   0.433   0.088   0.114   0.26   NonLiqfble. 21.69   12   8.8   0.4   115   2692   2085   8.4   7.1   5.37   3.3   77.0   0.80   34.5   43.2   0.434   0.088   0.114   0.26   NonLiqfble. 21.69   12   8.8   0.4   115   2692   2085   8.4   7.1   5.37   3.3   77.0   0.80   34.5   43.2   0.434   0.087   0.113   0.26   NonLiqfble. 21.69   12   8.8   0.4   115   2692   2085   8.4   7.1   5.37   3.3   77.0   0.80   34.5   43.2   0.434   0.088   0.114   0.26   NonLiqfble. 21.69   12   8.8   0.4   115   2713   2095   8.2   6.9   5.66   3.3   81.0   0.80   35.2   44.0   0.436   0.086   0.114   0.26   NonLiqfble. 21.69   12   8.8   0.4   115   2713   2095   8.2   6.9   5.66   3.																					
20.61 12 9.2 0.47 115 2568 2028 8.9 7.8 5.94 3.3 77.7 0.80 35.8 44.7 0.427 0.088 0.115 0.27 NonLiqfble. 20.69 12 8.9 0.48 115 2577 2032 8.6 7.5 6.31 3.3 80.1 0.80 34.6 43.2 0.427 0.087 0.114 0.27 NonLiqfble. 20.78 12 9.3 0.46 115 2588 2037 9.0 7.9 5.75 3.2 76.8 0.80 36.1 45.1 0.428 0.089 0.115 0.27 NonLiqfble. 20.87 12 9.1 0.44 115 2598 2042 8.8 7.6 5.64 3.3 77.2 0.80 35.2 44.1 0.429 0.088 0.114 0.27 NonLiqfble. 20.96 12 8.9 0.43 115 2608 2047 8.6 7.4 5.66 3.3 77.2 0.80 35.2 44.1 0.429 0.088 0.114 0.27 NonLiqfble. 21.05 12 8.7 0.43 115 2619 2051 8.4 7.2 5.82 3.3 79.5 0.80 34.4 43.0 0.429 0.087 0.114 0.26 NonLiqfble. 21.14 12 8.5 0.43 115 2629 2056 8.2 7.0 5.98 3.3 81.0 0.80 34.4 43.0 0.429 0.087 0.113 0.26 NonLiqfble. 21.31 12 8.8 0.43 115 2649 2056 8.5 7.2 5.75 5.60 3.3 77.7 0.80 34.7 43.4 0.431 0.086 0.112 0.26 NonLiqfble. 21.31 12 8.8 0.43 115 2659 2070 8.7 7.4 5.35 3.2 76.9 0.80 34.6 43.2 0.431 0.088 0.114 0.26 NonLiqfble. 21.49 12 9 0.41 115 2669 2075 8.6 7.4 5.35 3.3 77.0 0.80 34.6 43.2 0.431 0.088 0.114 0.26 NonLiqfble. 21.69 12 8.8 0.4 115 2629 2085 8.4 7.1 5.35 3.3 77.0 0.80 34.6 43.2 0.431 0.088 0.114 0.26 NonLiqfble. 21.69 12 8.8 0.4 115 2629 2085 8.4 7.1 5.35 3.3 77.0 0.80 34.6 43.2 0.434 0.087 0.113 0.26 NonLiqfble. 21.69 12 8.8 0.4 115 2629 2085 8.4 7.1 5.35 3.3 77.0 0.80 34.6 43.2 0.434 0.088 0.114 0.26 NonLiqfble. 21.69 12 8.8 0.4 115 2629 2085 8.4 7.1 5.35 3.3 77.0 0.80 34.6 43.2 0.434 0.087 0.114 0.26 NonLiqfble. 21.69 12 8.8 0.4 115 2629 2085 8.4 7.1 5.35 3.3 78.0 0.80 33.7 42.2 0.435 0.087 0.113 0.26 NonLiqfble. 21.87 12 8.6 0.41 115 2629 2085 8.4 7.1 5.37 3.3 78.0 0.80 35.1 43.9 0.437 0.088 0.114 0.26 NonLiqfble. 21.87 12 8.6 0.41 115 2713 2099 8.8 7.5 5.23 3.2 76.0 0.80 35.1 43.9 0.437 0.088 0.114 0.26 NonLiqfble. 21.87 12 8.6 0.41 115 2734 2099 8.8 7.5 5.23 3.2 76.0 0.80 35.1 43.9 0.437 0.088 0.114 0.26 NonLiqfble. 21.87 12 8.6 0.41 115 2734 2104 8.5 7.2 5.44 3.3 78.2 0.80 35.1 43.9 0.437 0.438 0.088 0.115 0.26 NonLiqfble. 22.05 12 8.9 0.41 115 2744 2109 8.9 7.5 5.64 3.3 78.2 0.80 35.1 43																					-
20.78   12   9.3   0.46   115   2588   2037   9.0   7.9   5.75   3.2   76.8   0.80   36.1   45.1   0.428   0.089   0.115   0.27   NonLiqfble. 20.96   12   8.9   0.44   115   2598   2042   8.8   7.6   5.64   3.3   77.2   0.80   35.2   44.1   0.429   0.088   0.114   0.27   NonLiqfble. 20.96   12   8.9   0.43   115   2608   2047   8.6   7.4   5.66   3.3   78.1   0.80   34.4   43.0   0.429   0.087   0.114   0.26   NonLiqfble. 21.05   12   8.7   0.43   115   2619   2051   8.4   7.2   5.82   3.3   79.5   0.80   33.6   42.0   0.430   0.087   0.113   0.26   NonLiqfble. 21.14   12   8.5   0.43   115   2639   2056   8.2   7.0   5.98   3.3   81.0   0.80   34.4   43.4   0.431   0.086   0.112   0.26   NonLiqfble. 21.22   12   9   0.43   115   2639   2056   8.2   7.0   5.98   3.3   81.0   0.80   34.7   43.4   0.431   0.086   0.112   0.26   NonLiqfble. 21.31   12   8.8   0.43   115   2639   2056   8.5   7.2   5.75   3.3   77.7   0.80   34.7   43.4   0.431   0.086   0.114   0.26   NonLiqfble. 21.49   12   9   0.41   115   2659   2070   8.7   7.4   5.35   3.2   76.9   0.80   34.6   43.3   0.433   0.088   0.114   0.26   NonLiqfble. 21.49   12   9   0.41   115   2669   2075   8.6   7.4   5.35   3.3   77.0   0.80   34.6   43.2   0.434   0.088   0.114   0.26   NonLiqfble. 21.69   12   8.8   0.4   115   2629   2085   8.4   7.1   5.37   3.3   78.0   0.80   34.5   43.2   0.434   0.087   0.113   0.26   NonLiqfble. 21.69   12   8.8   0.4   115   2632   2080   8.6   7.4   5.22   3.2   76.6   0.80   34.5   43.2   0.434   0.087   0.113   0.26   NonLiqfble. 21.69   12   8.8   0.4   115   2632   2085   8.4   7.1   5.37   3.3   78.0   0.80   35.2   44.0   0.436   0.088   0.114   0.26   NonLiqfble. 21.87   12   8.6   0.41   115   2733   2090   8.8   7.5   5.23   3.2   75.0   0.80   35.1   43.9   0.437   0.088   0.114   0.26   NonLiqfble. 21.87   12   8.6   0.41   115   2733   2090   8.8   7.5   5.23   3.2   76.2   0.80   35.1   43.9   0.438   0.088   0.114   0.26   NonLiqfble. 22.05   12   8.9   0.41   115   2734   2104   8.5   7.2   5.44   3.																					-
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20.96																					
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21.96 12 9.2 0.41 115 2723 2099 8.8 7.5 5.23 3.2 76.2 0.80 35.1 43.9 0.437 0.088 0.114 0.26 NonLighble. 22.05 12 8.9 0.41 115 2734 2104 8.5 7.2 5.44 3.3 78.2 0.80 34.0 42.4 0.438 0.087 0.113 0.26 NonLighble. 22.14 12 9.3 0.42 115 2744 2109 8.9 7.5 5.30 3.2 76.3 0.80 35.4 44.3 0.438 0.088 0.115 0.26 NonLighble.																					
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22.23 12 9.3 0.43 115 2754 2114 8.9 7.5 5.43 3.2 76.9 0.80 35.4 44.3 0.439 0.088 0.114 0.26 NonLiqfble.																					
		22.23	12	9.3	0.43	115	2754	2114	8.9	7.5	5.43	3.2	76.9	0.80	35.4	44.3	0.439	0.088	0.114	0.26	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 29

Depth to Groundwater: 12 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	l Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	(q <sub>c1N</sub> ) <sub>cs</sub>	Ratio	M7.5	M6.50	Safety	Comments
	22.32	12	10.1	0.44	115	2765	2118	9.6	8.2	5.05	3.2	72.8	0.80	38.4	48.0	0.440	0.090	0.117	0.27	NonLiqfble.
	22.41	12	11.1	0.49	125	2775	2123	10.5	9.1	5.05	3.2	70.0	0.80	42.2	52.7	0.440	0.094	0.117	0.27	NonLiqfble.
	22.5	12	11.6	0.54	125	2786	2129	11.0	9.6	5.29	3.2	69.7	0.80	44.0	55.0	0.441	0.095	0.124	0.28	NonLiqfble.
	22.59	12	11.8	0.59	125	2798	2134	11.2	9.7	5.67	3.2	70.7	0.80	44.7	55.9	0.442	0.096	0.125	0.28	NonLiqfble.
	22.68	12	12.1	0.61	125	2809	2140	11.4	10.0	5.70	3.2	70.2	0.80	45.8	57.2	0.442	0.097	0.127	0.29	NonLiqfble.
	22.77	12	12.8	0.61	125	2820	2146	12.1	10.6	5.36	3.1	67.4	0.80	48.4	60.5	0.443	0.101	0.131	0.30	NonLiqfble.
	22.86 22.95	12 12	13.1 13.8	0.61 0.63	125 125	2831 2843	2151 2157	12.4 13.0	10.9	5.22 5.09	3.1	66.3 64.4	0.80 0.80	49.4 52.0	61.8 65.0	0.444 0.444	0.102 0.106	0.133 0.137	0.30	NonLiqfble. NonLiqfble.
	23.04	12	14.6	0.65	125	2854	2162	13.7	11.5 12.2	4.93	3.1	62.4	0.80	54.9	68.7	0.445	0.110	0.137	0.31	NonLiqfble.
	23.13	12	14.8	0.67	125	2865	2168	13.9	12.3	5.01	3.1	62.4	0.80	55.6	69.5	0.445	0.111	0.145	0.32	NonLiqfble.
	23.22	12	13.5	0.67	125	2876	2174	12.7	11.1	5.55	3.1	67.0	0.80	50.7	63.3	0.446	0.104	0.135	0.30	NonLiqfble.
	23.31	12	12.7	0.59	125	2888	2179	11.9	10.3	5.24	3.1	67.6	0.80	47.6	59.5	0.446	0.100	0.129	0.29	NonLiqfble.
	23.4	12	11.1	0.45	115	2899	2185	10.4	8.8	4.66	3.2	69.4	0.80	41.6	52.0	0.447	0.093	0.121	0.27	NonLiqfble.
	23.49	12	10.4 10	0.32 0.26	115	2909 2920	2190 2194	9.7	8.2	3.58	3.1	66.4	0.80	38.9	48.6	0.448	0.091	0.118 0.116	0.26	NonLiqfble.
	23.58 23.67	12 12	10.1	0.23	115 105	2930	2194	9.3 9.4	7.8 7.8	3.04 2.66	3.1	64.8 62.3	0.80 0.80	37.4 37.7	46.7 47.1	0.448 0.449	0.089	0.116	0.26 0.26	NonLiqfble. NonLiqfble.
	23.76	12	10.2		105	2939	2203	9.5	7.9	2.41	3.0	60.5	0.80	38.0	47.5	0.450	0.090	0.117	0.26	NonLiqfble.
	23.84	12	9.8	0.2	105	2948	2206	9.1	7.5	2.40	3.0	61.7	0.80	36.5	45.6	0.450	0.089	0.115	0.26	NonLiqfble.
	23.93	12	9.7	0.21	105	2957	2210	9.0	7.4	2.55	3.1	63.1	0.80	36.1	45.1	0.451	0.089	0.115	0.26	NonLiqfble.
	24.02	12	10.1	0.23	105	2967	2214	9.4	7.8	2.67	3.1	62.6	0.80	37.6	47.0	0.451	0.090	0.117	0.26	NonLiqfble.
	24.11	12	10.5	0.23	105	2976	2218	9.8	8.1	2.55	3.0	60.8	0.80	39.0	48.8	0.452	0.091	0.118	0.26	NonLiqfble.
	24.2 24.29	12 12	11.5 13.9	0.29 0.35	115 115	2986 2996	2222 2226	10.7 12.9	9.0 11.1	2.90 2.82	3.0 2.9	60.3 54.7	0.80	42.7 51.6	53.4 64.4	0.453 0.453	0.094 0.105	0.122 0.136	0.27 0.30	NonLiqfble. NonLiqfble.
	24.37	12	18.8	0.37	125	3005	2231	17.4	15.5	2.14	2.8	43.5	0.80	69.7	87.1	0.454	0.103	0.130	0.40	NonLiqfble.
	24.46	12	21.2		125	3016	2236	19.6	17.6	1.78	2.7	38.7	0.80	78.5	98.1	0.454	0.168	0.218	0.48	NonLiqfble.
	24.55	12	17.3	0.3	115	3028	2242	16.0	14.1	1.90	2.8	43.9	0.80	63.9	79.9	0.455	0.127	0.166	0.36	NonLiqfble.
	24.64	12	15.3	0.26	115	3038	2247	14.1	12.3	1.89	2.8	46.7	0.80	56.5	70.6	0.456	0.113	0.147	0.32	NonLiqfble.
	24.73	12	11.9	0.22	105	3048	2251	11.0	9.2	2.12	2.9	54.8	0.80	43.9	54.9	0.456	0.095	0.124	0.27	NonLiqfble.
	24.82 24.86	12 12	10.8 11.8	0.21 0.21	105 105	3058 3062	2255 2257	10.0 10.9	8.2 9.1	2.27 2.05	3.0 2.9	58.6 54.6	0.80	39.8 43.5	49.8 54.3	0.457 0.457	0.091 0.095	0.119 0.123	0.26 0.27	NonLiqfble. NonLiqfble.
	24.95	12	11.6	0.22	105	3071	2261	10.7	8.9	2.19	3.0	56.1	0.80	42.7	53.4	0.458	0.094	0.123	0.27	NonLiqfble.
	25.04	12	11.5		105	3081	2265	10.6	8.8	2.21	3.0	56.6	0.80	42.3	52.9	0.458	0.094	0.122	0.27	NonLiqfble.
	25.13	12	12.6	0.27	115	3090	2268	11.6	9.7	2.44	3.0	55.6	0.80	46.3	57.9	0.459	0.098	0.127	0.28	NonLiqfble.
	25.22	12	14.7	0.33	115	3101	2273	13.5	11.6	2.51	2.9	52.1	0.80	54.0	67.5	0.460	0.109	0.141	0.31	NonLiqfble.
	25.31	12	15.7	0.42	125	3111	2278	14.4	12.4	2.97	2.9	53.1	0.80	57.6	72.0	0.460	0.115	0.149	0.32	NonLiqfble.
	25.4 25.49	12 12	15.6 15.7	0.47 0.51	125 125	3122 3133	2284 2289	14.3 14.4	12.3 12.3	3.35 3.61	3.0	55.3 56.4	0.80	57.1 57.4	71.4 71.8	0.461 0.461	0.114 0.114	0.148 0.149	0.32 0.32	NonLiqfble. NonLiqfble.
	25.58	12	15.4	0.54	125	3145	2295	14.1	12.0	3.91	3.0	58.4	0.80	56.3	70.3	0.462	0.114	0.146	0.32	NonLiqfble.
	25.67	12	15.8		125	3156	2300	14.4	12.4	3.94	3.0	57.9	0.80	57.7	72.1	0.462	0.115	0.149	0.32	NonLiqfble.
	25.75	12	15.8	0.55	125	3166	2305	14.4	12.3	3.87	3.0	57.7	0.80	57.6	72.0	0.463	0.115	0.149	0.32	NonLiqfble.
	25.84	12	15.7	0.57	125	3177	2311	14.3	12.2	4.04	3.0	58.7	0.80	57.2	71.4	0.463	0.114	0.148	0.32	NonLiqfble.
	25.93	12	15.6	0.59	125	3188	2317	14.2	12.1	4.21	3.0	59.7	0.80	56.7	70.9	0.464	0.113	0.147	0.32	NonLiqfble.
	26.02 26.11	12 12	15.6 15.5		125 125	3200 3211	2322 2328	14.2 14.1	12.1 11.9	4.21 4.39	3.0	59.7 60.7	0.80	56.7 56.2	70.8 70.3	0.464 0.465	0.113 0.112	0.147 0.146	0.32 0.31	NonLiqfble. NonLiqfble.
	26.2	12	16.1	0.6	125	3222	2334	14.6	12.4	4.14	3.0	58.7	0.80	58.3	72.9	0.465	0.112	0.151	0.32	NonLiqfble.
	26.29	12	16.3	0.61	125	3233	2339	14.7	12.5	4.15	3.0	58.5	0.80	59.0	73.7	0.466	0.117	0.152	0.33	NonLiqfble.
	26.38	12	16.8	0.63	125	3245	2345	15.2	12.9	4.15	3.0	57.8	0.80	60.7	75.9	0.466	0.121	0.157	0.34	NonLiqfble.
	26.47	12	17	0.64	125		2351	15.3	13.1	4.16	3.0	57.6	0.80	61.4	76.7	0.467	0.122	0.159	0.34	NonLiqfble.
	26.56	12	16		125	3267	2356	14.4	12.2	4.46	3.0	60.5	0.80	57.7	72.1	0.467	0.115	0.149	0.32	NonLiqfble.
	26.65 26.74	12 12	15.3 15		125 125	3278 3290	2362 2367	13.8 13.5	11.6 11.3	4.61 4.64	3.1	62.4 63.1	0.80	55.1 54.0	68.9 67.4	0.468 0.468	0.110 0.109	0.143 0.141	0.31 0.30	NonLiqfble. NonLiqfble.
	26.83	12	14.6	0.61	125	3301	2373	13.1	10.9	4.71	3.1	64.2	0.80	52.5	65.6	0.469	0.106	0.138	0.29	NonLiqfble.
	26.91	12	14.8		125	3311	2378	13.3	11.0	4.41	3.1	62.6	0.80	53.1	66.4	0.469	0.107	0.139	0.30	NonLiqfble.
	27	12	14.7	0.55	125	3322	2384	13.2	10.9	4.22	3.1	62.1	0.80	52.7	65.9	0.470	0.107	0.139	0.30	NonLiqfble.
	27.09	12	15.2		125	3333	2389	13.6	11.3	4.14	3.0	60.9	0.80	54.4	68.0	0.470	0.109	0.142	0.30	NonLiqfble.
	27.18	12	14.9		125	3345	2395	13.3	11.0	4.23	3.0	61.9	0.80	53.3	66.6	0.471	0.107	0.140	0.30	NonLiqfble.
	27.26 27.35	12 12	14.6 14.6		125 125	3355 3366	2400 2406	13.0 13.0	10.8 10.7	4.33 4.18	3.1	62.9 62.3	0.80	52.2 52.1	65.2 65.1	0.471 0.471	0.106 0.106	0.138 0.137	0.29 0.29	NonLiqfble. NonLiqfble.
	27.44	12	14.4	0.51	125	3377	2411	12.8	10.7	4.01	3.1	62.0	0.80	51.3	64.2	0.471	0.105	0.137	0.29	NonLiqfble.
	27.53	12	14.7	0.48	125	3388	2417	13.1	10.8	3.69	3.0	60.1	0.80	52.3	65.4	0.472	0.106	0.138	0.29	NonLiqfble.
	27.62	12	14.7	0.46	125	3400	2423	13.1	10.7	3.54	3.0	59.4	0.80	52.3	65.3	0.473	0.106	0.138	0.29	NonLiqfble.
	27.7	12	14.2		125	3410	2428	12.6	10.3	3.52	3.0	60.3	0.80	50.4	63.1	0.473	0.103	0.134	0.28	NonLiqfble.
	27.79	12	13.6	0.41	125	3421	2433	12.1	9.8	3.45	3.0	61.2	0.80	48.3	60.3	0.474	0.100	0.131	0.28	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 29

Depth to Groundwater: 12 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	DqcIN	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
																				,
	27.00	12	12.6	0.37	115	3432	2420	11.2	9.0	2.40	2.1	62.2	0.80	44.7	55 0	0.474	0.006	0.125	0.26	NonLiafhla
	27.88 27.97	12 12	11.5	0.37	115 115	3443	2439 2444	11.2 10.2	8.9 8.0	3.40 3.78	3.1	63.2 68.0	0.80	44.7 40.7	55.8 50.9	0.474	0.096 0.092	0.125 0.120	0.26 0.25	NonLiqfble. NonLiqfble.
	28.06	12	11.3	0.34	115	3453	2448	10.0	7.8	3.55	3.1	67.4	0.80	40.0	50.0	0.475	0.092	0.119	0.25	NonLiqfble.
	28.13	12	11	0.32	115	3461	2452	9.7	7.6	3.45	3.1	67.8	0.80	38.9	48.6	0.476	0.091	0.118	0.25	NonLiqfble.
	28.23	12	11.6	0.34	115	3472	2457	10.2	8.0	3.45	3.1	66.2	0.80	41.0	51.2	0.476	0.092	0.120	0.25	NonLiqfble.
	28.32	12	13.6	0.35	115	3483	2462	12.0	9.6	2.95	3.0	58.9	0.80	48.0	60.0	0.477	0.100	0.130	0.27	NonLiqfble.
	28.41	12	15.6	0.36	125	3493	2467	13.7	11.2	2.60	2.9	53.3	0.80	55.0	68.7	0.477	0.110	0.143	0.30	NonLiqfble.
	28.5 28.59	12 12	16.4 15.7	0.37 0.37	125 125	3504 3516	2472 2478	14.4 13.8	11.8 11.2	2.53 2.65	2.9 2.9	51.6 53.6	0.80	57.7 55.2	72.2 69.0	0.478 0.478	0.115 0.111	0.149 0.144	0.31 0.30	NonLiqfble. NonLiqfble.
	28.68	12	14.1	0.34	115	3527	2484	12.4	9.9	2.76	3.0	57.1	0.80	49.5	61.9	0.479	0.102	0.133	0.28	NonLiqfble.
	28.77	12	13.2	0.31	115	3537	2488	11.6	9.2	2.71	3.0	58.7	0.80	46.3	57.9	0.479	0.098	0.127	0.27	NonLiqfble.
	28.86	12	12.1	0.29	115	3548	2493	10.6	8.3	2.81	3.0	61.8	0.80	42.4	53.0	0.479	0.094	0.122	0.25	NonLiqfble.
	28.95	12	11.5	0.31	115	3558	2498	10.1	7.8	3.19	3.1	65.6	0.80	40.3	50.3	0.480	0.092	0.119	0.25	NonLiqfble.
	29.03	12	11.4	0.37	115	3567	2502	10.0	7.7	3.85	3.2	69.4	0.80	39.9	49.9	0.480	0.092	0.119	0.25	NonLiqfble.
	29.12 29.21	12 12	12.6 23.7	0.47 0.57	125 125	3578 3589	2507 2512	11.0 20.7	8.6 17.4	4.35 2.60	3.1 2.8	68.6 44.0	0.80	44.0 82.8	55.1 103.4	0.481 0.481	0.096 0.183	0.124 0.238	0.26 0.49	NonLiqfble. NonLiqfble.
	29.3	12	27.9	0.64	125	3600	2518	24.3	20.7	2.45	2.7	39.9	0.80	97.3	121.6	0.482	0.163	0.238	0.49	NonLiqfble.
	29.39	12	26.5	0.86	135	3611	2524	23.1	19.6	3.48	2.8	46.1	0.80	92.3	115.4	0.482	0.223	0.290	0.60	NonLiqfble.
	29.48	12	35.3	1.09	135	3623	2530	30.7	26.5	3.25	2.7	39.5	0.80	122.8	153.5	0.483	0.417	0.542	1.12	NonLiqfble.
	29.57	12	53.5	1.23	135	3636	2537	46.5	40.7	2.38	2.5	28.6	0.63	78.8	125.2	0.483	0.263	0.341	0.71	Liquefaction
	29.66	12	47.2	1.43	135	3648	2543	41.0	35.7	3.15	2.6	34.2	0.78	143.8	184.8	0.483	0.667	0.867	1.79	
	29.74 29.83	12 12	47.8 68.2	1.38 1.3	135 135	3659 3671	2549 2556	41.4 59.0	36.1 51.9	3.00 1.96	2.6	33.3 23.1	0.76 0.48	128.5 55.4	169.9 114.4	0.484 0.484	0.536 0.219	0.697 0.285	1.44 0.59	Liquofoation
	29.92	12	99.8	1.22	125	3683	2562	86.3	76.4	1.25	2.3	14.7	0.46	30.0	116.2	0.484	0.219	0.283	0.59	Liquefaction Liquefaction
	30	12	113.4	1.1	125	3693	2567	97.9	86.9	0.99	2.0	11.7	0.18	21.5	119.4	0.465	0.238	0.310	0.67	Liquefaction
	30.09	12	110.3	0.98	125	3704	2573	95.1	84.3	0.90	1.9	11.4	0.17	19.6	114.8	0.465	0.221	0.287	0.62	Liquefaction
	30.18	12	102.7	0.92	125	3715	2578	88.5	78.2	0.91	2.0	12.1	0.19	20.8	109.3	0.465	0.202	0.262	0.56	Liquefaction
	30.26	12	91.5	0.99	125	3725	2583	78.8	69.4	1.10	2.1	14.7	0.26	27.4	106.2	0.466	0.191	0.249	0.53	Liquefaction
	30.35	12 12	79.4	1.12	125	3737 3748	2589	68.3	59.9 50.2	1.44	2.2	18.5	0.36	38.3	106.6	0.466	0.193	0.250	0.54	Liquefaction
	30.44 30.52	12	67 59.2	1.24 1.19	135 135	3759	2595 2600	57.6 50.8	30.2 44.1	1.90 2.08	2.3	23.3 25.9	0.49 0.56	54.7 64.0	112.2 114.8	0.466 0.467	0.212 0.221	0.275 0.287	0.59 0.61	Liquefaction Liquefaction
	30.61	12	62.4	0.95	135	3771	2607	53.5	46.4	1.57	2.3	22.3	0.46	45.7	99.2	0.467	0.171	0.222	0.48	Liquefaction
	30.7	12	73.1	0.85	125	3783	2614	62.6	54.5	1.19	2.2	17.8	0.34	32.7	95.2	0.467	0.160	0.208	0.45	Liquefaction
	30.78	12	70.8	1.02	125	3793	2619	60.5	52.6	1.48	2.2	20.2	0.40	41.2	101.7	0.468	0.178	0.231	0.49	Liquefaction
	30.87	12	62.7	1.22	135	3804	2624	53.6	46.3	2.01	2.4	24.8	0.53	60.3	113.9	0.468	0.217	0.283	0.60	Liquefaction
	30.95	12 12	53.3 49.1	1.31 1.21	135 135	3815 3827	2630	45.5	39.1	2.55	2.5	30.0 31.4	0.67	91.2 99.5	136.7	0.468	0.318	0.413	0.88	Liquefaction
	31.04 31.12	12	47.1	1.17	135	3838	2637 2642	41.8 40.1	35.8 34.2	2.56 2.59	2.5 2.5	32.2	0.70 0.73	106.1	141.3 146.2	0.469 0.469	0.343	0.445 0.482	0.95 1.03	Liquefaction Low F.S.
	31.21	12	45.2	1.21	135	3850	2649	38.4	32.7	2.80	2.6	33.9	0.77	129.8	168.2	0.469	0.522	0.679	1.45	
	31.29	12	38.6	1.32	135	3861	2655	32.8	27.6	3.60	2.7	40.3	0.80	131.1	163.9	0.470	0.489	0.636	1.35	NonLiqfble.
	31.38	12	35.4	1.24	135	3873	2661	30.0	25.1	3.71	2.7	42.4	0.80	120.1	150.1	0.470	0.395	0.513	1.09	NonLiqfble.
	31.41	12	39.4	1.15	135	3877	2663	33.4	28.1	3.07	2.6	37.6	0.80	133.6	167.0	0.470	0.513	0.667	1.42	NonLiqfble.
	31.5 31.59	12 12	41.1 40.6	0.86 0.79	135 135	3889 3901	2670 2676	34.8 34.3	29.3 28.9	2.20 2.04	2.5 2.5	32.5 31.9	0.73 0.72	96.1 87.1	130.9 121.4	0.470 0.471	0.288 0.246	0.375 0.320	0.80 0.68	Liquefaction Liquefaction
	31.67	12	33.2	0.75	125	3912	2682	28.0	23.3	1.79	2.6	33.8	0.72	93.4	121.4	0.471	0.247	0.320	0.68	Liquefaction
	31.76	12	24.2	0.49	125	3923	2688	20.4	16.5	2.20	2.7	42.7	0.80	81.7	102.1	0.471	0.179	0.233	0.49	NonLiqfble.
	31.84	12	17.1	0.42	125	3933	2693	14.4	11.2	2.78	2.9	54.3	0.80	57.7	72.1	0.472	0.115	0.149	0.32	NonLiqfble.
	31.93	12	14.5	0.38	125	3945	2699	12.2	9.3	3.03	3.0	60.3	0.80	48.9	61.1	0.472	0.101	0.132	0.28	NonLiqfble.
	32.01	12	12.9	0.33	115	3955	2704	10.9	8.1	3.02	3.1	63.7	0.80	43.4	54.3	0.472	0.095	0.123	0.26	NonLiqfble.
	32.1 32.18	12 12	12.5 12.3	0.29 0.27	115 115	3965 3974	2708 2712	10.5 10.3	7.8 7.6	2.76 2.62	3.1	63.2 62.9	0.80	42.0 41.3	52.5 51.7	0.473 0.473	0.093 0.093	0.122 0.121	0.26 0.26	NonLiqfble. NonLiqfble.
	32.27	12	11.9	0.26	115	3985	2717	10.0	7.3	2.62	3.1	64.0	0.80	40.0	49.9	0.474	0.092	0.119	0.25	NonLiqfble.
	32.35	12	11.4	0.25	115	3994	2721	9.6	6.9	2.66	3.1	65.7	0.80	38.2	47.8	0.474	0.090	0.117	0.25	NonLiqfble.
	32.44	12	12.4	0.26	115	4004	2726	10.4	7.6	2.50	3.1	62.1	0.80	41.6	52.0	0.474	0.093	0.121	0.26	NonLiqfble.
	32.53	12	12.2		115	4014	2731	10.2	7.5	2.55	3.1	62.9	0.80	40.9	51.1	0.475	0.092	0.120	0.25	NonLiqfble.
	32.61	12	12.5	0.26	115	4024	2735	10.5	7.7	2.48	3.0	61.8	0.80	41.8	52.3	0.475	0.093	0.121	0.26	NonLiqfble.
	32.68 32.77	12 12	13 13.1	0.29 0.34	115 115	4032 4042	2739 2744	10.9 10.9	8.0 8.1	2.64 3.07	3.0	61.7 64.0	0.80	43.5 43.8	54.3 54.7	0.475 0.476	0.095 0.095	0.123 0.124	0.26 0.26	NonLiqfble. NonLiqfble.
	32.85	12	14.6	0.43	125	4042	2748	12.2	9.1	3.42	3.1	62.7	0.80	48.7	60.9	0.476	0.101	0.124	0.28	NonLiqfble.
	32.94	12	16.8	0.54	125	4063	2753	14.0	10.7	3.66	3.0	60.0	0.80	56.0	70.0	0.476	0.112	0.146	0.31	NonLiqfble.
	33.03	12	18.9	0.58	125	4074	2759	15.7	12.2	3.44	3.0	55.9	0.80	63.0	78.7	0.477	0.125	0.163	0.34	NonLiqfble.
	33.11	12	21.4	0.54	125	4084	2764	17.8	14.0	2.79	2.9	49.5	0.80	71.2	89.0	0.477	0.146	0.189	0.40	NonLiqfble.
	33.2	12	19.8	0.48	125	4095	2770	16.5	12.8	2.70	2.9	50.9	0.80	65.8	82.3	0.477	0.132	0.171	0.36	NonLiqfble.

Date: September 2005

Depth to Groundwater: 12 feet

Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30 CPT Number: 29

**EQ Magnitude** (M<sub>w</sub>): 6.5

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	l Liauef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress	-	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	(qclN)cs	Ratio	M7.5	M6.50	Safety	Comments
	33.29	12	17.5	0.43	125	4106	2775	14.5	11.1	2.78	2.9	54.5	0.80	58.1	72.7	0.478	0.116	0.150	0.31	NonLiqfble.
	33.37	12	15.7	0.54	125	4116	2780	13.0	9.8	3.96	3.1	63.6	0.80	52.1	65.1	0.478	0.106	0.137	0.29	NonLiqfble.
	33.46	12	17	0.68	125	4128	2786	14.1	10.7	4.55	3.1	64.0	0.80	56.4	70.5	0.478	0.113	0.146	0.31	NonLiqfble.
	33.55	12	24.4	0.7	125	4139	2792	20.2	16.0	3.13	2.8	48.5	0.80	80.8	101.0	0.479	0.176	0.229	0.48	NonLiqfble.
	33.63	12	28.7	0.55	125	4149	2797	23.7	19.0	2.07	2.7	39.1	0.80	95.0	118.7	0.479	0.236	0.306	0.64	NonLiqfble.
	33.72	12 12	27.9 23.9	0.41 0.33	125	4160	2802	23.1	18.4	1.59	2.6	36.5	0.80	92.2	115.3 98.7	0.479	0.223	0.289	0.60	NonLiqfble.
	33.81 33.89	12	18.8	0.33	115 115	4171 4180	2808 2812	19.7 15.5	15.5 11.9	1.51 1.74	2.7 2.8	39.1 46.3	0.80	78.9 62.0	77.6	0.480 0.480	0.169 0.123	0.220	0.46 0.33	NonLiqfble. NonLiqfble.
	33.98	12	16.4	0.29	115	4191	2817	13.5	10.2	2.03	2.9	51.9	0.80	54.1	67.6	0.480	0.109	0.141	0.29	NonLiqfble.
	34.07	12	15.4	0.3	115	4201	2821	12.7	9.4	2.26	3.0	55.2	0.80	50.7	63.4	0.481	0.104	0.135	0.28	NonLiqfble.
	34.16	12	14.8	0.28	115	4212	2826	12.2	9.0	2.21	3.0	56.0	0.80	48.7	60.9	0.481	0.101	0.131	0.27	NonLiqfble.
	34.24	12	14.5	0.27	115	4221	2830	11.9	8.8	2.18	3.0	56.5	0.80	47.7	59.6	0.482	0.100	0.130	0.27	NonLiqfble.
	34.33	12	14.1	0.27	115	4231	2835	11.6	8.5	2.25	3.0	57.8	0.80	46.3	57.9	0.482	0.098	0.128	0.26	NonLiqfble.
	34.42 34.51	12 12	13.6 14.5	0.27 0.33	115 115	4241 4252	2840 2845	11.2 11.9	8.1 8.7	2.35 2.67	3.0	59.6 59.8	0.80	44.7 47.6	55.8 59.5	0.482 0.483	0.096 0.100	0.125 0.129	0.26 0.27	NonLiqfble. NonLiqfble.
	34.6	12	15.4	0.33	125	4262	2849	12.6	9.3	3.01	3.0	60.1	0.80	50.5	63.1	0.483	0.100	0.129	0.28	NonLiqfble.
	34.65	12	13.9	0.45	125	4268	2852	11.4	8.2	3.82	3.1	67.4	0.80	45.5	56.9	0.483	0.097	0.126	0.26	NonLiqfble.
	34.75	12	19.4	0.51	125	4281	2859	15.9	12.1	2.96	2.9	53.6	0.80	63.5	79.4	0.484	0.127	0.164	0.34	NonLiqfble.
	34.84	12	20.8	0.58	125	4292	2864	17.0	13.0	3.11	2.9	52.8	0.80	68.0	85.0	0.484	0.137	0.178	0.37	NonLiqfble.
	34.93	12	20.6	0.68	125	4303	2870	16.8	12.8	3.69	3.0	55.9	0.80	67.3	84.1	0.484	0.135	0.176	0.36	NonLiqfble.
	35.02	12	22.3 26	0.81	135	4315	2876	18.2	14.0	4.02	3.0	55.5	0.80	72.8	91.0	0.485	0.150	0.195	0.40	NonLiqfble.
	35.11 35.2	12 12	27.1	0.81 0.72	135 135	4327 4339	2882 2889	21.2 22.1	16.5 17.3	3.40 2.89	2.9 2.8	49.1 45.7	0.80	84.8 88.2	105.9 110.3	0.485 0.485	0.191 0.205	0.248 0.266	0.51 0.55	NonLiqfble. NonLiqfble.
	35.29	12	26.8	0.63	125	4351	2895	21.8	17.0	2.56	2.8	44.2	0.80	87.2	109.0	0.485	0.200	0.260	0.54	NonLiqfble.
	35.37	12	25.1	0.71	125	4361	2900	20.4	15.8	3.10	2.8	48.6	0.80	81.6	102.0	0.486	0.179	0.232	0.48	NonLiqfble.
	35.46	12	24.7	0.9	135	4372	2906	20.0	15.5	4.00	2.9	53.2	0.80	80.2	100.2	0.486	0.174	0.226	0.46	NonLiqfble.
	35.55	12	27.2	1.25	135	4384	2912	22.1	17.2	5.00	2.9	54.9	0.80	88.2	110.3	0.486	0.205	0.266	0.55	NonLiqfble.
	35.64	12	30.6	1.47	135	4397	2919	24.8	19.5	5.18	2.9	52.9	0.80	99.1	123.9	0.486	0.257	0.334	0.69	NonLiqfble.
	35.72 35.8	12 12	96.9 317.8	1.99 3.07	135 125	4407 4418	2925 2931	78.4 256.9	64.7 215.3	2.10 0.97	2.3	21.3 5.4	0.43 0.01	60.1 2.5	138.5 259.4	0.487 0.487	0.327 1.703	0.425 2.214	0.87 4.55	Liquefaction
	35.88	12	429.7	3.15	115	4428	2936	347.0	291.1	0.74	1.7	2.6	0.00	0.0	347.0	0.487	3.966	5.156	10.58	
	35.94	12	471.3	3.3	115	4435	2939	380.4	319.1	0.70	1.4	2.0	0.00	0.0	380.4	0.487	5.199	6.759	13.87	
	36.02	12	529.4	3.27	115	4444	2943	427.0	358.1	0.62	1.4	1.1	0.00	0.0	427.0	0.488	7.319	9.515	19.51	
	36.1	12	543.8	3.63	115	4454	2947	438.3	367.4	0.67	1.4	1.3	0.00	0.0	438.3	0.488	7.910	10.283	21.07	
	36.18	12	558.9	3.63	115	4463	2951	450.1	377.1	0.65	1.4	1.1	0.00	0.0	450.1	0.488	8.562	11.131	22.80	
	36.24	12	577.9	3.56	115	4470	2955	465.2	389.5	0.62	1.3	0.8	0.00	0.0	465.2	0.489	9.442	12.274	25.13	
	36.3 36.37	12 12	593 609.5	3.07 3.07	115 105	4477 4485	2958 2961	477.1 490.1	399.3 409.9	0.52 0.51	1.3	0.2	0.00	0.0	477.1 490.1	0.489 0.489	10.179 11.025	13.232 14.332	27.07 29.31	
	36.45	12	600.7	3.06	115	4493	2965	482.7	403.5	0.51	1.3	0.1	0.00	0.0	482.7	0.489	10.540	13.702	28.00	
	36.52	12	594.7	3.06	115	4501	2968	477.6	399.0	0.52	1.3	0.2	0.00	0.0	477.6	0.490	10.210	13.274	27.11	
	36.6	12	595	2.94	105	4510	2973	477.5	398.6	0.50	1.3	0.0	0.00	0.0	477.5	0.490	10.204	13.266	27.08	
	36.68	12	597.7	2.88	105	4519	2976	479.4	400.0	0.48	1.3	-0.1	0.00	0.0	479.4	0.490	10.325	13.423	27.38	
	36.75	12	590.6	2.55	105	4526	2979	473.4	394.8	0.43	1.2	-0.3	0.00	0.0	473.4	0.491	9.949	12.934	26.36	
	36.82 36.89	12 12	585.7 564.3	2.54 2.43	105 105	4533 4541	2982 2985	469.3 451.9	391.1 376.4	0.44 0.43	1.2	-0.3 -0.2	0.00	0.0	469.3 451.9	0.491 0.491	9.691 8.663	12.599 11.262	25.66 22.93	
	36.96	12	550.1	2.42	105	4548	2988	440.3	366.5	0.43	1.3	-0.2	0.00	0.0	440.3	0.491	8.019	10.425	21.21	
	37.04	12	516.2	2.42	105	4556	2991	412.9	343.5	0.47	1.3	0.3	0.00	0.0	412.9	0.492	6.629	8.618	17.52	
	37.11	12	487.7	2.27	105	4564	2994	390.0	324.1	0.47	1.3	0.5	0.00	0.0	390.0	0.492	5.595	7.273	14.78	
	37.18	12	465.1	2.22	105	4571	2997	371.7	308.7	0.48	1.3	0.7	0.00	0.0	371.7	0.492	4.856	6.313	12.82	
	37.25	12	446.9	2.39	115	4578	3000	357.0	296.2	0.54	1.4	1.3	0.00	0.0	357.0	0.493	4.311	5.604	11.37	
	37.32	12	433.6	2.12	105	4587	3004	346.1	287.0	0.49	1.4	1.1	0.00	0.0	346.1	0.493	3.937	5.118	10.38	
	37.39 37.46	12 12	425.1 402.7	1.93 0.93	105 95	4594 4601	3007 3010	339.2 321.2	281.1 265.9	0.46 0.23	1.3	0.9 -0.5	0.00	0.0	339.2 321.2	0.493 0.494	3.709 3.161	4.822 4.109	9.77 8.32	
	37.52	12	400.2	2.42	115	4607	3010	319.1	264.1	0.23	1.5	2.2	0.00	0.0	319.1	0.494	3.101	4.031	8.16	
	37.58	12	406.9	2.5	115	4614	3015	324.2	268.3	0.62	1.5	2.2	0.00	0.0	324.2	0.494	3.250	4.225	8.55	
	37.63	12	417.5	2.42	115	4620	3018	332.5	275.1	0.58	1.4	1.8	0.00	0.0	332.5	0.494	3.500	4.550	9.20	
	37.69	12	414	2.11	115	4626	3021	329.6	272.4	0.51	1.4	1.4	0.00	0.0	329.6	0.495	3.409	4.432	8.96	
	37.72	12	126.2	1.95	135	4630	3022	100.4	81.9	1.57	2.1	16.0	0.29	41.5	142.0	0.495	0.346	0.450	0.91	Liquefaction
	37.77	12	405.8 412.7	1.93	105	4637	3026	322.8	266.6	0.48	1.4	1.3	0.00	0.0	322.8	0.495	3.207	4.169	8.43	
	37.83 37.88	12 12	390.2	1.95 2.27	105 115	4643 4648	3029 3031	328.1 310.1	270.9 255.8	0.48 0.59	1.4 1.5	1.2 2.2	0.00	0.0	328.1 310.1	0.495 0.495	3.365 2.854	4.375 3.710	8.84 7.49	
	37.92	12	373	2.18	115	4653	3033	296.3	244.3	0.59	1.5	2.4	0.00	0.0	296.3	0.495	2.500	3.250	6.56	
	37.99	12		1.77		4661	3037	253.1	208.4	0.56	1.5	2.9	0.00	0.0	253.1	0.496	1.588	2.065	4.17	

EQ Magnitude ( $M_w$ ): 6.5 Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 29

Depth to Groundwater: 12 feet

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{CPT}$	DqcIN	(qclN)cs	Ratio	M7.5	M6.50	Safety	Comments
	38.05	12		1.57	105	4668	3040	286.7	236.1	0.44	1.4	1.5	0.00	0.0	286.7	0.496	2.272	2.954	5.96	
	38.12	12		1.52	105	4675	3043	300.5	247.4	0.40	1.4	1.0	0.00	0.0	300.5	0.496	2.605	3.386	6.82	
	38.17	12		1.39	105	4680	3045	296.2	243.7	0.37	1.3	0.9	0.00	0.0	296.2	0.496	2.496	3.245	6.54	
	38.22	12	381.4	1.55	105	4686	3047	302.3	248.7	0.41	1.4	1.0	0.00	0.0	302.3	0.497	2.650	3.445	6.94	
	38.28	12		1.88	105	4692	3050	320.3	263.4	0.47	1.4	1.2	0.00	0.0	320.3	0.497	3.135	4.075	8.20	
	38.32	12		2.13	105	4696	3051	334.6	275.2	0.51	1.4	1.3	0.00	0.0	334.6	0.497	3.563	4.632	9.32	
	38.36	12	338.1	2.27	115	4700	3053	267.7	219.9	0.68	1.5	3.4	0.00	0.0	267.7	0.497	1.865	2.424	4.88	
	38.4	12	431.4	2.21	115	4705	3055	341.5	280.8	0.52	1.4	1.3	0.00	0.0	341.5	0.497	3.784	4.919	9.89	
	38.43	12		2.18	105	4708	3057	345.6	284.1	0.50	1.4	1.2	0.00	0.0	345.6	0.497	3.919	5.095	10.24	
	38.47	12	425.1	2.17	115	4713	3058	336.3	276.3	0.51	1.4	1.4	0.00	0.0	336.3	0.498	3.618	4.704	9.45	
	38.55	12	534.8	2.79	115	4722	3063	422.8	347.6	0.52	1.3	0.6	0.00	0.0	422.8	0.498	7.110	9.244	18.57	
	38.62	12		2.3	105	4730	3066	452.8	372.1	0.40	1.2	-0.4	0.00	0.0	452.8	0.498	8.716	11.331	22.75	
	38.69	12	605.9	2.06	105	4737	3069	478.5	393.1	0.34	1.2	-0.9	0.00	0.0	478.5	0.498	10.271		26.79	
	38.76	12	591.9	2.23	105	4745	3072	467.2	383.6	0.38	1.2	-0.6	0.00	0.0	467.2	0.499	9.567	12.436	24.94	
	38.82	12	565.7	2.97	115	4751	3075	446.4	366.3	0.53	1.3	0.5	0.00	0.0	446.4	0.499	8.351	10.857	21.76	
	38.88	12	567.4	3.85	115	4758	3078	447.5	367.0	0.68	1.4	1.4	0.00	0.0	447.5	0.499	8.413	10.937	21.91	
	38.94	12	538.8	4.23	125	4765	3081	424.7	348.1	0.79	1.5	2.2	0.00	0.0	424.7	0.499	7.205	9.366	18.76	
	39.01	12	501.7	4.34	125	4773	3085	395.2	323.5	0.87	1.5	2.9	0.00	0.0	395.2	0.500	5.820	7.566	15.14	
	39.07	12	504.8	4.37	125	4781	3089	397.4	325.1	0.87	1.5	2.9	0.00	0.0	397.4	0.500	5.916	7.691	15.39	
	39.14	12	464.4	4.18	125	4790	3094	365.3	298.6	0.90	1.5	3.4	0.00	0.0	365.3	0.500	4.614	5.999	12.00	
	39.2	12	465.6	3.76	125	4797	3097	366.0	299.0	0.81	1.5	2.9	0.00	0.0	366.0	0.500	4.641	6.034	12.06	
	39.26	12	452.3	3.07	115	4805	3101	355.4	290.0	0.68	1.5	2.3	0.00	0.0	355.4	0.500	4.254	5.530	11.05	
	39.32	12		2.51	115	4812	3104	347.4	283.4	0.57	1.4	1.6	0.00	0.0	347.4	0.501	3.980	5.174	10.34	
	39.36	12	429	2.18	115	4816	3106	336.8	274.5	0.51	1.4	1.4	0.00	0.0	336.8	0.501	3.632	4.722	9.43	
	39.41	12	406	2.04	105	4822	3109	318.6	259.5	0.51	1.4	1.6	0.00	0.0	318.6	0.501	3.087	4.014	8.01	
	39.46	12		1.98	105	4827	3111	317.5	258.6	0.49	1.4	1.5	0.00	0.0	317.5	0.501	3.058	3.975	7.93	
	39.49	12	405.7	2	105	4830	3112	318.2	259.0	0.50	1.4	1.5	0.00	0.0	318.2	0.501	3.076	3.999	7.98	
	39.52	12	403.8	2.31	115	4833	3114	316.6	257.7	0.58	1.4	2.1	0.00	0.0	316.6	0.501	3.032	3.942	7.86	
	39.56	12	407	2.63	115	4838	3116	319.0	259.6	0.65	1.5	2.5	0.00	0.0	319.0	0.501	3.100	4.030	8.04	
	39.62	12	421.1	1.83	105	4845	3119	329.9	268.4	0.44	1.4	1.0	0.00	0.0	329.9	0.502	3.420	4.445	8.86	
	39.68	12	443.8	2.14	105	4851	3121	347.6	282.7	0.48	1.4	1.1	0.00	0.0	347.6	0.502	3.984	5.180	10.32	
	39.73	12		2.23	105	4856	3124	351.4	285.7	0.50	1.4	1.1	0.00	0.0	351.4	0.502	4.114	5.348	10.65	
	39.78	12	355.1	2	115	4862	3126	277.9	225.6	0.57	1.5	2.6	0.00	0.0	277.9	0.502	2.076	2.699	5.37	
	39.83	12	488.6	2.32	105	4867	3128	382.2	310.7	0.48	1.3	0.7	0.00	0.0	382.2	0.502	5.273	6.855	13.64	
	39.86	12	569.3	2.75	105	4871	3130	445.3	362.1	0.49	1.3	0.3	0.00	0.0	445.3	0.503	8.289	10.776	21.44	
	39.93	12	636.9	3.33	115	4878	3133	497.9	404.9	0.52	1.3	0.2	0.00	0.0	497.9	0.503		15.026	29.88	
	39.98	12	677.3	3.69	115	4884	3135	529.3	430.3	0.55	1.3	0.1	0.00	0.0	529.3	0.503	13.867	18.027	35.84	
	40.03	12	715.1	4.56	115	4889	3138	558.6	454.0	0.64	1.3	0.5	0.00	0.0	558.6	0.465	16.286	21.172	45.54	

**PGA (g):** 0.54

**MSF:** 1.30

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 30

Depth to Groundwater: 14 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	q <sub>c1N</sub>	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	0.53	14	189.8	1.55	125	66	66	363.5	5726.4	0.82	1.2	-0.8	0.00	0.0	363.5	0.351	4.547	5.911	16.84	Above W.T.
	0.61 0.69	14 14	198.2 178.6	2.04 1.99	125 125	76	76	379.6 342.1	5195.5 4138.7	1.03 1.11	1.3	0.0	0.00	0.0	379.6 342.1	0.351	5.167 3.802	6.717 4.943	19.14 14.08	Above W.T. Above W.T.
	0.09	14	170.6	1.99	125	86 98	86 98	326.7	3497.0	1.11	1.3	0.2	0.00	0.0	326.7	0.351	3.324	4.321	12.31	Above W.T.
	0.86	14	129	1.97	135	108	108	247.1	2398.0	1.53	1.4	1.6	0.00	0.0	247.1	0.351	1.482	1.927	5.49	Above W.T.
	0.92	14	113.6	1.98	135	116	116	217.6	1963.6	1.74	1.5	2.5	0.00	0.0	217.6	0.351	1.038	1.349	3.84	Above W.T.
	1.01	14	91	2.09	135	128	128	174.3	1423.1	2.30	1.6	4.6	0.00	0.0	174.3	0.351	0.572	0.744	2.12	Above W.T.
	1.09 1.18	14 14	71.3 51.5	1.81 1.88	135 135	139 151	139 151	136.6 98.6	1027.8 682.2	2.54 3.66	1.7 1.9	5.9 10.2	0.02 0.14	3.4 16.0	139.9 114.6	0.351	0.335 0.220	0.435 0.286	1.24 0.82	Above W.T. Above W.T.
	1.27	14	39.1	1.94	135	163	163	74.9	479.0	4.97	2.1	15.0	0.14	27.3	102.2	0.351	0.179	0.233	0.66	Above W.T.
	1.37	14	34.8	1.87	135	176	176	66.6	393.5	5.39	2.1	17.0	0.32	31.4	98.1	0.351	0.168	0.218	0.62	Above W.T.
	1.46	14	33.3	1.65	135	189	189	63.8	352.2	4.97	2.1	16.6	0.31	28.8	92.5	0.351	0.154	0.200	0.57	Above W.T.
	1.56	14	32.7	1.43	135	202	202	62.6	322.6	4.39	2.1	15.7	0.29	25.0	87.6	0.351	0.143	0.185	0.53	Above W.T.
	1.65 1.74	14 14	32.8 34	1.33 1.12	135 135	214 226	214 226	62.8 65.1	305.2 299.4	4.07 3.31	2.1	15.2 13.0	0.27 0.21	23.4 17.8	86.2 82.9	0.351	0.140 0.133	0.181 0.173	0.52 0.49	Above W.T. Above W.T.
	1.83	14	33.7	0.92	135	238	238	64.5	281.5	2.74	1.9	11.5	0.17	13.7	78.2	0.351	0.125	0.162	0.46	Above W.T.
	1.92	14	35.2	0.67	125	251	251	67.4	279.8	1.91	1.8	8.5	0.09	6.9	74.3	0.351	0.118	0.154	0.44	Above W.T.
	2.01	14	37.2	0.69	125	262	262	71.2	283.0	1.86	1.8	8.2	0.09	6.7	77.9	0.351	0.124	0.161	0.46	Above W.T.
	2.1	14	34	0.97	135 135	273 279	273	65.1	247.9	2.86	2.0	12.7	0.21	17.0	82.1	0.351	0.131	0.171	0.49	Above W.T.
	2.14 2.23	14 14	34.5 38.2	1.11 1.26	135	291	279 291	66.1 73.2	246.7 261.7	3.23 3.31	2.0	14.0 13.9	0.24 0.24	20.9 22.7	86.9 95.9	0.351 0.351	0.141 0.162	0.183 0.210	0.52	Above W.T. Above W.T.
	2.32	14	31.1	1.26	135	303	303	59.6	204.3	4.07	2.2	17.9	0.34	31.2	90.8	0.351	0.150	0.194	0.55	Above W.T.
	2.41	14	19.5	1.3	135	315	315	37.3	122.8	6.72	2.5	29.3	0.65	69.3	106.7	0.351	0.193	0.251	0.71	Above W.T.
	2.5	14	20	1.13	135	327	327	38.3	121.2	5.70	2.4	27.0	0.59	54.3	92.6	0.351	0.154	0.200	0.57	Above W.T.
	2.59 2.68	14 14	21.2 23.8	1.1 1.09	135 135	339 351	339 351	40.6 45.6	123.9 134.4	5.23 4.61	2.4	25.5 23.0	0.55 0.48	49.2 42.2	89.8 87.8	0.351	0.147 0.143	0.191 0.186	0.55 0.53	Above W.T. Above W.T.
	2.77	14	25.6	1.13	135	364	364	49.0	139.8	4.45	2.3	22.1	0.46	41.4	90.4	0.351	0.149	0.193	0.55	Above W.T.
	2.86	14	20	1.07	135	376	376	38.3	105.4	5.40	2.4	27.7	0.61	58.7	97.0	0.351	0.165	0.214	0.61	Above W.T.
	2.96	14	20.4	1.12	135	389	389	39.1	103.8	5.54	2.4	28.2	0.62	63.7	102.8	0.351	0.181	0.235	0.67	Above W.T.
	3.05	14	19.5	0.98	135	401	401	37.3	96.1	5.08	2.4	27.8	0.61	58.0	95.3	0.351	0.161	0.209	0.59	Above W.T.
	3.14 3.24	14 14	19.1 18.2	0.95 0.89	135 125	414 427	414 427	36.6 34.9	91.3 84.2	5.03 4.95	2.4	28.2 28.9	0.62 0.64	59.6 61.6	96.2 96.5	0.351	0.163 0.164	0.212 0.213	0.60 0.61	Above W.T. Above W.T.
	3.33	14	17.5	0.03	125	438	438	33.5	78.8	5.38	2.5	31.0	0.69	75.7	109.3	0.351	0.104	0.213	0.75	Above W.T.
	3.42	14	18.6	0.92	135	450	450	35.6	81.7	5.01	2.5	29.4	0.65	67.0	102.6	0.351	0.180	0.235	0.67	Above W.T.
	3.52	14	15.8	0.89	125	463	463	30.3	67.2	5.72	2.6	33.9	0.77	102.7	133.0	0.351	0.299	0.388	1.11	Above W.T.
	3.61	14	13.7	0.86	125	474	474	26.2	56.8	6.39	2.7	38.1	0.80	105.0	131.2	0.351	0.290	0.377	1.07	Above W.T.
	3.71 3.8	14 14	13.2 11.2	0.83 0.82	125 125	487 498	487 498	25.3 21.5	53.2 44.0	6.41 7.49	2.7 2.8	39.1 44.8	0.80	101.1 85.8	126.4 107.3	0.351	0.268 0.195	0.348 0.253	0.99 0.72	Above W.T. Above W.T.
	3.89	14	10.7	0.83	125	509	509	20.5	41.0	7.95	2.8	47.1	0.80	82.0	102.5	0.351	0.180	0.234	0.67	Above W.T.
	3.99	14	12	0.84	125	522	522	23.0	45.0	7.16	2.8	43.6	0.80	91.9	114.9	0.351	0.221	0.287	0.82	Above W.T.
	4.08	14	13.7	0.85	125	533	533	26.0	50.4	6.33	2.7	39.7	0.80	103.9	129.8	0.351	0.283	0.369	1.05	Above W.T.
	4.18 4.27	14	14.9 15	0.84 0.85	125 125	546 557	546	27.9 27.8	53.6 52.9	5.74 5.77	2.6 2.6	37.1 37.4	0.80	111.7 111.3	139.6 139.1	0.351	0.333	0.433 0.429	1.23 1.22	Above W.T.
	4.27	14 14	15.1	0.88	125	568	557 568	27.7	52.9	5.94	2.7	38.1	0.80	110.9	139.1	0.351	0.330	0.429	1.22	Above W.T. Above W.T.
	4.46	14	16.6	0.92	125	581	581	30.1	56.2	5.64	2.6	36.2	0.80	120.6	150.7	0.351	0.398	0.518	1.48	Above W.T.
	4.55	14	20.1	1	135	592	592	36.2	66.9	5.05	2.5	32.1	0.72	94.2	130.3	0.351	0.286	0.372	1.06	Above W.T.
	4.64	14	26.1	1.19	135		604	46.5	85.4	4.61	2.4	27.8	0.61	71.9	118.4	0.351	0.234	0.305	0.87	Above W.T.
	4.74 4.83	14 14	35.9 53.1	1.5 1.7	135 135	617 630	617 630	63.2 92.6	115.2 167.6	4.21 3.22	2.3	23.3 16.7	0.49 0.31	60.4 42.2	123.6 134.8	0.351 0.351	0.256 0.308	0.333 0.400	0.95 1.14	Above W.T. Above W.T.
	4.92	14	89.9	2.12	135	642	642	155.3	279.1	2.37	1.9	10.7	0.31	25.4	180.7	0.351	0.629	0.400	2.33	Above W.T.
	5.01	14	103.8	2.48	135	654	654	177.6	316.4	2.40	1.9	9.7	0.13	25.5	203.1	0.351	0.859	1.117	3.18	Above W.T.
	5.1	14	84.6	2.47	135	666	666	143.4	252.9	2.93	2.0	12.8	0.21	38.0	181.4	0.351	0.635	0.826	2.35	Above W.T.
	5.2	14	62.3	2.36	135	680	680	104.6	182.3	3.81	2.2	18.0	0.35	55.4	160.0	0.351	0.461	0.599	1.71	Above W.T.
	5.29 5.33	14 14	52 53.1	2.17 2.04	135 135	692 697	692 697	86.5 88.0	149.3 151.3	4.20 3.87	2.3	20.8 19.7	0.42 0.39	63.3 56.8	149.8 144.8	0.351 0.351	0.393 0.362	0.511 0.471	1.46 1.34	Above W.T. Above W.T.
	5.43	14	46	1.78	135	711	711	75.5	128.4	3.90	2.3	21.3	0.39	58.0	133.5	0.351	0.302	0.471	1.12	Above W.T.
	5.52	14	43.4	1.59	135	723	723	70.6	119.1	3.69	2.3	21.3	0.44	54.5	125.2	0.351	0.262	0.341	0.97	Above W.T.
	5.61	14	41.8	1.51	135	735	735	67.5	112.7	3.64	2.3	21.7	0.45	54.2	121.6	0.351	0.247	0.322	0.92	Above W.T.
	5.7	14	41.9	1.43	135	747	747	67.1	111.1	3.44	2.3	21.1	0.43	50.7	117.8	0.351	0.232	0.302	0.86	Above W.T.
	5.79 5.88	14 14	42.4 42.7	1.44 1.45	135 135	759 771	759 771	67.3 67.3	110.7 109.7	3.43 3.43	2.3	21.1 21.2	0.43 0.43	50.8 51.3	118.2 118.5	0.351 0.351	0.233 0.235	0.303 0.305	0.86 0.87	Above W.T. Above W.T.
	5.98	14	42.1	1.48	135	785	785	65.8	106.2	3.55	2.3	21.9	0.45	54.3	120.0	0.351	0.233	0.303	0.89	Above W.T.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 30

Depth to Groundwater: 14 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

Depth   Table   Resist   Frict   g   Stress   Stress   Frict   Green	
6.07 14 40.8 1.52 135 797 797 63.2 101.3 3.76 2.3 23.1 0.48 59.4 122.7 0.351 0.252 0.327 0.93 Above W 6.16 14 39.3 1.55 135 809 809 60.5 96.1 3.99 2.4 24.4 0.52 65.3 125.7 0.351 0.265 0.344 0.98 Above W 6.25 14 38.5 1.53 135 821 821 58.8 92.7 4.02 2.4 24.9 0.53 66.9 125.7 0.351 0.265 0.344 0.98 Above W 6.25 14 38.5 1.53 135 821 821 58.8 92.7 4.02 2.4 24.9 0.53 66.0 121.2 0.351 0.245 0.319 0.91 Above W 6.24 14 38.4 1.45 135 834 834 58.2 91.1 3.82 2.4 24.5 0.52 63.0 121.2 0.351 0.245 0.319 0.91 Above W 6.53 14 42.5 1.16 135 859 859 63.4 97.9 2.76 2.2 19.8 0.40 41.5 104.9 0.351 0.187 0.244 0.69 Above W 6.62 14 44.8 1.02 135 871 871 66.4 101.8 2.30 2.2 17.5 0.33 33.2 99.6 0.351 0.172 0.224 0.64 Above W 6.71 14 49.7 0.87 135 883 883 73.2 111.5 1.77 2.0 14.2 0.24 2.37 96.9 0.351 0.164 0.214 0.61 Above W 6.89 14 53.2 0.77 125 907 907 77.3 116.3 1.46 2.0 12.2 0.19 18.4 95.7 0.351 0.162 0.210 0.59 Above W 6.89 14 47.8 0.79 135 930 930 59.8 88.6 2.18 2.2 18.3 0.36 32.9 92.8 0.351 0.154 0.201 0.57 Above W 7.16 14 33.6 1.08 135 930 930 59.8 88.6 2.18 2.2 18.3 0.36 32.9 92.8 0.351 0.154 0.201 0.57 Above W 7.26 14 27.5 1.19 135 956 95 38.9 56.5 4.40 2.5 32.2 12.5 0.49 18.4 0.351 0.180 0.057 Above W 7.35 14 22.5 1.19 135 980 980 32.4 46.3 54.2 2.1 38.1 0.80 132.8 16.9 0.351 0.160 0.210 0.60 Above W 7.35 14 23.6 1.27 135 980 980 32.4 46.3 54.2 2.7 38.1 0.80 132.8 16.9 0.351 0.160 0.210 0.60 Above W 7.35 14 23.6 1.27 135 980 980 32.4 46.3 54.2 2.7 38.1 0.80 132.8 16.9 0.351 0.160 0.351 0.57 Above W 7.44 14 23.2 1.23 135 980 980 32.4 46.3 54.2 2.7 38.1 0.80 132.9 19.1 0.351 0.180 0.057 0.57 Above W 7.53 14 27.5 1.19 135 950 992 38.2 54.4 3.89 2.5 31.0 0.69 86.5 124.7 0.351 0.450 0.338 0.96 Above W 7.44 14 23.2 1.23 135 980 980 32.4 46.3 54.2 2.7 38.1 0.80 132.9 1.07 10.5 0.035 0.657 1.87 Above W 7.44 14 23.2 1.23 135 980 980 32.4 46.3 54.2 2.7 38.1 0.80 132.9 1.07 10.5 0.035 0.557 0.550 0.350 0.550 0.550 0.350 0.550	ients
6.16	CITES
6.16	
6.16	
6.25	
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6.53	W.T.
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Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 30

Depth to Groundwater: 14 feet

Maintenance and Storage Yard EQ Magnitude  $(M_w)$ : 6.5 PGA (g): 0.54

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	11.83	14	7.3	0.38	115	1511	1511	8.2	8.7	5.81	3.2	74.3	0.80	32.9	41.1	0.344	0.086	0.112	0.33	Above W.T.
	11.86	14	7.1	0.38	115	1515	1515	8.0	8.4	5.99	3.2	75.9	0.80	31.9	39.9	0.344	0.086	0.112	0.32	Above W.T.
	11.95	14	7	0.4	115	1525	1525	7.8	8.2	6.41	3.3	78.0	0.80	31.4	39.2	0.344	0.086	0.111	0.32	Above W.T.
	12.05 12.14	14 14	6.9 6.9	0.4 0.39	115 115	1536 1547	1536 1547	7.7 7.7	8.0 7.9	6.52 6.37	3.3 3.3	79.1 78.8	0.80	30.8 30.7	38.5 38.4	0.344 0.344	0.085 0.085	0.111 0.111	0.32 0.32	Above W.T. Above W.T.
	12.14	14	7.4	0.39	115	1557	1557	8.2	8.5	6.04	3.2	75.7	0.80	32.8	41.0	0.344	0.085	0.111	0.32	Above W.T.
	12.33	14	7.1	0.39	115	1569	1569	7.8	8.0	6.18	3.3	77.7	0.80	31.4	39.2	0.344	0.086	0.111	0.32	Above W.T.
	12.42	14	7.3	0.4	115	1579	1579	8.0	8.2	6.14	3.2	76.9	0.80	32.2	40.2	0.344	0.086	0.112	0.33	Above W.T.
	12.51	14	7.6	0.42	115	1589	1589	8.3	8.6	6.17	3.2	76.0	0.80	33.4	41.7	0.344	0.087	0.113	0.33	Above W.T.
	12.61	14	7.3	0.45	115	1601	1601	8.0	8.1	6.92	3.3	80.0	0.80	31.9	39.9	0.344	0.086	0.112	0.32	Above W.T.
	12.7	14	8.3	0.45	115	1611	1611	9.0	9.3	6.00	3.2	73.1	0.80	36.2	45.2	0.344	0.089	0.115	0.33	Above W.T.
	12.79 12.89	14 14	9 9.4	0.46 0.49	115 115	1622 1633	1622 1633	9.8 10.2	10.1 10.5	5.62 5.71	3.2 3.1	69.6 68.9	0.80	39.1 40.7	48.9 50.9	0.344	0.091 0.092	0.118 0.120	0.34 0.35	Above W.T. Above W.T.
	12.98	14	8.7	0.48	115	1643	1643	9.4	9.6	6.09	3.2	72.7	0.80	37.6	46.9	0.344	0.092	0.120	0.34	Above W.T.
	13.08	14	8.7	0.5	115	1655	1655	9.4	9.5	6.35	3.2	73.7	0.80	37.4	46.8	0.344	0.090	0.116	0.34	Above W.T.
	13.17	14	9.6	0.5	115	1665	1665	10.3	10.5	5.70	3.1	68.9	0.80	41.2	51.5	0.344	0.093	0.120	0.35	Above W.T.
	13.26	14	11	0.48	125	1676	1676	11.8	12.1	4.72	3.0	61.7	0.80	47.0	58.8	0.344	0.099	0.129	0.37	Above W.T.
	13.36	14	11.7	0.46	125	1688	1688	12.5	12.9	4.24	3.0	58.3	0.80	49.8	62.3	0.344	0.102	0.133	0.39	Above W.T.
	13.45	14	10.9	0.48	125	1699	1699	11.6	11.8	4.78	3.1	62.5	0.80	46.3	57.8	0.344	0.098	0.127	0.37	Above W.T.
	13.54	14	11.3	0.5	125	1711	1711	12.0	12.2	4.79	3.0	61.8	0.80	47.8	59.8	0.344	0.100	0.130	0.38	Above W.T.
	13.64 13.73	14 14	12.1 11.7	0.53 0.59	125 125	1723 1734	1723 1734	12.8 12.3	13.0 12.5	4.72 5.45	3.0	60.0 63.7	0.80	51.0 49.2	63.8 61.5	0.344	0.104 0.102	0.135 0.132	0.39 0.38	Above W.T. Above W.T.
	13.82	14	11.9	0.66	125	1746	1746	12.5	12.6	5.99	3.1	65.3	0.80	49.8	62.3	0.344	0.102	0.133	0.39	Above W.T.
	13.92	14	11.4	0.7	125	1758	1758	11.9	12.0	6.65	3.1	68.9	0.80	47.6	59.5	0.344	0.100	0.129	0.38	Above W.T.
	14.01	14	11.3	0.71	125	1769	1764	11.8	11.8	6.82	3.2	69.7	0.80	47.1	58.9	0.345	0.099	0.129	0.37	NonLiqfble.
	14.1	14	11.2	0.71	125	1781	1769	11.6	11.6	6.89	3.2	70.3	0.80	46.6	58.2	0.346	0.098	0.128	0.37	NonLiqfble.
	14.19	14	10.1	0.69	125	1792	1775	10.5	10.4	7.50	3.2	75.1	0.80	42.0	52.4	0.347	0.093	0.121	0.35	NonLiqfble.
	14.28	14	9.6 9.9	0.65	125	1803	1781	10.0	9.8	7.47	3.2	76.6	0.80	39.8	49.8 51.2	0.348	0.091	0.119	0.34	NonLiqfble.
	14.38 14.47	14 14	10	0.61 0.61	125 125	1816 1827	1787 1793	10.2 10.3	10.1 10.1	6.78 6.71	3.2 3.2	73.7 73.3	0.80	41.0 41.3	51.2	0.350 0.351	0.093	0.120 0.121	0.34 0.34	NonLiqfble. NonLiqfble.
	14.56	14	10.2	0.59	125	1838	1798	10.5	10.3	6.36	3.2	71.6	0.80	42.1	52.6	0.352	0.094	0.122	0.35	NonLiqfble.
	14.65	14	9.7	0.58	125	1849	1804	10.0	9.7	6.61	3.2	74.0	0.80	40.0	50.0	0.353	0.092	0.119	0.34	NonLiqfble.
	14.75	14	9.8	0.58	125	1862	1810	10.1	9.8	6.54	3.2	73.6	0.80	40.3	50.4	0.354	0.092	0.119	0.34	NonLiqfble.
	14.84	14	9.5	0.59	125	1873	1816	9.8	9.4	6.89	3.2	75.7	0.80	39.0	48.8	0.355	0.091	0.118	0.33	NonLiqfble.
	14.93	14	9.5	0.61	125	1884	1821	9.7	9.4	7.13	3.2	76.6	0.80	39.0	48.7	0.356	0.091	0.118	0.33	NonLiqfble.
	15.03	14 14	9.7 10.6	0.62	125 125	1897	1828	9.9	9.6	7.08	3.2	76.0 72.9	0.80	39.7	49.6	0.357	0.091	0.119	0.33	NonLiqfble.
	15.28 15.38	14	11	0.66 0.68	125	1928 1941	1843 1849	10.8 11.2	10.5 10.8	6.85 6.78	3.2 3.2	71.7	0.80 0.80	43.2 44.8	54.0 56.0	0.360 0.361	0.095 0.096	0.123 0.125	0.34 0.35	NonLiqfble. NonLiqfble.
	15.47	14	10.5	0.69	125	1952	1855	10.7	10.3	7.25	3.2	74.6	0.80	42.7	53.3	0.362	0.094	0.122	0.34	NonLiqfble.
	15.56	14	10.5	0.68	125	1963	1861	10.7	10.2	7.14	3.2	74.4	0.80	42.6	53.3	0.363	0.094	0.122	0.34	NonLiqfble.
	15.65	14	11	0.66	125	1974	1866	11.1	10.7	6.59	3.2	71.4	0.80	44.6	55.7	0.364	0.096	0.125	0.34	NonLiqfble.
	15.74	14	10.9	0.65	125	1986	1872	11.0	10.6	6.56	3.2	71.7	0.80	44.1	55.1	0.365	0.096	0.124	0.34	NonLiqfble.
	15.84	14	10.2	0.63	125	1998	1878	10.3	9.8	6.85	3.2	74.6	0.80	41.2	51.5	0.366	0.093	0.121	0.33	NonLiqfble.
	15.93 16.02	14 14	10	0.61 0.58	125 125	2009 2021	1884 1890	10.1	9.5	6.78	3.2	75.1	0.80	40.3 37.4	50.4	0.367	0.092 0.090	0.119	0.33	NonLiqfble. NonLiqfble.
	16.12	14	9.3 9.1	0.57	125	2033	1896	9.4 9.1	8.8 8.5	7.00 7.05	3.3 3.3	78.0 79.0	0.80 0.80	36.6	46.8 45.7	0.368	0.090	0.116 0.116	0.32	NonLiqfble.
	16.21	14	9.4	0.54	125	2044	1901	9.4	8.8	6.45	3.2	76.1	0.80	37.7	47.2	0.370	0.090	0.117	0.32	NonLiqfble.
	16.3	14	9.3		125	2056	1907	9.3	8.7	6.53	3.2	76.8	0.80	37.3	46.6	0.371	0.089	0.116	0.31	NonLiqfble.
	16.4	14	9.6	0.54	125	2068	1913	9.6	8.9	6.30	3.2	75.2	0.80	38.4	48.0	0.372	0.090	0.117	0.32	NonLiqfble.
	16.49	14	9.4	0.53	125	2079	1919	9.4	8.7	6.34	3.2	76.1	0.80	37.6	46.9	0.373	0.090	0.117	0.31	NonLiqfble.
	16.58	14	9.9	0.54	125	2091	1925	9.9	9.2	6.10	3.2	73.8	0.80	39.5	49.4	0.374	0.091	0.119	0.32	NonLiqfble.
	16.68 16.77	14 14	10.3 10.3	0.56 0.59	125 125	2103 2114	1931 1937	10.3 10.2	9.6 9.5	6.06	3.2 3.2	72.5 73.8	0.80	41.0 41.0	51.3 51.2	0.375 0.376	0.093 0.092	0.120	0.32 0.32	NonLiqfble.
	16.86	14	10.3	0.59	125	2114	1937	10.2	9.5	6.38 6.43	3.2	73.7	0.80	41.3	51.6	0.376	0.092	0.120 0.121	0.32	NonLiqfble. NonLiqfble.
	16.95	14	10.7	0.6	125	2137	1948	10.6	9.9	6.23	3.2	72.3	0.80	42.4	53.0	0.377	0.094	0.122	0.32	NonLiqfble.
	17.05	14	10	0.56	125	2149	1954	9.9	9.1	6.27	3.2	74.6	0.80	39.6	49.5	0.378	0.091	0.119	0.31	NonLiqfble.
	17.14	14	9.8	0.53	125	2161	1960	9.7	8.9	6.08	3.2	74.6	0.80	38.7	48.4	0.379	0.091	0.118	0.31	NonLiqfble.
	17.23	14	9.9	0.49	115	2172	1965	9.8	9.0	5.56	3.2	72.5	0.80	39.1	48.9	0.380	0.091	0.118	0.31	NonLiqfble.
	17.32	14	9.7	0.46	115	2182	1970	9.6	8.7	5.34	3.2	72.4	0.80	38.2	47.8	0.381	0.090	0.117	0.31	NonLiqfble.
	17.41 17.51	14	9.9 9.8	0.46 0.47	115 115	2193 2204	1975 1980	9.7	8.9	5.23	3.2 3.2	71.4 72.5	0.80	39.0 38.5	48.7	0.382	0.091 0.090	0.118 0.118	0.31	NonLiqfble.
	17.51	14 14	9.8	0.47	125	2214	1980	9.6 9.8	8.8 9.0	5.40 5.62	3.2	72.8	0.80	39.3	48.2 49.1	0.383 0.384	0.090	0.118	0.31	NonLiqfble. NonLiqfble.
	17.69	14	10	0.54	125	2226	1990	9.8	8.9	6.08	3.2	74.5	0.80	39.2	49.0	0.385	0.091	0.118	0.31	NonLiqfble.
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Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 30

Depth to Groundwater: 14 feet

ons - Maintenance and Storage Yard  $\begin{array}{ccc} \textbf{EQ Magnitude }(\textbf{M}_{\textbf{w}}) & 6.5 \\ \textbf{PGA }(\textbf{g}) : & 0.54 \\ \textbf{MSF:} & 1.30 \\ \end{array}$ 

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Lianef.	Liquef.	Factor	
	Depth		Resist.		g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress	•	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	DqcIN	(qc1N)es	Ratio	M7.5	M6.50	Safety	Comments
	17.70	1.4	10.0	0.50	105	2227	1006	10.0	0.1	6.20	2.2	75.0	0.00	40.0	40.0	0.205	0.000	0.110	0.21	N. T. 01
	17.78 17.88	14 14	10.2 10.5		125 125	2237 2249	1996 2002	10.0 10.3	9.1 9.4	6.39 6.19	3.2	75.0 73.6	0.80	40.0 41.1	49.9 51.3	0.385 0.386	0.092	0.119 0.120	0.31	NonLiqfble. NonLiqfble.
	17.00	14	10.3	0.56	125	2261	2002	10.3	9.1	6.11	3.2	74.0	0.80	40.2	50.3	0.387	0.093	0.120	0.31	NonLiqfble.
	18.06	14	9.6	0.53	125	2272	2014	9.4	8.4	6.26	3.2	76.8	0.80	37.4	46.8	0.388	0.090	0.116	0.30	NonLiqfble.
	18.15	14	9.6	0.46	115	2283	2019	9.3	8.4	5.44	3.2	73.9	0.80	37.4	46.7	0.389	0.089	0.116	0.30	NonLiqfble.
	18.25	14	8.9	0.42	115	2295	2024	8.7	7.7	5.42	3.2	76.2	0.80	34.6	43.3	0.390	0.088	0.114	0.29	NonLiqfble.
	18.33	14	8.8	0.4	115	2304	2029	8.5	7.5	5.23	3.2	75.9	0.80	34.2	42.7	0.391	0.087	0.113	0.29	NonLiqfble.
	18.38	14	9.7	0.39	115	2310	2031	9.4	8.4	4.56	3.2	70.2	0.80	37.7	47.1	0.391	0.090	0.117	0.30	NonLiqfble.
	18.48 18.57	14 14	9.3 8.6	0.36 0.32	115 115	2321 2331	2037 2041	9.0 8.3	8.0 7.3	4.42 4.30	3.2	71.0 73.0	0.80	36.1 33.3	45.1 41.6	0.392 0.393	0.089 0.087	0.115 0.113	0.29 0.29	NonLiqfble. NonLiqfble.
	18.66	14	8	0.29	115	2342	2046	7.7	6.7	4.25	3.2	75.1	0.80	31.0	38.7	0.394	0.085	0.113	0.28	NonLiqfble.
	18.77	14	8		115	2354	2052	7.7	6.6	4.40	3.2	75.9	0.80	30.9	38.6	0.395	0.085	0.111	0.28	NonLiqfble.
	18.86	14	8	0.29	115	2365	2057	7.7	6.6	4.25	3.2	75.4	0.80	30.9	38.6	0.396	0.085	0.111	0.28	NonLiqfble.
	18.95	14	7.5	0.3	115	2375	2061	7.2	6.1	4.75	3.3	79.9	0.80	28.9	36.1	0.396	0.084	0.110	0.28	NonLiqfble.
	19.04	14	7.9	0.3	115	2386	2066	7.6	6.5	4.47	3.3	77.0	0.80	30.4	38.0	0.397	0.085	0.111	0.28	NonLiqfble.
	19.13	14	7.5	0.28	105	2396	2071	7.2	6.1	4.44	3.3	78.7	0.80	28.8	36.1	0.398	0.084	0.110	0.28	NonLiqfble.
	19.23 19.32	14 14	8.2 7.7	0.28 0.27	105 105	2406 2416	2075 2079	7.9 7.4	6.7 6.2	4.00 4.16	3.2 3.2	73.7 76.6	0.80	31.5 29.6	39.4 36.9	0.399 0.400	0.086 0.085	0.111 0.110	0.28 0.28	NonLiqfble. NonLiqfble.
	19.42	14	8.1	0.31	115	2426	2083	7.8	6.6	4.50	3.2	76.6	0.80	31.1	38.8	0.401	0.085	0.111	0.28	NonLiqfble.
	19.51	14	9	0.36	115	2437	2088	8.6	7.5	4.63	3.2	73.8	0.80	34.5	43.1	0.401	0.087	0.114	0.28	NonLiqfble.
	19.6	14	9.2	0.4	115	2447	2093	8.8	7.6	5.02	3.2	74.8	0.80	35.2	44.0	0.402	0.088	0.114	0.28	NonLiqfble.
	19.7	14	10	0.42	115	2459	2098	9.6	8.4	4.79	3.2	71.3	0.80	38.2	47.8	0.403	0.090	0.117	0.29	NonLiqfble.
	19.79	14	9.8	0.44	115	2469	2103	9.4	8.1	5.14	3.2	73.4	0.80	37.4	46.8	0.404	0.090	0.116	0.29	NonLiqfble.
	19.88	14 14	9.9 9.6	0.42 0.43	115	2479 2491	2107 2113	9.4 9.1	8.2 7.9	4.85	3.2	72.0	0.80	37.7 36.6	47.2	0.405	0.090	0.117 0.116	0.29 0.28	NonLiqfble.
	19.98 20.07	14	10.3		115 115	2501	2113	9.1	8.5	5.15 4.53	3.2 3.2	74.3 69.7	0.80	39.2	45.7 49.0	0.406 0.398	0.089	0.116	0.28	NonLiqfble. NonLiqfble.
	20.16	14	9.8	0.4	115	2511	2122	9.3	8.0	4.68	3.2	71.9	0.80	37.2	46.5	0.399	0.089	0.116	0.29	NonLiqfble.
	20.26	14	10.2		115	2523	2127	9.7	8.4	4.59	3.2	70.3	0.80	38.7	48.4	0.400	0.091	0.118	0.29	NonLiqfble.
	20.35	14	10.4		115	2533	2132	9.9	8.6	4.38	3.1	68.9	0.80	39.4	49.3	0.400	0.091	0.118	0.30	NonLiqfble.
	20.44	14	10	0.39	115	2544	2137	9.5	8.2	4.47	3.2	70.6	0.80	37.9	47.3	0.401	0.090	0.117	0.29	NonLiqfble.
	20.54	14	10.1	0.41	115	2555	2142	9.5	8.2	4.65	3.2	71.1	0.80	38.2	47.7	0.402	0.090	0.117	0.29	NonLiqfble.
	20.63 20.72	14 14	10.2 10.1	0.42 0.38	115 115	2565 2576	2147 2151	9.6 9.5	8.3 8.2	4.71 4.31	3.2	71.2 69.8	0.80	38.5 38.1	48.2 47.6	0.403 0.403	0.090 0.090	0.118 0.117	0.29 0.29	NonLiqfble. NonLiqfble.
	20.72	14	9.9	0.38	115	2586	2156	9.3	8.0	4.42	3.2	71.0	0.80	37.3	46.6	0.404	0.089	0.117	0.29	NonLiqfble.
	20.9	14	9.7	0.34	115	2597	2161	9.1	7.8	4.05	3.2	70.0	0.80	36.5	45.6	0.405	0.089	0.116	0.29	NonLiqfble.
	21	14	9	0.34	115	2608	2166	8.5	7.1	4.42	3.2	74.2	0.80	33.8	42.3	0.406	0.087	0.113	0.28	NonLiqfble.
	21.09	14	9.5		115	2618	2171	8.9	7.5	3.78	3.2	69.5	0.80	35.7	44.6	0.406	0.088	0.115	0.28	NonLiqfble.
	21.18	14	9.8	0.29	115	2629	2176	9.2	7.8	3.42	3.1	66.8	0.80	36.8	46.0	0.407	0.089	0.116	0.28	NonLiqfble.
	21.27 21.36	14 14	10.5 10.5	0.32 0.32	115 115	2639 2649	2180 2185	9.8 9.8	8.4 8.4	3.49 3.49	3.1	65.2 65.2	0.80	39.4 39.3	49.2 49.1	0.408 0.409	0.091	0.118 0.118	0.29 0.29	NonLiqfble.
	21.46	14	10.3	0.32	115	2661	2190	9.6	8.2	3.49	3.1	66.3	0.80	38.5	48.1	0.409	0.091	0.118	0.29	NonLiqfble. NonLiqfble.
	21.55	14	10.1	0.33	115	2671	2195	9.4	8.0	3.77	3.1	67.9	0.80	37.7	47.2	0.410	0.090	0.117	0.28	NonLiqfble.
	21.82	14	9	0.35	115	2702	2209	8.4	6.9	4.58	3.2	75.6	0.80	33.5	41.9	0.412	0.087	0.113	0.27	NonLiqfble.
	21.91	14	7.7	0.3	115	2713	2214	7.2	5.7	4.73	3.3	81.8	0.80	28.6	35.8	0.413	0.084	0.110	0.27	NonLiqfble.
	22.01	14	7.4	0.24	105	2724	2219	6.9	5.4	3.98	3.3	79.8	0.80	27.5	34.4	0.414	0.084	0.109	0.26	NonLiqfble.
	22.1 22.19	14 14	6.6 6.4	0.23 0.21	105 105	2734 2743	2223 2227	6.1 5.9	4.7	4.40	3.4 3.4	86.3	0.80	24.5	30.6 29.7	0.414	0.083	0.107	0.26	NonLiqfble.
	22.19	14	7.1	0.21	105	2752	2227	6.6	4.5 5.1	4.18 4.02	3.4	86.5 81.8	0.80	23.7 26.3	32.9	0.415 0.416	0.082	0.107 0.108	0.26 0.26	NonLiqfble. NonLiqfble.
	22.38	14	7.4		105	2763	2235	6.8	5.4	3.99	3.3	80.1	0.80	27.4	34.2	0.417	0.084	0.109	0.26	NonLiqfble.
	22.47	14	8.5		105	2772	2239	7.9	6.4	3.23	3.2	71.4	0.80	31.4	39.3	0.417	0.086	0.111	0.27	NonLiqfble.
	22.56	14	9.8	0.3	115	2782	2243	9.1	7.5	3.57	3.1	68.6	0.80	36.2	45.3	0.418	0.089	0.115	0.28	NonLiqfble.
	22.66	14	13.8		125	2793	2248	12.7	11.0	3.63	3.0	59.2	0.80	50.9	63.7	0.419	0.104	0.135	0.32	NonLiqfble.
	22.75	14	21.1	0.5	125	2805	2254	19.4	17.5	2.54	2.8	43.6	0.80	77.8	97.2	0.419	0.165	0.215	0.51	NonLiqfble.
	22.85 22.94	14 14	14.7 13.8	0.43 0.41	125 125	2817 2828	2260 2266	13.5 12.7	11.8 10.9	3.24 3.31	3.0	55.7 57.8	0.80	54.1 50.7	67.6 63.4	0.420 0.421	0.109 0.104	0.141 0.135	0.34 0.32	NonLiqfble.
	23.03	14	16.2		125	2840	2271	14.9	13.0	3.79	3.0	56.1	0.80	59.5	74.4	0.421	0.104	0.155	0.32	NonLiqfble. NonLiqfble.
	23.13	14	15.4		125	2852	2277	14.1	12.3	4.29	3.0	59.7	0.80	56.5	70.6	0.421	0.113	0.134	0.35	NonLiqfble.
	23.22	14	25.2		135	2863	2283	23.1	20.8	4.33	2.8	48.5	0.80	92.3	115.4	0.423	0.223	0.290	0.69	NonLiqfble.
	23.31	14	56.6		135	2876	2290	51.8	48.2	1.99	2.3	24.3	0.51	54.8	106.6	0.423	0.193	0.250	0.59	Liquefaction
	23.4	14	89.6		135	2888	2296	81.8	76.8	2.12	2.2	19.5	0.39	51.6	133.4	0.424	0.301	0.391	0.92	Liquefaction
	23.49	14	87.3		135	2900	2303	79.6	74.5	2.13	2.2	19.8	0.40	52.3	131.9	0.424	0.293	0.381	0.90	Liquefaction
	23.58 23.67	14 14	82.7 48.7	1.85 1.5	135 135	2912 2924	2309 2316	75.3 44.3	70.3 40.8	2.28 3.18	2.3 2.5	21.2 32.2	0.43 0.73	57.3 118.1	132.6 162.4	0.425 0.425	0.297 0.478	0.386 0.621	0.91 1.46	Liquefaction
	23.07	14	40.7	1.5	133	<i>272</i> 4	2310	44.3	40.0	5.10	۷.3	34.4	0.73	110.1	102.4	0.423	0.4/6	0.021	1.40	

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 30

Depth to Groundwater: 14 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qclN)es	Ratio	M7.5	M6.50	Safety	Comments
	23.77	14	29.8	1.47	135	2938	2323	27.1	24.4	5.19	2.8	48.5	0.80	108.2	135.3	0.426	0.310	0.403	0.95	NonLiqfble.
	23.86	14	23.3	1.12	135	2950	2330	21.1	18.7	5.13	2.9	53.6	0.80	84.5	105.6	0.427	0.190	0.246	0.58	NonLiqfble.
	23.95	14	24.9	0.95	135	2962	2336	22.5	20.0	4.06	2.8	48.1	0.80	90.2	112.7	0.427	0.213	0.277	0.65	NonLiqfble.
	24.04	14	21.4	0.73	125	2974	2343	19.3	17.0	3.67	2.9	49.8	0.80	77.4	96.7	0.428	0.164	0.213	0.50	NonLiqfble.
	24.13	14	21.2	0.66	125	2985	2348	19.1	16.8	3.35	2.8	48.6	0.80	76.6	95.7	0.428	0.162	0.210	0.49	NonLiqfble.
	24.22	14	17.3	0.62	125	2997	2354	15.6	13.4	3.92	3.0	56.0	0.80	62.4	78.0	0.429	0.124	0.161	0.38	NonLiqfble.
	24.31 24.41	14 14	16.5 18.7	0.65 0.79	125 125	3008 3020	2360 2366	14.9 16.8	12.7 14.5	4.33 4.60	3.0	59.0 57.0	0.80	59.4 67.3	74.3 84.1	0.430 0.430	0.118 0.135	0.154 0.176	0.36 0.41	NonLiqfble. NonLiqfble.
	24.5	14	22.3	0.73	135	3032	2371	20.0	17.5	4.47	2.9	52.5	0.80	80.1	100.2	0.431	0.174	0.226	0.52	NonLiqfble.
	24.59	14	28.2	0.99	135	3044	2378	25.3	22.4	3.71	2.8	44.5	0.80	101.2	126.5	0.431	0.268	0.349	0.81	NonLiqfble.
	24.68	14	38.7	1.12	135	3056	2384	34.7	31.2	3.01	2.6	35.7	0.80	138.7	173.4	0.432	0.565	0.734	1.70	NonLiqfble.
	24.77	14	50.6	1.4	135	3068	2391	45.3	41.0	2.85	2.5	30.7	0.69	99.4	144.6	0.432	0.361	0.470	1.09	Low F.S.
	24.82	14	54.8	1.59	135	3075	2395	49.0	44.5	2.99	2.5	30.2	0.67	100.4	149.4	0.433	0.390	0.507	1.17	Low F.S.
	24.91	14	61.2	1.82	135	3087	2401	54.6	49.7	3.05	2.5	28.9	0.64	96.7	151.3	0.433	0.402	0.523	1.21	
	25	14	54.9	1.85	135	3099	2408	49.0	44.3	3.47	2.5	32.2	0.73	130.7	179.6	0.434	0.619	0.805	1.86	
	25.09 25.18	14 14	49 47.4	1.72 1.44	135 135	3111 3123	2414 2421	43.6 42.2	39.3 37.9	3.63 3.14	2.6 2.6	34.7 33.2	0.79 0.75	165.8 128.5	209.5 170.6	0.434 0.435	0.935 0.542	1.215 0.705	2.80 1.62	
	25.26	14	46.3	1.17	135	3134	2427	41.1	36.9	2.62	2.5	31.2	0.70	95.5	136.6	0.435	0.342	0.703	0.95	Liquefaction
	25.35	14	34.6	0.92	135	3146	2433	30.7	27.1	2.79	2.6	36.9	0.80	122.8	153.5	0.436	0.416	0.541	1.24	NonLiqfble.
	25.44	14	23.9	0.72	125	3159	2440	21.2	18.3	3.23	2.8	46.2	0.80	84.7	105.9	0.436	0.190	0.247	0.57	NonLiqfble.
	25.54	14	16.3	0.66	125	3171	2446	14.4	12.0	4.49	3.0	60.9	0.80	57.7	72.1	0.437	0.115	0.149	0.34	NonLiqfble.
	25.62	14	14.6	0.61	125	3181	2451	12.9	10.6	4.69	3.1	64.8	0.80	51.6	64.5	0.437	0.105	0.136	0.31	NonLiqfble.
	25.72	14	15.2	0.59	125	3194	2457	13.4	11.1	4.34	3.1	62.3	0.80	53.7	67.1	0.438	0.108	0.140	0.32	NonLiqfble.
	25.81	14	15	0.62	125	3205	2463	13.2	10.9	4.63	3.1	63.9	0.80	52.9	66.1	0.438	0.107	0.139	0.32	NonLiqfble.
	25.9 25.99	14 14	17.2 18.4	0.68 0.71	125 125	3216 3227	2468 2474	15.1 16.2	12.6 13.6	4.36 4.23	3.0	59.3 57.1	0.80 0.80	60.6 64.7	75.7 80.9	0.439 0.440	0.120 0.129	0.157 0.168	0.36 0.38	NonLiqfble. NonLiqfble.
	26.08	14	18.6	0.71	125	3239	2480	16.3	13.7	4.71	3.0	58.8	0.80	65.4	81.7	0.440	0.129	0.100	0.39	NonLiqfble.
	26.17	14	20	0.87	135	3250	2485	17.6	14.8	4.73	3.0	57.2	0.80	70.2	87.8	0.441	0.143	0.186	0.42	NonLiqfble.
	26.26	14	24.8	0.96	135	3262	2492	21.7	18.6	4.14	2.9	50.0	0.80	86.9	108.7	0.441	0.199	0.259	0.59	NonLiqfble.
	26.35	14	31	0.94	135	3274	2498	27.1	23.5	3.20	2.7	41.4	0.80	108.5	135.7	0.442	0.312	0.406	0.92	NonLiqfble.
	26.44	14	30.7	0.93	135	3286	2505	26.8	23.2	3.20	2.7	41.6	0.80	107.4	134.2	0.442	0.305	0.396	0.90	NonLiqfble.
	26.53	14	35.2	1.02	135	3298	2511	30.7	26.7	3.04	2.7	38.4	0.80	122.9	153.7	0.443	0.417	0.543	1.23	NonLiqfble.
	26.62	14	40.1	1.04	135	3311	2518	35.0	30.5	2.71	2.6	34.5	0.79	130.3	165.3	0.443	0.500	0.650	1.47	T: 6 ::
	26.7 26.79	14 14	99.7 152.8	1.17 1.53	125 125	3321 3333	2524 2529	86.8 132.9	77.7 119.4	1.19 1.01	2.0 1.9	14.2 9.3	0.24 0.12	28.1 17.4	115.0 150.3	0.443 0.444	0.221 0.396	0.288 0.515	0.65 1.16	Liquefaction Low F.S.
	26.87	14	142	1.99	135	3343	2534	123.4	110.7	1.42	2.0	12.4	0.12	30.3	153.7	0.444	0.390	0.543	1.22	Low P.S.
	26.96	14	125.5	2.32	135	3355	2541	108.9	97.4	1.87	2.1	15.9	0.29	44.7	153.6	0.445	0.417	0.543	1.22	
	27.05	14	94.4	2.52	135	3367	2548	81.8	72.8	2.72	2.3	22.8	0.47	74.0	155.8	0.445	0.432	0.561	1.26	
	27.14	14	87.5	2.52	135	3379	2554	75.8	67.2	2.94	2.4	24.6	0.52	83.4	159.2	0.446	0.455	0.592	1.33	
	27.22	14	90.2	2.73	135	3390	2560	78.0	69.1	3.08	2.4	24.9	0.53	88.4	166.4	0.446	0.508	0.661	1.48	
	27.29	14	75.7	2.89	135	3399	2565	65.4	57.7	3.91	2.5	30.3	0.67	135.5	200.9	0.447	0.834	1.085	2.43	
	27.38	14	64 47.0	2.66	135	3411	2571	55.2	48.4	4.27	2.6	34.0	0.77	188.2	243.5	0.447	1.422	1.849	4.14	N
	27.47 27.56	14 14	47.2 32.2	2.27 1.89	135 135	3424 3436	2578 2585	40.7 27.7	35.3 23.6	4.99 6.20	2.7 2.9	41.3 52.4	0.80	162.7 110.9	203.4 138.6	0.447 0.448	0.862 0.327	1.121 0.426	2.50 0.95	NonLiqfble. NonLiqfble.
	27.65	14	25.2	1.56	135	3448	2591	21.7	18.1	6.65	3.0	59.2	0.80	86.6	108.3	0.448	0.327	0.420	0.57	NonLiqfble.
	27.74	14	23.6	1.36	135	3460	2598	20.3	16.8	6.22	3.0	59.5	0.80	81.0	101.3	0.449	0.177	0.230	0.51	NonLiqfble.
	27.83	14	28.2	1.49	135	3472	2604	24.2	20.3	5.63	2.9	53.6	0.80	96.7	120.9	0.449	0.244	0.318	0.71	NonLiqfble.
	27.91	14	31.3	1.62	135	3483	2610	26.8	22.6	5.48	2.9	50.9	0.80	107.2	134.0	0.450	0.304	0.395	0.88	NonLiqfble.
	28	14	34.8	1.79	135	3495	2617	29.8	25.3	5.42	2.8	48.6	0.80	119.1	148.8	0.450	0.387	0.503	1.12	NonLiqfble.
	28.26	14	72	2.03	135	3530	2635	61.4	53.3	2.89	2.4	27.3	0.60	90.4	151.8	0.451	0.405	0.527	1.17	Low F.S.
	28.35	14	80.6	1.59	135	3542	2642	68.6	59.6	2.02	2.3	21.8	0.45	55.6	124.2	0.452	0.258	0.336	0.74	Liquefaction
	28.43 28.52	14 14	86 83.4	1.42 1.54	135 135	3553 3565	2648 2654	73.1 70.8	63.6 61.5	1.69 1.89	2.2	19.2 20.7	0.38 0.42	44.8 51.3	117.9 122.1	0.452 0.453	0.233 0.249	0.302 0.324	0.67 0.72	Liquefaction
	28.61	14	69	1.54	135	3577	2661	70.8 58.5	50.5	2.34	2.3	25.4	0.42	70.3	122.1	0.453	0.249	0.362	0.72	Liquefaction Liquefaction
	28.69	14	52.3	1.74	135	3588	2667	44.3	37.9	3.45	2.6	34.5	0.79	164.0	208.3	0.453	0.279	1.196	2.64	Esqueraction
	28.78	14	41.7	1.91	135	3600	2673	35.3	29.8	4.79	2.8	43.5	0.80	141.2	176.4	0.454	0.591	0.768	1.69	NonLiqfble.
	28.87	14	44	1.95	135	3613	2680	37.2	31.5	4.62	2.7	42.0	0.80	148.8	186.0	0.454	0.678	0.881	1.94	NonLiqfble.
	28.95	14	49.9	1.76	135	3623	2685	42.1	35.8	3.66	2.6	36.2	0.80	168.5	210.7	0.455	0.949	1.234	2.71	NonLiqfble.
	29.04	14	51.3	1.37	135	3636	2692	43.3	36.7	2.77	2.5	32.0	0.72	111.1	154.3	0.455	0.422	0.549	1.21	
	29.13	14	48.9	1.18	135	3648	2699	41.2	34.9	2.51	2.5	31.5	0.71	99.1	140.3	0.455	0.337	0.438	0.96	Liquefaction
	29.22	14	40.7	1.04	135	3660	2705	34.2	28.7	2.68	2.6	35.4	0.80	137.0	171.2	0.456	0.547	0.711	1.56	NonLiqfble.
	29.31 29.4	14 14	32.7 27.5	1.01 0.97	135 135	3672 3684	2712 2718	27.5 23.1	22.8 18.9	3.27 3.78	2.7 2.8	42.3 48.1	0.80	109.9 92.3	137.4 115.4	0.456 0.457	0.321 0.223	0.417 0.290	0.91 0.63	NonLiqfble. NonLiqfble.
	23.4	14	21.3	0.37	100	5004	2/10	49.1	10.7	5.70	2.0	₹0.1	0.00	14.3	113.4	0.737	0.223	0.230	0.03	. wiinaqibic.

Date: September 2005

CPT Number: 30

Depth to Groundwater: 14 feet

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard **EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	(qcIN)cs	Ratio	M7.5	M6.50	Safety	Comments
	29.48	14	25.8	0.99	135	3695	2724	21.6	17.6	4.13	2.9	51.1	0.80	86.5	108.1	0.457	0.198	0.257	0.56	NonLiqfble.
	29.57	14	22.7	1.05	135	3707	2730	19.0	15.3	5.04	3.0	57.6	0.80	76.0	95.0	0.457	0.160	0.208	0.45	NonLiqfble.
	29.66 29.75	14 14	19.8 29.4	0.96 0.87	135 135	3719 3731	2737 2744	16.6	13.1 20.1	5.35	3.1	62.2 44.1	0.80	66.2 98.2	82.8 122.8	0.458	0.133 0.252	0.173 0.328	0.38 0.72	NonLiqfble. NonLiqfble.
	29.73	14	41.7	0.83	135	3744	2750	24.6 34.8	29.0	3.16 2.08	2.8	32.0	0.80 0.72	90.4	125.2	0.458 0.459	0.252	0.341	0.74	Liquefaction
	29.92	14	45.7	0.85	135	3754	2756	38.1	31.8	1.94	2.5	29.8	0.66	74.2	112.3	0.459	0.212	0.275	0.60	Liquefaction
	30.01	14	52.5	0.87	135	3766	2762	43.7	36.6	1.72	2.4	26.3	0.57	57.9	101.6	0.440	0.177	0.231	0.52	Liquefaction
	30.1	14	60.8	0.92	125	3779	2769	50.6	42.5	1.56	2.3	23.3	0.49	48.4	99.0	0.441	0.170	0.221	0.50	Liquefaction
	30.19 30.27	14 14	71.2 78.8	0.92 0.85	125 125	3790 3800	2775 2780	59.1 65.4	49.9 55.3	1.33 1.11	2.2	19.8 17.0	0.39 0.32	38.5 31.0	97.7 96.4	0.441 0.441	0.167 0.163	0.217 0.212	0.49 0.48	Liquefaction
	30.36	14	82.2	0.65	125	3811	2785	68.1	57.6	0.96	2.1	15.5	0.32	26.5	94.7	0.441	0.163	0.212	0.48	Liquefaction Liquefaction
	30.45	14	82.2	0.73	125	3822	2791	68.1	57.5	0.91	2.1	15.1	0.27	25.2	93.3	0.442	0.156	0.202	0.46	Liquefaction
	30.53	14	79.4	0.73	125	3832	2796	65.7	55.4	0.94	2.1	15.8	0.29	26.6	92.3	0.443	0.153	0.199	0.45	Liquefaction
	30.62	14	74.5	0.78	125	3844	2802	61.6	51.8	1.07	2.2	17.6	0.34	31.0	92.6	0.443	0.154	0.200	0.45	Liquefaction
	30.71 30.79	14 14	72.9 74.4	0.82 0.78	125 125	3855 3865	2807 2812	60.2 61.4	50.5 51.5	1.16 1.08	2.2	18.4 17.6	0.36 0.34	33.6 31.2	93.8 92.6	0.443 0.444	0.157 0.154	0.204 0.200	0.46 0.45	Liquefaction
	30.88	14	74.4	0.78	115	3876	2818	61.7	51.8	0.78	2.1	15.2	0.34	23.0	84.8	0.444	0.134	0.200	0.43	Liquefaction Liquefaction
	30.97	14	71.1	0.51	115	3886	2823	58.6	49.0	0.74	2.1	15.4	0.28	22.5	81.0	0.445	0.129	0.168	0.38	Liquefaction
	31.06	14	58.6	0.46	115	3897	2827	48.2	40.1	0.81	2.2	18.4	0.36	26.9	75.1	0.445	0.119	0.155	0.35	Liquefaction
	31.14	14	39.9	0.57	125	3906	2831	32.8	26.8	1.50	2.5	29.5	0.66	62.3	95.1	0.445	0.160	0.208	0.47	Liquefaction
	31.23 31.3	14 14	27.1 22.7	0.51 0.46	125 125	3917 3926	2837 2841	22.3 18.6	17.7 14.6	2.03 2.22	2.7 2.8	40.2 45.3	0.80	89.0 74.5	111.3 93.2	0.446 0.446	0.208 0.155	0.271 0.202	0.61 0.45	NonLiqfble.
	31.38	14	18.4	0.40	125	3936	2846	15.1	11.5	2.50	2.9	52.0	0.80	60.4	75.4	0.447	0.133	0.202	0.45	NonLiqfble. NonLiqfble.
	31.46	14	12.8	0.36	115	3946	2852	10.5	7.6	3.33	3.1	67.0	0.80	42.0	52.4	0.447	0.093	0.121	0.27	NonLiqfble.
	31.55	14	10.7	0.33	115	3956	2856	8.8	6.1	3.78	3.2	75.4	0.80	35.0	43.8	0.447	0.088	0.114	0.26	NonLiqfble.
	31.64	14	10.7	0.33	115	3967	2861	8.8	6.1	3.79	3.2	75.5	0.80	35.0	43.8	0.448	0.088	0.114	0.25	NonLiqfble.
	31.73 31.82	14 14	10.4 10.2	0.32 0.33	115 115	3977 3987	2866 2870	8.5 8.3	5.9 5.7	3.80 4.02	3.2	76.7 78.5	0.80	34.0 33.3	42.5 41.6	0.448 0.449	0.087 0.087	0.113 0.113	0.25 0.25	NonLiqfble.
	31.91	14	10.2	0.33	115	3998	2875	8.5	5.8	3.93	3.3	78.3 77.4	0.80	33.9	42.4	0.449	0.087	0.113	0.25	NonLiqfble. NonLiqfble.
	32	14	10.3	0.32	115	4008	2880	8.4	5.8	3.86	3.3	77.5	0.80	33.6	42.0	0.449	0.087	0.113	0.25	NonLiqfble.
	32.08	14	10.8	0.32	115	4017	2884	8.8	6.1	3.64	3.2	74.7	0.80	35.2	44.0	0.450	0.088	0.114	0.25	NonLiqfble.
	32.17	14	10.6	0.34	115	4028	2889	8.6	5.9	3.96	3.3	77.1	0.80	34.5	43.1	0.450	0.087	0.114	0.25	NonLiqfble.
	32.26 32.35	14 14	10.9 10.7	0.36 0.34	115	4038 4048	2894	8.9 8.7	6.1	4.05 3.92	3.2	76.6 76.7	0.80	35.5	44.3	0.451	0.088	0.115	0.25 0.25	NonLiqfble.
	32.45	14	12.1	0.34	115 125	4048	2898 2904	9.8	6.0 6.9	3.92 4.47	3.2	75.1	0.80	34.8 39.3	43.5 49.1	0.451 0.452	0.088	0.114 0.118	0.25	NonLiqfble. NonLiqfble.
	32.54	14	17.5	0.48	125	4071	2909	14.2	10.6	3.10	3.0	57.4	0.80	56.8	71.0	0.452	0.113	0.147	0.33	NonLiqfble.
	32.63	14	18.8	0.51	125	4082	2915	15.2	11.5	3.04	3.0	55.2	0.80	60.9	76.2	0.452	0.121	0.157	0.35	NonLiqfble.
	32.72	14	15.4	0.53	125	4094	2920	12.5	9.1	3.97	3.1	65.4	0.80	49.9	62.3	0.453	0.103	0.133	0.29	NonLiqfble.
	32.81 32.88	14 14	13.5 13	0.54 0.57	125 125	4105	2926 2930	10.9	7.8 7.5	4.72	3.2	72.8 76.1	0.80	43.7 42.0	54.6	0.453	0.095 0.093	0.124 0.122	0.27 0.27	NonLiqfble.
	32.97	14	13.5	0.81	125	4114 4125	2936	10.5 10.9	7.8	5.21 7.08	3.2	81.6	0.80	43.6	52.5 54.5	0.453 0.454	0.095	0.122	0.27	NonLiqfble. NonLiqfble.
	33.06	14	19	1.59	135	4136	2942	15.3	11.5	9.39	3.3	77.6	0.80	61.3	76.6	0.454	0.122	0.158	0.35	NonLiqfble.
	33.15	14	26	2.23	135	4148	2948	21.0	16.2	9.32	3.1	68.9	0.80	83.8	104.8	0.454	0.187	0.243	0.53	NonLiqfble.
	33.24	14	133	2.06	135	4160	2955	107.1	88.6	1.57	2.1	15.2	0.27	40.1	147.2	0.455	0.376	0.489	1.08	Low F.S.
	33.32 33.4	14 14	243.1 295.2	2.02 2.21	125 115	4171 4181	2961 2966	195.5 237.2	162.7 197.6	0.84 0.75	1.7 1.6	6.1 4.5	0.03	6.0 0.0	201.5 237.2	0.455 0.455	0.841 1.321	1.093 1.717	2.40 3.77	
	33.49	14	324.2	2.26	115	4192	2970	260.3	216.8	0.73	1.6	3.7	0.00	0.0	260.3	0.456	1.720	2.236	4.91	
	33.57	14	349.8	2.1	115	4201	2975	280.6	233.7	0.60	1.5	2.7	0.00	0.0	280.6	0.456	2.135	2.776	6.09	
	33.66	14	358.7	2.31	115	4211	2979	287.5	239.3	0.65	1.5	2.9	0.00	0.0	287.5	0.456	2.291	2.978	6.52	
	33.74	14	359.2	2.42	115	4220	2984	287.7	239.3	0.68	1.5	3.1	0.00	0.0	287.7	0.457	2.295	2.984	6.53	
	33.82 33.91	14 14	370.1 356.8	2.75 2.43	125 115	4230 4241	2988 2993	296.3 285.3	246.2 236.9	0.75 0.69	1.5 1.5	3.4	0.00	0.0	296.3 285.3	0.457 0.457	2.498 2.241	3.248 2.913	7.10 6.37	
	33.99	14	339.7	2.43		4250	2998	271.5	225.1	0.65	1.5	3.2	0.00	0.0	271.5	0.457	1.941	2.523	5.51	
	34.08	14	319.9	2.1	115		3002	255.4	211.6	0.66	1.5	3.5	0.00	0.0	255.4	0.458	1.630	2.119	4.62	
	34.16	14	303.3	2.03	115	4270	3007	242.0	200.3	0.67	1.6	3.9	0.00	0.0	242.0	0.459	1.398	1.818	3.96	
	34.24	14	315.5	1.9		4279	3011	251.6	208.1	0.61	1.5	3.2	0.00	0.0	251.6	0.459	1.561	2.029	4.42	
	34.33	14	323.3	1.59	105	4289	3015	257.6	212.9	0.50	1.5	2.3	0.00	0.0	257.6	0.459	1.670	2.171	4.73	
	34.41 34.49	14 14	328.1 314.4	1.36 1.36	105 105	4297 4306	3019 3022	261.3 250.2	215.9 206.5	0.42 0.44	1.4 1.4	1.7 2.0	0.00	0.0	261.3 250.2	0.460 0.460	1.739 1.537	2.260 1.998	4.92 4.34	
	34.66	14	302.1	1.74	115		3030	240.1	197.9	0.58	1.5	3.3	0.00	0.0	240.1	0.461	1.368	1.778	3.86	
	34.75	14	309.6	1.63	115	4334	3034	245.9	202.6	0.53	1.5	2.8	0.00	0.0	245.9	0.461	1.463	1.902	4.12	
	34.83	14	307.1	1.76	115		3038	243.8	200.6	0.58	1.5	3.2	0.00	0.0	243.8	0.462	1.427	1.855	4.02	
	34.91	14	292.2	1.9	115	4352	3043	231.8	190.6	0.66	1.6	4.0	0.00	0.0	231.8	0.462	1.238	1.609	3.48	

Date: September 2005

CPT Number: 30 Depth to Groundwater: 14 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve			Effective			Friction							•	Liquef.		
Cone	Depth (FT)	Table (FT)	Resist.	Frict. (TSF)	g (PCF)	Stress (PSF)	Stress (PSF)	Tip Qcin	Tip Q	Ratio F	Ic	F.C. (%)	Ксрт	Dqcin	(qcIN)cs	Stress Ratio	Stress M7.5	Stress M6.50	of Safety	Comments
Conc	(2.2)	(1 1)	(101)	(101)	(1 01)	(101)	(101)	-	· ·	-		(,,,)			1			1110100	Survey	Comments
	34.98	14	293.4	2.19	115	4361	3046	232.6	191.1	0.75	1.6	4.6	0.00	0.0	232.6	0.462	1.250	1.625	3.52	
	35.06	14	280.3	2.24	125	4370	3051	222.0	182.3	0.81	1.7	5.3	0.01	1.5	223.6	0.463	1.119	1.455	3.14	
	35.13 35.21	14 14	285.1 290.6	2.52 2.62	125 125	4378 4388	3055 3060	225.7 229.9	185.1 188.4	0.89 0.91	1.7 1.7	5.7 5.7	0.02	4.3 4.5	230.0 234.3	0.463 0.463	1.212 1.276	1.575 1.659	3.40 3.58	
	35.29	14	282	2.4	125	4398	3065	222.9	182.5	0.86	1.7	5.6	0.02	3.5	226.4	0.463	1.159	1.506	3.25	
	35.36	14	274.7	2.33	125	4407	3069	216.9	177.5	0.86	1.7	5.7	0.02	4.3	221.2	0.464	1.087	1.413	3.05	
	35.44	14	273	2.62	125	4417	3074	215.4	176.1	0.97	1.7	6.5	0.04	8.8	224.2	0.464	1.128	1.466	3.16	
	35.51 35.59	14 14	287 307.3	3.59 3.99	135 135	4426 4437	3079 3085	226.3 242.1	184.9 197.7	1.26 1.31	1.8 1.8	7.8 7.7	0.08 0.07	18.5 18.6	244.8 260.7	0.464 0.464	1.445 1.728	1.878 2.247	4.05 4.84	
	35.66	14	320.2	3.66	125	4446	3090	252.0	205.7	1.15	1.7	6.6	0.04	11.3	263.4	0.465	1.779	2.313	4.98	
	35.73	14	333.6	3.53	125	4455	3094	262.4	214.1	1.07	1.7	5.9	0.02	6.6	269.0	0.465	1.891	2.458	5.29	
	35.81 35.88	14 14	288.1 299.5	3.35 3.06	135 125	4465 4474	3099 3104	226.4 235.2	184.4 191.4	1.17 1.03	1.8 1.7	7.4 6.3	0.06 0.04	15.3 8.7	241.7 243.9	0.465 0.465	1.393 1.430	1.812 1.859	3.89 3.99	
	35.95	14	323.3	2.23	115	4483	3104	253.2	206.5	0.69	1.6	3.9	0.04	0.0	253.7	0.466	1.599	2.079	4.46	
	36.03	14	325.7	2.25	115	4492	3113	255.4	207.7	0.70	1.6	3.8	0.00	0.0	255.4	0.466	1.630	2.119	4.55	
	36.1	14	330.8	2.69	125	4500	3116	259.3	210.8	0.82	1.6	4.6	0.00	0.0	259.3	0.466	1.701	2.211	4.74	
	36.17 36.25	14 14	316 293.2	2.78 2.69	125 125	4509 4519	3121 3126	247.5 229.5	201.0 186.1	0.89 0.92	1.7 1.7	5.2 5.9	0.01 0.02	1.5 5.5	249.0 235.0	0.467 0.467	1.515 1.287	1.970 1.673	4.22 3.58	
	36.32	14	275.3	2.03	125	4528	3130	215.3	174.4	0.92	1.7	6.7	0.02	9.9	225.2	0.467	1.143	1.485	3.18	
	36.4	14	264.2	2.7	125	4538	3135	206.5	167.0	1.03	1.8	7.2	0.06	12.7	219.1	0.467	1.059	1.376	2.94	
	36.47	14	261	2.56	125	4547	3140	203.8	164.7	0.99	1.7	7.0	0.05	11.5	215.3	0.468	1.008	1.311	2.80	
	36.55 36.62	14 14	258.5 255.6	2.1 1.67	125 115	4557 4565	3145 3149	201.7 199.3	162.9 160.8	0.82 0.66	1.7 1.6	6.0 5.0	0.03	5.5 0.0	207.2 199.3	0.468 0.468	0.907 0.816	1.180 1.061	2.52 2.27	
	36.7	14	241.3	1.53	115	4575	3153	188.0	151.5	0.64	1.6	5.2	0.00	0.9	188.9	0.468	0.707	0.919	1.96	
	36.78	14	227.3	1.56	115	4584	3157	177.0	142.5	0.69	1.7	5.9	0.03	4.6	181.6	0.469	0.637	0.828	1.77	
	36.85	14	211 202.3	1.44	115	4592	3161	164.2	132.0	0.69	1.7	6.4	0.04	6.4	170.6	0.469	0.542	0.704	1.50	
	36.93 37	14 14	191.2	1.32 1.33	115 115	4601 4609	3165 3169	157.3 148.6	126.3 119.2	0.66 0.70	1.7 1.8	6.5 7.2	0.04 0.06	6.4 9.3	163.8 157.9	0.469 0.470	0.488 0.446	0.635 0.580	1.35 1.23	
	37.08	14	179.8	1.29	115	4618	3173	139.7	111.8	0.73	1.8	7.8	0.08	11.4	151.1	0.470	0.401	0.521	1.11	Low F.S.
	37.16	14	177.2	1.29	115	4628	3177	137.5	110.0	0.74	1.8	8.0	0.08	12.1	149.6	0.470	0.392	0.509	1.08	Low F.S.
	37.24 37.31	14 14	178.6 180.2	1.2 1.16	115 115	4637 4645	3182 3185	138.5 139.7	110.8 111.6	0.68 0.65	1.8 1.8	7.5 7.3	0.07 0.06	10.1 9.0	148.6 148.7	0.471 0.471	0.385 0.386	0.501 0.501	1.06 1.06	Low F.S. Low F.S.
	37.39	14	175.7	1.16	115	4654	3189	136.1	108.7	0.67	1.8	7.6	0.00	10.1	146.2	0.471	0.371	0.482	1.02	Low F.S.
	37.46	14	173.1	0.95	115	4662	3193	134.0	106.9	0.56	1.7	6.8	0.05	6.7	140.7	0.471	0.339	0.441	0.94	Liquefaction
	37.54	14	167.7	0.66	105	4671	3197	129.8	103.4	0.40	1.7	5.6	0.02	2.1	131.8	0.472	0.293	0.381	0.81	Liquefaction
	37.62 37.69	14 14	144.6 114.5	0.6 0.58	105 105	4680 4687	3201 3204	111.8 88.5	88.9 70.0	0.42 0.52	1.7 1.9	6.9 9.8	0.05	6.0 12.9	117.8 101.5	0.472 0.472	0.232 0.177	0.302 0.230	0.64 0.49	Liquefaction Liquefaction
	37.72	14	105.3	0.58	105	4690	3205	81.4	64.2	0.56	1.9	11.0	0.16	15.5	96.9	0.473	0.165	0.214	0.45	Liquefaction
	37.82	14	84.7	0.57	115	4701	3209	65.4	51.3	0.69	2.1	14.5	0.25	22.1	87.6	0.473	0.142	0.185	0.39	Liquefaction
	37.91 37.99	14	62.6 45.4	0.66	125 135	4711 4721	3214 3219	48.3 35.0	37.5 26.7	1.10	2.3	21.7	0.44	38.7 134.1	87.0	0.473 0.474	0.141	0.184	0.39	Liquefaction
	38.07	14 14	35.3	1.37	135	4732	3219	27.2	20.7	2.32 4.16	2.8	34.7 48.2	0.79 0.80	108.8	169.1 136.0	0.474	0.530 0.314	0.408	1.45 0.86	NonLiqfble.
	38.15	14	28.9	1.33	135	4743	3231	22.2	16.4	5.01	3.0	55.9	0.80	89.0	111.2	0.474	0.208	0.270	0.57	NonLiqfble.
	38.23	14	52.2	1.13	135	4753	3236	40.1	30.8	2.27	2.5	32.1	0.72	105.5	145.6	0.474	0.367	0.477	1.01	Low F.S.
	38.31 38.39	14 14	104.3 104.3	1.36 1.98	125 135	4764 4774	3242 3247	80.1 80.1	62.8 62.7	1.33 1.94	2.1	17.2 20.8	0.33 0.42	38.8 58.4	119.0 138.5	0.475 0.475	0.237 0.327	0.308 0.425	0.65 0.90	Liquefaction Liquefaction
	38.46	14	132.8	2.14	135	4784	3252	101.9	80.2	1.64	2.1	16.5	0.42	45.4	147.3	0.475	0.327	0.423	1.03	Low F.S.
	38.52	14	178.7	1.58	125	4792	3257	137.0	108.2	0.90	1.9	9.3	0.11	17.8	154.8	0.475	0.425	0.552	1.16	Low F.S.
	38.6	14	234.3	2.18	125	4802	3262	179.5	142.1	0.94	1.8	7.6	0.07	13.6	193.1	0.475	0.750	0.975	2.05	
	38.67 38.75	14 14	252.3 278.9	3 2.97	135 125	4810 4821	3266 3272	193.2 213.3	153.0 168.9	1.20 1.07	1.8 1.8	8.7 7.4	0.10 0.06	21.3 14.3	214.5 227.6	0.476 0.476	0.998 1.177	1.297 1.530	2.73 3.22	
	38.83	14	281.2	2.79	125	4831	3277	214.9	170.1	1.00	1.7	6.9	0.05	11.3	226.3	0.476	1.157	1.504	3.16	
	38.91	14	277.5	2.63	125	4841	3282	211.9	167.6	0.96	1.7	6.7	0.05	10.0	222.0	0.476	1.097	1.426	2.99	
	38.99 39.07	14	297.5 307.8	2.28 2.44	125 125	4851 4861	3287 3292	227.0 234.7	179.5 185.5	0.77 0.80	1.6	5.1	0.00	0.8	227.8 235.4	0.477	1.179	1.533 1.682	3.22	
	39.07	14 14	307.8	2.44	125	4870	3292	246.2	194.4	0.80	1.6 1.6	5.1 4.8	0.00	0.7 0.0	246.2	0.477 0.477	1.294 1.467	1.907	3.53 4.00	
	39.22	14	329.4	2.5	125	4880	3301	250.8	198.0	0.76	1.6	4.5	0.00	0.0	250.8	0.477	1.548	2.012	4.22	
	39.3	14	354.7	2.93	125	4890	3306	269.9	213.0	0.83	1.6	4.6	0.00	0.0	269.9	0.478	1.909	2.481	5.19	
	39.38 39.46	14 14	334 360.9	3.45 3.89	125 125	4900 4910	3311 3316	254.0 274.2	200.2 216.1	1.04 1.09	1.7 1.7	6.2 6.0	0.03	8.1 7.4	262.0 281.6	0.478 0.478	1.753 2.157	2.279 2.803	4.77 5.86	
	39.53	14	445.6	4.06	125	4919	3321	338.3	266.8	0.92	1.6	4.0	0.00	0.0	338.3	0.478	3.682	4.786	10.01	
	39.59	14	501.4	4.13	125	4926	3324	380.5	300.0	0.83	1.5	3.0	0.00	0.0	380.5	0.479	5.203	6.764	14.13	
	39.65	14	540.2	4.11	125	4934	3328	409.7	323.0	0.76	1.5	2.3	0.00	0.0	409.7	0.479	6.476	8.418	17.59	

EQ Magnitude ( $M_w$ ): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 **MSF:** 1.30 CPT Number: 30

14 **498.4 4.22** 125 5164 3442 371.7 288.0 0.85 1.5

Depth to Groundwater: 14 feet

41.52

		Water	Tip	Sleeve		Total	Effective		Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	39.72	14		4.78	125	4943	3333	439.7	346.5	0.83	1.5	2.4	0.00	0.0	439.7	0.479	7.984	10.380	21.67	
	39.78	14	591.8	5.36	125	4950	3336	448.3	353.1	0.91	1.5	2.8	0.00	0.0	448.3	0.479	8.458	10.996	22.95	
	39.85	14	599.5	5.38	125	4959	3341	453.8	357.3	0.90	1.5	2.7	0.00	0.0	453.8	0.479	8.772	11.404	23.79	
	39.93	14	584.8	5.2	125	4969	3346	442.4	347.9	0.89	1.5	2.8	0.00	0.0	442.4	0.480	8.130	10.570	22.04	
	39.99	14	528.3	5.18	125	4976	3349	399.4	313.8	0.99	1.6	3.7	0.00	0.0	399.4	0.480	6.005	7.807	16.27	
	40.07	14	500.7	4.89	125	4986	3354	378.3	296.9	0.98	1.6	3.9	0.00	0.0	378.3	0.443	5.113	6.647	14.99	
	40.14	14	507.4	4.25	125	4995	3359	383.1	300.5	0.84	1.5	3.1	0.00	0.0	383.1	0.444	5.307	6.900	15.55	
	40.22	14	493.4	3.39	115	5005	3364	372.2	291.7	0.69	1.5	2.3	0.00	0.0	372.2	0.444	4.876	6.339	14.28	
	40.29	14	459	2.82	115	5013	3368	346.1	271.0	0.62	1.4	2.1	0.00	0.0	346.1	0.444	3.935	5.115	11.52	
	40.37	14	415.6	2.76	115	5022	3372	313.2	244.9	0.67	1.5	2.9	0.00	0.0	313.2	0.444	2.936	3.817	8.59	
	40.45	14	368.5	2.72	115	5031	3376	277.5	216.7	0.74	1.6	3.9	0.00	0.0	277.5	0.445	2.067	2.687	6.04	
	40.53	14	319	2.62	125	5041	3380	240.1	187.2	0.83	1.7	5.2	0.01	1.6	241.7	0.445	1.393	1.810	4.07	
	40.6	14	290.3	2.54	125	5049	3385	218.3	170.0	0.88	1.7	6.1	0.03	6.9	225.2	0.445	1.143	1.485	3.34	
	40.68	14	261.4	2.49	125	5059	3390	196.4	152.7	0.96	1.8	7.3	0.06	12.9	209.4	0.445	0.934	1.214	2.73	
	40.75	14	267.8	2.49	125	5068	3394	201.1	156.3	0.94	1.7	7.0	0.05	11.5	212.6	0.446	0.974	1.266	2.84	
	40.82	14	269.5	2.34	125	5077	3398	202.3	157.0	0.88	1.7	6.6	0.04	9.0	211.2	0.446	0.957	1.244	2.79	
	40.89	14	281.4	2.29	125	5086	3403	211.1	163.8	0.82	1.7	6.0	0.03	5.6	216.7	0.446	1.026	1.334	2.99	
	40.96	14	312.7	2.56	125	5094	3407	234.4	182.0	0.83	1.7	5.4	0.01	2.5	236.9	0.446	1.316	1.710	3.83	
	41	14	337.2	2.72	125	5099	3410	252.7	196.2	0.81	1.6	4.9	0.00	0.0	252.7	0.446	1.580	2.054	4.60	
	41.08	14	369.5	2.93	125	5109	3415	276.7	214.8	0.80	1.6	4.3	0.00	0.0	276.7	0.446	2.050	2.664	5.97	
	41.15	14	408.6	3.02	125	5118	3419	305.7	237.4	0.74	1.5	3.5	0.00	0.0	305.7	0.447	2.738	3.560	7.97	
	41.22	14	443.6	3.4	125	5127	3423	331.7	257.6	0.77	1.5	3.3	0.00	0.0	331.7	0.447	3.475	4.517	10.11	
	41.28	14	450.4	3.51	125	5134	3427	336.6	261.2	0.78	1.5	3.3	0.00	0.0	336.6	0.447	3.628	4.716	10.55	
	41.32	14	477.3	3.83	125	5139	3430	356.6	276.7	0.81	1.5	3.2	0.00	0.0	356.6	0.447	4.297	5.586	12.50	
	41.38	14	491.4	3.97	125	5147	3433	366.9	284.6	0.81	1.5	3.1	0.00	0.0	366.9	0.447	4.675	6.077	13.59	
	41.43	14	502.6	4.32	125	5153	3437	375.1	290.9	0.86	1.5	3.3	0.00	0.0	375.1	0.447	4.989	6.486	14.50	
	41.46	14		4.12	125		3438	370.2	286.9	0.83	1.5	3.2	0.00	0.0	370.2	0.447	4.797	6.237	13.94	

3.3 0.00 0.0 371.7 0.448 4.856 6.312 14.10

Total Effective Norm. Corr. Friction

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 31

Depth to Groundwater: 15 feet

Water Tip Sleeve

EQ Magnitude (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 **MSF:** 1.30

Induced Liquef. Liquef. Factor

	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> cIN	Q	F	Ic	(%)	$\mathbf{K}_{CPT}$	DqcIN	(qclN)cs	Ratio	M7.5	M6.50	Safety	Comments
									_										-	
	0.54	15	233.3	5.25	135	73	73	446.8	6396.9	2.25	1.6	4.5	0.00	0.0	446.8	0.351	8.376	10.889	31.02	Above W.T.
	0.57	15	220.5	5.41	135	77	77	422.3	5727.6	2.45	1.6	5.0	0.00	0.0	422.3	0.351	7.084	9.209	26.24	Above W.T.
	0.6 0.64	15 15	235.5 218	5.31 5.35	135 135	81 86	81 86	451.0 417.5	5811.4 5043.2	2.26 2.45	1.6 1.6	4.4 4.8	0.00	0.0	451.0 417.5	0.351 0.351	8.613 6.849	11.197 8.903	31.90 25.36	Above W.T. Above W.T.
	0.67	15	197.7	5.75	135	90	90	378.6	4368.7	2.43	1.7	6.0	0.03	10.1	388.8	0.351	5.544	7.207	20.53	Above W.T.
	0.71	15	170.9	5.45	135	96	96	327.3	3563.5	3.19	1.7	6.6	0.03	14.7	342.0	0.351	3.800	4.940	14.07	Above W.T.
	0.74	15	164.7	5.08	135	100	100	315.4	3294.9	3.09	1.7	6.3	0.03	11.4	326.8	0.351	3.327	4.325	12.32	Above W.T.
	0.77	15	165.9	4.89	135	104	104	317.7	3189.6	2.95	1.7	5.9	0.02	8.1	325.8	0.351	3.297	4.286	12.21	Above W.T.
	0.81	15	166	4.8	135	109	109	317.9	3033.9	2.89	1.7	5.8	0.02	6.7	324.6	0.351	3.261	4.239	12.08	Above W.T.
	0.84	15	160	4.35	135	113	113	306.4	2819.7	2.72	1.7	5.3	0.01	2.4	308.8	0.351	2.819	3.665	10.44	Above W.T.
	0.87	15	161.9	3.76	135	117	117	310.1	2754.8	2.32	1.6	4.1	0.00	0.0	310.1	0.351	2.852	3.708	10.56	Above W.T.
	0.91	15	152	3.71	135	123	123	291.1	2472.5	2.44	1.6	4.5	0.00	0.0	291.1	0.351	2.374	3.087	8.79	Above W.T.
	0.94 0.97	15 15	134.4 126.7	3.59 3.48	135 135	127 131	127 131	257.4 242.7	2116.3 1933.3	2.67 2.75	1.7 1.7	5.3 5.6	0.01 0.01	1.8 3.6	259.2 246.3	0.351 0.351	1.700 1.469	2.211 1.910	6.30 5.44	Above W.T. Above W.T.
	1.01	15	119.7	3.42	135	136	136	229.2	1754.0	2.86	1.7	6.0	0.01	6.0	235.3	0.351	1.291	1.678	4.78	Above W.T.
	1.04	15	117.9	3.41	135	140	140	225.8	1677.8	2.89	1.7	6.1	0.03	6.9	232.7	0.351	1.251	1.627	4.63	Above W.T.
	1.08	15	115.2	3.25	135	146	146	220.6	1578.6	2.82	1.7	6.0	0.03	5.9	226.6	0.351	1.162	1.510	4.30	Above W.T.
	1.11	15	115.2	3.04	135	150	150	220.6	1535.9	2.64	1.7	5.5	0.01	2.9	223.6	0.351	1.119	1.455	4.15	Above W.T.
	1.14	15	112.9	2.94	135	154	154	216.2	1465.6	2.61	1.7	5.5	0.01	2.7	218.9	0.351	1.055	1.372	3.91	Above W.T.
	1.18	15	111.7	2.86	135	159	159	213.9	1400.8	2.56	1.7	5.4	0.01	2.3	216.2	0.351	1.020	1.326	3.78	Above W.T.
	1.22	15	108.1	2.7	135	165	165	207.0	1311.1	2.50	1.7	5.3	0.01	1.7	208.8	0.351	0.926	1.204	3.43	Above W.T.
	1.27	15	104	2.43	135	171	171	199.2	1211.7	2.34	1.6	5.0	0.00	0.0	199.2	0.351	0.815	1.059	3.02	Above W.T.
	1.33 1.39	15 15	91.7 82.6	2.02 1.79	135 135	180 188	180 188	175.6 158.2	1020.0 879.0	2.20 2.17	1.6 1.6	4.9 5.1	0.00	0.0 0.4	175.6 158.6	0.351 0.351	0.584 0.451	0.759 0.586	2.16 1.67	Above W.T. Above W.T.
	1.46	15	74.5	1.62	135	197	197	142.7	754.6	2.17	1.7	5.5	0.00	2.0	144.6	0.351	0.451	0.470	1.34	Above W.T.
	1.53	15	64.9	1.51	135	207	207	124.3	627.2	2.33	1.7	6.6	0.04	5.5	129.8	0.351	0.283	0.368	1.05	Above W.T.
	1.61	15	60.4	1.47	135	217	217	115.7	554.6	2.44	1.8	7.4	0.06	7.8	123.5	0.351	0.255	0.331	0.94	Above W.T.
	1.7	15	59.4	1.47	135	230	230	113.8	516.4	2.48	1.8	7.8	0.07	9.1	122.8	0.351	0.252	0.328	0.93	Above W.T.
	1.79	15	61.9	1.27	135	242	242	118.6	511.1	2.06	1.7	6.3	0.04	4.4	122.9	0.351	0.253	0.329	0.94	Above W.T.
	1.88	15	59.7	1.05	135	254	254	114.3	469.3	1.76	1.7	5.6	0.01	1.7	116.1	0.351	0.225	0.293	0.83	Above W.T.
	1.97	15	54.2	1	135	266	266	103.8	406.4	1.85	1.7	6.5	0.04	4.2	108.0	0.351	0.197	0.256	0.73	Above W.T.
	2.06 2.15	15 15	50 49.4	0.57 0.56	125 125	278 289	278 289	95.8 94.6	358.4 340.3	1.14 1.14	1.6 1.6	3.9 4.1	0.00	0.0	95.8 94.6	0.351 0.351	0.162 0.159	0.210 0.206	0.60 0.59	Above W.T. Above W.T.
	2.13	15	63.1	0.66	125	301	301	120.8	418.7	1.05	1.5	2.9	0.00	0.0	120.8	0.351	0.139	0.200	0.90	Above W.T.
	2.32	15	75.4	0.86	125	311	311	144.4	484.3	1.14	1.5	2.8	0.00	0.0	144.4	0.351	0.360	0.468	1.33	Above W.T.
	2.4	15	74.4	1.13	135	321	321	142.5	462.9	1.52	1.6	4.6	0.00	0.0	142.5	0.351	0.349	0.454	1.29	Above W.T.
	2.49	15	73.7	1.27	135	333	333	141.2	441.8	1.73	1.7	5.6	0.02	2.5	143.6	0.351	0.356	0.462	1.32	Above W.T.
	2.58	15	62.5	1.31	135	345	345	119.7	361.3	2.10	1.8	8.0	0.08	10.2	129.9	0.351	0.284	0.369	1.05	Above W.T.
	2.67	15	55.9	1.49	135	357	357	107.1	312.0	2.67	1.9	10.7	0.15	19.4	126.5	0.351	0.268	0.349	0.99	Above W.T.
	2.76	15	54.4	1.42	135	369	369	104.2	293.6	2.62	1.9	10.9	0.16	19.4	123.6	0.351	0.256	0.332	0.95	Above W.T.
	2.85	15	51.2	1.27	135	381	381	98.1	267.4	2.49	1.9	11.0	0.16	18.6	116.6	0.351	0.228 0.227	0.296 0.296	0.84	Above W.T. Above W.T.
	2.92 3.01	15 15	50.7 46.2	1.27 1.24	135 135	391 403	391 403	97.1 88.5	258.4 228.2	2.51 2.70	1.9 2.0	11.3 12.7	0.17 0.21	19.5 22.8	116.6 111.3	0.351 0.351	0.227	0.290	0.84 0.77	Above W.T.
	3.1	15	40.7	1.24	135	415	415	77.9	195.0	3.06	2.1	15.0	0.27	28.6	106.5	0.351	0.192	0.250	0.71	Above W.T.
	3.19	15	41.5	1.65	135	427	427	79.5	193.2	4.00	2.2	18.1	0.35	42.7	122.2	0.351	0.250	0.325	0.92	Above W.T.
	3.29	15	42.4	1.75	135	441	441	81.2	191.3	4.15	2.2	18.6	0.36	46.4	127.6	0.351	0.273	0.355	1.01	Above W.T.
	3.38	15	41	0.87	135	453	453	78.5	180.0	2.13	2.0	12.1	0.19	18.4	96.9	0.351	0.165	0.214	0.61	Above W.T.
	3.47	15	67.4	0.99	125	465	465	129.1	288.7	1.47	1.7	6.4	0.04	5.1	134.2	0.351	0.305	0.396	1.13	Above W.T.
	3.56	15	96.9	1.33	135	476	476	185.6	405.7	1.38	1.6	4.5	0.00	0.0	185.6	0.351	0.674	0.877	2.50	Above W.T.
	3.66	15	58.8	1.56	135	490	490	112.6	239.0	2.66	2.0	12.3	0.19	27.1	139.8	0.351	0.334	0.434	1.24	Above W.T. Above W.T.
	3.75 3.85	15 15	58.7 58.6	1.66 1.83	135 135	502 515	502 515	112.4 112.2	232.8 226.3	2.84 3.14	2.0	13.1 14.3	0.22 0.25	30.8 36.8	143.3 149.1	0.351 0.351	0.353 0.388	0.459 0.504	1.31 1.44	Above W.T.
	3.94	15	59.5	1.97	135	528	528	113.3	224.5	3.33	2.0	14.9	0.23	40.9	154.2	0.351	0.388	0.547	1.56	Above W.T.
	4.03	15	59.9	2.04	135	540	540	112.8	220.9	3.42	2.1	15.3	0.28	43.0	155.8	0.351	0.432	0.562	1.60	Above W.T.
	4.13	15	59.4	2.5	135	553	553	110.5	213.6	4.23	2.2	18.0	0.35	58.8	169.3	0.351	0.531	0.690	1.97	Above W.T.
	4.22	15	61.5	2.72	135	565	565	113.2	216.5	4.44	2.2	18.5	0.36	63.8	177.0	0.351	0.596	0.774	2.21	Above W.T.
	4.32	15	73.2	2.53	135	579	579	133.1	251.8	3.47	2.1	14.6	0.26	46.0	179.1	0.351	0.614	0.798	2.27	Above W.T.
	4.41	15	80.4	2.36	135	591	591	144.7	270.9	2.95	2.0	12.5	0.20	36.1	180.8	0.351	0.629	0.818	2.33	Above W.T.
	4.5	15	92.3	2.37	135	603	603	164.4	304.9	2.58	1.9	10.5	0.15	28.5	192.9	0.351	0.748	0.972	2.77	Above W.T.
	4.6	15	90.7	2.49	135	617	617	159.8	293.0	2.75	1.9	11.4	0.17	32.7	192.6	0.351	0.744	0.967	2.76	Above W.T.
	4.69 4.78	15 15	78.8 67.7	2.7 2.81	135 135	629 641	629 641	137.5 117.0	249.5 210.1	3.44 4.17	2.1 2.2	14.6 18.0	0.26 0.35	47.2 61.9	184.7 178.9	0.351 0.351	0.666 0.612	0.866 0.796	2.47 2.27	Above W.T. Above W.T.
	7.70	13	51.1	01	100	0.71	071	117.0	210.1	7.17	2.2	10.0	0.55	01.7	173.7	0.551	0.012	0.770	2.21	.10010 11.1.

Date: September 2005 CPT Number: 31

Depth to Groundwater: 15 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 Project Number: 6600.3.001.01 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth		Resist.		g	Stress		Tip	Tip	Ratio		F.C.					Stress	•	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	q <sub>c1N</sub>	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	4.88	15	59.7	2.87	135	655	655	102.1	181.4	4.83	2.3	21.0	0.43	75.8	177.9	0.351	0.604	0.785	2.24	Above W.T.
	4.97	15	55.2	2.75	135	667	667	93.5	164.5	5.01	2.3	22.3	0.46	80.0	173.6	0.351	0.566	0.736	2.10	Above W.T.
	5.07	15	54	2.23	135	680	680	90.6	157.7	4.16	2.2	20.2	0.41	62.0	152.6	0.351	0.410	0.534	1.52	Above W.T.
	5.16	15	53.8	1.91	135	692	692	89.5	154.4	3.57	2.2	18.6	0.36	50.9	140.4	0.351	0.337	0.438	1.25	Above W.T.
	5.25	15	51.7	1.6	135	704	704	85.2	145.7	3.12	2.2	17.5	0.33	42.8	128.0	0.351	0.275	0.358	1.02	Above W.T.
	5.28	15	53.1	1.49	135	709	709	87.3	148.8	2.82	2.1	16.3	0.30	37.6	124.9	0.351	0.261	0.340	0.97	Above W.T.
	5.37 5.46	15 15	52.8 53.8	1.32 1.28	135 135	721 733	721 733	86.1 87.0	145.5 145.8	2.52 2.40	2.1	15.3 14.8	0.27 0.26	32.6 30.7	118.6 117.7	0.351	0.235 0.232	0.306	0.87 0.86	Above W.T. Above W.T.
	5.56	15	51.8	1.3	135	746	746	83.0	137.8	2.53	2.1	15.8	0.29	33.5	116.5	0.351	0.227	0.295	0.84	Above W.T.
	5.65	15	48.3	1.2	135	758	758	76.7	126.3	2.50	2.1	16.4	0.30	33.6	110.4	0.351	0.205	0.266	0.76	Above W.T.
	5.75	15	47.7	1.08	135	772	772	75.1	122.5	2.28	2.1	15.7	0.29	30.2	105.3	0.351	0.189	0.245	0.70	Above W.T.
	5.84	15	51.9	0.93	135	784	784	81.1	131.3	1.81	2.0	13.0	0.21	22.0	103.1	0.351	0.182	0.237	0.67	Above W.T.
	5.93 6.02	15 15	56.8 62.1	0.81 0.78	125 125	796 808	796 808	88.1 95.6	141.6 152.7	1.44 1.26	1.9 1.8	10.6 9.1	0.15 0.11	15.4 11.7	103.4 107.3	0.351	0.183 0.195	0.238 0.254	0.68 0.72	Above W.T. Above W.T.
	6.12	15	65.2	0.77	125	820	820	99.6	158.0	1.19	1.8	8.4	0.09	10.1	109.7	0.351	0.203	0.264	0.75	Above W.T.
	6.21	15	66.6	0.78	125	831	831	101.1	159.2	1.18	1.8	8.3	0.09	9.9	110.9	0.351	0.207	0.269	0.77	Above W.T.
	6.3	15	67.3	0.78	125	843	843	101.4	158.7	1.17	1.8	8.3	0.09	9.8	111.2	0.351	0.208	0.270	0.77	Above W.T.
	6.39	15	66.5	0.79	125	854	854	99.6	154.7	1.20	1.8	8.6	0.10	10.7	110.2	0.351	0.205	0.266	0.76	Above W.T.
	6.49	15	65.8	0.78	125 125	866 878	866	97.8	150.9	1.19	1.8	8.8	0.10	11.0	108.8	0.351	0.200	0.260	0.74	Above W.T. Above W.T.
	6.58 6.67	15 15	66 65.5	0.76 0.8	125	889	878 889	97.5 96.1	149.4 146.3	1.16 1.23	1.8 1.8	8.6 9.2	0.10 0.11	10.5 12.1	108.0 108.3	0.351	0.197 0.198	0.256 0.257	0.73 0.73	Above W.T.
	6.77	15	62.9	0.92	125	901	901	91.7	138.5	1.47	1.9	10.9	0.16	17.2	108.9	0.351	0.200	0.260	0.74	Above W.T.
	6.86	15	57.3	1.07	135	913	913	83.0	124.5	1.88	2.0	13.8	0.23	25.5	108.5	0.351	0.199	0.258	0.74	Above W.T.
	6.96	15	51.5	1.1	135	926	926	74.0	110.2	2.16	2.1	16.1	0.30	31.2	105.3	0.351	0.189	0.245	0.70	Above W.T.
	7.05	15	47.4	1.1	135	938	938	67.7	100.0	2.34	2.2	17.9	0.34	35.4	103.1	0.351	0.182	0.236	0.67	Above W.T.
	7.14 7.23	15 15	48.5 48.7	1.07 1	135 135	950 962	950 962	68.8 68.7	101.0 100.2	2.23 2.07	2.1	17.2 16.6	0.33	33.4 30.9	102.3 99.5	0.351	0.179 0.172	0.233 0.223	0.66 0.64	Above W.T. Above W.T.
	7.23	15	46.7	1.03	135	976	976	64.4	93.2	2.26	2.2	18.2	0.31	34.9	99.4	0.351	0.172	0.223	0.63	Above W.T.
	7.42	15	43.2	1.17	135	988	988	60.1	86.4	2.74	2.3	21.0	0.43	44.9	105.0	0.351	0.188	0.244	0.70	Above W.T.
	7.51	15	36.9	1.35	135	1000	1000	51.0	72.8	3.71	2.4	26.6	0.58	69.9	120.9	0.351	0.245	0.318	0.91	Above W.T.
	7.61	15	32.1	1.34	135	1014	1014	44.1	62.3	4.24	2.5	30.4	0.68	93.2	137.3	0.351	0.321	0.417	1.19	Above W.T.
	7.7	15	32.2	1.08	135	1026	1026	44.0	61.7	3.41	2.4	27.5	0.60	66.5	110.5	0.351	0.205	0.267	0.76	Above W.T.
	7.79 7.89	15 15	45.8 62.7	0.94 0.76	135 125	1038 1052	1038 1052	62.2 84.6	87.2 118.2	2.08 1.22	2.2 1.9	18.0 10.7	0.35 0.15	32.9 15.2	95.1 99.8	0.351	0.160 0.173	0.208 0.224	0.59 0.64	Above W.T. Above W.T.
	7.98	15	64	0.67	125	1063	1063	85.9	119.4	1.06	1.9	9.6	0.12	12.1	98.0	0.351	0.167	0.218	0.62	Above W.T.
	8.07	15	58.3	0.62	125	1074	1074	77.8	107.5	1.07	1.9	10.5	0.15	13.5	91.4	0.351	0.151	0.196	0.56	Above W.T.
	8.17	15	52.8	0.6	125	1087	1087	70.1	96.1	1.15	2.0	11.9	0.19	16.0	86.0	0.351	0.139	0.181	0.52	Above W.T.
	8.26	15	48.2	0.57	125	1098	1098	63.7	86.8	1.20	2.0	13.2	0.22	17.7	81.4	0.351	0.130	0.169	0.48	Above W.T.
	8.36 8.45	15 15	45.3 45.6	0.66 0.57	125 125	1110 1122	1110 1122	59.5 59.6	80.6 80.3	1.48 1.27	2.1	15.6 14.3	0.28	23.3 19.7	82.8 79.3	0.351	0.133 0.126	0.173 0.164	0.49 0.47	Above W.T. Above W.T.
	8.55	15	45	0.5	125	1134	1134	58.5	78.3	1.13	2.0	13.6	0.23	17.5	76.0	0.351	0.120	0.157	0.45	Above W.T.
	8.64	15	44.6	0.47	125	1145	1145	57.7	76.9	1.07	2.0	13.4	0.22	16.7	74.4	0.351	0.118	0.154	0.44	Above W.T.
	8.71	15	42.5	0.45	115	1154	1154	54.7	72.6	1.07	2.0	14.0	0.24	17.3	72.0	0.351	0.115	0.149	0.43	Above W.T.
	8.76	15	40.9	0.42	115	1160	1160	52.5	69.5	1.04	2.0	14.2	0.25	17.1	69.7	0.351	0.111	0.145	0.41	Above W.T.
	8.85 8.95	15 15	34.2 25.8	0.4 0.5	115 125	1170 1182	1170 1182	43.7 32.8	57.4 42.6	1.19	2.1	17.2 25.8	0.33	21.2 41.0	65.0 73.9	0.351	0.105 0.118	0.137 0.153	0.39 0.44	Above W.T.
	9.05	15	19.1	0.44	125	1194	1194	24.2	31.0	1.98 2.38	2.5	32.6	0.74	67.9	92.1	0.351	0.118	0.133	0.44	Above W.T. Above W.T.
	9.14	15	15.6	0.38	125	1205	1205	19.7	24.9	2.53	2.6	37.1	0.80	78.6	98.3	0.351	0.168	0.219	0.62	Above W.T.
	9.24	15	11.4	0.37	115	1218	1218	14.3	17.7	3.43	2.8	47.8	0.80	57.2	71.5	0.351	0.114	0.148	0.42	Above W.T.
	9.33	15	10.6	0.39	115	1228	1228	13.2	16.3	3.91	2.9	51.7	0.80	52.9	66.2	0.351	0.107	0.139	0.40	Above W.T.
	9.43	15	10.5	0.44	115	1240	1240	13.0	15.9	4.45	2.9	54.4	0.80	52.2	65.2	0.351	0.106	0.138	0.39	Above W.T.
	9.53 9.63	15 15	9.8 9.2	0.48 0.45	115 115	1251 1263	1251 1263	12.1 11.3	14.7 13.6	5.23 5.25	3.0	59.2 61.1	0.80	48.5 45.3	60.6 56.6	0.351 0.351	0.101 0.097	0.131 0.126	0.37 0.36	Above W.T. Above W.T.
	9.72	15	8.6	0.43	115	1203	1203	10.5	12.5	5.27	3.1	63.1	0.80	42.2	52.7	0.351	0.097	0.120	0.35	Above W.T.
	9.82	15	8.8	0.39	115	1285	1285	10.7	12.7	4.78	3.0	60.8	0.80	43.0	53.7	0.351	0.094	0.123	0.35	Above W.T.
	9.91	15	8.6	0.38	115	1295	1295	10.5	12.3	4.78	3.0	61.6	0.80	41.8	52.3	0.351	0.093	0.121	0.35	Above W.T.
	10.01	15	8.9	0.4	115	1306	1306	10.8	12.6	4.85	3.0	61.2	0.80	43.1	53.9	0.344	0.095	0.123	0.36	Above W.T.
	10.11	15	8.4	0.41	115	1318	1318	10.1	11.7	5.30	3.1	64.7	0.80	40.5	50.6	0.344	0.092	0.120	0.35	Above W.T.
	10.21 10.3	15 15	8.6 9	0.4 0.38	115 115	1329 1340	1329 1340	10.3 10.8	11.9 12.4	5.04 4.56	3.1	63.3 60.5	0.80	41.3 43.0	51.6 53.8	0.344 0.344	0.093 0.094	0.121 0.123	0.35 0.36	Above W.T. Above W.T.
	10.3	15	9.2	0.37	115	1351	1351	11.0	12.4	4.34	3.0	59.2	0.80	43.8	54.8	0.344	0.094	0.123	0.36	Above W.T.
	10.5	15	9.1	0.37	115		1363	10.8	12.3	4.40	3.0	59.9	0.80	43.1	53.9	0.344	0.095	0.123	0.36	Above W.T.
	10.6	15	9	0.37	115	1374	1374	10.6	12.1	4.45	3.0	60.6	0.80	42.5	53.1	0.344	0.094	0.122	0.36	Above W.T.

Date: September 2005

CPT Number: 31

Depth to Groundwater: 15 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve			Effective			Friction							-	Liquef.		
Cone	Depth (FT)	Table (FT)	Resist.	Frict. (TSF)	g (PCF)	Stress (PSF)	Stress (PSF)	Tip Qc1N	Tip Q	Ratio F	Ic	F.C. (%)	Ксрт	Daein	(qcIN)cs	Stress	Stress M7.5	Stress M6.50	of Safety	Comments
Cone	(F 1)	(F1)	(131)	(131)	(I CI)	(1 SF)	(131)	quiv	Ų	г	К	(70)	110.1	Dqui	(quit)ts	Katio	1417.5	W10.50	Salety	Comments
	10.69	15	7.9	0.35	115	1385	1385	9.3	10.4	4.86	3.1	65.9	0.80	37.2	46.4	0.344	0.089	0.116	0.34	Above W.T.
	10.79	15	7.9	0.33	115	1396	1396	9.3	10.3	4.58	3.1	65.1	0.80	37.0	46.3	0.344	0.089	0.116	0.34	Above W.T.
	10.89	15	8	0.31	115	1408	1408	9.3	10.4	4.25	3.1	63.5	0.80	37.3	46.6	0.344	0.089	0.116	0.34	Above W.T.
	10.99 11.09	15 15	7.7 7.8	0.32 0.34	115 115	1419 1431	1419 1431	8.9 9.0	9.8 9.9	4.58 4.80	3.1	66.2 67.0	0.80 0.80	35.8 36.1	44.7 45.1	0.344	0.088	0.115 0.115	0.33	Above W.T. Above W.T.
	11.18	15	7.5	0.36	115	1441	1441	8.6	9.4	5.31	3.2	70.3	0.80	34.6	43.2	0.344	0.088	0.114	0.33	Above W.T.
	11.28	15	8.5	0.37	115	1453	1453	9.8	10.7	4.76	3.1	64.9	0.80	39.0	48.8	0.344	0.091	0.118	0.34	Above W.T.
	11.38 11.48	15 15	8.3 9.1	0.38 0.41	115 115	1464 1476	1464 1476	9.5 10.4	10.3 11.3	5.02 4.90	3.1	66.8 64.0	0.80 0.80	38.0 41.5	47.5 51.8	0.344	0.090 0.093	0.117 0.121	0.34	Above W.T. Above W.T.
	11.57	15	9.3	0.41	115	1486	1486	10.4	11.5	5.14	3.1	64.6	0.80	42.2	52.8	0.344	0.093	0.121	0.35	Above W.T.
	11.67	15	9.5	0.46	115	1497	1497	10.7	11.7	5.26	3.1	64.6	0.80	43.0	53.7	0.344	0.094	0.123	0.36	Above W.T.
	11.77	15	9.9	0.47	115	1509	1509	11.2	12.1	5.14	3.1	63.3	0.80	44.6	55.8	0.344	0.096	0.125	0.36	Above W.T.
	11.87 11.97	15 15	9.7 9.6	0.51 0.49	125 115	1520 1533	1520 1533	10.9 10.7	11.8 11.5	5.71 5.55	3.1	66.1 66.0	0.80 0.80	43.5 42.9	54.4 53.6	0.344	0.095 0.094	0.123 0.123	0.36 0.36	Above W.T. Above W.T.
	12.07	15	9.1	0.48	115	1544	1544	10.7	10.8	5.76	3.1	68.5	0.80	40.5	50.7	0.344	0.092	0.120	0.35	Above W.T.
	12.11	15	9	0.47	115	1549	1549	10.0	10.6	5.71	3.1	68.7	0.80	40.0	50.0	0.344	0.092	0.119	0.35	Above W.T.
	12.15	15	8.9	0.46	115	1554	1554	9.9	10.5	5.66	3.1	68.9	0.80	39.5	49.4	0.344	0.091	0.119	0.34	Above W.T.
	12.25 12.35	15 15	7.6 7.6	0.41 0.35	115 115	1565 1577	1565 1577	8.4 8.4	8.7 8.6	6.01 5.14	3.2	74.9 71.9	0.80 0.80	33.6 33.5	42.0 41.9	0.344	0.087 0.087	0.113 0.113	0.33	Above W.T. Above W.T.
	12.45	15	7.5	0.3	115	1588	1588	8.2	8.4	4.47	3.2	69.7	0.80	32.9	41.2	0.344	0.086	0.113	0.33	Above W.T.
	12.54	15	8.1	0.28	105	1598	1598	8.9	9.1	3.84	3.1	64.8	0.80	35.5	44.3	0.344	0.088	0.115	0.33	Above W.T.
	12.64	15	8.3	0.31	115	1609	1609	9.1	9.3	4.14	3.1	65.7	0.80	36.2	45.3	0.344	0.089	0.115	0.33	Above W.T.
	12.74 12.84	15 15	8.8 8.8	0.36 0.42	115 115	1620 1632	1620 1632	9.6 9.5	9.9 9.8	4.51 5.26	3.1	65.9 69.1	0.80 0.80	38.3 38.1	47.8 47.7	0.344	0.090 0.090	0.117 0.117	0.34 0.34	Above W.T. Above W.T.
	12.94	15	9.6	0.49	115	1643	1643	10.4	10.7	5.58	3.1	68.1	0.80	41.4	51.8	0.344	0.093	0.117	0.35	Above W.T.
	13.03	15	9.6	0.53	125	1654	1654	10.3	10.6	6.04	3.2	69.9	0.80	41.3	51.6	0.344	0.093	0.121	0.35	Above W.T.
	13.13	15	11	0.55	125	1666	1666	11.8	12.2	5.41	3.1	64.2	0.80	47.2	59.0	0.344	0.099	0.129	0.37	Above W.T.
	13.23 13.33	15 15	10.9 11.4	0.57 0.57	125 125	1679 1691	1679 1691	11.6 12.1	12.0 12.5	5.67 5.40	3.1	65.5 63.6	0.80 0.80	46.6 48.5	58.2 60.6	0.344	0.098 0.101	0.128 0.131	0.37 0.38	Above W.T. Above W.T.
	13.43	15	11	0.58	125	1704	1704	11.7	11.9	5.72	3.1	65.8	0.80	46.6	58.3	0.344	0.098	0.128	0.37	Above W.T.
	13.53	15	10.7	0.59	125	1716	1716	11.3	11.5	6.00	3.1	67.7	0.80	45.2	56.5	0.344	0.097	0.126	0.37	Above W.T.
	13.62	15	10.2	0.57	125	1728	1728	10.7	10.8	6.11	3.2	69.6	0.80	43.0	53.7	0.344	0.094	0.123	0.36	Above W.T.
	13.72 13.82	15 15	10.1 10.5	0.55 0.53	125 125	1740 1753	1740 1753	10.6 11.0	10.6 11.0	5.96 5.51	3.2	69.6 67.1	0.80 0.80	42.4 43.9	53.0 54.9	0.344	0.094 0.095	0.122 0.124	0.35	Above W.T. Above W.T.
	13.92	15	10	0.51	125	1765	1765	10.4	10.3	5.59	3.1	68.9	0.80	41.7	52.1	0.344	0.093	0.121	0.35	Above W.T.
	14.02	15	10	0.5	125	1778	1778	10.4	10.2	5.49	3.1	68.8	0.80	41.5	51.9	0.344	0.093	0.121	0.35	Above W.T.
	14.11 14.21	15 15	9.4 9.5	0.52 0.52	115 125	1789 1800	1789 1800	9.7 9.8	9.5 9.5	6.11 6.05	3.2	72.9 72.6	0.80 0.80	38.9 39.2	48.6 49.0	0.344	0.091 0.091	0.118 0.118	0.34	Above W.T.
	14.31	15	9.7	0.54	125	1813	1813	10.0	9.7	6.14	3.2	72.5	0.80	39.2	49.8	0.344	0.091	0.118	0.34	Above W.T. Above W.T.
	14.41	15	9.8	0.53	125	1825	1825	10.0	9.7	5.96	3.2	71.8	0.80	40.1	50.2	0.344	0.092	0.119	0.35	Above W.T.
	14.5	15	10	0.52	125	1837	1837	10.2	9.9	5.73	3.2	70.5	0.80	40.8	51.0	0.344	0.092	0.120	0.35	Above W.T.
	14.6 14.7	15 15	10.3 10	0.51 0.5	125 125	1849 1862	1849 1862	10.5 10.1	10.1 9.7	5.44 5.51	3.1	68.9 70.2	0.80 0.80	41.9 40.6	52.4 50.7	0.344 0.344	0.093 0.092	0.121 0.120	0.35	Above W.T.
	14.7	15	9.6	0.5	115	1874	1874	9.7	9.7	5.77	3.2	72.5	0.80	38.8	48.5	0.344	0.092	0.120	0.33	Above W.T. Above W.T.
	14.89	15	9.9	0.51	125	1884	1884	10.0	9.5	5.69	3.2	71.5	0.80	39.9	49.9	0.344	0.092	0.119	0.35	Above W.T.
	14.99	15	10.1	0.53	125	1897	1897	10.1	9.6	5.79	3.2	71.4	0.80	40.6	50.7	0.344	0.092	0.120	0.35	Above W.T.
	15.09	15	10.3	0.52	125	1909	1903	10.3	9.8	5.56	3.2	70.1	0.80	41.3	51.7 51.1	0.345	0.093	0.121	0.35	NonLiqfble.
	15.18 15.28	15 15	10.2 9.8	0.52	125 115	1921 1933	1909 1915	10.2 9.8	9.7 9.2	5.63 5.55	3.2	70.7 71.7	0.80 0.80	40.9 39.2	49.0	0.346 0.347	0.092	0.120 0.118	0.35	NonLiqfble. NonLiqfble.
	15.36	15	10.2	0.46	115	1942	1919	10.2	9.6	4.98	3.1	68.5	0.80	40.7	50.9	0.348	0.092	0.120	0.34	NonLiqfble.
	15.46	15	9.9	0.45	115	1954	1924	9.9	9.3	5.04	3.2	69.6	0.80	39.5	49.4	0.349	0.091	0.119	0.34	NonLiqfble.
	15.56 15.66	15 15	9.5 9.4	0.43 0.41	115 115	1965 1977	1930 1935	9.5 9.3	8.8 8.7	5.05	3.2	71.0 70.6	0.80	37.8 37.4	47.3 46.7	0.350 0.351	0.090 0.090	0.117 0.116	0.33 0.33	NonLiqfble. NonLiqfble.
	15.76	15	9.4	0.41	115	1988	1935	9.3	8.8	4.87 4.94	3.2	70.6	0.80	37.4	47.2	0.351	0.090	0.116	0.33	NonLiqfble.
	15.85	15	8.8	0.42	115	1999	1945	8.7	8.0	5.38	3.2	74.8	0.80	34.9	43.7	0.353	0.088	0.114	0.32	NonLiqfble.
	15.95	15	8.7	0.41	115	2010	1950	8.6	7.9	5.33	3.2	75.1	0.80	34.5	43.1	0.355	0.087	0.114	0.32	NonLiqfble.
	16.05	15	9.4	0.41	115	2022	1956	9.3	8.6	4.89	3.2	71.1	0.80	37.2	46.5	0.356	0.089	0.116	0.33	NonLiqfble.
	16.15 16.25	15 15	10.1 9.9	0.43 0.43	115 115	2033 2045	1961 1966	10.0 9.8	9.3 9.0	4.73 4.84	3.1	68.4 69.5	0.80	39.9 39.1	49.9 48.8	0.357 0.358	0.092 0.091	0.119 0.118	0.33 0.33	NonLiqfble. NonLiqfble.
	16.35	15	10.3	0.43	115	2056	1971	10.2	9.4	4.64	3.1	67.6	0.80	40.6	50.8	0.359	0.092	0.120	0.33	NonLiqfble.
	16.44	15	9.7	0.45	115	2067	1976	9.5	8.8	5.19	3.2	71.7	0.80	38.2	47.7	0.360	0.090	0.117	0.33	NonLiqfble.
	16.54	15	9.9	0.44	115	2078	1981	9.7	8.9	4.97	3.2	70.3	0.80	38.9	48.7	0.361	0.091	0.118	0.33	NonLiqfble.
	16.64	15	9.5	0.41	115	2090	1987	9.3	8.5	4.85	3.2	71.1	0.80	37.3	46.6	0.362	0.089	0.116	0.32	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 31

Depth to Groundwater: 15 feet

Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Stress Stress Stress g (TSF) (TSF) (PCF) (PSF) (PSF) (%) KCPT Dqcin (qcin)cs Ratio M7.5 M6.50 Safety (FT) (FT) **Q**c1N 0 Comments Ic 16.74 15 9.5 0.37 115 2101 1992 9.3 8.5 4.38 3.2 69.2 0.80 37.3 46.6 0.363 0.089 0.116 0.32 NonLigfble. 16.84 15 9.1 0.29 115 2113 1997 8.9 8.1 3.61 3.1 66.9 0.80 35.6 44.5 0.364 0.088 0.115 0.32 NonLiqfble. 16.94 15 8.5 0.22 105 2124 2002 8.3 7.4 2.96 3.1 65.5 0.80 33.2 41.6 0.365 0.087 0.113 0.31 NonLiqfble. 17.03 15 8.2 0.19 105 2133 2006 8.0 7.1 2.66 3.1 64.9 0.80 32.0 40.1 0.366 0.086 0.112 0.31 NonLiqfble. 17.13 7.7 0.19 105 2144 2010 6.6 2.87 3.1 68.2 0.80 30.1 37.6 0.367 0.085 0.110 0.30 NonLiqfble. 17.23 15 7.1 0.2 105 2154 2015 6.9 6.0 3.32 3.2 73.6 0.80 27.7 34.6 0.368 0.084 0.109 0.30 NonLiqfble. 17.32 7.7 0.21 105 2164 2019 7.5 3.17 3.2 70.2 0.80 30.0 37.5 0.369 0.110 0.30 NonLiafble. 15 6.6 0.085 17.42 15 7.2 0.21 105 2023 7.0 3.2 73.9 0.80 28.0 0.370 0.084 0.109 0.30 NonLiafble. 2174 6.0 3.44 35.0 17.52 7.1 0.22 105 2185 2027 6.9 3.66 0.80 27.6 34.5 0.371 0.109 0.29 NonLiafble. 15 5.9 3.2 75.7 0.084 3.04 17.61 15 8 0.21 105 2194 2031 7.8 6.8 3.1 68.4 0.80 31.1 38.8 0.372 0.085 0.111 0.30 NonLigfble. 7.6 17.71 15 0.21 105 2205 2035 7.4 6.4 3.23 3.2 71.2 0.80 29.5 36.9 0.373 0.085 0.110 0.30 NonLigfble 17.81 8.2 0.23 105 2215 2039 7.9 7.0 3.24 0.80 39.7 0.374 0.086 0.112 0.30 NonLiqfble. 15 3.1 68.9 31.8 17.91 15 8.3 0.24 105 2226 2044 8.0 7.0 3.34 3.1 69.1 0.80 32.1 40.2 0.375 0.086 0.112 0.30 NonLiqfble. 18 15 7.7 0.26 105 2235 2047 7.4 6.4 3.95 3.2 74.8 0.80 29.8 37.2 0.376 0.085 0.110 0.29 NonLiqfble. 18.1 8.6 0.25 105 7.3 3.34 33.2 15 2246 2052 8.3 3.1 68.2 0.80 41.5 0.377 0.087 0.113 0.30 NonLiafble. 18.2 15 8.6 0.26 105 2256 2056 8.3 7.3 3.48 3.1 69.0 0.80 33.2 41.5 0.377 0.087 0.113 0.30 NonLiqfble. 18.3 8.9 0.27 105 2267 7.5 3.48 34.3 42.9 0.378 15 2060 8.6 3.1 68.0 0.80 0.087 0.114 0.30 NonLiafble. 18.39 0.29 2276 9.3 115 2064 9.0 7.9 3.55 0.80 35.8 44.8 0.379 0.088 0.115 0.30 NonLigfble. 15 3.1 67.1 18.49 15 9.7 0.3 115 2288 2069 9.3 8.3 3.51 3.1 65.7 0.80 37.3 46.6 0.380 0.089 0.116 0.31 NonLigfble. 18.59 0.32 2299 2075 9.0 0.381 15 9.4 115 7.9 3.88 3.1 68.6 0.80 36.1 45.1 0.089 0.115 0.30 NonLigfble. 18.8 15 9.1 0.33 115 2323 2086 8.7 7.6 4.16 3.2 71.1 0.80 34.9 43.6 0.383 0.088 0.114 0.30 NonLigfble. 18 89 15 92 0.31 115 2334 2090 8 8 77 3.86 32 69 4 0.80 35.2 44 0 0.384 0.088 0.114 0.30 NonLiafble. 18.99 15 9.1 0.32 115 2345 2096 87 7.6 4.04 3.2 70.7 0.80 34.8 43 5 0.385 0.088 0.114 0.30 NonLiqfble. 19.09 15 9.8 0.31 115 2357 2101 9.4 8.2 3.60 3.1 66.4 0.80 37.4 46.8 0.386 0.090 0.116 0.30 NonLiqfble. 19.19 9.5 0.32 115 2368 2106 9.1 7.9 3.85 3.1 68.6 0.80 36.2 45.3 0.387 0.089 0.115 0.30 NonLiqfble. 19.29 15 10.3 0.33 115 2380 2111 9.8 8.6 3.62 3.1 65.2 0.80 39.2 49.0 0.388 0.091 0.118 0.31 NonLigfble. 19.38 15 11.2 0.34 115 2390 2116 10.7 9.5 3.40 3.0 0.80 42.6 53.3 0.389 0.094 0.122 0.31 NonLiqfble. 61.8 19.48 11.4 0.34 115 2402 3.33 3.0 0.80 43.3 0.389 0.095 0.123 15 2121 10.8 9.6 61.0 54.1 0.32 NonLigfble. 19.58 0.32 0.390 15 12 115 2413 2127 11.4 10.1 2.96 3.0 57.7 0.80 45.5 56.9 0.097 0.126 0.32 NonLigfble. 19.67 11.1 0.27 2.73 58.6 0.80 42.1 0.391 0.094 0.122 NonLiafble. 15 115 2423 2131 10.5 9.3 3.0 52.6 0.31 19.77 11.2 0.25 2435 2137 10.6 2.50 3.0 57.0 0.80 42.4 53.0 0.392 0.094 0.122 0.31 NonLiafble. 15 115 9.3 0.26 19.87 15 125 115 2446 2142 11.8 10.5 2.31 29 52.9 0.80 47 3 59 1 0.393 0.099 0.129 0.33 NonLiafble. 19.97 15 13 0.26 115 2458 2147 12.3 11.0 2.21 29 51.4 0.80 49 1 61.4 0.394 0.102 0.132 0.34 NonLiqfble. 20.07 15 13 0.29 115 2469 2152 12.3 10.9 2.46 2.9 53.1 0.80 49.0 61.3 0.387 0.101 0.132 0.34 NonLiqfble. 20.16 15 12.7 0.28 115 2480 2157 12.0 10.6 2.44 2.9 53.6 0.80 47.9 59.8 0.387 0.100 0.130 0.34 NonLiqfble. 11.5 0.27 NonLiqfble. 20.26 15 115 2491 2162 10.8 9.5 2.63 3.0 57.4 0.80 43.3 54.1 0.388 0.095 0.123 0.32 20.36 15 10.5 0.26 115 2503 2168 9.9 8.5 2.81 3.0 61.1 0.80 39.5 49.3 0.389 0.091 0.119 0.30 NonLigfble 20.46 9.7 0.25 105 2514 2173 9.1 7.8 2.96 3.1 64.4 0.80 36.4 45.5 0.390 0.089 0.115 0.30 NonLiqfble. 20.55 15 10.8 0.23 105 2524 2177 10.1 8.8 2.41 3.0 58.0 0.80 40.5 50.6 0.391 0.092 0.120 0.31 NonLiqfble. 20.65 15 9.8 0.23 105 2534 2181 9.2 2.70 3.1 62.6 0.80 36.7 45.9 0.392 0.089 0.116 0.30 NonLiafble. 7.8 0.23 20.75 15 10.4 105 2545 2185 9.7 8.3 2.52 3.0 59.9 0.80 38.9 48.7 0.392 0.091 0.118 0.30 NonLiafble. 20.85 15 11.2 0.22 105 2555 2190 10.5 9.1 2.22 3.0 55.9 0.80 41.9 52.4 0.393 0.093 0.121 0.31 NonLiafble. 20.94 15 10.7 0.21 105 2565 2193 10.0 8.6 2.23 3.0 57.3 0.80 40.0 50.0 0.394 0.092 0.119 0.30 NonLigfble. 21.04 15 10.8 0.21 105 2575 2198 10.1 8.7 2.21 3.0 56.9 0.80 40.3 50.4 0.395 0.092 0.119 0.30 NonLigfble. 21.14 15 10.4 0.2 105 2586 2202 9.7 8.3 2.20 3.0 58.0 0.80 38.8 48.5 0.396 0.091 0.118 0.30 NonLiqfble. 21.23 15 10.7 0.2 105 2595 2206 10.0 8.5 2.13 3.0 56.8 0.80 39.9 49.8 0.396 0.092 0.119 0.30 NonLiqfble. 21.33 0.23 105 2606 2210 2.37 3.0 57.7 0.80 51.2 0.397 0.120 0.30 NonLiqfble. 15 11 10.2 8.8 41.0 0.092 21.43 15 12.5 0.5 125 2616 2214 11.6 10.1 4.47 3.1 65.1 0.80 46.5 58.1 0.398 0.098 0.128 0.32 NonLiqfble. 21.52 17.5 0.63 125 2627 2220 16.3 14.6 3.89 2.9 54.0 0.80 65.0 81.3 0.399 0.130 0.169 0.42 NonLiqfble. 21.62 15 0.76 135 2640 2226 3.44 2.8 0.80 108.5 0.400 0.258 23.4 21.7 19.8 45.7 86.8 0.199 0.65 NonLiqfble. 21.73 125 2655 2234 0.400 0.250 96.1 0.83 89.0 84.8 0.88 1.9 11.1 17.5 106.4 0.192 0.62 15 0.16 Liquefaction 132.7 21.83 15 0.9 115 2667 2240 122.7 117.2 0.69 1.8 7.2 0.06 7.6 130.2 0.401 0.285 0.371 0.92 Liquefaction 21.92 15 146.8 0.84 115 2678 2245 135.6 129.5 0.58 1.7 5.7 0.02 2.4 138.0 0.402 0.324 0.422 1.05 Low F.S. 22.02 15 151.2 0.81 105 2689 2250 139.5 133.1 0.54 1.6 5.2 0.01 0.7 140.2 0.403 0.336 0.437 1.09 Low F.S. 22 11 15 150.7 0.71 105 2699 2254 138 9 132.4 0.4816 47 0.00 0.0 138 9 0.403 0.329 0.428 1.06 Low F.S. 22 21 15 142.6 0.9 115 2709 2259 1313 125.0 0.64 17 6.4 0.04 5.0 136.2 0.404 0.315 0.410 1.01 Low F.S. 22.31 15 116.2 1.05 125 2721 2264 106.9 101.4 0.91 1.9 9.9 0.13 16.2 123 1 0.405 0.253 0.329 0.81 Liquefaction 1 4 1 22.4 112.4 0.212 0.276 15 91.2 1.15 125 2732 2269 83.8 79.1 1.28 2.1 14.5 0.25 28.6 0.406 0.68 Liquefaction 1 4 1 22.5 135 2276 1.77 44.9 15 67.9 1.18 2744 62.3 58.4 2.2 20.7 0.42 107.1 0.406 0.194 0.253 0.62 Liquefaction 22.6 53.5 1.25 135 2758 2283 49.0 45.6 2.40 2.4 27.1 0.59 70.3 119.3 0.407 0.238 0.309 0.76 Liquefaction 15 22.69 47 1.21 135 2770 2289 43.0 39.8 2.65 2.5 30.2 0.67 88.6 131.6 0.408 0.292 0.379 0.93 15 Liquefaction 22.79 42.1 135 2297 0.74 112.0 0.408 0.397 0.516 1.16 2783 38.4 35.4 2.85 2.5 32.9 150.5 1.26 15

EQ Magnitude (Mw):

PGA (g):

6.5

0.54

MSF: 1.30

1.06

135 2797 2304

29.1

3 48

26.5

40.5

0.80

145.4

116.3

0.409

0.366

0.476

1.16

NonLiafble.

22 89

15 31.9

Date: September 2005 CPT Number: 31

Depth to Groundwater: 15 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	$\mathbf{q}_{\mathrm{c1N}}$	Q	F	Ic	(%)	Ксрт	DqcIN	$(q_{c1N})_{cs}$	Ratio	M7.5	M6.50	Safety	Comments
	22.98	15	24.5	0.85	135	2809	2311	22.3	20.0	3.68	2.8	46.6	0.80	89.2	111.5	0.410	0.209	0.272	0.66	NonLiqfble.
	23.08	15	16.9	0.71	125	2823	2318	15.4	13.4	4.58	3.0	58.9	0.80	61.4	76.8	0.410	0.122	0.159	0.39	NonLiqfble.
	23.18	15	12	0.57	125	2835	2324	10.9	9.1	5.39	3.2	71.4	0.80	43.6	54.5	0.411	0.095	0.124	0.30	NonLiqfble.
	23.27 23.37	15 15	10.6 10.7	0.44 0.39	115 115	2846 2858	2330 2335	9.6 9.7	7.9 7.9	4.79 4.21	3.2 3.2	73.0 70.2	0.80	38.4 38.8	48.0 48.4	0.412 0.412	0.090 0.091	0.117 0.118	0.29 0.29	NonLiqfble. NonLiqfble.
	23.47	15	11.3	0.38	115	2869	2340	10.2	8.4	3.85	3.1	66.9	0.80	40.9	51.1	0.413	0.092	0.110	0.29	NonLiqfble.
	23.56	15	11.4	0.37	115	2880	2345	10.3	8.5	3.72	3.1	66.1	0.80	41.2	51.5	0.414	0.093	0.121	0.29	NonLiqfble.
	23.65	15	12.4	0.37	115	2890	2350	11.2	9.3	3.38	3.1	62.0	0.80	44.8	56.0	0.414	0.096	0.125	0.30	NonLiqfble.
	23.75	15	12.9	0.38	115	2902	2355	11.6	9.7	3.32	3.0	60.7	0.80	46.5	58.2	0.415	0.098	0.128	0.31	NonLiqfble.
	23.84 23.94	15 15	13.4 13.8	0.4 0.38	125 125	2912 2924	2360 2366	12.1 12.4	10.1 10.4	3.35 3.08	3.0	59.8 57.7	0.80	48.3 49.7	60.3 62.1	0.416 0.417	0.100 0.102	0.131 0.133	0.31 0.32	NonLiqfble. NonLiqfble.
	24.03	15	14.1	0.36	115	2936	2372	12.7	10.6	2.85	3.0	55.9	0.80	50.7	63.3	0.417	0.104	0.135	0.32	NonLiqfble.
	24.12	15	13.5	0.33	115	2946	2376	12.1	10.1	2.74	3.0	56.5	0.80	48.5	60.6	0.418	0.101	0.131	0.31	NonLiqfble.
	24.22	15	12.5	0.31	115	2957	2382	11.2	9.3	2.81	3.0	59.1	0.80	44.8	56.0	0.418	0.096	0.125	0.30	NonLiqfble.
	24.31	15	11.8	0.27	115	2968	2386	10.6	8.6	2.62	3.0	59.6	0.80	42.3	52.8	0.419	0.094	0.122	0.29	NonLiqfble.
	24.41 24.5	15 15	10 9.2	0.25 0.22	105 105	2979 2989	2392 2395	8.9 8.2	7.1 6.4	2.94 2.86	3.1	66.6 68.8	0.80	35.8 32.9	44.7 41.1	0.420 0.420	0.088 0.086	0.115 0.112	0.27 0.27	NonLiqfble. NonLiqfble.
	24.6	15	8.6	0.21	105	2999	2400	7.7	5.9	2.96	3.2	71.8	0.80	30.7	38.4	0.420	0.085	0.112	0.26	NonLiqfble.
	24.69	15	9.1	0.2	105	3009	2403	8.1	6.3	2.63	3.1	67.9	0.80	32.5	40.6	0.422	0.086	0.112	0.27	NonLiqfble.
	24.79	15	8.1	0.21	105	3019	2408	7.2	5.5	3.19	3.2	75.4	0.80	28.9	36.1	0.423	0.084	0.110	0.26	NonLiqfble.
	24.88	15	8.3	0.19	105	3029	2412	7.4	5.6	2.80	3.2	72.2	0.80	29.6	37.0	0.423	0.085	0.110	0.26	NonLiqfble.
	24.98 25.07	15 15	7.7 7.4	0.18 0.19	105 105	3039 3049	2416 2420	6.9 6.6	5.1 4.9	2.91 3.23	3.2	75.7 79.2	0.80	27.4 26.3	34.3 32.9	0.424 0.425	0.084 0.083	0.109 0.108	0.26 0.26	NonLiqfble. NonLiqfble.
	25.12	15	8.5	0.19	105	3054	2422	7.6	5.8	2.87	3.2	72.0	0.80	30.2	37.8	0.425	0.085	0.108	0.26	NonLiqfble.
	25.21	15	8.6	0.21	105	3063	2426	7.6	5.8	2.97	3.2	72.3	0.80	30.6	38.2	0.426	0.085	0.111	0.26	NonLiqfble.
	25.31	15	8.6	0.2	105	3074	2430	7.6	5.8	2.83	3.2	71.5	0.80	30.5	38.2	0.426	0.085	0.111	0.26	NonLiqfble.
	25.41	15	8.7	0.2	105	3084	2434	7.7	5.9	2.79	3.2	70.9	0.80	30.9	38.6	0.427	0.085	0.111	0.26	NonLiqfble.
	25.5 25.6	15	9.7 11.1	0.22 0.25	105 115	3094 3104	2438 2442	8.6 9.8	6.7 7.8	2.70	3.1	66.8 62.2	0.80	34.4 39.3	43.0	0.428 0.428	0.087 0.091	0.114 0.118	0.27 0.28	NonLiqfble.
	25.69	15 15	12.7	0.25	115	3115	2442	11.2	9.1	2.62 2.78	3.1	59.3	0.80	39.3 44.9	49.1 56.2	0.428	0.091	0.118	0.28	NonLiqfble. NonLiqfble.
	25.79	15	15	0.44	125	3126	2452	13.3	11.0	3.27	3.0	57.6	0.80	53.0	66.3	0.430	0.107	0.139	0.32	NonLiqfble.
	25.88	15	18.9	0.5	125	3137	2458	16.7	14.1	2.89	2.9	49.9	0.80	66.7	83.4	0.430	0.134	0.174	0.40	NonLiqfble.
	25.98	15	20.9	0.5	125	3150	2464	18.4	15.7	2.59	2.8	46.0	0.80	73.7	92.1	0.431	0.153	0.198	0.46	NonLiqfble.
	26.07	15	20.6	0.56 0.62	125 125	3161	2470	18.1	15.4	2.94	2.8	48.3	0.80	72.5	90.7	0.431	0.149	0.194	0.45	NonLiqfble.
	26.17 26.26	15 15	20.6 23.3	0.56	125	3174 3185	2476 2482	18.1 20.5	15.4 17.5	3.26 2.58	2.9 2.8	50.0 43.8	0.80	72.5 81.9	90.6 102.3	0.432 0.432	0.149 0.180	0.194 0.234	0.45 0.54	NonLiqfble. NonLiqfble.
	26.36	15	23.3	0.45	125	3197	2488	20.4	17.4	2.07	2.7	40.8	0.80	81.8	102.2	0.433	0.179	0.233	0.54	NonLiqfble.
	26.45	15	20.2	0.36	125	3209	2494	17.7	14.9	1.94	2.7	43.0	0.80	70.8	88.5	0.434	0.144	0.188	0.43	NonLiqfble.
	26.54	15	18.3	0.35	125	3220	2499	16.0	13.4	2.10	2.8	46.3	0.80	64.1	80.1	0.434	0.128	0.166	0.38	NonLiqfble.
	26.64	15	16.6 16.2	0.35	125 115	3232	2505	14.5	12.0	2.34	2.9	50.3	0.80	58.0	72.6	0.435	0.116	0.150	0.35	NonLiqfble.
	26.73 26.83	15 15	16.7	0.32	115	3244 3255	2511 2516	14.1 14.6	11.6 12.0	2.20 1.99	2.9 2.8	50.0 47.9	0.80	56.6 58.3	70.7 72.8	0.435 0.436	0.113 0.116	0.147 0.151	0.34 0.35	NonLiqfble. NonLiqfble.
	26.92	15	15.8	0.31	115	3265	2521	13.8	11.2	2.19	2.9	50.7	0.80	55.1	68.8	0.436	0.110	0.143	0.33	NonLiqfble.
	27.02	15	16.7	0.31	115	3277	2526	14.5	11.9	2.06	2.8	48.5	0.80	58.1	72.7	0.437	0.116	0.150	0.34	NonLiqfble.
	27.11	15	17	0.29	115	3287	2531	14.8	12.1	1.89	2.8	46.9	0.80	59.1	73.9	0.438	0.118	0.153	0.35	NonLiqfble.
	27.21 27.3	15 15	16.6 16.8	0.3 0.28	115	3299 3309	2536	14.4	11.8	2.01	2.8	48.4 47.0	0.80	57.7 58.3	72.1	0.438	0.115	0.149	0.34	NonLiqfble.
	27.3	15	16.4	0.26	115	3321	2541 2546	14.6 14.2	11.9 11.6	1.85 1.76	2.8	47.0	0.80	56.9	72.9 71.1	0.439	0.116 0.113	0.151	0.34	NonLiqfble. NonLiqfble.
	27.49	15	14.9	0.25	115	3331	2551	12.9	10.4	1.89	2.9	50.4	0.80	51.6	64.5	0.440	0.105	0.136	0.31	NonLiqfble.
	27.58	15	13.8	0.24	115	3341	2556	11.9	9.5	1.98	2.9	53.1	0.80	47.8	59.7	0.441	0.100	0.130	0.29	NonLiqfble.
	27.68	15	12.6	0.22	105	3353	2561	10.9	8.5	2.01	3.0	55.9	0.80	43.6	54.5	0.441	0.095	0.124	0.28	NonLiqfble.
	27.77	15	11.6	0.19	105	3362	2565	10.0	7.7	1.92	3.0	57.6	0.80	40.1	50.1	0.442	0.092	0.119	0.27	NonLiqfble.
	27.86 27.96	15 15	11.6 12.1	0.22	105 115	3372 3382	2569 2573	10.0 10.4	7.7 8.1	2.22 2.88	3.0	59.9 62.9	0.80	40.1 41.7	50.1 52.2	0.442 0.443	0.092 0.093	0.119 0.121	0.27 0.27	NonLiqfble. NonLiqfble.
	28.05	15	13.8	0.49	125	3393	2578	11.9	9.4	4.05	3.1	65.1	0.80	47.6	59.5	0.443	0.100	0.121	0.27	NonLiqfble.
	28.14	15	18.3	0.56	125	3404	2583	15.8	12.8	3.37	2.9	54.4	0.80	63.0	78.8	0.444	0.125	0.163	0.37	NonLiqfble.
	28.24	15	26.1	0.71	135	3416	2590	22.4	18.8	2.91	2.8	44.1	0.80	89.8	112.2	0.445	0.211	0.275	0.62	NonLiqfble.
	28.33	15	33.3	0.91	135	3429	2596	28.6	24.3	2.88	2.7	39.2	0.80	114.4	143.0	0.445	0.352	0.457	1.03	NonLiqfble.
	28.39 28.51	15 15	30.2 36.5	0.93 0.85	135 135	3437 3453	2600 2609	25.9 31.3	21.9 26.6	3.27 2.44	2.7	43.0 35.4	0.80	103.6 125.1	129.6 156.3	0.445 0.446	0.282 0.435	0.367 0.566	0.82 1.27	NonLiqfble. NonLiqfble.
	28.6	15	29	0.67	125	3465	2616	24.8	20.8	2.46	2.7	39.8	0.80	99.2	124.0	0.446	0.455	0.335	0.75	NonLiqfble.
	28.7	15	26.3	0.48	125	3477	2622	22.5	18.7	1.95	2.7	38.7	0.80	89.9	112.4	0.447	0.212	0.276	0.62	NonLiqfble.
	28.79	15	20.1	0.29	115	3489	2628	17.2	14.0	1.58	2.7	41.7	0.80	68.6	85.8	0.447	0.139	0.180	0.40	NonLiqfble.

Date: September 2005 CPT Number: 31

Depth to Groundwater: 15 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	•		g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress	•	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqciN	(q <sub>c1N</sub> ) <sub>cs</sub>	Ratio	M7.5	M6.50	Safety	Comments
	28.88	15	14.7	0.22	105	3499	2632	12.5	9.8	1.70	2.9	50.2	0.80	50.1	62.7	0.448	0.103	0.134	0.30	NonLiqfble.
	28.98	15	12.4	0.19	105	3510	2637	10.6	8.1	1.78	3.0	55.5	0.80	42.3	52.8	0.449	0.094	0.122	0.27	NonLiqfble.
	29.07	15	11.6	0.18	105	3519	2640	9.9	7.4	1.83	3.0	57.9	0.80	39.5	49.4	0.449	0.091	0.119	0.26	NonLiqfble.
	29.17 29.27	15 15	10.2 10	0.17 0.16	105 105	3530 3540	2645 2649	8.7 8.5	6.4 6.2	2.02 1.94	3.1	63.4 63.5	0.80	34.7 34.0	43.4 42.5	0.450 0.450	0.088 0.087	0.114 0.113	0.25 0.25	NonLiqfble. NonLiqfble.
	29.37	15	10.3	0.16	105	3551	2653	8.7	6.4	1.88	3.1	62.1	0.80	35.0	43.7	0.451	0.088	0.113	0.25	NonLiqfble.
	29.47	15	9.9	0.16	105	3561	2657	8.4	6.1	1.97	3.1	64.2	0.80	33.6	42.0	0.452	0.087	0.113	0.25	NonLiqfble.
	29.56	15	12.1	0.18	105	3570	2661	10.3	7.7	1.75	3.0	56.2	0.80	41.0	51.3	0.452	0.093	0.120	0.27	NonLiqfble.
	29.66 29.76	15 15	11.9 12.9	0.2 0.22	105 105	3581 3591	2666 2670	10.1 10.9	7.6 8.3	1.98 1.98	3.0	58.6 56.3	0.80	40.3 43.7	50.4 54.6	0.453 0.453	0.092 0.095	0.120 0.124	0.26 0.27	NonLiqfble. NonLiqfble.
	29.86	15	13.2	0.2	105	3602	2674	11.2	8.5	1.75	2.9	54.0	0.80	44.7	55.8	0.454	0.096	0.125	0.28	NonLiqfble.
	29.95	15	12.5	0.2	105	3611	2678	10.6	8.0	1.87	3.0	56.5	0.80	42.3	52.8	0.454	0.094	0.122	0.27	NonLiqfble.
	30.05	15	12	0.21	105	3622	2682	10.1	7.6	2.06	3.0	59.2	0.80	40.6	50.7	0.436	0.092	0.120	0.27	NonLiqfble.
	30.15 30.24	15 15	11.8 11.4	0.22 0.32	105 115	3632 3642	2686 2690	10.0 9.6	7.4 7.1	2.20 3.34	3.0	60.7 68.8	0.80	39.8 38.5	49.8 48.1	0.437 0.437	0.091	0.119 0.117	0.27 0.27	NonLiqfble. NonLiqfble.
	30.34	15	21.8	0.67	125	3653	2696	18.4	14.8	3.35	2.9	51.2	0.80	73.5	91.9	0.437	0.050	0.117	0.45	NonLiqfble.
	30.44	15	37.5	0.91	135	3666	2702	31.6	26.4	2.55	2.6	36.1	0.80	126.3	157.8	0.438	0.446	0.579	1.32	NonLiqfble.
	30.53	15	76.1	1.16	135	3678	2708	64.0	54.8	1.56	2.2	20.2	0.41	43.6	107.6	0.439	0.196	0.255	0.58	Liquefaction
	30.62	15	126.6	1.27	125	3690	2715	106.3	91.9	1.02	1.9	11.5	0.17	22.2	128.5	0.439	0.277	0.361	0.82	Liquefaction
	30.71 30.8	15 15	143.2 138.1	1.29 1.14	125 125	3701 3713	2721 2726	120.1 115.7	103.9 99.9	0.91 0.84	1.9 1.9	9.7 9.5	0.13 0.12	17.4 15.8	137.5 131.5	0.439 0.440	0.322 0.292	0.418 0.379	0.95 0.86	Liquefaction Liquefaction
	30.9	15	129.3	1.21	125	3725	2732	108.2	93.2	0.95	1.9	10.9	0.12	20.1	128.4	0.440	0.277	0.360	0.82	Liquefaction
	30.99	15	123.5	1.43	125	3736	2738	103.3	88.8	1.18	2.0	12.8	0.21	27.2	130.5	0.441	0.287	0.373	0.85	Liquefaction
	31.08	15	124.4	1.72	135	3748	2744	103.9	89.3	1.40	2.0	14.2	0.24	33.7	137.6	0.441	0.322	0.419	0.95	Liquefaction
	31.18	15	136.6	1.88	135	3761	2751	114.0	97.9	1.40	2.0	13.3	0.22	32.4	146.4	0.442	0.372	0.483	1.09	Low F.S.
	31.27 31.36	15 15	152 159.4	1.87 1.73	135 125	3773 3785	2757 2764	126.6 132.7	108.8 113.9	1.25 1.10	1.9 1.9	11.5 10.2	0.17 0.14	26.7 21.6	153.3 154.3	0.442 0.442	0.415 0.421	0.540 0.548	1.22 1.24	
	31.45	15	160	1.56	125	3797	2770	133.0	114.1	0.99	1.9	9.5	0.12	18.2	151.3	0.443	0.402	0.522	1.18	Low F.S.
	31.54	15	154.9	1.39	125	3808	2775	128.7	110.2	0.91	1.9	9.3	0.11	16.5	145.1	0.443	0.364	0.473	1.07	Low F.S.
	31.64	15	147.1	1.35	125	3820	2782	122.0	104.4	0.93	1.9	9.8	0.13	18.0	140.1	0.444	0.336	0.436	0.98	Liquefaction
	31.88	15	120.5 113.4	1.45	125 125	3850 3862	2797	99.7 93.7	84.8	1.22	2.0	13.5	0.23	29.4	129.1 125.9	0.445	0.280	0.364 0.345	0.82	Liquefaction
	31.97 32.06	15 15	111	1.44 1.48	135	3873	2802 2808	91.7	79.5 77.7	1.29 1.36	2.1	14.6 15.2	0.26 0.27	32.2 34.3	126.0	0.445 0.445	0.266 0.266	0.345	0.78 0.78	Liquefaction Liquefaction
	32.12	15	107.3	1.47	135	3881	2812	88.5	74.9	1.40	2.1	15.8	0.29	35.9	124.4	0.446	0.259	0.337	0.76	Liquefaction
	32.2	15	114.6	1.36	125	3892	2818	94.5	79.9	1.21	2.0	14.0	0.24	29.8	124.3	0.446	0.258	0.336	0.75	Liquefaction
	32.29	15	115.4	1.26	125	3903	2824	95.0	80.3	1.11	2.0	13.3	0.22	27.0	122.1	0.446	0.249	0.324	0.73	Liquefaction
	32.38 32.47	15 15	114.4 114.4	1.24 1.24	125 125	3914 3926	2829 2835	94.1 94.0	79.5 79.3	1.10 1.10	2.0	13.3 13.4	0.22	27.0 27.0	121.1 121.0	0.447 0.447	0.245 0.245	0.319 0.318	0.71 0.71	Liquefaction Liquefaction
	32.55	15	115.5	1.32	125	3936	2840	94.8	79.9	1.16	2.0	13.7	0.22	28.7	123.5	0.448	0.255	0.332	0.74	Liquefaction
	32.64	15	118	1.36	125	3947	2846	96.8	81.5	1.17	2.0	13.6	0.23	28.7	125.5	0.448	0.264	0.343	0.77	Liquefaction
	32.73	15	116	1.17	125	3958	2851	95.1	79.9	1.03	2.0	12.8	0.21	24.8	119.9	0.448	0.240	0.312	0.70	Liquefaction
	32.81	15	115.2 110.9	1.08 1.01	125 125	3968	2856	94.3	79.2	0.95	2.0	12.3	0.20	22.9	117.2 113.4	0.449	0.230	0.299	0.67	Liquefaction
	32.89 32.99	15 15	102.6	1.01	125	3978 3991	2861 2867	90.7 83.8	76.1 70.1	0.93 1.01	2.0	12.5 13.9	0.20 0.24	22.7 26.2	113.4	0.449 0.449	0.216 0.204	0.280 0.265	0.62 0.59	Liquefaction Liquefaction
	33.03	15	101	1.06	125	3996	2870	82.5	69.0	1.07	2.1	14.5	0.25	28.0	110.5	0.450	0.205	0.267	0.59	Liquefaction
	33.06	15	99.9	1.09	125	3999	2872	81.6	68.2	1.11	2.1	14.9	0.26	29.3	110.9	0.450	0.207	0.269	0.60	Liquefaction
	33.09	15	99	1.13	125	4003	2874	80.8	67.5	1.16	2.1	15.4	0.28	30.9	111.7	0.450	0.210	0.272	0.61	Liquefaction
	33.13 33.16	15 15	99.6 100.7	1.19 1.25	125 125	4008 4012	2876 2878	81.3 82.1	67.8 68.6	1.22 1.27	2.1	15.7 15.9	0.28	32.4 33.6	113.6 115.7	0.450 0.450	0.216 0.224	0.281 0.291	0.63 0.65	Liquefaction Liquefaction
	33.2	15	104.3	1.29	125	4017	2881	85.0	71.0	1.26	2.1	15.5	0.29	33.1	118.1	0.450	0.224	0.303	0.67	Liquefaction
	33.23	15	106.6	1.31	125	4021	2882	86.9	72.5	1.25	2.1	15.2	0.27	32.6	119.5	0.450	0.239	0.310	0.69	Liquefaction
	33.27	15	108.3	1.29	125	4026	2885	88.2	73.7	1.21	2.1	14.8	0.26	31.3	119.5	0.451	0.239	0.310	0.69	Liquefaction
	33.3	15	109.9	1.24	125	4029	2887	89.5	74.7	1.15	2.0	14.2	0.25	29.3	118.8	0.451	0.236	0.307	0.68	Liquefaction
	33.34 33.38	15 15	107.5 107.4	1.2 1.18	125 125	4034 4039	2889 2892	87.5 87.4	73.0 72.8	1.14 1.12	2.1	14.4 14.3	0.25 0.25	29.3 28.8	116.8 116.2	0.451 0.451	0.228 0.226	0.297 0.294	0.66 0.65	Liquefaction Liquefaction
	33.42	15	107.4	1.17	125	4044	2894	86.0	71.6	1.12	2.0	14.5	0.25	29.3	115.2	0.451	0.220	0.294	0.63	Liquefaction
	33.46	15	108.6	1.13	125	4049	2897	88.3	73.5	1.06	2.0	13.8	0.23	27.0	115.3	0.451	0.223	0.289	0.64	Liquefaction
	33.49	15	114	1.07	125	4053	2899	92.6	77.2	0.96	2.0	12.6	0.20	23.5	116.1	0.452	0.226	0.293	0.65	Liquefaction
	33.54	15	113.4	1.02	125	4059	2902	92.1	76.7	0.92	2.0	12.3	0.20	22.4	114.6	0.452	0.220	0.286	0.63	Liquefaction
	33.58 33.62	15 15	118.7 125.9	1	125 115	4064 4069	2904 2907	96.4 102.2	80.3 85.2	0.86 0.81	1.9 1.9	11.5 10.6	0.17 0.15	20.2 17.9	116.5 120.1	0.452 0.452	0.227 0.241	0.295 0.313	0.65 0.69	Liquefaction Liquefaction
	33.66	15	133	1	115	4074	2909	107.9	90.0	0.76	1.9	9.8	0.13	15.8	123.7	0.452	0.256	0.313	0.74	Liquefaction
	33.71	15	142.7	1	115	4080	2912	115.7	96.6	0.71	1.8	8.8	0.10	13.1	128.8	0.452	0.279	0.362	0.80	Liquefaction

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 31

Depth to Groundwater: 15 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 **MSF:** 1.30

	Depth	Water Table	Tip Resist.	Sleeve Frict.	a	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	g (PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(QcIN)es	Ratio	M7.5	M6.50		Comments
	`	, ,	` '	`								` '							·	
	33.76	15	151.6	0.97	115	4085	2914	122.9	102.6	0.65	1.8	7.8	0.08	10.1	133.0	0.453	0.299	0.388	0.86	Liquefaction
	33.83	15	156.6	0.91	115	4094	2918	126.8	105.9	0.59	1.8	7.1	0.06	7.6	134.5	0.453	0.306	0.398	0.88	Liquefaction
	33.91	15	150.1	0.84	115	4103	2922	121.5	101.3	0.57	1.8	7.3	0.06	7.8	129.3	0.453	0.281	0.365	0.81	Liquefaction
	34 34.09	15 15	141.4 122.3	0.8 0.84	115 115	4113 4123	2927 2932	114.4 98.8	95.2 82.0	0.57 0.70	1.8 1.9	7.8 10.0	0.07 0.13	9.2 15.4	123.5 114.2	0.454 0.454	0.255 0.219	0.332 0.284	0.73 0.63	Liquefaction Liquefaction
	34.17	15	116.3	0.89	115	4133	2936	93.9	77.8	0.78	1.9	11.2	0.16	18.5	112.4	0.455	0.212	0.276	0.61	Liquefaction
	34.26	15	112.5	0.98	125	4143	2941	90.8	75.1	0.89	2.0	12.3	0.20	22.1	112.8	0.455	0.214	0.278	0.61	Liquefaction
	34.35 34.43	15 15	116.3 119.8	1.2 1.48	125 125	4154 4164	2946 2951	93.7 96.5	77.5 79.7	1.05 1.26	2.0	13.2 14.3	0.22 0.25	26.4 32.0	120.1 128.5	0.455 0.456	0.241 0.277	0.313 0.360	0.69 0.79	Liquefaction Liquefaction
	34.52	15	123.4	1.68	135	4175	2957	99.3	82.0	1.38	2.1	14.8	0.25	35.4	134.7	0.456	0.277	0.400	0.79	Liquefaction
	34.6	15	128.6	1.66	135	4186	2963	103.4	85.4	1.31	2.0	14.0	0.24	32.8	136.2	0.456	0.315	0.410	0.90	Liquefaction
	34.69	15	145.2	1.42	125	4198	2969	116.6	96.4	0.99	1.9	10.9	0.16	21.8	138.4	0.457	0.326	0.424	0.93	Liquefaction
	34.77 34.85	15 15	160.3 166.1	1.18 1.2	115	4208 4218	2974 2978	128.6 133.2	106.3 110.1	0.75 0.73	1.8 1.8	8.3 8.0	0.09	12.6 11.5	141.2 144.7	0.457 0.457	0.342 0.362	0.444 0.470	0.97 1.03	Liquefaction Low F.S.
	35.08	15	170	1.23	115 115	4244	2978	136.0	110.1	0.73	1.8	7.8	0.08	11.3	144.7	0.457	0.302	0.470	1.03	Low F.S.
	35.16	15	172.5	1.31	115	4253	2995	137.9	113.7	0.77	1.8	8.0	0.08	12.1	150.0	0.459	0.394	0.512	1.12	Low F.S.
	35.25	15	178.1	1.38	115	4264	2999	142.3	117.3	0.78	1.8	7.9	0.08	12.0	154.3	0.459	0.421	0.548	1.19	Low F.S.
	35.33	15	184.1	1.43	115	4273	3004	147.0	121.1	0.79	1.8	7.7	0.07	11.4	158.4	0.459	0.449	0.584	1.27	
	35.42 35.5	15 15	187.9 192.5	1.46 1.48	115 115	4283 4292	3008 3013	149.9 153.5	123.4 126.3	0.79 0.78	1.8 1.8	7.6 7.3	0.07 0.06	11.0 10.2	160.9 163.7	0.460 0.460	0.467 0.488	0.608 0.634	1.32 1.38	
	35.58	15	197.4	1.49	115	4302	3017	157.3	129.4	0.76	1.7	7.1	0.06	9.2	166.5	0.460	0.509	0.662	1.44	
	35.67	15	205.3	1.46	115	4312	3022	163.4	134.4	0.72	1.7	6.5	0.04	6.8	170.2	0.461	0.539	0.700	1.52	
	35.75	15	217.4	1.5	115	4321	3026	172.9	142.2	0.70	1.7	6.0	0.03	4.6	177.6	0.461	0.601	0.781	1.69	
	35.83	15	228.2	1.68	115	4330	3030	181.4	149.1	0.74	1.7	6.0	0.03	5.0	186.4	0.462	0.683	0.887	1.92	
	35.91 36	15 15	233.1 233	1.78 1.73	115 115	4340 4350	3034 3039	185.2 184.9	152.2 151.9	0.77 0.75	1.7 1.7	6.1 5.9	0.03	5.5 4.8	190.7 189.7	0.462 0.462	0.725 0.715	0.942 0.930	2.04 2.01	
	36.08	15	235.7	1.58	115	4359	3043	186.9	153.4	0.68	1.7	5.4	0.01	1.9	188.8	0.463	0.706	0.918	1.98	
	36.16	15	249.8	1.45	115	4368	3047	198.0	162.4	0.59	1.6	4.4	0.00	0.0	198.0	0.463	0.802	1.042	2.25	
	36.24	15	265.1	1.39	115	4377	3052	210.0	172.2	0.53	1.6	3.6	0.00	0.0	210.0	0.463	0.941	1.223	2.64	
	36.32 36.4	15 15	267.5 274.1	1.38 1.57	115 115	4387 4396	3056 3060	211.7 216.8	173.6 177.6	0.52 0.58	1.5 1.6	3.5 3.8	0.00	0.0	211.7 216.8	0.464 0.464	0.963 1.028	1.252 1.336	2.70 2.88	
	36.48	15	281.7	1.68	115	4405	3064	222.7	182.4	0.60	1.6	3.9	0.00	0.0	222.7	0.464	1.107	1.439	3.10	
	36.56	15	276.1	1.61	115	4414	3068	218.1	178.5	0.59	1.6	3.9	0.00	0.0	218.1	0.465	1.045	1.358	2.92	
	36.64	15	274.7	1.63	115	4423	3073	216.8	177.3	0.60	1.6	4.0	0.00	0.0	216.8	0.465	1.028	1.337	2.87	
	36.72	15	275.2 295.6	1.56 1.85	115 115	4433	3077	217.1	177.4 190.4	0.57	1.6	3.8	0.00	0.0	217.1 233.0	0.465	1.031	1.341	2.88	
	36.8 36.87	15 15	321.4	1.88	115	4442 4450	3081 3085	233.0 253.2	206.9	0.63 0.59	1.6 1.5	3.8 3.1	0.00	0.0	253.0	0.466 0.466	1.257 1.590	1.634 2.066	3.51 4.44	
	36.95	15	350.9	2.09	115	4459	3089	276.2	225.7	0.60	1.5	2.8	0.00	0.0	276.2	0.466	2.041	2.653	5.69	
	36.99	15	352.3	1.94	115	4464	3091	277.3	226.4	0.55	1.5	2.5	0.00	0.0	277.3	0.466	2.062	2.681	5.75	
	37.03	15	350.6	1.93	115	4468	3093	275.8	225.2	0.55	1.5	2.5	0.00	0.0	275.8	0.467	2.032	2.641	5.66	
	37.07 37.11	15 15	353.9 347	2.05 2.13	115 115	4473 4478	3095 3097	278.3 272.8	227.1 222.5	0.58 0.62	1.5 1.5	2.7 3.0	0.00	0.0	278.3 272.8	0.467 0.467	2.085 1.968	2.711 2.559	5.81 5.48	
	37.15	15	340.8	1.82	115	4482	3099	267.8	218.4	0.54	1.5	2.5	0.00	0.0	267.8	0.467	1.867	2.427	5.20	
	37.19	15	336.9	1.83	115	4487	3101	264.7	215.7	0.55	1.5	2.6	0.00	0.0	264.7	0.467	1.805	2.346	5.02	
	37.23	15	333.6	0.72	95	4491	3104	262.0	213.4	0.22	1.3	0.1	0.00	0.0	262.0	0.467	1.753	2.279	4.88	
	37.27 37.31	15 15	317.8 310.5	1.01 0.96	95 95	4495 4499	3105 3106	249.5 243.8	203.2 198.4	0.32 0.31	1.4 1.4	1.2 1.2	0.00	0.0	249.5 243.8	0.468 0.468	1.525 1.427	1.983 1.855	4.24 3.97	
	37.35	15	282.2	0.96	95	4503	3107	221.5	180.1	0.34	1.4	1.9	0.00	0.0	221.5	0.468	1.091	1.418	3.03	
	37.39	15	244	1.24	105	4507	3109	191.5	155.5	0.51	1.6	4.1	0.00	0.0	191.5	0.468	0.733	0.953	2.04	
	37.43	15	202.7	1.76	125	4511	3110	159.0	128.8	0.88	1.8	7.9	0.08	13.4	172.4	0.468	0.556	0.723	1.54	
	37.47	15	168 212.2	2.47	135	4516	3113	131.7	106.4	1.49	2.0	13.1	0.22	36.4	168.1	0.468	0.522	0.679	1.45	
	37.51 37.55	15 15	184.3	3.14 3.59	135 135	4521 4527	3116 3119	166.3 144.4	134.7 116.7	1.50 1.97	1.9 2.1	11.2 14.8	0.17 0.26	33.3 50.9	199.6 195.3	0.469 0.469	0.820 0.773	1.066 1.005	2.27 2.14	
	37.58	15	160.8	3.76	135	4531	3121	125.9	101.5	2.37	2.2	17.8	0.34	65.6	191.6	0.469	0.734	0.954	2.03	
	37.62	15	135.4	3.68	135	4536	3124	106.0	85.2	2.76	2.3	21.3	0.43	81.3	187.3	0.469	0.691	0.898	1.91	
	37.66	15	110.3	3.45	135	4541	3127	86.3	69.1	3.19	2.4	25.3	0.54	102.5	188.8	0.469	0.706	0.918	1.96	
	37.7 37.75	15 15	96.8 80.1	3.19 2.94	135 135	4547 4554	3130 3133	75.7 62.6	60.4 49.7	3.37 3.78	2.4	27.7 31.8	0.61 0.72	116.4 158.1	192.1 220.7	0.469 0.469	0.739 1.080	0.961 1.404	2.05 2.99	
	37.73	15	57.8	2.58	135	4560	3137	45.2	35.4	4.65	2.7	40.1	0.72	180.6	225.8	0.469	1.150	1.495	3.19	NonLiqfble.
	37.85	15	59.1	2.4	135	4567	3141	46.1	36.2	4.22	2.7	38.2	0.80	184.6	230.7	0.470	1.222	1.589	3.38	NonLiqfble.
	37.89	15	60.5	2.46	135	4572	3143	47.2	37.0	4.23	2.7	37.9	0.80	188.9	236.1	0.470	1.303	1.694	3.61	NonLiqfble.
	37.94 37.97	15 15	119.9 195.2	2.4 2.6	135 135	4579 4583	3147 3149	93.5 152.2	74.7 122.5	2.04 1.35	2.2 1.9	19.4 11.2	0.38	58.2 30.0	151.7 182.2	0.470 0.470	0.405 0.643	0.526 0.835	1.12 1.78	Low F.S.
	37.97	13	133.2	2.0	133	+203	5149	134.2	122.3	1.33	1.9	11.2	0.16	30.0	102.2	0.470	0.043	0.033	1./6	

Project Number: 6600.3.001.01 Date: September 2005

Depth to Groundwater: 15 feet

**PGA (g):** 0.54 **MSF:** 1.30 CPT Number: 31

**EQ Magnitude** (M<sub>w</sub>): 6.5

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\mathrm{CPT}}$	Dqc1N	(qcIN)cs	Ratio	M7.5	M6.50	Safety	Comments
	38	15	282.1	2.92	125	4587	3151	219.9	177.5	1.04	1.7	6.9	0.05	11.6	231.4	0.470	1.233	1.602	3.41	
	38.04	15	357	3.27	125	4592	3154	278.1	224.8	0.92	1.6	4.8	0.00	0.0	278.1	0.470	2.081	2.705	5.75	
	38.08	15	421.5	3.76	125	4597	3156	328.3	265.5	0.90	1.6	3.9	0.00	0.0	328.3	0.470	3.369	4.380	9.31	
	38.11	15	458.6	4.15	125	4601	3158	357.0	288.8	0.91	1.6	3.6	0.00	0.0	357.0	0.470	4.313	5.607	11.92	
	38.15	15	497.6	4.49	125	4606	3161	387.3	313.3	0.91	1.5	3.2	0.00	0.0	387.3	0.471	5.481	7.125	15.14	
	38.19	15	527.2	4.55	125	4611	3163	410.1	331.7	0.87	1.5	2.8	0.00	0.0	410.1	0.471	6.496	8.444	17.94	
	38.23	15	541.5	4.49	125	4616	3166	421.1	340.5	0.83	1.5	2.5	0.00	0.0	421.1	0.471	7.024	9.131	19.39	
	38.26	15	548.8	4.63	125	4620	3168	426.6	344.9	0.85	1.5	2.5	0.00	0.0	426.6	0.471	7.302	9.492	20.16	
	38.42	15	530.1	4.05	125	4640	3178	411.4	332.0	0.77	1.5	2.2	0.00	0.0	411.4	0.471	6.558	8.525	18.08	
	38.47	15	569.5	3.61	115	4646	3181	441.8	356.5	0.64	1.4	1.2	0.00	0.0	441.8	0.472	8.100	10.530	22.33	
	38.53	15	596.9	3.03	115	4653	3184	462.8	373.3	0.51	1.3	0.3	0.00	0.0	462.8	0.472	9.301	12.091	25.62	
	38.59	15	606.7	3.05	105	4660	3187	470.2	379.1	0.50	1.3	0.2	0.00	0.0	470.2	0.472	9.748	12.672	26.84	
	38.65	15	644.1	3.29	115	4666	3190	499.0	402.2	0.51	1.3	0.1	0.00	0.0	499.0	0.472	11.635		32.02	
	38.7	15	658.3	2.65	105	4672	3192	509.8	410.8	0.40	1.2	-0.6	0.00	0.0	509.8	0.473	12.401		34.11	
	38.75	15	661.7	2.72	105	4677	3195	512.2	412.6	0.41	1.2	-0.6	0.00	0.0	512.2	0.473	12.580		34.59	
	38.81	15	672.9	3.03	105	4683	3197	520.7	419.3	0.45	1.2	-0.4	0.00	0.0	520.7	0.473	13.210		36.30	
	38.86	15	653.3	3.64	115	4689	3199	505.4	406.8	0.56	1.3	0.4	0.00	0.0	505.4	0.473	12.083		33.19	
	38.89	15	622.3	3.88	115	4692	3201	481.3	387.2	0.63	1.3	0.9	0.00	0.0	481.3	0.473	10.447		28.69	
	38.92	15	615.7	3.74	115	4696	3202	476.0	382.9	0.61	1.3	0.8	0.00	0.0	476.0	0.473	10.113		27.77	
	38.98	15	653	3.46	115	4702	3206	504.6	405.8	0.53	1.3	0.2	0.00	0.0	504.6	0.474	12.032		33.02	
	39.04	15	588.8	3.38	115	4709	3209	454.8	365.4	0.58	1.3	0.8	0.00	0.0	454.8	0.474	8.829	11.477	24.22	
	39.1	15	551.5	3.85	115	4716	3212	425.8	341.8	0.70	1.4	1.8	0.00	0.0	425.8	0.474	7.259	9.436	19.90	
	39.16	15	544.1 542.3	3.48 3.23	115	4723	3215	419.9	336.9	0.64	1.4	1.5	0.00	0.0	419.9	0.474	6.963	9.052	19.08	
	39.2	15			115	4728	3217 3219	418.3	335.5	0.60	1.4	1.2	0.00	0.0	418.3	0.475	6.889	8.955	18.87	
	39.24 39.28	15 15	534.3 303.4	3 2.76	115 125	4732 4737	3219	412.0 233.9	330.3 186.8	0.56 0.92	1.4 1.7	1.0 5.8	0.00	0.0 5.2	412.0 239.1	0.475 0.475	6.585 1.351	8.561 1.756	18.03 3.70	
	39.34	15	534.7	2.76	105	4744	3225	412.0	330.0	0.92	1.7	0.2	0.02	0.0	412.0	0.475	6.582	8.557	18.01	
	39.41	15	535	2.52	105	4752	3228	412.0	329.9	0.44	1.3	0.2	0.00	0.0	412.0	0.475	6.584	8.559	18.01	
	39.47	15	535.8	2.84	115	4758	3228	412.5	330.1		1.3	0.9	0.00	0.0		0.475	6.606	8.587	18.06	
	39.47	15	530.6	2.76	115	4762	3232	408.4	326.7	0.53 0.52	1.3	0.9	0.00	0.0	412.5 408.4	0.476	6.413	8.337	17.52	
	39.56	15	505.7	2.70	105	4768	3235	389.0	311.0	0.52	1.3	0.8	0.00	0.0	389.0	0.476	5.554	7.221	15.17	
	39.59	15	494.4	2.5	115	4772	3237	380.2	303.9	0.50	1.4	1.0	0.00	0.0	380.2	0.476	5.192	6.750	14.18	
	39.63	15	465.6	2.77	115	4776	3237	358.0	285.9	0.60	1.4	1.8	0.00	0.0	358.0	0.476	4.346	5.650	11.86	
	39.68	15	448.1	2.31	115	4782	3239	344.4	274.9	0.52	1.4	1.4	0.00	0.0	344.4	0.476	3.878	5.042	10.58	
	39.73	15	445.2	3.02	115	4788	3244	342.0	272.9	0.52	1.5	2.5	0.00	0.0	342.0	0.477	3.800	4.940	10.37	
	39.76	15	452.3	2.92	115	4791	3244	347.4	277.1	0.65	1.5	2.3	0.00	0.0	347.4	0.477	3.978	5.172	10.85	
	39.82	15	452.5	3.12	115	4791	3249	358.5	285.9	0.63	1.5	2.2	0.00	0.0	358.5	0.477	4.365	5.674	11.90	
	39.88	15	517	3.78	115	4805	3252	396.7	316.4	0.73	1.5	2.3	0.00	0.0	396.7	0.477	5.885	7.651	16.03	
	39.91	15	527.4	3.84	115	4808	3253	404.6	322.6	0.73	1.4	2.1	0.00	0.0	404.6	0.477	6.238	8.109	16.99	
	39.95	15	538.3	3.9	115	4813	3256	412.8	329.1	0.73	1.4	2.0	0.00	0.0	412.8	0.477	6.621	8.608	18.03	
	39.99	15	554.2	4.53	125	4818	3258	424.8	338.6	0.73	1.5	2.5	0.00	0.0	424.8	0.477	7.211	9.375	19.63	
	40.05	15	560.8	4.75	125	4825	3261	429.7	342.3	0.82	1.5	2.6	0.00	0.0	429.7	0.478	7.456	9.693	21.96	
	40.03	13	500.6	4.73	123	+023	3201	+47.7	344.3	0.65	1.5	2.0	0.00	0.0	+47.1	0.441	7.430	2.023	21.70	

Date: September 2005 CPT Number: 32

Depth to Groundwater: 14 feet

EQ Magnitude ( $M_w$ ): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)es	Ratio	M7.5	M6.50	Safety	Comments
	0.51 0.61	14 14	190.2 154.9	3.05 2.66	135 135	69 82	69 82	364.3 296.7	5521.7 3759.4	1.60 1.72	1.5 1.5	2.2 2.3	0.00	0.0	364.3 296.7	0.351 0.351	4.575 2.508	5.948 3.261	16.95 9.29	Above W.T. Above W.T.
	0.61	14	138.2	2.66	135	96	96	264.7	2881.5	1.72	1.5	2.9	0.00	0.0	264.7	0.351	1.804	2.346	6.68	Above W.T.
	0.8	14	115	2.33	135	108	108	220.2	2127.7	2.03	1.5	3.3	0.00	0.0	220.2	0.351	1.074	1.396	3.98	Above W.T.
	0.9	14	87.6	2.2	135	122	122	167.8	1440.4	2.51	1.6	5.2	0.01	0.9	168.7	0.351	0.527	0.685	1.95	Above W.T.
	1	14	60.2	1.96	135	135	135	115.3	890.5	3.26	1.8	8.3	0.09	11.2	126.5	0.351	0.268	0.349	0.99	Above W.T.
	1.09 1.19	14 14	52.5 39.8	1.92 1.54	135 135	147 161	147 161	100.5 76.2	712.3 494.3	3.66 3.88	1.9 2.0	10.1 12.1	0.14 0.19	15.8 17.8	116.4 94.0	0.351 0.351	0.227 0.157	0.295 0.205	0.84 0.58	Above W.T.
	1.28	14	34.1	1.5	135	173	173	65.3	393.5	4.41	2.1	14.6	0.19	22.6	87.9	0.351	0.137	0.203	0.53	Above W.T. Above W.T.
	1.38	14	31.5	1.33	135	186	186	60.3	337.0	4.23	2.1	15.0	0.27	22.0	82.4	0.351	0.132	0.172	0.49	Above W.T.
	1.47	14	27.6	1.26	135	198	198	52.9	277.0	4.58	2.1	17.1	0.32	25.4	78.2	0.351	0.125	0.162	0.46	Above W.T.
	1.57	14	26.3	1.21	135	212	212	50.4	247.1	4.62	2.2	18.0	0.35	26.9	77.2	0.351	0.123	0.160	0.45	Above W.T.
	1.66	14	24.8	1.09	135	224	224	47.5	220.2	4.42	2.2	18.3	0.36	26.2	73.7	0.351	0.117	0.152	0.43	Above W.T.
	1.76 1.85	14 14	23.1 21.5	0.92 0.72	135 125	238 250	238 250	44.2 41.2	193.4 171.1	4.00 3.37	2.2	18.1 17.1	0.35 0.32	23.8 19.6	68.0 60.8	0.351 0.351	0.109 0.101	0.142 0.131	0.40 0.37	Above W.T. Above W.T.
	1.94	14	20.3	0.72	125	261	261	38.9	154.5	3.57	2.2	18.6	0.32	22.1	61.0	0.351	0.101	0.131	0.37	Above W.T.
	2.04	14	23.1	0.72	125	274	274	44.2	167.9	3.14	2.1	16.4	0.31	19.4	63.7	0.351	0.104	0.135	0.39	Above W.T.
	2.13	14	26.4	0.75	135	285	285	50.6	184.3	2.86	2.1	14.7	0.26	17.8	68.3	0.351	0.110	0.143	0.41	Above W.T.
	2.39	14	19.7	1.12	135	320	320	37.7	122.1	5.73	2.4	27.0	0.59	53.6	91.3	0.351	0.151	0.196	0.56	Above W.T.
	2.49 2.58	14 14	18.3 20.5	1.13 1.15	135 135	333 346	333 346	35.0 39.3	108.7 117.6	6.23 5.66	2.5 2.4	29.5 27.2	0.65 0.59	66.1 57.0	101.1 96.3	0.351 0.351	0.176 0.163	0.229 0.212	0.65 0.60	Above W.T. Above W.T.
	2.68	14	20.5	1.19	135	359	359	39.5	117.0	5.83	2.4	28.0	0.59	62.6	102.0	0.351	0.103	0.212	0.66	Above W.T.
	2.77	14	21.6	1.15	135	371	371	41.4	115.3	5.37	2.4	26.6	0.58	56.5	97.9	0.351	0.167	0.217	0.62	Above W.T.
	2.87	14	22.3	1.1	135	385	385	42.7	114.9	4.98	2.4	25.6	0.55	52.1	94.8	0.351	0.159	0.207	0.59	Above W.T.
	2.96	14	21.6	1.01	135	397	397	41.4	107.8	4.72	2.4	25.5	0.55	50.0	91.4	0.351	0.151	0.196	0.56	Above W.T.
	3.06	14	20.5	0.9	135	410	410	39.3	98.9	4.43	2.4	25.6	0.55	47.8	87.1	0.351	0.141	0.184	0.52	Above W.T.
	3.15 3.25	14 14	18.8 17.3	0.81 0.73	125 125	422 435	422 435	36.0 33.1	88.0 78.5	4.36 4.27	2.4	26.6 27.7	0.58 0.61	49.2 50.8	85.2 83.9	0.351 0.351	0.137 0.135	0.179 0.175	0.51 0.50	Above W.T. Above W.T.
	3.35	14	15.4	0.73	125	447	447	29.5	67.8	4.74	2.5	31.0	0.69	66.6	96.1	0.351	0.153	0.173	0.60	Above W.T.
	3.45	14	14.7	0.73	125	460	460	28.2	62.9	5.04	2.5	32.9	0.74	81.8	109.9	0.351	0.204	0.265	0.75	Above W.T.
	3.54	14	15.3	0.76	125	471	471	29.3	63.9	5.05	2.5	32.6	0.74	82.6	111.9	0.351	0.210	0.274	0.78	Above W.T.
	3.64	14	14.4	0.76	125	484	484	27.6	58.5	5.37	2.6	34.8	0.80	107.5	135.1	0.351	0.309	0.402	1.14	Above W.T.
	3.74	14	13.5 12.9	0.76	125 125	496 507	496	25.9	53.4	5.74	2.6	37.2 39.2	0.80	103.4	129.3	0.351	0.281	0.365 0.332	1.04 0.95	Above W.T.
	3.83 3.93	14 14	13	0.77 0.8	125	520	507 520	24.7 24.9	49.8 49.0	6.09 6.28	2.7 2.7	40.0	0.80	98.8 99.6	123.5 124.5	0.351 0.351	0.255 0.259	0.337	0.95	Above W.T. Above W.T.
	4.03	14	13	0.87	125	532	532	24.7	47.8	6.83	2.7	41.8	0.80	98.6	123.3	0.351	0.254	0.330	0.94	Above W.T.
	4.12	14	13.3	0.94	125	544	544	25.0	47.9	7.22	2.7	42.8	0.80	99.8	124.8	0.351	0.261	0.339	0.97	Above W.T.
	4.22	14	14.9	1.02	125	556	556	27.6	52.6	6.98	2.7	40.7	0.80	110.6	138.2	0.351	0.326	0.423	1.21	Above W.T.
	4.32	14	20.9	1.13	135	569	569	38.3	72.5	5.48	2.5	32.3	0.73	103.0	141.4	0.351	0.343	0.446	1.27	Above W.T.
	4.41 4.51	14 14	28.4 39	1.29 1.58	135 135	581 594	581 594	51.6 70.0	96.7 130.2	4.59 4.08	2.4	26.3 21.7	0.57 0.45	67.8 56.4	119.4 126.4	0.351 0.351	0.238 0.268	0.310 0.348	0.88 0.99	Above W.T. Above W.T.
	4.6	14	49.1	1.98	135	607	607	87.2	160.8	4.06	2.2	19.8	0.43	56.7	143.9	0.351	0.208	0.465	1.32	Above W.T.
	4.7	14	57.8	2.4	135	620	620	101.6	185.4	4.17	2.2	18.9	0.37	60.2	161.8	0.351	0.474	0.616	1.75	Above W.T.
	4.79	14	62.1	2.84	135	632	632	108.1	195.4	4.60	2.2	19.7	0.39	69.9	178.0	0.351	0.604	0.786	2.24	Above W.T.
	4.89	14	67.9	3.25	135	646	646	116.9	209.2	4.81	2.2	19.8	0.39	76.0	192.9	0.351	0.748	0.972	2.77	Above W.T.
	4.98	14	67 65.2	3.38	135	658	658	114.3	202.6 193.2	5.07	2.2	20.7	0.42	82.4 83.1	196.7 193.2	0.351	0.787	1.023	2.92	Above W.T.
	5.08 5.17	14 14	72	3.3 3.12	135 135	671 683	671 683	110.1 120.5	209.6	5.09 4.35	2.3	21.1 18.5	0.43 0.36	67.9	188.4	0.351 0.351	0.751 0.702	0.977 0.913	2.78 2.60	Above W.T. Above W.T.
	5.26	14	71.3	2.94	135	696	696	118.3	203.9	4.14	2.2	18.1	0.35	63.7	182.0	0.351	0.640	0.833	2.37	Above W.T.
	5.36	14	67.9	2.78	135	709	709	111.6	190.4	4.12	2.2	18.6	0.36	63.3	174.8	0.351	0.577	0.750	2.14	Above W.T.
	5.63	14	52.7	2.93	135	746	746	84.4	140.3	5.60	2.4	25.3	0.54	99.5	184.0	0.351	0.659	0.857	2.44	Above W.T.
	5.72	14	51.4	2.77	135	758	758	81.7	134.6	5.43	2.4	25.2	0.54	95.9	177.6	0.351	0.601	0.781	2.23	Above W.T.
	5.82	14	47 46.2	2.43	135	771 783	771	74.1	120.8	5.21	2.4	25.7	0.55	91.7	165.7	0.351	0.503	0.654	1.86	Above W.T.
	5.91 6.01	14 14	46.2	2.09 1.86	135 135	783 797	783 797	72.2 67.7	116.9 108.6	4.56 4.30	2.3	24.2 24.2	0.51 0.51	76.1 70.9	148.3 138.6	0.351 0.351	0.383 0.328	0.498 0.426	1.42 1.21	Above W.T. Above W.T.
	6.1	14	43.7	1.54	135	809	809	66.1	105.3	3.62	2.3	22.3	0.46	56.6	122.7	0.351	0.328	0.420	0.93	Above W.T.
	6.2	14	42.6	1.32	135	823	823	65.0	102.5	3.13	2.3	20.8	0.42	47.3	112.3	0.351	0.212	0.275	0.78	Above W.T.
	6.29	14	42.2	1.21	135	835	835	63.9	100.1	2.90	2.2	20.1	0.40	43.3	107.3	0.351	0.195	0.253	0.72	Above W.T.
	6.39	14	38.7	1.08	135	848	848	58.1	90.2	2.82	2.3	20.9	0.42	42.8	101.0	0.351	0.176	0.229	0.65	Above W.T.
	6.48	14	34	0.99	135	860	860	50.7	78.0	2.95	2.3	23.0	0.48	46.7	97.5	0.351	0.166	0.216	0.62	Above W.T.
	6.57 6.67	14 14	33.4 34.4	0.87 0.78	135 135	872 886	872 886	49.5 50.6	75.5 76.6	2.64 2.30	2.3 2.2	22.0 20.3	0.45 0.41	41.2 35.1	90.7 85.6	0.351 0.351	0.149 0.138	0.194 0.180	0.55 0.51	Above W.T. Above W.T.
	0.07	14	34.4	0.76	133	000	000	50.0	70.0	2.30	4.4	20.3	0.41	55.1	0.0	0.551	0.136	0.100	0.51	ADOVE W.I.

Date: September 2005 CPT Number: 32

Depth to Groundwater: 14 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	(qcIN)cs	Ratio	M7.5	M6.50	Safety	Comments
	6.76	14	36.5	0.72	125	898	898	53.3	80.2	2.00	2.2	18.4	0.36	29.7	83.0	0.351	0.133	0.173	0.49	Above W.T.
	6.86	14	38	0.7	125	911	911	55.1	82.4	1.86	2.2	17.5	0.33	27.5	82.6	0.351	0.132	0.172	0.49	Above W.T.
	6.95	14	39.3	0.66	125	922	922	56.6	84.2	1.70	2.1	16.4	0.30	24.7	81.4	0.351	0.130	0.169	0.48	Above W.T.
	7.04	14	39.6	0.68	125	933	933	56.7	83.8	1.74	2.1	16.6	0.31	25.5	82.3	0.351	0.132	0.171	0.49	Above W.T.
	7.14	14	40.5	0.67	125	946	946	57.6	84.6	1.67	2.1	16.2	0.30	24.6	82.2	0.351	0.132	0.171	0.49	Above W.T.
	7.23	14	42.8	0.64	125	957	957	60.5	88.4	1.51	2.1	14.9	0.26	21.7	82.2	0.351	0.132	0.171	0.49	Above W.T.
	7.32 7.41	14 14	47.7 50.5	0.59 0.56	125 125	968 979	968 979	67.1 70.6	97.5 102.1	1.25 1.12	2.0 1.9	12.5 11.3	0.20 0.17	16.7 14.2	83.8 84.8	0.351	0.135 0.137	0.175 0.178	0.50 0.51	Above W.T.
	7.41	14	50.5	0.63	125	992	992	69.6	102.1	1.12	2.0	12.4	0.17	17.0	86.7	0.351	0.137	0.178	0.51	Above W.T. Above W.T.
	7.6	14	47.3	0.74	125	1003	1003	65.3	93.3	1.58	2.1	14.8	0.26	23.1	88.4	0.351	0.144	0.188	0.53	Above W.T.
	7.69	14	39.6	0.85	135	1014	1014	54.4	77.0	2.17	2.2	19.7	0.39	35.1	89.5	0.351	0.147	0.191	0.54	Above W.T.
	7.78	14	34.4	0.91	135	1027	1027	47.0	66.0	2.69	2.3	23.8	0.50	47.2	94.2	0.351	0.158	0.205	0.58	Above W.T.
	7.88	14	41.8	0.91	135	1040	1040	56.7	79.4	2.20	2.2	19.5	0.39	36.0	92.7	0.351	0.154	0.200	0.57	Above W.T.
	7.97	14	46.4	0.84	135	1052	1052	62.6	87.2	1.83	2.1	16.7	0.31	28.6	91.2	0.351	0.150	0.196	0.56	Above W.T.
	8.07	14	43.9	0.77	135	1066	1066	58.8	81.4	1.78	2.1	17.1	0.32	28.2	87.0	0.351	0.141	0.184	0.52	Above W.T.
	8.16	14	41.9	0.63	125	1078	1078	55.8	76.7	1.52	2.1	16.3	0.30	24.2	80.0	0.351	0.128	0.166	0.47	Above W.T.
	8.25	14	37.9	0.76	135	1089	1089	50.2	68.6	2.03	2.2	20.3	0.41	34.6	84.8	0.351	0.137	0.178	0.51	Above W.T.
	8.35	14	30.1	0.9	135	1103	1103	39.7	53.6	3.05	2.4	27.9	0.61	62.4	102.1	0.351	0.179	0.233	0.66	Above W.T. Above W.T.
	8.44 8.54	14 14	25.3 20.5	0.95 0.66	135 125	1115 1128	1115 1128	33.2 26.7	44.4 35.3	3.84 3.31	2.6 2.6	33.7 35.0	0.77 0.80	108.2 107.3	141.3 134.0	0.351	0.342 0.304	0.445 0.395	1.27 1.13	Above W.T.
	8.63	14	23.1	0.62	125	1139	1139	29.9	39.5	2.75	2.5	30.8	0.69	66.3	96.2	0.351	0.163	0.393	0.60	Above W.T.
	8.72	14	33	0.6	125	1151	1151	42.6	56.3	1.85	2.3	21.5	0.44	33.7	76.2	0.351	0.121	0.158	0.45	Above W.T.
	8.79	14	40.3	0.57	125	1159	1159	51.8	68.5	1.44	2.1	17.0	0.32	24.3	76.1	0.351	0.121	0.157	0.45	Above W.T.
	8.89	14	42.3	0.55	125	1172	1172	54.1	71.2	1.32	2.1	15.8	0.29	22.0	76.1	0.351	0.121	0.157	0.45	Above W.T.
	8.98	14	42.1	0.56	125	1183	1183	53.6	70.1	1.35	2.1	16.2	0.30	22.8	76.3	0.351	0.121	0.158	0.45	Above W.T.
	9.08	14	40.8	0.57	125	1196	1196	51.6	67.2	1.42	2.1	17.0	0.32	24.5	76.1	0.351	0.121	0.157	0.45	Above W.T.
	9.17	14	41.3	0.53	125	1207	1207	52.0	67.4	1.30	2.1	16.3	0.30	22.4	74.4	0.351	0.118	0.154	0.44	Above W.T.
	9.27	14	41.1	0.46	125	1219	1219	51.5	66.4	1.14	2.1	15.3	0.28	19.6	71.1	0.351	0.113	0.147	0.42	Above W.T.
	9.36	14	40.2	0.39	115	1231	1231	50.1	64.3	0.99	2.1	14.6	0.26	17.2	67.3	0.351	0.108	0.141	0.40	Above W.T.
	9.46	14	37.2	0.37	115	1242	1242	46.2	58.9	1.01	2.1	15.7	0.28	18.4	64.6	0.351	0.105	0.137	0.39	Above W.T.
	9.55 9.65	14 14	31.6 24	0.44 0.55	125 125	1253 1265	1253 1265	39.1 29.5	49.4 36.9	1.42 2.35	2.2	20.5 29.8	0.41 0.66	27.6 58.1	66.7 87.6	0.351	0.108 0.142	0.140 0.185	0.40 0.53	Above W.T. Above W.T.
	9.74	14	17.5	0.56	125	1276	1276	21.4	26.4	3.32	2.7	39.8	0.80	85.7	107.2	0.351	0.194	0.253	0.72	Above W.T.
	9.84	14	13.7	0.52	125	1289	1289	16.7	20.3	3.98	2.8	47.6	0.80	66.8	83.5	0.351	0.134	0.174	0.50	Above W.T.
	9.94	14	10.3	0.47	115	1301	1301	12.5	14.8	4.87	3.0	57.6	0.80	50.0	62.5	0.351	0.103	0.133	0.38	Above W.T.
	10.03	14	8.8	0.43	115	1312	1312	10.6	12.4	5.28	3.1	63.3	0.80	42.5	53.2	0.344	0.094	0.122	0.36	Above W.T.
	10.13	14	8.9	0.39	115	1323	1323	10.7	12.4	4.73	3.0	61.1	0.80	42.8	53.5	0.344	0.094	0.123	0.36	Above W.T.
	10.22	14	8.9	0.37	115	1334	1334	10.7	12.3	4.49	3.0	60.3	0.80	42.7	53.3	0.344	0.094	0.122	0.36	Above W.T.
	10.32	14	8.9	0.42	115	1345	1345	10.6	12.2	5.11	3.1	63.0	0.80	42.5	53.1	0.344	0.094	0.122	0.35	Above W.T.
	10.41	14	8.7	0.44	115	1355	1355	10.3	11.8	5.48	3.1	65.2	0.80	41.4	51.7	0.344	0.093	0.121	0.35	Above W.T.
	10.51	14	8.2	0.44	115	1367	1367	9.7	11.0	5.85	3.1	68.3	0.80	38.8	48.5	0.344	0.091	0.118	0.34	Above W.T.
	10.6 10.7	14 14	8.6 8.1	0.44 0.45	115 115	1377 1389	1377 1389	10.1 9.5	11.5 10.7	5.56 6.08	3.1	66.2 69.8	0.80	40.6 38.0	50.7 47.6	0.344 0.344	0.092 0.090	0.120 0.117	0.35 0.34	Above W.T. Above W.T.
	10.79	14	9.4	0.45	115	1399	1399	11.0	12.4	5.17	3.1	62.8	0.80	44.0	55.0	0.344	0.095	0.124	0.36	Above W.T.
	10.89	14	10.3	0.39	115	1411	1411	12.0	13.6	4.06	3.0	56.3	0.80	48.0	60.0	0.344	0.100	0.130	0.38	Above W.T.
	10.98	14	10.1	0.38	115	1421	1421	11.7	13.2	4.05	3.0	56.9	0.80	46.9	58.6	0.344	0.099	0.128	0.37	Above W.T.
	11.08	14	9.5	0.38	115	1432	1432	11.0	12.3	4.33	3.0	59.8	0.80	43.9	54.9	0.344	0.095	0.124	0.36	Above W.T.
	11.17	14	9.8	0.42	115	1443	1443	11.3	12.6	4.63	3.0	60.4	0.80	45.2	56.4	0.344	0.097	0.126	0.37	Above W.T.
	11.27	14	11.3	0.48	125		1454	13.0	14.5	4.54	3.0	56.8	0.80	51.9	64.8	0.344	0.105	0.137	0.40	Above W.T.
	11.36	14	12.8	0.56	125	1466	1466	14.6	16.5	4.64	2.9	54.5	0.80	58.5	73.1	0.344	0.116	0.151	0.44	Above W.T.
	11.46	14	13.7	0.61	125		1478	15.6	17.5	4.71	2.9	53.4	0.80	62.4	78.0	0.344	0.124	0.161	0.47	Above W.T.
	11.55	14	13.7	0.64	125	1489	1489	15.5	17.4	4.94	2.9	54.4	0.80	62.1	77.7	0.344	0.124	0.161	0.47	Above W.T.
	11.65 11.75	14 14	12.3 11.4	0.65 0.58	125 125	1502 1514	1502 1514	13.9 12.8	15.4 14.1	5.63 5.45	3.0	59.6 61.0	0.80	55.5 51.3	69.4 64.1	0.344	0.111 0.104	0.144 0.136	0.42 0.39	Above W.T. Above W.T.
	11.73	14	9.2	0.56		1514	1514	10.3	11.1	5.93	3.1	68.4	0.80	41.2	51.5	0.344	0.104	0.130	0.35	Above W.T.
	11.94	14	7.9	0.42		1537	1537	8.8	9.3	5.89	3.2	72.8	0.80	35.3	44.1	0.344	0.033	0.121	0.33	Above W.T.
	11.98	14	7.7	0.38	115	1542	1542	8.6	9.0	5.48	3.2	72.2	0.80	34.3	42.9	0.344	0.087	0.114	0.33	Above W.T.
	12.02	14	7.7	0.34		1546	1546	8.6	9.0	4.91	3.2	70.0	0.80	34.3	42.8	0.344	0.087	0.114	0.33	Above W.T.
	12.11	14	7.8	0.3	115		1557	8.7	9.0	4.27	3.1	67.1	0.80	34.6	43.3	0.344	0.088	0.114	0.33	Above W.T.
	12.21	14	6.9	0.31	105	1568	1568	7.6	7.8	5.07	3.2	74.4	0.80	30.5	38.1	0.344	0.085	0.111	0.32	Above W.T.
	12.3	14	7.3	0.35		1578	1578	8.0	8.3	5.38	3.2	74.0	0.80	32.2	40.2	0.344	0.086	0.112	0.33	Above W.T.
	12.4	14	7.6	0.4		1589	1589	8.3	8.6	5.88	3.2	74.9	0.80	33.4	41.7	0.344	0.087	0.113	0.33	Above W.T.
	12.5	14	8.2	0.44	115	1601	1601	9.0	9.2	5.95	3.2	73.1	0.80	35.9	44.8	0.344	0.088	0.115	0.33	Above W.T.

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 32

Depth to Groundwater: 14 feet

Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Stress Stress Stress g (TSF) (TSF) (PCF) (PSF) (PSF) (%) Dqcin (qcin)cs Ratio M7.5 M6.50 Safety (FT) (FT) **q**c1N 0 Comments Ic 12 59 14 8.2 0 44 115 1611 1611 8.9 9.2 5.95 3.2 73.3 0.80 35.8 44.7 0.344 0.088 0.115 0.33 Above W.T. 12.69 14 8.2 0.44 115 1622 1622 8.9 9.1 5.96 3.2 73.5 0.80 35.6 44.5 0.344 0.088 0.115 0.33 Above W.T. 12.78 14 8.1 0.44 115 1633 1633 8.8 8.9 6.04 3.2 74.4 0.80 35.1 43.9 0.344 0.088 0.114 0.33 Above W.T. 12.88 14 8.4 0.45 115 1644 1644 9.1 9.2 5.94 3.2 73.2 0.80 36.3 45.3 0.344 0.089 0.115 0.34 Above W.T. 12.98 8.6 0.48 115 1656 1656 9.2 6.18 3.2 73.5 0.80 37.0 46.2 0.344 0.089 0.116 0.34 Above W.T. 13.07 14 9.2 0.49 115 1666 9.9 10.0 5.86 3.2 70.6 0.80 39.4 49.3 0.344 0.091 0.118 0.34 Above W.T. 1666 13.17 9.1 0.52 115 1678 1678 9.7 6.29 3.2 72.6 0.80 38.9 48.6 0.344 0.091 0.118 0.34 Above W.T. 14 9.8 13.26 14 9.5 0.53 1688 10.1 10.3 6.12 3.2 0.80 40.5 0.344 0.092 0.120 0.35 125 1688 71.0 50.6 Above W.T. 13.36 9.6 0.55 125 1700 1700 6.29 3.2 0.80 40.7 50.9 0.344 0.120 0.35 14 10.2 10.3 71.5 0.092 Above W.T. 13.46 14 9 0.55 125 1713 1713 9.5 9.5 6.75 3.2 75.1 0.80 38.1 47.6 0.344 0.090 0.117 0.34Above W.T. 13.55 14 8.5 0.54 115 1724 1724 9.0 8.9 7.07 3.3 78.0 0.80 35.8 44.8 0.344 0.088 0.115 0.33 Above W.T. 13.65 8.7 0.51 115 1736 1736 9.0 6.51 3.2 0.80 45.7 0.344 0.089 0.116 0.34 Above W.T 14 9.1 75.7 36.5 13.74 14 8.2 0.46 115 1746 1746 8.6 8.4 6.28 3.2 76.9 0.80 34 3 42.9 0.344 0.087 0.114 0.33 Above W.T. 13.84 14 8.6 0.44 115 1758 1758 9.0 8.8 5.70 3.2 73.6 0.80 35.9 44.9 0.344 0.088 0.115 0.33 Above W.T. 13.93 14 9.4 0.45 115 1768 1768 9.8 9.6 5.28 3.2 69.6 0.80 39.1 48.9 0.344 0.091 0.118 0.34 Above W.T. 14.03 14 0.44 115 1779 1773 9.4 9.1 5.43 3.2 71.5 0.80 37.4 46.8 0.345 0.090 0.116 0.34 NonLiqfble. 14.12 8.6 0.47 8.9 3.2 0.346 0.33 14 115 1790 1778 8.7 6.10 75.4 0.80 35.7 44.6 0.088 0.115 NonLiafble. 14.21 0.51 77.3 0.347 8.6 115 1800 1783 8.9 6.62 3.3 0.80 35.6 44.6 0.088 0.115 0.33 NonLigfble. 14 8.6 14.31 14 8.7 0.51 115 1812 1788 9.0 8.7 6.54 3.2 76.7 0.80 36.0 45.0 0.349 0.088 0.115 0.33 NonLigfble. 0.52 0.350 14.4 14 9.3 115 1822 1793 9.6 9.4 6.20 3.2 73.7 0.80 38.4 48.1 0.090 0.117 0.34 NonLigfble. 14.5 14 9.8 0.53 125 1833 1798 10.1 9.9 5.97 3.2 71.4 0.80 40.5 50.6 0.351 0.092 0.1200.34NonLigfble. 14 59 14 97 0.53 125 1845 1803 10.0 97 6.04 32 72.1 0.80 40.0 50.0 0.352 0.092 0.119 0.34 NonLiqfble. 14.68 14 9.5 0.52 125 1856 1809 98 9.5 6.07 3.2 72.9 0.80 39.1 48 9 0.353 0.091 0.118 0.33 NonLiqfble. 14.78 14 10.3 0.56 125 1868 1815 10.6 10.3 5 98 3.2 70.4 0.80 42.3 52.9 0.354 0.094 0.122 0.34 NonLiqfble. 14.87 10.5 0.57 125 1880 1821 10.8 10.5 5.96 3.2 69.8 0.80 43.1 53.8 0.355 0.095 0.123 0.35 NonLiqfble. 14.96 14 10.7 0.57 125 1891 1827 11.0 10.7 5.84 3.1 69.0 0.80 43.8 54.8 0.356 0.095 0.124 0.35 NonLigfble. 15.06 14 10.7 0.59 125 1903 1833 10.9 10.6 6.05 3.2 69.8 0.80 43.7 54.7 0.357 0.095 0.124 0.35 NonLiqfble. 15.15 14 10.9 0.6 125 1915 1839 6.03 3.2 69.3 0.80 44.5 0.358 0.096 0.125 0.35 11.1 10.8 55.6 NonLigfble. 15.24 0.59 125 40.8 0.359 14 10 1926 1844 10.2 9.8 6.53 3.2 73.6 0.80 50.9 0.092 0.120 0.33 NonLigfble. 10.7 15.33 14 0.56 125 1937 1850 10.5 5.75 0.80 43.5 0.360 0.095 0.123 0.34 NonLiafble. 10.9 3.1 69.1 54.4 15.43 10.5 0.57 125 1950 1856 10.7 5.98 3.2 0.80 42.7 53.3 0.361 0.094 0.122 0.34 NonLiafble. 14 10.3 70.5 15.52 14 11 0.6 125 1961 1862 11.2 10.8 5 99 32 693 0.80 44 6 55.8 0.362 0.096 0.125 0.34 NonLiafble. 15.61 14 113 0.61 125 1972 1867 114 11.0 5 91 3.1 68 4 0.80 45.8 57.2 0.363 0.097 0.127 0.35 NonLiqfble. 15.7 14 11.4 0.63 125 1983 1873 11.5 11.1 6.05 3.1 68.7 0.80 46.1 57.6 0.364 0.098 0.127 0.35 NonLiqfble. 15.8 14 11.3 0.64 125 1996 1879 11.4 6.21 3.2 69.6 0.80 45.6 57.0 0.365 0.097 0.126 0.35 NonLiqfble. 11.0 15.89 NonLiqfble. 14 11.4 0.63 125 2007 1885 11.5 11.0 6.06 3.1 68.9 0.80 46.0 57.4 0.366 0.098 0.127 0.35 15.99 14 11.2 0.61 125 2020 1891 11.3 10.8 5.99 3.2 69.3 0.80 45.1 56.3 0.367 0.097 0.126 0.34 NonLigfble 16.08 11.3 0.59 125 2031 1897 10.8 5.74 3.1 68.2 0.80 45.4 0.368 0.097 0.126 0.34 NonLiqfble. 16.17 14 0.58 125 2042 1902 11.0 10.5 5.81 3.2 69.3 0.80 44.1 55.2 0.369 0.096 0.124 0.34 NonLiqfble. 11 16.27 14 11.1 0.55 125 2055 1909 11.1 5.46 3.1 67.9 0.80 44.5 55.6 0.370 0.096 0.125 0.34 NonLiafble. 10.5 0.55 5.75 42.4 0.371 16.36 14 10.6 125 2066 1914 10.6 10.0 3.2 70.4 0.80 53.0 0.094 0.122 0.33 NonLiafble. 16.46 14 10.6 0.55 125 2078 1921 10.6 10.0 5.75 3.2 70.5 0.80 42.3 52.9 0.372 0.094 0.122 0.33 NonLiafble. 16.55 14 10.8 0.58 125 2090 1926 10.8 10.1 5.95 3.2 70.7 0.80 43.1 53.8 0.373 0.095 0.1230.33 NonLiqfble. 16.64 14 11.2 0.59 125 2101 1932 11.1 10.5 5.81 3.2 69.3 0.80 44.6 55.7 0.374 0.096 0.125 0.33 NonLigfble. 16.73 14 10.9 0.64 125 2112 1937 10.8 10.2 6.50 3.2 72.5 0.80 43.3 54.2 0.375 0.095 0.123 0.33 NonLiqfble. 16.83 14 11 0.63 125 2125 1944 10.9 10.2 6.34 3.2 71.8 0.80 43.7 54.6 0.376 0.095 0.124 0.33 NonLiqfble. 1949 16.92 10.9 0.59 125 2136 6.00 3.2 71.0 0.80 43.2 54.0 0.377 0.123 0.33 NonLiqfble. 14 10.8 10.1 0.095 17.01 14 10.9 0.55 125 2147 1955 10.8 10.0 5.60 3.2 69.7 0.80 43.1 53.9 0.378 0.095 0.123 0.33 NonLiqfble. 17.11 14 10.4 0.48 125 2160 1961 10.3 9.5 5.15 3.2 69.4 0.80 41.1 51.4 0.379 0.093 0.120 0.32 NonLiqfble. 0.45 115 2171 10.1 9.3 4.94 3.2 0.80 40.3 0.380 0.092 0.119 17.2 14 10.2 1967 69.2 50.3 0.31 NonLiqfble. 17.29 0.45 0.381 10.4 115 2181 1972 10.2 9.4 4.83 3.1 68.3 0.80 41.0 51.2 0.093 0.120 0.32 NonLigfble. 14 0.45 17.38 14 10.4 115 2192 1976 10.2 9.4 4.84 3.1 68.4 0.80 40.9 51.2 0.381 0.092 0.120 0.32 NonLigfble. 17.47 14 10 0.44 115 2202 1981 9.8 9.0 4.94 3.2 70.1 0.80 39.3 49.2 0.382 0.091 0.118 0.31 NonLigfble. 17.56 14 10.3 0.45 115 2212 1986 10.1 9.3 4.89 3.1 69.1 0.80 40.5 50.6 0.383 0.092 0.1200.31 NonLiqfble. 17 65 14 10.8 0.46 115 2223 1991 10.6 97 4 75 3 1 67.2 0.80 42.4 53.0 0.384 0.094 0.122 0.32 NonLiafble 17.74 14 10.6 0.47 115 2233 1995 10.4 9 5 4.96 3.1 68.6 0.80 41.5 51.9 0.385 0.093 0.121 0.31 NonLiqfble. 17.83 14 11.1 0.51 125 2243 2000 10.9 10.0 5.11 3.1 68.0 0.80 43.4 54.3 0.386 0.095 0.123 0.32 NonLiqfble. 17.93 11.2 2256 43.8 54.7 0.387 NonLiqfble. 14 0.54 125 2006 10.9 10.0 5.36 3.1 68.8 0.80 0.095 0.124 0.32 18.02 0.59 125 2267 70.7 43.7 0.388 NonLiqfble. 14 11.2 2012 10.9 10.0 5.86 3.2 0.80 54.6 0.095 0.124 0.32 18.11 14 11.2 0.61 125 2278 2018 10.9 10.0 6.06 3.2 71.5 0.80 43.6 54.6 0.388 0.095 0.124 0.32 NonLiqfble. 18.2 10.7 0.58 125 2290 2023 6.07 3.2 0.80 41.6 52.0 0.389 0.093 0.121 14 10.4 9.4 73.0 0.31 NonLigfble. 18.29 10.8 0.54 125 2301 10.5 0.390 0.093 NonLigfble. 14 2029 9.5 5.60 3.2 71.1 0.80 42.0 52.5 0.121 0.31 18.39 10.1 0.49 115 2313 2035 9.8 5 48 72.7 0.80 39.2 49 0 0.391 0.091 0.118 0.30 NonLiafble. 8.8

EQ Magnitude (Mw):

PGA (g):

6.5

0.54

MSF: 1.30

Project Number: 6600.3.001.01 Date: September 2005

Depth to Groundwater: 14 feet

**MSF:** 1.30 CPT Number: 32

**EQ Magnitude** (M<sub>w</sub>): 6.5

**PGA (g):** 0.54

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.					Stress	-	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	$\mathbf{K}_{\text{CPT}}$	<b>Dq</b> <sub>c1N</sub>	(qclN)cs	Ratio	M7.5	M6.50	Safety	Comments
	10.04	1.4	0.0	0.00	115	22.42	2049	0.2	0.2	2 22	2.1	64.0	0.90	27.1	46.4	0.202	0.000	0.116	0.20	NI I : - 4-1-
	18.64 18.73	14 14	9.6 8.5	0.28 0.26	115 105	2342 2352	2048 2053	9.3 8.2	8.2 7.1	3.32 3.55	3.1	64.9 69.9	0.80 0.80	37.1 32.8	46.4 41.0	0.393 0.394	0.089 0.086	0.116 0.112	0.30 0.29	NonLiqfble. NonLiqfble.
	18.82	14	8	0.28	105	2362	2057	7.7	6.6	4.11	3.2	74.7	0.80	30.9	38.6	0.395	0.085	0.111	0.28	NonLiqfble.
	18.91	14	8.4	0.3	115	2371	2061	8.1	7.0	4.16	3.2	73.4	0.80	32.4	40.5	0.396	0.086	0.112	0.28	NonLiqfble.
	19	14	10.3	0.27	115	2382	2065	9.9	8.8	2.96	3.0	61.2	0.80	39.7	49.6	0.397	0.091	0.119	0.30	NonLiqfble.
	19.09	14	10.2	0.24	105	2392	2070	9.8	8.7	2.67	3.0	59.8	0.80	39.2	49.0	0.397	0.091	0.118	0.30	NonLiqfble.
	19.19	14	9.3	0.24	105	2403	2074	8.9	7.8	2.96	3.1	64.3	0.80	35.7	44.7	0.398	0.088	0.115	0.29	NonLiqfble.
	19.28 19.37	14 14	8.8 9.1	0.27 0.32	105 115	2412 2421	2078 2082	8.4 8.7	7.3 7.6	3.56 4.06	3.2	69.3 70.7	0.80 0.80	33.8 34.9	42.2 43.6	0.399 0.400	0.087 0.088	0.113 0.114	0.28 0.29	NonLiqfble. NonLiqfble.
	19.46	14	9.4	0.37	115	2432	2087	9.0	7.8	4.52	3.2	71.9	0.80	36.0	45.0	0.401	0.088	0.115	0.29	NonLiqfble.
	19.56	14	9.5	0.43	115	2443	2092	9.1	7.9	5.19	3.2	74.5	0.80	36.4	45.4	0.402	0.089	0.115	0.29	NonLiqfble.
	19.65	14	9.5	0.46	115	2454	2097	9.1	7.9	5.56	3.2	76.0	0.80	36.3	45.4	0.403	0.089	0.115	0.29	NonLiqfble.
	19.74	14	9.5	0.45	115	2464	2101	9.1	7.9	5.44	3.2	75.6	0.80	36.3	45.3	0.403	0.089	0.115	0.29	NonLiqfble.
	19.84	14	9	0.41	115	2476	2107	8.6	7.4	5.28	3.2	76.8	0.80	34.3	42.9	0.404	0.087	0.114	0.28	NonLiqfble.
	19.93	14 14	8.9 8.7	0.38 0.37	115 115	2486	2111 2116	8.5	7.2 7.0	4.96	3.2	75.9	0.80	33.9	42.4 41.4	0.405 0.397	0.087	0.113 0.113	0.28	NonLiqfble.
	20.02	14	8.5	0.37	115	2496 2507	2110	8.3 8.1	6.8	4.97 5.11	3.3	76.8 78.2	0.80 0.80	33.1 32.3	40.4	0.397	0.087 0.086	0.113	0.28 0.28	NonLiqfble. NonLiqfble.
	20.2	14	8.7	0.39	115	2517	2126	8.3	7.0	5.24	3.3	78.1	0.80	33.0	41.3	0.399	0.087	0.113	0.28	NonLiqfble.
	20.3	14	9.7	0.4	115	2528	2131	9.2	7.9	4.74	3.2	72.6	0.80	36.8	46.0	0.400	0.089	0.116	0.29	NonLiqfble.
	20.39	14	10	0.4	115	2539	2136	9.5	8.2	4.58	3.2	71.1	0.80	37.9	47.3	0.401	0.090	0.117	0.29	NonLiqfble.
	20.48	14	10.5	0.4	115	2549	2140	9.9	8.6	4.34	3.1	68.6	0.80	39.7	49.7	0.401	0.091	0.119	0.30	NonLiqfble.
	20.57	14	10.5	0.42	115	2559	2145	9.9	8.6	4.56	3.2	69.6	0.80	39.7	49.6	0.402	0.091	0.119	0.30	NonLiqfble.
	20.66 20.75	14 14	11 10.9	0.41 0.4	115 115	2570 2580	2150 2155	10.4 10.3	9.0 8.9	4.22 4.16	3.1	66.8 66.9	0.80 0.80	41.5 41.1	51.9 51.4	0.403 0.404	0.093	0.121 0.120	0.30	NonLiqfble. NonLiqfble.
	20.73	14	11.7	0.42	115	2591	2159	11.0	9.6	4.04	3.1	64.4	0.80	44.1	55.1	0.404	0.095	0.120	0.30	NonLiqfble.
	20.93	14	11.3	0.42	115	2601	2164	10.6	9.2	4.20	3.1	66.2	0.80	42.5	53.1	0.405	0.094	0.122	0.30	NonLiqfble.
	21.02	14	10.6	0.42	115	2611	2169	10.0	8.6	4.52	3.2	69.5	0.80	39.8	49.8	0.406	0.091	0.119	0.29	NonLiqfble.
	21.11	14	10.2	0.41	115	2622	2174	9.6	8.2	4.61	3.2	71.2	0.80	38.3	47.9	0.406	0.090	0.117	0.29	NonLiqfble.
	21.21	14	9.5	0.41	115	2633	2179	8.9	7.5	5.01	3.2	75.2	0.80	35.6	44.5	0.407	0.088	0.115	0.28	NonLiqfble.
	21.3	14 14	9.4 9.3	0.38 0.38	115	2643	2184	8.8	7.4	4.70	3.2	74.3	0.80	35.2	44.0	0.408	0.088	0.114	0.28	NonLiqfble.
	21.39 21.48	14	10.1	0.38	115 115	2654 2664	2188 2193	8.7 9.4	7.3 8.0	4.77 4.33	3.2	75.0 70.6	0.80 0.80	34.8 37.7	43.5 47.2	0.409 0.409	0.088	0.114 0.117	0.28 0.29	NonLiqfble. NonLiqfble.
	21.57	14	10.1	0.37	115	2674	2198	9.3	7.9	4.27	3.2	70.7	0.80	37.3	46.7	0.410	0.089	0.116	0.28	NonLiqfble.
	21.66	14	10.3	0.35	115	2685	2202	9.6	8.1	3.91	3.1	68.1	0.80	38.4	48.0	0.411	0.090	0.117	0.29	NonLiqfble.
	21.78	14	11	0.32	115	2699	2209	10.2	8.7	3.32	3.1	63.3	0.80	41.0	51.2	0.412	0.092	0.120	0.29	NonLiqfble.
	21.87	14	10.7	0.28	115	2709	2213	10.0	8.4	3.00	3.1	62.4	0.80	39.8	49.8	0.412	0.091	0.119	0.29	NonLiqfble.
	21.96	14	10.3 9.8	0.25 0.23	115	2719	2218 2223	9.6	8.1	2.80	3.1	62.5	0.80	38.3	47.8	0.413	0.090	0.117	0.28	NonLiqfble.
	22.05 22.14	14 14	9.6	0.23	105 105	2730 2739	2223	9.1 8.9	7.6 7.4	2.73 2.55	3.1	63.6 63.2	0.80 0.80	36.4 35.6	45.5 44.5	0.414 0.414	0.089	0.115 0.115	0.28 0.28	NonLiqfble. NonLiqfble.
	22.23	14	8.6	0.19	105	2749	2231	8.0	6.5	2.63	3.1	67.2	0.80	31.9	39.8	0.415	0.086	0.112	0.27	NonLiqfble.
	22.32	14	8.2	0.18	105	2758	2234	7.6	6.1	2.64	3.1	68.9	0.80	30.4	38.0	0.416	0.085	0.111	0.27	NonLiqfble.
	22.41	14	8	0.18	105	2767	2238	7.4	5.9	2.72	3.2	70.3	0.80	29.6	37.0	0.417	0.085	0.110	0.26	NonLiqfble.
	22.5	14	7.5	0.16	105	2777	2242	6.9	5.4	2.62	3.2	72.0	0.80	27.7	34.7	0.417	0.084	0.109	0.26	NonLiqfble.
	22.6	14	6.7 6.2	0.15	95	2787	2246	6.2	4.7	2.83	3.3	77.6	0.80	24.7	30.9	0.418	0.083	0.108	0.26	NonLiqfble.
	22.69 22.78	14 14	6.4	0.15 0.14	95 95	2796 2805	2249 2252	5.7 5.9	4.3 4.4	3.12 2.80	3.3	82.5 79.3	0.80	22.9 23.6	28.6 29.5	0.419 0.420	0.082	0.107 0.107	0.26 0.26	NonLiqfble. NonLiqfble.
	22.87	14	6.1	0.14	95	2813	2255	5.6	4.2	2.98	3.3	82.5	0.80	22.5	28.1	0.420	0.082	0.107	0.25	NonLiqfble.
	22.97	14	7	0.15	95	2823	2258	6.4	4.9	2.68	3.2	75.2	0.80	25.8	32.2	0.421	0.083	0.108	0.26	NonLiqfble.
	23.06	14	7.2	0.14	95	2831	2261	6.6	5.1	2.42	3.2	41.3	0.80	26.5	33.1	0.422	0.083	0.108	0.26	NonLiqfble.
	23.15	14	7.8	0.13	95	2840	2264	7.2	5.6	2.04	3.1	41.3	0.80	28.7	35.9	0.423	0.084	0.110	0.26	NonLiqfble.
	23.24	14	7.1	0.13	95	2848	2267	6.5	5.0	2.29	3.2	41.3	0.80	26.1	32.6	0.423	0.083	0.108	0.26	NonLiqfble.
	23.33 23.43	14 14	7.7 7.3	0.18 0.22	105 105	2857 2867	2270 2274	7.1 6.7	5.5	2.87	3.2	41.3 41.3	0.80	28.3 26.8	35.4 33.5	0.424 0.425	0.084	0.109 0.109	0.26 0.26	NonLiqfble.
	23.43	14	7.3 7.7	0.22	105	2877	2274	7.1	5.2 5.5	3.75 3.19	3.2	41.3	0.80 0.80	28.2	35.3	0.425	0.083	0.109	0.26	NonLiqfble. NonLiqfble.
	23.61	14	10.7	0.23	105	2886	2282	9.8	8.1	2.48	3.0	10.8	0.15	1.8	11.6	0.426	0.080	0.104	0.24	NonLiqfble.
	23.7	14	14.9	0.28	115	2896	2286	13.6	11.8	2.08	2.9	10.8	0.15	2.5	16.1	0.427	0.080	0.105	0.24	NonLiqfble.
	23.79	14	37.8	0.95	135	2906	2291	34.6	31.7	2.61	2.6	10.8	0.15	6.3	40.9	0.427	0.086	0.112	0.26	Liquefaction
	23.88	14	61.8	1.35	135	2918	2297	56.4	52.5	2.24	2.4	10.8	0.15	10.3	66.8	0.428	0.108	0.140	0.33	Liquefaction
	23.97	14	72.5	1.73	135	2930	2304	66.1 51.0	61.6	2.44	2.3	10.8	0.15	12.1	78.2	0.429	0.124	0.162	0.38	Liquefaction Liquefaction
	24.06 24.15	14 14	56 42.7	1.91 1.8	135 135	2942 2955	2310 2317	51.0 38.8	47.2 35.6	3.50 4.37	2.5 2.7	10.8 27.3	0.15 0.60	9.3 57.1	60.3 95.9	0.429 0.430	0.100 0.162	0.131 0.211	0.30 0.49	Liquefaction NonLiqfble.
	24.24	14	30.6	1.3	135	2967	2323	27.8	25.1	4.46	2.8	27.3	0.60	40.9	68.7	0.430	0.102	0.143	0.33	NonLiqfble.
	24.33	14	19.9	1.01	135	2979	2330	18.0	15.8	5.49	3.0	27.3	0.60	26.5	44.6	0.431	0.088	0.115	0.27	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 32

Depth to Groundwater: 14 feet

EQ Magnitude ( $M_w$ ): 6.5 **PGA (g):** 0.54

MSF: 1.30

		***	no.	CI.		T . 1	Dee			E							T. 6	T	F .	
	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Stress	Liquef. Stress	Stress	ractor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)cs	Ratio		M6.50		Comments
	24.42	14	16.5	0.69	125	2991	2336	14.9	12.8	4.60	3.0	27.3	0.60	22.0	36.9	0.431	0.085	0.110	0.26	NonLiqfble.
	24.51	14	15.4	0.53	125	3002	2342	13.9	11.9	3.81	3.0	27.3	0.60	20.5	34.4	0.432	0.084	0.109	0.25	NonLiqfble.
	24.6	14	14.6	0.36 0.31	125 115	3014	2348 2353	13.2	11.1	2.75	2.9	27.3 27.3	0.60	19.4	32.6	0.433	0.083	0.108	0.25	NonLiqfble.
	24.69 24.78	14 14	13.1 11.1	0.26	115	3025 3035	2358	11.8 10.0	9.8 8.1	2.68 2.71	3.0	27.3	0.60 0.60	17.4 14.7	29.2 24.7	0.433 0.434	0.082 0.081	0.107 0.106	0.25 0.24	NonLiqfble. NonLiqfble.
	24.87	14	9.2	0.24	105	3045	2363	8.3	6.5	3.13	3.2	27.3	0.60	12.2	20.5	0.434	0.081	0.105	0.24	NonLiqfble.
	24.96	14	8.3	0.24	105	3055	2367	7.5	5.7	3.54	3.2	27.3	0.60	11.0	18.5	0.435	0.081	0.105	0.24	NonLiqfble.
	25.07	14	9.9	0.24	105	3066	2371	8.9	7.1	2.87	3.1	56.8	0.80	35.6	44.5	0.436	0.088	0.115	0.26	NonLiqfble.
	25.16 25.25	14 14	10.6 11.3	0.26 0.26	115 115	3076 3086	2375 2380	9.5 10.1	7.6 8.2	2.87 2.66	3.1	56.8 56.8	0.80 0.80	38.1 40.5	47.6 50.7	0.436 0.437	0.090 0.092	0.117 0.120	0.27 0.27	NonLiqfble.
	25.23	14	11.4	0.28	115	3097	2385	10.1	8.3	2.84	3.1	56.8	0.80	40.9	51.1	0.437	0.092	0.120	0.27	NonLiqfble. NonLiqfble.
	25.43	14	11.9	0.31	115	3107	2389	10.7	8.7	3.00	3.0	56.8	0.80	42.6	53.3	0.438	0.094	0.122	0.28	NonLiqfble.
	25.52	14	12.6	0.33	115	3117	2394	11.3	9.2	2.99	3.0	56.8	0.80	45.1	56.3	0.439	0.097	0.126	0.29	NonLiqfble.
	25.61	14	12.8	0.32	115	3128	2399	11.4	9.4	2.85	3.0	56.8	0.80	45.7	57.2	0.439	0.097	0.127	0.29	NonLiqfble.
	25.7 25.8	14 14	13.2 13.3	0.36 0.38	115 115	3138 3150	2404 2409	11.8 11.9	9.7 9.7	3.10 3.24	3.0	56.8	0.80	47.1 47.4	58.9 59.3	0.440 0.441	0.099	0.129 0.129	0.29 0.29	NonLiqfble.
	25.89	14	13.5	0.36	125	3160	2414	12.0	9.7	3.36	3.0	56.8 56.8	0.80 0.80	48.1	60.1	0.441	0.100	0.129	0.29	NonLiqfble. NonLiqfble.
	25.98	14	14.9	0.54	125	3171	2419	13.3	11.0	4.06	3.0	56.8	0.80	53.0	66.3	0.442	0.107	0.139	0.32	NonLiqfble.
	26.07	14	17	0.66	125	3182	2425	15.1	12.7	4.28	3.0	58.8	0.80	60.4	75.5	0.442	0.120	0.156	0.35	NonLiqfble.
	26.16	14	20	0.72	125	3194	2430	17.8	15.1	3.91	2.9	53.3	0.80	71.0	88.8	0.443	0.145	0.189	0.43	NonLiqfble.
	26.25	14 14	21.3 22.1	0.8 0.84	125 135	3205 3216	2436 2442	18.9 19.6	16.2	4.06	2.9	52.5 51.9	0.80	75.5 78.3	94.4 97.8	0.443	0.158	0.206	0.46	NonLiqfble.
	26.34 26.43	14	23.7	0.78	135	3228	2442	21.0	16.8 18.0	4.10 3.53	2.9 2.8	47.9	0.80 0.80	83.8	104.8	0.444 0.444	0.167 0.187	0.217 0.243	0.49 0.55	NonLiqfble. NonLiqfble.
	26.52	14	24.9	0.76	135	3240	2455	22.0	19.0	3.26	2.8	45.7	0.80	88.0	109.9	0.445	0.204	0.265	0.60	NonLiqfble.
	26.61	14	25	0.63	125	3253	2461	22.0	19.0	2.70	2.7	42.8	0.80	88.2	110.2	0.445	0.205	0.266	0.60	NonLiqfble.
	26.7	14	24.3	0.57	125	3264	2467	21.4	18.4	2.51	2.7	42.5	0.80	85.6	107.0	0.446	0.194	0.252	0.57	NonLiqfble.
	26.79	14	23.6	0.53	125	3275	2473	20.8	17.8	2.41	2.7	42.5	0.80	83.1	103.8	0.446	0.184	0.239	0.54	NonLiqfble.
	26.89 26.98	14 14	20.6 18.5	0.47 0.42	125 125	3288 3299	2479 2484	18.1 16.2	15.3 13.6	2.48 2.49	2.8 2.8	45.9 48.5	0.80	72.4 65.0	90.5 81.2	0.447 0.447	0.149 0.130	0.194 0.169	0.43	NonLiqfble. NonLiqfble.
	27.07	14	16.3	0.42	125	3310	2490	14.3	11.8	2.73	2.9	53.0	0.80	57.2	71.5	0.448	0.114	0.148	0.33	NonLiqfble.
	27.16	14	14.9	0.4	125	3321	2496	13.0	10.6	3.02	3.0	57.0	0.80	52.2	65.2	0.448	0.106	0.138	0.31	NonLiqfble.
	27.25	14	15.2	0.39	125	3333	2501	13.3	10.8	2.88	3.0	55.8	0.80	53.2	66.5	0.449	0.107	0.140	0.31	NonLiqfble.
	27.34	14	15	0.31	115	3344	2507	13.1	10.6	2.33	2.9	52.8	0.80	52.4	65.5	0.449	0.106	0.138	0.31	NonLiqfble.
	27.43 27.52	14 14	14.8 13.5	0.26 0.23	115 105	3354 3365	2512 2516	12.9 11.8	10.4 9.4	1.98 1.95	2.9 2.9	50.9 53.1	0.80 0.80	51.7 47.1	64.6 58.9	0.450 0.451	0.105 0.099	0.137 0.129	0.30 0.29	NonLiqfble. NonLiqfble.
	27.61	14	11.3	0.22	105	3374	2520	9.8	7.6	2.29	3.0	60.7	0.80	39.4	49.2	0.451	0.091	0.129	0.26	NonLiqfble.
	27.7	14	10.3	0.24	105	3383	2524	9.0	6.8	2.79	3.1	66.8	0.80	35.9	44.9	0.452	0.088	0.115	0.25	NonLiqfble.
	27.79	14	10.4	0.28	115	3393	2528	9.1	6.9	3.22	3.1	69.1	0.80	36.2	45.3	0.452	0.089	0.115	0.25	NonLiqfble.
	27.88	14	11.2	0.3	115	3403	2533	9.7	7.5	3.16	3.1	66.4	0.80	38.9	48.7	0.453	0.091	0.118	0.26	NonLiqfble.
	27.97 28.06	14 14	11.2 11.7	0.31 0.35	115 115	3414 3424	2537 2542	9.7 10.2	7.5 7.9	3.27 3.50	3.1	67.1 67.1	0.80	38.9 40.6	48.6 50.8	0.453 0.454	0.091 0.092	0.118 0.120	0.26 0.26	NonLiqfble. NonLiqfble.
	28.15	14	12	0.37	115	3434	2547	10.4	8.1	3.60	3.1	66.8	0.80	41.6	52.0	0.454	0.093	0.120	0.27	NonLiqfble.
	28.22	14	12.1	0.38	115	3442	2551	10.5	8.1	3.66	3.1	66.9	0.80	41.9	52.4	0.455	0.093	0.121	0.27	NonLiqfble.
	28.29	14	12.5	0.37	115	3450	2554	10.8	8.4	3.43	3.1	64.8	0.80	43.3	54.1	0.455	0.095	0.123	0.27	NonLiqfble.
	28.38	14	12.4	0.37	115	3461	2559	10.7	8.3	3.47	3.1	65.3	0.80	42.9	53.6	0.456	0.094	0.123	0.27	NonLiqfble.
	28.47 28.56	14 14	12.3 12.4	0.38	115 115	3471 3481	2564 2568	10.6 10.7	8.2 8.3	3.60 3.66	3.1	66.3 66.4	0.80	42.5 42.8	53.1 53.5	0.456 0.457	0.094 0.094	0.122 0.123	0.27 0.27	NonLiqfble. NonLiqfble.
	28.65	14	12.3	0.39	115	3492	2573	10.6	8.2	3.70	3.1	66.9	0.80	42.4	53.0	0.457	0.094	0.123	0.27	NonLiqfble.
	28.74	14	12.4	0.36	115	3502	2578	10.7	8.3	3.38	3.1	65.1	0.80	42.7	53.4	0.458	0.094	0.122	0.27	NonLiqfble.
	28.83	14	11.2	0.35	115	3512	2583	9.6	7.3	3.71	3.2	70.0	0.80	38.6	48.2	0.458	0.090	0.118	0.26	NonLiqfble.
	28.92	14	11	0.31	115	3523	2587	9.5	7.1	3.36	3.1	68.8	0.80	37.8	47.3	0.459	0.090	0.117	0.25	NonLiqfble.
	29.01 29.1	14 14	9.9 8.8	0.25 0.23	105 105	3533 3543	2592 2596	8.5 7.6	6.3 5.4	3.07 3.27	3.2	70.8 76.2	0.80	34.0 30.2	42.5 37.8	0.459	0.087 0.085	0.113 0.111	0.25 0.24	NonLiqfble. NonLiqfble.
	29.19	14	8.6	0.23	105	3552	2600	7.4	5.4	3.27	3.3	76.2 77.6	0.80	29.5	36.9	0.460 0.460	0.085	0.111	0.24	NonLiqfble.
	29.28	14	8.1	0.23	105	3562	2604	6.9	4.9	3.64	3.3	81.5	0.80	27.8	34.7	0.461	0.084	0.109	0.24	NonLiqfble.
	29.37	14	8.2	0.24	105	3571	2607	7.0	4.9	3.74	3.3	81.6	0.80	28.1	35.1	0.461	0.084	0.109	0.24	NonLiqfble.
	29.46	14	8.2	0.31	115	3580	2611	7.0	4.9	4.84	3.4	87.0	0.80	28.1	35.1	0.462	0.084	0.109	0.24	NonLiqfble.
	29.56	14	9.6	0.35	115	3592 3602	2617	8.2	6.0	4.49	3.3	79.5	0.80	32.8	41.1	0.463	0.086	0.112	0.24	NonLiqfble.
	29.65 29.74	14 14	10.3 9.7	0.36	115 115	3613	2621 2626	8.8 8.3	6.5 6.0	4.24 3.80	3.2	75.9 76.0	0.80	35.2 33.1	44.0 41.4	0.463 0.464	0.088 0.087	0.114 0.113	0.25 0.24	NonLiqfble. NonLiqfble.
	29.83	14	8.9	0.25	105	3623	2631	7.6	5.4	3.53	3.3	77.7	0.80	30.4	38.0	0.464	0.085	0.113	0.24	NonLiqfble.
	29.92	14	8.4	0.24	105	3632	2635	7.2	5.0	3.65	3.3	80.6	0.80	28.6	35.8	0.465	0.084	0.110	0.24	NonLiqfble.
	30.01	14	7.5	0.22	105	3642	2638	6.4	4.3	3.87	3.4	86.5	0.80	25.6	31.9	0.446	0.083	0.108	0.24	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 32

rage Yard EQ Magnitude (M<sub>w</sub>): 6.5
PGA (g): 0.54
MSF: 1.30

Depth to Groundwater: 14 feet Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Stress Stress Stress (TSF) (TSF) (PCF) (PSF) (PSF) (%) Dqcin (qcin)cs Ratio M7.5 M6.50 Safety (FT) (FT) Qc1N 0 Comments Ic 30.1 14 8.7 0.37 115 3651 2642 7.4 5.2 5.38 3.4 87.5 0.80 29.6 37.0 0.446 0.085 0.110 0.25 NonLigfble. 30.19 14 11.8 0.51 125 3662 2647 10.0 7.5 5.12 3.2 75.5 0.80 40.1 50.2 0.447 0.092 0.119 0.27 NonLiqfble. 125 30.28 14 22 0.62 3673 2653 18.7 15.2 3.07 2.9 49.3 0.80 74.8 93.4 0.447 0.156 0.203 0.45 NonLiqfble. 30.37 14 42.5 0.7 125 3684 2658 36.1 30.6 1.72 2.5 29.0 0.64 64.2 100.3 0.448 0.174 0.226 0.51 Liquefaction 30.46 61.9 0.69 125 3695 2664 52.5 45.1 1.15 2.2 19.7 0.39 34.1 0.448 0.140 0.182 0.41 Liquefaction 30.55 14 73.6 0.66 125 3707 2670 62.3 53.7 0.92 2.1 15.9 0.29 25.7 88.0 0.448 0.143 0.187 0.42 Liquefaction 30.63 82.7 0.68 115 3717 2675 70.0 60.4 0.84 2.0 0.24 22.3 92.3 0.449 0.199 0.44 14 14.1 0.153 Liquefaction 30.72 89 0.73 2679 75.2 0.84 2.0 0.22 21.4 0.47 14 115 3727 65.0 13.3 96.7 0.449 0.164 0.213 Liquefaction 30.81 93.1 0.76 2684 78.6 0.83 0.21 99.4 0.450 0.50 14 115 3737 68.0 2.0 12.8 20.8 0.1710.223 Liquefaction 30.9 14 95.6 0.79 115 3748 2689 80.7 69.7 0.84 2.0 12.7 0.2020.8 101.5 0.450 0.1770.230 0.51 Liquefaction 30.99 14 99 0.84 125 3758 2694 83.5 72.1 0.86 2.0 12.5 0.20 21.0 104.5 0.451 0.186 0.242 0.54 Liquefaction 3769 2699 31.08 101.7 0.87 125 85.6 73.9 0.87 0.20 20.9 106.5 0.451 0.250 0.55 Liquefaction 14 2.0 12.3 0.192 31.17 14 102.9 0.89 125 3781 2705 86.6 74.7 0.88 2.0 12.3 0.20 21.1 107.6 0.451 0.196 0.255 0.56 Liquefaction 31.26 14 105 0.8 115 3792 2710 88.2 76.0 0.78 1.9 11.3 0.17 18.0 106.2 0.452 0.191 0.249 0.55 Liquefaction 109.5 0.95 31.34 14 125 3801 2715 92.0 79.2 0.88 2.0 11.8 0.18 20.4 112.3 0.452 0.212 0.275 0.61 Liquefaction 31.43 14 116.5 1.09 125 3812 2720 97.7 84.2 0.95 2.0 11.8 0.18 21.5 119.3 0.453 0.238 0.309 Liquefaction 0.68 31.5 0.453 0.246 125 2.0 0.320 0.71 14 118.2 1.14 3821 2725 99.1 85.3 0.98 11.9 0.18 22.2 121.3 Liquefaction 125 31.59 97.5 116.4 1.01 3832 2730 0.88 19.7 0.453 0.230 0.298 14 83.8 1.9 11.3 0.17 117.2 0.66 Liquefaction 31.67 14 109.3 0.79 115 3842 2735 91.4 78.5 0.74 1.9 10.7 0.15 16.5 107.9 0.454 0.197 0.256 0.56 Liquefaction 0.65 31.76 14 96.4 115 3853 2740 80.6 68.9 0.69 1.9 11.5 0.17 16.9 97.5 0.454 0.166 0.216 0.48 Liquefaction 31.85 14 82.7 0.61 115 3863 2745 69.1 58.8 0.76 2.0 13.6 0.2320.6 89.7 0.454 0.1470.1910.42 Liquefaction 31 94 14 68.2 0.61 125 3873 2749 56.9 48.2 0.92 2.1 17.2 0.32 27.4 84 3 0.455 0.136 0.176 0.39 Liquefaction 32.03 14 59 0.61 125 3885 2755 49 2 41.4 1.07 22 20.2 0.41 33.5 82.7 0.455 0.133 0.172 0.38 Liquefaction 32.11 14 55.1 0.62 125 3895 2760 45.9 38.5 1.17 2.3 21.9 0.45 37.6 83 5 0.456 0.134 0.174 0.38 Liquefaction 32.2 14 52.1 0.66 125 3906 2766 43.3 36.2 1.32 2.3 23.8 0.50 43.6 86.9 0.456 0.141 0.183 0.40 Liquefaction 32.29 14 48.6 0.82 135 3917 2771 40.4 33.6 1.76 2.4 27.8 0.61 62.8 103.2 0.456 0.182 0.237 0.52 Liquefaction 32.37 14 49.4 0.92 135 3928 2777 41.0 34.1 1.94 2.5 28.7 0.63 70.5 111.6 0.457 0.209 0.272 0.60 Liquefaction 32.46 14 58.7 1.01 135 3940 2784 40.7 1.78 2.4 0.54 57.3 0.457 0.191 0.54 48.7 25.2 106.0 0.248 Liquefaction 32.55 72.3 135 59.9 0.457 0.243 14 1.08 3952 2790 50.4 1.54 2.3 21.0 0.43 44.8 104.7 0.1870.53 Liquefaction 32.63 2796 69.0 58.2 1.23 2.1 0.33 34.0 103.0 0.236 0.52 14 83.4 125 3963 17.4 0.458 0.182 Liquefaction Liquefaction

32.72 93.3 0.87 125 3974 2802 77.1 65.2 0.95 2.0 0.25 25.1 102.2 0.458 0.233 14 14.2 0.179 0.51 328 14 100 1 0.8 115 3984 2807 82.7 69 9 0.82 2.0 12.4 0.20 20.5 103 1 0.458 0.182 0.237 0.52 Liquefaction 32.89 14 105.3 0.78 115 3995 2811 86.9 73.5 0.76 19 11.5 0.17 18.2 105.1 0.459 0.188 0.244 0.53 Liquefaction 32.97 14 105.4 0.83 115 4004 2816 86.9 73.4 0.80 2.0 11.9 0.18 19.5 106.4 0.459 0.192 0.250 0.54 Liquefaction 33.06 14 104.1 0.89 125 4014 2820 85.8 72.4 0.87 2.0 12.5 0.20 21.6 107.4 0.460 0.195 0.254 0.55 Liquefaction 33.14 104.4 0.262 14 0.96 125 4024 2825 85.9 72.4 0.94 2.0 13.0 0.21 23.5 109.4 0.460 0.202 0.57 Liquefaction 33.22 14 109.7 1.03 125 4034 2830 90.2 76.1 0.96 2.0 12.7 0.21 23.4 113.6 0.460 0.217 0.281 0.61 Liquefaction 33.31 118.3 1.03 125 4045 2836 97.2 82.0 0.89 0.17 20.5 117.7 0.461 0.232 0.301 0.65 Liquefaction 33.39 14 121.8 0.96 115 4055 2841 100.0 84.3 0.80 1.9 10.6 0.15 17.7 117.7 0.461 0.232 0.301 0.65 Liquefaction 33.47 0.93 115 4065 2845 94.9 79.9 0.82 1.9 11.2 0.17 113.8 0.461 0.217 0.282 14 115.7 18.9 0.61 Liquefaction 33.56 14 111 0.89 115 4075 2850 91.0 76.4 0.82 1.9 11.6 0.18 19.5 110.5 0.462 0.205 0.267 0.58 Liquefaction 33.64 14 106.5 0.87 115 4084 2854 87.2 73.2 0.83 2.0 12.1 0.19 20.5 107.8 0.462 0.196 0.255 0.55 Liquefaction 33.72 14 105.1 0.9 125 4093 2858 86.0 72.1 0.87 2.0 12.6 0.20 21.9 107.9 0.462 0.1970.256 0.55 Liquefaction 33.81 14 104.1 0.9 125 4105 2864 85.1 71.2 0.88 2.0 12.8 0.21 22.3 107.4 0.463 0.195 0.254 0.55 Liquefaction 33.89 102.1 0.92 125 4115 2869 83.4 69.7 0.92 2.0 13.3 0.22 23.6 107.0 0.463 0.194 0.252 0.54 Liquefaction 14 0.190 82.9 33.97 14 101.6 0.88 125 4125 2874 69.2 0.88 2.0 13.1 0.22 22.7 105.7 0.463 0.247 0.53 Liquefaction 34.05 115 4135 2.0 0.21 21.1 101.3 0.464 0.230 0.50 14 98.3 0.78 2879 80.2 66.8 0.81 12.8 0.177 Liquefaction 34.14 14 94.9 0.76 115 4145 2884 77.3 64.4 0.82 2.0 13.3 0.22 21.8 99.2 0.464 0.171 0.222 0.48 Liquefaction 34.22 14 93.8 0.75 115 4154 2888 76.4 63.5 0.82 2.0 13.4 0.22 22.0 98.4 0.464 0.169 0.219 0.47 Liquefaction 14.0 0.166 34.31 91.2 2893 74.2 0.85 2.0 0.24 23.3 97.5 0.465 0.47 14 0.76 115 4164 61.6 0.216 Liquefaction

0.83

0.83

74.0

73.5

61.4

60.9

2897

2901

34.56 14 89.4 0.83 125 4193 2906 72.6 60.1 0.95 2.1 15.0 0.27 26.4 99.0 0.466 0.1700.221 0.47 Liquefaction 34.64 14 88.88 0.9 125 4203 2911 72.0 59.5 1.04 2.1 15.8 0.2929.0 101.0 0.466 0.176 0.229 0.49 Liquefaction 34 67 14 89 0.92 125 4207 2913 72.2 59.6 1.06 2.1 159 0.29 29 6 101.7 0.466 0.178 0.231 0.50 Liquefaction Liquefaction 34 74 14 89.3 0.96 125 4216 2917 72.3 59.8 1.10 2.1 16.2 0.30 30.8 103 1 0.467 0.182 0.237 0.51 34.82 14 92.6 1.03 125 4226 2922 75.0 61.9 1.14 2.1 16.1 0.30 31.4 106.4 0.467 0.192 0.250 0.53 Liquefaction 0.267 34.9 14 93.7 1.15 125 4236 2927 75.8 62.5 1.26 2.1 16.8 0.31 34.7 110.5 0.467 0.205 0.57 Liquefaction 34.99 92.1 125 2933 0.274 14 1.21 4247 74.4 61.3 1.34 2.2 17.6 0.34 37.5 111.9 0.468 0.210 0.59 Liquefaction 35.07 14 97.5 1.17 125 4257 2938 78.7 64.9 1.23 2.1 16.2 0.30 33.5 112.2 0.468 0.211 0.275 0.59 Liquefaction 35.15 108.5 1.03 125 4267 2943 87.5 72.3 0.97 2.0 13.3 0.22 24.9 0.468 0.212 0.276 0.59 14 112.4 Liquefaction 35.24 108.4 0.95 125 4278 2948 87.3 0.89 22.8 0.469 0.57 72.0 2.0 0.21 110.2 0.204 0.266 14 12.8 Liquefaction 35.32 103.5 0.96 125 4288 2953 0.95 2.0 0.23 25.0 108.3 0.469 0.258 0.55 14 83.3 68.6 13.6 0.198 Liquefaction

2.0

2.0

22.8

22.8

96.8

96.3

0.465

0.466

0.164

0.163

0.214

0.212

0.46

0.46

Liquefaction

Liquefaction

0.24

0.24

13.8

13.9

0.74

0.73

115 4174

115 4183

91

90.5

14

14

34.39

34.47

Project Number: 6600.3.001.01 Date: September 2005

Depth to Groundwater: 14 feet

**PGA (g):** 0.54 **MSF:** 1.30 CPT Number: 32

**EQ Magnitude** (M<sub>w</sub>): 6.5

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth		Resist.	Frict.	g	Stress		Tip	Tip	Ratio		F.C.					•	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	$\mathbf{q}_{\mathrm{c1N}}$	Q	F	Ic	(%)	Ксрт	DqcIN	$(\mathbf{q}_{\text{clN}})_{\text{cs}}$	Ratio	M7.5	M6.50	Safety	Comments
	35.4	14	101.4	1	125	4298	2958	81.6	67.1	1.01	2.0	14.3	0.25	27.0	108.5	0.469	0.199	0.259	0.55	Liquefaction
	35.49	14	103.9	1.1	125	4309	2964	83.5	68.6	1.08	2.1	14.6	0.26	28.8	112.3	0.469	0.212	0.275	0.59	Liquefaction
	35.57	14	108.8 117.6	1.25 1.37	125 125	4319 4329	2969 2974	87.4 94.4	71.8 77.6	1.17	2.1	14.8	0.26	30.9 30.4	118.3	0.470 0.470	0.234	0.304 0.339	0.65	Liquefaction
	35.65 35.74	14 14	125.8	1.39	125	4341	2974	100.8	82.9	1.19 1.12	2.0	14.1 13.1	0.24 0.22	27.8	124.8 128.6	0.470	0.261 0.278	0.361	0.72 0.77	Liquefaction Liquefaction
	35.82	14	133.1	1.43	125	4351	2985	106.6	87.7	1.09	2.0	12.4	0.20	26.2	132.8	0.471	0.298	0.387	0.82	Liquefaction
	35.91	14	137.5	1.46	125	4362	2990	110.0	90.5	1.08	2.0	12.0	0.19	25.4	135.4	0.471	0.311	0.404	0.86	Liquefaction
	35.99	14	144	1.48	125	4372	2995	115.1	94.6	1.04	1.9	11.4	0.17	23.7	138.8	0.471	0.329	0.427	0.91	Liquefaction
	36.07	14	154.9	1.4 1.47	125 125	4382	3000	123.7	101.7 116.2	0.92	1.9	9.9	0.13	18.8	142.5 155.2	0.472	0.349	0.454 0.556	0.96	Liquefaction
	36.15 36.23	14 14	176.9 198.9	1.78	125	4392 4402	3005 3010	141.2 158.6	130.6	0.84 0.90	1.8	8.4 8.0	0.09	14.0 13.8	172.4	0.472 0.472	0.428 0.556	0.723	1.18 1.53	Low F.S.
	36.31	14	216.3	1.84	125	4412	3015	172.3	141.9	0.86	1.8	7.1	0.06	10.4	182.7	0.472	0.647	0.841	1.78	
	36.39	14	221.4	1.81	125	4422	3020	176.3	145.1	0.83	1.7	6.8	0.05	8.7	184.9	0.473	0.668	0.869	1.84	
	36.47	14	233.8	1.97	125	4432	3025	186.0	153.0	0.85	1.7	6.6	0.04	8.2	194.2	0.473	0.761	0.989	2.09	
	36.55	14	287.7	2.19	115	4442	3030	228.7	188.3	0.77	1.6	4.8	0.00	0.0	228.7	0.473	1.192	1.550	3.27	
	36.63	14	324.2	2.3	115	4451	3035	257.5	212.1	0.71	1.6	3.9	0.00	0.0	257.5	0.474	1.668	2.168	4.58	
	36.7 36.78	14 14	349.6 366	2.18 2.4	115 115	4459 4468	3038 3043	277.5 290.3	228.6 239.0	0.63 0.66	1.5 1.5	2.9 2.9	0.00	0.0	277.5 290.3	0.474 0.474	2.067 2.356	2.688 3.062	5.67 6.46	
	36.86	14	388.4	2.43	115	4478	3047	307.9	253.4	0.63	1.5	2.5	0.00	0.0	307.9	0.475	2.794	3.632	7.65	
	36.93	14	406.2	2.32	115	4486	3050	321.8	264.7	0.57	1.4	1.9	0.00	0.0	321.8	0.475	3.179	4.133	8.70	
	37	14	450	2.5	115	4494	3054	356.3	293.1	0.56	1.4	1.4	0.00	0.0	356.3	0.475	4.286	5.571	11.73	
	37.08	14	470	2.79	115	4503	3058	371.9	305.8	0.60	1.4	1.5	0.00	0.0	371.9	0.475	4.862	6.320	13.29	
	37.15	14	468.2	2.8	115	4511	3062	370.2	304.2	0.60	1.4	1.6	0.00	0.0	370.2	0.476	4.799	6.238	13.11	
	37.22 37.3	14 14	453.3 431.6	2.82 2.96	115 115	4519 4528	3066 3070	358.2 340.8	294.1 279.6	0.63 0.69	1.4	1.9 2.5	0.00	0.0	358.2 340.8	0.476 0.476	4.355 3.762	5.661 4.891	11.89 10.27	
	37.37	14	422.6	2.80	115	4536	3074	333.5	273.4	0.69	1.5	2.3	0.00	0.0	333.5	0.476	3.530	4.589	9.63	
	37.44	14	420.6	2.61	115	4544	3077	331.7	271.8	0.62	1.5	2.2	0.00	0.0	331.7	0.477	3.475	4.518	9.47	
	37.52	14	447.5	2.83	115	4554	3081	352.7	288.8	0.64	1.4	2.0	0.00	0.0	352.7	0.477	4.161	5.409	11.34	
	37.58	14	483.7	2.74	115	4560	3085	381.1	312.0	0.57	1.4	1.3	0.00	0.0	381.1	0.477	5.226	6.794	14.23	
	37.65	14	530.2	2.58	105	4568	3088	417.4	341.7	0.49	1.3	0.5	0.00	0.0	417.4	0.478	6.845	8.898	18.63	
	37.7	14	544.3	2.53	105	4574	3090	428.4	350.6	0.47	1.3	0.2	0.00	0.0	428.4	0.478	7.392	9.609	20.11	
	37.74 37.77	14 14	538.7 526.5	2.51 2.53	105 105	4578 4581	3092 3093	423.9 414.2	346.8 338.8	0.47 0.48	1.3	0.3	0.00	0.0	423.9 414.2	0.478 0.478	7.162 6.688	9.311 8.694	19.48 18.18	
	37.8	14	515.4	2.55	105	4584	3095	405.4	331.5	0.50	1.3	0.4	0.00	0.0	405.4	0.478	6.275	8.157	17.05	
	37.83	14	519.6	2.57	105	4587	3096	408.6	334.0	0.50	1.3	0.6	0.00	0.0	408.6	0.478	6.424	8.351	17.45	
	37.89	14	498.5	2.65	115	4594	3099	391.8	320.1	0.53	1.4	1.0	0.00	0.0	391.8	0.479	5.675	7.377	15.41	
	37.95	14	463.2	3.01	115	4601	3102	363.9	297.1	0.65	1.4	2.0	0.00	0.0	363.9	0.479	4.562	5.930	12.38	
	38.02	14	446.8	3.08	115	4609	3105	350.8	286.2	0.69	1.5	2.4	0.00	0.0	350.8	0.479	4.095	5.324	11.11	
	38.09 38.16	14 14	479.2 475.4	3.05 2.9	115 115	4617 4625	3109 3113	376.0 372.8	306.6 303.8	0.64 0.61	1.4 1.4	1.8 1.7	0.00	0.0	376.0 372.8	0.480 0.480	5.025 4.899	6.532 6.369	13.62 13.28	
	38.23	14	465.4	2.87	115	4633	3116	364.8	297.1	0.62	1.4	1.7	0.00	0.0	364.8	0.480	4.594	5.972	12.44	
	38.29	14	447.5	2.28	115	4640	3120	350.6	285.3	0.51	1.4	1.2	0.00	0.0	350.6	0.480	4.087	5.312	11.06	
	38.36	14	450.4	2.26	105	4648	3123	352.6	286.8	0.50	1.4	1.2	0.00	0.0	352.6	0.481	4.158	5.405	11.25	
	38.41	14	437.8	2.21	105	4653	3125	342.6	278.6	0.51	1.4	1.3	0.00	0.0	342.6	0.481	3.821	4.967	10.33	
	38.46	14	425.4	2.17	115	4658	3128	332.8	270.4	0.51	1.4	1.4	0.00	0.0	332.8	0.481	3.509	4.561	9.48	
	38.51	14 14	409.6 379	2.2 2.5	115 115	4664	3130	320.3 296.2	260.1	0.54 0.66	1.4 1.5	1.8 2.9	0.00	0.0	320.3 296.2	0.481	3.137	4.078 3.247	8.48 6.75	
	38.57 38.64	14	332.1	2.05	115	4671 4679	3133 3137	259.4	240.3 210.2	0.62	1.5	3.3	0.00	0.0	259.4	0.481 0.482	2.498 1.704	2.215	4.60	
	38.7	14	318.1	1.57	105	4686	3140	248.4	201.0	0.50	1.5	2.6	0.00	0.0	248.4	0.482	1.505	1.956	4.06	
	38.77	14	306.7	1.89	115	4693	3143	239.4	193.6	0.62	1.6	3.7	0.00	0.0	239.4	0.482	1.355	1.762	3.65	
	38.83	14	314		105	4700	3146	244.9	198.0	0.44	1.5	2.2	0.00	0.0	244.9	0.482	1.447	1.881	3.90	
	38.86	14	322.2		105	4703	3148	251.3	203.1	0.41	1.4	1.9	0.00	0.0	251.3	0.483	1.556	2.022	4.19	
	38.89	14	328		105	4706	3149	255.7	206.7	0.40	1.4	1.8	0.00	0.0	255.7	0.483	1.636	2.126	4.41	
	38.92 38.96	14 14	328.3 315.3		105 105	4710 4714	3150	255.9 245.7	206.9 198.5	0.41	1.4	1.8 2.3	0.00	0.0	255.9 245.7	0.483	1.639	2.131 1.898	4.41 3.93	
	38.99	14	176.1	1.64	125	4717	3152 3153	137.2	110.2	0.45 0.94	1.5 1.9	9.5	0.00	18.7	155.9	0.483 0.483	1.460 0.433	0.562	1.16	Low F.S.
	39.05	14	338.9	1.85	115	4724	3157	263.9	213.1	0.55	1.5	2.7	0.00	0.0	263.9	0.483	1.789	2.326	4.81	
	39.11	14	330.2		115	4731	3160	257.0	207.4	0.66	1.6	3.6	0.00	0.0	257.0	0.483	1.659	2.156	4.46	
	39.18	14	333.6		125	4739	3164	259.5	209.3	0.80	1.6	4.5	0.00	0.0	259.5	0.484	1.705	2.217	4.58	
	39.25	14	334.6		115	4748	3168	260.1	209.6	0.72	1.6	4.0	0.00	0.0	260.1	0.484	1.716	2.231	4.61	
	39.31	14	332.8		115	4755	3171	258.6	208.3	0.70	1.6	3.9	0.00	0.0	258.6	0.484	1.688	2.194	4.53	
	39.35 39.39	14 14	342.8 338.7		115 115	4760 4764	3173 3175	266.3 263.0	214.5 211.7	0.66 0.64	1.5 1.5	3.4 3.4	0.00	0.0	266.3 263.0	0.484 0.484	1.835 1.771	2.386 2.303	4.93 4.75	
	55.55	14	550.7	10	113	-, O-	5115	205.0	211./	0.07	1.5	J. <b>T</b>	0.00	0.0	200.0	0.707	1.,,1	2.505	7.73	

Date: September 2005

Depth to Groundwater: 14 feet

**PGA (g):** 0.54 Project Number: 6600.3.001.01 **MSF:** 1.30 CPT Number: 32

**EQ Magnitude (M<sub>w</sub>):** 6.5

	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qc1N)es	Ratio	M7.5	M6.50	Safety	Comments
	39.43 39.5	14 14	345.6 370.7	2.16 2.24	115 115	4769 4777	3178	268.3 287.6	215.9 231.5	0.63	1.5	3.2	0.00	0.0	268.3	0.485	1.875 2.292	2.438 2.979	5.03	
	39.57	14	366	2.24	115	4777	3181 3185	283.8	228.2	0.61 0.60	1.5 1.5	2.7 2.8	0.00	0.0	287.6 283.8	0.485 0.485	2.292	2.866	6.14 5.91	
	39.63	14	371.9	2.79	125	4792	3188	288.2	231.7	0.76	1.6	3.7	0.00	0.0	288.2	0.485	2.306	2.998	6.18	
	39.69	14	383.1	3.97	125	4799	3192	296.7	238.4	1.04	1.7	5.2	0.01	1.9	298.6	0.486	2.555	3.321	6.84	
	39.75	14	393.9	3.68	125	4807	3196	304.9	244.9	0.94	1.6	4.5	0.00	0.0	304.9	0.486	2.716	3.530	7.27	
	39.79 39.82	14 14	396.5 402.6	3.25 3.11	125 125	4812 4816	3198 3200	306.8 311.4	246.4 250.0	0.82 0.78	1.6 1.5	3.8 3.5	0.00	0.0	306.8 311.4	0.486 0.486	2.765 2.888	3.594 3.755	7.40 7.73	
	39.86	14	426.4	3.18	125	4821	3202	329.7	264.7	0.75	1.5	3.1	0.00	0.0	329.7	0.486	3.412	4.436	9.13	
	39.9	14	401.5	2.76	115	4826	3205	310.3	248.9	0.69	1.5	3.0	0.00	0.0	310.3	0.486	2.859	3.716	7.64	
	39.93	14	397.3	2.6	115	4829	3207	307.0	246.2	0.66	1.5	2.8	0.00	0.0	307.0	0.486	2.770	3.602	7.41	
	39.96 40	14 14	407.7 423	2.51 2.27	115 115	4832 4837	3208 3210	314.9 326.7	252.6 261.9	0.62 0.54	1.5 1.4	2.4 1.8	0.00	0.0	314.9 326.7	0.486 0.450	2.985 3.322	3.881 4.318	7.98 9.61	
	40.04	14	436.2	2.09	105	4842	3210	336.7	270.0	0.48	1.4	1.2	0.00	0.0	336.7	0.450	3.631	4.720	10.50	
	40.08	14	445.8	1.91	105	4846	3214	344.1	275.8	0.43	1.3	0.8	0.00	0.0	344.1	0.450	3.868	5.028	11.18	
	40.13	14	456.3	2.01	105	4851	3216	352.0	282.1	0.44	1.3	0.8	0.00	0.0	352.0	0.450	4.138	5.379	11.95	
	40.19	14	469.8	2.34	105	4857	3219	362.3	290.3	0.50	1.4	1.1	0.00	0.0	362.3	0.450	4.503	5.854	13.00	
	40.23 40.27	14 14	481.7 493.9	2.39 2.32	105 105	4862 4866	3220 3222	371.4 380.7	297.5 304.9	0.50 0.47	1.4 1.3	1.0 0.7	0.00	0.0	371.4 380.7	0.450 0.451	4.844 5.211	6.297 6.775	13.98 15.04	
	40.36	14	522.1	2.58	105	4875	3226	402.2	322.0	0.50	1.3	0.7	0.00	0.0	402.2	0.451	6.131	7.970	17.68	
	40.42	14	560.1	3.1	115	4882	3229	431.3	345.3	0.56	1.3	0.8	0.00	0.0	431.3	0.451	7.541	9.804	21.73	
	40.48	14	583.9	3.44	115	4888	3232	449.4	359.7	0.59	1.3	0.9	0.00	0.0	449.4	0.451	8.521	11.078	24.55	
	40.55 40.61	14 14	570.1 644.1	3.03 2.89	115 105	4896 4903	3235 3239	438.5 495.2	350.8 396.1	0.53 0.45	1.3 1.2	0.7 -0.2	0.00	0.0	438.5 495.2	0.452 0.452	7.923 11.375	10.300 14.787	22.81 32.73	
	40.66	14	671.8	2.84	105	4903	3239	516.3	412.9	0.43	1.2	-0.2	0.00	0.0	516.3	0.452	12.883	16.748	37.06	
	40.69	14	671.6	2.92	105	4912	3242	516.1	412.6	0.44	1.2	-0.4	0.00	0.0	516.1	0.452	12.864	16.723	37.00	
	40.74	14	662	3.04	105	4917	3244	508.5	406.4	0.46	1.2	-0.2	0.00	0.0	508.5		12.311	16.005	35.39	
	40.77	14	651.4	3.14	105	4920	3245	500.3	399.8	0.48	1.3	0.0	0.00	0.0	500.3		11.726	15.244	33.70	
	40.83 40.89	14 14	643.2 687.6	3.16 2.92	105 105	4926 4933	3248 3250	493.8 527.7	394.4 421.4	0.49 0.43	1.3 1.2	0.0 -0.5	0.00	0.0	493.8 527.7	0.453 0.453	11.279 13.745	14.662 17.869	32.40 39.47	
	40.92	14	671.8	2.92	105	4936	3252	515.5	411.5	0.44	1.2	-0.4	0.00	0.0	515.5	0.453	12.817	16.663	36.79	
	40.96	14	669	2.99	105	4940	3253	513.2	409.6	0.45	1.2	-0.3	0.00	0.0	513.2	0.453	12.649	16.444	36.30	
	41	14	654.7	2.82	105	4944	3255	502.1	400.6	0.43	1.2	-0.4	0.00	0.0	502.1		11.851	15.406	34.00	
	41.05 41.09	14 14	638.7 627.4	2.83 3.09	105 105	4950 4954	3257 3259	489.7 480.9	390.5 383.3	0.44 0.49	1.2 1.3	-0.2 0.1	0.00	0.0	489.7 480.9	0.453 0.454	10.998 10.421	14.297 13.547	31.54 29.87	
	41.13	14	612.4	3.13	115	4958	3261	469.2	374.0	0.49	1.3	0.3	0.00	0.0	469.2	0.454	9.689	12.596	27.77	
	41.18	14	601.5	2.09	105	4964	3263	460.7	367.0	0.35	1.2	-0.7	0.00	0.0	460.7	0.454	9.174	11.926	26.28	
	41.24	14	559.8	1.9	105	4970	3266	428.6	341.2	0.34	1.2	-0.5	0.00	0.0	428.6	0.454	7.402	9.623	21.19	
	41.31	14 14	536.6 519	2.16 2.17	105	4977	3269	410.6	326.7	0.40	1.3	0.0	0.00	0.0	410.6	0.454	6.520	8.476	18.66	
	41.38 41.44	14	518.4	2.17	105 105	4985 4991	3272 3274	397.0 396.4	315.6 315.0	0.42 0.41	1.3	0.3	0.00	0.0	397.0 396.4	0.455 0.455	5.899 5.872	7.669 7.634	16.87 16.79	
	41.47	14	221.4	2.12	125	4994	3276	169.3	133.6	0.97	1.8	8.2	0.09	16.1	185.3	0.455	0.672	0.874	1.92	
	41.52	14	487.3	2.44	105	5000	3279	372.4	295.6	0.50	1.4	1.0	0.00	0.0	372.4	0.455	4.881	6.346	13.95	
	41.59	14	493 479.3	2.42	105	5008	3282	376.5	298.8	0.49	1.4	0.9	0.00	0.0	376.5	0.455	5.045	6.558	14.41	
	41.67 41.74	14 14	448.2	2.48 2.54	115 115	5016 5024	3285 3289	365.9 342.0	290.1 270.9	0.52 0.57	1.4 1.4	1.2 1.8	0.00	0.0	365.9 342.0	0.456 0.456	4.635 3.799	6.026 4.938	13.23 10.83	
	41.81	14	424.2		115	5032	3293	323.5	256.0	0.60	1.5	2.3	0.00	0.0	323.5	0.456	3.227	4.196	9.20	
	41.88	14	434.5	2.1	105	5040	3296	331.1	262.0	0.49	1.4	1.4	0.00	0.0	331.1	0.456	3.457	4.494	9.85	
	41.94	14	443.4	2.04	105	5047	3299	337.8	267.2	0.46	1.4	1.1	0.00	0.0	337.8	0.456	3.664	4.763	10.44	
	42 42.03	14 14	439.5 422.6	1.02 1.51	95 105	5053 5056	3301 3302	334.7 321.8	264.6 254.3	0.23 0.36	1.2 1.3	-0.5 0.6	0.00	0.0	334.7 321.8	0.457 0.457	3.566 3.178	4.636 4.132	10.15 9.05	
	42.06	14	413.7	1.84	105	5059	3304	314.9	248.8	0.45	1.4	1.3	0.00	0.0	314.9	0.457	2.985	3.880	8.49	
	42.09	14	411.7	2.08	105	5062	3305	313.3	247.5	0.51	1.4	1.8	0.00	0.0	313.3	0.457	2.941	3.824	8.37	
	42.17	14	443.7	1.9	105	5070	3308	337.5	266.6	0.43	1.3	0.9	0.00	0.0	337.5	0.457	3.656	4.753	10.39	
	42.2	14	430.1	1.71	105	5074	3310	327.1	258.3	0.40	1.3	0.8	0.00	0.0	327.1	0.457	3.335	4.336	9.48	
	42.23 42.26	14 14	421.4 204.1	1.59 1.63	105 125	5077 5080	3311 3312	320.4 155.2	252.9 121.7	0.38 0.81	1.3	0.8 7.8	0.00	0.0 12.7	320.4 167.8	0.457 0.458	3.140 0.520	4.082 0.676	8.92 1.48	
	42.32	14	421.6	1.69	105	5087	3316	320.3	252.7	0.40	1.3	0.9	0.00	0.0	320.3	0.458	3.137	4.078	8.91	
	42.38	14	428.7	1.78	105	5094	3318	325.6	256.7	0.42	1.4	1.0	0.00	0.0	325.6	0.458	3.291	4.278	9.34	
	42.42	14	422.9	1.69	105	5098	3320	321.1	253.1	0.40	1.3	0.9	0.00	0.0	321.1	0.458	3.160	4.108	8.97	
	42.48 42.51	14 14	416.3 415	1.64 1.77	105 105	5104 5107	3323 3324	316.0 314.9	248.9 248.1	0.40 0.43	1.4 1.4	0.9 1.2	0.00	0.0	316.0 314.9	0.458 0.458	3.014 2.985	3.919 3.881	8.55 8.47	
	42.54	14				5111	3325	309.0	243.3	0.43	1.4	1.6	0.00	0.0	309.0	0.459	2.823	3.670	8.00	

Date: September 2005

CPT Number: 32

Depth to Groundwater: 14 feet

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard **EQ Magnitude (M<sub>w</sub>):** 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 MSF: 1.30

	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
one	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qcIN)cs		M7.5	M6.50		Comments
	42.6	14	412.4	2.11	115	5117	3328	312.8	246.2	0.51	1.4	1.8	0.00	0.0	312.8	0.459	2.926	3.804	8.29	
	42.67	14	441.1	1.87	105	5125	3331	334.4	263.2	0.43	1.4	0.9	0.00	0.0	334.4	0.459	3.557	4.624	10.07	
	42.73	14	438.1	1.74	105	5131	3334	332.0	261.2	0.40	1.3	0.8	0.00	0.0	332.0	0.459	3.482	4.527	9.86	
	42.77	14	434.4	1.65		5135	3336	329.1	258.8	0.38	1.3	0.7	0.00	0.0	329.1	0.459	3.394	4.413	9.61	
	42.84 42.9	14 14	438.7 440.5	1.48 1.77	105 105	5143 5149	3339 3341	332.2 333.4	261.1 262.0	0.34 0.40	1.3	0.3	0.00	0.0	332.2 333.4	0.460 0.460	3.489 3.527	4.536 4.586	9.87 9.97	
	42.94	14	434	1.88	105		3343	328.4	258.0	0.44	1.4	1.1	0.00	0.0	328.4	0.460	3.375	4.387	9.54	
	42.97	14	425.9	1.79	105	5156	3344	322.2	253.1	0.42	1.4	1.1	0.00	0.0	322.2	0.460	3.192	4.149	9.02	
	43.01	14	414.9	1.47	105	5161	3346	313.8	246.4	0.36	1.3	0.7	0.00	0.0	313.8	0.460	2.955	3.841	8.35	
	43.06	14	399.6	1.28	95	5166	3348	302.2	237.1	0.32	1.3	0.6	0.00	0.0	302.2	0.460	2.646	3.439	7.47	
	43.1	14	394.5	1.12	95	5170	3349	298.2	233.9	0.29	1.3	0.3	0.00	0.0	298.2	0.460	2.547	3.312	7.19	
	43.13	14	394.3	1.2	95	5172	3350	298.1	233.7	0.31	1.3	0.5	0.00	0.0	298.1	0.461	2.542	3.305	7.18	
	43.18	14	382.5	1.18	95		3352	289.1	226.6	0.31	1.3	0.6	0.00	0.0	289.1	0.461	2.326	3.024	6.56	
	43.21	14	384.7	1.48	105		3353	290.7	227.8	0.39	1.4	1.2	0.00	0.0	290.7	0.461	2.364	3.074	6.67	
	43.24 43.28	14 14	388.4 392.6	1.49 1.36	105 105	5183 5187	3354 3356	293.4 296.5	229.9 232.3	0.39	1.4	1.2 0.8	0.00	0.0	293.4 296.5	0.461 0.461	2.429 2.505	3.158 3.256	6.85 7.06	
	43.31	14	402.3	1.21	95	5191	3357	303.8	238.0	0.30	1.3	0.4	0.00	0.0	303.8	0.461	2.687	3.494	7.57	
	43.35	14	401.8	1.25	95	5194	3359	303.4	237.6	0.31	1.3	0.5	0.00	0.0	303.4	0.461	2.676	3.479	7.54	
	43.38	14	410.1	1.37	105		3360	309.6	242.5	0.34	1.3	0.6	0.00	0.0	309.6	0.462	2.839	3.691	8.00	
	43.41	14	412.3	1.45	105	5200	3361	311.2	243.7	0.35	1.3	0.7	0.00	0.0	311.2	0.462	2.882	3.747	8.12	
	43.44	14	315.2	1.4	105	5204	3362	237.8	185.9	0.45	1.5	2.6	0.00	0.0	237.8	0.462	1.331	1.731	3.75	
	43.5	14	458.7	1.64	105	5210	3365	346.0	271.0	0.36	1.3	0.4	0.00	0.0	346.0	0.462	3.932	5.112	11.07	
	43.53	14	465.6	1.87	105	5213	3366	351.1	275.0	0.40	1.3	0.6	0.00	0.0	351.1	0.462	4.106	5.338	11.55	
	43.61	14	470.9	1.77	105	5221	3369	355.0	277.9	0.38	1.3	0.4	0.00	0.0	355.0	0.462	4.239	5.511	11.92	
	43.67 43.74	14 14	478.1 487.6	1.71 2.72	105 115	5228 5235	3372 3375	360.2 367.2	281.9 287.3	0.36 0.56	1.3 1.4	0.2 1.5	0.00	0.0	360.2 367.2	0.463 0.463	4.428 4.686	5.756 6.092	12.44 13.16	
	43.81	14	477.1	3.09	115	5243	3379	359.1	280.8	0.65	1.5	2.2	0.00	0.0	359.1	0.463	4.388	5.704	12.32	
	43.88	14	478.3	2.5	115	5251	3382	359.8	281.2	0.53	1.4	1.4	0.00	0.0	359.8	0.463	4.413	5.737	12.39	
	43.94	14	498.5	2.6	115		3385	374.9	292.8	0.52	1.4	1.2	0.00	0.0	374.9	0.463	4.979	6.473	13.97	
	44.01	14	484.7	2.7	115		3389	364.3	284.4	0.56	1.4	1.6	0.00	0.0	364.3	0.464	4.576	5.949	12.83	
	44.07	14	458.9	2.42	115	5273	3392	344.7	268.9	0.53	1.4	1.6	0.00	0.0	344.7	0.464	3.890	5.057	10.91	
	44.14	14	460.5	2.2	105	5281	3396	345.8	269.5	0.48	1.4	1.2	0.00	0.0	345.8	0.464	3.924	5.101	10.99	
	44.2	14	474.1	2.03	105	5287	3398	355.8	277.3	0.43	1.3	0.8	0.00	0.0	355.8	0.464	4.270	5.551	11.96	
	44.26	14	458.1	1.87	105	5294	3401	343.7	267.7	0.41	1.3	0.8	0.00	0.0	343.7	0.464	3.856	5.012	10.79	
	44.33	14	449.4	2.17	105	5301	3404	337.0	262.4	0.49	1.4	1.4	0.00	0.0	337.0	0.465	3.640	4.732	10.18	
	44.39 44.46	14 14	443.9 435.7	2.18 2.68	105 115	5307 5315	3407 3410	332.8 326.5	258.9 253.9	0.49 0.62	1.4 1.5	1.5 2.4	0.00	0.0	332.8 326.5	0.465 0.465	3.507 3.316	4.559 4.311	9.81 9.27	
	44.53	14	420.7	3.01	115	5323	3413	315.1	244.9	0.02	1.5	3.2	0.00	0.0	315.1	0.465	2.989	3.885	8.35	
	44.59	14	407.2	2.49	115	5330	3416	304.8	236.7	0.62	1.5	2.7	0.00	0.0	304.8	0.465	2.714	3.528	7.58	
	44.66	14	428.6	2.67	115	5338	3420	320.7	249.0	0.63	1.5	2.5	0.00	0.0	320.7	0.466	3.146	4.090	8.78	
	44.72	14	424.2	2.81	115	5345	3423	317.2	246.2	0.67	1.5	2.9	0.00	0.0	317.2	0.466	3.049	3.964	8.51	
	44.79	14	413.5	2.28	115	5353	3427	309.1	239.7	0.55	1.5	2.2	0.00	0.0	309.1	0.466	2.825	3.673	7.88	
	44.85	14	380.8	2.19	115		3430	284.5	220.4	0.58	1.5	2.8	0.00	0.0	284.5	0.466	2.221	2.888	6.19	
	44.92	14	375.9	2.03	115	5368	3434	280.7	217.3	0.54	1.5	2.6	0.00	0.0	280.7	0.466	2.136	2.777	5.96	
	44.98	14	338.9	2.04	115	5374 5379	3437	252.9	195.6	0.61	1.5	3.5	0.00	0.0	252.9	0.467	1.585	2.060	4.42	
	45.02 45.1	14 14	320.2 313.8	2.06 2.53	125	5388	3439 3443	238.9 234.0	184.6 180.6	0.65 0.81	1.6 1.7	4.1 5.4	0.00	0.0 2.2	238.9 236.2	0.467 0.467	1.348 1.306	1.753 1.697	3.76 3.64	
	45.16	14	330	2.5	125	5396	3447	245.9	189.8	0.76	1.6	4.8	0.00	0.0	245.9	0.467	1.463	1.902	4.07	
	45.23	14	338.9	2.52	115	5404	3451	252.4	194.7	0.75	1.6	4.5	0.00	0.0	252.4	0.467	1.575	2.048	4.38	
	45.31	14	343.8	2.28	115	5414	3456	255.9	197.3	0.67	1.6	3.9	0.00	0.0	255.9	0.467	1.638	2.130	4.56	
	45.38	14	370.8	2.18	115		3459	275.8	212.7	0.59	1.5	3.0	0.00	0.0	275.8	0.468	2.032	2.642	5.65	
	45.45	14	384.5	1.95	115		3463	285.9	220.4	0.51	1.5	2.3	0.00	0.0	285.9	0.468	2.253	2.929	6.26	
	45.52	14	389.5	1.52	105	5438	3467	289.4	223.1	0.39	1.4	1.4	0.00	0.0	289.4	0.468	2.335	3.036	6.49	
	45.6	14	391.5	1.29	95	5446	3470	290.8	224.0	0.33	1.3	0.9	0.00	0.0	290.8	0.468	2.367	3.077	6.57	
	45.67	14	372.2	1.21	95	5453	3472	276.4	212.7	0.33	1.4	1.0	0.00	0.0	276.4	0.469	2.043	2.656	5.67	
	45.74	14	350.6	1.06	95	5460	3475	260.2	200.2	0.30	1.4	1.1	0.00	0.0	260.2	0.469	1.719	2.235	4.77	
	45.82	14	314.3	0.72	95 95	5467	3477	233.2	179.1	0.23	1.3	0.9	0.00	0.0	233.2	0.469	1.260	1.637	3.49	
	45.9 45.98	14 14	268.2 239	0.7 0.68	95 95	5475 5482	3480 3482	198.9 177.2	152.5 135.6	0.26 0.29	1.4 1.5	2.0 2.8	0.00	0.0	198.9 177.2	0.469 0.470	0.812 0.598	1.056 0.777	2.25 1.65	
	46.05	14	201 4	0.00	105	5402	2402	1//.2	114.0	0.29	1.0	4.0	0.00	0.0	140.2	0.470	0.376	0.777	1.00	I E C

0.73

0.79

8.0

105 5489

105 5498

105 5506

105 5514

114.0

103.1

96.4

81.4

0.41

0.47

0.56

1.7

1.7

5.7

6.7

8.9

3488 135.3

126.7

107.3

3491

3495

0.00

0.02

0.05

0.10

0.0

2.5

6.2

12.6

149.3 0.470

0.470

0.470

0.471

137.8

132.9

119.9

0.389 0.506

0.420

0.388

0.312

0.89

0.82

0.66

0.323

0.298

0.240

Low F.S.

Liquefaction Liquefaction

Liquefaction

46.05

46.14

46.21

46.29

14 201.4

14 171.1

145

14 182.7

EQ Magnitude (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 Date: September 2005 MSF: 1.30 CPT Number: 32

Depth to Groundwater: 14 feet

47.53

14 658.5 3.89

115 5664 3567

482.4

367.4

0.59

1.3

0.9

0.00

0.0

482.4

0.474

10.519

13.675

28.87

Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor Water Tip Sleeve Depth Table Resist. Frict. Stress Stress Tip Tip Ratio F.C. Stress Stress Stress Cone (FT) (FT) (TSF) (TSF) (PCF) (PSF) (PSF) (%) KCPT DqcIN (qcIN)cs Ratio M7.5 M6.50 Safety Comments **q**c1N 0 Ic 46.37 138.3 0.71 105 5523 14 3498 102.3 77.5 0.52 1.8 9.0 0.11 12.1 114.4 0.471 0.219 0.285 0.61 Liquefaction 46.45 14 129.9 0.75 115 5531 3502 96.0 72.6 0.59 1.9 10.1 0.14 15.3 111.3 0.4710.208 0.271 0.57 Liquefaction 46.53 98.1 0.75 115 5540 3506 72.5 54.4 0.79 2.1 14.7 0.26 25.3 97.8 0.471 0.167 0.217 0.46 Liquefaction 46.61 14 82.5 0.7 115 5549 3510 60.9 45.4 0.88 2.2 17.5 0.33 30.5 91.4 0.472 0.151 0.196 0.42 Liquefaction 46.7 0.73 125 5560 53.1 39.4 2.2 20.7 0.42 0.472 0.151 0.197 0.42 Liquefaction 46.78 0.8 125 5570 3520 43.8 32.2 1.41 2.4 100.7 0.227 14 59.4 26.2 0.56 56.9 0.472 0.175 0.48 Liquefaction 46.86 14 57.8 0.98 135 5580 3525 42.6 31.2 1.78 2.5 29.1 0.64 76.6 119.2 0.472 0.237 0.309 0.65 Liquefaction 46.95 14 54.7 1.25 135 5592 3531 40.3 29.4 2.41 2.6 33.6 0.76 130.5 170.7 0.472 0.543 0.706 1.49 47.03 14 64.1 1.32 135 5603 3537 47.2 34.6 2.15 2.5 29.7 0.66 91.2 138.4 0.473 0.327 0.425 0.90 Liquefaction 47.11 105.3 1.54 135 5613 3543 57.8 2.2 0.338 0.72 Liquefaction 14 77.4 1.50 19.2 0.38 47.3 124.7 0.473 0.260 47.19 14 261.8 2.34 125 5624 3549 192.3 145.9 0.90 1.8 7.2 0.06 12.2 204.5 0.473 0.875 1.138 2.41 47.26 14 442 2.54 115 5633 3553 324.4 247.1 0.58 1.5 2.3 0.00 0.0 324.4 0.473 3.256 4.233 8.95 47.39 14 533.5 3.62 115 5648 3560 391.2 298.0 0.68 1.4 2.2 0.00 0.0 391.2 0.473 5.649 7.343 15.51 47.45 609.5 3.74 115 5655 3563 446.8 340.4 0.62 1.4 1.3 0.00 0.0 446.8 0.473 8.373 10.884 22.99

Project Number: 6600.3.001.01

Date: September 2005 CPT Number: 33

Depth to Groundwater: 14 feet

EQ Magnitude (M<sub>w</sub>): 6.5 PGA (g): 0.54

**MSF:** 1.30

•																				
		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.		_		Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	( <b>q</b> e1N)es	Ratio	M7.5	M6.50	Safety	Comments
	0.58	14	419.1	4.24	125	73	73	802.7	11555.6	1.01	1.4	1.1	0.00	0.0	802.7	0.351	48.173	62.624	178.42	Above W.T.
	0.67	14	435.3	5	135	84	84	833.7	10389.9	1.15	1.4	1.4	0.00	0.0	833.7	0.351	53.968	70.158	199.88	Above W.T.
	0.75 0.83	14 14	516.5 534.9	6.54 4.32	135 125	95 105	95 105	989.2 1024.4	10919.9 10149.5	1.27 0.81	1.4 1.2	2.0 -0.1	0.00	0.0	989.2 1024.4	0.351 0.351	90.099 100.067	117.129 130.087	333.70 370.62	Above W.T. Above W.T.
	0.91	14	461.4	4.13	125	115	115	883.7	7995.7	0.90	1.2	-0.1	0.00	0.0	883.7	0.351	64.254	83.530	237.98	Above W.T.
	1 1.09	14 14	370.8 305.3	3.73 2.65	125 125	127 138	127 138	710.2 584.7	5854.4 4426.6	1.01 0.87	1.3 1.2	0.0 -0.8	0.00	0.0	710.2 584.7	0.351 0.351	33.388 18.671	43.404 24.272	123.66 69.15	Above W.T. Above W.T.
	1.17	14	380.9	2.72	115	148	148	729.5	5149.4	0.71	1.1	-1.3	0.00	0.0	729.5	0.351	36.184	47.040	134.02	Above W.T.
	1.25 1.33	14 14	373.9 418.2	3.13 3.46	125 125	157 167	157 167	716.1 800.9	4758.6 5003.8	0.84 0.83	1.2 1.2	-0.9 -0.9	0.00	0.0	716.1 800.9	0.351 0.351	34.230 47.863	44.499 62.222	126.78 177.27	Above W.T. Above W.T.
	1.41	14	394.4	3.52	125	177	177	755.4	4452.4	0.89	1.2	-0.7	0.00	0.0	755.4	0.351	40.161	52.209	148.74	Above W.T.
	1.49	14	346.9	2.91	125	187	187	664.4	3706.6	0.84	1.1	-1.0	0.00	0.0	664.4	0.351	27.353	35.559	101.31	Above W.T.
	1.58 1.66	14 14	185.6 152	2.43 2.23	135 135	198 209	198 209	355.5 291.1	1870.1 1452.2	1.31 1.47	1.4 1.4	1.0 1.8	0.00	0.0	355.5 291.1	0.351	4.257 2.374	5.534 3.087	15.77 8.79	Above W.T. Above W.T.
	1.75	14	136.3	1.86	135	221	221	261.0	1230.6	1.37	1.4	1.6	0.00	0.0	261.0	0.351	1.734	2.255	6.42	Above W.T.
	1.82 1.91	14 14	147.4 143.2	1.97 2.14	135 135	231 243	231 243	282.3 274.3	1276.3 1177.8	1.34 1.50	1.4 1.5	1.5 2.2	0.00	0.0	282.3 274.3	0.351 0.351	2.172 1.998	2.824 2.598	8.05 7.40	Above W.T. Above W.T.
	1.99	14	153.6	2.14	135	254	254	294.2	1209.6	1.50	1.4	2.1	0.00	0.0	294.2	0.351	2.448	3.182	9.06	Above W.T.
	2.07	14	128.6	2.3	135	264	264	246.3	971.2	1.79	1.6	3.6	0.00	0.0	246.3	0.351	1.469	1.910	5.44	Above W.T.
	2.34 2.42	14 14	94.6 62.8	2.18 1.45	135 135	301 312	301 312	181.2 120.3	627.5 401.8	2.31 2.31	1.7 1.8	6.5 8.2	0.04 0.09	7.6 11.4	188.7 131.7	0.351 0.351	0.705 0.292	0.917 0.380	2.61 1.08	Above W.T. Above W.T.
	2.5	14	45.5	0.92	135	323	323	87.1	281.1	2.03	1.8	8.9	0.11	10.2	97.4	0.351	0.166	0.216	0.61	Above W.T.
	2.59	14	46.8	0.93	135	335	335	89.6	278.6	1.99	1.8	8.8	0.10	10.3	99.9	0.351	0.173	0.224	0.64	Above W.T. Above W.T.
	2.67 2.75	14 14	54.5 57.4	1.43 1.78	135 135	345 356	345 356	104.4 109.9	314.4 321.1	2.63 3.11	1.9 2.0	10.6 12.0	0.15 0.19	18.2 25.4	122.6 135.3	0.351 0.351	0.251 0.310	0.327 0.404	0.93 1.15	Above W.T.
	2.84	14	78.4	1.43	135	368	368	150.2	424.4	1.83	1.7	6.2	0.03	5.0	155.1	0.351	0.427	0.555	1.58	Above W.T.
	2.92 3.01	14 14	63.3 49.3	1.17 1.11	135 135	379 391	379 391	121.2 94.4	332.7 250.8	1.85 2.26	1.8 1.9	7.4 10.5	0.06 0.15	8.2 16.2	129.4 110.6	0.351 0.351	0.282	0.366 0.268	1.04 0.76	Above W.T. Above W.T.
	3.09	14	23.8	1.06	135	402	402	45.6	117.3	4.49	2.3	24.0	0.13	46.8	92.4	0.351	0.153	0.199	0.57	Above W.T.
	3.18	14	15.7	0.47	125	414	414	30.1	74.8	3.03	2.3	23.8	0.50	30.2	60.3	0.351	0.100	0.131	0.37	Above W.T.
	3.27 3.36	14 14	11.3 12.1	0.45 0.47	125 125	426 437	426 437	21.6 23.2	52.1 54.4	4.06 3.96	2.5 2.5	32.2 31.2	0.73 0.70	57.3 54.2	79.0 77.3	0.351 0.351	0.126 0.123	0.164 0.160	0.47 0.46	Above W.T. Above W.T.
	3.45	14	12.1	0.44	125	448	448	23.2	53.0	3.70	2.5	30.7	0.69	50.4	73.6	0.351	0.117	0.152	0.43	Above W.T.
	3.54 3.63	14 14	31.1 58.7	1.19 0.85	135 125	459 471	459 471	59.6 112.4	134.4 247.9	3.85 1.45	2.2 1.8	20.7 7.1	0.42 0.06	43.0 6.8	102.6 119.2	0.351 0.351	0.180 0.237	0.235 0.309	0.67 0.88	Above W.T. Above W.T.
	3.73	14	45.9	0.83	135	484	484	87.9	188.6	1.82	1.9	10.4	0.14	14.9	102.8	0.351	0.181	0.235	0.67	Above W.T.
	3.82	14	20.6	0.63	125	496	496	39.5	82.0	3.10	2.3	23.0	0.48	36.5	75.9	0.351	0.121	0.157	0.45	Above W.T.
	3.91 4	14 14	25.9 17.1	0.54 0.24	125 115	507 519	507 519	49.6 32.7	101.1 64.9	2.11 1.43	2.1	16.7 17.5	0.31	22.5 16.3	72.1 49.1	0.351	0.115 0.091	0.149 0.118	0.43 0.34	Above W.T. Above W.T.
	4.09	14	16.6	0.23	105	529	529	31.6	61.7	1.41	2.2	17.9	0.34	16.6	48.2	0.351	0.090	0.117	0.33	Above W.T.
	4.18 4.27	14 14	12.3 9.9	0.23 0.23	105 105	538 548	538 548	23.2 18.5	44.7 35.1	1.91 2.39	2.4 2.5	24.8 30.8	0.53 0.69	26.0 40.7	49.2 59.2	0.351 0.351	0.091	0.118 0.129	0.34 0.37	Above W.T. Above W.T.
	4.37	14	8.5	0.23	105	558	558	15.7	29.4	2.55	2.6	34.4	0.78	57.1	72.8	0.351	0.099	0.129	0.43	Above W.T.
	4.46	14	6.1	0.27	105	568	568	11.2	20.5	4.64	2.9	50.0	0.80	44.8	56.0	0.351	0.096	0.125	0.36	Above W.T.
	4.55 4.64	14 14	6.6 8.5	0.37 0.43	115 115	577 588	577 588	12.0 15.3	21.9 27.9	5.86 5.24	2.9 2.8	52.9 46.2	0.80	48.1 61.4	60.1 76.7	0.351	0.100 0.122	0.130 0.159	0.37 0.45	Above W.T. Above W.T.
	4.73	14	13.1	0.45	125	598	598	23.4	42.8	3.52	2.5	32.9	0.75	68.8	92.2	0.351	0.153	0.199	0.57	Above W.T.
	4.82 4.92	14 14	36.2 30.6	0.49 0.59	125 125	609 622	609 622	64.2 53.7	117.8 97.4	1.37 1.95	1.9 2.1	11.6 16.3	0.18	13.7 23.1	77.8 76.8	0.351 0.351	0.124 0.122	0.161 0.159	0.46 0.45	Above W.T. Above W.T.
	5.01	14	28.2	0.79	135	633	633	49.0	88.1	2.83	2.3	21.2	0.43	37.3	86.4	0.351	0.122	0.139	0.43	Above W.T.
	5.11	14	29.8	0.87	135	646	646	51.3	91.2	2.95	2.3	21.3	0.44	39.5	90.8	0.351	0.150	0.195	0.55	Above W.T.
	5.2 5.29	14 14	34.3 44	1.06 1.25	135 135	659 671	659 671	58.5 74.3	103.1 130.1	3.12 2.86	2.2 2.2	20.7 17.6	0.42 0.34	42.2 37.5	100.7 111.8	0.351 0.351	0.175 0.210	0.227 0.273	0.65 0.78	Above W.T. Above W.T.
	5.38	14	68	1.46	135	683	683	113.9	198.1	2.16	1.9	11.6	0.18	24.2	138.0	0.351	0.325	0.422	1.20	Above W.T.
	5.57	14	96.5	1.77	135	709	709	158.6	271.3	1.84	1.8	8.4	0.09	15.6	174.2	0.351	0.572	0.744	2.12	Above W.T.
	5.67 5.76	14 14	92.8 82.3	1.98 2.22	135 135	722 734	722 734	151.1 132.9	255.9 223.1	2.14 2.71	1.9 2.0	9.9 12.9	0.13 0.21	22.8 35.4	173.9 168.3	0.351 0.351	0.569 0.523	0.740 0.680	2.11 1.94	Above W.T. Above W.T.
	5.85	14	74.2	2.36	135	746	746	118.8	197.8	3.20	2.1	15.4	0.28	45.7	164.5	0.351	0.494	0.642	1.83	Above W.T.
	5.94 6.03	14 14	69.4 62	2.31 2.11	135 135	759 771	759 771	110.3 97.7	181.9 159.8	3.35 3.42	2.1 2.2	16.5 17.8	0.31 0.34	49.0 50.8	159.2 148.5	0.351 0.351	0.455 0.384	0.592 0.500	1.69 1.42	Above W.T. Above W.T.
	6.12	14	53.8	1.84	135	783	783	84.1	136.4	3.45	2.2	19.2	0.34	51.5	135.7	0.351	0.312	0.406	1.16	Above W.T.
	6.21	14	48.2	1.67	135	795	795	74.8	120.2	3.49	2.2	20.5	0.42	53.1	127.9	0.351	0.275	0.357	1.02	Above W.T.
	6.3 6.39	14 14	46.2 45.9	1.55 1.53	135 135	807 819	807 819	71.2 70.2	113.4 111.0	3.38 3.36	2.3 2.3	20.7 20.9	0.42 0.42	51.5 51.5	122.6 121.7	0.351	0.252 0.248	0.327 0.322	0.93 0.92	Above W.T. Above W.T.
	6.48	14	45.7	1.49	135	831	831	69.3	108.9	3.29	2.3	20.8	0.42	50.5	119.9	0.351	0.240	0.312	0.89	Above W.T.
	6.58	14	46 48.7	1.45	135 135	845 856	845 856	69.2 72.8	107.8	3.18	2.2	20.5	0.41	48.8	118.0	0.351	0.233	0.303	0.86	Above W.T. Above W.T.
	6.66 6.75	14 14	50.6	1.41 1.32	135	856 868	856 868	75.2	112.8 115.6	2.92 2.63	2.2	19.1 17.7	0.38 0.34	43.9 38.6	116.7 113.8	0.351 0.351	0.228 0.217	0.296 0.282	0.84 0.80	Above W.T.
	6.84	14	52.3	1.15	135	880	880	77.1	117.8	2.22	2.1	15.8	0.29	31.3	108.4	0.351	0.198	0.258	0.73	Above W.T.
	6.93	14	55.2	1.01	135	892	892	80.9	122.7	1.84	2.0	13.7	0.23	24.6	105.5	0.351	0.189	0.246	0.70	Above W.T.

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 33

Depth to Groundwater: 14 feet

EQ Magnitude (M<sub>w</sub>): 6.5 PGA (g): 0.54 MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
Como	Depth (ET)	Table	Resist.	Frict.	g (DCE)	Stress	Stress	Tip	Tip	Ratio F	T.	F.C.	Ксрт	Dqein	(Qc1N)cs	Stress	Stress	Stress	of Cofoty	Comments
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> e1N	Q	r	Ic	(%)	Keri	Dyein	( <b>q</b> cin)es	Ratio	M7.5	M6.50	Safety	Comments
	7.02	14	59.8	0.88	125	904	904	87.0	131.2	1.48	1.9	11.4	0.17	17.9	104.9	0.351	0.187	0.243	0.69	Above W.T.
	7.11	14	63	0.77	125	916	916	91.1	136.6	1.23	1.9	9.7	0.13	13.0	104.1	0.351	0.185	0.241	0.69	Above W.T.
	7.2 7.29	14 14	66 68.4	0.72 0.7	125 125	927 938	927 938	94.9 97.7	141.4 144.8	1.10 1.03	1.8 1.8	8.7 8.1	0.10 0.08	10.3 8.8	105.2 106.5	0.351	0.188 0.192	0.245 0.250	0.70 0.71	Above W.T. Above W.T.
	7.37	14	69.3	0.67	125	948	948	98.5	145.1	0.97	1.8	7.7	0.07	7.7	106.2	0.351	0.191	0.249	0.71	Above W.T.
	7.46	14	70.4	0.64	125	959	959	99.5	145.7	0.92	1.8	7.3	0.06	6.6	106.0	0.351	0.191	0.248	0.71	Above W.T.
	7.55 7.64	14 14	72.5 73.6	0.66 0.68	125 125	971 982	971 982	101.8 102.8	148.3 148.9	0.92 0.93	1.8 1.8	7.2 7.3	0.06 0.06	6.4 6.6	108.2 109.4	0.351	0.198 0.202	0.257 0.262	0.73 0.75	Above W.T. Above W.T.
	7.73	14	74.5	0.68	125	993	993	103.4	149.0	0.92	1.8	7.2	0.06	6.5	109.9	0.351	0.203	0.264	0.75	Above W.T.
	7.81	14	74.7	0.68	125	1003	1003	103.2	147.9	0.92	1.8	7.2	0.06	6.5	109.7	0.351	0.203	0.264	0.75	Above W.T.
	7.9 7.99	14 14	76.4 79.5	0.67 0.63	125 115	1014 1026	1014 1026	105.0 108.6	149.6 154.0	0.88 0.80	1.7 1.7	6.9 6.2	0.05	5.7 3.6	110.7 112.2	0.351	0.206 0.211	0.268 0.275	0.76 0.78	Above W.T. Above W.T.
	8.07	14	81.7	0.62	115	1035	1035	111.1	156.8	0.76	1.7	5.8	0.02	2.6	113.7	0.351	0.217	0.282	0.80	Above W.T.
	8.16	14	81.8	0.61	115	1045	1045	110.7	155.5	0.75	1.7	5.8	0.02	2.4	113.2	0.351	0.215	0.279	0.80	Above W.T.
	8.25 8.34	14 14	81.9 83.2	0.61 0.58	115 115	1055 1066	1055 1066	110.3 111.5	154.1 155.1	0.75 0.70	1.7 1.7	5.9 5.5	0.02	2.6 1.5	112.9 113.0	0.351	0.214 0.214	0.278 0.278	0.79 0.79	Above W.T. Above W.T.
	8.42	14	85.3	0.54	115	1075	1075	113.8	157.6	0.64	1.6	4.9	0.00	0.0	113.8	0.351	0.217	0.282	0.80	Above W.T.
	8.51	14	88.6	0.51	105	1085	1085	117.7	162.2	0.58	1.6	4.3	0.00	0.0	117.7	0.351	0.232	0.301	0.86	Above W.T.
	8.6 8.69	14 14	91.8 92.4	0.51 0.49	105 105	1095 1104	1095 1104	121.4 121.7	166.6 166.3	0.56 0.53	1.6 1.6	4.0 3.8	0.00	0.0	121.4 121.7	0.351	0.246 0.247	0.320 0.322	0.91 0.92	Above W.T. Above W.T.
	8.72	14	83.8	0.48	105	1107	1107	110.2	150.3	0.58	1.6	4.7	0.00	0.0	110.2	0.351	0.204	0.266	0.76	Above W.T.
	8.81	14	89.7	0.48	105	1117	1117	117.4	159.6	0.54	1.6	4.1	0.00	0.0	117.4	0.351	0.231	0.300	0.85	Above W.T.
	8.9 8.99	14 14	88 84.3	0.46 0.45	105 105	1126 1136	1126 1136	114.7 109.4	155.2 147.4	0.53 0.54	1.6 1.6	4.2 4.6	0.00	0.0	114.7 109.4	0.351 0.351	0.220 0.202	0.287 0.263	0.82 0.75	Above W.T. Above W.T.
	9.08	14	80.8	0.44	105	1145	1145	104.5	140.1	0.55	1.6	4.9	0.00	0.0	104.5	0.351	0.186	0.242	0.69	Above W.T.
	9.17	14	77.4	0.41	105	1155	1155	99.7	133.0	0.53	1.6	5.1	0.00	0.4	100.0	0.351	0.173	0.225	0.64	Above W.T.
	9.25 9.34	14 14	74.5 69.2	0.39 0.35	105 105	1163 1173	1163 1173	95.6 88.4	127.1 117.0	0.53 0.51	1.7 1.7	5.4 5.8	0.01 0.02	1.0 1.8	96.6 90.3	0.351	0.164 0.148	0.213 0.193	0.61 0.55	Above W.T. Above W.T.
	9.43	14	60.5	0.34	105	11/3	1173	77.0	101.3	0.57	1.8	7.3	0.02	4.9	81.9	0.351	0.148	0.171	0.33	Above W.T.
	9.5	14	54.3	0.34	105	1189	1189	68.9	90.3	0.63	1.8	8.7	0.10	7.6	76.4	0.351	0.122	0.158	0.45	Above W.T.
	9.59 9.68	14 14	45.4 36.7	0.33 0.37	105 115	1199 1208	1199 1208	57.4 46.2	74.7 59.7	0.74 1.03	1.9 2.1	11.2 15.6	0.16 0.28	11.3 18.3	68.7 64.5	0.351	0.110 0.105	0.143 0.136	0.41 0.39	Above W.T. Above W.T.
	9.77	14	28.3	0.46	125	1219	1219	35.5	45.4	1.66	2.3	23.1	0.48	33.1	68.6	0.351	0.103	0.130	0.39	Above W.T.
	9.86	14	20.5	0.46	125	1230	1230	25.6	32.3	2.31	2.5	31.6	0.71	62.8	88.3	0.351	0.144	0.187	0.53	Above W.T.
	9.95 10.04	14 14	16.7 13.4	0.4 0.32	125 115	1241 1252	1241 1252	20.7 16.6	25.9 20.4	2.49 2.51	2.6 2.7	36.1 40.4	0.80	83.0 66.3	103.7 82.8	0.351 0.344	0.184 0.133	0.239 0.173	0.68 0.50	Above W.T. Above W.T.
	10.04	14	9.8	0.32	105	1263	1263	12.1	14.5	2.51	2.8	47.1	0.80	48.3	60.3	0.344	0.100	0.173	0.38	Above W.T.
	10.22	14	8.9	0.19	105	1272	1272	10.9	13.0	2.30	2.8	48.2	0.80	43.7	54.6	0.344	0.095	0.124	0.36	Above W.T.
	10.31 10.4	14 14	7.1 7.3	0.19	105 105	1282 1291	1282 1291	8.7 8.9	10.1	2.94 2.86	3.0	57.8	0.80	34.7 35.6	43.4 44.4	0.344	0.088	0.114 0.115	0.33	Above W.T. Above W.T.
	10.49	14	6.7	0.19 0.19	105	1300	1300	8.1	10.3 9.3	3.14	3.0	56.7 60.8	0.80 0.80	32.5	40.6	0.344	0.086	0.113	0.33	Above W.T.
	10.58	14	7	0.21	105	1310	1310	8.5	9.7	3.31	3.0	60.7	0.80	33.8	42.3	0.344	0.087	0.113	0.33	Above W.T.
	10.67 10.76	14 14	7.4 9.8	0.25 0.23	105 105	1319 1329	1319 1329	8.9	10.2 13.7	3.71 2.52	3.0	61.4 48.3	0.80	35.7	44.6	0.344	0.088	0.115 0.129	0.33 0.37	Above W.T.
	10.76	14	9.8	0.23	105	1338	1338	11.8 11.7	13.7	1.75	2.8 2.8	43.5	0.80 0.80	47.1 46.9	58.8 58.6	0.344	0.099	0.129	0.37	Above W.T. Above W.T.
	10.94	14	7.5	0.13	95	1348	1348	8.9	10.1	1.90	2.9	51.1	0.80	35.8	44.7	0.344	0.088	0.115	0.33	Above W.T.
	11.03	14	6.9	0.12	95	1356	1356	8.2	9.2	1.93	2.9	53.6	0.80	32.8	41.0	0.344	0.086	0.112	0.33	Above W.T.
	11.12 11.21	14 14	6.2 6.7	0.12 0.12	95 95	1365 1373	1365 1373	7.3 7.9	8.1 8.8	2.17 2.00	3.0 2.9	58.4 55.2	0.80	29.4 31.6	36.7 39.6	0.344	0.085 0.086	0.110 0.111	0.32 0.32	Above W.T. Above W.T.
	11.3	14	7	0.12	95	1382	1382	8.2	9.1	1.90	2.9	53.5	0.80	33.0	41.2	0.344	0.087	0.112	0.33	Above W.T.
	11.39	14	6.6	0.12	95	1390	1390	7.7	8.5	2.03	3.0	56.2	0.80	31.0	38.7	0.344	0.085	0.111	0.32	Above W.T.
	11.48 11.57	14 14	5.9 5.6	0.12 0.12	95 95	1399 1408	1399 1408	6.9 6.5	7.4 7.0	2.31 2.45	3.0	61.4 64.1	0.80 0.80	27.6 26.1	34.5 32.7	0.344	0.084 0.083	0.109 0.108	0.32 0.31	Above W.T. Above W.T.
	11.67	14	5.9	0.11	95	1417	1417	6.9	7.3	2.12	3.0	60.5	0.80	27.4	34.3	0.344	0.084	0.109	0.32	Above W.T.
	11.76	14	5.6	0.11	95	1426	1426	6.5	6.9	2.25	3.1	63.2	0.80	26.0	32.4	0.344	0.083	0.108	0.31	Above W.T.
	11.85 11.94	14 14	6.1 6.3	0.11 0.12	95 95	1434 1443	1434 1443	7.0 7.3	7.5 7.7	2.04 2.15	3.0	59.3 59.3	0.80 0.80	28.2 29.0	35.2 36.3	0.344	0.084 0.084	0.109 0.110	0.32 0.32	Above W.T. Above W.T.
	11.99	14	6.8	0.13	95	1447	1447	7.8	8.4	2.14	3.0	57.2	0.80	31.3	39.1	0.344	0.086	0.111	0.32	Above W.T.
	12.06	14	6.9	0.15	95	1454	1454	7.9	8.5	2.43	3.0	58.9	0.80	31.7	39.6	0.344	0.086	0.111	0.32	Above W.T.
	12.16 12.25	14 14	7.6 7.2	0.19 0.2	105 105	1464 1473	1464 1473	8.7 8.2	9.4 8.8	2.77 3.09	3.0	58.5 62.0	0.80 0.80	34.8 32.8	43.5 41.0	0.344 0.344	0.088 0.086	0.114 0.112	0.33	Above W.T. Above W.T.
	12.35	14	6.9	0.19	105	1484	1484	7.8	8.3	3.09	3.1	63.4	0.80	31.4	39.2	0.344	0.086	0.112	0.32	Above W.T.
	12.44	14	6.1	0.2	105	1493	1493	6.9	7.2	3.74	3.2	70.7	0.80	27.6	34.5	0.344	0.084	0.109	0.32	Above W.T.
	12.53 12.63	14 14	6.7 6.5	0.17 0.15	105 95	1502 1513	1502 1513	7.6 7.3	7.9 7.6	2.86 2.61	3.1	63.3 62.9	0.80 0.80	30.3 29.2	37.8 36.6	0.344	0.085 0.085	0.111 0.110	0.32	Above W.T. Above W.T.
	12.72	14	6.9	0.15	95	1522	1522	7.7	8.1	2.44	3.0	60.2	0.80	31.0	38.7	0.344	0.085	0.110	0.32	Above W.T.
	12.81	14	6.9	0.17	105	1530	1530	7.7	8.0	2.77	3.1	62.5	0.80	30.9	38.6	0.344	0.085	0.111	0.32	Above W.T.
	12.9	14	6.1	0.18 0.2	105 105	1540 1550	1540	6.8	6.9 6.9	3.38	3.2 3.2	69.8 72.0	0.80	27.2	34.0 33.9	0.344	0.084	0.109 0.109	0.32 0.32	Above W.T. Above W.T.
	13 13.09	14 14	6.1 6.7	0.21	105	1559	1550 1559	6.8 7.4	7.6	3.76 3.55	3.1	68.2	0.80 0.80	27.1 29.7	37.1	0.344	0.084 0.085	0.109	0.32	Above W.T.
	13.18	14	6.5	0.22	105	1569	1569	7.2	7.3	3.85	3.2	70.8	0.80	28.7	35.9	0.344	0.084	0.110	0.32	Above W.T.

Date: September 2005 CPT Number: 33

Depth to Groundwater: 14 feet

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard Project Number: 6600.3.001.01EQ Magnitude (M<sub>w</sub>): 6.5 PGA (g): 0.54 MSF: 1.30 0.54

		Water	Tri-	Cleare		Total	Effective	Nove	Comm	Friction						Induced	Lionof	Lianof	Footon	
	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Tip	Corr. Tip	Ratio		F.C.				Stress	Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> e1N	Q	F	Ic	(%)	Ксрт	Dq <sub>c1N</sub>	(q <sub>c1N</sub> ) <sub>cs</sub>	Ratio	M7.5	M6.50	Safety	Comments
	40.00	1.4		0.04	405	1.550	1570			4.20	2.2	77.0	0.00	25.1	21.4	0.244	0.002	0.100	0.21	41 W.T
	13.28 13.37	14 14	5.7 6.1	0.21 0.2	105 105	1579 1589	1579 1589	6.3 6.7	6.2 6.7	4.28 3.77	3.3	77.3 72.8	0.80	25.1 26.8	31.4 33.5	0.344	0.083	0.108 0.109	0.31 0.32	Above W.T. Above W.T.
	13.47	14	7.2	0.21	105	1599	1599	7.9	8.0	3.28	3.1	65.4	0.80	31.5	39.4	0.344	0.086	0.111	0.32	Above W.T.
	13.56	14 14	6.1 6.7	0.22 0.25	105 105	1609	1609	6.7 7.3	6.6 7.3	4.15	3.2 3.2	75.1 72.7	0.80	26.6 29.1	33.3	0.344	0.083	0.108	0.32	Above W.T.
	13.65 13.74	14	6.7	0.25	105	1618 1628	1618 1628	7.3	7.2	4.24 4.25	3.2	72.7	0.80	29.1	36.4 36.3	0.344	0.084 0.084	0.110 0.110	0.32	Above W.T. Above W.T.
	13.84	14	7	0.24	105	1638	1638	7.6	7.5	3.88	3.2	70.0	0.80	30.3	37.8	0.344	0.085	0.111	0.32	Above W.T.
	13.93	14	7.7	0.26	105	1648	1648	8.3 8.3	8.3	3.78	3.1	66.9	0.80	33.2	41.5	0.344	0.087	0.113	0.33	Above W.T.
	14.02 14.11	14 14	7.7 7.6	0.29 0.31	105 115	1657 1667	1651 1655	8.2	8.3 8.2	4.22 4.58	3.1	69.0 71.1	0.80	33.2 32.7	41.5 40.9	0.345 0.346	0.087 0.086	0.113 0.112	0.33	NonLiqfble. NonLiqfble.
	14.21	14	8.5	0.3	115	1678	1661	9.1	9.2	3.92	3.1	64.9	0.80	36.5	45.6	0.348	0.089	0.115	0.33	NonLiqfble.
	14.3 14.39	14 14	8.6 11	0.3 0.35	115 115	1688 1699	1665 1670	9.2 11.8	9.3 12.2	3.87 3.45	3.1	64.5 56.0	0.80	36.9 47.1	46.1 58.9	0.349 0.350	0.089	0.116 0.129	0.33	NonLiqfble. NonLiqfble.
	14.48	14	10.9	0.38	115	1709	1675	11.7	12.2	3.78	3.0	57.9	0.80	46.6	58.3	0.350	0.098	0.129	0.36	NonLiqfble.
	14.57	14	10.2	0.41	115	1719	1680	10.9	11.1	4.39	3.1	62.4	0.80	43.6	54.4	0.352	0.095	0.124	0.35	NonLiqfble.
	14.66 14.76	14 14	9.8 9.8	0.41 0.41	115 115	1730 1741	1684 1690	10.4 10.4	10.6 10.6	4.59 4.59	3.1	64.4 64.5	0.80	41.8 41.7	52.2 52.2	0.353 0.355	0.093	0.121 0.121	0.34	NonLiqfble.
	14.76	14	10.9	0.41	115	1752	1694	11.6	11.8	4.19	3.1	60.1	0.80	46.3	57.9	0.356	0.093	0.121	0.34	NonLiqfble. NonLiqfble.
	14.94	14	10.2	0.41	115	1762	1699	10.8	11.0	4.40	3.1	62.8	0.80	43.3	54.1	0.357	0.095	0.123	0.35	NonLiqfble.
	15.03	14	11.1	0.43	115	1772	1704	11.8	12.0	4.21	3.0	59.8	0.80	47.1	58.8	0.358	0.099	0.129	0.36	NonLiqfble.
	15.12 15.21	14 14	12.1 11.8	0.52 0.52	125 125	1783 1794	1708 1714	12.8 12.5	13.1 12.7	4.64 4.77	3.0	59.5 60.8	0.80	51.2 49.9	64.0 62.4	0.359	0.104 0.103	0.136 0.133	0.38	NonLiqfble. NonLiqfble.
	15.31	14	11.3	0.53	125	1806	1720	11.9	12.1	5.10	3.1	63.2	0.80	47.7	59.6	0.361	0.100	0.130	0.36	NonLiqfble.
	15.35	14	11.7	0.53	125	1811	1723	12.3	12.5	4.91	3.0	61.7	0.80	49.3	61.7	0.362	0.102	0.132	0.37	NonLiqfble.
	15.44 15.53	14 14	11.2 11	0.55 0.54	125 125	1823 1834	1728 1734	11.8 11.6	11.9	5.35 5.36	3.1	64.5 65.1	0.80	47.1 46.2	58.9 57.8	0.363 0.364	0.099	0.129 0.127	0.35 0.35	NonLiqfble.
	15.63	14	11	0.54	125	1846	1734	11.5	11.6 11.6	5.26	3.1	64.9	0.80	46.1	57.7	0.365	0.098	0.127	0.35	NonLiqfble. NonLiqfble.
	15.72	14	10.2	0.53	125	1858	1746	10.7	10.6	5.72	3.1	68.7	0.80	42.7	53.4	0.366	0.094	0.122	0.33	NonLiqfble.
	15.81	14	10.1	0.52	125	1869	1752	10.6	10.5	5.67	3.1	68.9	0.80	42.2	52.8	0.367	0.094	0.122	0.33	NonLiqfble.
	15.9 15.99	14 14	10 9.8	0.51 0.52	125 125	1880 1891	1757 1763	10.4 10.2	10.3 10.0	5.63 5.87	3.1	69.1 70.7	0.80	41.8 40.8	52.2 51.1	0.368	0.093	0.121 0.120	0.33	NonLiqfble. NonLiqfble.
	16.09	14	9.8	0.51	125	1904	1769	10.2	10.0	5.76	3.2	70.4	0.80	40.8	51.0	0.370	0.092	0.120	0.32	NonLiqfble.
	16.18	14	9.7	0.48	115	1915	1775	10.1	9.8	5.49	3.2	69.8	0.80	40.3	50.4	0.371	0.092	0.119	0.32	NonLiqfble.
	16.27 16.36	14 14	9.1 8.8	0.49 0.46	115 115	1926 1936	1780 1784	9.4 9.1	9.1 8.8	6.02 5.87	3.2 3.2	73.7 74.2	0.80	37.8 36.5	47.2 45.6	0.372 0.373	0.090	0.117 0.115	0.31	NonLiqfble. NonLiqfble.
	16.46	14	8.9	0.46	115	1947	1790	9.2	8.9	5.80	3.2	73.7	0.80	36.8	46.0	0.373	0.089	0.115	0.31	NonLiqfble.
	16.55	14	9.7	0.49	115	1958	1794	10.0	9.7	5.62	3.2	70.6	0.80	40.1	50.1	0.375	0.092	0.119	0.32	NonLiqfble.
	16.64	14	8.5	0.52	115	1968	1799	8.8	8.4	6.92	3.3	79.1	0.80	35.1	43.8	0.376	0.088	0.114	0.30	NonLiqfble.
	16.73 16.83	14 14	8.3 8.8	0.54 0.5	115 115	1978 1990	1804 1809	8.6 9.1	8.1 8.6	7.39 6.41	3.3	81.5 76.6	0.80	34.2 36.2	42.8 45.3	0.377 0.378	0.087 0.089	0.113 0.115	0.30	NonLiqfble. NonLiqfble.
	16.92	14	10	0.51	125	2000	1814	10.3	9.9	5.67	3.2	70.2	0.80	41.1	51.4	0.379	0.093	0.120	0.32	NonLiqfble.
	17.01	14	10.6	0.52	125	2012	1819	10.9	10.5	5.42	3.1	67.8	0.80	43.5	54.4	0.380	0.095	0.123	0.32	NonLiqfble.
	17.1 17.19	14 14	10.9 11.2	0.55 0.55	125 125	2023 2034	1825 1831	11.2 11.5	10.8 11.1	5.56 5.40	3.1	67.6 66.4	0.80	44.7 45.8	55.8 57.3	0.381 0.382	0.096 0.097	0.125 0.127	0.33	NonLiqfble. NonLiqfble.
	17.29	14	11	0.54	125	2047	1837	11.2	10.9	5.41	3.1	67.0	0.80	44.9	56.1	0.383	0.096	0.125	0.33	NonLiqfble.
	17.38	14	11.3	0.51	125	2058	1843	11.5	11.1	4.97	3.1	64.7	0.80	46.1	57.6	0.384	0.098	0.127	0.33	NonLiqfble.
	17.47 17.56	14 14	10.9 10.5	0.49 0.47	125 115	2069 2080	1848 1854	11.1 10.7	10.7 10.2	4.97 4.97	3.1	65.8 66.9	0.80	44.4 42.7	55.5 53.4	0.385 0.386	0.096 0.094	0.125 0.122	0.32 0.32	NonLiqfble.
	17.65	14	10.3	0.47	115	2091	1859	10.7	9.6	4.69	3.1	67.2	0.80	40.6	50.7	0.387	0.094	0.122	0.32	NonLiqfble. NonLiqfble.
	17.74	14	9.8	0.38	115	2101	1863	9.9	9.4	4.34	3.1	66.4	0.80	39.7	49.7	0.388	0.091	0.119	0.31	NonLiqfble.
	17.83	14	10.1	0.37	115	2111	1868	10.2	9.7	4.09	3.1	64.5	0.80	40.9	51.1	0.389	0.092	0.120	0.31	NonLiqfble.
	17.92 18.01	14 14	10.2 10.4	0.37 0.39	115 115	2122 2132	1873 1877	10.3 10.5	9.8 9.9	4.05 4.18	3.1	64.1 64.2	0.80	41.3 42.0	51.6 52.5	0.390 0.391	0.093	0.121 0.122	0.31 0.31	NonLiqfble. NonLiqfble.
	18.1	14	10.1	0.39	115	2142	1882	10.2	9.6	4.32	3.1	65.8	0.80	40.7	50.9	0.392	0.092	0.120	0.31	NonLiqfble.
	18.19	14	10.4	0.39	115	2153	1887	10.5	9.9	4.18	3.1	64.4	0.80	41.9	52.4	0.392	0.093	0.121	0.31	NonLiqfble.
	18.29 18.38	14 14	9.9 10.3	0.3 0.37	115 115	2164 2175	1892 1897	10.0 10.3	9.3 9.7	3.40 4.02	3.1	62.1 64.1	0.80	39.8 41.4	49.8 51.7	0.393 0.394	0.091 0.093	0.119 0.121	0.30 0.31	NonLiqfble. NonLiqfble.
	18.47	14	9.7	0.34	115	2185	1902	9.7	9.0	3.95	3.1	65.6	0.80	38.9	48.7	0.395	0.091	0.121	0.30	NonLiqfble.
	18.56	14	8.6	0.31	115	2195	1906	8.6	7.9	4.13	3.2	70.1	0.80	34.5	43.1	0.396	0.087	0.114	0.29	NonLiqfble.
	18.6	14	8.5	0.29	115	2200	1908	8.5	7.8	3.92	3.2	69.5	0.80	34.1	42.6	0.397	0.087	0.113	0.29	NonLiqfble.
	18.7 18.79	14 14	8.4 8.1	0.26 0.26	105 105	2211 2221	1914 1918	8.4 8.1	7.6 7.3	3.56 3.72	3.1	68.2 70.2	0.80	33.6 32.4	42.0 40.5	0.397 0.398	0.087 0.086	0.113 0.112	0.28 0.28	NonLiqfble. NonLiqfble.
	18.89	14	8.3	0.27	105	2231	1922	8.3	7.5	3.76	3.2	69.7	0.80	33.1	41.4	0.399	0.087	0.113	0.28	NonLiqfble.
	18.98	14	10.6	0.33	115	2241	1926	10.6	9.8	3.48	3.0	61.2	0.80	42.3	52.8	0.400	0.094	0.122	0.30	NonLiqfble.
	19.07 19.16	14 14	12.4 13.6	0.41 0.48	115 125	2251 2262	1930 1935	12.3 13.5	11.7 12.9	3.64 3.85	3.0	57.9 56.6	0.80	49.4 54.1	61.7 67.6	0.401 0.402	0.102 0.109	0.132 0.141	0.33	NonLiqfble. NonLiqfble.
	19.16	14	14.9	0.46	125	2273	1933	14.8	14.2	3.92	2.9	54.8	0.80	59.2	74.0	0.402	0.109	0.141	0.33	NonLiqfble.
	19.35	14	15.1	0.6	125	2285	1947	15.0	14.3	4.30	3.0	56.1	0.80	59.9	74.9	0.404	0.119	0.155	0.38	NonLiqfble.
	19.44	14	14	0.6	125	2297	1953	13.9	13.2	4.67	3.0	59.6	0.80	55.4	69.3	0.405	0.111	0.144	0.36	NonLiqfble.
	19.53 19.62	14 14	12.4 11.5	0.58 0.56	125 125	2308 2319	1958 1964	12.3 11.4	11.5 10.5	5.16 5.42	3.1	64.7 67.8	0.80	49.0 45.4	61.3 56.8	0.405 0.406	0.101 0.097	0.132 0.126	0.33	NonLiqfble. NonLiqfble.
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Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 33

Depth to Groundwater: 14 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 PGA (g): 0.54 MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
Como	Depth	Table	Resist.	Frict.	g (DCE)	Stress	Stress	Tip	Tip	Ratio F	Lo	F.C. (%)	Ксрт	Dqein	(Qc1N)cs	Stress	Stress M7.5	Stress	of Cofoty	Commonto
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> e1N	Q	r	Ic	(%)	Keri	Dyein	( <b>q</b> cin)es	Ratio	M17.5	M6.50	Safety	Comments
	19.72	14	11	0.51	125	2332	1970	10.8	10.0	5.19	3.1	68.3	0.80	43.4	54.2	0.407	0.095	0.123	0.30	NonLiqfble.
	19.81	14	9.8	0.44	115	2343	1976	9.6	8.7	5.10	3.2	71.4	0.80	38.6	48.2	0.408	0.090	0.118	0.29	NonLiqfble.
	19.9 19.99	14 14	9.1 8.4	0.36 0.31	115 115	2353 2363	1981 1985	8.9 8.2	8.0 7.3	4.54 4.29	3.2 3.2	71.5 73.0	0.80	35.8 33.0	44.7 41.2	0.409 0.409	0.088 0.087	0.115 0.112	0.28 0.27	NonLiqfble. NonLiqfble.
	20.08	14	8	0.27	105	2374	1990	7.8	6.8	3.96	3.2	73.1	0.80	31.4	39.2	0.402	0.086	0.112	0.28	NonLiqfble.
	20.18	14	7.9	0.21	105	2384	1994	7.7	6.7	3.13	3.2	69.2	0.80	31.0	38.7	0.403	0.085	0.111	0.28	NonLiqfble.
	20.27 20.36	14 14	7.6 7.4	0.17 0.15	105 95	2394 2403	1998 2002	7.4 7.2	6.4 6.2	2.66 2.42	3.1	67.7 67.1	0.80	29.8 28.9	37.2 36.2	0.404 0.404	0.085 0.084	0.110 0.110	0.27 0.27	NonLiqfble. NonLiqfble.
	20.45	14	7.5	0.15	105	2412	2002	7.3	6.3	2.54	3.1	67.5	0.80	29.3	36.6	0.404	0.085	0.110	0.27	NonLiqfble.
	20.54	14	6.9	0.16	105	2421	2009	6.7	5.7	2.81	3.2	72.1	0.80	26.9	33.7	0.406	0.084	0.109	0.27	NonLiqfble.
	20.64	14	7	0.16	105	2432	2013	6.8	5.7	2.77	3.2	71.4	0.80	27.3	34.1	0.407	0.084	0.109	0.27	NonLiqfble.
	20.73 20.82	14 14	7.1 7.2	0.18 0.19	105 105	2441 2451	2017 2021	6.9 7.0	5.8 5.9	3.06 3.18	3.2 3.2	72.8 73.1	0.80	27.7 28.0	34.6 35.0	0.408 0.409	0.084 0.084	0.109 0.109	0.27 0.27	NonLiqfble. NonLiqfble.
	20.91	14	7.3	0.2	105	2460	2024	7.1	6.0	3.30	3.2	73.3	0.80	28.4	35.5	0.409	0.084	0.109	0.27	NonLiqfble.
	21	14	7.3	0.22	105	2470	2028	7.1	6.0	3.63	3.2	75.2	0.80	28.4	35.5	0.410	0.084	0.109	0.27	NonLiqfble.
	21.09	14	7.5 7	0.23 0.23	105 105	2479 2488	2032 2036	7.3 6.8	6.2 5.7	3.67	3.2	74.6 78.7	0.80	29.1	36.4 33.9	0.411	0.084	0.110	0.27	NonLiqfble.
	21.18 21.27	14 14	7.4	0.23	105	2498	2040	7.2	6.0	4.00 3.90	3.3 3.2	76.4	0.80	27.2 28.7	35.8	0.412 0.413	0.084 0.084	0.109 0.110	0.26 0.27	NonLiqfble. NonLiqfble.
	21.36	14	6.9	0.24	105	2507	2044	6.7	5.5	4.25	3.3	80.7	0.80	26.7	33.4	0.413	0.083	0.109	0.26	NonLiqfble.
	21.45	14	7.4	0.25	105	2517	2048	7.2	6.0	4.07	3.3	77.4	0.80	28.6	35.8	0.414	0.084	0.110	0.26	NonLiqfble.
	21.55 21.64	14 14	7.6 7.8	0.24 0.24	105 105	2527 2537	2052 2056	7.3 7.5	6.2 6.4	3.79 3.67	3.2 3.2	75.1 73.7	0.80 0.80	29.4 30.1	36.7 37.6	0.415 0.416	0.085 0.085	0.110 0.110	0.26 0.27	NonLiqfble. NonLiqfble.
	21.73	14	7.8	0.23	105	2546	2059	7.5	6.3	3.52	3.2	73.0	0.80	30.1	37.6	0.417	0.085	0.110	0.27	NonLiqfble.
	21.82	14	8.1	0.24	105	2556	2063	7.8	6.6	3.52	3.2	71.8	0.80	31.2	39.0	0.417	0.086	0.111	0.27	NonLiqfble.
	22.05 22.14	14	8.6 9.3	0.25 0.25	105 105	2580 2589	2073 2077	8.3 8.9	7.0 7.7	3.42 3.12	3.2	69.5 65.5	0.80	33.1 35.7	41.3 44.6	0.419 0.420	0.087 0.088	0.113 0.115	0.27 0.27	NonLiqfble.
	22.23	14 14	9.2	0.23	105	2599	2081	8.8	7.6	2.91	3.1	64.7	0.80	35.3	44.1	0.420	0.088	0.113	0.27	NonLiqfble. NonLiqfble.
	22.32	14	8.8	0.22	105	2608	2085	8.4	7.2	2.94	3.1	66.3	0.80	33.7	42.2	0.422	0.087	0.113	0.27	NonLiqfble.
	22.42	14	9.2	0.2	105	2619	2089	8.8	7.6	2.53	3.1	62.5	0.80	35.2	44.0	0.422	0.088	0.114	0.27	NonLiqfble.
	22.51 22.6	14 14	8.7 9	0.19 0.17	105 105	2628 2638	2093 2096	8.3 8.6	7.1 7.3	2.57 2.21	3.1	64.5 61.2	0.80 0.80	33.3 34.4	41.6 43.0	0.423 0.424	0.087 0.087	0.113 0.114	0.27 0.27	NonLiqfble. NonLiqfble.
	22.69	14	8.7	0.15	105	2647	2100	8.3	7.0	2.03	3.0	61.0	0.80	33.2	41.5	0.425	0.087	0.113	0.27	NonLiqfble.
	22.78	14	9.2	0.16	105	2656	2104	8.8	7.5	2.03	3.0	59.3	0.80	35.1	43.9	0.425	0.088	0.114	0.27	NonLiqfble.
	22.87 22.97	14 14	9	0.14 0.13	95 95	2666 2675	2108 2111	8.6	7.3	1.83	3.0	58.5	0.80	34.3 30.5	42.9	0.426	0.087	0.114 0.111	0.27	NonLiqfble.
	23.06	14	7.4	0.13	95	2684	2111	7.6 7.0	6.3 5.7	1.95 1.65	3.1	63.2	0.80	28.2	38.1 35.2	0.427 0.428	0.085 0.084	0.111	0.26 0.26	NonLiqfble. NonLiqfble.
	23.15	14	6.5	0.11	95	2692	2117	6.2	4.9	2.13	3.2	71.8	0.80	24.7	30.9	0.429	0.083	0.108	0.25	NonLiqfble.
	23.24	14	6.5	0.1	95	2701	2120	6.2	4.9	1.94	3.2	70.4	0.80	24.7	30.9	0.429	0.083	0.108	0.25	NonLiqfble.
	23.34 23.43	14 14	6.4 6.6	0.09	95 95	2711 2719	2123 2126	6.1 6.3	4.7 4.9	1.78 1.53	3.2	69.7 66.4	0.80 0.80	24.3 25.1	30.4 31.3	0.430 0.431	0.083	0.107 0.108	0.25 0.25	NonLiqfble. NonLiqfble.
	23.52	14	6.1	0.08	95	2728	2129	5.8	4.4	1.69	3.2	70.8	0.80	23.1	28.9	0.432	0.082	0.107	0.25	NonLiqfble.
	23.61	14	6	0.07	95	2736	2132	5.7	4.3	1.51	3.2	69.9	0.80	22.7	28.4	0.432	0.082	0.107	0.25	NonLiqfble.
	23.71 23.8	14 14	6.1 6.3	0.07 0.06	95 88	2746 2754	2135 2138	5.8 6.0	4.4 4.6	1.48 1.22	3.1	69.0 65.2	0.80 0.80	23.1 23.8	28.9 29.8	0.433 0.434	0.082 0.082	0.107 0.107	0.25 0.25	NonLiqfble. NonLiqfble.
	23.89	14	6.5	0.06	88	2762	2141	5.7	4.3	1.30	3.1	67.9	0.80	22.7	28.4	0.434	0.082	0.107	0.25	NonLiqfble.
	23.98	14	6.4	0.09	95	2770	2143	6.0	4.7	1.79	3.2	70.2	0.80	24.2	30.2	0.436	0.083	0.107	0.25	NonLiqfble.
	24.07	14	6.8	0.11	95	2779	2146	6.4	5.0	2.03	3.2	70.0	0.80	25.7	32.1	0.436	0.083	0.108	0.25	NonLiqfble.
	24.16 24.25	14 14	8.2 9.9	0.15 0.18	105 105	2787 2797	2149 2153	7.7 9.3	6.3 7.9	2.20 2.12	3.1	64.9 58.6	0.80 0.80	31.0 37.3	38.7 46.7	0.437 0.438	0.085 0.089	0.111 0.116	0.25 0.27	NonLiqfble. NonLiqfble.
	24.34	14	11.4	0.22	105	2806	2156	10.7	9.3	2.20	3.0	55.2	0.80	43.0	53.7	0.438	0.094	0.123	0.28	NonLiqfble.
	24.43	14	15.4	0.23	105	2815	2160	14.5	12.9	1.64	2.8	43.8	0.80	58.0	72.5	0.439	0.115	0.150	0.34	NonLiqfble.
	24.52 24.62	14 14	16.6 14.4	0.24	115 115	2825 2836	2164 2169	15.6 13.5	14.0 12.0	1.58 2.31	2.7 2.9	41.6 50.1	0.80 0.80	62.5 54.1	78.1 67.6	0.440 0.441	0.124 0.109	0.162 0.141	0.37 0.32	NonLiqfble. NonLiqfble.
	24.71	14	16.1	0.36	125	2847	2174	15.1	13.5	2.45	2.8	48.3	0.80	60.4	75.5	0.441	0.120	0.156	0.35	NonLiqfble.
	24.8	14	19.9	0.34	125	2858	2180	18.6	16.9	1.84	2.7	39.8	0.80	74.6	93.2	0.442	0.155	0.202	0.46	NonLiqfble.
	24.89 24.98	14 14	20.1 21	0.42 0.47	125 125	2869 2881	2185 2191	18.8 19.6	17.1 17.8	2.25 2.40	2.7 2.7	42.3 42.4	0.80 0.80	75.3 78.5	94.1 98.1	0.442 0.443	0.157 0.168	0.205 0.218	0.46 0.49	NonLiqfble. NonLiqfble.
	25.07	14	24.5	0.47	125	2892	2197	22.9	21.0	2.40	2.7	38.2	0.80	91.5	114.4	0.444	0.108	0.218	0.49	NonLiqfble.
	25.16	14	27.9	0.55	125	2903	2202	26.0	24.0	2.08	2.6	35.1	0.80	104.1	130.1	0.444	0.285	0.370	0.83	Liquefaction
	25.35	14	25.5	0.47	125	2927	2214	23.7	21.7	1.96	2.6	36.1	0.80	94.8	118.6	0.445	0.235	0.305	0.69	NonLiqfble.
	25.44 25.53	14 14	23.9 20.3	0.34 0.26	125 115	2938 2949	2220 2225	22.2 18.8	20.2 16.9	1.52 1.38	2.6 2.6	34.3 36.5	0.78 0.80	79.8 75.3	102.0 94.1	0.446 0.447	0.179 0.158	0.232 0.205	0.52 0.46	Liquefaction NonLiqfble.
	25.62	14	14.3	0.17	105	2960	2230	13.2	11.5	1.33	2.8	43.6	0.80	53.0	66.2	0.447	0.107	0.139	0.31	NonLiqfble.
	25.71	14	10.2	0.12	95	2969	2234	9.4	7.8	1.38	2.9	52.9	0.80	37.8	47.2	0.448	0.090	0.117	0.26	NonLiqfble.
	25.81 25.9	14 14	8.1 7.1	0.1 0.09	95 95	2979 2987	2237 2240	7.5 6.6	5.9 5.0	1.51 1.61	3.0	61.2 66.6	0.80 0.80	30.0 26.3	37.5 32.8	0.449 0.449	0.085 0.083	0.110 0.108	0.25 0.24	NonLiqfble. NonLiqfble.
	25.99	14	7.1	0.09	95	2987	2240	6.5	4.9	1.61	3.1	65.8	0.80	25.9	32.8	0.449	0.083	0.108	0.24	NonLiqfble. NonLiqfble.
	26.08	14	6.8	0.08	95	3004	2246	6.3	4.7	1.51	3.1	67.5	0.80	25.1	31.4	0.451	0.083	0.108	0.24	NonLiqfble.
	26.17 26.27	14	7.6 g 1	0.1	95 95	3013 3022	2249 2252	7.0	5.4	1.64	3.1	64.7	0.80	28.0	35.1	0.451	0.084	0.109	0.24	NonLiqfble.
	26.27	14 14	8.1 8.2	0.1 0.11	95 95	3022	2252	7.5 7.6	5.8 5.9	1.52 1.65	3.0	61.5 62.3	0.80	29.9 30.2	37.3 37.8	0.452 0.453	0.085 0.085	0.110 0.111	0.24 0.24	NonLiqfble. NonLiqfble.
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Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard Project Number: 6600.3.001.01

Date: September 2005 CPT Number: 33

Depth to Groundwater: 14 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 PGA (g): 0.54 MSF: 1.30 0.54

		Water	Tip	Sleeve		Total	Effective	Norm	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> e1N	Q	F	Ic	(%)	Ксрт	Dq <sub>e1N</sub>	( <b>q</b> e1N)es	Ratio	M7.5	M6.50	Safety	Comments
	26.45	14	8.6	0.11	95	3039	2258	7.9	6.3	1.55	3.0	60.0	0.80	31.7	39.6	0.454	0.086	0.112	0.25	NonLiqfble.
	26.54	14	9.1	0.12	95	3048	2261	8.4	6.7	1.58	3.0	58.6	0.80	33.5	41.9	0.454	0.087	0.113	0.25	NonLiqfble.
	26.64	14	9.5	0.15	105	3057	2264	8.7	7.0	1.88	3.0	59.7	0.80	34.9	43.7	0.455	0.088	0.114	0.25	NonLiqfble.
	26.73 26.82	14 14	10.8 10.2	0.15 0.13	105 95	3067 3076	2268 2272	9.9 9.4	8.2 7.6	1.62 1.50	2.9 2.9	53.9 54.6	0.80 0.80	39.7 37.5	49.6 46.8	0.456 0.456	0.091 0.090	0.119 0.116	0.26 0.26	NonLiqfble. NonLiqfble.
	26.91	14	10.5	0.14	95	3085	2275	9.6	7.9	1.56	2.9	54.3	0.80	38.5	48.2	0.457	0.090	0.118	0.26	NonLiqfble.
	27	14	10.8	0.15	105	3093	2278	9.9	8.1	1.62	2.9	54.1	0.80	39.6	49.5	0.458	0.091	0.119	0.26	NonLiqfble.
	27.09	14	11.1	0.16	105	3103	2282	10.2	8.4	1.68	2.9	53.8	0.80	40.7	50.8	0.458	0.092	0.120	0.26	NonLiqfble.
	27.18 27.27	14 14	10.7 9.7	0.16 0.17	105 105	3112 3122	2286 2289	9.8 8.9	8.0 7.1	1.75 2.09	3.0	55.5 61.1	0.80 0.80	39.2 35.5	49.0 44.4	0.459 0.459	0.091 0.088	0.118 0.115	0.26 0.25	NonLiqfble. NonLiqfble.
	27.37	14	9.8	0.17	105	3132	2294	9.0	7.2	2.06	3.0	60.6	0.80	35.8	44.8	0.460	0.088	0.115	0.25	NonLiqfble.
	27.46	14	9.8	0.16	105	3142	2297	8.9	7.2	1.94	3.0	59.8	0.80	35.8	44.7	0.461	0.088	0.115	0.25	NonLiqfble.
	27.55 27.64	14 14	9.8 10.5	0.15 0.15	105 105	3151 3161	2301 2305	8.9 9.6	7.1 7.7	1.82 1.68	3.0	58.9 55.8	0.80 0.80	35.8 38.3	44.7 47.8	0.461 0.462	0.088	0.115 0.117	0.25 0.25	NonLiqfble. NonLiqfble.
	27.73	14	11.3	0.13	105	3170	2309	10.3	8.4	1.75	2.9	54.3	0.80	41.2	51.4	0.463	0.093	0.117	0.26	NonLiqfble.
	27.82	14	11.9	0.19	105	3180	2313	10.8	8.9	1.84	2.9	53.6	0.80	43.3	54.1	0.463	0.095	0.123	0.27	NonLiqfble.
	27.91	14	13.6	0.2	105	3189	2317	12.4	10.4	1.67	2.8	48.7	0.80	49.5	61.8	0.464	0.102	0.133	0.29	NonLiqfble.
	28 28.09	14 14	13 12.6	0.22 0.21	105 105	3198 3208	2320 2324	11.8 11.4	9.8 9.5	1.93 1.91	2.9 2.9	52.0 52.7	0.80 0.80	47.2 45.7	59.0 57.2	0.464 0.465	0.099 0.097	0.129 0.127	0.28 0.27	NonLiqfble. NonLiqfble.
	28.18	14	11.8	0.2	105	3217	2328	10.7	8.8	1.96	2.9	54.9	0.80	42.8	53.5	0.466	0.094	0.123	0.26	NonLiqfble.
	28.27	14	11.2	0.2	105	3227	2332	10.1	8.2	2.09	3.0	57.4	0.80	40.6	50.7	0.466	0.092	0.120	0.26	NonLiqfble.
	28.36 28.45	14 14	11 11.1	0.21 0.22	105 105	3236 3246	2336 2340	10.0 10.0	8.0 8.1	2.24 2.32	3.0	59.0 59.3	0.80 0.80	39.8 40.2	49.8 50.2	0.467 0.467	0.091 0.092	0.119 0.119	0.25 0.26	NonLiqfble. NonLiqfble.
	28.51	14	11.5	0.22	105	3252	2340	10.4	8.4	2.32	3.0	58.4	0.80	41.6	52.0	0.468	0.092	0.119	0.26	NonLiqfble.
	28.58	14	11.9	0.23	105	3259	2345	10.8	8.8	2.24	3.0	56.9	0.80	43.0	53.8	0.468	0.094	0.123	0.26	NonLiqfble.
	28.67	14	12	0.23	105	3269	2349	10.8	8.8	2.22	3.0	56.5	0.80	43.3	54.2	0.469	0.095	0.123	0.26	NonLiqfble.
	28.76 28.85	14 14	12.5 13.1	0.22 0.24	105 115	3278 3288	2353 2357	11.3 11.8	9.2 9.7	2.03 2.10	2.9 2.9	54.1 53.4	0.80 0.80	45.1 47.2	56.4 59.0	0.469 0.470	0.097 0.099	0.126 0.129	0.27 0.27	NonLiqfble. NonLiqfble.
	28.94	14	14.1	0.26	115	3298	2361	12.7	10.5	2.09	2.9	51.5	0.80	50.8	63.5	0.471	0.104	0.135	0.29	NonLiqfble.
	29.03	14	15.1	0.26	115	3308	2366	13.6	11.4	1.93	2.8	48.7	0.80	54.3	67.9	0.471	0.109	0.142	0.30	NonLiqfble.
	29.13 29.22	14 14	15.2 15.4	0.26 0.25	115 115	3320 3330	2371 2376	13.7 13.8	11.4 11.6	1.92 1.82	2.8 2.8	48.5 47.5	0.80 0.80	54.6 55.3	68.3 69.1	0.472 0.472	0.110 0.111	0.142 0.144	0.30	NonLiqfble. NonLiqfble.
	29.31	14	15.4	0.25	115	3341	2370	13.6	11.4	1.85	2.8	48.1	0.80	54.5	68.1	0.472	0.111	0.144	0.30	NonLiqfble.
	29.4	14	15.3	0.28	115	3351	2386	13.7	11.4	2.06	2.9	49.4	0.80	54.8	68.5	0.473	0.110	0.143	0.30	NonLiqfble.
	29.49	14	14.9	0.27	115	3361	2390	13.3	11.1	2.04	2.9	50.1	0.80	53.3	66.7	0.474	0.108	0.140	0.30	NonLiqfble.
	29.58 29.68	14 14	15.1 14.6	0.25 0.27	115 115	3372 3383	2395 2400	13.5 13.0	11.2 10.8	1.86 2.09	2.8 2.9	48.5 51.0	0.80 0.80	54.0 52.2	67.5 65.2	0.474 0.475	0.109 0.106	0.141 0.137	0.30 0.29	NonLiqfble. NonLiqfble.
	29.77	14	14.2	0.29	115	3393	2405	12.7	10.4	2.32	2.9	53.3	0.80	50.7	63.3	0.475	0.104	0.135	0.28	NonLiqfble.
	29.86	14	14.9	0.35	115	3404	2410	13.3	10.9	2.65	2.9	54.2	0.80	53.1	66.4	0.476	0.107	0.139	0.29	NonLiqfble.
	29.95 30.05	14 14	17 16.7	0.39 0.45	125 125	3414 3427	2415 2421	15.1 14.9	12.7 12.4	2.55 3.00	2.9 2.9	50.3 53.3	0.80 0.80	60.5 59.4	75.7 74.3	0.476 0.457	0.120 0.118	0.156 0.153	0.33	NonLiqfble. NonLiqfble.
	30.03	14	21.2	0.43	125	3438	2421	18.8	16.1	2.72	2.8	46.3	0.80	75.3	94.2	0.457	0.118	0.133	0.34	NonLiqfble.
	30.23	14	28.1	0.61	125	3449	2432	24.9	21.7	2.31	2.7	38.2	0.80	99.7	124.7	0.458	0.260	0.338	0.74	NonLiqfble.
	30.32	14	32.6	0.71	125	3460	2438	28.9	25.3	2.30	2.6	35.5	0.80	115.6	144.4	0.458	0.360	0.468	1.02	NonLiqfble.
	30.41 30.5	14 14	33.3 34.8	0.73 0.73	135 135	3472 3484	2443 2450	29.5 30.8	25.8 27.0	2.31 2.21	2.6 2.6	35.2 33.9	0.80 0.77	117.9 104.0	147.4 134.7	0.459 0.459	0.378	0.491 0.400	1.07 0.87	Low F.S. Liquefaction
	30.59	14	40	0.74	135	3496	2456	35.3	31.1	1.93	2.5	30.0	0.67	71.2	106.5	0.460	0.192	0.250	0.54	Liquefaction
	30.68	14	44.1	0.75	135	3508	2463	38.9	34.4	1.77	2.4	27.6	0.60	59.0	97.8	0.460	0.167	0.217	0.47	Liquefaction
	30.77 30.86	14 14	51.7 61.1	0.76 0.75	125 125	3520 3532	2469 2475	45.5 53.7	40.4 47.9	1.52 1.26	2.3 2.2	23.7 19.8	0.50 0.40	45.5 35.2	91.1 89.0	0.460 0.461	0.150 0.145	0.195 0.189	0.42 0.41	Liquefaction Liquefaction
	30.94	14	67.7	0.73	125	3542	2480	59.5	53.1	0.94	2.1	16.2	0.30	25.5	84.9	0.461	0.143	0.178	0.41	Liquefaction
	31.03	14	72.8	0.54	115	3553	2486	63.9	57.1	0.76	2.0	14.0	0.24	20.1	84.0	0.462	0.135	0.176	0.38	Liquefaction
	31.12	14	75.8	0.48	105	3563	2490	66.5	59.4	0.65	2.0	12.6	0.20	16.8	83.3	0.462	0.134	0.174	0.38	Liquefaction
	31.21 31.3	14 14	74.7 74.9	0.48 0.49	115 115	3573 3583	2494 2499	65.4 65.6	58.4 58.5	0.66 0.67	2.0 2.0	12.8 12.9	0.21 0.21	17.2 17.6	82.7 83.1	0.463 0.463	0.133 0.133	0.172 0.173	0.37 0.37	Liquefaction Liquefaction
	31.39	14	73.9	0.48	115	3593	2504	64.6	57.6	0.67	2.0	13.0	0.21	17.6	82.3	0.463	0.132	0.171	0.37	Liquefaction
	31.48	14	72.1	0.53	115	3604	2509	63.0	56.0	0.75	2.0	14.1	0.24	20.2	83.2	0.464	0.134	0.174	0.37	Liquefaction
	31.57	14 14	69.9 68.1	0.56 0.59	115	3614 3624	2513 2518	61.0 59.4	54.2 52.6	0.82	2.1 2.1	15.0 15.9	0.27 0.29	22.4 24.4	83.4 83.8	0.464 0.465	0.134 0.135	0.174 0.175	0.37 0.38	Liquefaction
	31.66 31.75	14	69.1	0.59	115 125	3635	2523	60.2	53.3	0.89 0.98	2.1	16.5	0.29	26.7	85.8 86.9	0.465	0.133	0.175	0.38	Liquefaction Liquefaction
	31.98	14	67.2	0.81	125	3663	2537	58.4	51.5	1.24	2.2	18.8	0.37	34.1	92.5	0.466	0.153	0.200	0.43	Liquefaction
	32.07	14	65.3	0.93	125	3675	2543	56.7	49.9	1.47	2.2	20.7	0.42	40.9	97.6	0.467	0.166	0.216	0.46	Liquefaction
	32.15 32.24	14 14	64.1 61.8	1.03 1.03	135 135	3685 3697	2548 2554	55.6 53.5	48.9 46.9	1.65 1.72	2.3 2.3	22.1 23.0	0.46 0.48	46.9 49.6	102.4 103.1	0.467 0.467	0.180 0.182	0.234 0.237	0.50 0.51	Liquefaction Liquefaction
	32.24	14	66.5	1.03	135	3709	2561	55.5 57.5	50.5	1.72	2.3	21.2	0.48	43.7	103.1	0.467	0.182	0.237	0.51	Liqueraction Liquefaction
	32.42	14	79.5	0.95	125	3721	2567	68.6	60.5	1.22	2.1	16.9	0.32	32.0	100.7	0.468	0.175	0.227	0.49	Liquefaction
	32.5	14	88.2	0.78	125	3731	2572	76.1	67.1	0.90	2.0	13.5	0.23	22.4	98.5	0.468	0.169	0.219	0.47	Liquefaction
	32.59 32.68	14 14	86.8 84	0.65 0.61	115 115	3742 3753	2578 2583	74.8 72.3	65.9 63.6	0.77 0.74	2.0	12.6 12.7	0.20 0.21	19.0 18.8	93.8 91.1	0.469 0.469	0.157 0.150	0.204 0.196	0.43 0.42	Liquefaction Liquefaction
	32.77	14	76.7	0.53	115	3763	2587	66.0	57.8	0.74	2.0	13.4	0.21	19.0	85.0	0.470	0.130	0.178	0.42	Liquefaction
	32.86	14	70.6	0.53	115		2592	60.7	53.0	0.77	2.1	14.8	0.26	21.6	82.3	0.470	0.132	0.171	0.36	Liquefaction

Depth to Groundwater: 14 feet

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 33 tude (M<sub>w</sub>): 6.5 PGA (g): 0.54 MSF: 1.30 EQ Magnitude (M<sub>w</sub>):

	Depth	Water Table	Tip Resist.	Sleeve Frict.	g	Total Stress	Effective Stress	Norm. Tip	Corr. Tip	Friction Ratio		F.C.				Induced Stress	Liquef. Stress	Liquef. Stress	Factor of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	q <sub>c1N</sub>	Q	F	Ic	(%)	Ксрт	Dqc1N	(q <sub>e1N</sub> ) <sub>es</sub>	Ratio	M7.5	M6.50	Safety	Comments
	32.94	14	61.4	0.61	125	3783	2596	52.7	45.8	1.03	2.2	18.6	0.36	30.0	82.8	0.470	0.133	0.173	0.37	Liquefaction
	33.03	14	52.9	0.71	125	3794	2602	45.4	39.2	1.39	2.3	23.3	0.49	43.2	88.6	0.471	0.145	0.188	0.40	Liquefaction
	33.12 33.21	14 14	46.2 45.6	0.6 0.57	125 125	3805 3816	2608 2613	39.6 39.0	34.0 33.4	1.35 1.30	2.4 2.4	25.0 24.8	0.53 0.53	45.2 43.8	84.7 82.9	0.471 0.472	0.137 0.133	0.178 0.173	0.38	Liquefaction Liquefaction
	33.29	14	57.3	0.67	125	3826	2618	49.0	42.3	1.21	2.3	21.0	0.43	36.5	85.5	0.472	0.138	0.179	0.38	Liquefaction
	33.38 33.47	14 14	62.3 67.1	0.73 0.84	125 125	3838 3849	2624 2630	53.2 57.3	46.0 49.5	1.21 1.29	2.2	19.9 19.6	0.40 0.39	35.3 36.6	88.5 93.9	0.472 0.473	0.144	0.188	0.40 0.43	Liquefaction
	33.55	14	52.5	0.78	125	3859	2635	44.8	38.4	1.54	2.2 2.4	24.6	0.59	48.9	93.9	0.473	0.157 0.156	0.204 0.203	0.43	Liquefaction Liquefaction
	33.64	14	50.6	0.67	125	3870	2640	43.1	36.8	1.38	2.3	24.0	0.51	44.3	87.4	0.473	0.142	0.185	0.39	Liquefaction
	33.73 33.81	14 14	42.4 41.4	0.56 0.56	125 125	3881 3891	2646	36.1 35.2	30.6 29.8	1.38 1.42	2.4 2.4	26.7 27.3	0.58	49.6 52.0	85.7 87.2	0.474 0.474	0.138	0.180	0.38	Liquefaction Liquefaction
	33.9	14	41.4	0.36	125	3903	2651 2657	35.1	29.8	1.42	2.4	26.0	0.60 0.56	45.1	80.2	0.474	0.142 0.128	0.184 0.166	0.39	Liquefaction
	33.98	14	41.7	0.48	125	3913	2662	35.4	29.9	1.21	2.4	25.7	0.55	43.7	79.0	0.475	0.126	0.164	0.34	Liquefaction
	34.07	14	42.8	0.48	125 115	3924 3935	2667	36.3 39.0	30.6	1.18	2.4	25.1 22.9	0.54	41.9	78.1	0.475	0.124	0.162	0.34	Liquefaction
	34.16 34.24	14 14	46.1 45.3	0.46 0.49	125	3944	2673 2677	38.3	33.0 32.4	1.04 1.13	2.3	23.9	0.48 0.51	35.8 39.2	74.8 77.5	0.475 0.476	0.119 0.123	0.155 0.160	0.33 0.34	Liquefaction Liquefaction
	34.33	14	42.2	0.56	125	3956	2683	35.6	30.0	1.39	2.4	27.0	0.59	50.9	86.6	0.476	0.140	0.182	0.38	Liquefaction
	34.42 34.5	14 14	41.7 47.3	0.65 0.74	125 125	3967 3977	2688 2693	35.2 39.9	29.5 33.6	1.64 1.63	2.5 2.4	29.0 27.0	0.64 0.59	62.5 56.8	97.6 96.7	0.477 0.477	0.167 0.164	0.217 0.213	0.45 0.45	Liquefaction
	34.59	14	62.6	0.74	125	3988	2699	52.7	44.9	1.37	2.4	21.4	0.39	40.9	93.6	0.477	0.164	0.213	0.43	Liquefaction Liquefaction
	34.67	14	76.6	0.84	125	3998	2704	64.5	55.2	1.13	2.1	17.2	0.33	31.2	95.7	0.477	0.161	0.210	0.44	Liquefaction
	34.76	14 14	87.8 99.2	0.81 0.79	125	4009	2710	73.8	63.3	0.94	2.1	14.4 12.2	0.25	24.8 19.8	98.6	0.478	0.169	0.220	0.46	Liquefaction Liquefaction
	34.84 34.93	14	119.5	0.79	115 125	4019 4030	2715 2719	83.3 100.3	71.6 86.4	0.81 0.85	1.9	10.8	0.19 0.15	18.4	103.1 118.7	0.478 0.479	0.182 0.235	0.236 0.306	0.49 0.64	Liquefaction
	35.02	14	106.2	0.93	125	4041	2725	89.0	76.4	0.89	2.0	12.2	0.19	21.2	110.2	0.479	0.204	0.266	0.56	Liquefaction
	35.06	14	106.8	0.92	125	4046	2727	89.5	76.8	0.88	2.0	12.0	0.19	20.7	110.2	0.479	0.204	0.266	0.55	Liquefaction
	35.11 35.2	14 14	107.3 106.3	0.88 0.74	115 115	4052 4063	2731 2735	89.8 88.9	77.1 76.2	0.84 0.71	2.0 1.9	11.7 10.8	0.18 0.15	19.5 16.2	109.4 105.1	0.479 0.480	0.202 0.188	0.262 0.244	0.55 0.51	Liquefaction Liquefaction
	35.29	14	110.8	0.69	115	4073	2740	92.6	79.4	0.63	1.9	9.8	0.13	13.5	106.1	0.480	0.191	0.249	0.52	Liquefaction
	35.37	14	113.3	0.69	115	4082	2744	94.6	81.1	0.62	1.9	9.5	0.12	12.8	107.5	0.480	0.195	0.254	0.53	Liquefaction
	35.46 35.55	14 14	114.5 113.8	0.67 0.62	115 105	4092 4103	2749 2754	95.6 94.9	81.8 81.1	0.60 0.55	1.8 1.8	9.2 8.9	0.11 0.10	12.0 11.0	107.6 105.8	0.481 0.481	0.196 0.190	0.254 0.247	0.53 0.51	Liquefaction Liquefaction
	35.63	14	111.1	0.61	105	4111	2757	92.6	79.1	0.56	1.8	9.1	0.11	11.5	104.1	0.482	0.185	0.240	0.50	Liquefaction
	35.72	14	109.3	0.6	105	4121	2761	91.0	77.7	0.56	1.9	9.3	0.11	11.8	102.8	0.482	0.181	0.235	0.49	Liquefaction
	35.81 35.89	14 14	108 105.9	0.54 0.44	105 105	4130 4138	2765 2768	89.9 88.1	76.6 75.0	0.51 0.42	1.8 1.8	8.9 8.3	0.10	10.5 8.4	100.4 96.4	0.482 0.483	0.174 0.163	0.226 0.212	0.47 0.44	Liquefaction Liquefaction
	35.98	14	99.4	0.36	95	4148	2772	82.6	70.2	0.37	1.8	8.2	0.09	7.8	90.4	0.483	0.149	0.193	0.40	Liquefaction
	36.06	14	80.6	0.34	95	4156	2775	66.9	56.6	0.43	1.9	10.9	0.16	12.4	79.4	0.484	0.126	0.164	0.34	Liquefaction
	36.15 36.24	14 14	64.1 52.6	0.34	105 115	4164 4174	2778 2781	53.2 43.6	44.6 36.3	0.55 0.79	2.1	14.6 19.4	0.26 0.39	18.2 27.4	71.4 71.1	0.484 0.485	0.114 0.113	0.148 0.147	0.31 0.30	Liquefaction Liquefaction
	36.33	14	47	0.45	115	4184	2786	39.0	32.2	1.00	2.3	22.9	0.48	35.7	74.7	0.485	0.119	0.154	0.32	Liquefaction
	36.42	14	46.6	0.4	115	4194	2791	38.6	31.9	0.90	2.3	22.2	0.46	32.6	71.2	0.485	0.114	0.148	0.30	Liquefaction
	36.5 36.59	14 14	52.8 67.9	0.4 0.48	115 115	4203 4214	2795 2800	43.7 56.1	36.3 47.0	0.79 0.73	2.2	19.4 15.8	0.39	27.4 22.7	71.1 78.8	0.486 0.486	0.113 0.126	0.147 0.163	0.30 0.34	Liquefaction Liquefaction
	36.68	14	71.2	0.53	115	4224	2805	58.8	49.2	0.77	2.1	15.6	0.28	23.2	82.0	0.486	0.131	0.171	0.35	Liquefaction
	36.76	14	73.2	0.56	115	4233	2809	60.4	50.6	0.79	2.1	15.5	0.28	23.5	83.9	0.487	0.135	0.175	0.36	Liquefaction
	36.85 36.93	14 14	82.7 94.5	0.56 0.63	115 115	4244 4253	2813 2818	68.2 77.9	57.3 65.5	0.69 0.68	2.0	13.4 11.9	0.22 0.18	19.6 17.6	87.8 95.5	0.487 0.487	0.143 0.161	0.186 0.209	0.38	Liquefaction Liquefaction
	37.02	14	105.7	0.86	115	4263	2822	87.1	73.4	0.83	2.0	12.1	0.19	20.3	107.4	0.488	0.195	0.254	0.52	Liquefaction
	37.1	14 14	104.5	0.87	115	4272	2827	86.0	72.4	0.85	2.0	12.4	0.20	21.1	107.1	0.488	0.194	0.252	0.52	Liquefaction
	37.19 37.27	14	104 95.3	0.87 0.82	115 125	4283 4292	2831 2836	85.5 78.3	71.9 65.7	0.85 0.88	2.0	12.5 13.5	0.20 0.23	21.3 23.1	106.8 101.4	0.488 0.489	0.193 0.177	0.251 0.230	0.51 0.47	Liquefaction Liquefaction
	37.36	14	93.3	0.75	115	4303	2841	76.6	64.1	0.82	2.0	13.3	0.22	21.9	98.4	0.489	0.169	0.219	0.45	Liquefaction
	37.44	14	91.3 93.4	0.59 0.49	115	4312	2845 2850	74.9	62.6	0.66	2.0	12.2	0.19	17.7	92.6 90.5	0.489	0.154	0.200	0.41	Liquefaction
	37.52 37.61	14 14		0.49	105 105	4322 4331	2853	76.6 86.7	64.0 72.7	0.54 0.49	1.9 1.8	10.8 9.2	0.15 0.11	14.0 11.0	90.5 97.7	0.490 0.490	0.149 0.167	0.194 0.217	0.40 0.44	Liquefaction Liquefaction
	37.69	14	118.2	0.55	105	4339	2857	96.8	81.2	0.47	1.8	8.1	0.08	8.8	105.5	0.491	0.189	0.246	0.50	Liquefaction
	37.78	14 14		0.66	105	4349	2861	100.4	84.2	0.55	1.8	8.5	0.09	10.4	110.7	0.491	0.206	0.268	0.55	Liquefaction Liquefaction
	37.86 37.95	14	124.2 125.5	0.91 1.31	115 125	4357 4368	2864 2869	101.5 102.5	85.2 85.9	0.75 1.06	1.9 2.0	10.1 12.4	0.14 0.20	16.0 25.1	117.6 127.6	0.491 0.492	0.231 0.273	0.300 0.355	0.61 0.72	Liquefaction
	38.03	14	146.1	1.45	125	4378	2874	119.2	100.1	1.01	1.9	10.7	0.15	21.3	140.6	0.492	0.338	0.440	0.89	Liquefaction
	38.11	14 14		1.37 1.29	115 115	4388 4397	2879 2883	155.2	130.6	0.73	1.7	6.8	0.05	7.6	162.8	0.492	0.481	0.626 0.823	1.27	
	38.19 38.27	14 14		1.29	115	4406	2883	181.1 206.7	152.6 174.3	0.59 0.56	1.6 1.6	4.7 3.8	0.00	0.0	181.1 206.7	0.492 0.493	0.633	1.172	1.67 2.38	
	38.5	14	288.4	1.13	105	4433	2899	234.3	197.3	0.39	1.4	1.9	0.00	0.0	234.3	0.494	1.277	1.660	3.36	
	38.56	14		1.25	105	4439	2902	231.1	194.5	0.44	1.5	2.4	0.00	0.0	231.1	0.494	1.227	1.596	3.23	
	38.65 38.73	14 14	281 234	1.42 1.67	105 115	4448 4457	2906 2909	228.1 189.8	191.8 159.3	0.51 0.72	1.5 1.7	2.9 5.5	0.00	0.0 2.3	228.1 192.2	0.494 0.495	1.183 0.740	1.539 0.962	3.11 1.94	
	38.82	14	214.5	1.67	115	4467	2914	173.9	145.6	0.79	1.7	6.5	0.04	7.1	180.9	0.495	0.631	0.820	1.66	
	38.9	14		1.54	115	4476	2918	174.4	146.0	0.72	1.7	6.0	0.03	4.8	179.2	0.495	0.615	0.800	1.61	
	38.99	14	190.5	1.34	115	4487	2923	154.2	128.8	0.71	1.7	6.7	0.05	7.5	161.7	0.496	0.473	0.615	1.24	

Depth to Groundwater: 14 feet

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard Project Number: 6600,3.001.01
Date: September 2005
CPT Number: 33 **EQ Magnitude** (M<sub>w</sub>): 6.5 PGA (g): 0.54 MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
G	Depth	Table	Resist.	Frict.	g (DCE)	Stress	Stress	Tip	Tip	Ratio		F.C.	Ксрт	Da as	( <b>a</b> )	Stress	Stress	Stress	of	G
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	KCPI	Dqe1N	(q <sub>c1N</sub> ) <sub>cs</sub>	Ratio	M7.5	M6.50	Safety	Comments
	39.07	14	188.8	1.21	115	4496	2927	152.7	127.4	0.65	1.7	6.3	0.04	5.6	158.3	0.496	0.449	0.584	1.18	Low F.S.
	39.15	14	180.3	1.07	115	4505	2931	145.7	121.4	0.60	1.7	6.3	0.03	5.1	150.8	0.496	0.399	0.519	1.05	Low F.S.
	39.24 39.32	14 14	173.3 171.3	0.97 1	115 115	4515 4525	2936 2940	139.9 138.2	116.5 114.9	0.57 0.59	1.7 1.7	6.3 6.6	0.03 0.04	4.9 6.0	144.9 144.3	0.497 0.497	0.363	0.472 0.467	0.95 0.94	Liquefaction Liquefaction
	39.4	14	177.5	1.01	115	4534	2944	143.1	119.0	0.58	1.7	6.2	0.03	4.8	147.9	0.497	0.381	0.495	1.00	Liquefaction
	39.49	14	187.7	0.97	105	4544	2949	151.2	125.7	0.52	1.7	5.4	0.01	1.7	152.9	0.498	0.412	0.536	1.08	Low F.S.
	39.57 39.65	14 14	201.9 209.7	0.98 0.98	105 105	4552 4561	2953 2956	162.6 168.8	135.2 140.3	0.49 0.47	1.6 1.6	4.7 4.3	0.00	0.0	162.6 168.8	0.498 0.498	0.480 0.527	0.624 0.685	1.25 1.37	
	39.73	14	206.9	1.04	105	4569	2959	166.4	138.2	0.51	1.6	4.7	0.00	0.0	166.4	0.499	0.509	0.661	1.33	
	39.82	14	207.4	1.2	115	4579	2963	166.7	138.4	0.59	1.7	5.3	0.01	1.4	168.1	0.499	0.522	0.678	1.36	
	39.9	14	193.6	1.34 1.36	115	4588 4597	2967 2972	155.5	128.9	0.70	1.7	6.6	0.04	7.1	162.6	0.499	0.480	0.624	1.25	Low E.C
	39.98 40.07	14 14	181.6 178.6	1.24	115 115	4607	2972	145.8 143.2	120.6 118.4	0.76 0.70	1.8 1.8	7.5 7.2	0.07 0.06	10.5 9.1	156.3 152.4	0.500 0.462	0.435	0.566 0.532	1.13 1.15	Low F.S. Low F.S.
	40.15	14	180.9	1.12	115	4617	2981	145.0	119.8	0.63	1.7	6.6	0.04	6.3	151.3	0.462	0.402	0.523	1.13	Low F.S.
	40.23	14	183.5	0.89	105	4626	2985	147.0	121.4	0.49	1.7	5.4	0.01	1.4	148.4	0.462	0.384	0.499	1.08	Low F.S.
	40.31 40.39	14 14	178.2 177.8	0.77 0.73	105 105	4634 4643	2988 2992	142.6 142.2	117.7 117.3	0.44 0.42	1.6 1.6	5.1 4.9	0.00	0.3	143.0 142.2	0.463 0.463	0.352 0.348	0.457 0.452	0.99 0.98	Liquefaction Liquefaction
	40.47	14	178.2	0.73	105	4651	2995	142.5	117.3	0.40	1.6	4.7	0.00	0.0	142.5	0.463	0.349	0.454	0.98	Liquefaction
	40.56	14	177.3	0.71	105	4661	2999	141.7	116.6	0.41	1.6	4.9	0.00	0.0	141.7	0.464	0.344	0.448	0.97	Liquefaction
	40.64	14	175	0.73	105	4669	3002	139.7	115.0	0.42	1.6	5.1	0.00	0.4	140.1	0.464	0.336	0.437	0.94	Liquefaction
	40.72 40.8	14 14	177.6 179.9	0.75 0.83	105 105	4677 4686	3006 3009	141.7 143.5	116.6 118.0	0.43 0.47	1.6 1.7	5.1 5.3	0.00	0.2 1.3	142.0 144.8	0.464 0.465	0.346 0.362	0.450 0.471	0.97 1.01	Liquefaction Low F.S.
	40.88	14	177.8	0.9	105	4694	3012	141.7	116.4	0.51	1.7	5.8	0.02	3.2	144.9	0.465	0.363	0.472	1.02	Low F.S.
	40.96	14	184.6	0.93	105	4703	3016	147.1	120.8	0.51	1.7	5.6	0.01	2.2	149.3	0.465	0.389	0.506	1.09	Low F.S.
	41.04 41.12	14 14	198.5 222.9	1.21 1.36	115 115	4711 4720	3019 3023	158.1 177.4	129.9 145.8	0.62 0.62	1.7 1.7	6.0 5.2	0.03	4.1 1.1	162.2 178.5	0.466 0.466	0.477 0.609	0.620 0.791	1.33 1.70	
	41.2	14	259.1	1.39	115	4729	3028	206.0	169.5	0.54	1.6	3.8	0.00	0.0	206.0	0.466	0.893	1.161	2.49	
	41.28	14	286.3	1.51	115	4739	3032	227.5	187.2	0.53	1.5	3.2	0.00	0.0	227.5	0.466	1.175	1.528	3.28	
	41.36 41.44	14 14	281.6 279.9	1.77 2.19	115 125	4748 4757	3036 3040	223.6 222.1	183.9 182.5	0.63 0.79	1.6 1.6	4.0 5.1	0.00	0.0	223.6 222.9	0.467 0.467	1.120 1.110	1.456 1.444	3.12 3.09	
	41.52	14	270.7	2.63	125	4767	3045	214.6	176.1	0.79	1.7	6.5	0.04	9.2	223.8	0.467	1.110	1.460	3.13	
	41.6	14	278.3	3.33	135	4777	3050	220.5	180.8	1.21	1.8	7.7	0.07	17.0	237.5	0.467	1.325	1.723	3.69	
	41.81	14	322.4	3.36	125	4805	3066	254.8	208.7	1.05	1.7	6.0	0.03	6.8	261.6	0.468	1.745	2.268	4.85	
	41.89 41.97	14 14	290.1 265.1	3.33 3.53	125 135	4815 4825	3071 3076	229.1 209.2	187.3 170.7	1.16 1.34	1.8 1.8	7.2 8.8	0.06 0.10	14.3 23.5	243.3 232.6	0.468 0.468	1.420 1.251	1.846 1.626	3.94 3.47	
	42.05	14	277.3	2.75	125	4836	3081	218.6	178.3	1.00	1.7	6.6	0.04	9.7	228.2	0.468	1.186	1.541	3.29	
	42.13	14	296.8	1.49	105	4846	3086	233.8	190.7	0.51	1.5	2.9	0.00	0.0	233.8	0.468	1.268	1.648	3.52	
	42.26 42.26	14 14	327.7 348.9	1.36 1.49	105 105	4853 4860	3089 3092	258.0 274.5	210.5 224.0	0.42 0.43	1.4 1.4	1.8 1.6	0.00	0.0	258.0 274.5	0.469 0.469	1.676 2.004	2.179 2.606	4.65 5.56	
	42.34	14	369.2	1.77	105	4868	3095	290.4	236.9	0.48	1.4	1.8	0.00	0.0	290.4	0.469	2.356	3.063	6.53	
	42.42	14	353.6	1.69	105	4877	3099	277.9	226.6	0.48	1.4	2.0	0.00	0.0	277.9	0.470	2.077	2.700	5.75	
	42.49 42.57	14 14	364.5 372.1	1.85 2.5	115 115	4884 4893	3102 3106	286.4 292.1	233.4 237.9	0.51 0.68	1.4 1.5	2.0 3.1	0.00	0.0	286.4 292.1	0.470 0.470	2.264 2.399	2.943 3.118	6.26 6.63	
	42.65	14	363.1	2.48	115	4902	3110	284.9	231.8	0.69	1.5	3.3	0.00	0.0	284.9	0.470	2.230	2.899	6.16	
	42.73	14	384.9	2.71	115	4911	3114	301.8	245.5	0.71	1.5	3.1	0.00	0.0	301.8	0.471	2.636	3.426	7.28	
	42.8	14	374.3	2.71	115	4920	3118	293.3	238.4	0.73	1.5	3.4	0.00	0.0	293.3	0.471	2.426	3.154	6.70	
	42.88 42.95	14 14	384.9 400.5	3.23 3.22	125 125	4929 4937	3122 3127	301.4 313.4	244.9 254.5	0.84 0.81	1.6 1.6	4.0 3.6	0.00	0.0	301.4 313.4	0.471 0.471	2.626 2.942	3.414 3.825	7.25 8.12	
	43.03	14	372.3	2.88	125	4947	3132	291.1	236.1	0.78	1.6	3.7	0.00	0.0	291.1	0.471	2.374	3.086	6.55	
	43.11	14	362.8	2.99	125	4957	3137	283.4	229.7	0.83	1.6	4.2	0.00	0.0	283.4	0.472	2.198	2.857	6.06	
	43.19 43.27	14 14	313.2 292.6	2.56 2.34	125 125	4967 4977	3142 3147	244.5 228.2	197.7 184.3	0.82 0.81	1.6 1.6	4.9 5.2	0.00	0.0 1.2	244.5 229.4	0.472 0.472	1.439 1.203	1.871 1.564	3.97 3.31	
	43.35	14	292.8	1.47	105	4987	3152	228.2	184.1	0.51	1.5	3.1	0.00	0.0	228.2	0.472	1.185	1.541	3.26	
	43.42	14	308.2	1.22	105	4995	3155	240.1	193.7	0.40	1.4	2.0	0.00	0.0	240.1	0.472	1.367	1.777	3.76	
	43.5 43.58	14 14	304.2 319.4	1.32 1.16	105 105	5003 5012	3158 3161	236.8 248.5	191.0 200.4	0.44 0.37	1.5 1.4	2.4 1.6	0.00	0.0	236.8 248.5	0.473 0.473	1.316 1.508	1.710 1.960	3.62 4.14	
	43.65	14	341.3	1.07	95	5019	3164	265.5	214.0	0.32	1.3	0.9	0.00	0.0	265.5	0.473	1.820	2.366	5.00	
	43.73	14	345.9	1.19	105	5027	3167	268.9	216.8	0.35	1.4	1.1	0.00	0.0	268.9	0.474	1.889	2.455	5.19	
	43.8 43.88	14 14	348.1 354.5	1.59 2.21	105 115	5034 5042	3170 3173	270.5 275.3	217.9 221.7	0.46 0.63	1.4	2.0	0.00	0.0	270.5	0.474 0.474	1.921	2.497	5.27 5.54	
	43.95	14	371.4	2.57	115	5050	3177	288.3	232.1	0.70	1.5 1.5	3.1 3.3	0.00	0.0	275.3 288.3	0.474	2.021 2.308	2.628 3.001	6.33	
	44.03	14	353.1	1.89	115	5060	3181	273.9	220.3	0.54	1.5	2.5	0.00	0.0	273.9	0.474	1.991	2.589	5.46	
	44.1	14	341.7	1.85	115	5068	3185	264.9	212.9	0.55	1.5	2.7	0.00	0.0	264.9	0.475	1.809	2.352	4.95	
	44.18 44.25	14 14	346.1 363.7	2.3 2.96	115 125	5077 5085	3189 3193	268.1 281.6	215.4 226.1	0.67 0.82	1.5 1.6	3.5 4.2	0.00	0.0	268.1 281.6	0.475 0.475	1.873 2.157	2.435 2.804	5.13 5.90	
	44.33	14	323.5	4.06	135	5095	3198	250.3	200.6	1.26	1.8	7.4	0.06	16.9	267.2	0.475	1.854	2.410	5.07	
	44.41	14	295.7	3.77	135	5106	3204	228.6	182.9	1.29	1.8	8.0	0.08	20.2	248.7	0.475	1.511	1.965	4.13	
	44.48 44.55	14 14	286.3 273.3	2.73 2.49	125 125	5115 5124	3209 3213	221.1 211.0	176.8 168.4	0.96 0.92	1.7 1.7	6.4 6.4	0.04 0.04	8.6 8.4	229.8 219.4	0.476 0.476	1.208 1.062	1.571 1.380	3.30 2.90	
	44.63	14	214.8	2.91	135	5134	3218	165.7	131.8	1.37	1.9	10.7	0.15	30.0	195.6	0.476	0.776	1.009	2.12	
	44.7	14	195.1	3.5	135	5143	3223	150.4	119.4	1.82	2.0	13.8	0.24	46.4	196.8	0.476	0.788	1.025	2.15	

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard Project Number: 6600,3.001.01
Date: September 2005
CPT Number: 33

Depth to Groundwater: 14 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 PGA (g): 0.54 MSF: 1.30

		Water	Tip	Sleeve			Effective		Corr.	Friction							Liquef.	•		
Cone	Depth (FT)	Table (FT)	Resist. (TSF)	Frict. (TSF)	g (PCF)	Stress (PSF)	Stress (PSF)	Tip <b>Q</b> c1N	Tip Q	Ratio F	Ic	F.C. (%)	Ксрт	Dqc1N	(Qc1N)cs	Stress Ratio	Stress M7.5	Stress M6.50	of Safety	Comments
			( /	( = /	( - /	( - /	( = /	-				(***)		-						
	44.77 44.86	14 14	185.2 166.1	3.76 3.77	135 135	5153 5165	3228 3235	142.6 127.8	113.1 101.1	2.06 2.31	2.1 2.2	15.4 17.6	0.28 0.34	55.1 64.7	197.8 192.4	0.476 0.476	0.799 0.743	1.039 0.966	2.18 2.03	
	44.94	14	78.9	3.52	135	5176	3241	60.6	47.1	4.61	2.6	35.5	0.80	242.6	303.2	0.476	2.672	3.474	7.29	NonLiqfble.
	45.03 45.12	14 14	68.1 49.1	2.74 1.57	135 135	5188 5200	3247 3254	52.3 37.7	40.3 28.6	4.18 3.38	2.6 2.7	36.4 38.7	0.80	209.2 150.6	261.4 188.3	0.477 0.477	1.742 0.701	2.264 0.911	4.75 1.91	NonLiqfble.
	45.12	14	36.2	1.06	135	5211	3260	27.7	20.6	3.16	2.8	43.6	0.80	111.0	138.7	0.477	0.328	0.427	0.89	NonLiqfble. NonLiqfble.
	45.29	14	31.6	1.05	135	5223	3266	24.2	17.7	3.62	2.8	48.7	0.80	96.8	121.0	0.477	0.245	0.318	0.67	NonLiqfble.
	45.37 45.46	14 14	28.8 32	0.93 0.85	135 135	5234 5246	3272 3278	22.0 24.5	16.0 17.9	3.55 2.89	2.9 2.8	50.5 45.0	0.80 0.80	88.1 97.8	110.1 122.3	0.477 0.477	0.204 0.250	0.266 0.325	0.56 0.68	NonLiqfble. NonLiqfble.
	45.53	14	31	0.85	135	5255	3284	23.7	17.3	3.00	2.8	46.2	0.80	94.7	118.4	0.478	0.234	0.304	0.64	NonLiqfble.
	45.62 45.7	14 14	30.7 32.8	0.91 1	135 135	5268 5278	3290 3296	23.4 25.0	17.1 18.3	3.24 3.32	2.8 2.8	47.7 46.6	0.80 0.80	93.7 100.0	117.1 125.0	0.478 0.478	0.229	0.298	0.62 0.71	NonLiqfble. NonLiqfble.
	45.79	14	31.9	1	135	5290	3302	24.3	17.7	3.42	2.8	47.8	0.80	97.2	121.4	0.478	0.247	0.321	0.67	NonLiqfble.
	45.88	14	31.7	0.89	135	5303	3309	24.1	17.5	3.06	2.8	46.3	0.80	96.4	120.6	0.478	0.243	0.316	0.66	NonLiqfble.
	45.97 46.05	14 14	40.1 42.4	0.74 0.66	135 125	5315 5326	3315 3321	30.5 32.2	22.6 23.9	1.98 1.66	2.6 2.5	35.5 32.5	0.80 0.73	121.9 88.6	152.4 120.8	0.478 0.478	0.409 0.244	0.532 0.317	1.11 0.66	NonLiqfble. Liquefaction
	46.14	14	35.9	0.57	125	5337	3327	27.2	20.0	1.72	2.6	35.9	0.80	108.9	136.2	0.479	0.315	0.409	0.86	NonLiqfble.
	46.23 46.32	14 14	28.6 21.9	0.5 0.48	125 125	5348 5359	3333 3338	21.7 16.6	15.6 11.5	1.93 2.50	2.7 2.9	42.1 52.1	0.80 0.80	86.7 66.3	108.4 82.9	0.479 0.479	0.198 0.133	0.258 0.173	0.54 0.36	NonLiqfble. NonLiqfble.
	46.41	14	17.3	0.39	125	5371	3344	13.1	8.7	2.67	3.0	59.7	0.80	52.4	65.5	0.479	0.106	0.138	0.29	NonLiqfble.
	46.5	14	15.4 14.9	0.35	115 115	5382 5392	3349	11.6 11.3	7.6	2.75 2.54	3.1	63.8	0.80	46.6	58.2	0.479	0.098	0.128	0.27 0.26	NonLiqfble.
	46.59 46.68	14 14	13.7	0.31 0.28	115	5403	3354 3359	10.3	7.3 6.5	2.55	3.1	63.5 66.4	0.80 0.80	45.0 41.4	56.3 51.7	0.480 0.480	0.097 0.093	0.126 0.121	0.25	NonLiqfble. NonLiqfble.
	46.76	14	13.8	0.26	115	5412	3363	10.4	6.6	2.34	3.1	64.8	0.80	41.6	52.1	0.480	0.093	0.121	0.25	NonLiqfble.
	46.85 46.94	14 14	15.5 16.1	0.3 0.36	115 125	5422 5432	3368 3373	11.7 12.1	7.6 7.9	2.35 2.69	3.0	61.2 62.2	0.80 0.80	46.7 48.5	58.4 60.6	0.480 0.481	0.099 0.101	0.128 0.131	0.27 0.27	NonLiqfble. NonLiqfble.
	47.03	14	16	0.39	125	5444	3378	12.0	7.9	2.94	3.1	63.9	0.80	48.2	60.2	0.481	0.100	0.130	0.27	NonLiqfble.
	47.12 47.2	14 14	15.2 12.6	0.38 0.36	125 115	5455 5465	3384 3389	11.4 9.5	7.4 5.8	3.05 3.65	3.1	66.3 76.1	0.80 0.80	45.7 37.9	57.2 47.4	0.481 0.481	0.097 0.090	0.127 0.117	0.26 0.24	NonLiqfble.
	47.29	14	10.7	0.35	115	5475	3394	8.0	4.7	4.40	3.4	86.4	0.80	32.1	40.2	0.481	0.086	0.117	0.24	NonLiqfble. NonLiqfble.
	47.34	14	9.9	0.35	115	5481	3396	7.4	4.2	4.89	3.4	92.1	0.80	29.7	37.2	0.481	0.085	0.110	0.23	NonLiqfble.
	47.43 47.52	14 14	10.8 11.2	0.32	115 115	5491 5502	3401 3406	8.1 8.4	4.7 5.0	3.97 3.55	3.3 3.3	84.0 80.3	0.80 0.80	32.4 33.6	40.5 42.0	0.482 0.482	0.086 0.087	0.112 0.113	0.23	NonLiqfble. NonLiqfble.
	47.61	14	12.4	0.25	115	5512	3410	9.3	5.7	2.59	3.2	70.8	0.80	37.2	46.5	0.482	0.089	0.116	0.24	NonLiqfble.
	47.7 47.79	14 14	16 20.4	0.25 0.22	115 105	5522 5533	3415 3420	12.0 15.3	7.7 10.3	1.89 1.25	3.0 2.8	57.4 45.3	0.80 0.80	47.9 61.1	59.9 76.3	0.482 0.483	0.100 0.121	0.130 0.158	0.27 0.33	NonLiqfble. NonLiqfble.
	47.88	14	21.9	0.27	115	5542	3424	16.4	11.2	1.41	2.8	45.0	0.80	65.5	81.9	0.483	0.131	0.170	0.35	NonLiqfble.
	47.97	14	21.5 19.7	0.29	115	5553	3428	16.1	10.9	1.55 1.60	2.8	46.6	0.80	64.3	80.3	0.483	0.128	0.167	0.34	NonLiqfble.
	48.06 48.12	14 14	14.9	0.27 0.27	115 115	5563 5570	3433 3436	14.7 11.1	9.9 7.0	2.23	2.9 3.1	49.3 62.3	0.80 0.80	58.8 44.5	73.6 55.6	0.483 0.484	0.117 0.096	0.152 0.125	0.31 0.26	NonLiqfble. NonLiqfble.
	48.19	14	19.1	0.26	115	5578	3440	14.2	9.5	1.59	2.9	50.2	0.80	57.0	71.2	0.484	0.114	0.148	0.31	NonLiqfble.
	48.28 48.36	14 14	17.5 16.5	0.24 0.25	115 115	5588 5597	3445 3449	13.0 12.3	8.5 7.9	1.63 1.82	2.9 3.0	53.0 56.2	0.80 0.80	52.2 49.2	65.2 61.5	0.484 0.484	0.106 0.102	0.138 0.132	0.28 0.27	NonLiqfble. NonLiqfble.
	48.45	14	15.6	0.24	115	5608	3454	11.6	7.4	1.88	3.0	58.4	0.80	46.5	58.1	0.484	0.098	0.128	0.26	NonLiqfble.
	48.54 48.63	14 14	15.3 15.6	0.24 0.25	115 115	5618 5628	3458 3463	11.4 11.6	7.2 7.4	1.92 1.96	3.0	59.4 59.1	0.80 0.80	45.5 46.4	56.9 58.0	0.485 0.485	0.097 0.098	0.126 0.128	0.26 0.26	NonLiqfble. NonLiqfble.
	48.71	14	16	0.28	115	5638	3467	11.9	7.6	2.12	3.0	59.6	0.80	47.6	59.4	0.485	0.100	0.129	0.27	NonLiqfble.
	48.8 48.9	14 14	16.7 18.3	0.32 0.36	115 125	5648 5660	3472 3477	12.4 13.6	8.0 8.9	2.31 2.33	3.0 3.0	59.6 57.1	0.80 0.80	49.6 54.3	62.0 67.9	0.485 0.486	0.102 0.109	0.133 0.142	0.27 0.29	NonLiqfble. NonLiqfble.
	48.99	14	20.1	0.38	125	5671	3483	14.9	9.9	2.33	2.9	53.6	0.80	59.6	74.5	0.486	0.109	0.142	0.29	NonLiqfble.
	49.08	14	20.9	0.39	125	5682	3489	15.5	10.3	2.16	2.9	52.4	0.80	61.9	77.4	0.486	0.123	0.160	0.33	NonLiqfble.
	49.17 49.26	14 14	22.2 22.9	0.44 0.53	125 125	5693 5705	3494 3500	16.4 16.9	11.1 11.5	2.27 2.64	2.9 2.9	51.6 53.1	0.80 0.80	65.7 67.7	82.2 84.7	0.486 0.486	0.132 0.136	0.171 0.177	0.35 0.36	NonLiqfble. NonLiqfble.
	49.35	14	24.3	0.67	125	5716	3506	18.0	12.2	3.12	2.9	54.3	0.80	71.8	89.8	0.486	0.147	0.192	0.39	NonLiqfble.
	49.44 49.53	14 14	28.5 37.4	0.86 1.04	135 135	5727 5739	3511 3518	21.0 27.6	14.6 19.6	3.35 3.01	2.9 2.8	51.5 43.8	0.80 0.80	84.2 110.4	105.2 138.0	0.487 0.487	0.188 0.324	0.245 0.421	0.50 0.87	NonLiqfble. NonLiqfble.
	49.62	14	45.8	1.03	135	5751	3524	33.8	24.3	2.40	2.6	36.7	0.80	135.0	168.8	0.487	0.527	0.685	1.41	NonLiqfble.
	49.71	14	53.1	1.02	135	5763	3531	39.1	28.4	2.03	2.5	32.0	0.72	101.3	140.4	0.487	0.338	0.439	0.90	Liquefaction
	49.8 50.06	14 14	53.7 57.6	1.04 0.89	135 125	5776 5811	3537 3556	39.5 42.3	28.7 30.7	2.05 1.63	2.5 2.4	32.0 28.3	0.72 0.62	101.5 69.5	141.0 111.7	0.487 0.430	0.341 0.210	0.443 0.273	0.91 0.63	Liquefaction Liquefaction
	50.14	14	47.1	0.75	125	5821	3561	34.5	24.8	1.70	2.5	32.1	0.72	90.6	125.1	0.430	0.262	0.341	0.79	Liquefaction
	50.23 50.32	14 14	37.4 26.3	0.6 0.48	125 125	5832 5843	3567 3573	27.4 19.3	19.3 13.1	1.74 2.05	2.6 2.8	36.7 46.5	0.80 0.80	109.6 77.0	137.0 96.3	0.430 0.431	0.319 0.163	0.415 0.212	0.96 0.49	NonLiqfble. NonLiqfble.
	50.32	14	21.2	0.46	125	5854	3578	15.5	10.2	2.03	2.9	53.2	0.80	62.0	77.5	0.431	0.103	0.160	0.49	NonLiqfble.
	50.5	14	17.7	0.31	115	5866	3584	12.9	8.2	2.10	3.0	57.4	0.80	51.7	64.7	0.431	0.105	0.137	0.32	NonLiqfble.
	50.59 50.68	14 14	16.2 14.5	0.27 0.25	115 115	5876 5886	3589 3593	11.8 10.6	7.4 6.4	2.04 2.16	3.0	59.7 64.2	0.80 0.80	47.3 42.3	59.2 52.9	0.431 0.431	0.099 0.094	0.129 0.122	0.30 0.28	NonLiqfble. NonLiqfble.
	50.77	14	14	0.26	115	5897	3598	10.2	6.1	2.35	3.1	66.8	0.80	40.8	51.1	0.431	0.092	0.120	0.28	NonLiqfble.
	50.86 50.95	14 14	13.5 13.4	0.25 0.27	115 115	5907 5917	3603 3607	9.8 9.8	5.9 5.8	2.37 2.59	3.1	68.3 70.1	0.80 0.80	39.4 39.0	49.2 48.8	0.432 0.432	0.091	0.118 0.118	0.27 0.27	NonLiqfble. NonLiqfble.
	51.04	14	13.1	0.27	115	5928	3612	9.5	5.6	2.66	3.2	71.4	0.80	38.1	47.7	0.432	0.090	0.117	0.27	NonLiqfble.

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard Project Number: 6600.3.001.01

Date: September 2005 CPT Number: 33

Depth to Groundwater: 14 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 PGA (g): 0.54 MSF: 1.30 0.54

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
C	Depth	Table	Resist.	Frict.	g (DCE)	Stress	Stress	Tip	Tip	Ratio F	τ.	F.C.	Ксрт	Dqc1N	( <b>a</b> .v:)	Stress	Stress	Stress	of	G
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> e1N	Q	F	Ic	(%)	KCFI	Dqein	(q <sub>e1N</sub> )es	Ratio	M7.5	M6.50	Safety	Comments
	51.13	14	12.5	0.27	115	5938	3617	9.1	5.3	2.83	3.2	74.3	0.80	36.4	45.5	0.432	0.089	0.115	0.27	NonLiqfble.
	51.18 51.24	14 14	13.4 13.9	0.27 0.28	115 115	5944 5951	3620 3623	9.7 10.1	5.8 6.0	2.59 2.56	3.2 3.1	70.2 68.8	0.80 0.80	39.0 40.4	48.7 50.5	0.432 0.432	0.091 0.092	0.118 0.120	0.27 0.28	NonLiqfble. NonLiqfble.
	51.3	14	14	0.29	115	5958	3626	10.2	6.1	2.63	3.1	69.0	0.80	40.7	50.9	0.433	0.092	0.120	0.28	NonLiqfble.
	51.39 51.47	14 14	15.2 15.4	0.31 0.33	115 115	5968 5977	3631 3635	11.0 11.2	6.7 6.8	2.54 2.66	3.1	65.6 66.0	0.80 0.80	44.2 44.7	55.2 55.9	0.433 0.433	0.096 0.096	0.124 0.125	0.29 0.29	NonLiqfble. NonLiqfble.
	51.56	14	15.4	0.34	115	5988	3640	10.9	6.6	2.83	3.1	68.0	0.80	43.5	54.4	0.433	0.095	0.123	0.29	NonLiqfble.
	51.65	14	15.8	0.33	115	5998	3644	11.5	7.0	2.58	3.1	64.7	0.80	45.8	57.3	0.433	0.097	0.127	0.29	NonLiqfble.
	51.74 51.82	14 14	16.3 16.3	0.36 0.36	125 125	6008 6018	3649 3654	11.8 11.8	7.3 7.3	2.71 2.71	3.1	64.6 64.6	0.80 0.80	47.2 47.2	59.0 59.0	0.433 0.434	0.099	0.129 0.129	0.30	NonLiqfble. NonLiqfble.
	51.92	14	17.6	0.37	125	6031	3660	12.7	8.0	2.54	3.0	61.2	0.80	50.9	63.6	0.434	0.104	0.135	0.31	NonLiqfble.
	52.01	14	16.4	0.35	125	6042	3666	11.9	7.3	2.62	3.1	63.9	0.80	47.4	59.3	0.434	0.099	0.129	0.30	NonLiqfble.
	52.1 52.19	14 14	15.9 15.9	0.33	115 115	6053 6064	3672 3676	11.5 11.5	7.0 7.0	2.56 2.33	3.1	64.7 63.2	0.80 0.80	45.9 45.9	57.4 57.4	0.434 0.434	0.098 0.098	0.127 0.127	0.29 0.29	NonLiqfble. NonLiqfble.
	52.28	14	14.8	0.29	115	6074	3681	10.7	6.4	2.47	3.1	66.5	0.80	42.7	53.4	0.434	0.094	0.122	0.28	NonLiqfble.
	52.37	14	14.2	0.27	115	6084	3686	10.2	6.1	2.42	3.1	67.7	0.80	40.9	51.2	0.435	0.092	0.120	0.28	NonLiqfble.
	52.46 52.55	14 14	13.1 12.4	0.27 0.27	115 115	6095 6105	3690 3695	9.4 8.9	5.4 5.1	2.69 2.89	3.2 3.2	72.4 75.9	0.80	37.7 35.7	47.2 44.6	0.435 0.435	0.090 0.088	0.117 0.115	0.27 0.26	NonLiqfble. NonLiqfble.
	52.64	14	12.7	0.25	115	6115	3700	9.1	5.2	2.59	3.2	73.1	0.80	36.5	45.7	0.435	0.089	0.116	0.27	NonLiqfble.
	52.73	14	12.6	0.26	115	6126	3705	9.1	5.1	2.73	3.2	74.3	0.80	36.2	45.3	0.435	0.089	0.115	0.26	NonLiqfble.
	52.82 52.91	14 14	13 12.6	0.24 0.22	115 105	6136 6146	3709 3714	9.3 9.0	5.4 5.1	2.42 2.31	3.2 3.2	71.1 71.6	0.80 0.80	37.4 36.2	46.7 45.2	0.435 0.436	0.089 0.089	0.116 0.115	0.27 0.26	NonLiqfble. NonLiqfble.
	53	14	13.3	0.22	105	6156	3718	9.5	5.5	2.15	3.1	68.5	0.80	38.2	47.7	0.436	0.090	0.117	0.27	NonLiqfble.
	53.09 53.18	14 14	13 13.5	0.24 0.23	115 105	6165 6176	3722 3727	9.3 9.7	5.3 5.6	2.42 2.21	3.2 3.1	71.3 68.4	0.80 0.80	37.3 38.7	46.6 48.4	0.436 0.436	0.089	0.116 0.118	0.27 0.27	NonLiqfble. NonLiqfble.
	53.10	14	13.6	0.23	115	6185	3730	9.7	5.6	2.57	3.2	70.7	0.80	39.0	48.7	0.436	0.091	0.118	0.27	NonLiqfble.
	53.36	14	13.7	0.3	115	6196	3735	9.8	5.7	2.83	3.2	72.2	0.80	39.2	49.0	0.437	0.091	0.118	0.27	NonLiqfble.
	53.45 53.54	14 14	14.2 15.3	0.31 0.33	115 115	6206 6216	3740 3745	10.2 10.9	5.9 6.5	2.79 2.71	3.2 3.1	70.7 67.6	0.80 0.80	40.6 43.8	50.8 54.7	0.437 0.437	0.092 0.095	0.120 0.124	0.27 0.28	NonLiqfble. NonLiqfble.
	53.63	14	16.5	0.33	115	6227	3749	11.8	7.1	2.47	3.1	63.5	0.80	47.2	59.0	0.437	0.093	0.124	0.28	NonLiqfble.
	53.72	14	17.4	0.31	115	6237	3754	12.4	7.6	2.17	3.0	59.9	0.80	49.7	62.1	0.437	0.102	0.133	0.30	NonLiqfble.
	53.81 53.9	14 14	17.1 17.1	0.31 0.33	115 115	6247 6258	3759 3764	12.2 12.2	7.4 7.4	2.22 2.36	3.0 3.0	60.8 61.8	0.80 0.80	48.8 48.8	61.0 61.0	0.438 0.438	0.101 0.101	0.131 0.131	0.30	NonLiqfble. NonLiqfble.
	53.99	14	17.6	0.35	125	6268	3768	12.5	7.7	2.42	3.0	61.4	0.80	50.2	62.7	0.438	0.103	0.134	0.31	NonLiqfble.
	54.07	14	18.1	0.4	125	6278	3773	12.9	7.9	2.67	3.1	62.1	0.80	51.6	64.5	0.438	0.105	0.136	0.31	NonLiqfble.
	54.16 54.25	14 14	18.2 18.7	0.44 0.5	125 125	6289 6300	3779 3785	13.0 13.3	8.0 8.2	2.92 3.22	3.1	63.5 64.4	0.80 0.80	51.8 53.2	64.8 66.5	0.438 0.438	0.105 0.107	0.137 0.140	0.31 0.32	NonLiqfble. NonLiqfble.
	54.34	14	21	0.44	125	6312	3790	14.9	9.4	2.47	3.0	56.6	0.80	59.7	74.6	0.438	0.119	0.154	0.35	NonLiqfble.
	54.43	14	22.7	0.37	125	6323	3796	16.1	10.3	1.89	2.9	50.6	0.80	64.5	80.6	0.439	0.129	0.167	0.38	NonLiqfble.
	54.52 54.61	14 14	21.3 17.9	0.33	115 115	6334 6345	3801 3806	15.1 12.7	9.5 7.7	1.82 2.11	2.9 3.0	51.8 59.0	0.80 0.80	60.5 50.8	75.6 63.5	0.439 0.439	0.120 0.104	0.156 0.135	0.36 0.31	NonLiqfble. NonLiqfble.
	54.7	14	15.3	0.31	115	6355	3811	10.8	6.4	2.56	3.1	67.2	0.80	43.4	54.2	0.439	0.095	0.123	0.28	NonLiqfble.
	54.79	14	14.6	0.29	115	6365	3816	10.3	6.0	2.54	3.1	68.8	0.80	41.4	51.7	0.439	0.093	0.121	0.27	NonLiqfble.
	54.88 54.97	14 14	14.2 13.5	0.28 0.28	115 115	6376 6386	3820 3825	10.1 9.6	5.8 5.4	2.54 2.72	3.2 3.2	69.9 73.0	0.80 0.80	40.2 38.2	50.3 47.8	0.439 0.439	0.092	0.119 0.117	0.27 0.27	NonLiqfble. NonLiqfble.
	55.06	14	12.6	0.27	115	6396	3830	8.9	4.9	2.87	3.2	76.7	0.80	35.6	44.5	0.440	0.088	0.115	0.26	NonLiqfble.
	55.15	14	12.6	0.28	115	6407	3835	8.9	4.9	2.98	3.3	77.4	0.80	35.6	44.5	0.440	0.088	0.115	0.26	NonLiqfble.
	55.24 55.32	14 14	12.5 12.8	0.3 0.31	115 115	6417 6426	3839 3844	8.8 9.0	4.8 5.0	3.23 3.23	3.3 3.3	79.3 78.4	0.80 0.80	35.3 36.1	44.1 45.2	0.440 0.440	0.088 0.089	0.114 0.115	0.26 0.26	NonLiqfble. NonLiqfble.
	55.37	14	13.8	0.32	115	6432	3846	9.7	5.5	3.02	3.2	74.2	0.80	38.9	48.7	0.440	0.091	0.118	0.27	NonLiqfble.
	55.46	14	14	0.34	115	6442	3851	9.9	5.6	3.15	3.2	74.5	0.80	39.5 39.2	49.4 49.0	0.440	0.091	0.119	0.27	NonLiqfble.
	55.55 55.64	14 14	13.9 14.4	0.34 0.37	115 125	6453 6463	3856 3860	9.8 10.1	5.5 5.8	3.19 3.31	3.2 3.2	75.0 74.5	0.80 0.80	39.2 40.6	50.7	0.441 0.441	0.091 0.092	0.118 0.120	0.27 0.27	NonLiqfble. NonLiqfble.
	55.73	14	14.3	0.36	115	6474	3866	10.1	5.7	3.25	3.2	74.5	0.80	40.3	50.3	0.441	0.092	0.119	0.27	NonLiqfble.
	55.82 55.91	14 14	15.1 15.3	0.35 0.38	115 125	6485 6495	3871 3875	10.6 10.8	6.1 6.2	2.95 3.15	3.2 3.2	70.8 71.5	0.80 0.80	42.5 43.0	53.1 53.8	0.441 0.441	0.094 0.094	0.122 0.123	0.28 0.28	NonLiqfble. NonLiqfble.
	56.01	14	16.2	0.39	125	6507	3882	11.4	6.7	3.01	3.1	68.8	0.80	45.5	56.9	0.441	0.094	0.125	0.28	NonLiqfble.
	56.1	14	16.7	0.42	125	6519	3887	11.7	6.9	3.13	3.1	68.4	0.80	46.9	58.6	0.441	0.099	0.128	0.29	NonLiqfble.
	56.19 56.28	14 14	16.8 17.2	0.43 0.42	125 125	6530 6541	3893 3899	11.8 12.1	6.9 7.1	3.18 3.02	3.1	68.6 66.9	0.80 0.80	47.1 48.2	58.9 60.3	0.442 0.442	0.099	0.129	0.29	NonLiqfble. NonLiqfble.
	56.37	14	16.9	0.42	125	6552	3904	11.8	7.0	3.02	3.1	67.5	0.80	47.3	59.2	0.442	0.100	0.130 0.129	0.30	NonLiqfble.
	56.46	14	16	0.38	125	6564	3910	11.2	6.5	2.99	3.2	69.3	0.80	44.8	56.0	0.442	0.096	0.125	0.28	NonLiqfble.
	56.55 56.64	14 14	14.4 13.9	0.35 0.31	115 115	6575 6585	3916 3920	10.1 9.7	5.7 5.4	3.15 2.92	3.2 3.2	74.1 74.1	0.80 0.80	40.3 38.9	50.3 48.6	0.442 0.442	0.092 0.091	0.119 0.118	0.27 0.27	NonLiqfble. NonLiqfble.
	56.73	14	14	0.31	115	6596	3925	9.7	5.5	2.92	3.2	73.7	0.80	39.1	48.9	0.442	0.091	0.118	0.27	NonLiqfble.
	56.82	14	14.4	0.29	115	6606	3930	10.1	5.6	2.61	3.2	70.9	0.80	40.2	50.3	0.443	0.092	0.119	0.27	NonLiqfble.
	56.91 57	14 14	14.2 14.2	0.29 0.29	115 115	6616 6627	3934 3939	9.9 9.9	5.5 5.5	2.66 2.66	3.2 3.2	71.8 71.9	0.80 0.80	39.6 39.6	49.5 49.5	0.443 0.443	0.091	0.119 0.119	0.27 0.27	NonLiqfble. NonLiqfble.
	57.09	14	14.7	0.29	115	6637	3939	10.2	5.8	2.64	3.2	70.5	0.80	41.0	51.2	0.443	0.091	0.119	0.27	NonLiqfble.
	57.18	14	14	0.27	115	6647	3949	9.7	5.4	2.53	3.2	71.6	0.80	39.0	48.7	0.443	0.091	0.118	0.27	NonLiqfble.
	57.27	14	13.7	0.27	115	6658	3953	9.5	5.2	2.60	3.2	73.0	0.80	38.1	47.7	0.443	0.090	0.117	0.26	NonLiqfble.

Depth to Groundwater: 14 feet

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard Project Number: 6600,3.001.01
Date: September 2005
CPT Number: 33 **EQ Magnitude** (M<sub>w</sub>): 6.5 PGA (g): 0.54 MSF: 1.30 0.54

		Water	Tip	Sleeve			Effective		Corr.	Friction							Liquef.			
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	(q <sub>c1N</sub> )cs	Ratio	M7.5	M6.50	Safety	Comments
	57.36	14	13.4	0.28	115	6668	3958	9.3	5.1	2.78	3.2	75.1	0.80	37.3	46.6	0.443	0.089	0.116	0.26	NonLiqfble.
	57.45	14	13.8	0.31	115	6678	3963	9.6	5.3	2.96	3.2	75.1	0.80	38.4	48.0	0.444	0.090	0.117	0.26	NonLiqfble.
	57.54	14	15.1	0.3	115	6689	3968	10.5	5.9	2.55	3.2	69.2	0.80	42.0	52.4	0.444	0.093	0.121	0.27	NonLiqfble.
	57.63	14	15	0.32	115	6699	3972	10.4	5.9	2.75	3.2	70.7	0.80	41.7	52.1	0.444	0.093	0.121	0.27	NonLiqfble.
	57.72	14	14.9	0.3	115	6710	3977	10.3	5.8	2.60	3.2	70.1	0.80	41.4	51.7	0.444	0.093	0.121	0.27	NonLiqfble.
	57.81	14	16.2	0.31	115	6720	3982	11.2	6.4	2.41	3.1	65.9	0.80	44.9	56.2	0.444	0.096	0.125	0.28	NonLiqfble.
	57.89	14	16.6	0.36	125	6729	3986	11.5	6.6	2.72	3.1	67.1	0.80	46.0	57.5	0.444	0.098	0.127	0.29	NonLiqfble.
	57.98	14	18.3	0.35	125	6740	3992	12.7	7.5	2.34	3.0	61.5	0.80	50.7	63.4	0.445	0.104	0.135	0.30	NonLiqfble.
	58.07	14	20.8	0.35	125	6752	3997	14.4	8.7	2.01	3.0	55.4	0.80	57.6	72.0	0.445	0.115	0.149	0.34	NonLiqfble.
	58.16	14	21.8	0.37	125	6763	4003	15.1	9.2	2.01	2.9	54.1	0.80	60.3	75.4	0.445	0.120	0.156	0.35	NonLiqfble.
	58.25	14	21.5	0.36	125	6774	4009	14.9	9.0	1.99	2.9	54.3	0.80	59.4	74.3	0.445	0.118	0.154	0.35	NonLiqfble.
	58.34	14	20.3	0.35	125	6785	4014	14.0	8.4	2.07	3.0	56.6	0.80	56.1	70.1	0.445	0.112	0.146	0.33	NonLiqfble.
	58.43	14	19.6	0.35	125	6797	4020	13.5	8.1	2.16	3.0	58.4	0.80	54.1	67.6	0.445	0.109	0.141	0.32	NonLiqfble.
	58.52	14	19.3	0.33	115	6808	4025	13.3	7.9	2.08	3.0	58.3	0.80	53.2	66.5	0.445	0.107	0.140	0.31	NonLiqfble.
	58.61	14	19.3	0.33	115	6818	4030	13.3	7.9	2.08	3.0	58.3	0.80	53.2	66.5	0.445	0.107	0.140	0.31	NonLiqfble.
	58.7	14	20.6	0.36	125	6829	4035	14.2	8.5	2.09	3.0	56.5	0.80	56.8	70.9	0.446	0.113	0.147	0.33	NonLiqfble.
	58.78	14	20.3	0.36	125	6839	4040	14.0	8.4	2.13	3.0	57.3	0.80	55.9	69.9	0.446	0.112	0.145	0.33	NonLiqfble.
	58.83	14	19.7	0.35	125	6845	4043	13.6	8.0	2.15	3.0	58.3	0.80	54.2	67.8	0.446	0.109	0.142	0.32	NonLiqfble.
	58.91	14	21.9	0.34	125	6855	4048	15.1	9.1	1.84	2.9	53.0	0.80	60.2	75.3	0.446	0.120	0.156	0.35	NonLigfble.
	59	14	20	0.32	115	6866	4054	13.7	8.2	1.93	3.0	56.4	0.80	55.0	68.7	0.446	0.110	0.143	0.32	NonLiqfble.
	59.09	14	19.5	0.33	115	6876	4058	13.4	7.9	2.05	3.0	58.1	0.80	53.6	67.0	0.446	0.108	0.140	0.31	NonLiqfble.
	59.18	14	20.2	0.32	115	6887	4063	13.9	8.2	1.91	3.0	56.0	0.80	55.5	69.3	0.446	0.111	0.144	0.32	NonLiqfble.
	59.27	14	20.2	0.32	115	6897	4068	13.9	8.3	1.78	2.9	54.9	0.80	55.7	69.6	0.446	0.111	0.145	0.32	NonLiqfble.
	59.36	14	21.1	0.31	115	6907	4073	14.5	8.7	1.76	2.9	53.6	0.80	57.9	72.3	0.446	0.111	0.150	0.34	NonLiqfble.
	59.45	14	23.3	0.51	125	6918	4077	16.0	9.7	2.02	2.9	52.8	0.80	63.9	79.8	0.447	0.113	0.156	0.37	NonLiqfble.
	59.54	14	25.5	0.45	125	6929	4083	17.1	10.5	2.02	2.9	51.5	0.80	68.5	85.6	0.447	0.127	0.180	0.40	NonLiqfble.
	59.63	14	31.9	0.43	125	6940	4089	21.8	13.9	1.48	2.7	41.0	0.80	87.3	109.1	0.447	0.138	0.160	0.58	
	59.63		37.8	0.42	115	6952	4089	25.8	16.8	1.48	2.7	35.3	0.80	103.4	129.2	0.447	0.201	0.261	0.58	NonLiqfble.
		14																		Liquefaction
	59.81	14	30.2 23.8	0.33	115	6962	4099	20.6 16.3	13.0	1.24	2.7	40.2	0.80	82.6	103.2	0.447	0.182	0.237	0.53	NonLiqfble.
	59.9	14		0.3	115	6972	4104		9.9	1.48	2.8	48.2	0.80	65.0	81.3	0.447	0.130	0.169	0.38	NonLiqfble.
	59.99	14	18.9	0.3	115	6983	4108	12.9	7.5	1.95	3.0	58.6	0.80	51.6	64.5	0.447	0.105	0.136	0.30	NonLiqfble.
	60.08	14	17.9	0.29	115	6993	4113	12.2	7.0	2.01	3.0	60.9	0.80	48.8	61.1	0.394	0.101	0.132	0.33	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

Depth to Groundwater: 14 feet

CPT Number: 34

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction					Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.			Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N (qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments

EQ Magnitude (M<sub>w</sub>):

PGA (g): 0.54 MSF: 1.30

0.52	14	543	4.55	125	65	65	1040.0	16699.7	0.84	1.4	1.2	0.00	0.0	1040.0	0.351	104.678	######	387.70	Above W.T.
0.58	14	569.6	4.52	125	73	73	1090.9	15705.5	0.79	1.3	0.8	0.00	0.0	1090.9	0.351	120.816	######	447.47	Above W.T.
0.63	14	608.5	4.79	125	79	79	1165.4	15446.5	0.79	1.3	0.7	0.00	0.0	1165.4	0.351	147.280	######		Above W.T.
0.69	14	613.2	5.08	125	86	86	1174.4	14212.2	0.83	1.3	0.7	0.00	0.0	1174.4	0.351	150.717	######		Above W.T.
0.74 0.79	14 14	618.5 666.1	4.74 4.69	125 115	93 99	93 99	1184.6 1275.7	13366.4 13484.0	0.77 0.70	1.3 1.3	0.2	0.00	0.0	1184.6 1275.7	0.351	154.657 193.163	######		Above W.T. Above W.T.
0.75	14	681.9	4.84	115	106	106	1306.0	12902.3	0.70	1.2	-0.1	0.00	0.0	1306.0	0.351	207.231	######		Above W.T.
0.91	14	674.6	5.08	125	113	113	1292.0	11981.6	0.75	1.3	0.0	0.00	0.0	1292.0	0.351	200.649	######		Above W.T.
0.97	14	659.4	5.3	125	120	120	1262.9	10979.8	0.80	1.3	0.0	0.00	0.0	1262.9	0.351	187.395	######	694.05	Above W.T.
1.03	14	653	4.99	125	128	128	1250.6	10233.8	0.76	1.2	-0.3	0.00	0.0	1250.6	0.351	181.993	######		Above W.T.
1.08	14	624.9	4.86	125	134	134	1196.8	9335.9	0.78	1.2	-0.4	0.00	0.0	1196.8	0.351	159.505	######		Above W.T.
1.16 1.24	14 14	588.6 511.5	4.77 4.62	125 125	144 154	144 154	1127.3 979.6	8182.0 6647.7	0.81	1.2 1.2	-0.4 -0.3	0.00	0.0	1127.3 979.6	0.351	133.305 87.510	######	493.72	Above W.T. Above W.T.
1.33	14	438	4.27	125	165	165	838.9	5304.3	0.98	1.2	-0.2	0.00	0.0	838.9	0.351	54.977	71.470		Above W.T.
1.41	14	362.9	4.03	125	175	175	695.0	4143.5	1.11	1.3	0.1	0.00	0.0	695.0	0.351	31.304	40.695	115.94	Above W.T.
1.49	14	293.6	3.92	135	185	185	562.3	3170.9	1.34	1.3	0.9	0.00	0.0	562.3	0.351	16.615	21.599	61.54	Above W.T.
1.58	14	230.3	3.31	135	197	197	441.1	2333.7	1.44	1.4	1.3	0.00	0.0	441.1	0.351	8.060	10.478	29.85	Above W.T.
1.66 1.74	14 14	185.5 140.4	2.86	135 135	208 219	208	355.3 268.9	1781.9 1281.8	1.54 1.82	1.4 1.5	1.8	0.00	0.0	355.3 268.9	0.351	4.250 1.888	5.525 2.455	15.74	Above W.T.
1.81	14	118.5	2.55 2.42	135	228	219 228	227.0	1036.9	2.04	1.6	3.2 4.3	0.00	0.0	227.0	0.351	1.167	1.517	6.99 4.32	Above W.T. Above W.T.
1.89	14	101.4	2.08	135	239	239	194.2	847.0	2.05	1.6	4.8	0.00	0.0	194.2	0.351	0.761	0.989	2.82	Above W.T.
1.97	14	79	1.61	135	250	250	151.3	631.1	2.04	1.7	5.6	0.02	2.3	153.6	0.351	0.417	0.542	1.55	Above W.T.
2.05	14	60.2	1.2	135	261	261	115.3	460.7	2.00	1.7	6.5	0.04	4.9	120.2	0.351	0.241	0.314	0.89	Above W.T.
2.12	14	49.9	1.28	135	270	270	95.6	368.3	2.57	1.9	9.5	0.12	13.2	108.8	0.351	0.200	0.260	0.74	Above W.T.
2.32	14	35.9	1.31	135	297	297	68.8	240.6	3.66	2.1	15.5	0.28	26.8	95.6	0.351	0.161	0.210	0.60	Above W.T.
2.4 2.48	14 14	33.8 32	1.27 1.21	135 135	308 319	308 319	64.7 61.3	218.5 199.7	3.77 3.80	2.1 2.1	16.5 17.2	0.31 0.33	28.7 29.8	93.5 91.1	0.351	0.156 0.150	0.203 0.195	0.58 0.56	Above W.T. Above W.T.
2.56	14	30.1	1.14	135	330	330	57.6	181.6	3.81	2.2	18.0	0.35	30.7	88.3	0.351	0.144	0.187	0.53	Above W.T.
2.63	14	28	1.07	135	339	339	53.6	164.1	3.84	2.2	18.9	0.37	31.8	85.4	0.351	0.138	0.179	0.51	Above W.T.
2.71	14	27.7	1	135	350	350	53.1	157.3	3.63	2.2	18.6	0.36	30.3	83.4	0.351	0.134	0.174	0.50	Above W.T.
2.79	14	26.7	0.96	135	361	361	51.1	147.0	3.62	2.2	19.1	0.38	31.0	82.2	0.351	0.132	0.171	0.49	Above W.T.
2.87 2.95	14 14	26.1 24.8	0.93 0.93	135 135	371 382	371 382	50.0 47.5	139.5 128.7	3.59 3.78	2.2 2.3	19.5 20.9	0.39 0.42	31.6 34.9	81.6 82.4	0.351	0.131 0.132	0.170 0.172	0.48	Above W.T. Above W.T.
3.03	14	23.8	0.93	135	393	393	45.6	120.1	3.76	2.3	22.0	0.42	38.0	83.6	0.351	0.134	0.172	0.49	Above W.T.
3.11	14	23.2	0.91	135	404	404	44.4	113.9	3.96	2.3	22.6	0.47	39.4	83.9	0.351	0.135	0.175	0.50	Above W.T.
3.2	14	22.8	0.88	135	416	416	43.7	108.6	3.90	2.3	22.9	0.48	39.9	83.6	0.351	0.134	0.175	0.50	Above W.T.
3.28	14	21.6	0.89	135	427	427	41.4	100.2	4.16	2.4	24.6	0.52	45.3	86.7	0.351	0.141	0.183	0.52	Above W.T.
3.37	14	21.1	0.9	135	439	439	40.4	95.1	4.31	2.4	25.6	0.55	49.4	89.8	0.351	0.147	0.192	0.55	Above W.T.
3.46 3.54	14 14	20.2 20.9	0.89 0.85	135 135	451 462	451 462	38.7 40.0	88.5 89.5	4.46 4.11	2.4 2.4	26.9 25.6	0.58 0.55	54.2 49.2	92.9 89.2	0.351	0.155 0.146	0.201 0.190	0.57 0.54	Above W.T. Above W.T.
3.63	14	20.8	0.81	125	474	474	39.8	86.7	3.94	2.4	25.4	0.55	47.7	87.6	0.351	0.140	0.185	0.53	Above W.T.
3.72	14	21	0.82	125	485	485	40.2	85.5	3.95	2.4	25.6	0.55	49.2	89.4	0.351	0.147	0.190	0.54	Above W.T.
3.82	14	22.7	0.91	135	498	498	43.5	90.2	4.05	2.4	25.4	0.54	51.8	95.3	0.351	0.160	0.209	0.59	Above W.T.
3.91	14	25.6	0.96	135	510	510	49.0	99.4	3.79	2.3	23.4	0.49	47.5	96.6	0.351	0.164	0.213	0.61	Above W.T.
4.01 4.1	14 14	31.9 47	1.14 1.46	135 135	523 536	523 536	61.0 88.9	120.9 174.5	3.60 3.12	2.3 2.1	20.9 16.1	0.42	44.9 37.4	105.9 126.3	0.351	0.190 0.267	0.247	0.71 0.99	Above W.T.
4.2	14	76.5	2.02	135	549	549	142.9	277.6	2.65	1.9	11.3	0.30	29.0	171.8	0.351	0.552	0.718	2.04	Above W.T. Above W.T.
4.29	14	96	2.64	135	561	561	177.3	341.0	2.76	1.9	10.6	0.15	30.9	208.2	0.351	0.919	1.195	3.41	Above W.T.
4.39	14	96.4	3.17	135	575	575	176.0	334.4	3.30	2.0	12.4	0.20	43.2	219.2	0.351	1.059	1.377	3.92	Above W.T.
4.48	14	85.3	3.46	135	587	587	154.1	289.6	4.07	2.1	15.5	0.28	59.9	213.9	0.351	0.991	1.288	3.67	Above W.T.
4.58	14	81.5	3.59	135	600	600	145.5	270.4	4.42	2.1	16.9	0.32	67.6	213.2	0.351	0.981	1.275	3.63	Above W.T.
4.67 4.77	14 14	78.4 76.1	3.47 3.42	135 135	612 626	612 626	138.6 133.1	254.9 242.0	4.44 4.51	2.1 2.2	17.3 17.9	0.33	68.1 69.8	206.7 202.9	0.351	0.901 0.857	1.172 1.114	3.34 3.17	Above W.T. Above W.T.
4.87	14	72.8	3.39	135	639	639	126.0	226.6	4.68	2.2	18.8	0.37	73.5	199.5	0.351	0.818	1.063	3.03	Above W.T.
4.96	14	67.9	3.31	135	652	652	116.4	207.3	4.90	2.2	20.1	0.40	78.3	194.6	0.351	0.766	0.996	2.84	Above W.T.
5.06	14	63	3.1	135	665	665	106.9	188.4	4.95	2.3	21.0	0.43	79.3	186.2	0.351	0.680	0.884	2.52	Above W.T.
5.15	14	56.2	2.91	135	677	677	94.5	164.9	5.21	2.3	22.8	0.47	85.3	179.8	0.351	0.620	0.806	2.30	Above W.T.
5.25 5.35	14 14	48.4 42.9	2.56 1.96	135 135	691 704	691 704	80.6 70.7	139.1 120.8	5.33 4.61	2.4 2.3	24.6 24.0	0.52 0.51	88.8 73.0	169.4 143.7	0.351	0.532 0.356	0.692 0.463	1.97 1.32	Above W.T.
5.44	14	39.6	1.42	135	716	716	64.7	109.5	3.62	2.3	21.9	0.45	53.1	117.8	0.351	0.330	0.302	0.86	Above W.T. Above W.T.
5.53	14	39.6	1.35	135	729	729	64.2	107.7	3.44	2.3	21.4	0.44	50.2	114.4	0.351	0.219	0.285	0.81	Above W.T.
5.71	14	43.7	1.21	135	753	753	69.7	115.0	2.79	2.2	18.4	0.36	38.8	108.5	0.351	0.199	0.258	0.74	Above W.T.
5.81	14	45.6	1.07	135	766	766	72.1	118.0	2.37	2.1	16.4	0.31	31.7	103.7	0.351	0.184	0.239	0.68	Above W.T.
5.9	14	47.6	0.92	135	779	779	74.6	121.2	1.95	2.0	14.3	0.25	24.8	99.4	0.351	0.171	0.223	0.63	Above W.T.
6	14	48.1	0.8	135	792 804	792	74.8	120.4	1.68	2.0	13.1	0.22	20.5	95.3	0.351	0.160	0.209	0.59	Above W.T.
6.09 6.19	14 14	47.8 46.6	0.78 0.76	125 125	817	804 817	73.8 71.3	117.8 113.1	1.65 1.65	2.0 2.0	13.1 13.4	0.22	20.3 20.7	94.0 92.0	0.351	0.157 0.153	0.205 0.198	0.58 0.56	Above W.T. Above W.T.
6.28	14	45	0.78	135	828	828	68.4	107.7	1.75	2.1	14.4	0.25	22.9	91.3	0.351	0.153	0.196	0.56	Above W.T.
6.37	14	42.7	0.76	135	840	840	64.5	100.6	1.80	2.1	15.2	0.27	24.2	88.7	0.351	0.145	0.188	0.54	Above W.T.
6.46	14	41.7	0.75	135	852	852	62.5	96.8	1.82	2.1	15.7	0.28	24.9	87.4	0.351	0.142	0.185	0.53	Above W.T.
6.56	14	41.2	0.77	135	866	866	61.3	94.1	1.89	2.1	16.3	0.30	26.5	87.7	0.351	0.143	0.186	0.53	Above W.T.
6.65	14	40.1	0.78	135	878	878	59.2	90.3	1.97	2.1	17.1	0.32	28.2	87.4	0.351	0.142	0.185	0.53	Above W.T.

Project Number: 6600.3.001.01 Date: September 2005

Depth to Groundwater: 14 feet

CPT Number: 34

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> e1N	Q	F	Ic	(%)	Ксрт	Dqc1N	(qc1N)es	Ratio	M7.5	M6.50	Safety	Comments
	6.75	14	38.1	0.82	135	891	891	55.8	84.5	2.18	2.2	18.8	0.37	32.4	88.3	0.351	0.144	0.187	0.53	Above W.T.
	6.84	14	37	0.87	135	904	904	53.9	80.9	2.38	2.2	20.1	0.40	36.6	90.4	0.351	0.149	0.193	0.55	Above W.T.
	6.94	14	37	0.92	135	917	917	53.5	79.7	2.52	2.3	20.9	0.43	39.5	93.0	0.351	0.155	0.201	0.57	Above W.T.
	7.03	14	38	0.96	135	929	929	54.5	80.8	2.56	2.3	20.9	0.43	40.4	95.0	0.351	0.160	0.208	0.59	Above W.T.
	7.13 7.22	14 14	36.6 33.5	0.96 1.01	135 135	943 955	943 955	52.2 47.4	76.6 69.1	2.66 3.06	2.3	21.9 24.8	0.45 0.53	43.1 53.1	95.3 100.6	0.351	0.160 0.175	0.209 0.227	0.59 0.65	Above W.T. Above W.T.
	7.32	14	28.1	1.04	135	968	968	39.5	57.0	3.77	2.5	29.9	0.55	78.5	118.0	0.351	0.173	0.302	0.86	Above W.T.
	7.41	14	24.3	1.02	135	980	980	34.0	48.5	4.28	2.6	34.0	0.77	116.0	149.9	0.351	0.393	0.512	1.46	Above W.T.
	7.51	14	22.9	0.98	135	994	994	31.8	45.1	4.37	2.6	35.4	0.80	127.1	158.9	0.351	0.453	0.589	1.68	Above W.T.
	7.61	14	25.3	0.92	135	1007	1007	34.9	49.2	3.71	2.5	31.7	0.71	86.6	121.5	0.351	0.247	0.321	0.91	Above W.T.
	7.7 7.8	14 14	29.1 31.7	0.86 0.8	135 135	1020 1033	1020 1033	39.9 43.2	56.1 60.3	3.01 2.57	2.4	27.2 24.3	0.59 0.52	57.8 45.9	97.6 89.0	0.351	0.167 0.146	0.216 0.189	0.62 0.54	Above W.T. Above W.T.
	7.89	14	31.5	0.88	135	1033	1033	42.6	59.2	2.84	2.4	25.7	0.55	52.9	95.6	0.351	0.140	0.109	0.60	Above W.T.
	7.99	14	29.1	0.93	135	1059	1059	39.1	53.9	3.26	2.5	28.7	0.63	67.2	106.3	0.351	0.192	0.249	0.71	Above W.T.
	8.09	14	29	0.97	135	1072	1072	38.7	53.1	3.41	2.5	29.5	0.65	73.3	112.0	0.351	0.211	0.274	0.78	Above W.T.
	8.18	14	29.9	1.02	135	1084	1084	39.7	54.1	3.47	2.5	29.5	0.65	75.1	114.9	0.351	0.221	0.287	0.82	Above W.T.
	8.28	14	29.9	1.08	135	1098	1098	39.5	53.4	3.68	2.5	30.5	0.68	83.7	123.2	0.351	0.254	0.330	0.94	Above W.T.
	8.38 8.47	14 14	25.9 26	0.73 0.6	135 125	1111 1124	1111 1124	34.0 33.9	45.6 45.3	2.88 2.36	2.5 2.4	29.4 27.0	0.65 0.59	63.2 48.3	97.2 82.2	0.351	0.165 0.132	0.215 0.171	0.61 0.49	Above W.T. Above W.T.
	8.57	14	30.5	0.53	125	1136	1136	39.6	52.7	1.77	2.3	21.9	0.45	32.6	72.1	0.351	0.115	0.149	0.43	Above W.T.
	8.61	14	32.2	0.51	125	1141	1141	41.7	55.4	1.61	2.2	20.4	0.41	29.0	70.7	0.351	0.113	0.147	0.42	Above W.T.
	8.73	14	36.6	0.47	125	1156	1156	47.1	62.3	1.30	2.1	17.1	0.32	22.6	69.7	0.351	0.111	0.145	0.41	Above W.T.
	8.83	14	34.5	0.51	125	1169	1169	44.2	58.0	1.50	2.2	19.2	0.38	26.9	71.1	0.351	0.113	0.147	0.42	Above W.T.
	8.92	14	29.8	0.53	125	1180	1180	38.0	49.5	1.81	2.3	22.9	0.48	34.8	72.8	0.351	0.116	0.151	0.43	Above W.T.
	9.02	14	23.8 17.7	0.47	125	1192 1204	1192	30.2 22.3	38.9	2.03	2.4	27.3	0.60	44.4 77.9	74.6	0.351	0.119	0.154	0.44	Above W.T.
	9.11 9.21	14 14	12.9	0.41 0.34	125 115	1216	1204 1216	16.2	28.4 20.2	2.40 2.77	2.6 2.7	34.1 42.0	0.78 0.80	64.7	100.2 80.9	0.351	0.174 0.129	0.226 0.168	0.64 0.48	Above W.T. Above W.T.
	9.31	14	10.8	0.34	115	1228	1228	13.5	16.6	3.34	2.8	48.7	0.80	53.9	67.4	0.351	0.109	0.141	0.40	Above W.T.
	9.41	14	10.1	0.37	115	1239	1239	12.6	15.3	3.90	2.9	53.0	0.80	50.2	62.8	0.351	0.103	0.134	0.38	Above W.T.
	9.51	14	10.8	0.4	115	1251	1251	13.4	16.3	3.93	2.9	51.8	0.80	53.5	66.8	0.351	0.108	0.140	0.40	Above W.T.
	9.61	14	10.7	0.41	115	1262	1262	13.2	15.9	4.07	2.9	52.8	0.80	52.7	65.9	0.351	0.107	0.139	0.39	Above W.T.
	9.7 9.8	14 14	11.4 12.7	0.44 0.45	115 125	1272 1284	1272 1284	14.0 15.5	16.9 18.8	4.09 3.73	2.9 2.8	51.7 48.0	0.80	55.9 62.0	69.9 77.5	0.351	0.112 0.123	0.145 0.160	0.41 0.46	Above W.T. Above W.T.
	9.9	14	11.6	0.45	125	1296	1296	14.1	16.9	4.20	2.9	52.2	0.80	56.4	70.5	0.351	0.123	0.146	0.40	Above W.T.
	10	14	11.4	0.45	125	1309	1309	13.8	16.4	4.19	2.9	52.7	0.80	55.1	68.9	0.344	0.110	0.144	0.42	Above W.T.
	10.1	14	13.2	0.42	125	1321	1321	15.9	19.0	3.35	2.8	46.1	0.80	63.6	79.4	0.344	0.127	0.165	0.48	Above W.T.
	10.2	14	12.8	0.35	115	1334	1334	15.3	18.2	2.88	2.8	44.6	0.80	61.3	76.7	0.344	0.122	0.158	0.46	Above W.T.
	10.3	14	10.6	0.3	115	1345	1345	12.6	14.8	3.02	2.9	49.6	0.80	50.6	63.2	0.344	0.104	0.135	0.39	Above W.T.
	10.4 10.49	14 14	8.9 7	0.29 0.25	115 105	1357 1367	1357	10.6 8.3	12.1 9.2	3.53 3.96	3.0	56.5	0.80	42.3 33.1	52.9	0.344	0.094 0.087	0.122 0.113	0.35	Above W.T.
	10.49	14	5.5	0.25	105	1378	1367 1378	6.5	7.0	5.20	3.3	65.1 78.0	0.80	25.9	41.4 32.4	0.344	0.087	0.113	0.33	Above W.T. Above W.T.
	10.69	14	5.5	0.23	105	1388	1388	6.5	6.9	4.79	3.2	76.5	0.80	25.8	32.3	0.344	0.083	0.108	0.31	Above W.T.
	10.79	14	5	0.26	105	1399	1399	5.8	6.1	6.05	3.3	85.0	0.80	23.4	29.2	0.344	0.082	0.107	0.31	Above W.T.
	10.89	14	5.4	0.29	105	1409	1409	6.3	6.7	6.18	3.3	83.1	0.80	25.2	31.5	0.344	0.083	0.108	0.31	Above W.T.
	10.99	14	5.4	0.3	105	1420	1420	6.3	6.6	6.40	3.3	84.1	0.80	25.1	31.4	0.344	0.083	0.108	0.31	Above W.T.
	11.08 11.18	14 14	5.5 5.6	0.3 0.31	105 105	1429 1440	1429 1440	6.4 6.5	6.7 6.8	6.27 6.35	3.3 3.3	83.2 83.2	0.80	25.5 25.8	31.8 32.3	0.344	0.083	0.108 0.108	0.31	Above W.T. Above W.T.
	11.18	14	5.5	0.31	105	1450	1450	6.3	6.6	6.28	3.3	83.8	0.80	25.3	31.6	0.344	0.083	0.108	0.31	Above W.T.
	11.38	14	5.1	0.29	105	1461	1461	5.8	6.0	6.64	3.4	87.9	0.80	23.4	29.2	0.344	0.082	0.107	0.31	Above W.T.
	11.48	14	4.7	0.3	105	1471	1471	5.4	5.4	7.57	3.5	94.3	0.80	21.4	26.8	0.344	0.082	0.106	0.31	Above W.T.
	11.57	14	4.1	0.28	105	1481	1481	4.7	4.5	8.33	3.5	102.3	0.80	18.6	23.3	0.344	0.081	0.106	0.31	Above W.T.
	11.67	14	4	0.26	105	1491	1491	4.5	4.4	7.99	3.5	102.6	0.80	18.1	22.7	0.344	0.081	0.105	0.31	Above W.T.
	11.77 11.87	14 14	4.5 4.3	0.24	105 95	1502 1512	1502 1512	5.1 4.8	5.0 4.7	6.40 6.21	3.4 3.4	92.7 94.0	0.80	20.3 19.4	25.4 24.2	0.344	0.082	0.106 0.106	0.31	Above W.T.
	11.97	14	4.5	0.26	105	1522	1522	4.5	4.7	8.03	3.5	103.5	0.80	17.9	22.4	0.344	0.081	0.105	0.31	Above W.T. Above W.T.
	12.06	14	4.4	0.28	105	1531	1531	4.9	4.7	7.70	3.5	98.8	0.80	19.7	24.6	0.344	0.081	0.106	0.31	Above W.T.
	12.11	14	5.1	0.29	105	1536	1536	5.7	5.6	6.70	3.4	89.9	0.80	22.8	28.5	0.344	0.082	0.107	0.31	Above W.T.
	12.2	14	5.3	0.32	105	1546	1546	5.9	5.9	7.07	3.4	90.0	0.80	23.6	29.5	0.344	0.082	0.107	0.31	Above W.T.
	12.3	14	5.4	0.35	105	1556	1556	6.0	5.9	7.57	3.4	91.3	0.80	24.0	29.9	0.344	0.082	0.107	0.31	Above W.T.
	12.4	14	5.3	0.34	105	1567	1567	5.9	5.8	7.53	3.4	92.0	0.80	23.4	29.3	0.344	0.082	0.107	0.31	Above W.T.
	12.5	14	4.8	0.34	105	1577	1577	5.3	5.1	8.48	3.5	99.0	0.80	21.2	26.4	0.344	0.082	0.106	0.31	Above W.T.
	12.6 12.7	14 14	5.5 5.7	0.35 0.36	105 105	1588 1598	1588 1598	6.0 6.2	5.9 6.1	7.44 7.35	3.4 3.4	90.9 89.5	0.80	24.2 25.0	30.2 31.2	0.344	0.083 0.083	0.107 0.108	0.31	Above W.T. Above W.T.
	12.8	14	5.6	0.37	105	1609	1609	6.1	6.0	7.72	3.4	91.6	0.80	24.4	30.5	0.344	0.083	0.107	0.31	Above W.T.
	12.9	14	5.2	0.36	105	1619	1619	5.7	5.4	8.20	3.5	96.1	0.80	22.6	28.3	0.344	0.082	0.107	0.31	Above W.T.
	12.99	14	5.1	0.36	105	1629	1629	5.5	5.3	8.40	3.5	97.6	0.80	22.1	27.6	0.344	0.082	0.107	0.31	Above W.T.
	13.09	14	5.6	0.37	105	1639	1639	6.1	5.8	7.74	3.4	92.3	0.80	24.2	30.3	0.344	0.083	0.107	0.31	Above W.T.
	13.19	14	5.7	0.37	105	1650	1650	6.1	5.9	7.59	3.4	91.5	0.80	24.6	30.7	0.344	0.083	0.107	0.31	Above W.T.
	13.29 13.39	14 14	6.3 6.6	0.37 0.39	115 115	1660 1672	1660 1672	6.8 7.1	6.6 6.9	6.76 6.77	3.4	85.4 84.1	0.80	27.1 28.3	33.8 35.3	0.344	0.084 0.084	0.109 0.109	0.32	Above W.T. Above W.T.
	13.49	14	7.6	0.39	115	1683	1683	8.1	8.0	6.77	3.3	77.3	0.80	32.4	40.5	0.344	0.084	0.109	0.32	Above W.T.
	13.59	14	8.9	0.45	115	1695	1695	9.5	9.5	5.59	3.2	71.1	0.80	37.8	47.3	0.344	0.090	0.112	0.34	Above W.T.
	13.69	14	9.4	0.51	115		1706	10.0	10.0	5.97	3.2	71.1	0.80	39.8	49.8	0.344	0.091	0.119	0.35	Above W.T.

**EQ Magnitude (M<sub>w</sub>):** 6.5

PGA (g): 0.54 MSF: 1.30

Depth to Groundwater: 14 feet

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 34 EQ Magnitude  $(M_w)$ : PGA (g): 0.54 MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> e1N	Q	F	Ic	(%)	Ксрт	Dqc1N	( <b>q</b> c1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	13.79	14	10.6	0.57	125	1718	1718	11.2	11.3	5.85	3.1	67.5	0.80	44.8	56.0	0.344	0.096	0.125	0.36	Above W.T.
	13.89	14	10.3	0.56	125	1730	1730	10.8	10.9	5.94	3.1	68.8	0.80	43.3	54.2	0.344	0.095	0.123	0.36	Above W.T.
	13.99	14	10	0.6	125	1743	1743	10.5	10.5	6.57	3.2	72.0	0.80	41.9	52.4	0.344	0.093	0.121	0.35	Above W.T.
	14.09	14	10.1	0.58	125	1755	1749	10.6	10.5	6.29	3.2	70.9	0.80	42.3	52.8	0.345	0.094	0.122	0.35	NonLiqfble.
	14.18	14	10	0.56	125	1767	1755	10.4	10.4	6.14	3.2	70.7	0.80	41.8	52.2	0.346	0.093	0.121	0.35	NonLiqfble.
	14.27 14.37	14 14	10.8 10.6	0.55 0.59	125 125	1778 1790	1760 1767	11.3 11.0	11.3 11.0	5.55 6.08	3.1	66.6 69.1	0.80	45.1 44.1	56.3 55.2	0.347 0.349	0.097 0.096	0.126 0.124	0.36 0.36	NonLiqfble. NonLiqfble.
	14.47	14	10.4	0.61	125	1803	1773	10.8	10.7	6.42	3.2	70.9	0.80	43.2	54.0	0.350	0.095	0.123	0.35	NonLiqfble.
	14.57	14	10.2	0.62	125	1815	1779	10.6	10.4	6.67	3.2	72.4	0.80	42.3	52.9	0.351	0.094	0.122	0.35	NonLiqfble.
	14.67	14	9.5	0.59	125	1828	1785	9.8	9.6	6.87	3.2	75.2	0.80	39.3	49.2	0.352	0.091	0.118	0.34	NonLiqfble.
	14.76	14	9	0.53	115	1839	1791	9.3	9.0	6.56	3.2	75.9	0.80	37.2	46.5	0.353	0.089	0.116	0.33	NonLiqfble.
	14.86 14.96	14 14	7.8 5.6	0.48 0.45	115 115	1851 1862	1796 1801	8.1 5.8	7.7 5.2	6.98 9.64	3.3 3.5	81.8 101.7	0.80	32.2 23.1	40.3 28.9	0.354 0.356	0.086	0.112	0.32	NonLiqfble. NonLiqfble.
	15.06	14	3.5	0.43	105	1874	1807	3.6	2.8	15.22	3.9	137.0	0.80	14.4	18.0	0.357	0.082	0.107	0.30	NonLiqfble.
	15.16	14	3	0.35	105	1884	1811	3.1	2.3	17.01	4.0	149.9	0.80	12.3	15.4	0.358	0.080	0.104	0.29	NonLiqfble.
	15.26	14	3.5	0.33	105	1895	1815	3.6	2.8	12.93	3.8	132.2	0.80	14.4	18.0	0.359	0.081	0.105	0.29	NonLiqfble.
	15.35	14	3.7	0.33	105	1904	1819	3.8	3.0	12.01	3.8	127.2	0.80	15.2	19.0	0.360	0.081	0.105	0.29	NonLiqfble.
	15.45	14	5.6	0.33	105	1914	1823	5.7	5.1	7.11	3.5	94.6	0.80	23.0	28.7	0.361	0.082	0.107	0.30	NonLiqfble.
	15.54 15.64	14 14	7.1 8.3	0.35 0.39	115 115	1924 1935	1827 1832	7.3 8.5	6.7 8.0	5.70 5.32	3.3 3.2	81.1 74.7	0.80 0.80	29.1 33.9	36.3 42.4	0.362 0.363	0.084 0.087	0.110	0.30	NonLiqfble. NonLiqfble.
	15.74	14	8.3	0.42	115	1933	1838	8.5	8.0	5.73	3.2	76.3	0.80	33.9	42.4	0.364	0.087	0.113	0.31	NonLiqfble.
	15.84	14	8.2	0.46	115	1958	1843	8.4	7.8	6.37	3.3	79.1	0.80	33.4	41.8	0.366	0.087	0.113	0.31	NonLiqfble.
	15.94	14	8.5	0.49	115	1970	1848	8.7	8.1	6.52	3.3	78.6	0.80	34.6	43.3	0.367	0.088	0.114	0.31	NonLiqfble.
	16.03	14	8.2	0.48	115	1980	1853	8.3	7.8	6.66	3.3	80.3	0.80	33.3	41.7	0.368	0.087	0.113	0.31	NonLiqfble.
	16.13	14	7.8	0.49	115	1992	1858	7.9	7.3	7.20	3.3	83.8	0.80	31.7	39.6	0.369	0.086	0.111	0.30	NonLiqfble.
	16.23	14 14	7.7 7.8	0.47 0.47	115	2003	1863	7.8	7.2 7.3	7.02 6.92	3.3	83.7	0.80	31.2	39.0	0.370	0.086	0.111	0.30	NonLiqfble.
	16.33 16.43	14	7.6 8.2	0.47	115 115	2015 2026	1869 1874	7.9 8.3	7.7	6.54	3.3	83.1 80.3	0.80 0.80	31.6 33.2	39.5 41.4	0.371 0.372	0.086 0.087	0.111	0.30	NonLiqfble. NonLiqfble.
	16.53	14	7.5	0.47	115	2038	1879	7.6	6.9	7.25	3.4	85.7	0.80	30.3	37.8	0.373	0.085	0.111	0.30	NonLiqfble.
	16.63	14	7.7	0.46	115	2049	1885	7.8	7.1	6.89	3.3	83.7	0.80	31.0	38.8	0.374	0.085	0.111	0.30	NonLiqfble.
	16.73	14	7.9	0.44	115	2061	1890	8.0	7.3	6.41	3.3	81.3	0.80	31.8	39.8	0.375	0.086	0.112	0.30	NonLiqfble.
	16.83	14	7.7	0.44	115	2072	1895	7.7	7.0	6.60	3.3	83.0	0.80	31.0	38.7	0.376	0.085	0.111	0.30	NonLiqfble.
	16.93 17.03	14 14	8.5 8.2	0.45 0.46	115 115	2084 2095	1900 1906	8.5 8.2	7.8 7.5	6.03 6.43	3.3	77.9 80.5	0.80	34.1 32.9	42.7 41.1	0.377 0.378	0.087 0.086	0.113 0.112	0.30	NonLiqfble. NonLiqfble.
	17.03	14	9.1	0.40	115	2107	1911	9.1	8.4	6.21	3.2	76.6	0.80	36.4	45.5	0.378	0.089	0.112	0.30	NonLiqfble.
	17.23	14	9.8	0.52	125	2118	1916	9.8	9.1	5.95	3.2	73.5	0.80	39.2	49.0	0.380	0.091	0.118	0.31	NonLiqfble.
	17.32	14	9.5	0.51	115	2130	1922	9.5	8.8	6.05	3.2	74.8	0.80	37.9	47.4	0.381	0.090	0.117	0.31	NonLiqfble.
	17.42	14	9.1	0.49	115	2141	1927	9.1	8.3	6.10	3.2	76.5	0.80	36.3	45.4	0.382	0.089	0.115	0.30	NonLiqfble.
	17.52	14	8.4	0.47	115	2153	1932	8.4	7.6	6.42	3.3	80.2	0.80	33.4	41.8	0.383	0.087	0.113	0.29	NonLiqfble.
	17.62 17.72	14 14	7.5 7.3	0.47 0.44	115 115	2164 2176	1937 1943	7.5 7.2	6.6 6.4	7.32 7.08	3.4 3.4	87.1 87.4	0.80	29.8 29.0	37.3 36.2	0.384 0.385	0.085 0.084	0.110 0.110	0.29 0.28	NonLiqfble. NonLiqfble.
	17.82	14	7.1	0.42	115	2187	1948	7.0	6.2	6.99	3.4	88.2	0.80	28.2	35.2	0.386	0.084	0.110	0.28	NonLiqfble.
	17.91	14	7.3	0.39	115	2197	1953	7.2	6.3	6.29	3.3	84.9	0.80	28.9	36.1	0.387	0.084	0.110	0.28	NonLiqfble.
	18.01	14	7.5	0.39	115	2209	1958	7.4	6.5	6.10	3.3	83.4	0.80	29.7	37.1	0.388	0.085	0.110	0.28	NonLiqfble.
	18.11	14	7.8	0.4	115	2220	1963	7.7	6.8	5.98	3.3	81.7	0.80	30.8	38.5	0.389	0.085	0.111	0.29	NonLiqfble.
	18.21 18.31	14 14	6.8 6.7	0.39 0.38	115	2232 2243	1969 1974	6.7	5.8	6.86	3.4	89.8 90.3	0.80	26.8	33.5	0.390	0.084	0.109	0.28	NonLiqfble. NonLiqfble.
	18.4	14	6.6	0.39	115 115	2254	1974	6.6 6.5	5.6 5.5	6.81 7.13	3.4 3.4	90.3	0.80	26.4 26.0	33.0 32.5	0.391 0.392	0.083	0.108 0.108	0.28 0.28	NonLiqfble.
	18.5	14	5.6	0.38	105	2265	1984	5.5	4.5	8.51	3.5	103.1	0.80	22.0	27.5	0.393	0.082	0.107	0.27	NonLiqfble.
	18.6	14	5.2	0.32	105	2276	1988	5.1	4.1	7.88	3.6	104.5	0.80	20.4	25.5	0.394	0.082	0.106	0.27	NonLiqfble.
	18.7	14	5.5	0.32	105	2286	1992	5.4	4.4	7.35	3.5	100.4	0.80	21.6	27.0	0.395	0.082	0.106	0.27	NonLiqfble.
	18.79	14	6.1	0.3	105	2296	1996	6.0	5.0	6.06	3.4	91.6	0.80	23.9	29.9	0.396	0.082	0.107	0.27	NonLiqfble.
	18.83 18.93	14 14	6.2 5.5	0.29 0.26	105 105	2300 2310	1998 2002	6.1 5.4	5.1 4.3	5.74 5.98	3.4 3.5	89.8 95.7	0.80	24.3 21.5	30.3 26.9	0.396 0.397	0.083	0.107 0.106	0.27 0.27	NonLiqfble. NonLiqfble.
	19.03	14	5.5	0.24	105	2321	2002	4.9	3.8	6.25	3.5	101.0	0.80	19.5	24.4	0.398	0.082	0.106	0.27	NonLiqfble.
	19.13	14	5	0.23	105	2331	2011	4.9	3.8	6.00	3.5	100.1	0.80	19.5	24.4	0.399	0.081	0.106	0.27	NonLiqfble.
	19.23	14	5		105	2342	2015	4.9	3.8	5.49	3.5	98.1	0.80	19.5	24.4	0.400	0.081	0.106	0.26	NonLiqfble.
	19.33	14	4.5		95	2352	2019	4.4	3.3	6.32	3.6	106.5	0.80	17.5	21.9	0.401	0.081	0.105	0.26	NonLiqfble.
	19.43	14	5.1	0.23	105	2362	2022	5.0	3.9	5.87	3.5	99.1	0.80	19.8	24.8	0.402	0.081	0.106	0.26	NonLiqfble.
	19.53 19.63	14 14	5.2 5.6	0.24 0.25	105 105	2372 2383	2027 2031	5.1 5.4	4.0 4.3	5.98 5.67	3.5	98.8 94.5	0.80	20.2 21.7	25.3 27.2	0.403 0.404	0.082 0.082	0.106 0.106	0.26 0.26	NonLiqfble.
	19.53	14	5.2		105	2392	2031	5.4	3.9	6.49	3.5 3.5	94.5 101.0	0.80	20.2	25.2	0.404	0.082	0.106	0.26	NonLiqfble. NonLiqfble.
	19.82	14	5.7	0.26	105	2403	2039	5.5	4.4	5.78	3.5	94.4	0.80	22.1	27.6	0.405	0.081	0.107	0.26	NonLiqfble.
	19.93	14	6.4	0.27	105	2414	2044	6.2	5.1	5.20	3.4	87.5	0.80	24.8	31.0	0.406	0.083	0.108	0.26	NonLiqfble.
	20.03	14	6.4	0.28	105	2425	2048	6.2	5.1	5.40	3.4	88.4	0.80	24.8	30.9	0.399	0.083	0.108	0.27	NonLiqfble.
	20.13	14	6.5	0.27	105	2435	2052	6.3	5.1	5.11	3.4	86.7	0.80	25.1	31.4	0.400	0.083	0.108	0.27	NonLiqfble.
	20.23	14	6.5		105	2446	2056	6.3	5.1	5.12	3.4	86.8	0.80	25.1	31.4	0.401	0.083	0.108	0.27	NonLiqfble.
	20.32 20.42	14 14	6.8 7.4	0.28 0.29	105 105	2455 2466	2060 2065	6.6 7.1	5.4 6.0	5.03 4.70	3.3	84.8 80.4	0.80	26.2 28.5	32.8 35.6	0.402 0.402	0.083	0.108 0.109	0.27 0.27	NonLiqfble. NonLiqfble.
	20.52	14	7.4	0.29	105	2476	2069	7.0	5.9	4.70	3.3	82.1	0.80	28.1	35.1	0.402	0.084	0.109	0.27	NonLiqfble.
	20.62	14	7.3	0.3	105	2487	2073	7.0	5.8	4.95	3.3	82.2	0.80	28.1	35.1	0.404	0.084	0.109	0.27	NonLiqfble.
	20.72	14	6.8	0.29	105	2497	2077	6.5	5.3	5.22	3.4	86.0	0.80	26.1	32.6	0.405	0.083	0.108	0.27	NonLiqfble.
	20.82	14	6.8	0.27	105	2508	2082	6.5	5.3	4.87	3.3	84.6	0.80	26.1	32.6	0.406	0.083	0.108	0.27	NonLiqfble.

Project Name: SVRT - Newhall Operations - Maintenance and Storage Yard Project Number: 6600,3.001.01
Date: September 2005
CPT Number: 34
Depth to Groundwater: 14 feet

**EQ Magnitude (M<sub>w</sub>):** 6.5 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm	Corr.	Friction						Induced	Lianef	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> e1N	Q	F	Ic	(%)	Ксрт	Dq <sub>c1N</sub>	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	20.92	14	7	0.25	105	2518	2086	6.7	5.5	4.36	3.3	81.3	0.80	26.8	33.5	0.407	0.084	0.109	0.27	NonLiqfble.
	21.01	14	6.5	0.23	105	2528	2090	6.2	5.0	4.58	3.3	85.2	0.80	24.9	31.1	0.407	0.084	0.109	0.26	NonLiqfble.
	21.11	14	6.4	0.24	105	2538	2094	6.1	4.9	4.68	3.4	86.3	0.80	24.5	30.6	0.408	0.083	0.107	0.26	NonLiqfble.
	21.21 21.31	14 14	6.5 6.9	0.25 0.25	105 105	2549 2559	2098 2102	6.2 6.6	5.0 5.3	4.78 4.45	3.4	86.3 82.6	0.80	24.8 26.3	31.0 32.9	0.409 0.410	0.083	0.108 0.108	0.26 0.26	NonLiqfble. NonLiqfble.
	21.41	14	6.7	0.25	105	2570	2102	6.4	5.1	4.62	3.3	84.6	0.80	25.5	31.9	0.411	0.083	0.108	0.26	NonLiqfble.
	21.5	14	6.1	0.26	105	2579	2111	5.8	4.6	5.41	3.4	91.8	0.80	23.2	29.0	0.412	0.082	0.107	0.26	NonLiqfble.
	21.6	14	5.9	0.25	105	2590	2115	5.6	4.4 5.0	5.43	3.4	93.4	0.80	22.5	28.1	0.413	0.082	0.107	0.26	NonLiqfble. NonLiqfble.
	21.7 21.8	14 14	6.6 8.6	0.25 0.25	105 105	2600 2611	2119 2123	6.3 8.2	6.9	4.72 3.43	3.4	85.9 70.3	0.80	25.1 32.7	31.4 40.8	0.413 0.414	0.083	0.108 0.112	0.26 0.27	NonLiqfble.
	21.89	14	11.1	0.29	115	2620	2127	10.5	9.2	2.96	3.0	60.1	0.80	42.1	52.7	0.415	0.094	0.122	0.29	NonLiqfble.
	21.99	14	11.5	0.3	115	2632	2132	10.9	9.5	2.95	3.0	59.1	0.80	43.6	54.5	0.416	0.095	0.124	0.30	NonLiqfble.
	22.09 22.18	14 14	10.7 11.8	0.27 0.27	115 115	2643 2654	2138 2142	10.1 11.2	8.8 9.8	2.88 2.58	3.0	60.8 56.4	0.80	40.5 44.6	50.6 55.8	0.417 0.417	0.092 0.096	0.120 0.125	0.29	NonLiqfble. NonLiqfble.
	22.28	14	10.9	0.26	115	2665	2148	10.3	8.9	2.72	3.0	59.5	0.80	41.2	51.5	0.418	0.093	0.120	0.29	NonLiqfble.
	22.38	14	10	0.25	105	2677	2153	9.4	8.0	2.89	3.1	63.0	0.80	37.7	47.1	0.419	0.090	0.117	0.28	NonLiqfble.
	22.48 22.58	14 14	10.2 9.5	0.23 0.23	105 105	2687 2698	2157 2161	9.6 8.9	8.2 7.5	2.60 2.82	3.0	60.8 64.3	0.80	38.4 35.8	48.0 44.7	0.420 0.421	0.090	0.117 0.115	0.28 0.27	NonLiqfble. NonLiqfble.
	22.67	14	9.6	0.23	105	2707	2165	9.0	7.6	2.55	3.1	62.4	0.80	36.1	45.1	0.421	0.089	0.115	0.27	NonLiqfble.
	22.77	14	9.2	0.21	105	2717	2170	8.6	7.2	2.68	3.1	64.6	0.80	34.6	43.2	0.422	0.088	0.114	0.27	NonLiqfble.
	22.87	14	9.7	0.22	105	2728	2174	9.1	7.7	2.64	3.1	62.8	0.80	36.4	45.5	0.423	0.089	0.115	0.27	NonLiqfble.
	22.97 23.07	14 14	10 10.1	0.22 0.21	105 105	2738 2749	2178 2182	9.4 9.5	7.9 8.0	2.55 2.41	3.0	61.4	0.80	37.5 37.8	46.9 47.3	0.424 0.424	0.090	0.116 0.117	0.27 0.28	NonLiqfble. NonLiqfble.
	23.17	14	10	0.21	105	2759	2187	9.4	7.9	2.44	3.0	60.8	0.80	37.4	46.8	0.425	0.090	0.116	0.27	NonLiqfble.
	23.27	14	9.5	0.2	105	2770	2191	8.9	7.4	2.46	3.1	62.6	0.80	35.5	44.4	0.426	0.088	0.115	0.27	NonLiqfble.
	23.37 23.47	14 14	8.9 8.8	0.19 0.18	105 105	2780 2791	2195 2199	8.3 8.2	6.8 6.7	2.53 2.43	3.1	65.1 64.9	0.80	33.2 32.8	41.6 41.1	0.427 0.428	0.087 0.086	0.113	0.26 0.26	NonLiqfble. NonLiqfble.
	23.57	14	8.3	0.18	105	2801	2204	7.7	6.3	2.43	3.1	68.0	0.80	30.9	38.7	0.428	0.085	0.112	0.26	NonLiqfble.
	23.66	14	8.8	0.19	105	2811	2207	8.2	6.7	2.57	3.1	65.9	0.80	32.8	41.0	0.429	0.086	0.112	0.26	NonLiqfble.
	23.76	14	9	0.21	105	2821	2212	8.4	6.9	2.77	3.1	66.5	0.80	33.5	41.9	0.430	0.087	0.113	0.26	NonLiqfble.
	23.86 23.96	14 14	9.7 10.6	0.25 0.28	105 115	2832 2842	2216 2220	9.0 9.8	7.5 8.3	3.02 3.05	3.1	65.7 63.3	0.80	36.1 39.4	45.1 49.2	0.431	0.089	0.115 0.118	0.27 0.27	NonLiqfble. NonLiqfble.
	24.06	14	11.5	0.3	115	2854	2226	10.7	9.0	2.98	3.0	60.6	0.80	42.7	53.3	0.432	0.094	0.122	0.28	NonLiqfble.
	24.16	14	12.3	0.31	115	2865	2231	11.4	9.7	2.85	3.0	58.1	0.80	45.6	57.0	0.433	0.097	0.126	0.29	NonLiqfble.
	24.25 24.35	14 14	12.8 13.3	0.29 0.28	115 115	2876 2887	2236 2241	11.8 12.3	10.2 10.6	2.55 2.36	3.0 2.9	55.3 53.2	0.80	47.4 49.2	59.2 61.5	0.433 0.434	0.099 0.102	0.129 0.132	0.30	NonLiqfble. NonLiqfble.
	24.45	14	12.7	0.25	115	2899	2246	11.7	10.0	2.22	2.9	53.5	0.80	46.9	58.6	0.434	0.102	0.132	0.30	NonLiqfble.
	24.54	14	11.6	0.22	105	2909	2251	10.7	9.0	2.17	3.0	55.7	0.80	42.8	53.5	0.436	0.094	0.123	0.28	NonLiqfble.
	24.64	14	10.8	0.21	105	2920	2255	10.0	8.3	2.25	3.0	58.3	0.80	39.8	49.8	0.436	0.091	0.119	0.27	NonLiqfble.
	24.74 24.84	14 14	10.1 9.2	0.16 0.12	105 95	2930 2941	2259 2264	9.3 8.5	7.6 6.8	1.85 1.55	3.0	57.4 57.8	0.80	37.2 33.8	46.5 42.3	0.437 0.438	0.089 0.087	0.116 0.113	0.27 0.26	NonLiqfble. NonLiqfble.
	24.94	14	7.8	0.11	95	2950	2267	7.2	5.6	1.74	3.1	64.8	0.80	28.7	35.8	0.439	0.084	0.110	0.25	NonLiqfble.
	25.03	14	6.5	0.11	95	2959	2270	6.0	4.4	2.19	3.2	75.1	0.80	23.9	29.8	0.439	0.082	0.107	0.24	NonLiqfble.
	25.13 25.23	14 14	6.3 7	0.1 0.13	95 95	2968 2978	2273 2276	5.8 6.4	4.2 4.8	2.08 2.36	3.2 3.2	75.5 73.7	0.80	23.1 25.7	28.9 32.1	0.440 0.441	0.082 0.083	0.107 0.108	0.24	NonLiqfble. NonLiqfble.
	25.23	14	8	0.13	95	2987	2280	7.3	5.7	2.15	3.1	67.4	0.80	29.3	36.7	0.442	0.085	0.110	0.25	NonLiqfble.
	25.38	14	8.3	0.14	95	2992	2281	7.6	6.0	2.06	3.1	65.5	0.80	30.4	38.0	0.442	0.085	0.111	0.25	NonLiqfble.
	25.48	14	9.1	0.16	105	3001	2284	8.3	6.6	2.11	3.1	62.9	0.80	33.3	41.7	0.443	0.087	0.113	0.25	NonLiqfble.
	25.58 25.68	14 14	9 8.5	0.17 0.17	105 105	3012 3022	2289 2293	8.2 7.8	6.5 6.1	2.27 2.43	3.1	64.5 67.6	0.80	32.9 31.1	41.2 38.8	0.443 0.444	0.086 0.085	0.112 0.111	0.25 0.25	NonLiqfble. NonLiqfble.
	25.78	14	8.8	0.17	105	3033	2297	8.0	6.3	2.33	3.1	65.8	0.80	32.1	40.2	0.445	0.086	0.112	0.25	NonLiqfble.
	25.88	14	8.6	0.18	105	3043	2301	7.8	6.1	2.54	3.1	68.1	0.80	31.4	39.2	0.446	0.086	0.111	0.25	NonLiqfble.
	25.98 26.08	14 14	8.9 10	0.19 0.21	105 105	3054 3064	2306 2310	8.1 9.1	6.4 7.3	2.58 2.48	3.1	67.2 63.0	0.80	32.4 36.4	40.5 45.5	0.446 0.447	0.086	0.112	0.25 0.26	NonLiqfble. NonLiqfble.
	26.17	14	9.8	0.21	105	3074	2314	8.9	7.1	2.42	3.1	63.2	0.80	35.7	44.6	0.448	0.088	0.115	0.26	NonLiqfble.
	26.27	14	9.3	0.19	105	3084	2318	8.5	6.7	2.45	3.1	65.2	0.80	33.8	42.3	0.448	0.087	0.113	0.25	NonLiqfble.
	26.37	14	8.5	0.16	105	3095	2322	7.7	6.0	2.30	3.1	67.2	0.80	30.9	38.6	0.449	0.085	0.111	0.25	NonLiqfble.
	26.47 26.57	14 14	7.6 7.3	0.14 0.13	95 95	3105 3115	2327 2330	6.9 6.6	5.2 4.9	2.32 2.26	3.2 3.2	71.3 72.4	0.80	27.6 26.5	34.5 33.1	0.450 0.450	0.084 0.083	0.109 0.108	0.24	NonLiqfble. NonLiqfble.
	26.67	14	7.4	0.13	95	3124	2333	6.7	5.0	2.23	3.2	71.7	0.80	26.8	33.5	0.451	0.084	0.109	0.24	NonLiqfble.
	26.77	14	8	0.14	95	3134	2336	7.2	5.5	2.18	3.1	68.6	0.80	29.0	36.2	0.452	0.084	0.110	0.24	NonLiqfble.
	26.86 26.96	14 14	8.2 9	0.16 0.19	105 105	3142 3153	2339 2344	7.4 8.1	5.7 6.3	2.41 2.56	3.2 3.1	69.5 67.4	0.80	29.7 32.5	37.1 40.7	0.453 0.453	0.085 0.086	0.110 0.112	0.24 0.25	NonLiqfble. NonLiqfble.
	27.06	14	8.7	0.19	105	3163	2344	7.9	6.1	3.09	3.2	71.9	0.80	31.4	39.3	0.453	0.086	0.112	0.25	NonLiqfble.
	27.16	14	9.5	0.26	105	3174	2352	8.6	6.7	3.29	3.2	70.1	0.80	34.3	42.9	0.455	0.087	0.114	0.25	NonLiqfble.
	27.26	14	9.7	0.3	115	3184	2356	8.7	6.9	3.70	3.2	71.6	0.80	35.0	43.7	0.455	0.088	0.114	0.25	NonLiqfble.
	27.35 27.45	14 14	10.2 10.4	0.34 0.38	115 115	3195 3206	2361 2366	9.2 9.4	7.3 7.4	3.95 4.32	3.2 3.2	71.3 72.5	0.80	36.7 37.4	45.9 46.8	0.456 0.457	0.089	0.116 0.116	0.25 0.25	NonLiqfble. NonLiqfble.
	27.55	14	10.4	0.39	115	3218	2372	9.2	7.2	4.54	3.2	74.2	0.80	36.7	45.8	0.457	0.090	0.116	0.25	NonLiqfble.
	27.65	14	9.9	0.37	115	3229	2377	8.9	7.0	4.47	3.2	74.9	0.80	35.5	44.4	0.458	0.088	0.115	0.25	NonLiqfble.
	27.74	14 14	9.8 10	0.37 0.36	115 115	3240 3251	2382 2387	8.8 9.0	6.9 7.0	4.52 4.30	3.2	75.6 74.0	0.80	35.1 35.8	43.9 44.8	0.458 0.459	0.088	0.114 0.115	0.25 0.25	NonLiqfble.
	27.84 27.94	14	10.6	0.36	115	3263	2392	9.0 9.5	7.0	4.30	3.2 3.2	74.0 70.8	0.80	35.8 37.9	44.8 47.4	0.459	0.088	0.115	0.25	NonLiqfble. NonLiqfble.
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Project Number: 6600.3.001.01 Date: September 2005

Depth to Groundwater: 14 feet

CPT Number: 34

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
_	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio	_	F.C.	17	Dec	(m )	Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqe1N	(qc1N)es	Ratio	M7.5	M6.50	Safety	Comments
	20.02	1.4	10.7	0.20	115	2272	2207	0.6	7.6	4.10	2.2	71.4	0.80	20.2	47.0	0.460	0.000	0.117	0.25	N1:-6-1-
	28.03 28.13	14 14	10.7 10.1	0.38	115 115	3273 3284	2397 2402	9.6 9.0	7.6 7.0	4.19 4.61	3.2	71.4 75.3	0.80	38.3 36.1	47.8 45.1	0.460 0.461	0.090	0.117 0.115	0.25 0.25	NonLiqfble. NonLiqfble.
	28.23	14	10.2	0.39	115	3296	2407	9.1	7.1	4.56	3.2	74.8	0.80	36.4	45.5	0.461	0.089	0.115	0.25	NonLiqfble.
	28.32	14	10.4	0.38	115	3306	2412	9.3	7.2	4.34	3.2	73.3	0.80	37.1	46.3	0.462	0.089	0.116	0.25	NonLiqfble.
	28.42 28.52	14 14	10.8 10.9	0.39 0.4	115 115	3318 3329	2417 2423	9.6 9.7	7.6 7.6	4.27 4.33	3.2 3.2	71.8 71.8	0.80	38.4 38.8	48.1 48.4	0.462 0.463	0.090	0.117 0.118	0.25 0.25	NonLiqfble. NonLiqfble.
	28.62	14	11.8	0.41	115	3341	2428	10.5	8.3	4.05	3.1	68.1	0.80	41.9	52.4	0.464	0.093	0.121	0.26	NonLiqfble.
	28.85	14	12.9	0.38	115	3367	2440	11.4	9.2	3.39	3.1	62.4	0.80	45.7	57.1	0.465	0.097	0.127	0.27	NonLiqfble.
	28.95	14	12.8	0.37	115	3379	2445	11.3	9.1	3.33	3.1	62.4	0.80	45.3	56.6	0.466	0.097	0.126	0.27	NonLiqfble.
	29.05 29.14	14 14	12.5 11.5	0.34	115 115	3390 3401	2451 2455	11.0 10.2	8.8 8.0	3.15 3.06	3.1	62.2 64.3	0.80	44.2 40.6	55.2 50.8	0.466 0.467	0.096 0.092	0.124 0.120	0.27 0.26	NonLiqfble. NonLiqfble.
	29.24	14	9.7	0.26	115	3412	2461	8.6	6.5	3.25	3.2	70.9	0.80	34.2	42.8	0.467	0.087	0.113	0.24	NonLiqfble.
	29.34	14	8.8	0.23	105	3424	2466	7.8	5.7	3.25	3.2	74.3	0.80	31.0	38.8	0.468	0.085	0.111	0.24	NonLiqfble.
	29.44 29.54	14 14	8.8 9.4	0.21 0.23	105 105	3434 3445	2470 2474	7.7 8.3	5.7 6.2	2.97 3.00	3.2	72.7 70.7	0.80	31.0 33.1	38.7 41.3	0.468 0.469	0.085 0.087	0.111 0.113	0.24	NonLiqfble. NonLiqfble.
	29.63	14	9.8	0.23	115	3454	2474	8.6	6.5	3.34	3.2	71.3	0.80	34.5	43.1	0.470	0.087	0.113	0.24	NonLiqfble.
	29.73	14	9.5	0.47	115	3466	2483	8.3	6.3	6.05	3.3	84.5	0.80	33.4	41.7	0.470	0.087	0.113	0.24	NonLiqfble.
	29.83	14	24.1	0.65	125	3477	2489	21.1	18.0	2.91	2.8	45.0	0.80	84.5	105.7	0.471	0.190	0.247	0.52	NonLiqfble.
	29.93 30.02	14 14	85.1 107	0.82 1.02	125 125	3490 3501	2495 2501	74.5 93.6	66.8 84.1	0.98 0.97	2.0	14.2 11.9	0.24 0.18	24.2 21.1	98.7 114.7	0.471 0.452	0.169 0.221	0.220 0.287	0.47	Liquefaction Liquefaction
	30.12	14	93.8	1.09	125	3513	2507	82.0	73.4	1.18	2.1	14.6	0.26	28.4	110.4	0.453	0.205	0.267	0.59	Liquefaction
	30.21	14	73.8	1.23	135	3525	2512	64.4	57.3	1.71	2.2	20.5	0.41	45.6	110.1	0.453	0.204	0.265	0.59	Liquefaction
	30.31	14	66.1	1.29	135	3538	2520	57.6	51.0	2.01	2.3	23.6	0.50	56.8	114.4	0.453	0.219	0.285	0.63	Liquefaction
	30.41 30.5	14 14	71 74.8	1.24 1.12	135 135	3552 3564	2527 2533	61.8 65.0	54.8 57.6	1.79 1.53	2.3	21.5 19.4	0.44	48.9 40.8	110.7 105.8	0.454 0.454	0.206 0.190	0.268	0.59 0.54	Liquefaction Liquefaction
	30.6	14	82.9	0.99	125	3577	2541	72.0	63.8	1.22	2.1	16.3	0.30	31.1	103.1	0.455	0.182	0.236	0.52	Liquefaction
	30.69	14	90.8	0.82	125	3588	2546	78.7	69.9	0.92	2.0	13.3	0.22	22.3	101.0	0.455	0.176	0.229	0.50	Liquefaction
	30.79 30.88	14 14	98.4 102.6	0.8 0.77	115 115	3601 3611	2553 2557	85.2 88.8	75.7 78.8	0.83 0.76	2.0 1.9	11.8 10.9	0.18 0.16	18.9 16.7	104.1 105.4	0.456 0.456	0.185 0.189	0.240 0.246	0.53 0.54	Liquefaction Liquefaction
	30.97	14	105.5	0.73	115	3622	2562	91.2	80.9	0.70	1.9	10.2	0.14	14.7	105.9	0.456	0.190	0.248	0.54	Liquefaction
	31.07	14	107.8	0.68	115	3633	2567	93.1	82.5	0.64	1.9	9.5	0.12	12.7	105.8	0.457	0.190	0.247	0.54	Liquefaction
	31.16	14	110.5	0.74	115	3643	2572	95.3	84.5	0.68	1.9	9.6	0.12	13.5	108.8	0.457	0.200	0.260	0.57	Liquefaction
	31.25 31.34	14 14	111.9 112	0.8 0.84	115 115	3654 3664	2577 2582	96.5 96.4	85.4 85.3	0.73 0.76	1.9 1.9	9.9 10.2	0.13 0.14	14.6 15.6	111.1 112.1	0.458 0.458	0.207 0.211	0.270 0.274	0.59 0.60	Liquefaction Liquefaction
	31.44	14	109.4	0.95	125	3676	2587	94.1	83.1	0.88	1.9	11.4	0.17	19.3	113.4	0.459	0.216	0.280	0.61	Liquefaction
	31.53	14	105.7	1.08	125	3687	2592	90.8	80.1	1.04	2.0	12.8	0.21	24.0	114.9	0.459	0.221	0.287	0.63	Liquefaction
	31.62 31.71	14 14	103.1 99.5	1.25 1.21	125 125	3698 3709	2598 2604	88.5 85.3	77.9 75.0	1.23 1.24	2.1	14.4 14.8	0.25 0.26	29.7 30.3	118.2 115.6	0.460 0.460	0.233 0.224	0.303	0.66	Liquefaction Liquefaction
	31.8	14	94.2	1.16	125	3721	2609	80.7	70.7	1.24	2.1	15.5	0.28	31.4	112.1	0.460	0.224	0.274	0.60	Liquefaction
	31.9	14	90.5	1.17	125	3733	2616	77.4	67.7	1.32	2.1	16.3	0.30	33.6	111.1	0.461	0.207	0.270	0.59	Liquefaction
	32.14	14	119.9	1.26	125	3763	2631	102.3	89.7	1.07	2.0	12.0	0.19	23.6	125.9	0.462	0.265	0.345	0.75	Liquefaction
	32.23 32.32	14 14	113.4 99.6	1.24 1.29	125 125	3774 3786	2636 2642	96.6 84.8	84.6 73.9	1.11 1.32	2.0	12.8 15.5	0.21	25.6 32.9	122.2 117.6	0.462 0.463	0.250 0.231	0.325 0.301	0.70 0.65	Liquefaction Liquefaction
	32.41	14	89.4	1.43	135	3797	2648	76.0	66.1	1.63	2.2	18.5	0.36	42.9	118.9	0.463	0.236	0.307	0.66	Liquefaction
	32.5	14	85.8	1.59	135	3809	2654	72.9	63.2	1.90	2.2	20.5	0.41	51.2	124.1	0.463	0.258	0.335	0.72	Liquefaction
	32.59 32.68	14 14	90.9	1.79 2	135 135	3821 3833	2661 2667	77.1 85.8	66.9 74.5	2.01 2.01	2.2	20.4 19.3	0.41 0.38	54.0 52.8	131.1 138.6	0.464 0.464	0.290 0.328	0.377 0.426	0.81	Liquefaction Liquefaction
	32.77	14	105.5	1.94	135	3846	2674	89.3	77.4	1.87	2.2	18.1	0.35	48.3	137.5	0.464	0.328	0.420	0.92	Liquefaction
	32.86	14	115.1	1.84	135	3858	2680	97.3	84.4	1.63	2.1	16.0	0.29	40.2	137.5	0.465	0.322	0.418	0.90	Liquefaction
	32.95	14	137.4	1.8	135	3870	2687	116.0	100.8	1.33	2.0	12.6	0.20	29.8	145.8	0.465	0.368	0.478	1.03	Low F.S.
	33.04 33.13	14 14	160.7 162.1	1.53 1.21	125 115	3882 3893	2693 2699	135.5 136.5	117.8 118.6	0.96 0.76	1.8 1.8	9.1 7.6	0.11 0.07	16.7 10.3	152.2 146.8	0.465 0.466	0.408	0.531 0.486	1.14 1.04	Low F.S. Low F.S.
	33.22	14	151.2	0.98	115	3904	2704	127.2	110.4	0.66	1.8	7.4	0.06	8.6	135.9	0.466	0.313	0.407	0.87	Liquefaction
	33.31	14	138.6	1.02	115	3914	2708	116.5	100.9	0.75	1.8	8.7	0.10	13.0	129.5	0.467	0.282	0.366	0.79	Liquefaction
	33.4 33.48	14 14	129.5 129.5	1.21 1.38	125 125	3924 3934	2713 2718	108.8 108.7	94.0 93.8	0.95 1.08	1.9 2.0	10.8 11.7	0.15 0.18	19.9 23.8	128.7 132.5	0.467 0.467	0.278 0.296	0.362 0.385	0.77 0.82	Liquefaction Liquefaction
	33.57	14	135.6	1.5	125	3946	2724	113.7	98.1	1.12	1.9	11.6	0.18	24.4	138.1	0.468	0.290	0.383	0.82	Liquefaction
	33.66	14	140.7	1.49	125	3957	2729	117.8	101.6	1.07	1.9	11.0	0.16	22.5	140.3	0.468	0.337	0.438	0.94	Liquefaction
	33.75	14	137	1.31	125	3968	2735	114.6	98.7	0.97	1.9	10.5	0.15	19.9	134.5	0.469	0.307	0.398	0.85	Liquefaction
	33.83 33.92	14 14	129 120	1.04 0.92	115 115	3978 3988	2740 2745	107.8 100.2	92.7 85.9	0.82 0.78	1.9 1.9	10.0 10.3	0.13 0.14	16.5 16.5	124.3 116.7	0.469 0.469	0.259 0.228	0.336 0.296	0.72 0.63	Liquefaction Liquefaction
	34.01	14	112.8	1	125	3999	2750	94.1	80.6	0.90	2.0	11.8	0.14	20.9	115.0	0.470	0.221	0.288	0.61	Liquefaction
	34.09	14	107	1.1	125	4009	2755	89.2	76.2	1.05	2.0	13.4	0.22	25.6	114.8	0.470	0.221	0.287	0.61	Liquefaction
	34.18	14 14	110.5	1.19 1.18	125 125	4020 4030	2760 2765	92.0 98.8	78.6 84.4	1.10	2.0	13.4 12.2	0.22	26.6	118.7 122.2	0.470	0.235 0.250	0.306 0.324	0.65 0.69	Liquefaction
	34.26 34.35	14	118.7 119.8	1.18	125	4041	2765	98.8 99.6	84.4 85.0	1.01 0.91	2.0 1.9	11.4	0.19 0.17	23.4 20.4	122.2	0.471 0.471	0.250	0.324	0.69	Liquefaction Liquefaction
	34.44	14	109.1	0.91	115	4052	2776	90.6	77.1	0.85	2.0	11.8	0.18	20.1	110.7	0.471	0.206	0.268	0.57	Liquefaction
	34.52	14	101.7	0.81	115	4062	2781	84.4	71.7	0.81	2.0	12.2	0.19	20.0	104.4	0.472	0.186	0.241	0.51	Liquefaction
	34.61 34.69	14 14	94.6 88.7	0.84 1	125 125	4072 4082	2785 2790	78.4 73.5	66.4 62.1	0.91 1.15	2.0	13.6 16.1	0.23	23.5 31.1	102.0 104.6	0.472 0.472	0.179 0.186	0.232 0.242	0.49 0.51	Liquefaction Liquefaction
	34.78	14	79.8	1.14	135	4093	2796	66.0	55.6	1.13	2.2	19.4	0.30	41.4	107.4	0.472	0.195	0.242	0.54	Liquefaction
	34.87	14	70.4	1.23	135	4105	2803	58.2	48.8	1.80	2.3	23.0	0.48	54.0	112.1	0.473	0.211	0.274	0.58	Liquefaction
	34.95	14	68.4	1.21	135	4116	2808	56.5	47.2	1.82	2.3	23.6	0.50	55.5	112.0	0.473	0.211	0.274	0.58	Liquefaction

**EQ Magnitude (M<sub>w</sub>):** 6.5

PGA (g): 0.54 MSF: 1.30

Project Number: 6600.3.001.01 Date: September 2005

Depth to Groundwater: 14 feet

CPT Number: 34

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	35.04 35.12	14 14	75.5 82.5	0.98 0.75	125 125	4128 4138	2815 2820	62.3 68.0	52.2 57.0	1.33 0.93	2.2	19.3 15.4	0.38	38.5 26.1	100.8 94.1	0.474 0.474	0.175 0.158	0.228 0.205	0.48	Liquefaction Liquefaction
	35.21	14	84.3	0.74	125	4150	2826	69.4	58.2	0.90	2.1	14.9	0.27	25.0	94.4	0.474	0.158	0.206	0.43	Liquefaction
	35.42	14	72.7	1.13	135	4176	2839	59.7	49.7	1.60	2.3	21.6	0.44	47.5	107.2	0.475	0.194	0.253	0.53	Liquefaction
	35.5	14	79	1.17	135	4187	2844	64.8	54.1	1.52	2.2	20.1	0.40	43.8	108.6	0.475	0.199	0.259	0.54	Liquefaction
	35.59 35.68	14 14	96.2 124.7	1.09 0.88	125 115	4199 4210	2851 2857	78.8 102.1	66.0 85.8	1.16 0.72	2.1 1.9	15.5 9.8	0.28	30.9 15.1	109.7 117.2	0.476 0.476	0.203 0.230	0.264 0.298	0.55 0.63	Liquefaction Liquefaction
	35.76	14	140.3	0.67	105	4219	2861	114.8	96.6	0.48	1.7	6.9	0.05	6.1	120.8	0.476	0.244	0.317	0.67	Liquefaction
	35.85	14	144.6	0.51	95	4229	2865	118.2	99.4	0.36	1.7	5.4	0.01	1.4	119.6	0.477	0.239	0.311	0.65	Liquefaction
	35.94	14	136.2	0.52	105	4237	2868	111.3	93.5	0.39	1.7	6.2	0.03	3.6	114.9	0.477	0.221	0.287	0.60	Liquefaction
	36.03 36.11	14 14	124.9 114.8	0.52 0.52	105 105	4247 4255	2871 2875	102.0 93.7	85.5 78.4	0.42 0.46	1.8 1.8	7.2 8.3	0.06	6.4 9.0	108.4 102.7	0.478 0.478	0.198 0.181	0.258 0.235	0.54 0.49	Liquefaction Liquefaction
	36.2	14	106.7	0.53	105	4265	2879	87.0	72.6	0.51	1.9	9.4	0.12	11.5	98.5	0.478	0.169	0.219	0.46	Liquefaction
	36.29	14	104.1	0.46	105	4274	2883	84.8	70.7	0.45	1.8	9.0	0.11	10.2	95.1	0.479	0.160	0.208	0.43	Liquefaction
	36.38	14	111.2	0.46	105	4284	2886	90.6	75.5	0.42	1.8	8.2	0.08	8.4	98.9	0.479	0.170	0.221	0.46	Liquefaction
	36.47 36.56	14 14	119.2 117.7	0.41 0.36	95 95	4293 4302	2890 2893	97.0 95.7	81.0 79.8	0.35 0.31	1.7 1.7	6.9 6.5	0.05 0.04	5.1 4.1	102.1 99.9	0.480 0.480	0.179 0.173	0.233 0.224	0.49 0.47	Liquefaction
	36.64	14	111	0.42	95	4302	2896	90.3	79.8 75.1	0.31	1.7	7.8	0.04	7.4	99.9 97.6	0.480	0.173	0.224	0.47	Liquefaction Liquefaction
	36.73	14	106.2	0.5	105	4318	2899	86.3	71.8	0.48	1.8	9.2	0.11	10.9	97.2	0.481	0.165	0.215	0.45	Liquefaction
	36.82	14	97.3	0.69	115	4327	2903	79.0	65.5	0.73	2.0	12.3	0.19	19.1	98.1	0.481	0.168	0.218	0.45	Liquefaction
	36.91	14	89.5	1.17	125	4337	2907	72.6	60.1	1.34	2.2	17.8	0.34	37.5	110.1	0.482	0.204	0.265	0.55	Liquefaction
	37 37.08	14 14	76.2 82.1	1.23 1.39	135 135	4349 4360	2913 2919	61.8 66.5	50.8 54.7	1.66 1.74	2.3	21.7 21.3	0.45 0.43	49.7 51.0	111.5 117.5	0.482 0.482	0.209 0.231	0.271 0.300	0.56 0.62	Liquefaction Liquefaction
	37.17	14	81.9	1.4	135	4372	2925	66.3	54.5	1.76	2.3	21.4	0.44	51.7	117.9	0.483	0.233	0.302	0.63	Liquefaction
	37.26	14	97	1.25	125	4384	2932	78.4	64.6	1.32	2.1	16.8	0.32	36.2	114.5	0.483	0.220	0.286	0.59	Liquefaction
	37.34	14	99.1	1.15	125	4394	2937	80.0	66.0	1.19	2.1	15.7	0.29	32.2	112.2	0.483	0.211	0.275	0.57	Liquefaction
	37.43	14 14	99.7 101.1	1.02	125 125	4405	2942	80.4	66.2	1.05	2.1	14.7	0.26	28.1	108.6	0.483	0.199	0.259	0.54	Liquefaction Liquefaction
	37.52 37.6	14	114.5	0.86 0.91	115	4416 4426	2948 2953	81.5 92.2	67.1 76.0	0.87 0.81	2.0 1.9	13.3 11.6	0.22	23.0 19.8	104.5 112.0	0.484 0.484	0.186 0.211	0.242 0.274	0.50 0.57	Liquefaction
	37.69	14	145.2	1.15	115	4437	2958	116.8	96.6	0.80	1.9	9.5	0.12	16.0	132.9	0.484	0.298	0.388	0.80	Liquefaction
	37.77	14	157.8	1.37	125	4446	2962	126.9	105.0	0.88	1.9	9.4	0.12	17.0	143.9	0.485	0.357	0.464	0.96	Liquefaction
	37.86	14	162.8 199.7	1.6	125	4457	2968	130.8	108.2	1.00	1.9	10.0	0.13	20.1	150.9	0.485	0.399	0.519	1.07	Low F.S.
	37.94 38.03	14 14	217.3	1.83 1.51	125 115	4467 4478	2973 2978	160.3 174.2	132.8 144.4	0.93 0.70	1.8 1.7	8.0 5.9	0.08	14.1 4.4	174.3 178.6	0.485 0.486	0.573 0.610	0.744 0.793	1.53 1.63	
	38.11	14	232.8	1.77	115	4488	2982	186.5	154.5	0.77	1.7	6.0	0.03	4.9	191.4	0.486	0.733	0.952	1.96	
	38.19	14	234.5	2.05	125	4497	2987	187.7	155.5	0.88	1.7	6.7	0.05	8.9	196.6	0.486	0.787	1.023	2.10	
	38.27	14	251.8	1.73	115	4507	2992	201.4	166.8	0.69	1.6	5.0	0.00	0.0	201.4	0.486	0.840	1.092	2.24	
	38.36 38.44	14 14	266.3 242.1	1.94 2.47	115 125	4517 4526	2996 3001	212.9 193.4	176.2 159.8	0.73 1.03	1.6 1.8	5.0 7.4	0.00	0.0 13.5	212.9 206.9	0.487 0.487	0.977 0.903	1.270 1.174	2.61 2.41	
	38.52	14	223.1	2.5	125	4536	3006	178.1	146.9	1.13	1.8	8.6	0.10	19.0	197.0	0.487	0.791	1.028	2.11	
	38.6	14	206.6	2.79	135	4546	3011	164.7	135.7	1.37	1.9	10.5	0.15	28.3	193.1	0.488	0.749	0.974	2.00	
	38.69	14	195	3.16	135	4558	3017	155.3	127.7	1.64	2.0	12.4	0.20	38.3	193.6	0.488	0.755	0.981	2.01	
	38.77 38.86	14 14	195.3 213.2	3.05 2.9	135 135	4569 4581	3023 3030	155.4 169.5	127.6 139.2	1.58 1.38	2.0 1.9	12.1 10.4	0.19 0.14	36.4 28.3	191.8 197.8	0.488 0.488	0.736 0.799	0.957 1.039	1.96 2.13	
	38.94	14	227.2	3.14	135	4592	3035	180.4	148.1	1.40	1.9	10.4	0.14	27.9	208.4	0.489	0.799	1.198	2.45	
	39.02	14	285.5	3.47	135	4603	3041	226.5	186.2	1.23	1.8	7.6	0.07	16.9	243.4	0.489	1.422	1.848	3.78	
	39.1	14	422	3.48	125	4614	3047	334.5	275.4	0.83	1.5	3.4	0.00	0.0	334.5	0.489	3.561	4.629	9.47	
	39.18	14	378.8 373.5	3.05 2.82	125 125	4624 4634	3052 3057	300.0 295.6	246.6	0.81	1.6	3.7	0.00	0.0	300.0 295.6	0.489	2.591 2.481	3.369 3.226	6.89 6.59	
	39.26 39.34	14 14	339.3	2.93	125	4644	3062	268.3	242.7 220.0	0.76 0.87	1.5 1.6	3.5 4.6	0.00	0.0	268.3	0.489 0.490	1.876	2.439	4.98	
	39.43	14	310.5	2.81	125	4655	3068	245.3	200.8	0.91	1.7	5.4	0.01	2.5	247.8	0.490	1.495	1.944	3.97	
	39.51	14	291.8	2.66	125	4665	3073	230.3	188.3	0.92	1.7	5.8	0.02	4.9	235.2	0.490	1.290	1.677	3.42	
	39.59	14	306.4	2.5	125	4675	3078	241.7	197.5	0.82	1.6	4.9	0.00	0.0	241.7	0.491	1.392	1.810	3.69	
	39.67 39.75	14 14	354 392.7	2.68 3.48	125 125	4685 4695	3083 3088	279.0 309.2	228.1 252.7	0.76 0.89	1.6 1.6	3.8 4.1	0.00	0.0	279.0 309.2	0.491 0.491	2.099 2.830	2.729 3.679	5.56 7.49	
	39.83	14			135	4705	3093	302.3	246.8	1.15	1.7	5.6	0.02	5.2	307.5	0.491	2.783	3.618	7.36	
	39.91	14	411.8	4.36	125	4716	3098	323.7	264.2	1.06	1.6	4.8	0.00	0.0	323.7	0.491	3.234	4.204	8.55	
	39.99	14	411.5	4.21	125	4726	3103	323.2	263.6	1.03	1.6	4.7	0.00	0.0	323.2	0.492	3.220	4.185	8.51	
	40.07 40.14	14 14	404.7 457.6	4.07 3.9	125 125	4736 4745	3108 3113	317.6 358.9	258.8 292.4	1.01 0.86	1.6 1.5	4.7 3.3	0.00	0.0	317.6 358.9	0.455 0.455	3.059 4.378	3.977 5.691	8.75 12.52	
	40.21	14	522.1	3.4	115	4753	3117	409.2	333.3	0.65	1.4	1.6	0.00	0.0	409.2	0.455	6.450	8.385	18.43	
	40.28	14	571.2	3.02	115	4761	3121	447.4	364.4	0.53	1.3	0.5	0.00	0.0	447.4	0.455	8.407	10.929	24.01	
	40.35	14	626.4		115	4769	3125	490.3	399.3	0.52	1.3	0.2	0.00	0.0	490.3	0.455	11.042	14.355	31.52	
	40.39 40.43	14 14	647 648	3.45 3.32	115 115	4774 4779	3127 3129	506.3 506.9	412.2 412.5	0.54 0.51	1.3	0.2	0.00	0.0	506.3 506.9	0.456 0.456	12.148 12.191	15.792	34.67 34.78	
	40.43	14	643.4	2.68	105	4779	3131	503.1	409.3	0.31	1.2	-0.5	0.00	0.0	503.1	0.456		15.500	34.78	
	40.5	14	638		115		3132	498.8	405.7	0.53	1.3	0.2	0.00	0.0	498.8	0.456	11.621		33.13	

**EQ Magnitude (M<sub>w</sub>):** 6.5

PGA (g): 0.54 MSF: 1.30

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 35

Depth to Groundwater: 14 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA** (g): 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	0	F	Ic	(%)	$\mathbf{K}_{CPT}$	DqcIN	(qcIN)cs	Ratio	M7.5	M6.50	Safety	Comments

0.55	14	220	1.75	125	69	69	421.3	6396.3	0.80	1.2	-0.8	0.00	0.0	421.3	0.351	7.037	9.148	26.06	Above W.T.
0.6	14	209.7	1.48	115	75	75	401.6	5588.7	0.71	1.1	-1.3	0.00	0.0	401.6	0.351	6.104	7.936	22.61	Above W.T.
0.67	14	211.7	0.96	105	83	83	405.4	5095.0	0.45	0.9	-2.4	0.00	0.0	405.4	0.351	6.279	8.162	23.25	Above W.T.
0.76	14	201.9	0.95	105	93	93	386.7	4362.6	0.47	0.9	-2.4	0.00	0.0	386.7	0.351	5.457	7.094	20.21	Above W.T.
0.85	14	180	1.91	125	102	102	344.7	3528.7	1.06	1.2	-0.1	0.00	0.0	344.7	0.351	3.890	5.057	14.41	Above W.T.
0.94	14	155.5 138.4	2.24 2.29	135	113	113	297.8	2745.2	1.44	1.4	1.3	0.00	0.0	297.8	0.351	2.536	3.297	9.39	Above W.T.
1.02 1.11	14 14	93.4	2.43	135 135	124 136	124 136	265.1 178.9	2230.3 1370.4	1.66 2.60	1.4 1.7	2.1 5.6	0.00	0.0 2.7	265.1 181.5	0.351	1.812 0.636	2.356 0.827	6.71 2.36	Above W.T. Above W.T.
1.2	14	58.6	2.38	135	148	148	112.2	789.0	4.07	1.9	10.8	0.15	20.6	132.8	0.351	0.298	0.387	1.10	Above W.T.
1.29	14	43.2	2.02	135	160	160	82.7	537.3	4.68	2.0	13.8	0.23	25.3	108.1	0.351	0.197	0.257	0.73	Above W.T.
1.38	14	35.7	1.67	135	173	173	68.4	412.5	4.69	2.1	15.1	0.27	25.1	93.5	0.351	0.156	0.203	0.58	Above W.T.
1.47	14	33.5	1.57	135	185	185	64.2	361.5	4.70	2.1	15.8	0.29	26.1	90.2	0.351	0.148	0.193	0.55	Above W.T.
1.55 1.64	14 14	31 29	1.23 1	135 135	196 208	196 208	59.4 55.5	315.9 278.1	3.98 3.46	2.1 2.0	14.7 14.0	0.26 0.24	20.7 17.4	80.1 73.0	0.351	0.128 0.116	0.166 0.151	0.47 0.43	Above W.T. Above W.T.
1.73	14	25.3	0.82	135	220	220	48.5	229.1	3.46	2.0	14.6	0.24	16.6	65.1	0.351	0.116	0.131	0.43	Above W.T.
1.81	14	23.7	0.85	135	231	231	45.4	204.4	3.60	2.1	16.5	0.31	20.0	65.4	0.351	0.106	0.138	0.39	Above W.T.
1.84	14	24.8	0.87	135	235	235	47.5	210.2	3.52	2.1	16.0	0.29	19.8	67.3	0.351	0.108	0.141	0.40	Above W.T.
1.93	14	20.6	0.91	135	247	247	39.5	165.8	4.44	2.2	20.6	0.42	28.3	67.7	0.351	0.109	0.142	0.40	Above W.T.
2.02	14	18.5	0.96	135	259	259	35.4	141.8	5.23	2.3	24.2	0.51	37.2	72.7	0.351	0.116	0.150	0.43	Above W.T.
2.11	14	16.1	0.99	125	271	271	30.8	117.7	6.20	2.5	28.5	0.63	52.2	83.0	0.351	0.133	0.173	0.49	Above W.T.
2.2 2.28	14 14	16 14.1	0.97 0.91	125 125	282 292	282 292	30.6 27.0	112.3 95.4	6.12 6.52	2.5 2.5	28.8 31.7	0.64 0.71	53.7 66.8	84.3 93.8	0.351	0.136 0.157	0.176 0.204	0.50 0.58	Above W.T. Above W.T.
2.37	14	13.4	0.87	125	304	304	25.7	87.2	6.57	2.5	32.9	0.74	74.5	100.1	0.351	0.173	0.225	0.64	Above W.T.
2.46	14	12.8	0.84	125	315	315	24.5	80.3	6.64	2.6	34.1	0.78	85.0	109.6	0.351	0.202	0.263	0.75	Above W.T.
2.55	14	11.6	0.82	125	326	326	22.2	70.1	7.17	2.6	37.1	0.80	88.9	111.1	0.351	0.207	0.270	0.77	Above W.T.
2.64	14	11.8	0.82	125	337	337	22.6	68.9	7.05	2.6	37.1	0.80	90.4	113.0	0.351	0.214	0.278	0.79	Above W.T.
2.73	14	11.8	0.84	125	349	349	22.6	66.7	7.23	2.7	37.9	0.80	90.4	113.0	0.351	0.214	0.278	0.79	Above W.T.
2.81 2.91	14 14	11.5 11.4	0.86 0.84	125 125	359 371	359 371	22.0 21.8	63.1 60.4	7.60 7.49	2.7 2.7	39.6 40.0	0.80	88.1 87.3	110.1 109.2	0.351	0.204 0.201	0.265 0.261	0.76 0.74	Above W.T. Above W.T.
3	14	11.7	0.83	125	382	382	22.4	60.2	7.21	2.7	39.3	0.80	89.6	112.0	0.351	0.211	0.274	0.74	Above W.T.
3.09	14	12.8	0.83	125	394	394	24.5	64.0	6.59	2.6	36.9	0.80	98.1	122.6	0.351	0.251	0.327	0.93	Above W.T.
3.18	14	11.8	0.82	125	405	405	22.6	57.3	7.07	2.7	39.7	0.80	90.4	113.0	0.351	0.214	0.278	0.79	Above W.T.
3.27	14	11.9	0.81	125	416	416	22.8	56.2	6.93	2.7	39.6	0.80	91.2	114.0	0.351	0.218	0.283	0.81	Above W.T.
3.36	14	14.2	0.77	125	427	427	27.2	65.4	5.51	2.6	33.7	0.77	89.1	116.3	0.351	0.226	0.294	0.84	Above W.T.
3.45 3.55	14 14	18 17.9	0.78 0.82	125 125	439 451	439 451	34.5 34.3	81.0 78.3	4.39 4.64	2.4 2.5	27.7 28.9	0.60 0.64	52.8 60.1	87.3 94.4	0.351	0.142 0.158	0.184 0.206	0.53 0.59	Above W.T. Above W.T.
3.64	14	17.3	0.81	125	462	462	33.1	73.8	4.75	2.5	29.9	0.66	65.7	98.9	0.351	0.170	0.221	0.63	Above W.T.
3.73	14	17.7	0.84	125	474	474	33.9	73.7	4.81	2.5	30.1	0.67	69.0	102.9	0.351	0.181	0.236	0.67	Above W.T.
3.82	14	17.3	0.87	125	485	485	33.1	70.3	5.10	2.5	31.6	0.71	81.0	114.1	0.351	0.218	0.284	0.81	Above W.T.
3.91	14	16	0.87	125	496	496	30.6	63.5	5.52	2.6	34.1	0.78	107.6	138.2	0.351	0.325	0.423	1.21	Above W.T.
4.01	14	16.7	0.84	125	509	509	32.0	64.6	5.11	2.5	32.7	0.74	90.7	122.7	0.351	0.252	0.327	0.93	Above W.T.
4.1 4.19	14 14	16.2 15.9	0.81 0.78	125 125	520 531	520 531	31.0 30.2	61.3 58.8	5.08 4.99	2.6 2.6	33.3 33.6	0.76 0.76	96.2 97.3	127.2 127.5	0.351	0.271 0.273	0.353 0.355	1.01 1.01	Above W.T. Above W.T.
4.28	14	15.9	0.77	125	542	542	29.9	57.6	4.93	2.6	33.7	0.77	97.7	127.6	0.351	0.273	0.355	1.01	Above W.T.
4.37	14	16.9	0.77	125	554	554	31.4	60.0	4.63	2.5	32.2	0.73	83.3	114.8	0.351	0.221	0.287	0.82	Above W.T.
4.46	14	19.8	0.84	125	565	565	36.4	69.1	4.30	2.5	29.3	0.65	67.5	103.9	0.351	0.184	0.240	0.68	Above W.T.
4.55	14	24.4	0.96	135	576	576	44.5	83.7	3.98	2.4	26.0	0.56	56.5	101.0	0.351	0.176	0.229	0.65	Above W.T.
4.65	14	30.1	1.12	135	590	590	54.2	101.1	3.76	2.3	23.2	0.48	51.1	105.3	0.351	0.189	0.245	0.70	Above W.T.
4.74 4.83	14 14	35.1 39.9	1.28 1.52	135 135	602 614	602 614	62.6 70.5	115.6 128.9	3.68 3.84	2.3 2.3	21.5 21.0	0.44 0.43	49.6 52.8	112.2 123.2	0.351	0.211 0.254	0.275 0.330	0.78 0.94	Above W.T. Above W.T.
4.92	14	45.9	1.72	135	626	626	80.3	145.6	3.77	2.2	19.7	0.43	52.0	132.3	0.351	0.295	0.384	1.09	Above W.T.
5.01	14	51	2.11	135	638	638	88.3	158.7	4.16	2.2	20.2	0.41	60.2	148.6	0.351	0.385	0.500	1.43	Above W.T.
5.1	14	50.9	2.28	135	650	650	87.3	155.5	4.51	2.3	21.4	0.44	67.8	155.2	0.351	0.427	0.556	1.58	Above W.T.
5.19	14	49.7	2.41	135	663	663	84.5	149.0	4.88	2.3	22.8	0.48	76.5	161.0	0.351	0.468	0.609	1.73	Above W.T.
5.23	14	53.1	2.48	135	668	668	89.9	157.9	4.70	2.3	21.8	0.45	72.9	162.8	0.351	0.481	0.626	1.78	Above W.T.
5.33	14	50.6	2.53	135	681	681	84.8	147.4	5.03	2.3	23.3	0.49	81.1	165.9	0.351	0.505	0.656	1.87	Above W.T.
5.42 5.51	14 14	46.9 40.7	2.46 2.37	135 135	694 706	694 706	77.9 67.0	134.2 114.3	5.28 5.87	2.4 2.4	24.9 28.0	0.53 0.62	88.1 107.1	166.0 174.2	0.351 0.351	0.505 0.571	0.657 0.743	1.87 2.12	Above W.T. Above W.T.
5.6	14	38.8	2.22	135	718	718	63.4	107.0	5.78	2.4	28.5	0.63	106.6	169.9	0.351	0.536	0.697	1.99	Above W.T.
5.68	14	35.9	2.03	135	729	729	58.2	97.5	5.71	2.5	29.4	0.65	108.3	166.5	0.351	0.509	0.662	1.89	Above W.T.
5.77	14	34.5	1.89	135	741	741	55.5	92.1	5.54	2.5	29.5	0.66	105.5	160.9	0.351	0.468	0.608	1.73	Above W.T.
5.86	14	32.9	1.77	135	753	753	52.5	86.3	5.44	2.5	30.0	0.67	105.8	158.2	0.351	0.448	0.583	1.66	Above W.T.

Date: September 2005 CPT Number: 35

Depth to Groundwater: 14 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 Project Number: 6600.3.001.01 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth			Frict.	g	Stress		Tip	Tip	Ratio		F.C.					Stress	•	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	q <sub>c1N</sub>	Q	F	Ic	(%)	Ксрт	DqcIN	$(q_{\rm c1N})_{\rm cs}$	Ratio	M7.5	M6.50	Safety	Comments
	5.95	14	30.5	1.7	135	765	765	48.2	78.7	5.64	2.5	31.7	0.71	120.1	168.3	0.351	0.523	0.680	1.94	Above W.T.
	6.04	14	27.5	1.59	135	777	777	43.2	69.7	5.86	2.6	33.9	0.77	144.9	188.0	0.351	0.698	0.908	2.59	Above W.T.
	6.13	14	26.2	1.51	135	789	789	40.8	65.3	5.85	2.6	34.7	0.79	155.8	196.6	0.351	0.786	1.022	2.91	Above W.T.
	6.23 6.32	14 14	27 27	1.47 1.43	135 135	803 815	803 815	41.7 41.4	66.2 65.2	5.53 5.38	2.6 2.6	33.6 33.4	0.76 0.76	134.5 129.2	176.2 170.5	0.351 0.351	0.589 0.541	0.766 0.704	2.18	Above W.T. Above W.T.
	6.41	14	27.1	1.41	135	827	827	41.2	64.5	5.28	2.6	33.4	0.75	126.4	167.6	0.351	0.518	0.673	1.92	Above W.T.
	6.5	14	28.4	1.23	135	839	839	42.9	66.6	4.40	2.5	30.1	0.67	86.8	129.7	0.351	0.283	0.368	1.05	Above W.T.
	6.59	14	30.6	1.06	135	852	852	45.9	70.8	3.51	2.4	26.3	0.57	60.2	106.1	0.351	0.191	0.248	0.71	Above W.T.
	6.68	14	36.8	0.93	135	864	864	54.8	84.2	2.56	2.2	20.5	0.41	38.7	93.5	0.351	0.156	0.203	0.58	Above W.T.
	6.77 6.86	14 14	40 41.3	0.89 0.95	135 135	876 888	876 888	59.1 60.6	90.3 92.0	2.25 2.33	2.2	18.4 18.6	0.36 0.36	33.0 34.5	92.2 95.1	0.351	0.153 0.160	0.199 0.208	0.57 0.59	Above W.T. Above W.T.
	6.95	14	39.2	0.93	135	900	900	57.2	86.1	2.50	2.2	20.0	0.30	38.4	95.5	0.351	0.160	0.208	0.60	Above W.T.
	7.04	14	38	1.03	135	912	912	55.0	82.3	2.74	2.3	21.5	0.44	43.5	98.6	0.351	0.169	0.220	0.63	Above W.T.
	7.13	14	40.4	1.03	135	924	924	58.1	86.4	2.58	2.2	20.3	0.41	40.3	98.4	0.351	0.169	0.219	0.62	Above W.T.
	7.22	14	40.6	0.97	135	937	937	58.0	85.7	2.42	2.2	19.7	0.39	37.5	95.6	0.351	0.161	0.210	0.60	Above W.T.
	7.31	14	39.3	0.98	135	949	949	55.8	81.8	2.52	2.2	20.7	0.42	40.1	96.0	0.351	0.162	0.211	0.60	Above W.T.
	7.4 7.49	14 14	39.5 40.1	0.99 0.88	135 135	961 973	961 973	55.8 56.2	81.2 81.4	2.54 2.22	2.3	20.8 19.3	0.42 0.38	40.7 34.9	96.4 91.2	0.351	0.163 0.150	0.212 0.196	0.61 0.56	Above W.T. Above W.T.
	7.58	14	39.8	0.9	135	985	985	55.5	79.8	2.29	2.2	19.9	0.40	36.6	92.0	0.351	0.153	0.198	0.56	Above W.T.
	7.67	14	40.2	1.01	135	997	997	55.7	79.6	2.54	2.3	21.0	0.43	41.7	97.4	0.351	0.166	0.216	0.61	Above W.T.
	7.76	14	33.1	1.05	135	1010	1010	45.6	64.5	3.22	2.4	26.3	0.57	59.8	105.4	0.351	0.189	0.246	0.70	Above W.T.
	7.85	14	25.9	1.16	135	1022	1022	35.5	49.7	4.57	2.6	34.6	0.79	133.8	169.3	0.351	0.531	0.691	1.97	Above W.T.
	7.94 8.03	14 14	21.5 21.1	1.22 1.1	135 135	1034 1046	1034 1046	29.3 28.5	40.6 39.3	5.81 5.35	2.7 2.7	41.6 40.7	0.80	117.0 114.2	146.3 142.7	0.351	0.371 0.350	0.482 0.456	1.37 1.30	Above W.T. Above W.T.
	8.12	14	24.2	0.97	135	1058	1058	32.6	44.7	4.10	2.6	34.5	0.79	120.8	153.4	0.351	0.330	0.540	1.54	Above W.T.
	8.21	14	27.1	0.88	135	1070	1070	36.2	49.6	3.31	2.5	30.0	0.67	73.0	109.3	0.351	0.201	0.262	0.75	Above W.T.
	8.3	14	24.4	0.91	135	1082	1082	32.4	44.1	3.81	2.6	33.7	0.77	105.9	138.4	0.351	0.327	0.424	1.21	Above W.T.
	8.37	14	24	0.97	135	1092	1092	31.8	42.9	4.14	2.6	35.2	0.80	127.1	158.9	0.351	0.453	0.589	1.68	Above W.T.
	8.44 8.53	14 14	23.8 24.3	1.07 1.02	135 135	1101 1113	1101 1113	31.4 31.9	42.2 42.6	4.60 4.30	2.6 2.6	37.1 35.9	0.80	125.5 127.5	156.9 159.3	0.351 0.351	0.439 0.456	0.571 0.593	1.63 1.69	Above W.T. Above W.T.
	8.62	14	28.3	0.96	135	1126	1126	36.9	49.3	3.46	2.5	30.7	0.69	80.9	117.8	0.351	0.232	0.302	0.86	Above W.T.
	8.71	14	34.6	0.95	135	1138	1138	44.9	59.8	2.79	2.4	25.4	0.55	53.8	98.7	0.351	0.169	0.220	0.63	Above W.T.
	8.81	14	35.6	1.01	135	1151	1151	45.9	60.8	2.88	2.4	25.6	0.55	56.1	102.1	0.351	0.179	0.233	0.66	Above W.T.
	8.9	14	31.7	1.08	135	1163	1163	40.7	53.5	3.47	2.5	29.6	0.66	78.2	118.9	0.351	0.236	0.307	0.88	Above W.T.
	8.99 9.08	14 14	27 27	1.03 0.84	135 135	1176 1188	1176 1188	34.5 34.3	44.9 44.4	3.90 3.18	2.6 2.5	33.7 31.0	0.77 0.69	113.2 78.0	147.7 112.3	0.351	0.379 0.212	0.493 0.275	1.41 0.78	Above W.T. Above W.T.
	9.17	14	31.5	0.67	125	1200	1200	39.8	51.5	2.17	2.3	24.3	0.52	42.5	82.3	0.351	0.132	0.171	0.49	Above W.T.
	9.26	14	34.9	0.57	125	1211	1211	43.9	56.6	1.66	2.2	20.4	0.41	30.7	74.6	0.351	0.119	0.154	0.44	Above W.T.
	9.35	14	28.9	0.55	125	1222	1222	36.2	46.3	1.94	2.4	24.5	0.52	39.3	75.5	0.351	0.120	0.156	0.44	Above W.T.
	9.45	14	20.7	0.54	125	1235	1235	25.8	32.5	2.69	2.6	33.4	0.76	81.4	107.2	0.351	0.195	0.253	0.72	Above W.T.
	9.54 9.63	14 14	15.3 12	0.45 0.36	125 115	1246 1257	1246 1257	19.0 14.8	23.5 18.1	3.07 3.17	2.7 2.8	40.7 46.2	0.80	75.9 59.2	94.8 74.0	0.351	0.159 0.118	0.207 0.153	0.59 0.44	Above W.T. Above W.T.
	9.73	14	9.3	0.32	115	1269	1269	11.4	13.7	3.69	2.9	54.6	0.80	45.7	57.1	0.351	0.113	0.133	0.36	Above W.T.
	9.82	14	7.7	0.28	105	1279	1279	9.4	11.0	3.97	3.0	60.7	0.80	37.7	47.1	0.351	0.090	0.117	0.33	Above W.T.
	9.91	14	7.8	0.28	105	1289	1289	9.5	11.1	3.91	3.0	60.3	0.80	38.0	47.5	0.351	0.090	0.117	0.33	Above W.T.
	10	14	7.1	0.3	105	1298	1298	8.6	9.9	4.65	3.1	66.3	0.80	34.5	43.1	0.344	0.087	0.114	0.33	Above W.T.
	10.1 10.19	14 14	7.3 7.1	0.33 0.34	115 115	1309 1319	1309 1319	8.8 8.6	10.2 9.8	4.97 5.28	3.1	67.0 69.2	0.80	35.3 34.2	44.1 42.8	0.344	0.088 0.087	0.114 0.113	0.33	Above W.T.
	10.13	14	6.5	0.31	105		1329	7.8	8.8	5.31	3.2	72.1	0.80	31.2	39.0	0.344	0.086	0.113	0.32	Above W.T. Above W.T.
	10.37	14	6.3	0.28	105	1339	1339	7.5	8.4	4.97	3.2	71.9	0.80	30.1	37.7	0.344	0.085	0.110	0.32	Above W.T.
	10.46	14	6.4	0.26	105		1348	7.6	8.5	4.54	3.2	69.9	0.80	30.5	38.1	0.344	0.085	0.111	0.32	Above W.T.
	10.55	14	5.8	0.23	105	1358	1358	6.9	7.5	4.49	3.2	72.8	0.80	27.5	34.4	0.344	0.084	0.109	0.32	Above W.T.
	10.64	14	5.9	0.21	105	1367	1367	7.0	7.6	4.03	3.2	70.4	0.80	27.9	34.9	0.344	0.084	0.109	0.32	Above W.T.
	10.74 10.83	14 14	6.2 6.3	0.19 0.2	105 105	1378 1387	1378 1387	7.3 7.4	8.0 8.1	3.45 3.57	3.1	66.3 66.6	0.80	29.2 29.6	36.5 37.0	0.344 0.344	0.085 0.085	0.110 0.110	0.32 0.32	Above W.T. Above W.T.
	10.92	14	6.7	0.28	105		1397	7.8	8.6	4.67	3.2	70.1	0.80	31.4	39.2	0.344	0.086	0.111	0.32	Above W.T.
	11.01	14	7.4	0.38	115	1406	1406	8.6	9.5	5.67	3.2	71.3	0.80	34.5	43.2	0.344	0.087	0.114	0.33	Above W.T.
	11.1	14	8.6	0.45	115		1416	10.0	11.1	5.70	3.1	67.4	0.80	40.0	50.0	0.344	0.092	0.119	0.35	Above W.T.
	11.2	14	9.2	0.47	115		1428	10.7	11.9	5.54	3.1	65.3	0.80	42.6	53.3	0.344	0.094	0.122	0.36	Above W.T.
	11.29 11.38	14 14	8.3 8.4	0.49 0.46	115 115	1438 1449	1438 1449	9.6 9.7	10.5 10.6	6.46 5.99	3.2	71.4 69.7	0.80	38.3 38.6	47.9 48.3	0.344 0.344	0.090 0.090	0.117 0.118	0.34 0.34	Above W.T. Above W.T.
	11.47	14	8.8	0.44	115		1459	10.1	11.1	5.45	3.1	66.7	0.80	40.3	50.4	0.344	0.092	0.119	0.35	Above W.T.
	11.56	14	9.1	0.43	115		1469	10.4	11.4	5.14	3.1	64.8	0.80	41.6	51.9	0.344	0.093	0.121	0.35	Above W.T.

Date: September 2005 CPT Number: 35

Depth to Groundwater: 14 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54 Project Number: 6600.3.001.01 **MSF:** 1.30

Part			Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
11.66		Depth				g							F.C.								
1171	Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	$(q_{c1N})_{cs}$	Ratio	M7.5	M6.50	Safety	Comments
1171																					
1171																					
1188		11.66	14	8.5	0.45	115	1481	1481	9.7	10.5	5.80	3.2	69.3	0.80	38.7	48.3	0.344	0.090	0.118	0.34	Above W.T.
11.88   14   65   0.34   105   1506																					
197																					
12.06																					
12-16   14   55   0.29   105   1375   1375   1375   6.1   0.2   0.13   3.3   852   0.80   246   307   0.34   0.88   0.81   0.34   0.81   0.03   1.40   0.03   0.03   1.40   0.03   0.03   1.40   0.03   0.0																					
12-94   14   5.70   0.33   105   1554   1554   6.36   6.3   6.30   6.3																					
12-44   14   59   0.34   105   1564   1574   0.68   0.56   0.58		12.25	14	5.3	0.31	105	1545	1545	5.9	5.9	6.85	3.4	89.3	0.80	23.6	29.5	0.344	0.082	0.107	0.31	Above W.T.
1253																					
1262   14   6.2   6.3   6.35   6.5   6.8   6.4   6.3   6.9   6.8   6.9   7.8																					
1272																					
1281																					
1291 14 6.8 0.38 115 1614 1614 7.4 7.4 6.34 3.3 80.5 0.80 2.80 570 0.94 0.98 0.10 0.32 Abowe W.T.  1319 14 6.5 0.44 115 16.5 16.5 7.7 7.7 6.84 3.3 81.2 0.80 2.80 2.80 3.04 0.98 0.10 0.32 Abowe W.T.  1319 14 6.9 0.43 115 164 1616 7.4 7.4 7.08 8.4 3.3 81.2 0.80 3.0 2.8 3.0 3.4 0.94 0.98 110 0.32 Abowe W.T.  1328 14 6.8 0.42 115 16.57 16.57 7.3 7.2 7.03 3.3 85.1 0.80 2.80 2.98 3.0 0.00 2.9 8.7 0.04 0.085 0.11 0.32 Abowe W.T.  1337 14 7 0.41 115 16.67 16.67 7.3 7.2 7.03 3.3 81.2 0.80 2.90 2.9 3.5 0.34 0.085 0.11 0.32 Abowe W.T.  1336 14 6.6 0.4 115 16.77 16.77 7.1 6.9 6.94 3.3 84.8 0.20 2.82 3.5 0.34 0.085 0.11 0.32 Abowe W.T.  13.6 14 7.7 0.39 115 16.99 16.99 8.2 8.1 5.69 3.2 7.59 0.80 3.2 7.40 0.34 0.085 0.11 0.32 Abowe W.T.  13.83 14 7.4 0.33 115 170 1710 8.1 8.0 5.11 3.2 7.8 0.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 0.0 3.0 3																					
13.99																					
13.19		13	14	6.5	0.41	115	1625	1625	7.1	7.0	7.21	3.3	85.1	0.80	28.2	35.3	0.344	0.084	0.109	0.32	Above W.T.
13.28																					
13.37																					
13.46   14   6.6   0.4   115   1677   1677   7.1   6.9   6.94   3.3   84.8   0.80   28.2   35.3   0.344   0.084   0.109   0.32   Abrow W.T.   13.74   14   7.7   0.39   115   1699   1699   8.2   8.1   5.69   3.2   7.59   0.80   3.2   7.9   0.80   3.2   7.9   0.044   0.086   0.112   0.33   Abrow W.T.   13.83   14   8   7.4   0.33   115   1709   1710   1710   8.1   8.0   5.11   3.2   7.38   0.80   3.2   3.9   0.344   0.086   0.112   0.33   Abrow W.T.   13.83   14   8   8   0.34   115   1731   1731   8.4   8.2   4.77   3.2   7.16   0.80   3.12   3.90   0.344   0.086   0.111   0.32   Abrow W.T.   13.83   14   8   8   0.34   115   1731   1731   8.4   8.2   4.77   3.2   7.16   0.80   3.12   3.90   0.344   0.086   0.111   0.32   Abrow W.T.   14.02   14   8.3   0.35   115   1742   1736   8.7   8.6   4.71   3.2   7.16   0.80   3.12   4.10   0.34   0.087   0.113   0.33   Abrow W.T.   14.11   14   8.4   0.42   115   1732   1741   8.8   8.6   5.58   3.2   7.48   0.80   3.52   4.40   0.345   0.088   0.114   0.33   NonLisphe.   14.29   14   8.2   0.54   115   1733   1736   8.6   8.4   6.07   3.3   7.83   0.80   3.52   4.40   0.345   0.088   0.114   0.33   NonLisphe.   14.39   14   8.5   0.54   115   1733   1736   8.6   8.7   8.7   8.08   3.5   4.40   0.345   0.088   0.114   0.33   NonLisphe.   14.49   14   8.2   0.54   115   1733   1736   8.6   8.7   8.7   8.7   8.08   3.5   4.4   0.350   0.088   0.114   0.33   NonLisphe.   14.49   14   8.2   0.57   1.55   1805   1766   9.5   9.3   6.71   3.2   7.55   0.80   3.80   47.4   0.351   0.090   0.114   0.33   NonLisphe.   14.57   14   9.5   0.57   125   1805   1760   9.5   9.3   6.71   3.2   7.55   0.80   3.50   47.4   0.351   0.090   0.117   0.33   NonLisphe.   14.57   14   9.5   0.57   125   1805   1770   1.03   0.65   3.2   7.45   0.80   3.50   47.4   0.351   0.090   0.117   0.33   NonLisphe.   14.58   14   1.05   0.59   125   1811   1.78   1.75   0.																					
13.56																					
13.66																					
13.83			14																		
13.93   14   8   0.34   115   173   173   8.4   8.2   4.77   3.2   71.6   0.80   33.6   42.1   0.344   0.087   0.113   0.33   Abowe W.T.		13.74	14	7.7	0.35	115	1710	1710	8.1	8.0	5.11	3.2	73.8	0.80	32.6	40.7	0.344	0.086	0.112	0.33	Above W.T.
14.02																					
14.11																					
14.2																					-
14.29																					-
14.99																					
14.67																					-
14.66		14.48	14	9.1	0.55	125	1795	1760	9.5	9.3	6.71	3.2	75.5	0.80	38.0	47.4	0.351	0.090	0.117	0.33	NonLiqfble.
14.75																					
14.85																					•
14.94																					-
15.03																					•
15.1																					
15.29			14																		-
15.38		15.2	14	11	0.65	125	1885	1805	11.3	11.1	6.46	3.2	70.0	0.80	45.3	56.6	0.359	0.097	0.126	0.35	NonLiqfble.
15.47																					-
15.57 14 13.8 0.72 125 1931 1829 14.1 14.0 5.61 3.0 61.6 0.80 56.5 70.6 0.363 0.113 0.147 0.40 NonLightle. 15.66 14 14.1 0.77 125 1942 1834 14.4 14.3 5.87 3.1 62.0 0.80 57.6 72.0 0.364 0.115 0.149 0.41 NonLightle. 15.75 14 12.9 0.77 125 1953 1840 13.2 13.0 6.46 3.1 66.3 0.80 52.6 65.8 0.365 0.106 0.138 0.38 NonLightle. 15.84 14 11.4 0.78 125 1965 1846 11.6 11.3 7.49 3.2 72.9 0.80 46.4 58.1 0.366 0.098 0.128 0.35 NonLightle. 15.94 14 10.1 0.74 125 1977 1852 10.3 9.8 8.12 3.3 78.3 0.80 41.1 51.3 0.367 0.093 0.120 0.33 NonLightle. 16.03 14 9.2 0.7 125 1988 1857 9.3 8.8 8.53 3.3 82.4 0.80 37.4 46.7 0.368 0.099 0.116 0.32 NonLightle. 16.12 14 9 0.66 125 2000 1863 9.1 8.6 8.25 3.3 82.4 0.80 36.5 45.6 0.369 0.089 0.116 0.32 NonLightle. 16.22 14 9 0.66 125 2002 1869 9.1 8.5 8.26 3.3 82.6 0.80 36.4 45.5 0.370 0.089 0.115 0.31 NonLightle. 16.31 14 9 0.65 125 2023 1875 9.1 8.5 8.14 3.3 82.3 0.80 36.4 45.5 0.370 0.089 0.115 0.31 NonLightle. 16.49 14 8 0.6 115 2045 1885 8.1 7.4 8.59 3.4 87.6 0.80 32.3 40.4 0.372 0.086 0.112 0.30 NonLightle. 16.59 14 7.9 0.57 115 2057 1891 7.9 7.3 8.30 3.4 87.7 0.80 32.2 40.3 0.373 0.086 0.112 0.30 NonLightle. 16.68 14 7.7 0.51 115 2067 1895 7.7 7.0 7.65 3.4 86.4 0.80 31.0 38.7 0.375 0.085 0.110 0.29 NonLightle. 16.86 14 6.9 0.45 115 2088 1910 6.9 6.1 8.54 3.4 94.0 0.80 27.7 34.6 0.379 0.084 0.109 0.29 NonLightle. 16.86 14 6.9 0.45 115 2088 1910 6.9 6.1 8.54 3.4 94.0 0.80 27.7 34.6 0.379 0.085 0.110 0.29 NonLightle. 16.86 14 6.9 0.45 115 2088 1910 6.9 6.1 8.54 3.4 94.0 0.80 27.7 34.6 0.379 0.085 0.110 0.29 NonLightle. 16.95 14 6.9 0.45 115 2088 1910 6.9 6.1 8.54 3.4 94.0 0.80 27.7 34.6 0.379 0.085 0.110 0.29 NonLightle. 16.95 14 6.9 0.45 115 2088 1910 6.9 6.1 8.54 3.4 94.0 0.80 27.7 34.6 0.379 0.085 0.110 0.29 NonLightle. 16.95 14 6.9 0.45 115 208 1910 6.9 6.1 8.54 3.4 94.0 0.80 27.8 34.5 0.379 0.085 0.110 0.29 NonLightle. 17.04 14 7.5 0.48 115 208 1914 7.5 6.7 7.45 3.4 87.0 0.80 28.4 35.5 0.380 0.084 0.109 0.29 NonLightle. 17.04 14 7.5 0.48 115 208 1914 7.5 6.7 7.45 3.4 88.3 0.80 29.9 37.4																					
15.66																					•
15.75																					-
15.84 14 11.4 0.78 125 1965 1846 11.6 11.3 7.49 3.2 72.9 0.80 46.4 58.1 0.366 0.098 0.128 0.35 NonLighble. 15.94 14 10.1 0.74 125 1977 1852 10.3 9.8 8.12 3.3 78.3 0.80 41.1 51.3 0.367 0.093 0.120 0.33 NonLighble. 16.03 14 9.2 0.7 125 1988 1857 9.3 8.8 8.53 3.3 82.4 0.80 37.4 46.7 0.368 0.089 0.116 0.32 NonLighble. 16.12 14 9 0.66 125 2000 1863 9.1 8.6 8.25 3.3 82.4 0.80 36.5 45.6 0.369 0.089 0.115 0.31 NonLighble. 16.22 14 9 0.66 125 2012 1869 9.1 8.5 8.26 3.3 82.6 0.80 36.4 45.5 0.370 0.089 0.115 0.31 NonLighble. 16.31 14 9 0.65 125 2023 1875 9.1 8.5 8.14 3.3 82.3 0.80 36.4 45.5 0.371 0.089 0.115 0.31 NonLighble. 16.4 14 8 0.6 115 2035 1881 8.1 7.4 8.59 3.4 87.6 0.80 32.3 40.4 0.372 0.086 0.112 0.30 NonLighble. 16.49 14 8 0.6 115 2045 1885 8.1 7.4 8.60 3.4 87.7 0.80 32.2 40.3 0.373 0.086 0.112 0.30 NonLighble. 16.59 14 7.9 0.57 115 2057 1891 7.9 7.3 8.30 3.4 87.3 0.80 31.8 39.7 0.374 0.086 0.112 0.30 NonLighble. 16.88 14 7.7 0.51 115 2067 1895 7.7 7.0 7.65 3.4 86.4 0.80 31.0 38.7 0.375 0.085 0.111 0.30 NonLighble. 16.86 14 6.9 0.5 115 2088 1905 6.9 6.1 8.54 3.4 93.1 0.80 27.7 34.6 0.377 0.084 0.109 0.29 NonLighble. 16.95 14 6.9 0.45 115 2088 1905 6.9 6.1 8.54 3.4 93.1 0.80 27.7 34.6 0.377 0.084 0.109 0.29 NonLighble. 16.95 14 6.9 0.45 115 2088 1905 6.9 6.1 7.69 3.4 90.7 0.80 32.2 40.3 0.379 0.085 0.110 0.29 NonLighble. 16.95 14 6.9 0.45 115 2088 1905 6.9 6.1 8.54 3.4 93.1 0.80 27.7 34.6 0.377 0.084 0.109 0.29 NonLighble. 16.95 14 6.9 0.45 115 2088 1905 6.9 6.1 8.54 3.4 93.1 0.80 27.7 34.6 0.377 0.084 0.109 0.29 NonLighble. 16.95 14 6.9 0.45 115 208 1919 7.1 6.3 8.28 3.4 91.0 0.80 27.6 34.5 0.378 0.085 0.110 0.29 NonLighble. 17.04 14 7.5 0.48 115 2100 1919 7.1 6.3 8.28 3.4 91.0 0.80 27.6 34.5 0.379 0.085 0.110 0.29 NonLighble. 17.04 14 7.5 0.5 115 2130 1914 7.5 6.7 7.77 3.4 88.3 0.80 29.9 37.4 0.381 0.085 0.110 0.29 NonLighble. 17.14 14 7.5 0.5 115 2130 1914 7.5 6.7 7.77 3.4 88.3 0.80 29.9 37.4 0.381 0.085 0.110 0.29 NonLighble. 17.04 14 7.5 0.5 115 2130 1914 7.5 6.7 7.77 3.4 88.3 0.80 29.9 37.4 0.381 0.085 0.1																					•
16.03 14 9.2 0.7 125 1988 1857 9.3 8.8 8.53 3.3 82.4 0.80 37.4 46.7 0.368 0.089 0.116 0.32 NonLighble.  16.12 14 9 0.66 125 2000 1863 9.1 8.6 8.25 3.3 82.4 0.80 36.5 45.6 0.369 0.089 0.115 0.31 NonLighble.  16.22 14 9 0.66 125 2012 1869 9.1 8.5 8.26 3.3 82.6 0.80 36.4 45.5 0.370 0.089 0.115 0.31 NonLighble.  16.31 14 9 0.65 125 2023 1875 9.1 8.5 8.14 3.3 82.3 0.80 36.4 45.5 0.370 0.089 0.115 0.31 NonLighble.  16.4 14 8 0.6 115 2035 1881 8.1 7.4 8.59 3.4 87.6 0.80 32.3 40.4 0.372 0.086 0.112 0.30 NonLighble.  16.49 14 8 0.6 115 2045 1885 8.1 7.4 8.60 3.4 87.7 0.80 32.2 40.3 0.373 0.086 0.112 0.30 NonLighble.  16.59 14 7.9 0.57 115 2057 1891 7.9 7.3 8.30 3.4 87.3 0.80 31.8 39.7 0.374 0.086 0.112 0.30 NonLighble.  16.68 14 7.7 0.51 115 2067 1895 7.7 7.0 7.65 3.4 86.4 0.80 31.0 38.7 0.375 0.085 0.111 0.30 NonLighble.  16.86 14 6.9 0.5 115 2088 1905 6.9 6.1 8.54 3.4 94.0 0.80 27.3 34.1 0.376 0.084 0.109 0.29 NonLighble.  16.95 14 6.9 0.45 115 2088 1905 6.9 6.1 8.54 3.4 93.1 0.80 27.7 34.6 0.377 0.084 0.109 0.29 NonLighble.  16.95 14 7.5 0.48 115 2130 1914 7.5 6.7 7.45 3.4 87.0 0.80 28.4 35.5 0.380 0.084 0.109 0.29 NonLighble.  17.04 14 7.5 0.48 115 2130 1919 7.1 6.3 8.28 3.4 91.6 0.80 29.9 37.4 0.381 0.085 0.110 0.29 NonLighble.		15.84	14	11.4	0.78	125	1965	1846	11.6	11.3	7.49	3.2	72.9	0.80	46.4	58.1	0.366	0.098	0.128	0.35	NonLiqfble.
16.12       14       9       0.66       125       2000       1863       9.1       8.6       8.25       3.3       82.4       0.80       36.5       45.6       0.369       0.089       0.115       0.31       NonLiqfble.         16.22       14       9       0.66       125       2012       1869       9.1       8.5       8.26       3.3       82.6       0.80       36.4       45.5       0.370       0.089       0.115       0.31       NonLiqfble.         16.31       14       9       0.65       125       2023       1875       9.1       8.5       8.14       3.3       82.3       0.80       36.4       45.5       0.371       0.089       0.115       0.31       NonLiqfble.         16.49       14       8       0.6       115       2035       1881       8.1       7.4       8.60       3.4       87.7       0.80       32.3       40.4       0.372       0.086       0.112       0.30       NonLiqfble.         16.49       14       7.9       0.57       115       2057       1891       7.9       7.3       8.30       3.4       87.3       0.80       32.2       40.3       0.373       0.086																					
16.22       14       9       0.66       125       2012       1869       9.1       8.5       8.26       3.3       82.6       0.80       36.4       45.5       0.370       0.089       0.115       0.31       NonLiqfble.         16.31       14       9       0.65       125       2023       1875       9.1       8.5       8.14       3.3       82.3       0.80       36.4       45.5       0.371       0.089       0.115       0.31       NonLiqfble.         16.49       14       8       0.6       115       2035       1881       8.1       7.4       8.59       3.4       87.7       0.80       32.2       40.3       0.373       0.086       0.112       0.30       NonLiqfble.         16.59       14       7.9       0.57       115       2057       1891       7.9       7.3       8.30       3.4       87.3       0.80       31.8       39.7       0.373       0.086       0.112       0.30       NonLiqfble.         16.69       14       7.9       0.57       115       2067       1895       7.7       7.0       7.65       3.4       86.4       0.80       31.0       38.7       0.375       0.085																					
16.31       14       9       0.65       125       2023       1875       9.1       8.5       8.14       3.3       82.3       0.80       36.4       45.5       0.371       0.089       0.115       0.31       NonLighble.         16.4       14       8       0.6       115       2035       1881       8.1       7.4       8.59       3.4       87.6       0.80       32.3       40.4       0.372       0.086       0.112       0.30       NonLighble.         16.49       14       8       0.6       115       2045       1885       8.1       7.4       8.60       3.4       87.7       0.80       32.2       40.3       0.373       0.086       0.112       0.30       NonLighble.         16.59       14       7.9       0.57       115       2057       1891       7.9       7.3       8.30       3.4       87.3       0.80       31.8       39.7       0.374       0.086       0.112       0.30       NonLighble.         16.68       14       7.7       0.51       115       2067       1895       7.7       7.0       7.65       3.4       86.4       0.80       31.0       38.7       0.375       0.085																					
16.4         14         8         0.6         115         2035         1881         8.1         7.4         8.59         3.4         87.6         0.80         32.3         40.4         0.372         0.086         0.112         0.30         NonLighble.           16.49         14         8         0.6         115         2045         1885         8.1         7.4         8.60         3.4         87.7         0.80         32.2         40.3         0.373         0.086         0.112         0.30         NonLighble.           16.59         14         7.9         0.57         115         2057         1891         7.9         7.3         8.30         3.4         87.3         0.80         31.8         39.7         0.374         0.086         0.112         0.30         NonLighble.           16.68         14         7.7         0.51         115         2067         1895         7.7         7.0         7.65         3.4         86.4         0.80         31.0         38.7         0.375         0.085         0.111         0.30         NonLighble.           16.68         14         6.8         0.5         115         2077         1900         6.8         6.1 <td></td>																					
16.49 14 8 0.6 115 2045 1885 8.1 7.4 8.60 3.4 87.7 0.80 32.2 40.3 0.373 0.086 0.112 0.30 NonLighble. 16.59 14 7.9 0.57 115 2057 1891 7.9 7.3 8.30 3.4 87.3 0.80 31.8 39.7 0.374 0.086 0.112 0.30 NonLighble. 16.68 14 7.7 0.51 115 2067 1895 7.7 7.0 7.65 3.4 86.4 0.80 31.0 38.7 0.375 0.085 0.111 0.30 NonLighble. 16.77 14 6.8 0.5 115 2077 1900 6.8 6.1 8.68 3.4 94.0 0.80 27.3 34.1 0.376 0.084 0.109 0.29 NonLighble. 16.86 14 6.9 0.5 115 2088 1905 6.9 6.1 8.54 3.4 93.1 0.80 27.7 34.6 0.377 0.084 0.109 0.29 NonLighble. 16.95 14 6.9 0.45 115 2098 1910 6.9 6.1 7.69 3.4 90.7 0.80 27.6 34.5 0.378 0.084 0.109 0.29 NonLighble. 17.04 14 7.5 0.48 115 2108 1914 7.5 6.7 7.45 3.4 87.0 0.80 30.0 37.5 0.380 0.084 0.109 0.29 NonLighble. 17.14 14 7.1 0.5 115 2120 1919 7.1 6.3 8.28 3.4 91.6 0.80 28.4 35.5 0.380 0.084 0.109 0.29 NonLighble. 17.23 14 7.5 0.5 115 2130 1924 7.5 6.7 7.77 3.4 88.3 0.80 29.9 37.4 0.381 0.085 0.110 0.29 NonLighble.																					
16.59       14       7.9       0.57       115       2057       1891       7.9       7.3       8.30       3.4       87.3       0.80       31.8       39.7       0.374       0.086       0.112       0.30       NonLighble.         16.68       14       7.7       0.51       115       2067       1895       7.7       7.0       7.65       3.4       86.4       0.80       31.0       38.7       0.375       0.085       0.111       0.30       NonLighble.         16.77       14       6.8       0.5       115       2077       1900       6.8       6.1       8.68       3.4       94.0       0.80       27.3       34.1       0.376       0.084       0.109       0.29       NonLighble.         16.86       14       6.9       0.5       115       2088       1905       6.9       6.1       8.54       3.4       93.1       0.80       27.7       34.6       0.377       0.084       0.109       0.29       NonLighble.         16.95       14       6.9       0.45       115       2098       1910       6.9       6.1       7.69       3.4       90.7       0.80       27.6       34.5       0.378       0.084																					
16.77       14       6.8       0.5       115       2077       1900       6.8       6.1       8.68       3.4       94.0       0.80       27.3       34.1       0.376       0.084       0.109       0.29       NonLiqfble.         16.86       14       6.9       0.5       115       2088       1905       6.9       6.1       8.54       3.4       93.1       0.80       27.6       34.6       0.377       0.084       0.109       0.29       NonLiqfble.         16.95       14       6.9       0.45       115       2098       1910       6.9       6.1       7.69       3.4       90.7       0.80       27.6       34.5       0.378       0.084       0.109       0.29       NonLiqfble.         17.04       14       7.5       0.48       115       2108       1914       7.5       6.7       7.45       3.4       87.0       0.80       27.6       34.5       0.378       0.085       0.110       0.29       NonLiqfble.         17.04       14       7.5       0.48       115       2100       1919       7.1       6.3       8.28       3.4       91.6       0.80       28.4       35.5       0.380       0.084																					
16.86       14       6.9       0.5       115       2088       1905       6.9       6.1       8.54       3.4       93.1       0.80       27.7       34.6       0.377       0.084       0.109       0.29       NonLighbe.         16.95       14       6.9       0.45       115       2098       1910       6.9       6.1       7.69       3.4       90.7       0.80       27.6       34.5       0.378       0.084       0.109       0.29       NonLighbe.         17.04       14       7.5       0.48       115       2108       1914       7.5       6.7       7.45       3.4       87.0       0.80       30.0       37.5       0.379       0.085       0.110       0.29       NonLighbe.         17.14       14       7.1       0.5       115       2120       1919       7.1       6.3       8.28       3.4       91.6       0.80       28.4       35.5       0.380       0.084       0.109       0.29       NonLiqible.         17.23       14       7.5       0.5       115       2130       1924       7.5       6.7       7.77       3.4       88.3       0.80       29.9       37.4       0.381       0.085																					-
16.95       14       6.9       0.45       115       2098       1910       6.9       6.1       7.69       3.4       90.7       0.80       27.6       34.5       0.378       0.084       0.109       0.29       NonLighbe.         17.04       14       7.5       0.48       115       2108       1914       7.5       6.7       7.45       3.4       87.0       0.80       30.0       37.5       0.379       0.085       0.110       0.29       NonLighbe.         17.14       14       7.1       0.5       115       2120       1919       7.1       6.3       8.28       3.4       91.6       0.80       28.4       35.5       0.380       0.084       0.109       0.29       NonLighbe.         17.23       14       7.5       0.5       115       2130       1924       7.5       6.7       7.77       3.4       88.3       0.80       29.9       37.4       0.381       0.085       0.110       0.29       NonLighbe.																					
17.04 14 7.5 0.48 115 2108 1914 7.5 6.7 7.45 3.4 87.0 0.80 30.0 37.5 0.379 0.085 0.110 0.29 NonLiqfble. 17.14 14 7.1 0.5 115 2120 1919 7.1 6.3 8.28 3.4 91.6 0.80 28.4 35.5 0.380 0.084 0.109 0.29 NonLiqfble. 17.23 14 7.5 0.5 115 2130 1924 7.5 6.7 7.77 3.4 88.3 0.80 29.9 37.4 0.381 0.085 0.110 0.29 NonLiqfble.																					
17.14 14 7.1 0.5 115 2120 1919 7.1 6.3 8.28 3.4 91.6 0.80 28.4 35.5 0.380 0.084 0.109 0.29 NonLiqfble. 17.23 14 7.5 0.5 115 2130 1924 7.5 6.7 7.77 3.4 88.3 0.80 29.9 37.4 0.381 0.085 0.110 0.29 NonLiqfble.																					-
17.23 14 7.5 0.5 115 2130 1924 7.5 6.7 7.77 3.4 88.3 0.80 29.9 37.4 0.381 0.085 0.110 0.29 NonLigible.																					
																					-
		17.32	14	7.6	0.53			1929	7.6	6.8		3.4	88.9			37.9		0.085	0.111	0.29	

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 35

Depth to Groundwater: 14 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA** (g): 0.54 **MSF**: 1.30

		Water	Ti	Cleave		Total	Effortive	Nous	Com	Friction						Induced	Lianof	Limof	Fastan	
	Depth	Table	Tip Resist.	Sleeve Frict.	g	Stress	Effective Stress	Tip	Tip	Ratio		F.C.				Stress	Liquef. Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	17.41	14	7.6	0.55	115	2151	1934	7.6	6.7	8.43	3.4	90.0	0.80	30.2	37.8	0.383	0.085	0.111	0.29	NonLiqfble.
	17.5	14	7.6	0.55	115	2161	1938	7.6	6.7	8.44	3.4	90.1	0.80	30.2	37.8	0.384	0.085	0.111	0.29	NonLiqfble.
	17.59 17.69	14 14	7.3 7.3	0.55 0.53	115 115	2172 2183	1943 1948	7.2 7.2	6.4 6.4	8.85 8.54	3.4 3.4	92.8 92.0	0.80	29.0 28.9	36.2 36.2	0.384 0.385	0.084 0.084	0.110 0.110	0.29	NonLiqfble. NonLiqfble.
	17.78	14	7.7	0.51	115	2193	1953	7.6	6.8	7.72	3.4	87.8	0.80	30.5	38.1	0.386	0.085	0.111	0.29	NonLiqfble.
	17.87	14	7.5	0.49	115	2204	1958	7.4	6.5	7.66	3.4	88.6	0.80	29.7	37.1	0.387	0.085	0.110	0.28	NonLiqfble.
	17.96	14	7.9	0.47	115	2214	1963	7.8	6.9	6.92	3.3	84.5	0.80	31.2	39.0	0.388	0.086	0.111	0.29	NonLiqfble.
	18.05	14	7.6	0.43	115	2224	1967	7.5	6.6	6.63	3.3	85.0	0.80	30.0	37.5	0.389	0.085	0.110	0.28	NonLiqfble.
	18.14 18.21	14 14	8.1 8.1	0.42 0.42	115 115	2235 2243	1972 1976	8.0 8.0	7.1 7.1	6.02 6.02	3.3	80.7 80.8	0.80	31.9 31.9	39.9 39.9	0.390 0.390	0.086 0.086	0.112 0.112	0.29 0.29	NonLiqfble. NonLiqfble.
	18.27	14	8	0.42	115	2250	1979	7.9	6.9	6.25	3.3	82.1	0.80	31.5	39.3	0.391	0.086	0.112	0.28	NonLiqfble.
	18.36	14	7.9	0.46	115	2260	1984	7.8	6.8	6.80	3.3	84.5	0.80	31.0	38.8	0.392	0.085	0.111	0.28	NonLiqfble.
	18.45	14	8	0.47	115	2270	1988	7.8	6.9	6.85	3.3	84.3	0.80	31.4	39.2	0.393	0.086	0.111	0.28	NonLiqfble.
	18.55	14	7.8	0.49	115	2282	1994	7.6	6.7	7.36	3.4	87.0	0.80	30.6	38.2	0.394	0.085	0.111	0.28	NonLiqfble.
	18.64 18.73	14 14	7.8 8.1	0.51 0.52	115 115	2292 2303	1998 2003	7.6 7.9	6.7 6.9	7.67 7.48	3.4 3.4	88.1	0.80	30.5	38.2	0.395	0.085	0.111 0.112	0.28	NonLiqfble.
	18.82	14	8.6	0.52	115	2313	2003	8.4	7.4	6.99	3.4	86.3 82.7	0.80	31.7 33.6	39.6 42.0	0.395 0.396	0.086 0.087	0.112	0.28	NonLiqfble. NonLiqfble.
	18.92	14	8.9	0.49	115	2325	2013	8.7	7.7	6.33	3.3	79.5	0.80	34.7	43.4	0.397	0.088	0.113	0.29	NonLiqfble.
	19.01	14	9	0.46	115	2335	2018	8.8	7.8	5.87	3.3	77.6	0.80	35.1	43.8	0.398	0.088	0.114	0.29	NonLiqfble.
	19.1	14	9.4	0.38	115	2345	2023	9.1	8.1	4.62	3.2	71.4	0.80	36.6	45.7	0.399	0.089	0.116	0.29	NonLiqfble.
	19.19	14	8.9	0.31	115	2356	2027	8.6	7.6	4.01	3.2	70.4	0.80	34.6	43.2	0.400	0.088	0.114	0.28	NonLiqfble.
	19.29 19.38	14 14	8.8 8.1	0.26 0.26	105 105	2367 2377	2033 2036	8.5 7.9	7.5 6.8	3.41 3.76	3.1	67.8 72.3	0.80	34.2 31.4	42.7 39.3	0.401 0.401	0.087 0.086	0.113 0.111	0.28 0.28	NonLiqfble. NonLiqfble.
	19.47	14	8.1	0.26	105	2386	2040	7.8	6.8	3.76	3.2	72.3	0.80	31.4	39.3	0.401	0.086	0.111	0.28	NonLiqfble.
	19.57	14	8.2	0.26	105	2396	2045	7.9	6.8	3.71	3.2	71.8	0.80	31.7	39.7	0.403	0.086	0.112	0.28	NonLiqfble.
	19.66	14	8.3	0.28	105	2406	2048	8.0	6.9	3.95	3.2	72.7	0.80	32.1	40.1	0.404	0.086	0.112	0.28	NonLiqfble.
	19.75	14	8.5	0.29	115	2415	2052	8.2	7.1	3.98	3.2	72.1	0.80	32.8	41.0	0.405	0.086	0.112	0.28	NonLiqfble.
	19.84	14	8.5	0.31	115	2426	2057	8.2	7.1	4.25	3.2	73.5	0.80	32.8	41.0	0.406	0.086	0.112	0.28	NonLiqfble.
	19.94 20.03	14 14	9.1 9.5	0.34 0.35	115 115	2437 2448	2062 2067	8.8 9.1	7.6 8.0	4.31 4.23	3.2 3.2	71.7 70.1	0.80	35.1 36.6	43.8 45.7	0.407 0.399	0.088 0.089	0.114 0.116	0.28	NonLiqfble.
	20.03	14	9.5	0.38	115	2448	2072	9.1	8.0	4.23	3.2	71.7	0.80	36.5	45.7	0.399	0.089	0.116	0.29	NonLiqfble. NonLiqfble.
	20.21	14	10.1	0.38	115	2468	2076	9.7	8.5	4.29	3.1	68.6	0.80	38.8	48.5	0.401	0.091	0.118	0.29	NonLiqfble.
	20.3	14	10.3	0.38	115	2479	2081	9.9	8.7	4.19	3.1	67.7	0.80	39.5	49.4	0.401	0.091	0.119	0.30	NonLiqfble.
	20.4	14	10.6	0.39	115	2490	2086	10.2	9.0	4.17	3.1	66.8	0.80	40.6	50.8	0.402	0.092	0.120	0.30	NonLiqfble.
	20.49	14	9.8	0.36	115	2500	2091	9.4	8.2	4.21	3.2	69.4	0.80	37.5	46.9	0.403	0.090	0.116	0.29	NonLiqfble.
	20.58 20.67	14 14	9.9 10.2	0.36 0.35	115 115	2511 2521	2096 2101	9.5 9.7	8.2 8.5	4.16 3.92	3.1	69.0 67.0	0.80	37.8 39.0	47.3 48.7	0.404 0.404	0.090 0.091	0.117 0.118	0.29 0.29	NonLiqfble. NonLiqfble.
	20.76	14	10.2	0.32	115	2532	2101	9.6	8.4	3.62	3.1	65.9	0.80	38.5	48.2	0.405	0.091	0.118	0.29	NonLiqfble.
	20.85	14	10.4	0.34	115	2542	2110	9.9	8.6	3.72	3.1	65.6	0.80	39.6	49.5	0.406	0.091	0.119	0.29	NonLiqfble.
	20.94	14	11.3	0.38	115	2552	2115	10.8	9.5	3.79	3.1	63.6	0.80	43.0	53.8	0.407	0.094	0.123	0.30	NonLiqfble.
	21.03	14	11.6	0.39	115	2563	2120	11.0	9.7	3.78	3.1	62.9	0.80	44.1	55.1	0.407	0.096	0.124	0.30	NonLiqfble.
	21.12 21.22	14 14	11.5 11.1	0.39	115 115	2573 2584	2124 2130	10.9 10.5	9.6 9.2	3.82 3.98	3.1	63.4 65.2	0.80	43.7 42.1	54.6 52.6	0.408 0.409	0.095 0.094	0.124 0.122	0.30	NonLiqfble.
	21.31	14	10.1	0.33	115	2595	2134	9.6	8.2	4.20	3.1	69.2	0.80	38.3	47.8	0.410	0.094	0.122	0.29	NonLiqfble. NonLiqfble.
	21.4	14	10.2	0.34	115	2605	2139	9.6	8.3	3.82	3.1	67.1	0.80	38.6	48.2	0.410	0.090	0.118	0.29	NonLiqfble.
	21.49	14	10.5	0.33	115	2615	2144	9.9	8.6	3.59	3.1	65.2	0.80	39.7	49.6	0.411	0.091	0.119	0.29	NonLiqfble.
	21.73	14	12.6	0.35	115	2643	2156	11.9	10.5	3.10	3.0	57.8	0.80	47.5	59.4	0.413	0.099	0.129	0.31	NonLiqfble.
	21.82	14	11.4	0.33	115	2653	2161	10.7	9.3	3.28	3.0	61.5	0.80	42.9	53.6	0.414	0.094	0.123	0.30	NonLiqfble.
	21.91 22	14 14	11.3 10.3	0.32	115 115	2664 2674	2166 2171	10.6 9.7	9.2 8.3	3.21 3.35	3.0	61.5 64.9	0.80	42.5 38.7	53.1 48.4	0.414 0.415	0.094 0.091	0.122 0.118	0.29 0.28	NonLiqfble. NonLiqfble.
	22.1	14	9.5	0.28	115	2686	2176	8.9	7.5	3.43	3.1	67.9	0.80	35.6	44.6	0.415	0.091	0.115	0.28	NonLiqfble.
	22.19	14	10.3	0.28	115	2696	2181	9.7	8.2	3.13	3.1	63.9	0.80	38.6	48.3	0.417	0.090	0.118	0.28	NonLiqfble.
	22.28	14	10.2	0.27	115	2706	2185	9.5	8.1	3.05	3.1	63.8	0.80	38.2	47.7	0.417	0.090	0.117	0.28	NonLiqfble.
	22.37	14	11.1	0.27	115	2717	2190	10.4	8.9	2.77	3.0	59.8	0.80	41.5	51.9	0.418	0.093	0.121	0.29	NonLiqfble.
	22.46	14	11.4	0.28	115	2727	2195	10.6	9.1	2.79	3.0	59.3	0.80	42.6	53.2	0.419	0.094	0.122	0.29	NonLiqfble.
	22.56 22.65	14 14	10.7 10.8	0.29 0.28	115 115	2739 2749	2200 2205	10.0 10.1	8.5 8.5	3.11 2.97	3.1	63.0 62.0	0.80	39.9 40.3	49.9 50.3	0.419 0.420	0.092 0.092	0.119 0.119	0.28 0.28	NonLiqfble. NonLiqfble.
	22.03	14	9.6	0.28	115	2759	2203	8.9	7.4	3.28	3.1	67.3	0.80	35.7	30.3 44.7	0.420	0.092	0.119	0.28	NonLiqfble.
	22.84	14	9.9	0.27	115	2771	2215	9.2	7.7	3.17	3.1	65.8	0.80	36.8	46.0	0.422	0.089	0.116	0.27	NonLiqfble.
	22.93	14	9.8	0.26	115	2781	2219	9.1	7.6	3.09	3.1	65.8	0.80	36.4	45.5	0.422	0.089	0.115	0.27	NonLiqfble.
	23.02	14	9.3	0.24	105	2791	2224	8.6	7.1	3.04	3.1	67.2	0.80	34.5	43.1	0.423	0.087	0.114	0.27	NonLiqfble.
	23.11	14	8.7	0.23	105	2801	2228	8.1	6.5	3.15	3.2	70.0	0.80	32.3	40.3	0.424	0.086	0.112	0.26	NonLiqfble.
	23.21	14	8.9	0.23	105	2811	2232	8.2	6.7	3.07	3.1	68.9	0.80	33.0	41.2	0.424	0.087	0.112	0.27	NonLiqfble.

Project Number: 6600.3.001.01 Date: September 2005

**EQ Magnitude** (M<sub>w</sub>): 6.5 **PGA (g):** 0.54

MSF: 1.30 CPT Number: 35 Depth to Groundwater: 14 feet Water Tip Sleeve Total Effective Norm. Corr. Friction Induced Liquef. Liquef. Factor

	D4b	Water	Tip	Sleeve	_	Total	Effective	Norm.	Corr.	Friction		E.C					Liquef.	_	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.	V	Da	(~ )	Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qclN)es	Ratio	M7.5	M6.50	Safety	Comments
	00.0	1.4	10.4	0.22	105	2021	2226	0.6	0.0	2.45	2.0	(0.4	0.00	20.5	40.1	0.425	0.000	0.117	0.20	NI I : G-1-
	23.3 23.39	14 14	10.4	0.22	105 115	2821 2830	2236 2240	9.6 10.0	8.0 8.4	2.45	3.0	60.4 60.7	0.80	38.5 39.9	48.1 49.9	0.425 0.426	0.090 0.092	0.117 0.119	0.28 0.28	NonLiqfble.
	23.48	14	11.7	0.23	115	2841	2245	10.8	9.2	2.66 2.63	3.0	58.3	0.80	43.2	54.0	0.426	0.092	0.119	0.28	NonLiqfble. NonLiqfble.
	23.57	14	13	0.32	115	2851	2249	12.0	10.3	2.76	3.0	56.3	0.80	48.0	60.0	0.427	0.100	0.123	0.29	NonLiqfble.
	23.66	14	14	0.38	125	2861	2254	12.9	11.1	3.02	3.0	55.8	0.80	51.6	64.5	0.428	0.105	0.136	0.32	NonLiqfble.
	23.76	14	15.4	0.39	125	2874	2260	14.2	12.3	2.79	2.9	52.2	0.80	56.7	70.9	0.428	0.113	0.147	0.34	NonLiqfble.
	23.85	14	16	0.43	125	2885	2266	14.7	12.8	2.95	2.9	52.2	0.80	58.8	73.5	0.429	0.117	0.152	0.35	NonLiqfble.
	23.93	14	16.2	0.44	125	2895	2271	14.9	13.0	2.98	2.9	52.2	0.80	59.5	74.4	0.430	0.118	0.154	0.36	NonLiqfble.
	24.03	14	16.3	0.47	125	2908	2277	14.9	13.0	3.17	2.9	53.0	0.80	59.8	74.7	0.430	0.119	0.154	0.36	NonLiqfble.
	24.12	14	16.5	0.5	125	2919	2283	15.1	13.2	3.32	2.9	53.6	0.80	60.4	75.5	0.431	0.120	0.156	0.36	NonLiqfble.
	24.21	14	16.5	0.52	125	2930	2289	15.1	13.1	3.46	2.9	54.3	0.80	60.4	75.5	0.431	0.120	0.156	0.36	NonLiqfble.
	24.3	14	16.8	0.56	125	2941	2294	15.3	13.4	3.65	2.9	54.9	0.80	61.4	76.7	0.432	0.122	0.159	0.37	NonLiqfble.
	24.39	14	16.2	0.57	125	2953	2300	14.8	12.8	3.87	3.0	56.8	0.80	59.1	73.9	0.433	0.118	0.153	0.35	NonLiqfble.
	24.48	14	15.9	0.49	125	2964	2305	14.5	12.5	3.40	2.9	55.1	0.80	58.0	72.4	0.433	0.115	0.150	0.35	NonLiqfble.
	24.57	14	15	0.43	125	2975	2311	13.7	11.7	3.18	3.0	55.6	0.80	54.6	68.3	0.434	0.110	0.142	0.33	NonLiqfble.
	24.66	14	14	0.41	125	2986	2317	12.7	10.8	3.28	3.0	57.9	0.80	50.9	63.6	0.434	0.104	0.135	0.31	NonLiqfble.
	24.75 24.83	14 14	12 13	0.33 0.27	115 115	2998 3007	2322 2327	10.9 11.8	9.0 9.9	3.14 2.35	3.0 2.9	61.5 54.7	0.80	43.6 47.2	54.5 59.0	0.435 0.435	0.095 0.099	0.124 0.129	0.28 0.30	NonLiqfble. NonLiqfble.
	24.92	14	11.7	0.27	105	3017	2327	10.6	8.7	2.26	3.0	57.0	0.80	42.4	53.0	0.436	0.094	0.129	0.30	NonLiqfble.
	25.01	14	10.5	0.21	105	3027	2335	9.5	7.7	2.34	3.0	60.7	0.80	38.0	47.5	0.437	0.090	0.122	0.27	NonLiqfble.
	25.11	14	10.1	0.19	105	3037	2339	9.1	7.3	2.21	3.0	61.1	0.80	36.5	45.7	0.437	0.089	0.116	0.26	NonLiqfble.
	25.2	14	9.5	0.19	105	3046	2343	8.6	6.8	2.38	3.1	64.3	0.80	34.3	42.9	0.438	0.087	0.114	0.26	NonLiqfble.
	25.29	14	8.9	0.17	105	3056	2347	8.0	6.3	2.31	3.1	65.9	0.80	32.2	40.2	0.439	0.086	0.112	0.25	NonLiqfble.
	25.38	14	8.3	0.16	105	3065	2351	7.5	5.8	2.36	3.1	68.7	0.80	30.0	37.4	0.439	0.085	0.110	0.25	NonLiqfble.
	25.47	14	8.4	0.15	105	3075	2355	7.6	5.8	2.19	3.1	67.1	0.80	30.3	37.9	0.440	0.085	0.111	0.25	NonLiqfble.
	25.57	14	8.2	0.16	105	3085	2359	7.4	5.6	2.40	3.2	69.5	0.80	29.5	36.9	0.441	0.085	0.110	0.25	NonLiqfble.
	25.66	14	8.5	0.16	105	3095	2363	7.7	5.9	2.30	3.1	67.7	0.80	30.6	38.3	0.441	0.085	0.111	0.25	NonLiqfble.
	25.75	14	8.8	0.19	105	3104	2367	7.9	6.1	2.62	3.1	68.7	0.80	31.7	39.6	0.442	0.086	0.111	0.25	NonLiqfble.
	25.84	14	8.8	0.2	105	3114	2371	7.9	6.1	2.76	3.2	69.7	0.80	31.6	39.5	0.443	0.086	0.111	0.25	NonLiqfble.
	25.93	14	10.3	0.22	105	3123	2374	8.1 9.2	6.3	2.96	3.2	70.2	0.80	32.3	40.4	0.443	0.086	0.112	0.25	NonLiqfble.
	26.03 26.12	14 14	10.3 11.3	0.26 0.32	115 115	3134 3144	2379 2383	10.1	7.3 8.2	2.98 3.29	3.1	66.0 64.9	0.80	37.0 40.5	46.2 50.6	0.444 0.445	0.089 0.092	0.116 0.120	0.26 0.27	NonLiqfble. NonLiqfble.
	26.21	14	12.6	0.32	115	3154	2388	11.3	9.2	3.63	3.1	63.5	0.80	45.1	56.4	0.445	0.092	0.120	0.27	NonLiqfble.
	26.3	14	15.7	0.37	125	3165	2393	14.0	11.8	2.62	2.9	52.3	0.80	56.2	70.2	0.446	0.112	0.126	0.33	NonLiqfble.
	26.39	14	28.6	0.32	115	3176	2398	25.6	22.5	1.18	2.5	29.9	0.66	50.4	76.0	0.446	0.121	0.157	0.35	Liquefaction
	26.48	14	43.8	0.34	115	3186	2403	39.1	35.1	0.81	2.2	20.0	0.40	26.1	65.2	0.447	0.106	0.138	0.31	Liquefaction
	26.57	14	49.1	0.38	115	3197	2408	43.8	39.4	0.80	2.2	18.5	0.36	24.6	68.4	0.447	0.110	0.143	0.32	Liquefaction
	26.66	14	49.9	0.4	115	3207	2413	44.4	40.0	0.83	2.2	18.6	0.36	25.2	69.7	0.448	0.111	0.145	0.32	Liquefaction
	26.75	14	43.1	0.5	125	3217	2417	38.4	34.3	1.21	2.3	23.7	0.50	38.2	76.6	0.448	0.122	0.158	0.35	Liquefaction
	26.85	14	33	0.56	125	3230	2424	29.3	25.9	1.78	2.5	32.0	0.72	75.7	105.1	0.449	0.188	0.244	0.54	Liquefaction
	26.94	14	25.7	0.62	125	3241	2429	22.8	19.8	2.57	2.7	41.4	0.80	91.3	114.1	0.450	0.218	0.283	0.63	NonLiqfble.
	27.03	14	21.1	0.7	125	3252	2435	18.7	16.0	3.59	2.9	50.7	0.80	74.8	93.5	0.450	0.156	0.203	0.45	NonLiqfble.
	27.12	14	26.1	0.64	125	3264	2441	23.1	20.0	2.62	2.7	41.4	0.80	92.5	115.6	0.451	0.224	0.291	0.65	NonLiqfble.
	27.21 27.3	14 14	26.7 22.7	0.64 0.66	125 125	3275 3286	2446 2452	23.6 20.1	20.5 17.2	2.55 3.13	2.7 2.8	40.6 47.0	0.80	94.5 80.2	118.1 100.3	0.451 0.452	0.233 0.174	0.303 0.226	0.67 0.50	NonLiqfble.
	27.39	14	20	0.66	125	3297	2457	17.7	14.9	3.60	2.9	52.2	0.80	70.6	88.3	0.452	0.174	0.226	0.30	NonLiqfble. NonLiqfble.
	27.48	14	22.4	0.64	125	3309	2463	19.7	16.8	3.09	2.8	47.2	0.80	79.0	98.7	0.453	0.170	0.220	0.49	NonLiqfble.
	27.57	14	25.7	0.61	125	3320	2469	22.6	19.5	2.54	2.7	41.5	0.80	90.5	113.2	0.453	0.215	0.279	0.62	NonLiqfble.
	27.66	14	23.5	0.6	125	3331	2474	20.7	17.6	2.75	2.8	44.5	0.80	82.7	103.4	0.454	0.183	0.237	0.52	NonLiqfble.
	27.75	14	24.1	0.58	125	3342	2480	21.2	18.1	2.59	2.7	43.2	0.80	84.7	105.9	0.454	0.190	0.247	0.54	NonLiqfble.
	27.84	14	28.1	0.48	125	3354	2486	24.7	21.3	1.82	2.6	35.5	0.80	98.6	123.3	0.455	0.254	0.331	0.73	NonLiqfble.
	27.93	14	30.2	0.42	125	3365	2491	26.5	22.9	1.47	2.5	31.9	0.72	67.1	93.6	0.455	0.156	0.203	0.45	Liquefaction
	28.02	14	30.7	0.48	125	3376	2497	26.9	23.2	1.65	2.5	32.9	0.75	78.7	105.5	0.456	0.189	0.246	0.54	Liquefaction
	28.1	14	25.3	0.43	125	3386	2502	22.1	18.9	1.82	2.6	37.7	0.80	88.5	110.7	0.456	0.206	0.268	0.59	NonLiqfble.
	28.21	14	19.9	0.43	125	3400	2509	17.4	14.5	2.36	2.8	46.3	0.80	69.5	86.9	0.457	0.141	0.183	0.40	NonLiqfble.
	28.3	14	15.6	0.54	125	3411	2514	13.6	11.0	3.89	3.0	60.3	0.80	54.4	68.1	0.457	0.109	0.142	0.31	NonLiqfble.
	28.43	14	16.5	0.61	125	3427	2523	14.4	11.7	4.13	3.0	60.0	0.80	57.5	71.9	0.458	0.115	0.149	0.33	NonLiqfble.
	28.52	14	21.8	0.73	125	3439	2528	19.0	15.9	3.64	2.9	51.0	0.80	75.9	94.9	0.458	0.159	0.207	0.45	NonLiqfble.
	28.61 28.7	14 14	26.4 37.5	0.8 0.82	135 135	3450 3462	2534 2540	22.9 32.6	19.5 28.1	3.24 2.29	2.8 2.6	45.1 33.7	0.80 0.77	91.8 106.4	114.7 139.0	0.459 0.459	0.220 0.330	0.287 0.429	0.62 0.93	NonLiqfble. Liquefaction
	28.79	14	49.6	0.82	135	3474	2547	43.0	37.6	1.69	2.4	25.8	0.77	53.8	96.8	0.459	0.330	0.429	0.93	Liquefaction
	28.88	14	57.4	0.78	125	3486	2553	49.7	43.6	1.40	2.3	22.0	0.45	41.1	90.8	0.460	0.150	0.214	0.40	Liquefaction
	28.97	14	63.5	0.79	125		2559	54.9	48.2	1.28	2.2	19.9	0.40	36.1	91.0	0.461	0.150	0.195	0.42	Liquefaction

Date: September 2005 CPT Number: 35

Depth to Groundwater: 14 feet

**EQ Magnitude** (M<sub>w</sub>): 6.5 Project Number: 6600.3.001.01 **PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	(qclN)cs	Ratio	M7.5	M6.50	Safety	Comments
	29.06	14	66.2	0.84	125	3509	2565	57.2	50.2	1.30	2.2	19.5	0.39	36.3	93.5	0.461	0.156	0.203	0.44	Liquefaction
	29.15	14	69.5	0.87	125	3520	2570	60.0	52.7	1.28	2.2	18.9	0.37	35.2	95.2	0.461	0.160	0.208	0.45	Liquefaction
	29.24	14	73.2	0.84	125	3531	2576	63.1	55.4	1.18	2.2	17.5	0.33	31.7	94.8	0.462	0.159	0.207	0.45	Liquefaction
	29.33 29.42	14 14	75.3 73.8	0.77 0.74	125 125	3543 3554	2582 2587	64.8 63.5	56.9 55.7	1.05 1.03	2.1	16.3 16.4	0.30	28.0 27.8	92.9 91.2	0.462 0.463	0.154 0.151	0.201 0.196	0.43 0.42	Liquefaction Liquefaction
	29.49	14	68.6	0.68	125	3563	2592	59.0	51.5	1.02	2.1	17.2	0.30	28.4	87.3	0.463	0.131	0.136	0.40	Liquefaction
	29.58	14	59.1	0.64	125	3574	2597	50.7	44.1	1.12	2.2	19.8	0.39	33.0	83.7	0.464	0.135	0.175	0.38	Liquefaction
	29.67	14	47.8	0.81	135	3585	2603	41.0	35.3	1.76	2.4	27.1	0.59	59.0	100.0	0.464	0.173	0.225	0.48	Liquefaction
	29.76	14	37.9	0.85	135	3597	2609	32.5	27.7	2.35	2.6	34.3	0.78	116.8	149.3	0.465	0.389	0.506	1.09	Low F.S.
	29.85	14	32.2	0.7	125	3609	2616	27.5	23.2	2.30	2.6	37.0	0.80	110.2	137.7	0.465	0.323	0.420	0.90	NonLiqfble. NonLiqfble.
	29.94 30.03	14 14	27.2 24.6	0.52 0.44	125 125	3621 3632	2622 2627	23.2 21.0	19.4 17.3	2.05 1.93	2.7 2.7	38.7 40.0	0.80	93.0 84.0	116.2 105.0	0.465 0.446	0.226 0.188	0.294 0.244	0.63 0.55	NonLiqfble.
	30.12	14	22.2	0.55	125	3643	2633	18.9	15.5	2.70	2.8	46.9	0.80	75.7	94.7	0.447	0.159	0.207	0.46	NonLiqfble.
	30.2	14	20.2	0.74	125	3653	2638	17.2	13.9	4.03	3.0	55.6	0.80	68.8	86.0	0.447	0.139	0.181	0.40	NonLiqfble.
	30.29	14	23.9	0.88	135	3664	2643	20.3	16.7	3.99	2.9	51.5	0.80	81.4	101.7	0.448	0.178	0.231	0.52	NonLiqfble.
	30.38	14	33.9	0.94	135	3676	2650	28.8	24.2	2.93	2.7	39.6	0.80	115.3	144.1	0.448	0.358	0.466	1.04	NonLiqfble.
	30.47	14	35.1	0.93	135	3689	2657	29.8	25.0	2.80	2.7	38.3	0.80	119.2	149.0	0.448	0.388	0.504	1.12	NonLiqfble.
	30.56 30.64	14 14	36 33.7	0.93 0.94	135 135	3701 3712	2663 2669	30.5 28.5	25.6 23.9	2.72 2.95	2.6 2.7	37.5 39.9	0.80	122.1 114.2	152.6 142.7	0.449 0.449	0.411 0.350	0.534 0.455	1.19 1.01	NonLiqfble. NonLiqfble.
	30.73	14	31.4	0.92	135	3724	2675	26.6	22.1	3.11	2.7	42.1	0.80	106.2	132.8	0.449	0.330	0.433	0.86	NonLiqfble.
	30.82	14	31.2	1	135	3736	2682	26.4	21.9	3.41	2.8	43.6	0.80	105.4	131.8	0.450	0.293	0.381	0.85	NonLiqfble.
	30.91	14	32	0.89	135	3748	2688	27.0	22.4	2.95	2.7	41.1	0.80	108.0	135.0	0.450	0.309	0.402	0.89	NonLiqfble.
	31	14	33.6	0.86	135	3760	2695	28.3	23.5	2.71	2.7	39.0	0.80	113.3	141.6	0.451	0.344	0.447	0.99	NonLiqfble.
	31.08	14	54.8	1.24	135	3771	2701	46.1	39.2	2.34	2.5	28.9	0.64	81.6	127.7	0.451	0.274	0.356	0.79	Liquefaction
	31.17	14	65	1.31	135	3783	2707	54.7	46.6	2.08	2.4	25.1	0.54	63.6	118.2	0.451	0.234	0.304	0.67	Liquefaction
	31.26 31.35	14 14	66.7 48	1.37 1.49	135 135	3795 3807	2714 2720	56.0 40.3	47.7 33.9	2.11 3.23	2.4	25.0 35.3	0.53 0.80	64.4 161.1	120.4 201.3	0.452 0.452	0.242 0.839	0.315 1.091	0.70 2.41	Liquefaction
	31.61	14	143.5	1.5	125	3843	2739	120.0	103.3	1.06	1.9	10.8	0.15	21.9	141.8	0.453	0.345	0.449	0.99	Liquefaction
	31.66	14	147.1	1.37	125	3849	2742	122.9	105.8	0.94	1.9	9.8	0.13	18.1	141.0	0.453	0.341	0.443	0.98	Liquefaction
	31.74	14	167.2	1.25	115	3859	2747	139.6	120.3	0.76	1.8	7.5	0.07	10.1	149.7	0.454	0.392	0.509	1.12	Low F.S.
	31.83	14	165.6	1.25	115	3869	2752	138.1	118.9	0.76	1.8	7.7	0.07	10.6	148.7	0.454	0.386	0.501	1.10	Low F.S.
	31.91	14	193.7	1.25	115	3878	2756	161.4	139.1	0.65	1.7	5.8	0.02	3.5	164.9	0.454	0.497	0.646	1.42	
	32 32.09	14 14	205.9 200	1.03 1.17	105 115	3889 3898	2761 2765	171.4 166.4	147.7 143.2	0.51 0.59	1.6 1.6	4.3 5.1	0.00	0.0 0.6	171.4 167.0	0.455 0.455	0.549 0.514	0.713 0.668	1.57 1.47	
	32.17	14	203.6	1.62	125	3907	2769	169.3	145.6	0.80	1.7	6.6	0.04	7.5	176.8	0.456	0.514	0.772	1.69	
	32.26	14	210.8	1.57	115	3919	2775	175.1	150.5	0.75	1.7	6.0	0.03	4.9	180.0	0.456	0.622	0.809	1.77	
	32.34	14	210.7	1.84	125	3928	2779	174.9	150.2	0.88	1.7	6.9	0.05	9.4	184.3	0.456	0.662	0.860	1.88	
	32.43	14	185.6	1.83	125	3939	2785	153.9	131.8	1.00	1.8	8.5	0.09	16.0	169.9	0.457	0.536	0.697	1.52	
	32.52	14	184.8	1.58	125	3950	2790	153.1	131.0	0.86	1.8	7.7	0.07	11.9	164.9	0.457	0.497	0.647	1.41	
	32.6	14	172.1	1.41	125	3960	2795	142.4	121.7	0.83	1.8	8.0	0.08	12.3	154.7	0.458	0.424	0.551	1.21	T : £+:
	32.69 32.77	14 14	149 143.6	1.35 1.27	125 125	3972 3982	2801 2806	123.2 118.6	104.9 100.9	0.92 0.90	1.9 1.9	9.7 9.9	0.13	17.7 17.7	140.8 136.3	0.458 0.458	0.340 0.315	0.442 0.410	0.96 0.89	Liquefaction Liquefaction
	32.86	14	137.9	1.18	125	3993	2812	113.8	96.6	0.87	1.9	10.0	0.13	17.5	131.3	0.459	0.291	0.378	0.82	Liquefaction
	32.95	14	135.6	1.12	125	4004	2817	111.8	94.8	0.84	1.9	9.9	0.13	17.0	128.7	0.459	0.278	0.362	0.79	Liquefaction
	33.03	14	136.2	1.21	125	4014	2822	112.2	95.1	0.90	1.9	10.4	0.14	18.8	131.0	0.459	0.289	0.376	0.82	Liquefaction
	33.12	14	138.1	1.3	125	4025	2828	113.6	96.2	0.96	1.9	10.7	0.15	20.2	133.8	0.460	0.303	0.394	0.86	Liquefaction
	33.18 33.27	14	141.2 146.6	1.34 1.27	125 125	4033 4044	2832 2837	116.1 120.4	98.3 101.9	0.96 0.88	1.9 1.9	10.5 9.6	0.15	20.1	136.2 137.5	0.460 0.460	0.315	0.410 0.418	0.89	Liquefaction
	33.35	14 14	135.2	1.05	115	4044	2842	111.0	93.7	0.88	1.9	9.6 9.7	0.12	17.1 15.7	126.7	0.460	0.322	0.418	0.91 0.76	Liquefaction Liquefaction
	33.44	14	114.7	0.84	115	4064	2847	94.1	79.1	0.75	1.9	10.7	0.12	17.0	111.1	0.461	0.207	0.270	0.58	Liquefaction
	33.52	14	98.5	0.77	115	4074	2851	80.7	67.6	0.80	2.0	12.6	0.20	20.5	101.3	0.461	0.177	0.230	0.50	Liquefaction
	33.61	14	84.2	0.93	125	4084	2856	68.9	57.5	1.13	2.1	16.8	0.32	31.7	100.7	0.462	0.175	0.227	0.49	Liquefaction
	33.69	14	69.8	1.07	135	4094	2861	57.1	47.3	1.58	2.3	22.1	0.46	47.8	104.9	0.462	0.187	0.244	0.53	Liquefaction
	33.78	14	62.6	1.12	135	4106	2867	51.1	42.2	1.85	2.4	25.2	0.54	59.8	110.9	0.462	0.207	0.269	0.58	Liquefaction
	33.86 33.94	14 14	64.1 73.5	1.13 1.05	135 125	4117 4128	2873 2879	52.3 59.9	43.2 49.6	1.82 1.47	2.4	24.7 20.8	0.53 0.42	58.2 43.7	110.5 103.7	0.463 0.463	0.205 0.184	0.267 0.239	0.58 0.52	Liquefaction
	34.03	14	91.3	0.89	125	4128	2885	74.4	61.8	1.47	2.3	15.1	0.42	27.3	103.7	0.463	0.184	0.239	0.52	Liquefaction Liquefaction
	34.11	14	90.6	0.71	115	4149	2890	73.7	61.2	0.80	2.0	13.6	0.27	22.0	95.7	0.464	0.176	0.210	0.45	Liquefaction
	34.2	14	87	0.64	115	4159	2894	70.8	58.7	0.75	2.0	13.6	0.23	21.2	91.9	0.464	0.152	0.198	0.43	Liquefaction
	34.28	14	85	0.73	125	4169	2899	69.1	57.2	0.88	2.1	15.0	0.27	25.0	94.1	0.464	0.157	0.205	0.44	Liquefaction
	34.36	14	82.4	0.58	115	4179	2904	66.9	55.3	0.72	2.0	14.0	0.24	21.0	87.9	0.465	0.143	0.186	0.40	Liquefaction
	34.45	14 14	82.5	0.55	115	4189	2908	66.9	55.3	0.68	2.0	13.6	0.23	20.0	86.9	0.465	0.141	0.183	0.39	Liquefaction
	34.53	14	90.6	0.93	125	4198	2913	73.5	60.7	1.05	2.1	15.6	0.28	29.1	102.6	0.465	0.180	0.235	0.50	Liquefaction

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 35

Depth to Groundwater: 14 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

**PGA (g):** 0.54 **MSF:** 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	DqcIN	(qc1N)es	Ratio	M7.5	M6.50	Safety	Comments
	34.61	14	107.3	1.09	125	4208	2918	86.9	72.1	1.04	2.0	13.8	0.24	26.7	113.6	0.466	0.216	0.281	0.60	Liquefaction
	34.67	14	120.4	1.11	125	4216	2921	97.5	80.9	0.94	2.0	12.0	0.19	22.5	119.9	0.466	0.240	0.313	0.67	Liquefaction
	34.74	14	136.8	1.02	115	4224	2926	110.7	92.0	0.76	1.9	9.6	0.12	15.3	126.0	0.466	0.266	0.346	0.74	Liquefaction
	34.83	14	150.2	0.84	115	4235	2930	121.4	101.0	0.57	1.8	7.3	0.06	7.9	129.3	0.467	0.281	0.365	0.78	Liquefaction
	34.91	14	150.5	0.76	105	4244	2935	121.6	101.1	0.51	1.7	6.8	0.05	6.1	127.7	0.467	0.274	0.356	0.76	Liquefaction
	35 35.08	14 14	141.3 132.3	0.71 0.68	105 105	4253 4262	2939 2942	114.0 106.7	94.7 88.5	0.51 0.52	1.8 1.8	7.3 7.9	0.06	7.3 8.9	121.4 115.6	0.467 0.468	0.246 0.224	0.320 0.291	0.68 0.62	Liquefaction Liquefaction
	35.17	14	122.6	0.64	105	4271	2946	98.8	81.8	0.53	1.8	8.6	0.10	10.5	109.3	0.468	0.202	0.262	0.56	Liquefaction
	35.25	14	113.2	0.67	115	4280	2949	91.2	75.3	0.60	1.9	9.9	0.13	13.9	105.1	0.469	0.188	0.244	0.52	Liquefaction
	35.34	14	103.1	0.74	115	4290	2954	83.0	68.3	0.73	2.0	12.0	0.19	18.9	101.9	0.469	0.179	0.232	0.49	Liquefaction
	35.42	14	93.7	0.74	115	4299	2958	75.4	61.9	0.81	2.0	13.6	0.23	22.3	97.7	0.469	0.167	0.217	0.46	Liquefaction
	35.51	14	81.6	0.71	125	4309	2963	65.6	53.6	0.89	2.1	15.8	0.29	26.4	92.0	0.470	0.152	0.198	0.42	Liquefaction
	35.59	14 14	65.2 54.6	0.82	125 125	4319 4331	2968 2974	52.4	42.5	1.30	2.3	21.6	0.44	41.6	94.0	0.470	0.157	0.204	0.43	Liquefaction
	35.68 35.76	14	51.1	0.86 0.91	135	4341	2974	43.8 41.0	35.3 32.8	1.64 1.86	2.4	26.4 28.8	0.57 0.63	58.3 71.3	102.1 112.2	0.470 0.471	0.179 0.211	0.233 0.275	0.49 0.58	Liquefaction Liquefaction
	35.85	14	54.9	0.93	135	4353	2985	44.0	35.3	1.76	2.4	27.1	0.59	63.5	107.5	0.471	0.196	0.254	0.54	Liquefaction
	35.92	14	52.7	0.89	135	4362	2990	42.2	33.8	1.76	2.4	27.8	0.61	65.4	107.5	0.471	0.196	0.254	0.54	Liquefaction
	35.99	14	48.6	0.8	135	4372	2995	38.9	31.0	1.72	2.5	28.8	0.64	67.8	106.6	0.471	0.193	0.250	0.53	Liquefaction
	36.07	14	53.3	0.66	125	4383	3001	42.6	34.0	1.29	2.4	24.5	0.52	46.0	88.6	0.472	0.145	0.188	0.40	Liquefaction
	36.16	14	55.3	0.63	125	4394	3007	44.1	35.3	1.19	2.3	23.2	0.49	41.6	85.7	0.472	0.139	0.180	0.38	Liquefaction
	36.24	14	46.3	0.59	125 125	4404	3012	36.9	29.3	1.34	2.4	27.0	0.59	52.5	89.4	0.472	0.146	0.190	0.40	Liquefaction
	36.33 36.42	14 14	31.2 25	0.48 0.33	115	4415 4426	3017 3023	24.9 19.9	19.2 15.1	1.66 1.45	2.6 2.7	36.2 39.2	0.80	99.4 79.6	124.3 99.5	0.473 0.473	0.258 0.172	0.336 0.223	0.71 0.47	NonLiqfble. NonLiqfble.
	36.5	14	22.9	0.31	115	4436	3023	18.2	13.7	1.50	2.7	41.5	0.80	72.8	91.1	0.473	0.172	0.195	0.41	NonLiqfble.
	36.59	14	14.6	0.34	115	4446	3032	11.6	8.2	2.75	3.0	61.8	0.80	46.4	58.0	0.474	0.098	0.128	0.27	NonLiqfble.
	36.68	14	14.5	0.41	125	4456	3037	11.5	8.1	3.34	3.1	65.5	0.80	46.1	57.6	0.474	0.098	0.127	0.27	NonLiqfble.
	36.76	14	13.3	0.42	125	4466	3042	10.6	7.3	3.80	3.2	70.6	0.80	42.2	52.8	0.474	0.094	0.122	0.26	NonLiqfble.
	36.85	14	19.2	0.48	125	4477	3047	15.2	11.1	2.83	2.9	54.8	0.80	60.9	76.1	0.474	0.121	0.157	0.33	NonLiqfble.
	36.94	14 14	28.9	0.55	125 125	4489 4499	3053	22.9	17.5	2.06	2.7	40.7	0.80	91.5	114.4	0.475	0.219	0.285	0.60	NonLiqfble.
	37.02 37.11	14	34.3 33.9	0.59 0.52	125	4510	3058 3064	27.1 26.8	21.0 20.7	1.84 1.64	2.6 2.6	35.9 34.8	0.80	108.6 105.2	135.7 132.0	0.475 0.475	0.312 0.294	0.406 0.382	0.85 0.80	NonLiqfble. Liquefaction
	37.19	14	31.5	0.43	125	4520	3069	24.9	19.0	1.47	2.6	35.0	0.80	100.1	125.0	0.476	0.262	0.340	0.72	Liquefaction
	37.28	14	32.1	0.34	115	4531	3074	25.3	19.4	1.14	2.5	32.0	0.72	65.1	90.4	0.476	0.149	0.193	0.41	Liquefaction
	37.36	14	29.1	0.24	105	4540	3078	22.9	17.4	0.89	2.5	31.5	0.71	55.5	78.4	0.476	0.125	0.162	0.34	Liquefaction
	37.45	14	25.5	0.23	105	4550	3082	20.1	15.1	0.99	2.6	35.1	0.80	80.4	100.5	0.477	0.174	0.227	0.48	Liquefaction
	37.54	14	20.1	0.26	115	4559	3086	15.8	11.5	1.46	2.8	44.7	0.80	63.3	79.2	0.477	0.126	0.164	0.34	NonLiqfble.
	37.63	14 14	16.6 17.2	0.17 0.28	105 115	4570 4578	3091 3094	13.1 13.5	9.3 9.6	1.19	2.8 2.9	47.1 52.0	0.80	52.3 54.1	65.3 67.6	0.477 0.478	0.106 0.109	0.138 0.141	0.29 0.30	NonLiqfble.
	37.71 37.8	14	12.5	0.26	125	4588	3094	9.8	6.6	1.88 4.90	3.3	78.4	0.80	39.3	49.1	0.478	0.109	0.141	0.30	NonLiqfble. NonLiqfble.
	37.89	14	11.6	0.56	125	4600	3105	9.1	6.0	6.02	3.4	85.7	0.80	36.4	45.5	0.478	0.089	0.115	0.24	NonLiqfble.
	37.94	14	15.3	0.55	125	4606	3108	12.0	8.4	4.23	3.1	68.9	0.80	48.0	60.0	0.479	0.100	0.130	0.27	NonLiqfble.
	38.01	14	23.2	0.54	125	4615	3112	18.2	13.4	2.58	2.9	49.2	0.80	72.8	91.0	0.479	0.150	0.195	0.41	NonLiqfble.
	38.09	14	48.9	0.57	125	4625	3117	38.3	29.9	1.22	2.4	25.8	0.56	47.9	86.2	0.479	0.140	0.181	0.38	Liquefaction
	38.18	14	68.7	0.68	125	4636	3123	53.8	42.5	1.02	2.2	19.5	0.39	34.0	87.8	0.479	0.143	0.186	0.39	Liquefaction
	38.27 38.36	14 14	81.3 91.1	0.86	125 125	4647 4658	3128 3134	63.6 71.2	50.5 56.6	1.09 1.13	2.2	18.0 16.9	0.35	33.6 33.3	97.2 104.5	0.480 0.480	0.165 0.186	0.215 0.242	0.45 0.50	Liquefaction Liquefaction
	38.44	14	100	1.04	125	4668	3134	78.1	62.2	1.06	2.1	15.5	0.32	30.4	104.5	0.480	0.199	0.242	0.54	Liquefaction Liquefaction
	38.53	14	113.7	0.99	125	4680	3145	88.7	70.8	0.89	2.0	12.9	0.21	23.7	112.4	0.481	0.212	0.276	0.57	Liquefaction
	38.62	14	122.2	0.92	115	4691	3150	95.3	76.1	0.77	1.9	11.3	0.17	19.1	114.4	0.481	0.219	0.285	0.59	Liquefaction
	38.71	14	124.5	0.78	115	4701	3155	97.0	77.4	0.64	1.9	10.0	0.13	15.0	112.0	0.481	0.211	0.274	0.57	Liquefaction
	38.79	14	126.2	0.69	105	4710	3159	98.2	78.4	0.56	1.8	9.2	0.11	12.4	110.6	0.481	0.206	0.268	0.56	Liquefaction
	38.88	14	123	0.71	115	4720	3163	95.7	76.2	0.59	1.9	9.7	0.13	13.7	109.4	0.482	0.202	0.262	0.54	Liquefaction
	38.97 39.06	14 14	121.5 117.2	0.74 0.71	115 115	4730 4741	3168 3172	94.5 91.0	75.2 72.4	0.62 0.62	1.9 1.9	10.1 10.4	0.14 0.15	15.0 15.4	109.4 106.5	0.482 0.483	0.202 0.192	0.262 0.250	0.54 0.52	Liquefaction Liquefaction
	39.06	14	115.5	0.71	115	4741	3172	89.7	71.2	0.62	1.9	11.0	0.15	17.0	106.5	0.483	0.192	0.250	0.52	Liquefaction
	39.23	14	113.6	0.81	115	4760	3181	88.1	69.9	0.73	2.0	11.7	0.18	19.2	107.4	0.483	0.195	0.254	0.52	Liquefaction
	39.32	14	109.8	0.83	115	4770	3186	85.1	67.4	0.77	2.0	12.4	0.20	21.0	106.1	0.483	0.191	0.249	0.51	Liquefaction
	39.41	14	109.4	0.93	125	4781	3191	84.7	67.0	0.87	2.0	13.3	0.22	24.0	108.7	0.484	0.199	0.259	0.54	Liquefaction
	39.49	14	109.2	1.21	125	4791	3196	84.5	66.8	1.13	2.1	15.2	0.27	31.8	116.3	0.484	0.226	0.294	0.61	Liquefaction
	39.58	14	121.9	1.39	125	4802	3202	94.3	74.6	1.16	2.1	14.3	0.25	31.4	125.6	0.484	0.264	0.344	0.71	Liquefaction
	39.66 39.74	14 14	165.9 240.4	1.38 1.45	125 115	4812 4822	3207 3212	128.2 185.6	101.9 148.1	0.84 0.61	1.9 1.6	9.4 5.1	0.12	17.0 0.4	145.2 186.0	0.485 0.485	0.365 0.678	0.474 0.882	0.98 1.82	Liquefaction
	39.74	14	256.5	1.38	115	4822	3212	197.9	158.0	0.54	1.6	4.2	0.00	0.4	197.9	0.485	0.801	1.041	2.15	
			_50.0								0				/ / /					

Project Number: 6600.3.001.01 Date: September 2005 CPT Number: 35

Depth to Groundwater: 14 feet

EQ Magnitude ( $M_w$ ): 6.5 **PGA (g):** 0.54 MSF: 1.30

									_											
	Donth	Water Table	Tip Posist	Sleeve Frict.			Effective			Friction Ratio		F.C.				Induced Stress	•	Liquef.		
Cone	Depth (FT)	(FT)	Resist.	(TSF)	g (PCF)	Stress (PSF)	Stress (PSF)	Tip <b>q</b> ein	Tip Q	F	Ic	(%)	Ксрт	DqcIN	(qc1N)es		Stress M7.5	Stress M6.50	of Safety	Comments
Conc	(F I)	(F I)	(151)	(151)	(I CI)	(151)	(151)	qui	V	-	п	(70)		D qua	(quit)u	Katio	1417.5	1110.50	Sarcty	Comments
	39.9	14	254.5	1.18	105	4840	3220	196.2	156.5	0.47	1.6	3.7	0.00	0.0	196.2	0.485	0.783	1.018	2.10	
	39.99	14	258.9	1.16	105	4850	3224	199.5	159.0	0.45	1.5	3.4	0.00	0.0	199.5	0.486	0.819	1.064	2.19	
	40.07 40.15	14 14	234 216.4	0.77 0.65	95 95	4858 4866	3227 3230	180.2 166.6	143.5 132.4	0.33	1.5 1.5	3.0 3.1	0.00	0.0	180.2 166.6	0.449 0.449	0.624 0.510	0.812 0.663	1.81 1.48	
	40.13	14	191	0.59	95	4874	3233	147.0	116.6	0.31	1.6	4.0	0.00	0.0	147.0	0.450	0.375	0.488	1.08	Low F.S.
	40.32	14	163.8	0.56	95	4882	3235	126.0	99.7	0.35	1.7	5.3	0.01	1.1	127.1	0.450	0.271	0.352	0.78	Liquefaction
	40.4	14	138.5	0.5	95	4890	3238	106.5	84.0	0.37	1.7	6.8	0.05	5.3	111.8	0.451	0.210	0.273	0.61	Liquefaction
	40.49	14	109.6	0.38	95	4898	3241	84.2	66.1	0.35	1.8	8.6	0.10	8.9	93.1	0.451	0.155	0.202	0.45	Liquefaction
	40.57	14	93.2 74.1	0.44 0.58	105	4906 4915	3244 3247	71.6	55.9	0.48	1.9	11.5 17.2	0.17	15.1	86.7	0.451	0.141	0.183	0.41	Liquefaction
	40.66 40.74	14 14	60.9	0.36	115 125	4913	3252	56.9 46.7	44.1 35.9	0.81 1.21	2.1	23.1	0.33 0.48	27.6 43.9	84.5 90.7	0.452 0.452	0.136 0.149	0.177 0.194	0.39 0.43	Liquefaction Liquefaction
	40.82	14	59.1	0.93	135	4934	3257	45.3	34.8	1.64	2.4	26.6	0.58	61.7	107.0	0.452	0.194	0.252	0.56	Liquefaction
	40.91	14	66.3	1.09	135	4947	3263	50.8	39.1	1.71	2.4	25.4	0.54	60.5	111.3	0.452	0.208	0.271	0.60	Liquefaction
	40.99	14	83.4	1.06	125	4957	3269	63.8	49.5	1.31	2.2	19.8	0.39	41.5	105.4	0.452	0.189	0.245	0.54	Liquefaction
	41.07	14	112.2	0.94	125	4967	3274	85.8	67.0	0.86	2.0	13.2	0.22	23.9	109.7	0.453	0.203	0.264	0.58	Liquefaction
	41.16	14	157.1	0.98	115	4979	3280	120.0	94.2	0.63	1.8	8.4	0.09	11.9	131.9	0.453	0.293	0.381	0.84	Liquefaction
	41.23 41.33	14 14	211.7 249.6	0.92 0.99	105 105	4987 4997	3283 3287	161.7 190.5	127.4 150.3	0.44 0.40	1.6 1.5	4.6 3.3	0.00	0.0	161.7 190.5	0.453 0.454	0.473 0.723	0.615 0.939	1.36 2.07	
	41.41	14	265.1	1.48	115	5006	3291	202.2	159.5	0.56	1.6	4.3	0.00	0.0	202.2	0.454	0.723	1.103	2.43	
	41.49	14	273.2	1.62	115	5015	3295	208.2	164.2	0.60	1.6	4.4	0.00	0.0	208.2	0.454	0.920	1.196	2.63	
	41.58	14	273	1.75	115	5025	3300	207.9	163.9	0.65	1.6	4.8	0.00	0.0	207.9	0.454	0.916	1.191	2.62	
	41.66	14	257.6	1.89	115	5034	3304	196.1	154.3	0.74	1.7	5.8	0.02	4.2	200.3	0.455	0.827	1.076	2.37	
	41.74	14	262.4	2.05	125	5044	3308	199.6	157.0	0.79	1.7	6.0	0.03	5.5	205.1	0.455	0.883	1.148	2.52	
	41.83 41.91	14 14	265.4 273.3	2.07 1.88	125 115	5055 5065	3314 3319	201.7 207.6	158.6 163.1	0.79 0.69	1.7 1.6	5.9 5.1	0.03	5.2 0.7	206.9 208.3	0.455 0.455	0.904 0.921	1.175 1.197	2.58 2.63	
	41.99	14	300.4	1.87	115	5074	3323	228.0	179.2	0.63	1.6	4.1	0.00	0.0	228.0	0.456	1.182	1.537	3.37	
	42.08	14	348.4	1.8	115	5084	3328	264.2	207.8	0.52	1.5	2.6	0.00	0.0	264.2	0.456	1.796	2.335	5.12	
	42.14	14	384.8	1.67	105	5091	3331	291.7	229.4	0.44	1.4	1.6	0.00	0.0	291.7	0.456	2.389	3.105	6.81	
	42.22	14	406.4	2.2	115	5100	3334	307.9	242.1	0.54	1.4	2.1	0.00	0.0	307.9	0.456	2.796	3.634	7.96	
	42.28	14	418.2	2.6	115	5107	3338	316.7	249.0	0.63	1.5	2.5	0.00	0.0	316.7	0.456	3.035	3.945	8.64	
	42.36 42.45	14 14	402.3 395.1	2.68 2.83	115 115	5116 5126	3342 3347	304.5 298.8	239.1 234.5	0.67 0.72	1.5 1.5	3.0 3.4	0.00	0.0	304.5 298.8	0.457 0.457	2.706 2.562	3.517 3.330	7.70 7.29	
	42.53	14	312.2	2.75	125	5135	3351	236.0	184.7	0.72	1.7	5.7	0.00	4.5	240.5	0.457	1.373	1.785	3.90	
	42.61	14	292.9	2.43	125	5145	3356	221.2	173.0	0.84	1.7	5.8	0.02	4.5	225.8	0.457	1.150	1.495	3.27	
	42.69	14	262.6	2	115	5155	3361	198.2	154.7	0.77	1.7	6.0	0.03	5.3	203.5	0.458	0.863	1.122	2.45	
	42.76	14	249.7	2.01	125	5163	3364	188.4	146.8	0.81	1.7	6.6	0.04	8.4	196.7	0.458	0.788	1.025	2.24	
	42.84	14	247.3	1.99	125	5173	3369	186.4	145.2	0.81	1.7	6.7	0.04	8.7	195.1	0.458	0.770	1.002	2.19	
	42.92 43	14 14	237.3 224.9	1.67 1.54	115 115	5183 5193	3374 3379	178.7 169.3	139.1 131.5	0.71 0.69	1.7 1.7	6.2 6.5	0.03 0.04	6.1 6.8	184.8 176.1	0.458 0.459	0.667 0.588	0.867 0.764	1.89 1.67	
	43.07	14	208.9	1.51	115	5201	3382	157.2	121.9	0.73	1.8	7.3	0.04	10.1	167.2	0.459	0.515	0.764	1.46	
	43.15	14	203.3	1.48	115	5210	3387	152.9	118.5	0.74	1.8	7.5	0.07	10.9	163.8	0.459	0.488	0.635	1.38	
	43.23	14	201.9	1.36	115	5219	3391	151.7	117.5	0.68	1.8	7.1	0.06	9.2	160.9	0.459	0.467	0.607	1.32	
	43.31	14	203.3	1.29	115	5228	3395	152.7	118.2	0.64	1.7	6.8	0.05	7.7	160.3	0.459	0.463	0.602	1.31	
	43.38	14	203.8	1.33	115	5236	3399	153.0	118.3	0.66	1.7	6.9	0.05	8.3	161.2	0.460	0.470	0.611	1.33	
	43.46 43.54	14 14	201 197.5	1.36 1.41	115 115	5245 5255	3403 3407	150.8 148.0	116.5 114.3	0.69 0.72	1.8	7.2 7.6	0.06 0.07	9.5 11.2	160.2 159.3	0.460 0.460	0.463 0.456	0.601 0.593	1.31 1.29	
	43.62	14	199.2	1.44	115	5264	3411	149.2	115.2	0.72	1.8	7.7	0.07	11.4	160.6	0.460	0.456	0.605	1.31	
	43.69	14	206.1	1.51	115		3415	154.3	119.1	0.74	1.8	7.5	0.07	11.0	165.3	0.461	0.500	0.650	1.41	
	43.77	14	216.9	1.59	115	5281	3419	162.3	125.3	0.74	1.8	7.1	0.06	9.8	172.1	0.461	0.554	0.721	1.56	
	43.84	14	226.3	1.76	115	5289	3423	169.2	130.6	0.79	1.8	7.2	0.06	10.5	179.7	0.461	0.620	0.806	1.75	
	43.92	14	232	1.86	125	5298	3427	173.4	133.8	0.81	1.8	7.2	0.06	10.8	184.2	0.461	0.661	0.859	1.86	
	44 44.07	14 14	231.1 227.9	1.85 1.87	125 125	5308 5317	3432 3436	172.6 170.1	133.1 131.0	0.81	1.8 1.8	7.2 7.5	0.06 0.07	10.8 12.0	183.4 182.1	0.461 0.462	0.654 0.641	0.850 0.834	1.84 1.81	
	44.15	14	222.1	1.86	125	5327	3441	165.7	127.5	0.85	1.8	7.8	0.07	13.2	178.9	0.462	0.612	0.796	1.72	
	44.22	14	223.9	1.85	125	5336	3446	166.9	128.4	0.84	1.8	7.6	0.07	12.7	179.6	0.462	0.618	0.804	1.74	
	44.3	14	233.7	1.67	115	5346	3451	174.1	133.8	0.72	1.7	6.6	0.04	7.6	181.6	0.462	0.637	0.828	1.79	
	44.37	14		1.58	115	5354	3454	182.8	140.6	0.65	1.7	5.7	0.02	3.5	186.4	0.462	0.682	0.886	1.92	
	44.45	14	259.6	1.48	115	5363	3459	193.1	148.5	0.58	1.6	4.8	0.00	0.0	193.1	0.463	0.750	0.975	2.11	
	44.53 44.58	14 14	270.6 272.6	1.65 1.7	115 115	5372 5378	3463 3466	201.2 202.6	154.7 155.7	0.62 0.63	1.6 1.6	4.9 4.9	0.00	0.0	201.2 202.6	0.463 0.463	0.837 0.853	1.089 1.110	2.35 2.40	
	44.66	14	274.8	1.74	115	5387	3470	204.1	156.8	0.64	1.6	5.0	0.00	0.0	204.1	0.463	0.833	1.110	2.44	
	44.73	14	285.3	1.82	115	5395	3473	211.8	162.7	0.64	1.6	4.8	0.00	0.0	211.8	0.463	0.964	1.253	2.70	
	44.81	14	295.8	1.86	115	5405	3478	219.5	168.5	0.63	1.6	4.5	0.00	0.0	219.5	0.464	1.063	1.382	2.98	

Project Number: 6600.3.001.01 Date: September 2005

CPT Number: 35

Depth to Groundwater: 14 feet

EQ Magnitude ( $M_w$ ): 6.5 PGA (g): 0.54

PGA (g): 0.54 MSF: 1.30

		Water	Tip	Sleeve		Total	Effective	Norm.	Corr.	Friction						Induced	Liquef.	Liquef.	Factor	
	Depth	Table	Resist.	Frict.	g	Stress	Stress	Tip	Tip	Ratio		F.C.				Stress	Stress	Stress	of	
Cone	(FT)	(FT)	(TSF)	(TSF)	(PCF)	(PSF)	(PSF)	<b>q</b> c1N	Q	F	Ic	(%)	Ксрт	Dqc1N	(qc1N)cs	Ratio	M7.5	M6.50	Safety	Comments
	44.89	14	312.2	1.87	115	5414	3482	231.5	177.7	0.60	1.6	4.0	0.00	0.0	231.5	0.464	1.234	1.604	3.46	
	44.97	14	336.1	1.92	115	5423	3486	249.1	191.2	0.58	1.5	3.4	0.00	0.0	249.1	0.464	1.517	1.972	4.25	
	45.04	14	354.6	2.09	115	5431	3490	262.6	201.6	0.59	1.5	3.3	0.00	0.0	262.6	0.464	1.765	2.294	4.94	
	45.12	14	372.4	1.99	115	5440	3494	275.7	211.5	0.54	1.5	2.7	0.00	0.0	275.7	0.465	2.028	2.636	5.68	
	45.19	14	382.3	1.78	105	5448	3498	282.8	217.0	0.47	1.4	2.0	0.00	0.0	282.8	0.465	2.184	2.839	6.11	
	45.27	14	399	1.59	105	5457	3501	295.0	226.3	0.40	1.4	1.4	0.00	0.0	295.0	0.465	2.469	3.209	6.90	
	45.34	14	403.5	1.73	105	5464	3504	298.2	228.7	0.43	1.4	1.5	0.00	0.0	298.2	0.465	2.547	3.311	7.12	
	45.41	14	416.4	1.68	105	5471	3507	307.7	235.8	0.41	1.4	1.2	0.00	0.0	307.7	0.465	2.788	3.624	7.79	
	45.49	14	413.3	1.89	105	5480	3510	305.2	233.8	0.46	1.4	1.7	0.00	0.0	305.2	0.466	2.724	3.541	7.60	
	45.56	14	397.1	1.96	105	5487	3513	293.1	224.4	0.50	1.4	2.1	0.00	0.0	293.1	0.466	2.422	3.149	6.76	
	45.63	14	380.4	2.06	115	5494	3516	280.7	214.7	0.55	1.5	2.7	0.00	0.0	280.7	0.466	2.136	2.777	5.96	
	45.71	14	392.2	2.1	115	5504	3521	289.2	221.1	0.54	1.5	2.5	0.00	0.0	289.2	0.466	2.330	3.029	6.49	
	45.78	14	370.6	2.12	115	5512	3524	273.1	208.7	0.58	1.5	3.0	0.00	0.0	273.1	0.467	1.975	2.568	5.50	
	45.86	14	376.8	2.1	115	5521	3528	277.5	211.9	0.56	1.5	2.8	0.00	0.0	277.5	0.467	2.068	2.689	5.76	
	45.93	14	376.5	2.25	115	5529	3532	277.2	211.5	0.60	1.5	3.1	0.00	0.0	277.2	0.467	2.060	2.679	5.74	
	46	14	394.7	2.12	115	5537	3536	290.4	221.6	0.54	1.5	2.5	0.00	0.0	290.4	0.467	2.358	3.066	6.56	
	46.07	14	406.9	1.83	105	5545	3540	299.2	228.3	0.45	1.4	1.7	0.00	0.0	299.2	0.467	2.572	3.344	7.15	
	46.13	14	413.3	1.98	105	5551	3542	303.8	231.7	0.48	1.4	1.9	0.00	0.0	303.8	0.468	2.689	3.495	7.48	
	46.19	14	437.4	1.4	95	5558	3545	321.4	245.1	0.32	1.3	0.4	0.00	0.0	321.4	0.468	3.169	4.120	8.81	
	46.23	14	440.6	1.76	105	5561	3546	323.7	246.8	0.40	1.4	1.0	0.00	0.0	323.7	0.468	3.236	4.206	8.99	
	46.27	14	447.2	1.91	105	5566	3548	328.5	250.4	0.43	1.4	1.2	0.00	0.0	328.5	0.468	3.377	4.390	9.38	
	46.33	14	444.8	1.85	105	5572	3550	326.6	248.9	0.42	1.4	1.1	0.00	0.0	326.6	0.468	3.321	4.317	9.22	
	46.39	14	531.6	1.32	95	5578	3553	390.2	297.6	0.25	1.2	-0.8	0.00	0.0	390.2	0.468	5.606	7.288	15.56	
	46.42	14	546	1.3	95	5581	3554	400.7	305.6	0.24	1.2	-0.9	0.00	0.0	400.7	0.469	6.065	7.885	16.83	
	46.45	14	363.8	1.52	105	5584	3555	267.0	203.0	0.42	1.4	2.0	0.00	0.0	267.0	0.469	1.850	2.405	5.13	
	46.5	14	565.4	1.59	95	5589	3557	414.8	316.2	0.28	1.2	-0.7	0.00	0.0	414.8	0.469	6.717	8.733	18.63	
	46.54	14	591.1	1.71	95	5593	3558	433.6	330.5	0.29	1.2	-0.8	0.00	0.0	433.6	0.469	7.660	9.958	21.23	
	46.57	14	585.3	1.77	95	5596	3559	429.3	327.2	0.30	1.2	-0.7	0.00	0.0	429.3	0.469	7.436	9.667	20.61	
	46.61	14	573.4	1.11	88	5600	3560	420.5	320.4	0.19	1.1	-1.4	0.00	0.0	420.5	0.469	6.993	9.091	19.37	
	46.65	14	561.5	1.91	105	5603	3561	411.7	313.6	0.34	1.2	-0.3	0.00	0.0	411.7	0.469	6.568	8.539	18.19	
	46.68	14	357.3	2.14	115	5606	3563	261.9	198.9	0.60	1.5	3.4	0.00	0.0	261.9	0.469	1.751	2.276	4.85	
	46.73	14	578.7	2.26	105	5612	3565	424.1	322.9	0.39	1.3	0.0	0.00	0.0	424.1	0.470	7.172	9.323	19.85	
	46.76	14	592.1	2.05	105	5615	3567	433.8	330.3	0.35	1.2	-0.4	0.00	0.0	433.8	0.470	7.672	9.973	21.23	
	46.82	14	515.2	2.3	105	5622	3569	377.3	287.0	0.45	1.3	0.8	0.00	0.0	377.3	0.470	5.076	6.599	14.04	
	46.86	14	622.2	2.23	105	5626	3571	455.6	346.8	0.36	1.2	-0.4	0.00	0.0	455.6	0.470	8.873	11.535	24.54	
	46.9	14	363.2	1.95	115	5630	3573	265.9	201.7	0.54	1.5	2.9	0.00	0.0	265.9	0.470	1.828	2.376	5.05	
	46.93	14	617.9	2.54	105	5633	3574	452.2	344.0	0.41	1.3	-0.1	0.00	0.0	452.2	0.470	8.681	11.285	24.00	
	46.96	14	635.9	2.87	105	5637	3575	465.3	354.0	0.45	1.3	0.1	0.00	0.0	465.3	0.470	9.449	12.284	26.12	
	47.03	14	656.8	3.26	105	5644	3578	480.4	365.4	0.50	1.3	0.3	0.00	0.0	480.4	0.471	10.391		28.71	

Project Name: BART/VTA, Shops & Yard, San Jose/Santa Clara, CA

**Project Number:** 6600.3.001.01

2004 Youd Method EQ Magnitude: 6.50 PGA: 0.54

															1 0:11	0.51				
Boring	Sample Depth (FT)	Water Table (FT)	Measured Blow Count (N)	CE	СВ	CR	CS	Blow Count (N)	d % FINES (%)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	$C_N$	(N <sub>1</sub> ) <sub>60</sub>	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments	Thickness of Liquefiable Layer
B1	21.5	13.5	14	1.1	1.05	0.95	1.14	18	42.5	115	2472.5	1973.3	1.01	18	0.422	0.175	0.252	0.60	Liquefaction	Marginally liquefiable up to 2 feet thick - plastic clayey matrix
B1	25.0	13.5	20	1.1	1.05	0.95	1.2	26	8.3	115	2875.0	2157.4	0.96	25	0.449	0.230	0.332	0.74	Liquefaction	Total of 5 feet thick layer
B1	26.5	13.5	22	1.1	1.05	0.95	1.22	29	8.3	115	3047.5	2236.3	0.95	28	0.459	0.280	0.404	0.88	Liquefaction	Total of a feet times sayer
B1	30.0	13.5	29	1.1	1.05	1	1.29	43	8.3	115	3450.0	2420.4	0.91	39	0.460	0.567	0.817	1.78	(N1)60>30	
B1	35.0	13.5	37	1.1	1.05	1	1.37	59	8.3	115	4025.0	2683.4	0.86	51	0.369	0.600	0.865	2.35	(N1)60>30	
B1	40.0	13.5	18	1.1	1.05	1	1.18	25	8.3	115	4600.0	2946.4	0.82	20	0.318	0.161	0.233	0.73	Liquefaction	Total of 3 feet thick layer
B1	51.5	13.5	54	1.1	1.05	1	1.54	96	8.7	115	5922.5	3551.3	0.75	72	0.322	0.600	0.865	2.69	(N1)60>30	
B2	22.5	12	34	1.1	1.05	0.95	1.34	50	10.6	115	2587.5	1932.3	1.02	51	0.451	0.600	0.865	1.92	(N1)60>30	
В3	27.0	11	7	1.1	1.05	0.95	1.07	8	54.6	115	3105.0	2106.6	0.97	8	0.497	0.080	0.115	0.23	Liquefaction	
B3	28.5	11	7	1.1	1.05	0.95	1.07	8	76.9	115	3277.5	2185.5	0.96	8	0.505	0.080	0.115	0.23	Liquefaction	Total of 1 feet thick layer
B4 B4 B4	25.0 26.5 30.0	11 11 11	23 48 57	1.1 1.1 1.1	1.05 1.05 1.05	0.95 0.95 1	1.23 1.48 1.57	31 78 103	5.5 5.5 5.5	115 115 115	2875.0 3047.5 3450.0	2001.4 2080.3 2264.4	1.00 0.98 0.94	31 76 97	0.484 0.494 0.492	0.374 0.600 0.600	0.539 0.865 0.865	1.11 1.75 1.76	(N1)60>30 (N1)60>30 (N1)60>30	  
В5	21.0	9	24	1.1	1.05	0.95	1.24	33	53	115	2415.0	1666.2	1.10	36	0.488	0.600	0.865	1.77	(N1)60>30	
B5	22.0	9	37	1.1	1.05	0.95	1.37	56	53	115	2530.0	1718.8	1.08	60	0.496	0.600	0.865	1.74	(N1)60>30	<del></del>
В5	26.0	9	46	1.1	1.05	0.95	1.46	74	53	115	2990.0	1929.2	1.02	75	0.522	0.600	0.865	1.66	(N1)60>30	
В8	25.0	9	22	1.1	1.05	0.95	1.22	29	10.2	115	2875.0	1876.6	1.03	30	0.516	0.366	0.529	1.02	(N1)60>30	
B8	26.5	9	39	1.1	1.05	0.95	1.39	59	10.2	115	3047.5	1955.5	1.01	60	0.525	0.600	0.865	1.65	(N1)60>30	
B8	30.0	9	40	1.1	1.05	1	1.4	65	10.2	115	3450.0	2139.6	0.97	63	0.521	0.600	0.865	1.66	(N1)60>30	
В8	35.0	9	20	1.1	1.05	1	1.2	28	10.2	115	4025.0	2402.6	0.91	25	0.412	0.236	0.340	0.83	Liquefaction	Unreliable N <sub>60</sub> Data - Heaving sands
B8	40.0	9	44	1.1	1.05	1	1.44	73	8.7	115	4600.0	2665.6	0.87	63	0.351	0.600	0.865	2.46	(N1)60>30	
В8	41.5	9	76	1.1	1.05	1	1.76	154	8.7	115	4772.5	2744.5	0.85	132	0.354	0.600	0.865	2.44	(N1)60>30	

Project Name: BART/VTA, Shops & Yard, San Jose/Santa Clara, CA

**Project Number:** 6600.3.001.01

2004 Youd Method EQ Magnitude: 6.50

			Measured					Corrected	4						1 0.11	0.0.				
	Sample	Water						Blow			Total	Effective			Induced	Liquef.	Liquef.	Factor		
	Depth	Table	Count					Count	FINES	γ	Stress	Stress			Stress	Stress	Stress	of		Thickness of
Boring	(FT)	(FT)	(N)	CE	CB	CR	CS	(N)	(%)	(PCF)	(PSF)	(PSF)	$\mathbf{C}_{\mathbf{N}}$	$(N_1)_{60}$	Ratio	M7.5	M6.50	Safety	Comments	Liquefiable Layer
В9	24.0	19	29	1.1	1.05	0.95	1.29	41	7.6	115	2760.0	2448.0	0.90	37	0.380	0.563	0.812	2.14	(N1)60>30	<del></del>
В9	25.5	19	29	1.1	1.05	0.95	1.29	41	7.6	115	2932.5	2526.9	0.89	37	0.391	0.563	0.812	2.08	(N1)60>30	
B9	29.0	19	50	1.1	1.05	0.95	1.5	82	8	115	3335.0	2711.0	0.86	71	0.415	0.600	0.865	2.09	(N1)60>30	
B9	30.5	19	30	1.1	1.05	1	1.3	45	8	115	3507.5	2789.9	0.85	38	0.309	0.565	0.815	2.64	(N1)60>30	
В9	34.0	19	31	1.1	1.05	1	1.31	47	8	115	3910.0	2974.0	0.82	38	0.323	0.565	0.815	2.52	(N1)60>30	
В9	38.0	19	28	1.1	1.05	1	1.28	41	7.4	115	4370.0	3184.4	0.79	33	0.337	0.486	0.701	2.08	(N1)60>30	
B10	24.0	18	26	1.1	1.05	0.95	1.26	36	5.5	115	2760.0	2385.6	0.92	33	0.390	0.458	0.660	1.69	(N1)60>30	_
B10	25.5	18	15	1.1	1.05	0.95	1.15	19	5.5	115	2932.5	2464.5	0.90	17	0.401	0.121	0.174	0.43	( , )	Unreliable N <sub>60</sub> Data - Heaving sands
B10	28.0	18	112	1.1	1.05	0.95	2.12	261	3	115	3220.0	2596.0	0.88	229	0.418	0.600	0.865	2.07	(N1)60>30	
B10	30.5	18	22	1.1	1.05	1	1.22	31	3	115	3507.5	2727.5	0.86	27	0.316	0.250	0.361	1.14	( , )	Unreliable N <sub>60</sub> Data - Heaving sands
B10	33.0	18	49	1.1	1.05	1	1.49	84	2.3	115	3795.0	2859.0	0.84	71	0.326	0.600	0.865	2.65	(N1)60>30	
B12	25.0	9	40	1.1	1.05	0.95	1.4	61	8	115	2875.0	1876.6	1.03	63	0.516	0.600	0.865	1.68	(N1)60>30	
B12	30.0	9	45	1.1	1.05	1	1.45	75	8	115	3450.0	2139.6	0.97	73	0.521	0.600	0.865	1.66	(N1)60>30	
B12	35.0	9	11	1.1	1.05	1	1.11	14	35.6	115	4025.0	2402.6	0.91	13	0.412	0.120	0.173	0.42		Total of 1 foot thick layer
B12	46.0	9	25	1.1	1.05	1	1.25	36	8.2	115	5290.0	2981.2	0.82	30	0.361	0.352	0.508	1.41	(N1)60>30	
B13	23.0	22	8.4	1.1	1.05	0.95	1.084	10	53.5	115 115	2645.0	2582.6	0.88	9	0.345	0.085	0.123	0.36	Liquefaction	Marginally Liquefiable up to 7 feet thick -
B13	28.0	22	7	1.1	1.05	0.95	1.004	8	53.5	115	3220.0	2845.6	0.84	7	0.343	0.035	0.123	0.28		moderately plastic clayey silt/silty clay
<b>D</b> 13	20.0			1.1	1.05	0.73	1.07	0	33.3	113	3220.0	2043.0	0.04		0.501	0.073	0.100	0.20	Elqueraction	moderatery plastic clayey shoshity clay
D14	20.0	10.5	10	1.1	1.05	0.05	1 10	1.5	71.7	115	2200.0	1707.0	1.00	16	0.454	0.150	0.210	0.40	T . C	Marginally Liquefiable up to 3 feet thick -
B14	20.0	10.5	12	1.1	1.05	0.95	1.12	15	71.7	115	2300.0	1707.2	1.08	16	0.454	0.152	0.219	0.48	Liquefaction	moderately plastic clayey silt/silty clay
B14	25.0	10.5	13	1.1	1.05	0.95	1.13	16	44.2	115	2875.0	1970.2	1.01	16	0.492	0.152	0.219	0.45	Liquefaction	A total of 5 feet thick layer
B14	30.0	10.5	10	1.1	1.05	1	1.1	13	44.2	115	3450.0	2233.2	0.95	12	0.499	0.110	0.159	0.32	Liquefaction	•
B14	40.0	10.5	8	1.1	1.05	1	1.08	10	7.1	115	4600.0	2759.2	0.85	8	0.339	0.062	0.090	0.26		Unreliable N <sub>60</sub> Data - Heaving sands
B14	45.0	10.5	102	1.1	1.05	1	2.02	238	5.8	115	5175.0	3022.2	0.81	194	0.349	0.600	0.865	2.48	(N1)60>30	
D15	20.0	( 5	22	1.1	1.05	0.05	1.22	21	7	115	2200.0	1457.6	1 17	26	0.522	0.500	0.000	1.50	(NT1) (Or 20	
B15 B15	20.0 21.5	6.5	23 41	1.1	1.05	0.95 0.95	1.23 1.41	31	7 7	115 115	2300.0 2472.5	1457.6 1536.5	1.17	36 72	0.532 0.542	0.560 0.600	0.808 0.865	1.52 1.60	(N1)60>30 (N1)60>30	<del></del>
		6.5		1.1	1.05		1.41	63 41	5.7			1720.6	1.14 1.08	44					` /	<del></del>
B15 B15	25.0 30.0	6.5 6.5	29 25	1.1 1.1	1.05 1.05	0.95	1.29	36	5.7	115 115	2875.0 3450.0	1720.6	1.08	36	0.563 0.562	0.600 0.554	0.865 0.798	1.54 1.42	(N1)60>30 (N1)60>30	<del></del>
B15	41.0	6.5	57	1.1	1.05	1	1.23	103	5.7	115	4715.0	2562.2	0.88	91	0.362	0.534	0.798	2.31	(N1)60>30 (N1)60>30	
<b>D</b> 13	41.0	0.5	51	1.1	1.03	1	1.37	103	5.1	113	₹/13.0	2302.2	0.00	21	0.575	0.000	0.003	4.31	(111)00>30	

Project Name: BART/VTA, Shops & Yard, San Jose/Santa Clara, CA

**Project Number:** 6600.3.001.01

2004 Youd Method EQ Magnitude: 6.50

	Sample	Water	Measured Blow					Corrected	i %		Total	Effective			Induced	Liquef.	Liquef.	Factor		
Boring	Depth (FT)	Table (FT)	Count (N)	CE	СВ	CR	CS	Count (N)	FINES (%)	γ (PCF)	Stress (PSF)	Stress (PSF)	$C_N$	$(N_1)_{60}$	Stress Ratio	Stress M7.5	Stress M6.50	of Safety	Comments	Thickness of Liquefiable Layer
B16	30.0	7.5	19	1.1	1.05	1	1.19	26	5	115	3450.0	2046.0	0.99	26	0.545	0.230	0.332	0.61	Liquefaction	Total of 4 feet thick layer
B17	23.0	7.5	50	1.1	1.05	0.95	1.5	82	10.4	115	2645.0	1677.8	1.09	90	0.531	0.600	0.865	1.63	(N1)60>30	
B17 B17	28.0	7.5 7.5	50 36	1.1 1.1	1.05	0.95	1.5 1.36	82 54	6.4	115	3220.0	1940.8	1.09	55	0.551	0.600	0.865	1.55	(N1)60>30 (N1)60>30	<del></del>
B17	33.0	7.5	10	1.1	1.05	1	1.1	13	6.4	115	3795.0	2203.8	0.95	12	0.423	0.000	0.303	0.26	Liquefaction	Total of 3 feet thick layer
B17	38.0	7.5	25	1.1	1.05	1	1.25	36	6.4	115	4370.0	2466.8	0.90	32	0.435	0.423	0.610	1.40	(N1)60>30	Total of 3 feet thick layer
B17	43.0	7.5	80	1.1	1.05	1	1.8	166	12.1	115	4945.0	2729.8	0.86	142	0.369	0.600	0.865	2.35	(N1)60>30	<u> </u>
D10	20.0	7.5	10	1.1	1.05	0.95	1 10	23	24.5	115	2300.0	1520.0	1 15	27	0.510	0.344	0.407	0.07	Liamafaatian	
B18 B18	21.5	7.5 7.5	18 7	1.1 1.1	1.05 1.05	0.95	1.18 1.07	8	24.5	115	2472.5	1598.9	1.15 1.12	9	0.510	0.080	0.497 0.115	0.97 0.22	Liquefaction Liquefaction	Total of 2 feet thick layer
B19	20.0	7.5	11	1.1	1.05	0.95	1.11	13	46.2	115	2300.0	1520.0	1.15	15	0.510	0.140	0.202	0.40	Liquefaction	Total of 3 feet thick layer
B19	21.5	7.5	12	1.1	1.05	0.95	1.12	15	46.2	115	2472.5	1598.9	1.12	16	0.521	0.152	0.219	0.42	Liquefaction	
B19 B19	30.0 31.5	7.5 7.5	39 14	1.1 1.1	1.05 1.05	1	1.39 1.14	63 18	46.2 46.2	115 115	3450.0 3622.5	2046.0 2124.9	0.99 0.97	62 18	0.545 0.419	0.600 0.175	0.865 0.252	1.59 0.60	(N1)60>30 Liquefaction	
B19	50.0	7.5 7.5	35	1.1	1.05	1	1.14	55	4.5	115	5750.0	3098.0	0.80	44	0.419	0.173	0.232	2.42	(N1)60>30	Total of 3 feet thick layer
B19	55.0	7.5 7.5	66	1.1	1.05	1	1.66	33 127	29.4	115	6325.0	3361.0	0.80	98	0.363	0.600	0.865	2.42	(N1)60>30 (N1)60>30	 
B19	60.0	7.5	93	1.1	1.05	1	1.93	207	5	115	6900.0	3624.0	0.74	154	0.334	0.600	0.865	2.59	(N1)60>30 (N1)60>30	<del></del>
B19	70.0	7.5	37	1.1	1.05	1	1.37	59	15	115	8050.0	4150.0	0.69	41	0.327	0.600	0.865	2.65	(N1)60>30	
B19	71.5	7.5	82	1.1	1.05	1	1.82	172	17.6	115	8222.5	4228.9	0.69	119	0.328	0.600	0.865	2.64	(N1)60>30	
B19	75.0	7.5	56	1.1	1.05	1	1.56	101	17.6	115	8625.0	4413.0	0.67	68	0.329	0.600	0.865	2.63	(N1)60>30	
B19	78.5	7.5	67	1.1	1.05	1	1.67	129	17.6	115	9027.5	4597.1	0.66	85	0.331	0.600	0.865	2.62	(N1)60>30	
B20	22.5	7.5	8	1.1	1.05	0.95	1.08	9	35	115	2587.5	1651.5	1.10	10	0.528	0.090	0.130	0.25	Liquefaction	
B20	24.5	7.5	10	1.1	1.05	0.95	1.1	12	35	115	2817.5	1756.7	1.07	13	0.540	0.120	0.173	0.32	Liquefaction	Marginally Liquefiable up to 10 feet thick -
B20	28.0	7.5	6	1.1	1.05	0.95	1.06	7	35	115	3220.0	1940.8	1.02	7	0.559	0.075	0.108	0.19	Liquefaction	moderately plastic clayey silt/silty clay
B20	52.0	7.5	10	1.1	1.05	1	1.1	13	5	115	5980.0	3203.2	0.79	10	0.360	0.070	0.101	0.28		Unreliable N <sub>60</sub> Data - Heaving sands
B20	73.0	7.5	10	1.1	1.05	1	1.1	13	5	115	8395.0	4307.8	0.68	9	0.328	0.065	0.094	0.29		Unreliable N <sub>60</sub> Data - Heaving sands
B21	41.5	10	10	1.1	1.05	1	1 10	25	567	115	4772.5	2806.9	0.84	21	0.346	0.225	0.325	0.94	Liamafaati	Magainelly Liquefields up to 5 feet third-
B21 B21	41.5 43.0	10 10	18 16	1.1 1.1	1.05 1.05	1	1.18 1.16	25 21	56.7 56.7	115 115	4772.5	2885.8	0.84	21 18	0.346	0.225	0.323	0.94	•	Marginally Liquefiable up to 5 feet thick -
D21	43.0	10	10	1.1	1.03	1	1.10	∠1	30.7	113	+743.0	4003.0	0.63	10	U.J47	0.173	0.232	0.72	Liquetaction	moderately plastic clayey silt/silty clay
B22	20.0	10	4	1.1	1.05	0.95	1.04	5	35	115	2300.0	1676.0	1.09	5	0.462	0.060	0.087	0.19	Liquefaction	
B22	25.0	10	6	1.1	1.05	0.95	1.06	7	35	115	2875.0	1939.0	1.02	7	0.500	0.075	0.108	0.22		Marginally Liquefiable up to 12 feet thick -
B22	30.0	10	12	1.1	1.05	1	1.12	16	35	115	3450.0	2202.0	0.95	15	0.506	0.140	0.202	0.40		moderately plastic clayey silt/silty clay
B22	31.5	10	11	1.1	1.05	1	1.11	14	48.5	116	3654.0	2312.4	0.93	13	0.388	0.120	0.173	0.45	Liquefaction	

Project Name: BART/VTA, Shops & Yard, San Jose/Santa Clara, CA

**Project Number:** 6600.3.001.01

2004 Youd Method EQ Magnitude: 6.50

	Sample	Water						Corrected Blow	%		Total	Effective			Induced	Liquef.	Liquef.	Factor		
Boring	Depth (FT)	Table (FT)	Count (N)	CE	СВ	CR	cs	Count (N)	FINES (%)	γ (PCF)	Stress (PSF)	Stress (PSF)	$\mathbf{C}_{\mathbf{N}}$	$(N_1)_{60}$	Stress Ratio	Stress M7.5	Stress M6.50	of Safety	Comments	Thickness of Liquefiable Layer
B23	19.0	13	9	1.1	1.05	0.85	1.09	10	35	117	2223.0	1848.6	1.04	10	0.414	0.090	0.130	0.31	Liquefaction	<u> </u>
B23	25.0	13	4	1.1	1.05	0.95	1.04	5	35	118	2950.0	2201.2	0.95	4	0.452	0.048	0.069	0.15	Liquefaction	Marginally Liquefiable up to 10 feet thick - moderately plastic clayey silt/silty clay
B23	30.0	13	3	1.1	1.05	1	1.03	4	54.4	119	3570.0	2509.2	0.89	3	0.459	0.046	0.066	0.14	Liquefaction	
B23	31.5	13	20	1.1	1.05	1	1.2	28	7.1	120	3780.0	2625.6	0.87	24	0.354	0.214	0.309	0.87		Unreliable N <sub>60</sub> Data - Heaving sands
B23	40.0	13	8	1.1	1.05	1	1.08	10	73	121	4840.0	3155.2	0.80	8	0.312	0.080	0.115	0.37	Liquefaction	Unreliable N <sub>60</sub> Data - Heaving sands
B24	23.0	10	11	1.1	1.05	0.95	1.11	13	27.7	122	2806.0	1994.8	1.00	13	0.474	0.109	0.157	0.33	Liquefaction	Unreliable N <sub>60</sub> Data - Heaving sands
D24	20.0	10	10		1.05	0.05	1.10	2.5	62.0	100	24440	2220.0	0.02	22	0.500	0.260	0.055	0.55	*	Marginally Liquefiable up to 2 feet thick -
B24	28.0	10	19	1.1	1.05	0.95	1.19	25	63.8	123	3444.0	2320.8	0.93	23	0.500	0.260	0.375	0.75	Liquefaction	moderately plastic clayey silt/silty clay
B25	20.0	11	18	1.1	1.05	0.95	1.18	23	17.6	124	2480.0	1918.4	1.02	24	0.436	0.238	0.343	0.79	Liquefaction	
B25	23.5	11	10	1.1	1.05	0.95	1.16	12	35	125	2937.5	2157.5	0.96	12	0.459	0.238	0.343	0.79	Liquefaction	Unreliable N60 Data - Heaving sands
B25	27.0	11	10	1.1	1.05	0.95	1.1	12	63.7	126	3402.0	2403.6	0.91	11	0.477	0.095	0.137	0.29		Marginally Liquefiable up to 3 feet thick -
B25	28.5	11	7	1.1	1.05	0.95	1.07	8	63.7	127	3619.5	2527.5	0.89	7	0.483	0.075	0.108	0.22		moderately plastic clayey silt/silty clay
B26	26.5	10.5	24	1.1	1.05	0.95	1.24	33	8.3	128	3392.0	2393.6	0.91	30	0.478	0.353	0.509	1.07	(N1)60>30	
D20	20.5	10.5	27	1.1	1.03	0.73	1.24	33	0.5	120	3372.0	2373.0	0.71	50	0.470	0.555	0.507	1.07	(111)00>30	<del></del>
B27	29.0	20	40	1.1	1.05	0.95	1.4	61	23.5	129	3741.0	3179.4	0.79	49	0.396	0.600	0.865	2.18	(N1)60>30	<del></del>
B27	34.0	20	48	1.1	1.05	1	1.48	82	15	130	4420.0	3546.4	0.75	62	0.306	0.600	0.865	2.83	(N1)60>30	
B27	40.0	20	86	1.1	1.05	1	1.86	185	7	131	5240.0	3992.0	0.71	131	0.267	0.600	0.865	3.24	(N1)60>30	
B27	44.0	20	30	1.1	1.05	1	1.3	45	7	132	5808.0	4310.4	0.68	31	0.274	0.386	0.557	2.03	(N1)60>30	
B27	54.0	20	13	1.1	1.05	1	1.13	17	50.5	133	7182.0	5060.4	0.63	11	0.274	0.095	0.137	0.50		Marginally Liquefiable up to 5 feet thick -
B27	59.0	20	20	1.1	1.05	1	1.2	28	80.4	134	7906.0	5472.4	0.60	17	0.279	0.163	0.235	0.84	Liquefaction	moderately plastic clayey silt/silty clay
B28	10.0	7	9	1.1	1.05	0.75	1.09	8	12.6	135	1350.0	1162.8	1.31	11	0.399	0.081	0.117	0.29	Liquefaction	Total of 2 feet thick layer
B28	20.0	7	7	1.1	1.05	0.95	1.07	8	5	136	2720.0	1908.8	1.02	8	0.480	0.060	0.087	0.18		Total of 3 feet thick layer
B28	26.5	7	33	1.1	1.05	0.95	1.33	48	40.7	137	3630.5	2413.7	0.91	44	0.507	0.600	0.865	1.71	(N1)60>30	=-
B28	30.0	7	24	1.1	1.05	1	1.24	34	5	138	4140.0	2704.8	0.86	30	0.494	0.330	0.476	0.96	(N1)60>30	
B28	35.0	7	37	1.1	1.05	1	1.37	59	8.6	139	4865.0	3117.8	0.80	47	0.383	0.600	0.865	2.26	(N1)60>30	
B28	40.0	7	23	1.1	1.05	1	1.23	33	6.3	140	5600.0	3540.8	0.75	25	0.322	0.224	0.323	1.00	Liquefaction	Total of 3 feet thick layer
B28	45.0	7	27	1.1	1.05	1	1.27	40	6.3	141	6345.0	3973.8	0.71	28	0.325	0.274	0.395	1.22		
B28	67.0	7	95	1.1	1.05	1	1.95	214	10.2	142	9514.0	5770.0	0.59	126	0.289	0.600	0.865	2.99	(N1)60>30	

Project Name: BART/VTA, Shops & Yard, San Jose/Santa Clara, CA

**Project Number:** 6600.3.001.01

2004 Youd Method EQ Magnitude: 6.50

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Boring	Sample Depth (FT)	Water Table (FT)	Measured Blow Count (N)	CE	СВ	CR	CS	Corrected Blow Count (N)	d % FINES (%)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	$C_N$	$(N_1)_{60}$	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments	Thickness of Liquefiable Layer
B29 B29 B29	16.5 23.0 30.0	15 15 15	8 11 17	1.1 1.1 1.1	1.05 1.05 1.05	0.85 0.95 1	1.08 1.11 1.17	8 13 23	98.9 10.8 21.2	143 144 145	2359.5 3312.0 4350.0	2265.9 2812.8 3414.0	0.94 0.84 0.77	8 11 18	0.358 0.397 0.411	0.080 0.079 0.161	0.115 0.115 0.233	0.32 0.29 0.57	Liquefaction Liquefaction Liquefaction	marginary Elqueriable up to 12 feet thick -
B30 B30 B30 B30	23.0 29.0 34.0 39.0	13 13 13 13	8 14 20 44	1.1 1.1 1.1 1.1	1.05 1.05 1.05 1.05	0.95 0.95 1 1	1.08 1.14 1.2 1.44	9 18 28 73	30.5 26.1 6.1 8	146 147 148 149	3358.0 4263.0 5032.0 5811.0	2734.0 3264.6 3721.6 4188.6	0.86 0.78 0.73 0.69	8 14 20 51	0.414 0.440 0.332 0.341	0.078 0.117 0.155 0.600	0.112 0.168 0.224 0.865	0.27 0.38 0.67 2.54	Liquefaction Liquefaction Liquefaction (N1)60>30	marginary Elqueriable up to 10 feet thick -
B31 B31 B31	23.0 28.0 30.0	11 11 11	32 7 26	1.1 1.1 1.1	1.05 1.05 1.05	0.95 0.95 1	1.32 1.07 1.26	46 8 38	4.2 39.6 72	150 151 152	3450.0 4228.0 4560.0	2701.2 3167.2 3374.4	0.86 0.79 0.77	40 7 29	0.430 0.450 0.436	0.600 0.075 0.450	0.865 0.108 0.649	2.01 0.24 1.49	(N1)60>30 Liquefaction	Total of 3 feet thick
B37 B37 B37 B37 B37	25.0 30.0 35.0 40.0 45.0	21 21 21 21 21	17 13 30 40 55	1.1 1.1 1.1 1.1 1.1	1.05 1.05 1.05 1.05 1.05	0.95 1 1 1 1	1.17 1.13 1.3 1.4 1.55	22 17 45 65 98	35 24.4 24.4 13 7.5	153 154 155 156 157	3825.0 4620.0 5425.0 6240.0 7065.0	3575.4 4058.4 4551.4 5054.4 5567.4	0.75 0.70 0.66 0.63 0.60	16 12 30 41 59	0.360 0.368 0.293 0.251 0.258	0.152 0.098 0.471 0.600 0.600	0.219 0.142 0.679 0.865 0.865	0.61 0.39 2.32 3.44 3.35	-	Marginally Liquefiable up to 5 feet thick - moderately plastic clayey silt/silty clay  
B37	60.0	21	20	1.1	1.05	1	1.2	28	79.1	158	9480.0	7046.4	0.53	15	0.236	0.140	0.202	0.86	Liquefaction	Marginally Liquefiable up to 5 feet thick - moderately plastic clayey silt/silty clay

# 7.5 APPENDIX E

## ENGEO INCORPORATED

Settlement Analysis Spreadsheets

Project Name: SVRT YARD & SHOPS COMPLEX

Project Number: 6600.3.001.01

## Structural, Equipment & Additional Fill Loading Spreadsheet

Potentially	Drawing		Column	Load Range (kips)		Ctrusture Foot	Average Foundation	Settlement	Lowest Existing Grade	Finished	Grade	Engineering Fill	Settlement
Connected Structures?		3	Max	Min	Total Column Load (kips)	Structure Foot Print (sq ft)	Average Foundation Loadings (psf)	Estimates (inches)	Elev (ft)	Grade Elev (ft)	Difference (ft)	Engineering Fill Load (psf)	Estimates (inches)
	YM	Wheel Truing Facility	32	15	297	4500	66	1.1	62.8	66.5	3.7	463	6.9
	YL	Turntable	25	25	50	2000	25	0.4	63.2	66.5	3.3	413	6.0
	YK	Inspection Pit	34	17	136	1100	124	2.1	62.4	52.5	-9.9	-1238	
	YJ	Revenue Processing Building (Opt A)	169	44	1088	14000	78	0.9	65.5	66.0	0.5	63	0.7
	YJ	Revenue Processing Building (Opt B)	169	44	1088	14000	78	1.3	60.1	61.2	1.1	138	2.2
Yes	VII	N-R Maintenance Shop	53	7	638	13000	49	0.8	62.4	66.5	4.1	513	7.2
168	111	ME offices	107	52	1724	6900	250	3.8	62.2	66.5	4.3	538	7.5
	YG	Maintenance and Engineering Shops	222	32	938	7000	134	2.2	62.2	66.5	4.3	538	7.5
	YF	Car Cleaners' Facility	14	0	68	2200	31	0.4	64.7	67.6	2.9	362	6.6
		Revenue Vehicle Maintenance Shop	421	19	7555	28720	263	4.2	60.2	66.5	6.3	788	10.7
Yes	YE	Revenue Vehicle Maintenance Shop - Main Repair Bay	92	25	2874	36000	80	1.4	61.8	66.5	4.7	588	8.5
		Revenue Vehicle Maintenance Shop - Storage Area	510	22	2995	13680	219	2.9	61.8	66.5	4.7	588	8.5
	YD	Blowdown Facility	20	9	288	4400	65	1.1	62.7	66.5	3.8	475	7.1
	YC	Car Wash Building	20	10	30	890	66	1.1	61.7	66.5	4.8	600	8.6
Yes	VD	Trans Building	24	6	260	5400	48	0.6	64.1	67.6	3.5	438	5.0
res	10	Yard Control Tower	165	30	1025	2500	410	4.8	64	67.6	3.6	450	5.2
	YL	Window Replacement Platform	20	16	52	1100	47	0.6	63	66.5	3.5	438	6.6
		Gap Breaker S7B	N/A	N/A	75	1500	50	0.8	65	66.5	1.5	188	3.1
		Facility Power SNY	N/A	N/A	200	6000	33	0.8	65	66.5	1.5	188	3.1
		Yard Substation SSY	N/A	N/A	350	6600	53	0.9	65	66.5	1.5	188	3.0
		Train Control Station	N/A	N/A	25	100	250	3.8	65	66.5	1.5	188	3.0
		Bulk Power / Switching Substation	N/A	N/A	25	100	250	2.7	65	66.5	1.5	188	2.1

Small Maintenance Pit Loads = linspection Pit Loads =

Potentially Connected Structures?	Drawing	Structure	Additional Floor loads (psf)	# of Pits	# of Turntables	Storage Racks Loads (psf)	# of 8-Ton Truck	# of H20 Truck	Other Equipment Loads (kips)	Equipment Loads on Floor (psf)	Estimated Settlement (inches)
	YM	Wheel Truing Facility	0	1	0	0	0	0	0	14	0.3
	YL	Turntable	0	0	1	0	0	0	0	33	0.6
	YK	Inspection Pit	0	1	0	0	0	0	0	58	1.0
Yes	YH	N-R Maintenance Shop	250	0	1	350	0	6	0	624	8.5
Yes	YH	ME offices	250	0	0	0	0	0	0	250	3.8
	YG	Maintenance and Engineering Shops	250	0	0	1110	0	0	0	1360	15.3
	YF	Car Cleaners' Facility	250	0	0	0	0	0	0	250	3.1
		Revenue Vehicle Maintenance Shop	250	6	0	0	12	0	0	270	4.3
Yes	YE	Revenue Vehicle Maintenance Shop - Main Repair Bay	0	24	12	0	0	0	0	65	1.1
		Revenue Vehicle Maintenance Shop - Storage	250	22	0	1110	0	0	0	1463	16.0
	YD	Blowdown Facility	250	0	0	0	0	0	0	250	4.0
	YC	Car Wash Building	250	0	0	0	0	0	0	250	4.0
Yes	YB	Trans Building	250	0	0	0	0	0	0	250	3.1
res	10	Yard Control Tower	250	0	0	0	0	0	0	250	3.1
		Window Replacement Platform	250	0	0	0	0	0	0	250	3.0
		Gap Breaker S7B	0	0	0	0	0	0	0	0	1.0
		Facility Power SNY	0	0	0	0	0	0	0	0	0.0
		Yard Substation SSY	0	0	0	0	0	0	0	0	0.0
		Train Control Station	0	0	0	0	0	0	0	0	0.0
		Bulk Power / Switching Substation	0	0	0	0	0	0	0	0	0.0

#### Proposed Foundation Types Based on Loadings

Potentially Connected Structures?	Drawing	Structure	Sensitive to Diff. Movement?	Approx. Structural Loadings (psf)	Appropriate Foundation Types	Estimated Settlement (inches)
	YM	Wheel Truing Facility	Υ	543	pier w/ structural slab + surcharge	8.3
	YL	Turntable		471	mat (ring & piston) w/ surcharge program	7.0
	YK	Inspection Pit	Υ	-1056	mat w/ surcharge program (if necessary)	3.1
	YJ	Revenue Processing Building (Opt A)		496	Mat (tentative - depend on final bldg location)	5.3
	YJ	Revenue Processing Building (Opt B)		571	Mat (tentative - depend on final bldg location)	8.8
Yes	YH	N-R Maintenance Shop	Υ	1185	pier w/ structural slab + surcharge	16.5
res	i n	ME offices		1037	mat w/ surcharge program	15.2
	YG	Maintenance and Engineering Shops		2032	Spread footing w/ slab on grade + surcharge program (thicken slab/pad footing under storage racks)	25.0
	YF	Car Cleaners' Facility		643	Spread footing w/ slab on grade + surcharge program	10.1
		Revenue Vehicle Maintenance Shop		1321	mat w/ surcharge program	19.3
Yes	YE	Revenue Vehicle Maintenance Shop - Main Repair Bays	Y	732	pier w/ structural slab + surcharge	11.0
		Revenue Vehicle Maintenance Shop		2269	mat w/ surcharge program	27.4
	YD	Blowdown Facility	Υ	790	mat w/ surcharge	12.2
	YC	Car Wash Building		916	mat (thicken edges) w/ surcharge	13.8
Yes	YB	Trans Building		736	mat w/ surcharge	8.8
res	10	Yard Control Tower		1110	mat w/ surcharge	13.0
		Window Replacement Platform		735	pier @ columns	10.2
		Gap Breaker S7B		238		4.9
		Facility Power SNY		221		3.9
		Yard Substation SSY		241		3.8
		Train Control Station		438		6.8
		Bulk Power / Switching Substation		438		4.8

Project Name: SVRT YARD & SHOPS COMPLEX

Project Number: 6600.3.001.01

# **Ground Condition and Predicted Settlement Due to Structural Loads**

Structure	Nearby BH/CPT	Soft Profile Scenario	Predicted Settlement (inches)	Approx. Structural
Wheel Truing Facility	BH-25, CPT-25	С	1.1	66
Turntable	BH-5	В	0.4	25
Inspection Pit	BH-23	С	2.1	124
Revenue Processing Building (Opt A)	None	Α	0.9	78
Revenue Processing Building (Opt B)	None	В	1.3	78
N-R Maintence Shop	BH-9; CPT-11; CPT-12	В	0.8	49
ME offices	BH-10; CPT-13	В	3.8	250
Maintence and Engineering Shops	BH-12; CPT-14	В	2.2	134
Car Cleaners' Facility	CPT-32	D	0.4	31
Revenue Vehicle Maintenance Shop	BH-17, 20, 22; CPT 21, 23	С	4.2	263
Revenue Vehicle Maintenance Shop - Tracks	BH-16, 18, 19, 21; CPT-20 & 22	С	1.4	80
Blowdown Facility	BH-24	С	1.1	65
Car Wash Building	BH-15, 18; CPT-19	С	1.1	66
Trans Building	CPT-29	D	0.6	48
Yard Control Tower	BH-27; CPT-27	D	4.8	410
Window Replacement Platform	BH-21	С	0.6	47
Gap Breaker S7B	None	С	0.8	50
Facility Power SNY	None	С	0.8	33
Yard Substation SSY	None	В	0.9	53
Train Control Station	CPT-9	В	3.8	250
Bulk Power / Switching Substation	BH-1; CPT-1, 3 & 4	A	2.7	250
Revenue Vehicle Maintenance Shop	BH-17, 20, 22; CPT 21, 23	С	2.9	219

Soil Profile Scenarios	Compressible Layer Depth (ft)		eo		
Soil Profile Scenarios	Compressible Layer Depth (it)	Cc	Cr	Pp	60
А	5 to 20	14%	3%	3000	0.8
В	5 to 25	20%	5%	3000	1.1
C	5 to 20	19%	3%	3000	0.9
O	20 to 30	16%	2%	6000	0.8
D	5 to 25	16%	4%	4000	1

Compressible Soil Thickness =

115

20

pcf

ft

Building	Δσ (psf)	Predicted Settlement (ft)	Predicted Settlement (inches)
Revenue Processing Building (Opt A)	78	0.07	0.9
Bulk Power / Switching Substation	250	0.22	2.7
	0	0.00	0.0
	0	0.00	0.0
	0	0.00	0.0
	0	0.00	0.0

$\Delta \sigma =$	77.71428571				
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	2	685	762.7142857	0.01	
2	2	905	982.7142857	0.01	
3	2	1125	1202.714286	0.01	
4	2	1220.2	1297.914286	0.01	
5	2	1315.4	1393.114286	0.01	
6	2	1410.6	1488.314286	0.01	
7	2	1505.8	1583.514286	0.01	
8	2	1601	1678.714286	0.01	
9	2	1696.2	1773.914286	0.01	
10	2	1791.4	1869.114286	0.01	0.07
$\Delta \sigma =$	250				
$\Delta \sigma =$ Layer	250 Layer Thickness	σνο	σvf	s	Total Settlement (ft)
			σvf 935	s 0.04	Total Settlement (ft)
Layer 1 2	Layer Thickness	σνο			Total Settlement (ft)
Layer 1	Layer Thickness 2	σνο 685	935	0.04	Total Settlement (ft)
Layer 1 2	Layer Thickness 2 2	σνο 685 905	935 1155	0.04 0.03	Total Settlement (ft)
Layer 1 2 3	Layer Thickness 2 2 2	σνο 685 905 1125	935 1155 1375	0.04 0.03 0.02	Total Settlement (ft)
Layer 1 2 3 4	Layer Thickness 2 2 2 2	σνο 685 905 1125 1220.2	935 1155 1375 1470.2	0.04 0.03 0.02 0.02	Total Settlement (ft)
Layer 1 2 3 4 5	Layer Thickness 2 2 2 2 2	σνο 685 905 1125 1220.2 1315.4	935 1155 1375 1470.2 1565.4	0.04 0.03 0.02 0.02 0.02	Total Settlement (ft)
Layer 1 2 3 4 5	Layer Thickness 2 2 2 2 2 2 2 2	σνο 685 905 1125 1220.2 1315.4 1410.6	935 1155 1375 1470.2 1565.4 1660.6	0.04 0.03 0.02 0.02 0.02 0.02	Total Settlement (ft)
Layer 1 2 3 4 5 6 7	Layer Thickness 2 2 2 2 2 2 2 2 2 2 2	σνο 685 905 1125 1220.2 1315.4 1410.6 1505.8	935 1155 1375 1470.2 1565.4 1660.6 1755.8	0.04 0.03 0.02 0.02 0.02 0.02	Total Settlement (ft)
Layer 1 2 3 4 5 6 7	Layer Thickness 2 2 2 2 2 2 2 2 2 2 2 2	σνο 685 905 1125 1220.2 1315.4 1410.6 1505.8 1601	935 1155 1375 1470.2 1565.4 1660.6 1755.8 1851	0.04 0.03 0.02 0.02 0.02 0.02 0.02	Total Settlement (ft)  0.22

 $\begin{array}{cccc} CR = & 20.0\% & RR = & 5.0\% \\ \gamma = & 110 & pcf \\ eo = & 1.1 & \\ water \ level = & 10 & ft \ below \ found \ surface \\ OCR = & 1 & \\ \end{array}$ 

Building	Δσ (psf)	Predicted Settlement (ft)	Predicted Settlement (inches)
Turntable	25	0.04	0.4
Revenue Processing Building (Opt B)	78	0.11	1.3
N-R Maintance Shop	49	0.07	0.8
ME Office	250	0.32	3.8
Maintanence & Engineering Shops	134	0.18	2.2
Train Control Station	250	0.32	3.8
Yard Substation SSY	53	0.07	0.9

$\Delta \sigma =$	25				
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	2	685	710	0.0	1
2	2	905	930	0.00	)
3	2	1125	1150	0.0	)
4	2	1220.2	1245.2	0.0	)
5	2	1315.4	1340.4	0.00	)
6	2	1410.6	1435.6	0.0	)
7	2	1505.8	1530.8	0.00	
8	2	1601	1626	0.0	
9	2	1696.2	1721.2	0.0	
10	2	1791.4	1816.4	0.0	
$\Delta \sigma =$	77.71428571				
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	2	685	762.7142857	0.02	
2	2	905	982.7142857	0.0	
3	2	1125	1202.714286	0.0	
4	2	1220.2	1297.914286	0.0	
5	2	1315.4	1393.114286	0.0	
6	2	1410.6	1488.314286	0.0	
7	2	1505.8	1583.514286	0.0	
8	2	1601	1678.714286	0.0	
9	2	1696.2	1773.914286	0.0	
10	2	1791.4	1869.114286	0.0	
$\Delta \sigma =$	49.07692308				
Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)
1	2	685	734.0769231	0.0	
2	2	905	954.0769231	0.0	
3	2	1125	1174.076923	0.0	
4	2	1220.2	1269.276923	0.0	
5	2	1315.4	1364.476923	0.0	
6	2	1410.6	1459.676923	0.0	
7	2	1505.8	1554.876923	0.0	
8	2	1601	1650.076923	0.0	
9	2	1696.2	1745.276923	0.00	
10	2	1791.4	1840.476923	0.00	
. •	-		Page 1 of 2	3.00	5.01

Δσ = Layer	249.8550725 Layer Thickness	σνο	σvf	s		Total Settlement (ft)
1 2	2 2	685 905	934.8550725 1154.855072		0.05 0.04	
3	2	1125	1374.855072		0.04	
4	2	1220.2	1470.055072		0.03	
5	2	1315.4	1565.255072		0.03	
6	2	1410.6	1660.455072		0.03	
7 8	2 2	1505.8 1601	1755.655072 1850.855072		0.03	
9	2	1696.2	1946.055072		0.03	
10	2	1791.4	2041.255072		0.02	0.32
$\Delta \sigma =$	134					
Layer	Layer Thickness	σνο	σvf	s		Total Settlement (ft)
1	2	685	819		0.03	
2 3	2 2	905 1125	1039 1259		0.02 0.02	
3 4	2	1220.2	1354.2		0.02	
5	2	1315.4	1449.4		0.02	
6	2	1410.6	1544.6		0.02	
7	2	1505.8	1639.8		0.01	
8	2	1601	1735		0.01	
9 10	2 2	1696.2 1791.4	1830.2 1925.4		0.01 0.01	0.18
10	_	1701.1	1020.1		0.01	0.10
$\Delta \sigma =$	250		,			T-1-1 C-11 1 (ft)
Layer	Layer Thickness	σνο 685	σvf 935	s	0.05	Total Settlement (ft)
Layer 1	Layer Thickness 2	685	935	s	0.05 0.04	Total Settlement (ft)
Layer	Layer Thickness			S	0.05 0.04 0.03	Total Settlement (ft)
Layer 1 2 3 4	Layer Thickness 2 2 2 2 2	685 905 1125 1220.2	935 1155 1375 1470.2	S	0.04 0.03 0.03	Total Settlement (ft)
Layer 1 2 3 4 5	Layer Thickness 2 2 2 2 2 2	685 905 1125 1220.2 1315.4	935 1155 1375 1470.2 1565.4	s	0.04 0.03 0.03 0.03	Total Settlement (ft)
Layer 1 2 3 4 5	Layer Thickness 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6	935 1155 1375 1470.2 1565.4 1660.6	S	0.04 0.03 0.03 0.03 0.03	Total Settlement (ft)
Layer 1 2 3 4 5 6 7	Layer Thickness 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8	935 1155 1375 1470.2 1565.4 1660.6 1755.8	S	0.04 0.03 0.03 0.03 0.03 0.03	Total Settlement (ft)
Layer 1 2 3 4 5	Layer Thickness 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6	935 1155 1375 1470.2 1565.4 1660.6	s	0.04 0.03 0.03 0.03 0.03	Total Settlement (ft)
Layer 1 2 3 4 5 6 7 8	Layer Thickness 2 2 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601	935 1155 1375 1470.2 1565.4 1660.6 1755.8 1851	S	0.04 0.03 0.03 0.03 0.03 0.03 0.03	Total Settlement (ft)  0.32
Layer 1 2 3 4 5 6 7 8 9 10	Layer Thickness 2 2 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601 1696.2	935 1155 1375 1470.2 1565.4 1660.6 1755.8 1851 1946.2	S	0.04 0.03 0.03 0.03 0.03 0.03 0.03 0.02	
Layer 1 2 3 4 5 6 7 8 9 10	Layer Thickness 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 53.0303030303	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601 1696.2 1791.4	935 1155 1375 1470.2 1565.4 1660.6 1755.8 1851 1946.2 2041.4		0.04 0.03 0.03 0.03 0.03 0.03 0.03 0.02	0.32
Layer 1 2 3 4 5 6 7 8 9 10	Layer Thickness  2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601 1696.2 1791.4	935 1155 1375 1470.2 1565.4 1660.6 1755.8 1851 1946.2 2041.4	s	0.04 0.03 0.03 0.03 0.03 0.03 0.03 0.02 0.02	
Layer  1 2 3 4 5 6 7 8 9 10 $\Delta \sigma =$ Layer 1 2	Layer Thickness  2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601 1696.2 1791.4	935 1155 1375 1470.2 1565.4 1660.6 1755.8 1851 1946.2 2041.4		0.04 0.03 0.03 0.03 0.03 0.03 0.02 0.02	0.32
Layer  1 2 3 4 5 6 7 8 9 10 $\Delta \sigma =$ Layer 1 2 3	Layer Thickness 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601 1696.2 1791.4	935 1155 1375 1470.2 1565.4 1660.6 1755.8 1851 1946.2 2041.4 ovf 738.030303 958.030303 1178.030303		0.04 0.03 0.03 0.03 0.03 0.03 0.02 0.02	0.32
Layer  1 2 3 4 5 6 7 8 9 10 $\Delta \sigma =$ Layer 1 2 3 4	Layer Thickness 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601 1696.2 1791.4	935 1155 1375 1470.2 1565.4 1660.6 1755.8 1851 1946.2 2041.4 ovf 738.030303 958.030303 1178.030303 1273.230303		0.04 0.03 0.03 0.03 0.03 0.03 0.02 0.02 0.01 0.01 0.01	0.32
Layer 1 2 3 4 5 6 7 8 9 10 $\Delta \sigma =$ Layer 1 2 3 4 5	Layer Thickness  2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601 1696.2 1791.4 6V0 685 905 1125 1220.2 1315.4	935 1155 1375 1470.2 1565.4 1660.6 1755.8 1851 1946.2 2041.4 ovf 738.030303 958.030303 1178.030303 1273.230303 1368.430303		0.04 0.03 0.03 0.03 0.03 0.03 0.02 0.02 0.01 0.01 0.01 0.01	0.32
Layer 1 2 3 4 5 6 7 8 9 10 $\Delta \sigma = $ Layer 1 2 3 4 5 6	Layer Thickness  2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601 1696.2 1791.4 ovo 685 905 1125 1220.2 1315.4 1410.6	935 1155 1375 1470.2 1565.4 1660.6 1755.8 1851 1946.2 2041.4 ovf 738.030303 958.030303 1178.030303 1273.230303 1368.430303 1463.630303		0.04 0.03 0.03 0.03 0.03 0.03 0.02 0.02 0.02	0.32
Layer 1 2 3 4 5 6 7 8 9 10 $\Delta \sigma =$ Layer 1 2 3 4 5	Layer Thickness  2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601 1696.2 1791.4 6V0 685 905 1125 1220.2 1315.4	935 1155 1375 1470.2 1565.4 1660.6 1755.8 1851 1946.2 2041.4 ovf 738.030303 958.030303 1178.030303 1273.230303 1368.430303		0.04 0.03 0.03 0.03 0.03 0.03 0.02 0.02 0.01 0.01 0.01 0.01	0.32
Layer 1 2 3 4 5 6 7 8 9 10 $\Delta \sigma =$ Layer 1 2 3 4 5 6 7	Layer Thickness  2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601 1696.2 1791.4 ovo 685 905 1125 1220.2 1315.4 1410.6 1505.8	935 1155 1375 1470.2 1565.4 1660.6 1755.8 1851 1946.2 2041.4 ovf 738.030303 958.030303 1178.030303 1273.230303 1273.230303 1463.630303 1558.830303		0.04 0.03 0.03 0.03 0.03 0.03 0.02 0.02 0.02	0.32

Layer 1 - Upper soft CL layer

Layer 2 - Lower soft ML layer

CR =	19.0%	RR =	3.0%	CR =	16.0%	RR =
$\gamma =$	110	pcf		$\gamma =$	110	pcf
eo =	0.9			eo =	0.8	
water level =	10	ft below found surface		water level =	10	ft below found surface
OCR =	1			OCR =	1	

Existing Fill Thickness =	5	ft	Existing Fill Thickness =	20
Existing Fill $\gamma$ =	115	pcf	Existing Fill $\gamma$ =	115
Compressible Soil Thickness =	15	ft	Compressible Soil Thickness =	10

Building	Δσ (psf)	Predicted Settlement (ft)	Predicted Settlement @ Layer 1(inches)	Total Settlement (Layer 1 + Layer 2)
Wheel Truing Facility	66	0.07	0.9	1.1
Inspection Pit	124	0.13	1.6	2.1
Revenue Vehicle Maintenance Shop	263	0.26	3.1	4.2
Revenue Vehicle Maintenance Shop Tracks	80	0.09	1.0	1.4
Blowdown Facility	65	0.07	0.8	1.1
Car Washing Facility	66	0.07	0.9	1.1
Yard Substation SSY	53	0.06	0.7	0.8
Gap Breaker S7B	50	0.05	0.7	0.8
Facility Power SNY	33	0.03	0.4	0.4
Window Replacement Platform	47	0.05	0.6	0.6
Revenue Vehicle Maintenance Shop Storage	219	0.19	2.3	2.9

Building	Δσ (psf)	Predicted Settlement (ft)	Predicted Settlement @ Layer 2 (inches)
Wheel Truing Facility	66	0.02	0.3
Inspection Pit	123.6363636	0.04	0.5
Revenue Vehicle Maintenance Shop	263.0571031	0.09	1.1
Revenue Vehicle Maintenance Shop Tra	79.83333333	0.03	0.3
Blowdown Facility	65.45454545	0.02	0.3
Car Washing Facility	65.70786517	0.02	0.3
Yard Substation SSY	53.03030303	0.02	0.2
Gap Breaker S7B	50	0.02	0.2
Facility Power SNY	33.33333333	0.01	0.1
Window Replacement Platform	47.27272727	0.01	0.2
Revenue Vehicle Maintenance Shop Sto	218.9327485	0.05	0.7

## Settlement Calculations

$\Delta \sigma =$		66
Laver	Laver Thickness	

Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	1.5	657.5	723.5	0.01	
2	1.5	822.5	888.5	0.01	
3	1.5	987.5	1053.5	0.01	
4	1.5	1136.9	1202.9	0.01	
5	1.5	1208.3	1274.3	0.01	
6	1.5	1279.7	1345.7	0.01	
7	1.5	1351.1	1417.1	0.01	
8	1.5	1422.5	1488.5	0.01	
9	1.5	1493.9	1559.9	0.01	
10	1.5	1565.3	1631.3	0.01	0.07

# Settlement Calculations

$\Delta \sigma =$	66				
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	1	1699.8	1765.8	0.00	
2	1	1747.4	1813.4	0.00	
3	1	1795	1861	0.00	
4	1	1842.6	1908.6	0.00	
5	1	1890.2	1956.2	0.00	
6	1	1937.8	2003.8	0.00	
7	1	1985.4	2051.4	0.00	
8	1	2033	2099	0.00	
9	1	2080.6	2146.6	0.00	
10	1	2128.2	2194.2	0.00	0.02

2.0%

$\Delta \sigma =$	123.6363636	6				$\Delta \sigma =$	123.6363636				
Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)
1	1.5	657.5	781.1363636	0	02	1	1	1699.8	1823.436364		0.00
2	1.5	822.5	946.1363636	0.	02	2	1	1747.4	1871.036364		0.00
3	1.5	987.5	1111.136364	0.	01	3	1	1795	1918.636364		0.00
4	1.5	1136.9	1260.536364		01	4	1	1842.6	1966.236364		0.00
5	1.5	1208.3	1331.936364		01	5	1	1890.2	2013.836364		0.00
6	1.5	1279.7	1403.336364		01	6	1	1937.8	2061.436364		0.00
7	1.5	1351.1	1474.736364		01	7	1	1985.4	2109.036364		0.00
8	1.5	1422.5	1546.136364		01	8	1	2033	2156.636364		0.00
9	1.5	1493.9	1617.536364		01	9	1	2080.6	2204.236364		0.00
10	1.5	1565.3	1688.936364		01 0.13	10	1	2128.2	2251.836364		0.00 0.04
$\Delta \sigma =$	263.057103 <sup>-</sup>	1				$\Delta \sigma =$	263.0571031				
Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)
1	1.5	657.5	920.5571031	0.	04	1	1	1699.8	1962.857103		0.01
2	1.5	822.5	1085.557103		03	2	1	1747.4	2010.457103		0.01
3	1.5	987.5	1250.557103		03	3	1	1795	2058.057103		0.01
4	1.5	1136.9	1399.957103		03	4	1	1842.6	2105.657103		0.01
5	1.5	1208.3	1471.357103		02	5	1	1890.2	2153.257103		0.01
6	1.5	1279.7	1542.757103		02	6	1	1937.8	2200.857103		0.01
7	1.5	1351.1	1614.157103		02	7	1	1985.4	2248.457103		0.01
8	1.5	1422.5	1685.557103		02	8	1	2033	2296.057103		0.01
9	1.5	1493.9	1756.957103		02	9	1	2080.6	2343.657103		0.01
10	1.5	1565.3	1828.357103		02 0.26	10	1	2128.2	2391.257103		0.01 0.09
			.020.007.100		V.=V				2001.207.000		0.00
$\Delta \sigma =$	79.83333333		,		T + 10 H + (f)	$\Delta \sigma =$	79.83333333		,		Total Settlement
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	S	(ft)
1	1.5	657.5	737.3333333	0	01	1	1	1699.8	1779.633333		0.00
2	1.5	822.5	902.3333333	0.	01	2	1	1747.4	1827.233333		0.00
3	1.5	987.5	1067.333333	0	01	3	1	1795	1874.833333		0.00
4	1.5	1136.9	1216.733333	0.	01	4	1	1842.6	1922.433333		0.00
5	1.5	1208.3	1288.133333	0	01	5	1	1890.2	1970.033333		0.00
6	1.5			0							
7	1.0	1279.7	1359.533333		01	6	1	1937.8	2017.633333		0.00
				0	01 01	6 7	1 1		2017.633333 2065.233333		0.00 0.00
8	1.5	1351.1	1430.933333	0.	01	6 7 8	1 1 1	1937.8 1985.4	2065.233333		0.00
8 9	1.5 1.5	1351.1 1422.5	1430.933333 1502.333333	0.	01 01	6 7 8 9	1 1 1 1	1937.8 1985.4 2033	2065.233333 2112.833333		0.00 0.00
8 9 10	1.5	1351.1	1430.933333	0 0 0	01	6 7 8 9 10	1 1 1 1 1	1937.8 1985.4	2065.233333		0.00
8 9 10 Δσ =	1.5 1.5 1.5	1351.1 1422.5 1493.9 1565.3	1430.933333 1502.333333 1573.733333	0 0 0	01 01 01	~	1 1 1 1 1 1 65.45454545	1937.8 1985.4 2033 2080.6	2065.233333 2112.833333 2160.433333		0.00 0.00 0.00 0.00 0.03
	1.5 1.5 1.5 1.5	1351.1 1422.5 1493.9 1565.3	1430.933333 1502.333333 1573.733333	0 0 0	01 01 01	10	1 1 1 1 1 1 65.45454545 Layer Thickness	1937.8 1985.4 2033 2080.6	2065.233333 2112.833333 2160.433333		0.00 0.00 0.00 0.00 0.03 Total Settlement
$\Delta \sigma =$	1.5 1.5 1.5 1.5 65.4545454545454545454545454545454545454	1351.1 1422.5 1493.9 1565.3	1430.933333 1502.333333 1573.733333 1645.133333	0 0 0 0 0	01 01 01 01 0.09 Total Settlement (ft)	10 Δσ =		1937.8 1985.4 2033 2080.6 2128.2	2065.233333 2112.833333 2160.433333 2208.033333	s	0.00 0.00 0.00 0.00 0.03 Total Settlement (ft)
Δσ = Layer 1	1.5 1.5 1.5 1.5 65.45454545 Layer Thickness 1.5	1351.1 1422.5 1493.9 1565.3 5 σνο 657.5	1430.933333 1502.333333 1573.733333 1645.133333 ovf	0 0 0 0 0	01 01 01 01 0.09 Total Settlement (ft)	10 Δσ = Layer 1		1937.8 1985.4 2033 2080.6 2128.2 σvo 1699.8	2065.233333 2112.833333 2160.433333 2208.033333 ovf	s	0.00 0.00 0.00 0.00
$\Delta \sigma =$	1.5 1.5 1.5 1.5 65.45454545 Layer Thickness 1.5 1.5	1351.1 1422.5 1493.9 1565.3 5 ovo 657.5 822.5	1430.933333 1502.333333 1573.733333 1645.133333 ovf 722.9545455 887.9545455	0 0 0 0 0	01 01 01 01 0.09 Total Settlement (ft) 01	10 Δσ =		1937.8 1985.4 2033 2080.6 2128.2 ovo 1699.8 1747.4	2065.233333 2112.833333 2160.433333 2208.033333 ovf 1765.254545 1812.854545	s	0.00 0.00 0.00 0.00 0.03 Total Settlement (ft) 0.00 0.00
Δσ = Layer 1	1.5 1.5 1.5 1.5 65.45454545 Layer Thickness 1.5 1.5	1351.1 1422.5 1493.9 1565.3 5 657.5 822.5 987.5	1430.933333 1502.333333 1573.733333 1645.133333 ovf 722.9545455 887.9545455 1052.954545	0 0 0 0 0 0	01 01 01 01 0.09 Total Settlement (ft) 01	10 Δσ = Layer 1		1937.8 1985.4 2033 2080.6 2128.2 σνο 1699.8 1747.4 1795	2065.233333 2112.833333 2160.433333 2208.033333 ovf 1765.254545 1812.854545 1860.454545	S	0.00 0.00 0.00 0.00 0.03 Total Settlement (ft) 0.00 0.00 0.00
Δσ = Layer 1	1.5 1.5 1.5 1.5 65.45454545 Layer Thickness 1.5 1.5 1.5	1351.1 1422.5 1493.9 1565.3 5 657.5 822.5 987.5 1136.9	1430.933333 1502.333333 1573.733333 1645.133333 ovf 722.9545455 887.9545455 1052.954545 1202.354545	0 0 0 0 0 0	01 01 01 01 0.09 Total Settlement (ft) 01 01	10 Δσ = Layer 1		1937.8 1985.4 2033 2080.6 2128.2 ovo 1699.8 1747.4 1795 1842.6	2065.233333 2112.833333 2160.433333 2208.033333 ovf 1765.254545 1812.854545 1860.454545 1908.054545	S	0.00 0.00 0.00 0.00 0.03 Total Settlement (ft) 0.00 0.00 0.00 0.00
Δσ = Layer 1	1.5 1.5 1.5 1.5 65.45454545 Layer Thickness 1.5 1.5 1.5 1.5	1351.1 1422.5 1493.9 1565.3 5 657.5 822.5 987.5 1136.9 1208.3	1430.933333 1502.333333 1573.733333 1645.133333 ovf 722.9545455 887.9545455 1052.954545 1202.354545 1273.754545	0 0 0 0 0 0	01 01 01 01 0.09 Total Settlement (ft) 01 01 01	10 Δσ = Layer 1		1937.8 1985.4 2033 2080.6 2128.2 ovo 1699.8 1747.4 1795 1842.6 1890.2	2065.233333 2112.833333 2160.433333 2208.033333 2208.033333 ovf 1765.254545 1812.854545 1860.454545 1908.054545 1955.654545	s	0.00 0.00 0.00 0.00 0.03 Total Settlement (ft) 0.00 0.00 0.00 0.00 0.00 0.00
Δσ = Layer 1	1.5 1.5 1.5 1.5 65.45454545 Layer Thickness 1.5 1.5 1.5 1.5	1351.1 1422.5 1493.9 1565.3 5 σνο 657.5 822.5 987.5 1136.9 1208.3 1279.7	1430.933333 1502.333333 1573.733333 1645.133333 ovf 722.9545455 887.9545455 1052.954545 1202.354545 1273.754545 1345.154545	s 0 0 0 0 0 0 0	01 01 01 01 0.09 Total Settlement (ft) 01 01 01 01 01	10 Δσ = Layer 1		1937.8 1985.4 2033 2080.6 2128.2 ovo 1699.8 1747.4 1795 1842.6 1890.2 1937.8	2065.233333 2112.833333 2160.433333 2208.033333 2208.033333 ovf 1765.254545 1812.854545 1860.454545 1908.054545 1955.654545 2003.254545	S	0.00 0.00 0.00 0.00 0.00 Total Settlement (ft) 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Δσ = Layer 1	1.5 1.5 1.5 1.5 65.45454545 Layer Thickness 1.5 1.5 1.5 1.5 1.5	1351.1 1422.5 1493.9 1565.3 5 657.5 822.5 987.5 1136.9 1208.3 1279.7 1351.1	1430.933333 1502.333333 1573.733333 1645.133333 ovf 722.9545455 887.9545455 1052.954545 1202.354545 1202.354545 1273.754545 1345.154545 1416.554545	s 0 0 0 0 0 0 0 0 0	01 01 01 01 0.09 Total Settlement (ft) 01 01 01 01 01 01	10 Δσ = Layer 1		1937.8 1985.4 2033 2080.6 2128.2 ovo 1699.8 1747.4 1795 1842.6 1890.2 1937.8 1985.4	2065.233333 2112.833333 2160.433333 2208.033333 2208.033333 ovf 1765.254545 1812.854545 1860.454545 1908.054545 1955.654545 2003.254545 2050.854545	S	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
Δσ = Layer 1	1.5 1.5 1.5 1.5 65.45454545 Layer Thickness 1.5 1.5 1.5 1.5 1.5 1.5	1351.1 1422.5 1493.9 1565.3 5 657.5 822.5 987.5 1136.9 1208.3 1279.7 1351.1 1422.5	1430.933333 1502.333333 1573.733333 1645.133333 ovf 722.9545455 887.9545455 1052.954545 1202.354545 1202.354545 1345.154545 1416.554545 1487.954545	s 0 0 0 0 0 0 0 0 0	01 01 01 01 0.09 Total Settlement (ft) 01 01 01 01 01 01	10 Δσ = Layer 1		1937.8 1985.4 2033 2080.6 2128.2 ovo 1699.8 1747.4 1795 1842.6 1890.2 1937.8 1985.4 2033	2065.233333 2112.833333 2160.433333 2208.033333 2208.033333 0vf 1765.254545 1812.854545 1860.454545 1908.054545 1908.054545 2003.254545 2050.854545 2098.454545	S	0.00 0.00 0.00 0.00 0.00 0.00 0.03  Total Settlement (ft) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.
Δσ = Layer 1	1.5 1.5 1.5 1.5 65.45454545 Layer Thickness 1.5 1.5 1.5 1.5 1.5	1351.1 1422.5 1493.9 1565.3 5 657.5 822.5 987.5 1136.9 1208.3 1279.7 1351.1	1430.933333 1502.333333 1573.733333 1645.133333 ovf 722.9545455 887.9545455 1052.954545 1202.354545 1202.354545 1273.754545 1345.154545 1416.554545	s 0 0 0 0 0 0 0 0 0	01 01 01 01 0.09 Total Settlement (ft) 01 01 01 01 01 01	10 Δσ = Layer 1		1937.8 1985.4 2033 2080.6 2128.2 ovo 1699.8 1747.4 1795 1842.6 1890.2 1937.8 1985.4	2065.233333 2112.833333 2160.433333 2208.033333 2208.033333 ovf 1765.254545 1812.854545 1860.454545 1908.054545 1955.654545 2003.254545 2050.854545	S	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

$\Delta \sigma =$	65.70786517	7				$\Delta \sigma =$	65.70786517				
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	s To	otal Settlement (ft)
1	1.5	657.5	723.2078652	0.01		1	1	1699.8	1765.507865	0.00	( )
2	1.5	822.5	888.2078652	0.01		2	1	1747.4	1813.107865	0.00	
3	1.5	987.5	1053.207865	0.01		3	1	1795	1860.707865	0.00	
4	1.5	1136.9	1202.607865	0.01		4	1	1842.6	1908.307865	0.00	
5	1.5	1208.3	1274.007865	0.01		5	1	1890.2	1955.907865	0.00	
6	1.5	1279.7	1345.407865	0.01		6	1	1937.8	2003.507865	0.00	
7	1.5	1351.1	1416.807865	0.01		7	1	1985.4	2051.107865	0.00	
Q	1.5	1422.5	1488.207865	0.01		Q	1	2033	2098.707865	0.00	
9	1.5	1493.9	1559.607865	0.01		0	! 1	2080.6	2146.307865	0.00	
10	1.5	1565.3	1631.007865	0.01		10	! 1	2128.2	2193.907865	0.00	0.02
10	1.5	1303.3	1031.007603	0.01	0.07	10	1	2120.2	2193.907603	0.00	0.02
$\Delta \sigma =$	53.03030303	3				$\Delta \sigma =$	53.03030303			T	otal Settlement
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	s	(ft)
1	1.5	657.5	710.530303	0.01		1	1	1699.8	1752.830303	0.00	(11)
2	1.5	822.5	875.530303	0.01		2	1	1747.4	1800.430303	0.00	
3	1.5	987.5	1040.530303	0.01		2	! 1	1795	1848.030303	0.00	
3						3	1				
4	1.5	1136.9	1189.930303	0.01		4	1	1842.6	1895.630303	0.00	
5	1.5	1208.3	1261.330303	0.01		5	1	1890.2	1943.230303	0.00	
6	1.5	1279.7	1332.730303	0.01		6	1	1937.8	1990.830303	0.00	
7	1.5	1351.1	1404.130303	0.00		7	1	1985.4	2038.430303	0.00	
8	1.5	1422.5	1475.530303	0.00		8	1	2033	2086.030303	0.00	
9	1.5	1493.9	1546.930303	0.00		9	1	2080.6	2133.630303	0.00	
10	1.5	1565.3	1618.330303	0.00	0.06	10	1	2128.2	2181.230303	0.00	0.02
$\Delta \sigma =$	50	)				$\Delta \sigma =$	50				
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	s To	otal Settlement
Layo.	Layor Triiotarooo	010				Layor	Layer Triidimidda				(ft)
						1	1	1699.8	1749.8	0.00	
1	1.5	657.5	707.5	0.01		ı	ı				
1 2	1.5	822.5	707.5 872.5	0.01 0.01		2	1	1747.4	1797.4	0.00	
1 2 3						2 3	1 1				
	1.5	822.5	872.5	0.01		2 3 4	1 1 1	1747.4	1797.4	0.00	
	1.5 1.5	822.5 987.5	872.5 1037.5	0.01 0.01		2 3 4 5	1 1 1 1	1747.4 1795	1797.4 1845	0.00 0.00	
	1.5 1.5 1.5 1.5	822.5 987.5 1136.9 1208.3	872.5 1037.5 1186.9 1258.3	0.01 0.01 0.01 0.01		2 3 4 5 6	1 1 1 1 1	1747.4 1795 1842.6 1890.2	1797.4 1845 1892.6 1940.2	0.00 0.00 0.00 0.00	
	1.5 1.5 1.5 1.5 1.5	822.5 987.5 1136.9 1208.3 1279.7	872.5 1037.5 1186.9 1258.3 1329.7	0.01 0.01 0.01 0.01 0.00		2 3 4 5 6 7	1 1 1 1 1	1747.4 1795 1842.6 1890.2 1937.8	1797.4 1845 1892.6 1940.2 1987.8	0.00 0.00 0.00 0.00 0.00	
	1.5 1.5 1.5 1.5 1.5	822.5 987.5 1136.9 1208.3 1279.7 1351.1	872.5 1037.5 1186.9 1258.3 1329.7 1401.1	0.01 0.01 0.01 0.01 0.00 0.00		2 3 4 5 6 7 8	1 1 1 1 1 1	1747.4 1795 1842.6 1890.2 1937.8 1985.4	1797.4 1845 1892.6 1940.2 1987.8 2035.4	0.00 0.00 0.00 0.00 0.00 0.00	
3 4 5 6 7 8	1.5 1.5 1.5 1.5 1.5 1.5	822.5 987.5 1136.9 1208.3 1279.7 1351.1 1422.5	872.5 1037.5 1186.9 1258.3 1329.7 1401.1 1472.5	0.01 0.01 0.01 0.01 0.00 0.00		2 3 4 5 6 7 8	1 1 1 1 1 1 1	1747.4 1795 1842.6 1890.2 1937.8 1985.4 2033	1797.4 1845 1892.6 1940.2 1987.8 2035.4 2083	0.00 0.00 0.00 0.00 0.00 0.00	
3 4 5 6 7 8 9	1.5 1.5 1.5 1.5 1.5 1.5 1.5	822.5 987.5 1136.9 1208.3 1279.7 1351.1 1422.5 1493.9	872.5 1037.5 1186.9 1258.3 1329.7 1401.1 1472.5 1543.9	0.01 0.01 0.01 0.01 0.00 0.00 0.00		7 8 9	1 1 1 1 1 1 1 1 1	1747.4 1795 1842.6 1890.2 1937.8 1985.4 2033 2080.6	1797.4 1845 1892.6 1940.2 1987.8 2035.4 2083 2130.6	0.00 0.00 0.00 0.00 0.00 0.00 0.00	0.02
3 4 5 6 7 8	1.5 1.5 1.5 1.5 1.5 1.5	822.5 987.5 1136.9 1208.3 1279.7 1351.1 1422.5	872.5 1037.5 1186.9 1258.3 1329.7 1401.1 1472.5	0.01 0.01 0.01 0.01 0.00 0.00		2 3 4 5 6 7 8 9 10	1 1 1 1 1 1 1 1 0	1747.4 1795 1842.6 1890.2 1937.8 1985.4 2033	1797.4 1845 1892.6 1940.2 1987.8 2035.4 2083	0.00 0.00 0.00 0.00 0.00 0.00	0.02
3 4 5 6 7 8 9	1.5 1.5 1.5 1.5 1.5 1.5 1.5	822.5 987.5 1136.9 1208.3 1279.7 1351.1 1422.5 1493.9 1565.3	872.5 1037.5 1186.9 1258.3 1329.7 1401.1 1472.5 1543.9	0.01 0.01 0.01 0.01 0.00 0.00 0.00		7 8 9	1 1 1 1 1 1 1 1 0	1747.4 1795 1842.6 1890.2 1937.8 1985.4 2033 2080.6	1797.4 1845 1892.6 1940.2 1987.8 2035.4 2083 2130.6	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	
3 4 5 6 7 8 9 10	1.5 1.5 1.5 1.5 1.5 1.5 1.5	822.5 987.5 1136.9 1208.3 1279.7 1351.1 1422.5 1493.9 1565.3	872.5 1037.5 1186.9 1258.3 1329.7 1401.1 1472.5 1543.9	0.01 0.01 0.01 0.01 0.00 0.00 0.00		7 8 9 10	•	1747.4 1795 1842.6 1890.2 1937.8 1985.4 2033 2080.6	1797.4 1845 1892.6 1940.2 1987.8 2035.4 2083 2130.6	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	otal Settlement
3 4 5 6 7 8 9 10	1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	822.5 987.5 1136.9 1208.3 1279.7 1351.1 1422.5 1493.9 1565.3	872.5 1037.5 1186.9 1258.3 1329.7 1401.1 1472.5 1543.9 1615.3	0.01 0.01 0.01 0.00 0.00 0.00 0.00	0.05  Total Settlement (ft)	7 8 9 10	33.33333333	1747.4 1795 1842.6 1890.2 1937.8 1985.4 2033 2080.6 1676	1797.4 1845 1892.6 1940.2 1987.8 2035.4 2083 2130.6 1726	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	
3 4 5 6 7 8 9 10	1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	822.5 987.5 1136.9 1208.3 1279.7 1351.1 1422.5 1493.9 1565.3	872.5 1037.5 1186.9 1258.3 1329.7 1401.1 1472.5 1543.9 1615.3	0.01 0.01 0.01 0.00 0.00 0.00 0.00 0.00	0.05 Total Settlement (ft)	7 8 9 10	33.33333333	1747.4 1795 1842.6 1890.2 1937.8 1985.4 2033 2080.6 1676	1797.4 1845 1892.6 1940.2 1987.8 2035.4 2083 2130.6 1726	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	otal Settlement
$3$ $4$ $5$ $6$ $7$ $8$ $9$ $10$ $\Delta \sigma =$ Layer $1$	1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	822.5 987.5 1136.9 1208.3 1279.7 1351.1 1422.5 1493.9 1565.3	872.5 1037.5 1186.9 1258.3 1329.7 1401.1 1472.5 1543.9 1615.3	0.01 0.01 0.01 0.00 0.00 0.00 0.00 0.00	0.05  Total Settlement (ft)	7 8 9 10 Δσ = Layer 1	33.33333333	1747.4 1795 1842.6 1890.2 1937.8 1985.4 2033 2080.6 1676	1797.4 1845 1892.6 1940.2 1987.8 2035.4 2083 2130.6 1726	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	otal Settlement
$3$ $4$ $5$ $6$ $7$ $8$ $9$ $10$ $\Delta \sigma =$ Layer $1$	1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	822.5 987.5 1136.9 1208.3 1279.7 1351.1 1422.5 1493.9 1565.3	872.5 1037.5 1186.9 1258.3 1329.7 1401.1 1472.5 1543.9 1615.3 ovf 690.8333333 855.8333333 1020.833333	0.01 0.01 0.01 0.00 0.00 0.00 0.00 0.00	0.05  Total Settlement (ft)	7 8 9 10 Δσ = Layer 1	33.33333333	1747.4 1795 1842.6 1890.2 1937.8 1985.4 2033 2080.6 1676	1797.4 1845 1892.6 1940.2 1987.8 2035.4 2083 2130.6 1726	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	otal Settlement
$3$ $4$ $5$ $6$ $7$ $8$ $9$ $10$ $\Delta \sigma =$ Layer $1$	1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	822.5 987.5 1136.9 1208.3 1279.7 1351.1 1422.5 1493.9 1565.3 800 657.5 822.5 987.5 1136.9	872.5 1037.5 1186.9 1258.3 1329.7 1401.1 1472.5 1543.9 1615.3 ovf 690.8333333 855.8333333 1020.833333 1170.233333	0.01 0.01 0.01 0.00 0.00 0.00 0.00 0.00	0.05 Total Settlement (ft)	7 8 9 10 Δσ = Layer 1	33.33333333	1747.4 1795 1842.6 1890.2 1937.8 1985.4 2033 2080.6 1676	1797.4 1845 1892.6 1940.2 1987.8 2035.4 2083 2130.6 1726 ovf 1733.133333 1780.733333 1828.333333 1875.933333	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	otal Settlement
$3$ $4$ $5$ $6$ $7$ $8$ $9$ $10$ $\Delta \sigma =$ Layer $1$	1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	822.5 987.5 1136.9 1208.3 1279.7 1351.1 1422.5 1493.9 1565.3 8 8 8 8 8 8 8 8 13 13 13 13 13 13 13 13 13 13	872.5 1037.5 1186.9 1258.3 1329.7 1401.1 1472.5 1543.9 1615.3 ovf 690.8333333 855.8333333 1020.833333 1170.233333 1241.633333	0.01 0.01 0.01 0.00 0.00 0.00 0.00 0.00	0.05 Total Settlement (ft)	7 8 9 10 Δσ = Layer 1	33.33333333	1747.4 1795 1842.6 1890.2 1937.8 1985.4 2033 2080.6 1676	1797.4 1845 1892.6 1940.2 1987.8 2035.4 2083 2130.6 1726 ovf 1733.133333 1780.733333 1828.333333 1875.933333 1923.533333	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	otal Settlement
$3$ $4$ $5$ $6$ $7$ $8$ $9$ $10$ $\Delta \sigma =$ Layer $1$	1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	822.5 987.5 1136.9 1208.3 1279.7 1351.1 1422.5 1493.9 1565.3 800 657.5 822.5 987.5 1136.9 1208.3 1279.7	872.5 1037.5 1186.9 1258.3 1329.7 1401.1 1472.5 1543.9 1615.3 0vf 690.8333333 1020.833333 1020.833333 1170.233333 1241.633333 1313.033333	0.01 0.01 0.01 0.00 0.00 0.00 0.00 0.00	0.05  Total Settlement (ft)	7 8 9 10 Δσ = Layer 1	33.33333333	1747.4 1795 1842.6 1890.2 1937.8 1985.4 2033 2080.6 1676	1797.4 1845 1892.6 1940.2 1987.8 2035.4 2083 2130.6 1726 ovf 1733.133333 1780.733333 1828.333333 1875.933333 1923.533333 1971.133333	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	otal Settlement
$3$ $4$ $5$ $6$ $7$ $8$ $9$ $10$ $\Delta \sigma =$ Layer $1$	1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	822.5 987.5 1136.9 1208.3 1279.7 1351.1 1422.5 1493.9 1565.3 8 8 8 8 8 8 8 8 1279.7 136.9 1208.3 1279.7 1351.1	872.5 1037.5 1186.9 1258.3 1329.7 1401.1 1472.5 1543.9 1615.3 ovf 690.8333333 1020.833333 1170.233333 1241.633333 1313.033333 1384.433333	0.01 0.01 0.01 0.00 0.00 0.00 0.00 0.00	0.05  Total Settlement (ft)	7 8 9 10 Δσ = Layer 1	33.33333333	1747.4 1795 1842.6 1890.2 1937.8 1985.4 2033 2080.6 1676	1797.4 1845 1892.6 1940.2 1987.8 2035.4 2083 2130.6 1726 ovf 1733.133333 1780.733333 1828.333333 1828.333333 1923.533333 1923.533333 1971.133333 2018.733333	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	otal Settlement
$3$ 4 5 6 7 8 9 10 $\Delta \sigma =$ Layer 1 2 3 4 5 6 7 8	1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	822.5 987.5 1136.9 1208.3 1279.7 1351.1 1422.5 1493.9 1565.3 8700 657.5 822.5 987.5 1136.9 1208.3 1279.7 1351.1 1422.5	872.5 1037.5 1186.9 1258.3 1329.7 1401.1 1472.5 1543.9 1615.3 ovf 690.833333 855.833333 1020.83333 1170.233333 1241.633333 1313.033333 1344.633333 1355.833333	0.01 0.01 0.01 0.00 0.00 0.00 0.00 0.00	0.05  Total Settlement (ft)	7 8 9 10 Δσ = Layer 1	33.33333333	1747.4 1795 1842.6 1890.2 1937.8 1985.4 2033 2080.6 1676	1797.4 1845 1892.6 1940.2 1987.8 2035.4 2083 2130.6 1726 ovf 1733.133333 1780.733333 1828.333333 1828.333333 1923.533333 1971.133333 2018.733333 2018.733333 2066.333333	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	otal Settlement
$3$ 4 5 6 7 8 9 10 $\Delta \sigma =$ Layer 1 2 3 4 5 6 7 8 9	1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	822.5 987.5 1136.9 1208.3 1279.7 1351.1 1422.5 1493.9 1565.3 800 657.5 822.5 987.5 1136.9 1208.3 1279.7 1351.1 1422.5 1493.9	872.5 1037.5 1186.9 1258.3 1329.7 1401.1 1472.5 1543.9 1615.3 ovf 690.8333333 1020.833333 1170.233333 1241.633333 1313.033333 1384.433333 1455.833333 1527.233333	0.01 0.01 0.01 0.00 0.00 0.00 0.00 0.00	0.05  Total Settlement (ft)	7 8 9 10 Δσ = Layer 1 2 3 4 5 6 7 8 9	33.33333333	1747.4 1795 1842.6 1890.2 1937.8 1985.4 2033 2080.6 1676 5VO 1699.8 1747.4 1795 1842.6 1890.2 1937.8 1985.4 2033 1676	1797.4 1845 1892.6 1940.2 1987.8 2035.4 2083 2130.6 1726 ovf 1733.133333 1780.733333 1828.333333 1875.933333 1923.533333 1971.133333 2018.733333 2066.333333 1709.333333	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	otal Settlement (ft)
$3$ 4 5 6 7 8 9 10 $\Delta \sigma =$ Layer 1 2 3 4 5 6 7 8	1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	822.5 987.5 1136.9 1208.3 1279.7 1351.1 1422.5 1493.9 1565.3 8700 657.5 822.5 987.5 1136.9 1208.3 1279.7 1351.1 1422.5	872.5 1037.5 1186.9 1258.3 1329.7 1401.1 1472.5 1543.9 1615.3 ovf 690.833333 855.833333 1020.83333 1170.233333 1241.633333 1313.033333 1344.633333 1355.833333	0.01 0.01 0.01 0.00 0.00 0.00 0.00 0.00	0.05 Total Settlement (ft)	7 8 9 10 Δσ = Layer 1	33.33333333	1747.4 1795 1842.6 1890.2 1937.8 1985.4 2033 2080.6 1676	1797.4 1845 1892.6 1940.2 1987.8 2035.4 2083 2130.6 1726 ovf 1733.133333 1780.733333 1828.333333 1828.333333 1923.533333 1971.133333 2018.733333 2018.733333 2066.333333	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	otal Settlement

$\Delta \sigma =$	47.27272727	7				$\Delta \sigma =$	47.27272727				
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	1.5	657.5	704.7727273	0.0	I	1	1	1699.8	1747.072727	0.00	( )
2	1.5	822.5	869.7727273	0.0	1	2	1	1747.4	1794.672727	0.00	
3	1.5	987.5	1034.772727	0.0	1	3	1	1795	1842.272727	0.00	
4	1.5	1136.9	1184.172727	0.0	1	4	1	1842.6	1889.872727	0.00	
5	1.5	1208.3	1255.572727	0.00	)	5	1	1890.2	1937.472727	0.00	
6	1.5	1279.7	1326.972727	0.00	)	6	1	1937.8	1985.072727	0.00	
7	1.5	1351.1	1398.372727	0.00	)	7	1	1985.4	2032.672727	0.00	
8	1.5	1422.5	1469.772727	0.00	)	8	1	2033	2080.272727	0.00	
9	1.5	1493.9	1541.172727	0.00	)	9	0	1676	1723.272727	0.00	
10	0	575	622.2727273	0.00	0.05	10	0	1676	1723.272727	0.00	0.01
$\Delta \sigma =$	219	9				$\Delta \sigma =$	218.9327485				
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	1.5	657.5	876	0.04	1	1	1	1699.8	1918.732749	0.01	(1-7)
2	1.5	822.5	1041	0.03		2	1	1747.4	1966.332749	0.01	
3	1.5	987.5	1206	0.02	2	3	1	1795	2013.932749	0.01	
4	1.5	1136.9	1356	0.02	2	4	1	1842.6	2061.532749	0.01	
5	1.5	1208.3	1427	0.02	2	5	1	1890.2	2109.132749	0.01	
6	1.5	1279.7	1499	0.02	2	6	1	1937.8	2156.732749	0.01	
7	1.5	1351.1	1570	0.02	2	7	1	1985.4	2204.332749	0.01	
8	1.5	1422.5	1641	0.02	2	8	0	1676	1894.932749	0.00	
•											
9	0	575	794	0.00	)	9	0	1676	1894.932749	0.00	

$$\begin{array}{ccccc} CR = & 16.0\% & RR = & 4.0\% \\ \gamma = & 110 & pcf \\ eo = & 1 & \\ water \ level = & 10 & ft \ below \ found \ surface \\ OCR = & 1 & \\ \end{array}$$

Existing Fill Thickness = 5 ft
Existing Fill  $\gamma$  = 115 pcf
Compressible Soil Thickness = 20 ft

Building	Δσ (psf)	Predicted Settlement (ft)	Predicted Settlement (inches)
Car Cleaners Facility	31	0.03	0.4
Trans Building	48	0.05	0.6
Yard Control Tower	410	0.40	4.8

$\Delta \sigma =$	30.90909091				
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	2	685	715.9090909	0.01	
2	2	905	935.9090909	0.00	
3	2	1125	1155.909091	0.00	
4	2	1220.2	1251.109091	0.00	
5	2	1315.4	1346.309091	0.00	
6	2	1410.6	1441.509091	0.00	
7	2	1505.8	1536.709091	0.00	
8	2	1601	1631.909091	0.00	
9	2	1696.2	1727.109091	0.00	
10	2	1791.4	1822.309091	0.00	0.03
$\Delta \sigma =$	48.14814815				
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	2	685	733.1481481	0.01	
2	2	905	953.1481481	0.01	
3	2	1125	1173.148148	0.01	
4	2	1220.2	1268.348148	0.01	
5	2	1315.4	1363.548148	0.00	
6	2	1410.6	1458.748148	0.00	
7	2	1505.8	1553.948148	0.00	
8	2	1601	1649.148148	0.00	
9	2	1696.2	1744.348148	0.00	
10	2	1791.4	1839.548148	0.00	0.05

$\Delta \sigma =$	410				
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	2	685	1095	0.07	
2	2	905	1315	0.05	
3	2	1125	1535	0.04	
4	2	1220.2	1630.2	0.04	
5	2	1315.4	1725.4	0.04	
6	2	1410.6	1820.6	0.04	
7	2	1505.8	1915.8	0.03	
8	2	1601	2011	0.03	
9	2	1696.2	2106.2	0.03	
10	2	1791.4	2201.4	0.03	0.40

Project Name: SVRT YARD & SHOPS COMPLEX

**Project Number:** 6600.3.001.01

# **Ground Condition and Predicted Settlement Due to Equipment Loads**

Structure	Nearby BH/CPT	Soft Profile Scenario	Predicted Settlement	Approx.	
Ottubiale	ricarby Bri/or i	·		Structural	
Wheel Truing Facility	BH-25, CPT-25	С	0.3	14	
Turntable	BH-5	В	0.6	33	
Inspection Pit	BH-23	С	1.0	58	
Revenue Processing Building (Opt A)	None	Α	3.7	356	
Revenue Processing Building (Opt B)	None	В	5.3	356	
N-R Maintence Shop	BH-9; CPT-11; CPT-12	В	8.5	624	
ME offices	BH-10; CPT-13	В	3.8	250	
Maintence and Engineering Shops	BH-12; CPT-14	В	15.3	1360	
Car Cleaners' Facility	CPT-32	D	3.1	250	
Revenue Vehicle Maintenance Shop	BH-17, 20, 22; CPT 21, 23	С	4.3	270	
Revenue Vehicle Maintenance Shop - Tracks	BH-16, 18, 19, 21; CPT-20 & 22	С	1.1	65	
Blowdown Facility	BH-24	С	4.0	250	
Car Wash Building	BH-15, 18; CPT-19	С	4.0	250	
Trans Building	CPT-29	D	3.1	250	
Yard Control Tower	BH-27; CPT-27	D	3.1	250	
Window Replacement Platform	BH-21	С	3.0	250	
Gap Breaker S7B	None	С	1.0	0	
Facility Power SNY	None	С	0.0	0	
Yard Substation SSY	None	В	0.0	0	
Train Control Station	CPT-9	В	0.0	0	
Bulk Power / Switching Substation	BH-1; CPT-1, 3 & 4	Α	0.0	0	
Revenue Vehicle Maintenance Shop	BH-17, 20, 22; CPT 21, 23	С	16.0	1463	

Soil Profile Scenarios	Compressible Layer Depth (ft)		00		
Soil Frome Scenarios	Compressible Layer Depth (it)	Сс	Cr	Pp	eo
А	5 to 20	14%	3%	3000	0.8
В	5 to 25	20%	5%	3000	1.1
C	5 to 20	19%	3%	3000	0.9
C	20 to 30	16%	2%	6000	0.8
D	5 to 25	16%	4%	4000	1

20

Compressible Soil Thickness =

Building	Δσ (psf)	Predicted Settlement (ft)	Predicted Settlement (inches)
Revenue Processing Building (Opt A)	356	0.31	3.7
Bulk Power / Switching Substation	0	0.00	0.0
	0	0.00	0.0
	0	0.00	0.0
	0	0.00	0.0
	0	0.00	0.0

$\Delta \sigma =$	355.7142857				
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	2	685	1040.714286	0.05	
2	2	905	1260.714286	0.04	
3	2	1125	1480.714286	0.03	
4	2	1220.2	1575.914286	0.03	
5	2	1315.4	1671.114286	0.03	
6	2	1410.6	1766.314286	0.03	
7	2	1505.8	1861.514286	0.03	
8	2	1601	1956.714286	0.02	
9	2	1696.2	2051.914286	0.02	
10	2	1791.4	2147.114286	0.02	0.31
	_				
$\Delta \sigma =$	0				
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	2	685	685	0.00	
2	2	905	905	0.00	
3	2	1125	1125	0.00	
4	2	1220.2	1220.2	0.00	
5	2	1315.4	1315.4	0.00	
6	2	1410.6	1410.6	0.00	
7	2	1505.8	1505.8	0.00	
8	2	1601	1601	0.00	
9	2	1696.2	1696.2	0.00	
10	2	1791.4	1791.4	0.00	0.00

$$\begin{array}{cccc} CR = & 20.0\% & RR = & 5.0\% \\ \gamma = & 110 & pcf \\ eo = & 1.1 & \\ water \ level = & 10 & ft \ below \ found \ surface \\ OCR = & 1 & \\ \end{array}$$

 $\begin{array}{cccc} \text{Existing Fill Thickness} = & 5 & \text{ft} \\ & \text{Existing Fill } \gamma = & 115 & \text{pcf} \\ \text{Compressible Soil Thickness} = & 20 & \text{ft} \\ \end{array}$ 

Building	Δσ (psf)	Predicted Settlement (ft)	Predicted Settlement (inches)
Turntable	33	0.05	0.6
Revenue Processing Building (Opt B)	356	0.44	5.3
N-R Maintance Shop	624	0.71	8.5
ME Office	250	0.32	3.8
Maintanence & Engineering Shops	1360	1.28	15.3
Train Control Station	0	0.00	0.0
Yard Substation SSY	0	0.00	0.0

$\Delta \sigma =$	33					
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)	
1	2	685	718	0.0	1	
2	2	905	938	0.0	1	
3	2	1125	1158	0.0	1	
4	2	1220.2	1253.2	0.0	0	
5	2	1315.4	1348.4	0.0	0	
6	2	1410.6	1443.6	0.0	0	
7	2	1505.8	1538.8	0.0	0	
8	2	1601	1634	0.0	0	
9	2	1696.2	1729.2	0.0	0	
10	2	1791.4	1824.4	0.0	0 0.05	0.05
$\Delta \sigma =$	355.7142857					
Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)	
1	2	685	1040.714286	0.0	7	
2	2	905	1260.714286	0.0	6	
3	2	1125	1480.714286	0.0	5	
4	2	1220.2	1575.914286	0.0	4	
5	2	1315.4	1671.114286	0.0	4	
6	2	1410.6	1766.314286	0.0	4	
7	2	1505.8	1861.514286	0.0	4	
8	2	1601	1956.714286	0.0	3	
9	2	1696.2	2051.914286	0.0	3	
10	2	1791.4	2147.114286	0.0	3 0.44	0.44

$\Delta \sigma =$ Layer 1 2 3 4 5 6 7 8 9 10	623.5384615 Layer Thickness 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601 1696.2 1791.4	ovf 1308.538462 1528.538462 1748.538462 1843.738462 1938.938462 2034.138462 2129.338462 2224.538462 2319.738462 2414.938462	s 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	9 8 7 7 6 6 6 5	0.71
Δσ = Layer	250 Layer Thickness	σνο	σνf	S	Total Settlement (ft)	
1 2 3 4 5 6 7 8 9	2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601 1696.2 1791.4	935 1155 1375 1470.2 1565.4 1660.6 1755.8 1851 1946.2 2041.4	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	4 3 3 3 3 3 3 3	0.32
$\Delta \sigma =$	1360					
Layer 1 2 3 4 5 6 7 8 9	Layer Thickness 2 2 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601 1696.2	σvf 2045 2265 2485 2580.2 2675.4 2770.6 2865.8 2961 3056.2	\$ 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	6 4 3 2 2 1 1 0	
10	2	1791.4	3151.4	0.1	0 1.28	1.28
$\Delta \sigma =$ Layer 1 2 3 4 5 6 7 8 9	Layer Thickness 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601 1696.2	σvf 685 905 1125 1220.2 1315.4 1410.6 1505.8 1601 1696.2	\$ 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	0 0 0 0 0 0 0	
10	2	1791.4	1791.4	0.0	0.00	0.00
$\Delta \sigma = $ Layer $1$ $2$ $3$ $4$ $5$ $6$ $7$ $8$ $9$ $10$	Layer Thickness 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601 1696.2 1791.4	σνf 685 905 1125 1220.2 1315.4 1410.6 1505.8 1601 1696.2 1791.4 Page 2 of 2	\$ 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	0 0 0 0 0 0 0	0.00 at 12:17 PM

Layer 1 - Upper soft CL layer

Layer 2 - Lower soft ML layer

CR = 19.0% RR = CR = 3.0% 16.0%  $\gamma =$ 110 pcf 110 pcf  $\gamma =$ 8.0 eo = 0.9 eo = water level = 10 ft below found surface 10 ft below found surface water level = OCR = 1 OCR = 1

Existing Fill Thickness = 5 ft Existing Fill Thickness = Existing Fill  $\gamma$  = 115 pcf Existing Fill  $\gamma$  = Compressible Soil Thickness = 15 ft Compressible Soil Thickness =

Building	Δσ (psf)	Predicted Settlement (ft)	Predicted Settlement @ Layer 1(inches)	Total Settlement (Layer 1 + Layer 2)
Wheel Truing Facility	14	0.02	0.2	0.3
Inspection Pit	58	0.06	0.8	1.0
Revenue Vehicle Maintenance Shop	270	0.27	3.2	4.3
Revenue Vehicle Maintenance Shop Tracks	65	0.07	0.8	1.1
Blowdown Facility	250	0.25	3.0	4.0
Car Washing Facility	250	0.25	3.0	4.0
Yard Substation SSY	0	0.00	0.0	0.0
Gap Breaker S7B	0	0.00	0.0	1.0
Facility Power SNY	0	0.00	0.0	0.0
Window Replacement Platform	250	0.25	3.0	3.0
Revenue Vehicle Maintenance Shop	1463	0.94	11.3	16.0

Building	Δσ (psf)	Predicted Settlement (ft)	Predicted Settlement @ Layer 2 (inches)
Wheel Truing Facility	14.2222222	0.01	0.1
Inspection Pit	58.18181818	0.02	0.3
Revenue Vehicle Maintenance Shop	270.0557103	0.09	1.1
Revenue Vehicle Maintenance Shop Tra	64.66666667	0.02	0.3
Blowdown Facility	250	0.09	1.0
Car Washing Facility	250	0.09	1.0
Yard Substation SSY	0	0.00	0.0
Gap Breaker S7B	0	0.00	0.0
Facility Power SNY	0	0.00	0.0
Window Replacement Platform	250	0.09	1.0
Revenue Vehicle Maintenance Shop	1462.923977	0.40	4.7

RR =

20

115

10

ft

pcf

2.0%

Settlement Calc	ulations					Settlement C	alculations				
$\Delta \sigma =$	14.22222222	!				$\Delta \sigma =$	14.22222222				
Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	1.5	657.5	671.7222222	0.0	)	1	1	1699.8	1714.022222	0.00	` '
2	1.5	822.5	836.7222222	0.0	)	2	1	1747.4	1761.622222	0.00	
3	1.5	987.5	1001.722222	0.0	)	3	1	1795	1809.222222	0.00	
4	1.5	1136.9	1151.122222	0.0	)	4	1	1842.6	1856.822222	0.00	
5	1.5	1208.3	1222.522222	0.0	)	5	1	1890.2	1904.422222	0.00	
6	1.5	1279.7	1293.922222	0.0	)	6	1	1937.8	1952.022222	0.00	
7	1.5	1351.1	1365.322222	0.0	)	7	1	1985.4	1999.622222	0.00	
8	1.5	1422.5	1436.722222	0.0	)	8	1	2033	2047.222222	0.00	
9	1.5	1493.9	1508.122222	0.0		9	1	2080.6	2094.822222	0.00	
10	1.5	1565.3	1579.522222	0.0	0.02	10	1	2128.2	2142.422222	0.00	0.01
$\Delta \sigma =$	58.18181818	;				$\Delta \sigma =$	58.18181818				
Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	1.5	657.5	715.6818182	0.0	1	1	1	1699.8	1757.981818	0.00	` '
2	1.5	822.5	880.6818182	0.0	1	2	1	1747.4	1805.581818	0.00	
3	1.5	987.5	1045.681818	0.0	1	3	1	1795	1853.181818	0.00	
4	1.5	1136.9	1195.081818	0.0	1	4	1	1842.6	1900.781818	0.00	
5	1.5	1208.3	1266.481818	0.0	1	5	1	1890.2	1948.381818	0.00	
6	1.5	1279.7	1337.881818	0.0	1	6	1	1937.8	1995.981818	0.00	
7	1.5	1351.1	1409.281818	0.0	1	7	1	1985.4	2043.581818	0.00	
8	1.5	1422.5	1480.681818	0.0	)	8	1	2033	2091.181818	0.00	
9	1.5	1493.9	1552.081818	0.0		9	1	2080.6	2138.781818	0.00	
10	1.5	1565.3	1623.481818	0.0	0.06	10	1	2128.2	2186.381818	0.00	0.02

$\Delta \sigma =$	270.0557103					$\Delta \sigma =$	270.0557103				
Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)
1	1.5	657.5	927.5557103	0.	04	1	1	1699.8	1969.85571	0.01	
2	1.5	822.5	1092.55571	0.	04	2	1	1747.4	2017.45571	0.01	
3	1.5	987.5	1257.55571	0.	03	3	1	1795	2065.05571	0.01	
4	1.5	1136.9	1406.95571	0.	03	4	1	1842.6	2112.65571	0.01	
5	1.5	1208.3	1478.35571	0.	02	5	1	1890.2	2160.25571	0.01	
6	1.5	1279.7	1549.75571	0.	02	6	1	1937.8	2207.85571	0.01	
7	1.5	1351.1	1621.15571	0.	02	7	1	1985.4	2255.45571	0.01	
8	1.5	1422.5	1692.55571	0.	02	8	1	2033	2303.05571	0.01	
9	1.5	1493.9	1763.95571	0.	02	9	1	2080.6	2350.65571	0.01	
10	1.5	1565.3	1835.35571	0.		10	1	2128.2	2398.25571	0.01	
$\Delta \sigma =$	64.66666667					$\Delta \sigma =$	64.66666667				
Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)
1	1.5	657.5	722.1666667	0.	01	1	1	1699.8	1764.466667	0.00	
2	1.5	822.5	887.1666667	0.		2	1	1747.4	1812.066667	0.00	
3	1.5	987.5	1052.166667	0.		3	1	1795	1859.666667	0.00	
4	1.5	1136.9	1201.566667	0.		4	1	1842.6	1907.266667	0.00	
5	1.5	1208.3	1272.966667	0.		5		1890.2	1954.866667	0.00	
6	1.5	1279.7	1344.366667	0.		6	1	1937.8	2002.466667	0.00	
7						7	1				
-	1.5	1351.1	1415.766667	0.		•	1	1985.4	2050.066667	0.00	
8	1.5	1422.5	1487.166667	0.		8	·	2033	2097.666667	0.00	
9	1.5	1493.9	1558.566667	0.		9	1	2080.6	2145.266667	0.00	
10	1.5	1565.3	1629.966667	0.	0.07	10	1	2128.2	2192.866667	0.00	0.02
$\Delta \sigma =$	250					$\Delta \sigma =$	250				T-4-1 0-41
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	1.5	657.5	907.5	0.	04	1	1	1699.8	1949.8	0.01	
2	1.5	822.5	1072.5	0.	03	2	1	1747.4	1997.4	0.01	
3	1.5	987.5	1237.5	0.	03	3	1	1795	2045	0.01	
4	1.5	1136.9	1386.9	0.	02	4	1	1842.6	2092.6	0.01	
5	1.5	1208.3	1458.3	0.	02	5	1	1890.2	2140.2	0.01	
6	1.5	1279.7	1529.7	0.		6	1	1937.8	2187.8	0.01	
7	1.5	1351.1	1601.1	0.		7	1	1985.4	2235.4	0.01	
8	1.5	1422.5	1672.5	0.		8	1	2033	2283	0.01	
9	1.5	1493.9	1743.9	0.		9	i	2080.6	2330.6	0.01	
10	1.5	1565.3	1815.3	0.		10	1	2128.2	2378.2	0.01	
10		1303.5	1013.3	0.	0.23	10	•	2120.2	2576.2	0.01	0.03
$\Delta \sigma =$	250				T	$\Delta \sigma =$	250				Total Settlement
Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	S 0.04	(ft)
1	1.5	657.5	907.5	0.		1	1	1699.8	1949.8	0.01	
2	1.5	822.5	1072.5	0.		2	1	1747.4	1997.4	0.01	
3	1.5	987.5	1237.5	0.		3	1	1795	2045	0.01	
4	1.5	1136.9	1386.9	0.		4	1	1842.6	2092.6	0.01	
5	1.5	1208.3	1458.3	0.		5	1	1890.2	2140.2	0.01	
6	1.5	1279.7	1529.7	0.		6	1	1937.8	2187.8	0.01	
7	1.5	1351.1	1601.1	0.		7	1	1985.4	2235.4	0.01	
8	1.5	1422.5	1672.5	0.		8	1	2033	2283	0.01	
9	1.5	1493.9	1743.9	0.		9	1	2080.6	2330.6	0.01	
10	1.5	1565.3	1815.3	0.	0.25	10	1	2128.2	2378.2	0.01	0.09
$\Delta\sigma =$	0					$\Delta \sigma =$	0				
Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)
1	1.5	657.5	657.5	0.	00	1	1	1699.8	1699.8	0.00	
2	1.5	822.5	822.5	0.		2	1	1747.4	1747.4	0.00	
3	1.5	987.5	987.5	0.		3	1	1795	1795	0.00	
4	1.5	1136.9	1136.9	0.		4	1	1842.6	1842.6	0.00	
5	1.5	1208.3	1208.3	0.		5	1	1890.2	1890.2	0.00	
6	1.5	1279.7	1279.7	0.		6	1	1937.8	1937.8	0.00	
7	1.5	1351.1	1351.1	0.		7	1	1985.4	1985.4	0.00	
							1				
8	1.5	1422.5	1422.5	0.		8	•	2033	2033	0.00	
9	1.5	1493.9	1493.9	0.		9	1	2080.6	2080.6	0.00	
10	1.5	1565.3	1565.3	0.	0.00	10 Page 2 of 3	I	2128.2	2128.2	0.00	0.00 Revised on 5/20/2006 a

$\Delta \sigma =$	C	)				$\Delta \sigma =$	0				
Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)	Layer	Layer Thickness	σνο	ovf	s	Total Settlement
1	1.5	657.5	657.5	0.00		1	1	1699.8	1699.8		(ft) 0.00
2	1.5	822.5	822.5	0.00		2	1	1747.4	1747.4		0.00
3	1.5	987.5	987.5	0.00		3	1	1795	1795		0.00
4	1.5	1136.9	1136.9	0.00		4	1	1842.6	1842.6		0.00
5	1.5	1208.3	1208.3	0.00		5	1	1890.2	1890.2		0.00
6	1.5	1279.7	1279.7	0.00		6	1	1937.8	1937.8		0.00
7	1.5	1351.1	1351.1	0.00		7	1	1985.4	1985.4		0.00
8	1.5	1422.5	1422.5	0.00		8	1	2033	2033		0.00
9	1.5	1493.9	1493.9	0.00		9	1	2080.6	2080.6		0.00
10	1.5	1565.3	1565.3	0.00		10	1	2128.2	2128.2		0.00 0.00
.0			1000.0	0.00	0.00	.0	·	2,20,2	2.20.2		0.00
$\Delta \sigma$ =	C	)				$\Delta \sigma =$	0				
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)
1	1.5	657.5	657.5	0.00		1	1	1699.8	1699.8		0.00
2	1.5	822.5	822.5	0.00		2	1	1747.4	1747.4		0.00
3	1.5	987.5	987.5	0.00		3	1	1795	1795		0.00
4	1.5	1136.9	1136.9	0.00		4	1	1842.6	1842.6		0.00
5	1.5	1208.3	1208.3	0.00		5	1	1890.2	1890.2		0.00
6	1.5	1279.7	1279.7	0.00		6	1	1937.8	1937.8		0.00
7	1.5	1351.1	1351.1	0.00		7	1	1985.4	1985.4		0.00
8	1.5	1422.5	1422.5	0.00		8	1	2033	2033		0.00
9	1.5	1493.9	1493.9	0.00		9	1	2080.6	2080.6		0.00
10	1.5	1565.3	1565.3	0.00		10	1	2128.2	2128.2		0.00 0.00
	250						250				
$\Delta \sigma =$					T . 10	$\Delta \sigma =$					Total Settlement
Layer	Layer Thickness	σνο	σvf	\$	Total Settlement (ft)	Layer	Layer Thickness	σνο 1699.8	σvf 1949.8	S	(ft)
1	1.5	657.5	907.5	0.04		1	·				0.01
2	1.5	822.5	1072.5	0.03		2	1	1747.4	1997.4		0.01
3	1.5	987.5	1237.5	0.03		3	1	1795	2045		0.01
4	1.5	1136.9	1386.9	0.02		4	1	1842.6	2092.6		0.01
5	1.5	1208.3	1458.3	0.02		5	1	1890.2	2140.2		0.01
6	1.5	1279.7	1529.7	0.02		6 7	1	1937.8	2187.8		0.01
7	1.5	1351.1	1601.1	0.02		-	1	1985.4	2235.4		0.01
8	1.5	1422.5	1672.5	0.02		8	1	2033	2283		0.01
9	1.5	1493.9	1743.9	0.02		9	1	2080.6	2330.6		0.01
10	1.5	1565.3	1815.3	0.02	0.25	10	ı	2128.2	2378.2		0.01 0.09
$\Delta \sigma =$	1463	3				$\Delta \sigma =$	1462.923977				Total Cattlews
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	1.5	657.5	2120	0.14		1	1	1699.8	3162.723977		0.04
2	1.5	822.5	2285	0.13		2	1	1747.4	3210.323977		0.04
3	1.5	987.5	2450	0.11		3	1	1795	3257.923977		0.04
4	1.5	1136.9	2600	0.10		4	1	1842.6	3305.523977		0.04
5	1.5	1208.3	2671	0.10		5	1	1890.2	3353.123977		0.04
6	1.5	1279.7	2743	0.09		6	1	1937.8	3400.723977		0.04
7	1.5	1351.1	2814	0.09		7	1	1985.4	3448.323977		0.04
8	1.5	1422.5	2885	0.09		8	1	2033	3495.923977		0.04
9	. =										
	1.5	1493.9	2957	0.08		9	1	2080.6	3543.523977		0.04
10	1.5 0	1493.9 575	2957 2038	0.08 0.00		9 10	1 1	2080.6 2128.2	3543.523977 3591.123977		0.04 0.04 0.40

20

ft

Compressible Soil Thickness =

Building	Δσ (psf)	Predicted Settlement (ft)	Predicted Settlement (inches)
Car Cleaners Facility	250	0.26	3.1
Trans Building	250	0.26	3.1
Yard Control Tower	250	0.26	3.1

$\Delta \sigma =$	250				
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	2	685	935	0.04	
2	2	905	1155	0.03	
3	2	1125	1375	0.03	
4	2	1220.2	1470.2	0.03	
5	2	1315.4	1565.4	0.02	
6	2	1410.6	1660.6	0.02	
7	2	1505.8	1755.8	0.02	
8	2	1601	1851	0.02	
9	2	1696.2	1946.2	0.02	
10	2	1791.4	2041.4	0.02	0.26
$\Delta \sigma =$	250				
$\Delta \sigma =$ Layer	250 Layer Thickness	σνο	σvf	s	Total Settlement (ft)
			σvf 935	s 0.04	Total Settlement (ft)
Layer 1 2	Layer Thickness	σνο			Total Settlement (ft)
Layer 1	Layer Thickness 2	σνο 685	935	0.04	Total Settlement (ft)
Layer 1 2	Layer Thickness 2 2	σνο 685 905	935 1155	0.04 0.03	Total Settlement (ft)
Layer 1 2 3	Layer Thickness 2 2 2	σνο 685 905 1125	935 1155 1375	0.04 0.03 0.03	Total Settlement (ft)
Layer 1 2 3 4	Layer Thickness 2 2 2 2	σνο 685 905 1125 1220.2	935 1155 1375 1470.2	0.04 0.03 0.03 0.03	Total Settlement (ft)
Layer 1 2 3 4 5	Layer Thickness 2 2 2 2 2	σνο 685 905 1125 1220.2 1315.4	935 1155 1375 1470.2 1565.4	0.04 0.03 0.03 0.03 0.02	Total Settlement (ft)
Layer 1 2 3 4 5	Layer Thickness 2 2 2 2 2 2	σνο 685 905 1125 1220.2 1315.4 1410.6	935 1155 1375 1470.2 1565.4 1660.6	0.04 0.03 0.03 0.03 0.02 0.02	Total Settlement (ft)
Layer 1 2 3 4 5 6 7	Layer Thickness 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8	935 1155 1375 1470.2 1565.4 1660.6 1755.8	0.04 0.03 0.03 0.03 0.02 0.02 0.02	Total Settlement (ft)
Layer 1 2 3 4 5 6 7	Layer Thickness 2 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601	935 1155 1375 1470.2 1565.4 1660.6 1755.8 1851	0.04 0.03 0.03 0.03 0.02 0.02 0.02	Total Settlement (ft)  0.26

$\Delta \sigma =$	250	)			
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	2	685	935	0.04	
2	2	905	1155	0.03	
3	2	1125	1375	0.03	
4	2	1220.2	1470.2	0.03	
5	2	1315.4	1565.4	0.02	
6	2	1410.6	1660.6	0.02	
7	2	1505.8	1755.8	0.02	
8	2	1601	1851	0.02	
9	2	1696.2	1946.2	0.02	
10	2	1791.4	2041.4	0.02	0.26

Project Name: SVRT YARD & SHOPS COMPLEX

**Project Number:** 6600.3.001.01

# **Ground Condition and Predicted Settlement Due to Fill Placement Loads**

Structure	Nearby BH/CPT	Soft Profile Scenario	Predicted Settlement (inches)	Approx. Structural
Wheel Truing Facility	BH-25, CPT-25	С	6.9	463
Turntable	BH-5	В	6.0	413
Inspection Pit	BH-23	С	0.0	-1238
Revenue Processing Building (Opt A)	None	Α	0.7	63
Revenue Processing Building (Opt B)	None	В	2.2	138
N-R Maintence Shop	BH-9; CPT-11; CPT-12	В	7.2	513
ME offices	BH-10; CPT-13	В	7.5	538
Maintence and Engineering Shops	BH-12; CPT-14	В	7.5	538
Car Cleaners' Facility	CPT-32	D	6.6	362
Revenue Vehicle Maintenance Shop	BH-17, 20, 22; CPT 21, 23	С	10.7	788
Revenue Vehicle Maintenance Shop - Tracks	BH-16, 18, 19, 21; CPT-20 & 22	С	8.5	588
Blowdown Facility	BH-24	С	7.1	475
Car Wash Building	BH-15, 18; CPT-19	С	8.6	600
Trans Building	CPT-29	D	5.0	438
Yard Control Tower	BH-27; CPT-27	D	5.2	450
Window Replacement Platform	BH-21	С	6.6	438
Gap Breaker S7B	None	С	3.1	188
Facility Power SNY	None	С	3.1	188
Yard Substation SSY	None	В	3.0	188
Train Control Station	CPT-9	В	3.0	188
Bulk Power / Switching Substation	BH-1; CPT-1, 3 & 4	A	2.1	188
Revenue Vehicle Maintenance Shop	BH-17, 20, 22; CPT 21, 23	С	8.5	588

Soil Profile Scenarios	Compressible Layer Depth (ft)	Compressibility			eo
Soil Frome Scenarios		Cc	Cr	Pp	60
A	5 to 20	14%	3%	3000	0.8
В	5 to 25	20%	5%	3000	1.1
С	5 to 20	19%	3%	3000	0.9
	20 to 30	16%	2%	6000	8.0
D	5 to 25	16%	4%	4000	1

ft

Compressible Soil Thickness = 20

Building	Δσ (psf)	Predicted Settlement (ft)	Predicted Settlement (inches)
Revenue Processing Building (Opt A)	63	0.06	0.7
Bulk Power / Switching Substation	188	0.17	2.1
	0	0.00	0.0
	0	0.00	0.0
	0	0.00	0.0
	0	0.00	0.0

$\Delta \sigma =$	62.5	;			
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	2	685	747.5	0.01	
2	2	905	967.5	0.01	
2 3	2	1125	1187.5	0.01	
4	2	1220.2	1282.7	0.01	
5	2	1315.4	1377.9	0.01	
6	2	1410.6	1473.1	0.01	
7	2	1505.8	1568.3	0.00	
8	2	1601	1663.5	0.00	
9	2	1696.2	1758.7	0.00	
10	2	1791.4	1853.9	0.00	0.06
$\Delta \sigma =$	187.5				
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	2	685	872.5	0.03	
2	2	905	1092.5	0.02	
3	2	1125	1312.5	0.02	
4	2	1220.2	1407.7	0.02	
5	2	1315.4	1502.9	0.02	
6	2	1410.6	1598.1	0.02	
7	2	1505.8	1693.3	0.01	
8	2	1601	1788.5	0.01	
9	2	1696.2	1883.7	0.01	
10	2	1791.4	1978.9	0.01	0.17

$$\begin{array}{cccc} CR = & 20.0\% & RR = & 5.0\% \\ \gamma = & 110 & pcf \\ eo = & 1.1 & \\ water \ level = & 10 & ft \ below \ found \ surface \\ OCR = & 1 & \\ \end{array}$$

Building	Δσ (psf)	Predicted Settlement (ft)	Predicted Settlement (inches)
Turntable	413	0.50	6.0
Revenue Processing Building (Opt B)	138	0.18	2.2
N-R Maintance Shop	513	0.60	7.2
ME Office	538	0.63	7.5
Maintanence & Engineering Shops	538	0.63	7.5
Train Control Station	188	0.25	3.0
Yard Substation SSY	188	0.25	3.0

#### **Settlement Calculations**

$\Delta \sigma =$	412.5	;			
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	2	685	1097.5	0.0	18
2	2	905	1317.5	0.0	17
3	2	1125	1537.5	0.0	5
4	2	1220.2	1632.7	0.0	15
5	2	1315.4	1727.9	0.0	5
6	2	1410.6	1823.1	0.0	)4
7	2	1505.8	1918.3	0.0	)4
8	2	1601	2013.5	0.0	)4
9	2	1696.2	2108.7	0.0	)4
10	2	1791.4	2203.9	0.0	0.50
$\Delta \sigma =$	137.5	;			
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
ĺ	2	685	822.5	0.0	
2	2	905	1042.5	0.0	
3	2	1125	1262.5	0.0	
4	2	1220.2	1357.7	0.0	
5	2	1315.4	1452.9	0.0	2
6	2	1410.6	1548.1	0.0	2
7	2	1505.8	1643.3	0.0	2
8	2	1601	1738.5	0.0	)1
9	2	1696.2	1833.7	0.0	)1
10	2	1791.4	1928.9	0.0	0.18

$\Delta \sigma =$ Layer 1 2 3 4 5 6 7 8 9 10	512.5 Layer Thickness 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601 1696.2 1791.4	ovf 1197.5 1417.5 1637.5 1732.7 1827.9 1923.1 2018.3 2113.5 2208.7 2303.9	S 0.10 0.08 0.07 0.06 0.09 0.09 0.09 0.09	3 7 6 6 5 5 5
$\Delta \sigma =$ Layer  1 2 3 4 5 6 7 8 9	537.5 Layer Thickness 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601 1696.2 1791.4	σvf 1222.5 1442.5 1662.5 1757.7 1852.9 1948.1 2043.3 2138.5 2233.7 2328.9	S 0.10 0.08 0.07 0.06 0.06 0.09 0.09 0.09	3 7 6 6 6 6 6 6 6
$\Delta \sigma =$ Layer  1 2 3 4 5 6 7 8 9 10	537.5 Layer Thickness 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601 1696.2 1791.4	σνf 1222.5 1442.5 1662.5 1757.7 1852.9 1948.1 2043.3 2138.5 2233.7 2328.9	\$ 0.10 0.08 0.07 0.06 0.06 0.08 0.08	3 7 6 6 6 6 6 6 6
$\Delta \sigma =$ Layer 1 2 3 4 5 6 7 8 9 10	187.5 Layer Thickness 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601 1696.2 1791.4	6vf 872.5 1092.5 1312.5 1407.7 1502.9 1598.1 1693.3 1788.5 1883.7 1978.9	S 0.04 0.03 0.02 0.02 0.02 0.02 0.02	3 3 2 2 2 2 2 2
$\Delta \sigma = $ Layer  1 2 3 4 5 6 7 8 9	187.5 Layer Thickness 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601 1696.2 1791.4	6vf 872.5 1092.5 1312.5 1407.7 1502.9 1598.1 1693.3 1788.5 1883.7 1978.9 Page 2 of 2	S 0.04 0.03 0.03 0.02 0.02 0.02 0.02 0.02	3 3 2 2 2 2 2 2

Layer 1 - Upper soft CL layer

Layer 2 - Lower soft ML layer

CR = 19.0% RR = CR = RR = 3.0% 16.0%  $\gamma =$ 110 pcf 110 pcf  $\gamma =$ 8.0 eo = 0.9 eo = water level = 10 ft below found surface 10 ft below found surface water level = OCR = 1 OCR = 1

Existing Fill Thickness =  $\begin{array}{ccc} & & & \text{ft} \\ & & \text{Existing Fill } \gamma = & 115 & \text{pcf} \\ & & \text{Compressible Soil Thickness} = & & 15 & \text{ft} \\ \end{array}$ 

Existing Fill Thickness = 20 ft
Existing Fill  $\gamma$  = 115 pcf
Compressible Soil Thickness = 10 ft

2.0%

Building	Δσ (psf)	Predicted Settlement (ft)	Predicted Settlement @ Layer 1(inches)	Total Settlement (Layer 1 + Layer 2)
Wheel Truing Facility	463	0.43	5.1	6.9
Inspection Pit	-1238	0.00	0.0	0.0
Revenue Vehicle Maintenance Shop	788	0.65	7.8	10.7
Revenue Vehicle Maintenance Shop Tracks	588	0.52	6.2	8.5
Blowdown Facility	475	0.44	5.2	7.1
Car Washing Facility	600	0.53	6.3	8.6
Yard Substation SSY	188	0.19	2.3	3.1
Gap Breaker S7B	188	0.19	2.3	3.1
Facility Power SNY	188	0.19	2.3	3.1
Window Replacement Platform	438	0.41	4.9	6.6
Revenue Vehicle Maintenance Shop Storage	588	0.52	6.2	8.5

Building	Δσ (psf)	Predicted Settlement (ft)	Predicted Settlement @ Layer 2 (inches)
Wheel Truing Facility	462.5	0.15	1.8
Inspection Pit	-1237.5	0.00	0.0
Revenue Vehicle Maintenance Shop	787.5	0.24	2.9
Revenue Vehicle Maintenance Shop Tra	587.5	0.19	2.2
Blowdown Facility	475	0.15	1.9
Car Washing Facility	600	0.19	2.3
Yard Substation SSY	187.5	0.07	0.8
Gap Breaker S7B	187.5	0.07	0.8
Facility Power SNY	187.5	0.07	0.8
Window Replacement Platform	437.5	0.14	1.7
Revenue Vehicle Maintenance Shop Sto	587.5	0.19	2.2

Settlement Calculations
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#### Settlement Calculations

$\Delta \sigma =$	462.5	5				$\Delta \sigma =$	462.5				
Layer	Layer Thickness	σνο	ovf	s	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)
1	1.5	657.5	1120	0.07		1	1	1699.8	2162.3	0.02	
2	1.5	822.5	1285	0.06		2	1	1747.4	2209.9	0.02	
3	1.5	987.5	1450	0.05		3	1	1795	2257.5	0.02	
4	1.5	1136.9	1599.4	0.04		4	1	1842.6	2305.1	0.02	
5	1.5	1208.3	1670.8	0.04		5	1	1890.2	2352.7	0.02	
6	1.5	1279.7	1742.2	0.04		6	1	1937.8	2400.3	0.01	
7	1.5	1351.1	1813.6	0.04		7	1	1985.4	2447.9	0.01	
8	1.5	1422.5	1885	0.03		8	1	2033	2495.5	0.01	
9	1.5	1493.9	1956.4	0.03		9	1	2080.6	2543.1	0.01	
10	1.5	1565.3	2027.8	0.03	0.43	10	1	2128.2	2590.7	0.01	0.15
$\Delta \sigma =$	-1237.	5				$\Delta \sigma =$	-1237.5				
Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)
1	1.5	657.5	-580	#NUM!		1	1	1699.8	462.3	-0.09	
2	1.5	822.5	-415	#NUM!		2	1	1747.4	509.9	-0.09	
3	1.5	987.5	-250	#NUM!		3	1	1795	557.5	-0.08	
4	1.5	1136.9	-100.6	#NUM!		4	1	1842.6	605.1	-0.08	
5	1.5	1208.3	-29.2	#NUM!		5	1	1890.2	652.7	-0.07	
6	1.5	1279.7	42.2	-0.42		6	1	1937.8	700.3	-0.07	
7	1.5	1351.1	113.6	-0.31		7	1	1985.4	747.9	-0.07	
8	1.5	1422.5	185	-0.25		8	1	2033	795.5	-0.07	
9	1.5	1493.9	256.4	-0.22		9	1	2080.6	843.1	-0.06	
10	1.5	1565.3	327.8	-0.19	#NUM!	10	1	2128.2	890.7	-0.06	-0.74

$\Delta \sigma =$	787.5					$\Delta \sigma =$	787.5				
Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)
1	1.5	657.5	1445	0.	10	1	1	1699.8	2487.3	0	03
2	1.5	822.5	1610	0.0		2	i	1747.4	2534.9		03
3	1.5	987.5	1775	0.0		3	1	1795	2582.5		03
4	1.5	1136.9	1924.4	0.0		4	1	1842.6	2630.1		02
5	1.5	1208.3	1995.8	0.0		5	1	1890.2	2677.7		02
6	1.5	1279.7	2067.2	0.0		6	1	1937.8	2725.3		02
7	1.5	1351.1	2138.6	0.0		7	1	1985.4	2772.9		02
8	1.5	1422.5	2210	0.0		8	1	2033	2820.5		02
9	1.5	1493.9	2281.4	0.0		9	1	2080.6	2868.1		02
10	1.5	1565.3	2352.8	0.0		10	1	2128.2	2915.7		02 02 0.24
10			2002.0	0.	0.00	10	·	2120.2	2010.7	0.	0.24
$\Delta \sigma =$	587.5					$\Delta \sigma =$	587.5				Total Settlement
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	S	(ft)
1	1.5	657.5	1245	0.0	08	1	1	1699.8	2287.3	0.	02
2	1.5	822.5	1410	0.0	07	2	1	1747.4	2334.9	0.	02
3	1.5	987.5	1575	0.0	06	3	1	1795	2382.5	0.	02
4	1.5	1136.9	1724.4	0.0	05	4	1	1842.6	2430.1	0.	02
5	1.5	1208.3	1795.8	0.0	05	5	1	1890.2	2477.7	0.	02
6	1.5	1279.7	1867.2	0.0	05	6	1	1937.8	2525.3	0.	02
7	1.5	1351.1	1938.6	0.0		7	1	1985.4	2572.9		02
8	1.5	1422.5	2010	0.0		8	1	2033	2620.5		02
9	1.5	1493.9	2081.4	0.0		9	1	2080.6	2668.1		02
10	1.5	1565.3	2152.8	0.0		10	1	2128.2	2715.7		02 0.19
$\Delta \sigma =$	475					$\Delta \sigma =$	475				
											Total Settlement
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	S	(ft)
1	1.5	657.5	1132.5	0.0		1	1	1699.8	2174.8		02
2	1.5	822.5	1297.5	0.0	06	2	1	1747.4	2222.4	0.	02
3	1.5	987.5	1462.5	0.0	05	3	1	1795	2270	0.	02
4	1.5	1136.9	1611.9	0.0	04	4	1	1842.6	2317.6	0.	02
5	1.5	1208.3	1683.3	0.0	04	5	1	1890.2	2365.2	0.	02
6	1.5	1279.7	1754.7	0.0	04	6	1	1937.8	2412.8	0.	02
7	1.5	1351.1	1826.1	0.0	04	7	1	1985.4	2460.4	0.	01
8	1.5	1422.5	1897.5	0.0	04	8	1	2033	2508	0.	01
9	1.5	1493.9	1968.9	0.0		9	1	2080.6	2555.6	0.	
10	1.5	1565.3	2040.3	0.0		10	1	2128.2	2603.2	0.	
$\Delta \sigma =$	600					$\Delta \sigma =$	600				
Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	s	Total Settlement
	•				, ,		•				(ft)
1	1.5	657.5	1257.5	0.0		1	1	1699.8	2299.8		02
2	1.5	822.5	1422.5	0.0		2	1	1747.4	2347.4		02
3	1.5	987.5	1587.5	0.0		3	1	1795	2395		02
4	1.5	1136.9	1736.9	0.0		4	1	1842.6	2442.6		02
5	1.5	1208.3	1808.3	0.0		5	1	1890.2	2490.2		02
6	1.5	1279.7	1879.7	0.0		6	1	1937.8	2537.8		02
7	1.5	1351.1	1951.1	0.0		7	1	1985.4	2585.4		02
8	1.5	1422.5	2022.5	0.0	04	8	1	2033	2633	0.	02
9	1.5	1493.9	2093.9	0.0		9	1	2080.6	2680.6	0.	02
10	1.5	1565.3	2165.3	0.0	0.53	10	1	2128.2	2728.2	0.	02 0.19
$\Delta \sigma =$	187.5					$\Delta \sigma =$	187.5				
Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	s	Total Settlement
							Layor Trilorations				(ft)
1	1.5	657.5	845	0.0		1	1	1699.8	1887.3	0.	
2	1.5	822.5	1010	0.0		2	1	1747.4	1934.9	0.	
3	1.5	987.5	1175	0.0		3	1	1795	1982.5	0.	
4	1.5	1136.9	1324.4	0.0	02	4	1	1842.6	2030.1	0.	01
5	1.5	1208.3	1395.8	0.0		5	1	1890.2	2077.7	0.	
6	1.5	1279.7	1467.2	0.0	02	6	1	1937.8	2125.3	0.	01
7	1.5	1351.1	1538.6	0.0		7	1	1985.4	2172.9	0.	01
8	1.5	1422.5	1610	0.0		8	1	2033	2220.5	0.	
9	1.5	1493.9	1681.4	0.0		9	1	2080.6	2268.1	0.	
10	1.5	1565.3	1752.8	0.0		10	1	2128.2	2315.7	0.	
						D0-40					D : 1 F/00/0000

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$\Delta\sigma =$	187.5					$\Delta\sigma$ =	187.5				
Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)
1	1.5	657.5	845	0.0	3	1	1	1699.8	1887.3	0.0	
2	1.5	822.5	1010	0.0		2	1	1747.4	1934.9	0.0	
3	1.5	987.5	1175	0.0		3	1	1795	1982.5	0.0	
4	1.5	1136.9	1324.4	0.0		4	1	1842.6	2030.1	0.0	
5	1.5	1208.3	1395.8	0.0		5	1	1890.2	2077.7	0.0	
6	1.5	1279.7	1467.2	0.0		6	1	1937.8	2125.3	0.0	
7	1.5	1351.1	1538.6	0.0		7	1	1985.4	2172.9	0.0	
8	1.5	1422.5	1610	0.0		8	1	2033	2220.5	0.0	
9	1.5	1493.9	1681.4	0.0		9	1	2080.6	2268.1	0.0	
10	1.5	1565.3	1752.8	0.0		10	1	2128.2	2315.7	0.0	
10	1.3	1303.3	1732.0	0.0	0.19	10	'	2120.2	2313.7	0.0	0.07
$\Delta \sigma$ =	187.5					$\Delta \sigma =$	187.5				
Layer	Layer Thickness	σνο	σvf	s	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	1.5	657.5	845	0.0	3	1	1	1699.8	1887.3	0.0	
2	1.5	822.5	1010	0.0		2	1	1747.4	1934.9	0.0	
3	1.5	987.5	1175	0.0		3	1	1795	1982.5	0.0	
4	1.5	1136.9	1324.4	0.0		4	1	1842.6	2030.1	0.0	
5	1.5	1208.3	1395.8	0.0		5	i	1890.2	2077.7	0.0	
6	1.5	1279.7	1467.2	0.0		6	1	1937.8	2125.3	0.0	
7	1.5	1351.1	1538.6	0.0		7	1	1985.4	2172.9	0.0	
8	1.5	1422.5	1610	0.0		8	1	2033	2220.5	0.0	
9	1.5	1493.9	1681.4	0.0		9	1	2080.6	2268.1	0.0	
10	1.5	1565.3	1752.8	0.0		10	1	2128.2	2315.7	0.0	
10	1.5	1505.5	1752.6	0.0	0.19	10	1	2120.2	2313.7	0.0	0.07
$\Delta \sigma =$	437.5					$\Delta \sigma =$	437.5				Total Settlement
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	S	(ft)
1	1.5	657.5	1095	0.0	6	1	1	1699.8	2137.3	0.0	2
2	1.5	822.5	1260	0.0	5	2	1	1747.4	2184.9	0.0	2
3	1.5	987.5	1425	0.0	5	3	1	1795	2232.5	0.0	2
4	1.5	1136.9	1574.4	0.0	4	4	1	1842.6	2280.1	0.0	1
5	1.5	1208.3	1645.8	0.0	4	5	1	1890.2	2327.7	0.0	1
6	1.5	1279.7	1717.2	0.0	4	6	1	1937.8	2375.3	0.0	11
7	1.5	1351.1	1788.6	0.0	3	7	1	1985.4	2422.9	0.0	1
8	1.5	1422.5	1860	0.0	3	8	1	2033	2470.5	0.0	1
9	1.5	1493.9	1931.4	0.0	3	9	1	2080.6	2518.1	0.0	1
10	1.5	1565.3	2002.8	0.0	3 0.41	10	1	2128.2	2565.7	0.0	0.14
$\Delta\sigma =$	588					$\Delta\sigma$ =	587.5				Total Settlement
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)	Layer	Layer Thickness	σνο	σvf	S	(ft)
1	1.5	657.5	1245	0.0		1	1	1699.8	2287.3	0.0	
2	1.5	822.5	1410	0.0		2	1	1747.4	2334.9	0.0	
3	1.5	987.5	1575	0.0		3	1	1795	2382.5	0.0	
4	1.5	1136.9	1724	0.0		4	1	1842.6	2430.1	0.0	
5	1.5	1208.3	1796	0.0	5	5	1	1890.2	2477.7	0.0	2
6	1.5	1279.7	1867	0.0	5	6	1	1937.8	2525.3	0.0	2
7	1.5	1351.1	1939	0.0	4	7	1	1985.4	2572.9	0.0	2
8	1.5	1422.5	2010	0.0	4	8	1	2033	2620.5	0.0	2
9	1.5	1493.9	2081	0.0	4	9	1	2080.6	2668.1	0.0	2
10	1.5	1565.3	2153	0.0	4 0.52	10	1	2128.2	2715.7	0.0	2 0.19

ft

Building	Δσ (psf)	Predicted Settlement (ft)	Predicted Settlement (inches)
Car Cleaners Facility	600	0.55	6.6
Trans Building	438	0.42	5.0
Yard Control Tower	450	0.43	5.2

#### **Settlement Calculations**

$\Delta \sigma =$	600	)			
Layer	Layer Thickness	σνο	σvf	S	Total Settlement (ft)
1	2	685	1285	0.09	)
2	2	905	1505	0.07	7
3	2	1125	1725	0.06	3
4	2	1220.2	1820.2	0.06	3
5	2	1315.4	1915.4	0.05	5
6	2	1410.6	2010.6	0.05	5
7	2	1505.8	2105.8	0.05	5
8	2	1601	2201	0.04	
9	2	1696.2	2296.2	0.04	ļ
10	2	1791.4	2391.4	0.04	0.55
$\Delta \sigma =$	437.5	5			
Δσ = Layer	437.5 Layer Thickness	σνο	σvf	s	Total Settlement (ft)
			σvf 1122.5	s 0.07	* *
	Layer Thickness	σνο			7
Layer 1	Layer Thickness 2	σνο 685	1122.5	0.07	5
Layer 1 2	Layer Thickness 2 2	σνο 685 905	1122.5 1342.5	0.07 0.05	5
Layer 1 2 3	Layer Thickness 2 2 2	ovo 685 905 1125	1122.5 1342.5 1562.5	0.07 0.05 0.05	7 5 5
Layer 1 2 3 4	Layer Thickness 2 2 2 2	σνο 685 905 1125 1220.2	1122.5 1342.5 1562.5 1657.7	0.07 0.05 0.05 0.04	5 5 1
Layer 1 2 3 4 5	Layer Thickness 2 2 2 2 2 2	σνο 685 905 1125 1220.2 1315.4	1122.5 1342.5 1562.5 1657.7 1752.9	0.07 0.05 0.05 0.04 0.04	7 5 5 1 1
Layer 1 2 3 4 5 6	Layer Thickness 2 2 2 2 2 2 2 2 2	σνο 685 905 1125 1220.2 1315.4 1410.6	1122.5 1342.5 1562.5 1657.7 1752.9 1848.1	0.07 0.05 0.05 0.04 0.04 0.04	7 5 5 4 4
Layer 1 2 3 4 5 6 7	Layer Thickness 2 2 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8	1122.5 1342.5 1562.5 1657.7 1752.9 1848.1 1943.3	0.07 0.05 0.05 0.04 0.04 0.04	7 5 5 1 1 1 1 1 1 3
Layer 1 2 3 4 5 6 7	Layer Thickness 2 2 2 2 2 2 2 2 2 2 2 2	685 905 1125 1220.2 1315.4 1410.6 1505.8 1601	1122.5 1342.5 1562.5 1657.7 1752.9 1848.1 1943.3 2038.5	0.07 0.05 0.05 0.04 0.04 0.04 0.04	7 5 5 1 1 1 1 1 1 3 3

450	)			
Layer Thickness	σνο	σvf	S	Total Settlement (ft)
2	685	1135	0.07	
2	905	1355	0.06	
2	1125	1575	0.05	
2	1220.2	1670.2	0.04	
2	1315.4	1765.4	0.04	
2	1410.6	1860.6	0.04	
2	1505.8	1955.8	0.04	
2	1601	2051	0.03	
2	1696.2	2146.2	0.03	
2	1791.4	2241.4	0.03	0.43
	Layer Thickness 2 2 2 2 2 2 2 2 2 2 2 2 2	2 685 2 905 2 1125 2 1220.2 2 1315.4 2 1410.6 2 1505.8 2 1601 2 1696.2	Layer Thickness     ovo     ovf       2     685     1135       2     905     1355       2     1125     1575       2     1220.2     1670.2       2     1315.4     1765.4       2     1410.6     1860.6       2     1505.8     1955.8       2     1601     2051       2     1696.2     2146.2	Layer Thickness         ovo         ovf         s           2         685         1135         0.07           2         905         1355         0.06           2         1125         1575         0.05           2         1220.2         1670.2         0.04           2         1315.4         1765.4         0.04           2         1410.6         1860.6         0.04           2         1505.8         1955.8         0.04           2         1601         2051         0.03           2         1696.2         2146.2         0.03

Project Name: SVRT YARD & SHOPS COMPLEX

**Project Number: 6600.3.001.01** 

### Rough Time Rate Calculations

			Calculated	Lab Sheet	
Soil Type	Load (lbs/ft <sup>2</sup> )	t <sub>50</sub> (min)	Cv @ T <sub>50</sub> (ft²/day)		
Clay	4290	2	0.2463	0.27	
ML	4290	1.08	0.4560	0.44	

#### Time Rate Calculations

i di Ciay		

d =	15	ft	
Cv =	0.25	ft2/day	
4 (-1)	4 ()	<b>T</b>	
t (days)	t (year)	Τv	U
0	0.0	0.0	0%
30	0.1	0.1	41%
60	0.2	0.3	58%
90	0.2	0.4	69%
120	0.3	0.5	78%
150	0.4	0.7	84%
180	0.5	8.0	88%
210	0.6	0.9	92%
240	0.7	1.1	94%
270	0.7	1.2	96%
300	8.0	1.3	97%
330	0.9	1.4	98%
360	1.0	1.6	98%
390	1.1	1.7	99%
420	1.2	1.8	99%
450	1.2	2.0	99%
480	1.3	2.1	100%

d = 10 ft Cv = 4.56E-01 ft2/day t (days) t (year)

For Silt

(days)	t (year)	Tv	U
0	0.0	0.0	0%
30	0.1	0.5	79%
60	0.2	1.1	95%
90	0.2	1.6	99%
120	0.3	2.2	100%
150	0.4	2.7	100%
180	0.5	3.3	100%
210	0.6	3.8	100%
240	0.7	4.4	100%
270	0.7	4.9	100%
300	0.8	5.5	100%
330	0.9	6.0	100%
360	1.0	6.6	100%
390	1.1	7.1	100%
420	1.2	7.7	100%
450	1.2	8.2	100%
480	1.3	8.8	100%

## 7.6 APPENDIX F

Comments and Responses to Revisions A and B



Document Title/ Number / Rev.: Geotechnical Report Yard & Shops Segment/ P0504-D400-RPT-DE-008/ Rev. A	Date Due: 12/28/05
Document Originator: ENGEO Incorporated/ HNTB	Comments not received by due date may be held in abeyance until the next revision.
Document Originator: ENGEO Incorporated/ HN1B	

$\boxtimes$ (	Comments Appear Below		low	☐ No Comments		Hard Copy Comments are Attached	
Reviewer's Name/ Company	Comment Number	Date	Document / Section / Page No.	Comment	Response Code	Response / Status	
Savas Kolankaya	13911	12/15/2005		Time/History analysis is part of BFS Design Guidelines. Please provide Earthquake Time Histories data for the site and soil type (Preferably as electronic file)	С	ENGEO's scope of services does not include the development of earthquake time histories. However, time histories can be provided upon request.   Time History Analysis. We have not performed any time history analyses nor prepared any earthquake time histories. Based on our geotechnical evaluations of the conditions at Yard & Shops, the site conditions are consistent with NEHRP Site Class D soil conditions. Therefore, as identified in ENGEO Incorporated, Design for Seismic Ground Shaking, Technical Memorandum, Yard & Shops Segmant, P0504-D400-TM-DE-0XX, December 19, 2005, seismic design for Yard & Shops, including specific use of earthquake time histones, can follow the technical guidelines for other segments within the "South" reach of the SVRT alignment as identified in HMM/Bechtel, Tunnel Segment Preliminary Engineering Services, Report on Seismic Ground Motions, P0503-D300-RPT-DE-012, Rev. A, December 20, 2004.	
Lında Zausen	13912	12/2/2005	GENERAL	The title of this report is "Preliminary Geotechnical Assessment", and its preliminary nature is stated again and again throughout the report. In ENGEO's Scope of Services, a Geotechnical Report is specified to be prepared. Should the document's title be changed to something less introductory?	С	The scope of services is for a preliminary design level investigation and not final design level, The scope of services is for a preliminary design level investigation and not final design level	



Reviewer's Name/ Company	Comment Number	Date	Document / Section / Page No.	Comment	Response Code	Response / Status
Mike Canepa	13936	12/7/2005	GENERAL	The report covered all of the identified subject areas in ENGEO's SOS, albeit at a very generalized level in many cases, except Contaminated Materials (soil and identified contaminants). If the information necessary to complete this section is not yet available, at least include a place-holder in the report where such information can be inserted in the revised version of the report in SOS section 2.2 (Geotechnical Report), contaminated materials are not called out under Work Elements, specifically the 10 indented sub-bullets following bullet 8, Geotechnical Report, which describes what the Geotechnical Report is to contain However, in section 2.2's Objectives, subsurface condition information (including contaminated materials and groundwater) is specifically mentioned as an area to be addressed in the report.  The report needs to cite the BART Facilities Standards as the primary source of cnteria reference.	С	The focus of the report geotechnical Environmental services are limited to review of existing Phase 1 reports and preparation of a memorandum identifying additional environmental testing
Mike Canepa	13937	12/7/2005	GENERAL	recommended or used, but only if they first meet or exceed those in the BFS	A	Will be addressed in next draft 2/10/06
Ed Matsuda	12948	12/23/2005	Section 5 15 1, "Temporary Shoring"	The Underground Segment of the SVRT Project checks temporary shonng for seismic forces. The accelerations they use are less than for permanent structures but more than Caltrans criteria. What is the rationale for the inconsistency between the Underground Segment, and the Yard and Shops Segment?	В	ENGEO has not been provided a copy of the underground segment report. To address this comment, we will need to review the underground segment report. ACTION ITEM ~ Provide ENGEO a copy of the Underground Segment report.
Ed Matsuda	12944	12/23/2005	Section 4 4 2 "Ground Shaking", p 4-4	The write-up in this section is correct in that the CBC requirements are minimum. Suggest referring to the BART Facility Standard (BFS) Seismic Design section, which provides requirements specific to the various types of buildings. Passenger stations, parking garages, essential buildings and ordinary buildings all have specific requirements that vary from CBC SVRT needs to define those buildings that they consider essential.	A	Reference to BFS will be provided in next draft report 2/10/06 Will be addressed in next draft 2/10/06
Savas Kolankaya	13908	12/15/2005	443 p 4-5	The distance between Santa Clara Station and Calaveras fault is about 14 km, Hayward fault is 12 km and San Andreas fault is 18 km. Therefore Near source factor Nv should be raised to 1.2 instead of 1.1	С	Code-Based Seismic Parameters According to our measurements, the nearest Type A fault to the limits of the Yard & Shops area is 14 5 km to the Hayward fault. This distance was measured from the easternmost corner of Yard & Shops along Newhall Street to the position of the Hayward fault shown in Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada prepared by California Department of Conservation, Division of Mines and Geology. In our opinion, the near-source factors that we provided are suitable.



Reviewer's Name/ Company	Comment Number	Date	Document / Section / Page No.	Comment	Response Code	Response / Status
Ed Matsuda	12945	12/23/2005	Section 4 4 5, "Densification Due to Earthquake Shaking", p 4-7	It is recommended in this section that structures be designed for 1.5 inches of differential settlement. The BFS gives a maximum settlement of 1 inch. Manny Abad and I discussed the 1-inch requirement. The intent of this BFS requirement is to limit differential settlement that may induce undesirable superstructure impacts. Suggest ENGEO discuss the 1-inch requirement, the intent of this requirement, consequences of abiding with this requirement, and relief for specific applications with Manny Abad.	В	ENGEO will discuss settlement with Manny Abad and address in next draft report 2/10/06
Savas Kolankaya	13909	12/15/2005	5-11 1 , p 5-11	Drilled piers are recommended for foundations. If the u/g water table is at 4 feet, then we will need casing for dnlled piers which, will increase the cost. What is the allowable loads if we use precast concrete piles (Caltrans) driven into the ground.	A	Will be addressed in next draft 2/10/06
Ed Matsuda	12946	12/23/2005	Section 5 11, "Lateral Resistance", p 5-18	In Section 5 10 2 it is stated, "A combination of both friction and passive pressure may be used if one of the values is reduced by 50 percent " Should this statement be added in Section 5 11?	В	ENGEO will review and restate recommendation is Section 5.11, as appropriate in next draft report, 2/10/06
, Savas Kolankaya	13910	12/15/2005	5-14 1	Instead of this simplified seismic force equation can we use Mononobe and Okabe equations	В	Will be addressed in next draft 2/10/06  Mononobe and Okabe Equations It would be acceptable to use Mononobe and Okabe equations in the design of retaining walls to resist seismic loading. The required parameters will depend on wall geometry and soil conditions. The seismic input can be obtained from the HMM/Bechtel, Tunnel Segment Preliminary Engineering Services, Report on Seismic Ground Motions, P0503-D300-RPT-DE-012, Rev. A. December 20, 2004
Ed Matsuda	12947	2/23/2005	Section 5 14 1, "Seismic Design Considerations", p 5-18	What is the justification for considering seismic for walls that only exceed 12 feet? How was the incremental seismic force calculated? Were the criteria in the BFS considered? Should a value be given for restrained walls?	В	Will be addressed in next draft 2/10/06
Linda Zausen	13913	12/2/2005	p 1-1, 3rd para	Are these caveats, especially the last sentence, applicable to public works projects, such as this one? Suggest paragraph be eliminated	В	Will be addressed in next draft 2/10/06
Linda Zausen	13914	12/7/2005	p 1-2, Project Description, 1st para, last senten	The Police Facility and Cash Handling (Revenue Processing) Building are separate facilities Please rewrite this sentence as " Police Facility, Cash Handling Facility, and miscellaneous"	Α_	Will be addressed in next draft 2/10/06, Will be addressed in next draft 2/10/06
Linda Zausen	13915	12/7/2005	p 1-3, 2nd para, last sentence	Suggest that "Interior" be replaced with "Yard"	А	Will be addressed in next draft 2/10/06
Linda Zausen	13916	12/7/2005	p 3-3, Cone Penetrometer Test Probe, 1st para, 2n	A title page is provided for Appendix A, but the appendix itself is not included	Α_	Will be addressed in next draft 2/10/06
Linda Zausen	13917	12/7/2005	p 4-2, 4th para	Consider re-wording the first and second sentences, which are cumbersome the way they are currently written	A	Will be addressed in next draft 2/10/06



Reviewer's Name/ Company	Comment Number	Date	Document / Section / Page No.	Comment	Response Code	Response / Status
<u>-</u>			p 4-3, Seismic Hazards, 2nd	Suggest that this sentence be rewritten to state "earthquake-induced lurch cracking and regional subsidence or uplift is considered low at the site. Risk from tsunamis or seiches does not exist." (There are no oceans, lakes, nor reservoirs within many		
Linda Zausen	13918	12/2/2005	рага	miles of the site )	Α	Will be addressed in next draft 2/10/06
Linda Zausen	13919	12/2/2005	p 4-6, 3rd para, 1st sentence	The recommendation that grades not be lowered more than 5 feet (unless special measures are taken) is important and specific Suggest that it be high-lighted in section 5.1, Recommendations, of the report	В	Will be addressed in next draft 2/10/06
Mike Сапера	13941	12/2/2005	p 4-6, 4th para, first & last sentences,p 5- 13,	Is it appropriate for ENGEO to name itself as having to review or approve of something? Has it been positively established that ENGEO will be the Geotechnical Engineer during the later phases (e.g., construction) of this project? Suggest replacing company names with "geotechnical engineer"	A	Will be addressed in part draft 2/40/06
mine Canepa	13341	12/2/2003	13,	Suggest that "track spurs" be replaced with "yard tracks" (Spurs are		Will be addressed in next draft 2/10/06
Linda Zausen	13920	12/7/2005	p 5-1, 3rd para, 1st sentence	a specific, dead-end type of track, initial grading should apply to all types of track)	Α	Will be addressed in next draft 2/10/06
Lında Zausen	13926	12/2/2005	p 5-11, Lateral Resistance, 2nd para	Remove the words "for the residential and retail facilities". Suggest they be replaced with "for the project improvements." The project involves a railroad yard and mainline tracks.	Α	Will be addressed in next draft 2/10/06
Mike Canepa	13938	12/7/2005	p 5-2, 1st para	It is understood that this requirement is part of the City of San Jose's grading permit and does not need to be stated in the report Suggest that paragraph be eliminated	С	It may be understood by some but not by all. Therefore we recommend that the paragraph remain
Mike Canepa	13939	_12/7/2005	p 5-2, Grading, 1st sentence	Replace the first word "Grading" with "Demolition" The "removal of existing facilities, pavement, concrete slabs, and pre-existing fill" is considered demolition rather than grading. Also, suggest that the sequence of sub-sections "Grading" and "Demolition and Stripping" on this page be reversed since demolition normally precedes grading.	A	Will be addressed in next draft 2/10/06
Mike Canepa	13940	12/7/2005	p 5-2, Grading, 2nd sentence	Rewrite this sentence as "facilitate construction of the tracks along the track alignment at the tunnel section at the southeast end of the site,"	A	Will be addressed in next draft 2/10/06
Mike Canepa	13942	12/7/2005	p 5-23, 2nd para	Disagree? Inlets will have filters. Water from roof leaders will not get treated unless they are directed overland.	В	Will be addressed in next draft 2/10/06
Linda Zausen	13928	12/2/2005	p 5-23, Prelimin-ary Pavement Design, 2nd sentenc p 5-24, 1st para	Topic 608 of the Highway Design Manual by CALTRANS (revised August 5, 1988) does not appear in the Selected References although California Department of Transportation, 1992, Highway Design Manual does. Are they the same thing?  Standard Specifications of the State of California Division of	В	Will be addressed in next draft 2/10/06
Linda Zausen	13930	12/2/2005	after table, last sentence	Highways, City of Santa Clara and San Jose do not appear in the Selected References Shouldn't they be listed?	Α .	Will be addressed in next draft 2/10/06

Response Codes: A – Agree and will comply/take action B – Will investigate and comment C – Disagree for reasons noted in Response/Status column



Reviewer's Name/ Company	Comment Number	Date	Document / Section / Page No.	Comment	Response Code	Response / Status
				The report's recommended thicknesses for pavement layers generally meet or exceed those required by the BFS for Type A (5"AC, 22"AB or 5"AC, 9"AB, 14"ABS vs 4"AC, 9"AB, 14"ABS), Type B (4"AC, 16"AB or 4"AC, 7"AB, 10"ABS vs 3"AC, 6"AB,		
				12"ABS), and Type C (3 5"AC, 13"AB or 3 5"AC, 6"AB, 8"ABS vs 2"AC, 6"AB, 10"ABS) However, BFS critena (Critena, Civil, Streets and Surface Parking, 2 2 E) require the designer to consider		
Lında Zausen	13929	12/2/2005	p 5-24, table	variations in pavement sections for economical reasons, so BFS criteria should be examined to make certain that the recommendations are not overly conservative	В	Will be addressed in next draft 2/10/06
Lında Zausen	13931	12/2/2005	p 5-25, 1st bullet	BFS criteria (Cnteria, Civil, Streets and Surface Parking, 2.1.D) require one layer of filter fabric placed on the subgrade below the aggregate subbase course. This should be explicitly called out.	A	Will be addressed in next draft 2/10/06
Linda Zausen	13932	12/7/2005	p 5-25, 2nd & 3rd bullets	What Caltrans specifications are you referring to? Please call out the Caltrans Standard Specifications in the Selected References	В	Will be addressed in next draft 2/10/06
Lında Zausen	13933	12/7/2005	p 5-25, Require- ments for Land- scaping Irrigation	These 2 sentences appear to be inconsistent, at least the way they are written	В	Will be addressed in next draft 2/10/06
Linda Zausen	13934	12/7/2005	p 5-28, Limita- tions and Uniformity of Conditions	Delete this section in its entirety. The first sentence in the first paragraph is not applicable.	В	Will be addressed in next draft 2/10/06
Lında Zausen	13921	12/2/2005		Per BFS Specifications 310000, Earthwork, 2 01 A, inorganic soil is defined as containing less than 2% by weight of organic materials Is this inconsistent with defining organically-contaminated material as containing more than 3% organics?	Α	Will be addressed in next draft 2/10/06
		12.2.2.40	p 5-4, Selection	From where are the Guide Contract Specifications, attached to the back of the report and identified as ENGEO, Inc 's, denved? The SVRT Project requires that the BFS have first priority when		Will be addressed in flext draft 2 10/00
Linda Zausen	13922	12/2/2005	of Materials, 4th para p 5-7	determining criteria. More restrictive or criteria exceeding that in the BFS are acceptable, but the BFS requirements must first be met	A	Will be addressed in next draft 2/10/06
Lında Zausen	13923	12/2/2005	p 5-5, 1st para, 2nd sentence	Per BFS Specifications 310000, Earthwork, 3 05 B, lifts for fill or backfill should be placed in layers not exceeding 8 inches in uncompacted thickness	. A	Will be addressed in next draft 2/10/06
Linda Zausen	13924	12/7/2005	p 5-6, 1st para, 1st sentence	Please reconcile recommendation with BFS Criteria, Civil, Streets and Surface Parking, 3 2 C specifies fill slopes over 12 feet high to be 2 1 (honzontal to vertical) and where less than 4 feet high, to be 4 1 or flatter	В	3688 ha addressed in part dreft 2/40/00
Lilion Zauseli	10024	12/1/2000	p 5-9, Post- Tensioned Slab	Add Design and Construction of Post-Tensioned Stabs-on-Ground	ьв	Will be addressed in next draft 2/10/06
Linda Zausen	13925	12/7/2005	sente	(PTI, 1996) to the list in Selected References	Α	Will be addressed in next draft 2/10/06

 $\textbf{Response Codes:} \ \ \textbf{A}-\textbf{Agree and will comply/take action} \ \ \textbf{B}-\textbf{Will investigate and comment} \ \ \textbf{C}-\textbf{D} \\ \textbf{is agree for reasons noted in Response/Status column} \\ \textbf{Status Column} \\ \textbf{$ 



Reviewer's Name/ Company	Comment Number	Date	Document / Section / Page No.	Comment	Response Code	Response / Status		
Comments R	Comments Resolved							
Document Originator: Responses provided by Date Response date-1/31/06 Donald Bruggers of ENGEO								



Document Title/ Number / Rev.: Geotechnical Report Rev B, P0504-D400-STY-DE-002	Date Due: 04/07/06		
	Comments not received by due date may be held in abeyance until the next revision.		

Comments Appear Below				☐ No Comments		Hard Copy Comments are Attached	
Reviewer's Name/ Company	Comment Number	Date	Document / Section / Page No.	Comment	Response Code	Response / Status	
Ignacio Arango, BART	15861	3/31/2006	3†1	While the Section does provide some information about equipment and test procedures, I suggest that these details be expanded and included in Appendix A	А	Details will be provided in the final report.	
Ignacio Arango, BART	15862	3/31/2006	311	Document the ASTM Standard	Α	Details will be provided in the final report.	
Ignacio Arango, BART	15863	3/31/2006	311	The text indicates that the CPT included measurements of pore pressure. However, Appendix A does not contain the recorded data	Α	Details will be provided in the final report.	
Ignacio Arango, BART	15864	3/31/2006	311	Appendix A should more clearly indicate that the only parameters obtained with the probes are tip resistance, sleeve finction and pore pressure. Other values presented in the tables included in Appendix A are interpretations of the data and as such are subject to uncertainties.	A	Details will be provided in the final report. The report will provide clarification about what was measured and what was interpolated from measured data.	
Ignacio Arango, BART	15865	3/31/2006	3 1.2	Additional details on drilling should be provided. What drilling fluid was used? How were the boreholes backfilled? Was the 140-lb SPT hammer energy calibrated?	В	Page 3-4 provides discussion of drilling methods and backfill materials Will expand on the requested information and address in the final report	
ignacio Arango, BART	15866	3/31/2006	312	Document the applicable ASTM Standard.	В	Details will be provided in the final report.	

### Response Codes:

A – Agree and will comply/take action

C – Disagree for reasons noted in Response/Status column

E - Multiple response codes, see response

B - Will investigate and comment

**D** – Will address in Final Engineering/Construction Phase



## SILICON VALLEY RAPID TRANSIT PROJECT

### DOCUMENT COMMENT AND RESOLUTION FORM

Reviewer's Name/ Company	Comment Number	Date	Document / Section / Page No.	Comment	Response Code	Response / Status
Ignacio Arango, BART	15867	3/31/2006	3 4	Provide information about the piezometers type, installation method. Installation depth of the piezometer is not clear. B-8: Table on page 3-1 indicates a depth of 43 ft which agrees with the total depth of the boring log in Appendix B. At what depth was the pyrometer installed? Bottom of the hole? B-10. Table on page 3-2 indicates a depth of 52 ft which agrees with the total depth of the boring log in Appendix B. At what depth was the piezometer installed? Bottom of the hole? B-20. Table on page 3-2 indicates a depth of 80 ft which agrees with the total depth of the boring log in Appendix B. At what depth was the piezometer installed? Bottom of the hole? B-26. Table on page 3-2 indicates a depth of 40 ft. The boring log shows a total depth of 38.5 ft. A foot note on the boring log states that the ground water piezometer was installed at a depth of 38.5 ft? B-30: Table on page 3-3 indicates a depth of 71.5 ft. The boring log in Appendix B. shows the depth as being only 40.5 ft. Where was the piezometer installed? The report should present the rational followed in the selection of the piezometer depths. Have there been any water readings of the piezometers? Any provisions to obtain them in the future?	В	Details will be provided in the final report. The table, CPT logs, boring logs will be reviewed for consistency and the requested information will be included in the final report.  Additional details of Piezometers construction will be provided including rationale used to select depth and details of screen and backfill procedures.  Initial readings were obtained at the time of installation and 24-hours after well construction. No additional readings have been obtained. Coordinates of well locations will be provided.
Ignacio Arango, BART	15868	3/31/2006	444	The Consultants performed a liquefaction potential evaluation based on the data obtained from the cone penetration probes Tabular liquefaction evaluations are presented in Appendix D. It is well known that the fines content of a granular material plays an important role in liquefaction evaluations. Tables in Appendix D show fines contents derived from the CPT readings rather than from actual laboratory tests. Determination of fines contents based on CPT reading are subject to very large errors. For this reason, prudent practice is to calibrate the fines contents derived from the Cone readings against fines contents derived from laboratory tests. Was this calibration done? If so, the report should document it. If it was not done, the validity of the liquefaction evaluation presented in Appendix D is questionable.	A/C	We disagree with the reviewers comment that "the validity of the liquefaction evaluation presented in Appendix D is questionable"  Calibration was performed Analysis included an evaluation of the fines content by correlating the gradation tests with the CPT data. We will provide additional discussion of the correlation between the fines content and CPT data in the final report

### **Response Codes:**

A – Agree and will comply/take action

C – Disagree for reasons noted in Response/Status column

E - Multiple response codes, see response

**B** – Will investigate and comment

**D** – Will address in Final Engineering/Construction Phase



Reviewer's Name/ Company	Comment Number	Date	Document / Section / Page No.	Comment	Response Code	Response / Status
Document Originator: Date						

### **Response Codes:**

A - Agree and will comply/take action

C - Disagree for reasons noted in Response/Status column

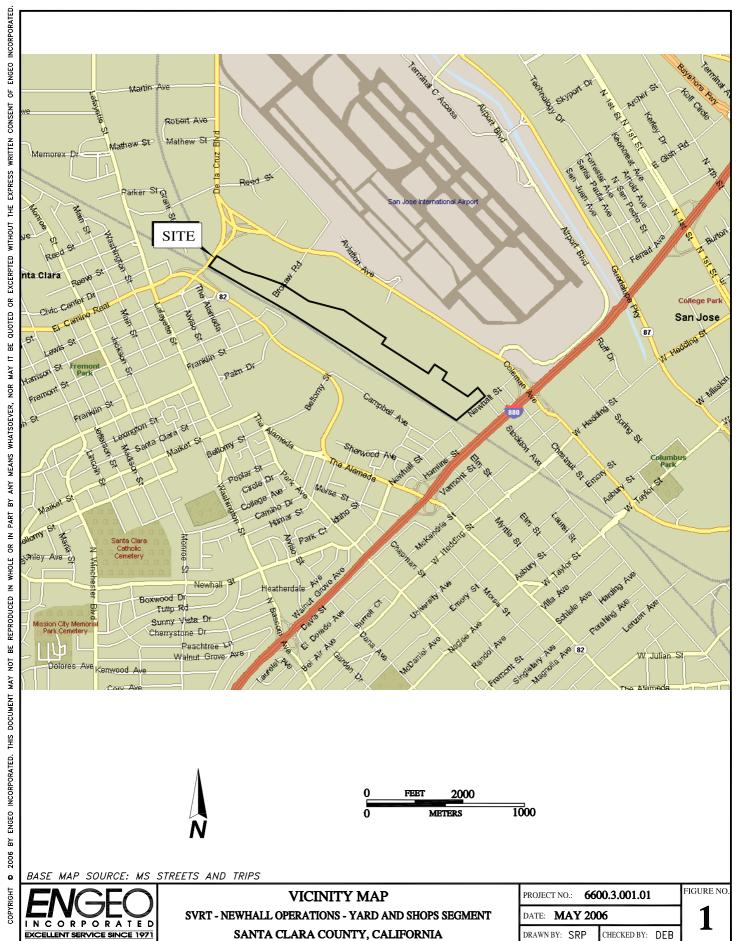
E - Multiple response codes, see response

B - Will investigate and comment

D - Will address in Final Engineering/Construction Phase

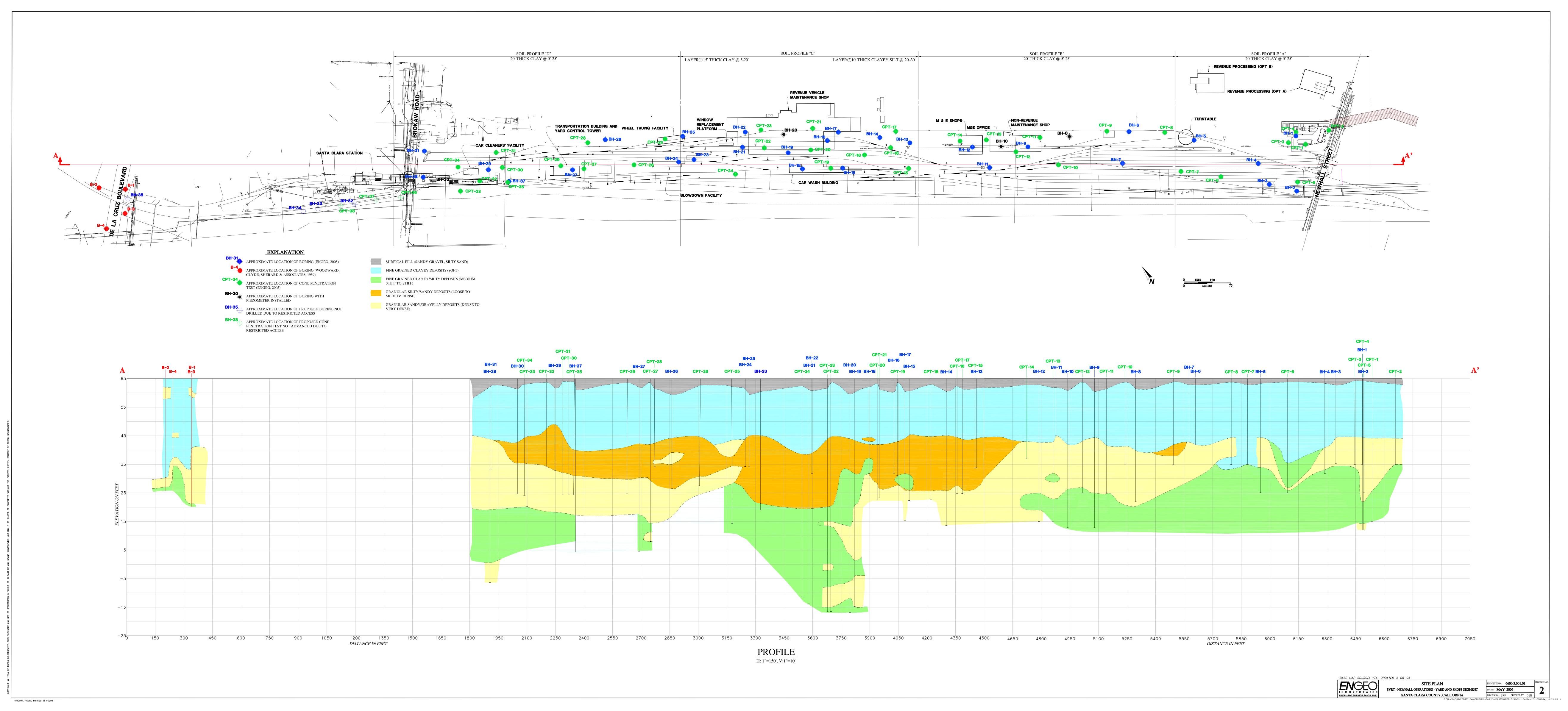
## LIST OF FIGURES

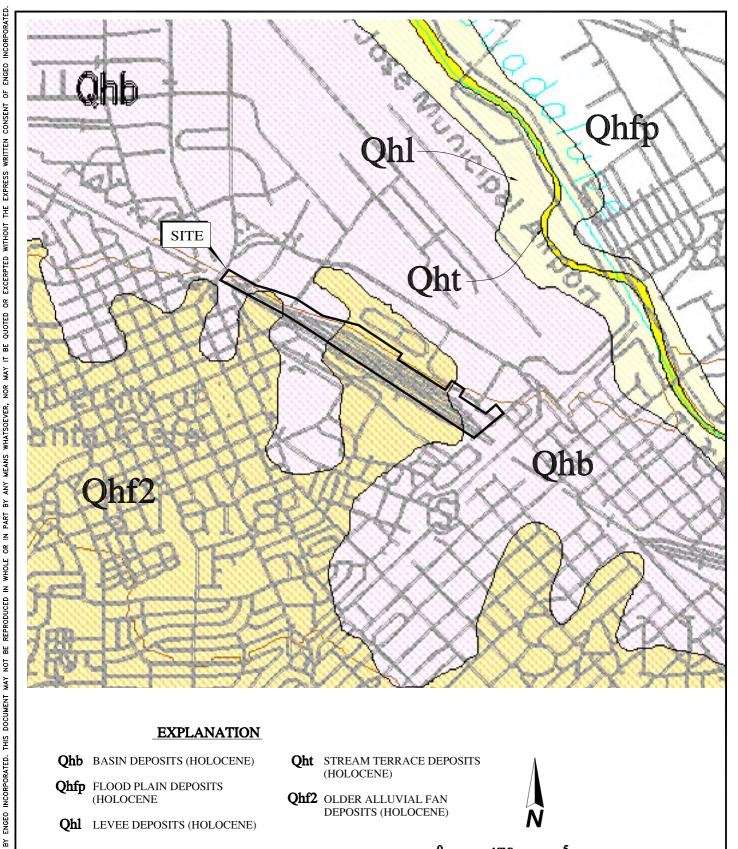
Figure 1	Vicinity Map
Figure 2	Site Plan
Figure 3	Regional Geologic Map
Figure 4	Seismic Hazards Map
Figure 5	Regional Fault Map
Figure 6	Liquefaction Data Correlation Chart
Figure 7	Pressure Distribution for Temporary Cantilever Shoring and Below Grade Walls
Figure 8	Pressure Distribution for Temporary Shoring Braced or Tie-Back Condition



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**Qhb** BASIN DEPOSITS (HOLOCENE)

**Qhfp** FLOOD PLAIN DEPOSITS (HOLOCENE

**Qhl** LEVEE DEPOSITS (HOLOCENE)

**Qht** STREAM TERRACE DEPOSITS (HOLOCENE)

Qhf2 OLDER ALLUVIAL FAN **DEPOSITS (HOLOCENE)** 



PROJECT NO.:

DATE: MAY 2006

BASE MAP SOURCE: WENTWORTH, BLAKE, MCLAUGHLIN & GRAYMER



**REGIONAL GEOLOGIC MAP** 

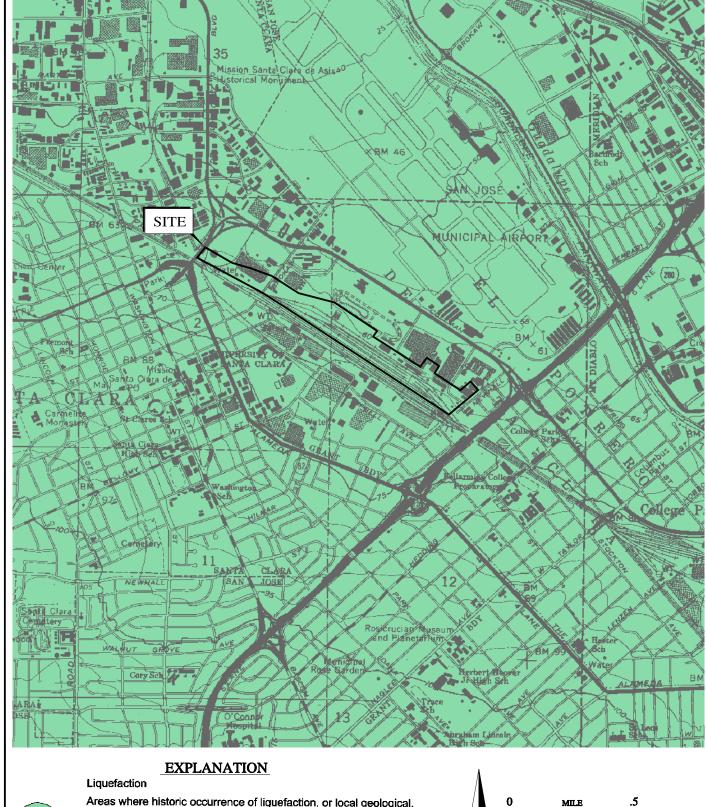
SVRT - NEWHALL OPERATIONS - YARD AND SHOPS SEGMENT SANTA CLARA COUNTY, CALIFORNIA

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ORIGINAL FIGURE PRINTED IN COLOR

FIGURE NO





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Areas where historic occurrence of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

0 MILE .5 0 KILOMETER 1

BASE MAP SOURCE: CDMG, STATE OF CALIFORNIA, SAN JOSE WEST QUADRANGLE, 2001



SEISMIC HAZARDS MAP

SVRT - NEWHALL OPERATIONS - YARD AND SHOPS SEGMENT SANTA CLARA COUNTY, CALIFORNIA

PROJECT NO.: **6600.3.001.01**DATE: **MAY 2006**DRAWN BY: SRP CHECKED BY: DEB

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FIGURE NO

#### **EXPLANATION**

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

#### FAULT CLASSIFICATION COLOR CODE (Indicating Recency of Movement)

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

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

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

(c) displaced survey lines.

Pink band added to emphasize location of historic fault displacement.

#### SPECIAL NOTATIONS

A triangle to the right or left of the date indicates termination point of observed surface displacement.

Date bracketed by triangles indicates local fault break.

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

Dot on fault indicates location where fault creep slippage has been observed and recorded.

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

Holocene fault displacement (during past 10,000 years) without historic record. Geomorphic evidence for Holocene faulting includes sag ponds, scarps showing little erosion, or the following features in Holocene age deposits: offset stream courses, linear scarps, shutter ridges, and triangular faceted spurs. Recency of faulting offshore is based on the interpreted age of the youngest strata displaced by faulting. Pale orange band added to emphasize location of Holocene fault displacement.

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

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

Late Cenozoic faults within the Sierra Nevada including, but not restricted to, the Foothills fault system. Faults show stratigraphic and/or geomorphic evidence for displacement of late Miocene and Pliocene deposits. By analogy, late Cenozoic faults in this system that have been investigated in detail may have been active in Quaternary time. (Data from PG&E, 1993).

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

Fault segment associated with a significant linear trend of accurately located earthquake epicenters (magnitude 0.2 or greater). Generally aligned along strike slip faults having Quaternary displacement, but not necessarily with historic surface rupture. Lack of seismic activity along any fault is no indication that the fault may not be active in the future (e.g. San Andreas fault north of San Francisco). Epicenter data are derived from closely spaced seismic stations and include either continuing microseismicity or aftershocks associated with relatively large earthquakes.

Aligned seismicity on fault segments are referenced in Appendices C and E.

#### ADDITIONAL FAULT SYMBOLS

U = Upthrown side (relative or apparent)
D = Downthrown side (relative or apparent)

Bar and ball on downthrown side (used where space is limited).

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

Arrow on fault indicates direction of dip.

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

OTHER SYMBOLS

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

Cinder cone and other types of volcanoes. Most were active in Pleistocene time, some are Holocene, a few are historic.

Number in box or circle refers to Table 4 (Recent Volcanic Eruptions) in accompanying report. (Box refers to California, circle to Nevada.)

(1786 A.D.) = Date of historic volcanic eruption.

(9,500 B.P.) = Eruption occurrence in years before present (B.P.).

(0.5 m.y.) = Age of volcanic flow or eruption in million years (m.y.).

BASE MAP SOURCE: JENNINGS, 1994



REGIONAL FAULT MAP SVRT - NEWHALL OPERATIONS - YARD AND SHOPS SEGMENT PROJECT NO.: 6600.3.001.01

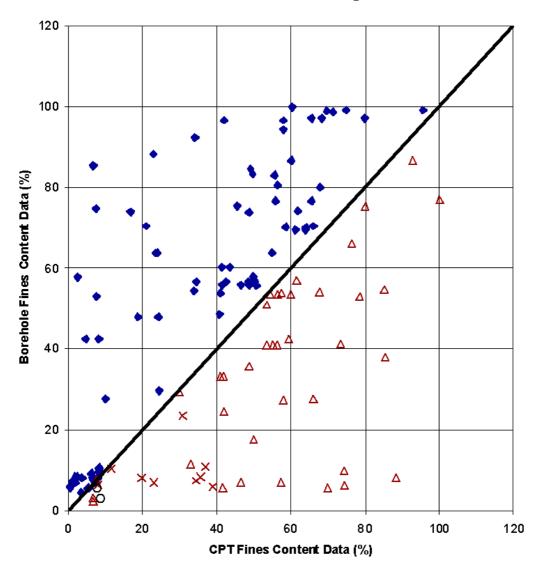
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FIGURE NO

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- Using CPT Fines Content yields worst case scenario (CPT FC < SPT FC)</li>
- △ Soil Remains non-liquefiable using lower SPT Fines Content (CPT FC > SPT FC)
- CPT based data already classified as liquefiable (CPT FC > SPT FC)
- CPT based data may be potentially liquefiable after using lower SPT Fines Content (CPT FC > SPT FC)



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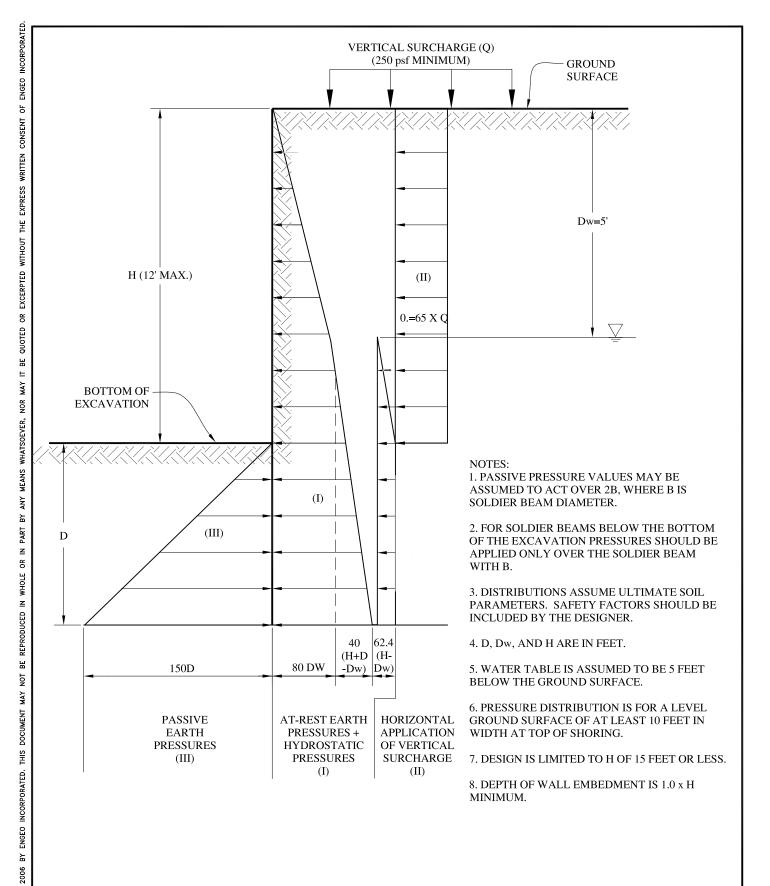
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LIQUEFACTION DATA CORRELATION CHART SVRT - NEWHALL OPERATIONS - YARD AND SHOPS SEGMENT SANTA CLARA COUNTY, CALIFORNIA PROJECT NO.: **6600.3.001.01**DATE: **MAY 2006**DRAWN BY: SRP CHECKED BY: DEB

FIGURE NO

6



NO SCALE



PRESSURE DISTRIBUTION FOR TEMPORARY
CANTILEVER SHORING AND BELOW GRADE WALLS
SVRT - NEWHALL OPERATIONS - YARD AND SHOPS SEGMENT
SANTA CLARA COUNTY, CALIFORNIA

PROJECT NO.: 6600.3.001.01

DATE: MAY 2006

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FIGURE NO

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