Monitoring Report Submittal Transmittal Form

Attn: Guy Childs (916) 464-4648
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

Discharger:	The Morning Star Packing Company, LP and Fred Gobel
Name of Facility:	Williams Facility
WDRs Order Number:	R5-2013-0144
WDID:	5A062005001
County:	Colusa

I am hereby submitting to the Central Valley Water Board the following information:

Check all that apply:

Monthly Monitoring Report for the month of _____

1st / 2nd / 3rd / 4th (**circle one**) Quarterly Monitoring Report for the year of_____

1st / 2nd (**circle one**) Semi-annual Monitoring Report for the year _____

Annual Monitoring Report for the year _____

Response to NOV dated September 11, 2015

Violation Notification

During the monitoring period, there were / were not (circle one) any violations of the WDRs.

1. The violations were: (*add extra pages as needed*)

2. Have the violations been corrected? Yes / No. If no, what will be done to correct the violations: (*add extra pages as needed*)

Certification Statement

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Signature: _____ Phone: __530-219-6892_____

Printed Name: _Hilary Reinhard, PE_____ Date: _10/1/15_____

Hilary Armstrong Reinhard, P.E., QSD, QSP
P.O. Box 365
Madison, CA 95653

October 1, 2015

Mr. Howard Hold, P.G.

Central Valley Regional Water Quality Control Board

11020 Sun Center Drive #200

Rancho Cordova, CA 95670-6114

Subject: Response to The Morning Star Packing Company, LP NOV dated September 11, 2015

Dear Mr Hold:

The Central Valley Regional Water Quality Control Board (Water Board) performed an inspection of The Morning Star Packing Company, LP (Morning Star) facility located in Williams, CA. The inspection was followed by a Notice of Violation (NOV) dated September 11, 2015. The NOV required that a plan and schedule for compliance with the WDRs Order R5-2013-0144 be submitted by October 1, 2015. The following information is required in the NOV:

The Morning Star Packing Company would like to request a meeting at the factory in Williams with the Regional Board and sit down there and review everything.

1. *A complete set of all design documents, as built drawings, bid documents and construction quality assurance plans used for the expansion of the cooling pond.*

   Included as **Attachment A**.

2. *A plan for replacing Land Application Area MS 20A, 20B and 21 that were removed as a result of the expansion of the cooling pond.*

   The facility does not plan on replacing the fields replaced by the cooling pond at the current time. The existing flows produced by the facility can be applied to the 485 acres currently being utilized at agronomic rates. In addition, the improvements planned for the facility that were implemented at the end of 2015

and will be implemented prior to the 2016 season are expected to decrease the amount of organic matter and nitrogen applied to the LAA.

Additionally, the facility is investigating ways to improve the irrigation of the LAA. During the 2015 season, the facility installed a center pivot on MS 24, however, it was not operable until mid-August. The use of center pivots and/or linear moves allows a more even distribution of water across the field and improves irrigation efficiency. Morning Star is investigating installing sprinkler irrigation systems on an additional 150 acres to have approximately 300 of the 485 acres in sprinklers.

3. *A proposed location and depth for additional groundwater monitoring wells for the entire cooling pond.*

   The cooling pond currently has MW5, which is upgradient of the pond, and provides information regarding the upgradient groundwater quality. And, MW6 that is mid gradient of the pond and, starting this year, will provide groundwater quality information and help determine if the pond is causing any impacts to groundwater quality. See **Attachment B** for a map showing the cooling pond and monitoring well locations.

   Due to the low threat of the cooling pond to groundwater quality and the existing groundwater wells that will provide information regarding the quality of upgradient and downgradient water quality, no additional wells are warranted at this time. The facility has 20 years of pond operations and 11 years with these monitoring wells in place. Additionally, data gathered during the 2016 season will provide information regarding the potential impacts of the cooling pond.

4. *A revised water balance which accounts for all cooling water, freshwater, wastewater and storm water discharged as a result of operations at the Morning Star facility regulated under WDRs Order R5-2013-0144.*

   Due to the timing of the deadline for this response, washwater constituent results from the entire season are not available to use in a water balance. In order to provide a more accurate assessment of future operations at the facility, we will provide an updated water balance on October 31, 2015.

5. *A technical explanation regarding why and how tomato juice was discharged into the cooling pond and tomato solids were present in the ditches.*

   This summary of events was compiled based on interviews with Morning Star colleagues who are familiar with the factory's operations and were present during

the season and while problems were being identified and solutions found. Additionally, I performed a site visit on September 22nd.

The cooling pond receives condensate from the facility's evaporators. The tomato evaporation process is designed so that evaporated water from the tomatoes (steam) is condensed by the recirculating cooling pond water. Prior to the start of the 2015 season, Morning Star installed new evaporators. The evaporator discharged a condensate that had a higher than normal concentration of tomato material and the condensate had been plumbed to discharge into the cooling pond, in error, instead of the settling pond.

Modifications to the evaporators have been made and installed that result in a reduction in the amount of tomato material discharged with the condensate. Additionally, the facility has rerouted the condensate from this evaporator so that it is fed into the facility's gutter system and settling pond.

Shortly before the Board's inspection, the facility had an emergency shutdown. Since the facility operates an aseptic process that requires a continual flow to maintain sterility, this shutdown was a major complication for the facility. Operators had tomato material carry over in the final flash which discharged to the cooling pond. This resulted in a large amount of organic matter entering the pond. This organic matter was not ideal for the cooling pond and significantly affected its operation. Morning Star has since reviewed with their colleagues how the cooling pond operates and why keeping organic matter from entering the pond is of utmost importance. Any tomato product that needs to be dumped in an emergency is now routed to the gutter system and LAA.

An investigation into the discharge of tomatoes to the ditches and settling pond determined that the removal of the rock trap screens from the stream of water flowing to the rotary screens caused a large number of tomatoes to be discharged to the settling pond when the rock dump valves opened.

The screens had been removed because in previous years they had caused a build up of rocks that would occasionally block the flow of water to the rotary screens. The removal of the screens was performed so that more rocks would drop from the stream when the valves opened thereby preventing the buildup of rocks and clogging that resulted. However, after implementing this change, it became evident that removing the screens allowed tomatoes from being dumped to enter the settling pond. When the plant had an unplanned shut down, the screens were reinstalled. This significantly reduced the amount of tomatoes that were being discharged to the settling pond.

In addition to the rock traps, it was discovered that there was a timing issue on the rock dump located at the dump hill. The rock dump is a series of trap doors

that allow heavy objects (rocks) to be released from the streams onto a conveyor belt that deposits them off the side of the hill. The trap doors were being opened while tomatoes were being released from the trailers, allowing tomatoes to also be released onto the conveyor belt. The fixing of the timing of the trap doors has significantly reduced the amount of tomatoes lost in this area.

6. *Specific steps and schedule that will be implemented to address the odor, dissolved oxygen and pH violations, and how reoccurrence will be prevented.*

Odor

According to preliminary information, washwater flow to the fields was decreased by 30% (1,675 gpm in 2014 to approximately 1,100 gpm in 2015). While the flow was reduced, the concentration of the BOD increased from 600 mg/L average in 2014 to an average of approximately 1,769 to date in 2015. This resulted in a net increase of BOD produced by the facility which was applied on a smaller LAA (600 acres to 485 acres).

Additionally, the installation of the pivot sprinkler irrigation system, which wasn't operational for half the season on 150 acres, decreasing the LAA during a difficult start up of the facility and its additional equipment and processes. The early conditions and management of the systems resulted in some foul water conditions and some odors.

Prior to the 2015, season Morning Star discussed with the Regional Board adding additional LAA to the facility's permit, however, the addition would have taken too long to have been applicable during the 2015 season.

The operational and facility changes planned for the off season including mechanical adjustments that will capture more tomato product, the additional sprinkler irrigation to help spread the washwater more evenly, and adding additional solids screening prior to application to the LAA will improve constituent concentrations in the washwater and reduce odors. Additionally, it's anticipated that the cooling pond will be operated, and have water quality similar to historical conditions and will not produce objectionable odors.

Dissolved Oxygen

The dissolved oxygen (DO) of the settling pond is now being taken weekly by a certified laboratory in order to help eliminate operator error. When Morning Star has performed a side by side comparison of the DO results from the lab to the DO results from the DO meter that Morning Star uses, the Morning Star results have been consistently lower. In fact, the DO observed by the lab has been over 1.0 mg/L in all but one sample. Morning Star will be purchasing a DO meter identical to the higher end meter the lab is using. A summary of the DO data taken from the cooling pond and settling pond by both the lab and by Morning Star is provided below:

Table 1. DO Measurements

	Cooling Pond			Settling Pond		
Date	**Direct**	**Grab**	**Lab**	**Direct**	**Grab**	**Lab**
9/10/2015	0.4	1.4	1.44	0.6	1.0	1.03
9/15/2015	0.4	0.9	1.24	2.9	1.8	1.09
9/17/2015	0.5	1.3	2.41	0.4	0.3	1.21
9/18/2015	0.4	1.2	1.39	0.3	0.3	1.08
9/22/2015	0.8	1.4	1.83	0.4	0.3	0.52
9/24/2015	0.4	0.9	1.97	0.3	0.6	1.31
Average	0.5	1.2	1.7	0.8	0.7	1.0
Minimum	0.4	0.9	1.2	0.3	0.3	0.5
Maximum	0.8	1.4	2.4	2.9	1.8	1.3

The facility is continuing daily monitoring of the DO levels in the two ponds with additional testing by the lab.

Additionally, using the washwater quality data collected at the end of the season, a DO study will be performed to determine if additional aeration is required to keep the DO levels above 1.0 mg/L. Morning Star is also investigating aerators to determine which aerator manufacturers have the most efficient method of oxygen transfer.

<u>pH</u>
The pH readings in question were taken in a series. The WDRs allow for pH ranges from 4.0 to 8.0. The out of range pH readings were at 3.9. When the Morning Star colleague performed the weekly calibration to the pH probe, the probe was found to be low by 0.13. After calibration, the readings were all within the required range. Morning Star has created a Standard Operating Procedure (SOP) that requires recalibration of the meter whenever the reading is out of the specified range.

In addition, the pH of tomatoes is 4.3 and the pH of the source water is approximately 7.0, therefore, it is unexpected, and potentially not feasible, for the average to be less than 4.3.

7. *Standard Operating Procedures for collecting representative DO samples from the settling and cooling ponds are required by the WDRs. This is necessary because during the inspection, Board staff observed DO measurements in the settling pond of less than 1.0 mg/L using a direct probe sampling technique, and DO measurements of greater than 1.0 using a grab sampling technique.*

Due to the inconsistencies found with the DO measurement technique and device, the facility is investigating the most appropriate method and DO meter for monitoring its pond DO. Morning Star has purchased three different models of DO meters and is currently evaluating the models alongside the measurements that are being taken by a certified laboratory to determine which DO meter provides the most accurate measurement of DO for the facility.

In the 2015 annual report, Morning Star will provide information regarding the selected DO meter and the SOP for measuring pond DO.

8. *Submit a Notice of Intent to comply with both the industrial and construction storm water permits via the State Water Quality Control Board's Storm Water Multiple Application & Reporting System.*

   Morning Star has obtained a SMARTS account and has begun the filing process for both the industrial and construction storm water permits. Notice of coverage under the industrial permit is not available yet due to the development of the Storm Water Pollution Prevention Plan and uploading the information to SMARTS.

   Coverage under the industrial stormwater permit has been filed and we are waiting for the signature sheet of the Legally Responsible Person (LRP) to be received by the Board so it can be completed.

Respectfully,

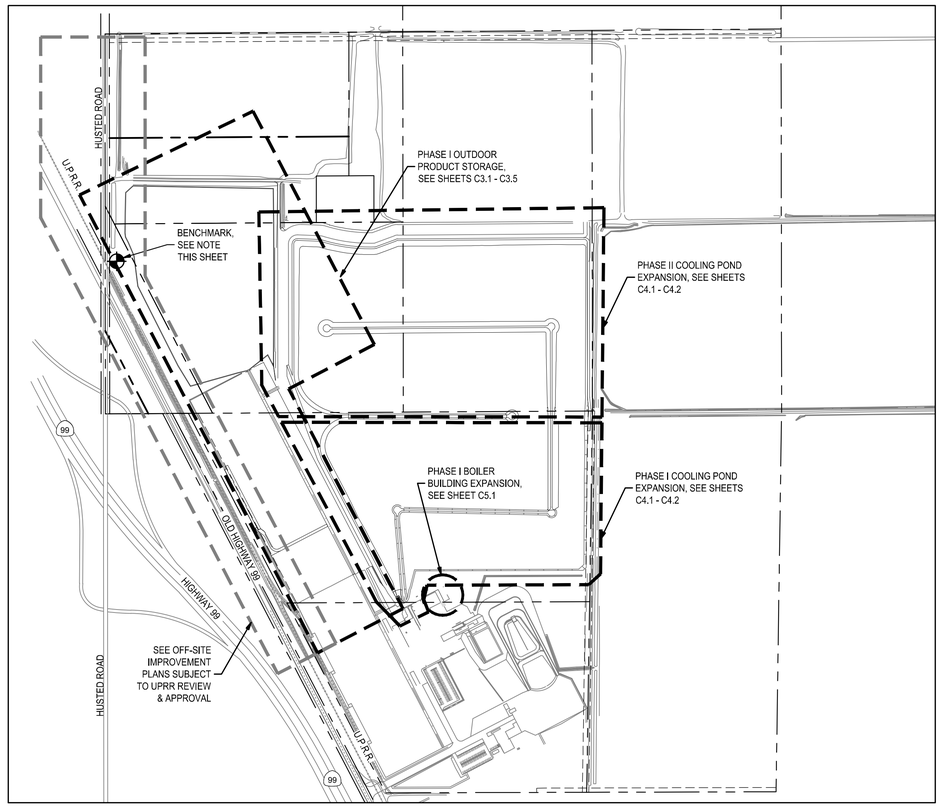
Hilary A. Reinhard, P.E.

Attachment A

MORNING STAR PACKING COMPANY
PLANT EXPANSION
ONSITE IMPROVEMENT PLAN
WILLIAMS, CALIFORNIA

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
@	AT
AB	AGGREGATE BASE
ABS	ACRYLONITRILE-BUTADIENE-STYRENE
AC	ASPHALT CONCRETE
BCR	BEGINNING OF CURB RETURN
BM	BENCHMARK
BO	BLOWOFF
BOC	BACK OF CURB
BOW	BACK OF WALK
C & G	CURB AND GUTTER
C,G, & SW	CURB, GUTTER, AND SIDEWALK
CL	CENTERLINE
CB	CATCH BASIN
CJ	CONSTRUCTION JOINT
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DWG	DRAWING
EBOW	EXISTING BACK OF WALK
ECR	END OF CURB RETURN
EL	ELEVATION
EG	EXISTING GROUND
EP	EDGE OF PAVEMENT, EXISTING PAVEMENT
ESMT	EASEMENT
E.W.	EACH WAY
EX	EXISTING
FG	FINISHED GRADE
FL	FLOWLINE
FH	FIRE HYDRANT
FOC	FACE OF CURB
FT	FEET
G	GROUND
GB	GRADE BREAK
HP	HIGH POINT
ID	INSIDE DIAMETER
IN.	INCH
LF	LINEAL FEET
LH	LAMP HOLE
LP	LOW POINT
LT	LEFT
LTSB	LIME TREATED SUB-BASE
MAX	MAXIMUM
MH	MAINTENANCE HOLE
MID	MERCED IRRIGATION DISTRICT
MIN	MINIMUM
NO.	NUMBER
NRCP	NON-REINFORCED CONCRETE PIPE
NTS	NOT TO SCALE
O.C.	ON CENTER
OD	OUTSIDE DIAMETER
P	PAVEMENT
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
POT	POINT OF TANGENCY
PP	POWER POLE
PRC	POINT OF REVERSE CURVATURE
PT	POINT
PUE	PUBLIC UTILITY EASEMENT
PVC	POLYVINYL CHLORIDE
PL	PROPERTY LINE
R	RADIAL OR RADIUS
R/W	RIGHT-OF-WAY
RC	ROLL-CURB
RCP	REINFORCED CONCRETE PIPE
RP	RADIUS POINT
RR	RAILROAD
RT	RIGHT
RWL	RAIN WATER LEADER
SD	STORM DRAIN
SS	SANITARY SEWER
SL	STREET LIGHT
SW	SIDEWALK
SDMH	STORM DRAIN MAINTENANCE HOLE
SHT	SHEET
SSMH	SANITARY SEWER MAINTENANCE HOLE
STA	STATION
STD	STANDARD
TC	TOP OF CURB
TOW	TOP OF WALL
THRU	THROUGH
TI	TRAFFIC INDEX
TYP	TYPICAL
VERT	VERTICAL
W	WATER
WP	WEAKENED PLANE
(W)	WEST
(E)	EAST
(S)	SOUTH
(N)	NORTH
±	PLUS OR MINUS



SITE PLAN
NO SCALE

SHEET INDEX:

SHEET NO.	SHEET TITLE
C1.1	COVER SHEET
C2.1	NOTES
C3.1	SITE DEMOLITION & TOPOGRAPHIC PLAN
C3.2	OUTDOOR STORAGE PAVING & DIMENSIONING PLAN
C3.3	OUTDOOR STORAGE GRADING PLAN
C3.3A	TRUCK WASH GRADING & UTILITY PLAN
C3.4	OUTDOOR STORAGE UTILITY PLAN
C3.5	OUTDOOR STORAGE & DOCK DETAILS
C4.1	COOLING POND GRADING & DIMENSION PLAN
C4.2	COOLING POND SECTIONS & DETAILS
C5.1	BOILER BUILDING EXPANSION PAVING & GRADING PLAN
C6.1	EROSION CONTROL PLAN

LEGEND:

EXISTING		PROPOSED
11.93EC	CONCRETE ELEVATION	11.93C
11.93TC 11.43EP	TOP OF CURB ELEVATION PAVEMENT ELEVATION	11.93TC 11.43P
12.05EP	PAVEMENT ELEVATION	12.05P
11.93ETC 11.43EFL	TOP OF CURB ELEVATION FLOW LINE ELEVATION	11.93TC 11.43FL
12.05EFL	FLOW LINE ELEVATION	12.05FL
	CHIP SEAL	12.05CS
	TOP OF WALL	12.05TOW
	BOTTOM OF WALL	12.05BOW
50.0	GROUND CONTOUR	50.0
	PROPERTY & R/W LINE	
	EASEMENT	
	TOP	
	TOE	
	RAILROAD BALLAST TOP	
	RAILROAD BALLAST TOE	
6"SS	SANITARY SEWER LINE	6"SS
12"SD	STORM DRAIN LINE	12"SD
4"W	WATER LINE	4"W
6"FS 6"F	FIRE WATER SERVICE LINE	6"FS 6"F
E	ELECTRICAL LINE	E
G	GAS LINE	G
OH	OVERHEAD ELECTRIC	OH
	CATCH BASIN	
	STORM DRAIN INLET	
	RAILROAD TRACKS AND TIES	
	GATE VALVE	
	SITE LIGHT	
x x x	WOOD FENCE	x x x
	CHAIN LINK FENCE	
	BARBED WIRE FENCE	
	FIRE HYDRANT	
	UTILITY POLE	
	ANCHOR GUY	
	SIGN	
B	BOLLARD	
	TREE	
BFP	BACKFLOW PREVENTER	BFP
E E	ELECTRICAL BOX	E E
W	WATER METER	W
G	GAS VALVE	
	MAINTENANCE HOLE	
C	CABLE BOX	
	BERM	

SITE BENCHMARK

MONUMENT FOUND: 3" BRASS DISC "USCGS WILLA2 1971"
NORTHING: 2174563.349
EASTING: 6524043.909
ELEVATION: 89.05

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- LANDSCAPE ARCHITECTURE

REVISIONS

No.	Date	Description
1	8/25/15	H & H Revisions

PROJECT

MORNING STAR PACKING CO.

ON-SITE PLANS

WILLIAMS FACILITY

REGISTERED PROFESSIONAL ENGINEER JIM A. BILLIONES NO. C-50027 EXP. 6/30/17 CIVIL STATE OF CALIFORNIA

DATE SIGNED: 08/27/15

SHEET TITLE

COVER SHEET

Proj Mgr	JAB
Drawn by	JAB
Date	APRIL 20, 2015
Job No.	11132

SHEET:
C1.1
OF: 12

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LEGEND:

- EXISTING CONCRETE TO REMAIN
- EXISTING CONCRETE PAVEMENT TO BE REMOVED
- EXISTING CHIP & SEAL PAVEMENT TO BE REMOVED
- EXISTING BERM AND ACCESS ROAD TO BE REMOVED
- CLEAR AND GRUB EXISTING AREA TO ACCOMMODATE PROPOSED GRADING OPERATION PER SOILS REPORT RECOMMENDATIONS
- LIMIT OF WORK LINE
- PHASE I CONSTRUCTION
- PHASE II CONSTRUCTION

KEY NOTES:

1. REMOVE AND DISPOSE OF EXISTING TREE INCLUDING STUMP AND ROOTS
2. REMOVE AND DISPOSE OF EXISTING SHRUB
3. PROTECT IN PLACE, EXISTING POWER POLE AND GUY ANCHOR
4. PROTECT IN PLACE, EXISTING LIGHT POLE
5. PROTECT IN PLACE, EXISTING SITE LIGHTING
6. EXISTING STORM DRAIN PIPE TO ABANDONED, FILL WITH SAND AND CAP BOTH ENDS
7. PROTECT IN PLACE, EXISTING MONITOR WELL
8. PROTECT IN PLACE, EXISTING ELECTRIC PULL BOX.
9. REMOVE AND DISPOSE OF ±1,600' OF EXISTING BARBED WIRE FENCE
10. REMOVE AND DISPOSE OF EXISTING CHAINLINK SWING GATE
11. PROTECT IN PLACE, EXISTING FIRE HYDRANT AND STEEL BOLLARDS
12. REMOVE AND DISPOSE OF EXISTING PALM TREE INCLUDING STUMPS AND ROOTS
13. EXISTING 6" GAS LINE, USE CAUTION WHEN WORKING AROUND
14. PROTECT IN PLACE, EXISTING TELEPHONE MANHOLE AND PEDESTAL
15. BOTTOM OF COOLING POND MAY BE LOWERED BY THE DIRECTION OF THE OWNER AFTER CONSULTATION WITH THE GEOTECHNICAL ENGINEER, SEE NOTE 32.C., ON SHEET C2.1
16. ABANDON IN PLACE, EXISTING STORM DRAIN VAULT
17. REMOVE AND DISPOSE OF EXISTING STORM DRAIN PIPE
18. CAP AND ABANDON, EXISTING STORM DRAIN PIPE

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REVISIONS

No.	Date	Description
1	8/25/15	H & H Revisions

PROJECT

MORNING STAR PACKING CO.

ON-SITE PLANS

WILLIAMS FACILITY

REGISTERED PROFESSIONAL ENGINEER
JIM A. BILLIGMEIER
NO. C-50027
EXP. 6/30/17
CIVIL
STATE OF CALIFORNIA

DATE SIGNED: 08/27/15

SHEET TITLE

SITE DEMOLITION & TOPOGRAPHIC PLAN

Proj Mgr	JAB
Drawn by	JAB
Date	APRIL 20, 2015
Job No.	11132

SHEET:

C3.1

OF: 12

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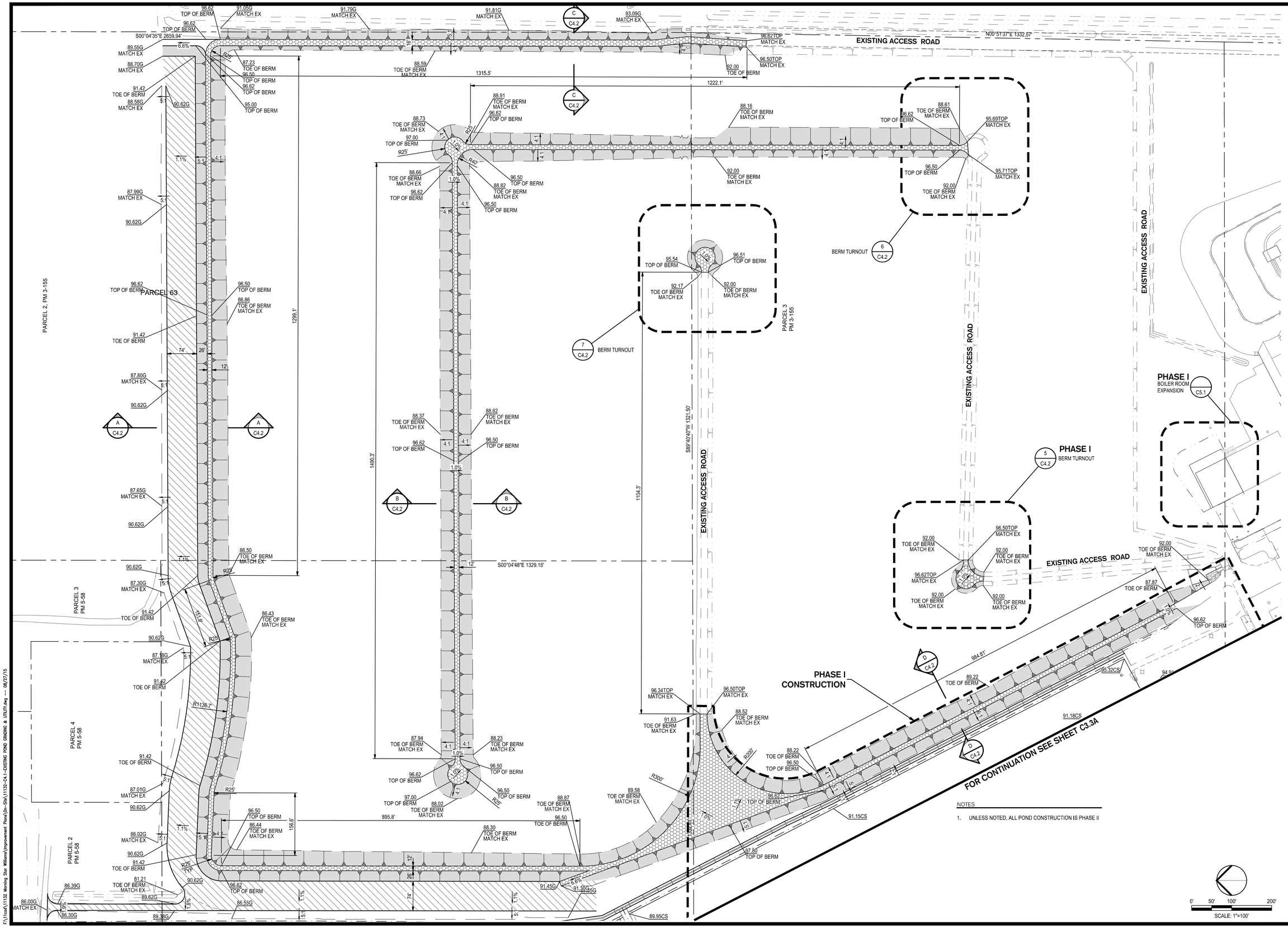

NOTES

1. UNLESS NOTED, ALL POND CONSTRUCTION IS PHASE II

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REVISIONS

No.	Date	Description
1	8/25/15	H & H Revisions

PROJECT

MORNING STAR PACKING CO.

ON-SITE PLANS

WILLIAMS FACILITY

REGISTERED PROFESSIONAL ENGINEER JIM A. BILLIGMEIER NO. C-50027 EXP. 6/30/17 CIVIL STATE OF CALIFORNIA

DATE SIGNED: 08/27/15

SHEET TITLE

COOLING POND GRADING & DIMENSION PLAN

Proj Mgr	JAB
Drawn by	JAB
Date	APRIL 20, 2015
Job No.	11132

SHEET:

C4.1

OF: 12

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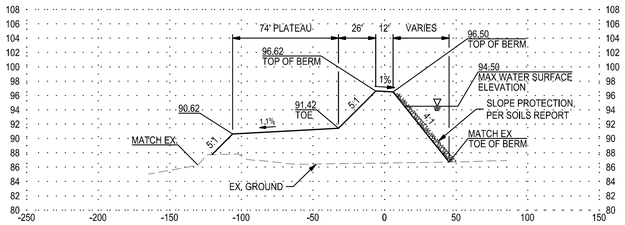
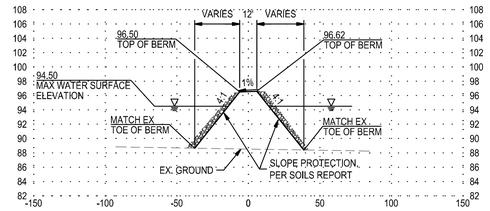
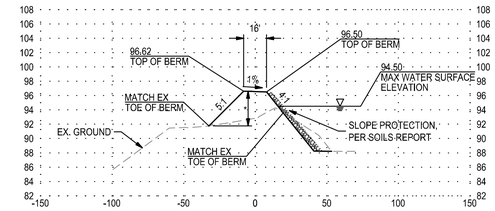


1 BERM SECTION A-A
EXTERIOR BERM WITH LANDFILL
HORZ. SCALE 1"=50', VERT. SCALE 1"=10'



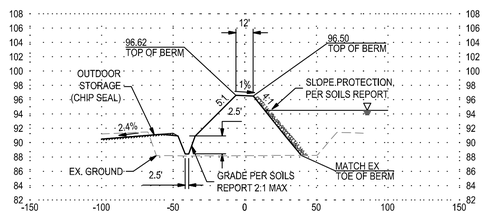
2 BERM SECTION B-B
INTERIOR BERM
HORZ. SCALE 1"=50', VERT. SCALE 1"=10'



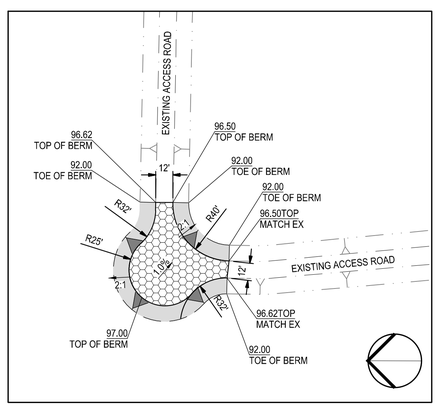
3 BERM SECTION C-C
EXTERIOR BERM - NO LANDFILL
HORZ. SCALE 1"=50', VERT. SCALE 1"=10'

*NOTES

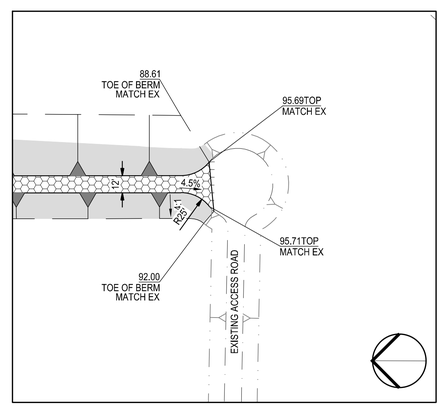
* AT LOCATIONS WHERE TOP OF BERM IS GREATER THAN 6 FEET FROM ORIGINAL GROUND, CONTRACTOR TO CONSTRUCT BERM PER DETAIL 1 "EXTERIOR BERM WITH LANDFILL" ON THIS SHEET.



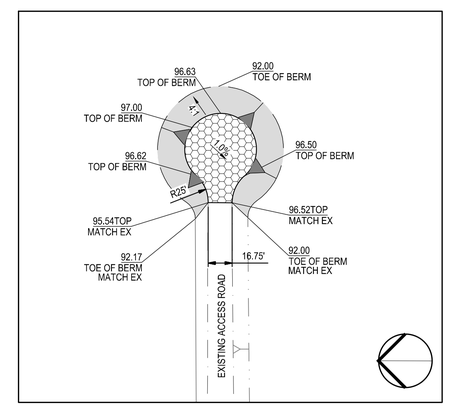
4 BERM SECTION D-D
INTERIOR BERM AT OUTDOOR STORAGE
HORZ. SCALE 1"=50', VERT. SCALE 1"=10'



5 BERM TURNOUT DETAIL
1"=50'



6 BERM TURNOUT DETAIL
1"=50'



7 BERM TURNOUT DETAIL
1"=50'

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- CIVIL ENGINEERING
- STRUCTURAL ENGINEERING
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REVISIONS

No.	Date	Description
1	8/25/15	H & H Revisions

PROJECT

MORNING STAR PACKING CO.

ON-SITE PLANS

WILLIAMS FACILITY

REGISTERED PROFESSIONAL ENGINEER
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EXP. 6/30/17
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STATE OF CALIFORNIA

DATE SIGNED: 08/27/15

SHEET TITLE

COOLING POND SECTIONS & DETAILS

Proj Mgr	JAB
Drawn by	JAB
Date	APRIL 20, 2015
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Wallace Kuhl & Associates

Geotechnical Engineering Report

MORNING STAR PACKING COMPANY COOLING POND EXPANSION

WKA No. 10487.01

April 15, 2015

Prepared For:

The Morning Star Packing Company

725 Main Street

Woodland, California 95695

Geotechnical Engineering Report

MORNING STAR PACKING COMPANY COOLING POND EXPANSION

Williams, California

WKA No. 10487.01

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Geotechnical Engineering Report
MORNING STAR PACKING COMPANY COOLING POND EXPANSION
2211 Old Highway 99W
Williams, California
WKA No. 10487.01
April 15, 2015

INTRODUCTION

We have completed a geotechnical engineering study for the proposed cooling pond expansion to be constructed at the Morning Star Packing Plant located at 2211 Old Highway 99W in Williams, California. The purpose of our study has been to explore the existing soil and groundwater conditions at the site, and to provide geotechnical engineering conclusions and recommendations for the design and construction of the proposed pond improvements. This report presents the results of our study.

Scope of Services

Our scope of services included the following tasks:

1. a site reconnaissance;
2. review of the previous geotechnical reports prepared for the site and nearby projects;
3. review of USGS topographic maps, aerial photographs, and available groundwater information;
4. subsurface explorations, including the drilling and sampling of 10 borings to depths ranging from 31 to 51½ feet below existing grades; the excavation and sampling of 12 test pits to a maximum depth of 10 feet below existing grades; and the advancement of seven cone penetrometer tests (CPTs) to about 50 feet below existing grades;
5. laboratory testing of selected soil samples;
6. engineering analyses; and,
7. preparation of this report.

Supplemental information reviewed in the preparation of this report included the *Geotechnical Investigation Report* prepared for the Morning Star Packing Company facility (Kleinfelder, 1994).

Figures and Attachments

This report contains a Vicinity Map as Figure 1, a Site Plan showing approximate exploration locations as Figure 2, and Logs of Soil Borings and Test Pits as Figures 3 through 24. An explanation of the symbols and classification system used on the logs is contained on Figure

25. A schematic diagram of a typical settlement plate detail is provided in Figure 26. Appendix A contains general information regarding project concepts, exploratory methods used during our field study, and laboratory test results not included on the boring logs. Appendix B contains copies of the CPT soundings. Appendix C contains results of our analyses including output files for the liquefaction analyses and post-liquefaction settlements. Appendix D contains the results of our slope stability and seepage analyses.

Proposed Improvements

We understand that the proposed improvements will include construction of two new cooling ponds that will encompass a combined total area of approximately 200 acres and modifications to the existing cooling pond located on the north side of the facility. The cooling ponds will be about six feet deep with about two feet of freeboard. Berms will be constructed inside the cooling ponds and along the perimeters. The berms will be about 12 feet wide at the crest to allow for periodic maintenance vehicle traffic. Side slopes of the proposed berms will be on the order of four horizontal to one vertical (4H:1V) or flatter. We understand that the excavated material from the new cooling ponds will be used to backfill the west side of the existing cooling pond. This backfilled area will be covered with aggregate base and used to store boxes of tomato product. No above-ground structures are planned for this area. Associated improvements will include construction of underground utilities including 60-inch-diameter storm drain pipelines that will connect the cooling ponds.

FINDINGS

Site Description

The project area is located on the north and east sides of the existing Morning Star tomato processing facility. The Morning Star property is bounded to the north, east, and south by agricultural land; and to the west by Interstate 5. Topography across the major portion of the site is essentially flat; however, some areas have berms (or embankments). Surface elevations across the property vary from about +86 feet relative to mean sea level in the northern portion of the property to about +100 feet msl near the southwest portion of the facility, based on topographic information provided by Seigfried Engineering of Stockton, California. For the design purposes, we have used an average surface elevation of +88 feet msl for the project.

At the time of our field explorations, the areas investigated were covered with a sparse to moderate growth of volunteer weeds and grass. The existing cooling pond located on the north side of the property contained about two to three feet of water and the side slopes protected

with rock riprap. We also observed a pile of wood debris and other deleterious waste located near the northeast corner of the existing cooling pond. In the central northern portion of the site, we observed piles of construction debris (e.g. concrete, soil, wood, etc.), agricultural equipment, and animal corrals. Irrigation ditches and canals were observed throughout the property. Most of these contained water at the time of our field explorations.

Historical Aerial Photographs

Review of a historical aerial photograph taken in 1998 indicates the proposed cooling pond areas were vacant and undeveloped. The existing processing facility was observed in the southwestern portion of the property. Review of aerial photographs taken in 2005 and 2012 indicates that the subject property has remained essentially unchanged from the 1998 aerial photograph.

Regional and Local Geology

The subject property is located within the Great Valley geomorphic province of California. The geology of the Great Valley is typified by thick sequences of alluvial sediments derived primarily from erosion of the mountains of the Sierra Nevada Range to the east and, to a lesser extent, erosion of the Klamath Mountains and Cascade Range to the north. These sediments were transported downstream and subsequently laid down as river channel and flood plain deposits and alluvial fans. The subsurface materials beneath the site have been mapped on the *150th Anniversary Geologic Map of California* (Jennings, 2010a), as recent (Holocene to Pleistocene-aged) alluvium deposited by the Sacramento and American Rivers. The soil conditions revealed by the subsurface exploration of the site are consistent with the mapped geology.

Soil Conditions

The subsurface explorations revealed the surface and near-surface soil conditions at the property were found to be somewhat variable with respects to density and type. At the completion of the drilling activities, the borings and CPTs were backfilled with a slurry of neat cement, bentonite, and water in accordance with Colusa County Environmental Health Department (CCEHD) requirements. No visual or olfactory evidence of petroleum hydrocarbons were noted in the soil samples collected from our explorations at the site. We have provided a summary of the subsurface conditions at each of the proposed improvement areas; for detailed soil conditions at a particular location, please refer to the Logs of Soil Borings and Test Pits presented as Figures 3 through 24.

East Cooling Pond

Our explorations within the proposed east cooling pond included five borings (D01 through D05), seven test pits (TP-05 through TP-11), and five CPTs (CPT-03 through CPT-07). Results of these explorations revealed a general soil profile consisting of medium stiff to stiff, silty clay in the upper 2 to 8 feet underlain by very soft, silty clay to depths ranging from 15 to 23 feet below existing grades. A layer of loose to medium dense, sandy silt, silty sand with trace gravel, and poorly graded sand was encountered in three borings (D01, D02, and D03) and test pits (TP-05 through TP-11). Below a depth of about 23 feet, the subsurface clays generally tend to increase in relative density from stiff to very stiff to the maximum depth explored of 50 feet below existing grades.

North Cooling Pond

Our explorations within the proposed north cooling pond included three borings (D06 through D08), five test pits (TP-01 through TP-04, and TP-12), and two CPTs (CPT-01 and CPT-02). Results of these explorations revealed medium stiff to stiff, silty and sandy clay in the upper 2 to 5 feet of existing grades underlain by very soft to medium stiff, silty clay to depths ranging from 10 to 15 feet below existing grades. Test pits excavated within the interior portions of the proposed cooling pond revealed sandy clay, silty clay and sand with variable amounts of gravel to a depth of 9 feet. Below a depth of 15 feet, the subsurface clays generally tend to increase in relative density from stiff to very stiff to the maximum depth explored of 50 feet below existing grades.

Fill Area on West Side of Property

Two borings (D09 and D10) were drilled in the future fill area located on the west side of the property. Results of these borings revealed stiff to very stiff, silty and sandy clay in the upper 3 to 10 feet underlain by soft, silty clay to a depth of about 20 feet below existing grades. In Boring D09, a thin discontinuous layer of very loose, sandy silt was encountered between 10 and 14 feet below existing grades. Below a depth of 20 feet, the borings encountered stiff, silty clay and medium dense to dense, clayey sand to a depth of about 36½ feet below existing grades.

<u>Groundwater</u>

Mud-rotary drilling methods were used to advance the borings at this site and therefore a determination of the groundwater elevation could not accurately be measured directly from

these borings. In March of 2015, groundwater was initially observed in the test pits excavated at the property at depths ranging from 5 to 8 feet below existing grades. Groundwater levels in the test pits may not have reached static equilibrium levels at the time of the field explorations. Pore pressure dissipation tests were performed in the CPTs advanced at the property. Results of these tests revealed groundwater levels consistent with the test pits. Groundwater levels in the area will fluctuate due to seasonal changes, subsurface soil conditions, local irrigation practices, and the close proximity of existing ponds, drainage canals, and ditches. A summary of the groundwater levels encountered in the borings and CPTs is provided in Table 1.

TABLE 1
SUMMARY OF GROUNDWATER LEVELS IN MARCH OF 2015

Exploration Identification	Depth to Groundwater (feet, bgs)	Approximate Groundwater Elevation (feet, msl)
TP-01	8	+79
TP-02	5	+80
TP-03	5	+81
TP-04	6.5	+79.5
TP-05	8	+79
TP-06	6.5	+80.5
TP-07	6.5	+81.5
TP-08	6.5	+81.5
TP-09	6.5	+82.5
TP-10	6.5	+82.5
TP-11	6.5	+83.5
TP-12	5	+82
CPT-01	N/A	---
CPT-02	10	+81
CPT-03	5	+81
CPT-04	N/A	---
CPT-05	6.3	+86
CPT-06	N/A	---
CPT-07	5.6	+83.4

Notes: bgs = Below ground surface
msl = Mean sea level
N/A = Not available

CONCLUSIONS

Bearing Capacity and Anticipated Settlements

Results of our field explorations and laboratory testing reveal somewhat variable subsurface conditions with respect to density and soil type. Several of the test pits and borings revealed soft, saturated clay between 10 to 20 feet below existing surface grades. These soft clays were found to be moderately plastic with low shear strengths and considered capable of moderate settlement on the order of 3 to 6 inches when heavy, sustained loads are applied to the ground surface.

Information provided by Seigfried Engineering indicates that up to six feet of engineered fill will be used to construct the berms. In our opinion, the weight of this fill could induce consolidation of the underlying soft clay by surcharging the berm areas that to could take several years to achieve equilibrium. Therefore, we consider it prudent that settlement plates be considered to be installed within the berms to monitor surface elevations by a licensed California land-surveyor or engineer until settlement becomes negligible. A schematic diagram of a typical settlement platform detail is provided in Figure 26. Consolidation rates of the underlying clays may be increased by constructing surcharge loads along the berm alignments and/or fill areas.

2013 California Building Code Seismic Design Parameters

Section 1613 of the 2013 California Building Code (CBC) references Chapter 11 (*Seismic Design Criteria)* of the American Society of Civil Engineers (ASCE) Standard 7-10 for the purposes of seismic design (ICC, 2013). The ASCE Standard 7-10 seismic parameters were determined based on the site latitude and longitude (Latitude 39.1252°N, Longitude -122.1244°W) using the public domain computer program developed by the United States Geological Survey (USGS, 2013). The following parameters summarized in the Table 2 may be used for seismic design of the proposed structures using the 2013 CBC.

TABLE 2
2013 CBC/ASCE 7-10 SEISMIC DESIGN PARAMETERS

Latitude: 39.1252° N Longitude: 122.1244° W	ASCE 7-10 Table/Figure	2013 CBC Table/Figure	Factor/ Coefficient	Value
Short-Period MCE at 0.2-seconds	Figure 22-1	Figure 1613.3.1(1)	S_S	1.02g
1.0-second Period MCE	Figure 22-2	Figure 1613.3.1(2)	S_1	0.39g
Soil Class	Table 20.3-1	Section 1613.3.2	Site Class	D
Site Coefficient	Table 11.4-1	Table 1613.3.3(1)	F_a	1.09
Site Coefficient	Table 11.4-2	Table 1613.3.3(2)	F_v	1.61
Adjusted MCE Spectral Response Parameters	Equation 11.4-1	Equation 16-37	S_{MS}	1.11g
	Equation 11.4-2	Equation 16-38	S_{M1}	0.64g
Design Spectral Acceleration Parameters	Equation 11.4-3	Equation 16-39	S_{DS}	0.74g
	Equation 11.4-4	Equation 16-40	S_{D1}	0.42g
Seismic Design Category	Table 11.6-1	Section 1613.3.5(1)	Risk Category I to IV	D
	Table 11.6-2	Section 1613.3.5(2)	Risk Category I to IV	D

Notes:
MCE = Maximum Considered Earthquake
g = Gravity

Faulting

No known active or potentially active faults are shown on current available geologic maps as crossing the site. No indication of surface rupture or fault-related surface disturbance was observed at the site during our site reconnaissance or review of aerial photographs. The site is not located within a designated Alquist-Priolo Earthquake Fault Zone (Bryant & Hart, 2007).

Review of *Probabilistic Seismic Hazard Assessment for the State of California* prepared by the California Geological Survey (CGS) (Peterson, et al., 1996) (Cao, Bryant, Rowshandel, Branum, & Wills, 2003) indicates the site is located within 100 kilometers of several faults that are capable of generating significant earthquake ground motions. CGS Class A and B fault sources with moment magnitudes (M_w) of 6.5 or greater located within approximately 100 kilometers (63 miles) of the site are presented in Table 3. The nearest of these faults is identified as the Great Valley 3 Fault System that trends north to south direction and is located approximately 12.3 kilometers (about 7.6 miles) west of the site. The nearest fault zoned as active pursuant to the guidelines of the Alquist-Priolo Earthquake Fault Zone Act is the Dunnigan Hills Fault located approximately 39 kilometers (about 24 miles) southwest of the site.

TABLE 3
SUMMARY OF FAULTS WITHIN 100 KILOMETERS (63 MILES)

Fault Name	Distance		Seismology Parameters		
	Miles	Km	Maximum Magnitude (M_w)	Peak Site Acceleration (g)	Estimated Site Intensity Modified Mercalli
Great Valley 3	7.6	12.3	6.8	0.339	IX
Great Valley 2	8.9	14.3	6.6	0.248	IX
Great Valley 1	13.9	22.4	6.7	0.212	VIII
Bartlett Springs	24.3	39.1	7.1	0.142	VIII
Hunting Creek - Berryessa	24.3	39.1	6.9	0.127	VIII
Great Valley 4	32.9	53.0	6.6	0.105	VII
Foothills Fault System	36.5	58.8	6.5	0.092	VII
Collayomi	38.1	61.3	6.5	0.073	VII
Concord - Green Valley	46.6	75.0	6.9	0.077	VII
Maacama (South)	47.9	77.1	6.9	0.076	VII
Maacama (Central)	50.6	81.4	7.1	0.080	VII
West Napa	51.0	82.1	6.5	0.058	VI
Rodgers Creek	53.3	85.7	7.0	0.073	VII
Great Valley 5	58.0	93.4	6.5	0.064	VI
Round Valley	58.3	93.8	6.8	0.062	VI

Notes: Km = Kilometers; Mw = Moment Magnitude; g = gravity

Liquefaction Potential

Liquefaction is a soil strength and stiffness loss phenomenon that typically occurs in loose, saturated, cohesionless soil as a result of strong ground shaking during earthquakes. The potential for liquefaction at a site is usually determined based on the results of a subsurface geotechnical investigation and the groundwater conditions beneath the site. Hazards to buildings associated with liquefaction include shallow and deep foundation bearing capacity failure, lateral spreading, and differential settlement below foundations, which can contribute to structural damage or collapse.

In performing our analysis, we used the soil liquefaction assessment software LiqIT (Version 4.7.6.2) developed by GeoLogismiki that utilizes data collected from CPT soundings to determine factors of safety against liquefaction for varying earthquake input energies (GeoLogismiki, 2006). The program uses the results of the National Center for Earthquake Engineering Research (NCEER) liquefaction evaluation methods summarized by Youd, et al (2001). A conservative “high” static groundwater level of +83 feet msl (or about 5 feet below

grade) was used in our analysis based on our review of historic groundwater levels at the site. The mapped MCE geometric mean peak ground acceleration (PGA_M) of 0.44g was used in the liquefaction analysis based on Equation 11.8-1 of ASCE Standard 7-10. A mode magnitude earthquake of 6.6 was used for this analysis using the 2008 USGS National Seismic Hazard Mapping Project (NSHMP) PSHA Interactive Deaggregation web site (USGS, 2008).

Our analysis of the CPT data indicates that most of the soils encountered in the CPTs beneath the site are silt and clay with interbedded silts and sands with a safety factor of 5.0 or greater against liquefaction. However, the analyses indicates the relatively thin discrete soil layers encountered between 8 to 20 feet possess factors of safety against liquefaction between about 0.5 and 1.0. A factor of safety of 1.3 or greater against liquefaction potential is generally considered acceptable (liquefaction-induced settlement unlikely). Copies of the output files for the liquefaction analysis, including the results of the 2008 USGS NSHMP PSHA Interactive Deaggregation, are provided in Appendix C.

Liquefaction potential at the site was also evaluated based on the Liquefaction Potential Index (LPI). The LPI is a measure of the liquefaction potential based on an analysis of the entire vertical soil profile not just discrete layers (Iwasaki, 1986). Factors taken into consideration for the LPI calculations include: thickness of the liquefied layer; proximity of the liquefied layer to the surface; and, the factor of safety. The LPI ranges from 0 to 100 with the value zero representing no liquefaction potential. Based on the analyses, the CPTs revealed relatively low LPI ratings suggesting no liquefaction potential. However, CPT-03 revealed an LPI between 5 and 15 which suggests that liquefaction is probable for the conditions modeled. However, to our knowledge there have been no reported instances of liquefaction having occurred within the Williams area during the major earthquake events of 1892 (Vacaville-Winters), 1906 (San Francisco), 1989 (Loma Prieta), and 2014 (South Napa). A summary of the calculated LPI for each CPT is provided in Table 4.

TABLE 4
SUMMARY OF CALCULATED LIQUEFACTION POTENTIAL INDICES

Exploration Identification	Overall Potential LPI	Liquefaction Potential Rating
CPT-01	0.99	Liquefaction not probable
CPT-02	1.12	Liquefaction not probable
CPT-03	6.91	Liquefaction probable
CPT-04	0.45	Liquefaction not probable
CPT-05	2.28	Liquefaction not probable
CPT-06	4.15	Liquefaction not probable
CPT-07	0.04	Liquefaction not probable

Post-liquefaction settlement estimates were calculated for each CPT using the computer based LiqIT program developed by Geologismiki are determined using the simplified procedure adopted by the National Center for Earthquake Engineering Research (NCEER) in 1998. Based on a magnitude 6.6 earthquake and a PGA_M site acceleration of 0.44g, the predicted liquefaction-induced maximum settlement is on the order of 2½ inches (total). Table 5 provides a summary of the liquefaction induced settlements calculated for each CPT location; copies of the liquefaction output files are provided in Appendix C.

TABLE 5
POST-LIQUEFACTION SETTLEMENTS

CPT Identification	Anticipated Seismic Settlement (inches)
CPT-01	0.5
CPT-02	0.6
CPT-03	2.5
CPT-04	0.3
CPT-05	1.2
CPT-06	1.4
CPT-07	0.1

Excavation Conditions

The surface and near-surface soils should be readily excavatable with conventional construction equipment. Soil sidewalls for the planned foundation excavations and shallow utility excavations likely will remain stable at near-vertical inclinations without significant caving, unless saturated or disturbed soils are encountered.

Excavations deeper than five feet that will be entered by workers should be sloped, braced or shored in accordance with current Cal/OSHA regulations. The contractor must provide an adequately constructed and braced shoring system in accordance with federal, state and local safety regulations for individuals working in an excavation that may expose them to the danger of moving ground.

Excavated materials should not be stockpiled directly adjacent to an open trench to prevent surcharge loading of the trench sidewalls. Excessive truck and equipment traffic also should be avoided near open trenches. If material is stored or heavy equipment is operated near an excavation, stronger shoring would be needed to resist the extra pressure due to the superimposed loads.

Soil Suitability for Engineered Fill Construction

The on-site soils encountered in our borings are considered suitable for use in engineered fill construction, provided these materials are free of significant organics, rubble, and other deleterious debris, and are at moisture contents capable of achieving the desired degree of compaction. Our borings encountered granular soil beneath the surface clay within the proposed cooling ponds; these materials are considered suitable as engineered fill materials.

Estimated Shrinkage Factor

Previous experience with earthwork construction in agricultural areas with similar soil conditions suggests that an appropriate shrinkage factor between 15 and 25 percent could be used for balancing earthwork quantities for the project site. It is emphasized that the suggested shrinkage factors provided are only estimates and that actual shrinkage will depend on numerous factors, such as soil variability, densification of underlying soils and degree of compaction achieved beyond the minimum 90 percent requirement. Material quantities should be monitored during the earthwork progress to determine whether grade adjustments are warranted.

Groundwater and Seasonal Moisture

Based on our explorations, we anticipate excavations greater than five feet below existing site grades may encounter groundwater and require dewatering (depending on the time of year). For design purposes, groundwater should be anticipated at an elevation of +83 feet msl, which is the average groundwater depth encountered in the test pits/CPTs plus one standard deviation. Groundwater levels in the area will fluctuate due to seasonal changes, subsurface soil conditions, local irrigation practices, and the close proximity of ponds, drainage canals and ditches.

Control of groundwater may require the use of sumps, submersible pumps, deep wells or a well point system as methods to lower the groundwater level. The dewatering method used will depend on the soil conditions, depth of the excavation and amount of groundwater present within the excavations. Dewatering should be the contractor's responsibility. The dewatering system should be designed and constructed by a dewatering contractor with local experience. We recommend the selected dewatering system lower the groundwater level to at least two feet below the bottom of the proposed excavations.

Grading operations attempted following the on-set of winter rains and prior to prolonged drying periods will be hampered by high soil moisture contents. We anticipate the soils exposed after removal of the existing pavements will be at elevated moisture contents. Such soils, intended for use as engineered fill, will require considerable drying and aeration to reach a moisture content that will permit the specified degree of compaction to be achieved.

Permeability of Near-Surface Soils

Permeability tests were conducted on two relatively undisturbed samples and two remolded samples to represent engineered fill materials anticipated to be used during construction of the berms. Laboratory test results indicate the near-surface native clay possess permeability rates of 10^{-6} to 10^{-8} centimeters per second (cm/sec) when tested in accordance with ASTM D 5084 test method. Laboratory test results of the remolded samples revealed permeability rates of 10^{-6} to 10^{-7} cm/sec. Based upon the laboratory test results, we conclude that permeability on the order of 10^{-5} cm/sec would be appropriate for a relatively conservative evaluation of seepage rates of the planned cooling ponds. We also conclude that a permeability on the order of 10^{-6} cm/sec would be appropriate for our seepage analysis through the proposed berm materials.

Seepage

We have modeled the proposed 160-acre cooling pond on the east side of the facility as a large diameter, dewatering well using the procedures developed by Harry Cedergren (Cedergren, 1989) and have utilized a soil permeability of 10^{-5} cm/sec. We have assumed radius of influence of 200 feet and a depth to impervious layer of about 50 feet. We have analyzed the cooling pond for both winter and summer conditions. For both winter and summer conditions, we have used the permanent pond elevation of +94 feet msl. However, we also assumed high groundwater conditions of +83 feet msl for the winter and a low groundwater elevation of +80 feet msl for summer conditions. Using these parameters, we have computed the following maximum seepage rates for both winter and summer conditions summarized in Table 6 as follows:

TABLE 6
ESTIMATED TOTAL SEEPAGE RATES

Seasonal Conditions	Anticipated Groundwater Depth feet, bgs	Design Bottom Elevation feet, msl	Estimated Seepage Gallons per minute
Winter	+83	+88	5
Summer	+80	+88	5

Notes:
bgs = Below ground surface
msl = Mean sea level

Based on the above seepage rates, we conclude that seepage out of the cooling ponds during the winter and summer months will be essentially the same and on the order of 10 to 20 gallons per minute (gpm) when the retained water is at an elevation of +94 feet msl. These seepage rates assume unlined conditions and do not include losses due to evaporation or other factors.

Berm Analyses

Slope Stability

Slope stability analyses were performed for three different berm conditions including: 1) exterior berm with landfill, 2) exterior berm without landfill, and, 3) interior berms. Each berm cross-section was analyzed using the computer program Slide (Version 5.044), developed by Rocscience, Inc. of Toronto, Ontario, Canada. Four different loading cases as described in Section 6.5 of the Design and Construction of Levees (EM 1110-2-1913), dated April 30, 2000, prepared by the US Army Corps of Engineers (U.S. Army Corps of Engineers, 2000). Berm slopes were analyzed for four different loading cases summarized as follows:

- Case I - End of Construction (Both water and landside slopes)
- Case II - Sudden Drawdown
- Case III - Steady Seepage from Full Flood Stage
- Case IV - Earthquake

Each loading case described above also included a uniform surcharge load of 150 pounds per square foot (psf) for periodic maintenance vehicles. We used the 0.29g, which is the $PGA_M/1.5$ as recommended by the California Geological Survey for pseudo-static analyses (CGS, 2013). Soil strength parameters were derived from laboratory testing of anticipated berm and

foundation soils obtained during our recent field explorations and summarized in Table 7 as follows:

TABLE 7
SOIL STRENGTH PARAMETERS

Soil Type	Moist Unit Weight (pcf)	Effective Unit Weight (pcf)	Cohesion (psf)	Angle of Internal Friction (ϕ)	Hydraulic Conductivity (ft/sec)
Engineered Fill	120	58	750	25	$3x10^{-8}$
Native Silty Sand	125	63	0	32	$3x10^{-5}$
Native Soft Clay	115	53	500	28	$3x10^{-8}$
Native Hard Clay	115	53	2000	24	$3x10^{-8}$

Note: N/A = Not Applicable

Results of our slope stability analyses generally revealed estimated factors of safety ranging from 1.1 up to 8.1 for the modeled conditions. A summary of the estimated factors of safety is provided in Table 8; copies of the graphical output information from the slope stability analyses are provided in Appendix D. The General Limit Equilibrium (GLE) method of slope stability analysis was used.

TABLE 8
SLOPE STABILITY ANALYSIS RESULTS

Case	Slope Loading Condition	Estimated Factor of Safety						Minimum Required Factor of Safety
		Exterior Berm with Landfill		Exterior Berm without Landfill		Interior Berm		
		Waterside	Landside	Waterside	Landside	Waterside	Landside	
I	End of Construction	3.5	8.1	2.7	2.9	N/A	3.7	1.3
II	Sudden Drawdown	2.7	N/A	1.9	N/A	N/A	2.4	1.2
III	Steady-state Seepage	5.1	6.7	4.3	2.3	N/A	4.5	1.4
VI	Earthquake	1.6	1.7	1.2	1.1	N/A	1.4	1.1

Note: N/A = Not Applicable

Seepage Analysis

Seepage analysis of the pond berms was performed using the two-dimension, finite element groundwater module contained within the Slide 5.0 computer program. Each of the three cross-

sections described above were evaluated for steady-state seepage with a fixed-head boundary condition corresponding to the full-water elevation of +94 feet msl was applied to the waterside slope of the berms. A ground surface elevation of +88 feet msl was applied to the landside edge of the berm and along the landside vertical edge of the model. A "no-flow" boundary was established at the bottom of the model. The remaining surfaces were modeled as "potential" seepage surfaces.

Soil design parameters used in the seepage analysis were developed based on laboratory testing summarized in Table 7 above. The anisotropy ratio of the horizontal to vertical permeability for engineered fills was conservatively assumed to be equal to one; and four for the foundation soils.

The results of the seepage analysis resulted in vertical exit gradients ranging from 0.5 to 1.2. Estimated vertical exit gradients are summarized in Table 9 as follows; copies of the output information for the seepage analysis are provided in Appendix D.

TABLE 9
BERM SEEPAGE ANALYSIS RESULTS

Berm Condition	Maximum Calculated Vertical Exit Gradient
Exterior Berm with Landfill	0.5
Exterior Berm with no Landfill	1.2
Interior Berm	N/A

Note: N/A = Not Applicable

Based on the above analyses, the proposed pond berms should not experience slope instability or excessive seepage during sustained high water levels within the ponds. However, field explorations revealed somewhat variable subsurface conditions with highly permeable, granular soil at or near the bottom of the proposed ponds and along the proposed berm alignments that may result in some seepage under exterior berms with no landfill. We have provided recommendations for additional explorations during site grading to confirm our conclusions and allow us the opportunity to revise our recommendations, if necessary. Seepage may be controlled by over-excavating the granular soil from the blanket areas and replacing with engineered fill composed of native, on-site clay.

RECOMMENDATIONS

General

We anticipate maximum excavations and fills on the order of one to eight feet for the proposed improvements. The recommendations in this report are based upon this assumption. Also, the recommendations presented below are appropriate for typical construction in the late spring through fall months. The on-site soils likely will be saturated by rainfall in the winter and early spring months. Should the construction schedule require work to continue during the wet months, additional recommendations can be provided, as conditions dictate.

Site Clearing

The proposed construction areas should be cleared of surface and subsurface structures associated with existing/previous development at the site, underground utilities designated for removal, including trench backfill, and underground irrigation/drainage lines, if present. On-site wells present at the site should be abandoned in accordance with CCEHD requirements. Surface organics should be removed by stripping. Strippings should not be used in general fill construction, but may stockpiled on site for future use at the plant. Discing of organics into the surface soils may be a suitable alternative to stripping, depending upon the quantity and condition of the surface vegetation at the time of grading. Discing should be allowed only with our prior approval and discing operations must be continuous until organics are adequately mixed with the soil to provide a compactable mixture. Pockets or concentrations of organics will not be acceptable.

Existing ponds, drainage ditches and canals present throughout the site should be cleaned of organics, organically laden soil, and saturated and unstable soil to expose firm, native materials. The exposed surfaces should be scarified to a depth of 12 inches and uniformly compacted to at least 90 percent of the maximum dry density as determined by ASTM D 1557 test method (ASTM, 2014), if greater than three feet from final subgrade elevation, and to at least 85 percent relative compaction if less than three feet below final subgrade elevation. Berms, designated to be removed, should be flattened and may be used as fill material provided that these soils are not saturated and free of significant concentrations of organic matter, rubble, rubbish, or other deleterious debris. It is possible that the excavated soil from the bottom of the drainage canals and ditches will be saturated, and will require aeration and a period of drying to allow proper compaction. The Geotechnical Engineer or his representative should provide alternative recommendations for stabilizing the bottom of the excavations, as conditions warrant.

Compaction operations should be performed in the presence of the geotechnical engineer's representative who will evaluate the performance of the materials under compaction loads.

Depressions resulting from clearing operations, as well as any loose, saturated, or organically contaminated soils, as identified by our representative, should be cleaned out to firm, undisturbed soils and widened, as necessary, to allow access with construction equipment. Depressions should be backfilled with engineered fill in accordance with the recommendations contained in this report.

We consider it essential that the Geotechnical Engineer or his representative be present during site clearing activities to verify the adequate removal of subsurface structures. If clearing takes place well in advance of site grading and the proper compaction equipment is not available at that time, the excavations from removal operations should be left open as dish-shaped depressions to facilitate identification and proper backfilling during site grading operations.

Site Preparation

Following the site clearing activities, construction areas to receive fill including berm foundation soil, or those areas to remain at-grade or achieved by excavation, should be scarified to a depth of at least 12 inches. The scarified soil should be thoroughly moisture conditioned to at least two percent over optimum, and compacted to at least 90 percent relative compaction. Due to the relatively loose nature of the surface soils, thorough moisture conditioning and compaction of the existing surface soils is crucial to site development.

Compaction of soil subgrades should be achieved using a heavy, self-propelled, sheepsfoot compactor (such as a Caterpillar 815 or equivalent) and must be performed in the presence of the Geotechnical Engineer's representative who will evaluate the performance of the subgrade under the compaction loads and identify loose or unstable soil conditions that could require additional excavation. Difficulty in achieving subgrade compaction or unusual soil instability may be indications of loose soils associated with past subsurface items such as utilities, burn pits, or dump pits. Should these conditions exist, the materials should be excavated to check for possible subsurface structures and the excavations backfilled with engineered fill.

We recommend construction bid documents contain a unit price (per cubic yard) for additional excavation due to unsuitable materials and replacement with engineered fill.

Engineered Fill Construction

On-site soils will be suitable for engineered fill construction in structural and berm areas, if free from rubbish, rubble greater than three inches, and significant organic concentrations. Imported fill materials, if required, should be similar to the native on-site clay. Imported soils should be approved by our office prior to being transported to the site. Also, if import fills are required (other than aggregate base), the contractor must provide appropriate documentation that the import is clean of known contamination and within acceptable corrosion limits.
Engineered fill should be placed in lifts not exceeding six inches in compacted thickness with each lift being uniformly moisture conditioned to at least two percent above the optimum moisture content for fine-grained soils (e.g. clay), and compacted to not less than 90 percent relative compaction.

Permanent excavation and fill slopes should be constructed no steeper than two horizontal to one vertical (2H:1V) and should be vegetated as soon as practical following grading to minimize erosion. As a minimum, erosion control measures including placement of straw bale sediment barriers or construction of silt filter fences in areas where surface run-off may be concentrated. Slopes should be over-built and cutback to design grades and inclinations.

It is essential that the Geotechnical Engineer's representative be present on a regular basis during all clearing and grading operations to verify adequate removal of remnants from former construction, and also to verify thorough re-compaction of disturbed soils and observe and test fill materials, as necessary.

Pond Construction

The bottom design elevation for the cooling ponds will be about +88 feet msl, which we anticipate will expose silts and clays with variable amounts of sand and mixtures of sand with gravels. Native clay materials are suitable for use as the pond liner material. Due to the size of the ponds, it is our opinion that geosynthetic liners and chemical stabilization may not be cost-effective. We recommend that during construction, additional test pits be excavated along the berm alignments to confirm the presence of appropriate blanket materials (e.g. clay). These test pits should be observed in the presence of the Geotechnical Engineer or his representative.

The exposed surfaces within the pond bottom and side-slopes should be scarified to a depth of at least 12 inches, moisture conditioned to at least two percent above the optimum moisture content, as necessary and uniformly compacted to at least 90 percent of the ASTM D 1557 maximum dry density. The intent of this recommendation is to provide uniformity and increased

stability to the side slopes and bottom of the basin. Our representative should be on-site during pond construction to observe the pond bottom for the presence of fine-grained soils and to observe compaction activities to verify compliance with the recommendations of this report.

If significant amounts of permeable materials are found at the bottom and along the sidewalls of the pond, these areas should be excavated to expose underlying fine grained (cohesive) soils, or at least two feet, whichever is shallower, and replaced with native clay soils placed as engineered fill.

Three different berm configurations are planned for the project. Based on our understanding of the project and results of our field and laboratory testing, Table 10 provides a summary of the recommended slope gradients. Berms should be over-built and trimmed to the design grades and track-walked.

TABLE 10
RECOMMENDED SLOPE GRADIENTS FOR ON-SITE BERMS

Berm Description	Landside	Waterside
Berm with Landfill	5H:1V	4H:1V
Berm without landfill	5H:1V	4H:1V
Interior Berm	N/A	4H:1V

Note: N/A = Not Applicable

Based upon the assumption that moving water velocities within the ponds will be minimal, it is our opinion that recompaction of the surface soils should be adequate for controlling the major portion of erosion problems for the cooling pond berm slopes. Surface run-off water should not be allowed to sheet flow over unprotected slopes.

We anticipate desiccation cracking of the pond side-slopes and berms will occur in exposed soil during the dry summer months. To reduce the potential for desiccation and subsequent erosion of the berms and sidewalls, we recommend that hydroseeding or another form of erosion protection (e.g. riprap) of the exposed slopes be provided. Additional erosion protection measures will be needed in areas subjected to concentrated water flows, especially where piping or other structures pass through the berms. We anticipate minor sloughing or erosion of the exposed slopes during adverse weather conditions or burrowing rodents, and recommend a program of period inspection and maintenance be provided to keep the ponds and associated berms in good condition.

Underground Utility Crossings

Dewatering

Utility cross areas may need to be dewatered prior to construction if pipe invert elevations extend deeper than +83 feet msl. Dewatering should lower the groundwater at least three feet below the bottom of the proposed excavations. Some seepage into the excavations should be anticipated after dewatering is accomplished. For isolated seepage situations, the use of an increased gravel section and sump pumps may be a suitable method of controlling the groundwater. The dewatering system should be designed and constructed by a dewatering contractor with local experience in the immediate vicinity of this project.

Anti-seepage devices should be provided for pipe crossings to prevent piping and erosion along the outside of the pipe and at the water side of the pipe crossing. Anti-seepage devices typically consist of metal diaphragms (seepage fins) or concrete collars poured around the pipe and extend into the backfill material. Thorough compaction of the backfill materials is considered crucial for the performance of the anti-seepage devices. Backfill should be placed and compacted in accordance with the following sections.

Excavation Slopes

Based on the soil types encountered in our explorations and the requirements of Cal/OSHA, short-term, unsupported excavation slopes less than 20 feet in height should be constructed no steeper than one and one-half horizontal to one vertical (1½H:1V). However, near-vertical excavations may be utilized for utility crossings provided that these excavations do not exceed five feet in depth. It may be necessary to utilize flatter slopes if seepage through the trench sidewalls is encountered or if cohesionless soils are encountered exhibit signs of instability or sloughing into the excavation.

Trench Backfill Materials

Utility pipe trenches that cross berms should be excavated to at least two feet below the invert depth of the pipe and at least two feet wider than the pipe to provide adequate access of compaction equipment. Backfill should be placed evenly within the excavation on both sides of the pipe to prevent unequal side loads that could move the pipe or fail the pipe.

Pipe bedding and initial backfill for pipes should conform to the pipe manufacturer's recommended bedding materials. On-site sands, if encountered, may be utilized for bedding and initial backfill, provided these materials are tested and found to conform to County standards. On-site soils may be used as general backfill material above initial pipe backfill assuming the soils are free of rubble, organics, deleterious debris and at an appropriate moisture content necessary to achieve the desired degree of compaction. Crushed rock should not be used for utility crossings between adjacent cooling ponds to prevent piping and potential erosion-related issues.

Trench backfill should be placed in lifts not exceeding 12 inches in compacted thickness. Each lift should be thoroughly moisture conditioned to between optimum and two percent above the optimum moisture content and uniformly compacted to 90 percent of the ASTM D 1557 maximum dry density. Jetting as the sole means of compaction is <u>not</u> recommended.

<u>Retaining Wall Design Parameters</u>

Retaining walls that will be allowed to slightly rotate about their base (unrestrained at the top or sides) should be capable of resisting "active" lateral earth pressure equal to an equivalent fluid pressure of 60 psf per foot of wall backfill for horizontal backfill and fully drained conditions. Retaining walls that are fixed at the top should be capable of resisting "at-rest" lateral earth pressure equal to an equivalent fluid pressure of 80 psf per foot of wall backfill, again assuming horizontal backfill and fully drained conditions. Walls supporting sloping backfill, up to a 2H:1V inclination, should be designed adding an additional 20 psf per foot of wall to the pressures presented above.

Retaining walls may be supported on a continuous foundation extending at least 18 inches below lowest adjacent soil grade. Continuous footings for the retaining wall may be sized based on an allowable "net" bearing capacity of 2000 pounds per square foot for dead plus live loads with a 1/3 increase for short-term wind or seismic forces. Lateral resistance of shallow foundations may be computed using an allowable friction factor of 0.25 multiplied by the effective vertical load on the foundation. Passive resistance developed against foundations may be computed using an equivalent fluid pressure of 250 psf per foot of depth, applied to the vertical projection of the foundation. These two modes of resistance should not be added unless the frictional component is reduced by 50 percent since mobilization of the passive resistance requires some horizontal movement, effectively reducing the frictional resistance.

Backfill behind retaining walls should be fully drained to prevent the build-up of hydrostatic pressures behind the wall. Retaining walls should be provided with a drainage blanket (Class 2 permeable material (Caltrans Specification Section 68-1.025) at least one foot wide extending from the base of wall to within one foot of the top of the wall or proprietary geocomposite drainage board. The top foot above the drainage layer should consist of compacted on-site materials. Weep holes or perforated rigid pipe, as appropriate, should be provided at the base of the wall to collect accumulated water. Open-graded ½- to ¾-inch crushed rock may be used in lieu of the Class 2 permeable material, if the rock and drain pipe are completely enveloped in an approved non-woven geotextile filter fabric.

Wall backfill should consist of native on-site soils compacted to at least 90 percent of the maximum dry density as determined by ASTM D 1557.

Geotechnical Engineering Observation and Testing During Earthwork

Site preparation should be accomplished in accordance with the recommendations of this report. Geotechnical testing and observation during construction is considered a continuation of our geotechnical engineering investigation. Wallace-Kuhl & Associates should be retained to provide testing and observation services during site preparation, earthwork, and foundation construction at the project to verify compliance with this geotechnical report and the project plans and specifications and to provide consultation as required during construction. These services are beyond the scope of work authorized for this investigation. We would be pleased to submit a proposal to provide these services upon request.

Section 1803.5.8 “Compacted Fill Material” of the 2013 CBC requires that the geotechnical engineering report provide a number and frequency of field compaction tests to determine compliance with the recommended minimum compaction. Many factors can affect the number of tests that should be performed during the course of construction, such as soil type, soil moisture, season of the year and contractor operations/performance. Therefore, it is crucial that the actual number and frequency of testing be determined by the Geotechnical Engineer during construction based on their observations, site conditions, and difficulties encountered. As a preliminary guideline, we recommend the following minimum tests:

- mass grading: one test per 500 cubic yards of compacted fill or one per day of work, whichever is greater;
- final subgrade preparation: one test per 5,000 square feet;
- aggregate base compaction: one test per 5,000 square feet;
- utility backfill: one test per foot of backfill for every 150 linear feet of trench; and,
- wall backfill: one test per foot of backfill for every 100 linear feet of wall.

In the event that Wallace-Kuhl & Associates is not retained to provide geotechnical engineering observation and testing services during construction, the Geotechnical Engineer retained to provide these services should indicate in writing that they agree with the recommendations of this report, or prepare supplemental recommendations as necessary. A final report by the "Geotechnical Engineer" should be prepared upon completion of the project.

LIMITATIONS

Our recommendations are based upon the information provided regarding the proposed project, combined with our analysis of site conditions revealed by the field exploration and laboratory testing programs. We have used prudent engineering judgment based upon the information provided and the data generated from our study. This report has been prepared in substantial compliance with generally accepted geotechnical engineering practices that exist in the area of the project at the time the report was prepared. No warranty, either express or implied, is provided.

If the proposed construction is modified or re-sited; or, if it is found during construction that subsurface conditions differ from those we encountered at the exploration locations, we should be afforded the opportunity to review the new information or changed conditions to determine if our conclusions and recommendations must be modified.

We emphasize that this report is applicable only to the proposed construction and the investigated site, and should not be utilized for construction on any other site.

The conclusions and recommendations of this report are considered valid for a period of three years. If design is not completed and construction has not started within three years of the date of this report, the report must be reviewed and updated as necessary.

Wallace-Kuhl & Associates

REGISTERED PROFESSIONAL ENGINEER
MICHAEL M. WATARI
NO. 2675
Exp. 12-31-15
GEOTECHNICAL
STATE OF CALIFORNIA

4/15/15

Michael M. Watari
Senior Engineer

MMW:DRG:\mmw

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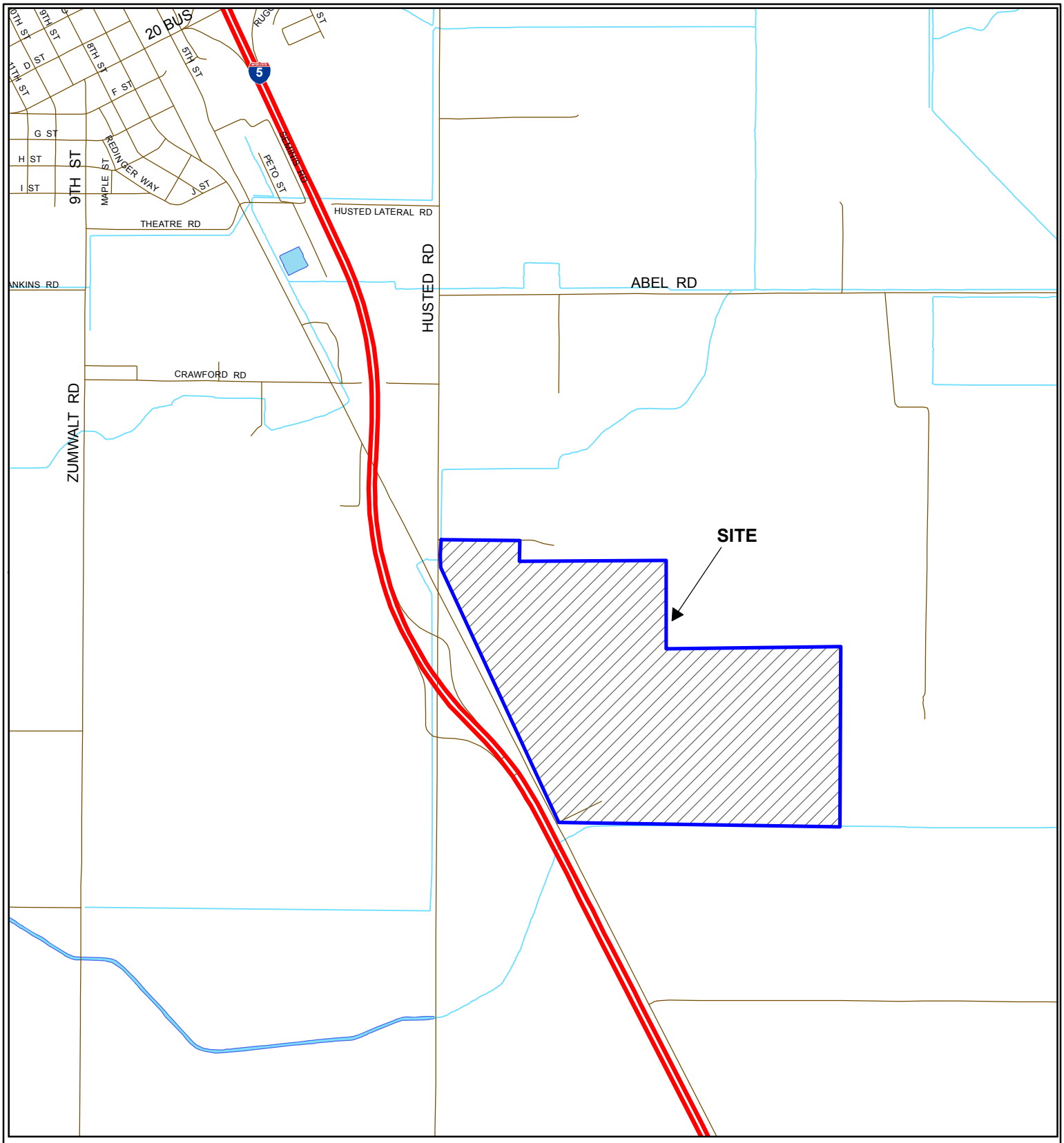


Street data courtesy of ESRI, 2008
Hydrography courtesy of the U.S. Geological Service
acquired from the GIS Data Depot, December, 2008
Projection: NAD 83, California State Plane, Zone II

N

0 1,000 2,000
Feet

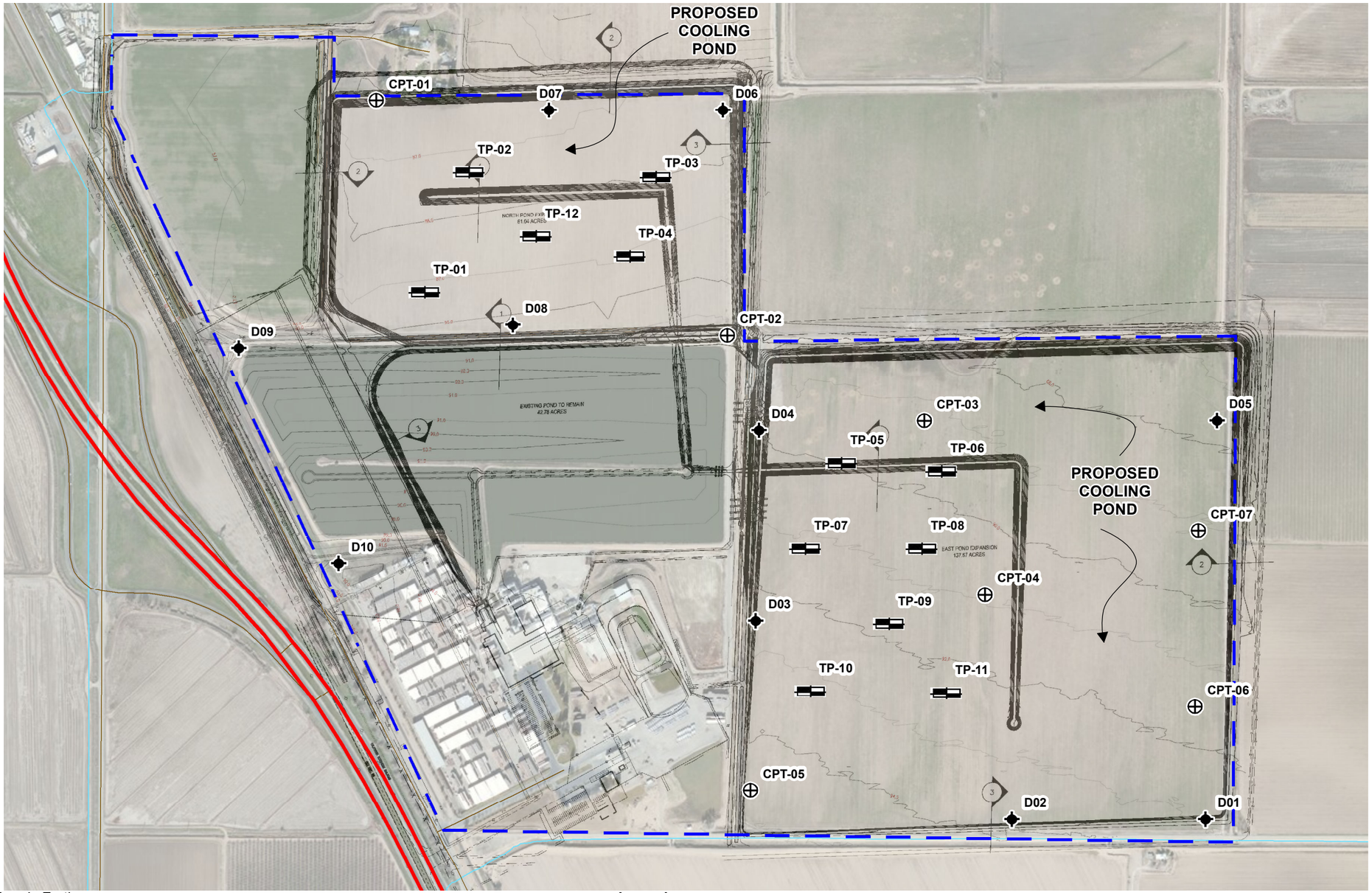
WallaceKuhl & ASSOCIATES

VICINITY MAP

MORNING STAR PACKING COMPANY
COOLING POND EXPANSION
Williams, California

FIGURE	1
DRAWN BY	RWO
CHECKED BY	MMW
PROJECT MGR	MMW
DATE	04/15

WKA NO. 10487.01



Aerial photo adapted from Google Earth
image dated: July 11, 2013
Site Map adapted from plan provided by
Seigfried Engineering dated: February 24, 2015

Legend

- Site_Boundary
- Test Pit Location
- Approximate CPT Location
- Approximate Boring Location

N

0 300 600
Feet

Wallace Kuhl & ASSOCIATES

SITE PLAN
MORNING STAR PACKING COMPANY
COOLING POND EXPANSION
Williams, California

FIGURE	2
DRAWN BY	RWO
CHECKED BY	MMW
PROJECT MGR	MMW
DATE	04/15
WKA NO.	10487.01

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF SOIL BORING D01

Sheet 1 of 2

Date(s) Drilled	**3/5/15**	Logged By	**ML**	Checked By	**MMW**
Drilling Method	**Rotary Wash**	Drilling Contractor	**V & W Drilling, Inc.**	Total Depth of Drill Hole	**50.0 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**4"**	Approx. Surface Elevation, ft MSL	**89.0**
Groundwater Depth [Elevation], feet	**[]**	Sampling Method(s)	**Modified California**	Drill Hole Backfill	**Neat Cement**
Remarks	**Groundwater elevation not recorded due to rotary wash drilling method.**			Driving Method and Drop	**140 lb hammer, 30 inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown, moist, medium stiff, sandy CLAY (CL); fine sand.		D1-1I	8			PP = 1.25 tsf
85	5		Brown, moist, very loose to loose, sandy SILT (ML); fine sand.		D1-2I	4	18.8	106	K
80	10		Brown, wet, very soft, silty CLAY (CL); trace of fine sand.		D1-3I	2	28.4	90	PP = 0.25 tsf
			sample advancement pressure: 150 psi sample recovery: 15"/30"		D1-4I				PP = 0.0 tsf PI
75	15				D1-5I	3	26.3	98	PP = 0.0 tsf UCC = 0.3 tsf
70	20		soft to medium stiff		D1-6I	5	24.1	101	PP = 0.5 tsf
			Brown, wet, very loose to loose, clayey SAND to sandy CLAY (SC/CL); fine to medium sand.						
65	25				D1-7I	4			
60			Brown, wet, very stiff, silty CLAY (CH).						

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Wallace Kuhl & ASSOCIATES

FIGURE 3

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF SOIL BORING D01

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
					D1-8I	27	21.9	105	PP = 3.5 tsf
			Brown, wet, very stiff, sandy CLAY (CL); fine sand.						
55	35				D1-9I	33			PP = 4.0 tsf
50	40		lens of silty sand stiff to very stiff		D1-10I	18	18.4	116	PP = 3.5 tsf
			Brown, wet, medium dense, silty SAND (SM); fine to medium sand.						
45	45		Brown with dark brown mottling, wet, very stiff, silty CLAY (CH).						
40	50				D1-11I	34			PP = 4.0 tsf
			Boring terminated at 50' below existing site grades.						

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Wallace Kuhl & ASSOCIATES

FIGURE 3

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF SOIL BORING D02

Sheet 1 of 2

Date(s) Drilled	**3/5/15**	Logged By	**ML**	Checked By	**MMW**
Drilling Method	**Rotary Wash**	Drilling Contractor	**V & W Drilling, Inc.**	Total Depth of Drill Hole	**36.4 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**4"**	Approx. Surface Elevation, ft MSL	**91.0**
Groundwater Depth [Elevation], feet	**[]**	Sampling Method(s)	**Standard Penetration Test**	Drill Hole Backfill	**Neat Cement**
Remarks	**Groundwater elevation not recorded due to rotary wash drilling method.**			Driving Method and Drop	**140 lb hammer, 30 inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown, dry, silty CLAY (CL).						
90			Brown, moist, medium dense, poorly-graded SAND with silt and gravel (SP-SM); fine to coarse sand; fine gravel.		D2-1I	13	3.3		
					D2-2I	15			GR 7% fines
	5				D2-3I	17			
85			Brown, wet, soft, sandy CLAY to clayey SAND (CL/SC); fine to coarse sand; trace of fine gravel.						
	10				D2-4I	4	24.2		
80			Brown, wet, very loose, poorly-graded GRAVEL with silt (GP-GM); fine gravel; with fine to coarse sand.						
	15				D2-5I	2			GR 6% fines
75			Brown, wet, soft to medium stiff, silty CLAY (CL).						
	20				D2-6I	4	15.2		PP = 0.5 tsf
70			Brown, wet, very loose to loose, silty SAND (SM); fine to coarse sand; trace of fine gravel.						
			Brown, wet, medium stiff, silty CLAY (CH); trace of fine sand.						
	25				D2-7I	7			PP = 0.5 tsf PI
65									

BORING LOG 10487.01 - MORNING STAR PACKING COMPANY BORING LOGS.GPJ WKA.GDT 4/15/15 11:58 AM

Wallace Kuhl & ASSOCIATES

FIGURE 4

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF SOIL BORING D02

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			medium stiff to stiff						
60					D2-8I	8			PP = 1.5 tsf
	35		stiff						
55					D2-9I	15			
			Brown, wet, stiff, sandy CLAY (CL); fine to medium sand.						
			Boring terminated at 36.5' below existing site grades.						

BORING LOG 10487.01 - MORNING STAR PACKING COMPANY_BORING LOGS.GPJ WKA.GDT 4/15/15 11:58 AM

Wallace Kuhl & ASSOCIATES

FIGURE 4

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF SOIL BORING D03

Sheet 1 of 2

Date(s) Drilled	**3/5/15**	Logged By	**ML**	Checked By	**MMW**
Drilling Method	**Rotary Wash**	Drilling Contractor	**V & W Drilling, Inc.**	Total Depth of Drill Hole	**36.5 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**4"**	Approx. Surface Elevation, ft MSL	**90.0**
Groundwater Depth [Elevation], feet	**[]**	Sampling Method(s)	**Modified California**	Drill Hole Backfill	**Neat Cement**
Remarks	**Groundwater elevation not recorded due to rotary wash drilling method.**			Driving Method and Drop	**140 lb hammer, 30 inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown, moist, stiff, sandy CLAY (CL); fine sand.						
					D3-1I	11			PP = 1.0 tsf PI
			Brown, moist, loose, silty SAND (SM); fine to coarse sand; trace of fine gravel.		D3-2I	6			
85	5				D3-3I	1	33.6	87	PP = 0.0 tsf
			Brown, wet, very soft to soft, silty CLAY (CL); trace of fine sand.						
			Brown, wet, medium dense, sandy CLAY (CL); fine to coarse sand; trace of fine gravel. sample advancement pressure: 50 psi sample recovery: 6"/30"		D3-4I				PP = 0.5 tsf GR 56%fines
80	10								
					D3-5I	10			PP = 2.0 tsf
75	15		Brown, wet, stiff, silty CLAY (CL).						
			Brown, wet, soft, silty CLAY with sand (CL); fine sand.						
					D3-6I	3	31.3	91	PP = 0.25 tsf
70	20		Brown, wet, soft, sandy CLAY (CL); fine to medium sand. sample advancement pressure: 100 psi sample recovery: 6"/30"		D3-7I				
			Brown, wet, stiff to very stiff, silty CLAY (CH).						
65	25				D3-8I	16			PP = 2.0 tsf

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Wallace Kuhl & Associates

FIGURE 5

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF SOIL BORING D03

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			very stiff to hard		D3-9I	24			PP = 4.0 tsf
55	35				D3-10I	24			PP = 4.5 tsf
			trace of fine sand						
			Boring terminated at 36.5' below existing site grades.						

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Wallace Kuhl & ASSOCIATES

FIGURE 5

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF SOIL BORING D04

Date(s) Drilled	**3/5/15**	Logged By	**ML**	Checked By	**MMW**
Drilling Method	**Rotary Wash**	Drilling Contractor	**V & W Drilling, Inc.**	Total Depth of Drill Hole	**51.5 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**4"**	Approx. Surface Elevation, ft MSL	**84.0**
Groundwater Depth [Elevation], feet	**[]**	Sampling Method(s)	**Standard Penetration Test**	Drill Hole Backfill	**Neat Cement**
Remarks	**Groundwater elevation not recorded due to rotary wash drilling method.**			Driving Method and Drop	**140 lb hammer, 30 inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Brown, moist, medium stiff, silty CLAY (CL); trace of fine sand.						
					D4-1I	6			
80					D4-2I	7	28.6		
	5				D4-3I	0			PP = 0.0 tsf
			wet, very soft						
			sample advancement pressure: 50 psi sample recovery: 7"/30"		D4-4I		34.3	89	PP = 0.0 tsf UCC = 0.1 tsf
75	10								
70									
	15		medium stiff to stiff		D4-5I	10	24.4	104	PP = 1.5 tsf TR
65									
	20				D4-6I	8	28.5		PP = 0.5 tsf
			Brown, wet, medium dense, clayey SAND (SC); fine to medium sand.						
60	25				D4-7I	13			
			Brown, wet, stiff, silty CLAY (CH).						
55									

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FIGURE 6

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF SOIL BORING D04

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
					D4-8I	8	24.6		PP = 1.5 tsf
50	35		Brown to red-brown, wet, loose to medium dense, silty SAND (SM): fine to medium sand.		D4-9I	10			
45	40		Brown, wet, medium dense, poorly-graded SAND with silt and gravel (SP-SM); fine to coarse sand; fine gravel.		D4-10I	12	13.5		8% fines
40	45		Brown, wet, very stiff, silty CLAY (CH).		D4-11I	18			PP = 4.0 tsf
35	50				D4-12I	15	29.0		PP = 3.5 tsf
			Boring terminated at 51.5' below existing site grades.						

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FIGURE 6

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF SOIL BORING D05

Sheet 1 of 2

Date(s) Drilled	**3/5/15**	Logged By	**ML**	Checked By	**MMW**
Drilling Method	**Rotary Wash**	Drilling Contractor	**V & W Drilling, Inc.**	Total Depth of Drill Hole	**36.5 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**4"**	Approx. Surface Elevation, ft MSL	**87.0**
Groundwater Depth [Elevation], feet	**[]**	Sampling Method(s)	**Modified California**	Drill Hole Backfill	**Neat Cement**
Remarks	**Groundwater elevation not recorded due to rotary wash drilling method.**			Driving Method and Drop	**140 lb hammer, 30 inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, medium stiff to stiff, silty CLAY (CL).						
85					D5-1I	9	21.2	96	PP = 2.5 tsf
									PP = 2.0 tsf
			brown, trace of fine sand		D5-2I	7			PI GR 85%fines
	5		wet, very soft		D5-3I	2			PP = 0.0 tsf
80									
			sample advancement pressure: 0 psi sample recovery: 0"/30"		D5-4I				
	10				D5-5I	2	26.6	99	PP = 0.0 tsf
75									
			Brown, wet, very loose, clayey SAND to sandy CLAY (SC/CL); fine to medium sand.						
	15				D5-6I	0			
			Brown, wet, very loose, clayey SAND (SC); fine to medium sand.						
70									
	20								
			Brown, wet, very soft to soft, silty CLAY (CL); trace of fine sand.		D5-7I	3	27.2	95	PP = 0.5 tsf
65									
			Brown, wet, soft, sandy CLAY (CL); fine sand. sample advancement pressure: 100 psi sample recovery: 5"/30"		D5-8I				PP = 0.5 tsf
	25		Brown, wet, stiff to very stiff, silty CLAY (CH).		D5-9I	15			PP = 2.0 tsf
60									
			Brown, wet, very stiff, sandy CLAY (CL); fine sand.						

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FIGURE 7

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF SOIL BORING D05

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
					D5-10I	20			PP = 4.0 tsf
55									
	35				D5-11I	18			PP = 4.0 tsf
			Boring terminated at 36.5' below existing site grades.						

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FIGURE 7

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF SOIL BORING D06

Sheet 1 of 2

Date(s) Drilled	**3/6/15**	Logged By	**ML**	Checked By	**MMW**
Drilling Method	**Rotary Wash**	Drilling Contractor	**V & W Drilling, Inc.**	Total Depth of Drill Hole	**50.0 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**4"**	Approx. Surface Elevation, ft MSL	**90.0**
Groundwater Depth [Elevation], feet	**[]**	Sampling Method(s)	**Modified California**	Drill Hole Backfill	**Neat Cement**
Remarks	**Groundwater elevation not recorded due to rotary wash drilling method.**			Driving Method and Drop	**140 lb hammer, 30 inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, medium stiff, sandy CLAY (CL); fine to coarse sand; trace of fine gravel.						
					D6-1I	13			
			stiff, fine sand, no gravel		D6-2I	11	18.3	103	PP = 2.0 tsf
85	5				D6-3I	3	7.4	114	PP = 0.25 tsf K
			soft						
			sample advancement pressure: 100 psi sample recovery: 9"/30"		D6-4I				
80	10		Brown, wet, loose, silty SAND with gravel (SM); fine to coarse sand; fine gravel.						
					D6-5I	5	24.7	99	PP = 0.5 tsf
			Brown, wet, medium stiff to stiff, silty CLAY (CL).						
			Brown, wet, loose, clayey SAND (SC); fine to medium sand.						
75	15				D6-6I	3	27.3	97	GR 37%fines
			Brown, wet, stiff to very stiff, silty CLAY (CH).						
70	20				D6-7I	14			PP = 2.0 tsf PI
65	25				D6-8I	14	23.2	103	PP = 1.5 tsf

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FIGURE 8

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF SOIL BORING D06

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			brown with yellow-brown mottling, trace of fine sand		D6-9I	19			PP = 4.0 tsf
55	35		lens of silty sand		D6-10I	20	23.0	103	PP = 4.0 tsf
50	40		no sand		D6-11I	16			PP = 1.5 tsf
45	45								
			trace of fine sand		D6-12I	17			PP = 2.0 tsf
40	50		Boring terminated at 50' below existing site grades.						

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FIGURE 8

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF SOIL BORING D07

Sheet 1 of 2

Date(s) Drilled	**3/6/15**	Logged By	**ML**	Checked By	**MMW**
Drilling Method	**Rotary Wash**	Drilling Contractor	**V & W Drilling, Inc.**	Total Depth of Drill Hole	**36.5 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**4"**	Approx. Surface Elevation, ft MSL	**91.0**
Groundwater Depth [Elevation], feet	**[]**	Sampling Method(s)	**Modified California**	Drill Hole Backfill	**Neat Cement**
Remarks	**Groundwater elevation not recorded due to rotary wash drilling method.**			Driving Method and Drop	**140 lb hammer, 30 inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, stiff to very stiff, silty CLAY (CL); trace of fine sand.						
90					D7-1I	14	17.6	108	PP = 1.5 tsf
			brown, soft to medium stiff		D7-2I	6			PP = 0.25 tsf
	5		very soft to soft		D7-3I	0			PP = 0.0 tsf PI UCC = 0.2 tsf
85									
	10		medium stiff to stiff		D7-4I	11	21.1	106	PP = 0.5 tsf
80									
			Brown, wet, very loose, silty SAND (SM); fine to medium sand.						
	15				D7-5I	4			
75			Brown, wet, soft, silty CLAY (CL).						PP = 0.25 tsf
	20		medium stiff		D7-6I	8	24.0	99	PP = 0.5 tsf
70									
			Brown, wet, stiff to very stiff, silty CLAY (CH).						
	25				D7-7I	14			PP = 3.0 tsf
65									

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FIGURE 9

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF SOIL BORING D07

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
60					D7-8I	21	22.4	104	PP = 2.5 tsf
	35		brown mottled with yellow-brown; trace of fine sand						
55					D7-9I	16			PP = 2.5 tsf
			Boring terminated at 36.5' below existing site grades.						

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FIGURE 9

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF SOIL BORING D08

Date(s) Drilled	**3/6/15**	Logged By	**ML**	Checked By	**MMW**
Drilling Method	**Rotary Wash**	Drilling Contractor	**V & W Drilling, Inc.**	Total Depth of Drill Hole	**36.5 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**4"**	Approx. Surface Elevation, ft MSL	**90.0**
Groundwater Depth [Elevation], feet	**[]**	Sampling Method(s)	**Standard Penetration Test**	Drill Hole Backfill	**Neat Cement**
Remarks	**Groundwater elevation not recorded due to rotary wash drilling method.**			Driving Method and Drop	**140 lb hammer, 30 inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, very stiff, sandy CLAY (CL); fine sand.		D8-1I	21			
			Brown, moist, medium stiff to stiff, clayey SAND (SC); fine sand; trace of medium to coarse sand and fine gravel.		D8-2I	9	14.5		
85	5				D8-3I	7			GR 48%fines
			Brown, moist, very soft to soft, silty CLAY (CL); trace of fine sand.						
80	10				D8-4I	2			PP = 0.0 tsf PI
			Brown, wet, very soft, sandy CLAY (CL); fine to medium sand.						
75	15				D8-5I	4	23.9	99	PP = 0.0 tsf
			Brown, wet, very loose, silty SAND (SM); fine to medium sand.						
			Brown, wet, stiff to very stiff, silty CLAY (CH).						
70	20				D8-6I	11	27.7		PP = 2.5 tsf
65	25				D8-7I	8	25.3		PP = 2.5 tsf
			Brown, wet, loose, clayey SAND (SC); fine to medium sand.						
			Brown, moist, stiff to very stiff, silty CLAY (CH).						

SAMPLE DATA | TEST DATA

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FIGURE 10

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF SOIL BORING D08

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
					D8-8I	9	28.1		PP = 2.5 tsf
55	35								
			Brown to yellow-brown, moist, medium dense, silty SAND (SM); fine to medium sand.		D8-9I	16	17.9		
			Boring terminated at 36.5' below existing site grades.						

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FIGURE 10

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF SOIL BORING D09

Sheet 1 of 2

Date(s) Drilled	**3/6/15**	Logged By	**ML**	Checked By	**MMW**
Drilling Method	**Rotary Wash**	Drilling Contractor	**V & W Drilling, Inc.**	Total Depth of Drill Hole	**35.0 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**4"**	Approx. Surface Elevation, ft MSL	**86.0**
Groundwater Depth [Elevation], feet	**[]**	Sampling Method(s)	**Modified California**	Drill Hole Backfill	**Neat Cement**
Remarks	**Groundwater elevation not recorded due to rotary wash drilling method.**			Driving Method and Drop	**140 lb hammer, 30 inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, stiff to very stiff, silty CLAY (CL); trace of fine to coarse sand; trace of fine gravel.						
85					D9-1I	10	12.3	112	PP = 3.5 tsf UCC = 1.6 tsf
			no sand, no gravel		D9-2I	10			PP = 2.5 tsf
	5		medium stiff to stiff; trace of fine sand		D9-3I	7			PP = 1.5 tsf
80									
	10								
75			Brown, wet, very loose, sandy SILT (ML); fine to medium sand.		D9-4I	2	25.8	97	53%fines
			Brown, moist, stiff, silty CLAY (CH).						
	15				D9-5I	10	28.6	94	PP = 2.0 tsf
70									
	20		yellow-brown		D9-6I	11			PP = 1.0 tsf
65									
	25		brown with yellow-brown mottling, stiff to very stiff		D9-7I	12	28.7	94	PP = 2.5 tsf
60									

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FIGURE 11

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF SOIL BORING D09

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
55			lens of silty sand		D9-8I	19			PP = 2.5 tsf
					D9-9I	21			PP = 3.5 tsf
	35		Boring terminated at 35' below existing site grades.						

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FIGURE 11

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF SOIL BORING D10

Date(s) Drilled	**3/6/15**	Logged By	**ML**	Checked By	**MMW**
Drilling Method	**Rotary Wash**	Drilling Contractor	**V & W Drilling, Inc.**	Total Depth of Drill Hole	**36.5 feet**
Drill Rig Type	**CME 75**	Diameter(s) of Hole, inches	**4"**	Approx. Surface Elevation, ft MSL	**85.0**
Groundwater Depth [Elevation], feet	**[]**	Sampling Method(s)	**Modified California**	Drill Hole Backfill	**Neat Cement**
Remarks	**Groundwater elevation not recorded due to rotary wash drilling method.**			Driving Method and Drop	**140 lb hammer, 30 inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, moist, very stiff to hard, sandy CLAY with gravel (CL); fine to coarse sand; fine gravel.		D10-1I	26	18.0	105	PP = 4.5 tsf
			Brown, moist, stiff, clayey SAND (SC); fine to coarse sand.		D10-2I	8			
80	5		very soft, with fine gravel		D10-3I	2			GR 39%fines
75	10		no gravel		D10-4I	0			
			Brown, wet, very soft, silty CLAY (CL).						
70	15		Brown, wet, very soft, sandy CLAY to clayey SAND (CL/SC); fine to medium sand.		D10-5I	0	27.3	94	PP = 0.0 tsf
65	20		Brown, moist, soft to medium stiff, silty CLAY (CL); trace of fine sand.		D10-6I	7	23.5	97	PP = 0.5 tsf
60	25		medium stiff to stiff, no sand		D10-7I	10			PP = 1.0 tsf

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FIGURE 12

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF SOIL BORING D10

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			stiff		D10-8I	13	27.4	94	PP = 1.5 tsf
			Brown, moist, medium dense to dense, clayey SAND (SC); fine to medium sand.						
50	35				D10-9I	39			
			Boring terminated at 36.5' below existing site grades.						

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FIGURE 12

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF TEST PIT TP01

Sheet 1 of 1

Date(s) Drilled	**3/4/15**	Logged By	**GJF**	Checked By	**MMW**
Drilling Method	**Backhoe**	Drilling Contractor	**Ron Tilford Backhoe**	Total Depth of Drill Hole	**9.0 feet**
Drill Rig Type	**Case 580M**	Diameter(s) of Hole, inches		Approx. Surface Elevation, ft MSL	**87.0**
Groundwater Depth [Elevation], feet	**8.0 [79.0]**	Sampling Method(s)		Drill Hole Backfill	**Excavated Spoils**
Remarks	**Bulk sample TP01 (0' to 3')**			Driving Method and Drop	

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Dark brown, moist, sandy CLAY (CL); fine sand.						
					TP01-1I				PI K CC
85			brown						
	5								
80			Brown, moist to wet, silty SAND (SM); fine to medium sand.						
			Caving below 6.5' below existing site grades. Groundwater encountered at 8' below existing grade Test pit terminated at 9' below existing site grades.						

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Wallace Kuhl & ASSOCIATES

FIGURE 13

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF TEST PIT TP02

Sheet 1 of 1

Date(s) Drilled	**3/4/15**	Logged By	**GJF**	Checked By	**MMW**
Drilling Method	**Backhoe**	Drilling Contractor	**Ron Tilford Backhoe**	Total Depth of Drill Hole	**8.0 feet**
Drill Rig Type	**Case 580M**	Diameter(s) of Hole, inches		Approx. Surface Elevation, ft MSL	**85.0**
Groundwater Depth [Elevation], feet	**5.0 [80.0]**	Sampling Method(s)		Drill Hole Backfill	**Excavated Spoils**
Remarks	**Bulk sample TP02 (0' to 3')**			Driving Method and Drop	

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Brown, moist, silty SAND with gravel (SM); fine to coarse sand; fine gravel.						
					TP02-1I				GR 20%fines
80	5		wet						
			Brown, wet, silty CLAY (CL)						
			Caving conditions below 3' below existing site grades. Groundwater encountered at 5' below existing grades. Test pit terminated at 8.5' below existing site grades.						

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FIGURE 14

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF TEST PIT TP03

Sheet 1 of 1

Date(s) Drilled	**3/4/15**	Logged By	**GJF**	Checked By	**MMW**
Drilling Method	**Backhoe**	Drilling Contractor	**Ron Tilford Backhoe**	Total Depth of Drill Hole	**8.0 feet**
Drill Rig Type	**Case 580M**	Diameter(s) of Hole, inches		Approx. Surface Elevation, ft MSL	**86.0**
Groundwater Depth [Elevation], feet	**5.0 [81.0]**	Sampling Method(s)		Drill Hole Backfill	**Excavated Spoils**
Remarks	**Bulk samples TP03 (0' to 4')and (4' to 5')**			Driving Method and Drop	

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Dark brown, moist, sandy, clayey SILT (ML); fine to coarse sand; trace of fine gravel.						
85					TP03-1I				GR 75%fines
			brown						
			Grey-brown, wet, sandy GRAVEL (GM) with silt; fine to coarse sand; fine gravel.						
	5			▼					
80									
			Caving conditions below 4' below existing site grades. Groundwater encountered at 5' below existing grades. Test pit terminated at 8' below existing site grades.						

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FIGURE 15

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF TEST PIT TP04

Sheet 1 of 1

Date(s) Drilled	**3/4/15**	Logged By	**GJF**	Checked By	**MMW**
Drilling Method	**Backhoe**	Drilling Contractor	**Ron Tilford Backhoe**	Total Depth of Drill Hole	**9.0 feet**
Drill Rig Type	**Case 580M**	Diameter(s) of Hole, inches		Approx. Surface Elevation, ft MSL	**87.0**
Groundwater Depth [Elevation], feet	**6.5 [80.5]**	Sampling Method(s)		Drill Hole Backfill	**Excavated Spoils**
Remarks	**Bulk sample TP04 (0' to 4')**			Driving Method and Drop	

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Dark brown, moist, sandy SILT (ML); fine sand.						
85					TP04-1I				
			Brown, moist to wet, silty SAND (SM); fine to coarse sand.						
	5								
80									
			Brown, wet, silty CLAY (CL)						
			Caving conditions below 4' below existing site grades. Groundwater encountered at 6.5' below existing grades. Test pit terminated at 9' below existing site grades.						

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FIGURE 16

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF TEST PIT TP05

Sheet 1 of 1

Date(s) Drilled	**3/4/15**	Logged By	**GJF**	Checked By	**MMW**
Drilling Method	**Backhoe**	Drilling Contractor	**Ron Tilford Backhoe**	Total Depth of Drill Hole	**9.0 feet**
Drill Rig Type	**Case 580M**	Diameter(s) of Hole, inches		Approx. Surface Elevation, ft MSL	**87.0**
Groundwater Depth [Elevation], feet	**8.0 [79.0]**	Sampling Method(s)		Drill Hole Backfill	**Excavated Spoils**
Remarks	**Bulk sample TP05 (0' to 3')**			Driving Method and Drop	

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Dark brown, moist, sandy CLAY (CL); fine sand.						
					TP05-1I				TR
85									
			brown						
	5								
80			Grey-brown, moist to wet, silty SAND (SM); fine to coarse sand.	▼					
			Caving conditions below 7' below existing site grades. Groundwater encountered at 8' below existing grades. Test pit terminated at 9' below existing site grades.						

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FIGURE 17

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF TEST PIT TP06

Sheet 1 of 1

Date(s) Drilled	**3/4/15**	Logged By	**GJF**	Checked By	**MMW**
Drilling Method	**Backhoe**	Drilling Contractor	**Ron Tilford Backhoe**	Total Depth of Drill Hole	**9.0 feet**
Drill Rig Type	**Case 580M**	Diameter(s) of Hole, inches		Approx. Surface Elevation, ft MSL	**87.0**
Groundwater Depth [Elevation], feet	**6.5 [80.5]**	Sampling Method(s)		Drill Hole Backfill	**Excavated Spoils**
Remarks	**Bulk sample TP06 (0' to 0.5')**			Driving Method and Drop	

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Brown, moist, sandy CLAY (CL); fine sand.						
			Grey-brown, moist, sandy GRAVEL (GM) with silt; fine to coarse sand; fine gravel.						
					TP06-1I				
85									
	5								
			wet						
80									
			Brown, wet, silty SAND (SM); fine to medium sand.						
			Brown, wet, silty CLAY (CL).						
			Caving conditions below 4' below existing site grades. Groundwater encountered at 6.5' below existing grades. Test pit terminated at 9.5' below existing site grades.						

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FIGURE 18

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF TEST PIT TP07

Sheet 1 of 1

Date(s) Drilled	**3/4/15**	Logged By	**GJF**	Checked By	**MMW**
Drilling Method	**Backhoe**	Drilling Contractor	**Ron Tilford Backhoe**	Total Depth of Drill Hole	**9.0 feet**
Drill Rig Type	**Case 580M**	Diameter(s) of Hole, inches		Approx. Surface Elevation, ft MSL	**88.0**
Groundwater Depth [Elevation], feet	**6.5 [81.5]**	Sampling Method(s)		Drill Hole Backfill	**Excavated Spoils**
Remarks	**Bulk sample TP07 (0' to 3')**			Driving Method and Drop	

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Brown, moist, sandy CLAY (CL); fine sand.						
					TP07-1I				CC K
85									
	5								
			Grey-brown, wet, silty SAND (SM); fine sand.	▼					
80									
			Caving conditions below 6' below existing site grades. Groundwater encountered at 6.5' below existing grades. Test pit terminated at 9' below existing site grade.						

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FIGURE 19

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF TEST PIT TP08

Sheet 1 of 1

Date(s) Drilled	**3/4/15**	Logged By	**GJF**	Checked By	**MMW**
Drilling Method	**Backhoe**	Drilling Contractor	**Ron Tilford Backhoe**	Total Depth of Drill Hole	**9.0 feet**
Drill Rig Type	**Case 580M**	Diameter(s) of Hole, inches		Approx. Surface Elevation, ft MSL	**88.0**
Groundwater Depth [Elevation], feet	**6.5 [81.5]**	Sampling Method(s)		Drill Hole Backfill	**Excavated Spoils**
Remarks	**Bulk sample TP08 (2' to 5')**			Driving Method and Drop	

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Dark brown, moist, sandy CLAY (CL); fine sand.						
					TP08-1I				GR PI
			brown						
85									
	5								
			Brown, moist to wet, silty SAND (SM); fine to coarse sand.	▼					
80									
			Brown, wet, sandy CLAY (CL); fine sand.						
			Caving conditions below 5.5' below existing site grades. Groundwater encountered at 6.5' below existing grades. Test pit terminated at 9.5' below existing site grades.						

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FIGURE 20

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF TEST PIT TP09

Sheet 1 of 1

Date(s) Drilled	**3/4/15**	Logged By	**GJF**	Checked By	**MMW**
Drilling Method	**Backhoe**	Drilling Contractor	**Ron Tilford Backhoe**	Total Depth of Drill Hole	**9.0 feet**
Drill Rig Type	**Case 580M**	Diameter(s) of Hole, inches		Approx. Surface Elevation, ft MSL	**89.0**
Groundwater Depth [Elevation], feet	**6.5 [82.5]**	Sampling Method(s)		Drill Hole Backfill	**Excavated Spoils**
Remarks	**Bulk sample TP09 (0' to 3')**			Driving Method and Drop	

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Dark Brown, moist, sandy CLAY (CL); fine sand.						
					TP09-1I				PI
85			brown						
	5								
			Grey-brown, wet, silty SAND (SM); fine sand.						
80									
			Caving conditions below 6.5' below existing site grades. Groundwater encountered at 6.5' below existing grades. Test pit terminated at 9' below existing site grades.						

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FIGURE 21

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF TEST PIT TP10

Sheet 1 of 1

Date(s) Drilled	**3/4/15**	Logged By	**GJF**	Checked By	**MMW**
Drilling Method	**Backhoe**	Drilling Contractor	**Ron Tilford Backhoe**	Total Depth of Drill Hole	**9.0 feet**
Drill Rig Type	**Case 580M**	Diameter(s) of Hole, inches		Approx. Surface Elevation, ft MSL	**91.0**
Groundwater Depth [Elevation], feet	**6.5 [84.5]**	Sampling Method(s)		Drill Hole Backfill	**Excavated Spoils**
Remarks	**Bulk sample TP10 (2' to 3.5')**			Driving Method and Drop	

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Dark Brown, moist, sandy CLAY (CL); fine sand.						
90					TP10-1I				GR
			Brown, moist, silty SAND (SM); fine to coarse sand; trace of fine gravel.						
			Brown, moist, sandy CLAY (CL); fine sand.						
	5								
85			Grey-brown, wet, silty SAND (SM); fine to coarse sand.						
			Caving conditions below 6.5' below existing site grades. Groundwater encountered at 6.5' below existing grades. Test pit terminated at 9' below existing site grade.						

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FIGURE 22

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF TEST PIT TP11

Sheet 1 of 1

Date(s) Drilled	**3/4/15**	Logged By	**GJF**	Checked By	**MMW**
Drilling Method	**Backhoe**	Drilling Contractor	**Ron Tilford Backhoe**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**Case 580M**	Diameter(s) of Hole, inches		Approx. Surface Elevation, ft MSL	**90.0**
Groundwater Depth [Elevation], feet	**6.5 [83.5]**	Sampling Method(s)		Drill Hole Backfill	**Excavated Spoils**
Remarks	**Bulk sample TP11 (0' to 2')**			Driving Method and Drop	

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Brown, moist, clayey SAND (SC); fine to coarse sand; trace of gravel.		TP11-1I				GR
			Brown, moist, sandy CLAY (CL); fine sand.						
85	5								
			Grey-brown, wet, silty SAND (SM) with gravel; fine to coarse sand; fine gravel.	▼					
80	10								
			Caving conditions below 6' below existing site grades. Groundwater encountered at 6.5' below existing grades. Test pit terminated at 10' below existing site grades.						

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FIGURE 23

Project: Morning Star Packing Company, Cooling Pond Expansion
Project Location: Williams, California
WKA Number: 10487.01

LOG OF TEST PIT TP12

Sheet 1 of 1

Date(s) Drilled	**3/4/15**	Logged By	**GJF**	Checked By	**MMW**
Drilling Method	**Backhoe**	Drilling Contractor	**Ron Tilford Backhoe**	Total Depth of Drill Hole	**8.0 feet**
Drill Rig Type	**Case 580M**	Diameter(s) of Hole, inches		Approx. Surface Elevation, ft MSL	**87.0**
Groundwater Depth [Elevation], feet	**5.0 [82.0]**	Sampling Method(s)		Drill Hole Backfill	**Excavated Spoils**
Remarks				Driving Method and Drop	

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Brown, moist, poorly-graded SAND with gravel (SP); fine to coarse sand; fine gravel.						
85									
	5		Grey-brown, wet, sandy GRAVEL with silt (GM); fine to coarse sand; fine gravel.						
80									
			Caving conditions below 1' below existing site grades. Groundwater encountered at 5' below existing grades. Test pit terminated at 8' below existing site grades.						

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Wallace Kuhl & ASSOCIATES

FIGURE 24

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		SYMBOL	CODE	TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of soil > no. 200 sieve size)	GRAVELS (More than 50% of coarse fraction > no. 4 sieve size)	GW		Well graded gravels or gravel - sand mixtures, little or no fines
		GP		Poorly graded gravels or gravel - sand mixtures, little or no fines
		GM		Silty gravels, gravel - sand - silt mixtures
		GC		Clayey gravels, gravel - sand - clay mixtures
	SANDS (50% or more of coarse fraction < no. 4 sieve size)	SW		Well graded sands or gravelly sands, little or no fines
		SP		Poorly graded sands or gravelly sands, little or no fines
		SM		Silty sands, sand - silt mixtures
		SC		Clayey sands, sand - clay mixtures
FINE GRAINED SOILS (50% or more of soil < no. 200 sieve size)	SILTS & CLAYS LL < 50	ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL		Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS LL ≥ 50	MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH		Inorganic clays of high plasticity, fat clays
		OH		Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt		Peat and other highly organic soils
ROCK		RX		Rocks, weathered to fresh
FILL		FILL		Artificially placed fill material

OTHER SYMBOLS

= Drive Sample: 2-1/2" O.D. Modified California sampler

= Drive Sampler: no recovery

= SPT Sampler

= Initial Water Level

= Final Water Level

= Estimated or gradational material change line

= Observed material change line

Laboratory Tests

PI = Plasticity Index

CC = Compaction Curve

UCC = Unconfined Compression Test

TR = Triaxial Compression Test

GR = Gradational Analysis (Sieve)

K = Permeability Test

GRAIN SIZE CLASSIFICATION

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL coarse (c) fine (f)	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.76 76.2 to 19.1 19.1 to 4.76
SAND coarse (c) medium (m) fine (f)	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.76 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below 0.074

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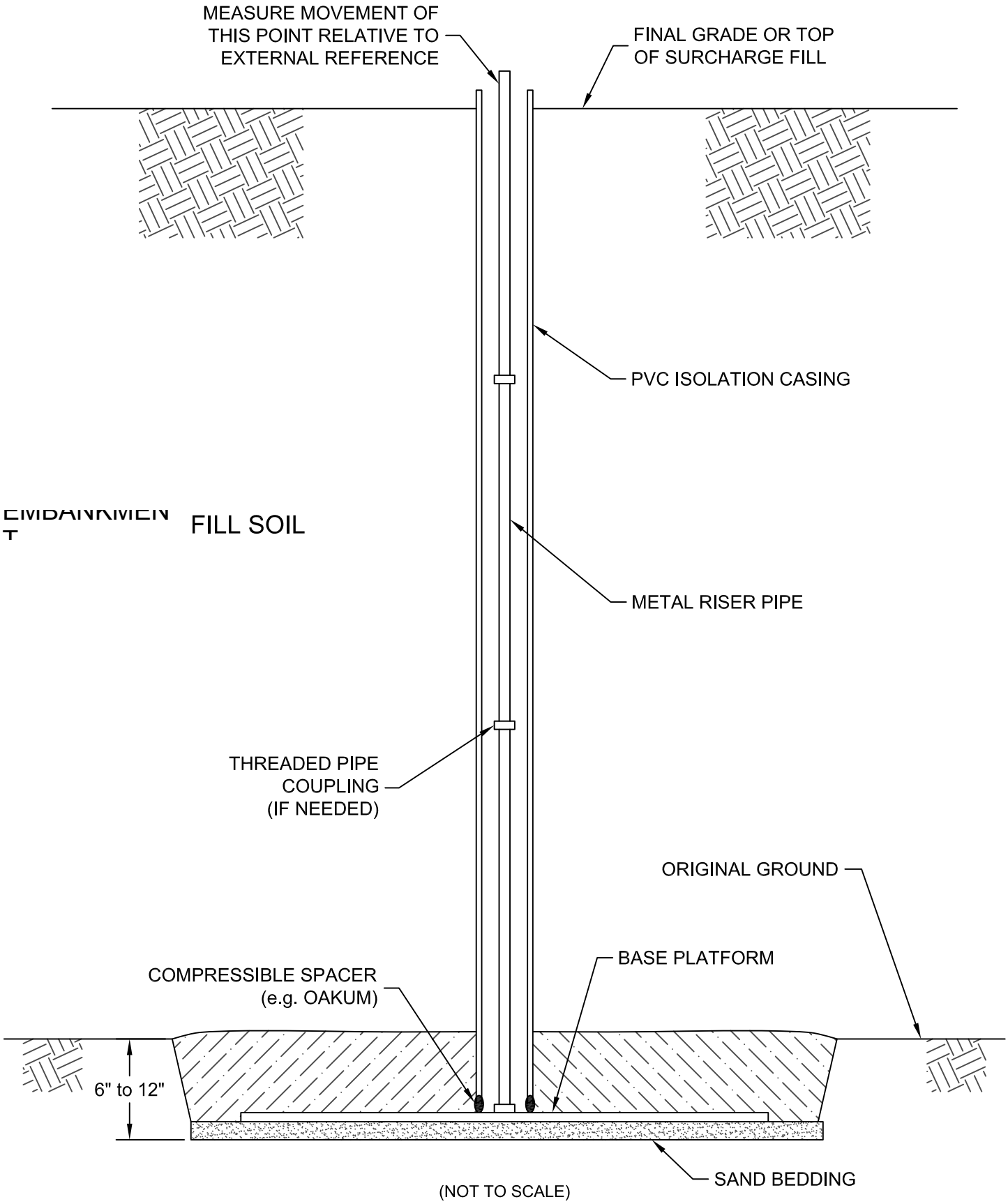
UNIFIED SOIL CLASSIFICATION SYSTEM

MORNING STAR PAKING COMPANY
COOLING POND EXPANSION
Williams, California

FIGURE	25
DRAWN BY	RWO
CHECKED BY	MMW
PROJECT MGR	MW
DATE	03/15
WKA NO.	10487.01



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SETTLEMENT PLATFORM DETAIL

MORNING STAR PACKING COMPANY
COOLING POND EXPANSION
Williams, California

FIGURE	2
DRAWN BY	RW
CHECKED BY	MW
PROJECT MGR	MW
DATE	04/15
WKA NO.	10467.01

APPENDIX A

GENERAL PROJECT INFORMATION, FIELD AND LABORATORY TEST RESULTS

APPENDIX A

A. GENERAL INFORMATION

The performance of a geotechnical engineering study for the proposed cooling pond expansion project at the Morning Star Packing Company facility located at 211 Old Highway 99 W in Williams, California, was authorized by Mr. Ross Oliveira of the Morning Star Company on March 3, 2015. Authorization was for a geotechnical study as described in our proposal letter dated February 25, 2015, sent to our client The Morning Star Company, whose address is 724 Main Street in Woodland, California 95695; telephone (530) 666-6600.

The project civil engineer is Siegfried Engineering, whose mailing address is 3244 Brookside Road, Suite 100 in Stockton, California 95219; telephone (209) 943-2021; facsimile (209) 942-0214.

In performing this study we made reference to a preliminary site plan drawing, prepared by Siegfried Engineering and dated February 24, 2015.

B. FIELD EXPLORATION

As part of our study for the cooling pond expansion, our field exploration included the excavation and sampling of 12 test pits (TP01 through TP12), drilling and sampling of 10 borings (D01 through D10), and advancement of seven (7) cone penetrometer test soundings (CPT-01 through CPT-07) at the approximate locations shown on Figure 2. Logs of Soil Borings are provided as Figures 3 through 12 and the Logs of Test Pits provided as Figures 13 through 24; these logs contain descriptions of the soils encountered at each exploration location. A legend explaining the Unified Soil Classification System and the symbols used on the logs is contained on Figure 25.

Appendix C contains copies of the reports for CPT-01 through CPT-07, provided by Middle Earth Geo Testing, Inc., of Orange, California.

Borings

Borings D1 through D6 were drilled at the site on March 5 and 6, 2015, utilizing a CME-75 truck-mounted drill rig equipped mud-rotary drilling equipment, including a 4-inch diameter drag bit provided by V&W Drilling of Stockton, California. The borings were drilled to depths ranging from 35 to 51½ feet below existing site grades. After completion of the borings, the boreholes were backfilled with slurry of neat cement grout in accordance with Colusa County Environmental Health Department (CCEHD) requirements.

At various intervals soil samples were recovered utilizing a 2½-inch outside diameter (O.D.), 2-inch inside diameter (I.D.), modified California split-spoon sampler, 2-inch O.D., 1 ⅜-inch I.D., Standard Penetration Test (SPT) split-spoon sampler, or 3-inch O.D., thin-walled, Shelby tube. Split-spoon samplers were driven by an automatic 140-

pound hammer freely falling 30 inches. The number of blows of the hammer required to drive the 18-inch long samplers each 6-inch interval was recorded. The sum of the blows required to drive the sampler the lower 12-inch interval, or portion thereof, is designated the penetration resistance or "blow count" for that particular drive.

The modified California samples were retained in 2-inch-diameter by 6-inch-long, thin walled brass tubes contained within the sampler. The SPT samples were retained in plastic zip-lock bags. After recovery, the field engineer visually classified the soil recovered in the tubes and plastic bags. After the samples were classified, the ends of the tubes and plastic bags were sealed to preserve the natural moisture contents. All samples were taken to our laboratory for additional soil classification and selection of samples for testing.

Test Pits

Test pits TP01 through TP12 were excavated at the site on March 4, 2015, utilizing a Case 580 rubber-tired backhoe equipped with an 18-inch-wide bucket by Ron Tilford Backhoe of Orangevale, California. The test pits were excavated to depths ranging from about 8 to 10 feet below existing site grades. After completion, the test pits were backfilled with the excavated spoils and moderately compacted using a sheepsfoot compaction wheel.

Bulk samples of the near-surface soils were collected at various depths. The bulk samples were collected using a shovel and retained in plastic bags. In addition to the bulk samples, driven samples were recovered at various depths using a 12-inch long, 2½-inch outside diameter (O.D.), 2-inch inside diameter (I.D.) modified California sampler driven by a 10-pound slide hammer falling 18 inches. The driven samples obtained at the test pits were retained in 2-inch-diameter by 6-inch-long, thin-walled brass tubes contained within the sampler.

After recovery, the soils in the plastic bags and tubes were visually classified by the field representative. Following classification, the ends of the tubes and plastic bags were sealed to preserve the natural moisture contents. All samples were taken to our laboratory for additional soil classification and selection of samples for testing.

Cone Penetrometer Test Soundings

Cone penetrometer test (CPT) soundings (CPT-01 through CPT-07) were advanced at the site on March 10, 2015, utilizing a 25-ton, truck-mounted rig. The CPT's consisted of advancing a 10-square-centimeter, cone penetrometer at a rate of about one inch per second to a maximum depth of about 50 feet below existing site grades. Data was collected from the cone penetrometer at an approximate depth intervals of two inches. Shear wave velocity data was collected from the CPT's at an approximate depth interval of five feet. Pore pressure dissipation tests were performed at CPT-02, -03, -05 and -07 at depths ranging from about 27 to 49 feet below existing grades. After completion of the CPTs, the boreholes were backfilled with slurry of neat cement grout in accordance with CCEHD requirements.

C. LABORATORY TESTING

Selected undisturbed samples of the soils were tested to determine dry unit weight (ASTM D 2937), natural moisture content (ASTM D 2216), unconfined compression strength (ASTM D 2166), and shear strength by triaxial compression testing (ASTM D 4767). The results of these tests are included in the boring logs at the depth each sample was obtained. The results of the triaxial shear strength testing are presented on Figures A1 through A3.

Soil samples were tested for particle-size distribution (ASTM C 136/D 422) and fraction passing the No. 200 sieve (ASTM D 1140). The results of the particle-size distribution tests are presented in Figures A4 through A6. The fraction passing the No. 200 sieve (less than 0.075 millimeters) is included on the boring and test pit logs at the depth the samples were obtained.

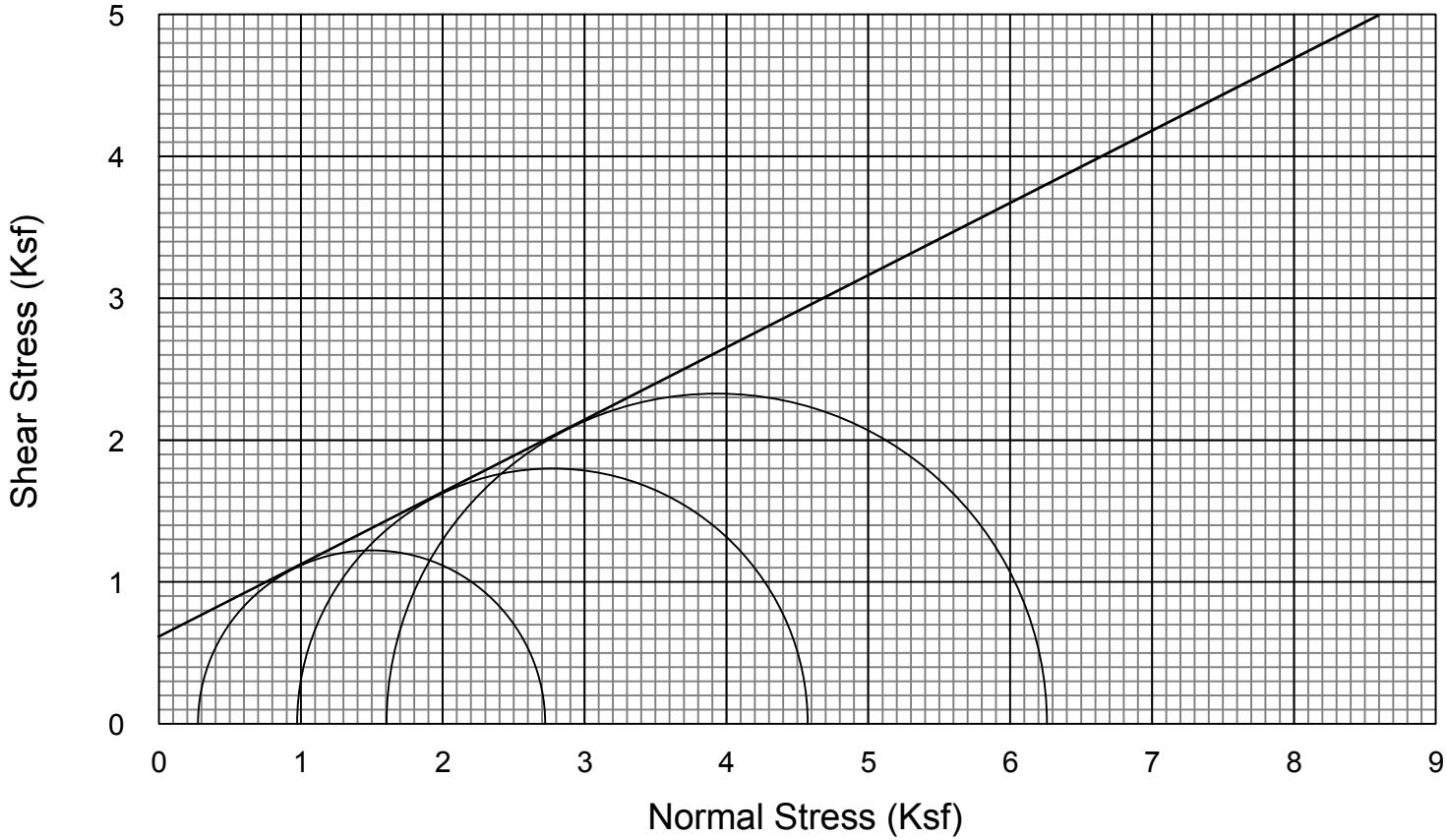
Representative samples of near-surface cohesive soil were subjected to Atterberg Limits tests (ASTM D 4318). The results of these tests are presented in Figure A7 and A8.

The theoretical maximum dry density was determined for two representative samples of near-surface soil in accordance with ASTM D 1557A test method. The results of these tests were used to prepare re-molded samples representing engineered fill materials; results are presented in Figures A9 and A10.

Four representative samples of near-surface soil including two re-molded samples were submitted to Sierra Testing Laboratories, Inc. of Placerville, California for hydraulic conductivity tests (ASTM D 5084, Method C). The results of these tests are presented in Figures A11 through A14.

TRIAXIAL COMPRESSION TEST

ASTM D4767



SAMPLE NO. : D4-5I

SAMPLE CONDITION : Undisturbed

SAMPLE DESCRIPTION : Brown, silty clay

DRY DENSITY (PCF) : 104
INITIAL MOISTURE (%) : 24.4
FINAL MOISTURE (%) : 23.7

ANGLE OF INTERNAL FRICTION (ø) : 27°
COHESION (PSF) : 609

WallaceKuhl & ASSOCIATES

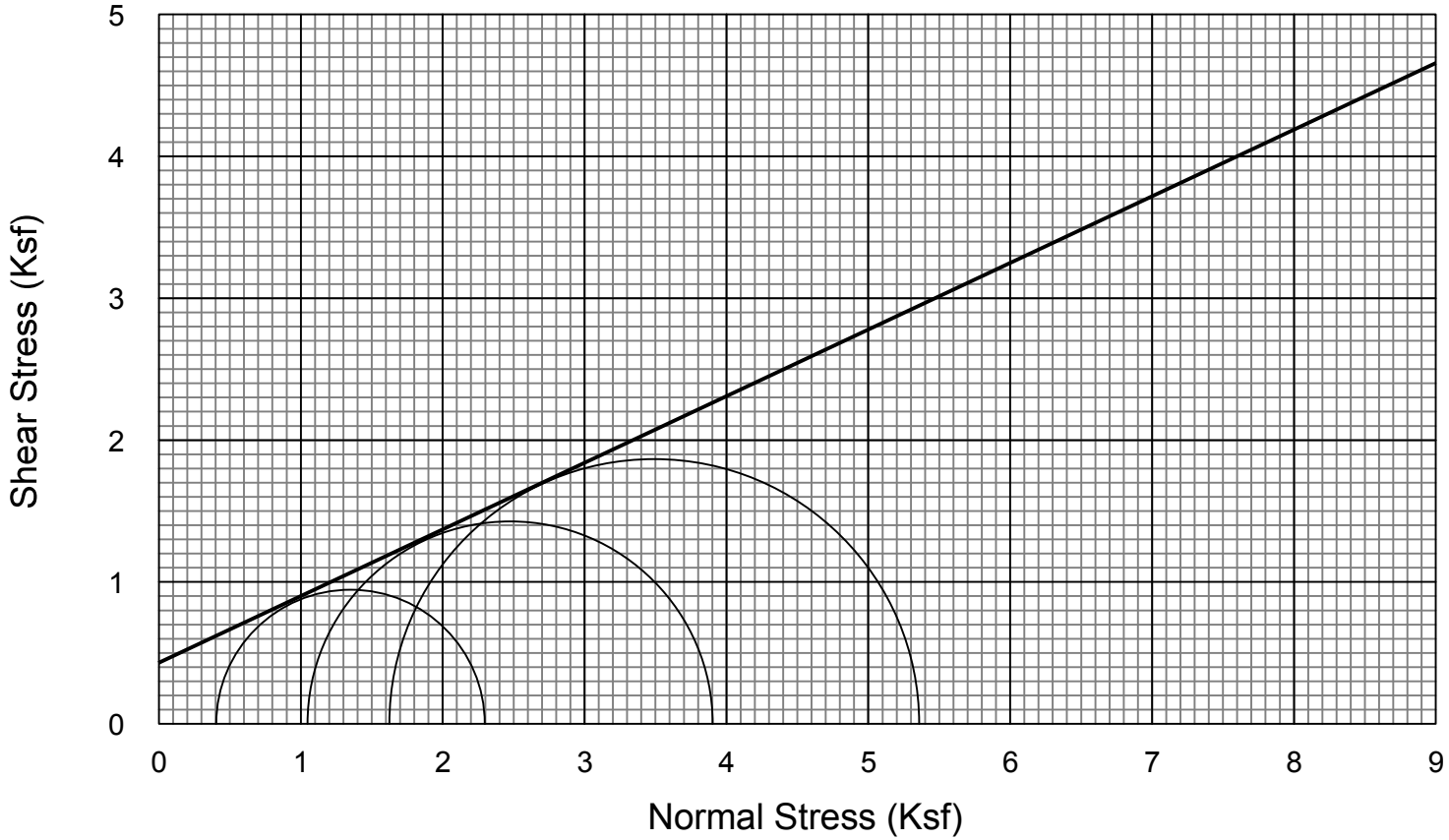
TRIAXIAL COMPRESSION TEST RESULTS
MORNING STAR PACKING COMPANY
COOLING POND EXPANSION
Williams, California

FIGURE	A1
DRAWN BY	RWO
CHECKED BY	MMW
PROJECT MGR	MMW
DATE	04/15

WKA NO. 10487.01

TRIAXIAL COMPRESSION TEST

ASTM D4767



SAMPLE NO. : TP-01 (0'-3')

SAMPLE CONDITION : Remolded to 90% relative compaction

SAMPLE DESCRIPTION : Dark brown, sandy clay

DRY DENSITY (PCF) : 111
INITIAL MOISTURE (%) : 12.1
FINAL MOISTURE (%) : 18.5

ANGLE OF INTERNAL FRICTION (ø) : 25°
COHESION (PSF) : 440

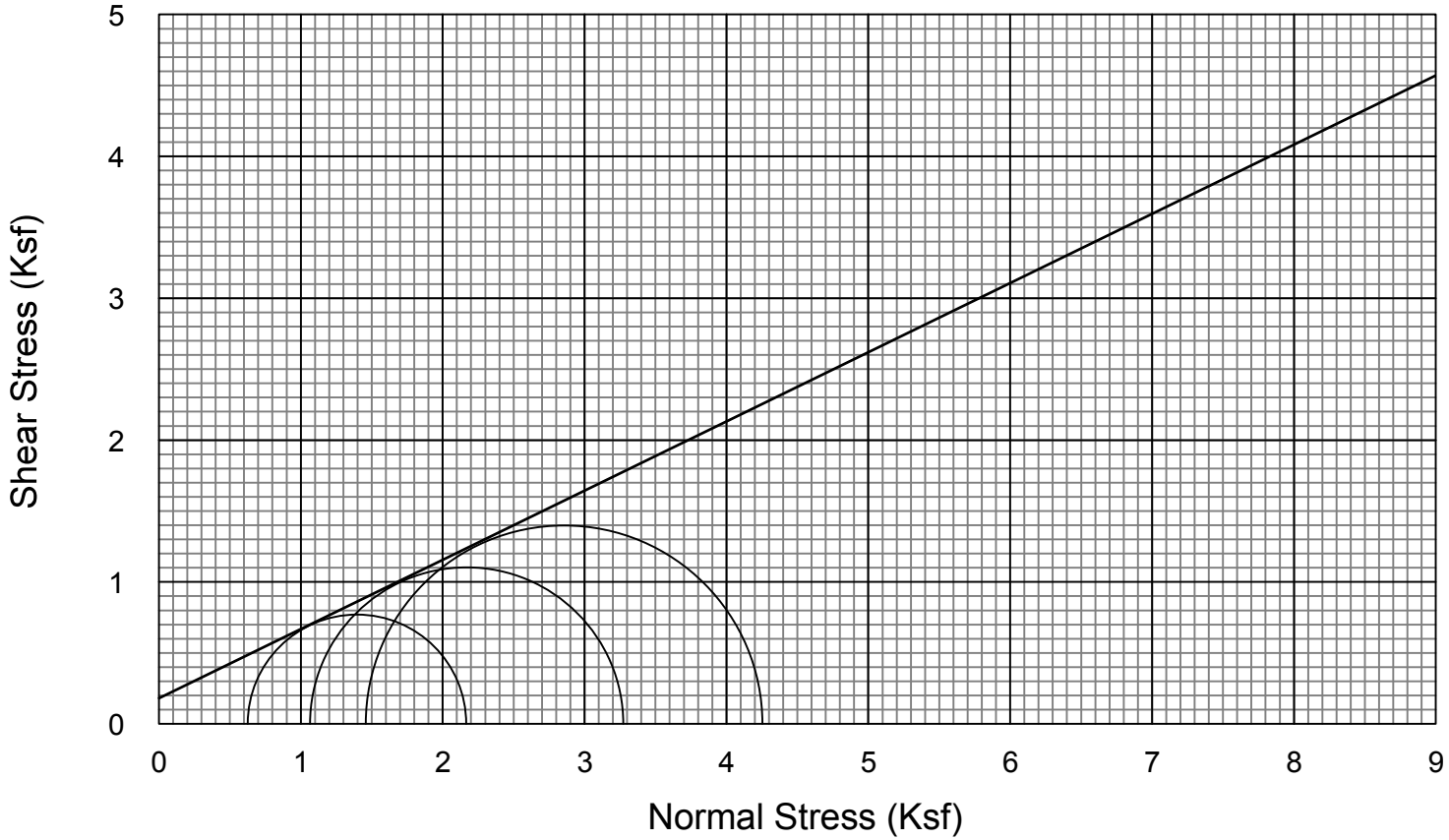
WallaceKuhl & ASSOCIATES

TRIAXIAL COMPRESSION TEST RESULTS
MORNING STAR PACKING COMPANY
COOLING POND EXPANSION
Williams, California

FIGURE	A2
DRAWN BY	RWO
CHECKED BY	MMW
PROJECT MGR	MMW
DATE	04/15
WKA NO. 10487.01	

TRIAXIAL COMPRESSION TEST

ASTM D4767



SAMPLE NO. : TP-05 (0' - 3')

SAMPLE CONDITION : Remolded to 90% relative compaction

SAMPLE DESCRIPTION : Brown, silty clay

DRY DENSITY (PCF) : 109
INITIAL MOISTURE (%) : 12.5
FINAL MOISTURE (%) : 21.0

ANGLE OF INTERNAL FRICTION (ø) : 26°
COHESION (PSF) : 180

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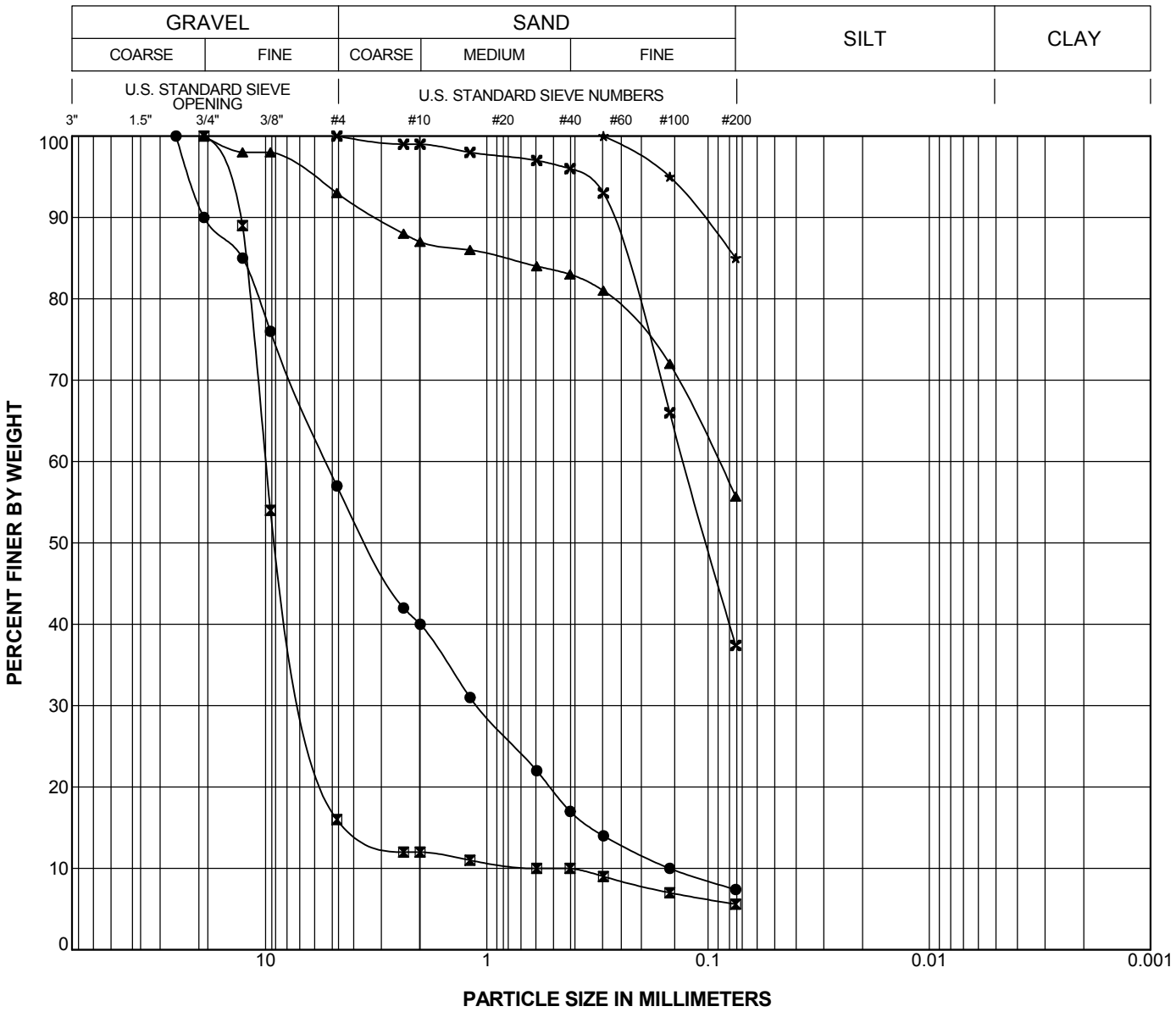
TRIAXIAL COMPRESSION TEST RESULTS
MORNING STAR PACKING COMPANY
COOLING POND EXPANSION
Williams, California

FIGURE	A3
DRAWN BY	RWO
CHECKED BY	MMW
PROJECT MGR	MMW
DATE	04/15
WKA NO. 10487.01	



Boring Number	Sample Number	USCS	Depth (feet)	Symbol	LL	PI	Classification
D02	D2-2I/3I	SP-SM	3.5 to 6.5	●			poorly-graded SAND with silt and gravel
D02	D2-5I	GP-GM	15 to 16.5	⊠			poorly-graded GRAVEL with silt
D03	D3-4I	CL	8 to 10	▲			sandy CLAY
D05	D5-2I	CL	3.5 to 5	★			silty CLAY
D06	D6-6I	SC	15 to 16.5	✕			clayey SAND

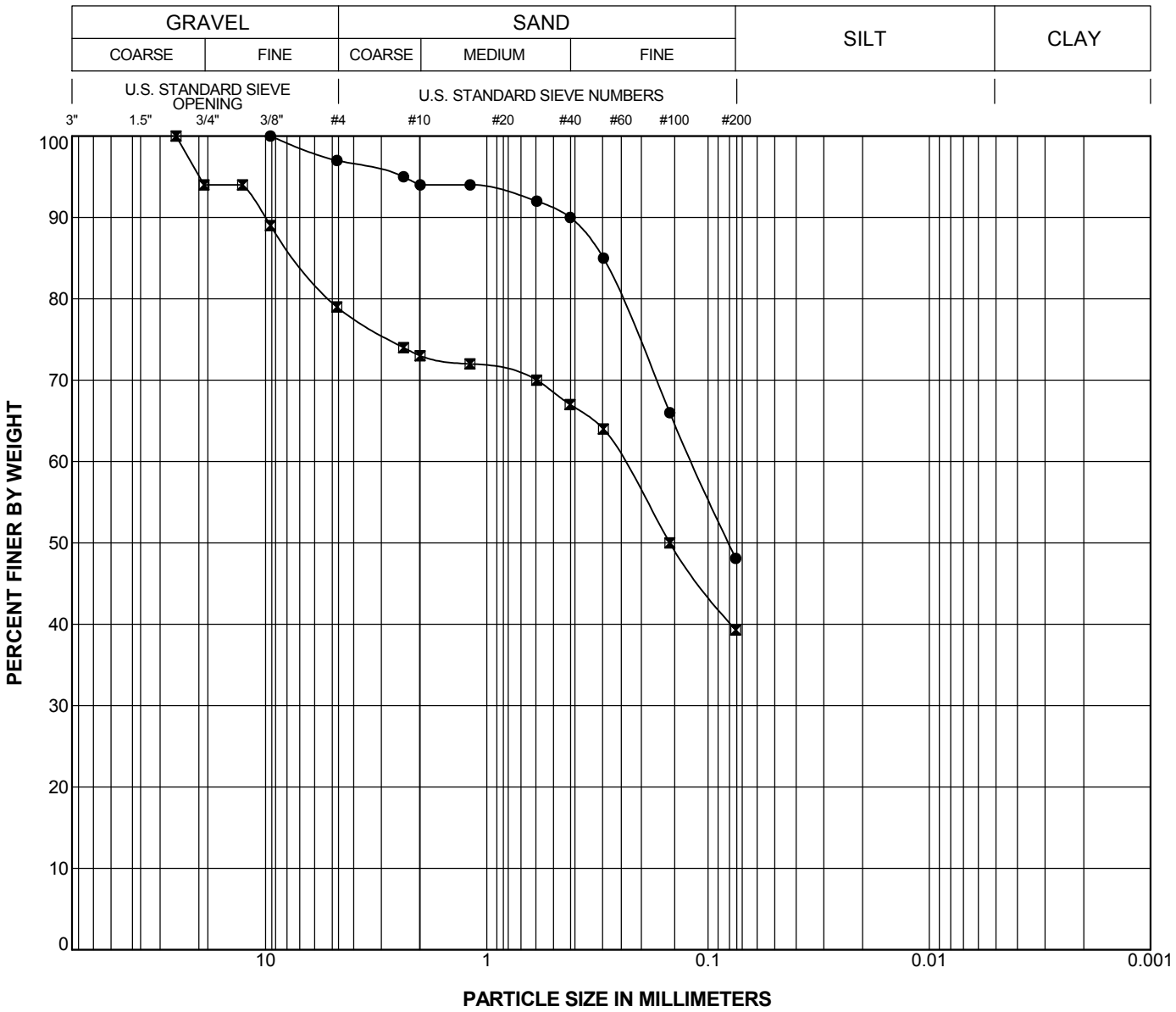
PARTICLE SIZE DISTRIBUTION

Project: Morning Star Packing Company, Cooling Pond Expansion
WKA No. 10487.01

FIGURE A4

Wallace Kuhl & ASSOCIATES

GRAIN SIZE 10487.01 - MORNING STAR PACKING COMPANY_BORING LOGS.GPJ WKA.GDT 4/15/15 12:07 PM



Boring Number	Sample Number	USCS	Depth (feet)	Symbol	LL	PI	Classification
D08	D8-3I	SC	6 to 6.5	●			clayey SAND
D10	D10-3I	SC	6 to 6.5	⊠			clayey SAND

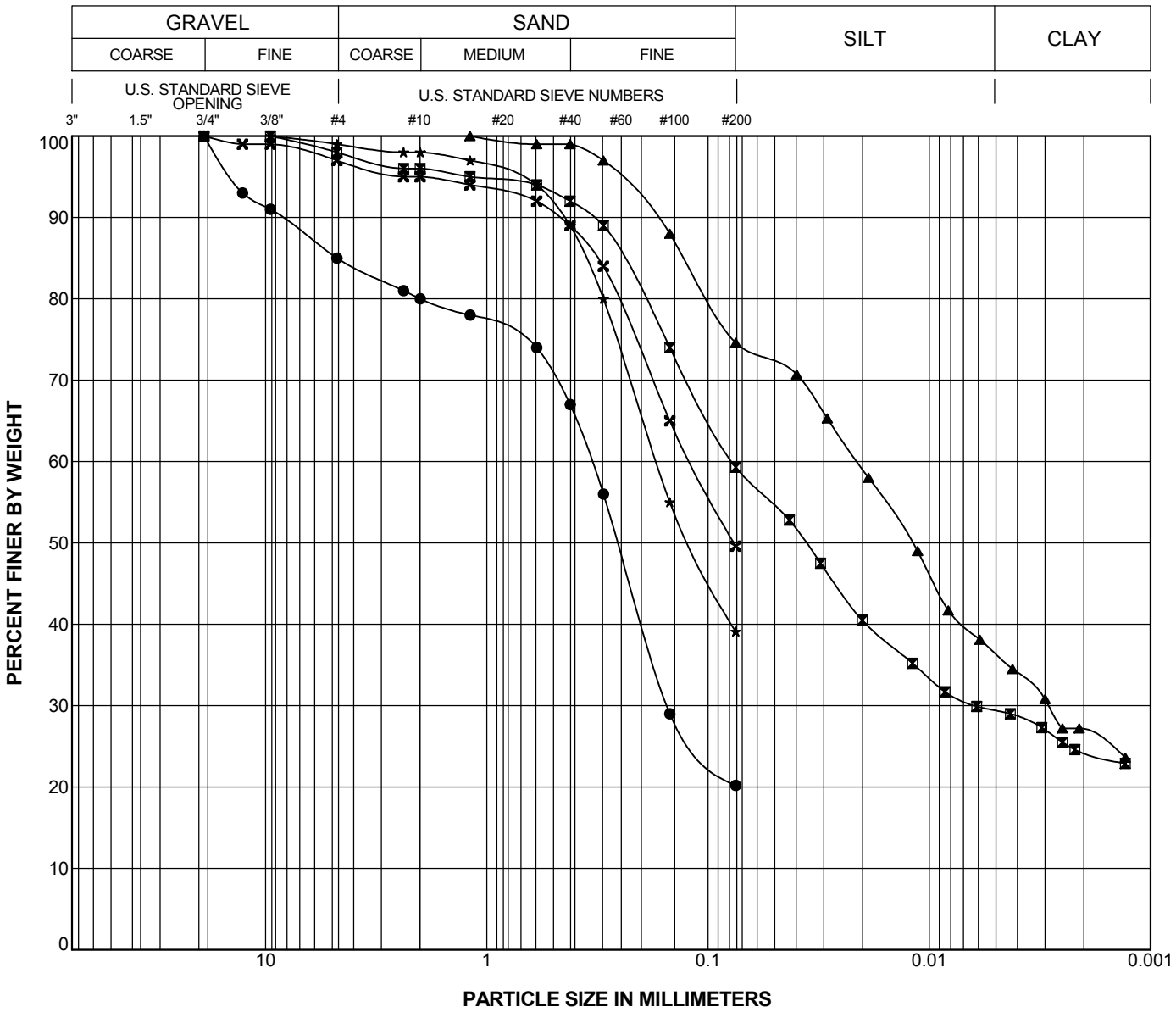
PARTICLE SIZE DISTRIBUTION

Project: Morning Star Packing Company, Cooling Pond Expansion
WKA No. 10487.01

FIGURE A5

Wallace Kuhl & ASSOCIATES

GRAIN SIZE 10487.01 - MORNING STAR PACKING COMPANY_BORING LOGS.GPJ WKA.GDT 4/15/15 12:07 PM



Boring Number	Sample Number	USCS	Depth (feet)	Symbol	LL	PI	Classification
TP02	0' to 3'	SM	0 to 3	●			silty SAND with gravel
TP03	0' to 4'	ML	0 to 4	⊠			sandy, clayey SILT
TP08	2' to 5'	ML	2 to 5	▲			sandy, clayey SILT
TP10	2' to 3.5'	SM	2 to 3.5	★			silty SAND
TP11	0' to 2'	SC	0 to 2	✕			clayey SAND

PARTICLE SIZE DISTRIBUTION

Project: Morning Star Packing Company, Cooling Pond Expansion
WKA No. 10487.01

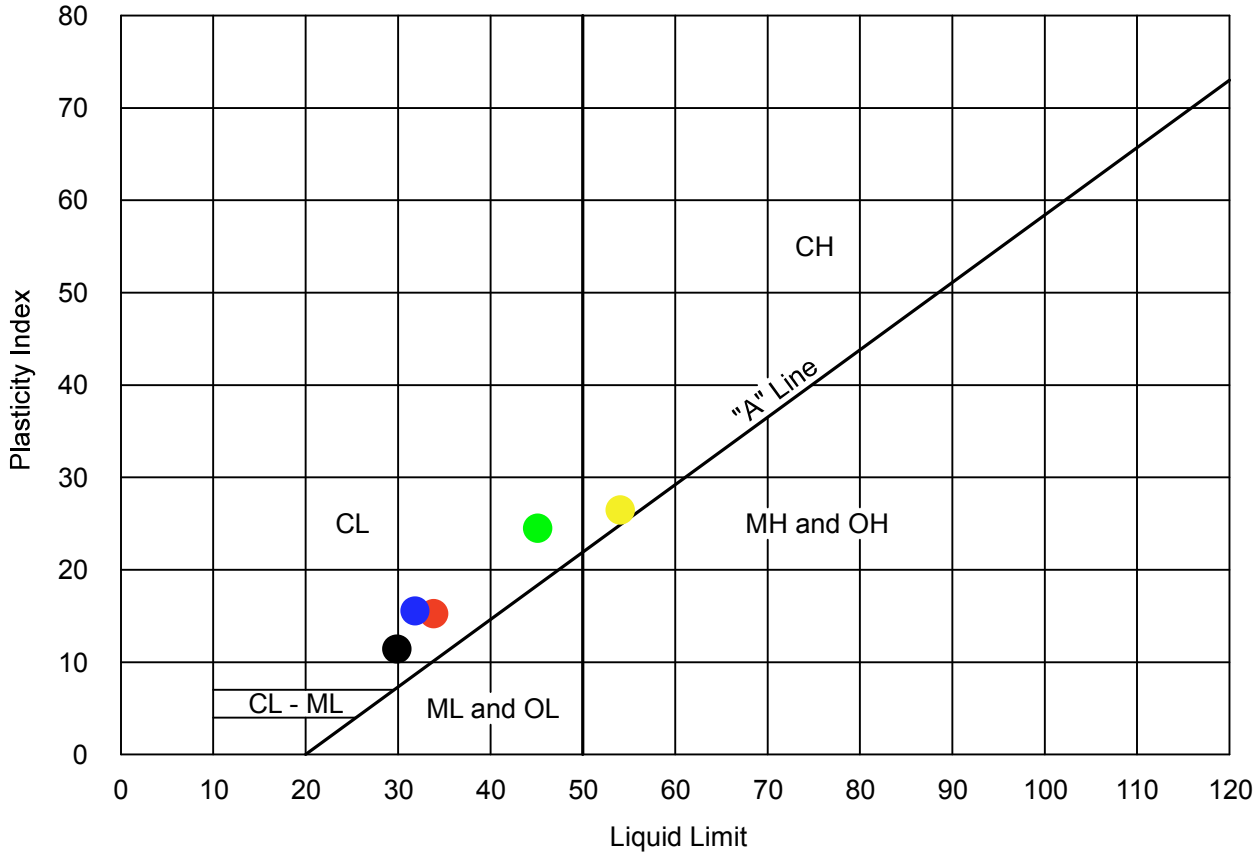
FIGURE A6

Wallace Kuhl & ASSOCIATES

GRAIN SIZE 10487.01 - MORNING STAR PACKING COMPANY_TEST PIT LOGS.GPJ WKA.GDT 4/15/15 4:37 PM

ATTERBERG LIMITS

ASTM D4318



KEY SYMBOL	LOCATION	SAMPLE DEPTH	NATURAL WATER CONTENT (%)	ATTERBERG LIMITS		PASSING No. 200 SIEVE (%)	UNIFIED SOIL CLASSIFI-CATION SYMBOL
				LIQUID LIMIT (%)	PLASTICITY INDEX (%)		
●	D1-4I	14.5'-15'	---	30	11	---	CL
●	D2-7I	15'-16.5'	---	34	15	---	CL
●	D3-1I	2'-2.5'	---	31	14	---	CL
●	D5-2I	4.5'-5'	---	45	26	---	CL
●	D6-7I	21'-21.5'	---	53	29	---	CH

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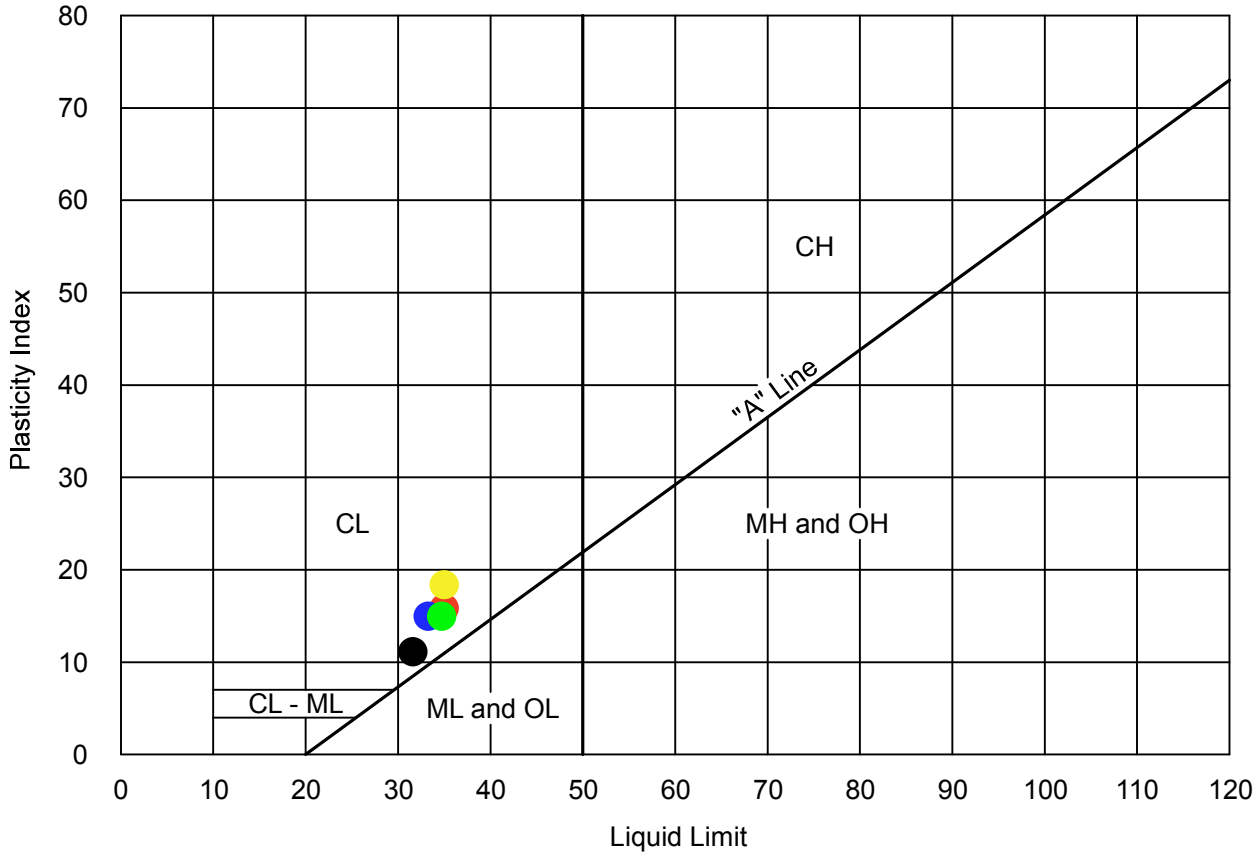
ATTERBERG LIMITS

MORNING STAR PACKING COMPANY
COOLING POND EXPANSION
Williams, California

FIGURE	A7
DRAWN BY	RWO
CHECKED BY	MMW
PROJECT MGR	MMW
DATE	04/15
WKA NO. 10487.01	

ATTERBERG LIMITS

ASTM D4318



KEY SYMBOL	LOCATION	SAMPLE DEPTH	NATURAL WATER CONTENT (%)	ATTERBERG LIMITS		PASSING No. 200 SIEVE (%)	UNIFIED SOIL CLASSIFI-CATION SYMBOL
				LIQUID LIMIT (%)	PLASTICITY INDEX (%)		
●	D7-3I	6'-6.5'	---	31	11	---	CL
●	D8-4I	10'-11.5'	---	34	16	---	CL
●	TP1	0'-3'	---	33	15	---	CL
●	TP8	2'-5'	---	35	15	---	CL
●	TP9	0'-3'	---	35	17	---	CL

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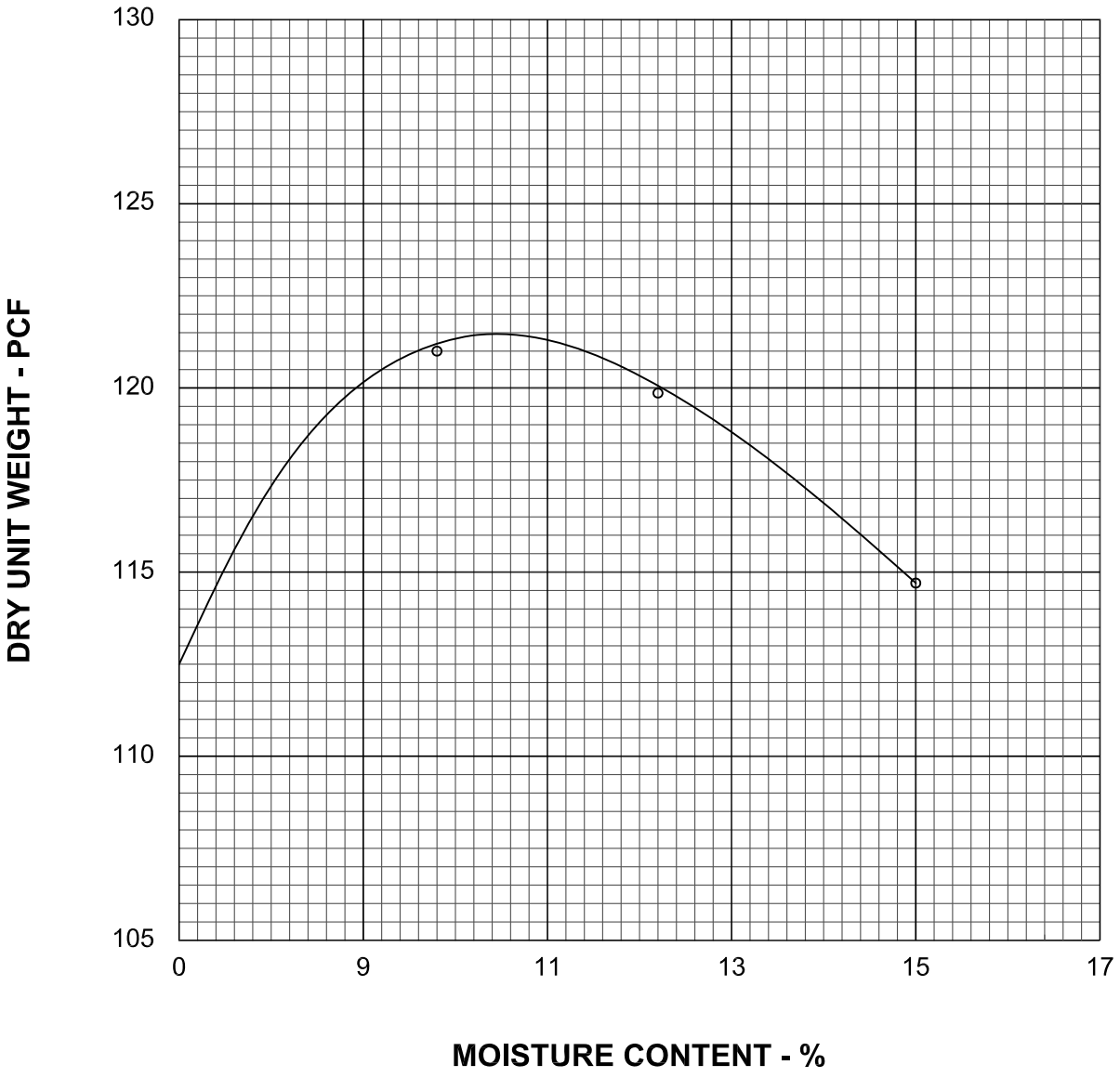
ATTERBERG LIMITS

MORNING STAR PACKING COMPANY
COOLING POND EXPANSION
Williams, California

FIGURE	A8
DRAWN BY	RWO
CHECKED BY	MMW
PROJECT MGR	MMW
DATE	04/15
WKA NO. 10487.01	

MOISTURE-DENSITY RELATION



Material:	Dark brown, sandy clay
Location:	TP-01
Test Method:	ASTM D1557 "A"
Maximum Dry Unit Weight:	121.5 pcf
Optimum Moisture:	10.5%

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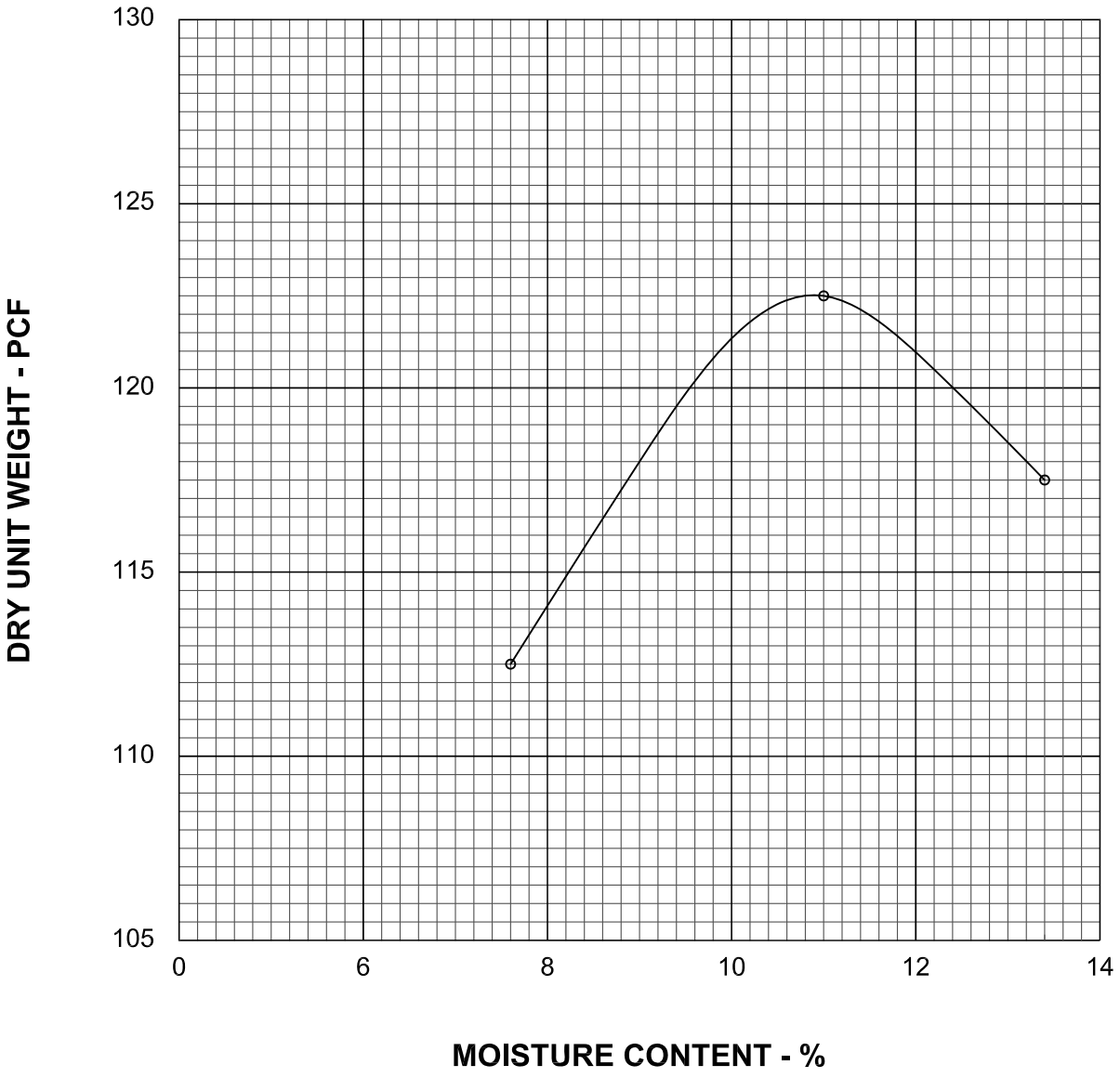
COMPACTION CURVE
MORNING STAR PACKING COMPANY
COOLING POND EXPANSION
Williams, California

FIGURE	A9
DRAWN BY	RWO
CHECKED BY	MMW
PROJECT MGR	MMW
DATE	04/14
WKA NO. 10487.01	

MOISTURE-DENSITY RELATION



Material:	Brown, sandy clay
Location:	TP-07
Test Method:	ASTM D1557 "A"
Maximum Dry Unit Weight:	122.5 pcf
Optimum Moisture:	11%

WallaceKuhl & ASSOCIATES

COMPACTION CURVE
MORNING STAR PACKING COMPANY
COOLING POND EXPANSION
Williams, California

FIGURE	A10
DRAWN BY	RWO
CHECKED BY	MMW
PROJECT MGR	MMW
DATE	04/14
WKA NO. 10487.01	

HYDRAULIC CONDUCTIVITY TEST REPORT

SAMPLE DATA

Sample Identification: D1-2I
Location: 0
Remarks:

Sample Depth, ft.: N/A
Sample Type: Liner

Lab No.: S43930

TEST RESULTS

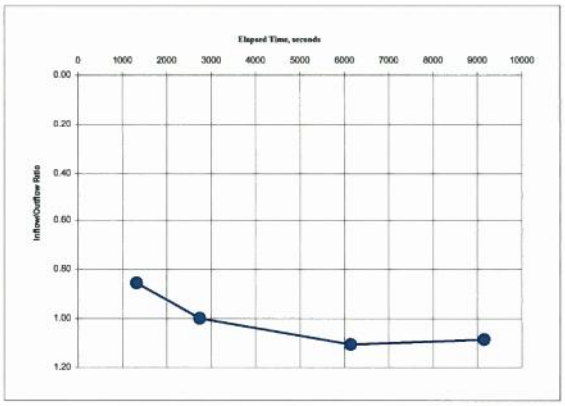
Permeability, cm/sec.: 1.40E-06

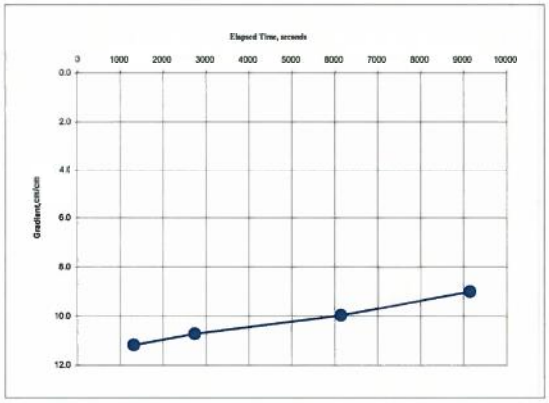
Average Hydraulic Gradient: 10.2

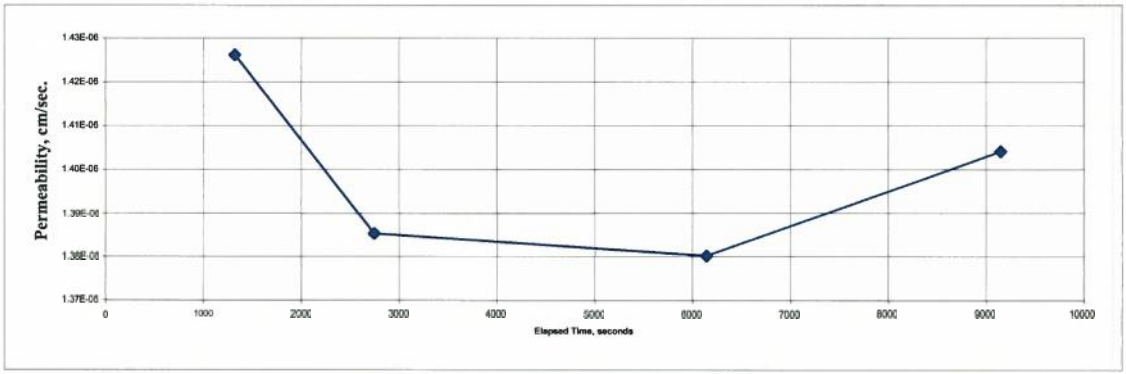
Effective Confining Pressure, psi: 2

TEST SAMPLE DATA

Before Test		After Test	
Specimen Height, cm:	5.79	Specimen Height, cm:	5.59
Specimen Diameter, cm:	4.85	Specimen Diameter, cm:	4.85
Dry Unit Weight, pcf:	106.0	Dry Unit Weight, pcf:	106.3
Moisture Content, %	18.8	Moisture Content, %	21.2







Test Method: ASTM D5084 Method C

PROJECT NUMBER:	15-026	March 17, 2015

SIERRA TESTING LABORATORIES, INC
GEOTECHNICAL AND MATERIALS TESTING SERVICES

485 Pierroz Rd, Unit D, Placerville, CA 95667
Ph 530-622-1101 Fax 530-622-1191

Morning Star Packing Co.

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HYDRAULIC CONDUCTIVITY TEST RESULTS
MORNING STAR PACKING COMPANY
COOLING POND EXPANSION
Williams, California

FIGURE	A11
DRAWN BY	RWO
CHECKED BY	MMW
PROJECT MGR	MMW
DATE	04/15
WKA NO.	10487.01

HYDRAULIC CONDUCTIVITY TEST REPORT

SAMPLE DATA

Sample Identification: D6-3I
Location: 0
Remarks:

Sample Depth, ft.: N/A
Sample Type: Liner

Lab No.: S43929

TEST RESULTS

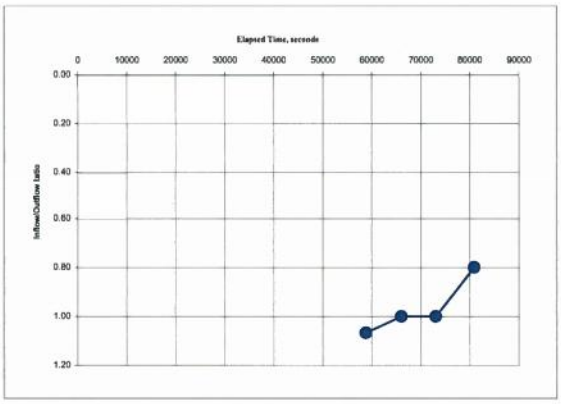
Permeability, cm/sec.: 8.36E-08

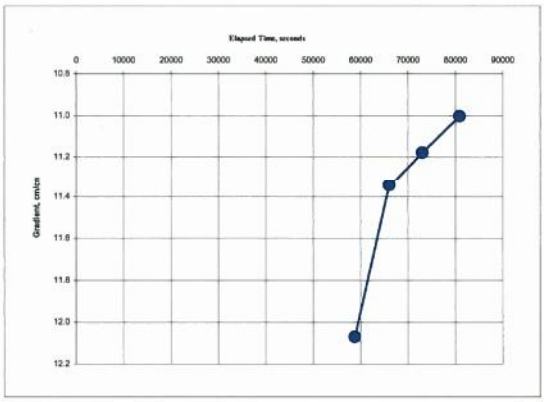
Average Hydraulic Gradient: 11.4

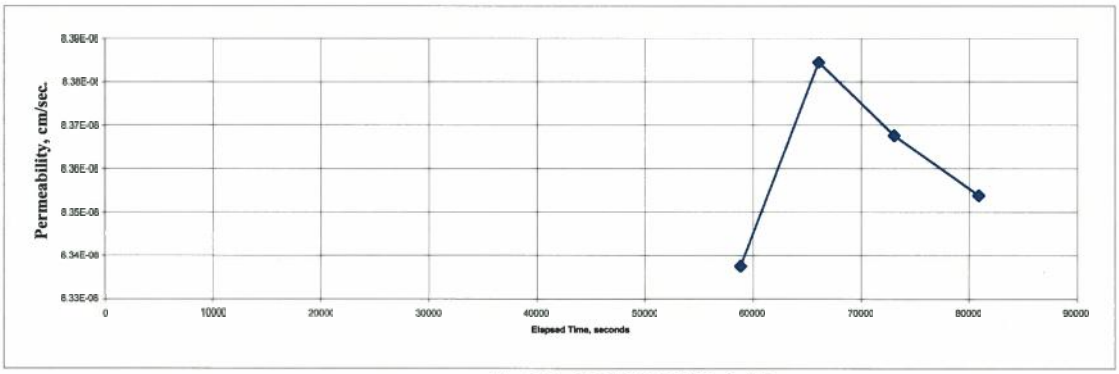
Effective Confining Pressure, psi: 2

TEST SAMPLE DATA

Before Test		After Test	
Specimen Height, cm:	5.08	Specimen Height, cm:	4.83
Specimen Diameter, cm:	4.83	Specimen Diameter, cm:	4.83
Dry Unit Weight, pcf:	113.9	Dry Unit Weight, pcf:	104.9
Moisture Content, %	7.4	Moisture Content, %	23.0







Test Method: ASTM D5084 Method C

PROJECT NUMBER:	15-026	March 17, 2015

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HYDRAULIC CONDUCTIVITY TEST RESULTS
MORNING STAR PACKING COMPANY
COOLING POND EXPANSION
Williams, California

FIGURE	A12
DRAWN BY	RWO
CHECKED BY	MMW
PROJECT MGR	MMW
DATE	04/15
WKA NO.	10487.01

HYDRAULIC CONDUCTIVITY TEST REPORT

SAMPLE DATA

Sample Identification: TP1
Location: 0
Remarks:

Sample Depth, ft.: N/A
Sample Type: Liner

Lab No.: S43927

TEST RESULTS

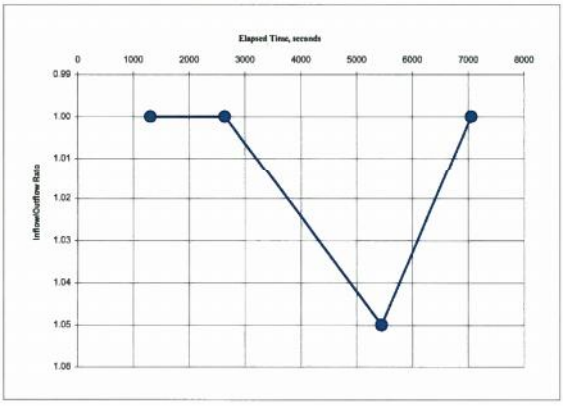
Permeability, cm/sec.: 1.66E-06

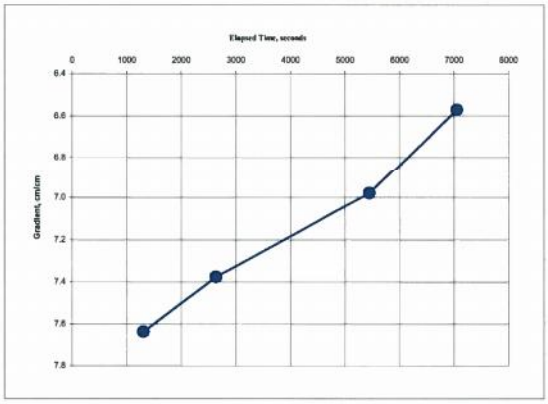
Average Hydraulic Gradient: 7.1

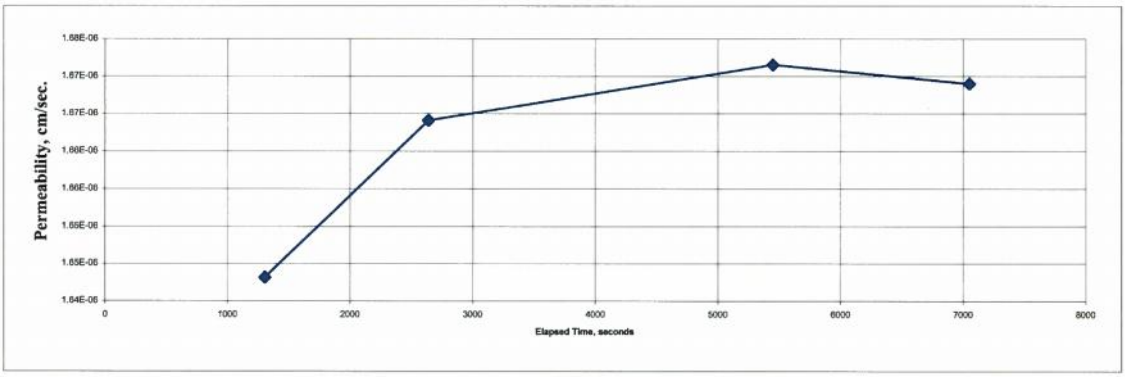
Effective Confining Pressure, psi: 5

TEST SAMPLE DATA

Before Test		After Test	
Specimen Height, cm:	7.59	Specimen Height, cm:	7.70
Specimen Diameter, cm:	4.83	Specimen Diameter, cm:	4.83
Dry Unit Weight, pcf:	112.1	Dry Unit Weight, pcf:	104.0
Moisture Content, %	13.9	Moisture Content, %	23.1







Test Method: ASTM D5084 Method C

PROJECT NUMBER:	15-026	March 17, 2015

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HYDRAULIC CONDUCTIVITY TEST RESULTS
MORNING STAR PACKING COMPANY
COOLING POND EXPANSION
Williams, California

FIGURE	A13
DRAWN BY	RWO
CHECKED BY	MMW
PROJECT MGR	MMW
DATE	04/15
WKA NO.	10487.01

HYDRAULIC CONDUCTIVITY TEST REPORT

SAMPLE DATA

Sample Identification: TP7 | Sample Depth, ft.: N/A | Lab No.: S43928

Location: 0 | Sample Type: Liner

Remarks:

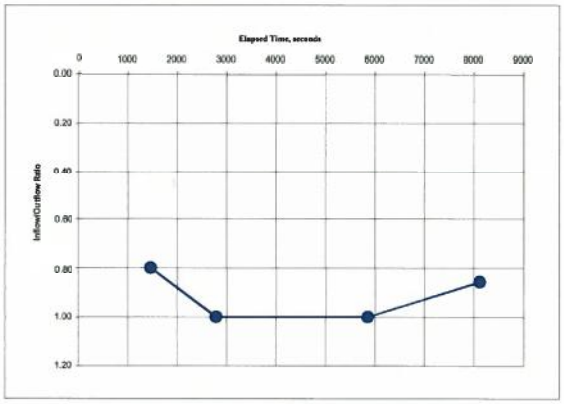
TEST RESULTS

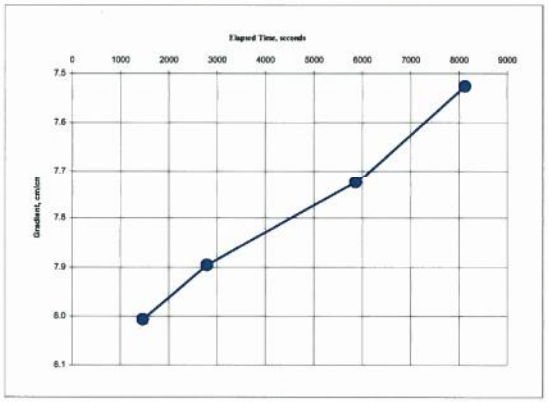
Permeability, cm/sec.: 6.25E-07 | **Average Hydraulic Gradient: 7.8**

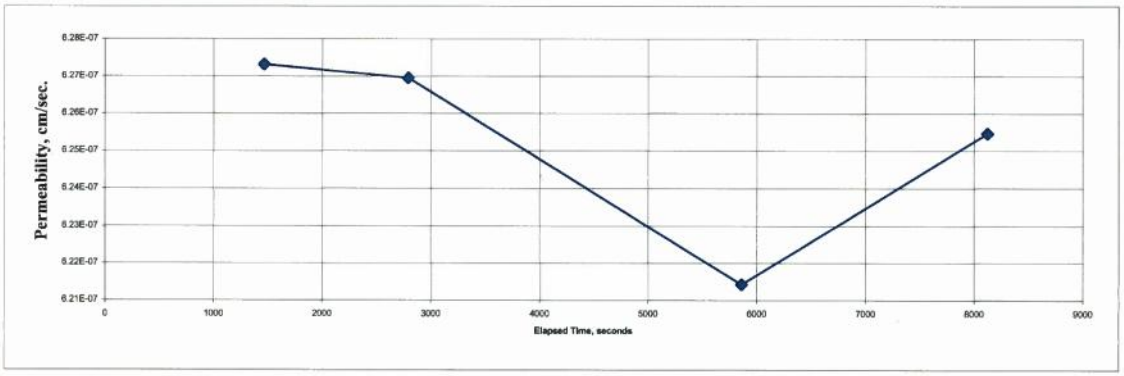
Effective Confining Pressure, psi: 5

TEST SAMPLE DATA

Before Test		After Test	
Specimen Height, cm:	7.59	Specimen Height, cm:	7.70
Specimen Diameter, cm:	4.83	Specimen Diameter, cm:	4.83
Dry Unit Weight, pcf:	114.2	Dry Unit Weight, pcf:	110.3
Moisture Content, %	12.0	Moisture Content, %	21.6







Test Method: ASTM D5084 Method C

PROJECT NUMBER:	15-026	March 17, 2015

SIERRA TESTING LABORATORIES, INC.
GEOTECHNICAL AND MATERIALS TESTING SERVICES

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Morning Star Packing Co.

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HYDRAULIC CONDUCTIVITY TEST RESULTS

MORNING STAR PACKING COMPANY
COOLING POND EXPANSION
Williams, California

FIGURE	A14
DRAWN BY	RWO
CHECKED BY	MMW
PROJECT MGR	MMW
DATE	04/15
WKA NO.	10487.01

APPENDIX B

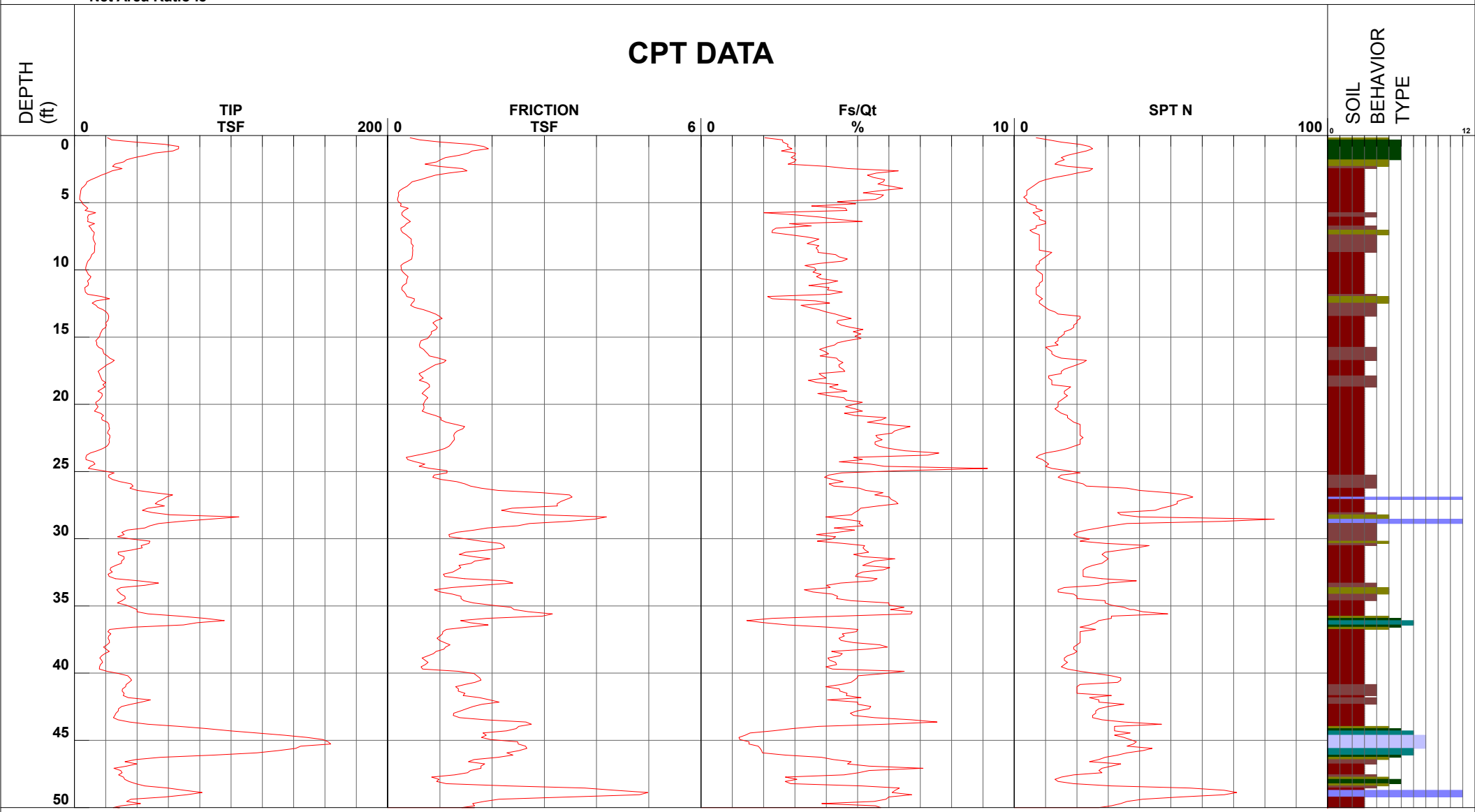
CONE PENETROMETER TEST SOUNDINGS

Wallace-Kuhl

Project	Morning Star Packing	Operator	CB-MM	Filename	SDF(282).cpt
Job Number	10487.01	Cone Number	DDG1268	GPS	
Hole Number	CPT-01	Date and Time	3/10/2015 11:46:10 AM	Maximum Depth	50.52 ft
EST GW Depth During Test		5.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained	4 - silty clay to clay	7 - silty sand to sandy silt	10 - gravelly sand to sand
2 - organic material	5 - clayey silt to silty clay	8 - sand to silty sand	11 - very stiff fine grained (*)
3 - clay	6 - sandy silt to clayey silt	9 - sand	12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(281).cpt
CPT Date: 3/10/2015 10:22:56 AM
GW During Test: 10 ft

Sounding ID: CPT-02
Project No: 10487.01
Cone/Rig: DDG1268

Depth ft	qc PS tsf	qcln PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	SPT R-N1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - -	Fin Ic %	Ic SBT Indx	Nk - -	Vol Strn %	Cycl SStn %
0.33	253.7	406.9	424.9	253.7	4.6	-0.2	1.8	6	clean SAND to silty SAND	125	5.0	51	81	95	48	-	-	6	1.71	16	N/A	N/A
0.49	378.3	606.8	616.9	378.3	7.6	-0.8	2.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	25.1	9.9	6	1.67	16	N/A	N/A
0.66	493.9	792.1	792.1	493.9	9.7	-0.2	2.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	32.7	9.9	5	1.62	16	N/A	N/A
0.82	371.5	595.8	675.4	371.5	11.2	-0.4	3.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	24.6	9.9	9	1.84	16	N/A	N/A
0.98	257.5	413.0	579.0	257.5	11.9	0.1	4.6	9	very stiff fine SOIL	120	2.0	100	100	95	48	-	-	15	2.07	30	N/A	N/A
1.15	157.7	252.9	454.9	157.7	9.1	-1.3	5.8	9	very stiff fine SOIL	120	2.0	79	100	95	48	-	-	21	2.25	30	N/A	N/A
1.31	109.6	175.8	349.7	109.5	6.0	-4.9	5.5	9	very stiff fine SOIL	120	2.0	55	88	86	48	-	-	23	2.31	30	N/A	N/A
1.48	121.5	194.9	320.8	121.4	5.1	-5.2	4.2	9	very stiff fine SOIL	120	2.0	61	97	89	48	-	-	19	2.19	30	N/A	N/A
1.64	141.1	226.2	348.4	141.0	5.8	-5.2	4.1	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	9.3	9.9	17	2.14	16	N/A	N/A
1.80	125.5	201.3	331.2	125.5	5.4	-0.1	4.3	9	very stiff fine SOIL	120	2.0	63	100	90	48	-	-	19	2.19	30	N/A	N/A
1.97	97.6	156.6	320.0	97.6	5.2	-0.8	5.3	9	very stiff fine SOIL	120	2.0	49	78	82	48	-	-	24	2.33	30	N/A	N/A
2.13	82.8	132.9	291.5	82.8	4.4	-0.6	5.4	9	very stiff fine SOIL	120	2.0	41	66	76	48	-	-	25	2.37	30	N/A	N/A
2.30	64.5	103.5	253.8	64.5	3.5	-2.4	5.4	9	very stiff fine SOIL	120	2.0	32	52	68	48	-	-	28	2.43	30	N/A	N/A
2.46	46.7	74.9	215.6	46.6	2.5	-6.1	5.4	4	clayy SILT to silty CLAY	115	2.0	23	37	-	-	3.3	9.9	32	2.52	15	N/A	N/A
2.62	40.0	64.2	186.7	39.9	1.9	-7.5	4.8	4	clayy SILT to silty CLAY	115	2.0	20	32	-	-	2.8	9.9	32	2.53	15	N/A	N/A
2.79	35.6	57.0	168.1	35.4	1.6	-7.6	4.4	4	clayy SILT to silty CLAY	115	2.0	18	29	-	-	2.5	9.9	32	2.53	15	N/A	N/A
2.95	37.1	59.5	159.6	37.0	1.4	-6.0	3.9	4	clayy SILT to silty CLAY	115	2.0	19	30	-	-	2.6	9.9	30	2.48	15	N/A	N/A
3.12	33.3	53.4	160.9	33.2	1.4	-5.8	4.3	4	clayy SILT to silty CLAY	115	2.0	17	27	-	-	2.3	9.9	33	2.55	15	N/A	N/A
3.28	39.3	63.0	176.0	39.2	1.7	-5.1	4.4	4	clayy SILT to silty CLAY	115	2.0	20	32	-	-	2.8	9.9	31	2.50	15	N/A	N/A
3.45	41.9	67.2	187.0	41.8	1.9	-2.6	4.6	4	clayy SILT to silty CLAY	115	2.0	21	34	-	-	2.9	9.9	31	2.50	15	N/A	N/A
3.61	37.9	60.7	184.5	37.8	1.8	-3.0	4.9	4	clayy SILT to silty CLAY	115	2.0	19	30	-	-	2.7	9.9	33	2.55	15	N/A	N/A
3.77	32.9	52.8	-	32.9	1.7	-4.5	5.2	4	clayy SILT to silty CLAY	115	2.0	16	26	-	-	2.3	9.9	36	2.61	15	N/A	N/A
3.94	30.3	48.6	-	30.2	1.6	-5.7	5.3	4	clayy SILT to silty CLAY	115	2.0	15	24	-	-	2.1	9.9	37	2.64	15	N/A	N/A
4.10	29.5	47.3	-	29.4	1.6	-4.4	5.3	3	silty CLAY to CLAY	115	1.5	20	32	-	-	2.1	9.9	38	2.65	15	N/A	N/A
4.27	30.8	49.3	-	30.7	1.7	-5.4	5.5	3	silty CLAY to CLAY	115	1.5	21	33	-	-	2.2	9.9	38	2.65	15	N/A	N/A
4.43	31.2	50.1	-	31.1	1.7	-6.4	5.4	4	clayy SILT to silty CLAY	115	2.0	16	25	-	-	2.2	9.9	37	2.64	15	N/A	N/A
4.59	29.0	46.6	-	28.9	1.6	-7.8	5.7	3	silty CLAY to CLAY	115	1.5	19	31	-	-	2.0	9.9	39	2.67	15	N/A	N/A
4.76	23.4	37.6	-	23.3	1.4	-8.7	6.1	3	silty CLAY to CLAY	115	1.5	16	25	-	-	1.6	9.9	44	2.76	15	N/A	N/A
4.92	21.0	33.7	-	20.8	1.3	-8.6	6.4	3	silty CLAY to CLAY	115	1.5	14	22	-	-	1.5	9.9	47	2.81	15	N/A	N/A
5.09	19.6	31.4	-	19.4	1.3	-8.2	6.6	3	silty CLAY to CLAY	115	1.5	13	21	-	-	1.4	9.9	49	2.84	15	N/A	N/A
5.25	19.6	31.4	-	19.4	1.0	-8.2	5.4	3	silty CLAY to CLAY	115	1.5	13	21	-	-	1.4	9.9	45	2.78	15	N/A	N/A
5.41	18.4	29.6	-	18.3	1.0	-8.3	5.6	3	silty CLAY to CLAY	115	1.5	12	20	-	-	1.3	9.9	47	2.81	15	N/A	N/A
5.58	16.6	26.6	-	16.4	1.0	-7.0	6.2	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.1	9.9	50	2.87	15	N/A	N/A
5.74	15.7	25.2	-	15.6	1.0	-7.1	6.4	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.1	9.9	52	2.90	15	N/A	N/A
5.91	14.9	23.9	-	14.8	1.0	-7.2	6.7	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.0	9.9	54	2.93	15	N/A	N/A
6.07	14.5	23.2	-	14.3	0.9	-7.5	6.7	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.0	9.9	55	2.94	15	N/A	N/A
6.23	13.5	21.6	-	13.3	0.8	-7.8	5.8	3	silty CLAY to CLAY	115	1.5	9	14	-	-	0.9	9.9	54	2.92	15	N/A	N/A
6.40	11.0	17.7	-	10.9	0.5	-5.3	5.1	3	silty CLAY to CLAY	115	1.5	7	12	-	-	0.8	9.4	56	2.96	15	N/A	N/A
6.56	8.7	13.9	-	8.7	0.3	-0.2	4.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	7.2	56	2.97	15	N/A	N/A
6.73	7.3	11.8	-	7.3	0.2	-0.3	3.4	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	5.8	58	2.99	15	N/A	N/A
6.89	6.2	9.9	-	6.2	0.2	-0.1	3.2	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	4.8	61	3.04	15	N/A	N/A
7.05	4.9	7.8	-	4.9	0.2	-0.1	3.9	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.6	71	3.18	15	N/A	N/A
7.22	4.3	6.9	-	4.3	0.2	-0.1	4.8	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.0	79	3.28	15	N/A	N/A
7.38	4.1	6.6	-	4.1	0.2	-0.1	5.5	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	2.8	84	3.34	15	N/A	N/A
7.55	6.3	10.2	-	6.3	0.3	-0.5	4.3	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	4.4	66	3.11	15	N/A	N/A
7.71	8.7	13.9	-	8.6	0.4	-1.2	4.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	6.0	58	3.00	15	N/A	N/A
7.87	10.5	16.8	-	10.4	0.5	-1.6	5.2	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	7.2	57	2.98	15	N/A	N/A
8.04	10.9	17.5	-	10.9	0.6	-1.7	5.7	3	silty CLAY to CLAY	115	1.5	7	12	-	-	0.7	7.4	58	2.99	15	N/A	N/A
8.20	9.2	14.7	-	9.1	0.6	-1.9	6.4	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	6.0	64	3.08	15	N/A	N/A
8.37	8.1	13.1	-	8.1	0.5	-2.2	6.3	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.5	5.2	67	3.12	15	N/A	N/A
8.53	7.5	12.1	-	7.5	0.4	-3.2	5.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.7	65	3.09	15	N/A	N/A
8.69	6.6	10.5	-	6.5	0.3	-3.4	5.6	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	4.0	71	3.17	15	N/A	N/A
8.86	7.1	11.3	-	7.0	0.4	-3.5	5.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.2	68	3.14	15	N/A	N/A
9.02	7.0	11.3	-	7.0	0.3	-3.5	5.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.1	67	3.12	15	N/A	N/A
9.19	6.2	10.0	-	6.1	0.3	-3.9	6.0	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	3.5	74	3.21	15	N/A	N/A
9.35	6.5	10.4	-	6.4	0.3	-3.8	5.1	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	3.6	69	3.15	15	N/A	N/A
9.51	6.1	9.8	-	6.1	0.3	-3.8	4.7	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	3.3	69	3.15	15	N/A	N/A
9.68	5.9	9.5	-	5.9	0.2	-3.8	4.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	3.2	70	3.16	15	N/A	N/A
9.84	5.9	9.5	-	5.8	0.2	-3.8	4.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	3.1	69	3.15	15	N/A	N/A
10.01	4.7	7.6	-	4.7	0.2	-3.8	5.5	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.4	80	3.29	15	-	-
10.17	3.9	6.3	-	3.8	0.2	-5.1	6.3	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.2	1.9	90	3.40	15	-	-
10.34	4.4	7.0	-	4.3	0.2	-6.0	5.3	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.1	83	3.32	15	-	-
10.50	5.9	9.4	-	5.7	0.2	-6.0	3.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	2.9	67	3.12	15	-	-
10.66	5.7	9.2	-	5.6	0.2	-6.0	4.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	2.8	72	3.19	15	-	-
10.83	5.3	8.5	-	5.2	0.3	-6.1	5.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.3	2.6	78	3.27	15	-	-
10.99	4.5	7.3	-	4.4	0.2	-6.6	6.2	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.1	85	3.35	15	-	-
11.16	4.6	7.5	-	4.5	0.2	-6.6	5.7	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.2	82	3.31	15	-	-
11.32	4.7	7.5	-	4.6	0.2	-6.5	5.3	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.2	80	3.29	15	-	-
11.48	4.1	6.6	-	4.0	0.2	-6.5	5.9	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.2	1.9	87	3.37	15	-	-
11.65	4.2	6.7	-	4.1	0.2	-6.5	5.4	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	1.9	85	3.35	15	-	-
11.81	4.7	7.6	-	4.6	0.2	-6.5	5.2	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.1	80	3.29	15	-	-
11.98	5.0	8.0	-	4.9	0.2	-6.4	5.3	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.3	79	3.27	15	-	-
12.14	5.1	8.1	-	5.0	0.3	-6.3	5.7	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.3	80	3.29	15	-	-
12.30	5.4	8.5	-	5.3	0.2	-6.3	5.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.3	2.4	76	3.23	15	-	-
12.47	5.2	8.2	-	5.1	0.2	-6.3	5.1	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.3	78	3.26	15	-	-
12.63	5.5	8.5	-	5.3	0.3	-6.3	5.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.3	2.4	77	3.25	15	-	-
12.80	5.6	8.7	-	5.5	0.3	-6.3	5.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	2.5	76	3.24	15	-	-
12.96	6.4	9.8	-	6.3	0.3	-6.3	5.5	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	2.9	73	3.20	15	-	-
13.12	7.5	11.5	-	7.4	0.3	-6.3	4.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.4	64	3.07	15	-	-
13.29	5.7	8.6	-	5.6	0.3	-6.3	7.0	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	2.5	83	3.32	15	-	-
13.45	8.1	12.2	-	8.0	0.3	-6.3	3.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.6	60	3.03	15	-	-
13.62	13.8	20.5	-	13.6	0.3	-6.8	2.3	4	clayy SILT to silty CLAY	115	2.0	7	10	-	-	0.9	6.4	40	2.69	15	-	-
13.78	13.8	20.5	-	13.7	0.3	-6.8	2.2	4	clayy SILT to silty CLAY	115	2.0	7	10	-	-	0.9	6.4	40	2.69	15	-	-
13.94	13.4	19.8	-	13.3	0.3	-7.0	2.2	4	clayy SILT to silty CLAY	115	2.0	7	10	-	-	0.9	6.1	40	2.70	15	-	-
14.11	12.7	18.6	-	12.6	0.2	-6.9	2.0	4	clayy SILT to silty CLAY	115	2.0	6	9	-	-	0.9	5.8	40	2.69	15	-	-
14.27	9.0	13.1	-	8.9	0.3	-6.9	3.2	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	3.9	55	2.95	15	-	-
14.44	5.7	8.3	-	5.6	0.3	-6.8	5.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	2.3	80	3.29	15	-	-
14.60	6.2	8.9	-	6.1	0.3	-6.7	5.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	2.5	75	3.23	15	-	-
14.76	6.2	8.9	-	6.1	0.4	-6.7	8.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	2.5	86	3.36	15	-	-
14.93	6.2	8.8	-	6.1	0.5	-6.6	9.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	2.5	89	3.39	15	-	-
15.09	7.3	10.3	-	7.2	0.4	-6.5	6.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	3.0	76	3.24	15	-	-
15.26	6.4	9.0	-	6.3	0.3	-6.4	6.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	2.6	78	3.27	15	-	-
15.42	6.0	8.3	-	5.9	0.3	-6.4	6.0	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	2.3	80	3.29	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(281).cpt
CPT Date: 3/10/2015 10:22:56 AM
GW During Test: 10 ft

Sounding ID: CPT-02
Project No: 10487.01
Cone/Rig: DDG1268

Depth ft	qc PS tsf	* qc1n PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
15.58	6.6	9.2	-	6.5	0.3	-6.4	5.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	2.6	75	3.22	15	-	-
15.75	5.3	7.3	-	5.2	0.2	-6.3	5.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.3	2.0	84	3.33	15	-	-
15.91	5.0	6.8	-	4.9	0.2	-6.3	5.1	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	1.8	84	3.34	15	-	-
16.08	5.1	6.9	-	4.9	0.2	-6.2	4.8	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	1.9	83	3.32	15	-	-
16.24	5.1	6.9	-	5.0	0.2	-6.2	5.0	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	1.8	84	3.33	15	-	-
16.40	5.7	7.7	-	5.6	0.2	-6.2	5.0	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.3	2.1	80	3.28	15	-	-
16.57	6.7	9.0	-	6.6	0.3	-6.1	5.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	2.6	75	3.23	15	-	-
16.73	8.3	11.0	-	8.1	0.4	-6.1	5.5	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.5	3.2	70	3.16	15	-	-
16.90	15.2	20.1	-	15.1	0.3	-6.1	2.5	4	clayy SILT to silty CLAY	115	2.0	8	10	-	-	1.0	6.2	42	2.72	15	-	-
17.06	24.6	27.4	64.3	24.5	0.3	-6.2	1.1	5	silty SAND to sandy SILT	120	4.0	6	7	24	34	-	-	27	2.41	16	3.36	51.2
17.23	24.0	26.7	69.4	23.9	0.3	-6.2	1.4	5	silty SAND to sandy SILT	120	4.0	6	7	23	34	-	-	29	2.47	16	3.15	51.2
17.39	14.7	19.0	-	14.5	0.2	-6.2	1.8	4	clayy SILT to silty CLAY	115	2.0	7	10	-	-	1.0	5.9	38	2.66	15	-	-
17.55	8.5	11.0	-	8.4	0.2	-6.2	2.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.5	3.2	59	3.00	15	-	-
17.72	7.6	9.8	-	7.5	0.2	-6.1	3.0	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	2.8	62	3.05	15	-	-
17.88	9.2	11.7	-	9.1	0.2	-6.0	2.8	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.6	3.4	56	2.96	15	-	-
18.05	10.3	13.1	-	10.2	0.3	-5.9	2.9	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.7	3.9	54	2.93	15	-	-
18.21	10.7	13.5	-	10.6	0.3	-5.8	3.6	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.7	4.0	57	2.97	15	-	-
18.37	11.6	14.6	-	11.5	0.4	-5.8	4.1	3	silty CLAY to CLAY	115	1.5	8	10	-	-	0.8	4.4	57	2.98	15	-	-
18.54	14.0	17.5	-	13.9	0.6	-5.5	4.3	3	silty CLAY to CLAY	115	1.5	9	12	-	-	0.9	5.3	54	2.92	15	-	-
18.70	14.3	17.7	-	14.1	0.6	-5.5	4.9	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.0	5.4	55	2.95	15	-	-
18.87	13.7	17.0	-	13.6	0.7	-5.4	5.5	3	silty CLAY to CLAY	115	1.5	9	11	-	-	0.9	5.2	59	3.00	15	-	-
19.03	13.1	16.1	-	13.0	0.7	-5.4	5.5	3	silty CLAY to CLAY	115	1.5	9	11	-	-	0.9	4.9	60	3.02	15	-	-
19.19	12.2	14.9	-	12.1	0.6	-5.3	5.3	3	silty CLAY to CLAY	115	1.5	8	10	-	-	0.8	4.5	61	3.04	15	-	-
19.36	10.7	13.0	-	10.6	0.5	-5.3	5.1	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.7	3.9	64	3.08	15	-	-
19.52	9.6	11.6	-	9.5	0.4	-5.3	4.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.6	3.4	66	3.11	15	-	-
19.69	8.8	10.6	-	8.7	0.4	-5.3	4.6	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	3.0	68	3.14	15	-	-
19.85	8.4	10.0	-	8.3	0.4	-5.3	4.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.5	2.9	71	3.17	15	-	-
20.01	7.6	9.1	-	7.5	0.4	-5.3	5.6	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	2.5	77	3.25	15	-	-
20.18	8.4	10.0	-	8.3	0.4	-5.2	4.8	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.5	2.8	71	3.17	15	-	-
20.34	10.0	11.7	-	9.9	0.4	-5.1	4.5	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.6	3.4	65	3.09	15	-	-
20.51	11.2	13.1	-	11.1	0.4	-5.1	4.0	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.7	3.9	59	3.01	15	-	-
20.67	11.9	13.9	-	11.8	0.4	-5.1	4.1	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.8	4.1	59	3.00	15	-	-
20.83	13.3	15.4	-	13.2	0.5	-5.0	4.2	3	silty CLAY to CLAY	115	1.5	9	10	-	-	0.9	4.6	56	2.97	15	-	-
21.00	17.1	19.7	-	17.0	0.6	-4.9	3.9	3	silty CLAY to CLAY	115	1.5	11	13	-	-	1.1	6.0	49	2.86	15	-	-
21.16	20.6	23.7	-	20.5	0.7	-4.8	3.7	4	clayy SILT to silty CLAY	115	2.0	10	12	-	-	1.4	7.3	45	2.78	15	-	-
21.33	19.5	22.3	-	19.4	0.8	-4.8	4.4	3	silty CLAY to CLAY	115	1.5	13	15	-	-	1.3	6.9	49	2.84	15	-	-
21.49	18.5	21.0	-	18.4	0.8	-4.8	4.9	3	silty CLAY to CLAY	115	1.5	12	14	-	-	1.2	6.5	52	2.90	15	-	-
21.65	17.5	19.8	-	17.4	0.8	-4.7	5.1	3	silty CLAY to CLAY	115	1.5	12	13	-	-	1.2	6.1	54	2.93	15	-	-
21.82	16.4	18.5	-	16.3	0.8	-4.6	5.0	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.1	5.6	55	2.95	15	-	-
21.98	13.1	14.8	-	13.1	0.6	-4.6	5.2	3	silty CLAY to CLAY	115	1.5	9	10	-	-	0.9	4.4	61	3.04	15	-	-
22.15	10.7	11.9	-	10.6	0.5	-4.6	5.3	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.7	3.5	68	3.13	15	-	-
22.31	10.1	11.2	-	10.0	0.4	-4.6	4.7	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.7	3.2	67	3.12	15	-	-
22.47	8.5	9.4	-	8.4	0.4	-4.6	5.5	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	2.6	75	3.23	15	-	-
22.64	8.1	8.9	-	8.0	0.4	-4.6	5.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	2.5	78	3.27	15	-	-
22.80	8.3	9.1	-	8.2	0.4	-4.6	5.6	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	2.5	77	3.25	15	-	-
22.97	7.8	8.6	-	7.8	0.4	-4.6	6.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	2.3	82	3.31	15	-	-
23.13	8.0	8.6	-	7.9	0.4	-4.6	5.8	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	2.4	79	3.28	15	-	-
23.30	8.1	8.7	-	8.0	0.4	-4.6	6.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	2.4	80	3.29	15	-	-
23.46	8.5	9.1	-	8.4	0.4	-4.6	5.7	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	2.5	78	3.26	15	-	-
23.62	7.5	8.1	-	7.5	0.4	-4.6	5.9	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	2.2	82	3.31	15	-	-
23.79	6.9	7.4	-	6.8	0.3	-4.6	6.1	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	1.9	86	3.36	15	-	-
23.95	7.2	7.6	-	7.1	0.3	-4.6	5.2	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.4	2.0	82	3.31	15	-	-
24.12	6.1	6.5	-	6.0	0.3	-4.6	6.2	3	silty CLAY to CLAY	115	1.5	4	4	-	-	0.4	1.7	92	3.42	15	-	-
24.28	7.4	7.7	-	7.3	0.3	-4.5	5.4	3	silty CLAY to CLAY	115	1.5	5	5	-	-	0.5	2.1	82	3.31	15	-	-
24.44	8.4	8.8	-	8.3	0.4	-4.5	5.3	3	silty CLAY to CLAY	115	1.5	6	6	-	-	0.5	2.4	77	3.25	15	-	-
24.61	9.8	10.2	-	9.7	0.5	-4.4	5.8	3	silty CLAY to CLAY	115	1.5	7	7	-	-	0.6	2.9	74	3.21	15	-	-
24.77	13.2	13.7	-	13.1	0.8	-4.4	7.1	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	4.0	70	3.16	15	-	-
24.94	15.2	15.6	-	15.1	0.8	-4.4	6.1	3	silty CLAY to CLAY	115	1.5	10	10	-	-	1.0	4.7	63	3.07	15	-	-
25.10	13.6	13.9	-	13.5	0.8	-2.2	7.0	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.9	4.1	69	3.15	15	-	-
25.26	22.9	23.4	-	22.9	1.0	-2.1	4.8	3	silty CLAY to CLAY	115	1.5	15	16	-	-	1.5	7.2	49	2.86	15	-	-
25.43	26.0	26.5	-	26.0	1.2	-2.0	4.9	3	silty CLAY to CLAY	115	1.5	17	18	-	-	1.8	8.3	47	2.82	15	-	-
25.59	26.6	27.0	-	26.6	1.3	-1.9	5.0	3	silty CLAY to CLAY	115	1.5	18	18	-	-	1.8	8.4	47	2.82	15	-	-
25.76	27.6	27.8	-	27.5	1.3	-1.9	5.0	3	silty CLAY to CLAY	115	1.5	18	19	-	-	1.9	8.7	46	2.81	15	-	-
25.92	26.1	26.2	-	26.0	1.3	-2.1	5.2	3	silty CLAY to CLAY	115	1.5	17	17	-	-	1.8	8.2	48	2.84	15	-	-
26.08	23.9	23.9	-	23.8	1.1	-2.0	5.1	3	silty CLAY to CLAY	115	1.5	16	16	-	-	1.6	7.4	50	2.86	15	-	-
26.25	24.1	24.1	-	24.1	1.1	-1.9	4.7	3	silty CLAY to CLAY	115	1.5	16	16	-	-	1.6	7.4	48	2.84	15	-	-
26.41	22.9	22.7	-	22.9	1.1	-1.9	5.0	3	silty CLAY to CLAY	115	1.5	15	15	-	-	1.5	7.0	51	2.88	15	-	-
26.58	22.9	22.6	-	22.9	1.1	-1.8	5.0	3	silty CLAY to CLAY	115	1.5	15	15	-	-	1.5	7.0	51	2.88	15	-	-
26.74	25.1	24.7	-	25.1	1.1	-1.7	4.8	3	silty CLAY to CLAY	115	1.5	17	16	-	-	1.7	7.7	48	2.83	15	-	-
26.90	26.9	26.4	-	26.9	1.1	-1.7	4.2	3	silty CLAY to CLAY	115	1.5	18	18	-	-	1.8	8.2	44	2.77	15	-	-
27.07	25.2	24.6	-	25.2	1.1	-1.6	4.7	3	silty CLAY to CLAY	115	1.5	17	16	-	-	1.7	7.6	48	2.83	15	-	-
27.23	26.6	25.8	-	26.5	1.1	-1.6	4.3	3	silty CLAY to CLAY	115	1.5	18	17	-	-	1.8	8.0	45	2.79	15	-	-
27.40	27.1	26.2	-	27.0	1.3	-1.6	5.1	3	silty CLAY to CLAY	115	1.5	18	17	-	-	1.8	8.1	48	2.83	15	-	-
27.56	30.2	29.1	-	30.1	1.4	-1.7	4.8	3	silty CLAY to CLAY	115	1.5	20	19	-	-	2.1	9.1	45	2.78	15	-	-
27.72	29.1	28.0	-	29.1	1.4	-1.6	5.0	3	silty CLAY to CLAY	115	1.5	19	19	-	-	2.0	8.7	46	2.81	15	-	-
27.89	29.3	28.0	-	29.3	1.4	-1.3	4.9	3	silty CLAY to CLAY	115	1.5	20	19	-	-	2.0	8.7	46	2.80	15	-	-
28.05	32.1	30.6	-	32.1	1.5	-1.4	4.8	3	silty CLAY to CLAY	115	1.5	21	20	-	-	2.2	9.6	44	2.76	15	-	-
28.22	32.1	30.4	-	32.0	1.5	-1.4	5.1	3	silty CLAY to CLAY	115	1.5	21	20	-	-	2.2	9.5	45	2.78	15	-	-
28.38	31.9	30.1	-	31.9	1.6	-1.4	5.3	3	silty CLAY to CLAY	115	1.5	21	20	-	-	2.2	9.4	46	2.80	15	-	-
28.54	29.7	27.9	-	29.6	1.6	-1.5	5.6	3	silty CLAY to CLAY	115	1.5	20	19	-	-	2.0	8.7	48	2.84	15	-	-
28.71	25.9	24.3	-	25.9	1.4	-1.6	5.9	3	silty CLAY to CLAY	115	1.5	17	16	-	-	1.8	7.5	52	2.90	15	-	-
28.87	22.3	20.8	-	22.3	1.3	-1.6	6.1	3	silty CLAY to CLAY	115	1.5	15	14	-	-	1.5	6.4	56	2.97	15	-	-
29.04	21.4	19.8	-	21.3	1.1	-1.5	5.8	3	silty CLAY to CLAY	115	1.5	14	13	-	-	1.4	6.0	56	2.97	15	-	-
29.20	21.9	20.3	-	21.9	1.1	-1.4	5.5	3	silty CLAY to CLAY	115	1.5	15	14	-	-	1.5	6.2	55	2.95	15	-	-
29.36	22.1	20.4	-	22.1	1.2	-1.5	5.9	3	silty CLAY to CLAY	115	1.5	15	14	-	-	1.5	6.2	56	2.97	15	-	-
29.53	21.5	19.7	-	21.5	1.2	-1.5	6.0	3	silty CLAY to CLAY	115	1.5	14	13	-	-	1.4	6.0	57	2.98	15	-	-
29.69	22.0	20.1	-	21.9	1.2	-1.6	5.9	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.5	6.1	57	2.97	15	-	-
29.86	22.8	20.8	-	22.8	1.2	-1.6	5.7	3	silty CLAY to CLAY	115	1.5	15	14	-	-	1.5	6.3	55	2.95	15	-	-
30.02	22.5	20.4	-	22.5	1.2	-1.6	5.5	3	silty CLAY to CLAY	115	1.5	15	14	-	-	1.5	6.2	55	2.95	15	-	-
30.19	23.4	21.1	-	23.4	1.1	-1.6	5.1	3	silty CLAY to CLAY	115	1.5	16	14	-	-	1.6	6.5	52	2.91	15	-	-
30.35	22.0	19.8	-	22.0	1.1	-1.7	5.4	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.5	6.0	55	2.95	15	-	-
30.51	22.5	20.2	-	22.5	1.1	-1.6	5.2	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.5	6.2	54	2.93	15	-	-
30.68	20.0	17.8	-	19.9	1.1	-1.7	5.9	3	silty CLAY to CLAY	115	1.5	13	12	-	-	1.3	5.4	59	3.01	15	-	-
30.84	18.2	16.2	-	18.2	1.0	-1.8	5.8	3	silty CLAY to CLAY	115	1.5	12	11	-	-	1.2	4.8	61	3.04	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(281).cpt
CPT Date: 3/10/2015 10:22:56 AM
GW During Test: 10 ft

Sounding ID: CPT-02
Project No: 10487.01
Cone/Rig: DDG1268

Depth ft	qc PS tsf	* qc1n PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
31.01	16.2	14.4	-	16.2	0.7	-1.8	5.2	3	silty CLAY to CLAY	115	1.5	11	10	-	-	1.1	4.2	62	3.05	15	-	-
31.17	15.5	13.7	-	15.5	0.7	-1.7	5.2	3	silty CLAY to CLAY	115	1.5	10	9	-	-	1.0	4.0	63	3.07	15	-	-
31.33	16.9	14.9	-	16.9	0.7	-1.5	4.4	3	silty CLAY to CLAY	115	1.5	11	10	-	-	1.1	4.4	58	2.99	15	-	-
31.50	17.1	15.0	-	17.1	0.7	-1.6	4.8	3	silty CLAY to CLAY	115	1.5	11	10	-	-	1.1	4.4	60	3.02	15	-	-
31.66	20.2	17.7	-	20.2	1.1	-1.5	6.1	3	silty CLAY to CLAY	115	1.5	13	12	-	-	1.3	5.3	60	3.03	15	-	-
31.83	22.5	19.6	-	22.5	1.3	-1.4	6.3	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.5	5.9	58	3.00	15	-	-
31.99	19.6	16.9	-	19.5	1.1	-1.4	6.3	3	silty CLAY to CLAY	115	1.5	13	11	-	-	1.3	5.1	62	3.05	15	-	-
32.15	20.0	17.2	-	19.9	1.0	-1.4	5.5	3	silty CLAY to CLAY	115	1.5	13	11	-	-	1.3	5.2	59	3.01	15	-	-
32.32	19.4	16.7	-	19.4	0.9	-1.4	5.4	3	silty CLAY to CLAY	115	1.5	13	11	-	-	1.3	5.0	59	3.01	15	-	-
32.48	19.8	17.0	-	19.8	0.9	-1.3	5.0	3	silty CLAY to CLAY	115	1.5	13	11	-	-	1.3	5.1	57	2.98	15	-	-
32.65	23.3	19.9	-	23.3	0.9	-1.2	4.2	3	silty CLAY to CLAY	115	1.5	16	13	-	-	1.6	6.0	50	2.87	15	-	-
32.81	23.7	20.1	-	23.7	1.0	-1.2	4.6	3	silty CLAY to CLAY	115	1.5	16	13	-	-	1.6	6.1	52	2.90	15	-	-
32.97	23.5	19.9	-	23.5	1.1	-1.2	4.9	3	silty CLAY to CLAY	115	1.5	16	13	-	-	1.6	6.0	53	2.92	15	-	-
33.14	23.6	20.0	-	23.6	1.1	-1.2	4.9	3	silty CLAY to CLAY	115	1.5	16	13	-	-	1.6	6.1	53	2.92	15	-	-
33.30	23.2	19.5	-	23.2	1.0	-1.1	4.7	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.6	5.9	53	2.92	15	-	-
33.47	22.7	19.0	-	22.7	0.9	-1.2	4.6	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.5	5.7	53	2.92	15	-	-
33.63	22.7	19.0	-	22.7	0.9	-1.2	4.3	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.5	5.7	52	2.90	15	-	-
33.79	22.3	18.5	-	22.3	0.9	-1.1	4.3	3	silty CLAY to CLAY	115	1.5	15	12	-	-	1.5	5.6	53	2.91	15	-	-
33.96	21.8	18.1	-	21.8	0.8	-1.0	4.1	3	silty CLAY to CLAY	115	1.5	15	12	-	-	1.5	5.4	52	2.91	15	-	-
34.12	23.1	19.1	-	23.1	0.8	-1.0	3.9	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.5	5.8	50	2.87	15	-	-
34.29	25.0	20.6	-	25.0	1.0	-0.9	4.5	3	silty CLAY to CLAY	115	1.5	17	14	-	-	1.7	6.2	51	2.88	15	-	-
34.45	34.1	28.0	-	34.1	1.4	-0.8	4.5	3	silty CLAY to CLAY	115	1.5	23	19	-	-	2.3	8.7	45	2.78	15	-	-
34.61	40.5	33.1	-	40.4	1.6	-0.9	4.2	4	clayy SILT to silty CLAY	115	2.0	20	17	-	-	2.8	9.9	41	2.70	15	-	-
34.78	35.3	28.8	-	35.3	1.6	-0.8	4.8	3	silty CLAY to CLAY	115	1.5	24	19	-	-	2.4	9.0	45	2.79	15	-	-
34.94	35.8	29.1	-	35.8	1.6	-0.5	4.8	3	silty CLAY to CLAY	115	1.5	24	19	-	-	2.4	9.1	45	2.78	15	-	-
35.11	37.1	30.0	-	37.1	2.0	-0.6	5.7	3	silty CLAY to CLAY	115	1.5	25	20	-	-	2.5	9.4	47	2.82	15	-	-
35.27	42.5	34.3	-	42.5	2.1	-0.5	5.2	3	silty CLAY to CLAY	115	1.5	28	23	-	-	2.9	9.9	43	2.75	15	-	-
35.43	29.6	23.7	-	29.5	2.0	-1.3	7.3	3	silty CLAY to CLAY	115	1.5	20	16	-	-	2.0	7.3	57	2.98	15	-	-
35.60	37.8	30.3	-	37.8	1.8	-1.1	5.1	3	silty CLAY to CLAY	115	1.5	25	20	-	-	2.6	9.4	45	2.79	15	-	-
35.76	34.9	27.9	-	34.9	1.7	-1.1	5.2	3	silty CLAY to CLAY	115	1.5	23	19	-	-	2.4	8.7	47	2.82	15	-	-
35.93	32.1	25.5	-	32.0	1.6	-1.0	5.2	3	silty CLAY to CLAY	115	1.5	21	17	-	-	2.2	7.9	49	2.85	15	-	-
36.09	30.7	24.3	-	30.7	1.5	-0.9	5.4	3	silty CLAY to CLAY	115	1.5	20	16	-	-	2.1	7.5	51	2.88	15	-	-
36.26	33.0	26.0	-	33.0	1.8	-0.8	5.8	3	silty CLAY to CLAY	115	1.5	22	17	-	-	2.2	8.0	50	2.87	15	-	-
36.42	36.2	28.5	-	36.2	1.9	-0.9	5.6	3	silty CLAY to CLAY	115	1.5	24	19	-	-	2.5	8.8	48	2.84	15	-	-
36.58	33.5	26.3	-	33.5	1.8	-0.8	5.9	3	silty CLAY to CLAY	115	1.5	22	18	-	-	2.3	8.1	51	2.88	15	-	-
36.75	24.2	19.0	-	24.2	1.5	-0.4	6.9	3	silty CLAY to CLAY	115	1.5	16	13	-	-	1.6	5.7	61	3.04	15	-	-
36.91	28.4	22.1	-	28.4	1.7	-0.1	6.4	3	silty CLAY to CLAY	115	1.5	19	15	-	-	1.9	6.8	56	2.96	15	-	-
37.08	38.3	29.7	-	38.3	1.9	-0.2	5.2	3	silty CLAY to CLAY	115	1.5	26	20	-	-	2.6	9.3	46	2.80	15	-	-
37.24	57.0	48.7	151.5	57.0	2.2	-0.9	4.0	4	clayy SILT to silty CLAY	115	2.0	28	24	-	-	3.9	9.9	34	2.56	15	0.55	3.0
37.40	67.2	57.3	130.9	67.1	1.8	-4.0	2.7	5	silty SAND to sandy SILT	120	4.0	17	14	49	37	-	-	26	2.39	16	1.58	34.1
37.57	91.7	78.0	114.4	91.5	1.3	-6.6	1.5	5	silty SAND to sandy SILT	120	4.0	23	20	59	39	-	-	16	2.11	16	2.09	24.1
37.73	83.8	71.3	124.2	83.7	1.6	-7.6	2.0	5	silty SAND to sandy SILT	120	4.0	21	18	56	38	-	-	20	2.23	16	1.88	27.5
37.90	70.3	59.7	130.6	70.2	1.8	-7.4	2.6	5	silty SAND to sandy SILT	120	4.0	18	15	50	37	-	-	25	2.37	16	1.60	32.8
38.06	129.6	109.7	128.9	129.4	1.3	-7.5	1.0	6	clean SAND to silty SAND	125	5.0	26	22	70	40	-	-	10	1.89	16	1.73	9.3
38.22	157.0	132.7	141.4	156.9	1.2	-7.6	0.8	6	clean SAND to silty SAND	125	5.0	31	27	76	41	-	-	7	1.74	16	1.11	4.9
38.39	133.5	112.6	129.7	133.7	1.2	9.8	0.9	6	clean SAND to silty SAND	125	5.0	27	23	71	41	-	-	9	1.86	16	1.70	8.8
38.55	117.9	99.3	120.7	118.1	1.2	9.7	1.0	6	clean SAND to silty SAND	125	5.0	24	20	67	40	-	-	11	1.93	16	2.00	16.7
38.72	128.2	107.7	120.7	128.4	1.0	9.7	0.8	6	clean SAND to silty SAND	125	5.0	26	22	69	40	-	-	9	1.82	16	2.00	14.4
38.88	138.9	116.5	121.1	139.0	0.7	3.7	0.5	6	clean SAND to silty SAND	125	5.0	28	23	72	41	-	-	6	1.70	16	1.99	12.9
39.04	141.3	118.3	143.8	141.3	1.8	0.2	1.3	6	clean SAND to silty SAND	125	5.0	28	24	73	41	-	-	11	1.93	16	0.99	4.6
39.21	133.3	111.3	140.0	133.3	1.8	0.2	1.3	6	clean SAND to silty SAND	125	5.0	27	22	71	40	-	-	12	1.97	16	1.17	5.5
39.37	171.1	142.7	152.2	171.1	1.4	-3.6	0.8	6	clean SAND to silty SAND	125	5.0	34	29	79	42	-	-	7	1.74	16	0.61	3.3
39.54	240.0	199.8	199.8	240.0	1.1	-3.5	0.5	6	clean SAND to silty SAND	125	5.0	48	40	90	43	-	-	5	1.48	16	0.00	0.0
39.70	264.1	219.4	219.4	264.0	1.4	-4.0	0.5	6	clean SAND to silty SAND	125	5.0	53	44	93	44	-	-	5	1.48	16	0.00	0.0
39.86	233.7	193.8	193.8	233.8	1.8	7.8	0.8	6	clean SAND to silty SAND	125	5.0	47	39	89	43	-	-	5	1.62	16	0.00	0.0
40.03	213.4	176.7	178.1	213.5	1.6	1.6	0.8	6	clean SAND to silty SAND	125	5.0	43	35	86	43	-	-	5	1.66	16	0.00	0.0
40.19	185.2	153.0	154.0	185.2	1.2	2.7	0.7	6	clean SAND to silty SAND	125	5.0	37	31	81	42	-	-	5	1.65	16	0.56	3.1
40.36	182.4	150.4	150.4	182.6	0.7	11.0	0.4	6	clean SAND to silty SAND	125	5.0	36	30	80	42	-	-	5	1.54	16	0.71	3.5
40.52	189.6	156.1	155.7	189.8	1.2	6.3	0.6	6	clean SAND to silty SAND	125	5.0	38	31	82	42	-	-	5	1.64	16	0.51	3.0
40.68	188.9	155.2	155.2	189.0	0.9	2.1	0.5	6	clean SAND to silty SAND	125	5.0	38	31	82	42	-	-	5	1.57	16	0.53	3.0
40.85	167.6	137.5	143.0	167.6	1.1	0.8	0.7	6	clean SAND to silty SAND	125	5.0	34	27	78	41	-	-	6	1.70	16	1.05	4.6
41.01	190.5	155.9	155.9	190.5	0.9	-0.1	0.5	6	clean SAND to silty SAND	125	5.0	38	31	82	42	-	-	5	1.57	16	0.51	2.9
41.18	226.6	185.1	185.1	226.7	0.8	4.1	0.4	6	clean SAND to silty SAND	125	5.0	45	37	87	43	-	-	5	1.43	16	0.00	0.0
41.34	234.4	191.2	191.2	234.5	0.7	3.5	0.3	6	clean SAND to silty SAND	125	5.0	47	38	88	43	-	-	5	1.39	16	0.00	0.0
41.50	205.0	166.9	166.9	205.0	0.7	1.3	0.3	6	clean SAND to silty SAND	125	5.0	41	33	84	42	-	-	5	1.47	16	0.00	0.0
41.67	160.1	130.1	130.1	160.1	0.5	-0.3	0.3	6	clean SAND to silty SAND	125	5.0	32	26	76	41	-	-	5	1.53	16	1.71	8.0
41.83	114.2	92.6	106.7	114.2	0.8	-0.7	0.7	6	clean SAND to silty SAND	125	5.0	23	19	64	39	-	-	9	1.86	16	2.21	19.0
42.00	66.5	53.9	106.5	66.5	1.2	0.0	1.9	5	silty SAND to sandy SILT	120	4.0	17	13	47	36	-	-	23	2.31	16	2.22	39.9
42.16	35.5	24.6	-	35.6	1.1	1.5	3.4	4	clayy SILT to silty CLAY	115	2.0	18	12	-	-	2.4	7.6	43	2.74	15	-	-
42.32	22.2	15.3	-	22.3	1.0	3.3	5.1	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.5	4.5	60	3.03	15	-	-
42.49	26.5	18.2	-	26.5	0.8	3.5	3.1	3	silty CLAY to CLAY	115	1.5	18	12	-	-	1.8	5.5	48	2.83	15	-	-
42.65	17.2	11.8	-	17.2	0.7	2.1	4.6	3	silty CLAY to CLAY	115	1.5	11	8	-	-	1.1	3.3	65	3.10	15	-	-
42.82	16.0	11.0	-	16.1	0.6	3.0	4.5	3	silty CLAY to CLAY	115	1.5	11	7	-	-	1.0	3.1	68	3.13	15	-	-
42.98	16.9	11.5	-	16.9	0.6	3.5	4.5	3	silty CLAY to CLAY	115	1.5	11	8	-	-	1.1	3.2	66	3.10	15	-	-
43.15	20.2	13.7	-	20.2	0.7	3.9	3.9	3	silty CLAY to CLAY	115	1.5	13	9	-	-	1.3	4.0	58	3.00	15	-	-
43.31	27.9	18.9	-	27.9	0.6	3.8	2.3	4	clayy SILT to silty CLAY	115	2.0	14	9	-	-	1.9	5.7	43	2.74	15	-	-
43.47	16.0	10.8	-	16.1	0.5	2.5	3.4	3	silty CLAY to CLAY	115	1.5	11	7	-	-	1.0	3.0	62	3.06	15	-	-
43.64	12.0	8.1	-	12.1	0.4	2.8	4.0	3	silty CLAY to CLAY	115	1.5	8	5	-	-	0.7	2.1	75	3.23	15	-	-
43.80	12.9	8.7	-	13.0	0.5	3.2	5.0	3	silty CLAY to CLAY	115	1.5	9	6	-	-	0.8	2.3	77	3.25	15	-	-
43.97	19.6	13.2	-	19.7	0.6	3.6	3.7	3	silty CLAY to CLAY	115	1.5	13	9	-	-	1.3	3.8	59	3.00	15	-	-
44.13	24.2	16.2	-	24.2	0.7	3.6	3.4	3	silty CLAY to CLAY	115	1.5	16	11	-	-	1.6	4.8	52	2.90	15	-	-
44.29	22.9	15.3	-	23.0	0.6	4.3	3.1	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.5	4.5	52	2.90	15	-	-
44.46	20.5	13.6	-	20.6	0.6	5.8	3.2	3	silty CLAY to CLAY	115	1.5	14	9	-	-	1.3	3.9	55	2.95	15	-	-
44.62	18.7	12.4	-	18.8	0.5	6.1	3.2	3	silty CLAY to CLAY	115	1.5	12	8	-	-	1.2	3.5	58	2.99	15	-	-
44.79	18.4	12.1	-	18.5	0.7	6.5	4.1	3	silty CLAY to CLAY	115	1.5	12	8	-	-	1.2	3.4	63	3.06	15	-	-
44.95	20.4	13.4	-	20.5	0.7	6.8	4.0	3	silty CLAY to CLAY	115	1.5	14	9	-	-	1.3	3.9	60	3.02	15	-	-
45.11	21.0	13.8	-	21.1	0.8	6.8	4.4	3	silty CLAY to CLAY	115	1.5	14	9	-	-	1.4	4.0	60	3.03	15	-	-
45.28	19.1	12.5	-	19.2	0.7	6.6	4.5	3	silty CLAY to CLAY	115	1.5	13	8	-	-	1.2	3.6	64	3.08	15	-	-
45.44	17.7	11.6	-	17.9	0.7	6.9	4.5	3	silty CLAY to CLAY	115	1.5	12	8	-	-	1.1	3.3	66	3.11	15	-	-
45.61	24.3	15.9	-	24.5	1.0	7.0	4.5	3	silty CLAY to CLAY	115	1.5	16	11	-	-	1.6	4.7	57	2.98	15	-	-
45.77	36.0	23.4	-	36.1	1.0	7.0	3.0	4	clayy SILT to silty CLAY	115	2.0	18	12	-	-	2.4	7.1	42	2.72	15	-	-
45.93	31.4	20.3	-	31.5	1.1	7.5	4.0	3	silty CLAY to CLAY	115	1.5	21	14	-	-	2.1	6.1	49	2.86	15	-	-
46.10	30.6	19.8	-	30.8	1.1	8.5	3.9	3	silty CLAY to CLAY	115	1.5	20	13	-	-	2.1	6.0	49	2.86	15	-	-
46.26	30.5	19.7	-	30.7	1.1	9.3	3.8	3	silty CLAY to CLAY	115	1.5	20	13	-	-	2.0	5.9	49	2.86	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(281).cpt
CPT Date: 3/10/2015 10:22:56 AM
GW During Test: 10 ft

Sounding ID: CPT-02
Project No: 10487.01
Cone/Rig: DDG1268

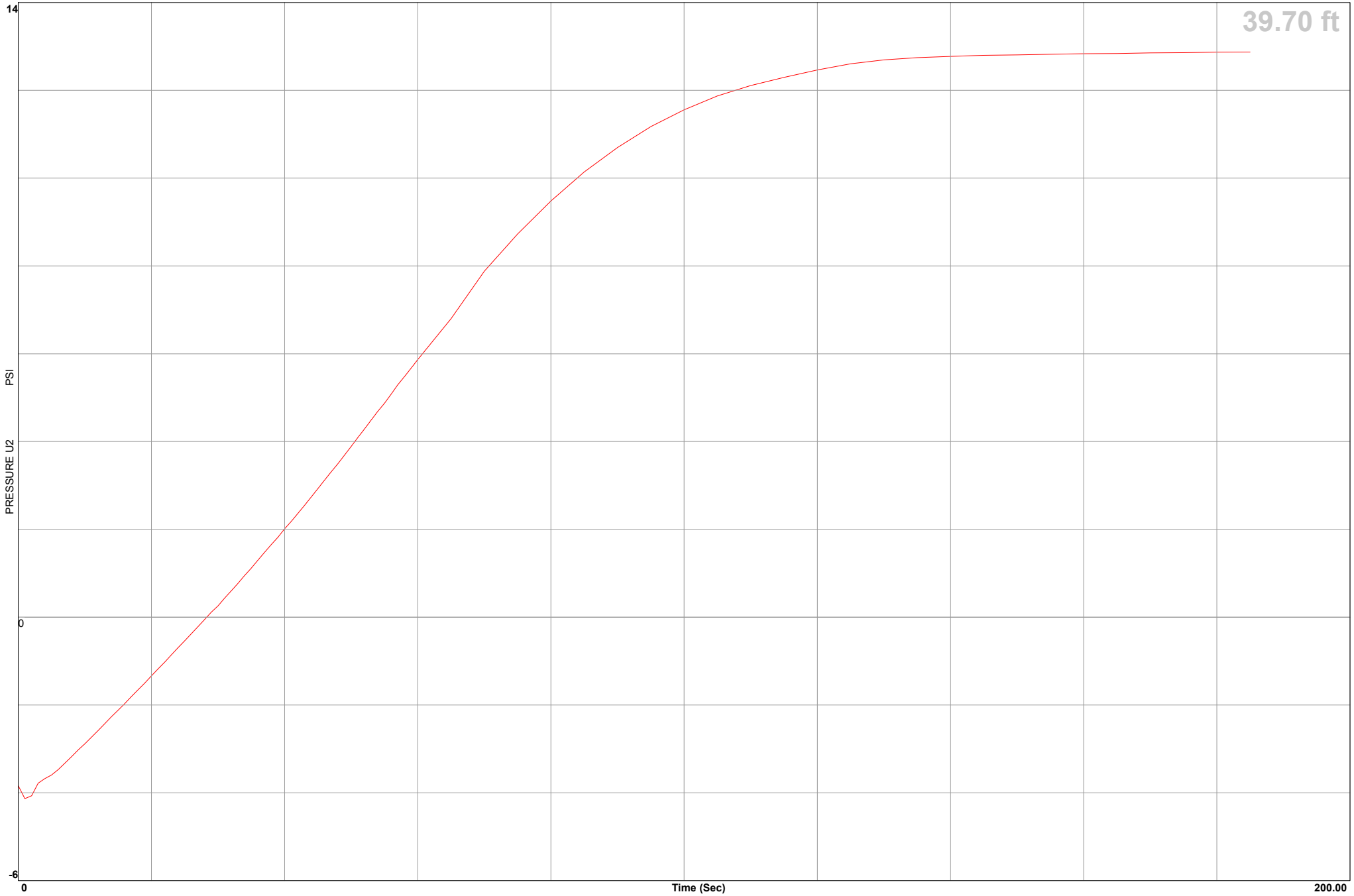
. Depth ft	. qc PS tsf	* qcln PS -	. q1ncs PS -	* qt PS tsf	. Slv Stss tsf	. pore prss (psi)	. Frct Rato %	* Mat Typ Zon	* Material Behavior Description	. Unit Wght pcf	. Qc to N	. SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	. Und Shr tsf	. OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
46.43	30.6	19.7	-	30.8	1.2	9.3	4.3	3	silty CLAY to CLAY	115	1.5	20	13	-	-	2.1	5.9	51	2.89	15	-	-
46.59	30.5	19.5	-	30.6	1.2	9.4	4.4	3	silty CLAY to CLAY	115	1.5	20	13	-	-	2.0	5.9	52	2.90	15	-	-
46.75	30.0	19.2	-	30.2	1.2	9.3	4.4	3	silty CLAY to CLAY	115	1.5	20	13	-	-	2.0	5.8	52	2.90	15	-	-
46.92	28.7	18.3	-	28.9	1.1	9.4	4.4	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.9	5.5	53	2.92	15	-	-
47.08	26.7	17.0	-	26.9	1.0	9.4	4.0	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.8	5.0	53	2.92	15	-	-
47.25	25.3	16.1	-	25.5	0.9	9.6	3.9	3	silty CLAY to CLAY	115	1.5	17	11	-	-	1.7	4.7	55	2.94	15	-	-
47.41	26.3	16.6	-	26.5	0.9	10.0	3.8	3	silty CLAY to CLAY	115	1.5	18	11	-	-	1.7	4.9	53	2.92	15	-	-
47.57	28.6	18.1	-	28.9	1.0	10.6	3.8	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.9	5.4	51	2.88	15	-	-
47.74	35.4	22.3	-	35.7	1.0	11.8	2.9	4	clayy SILT to silty CLAY	115	2.0	18	11	-	-	2.4	6.8	43	2.74	15	-	-
47.90	32.1	20.1	-	32.3	1.0	12.3	3.3	3	silty CLAY to CLAY	115	1.5	21	13	-	-	2.2	6.1	46	2.81	15	-	-
48.07	30.9	19.3	-	31.2	1.0	12.6	3.5	3	silty CLAY to CLAY	115	1.5	21	13	-	-	2.1	5.8	48	2.84	15	-	-
48.23	32.9	20.5	-	33.1	1.2	12.8	4.0	3	silty CLAY to CLAY	115	1.5	22	14	-	-	2.2	6.2	49	2.85	15	-	-
48.39	35.3	21.9	-	35.5	1.4	12.6	4.3	3	silty CLAY to CLAY	115	1.5	24	15	-	-	2.4	6.7	49	2.85	15	-	-
48.56	34.1	21.2	-	34.4	1.6	12.9	5.0	3	silty CLAY to CLAY	115	1.5	23	14	-	-	2.3	6.4	52	2.91	15	-	-
48.72	37.7	23.3	-	37.9	1.4	12.5	4.1	3	silty CLAY to CLAY	115	1.5	25	16	-	-	2.5	7.1	47	2.81	15	-	-
48.89	31.5	19.5	-	31.8	1.4	11.3	5.0	3	silty CLAY to CLAY	115	1.5	21	13	-	-	2.1	5.8	54	2.93	15	-	-
49.05	28.0	17.2	-	28.2	1.1	12.2	4.6	3	silty CLAY to CLAY	115	1.5	19	11	-	-	1.9	5.1	55	2.95	15	-	-
49.22	28.4	17.4	-	28.6	1.3	12.5	5.3	3	silty CLAY to CLAY	115	1.5	19	12	-	-	1.9	5.2	58	2.99	15	-	-
49.38	22.3	13.6	-	22.4	1.0	6.6	5.3	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.5	3.9	64	3.09	15	-	-
49.54	21.1	12.9	-	21.2	0.7	7.8	3.9	3	silty CLAY to CLAY	115	1.5	14	9	-	-	1.4	3.7	60	3.03	15	-	-
49.71	22.7	13.8	-	22.8	0.8	8.6	4.3	3	silty CLAY to CLAY	115	1.5	15	9	-	-	1.5	4.0	60	3.02	15	-	-
49.87	34.5	20.9	-	34.6	1.2	8.0	3.8	3	silty CLAY to CLAY	115	1.5	23	14	-	-	2.3	6.3	48	2.83	15	-	-
50.04	33.6	20.3	-	33.7	1.2	4.5	3.8	3	silty CLAY to CLAY	115	1.5	22	14	-	-	2.3	6.1	49	2.85	15	-	-
50.20	24.1	14.6	-	24.2	1.2	3.9	5.7	3	silty CLAY to CLAY	115	1.5	16	10	-	-	1.6	4.2	64	3.08	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Wallace-Kuhl

Location	Morning Star Packing	Operator	CB-MM	GPS	
Job Number	10487.01	Cone Number	DDG1268		
Hole Number	CPT-02	Date and Time	3/10/2015 10:22:56 AM		
Equilized Pressure	12.8	EST GW Depth During Test	10.0		

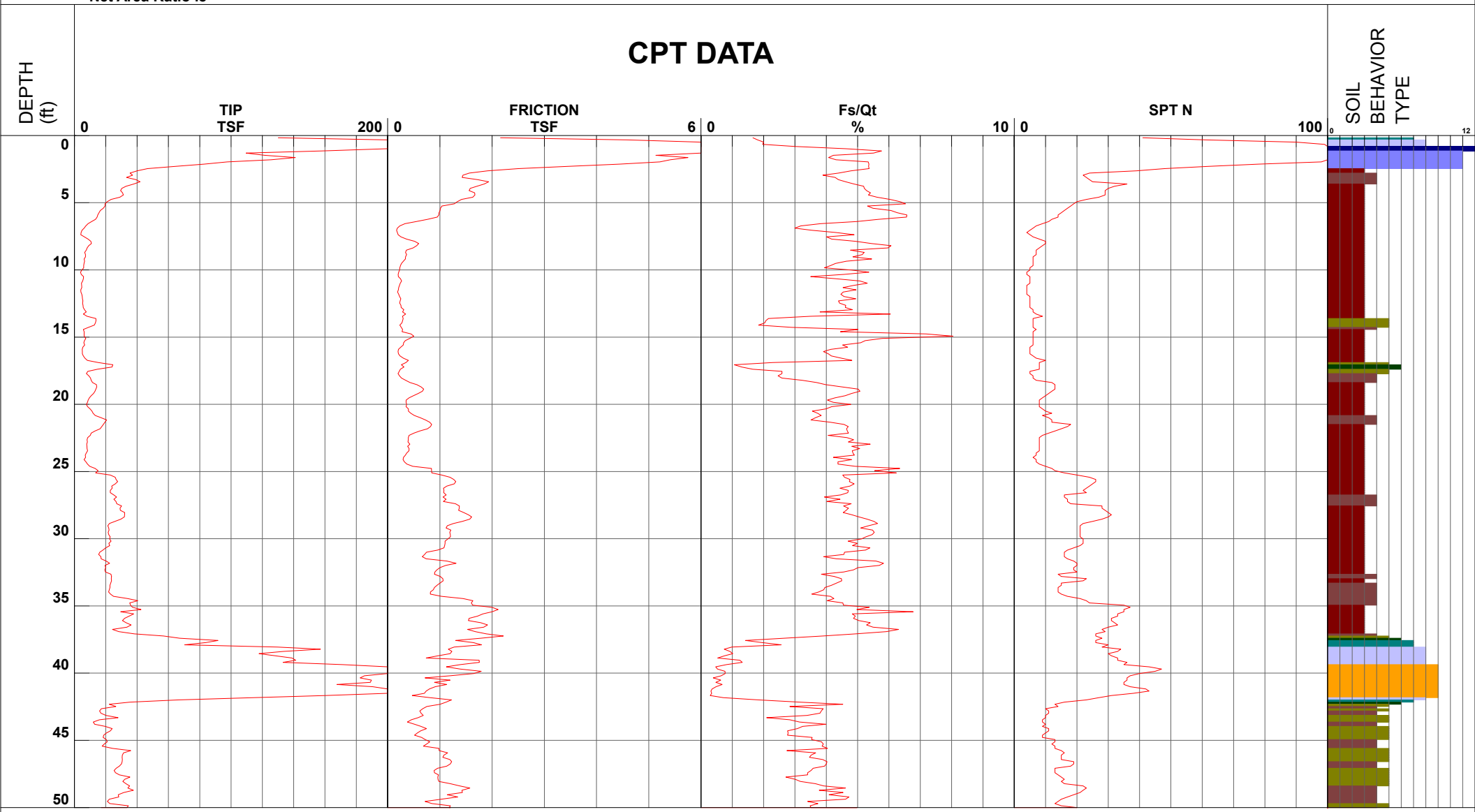


Wallace-Kuhl

Project	Morning Star Packing	Operator	CB-MM	Filename	SDF(281).cpt
Job Number	10487.01	Cone Number	DDG1268	GPS	
Hole Number	CPT-02	Date and Time	3/10/2015 10:22:56 AM	Maximum Depth	50.52 ft
EST GW Depth During Test		10.00 ft			

Net Area Ratio .8

CPT DATA



- 1 - sensitive fine grained
- 2 - organic material
- 3 - clay
- 4 - silty clay to clay
- 5 - clayey silt to silty clay
- 6 - sandy silt to clayey silt
- 7 - silty sand to sandy silt
- 8 - sand to silty sand
- 9 - sand
- 10 - gravelly sand to sand
- 11 - very stiff fine grained (*)
- 12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(280).cpt
CPT Date: 3/10/2015 9:27:11 AM
GW During Test: 5 ft

Sounding ID: CPT-03
Project No: 10487.01
Cone/Rig: DDG1268

Depth ft	qc PS tsf	* qc1n PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
0.33	3.7	6.0	-	3.7	0.0	0.0	0.1	1	sensitive fine SOIL	115	2.0	2	3	-	-	0.3	9.9	41	2.71	15	N/A	N/A
0.49	4.6	7.5	-	4.6	0.0	0.1	0.1	1	sensitive fine SOIL	115	2.0	2	4	-	-	0.3	9.9	36	2.61	15	N/A	N/A
0.66	4.9	7.9	-	4.9	0.2	0.1	4.4	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	9.9	71	3.18	15	N/A	N/A
0.82	14.1	22.7	-	14.1	0.5	0.1	3.9	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.0	9.9	45	2.78	15	N/A	N/A
0.98	13.5	21.6	-	13.5	0.7	0.0	5.2	3	silty CLAY to CLAY	115	1.5	9	14	-	-	0.9	9.9	51	2.88	15	N/A	N/A
1.15	11.9	19.0	-	11.8	0.6	-0.6	4.8	3	silty CLAY to CLAY	115	1.5	8	13	-	-	0.8	9.9	52	2.90	15	N/A	N/A
1.31	9.5	15.3	-	9.5	0.4	-0.1	4.3	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.7	9.9	55	2.95	15	N/A	N/A
1.48	7.9	12.6	-	7.9	0.3	0.0	4.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.6	9.9	59	3.01	15	N/A	N/A
1.64	8.0	12.9	-	8.0	0.4	-0.2	4.7	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.6	9.9	60	3.03	15	N/A	N/A
1.80	8.4	13.5	-	8.4	0.4	0.0	4.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	9.9	59	3.01	15	N/A	N/A
1.97	8.1	13.0	-	8.1	0.4	0.0	4.8	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.6	9.9	61	3.03	15	N/A	N/A
2.13	8.2	13.1	-	8.2	0.4	-1.4	4.7	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.6	9.9	60	3.02	15	N/A	N/A
2.30	8.5	13.6	-	8.4	0.4	-2.3	4.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	9.9	59	3.01	15	N/A	N/A
2.46	12.1	19.4	-	12.0	0.7	-2.5	5.6	3	silty CLAY to CLAY	115	1.5	8	13	-	-	0.8	9.9	55	2.94	15	N/A	N/A
2.62	15.6	25.1	-	15.5	1.0	-7.1	6.7	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.1	9.9	53	2.91	15	N/A	N/A
2.79	26.6	42.6	-	26.4	1.3	-7.0	4.8	4	clayy SILT to silty CLAY	115	2.0	13	21	-	-	1.9	9.9	38	2.65	15	N/A	N/A
2.95	25.5	40.8	-	25.3	1.3	-7.0	5.2	3	silty CLAY to CLAY	115	1.5	17	27	-	-	1.8	9.9	40	2.69	15	N/A	N/A
3.12	21.0	33.7	-	20.9	1.2	-7.0	5.5	3	silty CLAY to CLAY	115	1.5	14	22	-	-	1.5	9.9	44	2.76	15	N/A	N/A
3.28	15.6	25.0	-	15.4	1.0	-7.0	6.4	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.1	9.9	52	2.90	15	N/A	N/A
3.45	12.5	20.0	-	12.4	0.6	-6.9	5.2	3	silty CLAY to CLAY	115	1.5	8	13	-	-	0.9	9.9	53	2.91	15	N/A	N/A
3.61	10.7	17.1	-	10.5	0.5	-6.8	4.6	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	9.9	54	2.93	15	N/A	N/A
3.77	10.3	16.5	-	10.2	0.4	-6.8	4.4	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	9.9	54	2.93	15	N/A	N/A
3.94	23.8	38.2	91.9	23.7	0.5	-6.4	2.0	5	silty SAND to sandy SILT	120	4.0	6	10	35	41	-	-	27	2.42	16	N/A	N/A
4.10	18.7	29.9	85.2	18.7	0.4	-0.5	2.0	4	clayy SILT to silty CLAY	115	2.0	9	15	-	-	1.3	9.9	31	2.52	15	N/A	N/A
4.27	12.2	19.5	-	12.2	0.4	-0.1	3.7	3	silty CLAY to CLAY	115	1.5	8	13	-	-	0.8	9.9	47	2.83	15	N/A	N/A
4.43	19.3	31.0	100.9	19.3	0.5	-0.6	2.8	4	clayy SILT to silty CLAY	115	2.0	10	16	-	-	1.3	9.9	35	2.59	15	N/A	N/A
4.59	15.2	24.3	-	15.1	0.6	-1.9	3.7	4	clayy SILT to silty CLAY	115	2.0	8	12	-	-	1.1	9.9	43	2.75	15	N/A	N/A
4.76	12.7	20.4	-	12.7	0.4	-1.0	2.9	4	clayy SILT to silty CLAY	115	2.0	6	10	-	-	0.9	9.9	43	2.74	15	N/A	N/A
4.92	14.0	22.4	-	13.9	0.3	-0.9	2.4	4	clayy SILT to silty CLAY	115	2.0	7	11	-	-	1.0	9.9	38	2.66	15	N/A	N/A
5.09	10.2	16.3	-	10.2	0.3	-1.6	3.1	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	9.9	48	2.84	15	-	-
5.25	12.0	19.3	-	12.0	0.2	-1.4	1.8	4	clayy SILT to silty CLAY	115	2.0	6	10	-	-	0.8	9.9	38	2.65	15	-	-
5.41	14.9	23.8	54.2	14.8	0.1	-2.7	0.8	5	silty SAND to sandy SILT	120	4.0	4	6	20	37	-	-	26	2.39	16	3.86	51.2
5.58	15.5	24.9	74.4	15.5	0.3	-3.2	1.7	4	clayy SILT to silty CLAY	115	2.0	8	12	-	-	1.1	9.9	33	2.54	15	2.98	51.2
5.74	20.9	33.5	55.8	20.8	0.1	-1.6	0.6	5	silty SAND to sandy SILT	120	4.0	5	8	31	38	-	-	19	2.20	16	3.77	51.2
5.91	25.1	40.3	73.4	25.1	0.3	-3.0	1.1	5	silty SAND to sandy SILT	120	4.0	6	10	37	39	-	-	21	2.26	16	3.01	51.2
6.07	30.3	48.5	54.0	30.2	0.0	-2.5	0.1	6	clean SAND to silty SAND	125	5.0	6	10	43	40	-	-	8	1.81	16	3.87	45.8
6.23	23.8	38.2	45.9	23.8	0.0	-1.8	0.1	6	clean SAND to silty SAND	125	5.0	5	8	35	39	-	-	11	1.91	16	4.43	51.2
6.40	18.6	29.9	46.1	18.6	0.1	-1.6	0.4	5	silty SAND to sandy SILT	120	4.0	5	7	27	37	-	-	17	2.14	16	4.41	51.2
6.56	11.5	18.4	55.5	11.4	0.1	-1.4	1.1	5	silty SAND to sandy SILT	120	4.0	3	5	11	34	-	-	33	2.55	16	3.79	51.2
6.73	5.5	8.8	-	5.4	0.1	-1.3	2.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	5.0	58	3.00	15	-	-
6.89	14.7	23.6	43.9	14.7	0.1	-1.1	0.4	5	silty SAND to sandy SILT	120	4.0	4	6	19	36	-	-	21	2.27	16	4.59	51.2
7.05	17.2	27.7	54.2	17.2	0.1	-1.2	0.7	5	silty SAND to sandy SILT	120	4.0	4	7	25	37	-	-	23	2.30	16	3.86	51.2
7.22	18.5	29.6	49.6	18.4	0.1	-1.2	0.5	5	silty SAND to sandy SILT	120	4.0	5	7	27	37	-	-	19	2.20	16	4.15	51.2
7.38	26.4	42.3	86.9	26.3	0.4	-1.1	1.6	5	silty SAND to sandy SILT	120	4.0	7	11	39	39	-	-	24	2.33	16	2.62	51.2
7.55	35.0	56.2	70.3	35.0	0.2	-1.1	0.5	6	clean SAND to silty SAND	125	5.0	7	11	48	40	-	-	12	1.96	16	3.12	37.6
7.71	33.9	54.4	63.0	33.9	0.1	-1.0	0.3	6	clean SAND to silty SAND	125	5.0	7	11	47	40	-	-	10	1.87	16	3.41	39.4
7.87	25.1	40.2	55.7	25.1	0.1	-0.7	0.4	6	clean SAND to silty SAND	125	5.0	5	8	37	38	-	-	15	2.06	16	3.78	51.2
8.04	16.9	26.9	50.6	16.9	0.1	-0.5	0.6	5	silty SAND to sandy SILT	120	4.0	4	7	24	36	-	-	22	2.28	16	4.08	51.2
8.20	15.3	24.2	56.4	15.3	0.1	-0.2	0.9	5	silty SAND to sandy SILT	120	4.0	4	6	20	35	-	-	27	2.40	16	3.74	51.2
8.37	11.9	18.7	60.0	11.9	0.1	0.0	1.3	4	clayy SILT to silty CLAY	115	2.0	6	9	-	-	0.8	9.8	34	2.58	15	3.55	51.2
8.53	8.3	13.3	-	8.3	0.1	0.0	1.5	4	clayy SILT to silty CLAY	115	2.0	4	7	-	-	0.6	6.6	44	2.76	15	-	-
8.69	4.7	7.5	-	4.7	0.1	0.0	1.9	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.5	61	3.04	15	-	-
8.86	4.1	6.5	-	4.1	0.1	0.2	1.9	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	3.0	66	3.10	15	-	-
9.02	4.6	7.4	-	4.6	0.1	0.3	2.7	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.4	67	3.12	15	-	-
9.19	6.7	10.8	-	6.7	0.1	0.3	1.6	4	clayy SILT to silty CLAY	115	2.0	3	5	-	-	0.4	5.1	49	2.86	15	-	-
9.35	5.5	8.8	-	5.5	0.1	0.4	1.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	4.0	55	2.95	15	-	-
9.51	4.9	7.8	-	4.9	0.1	0.5	1.7	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.4	59	3.00	15	-	-
9.68	4.7	7.5	-	4.7	0.1	0.7	2.0	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.2	62	3.05	15	-	-
9.84	4.8	7.6	-	4.8	0.1	0.8	1.8	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.3	61	3.03	15	-	-
10.01	4.2	6.8	-	4.2	0.1	0.8	2.0	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.8	66	3.10	15	-	-
10.17	3.8	6.1	-	3.8	0.0	0.9	1.4	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.2	2.5	64	3.08	15	-	-
10.34	3.7	5.9	-	3.7	0.1	1.0	1.8	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	2.3	68	3.14	15	-	-
10.50	4.0	6.5	-	4.1	0.1	1.3	1.5	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	2.6	63	3.06	15	-	-
10.66	3.8	6.1	-	3.9	0.0	1.4	1.5	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.2	2.4	65	3.09	15	-	-
10.83	4.1	6.6	-	4.2	0.0	1.5	1.3	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	2.6	60	3.02	15	-	-
10.99	4.3	6.9	-	4.3	0.0	1.6	1.3	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.7	59	3.01	15	-	-
11.16	4.2	6.7	-	4.2	0.1	1.7	1.7	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	2.6	64	3.08	15	-	-
11.32	4.4	7.1	-	4.4	0.1	1.8	1.7	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.7	62	3.05	15	-	-
11.48	3.9	6.3	-	4.0	0.1	1.9	1.9	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.2	2.3	68	3.13	15	-	-
11.65	4.0	6.4	-	4.0	0.1	2.0	1.9	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	2.3	68	3.13	15	-	-
11.81	4.3	6.8	-	4.3	0.1	2.0	2.0	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.5	67	3.12	15	-	-
11.98	4.2	6.8	-	4.3	0.1	2.2	2.9	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.4	73	3.20	15	-	-
12.14	6.3	10.0	-	6.3	0.2	2.3	3.2	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	3.8	62	3.05	15	-	-
12.30	8.3	13.3	-	8.3	0.1	1.8	1.6	4	clayy SILT to silty CLAY	115	2.0	4	7	-	-	0.6	5.1	45	2.78	15	-	-
12.47	6.5	10.4	-	6.5	0.1	1.4	1.7	4	clayy SILT to silty CLAY	115	2.0	3	5	-	-	0.4	3.9	52	2.90	15	-	-
12.63	6.0	9.6	-	6.0	0.1	1.6	2.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	3.5	59	3.00	15	-	-
12.80	7.3	11.6	-	7.3	0.2	1.9	2.7	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.3	55	2.95	15	-	-
12.96	7.9	12.6	-	7.9	0.2	2.0	2.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.7	53	2.91	15	-	-
13.12	9.5	15.2	-	9.5	0.3	2.1	2.9	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	5.7	50	2.87	15	-	-
13.29	11.5	18.4	-	11.5	0.3	2.3	2.7	4	clayy SILT to silty CLAY	115	2.0	6	9	-	-	0.8	6.9	45	2.78	15	-	-
13.45	10.9	17.5	-	11.0	0.3	2.2	2.5	4	clayy SILT to silty CLAY	115	2.0	5	9	-	-	0.7	6.5	45	2.78	15	-	-
13.62	10.2	16.3	-	10.2	0.2	2.2	2.4	4	clayy SILT to silty CLAY	115	2.0	5	8	-	-	0.7	6.0	46	2.80	15	-	-
13.78	13.7	22.0	-	13.8	0.3	2.4	2.5	4	clayy SILT to silty CLAY	115	2.0	7	11	-	-	0.9	8.1	40	2.69	15	-	-
13.94	17.3	27.7	-	17.3	0.4	2.6	2.7	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.2	9.9	37	2.63	15	-	-
14.11	20.8	31.8	104.4	20.9	0.6	2.8	2.8	4	clayy SILT to silty CLAY	115	2.0	10	16	-	-	1.4	9.9	35	2.59	15	2.26	51.2
14.27	22.5	34.2	-	22.6	0.7	3.0	3.2	4	clayy SILT to silty CLAY	115	2.0	11	17	-	-	1.6	9.9	36	2.61	15	-	-
14.44	24.0	36.2	-	24.1	0.8	3.1	3.4	4	clayy SILT to silty CLAY	115	2.0	12	18	-	-	1.7	9.9	36	2.60	15	-	-
14.60	24.5	36.7	-	24.6	0.8	3.1	3.6	4	clayy SILT to silty CLAY	115	2.0	12	18	-	-	1.7	9.9	36	2.61	15	-	-
14.76	24.9	39.9	-	25.0	0.9	3.2	3.9	4	clayy SILT to silty CLAY	115	2.0	12	20	-	-	1.7	9.9	36	2.61	15	-	-
14.93	24.4	39.1	-	24.4	0.9	3.2	3.7	4	clayy SILT to silty CLAY	115	2.0	12	20	-	-	1.7	9.9	36	2.60	15	-	-
15.09	23.8	38.1	-	23.8	0.8	3.5	3.7	4	clayy SILT to silty CLAY	115	2.0	12	19	-	-	1.6	9.9	36	2.61	15	-	-
15.26	23.8	38.2	-	23.9	0.9	3.5	4.1	4	clayy SILT to silty CLAY	115	2.0	12	19	-	-	1.6	9.9	37	2.64	15	-	-
15.42	23.0	36.9	-	23.0	0.9	3.5	3.9	4	clayy SILT to silty CLAY	115	2.0	11	18	-	-	1.6	9.9	37	2.64	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(280).cpt
CPT Date: 3/10/2015 9:27:11 AM
GW During Test: 5 ft

Sounding ID: CPT-03
Project No: 10487.01
Cone/Rig: DDG1268

Depth ft	qc PS tsf	* qc1n PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
15.58	22.6	32.9	-	22.7	0.7	3.6	3.3	4	clayy SILT to silty CLAY	115	2.0	11	16	-	-	1.6	9.9	37	2.62	15	-	-
15.75	22.9	33.1	102.8	23.0	0.6	3.7	2.6	4	clayy SILT to silty CLAY	115	2.0	11	17	-	-	1.6	9.9	34	2.56	15	2.28	51.2
15.91	21.7	31.2	-	21.8	0.6	3.7	2.8	4	clayy SILT to silty CLAY	115	2.0	11	16	-	-	1.5	9.9	35	2.60	15	-	-
16.08	20.0	32.0	-	20.0	0.6	3.7	3.3	4	clayy SILT to silty CLAY	115	2.0	10	16	-	-	1.4	9.9	37	2.64	15	-	-
16.24	17.5	28.1	-	17.6	0.7	3.6	4.4	3	silty CLAY to CLAY	115	1.5	12	19	-	-	1.2	9.3	44	2.76	15	-	-
16.40	17.0	27.3	-	17.1	0.6	3.6	3.7	4	clayy SILT to silty CLAY	115	2.0	8	14	-	-	1.2	8.9	42	2.73	15	-	-
16.57	15.8	25.4	-	15.9	0.5	3.7	3.3	4	clayy SILT to silty CLAY	115	2.0	8	13	-	-	1.1	8.2	41	2.72	15	-	-
16.73	15.5	24.9	-	15.6	0.5	3.7	3.4	4	clayy SILT to silty CLAY	115	2.0	8	12	-	-	1.1	8.0	42	2.73	15	-	-
16.90	15.6	25.0	-	15.7	0.5	3.7	3.4	4	clayy SILT to silty CLAY	115	2.0	8	13	-	-	1.1	7.9	42	2.73	15	-	-
17.06	15.1	24.1	-	15.1	0.5	3.8	3.3	4	clayy SILT to silty CLAY	115	2.0	8	12	-	-	1.0	7.6	43	2.74	15	-	-
17.23	14.9	23.9	-	15.0	0.4	3.8	2.9	4	clayy SILT to silty CLAY	115	2.0	7	12	-	-	1.0	7.5	41	2.71	15	-	-
17.39	15.0	24.1	-	15.1	0.4	3.8	3.1	4	clayy SILT to silty CLAY	115	2.0	8	12	-	-	1.0	7.5	42	2.72	15	-	-
17.55	15.6	25.0	-	15.7	0.5	3.9	3.4	4	clayy SILT to silty CLAY	115	2.0	8	13	-	-	1.1	7.7	42	2.74	15	-	-
17.72	16.2	25.8	-	16.3	0.5	3.9	3.5	4	clayy SILT to silty CLAY	115	2.0	8	13	-	-	1.1	8.0	42	2.73	15	-	-
17.88	18.2	28.7	-	18.3	0.6	4.0	3.4	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.2	8.9	40	2.68	15	-	-
18.05	19.1	29.9	-	19.1	0.6	4.1	3.4	4	clayy SILT to silty CLAY	115	2.0	10	15	-	-	1.3	9.3	39	2.67	15	-	-
18.21	20.2	31.6	-	20.3	0.7	4.1	3.5	4	clayy SILT to silty CLAY	115	2.0	10	16	-	-	1.4	9.9	39	2.67	15	-	-
18.37	20.1	31.2	-	20.2	0.6	4.1	3.2	4	clayy SILT to silty CLAY	115	2.0	10	16	-	-	1.4	9.8	37	2.64	15	-	-
18.54	17.7	27.3	-	17.8	0.5	4.1	3.1	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.2	8.5	39	2.68	15	-	-
18.70	16.9	25.7	-	16.9	0.5	4.3	3.2	4	clayy SILT to silty CLAY	115	2.0	8	13	-	-	1.1	8.0	41	2.70	15	-	-
18.87	16.4	24.8	-	16.4	0.5	4.4	3.1	4	clayy SILT to silty CLAY	115	2.0	8	12	-	-	1.1	7.6	41	2.71	15	-	-
19.03	28.9	34.5	84.7	29.0	0.5	4.4	1.7	5	silty SAND to sandy SILT	120	4.0	7	9	32	36	-	-	28	2.43	16	2.68	51.2
19.19	28.9	34.3	92.4	28.9	0.6	3.4	2.1	5	silty SAND to sandy SILT	120	4.0	7	9	32	36	-	-	30	2.48	16	2.49	51.2
19.36	22.4	29.1	-	22.5	0.6	3.6	2.6	4	clayy SILT to silty CLAY	115	2.0	11	15	-	-	1.5	9.9	36	2.60	15	-	-
19.52	19.1	28.2	-	19.1	0.4	3.7	2.5	4	clayy SILT to silty CLAY	115	2.0	10	14	-	-	1.3	8.7	36	2.60	15	-	-
19.69	14.1	20.7	-	14.2	0.3	3.9	2.4	4	clayy SILT to silty CLAY	115	2.0	7	10	-	-	0.9	6.3	41	2.72	15	-	-
19.85	13.6	19.9	-	13.7	0.3	4.3	2.2	4	clayy SILT to silty CLAY	115	2.0	7	10	-	-	0.9	6.0	41	2.71	15	-	-
20.01	13.0	18.9	-	13.1	0.4	4.5	3.6	3	silty CLAY to CLAY	115	1.5	9	13	-	-	0.9	5.7	49	2.85	15	-	-
20.18	12.2	17.6	-	12.3	0.4	4.6	4.0	3	silty CLAY to CLAY	115	1.5	8	12	-	-	0.8	5.2	53	2.91	15	-	-
20.34	12.8	18.3	-	12.9	0.4	5.2	3.2	3	silty CLAY to CLAY	115	1.5	9	12	-	-	0.9	5.5	48	2.83	15	-	-
20.51	12.8	18.2	-	12.9	0.4	5.4	3.4	3	silty CLAY to CLAY	115	1.5	9	12	-	-	0.9	5.5	49	2.85	15	-	-
20.67	14.3	20.3	-	14.4	0.4	5.6	2.8	4	clayy SILT to silty CLAY	115	2.0	7	10	-	-	1.0	6.1	44	2.77	15	-	-
20.83	11.9	16.8	-	12.0	0.4	5.7	3.4	3	silty CLAY to CLAY	115	1.5	8	11	-	-	0.8	5.0	51	2.88	15	-	-
21.00	11.6	16.3	-	11.8	0.3	5.9	2.7	4	clayy SILT to silty CLAY	115	2.0	6	8	-	-	0.8	4.8	48	2.84	15	-	-
21.16	11.8	16.4	-	11.9	0.3	6.0	2.8	3	silty CLAY to CLAY	115	1.5	8	11	-	-	0.8	4.9	49	2.85	15	-	-
21.33	12.5	17.3	-	12.6	0.4	6.2	3.3	3	silty CLAY to CLAY	115	1.5	8	12	-	-	0.8	5.1	50	2.87	15	-	-
21.49	12.5	17.2	-	12.7	0.6	6.4	4.9	3	silty CLAY to CLAY	115	1.5	8	11	-	-	0.8	5.1	57	2.97	15	-	-
21.65	23.7	32.3	-	23.8	0.9	6.4	3.9	4	clayy SILT to silty CLAY	115	2.0	12	16	-	-	1.6	9.9	40	2.69	15	-	-
21.82	24.6	29.9	-	24.6	0.7	4.0	2.9	4	clayy SILT to silty CLAY	115	2.0	12	15	-	-	1.7	9.9	37	2.63	15	-	-
21.98	22.1	29.8	-	22.2	0.6	4.9	3.0	4	clayy SILT to silty CLAY	115	2.0	11	15	-	-	1.5	9.3	37	2.64	15	-	-
22.15	23.6	31.7	-	23.7	0.8	5.0	3.6	4	clayy SILT to silty CLAY	115	2.0	12	16	-	-	1.6	9.9	39	2.67	15	-	-
22.31	24.3	32.5	-	24.4	0.9	5.1	4.0	4	clayy SILT to silty CLAY	115	2.0	12	16	-	-	1.7	9.9	40	2.69	15	-	-
22.47	25.2	33.4	-	25.3	1.0	5.1	4.0	4	clayy SILT to silty CLAY	115	2.0	13	17	-	-	1.7	9.9	40	2.68	15	-	-
22.64	24.3	32.0	-	24.4	0.9	5.1	4.1	4	clayy SILT to silty CLAY	115	2.0	12	16	-	-	1.7	9.9	41	2.70	15	-	-
22.80	24.8	32.5	-	24.9	0.9	5.1	3.9	4	clayy SILT to silty CLAY	115	2.0	12	16	-	-	1.7	9.9	40	2.68	15	-	-
22.97	25.0	32.5	-	25.1	0.9	5.2	4.0	4	clayy SILT to silty CLAY	115	2.0	12	16	-	-	1.7	9.9	40	2.69	15	-	-
23.13	24.9	32.3	-	25.0	1.0	5.2	4.2	4	clayy SILT to silty CLAY	115	2.0	12	16	-	-	1.7	9.9	41	2.71	15	-	-
23.30	24.9	32.1	-	25.0	1.0	5.2	4.3	3	silty CLAY to CLAY	115	1.5	17	21	-	-	1.7	9.9	42	2.72	15	-	-
23.46	24.1	30.9	-	24.2	1.0	5.1	4.3	3	silty CLAY to CLAY	115	1.5	16	21	-	-	1.6	9.6	42	2.73	15	-	-
23.62	23.3	29.7	-	23.4	0.9	5.1	4.2	3	silty CLAY to CLAY	115	1.5	16	20	-	-	1.6	9.2	43	2.74	15	-	-
23.79	23.8	30.2	-	23.9	1.0	5.1	4.3	3	silty CLAY to CLAY	115	1.5	16	20	-	-	1.6	9.4	43	2.74	15	-	-
23.95	24.5	30.9	-	24.6	1.1	5.0	4.6	3	silty CLAY to CLAY	115	1.5	16	21	-	-	1.7	9.6	43	2.75	15	-	-
24.12	25.4	31.9	-	25.5	1.1	5.0	4.7	3	silty CLAY to CLAY	115	1.5	17	21	-	-	1.7	9.9	43	2.75	15	-	-
24.28	25.7	32.1	-	25.8	1.1	4.9	4.5	3	silty CLAY to CLAY	115	1.5	17	21	-	-	1.8	9.9	42	2.73	15	-	-
24.44	27.4	34.0	-	27.5	1.0	5.1	4.0	4	clayy SILT to silty CLAY	115	2.0	14	17	-	-	1.9	9.9	39	2.68	15	-	-
24.61	30.2	37.2	-	30.3	1.1	5.1	3.7	4	clayy SILT to silty CLAY	115	2.0	15	19	-	-	2.1	9.9	36	2.62	15	-	-
24.77	31.1	38.2	-	31.2	1.2	5.2	4.1	4	clayy SILT to silty CLAY	115	2.0	16	19	-	-	2.1	9.9	38	2.65	15	-	-
24.94	30.0	36.6	-	30.1	1.0	5.3	3.6	4	clayy SILT to silty CLAY	115	2.0	15	18	-	-	2.1	9.9	36	2.62	15	-	-
25.10	31.5	35.5	-	31.6	1.1	5.6	3.5	4	clayy SILT to silty CLAY	115	2.0	16	18	-	-	2.2	9.9	37	2.62	15	-	-
25.26	30.3	36.6	-	30.4	1.1	5.5	3.9	4	clayy SILT to silty CLAY	115	2.0	15	18	-	-	2.1	9.9	37	2.64	15	-	-
25.43	29.5	35.4	-	29.6	1.2	5.6	4.4	4	clayy SILT to silty CLAY	115	2.0	15	18	-	-	2.0	9.9	40	2.69	15	-	-
25.59	30.7	36.7	-	30.8	1.4	5.8	4.7	3	silty CLAY to CLAY	115	1.5	20	24	-	-	2.1	9.9	40	2.70	15	-	-
25.76	31.4	37.3	-	31.5	1.3	5.9	4.4	4	clayy SILT to silty CLAY	115	2.0	16	19	-	-	2.2	9.9	39	2.68	15	-	-
25.92	31.7	37.5	-	31.8	1.3	5.9	4.4	4	clayy SILT to silty CLAY	115	2.0	16	19	-	-	2.2	9.9	39	2.67	15	-	-
26.08	28.0	33.0	-	28.2	1.1	6.0	4.3	4	clayy SILT to silty CLAY	115	2.0	14	17	-	-	1.9	9.9	41	2.71	15	-	-
26.25	24.0	28.1	-	24.1	0.9	6.0	4.2	3	silty CLAY to CLAY	115	1.5	16	19	-	-	1.6	8.7	43	2.75	15	-	-
26.41	22.4	26.1	-	22.5	0.9	6.2	4.5	3	silty CLAY to CLAY	115	1.5	15	17	-	-	1.5	8.0	46	2.80	15	-	-
26.58	23.3	27.0	-	23.4	1.1	6.2	5.0	3	silty CLAY to CLAY	115	1.5	16	18	-	-	1.6	8.3	47	2.82	15	-	-
26.74	27.1	31.3	-	27.2	1.3	6.3	4.9	3	silty CLAY to CLAY	115	1.5	18	21	-	-	1.9	9.7	44	2.77	15	-	-
26.90	28.4	32.6	-	28.5	1.3	6.3	4.8	3	silty CLAY to CLAY	115	1.5	19	22	-	-	1.9	9.9	43	2.74	15	-	-
27.07	24.4	27.9	-	24.6	1.0	6.2	4.2	3	silty CLAY to CLAY	115	1.5	16	19	-	-	1.7	8.6	44	2.76	15	-	-
27.23	20.6	23.4	-	20.7	0.7	6.4	3.7	4	clayy SILT to silty CLAY	115	2.0	10	12	-	-	1.4	7.1	45	2.78	15	-	-
27.40	19.5	22.0	-	19.6	0.6	6.6	3.5	4	clayy SILT to silty CLAY	115	2.0	10	11	-	-	1.3	6.7	46	2.79	15	-	-
27.56	18.3	20.6	-	18.4	0.7	6.6	4.2	3	silty CLAY to CLAY	115	1.5	12	14	-	-	1.2	6.2	50	2.87	15	-	-
27.72	17.6	19.8	-	17.8	0.7	6.5	4.3	3	silty CLAY to CLAY	115	1.5	12	13	-	-	1.2	5.9	51	2.89	15	-	-
27.89	16.2	18.0	-	16.3	0.6	6.7	4.0	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.1	5.4	52	2.90	15	-	-
28.05	16.3	18.1	-	16.4	0.6	6.7	3.8	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.1	5.4	51	2.89	15	-	-
28.22	15.5	17.1	-	15.6	0.5	6.6	3.3	3	silty CLAY to CLAY	115	1.5	10	11	-	-	1.0	5.1	50	2.87	15	-	-
28.38	14.1	15.5	-	14.3	0.6	6.7	4.5	3	silty CLAY to CLAY	115	1.5	9	10	-	-	0.9	4.5	58	2.99	15	-	-
28.54	16.7	18.3	-	16.8	0.6	7.0	4.0	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.1	5.4	52	2.90	15	-	-
28.71	16.6	18.0	-	16.7	0.5	6.9	3.1	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.1	5.4	48	2.84	15	-	-
28.87	14.1	15.2	-	14.2	0.5	7.0	3.8	3	silty CLAY to CLAY	115	1.5	9	10	-	-	0.9	4.4	55	2.95	15	-	-
29.04	13.7	14.8	-	13.9	0.5	7.1	3.8	3	silty CLAY to CLAY	115	1.5	9	10	-	-	0.9	4.3	56	2.97	15	-	-
29.20	13.4	14.3	-	13.5	0.5	7.2	4.2	3	silty CLAY to CLAY	115	1.5	9	10	-	-	0.9	4.1	59	3.00	15	-	-
29.36	13.6	14.6	-	13.8	0.5	7.3	3.8	3	silty CLAY to CLAY	115	1.5	9	10	-	-	0.9	4.2	56	2.97	15	-	-
29.53	13.6	14.4	-	13.7	0.5	7.3	4.0	3	silty CLAY to CLAY	115	1.5	9	10	-	-	0.9	4.2	58	2.99	15	-	-
29.69	15.1	16.0	-	15.3	0.6	7.5	4.3	3	silty CLAY to CLAY	115	1.5	10	11	-	-	1.0	4.7	56	2.96	15	-	-
29.86	20.0	21.0	-	20.1	0.7	7.6	3.6	3	silty CLAY to CLAY	115	1.5	13	14	-	-	1.3	6.3	47	2.81	15	-	-
30.02	19.7	20.7	-	19.9	0.7	7.1	3.8	3	silty CLAY to CLAY	115	1.5	13	14	-	-	1.3	6.2	48	2.84	15	-	-
30.19	19.9	20.8	-	20.1	0.7	6.9	3.6	3	silty CLAY to CLAY	115	1.5	13	14	-	-	1.3	6.3	47	2.82	15	-	-
30.35	21.5	22.4	-	21.7	0.7	7.2	3.7	3	silty CLAY to CLAY	115	1.5	14	15	-	-	1.5	6.8	46	2.80	15	-	-
30.51	25.5	26.4	-	25.7	1.0	7.3	4.1	3	silty CLAY to CLAY	115	1.5	17	18	-	-	1.7	8.1	44	2.77	15	-	-
30.68	27.9	28.8	-	28.0	1.3	7.2	4.9	3	silty CLAY to CLAY	115	1.5	19	19	-	-	1.9	8.9	46	2.79	15	-	-
30.84	31.7	32.5	-	31.8	1.4	7.4	4.6	3	silty CLAY to CLAY	115	1.5	21	22	-	-	2.2	9.9	42	2.73	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(280).cpt
CPT Date: 3/10/2015 9:27:11 AM
GW During Test: 5 ft

Sounding ID: CPT-03
Project No: 10487.01
Cone/Rig: DDG1268

Depth ft	qc PS tsf	* qc1n PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
31.01	31.7	32.4	-	31.9	1.5	7.1	4.9	3	silty CLAY to CLAY	115	1.5	21	22	-	-	2.2	9.9	43	2.75	15	-	-
31.17	32.6	33.2	-	32.8	1.3	7.1	4.3	4	clayy SILT to silty CLAY	115	2.0	16	17	-	-	2.2	9.9	41	2.71	15	-	-
31.33	32.8	33.2	-	32.9	1.1	7.2	3.6	4	clayy SILT to silty CLAY	115	2.0	16	17	-	-	2.2	9.9	38	2.66	15	-	-
31.50	31.9	32.1	-	32.0	1.2	7.5	4.0	4	clayy SILT to silty CLAY	115	2.0	16	16	-	-	2.2	9.9	40	2.70	15	-	-
31.66	28.2	28.3	-	28.4	1.1	7.8	4.1	3	silty CLAY to CLAY	115	1.5	19	19	-	-	1.9	8.7	43	2.75	15	-	-
31.83	30.1	30.1	-	30.3	1.0	7.9	3.5	4	clayy SILT to silty CLAY	115	2.0	15	15	-	-	2.1	9.3	40	2.68	15	-	-
31.99	31.5	31.3	-	31.6	1.1	8.0	3.7	4	clayy SILT to silty CLAY	115	2.0	16	16	-	-	2.2	9.7	40	2.69	15	-	-
32.15	38.0	36.7	114.2	38.1	1.1	8.2	3.0	4	clayy SILT to silty CLAY	115	2.0	19	18	-	-	2.6	9.9	34	2.56	15	2.10	51.2
32.32	40.6	39.2	116.6	40.8	1.1	7.9	2.9	4	clayy SILT to silty CLAY	115	2.0	20	20	-	-	2.8	9.9	32	2.54	15	2.06	51.2
32.48	38.9	37.5	124.2	39.1	1.3	8.4	3.4	4	clayy SILT to silty CLAY	115	2.0	19	19	-	-	2.7	9.9	35	2.60	15	1.96	51.2
32.65	47.2	45.4	135.9	47.4	1.6	8.5	3.5	4	clayy SILT to silty CLAY	115	2.0	24	23	-	-	3.3	9.9	33	2.54	15	1.53	49.6
32.81	43.7	42.6	-	43.9	1.8	8.4	4.3	4	clayy SILT to silty CLAY	115	2.0	22	21	-	-	3.0	9.9	37	2.63	15	-	-
32.97	40.3	39.1	-	40.4	1.6	8.2	4.2	4	clayy SILT to silty CLAY	115	2.0	20	20	-	-	2.8	9.9	38	2.64	15	-	-
33.14	33.0	31.9	-	33.2	1.5	7.9	4.7	3	silty CLAY to CLAY	115	1.5	22	21	-	-	2.3	9.9	43	2.75	15	-	-
33.30	38.0	36.6	-	38.2	1.5	7.7	4.0	4	clayy SILT to silty CLAY	115	2.0	19	18	-	-	2.6	9.9	38	2.66	15	-	-
33.47	42.2	40.4	-	42.3	1.6	7.8	3.9	4	clayy SILT to silty CLAY	115	2.0	21	20	-	-	2.9	9.9	36	2.61	15	-	-
33.63	45.2	43.2	-	45.4	1.7	7.5	4.0	4	clayy SILT to silty CLAY	115	2.0	23	22	-	-	3.1	9.9	35	2.60	15	-	-
33.79	37.8	35.9	-	38.0	1.7	7.5	4.6	3	silty CLAY to CLAY	115	1.5	25	24	-	-	2.6	9.9	41	2.70	15	-	-
33.96	35.6	33.7	-	35.8	1.8	7.7	5.3	3	silty CLAY to CLAY	115	1.5	24	22	-	-	2.4	9.9	44	2.76	15	-	-
34.12	38.2	36.0	-	38.3	2.3	7.8	6.4	3	silty CLAY to CLAY	115	1.5	25	24	-	-	2.6	9.9	46	2.80	15	-	-
34.29	47.6	44.7	-	47.7	2.1	7.5	4.6	4	clayy SILT to silty CLAY	115	2.0	24	22	-	-	3.3	9.9	37	2.63	15	-	-
34.45	55.6	52.3	165.3	55.7	2.4	4.7	4.5	4	clayy SILT to silty CLAY	115	2.0	28	26	-	-	3.9	9.9	34	2.57	15	0.00	0.0
34.61	60.4	56.6	153.1	60.4	2.1	-1.4	3.7	4	clayy SILT to silty CLAY	115	2.0	30	28	-	-	4.2	9.9	30	2.49	15	0.70	13.7
34.78	50.8	47.5	140.8	50.6	1.8	-7.5	3.6	4	clayy SILT to silty CLAY	115	2.0	25	24	-	-	3.5	9.9	32	2.54	15	1.28	43.6
34.94	50.7	47.3	145.4	50.5	1.9	-8.9	3.8	4	clayy SILT to silty CLAY	115	2.0	25	24	-	-	3.5	9.9	33	2.56	15	1.06	42.3
35.11	64.7	60.2	121.1	64.5	1.4	-9.1	2.3	5	silty SAND to sandy SILT	120	4.0	16	15	50	38	-	-	23	2.32	16	2.00	33.8
35.27	87.6	81.5	105.8	87.4	0.9	-10.3	1.0	6	clean SAND to silty SAND	125	5.0	18	16	60	39	-	-	13	2.00	16	2.23	22.5
35.43	113.6	105.4	117.2	113.4	0.8	-10.7	0.7	6	clean SAND to silty SAND	125	5.0	23	21	69	41	-	-	8	1.81	16	2.05	15.5
35.60	126.2	116.8	124.8	126.0	0.8	-10.7	0.6	6	clean SAND to silty SAND	125	5.0	25	23	72	41	-	-	7	1.75	16	1.95	13.1
35.76	140.6	129.8	130.5	140.4	0.7	-10.6	0.5	6	clean SAND to silty SAND	125	5.0	28	26	76	42	-	-	5	1.65	16	1.77	9.1
35.93	159.6	147.0	147.0	159.4	0.7	-10.6	0.5	6	clean SAND to silty SAND	125	5.0	32	29	80	42	-	-	5	1.57	16	1.00	4.4
36.09	170.6	156.8	156.8	170.4	0.6	-10.5	0.4	6	clean SAND to silty SAND	125	5.0	34	31	82	43	-	-	5	1.51	16	0.58	3.2
36.26	163.7	150.1	150.1	163.5	0.6	-10.4	0.4	6	clean SAND to silty SAND	125	5.0	33	30	80	42	-	-	5	1.53	16	0.86	4.0
36.42	149.0	136.3	136.3	148.8	0.6	-10.3	0.4	6	clean SAND to silty SAND	125	5.0	30	27	77	42	-	-	5	1.59	16	1.52	6.9
36.58	134.1	122.4	122.4	134.2	0.4	9.0	0.3	6	clean SAND to silty SAND	125	5.0	27	24	74	41	-	-	5	1.58	16	1.98	13.0
36.75	126.0	114.7	134.1	126.1	1.3	5.9	1.0	6	clean SAND to silty SAND	125	5.0	25	23	72	41	-	-	10	1.88	16	1.63	8.7
36.91	141.7	128.8	138.6	141.8	1.1	3.4	0.8	6	clean SAND to silty SAND	125	5.0	28	26	75	42	-	-	7	1.76	16	1.41	6.6
37.08	133.0	120.6	129.2	133.1	0.9	2.4	0.7	6	clean SAND to silty SAND	125	5.0	27	24	73	41	-	-	7	1.75	16	1.82	10.5
37.24	113.0	102.2	110.7	113.0	0.6	3.1	0.6	6	clean SAND to silty SAND	125	5.0	23	20	68	40	-	-	7	1.77	16	2.15	16.4
37.40	83.8	75.6	107.5	83.9	1.0	4.4	1.3	5	silty SAND to sandy SILT	120	4.0	21	19	58	39	-	-	15	2.08	16	2.20	25.2
37.57	47.9	43.1	108.7	48.0	1.1	4.0	2.4	5	silty SAND to sandy SILT	120	4.0	12	11	39	35	-	-	28	2.45	16	2.18	51.2
37.73	23.8	20.4	-	23.9	0.9	1.7	4.2	3	silty CLAY to CLAY	115	1.5	16	14	-	-	1.6	6.1	50	2.87	15	-	-
37.90	18.4	15.7	-	18.5	0.7	2.9	4.2	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.2	4.6	57	2.97	15	-	-
38.06	15.9	13.5	-	16.0	0.6	3.8	4.5	3	silty CLAY to CLAY	115	1.5	11	9	-	-	1.0	3.8	62	3.05	15	-	-
38.22	21.6	18.3	-	21.7	0.6	5.2	3.0	4	clayy SILT to silty CLAY	115	2.0	11	9	-	-	1.4	5.4	47	2.82	15	-	-
38.39	20.4	17.2	-	20.5	0.6	6.0	3.6	3	silty CLAY to CLAY	115	1.5	14	11	-	-	1.4	5.1	51	2.89	15	-	-
38.55	21.9	18.4	-	22.0	0.8	6.7	3.8	3	silty CLAY to CLAY	115	1.5	15	12	-	-	1.5	5.5	51	2.89	15	-	-
38.72	18.5	15.5	-	18.7	0.7	6.6	4.4	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.2	4.5	58	2.99	15	-	-
38.88	17.4	14.5	-	17.5	0.7	6.9	4.3	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.1	4.2	59	3.01	15	-	-
39.04	16.7	13.9	-	16.8	0.6	7.1	4.3	3	silty CLAY to CLAY	115	1.5	11	9	-	-	1.1	4.0	60	3.03	15	-	-
39.21	15.0	12.4	-	15.1	0.6	7.2	4.7	3	silty CLAY to CLAY	115	1.5	10	8	-	-	1.0	3.5	65	3.10	15	-	-
39.37	17.5	14.5	-	17.7	0.8	7.4	5.3	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.2	4.2	63	3.07	15	-	-
39.54	33.0	27.2	-	33.1	1.0	4.6	3.1	4	clayy SILT to silty CLAY	115	2.0	16	14	-	-	2.2	8.3	40	2.68	15	-	-
39.70	46.9	41.3	121.8	47.0	1.4	3.8	3.1	4	clayy SILT to silty CLAY	115	2.0	23	21	-	-	3.2	9.9	32	2.54	15	1.99	51.2
39.86	28.9	23.6	-	29.0	1.4	3.8	5.3	3	silty CLAY to CLAY	115	1.5	19	16	-	-	2.0	7.2	51	2.88	15	-	-
40.03	28.4	23.1	-	28.5	1.4	5.4	5.6	3	silty CLAY to CLAY	115	1.5	19	15	-	-	1.9	7.0	52	2.91	15	-	-
40.19	33.4	27.1	-	33.4	0.9	3.6	2.9	4	clayy SILT to silty CLAY	115	2.0	17	14	-	-	2.3	8.3	39	2.67	15	-	-
40.36	23.4	18.9	-	23.5	0.5	4.0	2.6	4	clayy SILT to silty CLAY	115	2.0	12	9	-	-	1.6	5.6	44	2.77	15	-	-
40.52	21.0	16.9	-	21.1	0.6	5.5	3.0	3	silty CLAY to CLAY	115	1.5	14	11	-	-	1.4	4.9	49	2.85	15	-	-
40.68	23.5	18.9	-	23.7	0.7	5.9	3.3	3	silty CLAY to CLAY	115	1.5	16	13	-	-	1.6	5.6	48	2.84	15	-	-
40.85	24.6	19.7	-	24.7	0.8	5.9	3.7	3	silty CLAY to CLAY	115	1.5	16	13	-	-	1.7	5.9	49	2.85	15	-	-
41.01	25.4	20.2	-	25.5	1.0	6.0	4.2	3	silty CLAY to CLAY	115	1.5	17	13	-	-	1.7	6.1	51	2.88	15	-	-
41.18	25.0	19.9	-	25.1	1.1	6.0	4.8	3	silty CLAY to CLAY	115	1.5	17	13	-	-	1.7	5.9	53	2.92	15	-	-
41.34	23.5	18.6	-	23.6	1.0	6.0	4.8	3	silty CLAY to CLAY	115	1.5	16	12	-	-	1.6	5.5	55	2.94	15	-	-
41.50	24.9	19.7	-	25.1	0.9	6.3	4.2	3	silty CLAY to CLAY	115	1.5	17	13	-	-	1.7	5.9	51	2.88	15	-	-
41.67	24.1	19.0	-	24.2	1.0	6.0	4.5	3	silty CLAY to CLAY	115	1.5	16	13	-	-	1.6	5.6	53	2.92	15	-	-
41.83	25.6	20.1	-	25.7	0.9	6.1	4.0	3	silty CLAY to CLAY	115	1.5	17	13	-	-	1.7	6.0	50	2.86	15	-	-
42.00	27.4	21.4	-	27.5	0.9	6.1	3.8	3	silty CLAY to CLAY	115	1.5	18	14	-	-	1.8	6.4	47	2.82	15	-	-
42.16	26.5	20.6	-	26.6	1.0	6.2	4.1	3	silty CLAY to CLAY	115	1.5	18	14	-	-	1.8	6.2	50	2.86	15	-	-
42.32	26.6	20.7	-	26.8	0.9	6.4	3.8	3	silty CLAY to CLAY	115	1.5	18	14	-	-	1.8	6.2	48	2.84	15	-	-
42.49	27.3	21.1	-	27.4	0.9	6.5	3.6	3	silty CLAY to CLAY	115	1.5	18	14	-	-	1.8	6.3	47	2.82	15	-	-
42.65	29.3	22.6	-	29.5	0.9	6.7	3.4	4	clayy SILT to silty CLAY	115	2.0	15	11	-	-	2.0	6.8	45	2.78	15	-	-
42.82	30.7	23.6	-	30.9	0.9	7.1	3.3	4	clayy SILT to silty CLAY	115	2.0	15	12	-	-	2.1	7.2	43	2.76	15	-	-
42.98	29.3	22.4	-	29.4	0.9	7.3	3.2	4	clayy SILT to silty CLAY	115	2.0	15	11	-	-	2.0	6.8	44	2.77	15	-	-
43.15	28.4	21.7	-	28.5	0.9	7.7	3.4	4	clayy SILT to silty CLAY	115	2.0	14	11	-	-	1.9	6.5	46	2.79	15	-	-
43.31	32.9	25.0	-	33.0	1.2	7.7	3.8	4	clayy SILT to silty CLAY	115	2.0	16	12	-	-	2.2	7.6	44	2.77	15	-	-
43.47	40.8	31.0	-	41.0	1.3	8.4	3.3	4	clayy SILT to silty CLAY	115	2.0	20	15	-	-	2.8	9.6	38	2.65	15	-	-
43.64	38.1	28.8	-	38.3	1.4	7.6	3.8	4	clayy SILT to silty CLAY	115	2.0	19	14	-	-	2.6	8.9	42	2.72	15	-	-
43.80	34.6	26.1	-	34.7	1.1	8.0	3.6	4	clayy SILT to silty CLAY	115	2.0	17	13	-	-	2.4	8.0	43	2.74	15	-	-
43.97	30.6	23.0	-	30.8	1.1	7.9	3.9	3	silty CLAY to CLAY	115	1.5	20	15	-	-	2.1	7.0	46	2.81	15	-	-
44.13	29.4	22.0	-	29.6	1.1	8.2	4.0	3	silty CLAY to CLAY	115	1.5	20	15	-	-	2.0	6.6	48	2.83	15	-	-
44.29	28.2	21.1	-	28.4	1.0	8.2	3.9	3	silty CLAY to CLAY	115	1.5	19	14	-	-	1.9	6.3	49	2.84	15	-	-
44.46	28.0	20.9	-	28.2	1.0	8.4	3.9	3	silty CLAY to CLAY	115	1.5	19	14	-	-	1.9	6.3	48	2.84	15	-	-
44.62	30.3	22.5	-	30.5	1.0	8.6	3.6	3	silty CLAY to CLAY	115	1.5	20	15	-	-	2.0	6.8	46	2.79	15	-	-
44.79	30.6	22.6	-	30.8	1.1	8.6	4.0	3	silty CLAY to CLAY	115	1.5	20	15	-	-	2.1	6.8	47	2.82	15	-	-
44.95	28.2	20.8	-	28.4	1.2	9.3	4.6	3	silty CLAY to CLAY	115	1.5	19	14	-	-	1.9	6.2	51	2.89	15	-	-
45.11	31.4	23.1	-	31.6	1.1	10.9	3.7	3	silty CLAY to CLAY	115	1.5	21	15	-	-	2.1	7.0	46	2.79	15	-	-
45.28	28.4	20.8	-	28.6	0.8	10.9	3.2	4	clayy SILT to silty CLAY	115	2.0	14	10	-	-	1.9	6.2	45	2.79	15	-	-
45.44	24.7	18.0	-	24.9	0.8	11.6	3.7	3	silty CLAY to CLAY	115	1.5	16	12	-	-	1.6	5.3	51	2.89	15	-	-
45.61	28.2	20.5	-	28.5	1.3	12.8	5.1	3	silty CLAY to CLAY	115	1.5	19	14	-	-	1.9	6.1	54	2.93	15	-	-
45.77	51.6	42.7	120.4	51.8	1.4	10.1	2.9	4	clayy SILT to silty CLAY	115	2.0	26	21	-	-	3.5	9.9	31	2.51	15	2.01	51.2
45.93	36.1	26.1	-	36.3	1.3	7.5	3.9	4	clayy SILT to silty CLAY	115	2.0	18	13	-	-	2.5	8.0	44	2.76	15	-	-
46.10	32.3	23.2	-	32.4	1.2	5.4	4.1	3	silty CLAY to CLAY	115	1.5	22	15	-	-	2.2	7.0	47	2.82	15	-	-
46.26	34.5	24.8	-	34.6	1.1	6.4	3.6	4	clayy SILT to silty CLAY	115	2.0	17	12	-	-	2.3	7.5	43	2.76	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(280).cpt
CPT Date: 3/10/2015 9:27:11 AM
GW During Test: 5 ft

Sounding ID: CPT-03
Project No: 10487.01
Cone/Rig: DDG1268

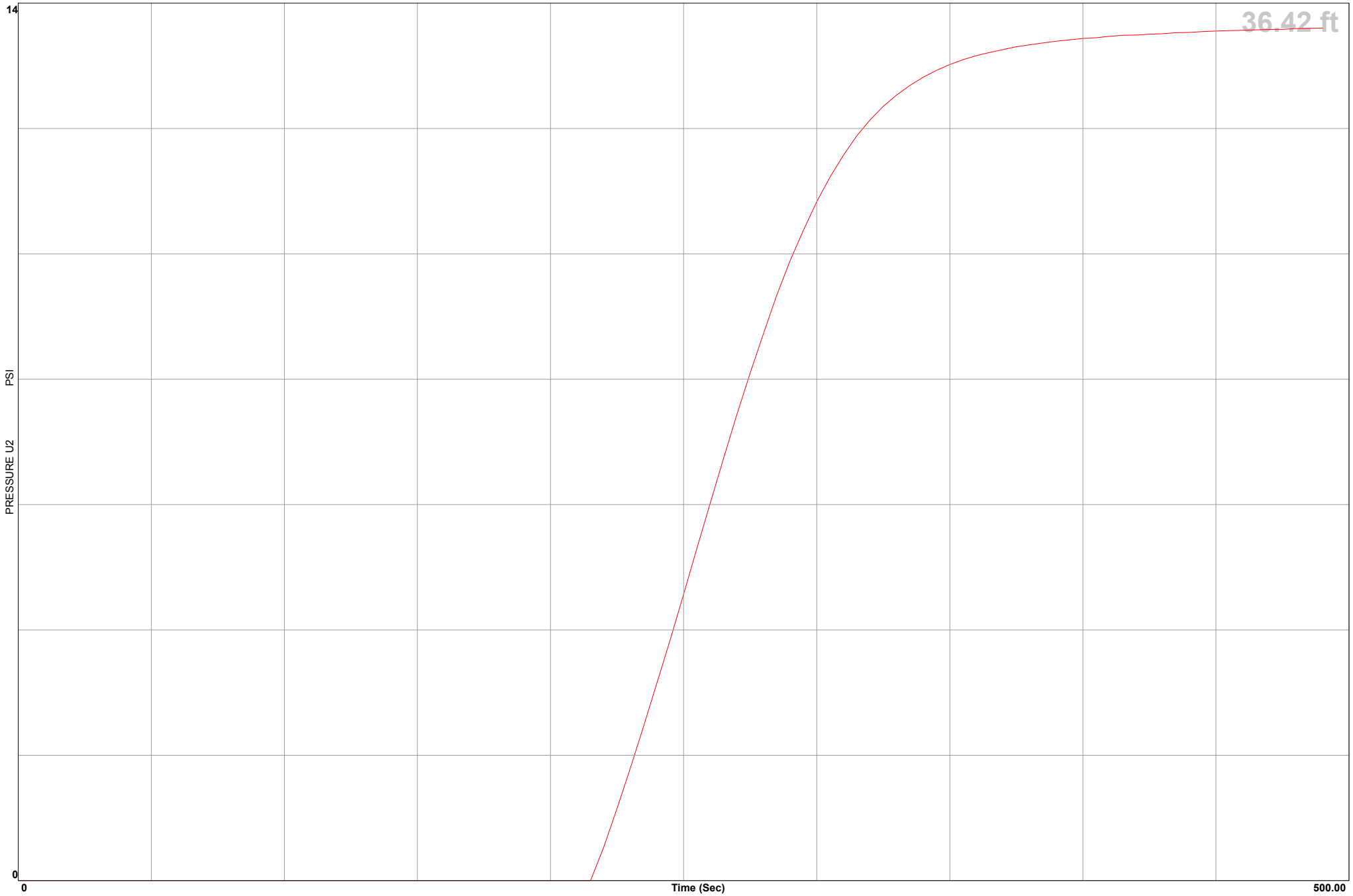
. Depth ft	. qc PS tsf	* qc1n PS -	. q1ncs PS -	* qt PS tsf	. Slv Stss tsf	. pore prss (psi)	. Frct Rato %	* Mat Typ Zon	* Material Behavior Description	. Unit Wght pcf	. Qc to N	. SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	. Und Shr tsf	. OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
46.43	27.5	19.7	-	27.6	0.9	5.7	3.6	3	silty CLAY to CLAY	115	1.5	18	13	-	-	1.8	5.9	49	2.84	15	-	-
46.59	21.4	15.3	-	21.5	0.7	6.7	3.6	3	silty CLAY to CLAY	115	1.5	14	10	-	-	1.4	4.4	55	2.94	15	-	-
46.75	21.2	15.1	-	21.4	0.6	7.3	3.1	3	silty CLAY to CLAY	115	1.5	14	10	-	-	1.4	4.4	53	2.91	15	-	-
46.92	16.4	11.6	-	16.5	0.5	7.1	3.6	3	silty CLAY to CLAY	115	1.5	11	8	-	-	1.1	3.2	62	3.05	15	-	-
47.08	14.6	10.3	-	14.7	0.4	7.5	3.7	3	silty CLAY to CLAY	115	1.5	10	7	-	-	0.9	2.8	66	3.11	15	-	-
47.25	15.1	10.7	-	15.3	0.6	7.7	5.0	3	silty CLAY to CLAY	115	1.5	10	7	-	-	1.0	2.9	71	3.17	15	-	-
47.41	17.5	12.3	-	17.7	0.9	8.0	6.3	3	silty CLAY to CLAY	115	1.5	12	8	-	-	1.1	3.4	71	3.18	15	-	-
47.57	25.8	18.1	-	25.9	1.3	7.4	5.6	3	silty CLAY to CLAY	115	1.5	17	12	-	-	1.7	5.3	59	3.00	15	-	-
47.74	31.3	21.9	-	31.5	2.0	8.0	6.9	3	silty CLAY to CLAY	115	1.5	21	15	-	-	2.1	6.6	58	2.99	15	-	-
47.90	39.5	27.6	-	39.6	2.4	3.9	6.6	3	silty CLAY to CLAY	115	1.5	26	18	-	-	2.7	8.5	52	2.90	15	-	-
48.07	43.8	30.4	-	43.8	2.8	2.8	6.8	3	silty CLAY to CLAY	115	1.5	29	20	-	-	3.0	9.4	51	2.88	15	-	-
48.23	52.5	36.4	-	52.6	2.7	2.8	5.4	3	silty CLAY to CLAY	115	1.5	35	24	-	-	3.6	9.9	43	2.75	15	-	-
48.39	76.4	61.7	148.1	76.4	2.4	0.6	3.2	4	clayy SILT to silty CLAY	115	2.0	38	31	-	-	5.3	9.9	27	2.42	15	0.88	8.1
48.56	75.7	61.0	153.0	75.6	2.5	-3.8	3.4	4	clayy SILT to silty CLAY	115	2.0	38	31	-	-	5.2	9.9	28	2.45	15	0.66	5.0
48.72	74.6	51.2	-	74.5	3.5	-6.1	4.9	4	clayy SILT to silty CLAY	115	2.0	37	26	-	-	5.2	9.9	36	2.61	15	-	-
48.89	78.9	63.4	182.6	78.8	3.5	-6.4	4.5	4	clayy SILT to silty CLAY	115	2.0	39	32	-	-	5.5	9.9	32	2.52	15	0.00	0.0
49.05	51.7	35.3	-	51.6	2.6	-6.3	5.2	3	silty CLAY to CLAY	115	1.5	34	24	-	-	3.6	9.9	43	2.75	15	-	-
49.22	40.6	27.6	-	40.5	1.7	-6.0	4.6	3	silty CLAY to CLAY	115	1.5	27	18	-	-	2.8	8.5	45	2.79	15	-	-
49.38	39.0	26.5	-	38.9	1.5	-5.8	4.2	3	silty CLAY to CLAY	115	1.5	26	18	-	-	2.7	8.1	45	2.78	15	-	-
49.54	37.4	25.3	-	37.3	1.4	-5.7	4.1	3	silty CLAY to CLAY	115	1.5	25	17	-	-	2.5	7.7	45	2.79	15	-	-
49.71	32.9	22.2	-	32.8	1.4	-5.7	4.5	3	silty CLAY to CLAY	115	1.5	22	15	-	-	2.2	6.7	50	2.86	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Wallace-Kuhl

Location	Morning Star Packing	Operator	CB-MM	GPS	
Job Number	10487.01	Cone Number	DDG1268		
Hole Number	CPT-03	Date and Time	3/10/2015 9:27:11 AM		
Equilized Pressure	13.5	EST GW Depth During Test	5.0		

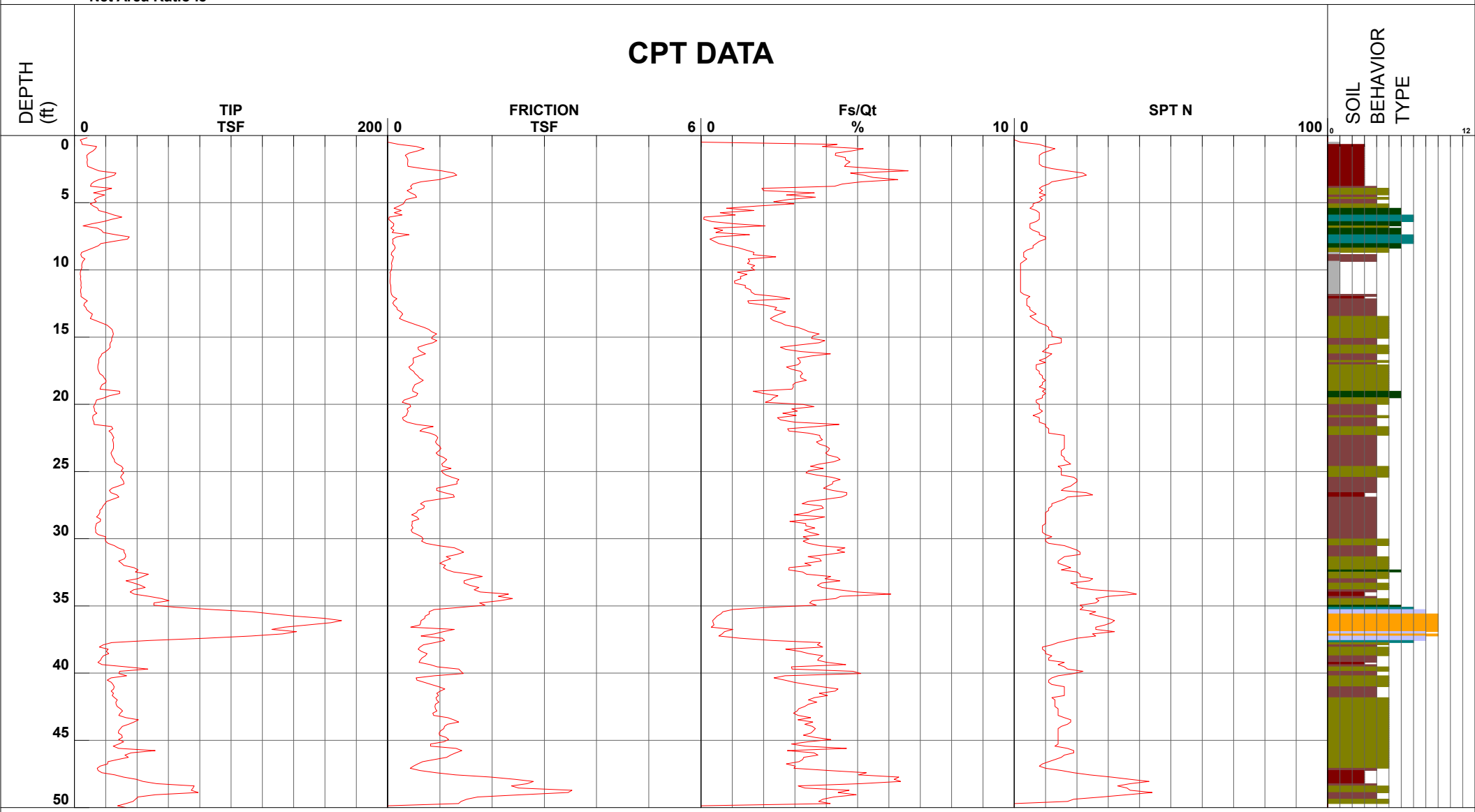


Wallace-Kuhl

Project	Morning Star Packing	Operator	CB-MM	Filename	SDF(280).cpt
Job Number	10487.01	Cone Number	DDG1268	GPS	
Hole Number	CPT-03	Date and Time	3/10/2015 9:27:11 AM	Maximum Depth	50.03 ft
EST GW Depth During Test		5.00 ft			

Net Area Ratio .8

CPT DATA



- 1 - sensitive fine grained
- 2 - organic material
- 3 - clay
- 4 - silty clay to clay
- 5 - clayey silt to silty clay
- 6 - sandy silt to clayey silt
- 7 - silty sand to sandy silt
- 8 - sand to silty sand
- 9 - sand
- 10 - gravelly sand to sand
- 11 - very stiff fine grained (*)
- 12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(279).cpt
CPT Date: 3/10/2015 8:35:50 AM
GW During Test: 5 ft

Sounding ID: CPT-04
Project No: 10487.01
Cone/Rig: DDG1268

Depth ft	qc PS tsf	* qc1n PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR -	* Fin Ic %	* Ic SBT Indx	* Nk -	* Vol Strn %	* Cycl SStn %
0.33	11.0	17.7	-	11.0	0.5	0.1	4.4	3	silty CLAY to CLAY	115	1.5	7	12	-	-	0.8	9.9	52	2.90	15	N/A	N/A
0.49	11.4	18.3	-	11.4	0.4	0.0	3.7	3	silty CLAY to CLAY	115	1.5	8	12	-	-	0.8	9.9	48	2.84	15	N/A	N/A
0.66	9.0	14.5	-	9.0	0.3	0.0	3.1	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	9.9	50	2.87	15	N/A	N/A
0.82	6.3	10.2	-	6.3	0.2	0.0	3.7	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	9.9	62	3.04	15	N/A	N/A
0.98	5.5	8.7	-	5.5	0.2	-0.1	3.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	9.9	66	3.11	15	N/A	N/A
1.15	7.0	11.2	-	7.0	0.2	0.0	3.2	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	9.9	57	2.98	15	N/A	N/A
1.31	9.9	15.9	-	9.9	0.3	0.1	3.0	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	9.9	48	2.84	15	N/A	N/A
1.48	11.3	18.0	-	11.3	0.3	0.0	3.1	4	clayy SILT to silty CLAY	115	2.0	6	9	-	-	0.8	9.9	46	2.80	15	N/A	N/A
1.64	13.6	21.7	-	13.5	0.5	-0.8	4.0	3	silty CLAY to CLAY	115	1.5	9	14	-	-	1.0	9.9	46	2.81	15	N/A	N/A
1.80	19.1	30.6	-	19.1	0.9	-0.7	4.5	3	silty CLAY to CLAY	115	1.5	13	20	-	-	1.3	9.9	42	2.73	15	N/A	N/A
1.97	33.1	53.0	140.1	33.0	1.1	-1.1	3.4	4	clayy SILT to silty CLAY	115	2.0	17	27	-	-	2.3	9.9	30	2.47	15	N/A	N/A
2.13	36.1	57.8	135.4	36.0	1.1	-0.7	3.0	4	clayy SILT to silty CLAY	115	2.0	18	29	-	-	2.5	9.9	27	2.41	15	N/A	N/A
2.30	43.7	70.1	116.4	43.7	0.8	-0.2	1.8	5	silty SAND to sandy SILT	120	4.0	11	18	55	46	-	-	19	2.20	16	N/A	N/A
2.46	45.9	73.6	117.2	45.9	0.8	-0.1	1.7	5	silty SAND to sandy SILT	120	4.0	11	18	57	46	-	-	18	2.17	16	N/A	N/A
2.62	44.7	71.7	112.8	44.7	0.7	-0.1	1.6	5	silty SAND to sandy SILT	120	4.0	11	18	56	46	-	-	18	2.16	16	N/A	N/A
2.79	44.8	71.8	108.9	44.8	0.7	-0.1	1.5	5	silty SAND to sandy SILT	120	4.0	11	18	56	46	-	-	17	2.13	16	N/A	N/A
2.95	49.4	79.2	107.6	49.4	0.6	-0.1	1.2	5	silty SAND to sandy SILT	120	4.0	12	20	59	46	-	-	14	2.04	16	N/A	N/A
3.12	46.0	73.8	99.6	46.0	0.5	0.0	1.1	6	clean SAND to silty SAND	125	5.0	9	15	57	45	-	-	14	2.04	16	N/A	N/A
3.28	38.3	61.4	92.5	38.3	0.5	0.0	1.2	5	silty SAND to sandy SILT	120	4.0	10	15	51	44	-	-	17	2.13	16	N/A	N/A
3.45	27.7	44.4	91.9	27.7	0.5	0.0	1.7	5	silty SAND to sandy SILT	120	4.0	7	11	40	42	-	-	24	2.34	16	N/A	N/A
3.61	15.7	25.2	-	15.7	0.5	0.0	3.1	4	clayy SILT to silty CLAY	115	2.0	8	13	-	-	1.1	9.9	40	2.69	15	N/A	N/A
3.77	10.0	16.1	-	10.0	0.4	0.1	4.5	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	9.9	55	2.94	15	N/A	N/A
3.94	6.3	10.1	-	6.3	0.4	0.1	6.1	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	8.7	72	3.19	15	N/A	N/A
4.10	4.9	7.8	-	4.9	0.3	0.2	5.7	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	6.4	78	3.26	15	N/A	N/A
4.27	5.0	8.1	-	5.0	0.2	0.2	4.5	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	6.3	72	3.19	15	N/A	N/A
4.43	4.1	6.6	-	4.1	0.2	0.2	5.0	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	4.9	80	3.29	15	N/A	N/A
4.59	3.3	5.3	-	3.3	0.1	-0.6	4.9	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	3.8	87	3.37	15	N/A	N/A
4.76	3.1	5.0	-	3.1	0.1	-0.5	4.6	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	3.3	89	3.39	15	N/A	N/A
4.92	3.0	4.7	-	2.9	0.1	-0.5	5.4	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	3.1	94	3.45	15	N/A	N/A
5.09	2.8	4.5	-	2.8	0.1	-0.5	5.7	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	2.9	95	3.48	15	-	-
5.25	3.2	5.1	-	3.2	0.1	-0.9	3.9	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	3.2	85	3.34	15	-	-
5.41	3.4	5.5	-	3.4	0.1	-0.8	3.9	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	3.4	82	3.31	15	-	-
5.58	3.5	5.6	-	3.5	0.1	-0.7	4.3	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	3.5	83	3.32	15	-	-
5.74	3.6	5.8	-	3.6	0.1	-0.8	4.2	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	3.5	82	3.31	15	-	-
5.91	3.8	6.1	-	3.8	0.1	-1.0	3.9	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.2	3.7	79	3.27	15	-	-
6.07	3.8	6.1	-	3.8	0.1	-0.9	3.6	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.2	3.6	78	3.26	15	-	-
6.23	3.4	5.4	-	3.4	0.1	-0.8	4.0	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	3.1	83	3.33	15	-	-
6.40	3.6	5.8	-	3.6	0.1	-0.8	3.6	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	3.3	80	3.28	15	-	-
6.56	4.0	6.5	-	4.0	0.1	-0.7	3.6	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	3.7	76	3.23	15	-	-
6.73	4.1	6.6	-	4.1	0.2	-0.7	4.2	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	3.6	78	3.27	15	-	-
6.89	3.9	6.2	-	3.8	0.2	-0.7	4.5	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.2	3.4	82	3.31	15	-	-
7.05	4.1	6.6	-	4.1	0.2	-0.6	4.1	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	3.6	78	3.26	15	-	-
7.22	4.5	7.2	-	4.4	0.2	-0.5	3.9	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.8	74	3.22	15	-	-
7.38	4.7	7.5	-	4.7	0.2	-0.4	4.1	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	4.0	74	3.21	15	-	-
7.55	4.9	7.9	-	4.9	0.2	-0.4	3.9	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	4.1	71	3.18	15	-	-
7.71	4.9	7.8	-	4.8	0.2	-0.3	3.8	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	4.0	72	3.18	15	-	-
7.87	5.0	8.1	-	5.0	0.2	-0.3	4.2	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	4.1	73	3.19	15	-	-
8.04	5.3	8.5	-	5.3	0.2	-0.2	4.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.3	4.3	72	3.19	15	-	-
8.20	5.4	8.7	-	5.4	0.2	-0.2	4.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	4.4	72	3.19	15	-	-
8.37	5.4	8.7	-	5.4	0.2	-0.2	4.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	4.3	72	3.19	15	-	-
8.53	5.1	8.2	-	5.1	0.2	-0.1	4.7	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	4.0	74	3.22	15	-	-
8.69	4.7	7.5	-	4.7	0.2	-0.1	5.1	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.6	79	3.27	15	-	-
8.86	4.9	7.8	-	4.9	0.2	0.2	4.6	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.7	75	3.23	15	-	-
9.02	4.9	7.9	-	4.9	0.2	0.2	4.7	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.7	75	3.23	15	-	-
9.19	4.8	7.8	-	4.8	0.2	0.2	4.6	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.6	76	3.24	15	-	-
9.35	5.1	8.2	-	5.1	0.2	0.2	3.9	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.7	71	3.17	15	-	-
9.51	4.7	7.5	-	4.7	0.2	0.3	4.3	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.4	76	3.23	15	-	-
9.68	4.7	7.6	-	4.7	0.2	0.3	4.2	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.3	75	3.22	15	-	-
9.84	4.5	7.3	-	4.5	0.2	0.4	4.1	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.1	76	3.24	15	-	-
10.01	4.5	7.2	-	4.5	0.2	0.5	5.6	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.1	82	3.32	15	-	-
10.17	4.5	7.2	-	4.5	0.2	0.6	5.7	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.0	83	3.33	15	-	-
10.34	4.9	7.8	-	4.9	0.2	0.8	5.5	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.3	79	3.28	15	-	-
10.50	5.2	8.3	-	5.2	0.2	0.9	5.2	3	silty CLAY to CLAY	115	1.5	3	6	-	-	0.3	3.5	77	3.24	15	-	-
10.66	5.9	9.5	-	5.9	0.2	1.0	4.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	4.0	70	3.17	15	-	-
10.83	5.5	8.9	-	5.6	0.3	1.0	5.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	3.7	74	3.22	15	-	-
10.99	5.3	8.6	-	5.4	0.2	1.1	4.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.3	3.5	75	3.22	15	-	-
11.16	5.7	9.2	-	5.7	0.2	1.1	4.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	3.7	71	3.18	15	-	-
11.32	6.0	9.6	-	6.0	0.3	1.2	4.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	3.9	70	3.16	15	-	-
11.48	6.4	10.3	-	6.5	0.2	1.3	4.2	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	4.1	66	3.11	15	-	-
11.65	6.6	10.6	-	6.6	0.3	1.4	4.4	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	4.2	66	3.11	15	-	-
11.81	7.5	12.0	-	7.5	0.3	1.6	4.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.8	64	3.08	15	-	-
11.98	13.2	21.1	-	13.2	0.4	2.1	3.2	4	clayy SILT to silty CLAY	115	2.0	7	11	-	-	0.9	8.7	45	2.77	15	-	-
12.14	14.2	22.7	-	14.2	0.5	2.2	3.6	4	clayy SILT to silty CLAY	115	2.0	7	11	-	-	1.0	9.3	45	2.78	15	-	-
12.30	16.3	26.1	-	16.3	0.6	3.1	3.8	4	clayy SILT to silty CLAY	115	2.0	8	13	-	-	1.1	9.9	43	2.74	15	-	-
12.47	17.3	27.7	-	17.4	0.7	3.7	4.3	3	silty CLAY to CLAY	115	1.5	12	18	-	-	1.2	9.9	44	2.76	15	-	-
12.63	18.5	29.7	-	18.6	0.8	4.0	4.5	3	silty CLAY to CLAY	115	1.5	12	20	-	-	1.3	9.9	43	2.75	15	-	-
12.80	19.4	31.1	-	19.5	0.9	4.1	4.7	3	silty CLAY to CLAY	115	1.5	13	21	-	-	1.3	9.9	43	2.75	15	-	-
12.96	19.8	31.8	-	19.9	0.9	4.0	4.6	3	silty CLAY to CLAY	115	1.5	13	21	-	-	1.4	9.9	42	2.74	15	-	-
13.12	19.0	30.5	-	19.1	0.9	3.9	4.7	3	silty CLAY to CLAY	115	1.5	13	20	-	-	1.3	9.9	44	2.76	15	-	-
13.29	18.8	30.1	-	18.8	0.8	3.8	4.6	3	silty CLAY to CLAY	115	1.5	13	20	-	-	1.3	9.9	43	2.75	15	-	-
13.45	18.2	29.2	-	18.3	0.8	3.7	4.5	3	silty CLAY to CLAY	115	1.5	12	19	-	-	1.3	9.9	44	2.76	15	-	-
13.62	16.8	27.0	-	16.9	0.7	3.8	4.5	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.2	9.9	45	2.79	15	-	-
13.78	14.2	22.8	-	14.3	0.7	3.7	5.3	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.0	8.5	51	2.89	15	-	-
13.94	11.3	18.2	-	11.4	0.7	3.3	6.4	3	silty CLAY to CLAY	115	1.5	8	12	-	-	0.8	6.6	60	3.02	15	-	-
14.11	10.2	16.4	-	10.3	0.6	3.3	5.9	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	5.9	61	3.04	15	-	-
14.27	9.4	15.0	-	9.4	0.5	3.4	5.5	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	5.3	62	3.05	15	-	-
14.44	8.8	14.2	-	8.9	0.4	3.4	5.2	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	4.9	62	3.05	15	-	-
14.60	7.9	12.7	-	8.0	0.4	3.4	5.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.3	68	3.13	15	-	-
14.76	7.9	12.7	-	8.0	0.4	3.4	5.5	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.3	66	3.11	15	-	-
14.93	7.8	12.6	-	7.9	0.4	3.5	5.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.2	68	3.14	15	-	-
15.09	9.0	14.4	-	9.1	0.4	3.6	5.5	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	4.8	63	3.07	15	-	-
15.26	8.1	13.0	-	8.1	0.4	3.4	5.7	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.5	4.3	66	3.11	15	-	-
15.42	7.3	11.7	-	7.4	0.3	3.6	5.0	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.7	67	3.12	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(279).cpt
CPT Date: 3/10/2015 8:35:50 AM
GW During Test: 5 ft

Sounding ID: CPT-04
Project No: 10487.01
Cone/Rig: DDG1268

Depth ft	qc PS tsf	* qc1n PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
15.58	7.4	11.9	-	7.5	0.3	3.7	4.8	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.8	65	3.10	15	-	-
15.75	7.0	11.2	-	7.1	0.2	3.7	4.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	3.5	64	3.08	15	-	-
15.91	6.1	9.8	-	6.2	0.3	3.7	5.0	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	3.0	72	3.19	15	-	-
16.08	6.6	10.6	-	6.7	0.3	3.7	4.7	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	3.2	68	3.14	15	-	-
16.24	6.6	10.6	-	6.7	0.3	3.7	5.6	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	3.2	72	3.19	15	-	-
16.40	5.9	9.4	-	5.9	0.3	3.7	5.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	2.8	76	3.24	15	-	-
16.57	5.7	9.2	-	5.8	0.2	3.7	4.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	2.7	73	3.20	15	-	-
16.73	5.4	8.7	-	5.5	0.2	3.8	4.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.3	2.4	75	3.22	15	-	-
16.90	4.8	7.8	-	4.9	0.2	3.8	4.9	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.1	80	3.29	15	-	-
17.06	5.1	8.1	-	5.1	0.2	3.9	5.7	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.2	82	3.31	15	-	-
17.23	7.1	11.3	-	7.1	0.3	4.0	4.4	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.3	66	3.10	15	-	-
17.39	7.4	11.8	-	7.4	0.3	4.1	4.0	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.4	63	3.06	15	-	-
17.55	7.1	11.4	-	7.2	0.3	4.1	5.7	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.2	71	3.17	15	-	-
17.72	10.6	17.0	-	10.7	0.4	4.3	4.4	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	5.1	55	2.95	15	-	-
17.88	13.2	21.0	-	13.2	0.5	3.2	3.9	3	silty CLAY to CLAY	115	1.5	9	14	-	-	0.9	6.4	48	2.84	15	-	-
18.05	12.0	19.0	-	12.0	0.4	2.1	4.0	3	silty CLAY to CLAY	115	1.5	8	13	-	-	0.8	5.7	51	2.88	15	-	-
18.21	8.0	12.6	-	8.0	0.4	1.6	5.4	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.6	67	3.12	15	-	-
18.37	8.7	13.6	-	8.8	0.3	2.3	4.5	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	3.9	61	3.04	15	-	-
18.54	9.8	15.2	-	9.9	0.4	2.4	4.3	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.6	4.5	57	2.98	15	-	-
18.70	13.5	20.9	-	13.6	0.4	2.5	3.0	4	clayy SILT to silty CLAY	115	2.0	7	10	-	-	0.9	6.3	44	2.77	15	-	-
18.87	25.8	30.9	76.0	25.8	0.4	1.6	1.5	5	silty SAND to sandy SILT	120	4.0	6	8	28	35	-	-	28	2.43	16	2.93	51.2
19.03	13.4	20.4	-	13.5	0.3	1.5	2.7	4	clayy SILT to silty CLAY	115	2.0	7	10	-	-	0.9	6.2	43	2.75	15	-	-
19.19	7.9	12.0	-	8.0	0.2	1.8	2.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.4	55	2.95	15	-	-
19.36	6.6	9.8	-	6.6	0.1	2.0	2.3	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	2.7	59	3.01	15	-	-
19.52	6.3	9.4	-	6.3	0.1	2.1	2.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	2.5	60	3.03	15	-	-
19.69	7.9	11.7	-	7.9	0.1	2.3	1.7	4	clayy SILT to silty CLAY	115	2.0	4	6	-	-	0.5	3.3	50	2.86	15	-	-
19.85	9.4	13.9	-	9.5	0.2	2.5	2.4	4	clayy SILT to silty CLAY	115	2.0	5	7	-	-	0.6	4.0	50	2.87	15	-	-
20.01	9.8	14.3	-	9.8	0.2	2.7	2.4	4	clayy SILT to silty CLAY	115	2.0	5	7	-	-	0.6	4.1	50	2.86	15	-	-
20.18	7.9	11.4	-	7.9	0.3	3.3	4.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.2	65	3.09	15	-	-
20.34	13.0	18.8	-	13.1	0.4	3.4	3.4	3	silty CLAY to CLAY	115	1.5	9	13	-	-	0.9	5.6	49	2.85	15	-	-
20.51	12.2	17.5	-	12.2	0.4	3.5	3.9	3	silty CLAY to CLAY	115	1.5	8	12	-	-	0.8	5.2	52	2.90	15	-	-
20.67	11.3	16.1	-	11.3	0.4	3.3	4.3	3	silty CLAY to CLAY	115	1.5	8	11	-	-	0.7	4.7	56	2.97	15	-	-
20.83	11.2	15.9	-	11.3	0.5	3.1	4.5	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	4.7	57	2.98	15	-	-
21.00	10.9	15.4	-	11.0	0.4	3.3	4.4	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.7	4.5	57	2.99	15	-	-
21.16	10.3	14.4	-	10.4	0.4	3.4	4.7	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.7	4.2	60	3.03	15	-	-
21.33	9.8	13.7	-	9.9	0.5	3.4	5.4	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.6	4.0	65	3.09	15	-	-
21.49	9.1	12.5	-	9.1	0.5	3.3	5.8	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.6	3.6	68	3.14	15	-	-
21.65	8.7	12.0	-	8.8	0.4	3.4	5.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.6	3.4	70	3.16	15	-	-
21.82	9.1	12.4	-	9.1	0.4	3.4	5.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.6	3.5	67	3.12	15	-	-
21.98	8.7	11.9	-	8.8	0.4	3.4	5.4	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.6	3.4	69	3.15	15	-	-
22.15	8.5	11.5	-	8.6	0.4	3.5	5.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.5	3.2	69	3.14	15	-	-
22.31	8.5	11.5	-	8.6	0.3	3.5	4.7	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.6	3.2	67	3.12	15	-	-
22.47	7.5	10.1	-	7.6	0.3	3.5	4.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	2.8	70	3.17	15	-	-
22.64	6.5	8.7	-	6.6	0.2	3.6	4.5	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	2.3	75	3.23	15	-	-
22.80	5.4	7.1	-	5.4	0.2	3.6	5.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.3	1.8	86	3.35	15	-	-
22.97	5.1	6.7	-	5.1	0.2	3.6	5.8	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	1.6	91	3.41	15	-	-
23.13	5.7	7.4	-	5.7	0.2	3.7	5.8	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.3	1.9	86	3.36	15	-	-
23.30	6.1	8.0	-	6.2	0.3	3.7	7.1	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	2.1	88	3.38	15	-	-
23.46	8.6	11.1	-	8.6	0.4	3.7	5.3	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	3.1	70	3.17	15	-	-
23.62	9.0	11.6	-	9.1	0.4	3.7	5.2	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.6	3.2	69	3.14	15	-	-
23.79	9.4	12.0	-	9.5	0.4	3.9	4.6	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.6	3.4	66	3.10	15	-	-
23.95	8.1	10.3	-	8.2	0.4	3.8	6.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	2.8	76	3.23	15	-	-
24.12	7.0	8.8	-	7.0	0.4	3.7	6.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.4	2.3	83	3.33	15	-	-
24.28	7.1	8.9	-	7.2	0.4	3.8	6.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.4	2.4	81	3.31	15	-	-
24.44	7.6	9.5	-	7.7	0.4	3.9	6.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	2.6	79	3.27	15	-	-
24.61	7.6	9.5	-	7.7	0.5	3.9	7.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	2.5	83	3.33	15	-	-
24.77	9.5	11.8	-	9.6	0.7	4.0	8.5	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.6	3.3	79	3.27	15	-	-
24.94	15.3	18.9	-	15.4	0.8	2.7	5.4	3	silty CLAY to CLAY	115	1.5	10	13	-	-	1.0	5.6	57	2.97	15	-	-
25.10	14.9	18.2	-	14.9	0.7	1.9	5.5	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.0	5.4	58	2.99	15	-	-
25.26	13.7	16.7	-	13.7	0.6	0.9	5.2	3	silty CLAY to CLAY	115	1.5	9	11	-	-	0.9	4.9	59	3.00	15	-	-
25.43	13.1	15.8	-	13.1	0.6	0.9	4.8	3	silty CLAY to CLAY	115	1.5	9	11	-	-	0.9	4.6	58	3.00	15	-	-
25.59	10.1	12.2	-	10.1	0.5	0.1	6.0	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.7	3.4	70	3.16	15	-	-
25.76	9.1	10.9	-	9.1	0.5	0.2	6.5	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	3.0	75	3.23	15	-	-
25.92	9.1	10.9	-	9.2	0.5	0.3	6.1	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	3.0	74	3.21	15	-	-
26.08	8.1	9.5	-	8.1	0.4	0.3	6.5	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	2.6	80	3.28	15	-	-
26.25	7.5	8.8	-	7.5	0.4	0.4	6.1	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	2.3	81	3.30	15	-	-
26.41	7.9	9.3	-	7.9	0.4	0.5	5.7	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	2.5	78	3.26	15	-	-
26.58	9.5	11.1	-	9.5	0.4	0.5	4.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	3.1	69	3.15	15	-	-
26.74	10.9	12.7	-	10.9	0.4	0.6	4.4	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.7	3.6	63	3.06	15	-	-
26.90	10.8	12.5	-	10.8	0.5	0.6	5.0	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.7	3.5	66	3.11	15	-	-
27.07	12.0	13.8	-	12.0	0.4	0.7	4.2	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.8	4.0	60	3.02	15	-	-
27.23	11.6	13.3	-	11.6	0.5	0.7	4.5	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.8	3.8	62	3.05	15	-	-
27.40	11.1	12.7	-	11.1	0.4	0.8	4.2	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.7	3.6	62	3.05	15	-	-
27.56	10.1	11.4	-	10.1	0.5	0.8	5.7	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.7	3.2	71	3.18	15	-	-
27.72	13.2	14.9	-	13.2	0.6	0.8	5.0	3	silty CLAY to CLAY	115	1.5	9	10	-	-	0.9	4.3	61	3.04	15	-	-
27.89	16.4	18.5	-	16.5	0.6	0.9	4.3	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.1	5.5	53	2.91	15	-	-
28.05	16.5	18.4	-	16.5	0.6	1.0	4.0	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.1	5.5	51	2.89	15	-	-
28.22	14.4	16.0	-	14.4	0.5	1.2	4.2	3	silty CLAY to CLAY	115	1.5	10	11	-	-	1.0	4.7	56	2.96	15	-	-
28.38	13.7	15.2	-	13.8	0.5	1.3	4.1	3	silty CLAY to CLAY	115	1.5	9	10	-	-	0.9	4.4	57	2.98	15	-	-
28.54	14.1	15.5	-	14.1	0.5	1.3	4.3	3	silty CLAY to CLAY	115	1.5	9	10	-	-	0.9	4.5	57	2.98	15	-	-
28.71	15.1	16.6	-	15.2	0.5	1.3	3.8	3	silty CLAY to CLAY	115	1.5	10	11	-	-	1.0	4.9	53	2.92	15	-	-
28.87	16.8	18.3	-	16.8	0.5	1.4	3.4	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.1	5.5	49	2.86	15	-	-
29.04	17.4	18.9	-	17.4	0.5	1.5	3.3	3	silty CLAY to CLAY	115	1.5	12	13	-	-	1.2	5.6	48	2.83	15	-	-
29.20	18.2	19.6	-	18.2	0.6	1.6	3.4	3	silty CLAY to CLAY	115	1.5	12	13	-	-	1.2	5.9	47	2.83	15	-	-
29.36	23.5	25.3	-	23.6	0.6	1.8	2.7	4	clayy SILT to silty CLAY	115	2.0	12	13	-	-	1.6	7.8	39	2.67	15	-	-
29.53	24.5	26.2	-	24.5	0.6	1.9	2.7	4	clayy SILT to silty CLAY	115	2.0	12	13	-	-	1.7	8.0	38	2.66	15	-	-
29.69	23.2	24.7	-	23.2	0.6	2.0	2.8	4	clayy SILT to silty CLAY	115	2.0	12	12	-	-	1.6	7.6	40	2.69	15	-	-
29.86	24.3	25.8	-	24.4	0.7	2.2	3.0	4	clayy SILT to silty CLAY	115	2.0	12	13	-	-	1.7	7.9	40	2.69	15	-	-
30.02	23.8	25.1	-	23.8	0.7	2.3	3.4	4	clayy SILT to silty CLAY	115	2.0	12	13	-	-	1.6	7.7	42	2.73	15	-	-
30.19	25.7	27.1	-	25.8	0.8	2.3	3.5	4	clayy SILT to silty CLAY	115	2.0	13	14	-	-	1.8	8.3	42	2.72	15	-	-
30.35	27.7	29.0	-	27.7	0.9	2.3	3.5	4	clayy SILT to silty CLAY	115	2.0	14	14	-	-	1.9	9.0	40	2.70	15	-	-
30.51	26.9	28.0	-	26.9	0.9	2.3	3.8	4	clayy SILT to silty CLAY	115	2.0	13	14	-	-	1.8	8.6	42	2.73	15	-	-
30.68	27.9	29.0	-	28.0	1.0	2.4	3.7	4	clayy SILT to silty CLAY	115	2.0	14	14	-	-	1.9	8.9	41	2.71	15	-	-
30.84	27.7	28.6	-	27.7	0.9	2.4	3.6	4	clayy SILT to silty CLAY	115	2.0	14	14	-	-	1.9	8.8	41	2.71	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(279).cpt
CPT Date: 3/10/2015 8:35:50 AM
GW During Test: 5 ft

Sounding ID: CPT-04
Project No: 10487.01
Cone/Rig: DDG1268

Depth ft	qc PS tsf	* qc1n PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
31.01	26.0	26.7	-	26.0	0.9	2.5	3.7	4	clayy SILT to silty CLAY	115	2.0	13	13	-	-	1.8	8.2	43	2.74	15	-	-
31.17	25.6	26.2	-	25.6	1.0	2.6	4.1	3	silty CLAY to CLAY	115	1.5	17	17	-	-	1.7	8.0	45	2.77	15	-	-
31.33	25.5	26.0	-	25.5	1.0	2.7	4.2	3	silty CLAY to CLAY	115	1.5	17	17	-	-	1.7	8.0	45	2.78	15	-	-
31.50	27.9	28.3	-	28.0	1.1	3.1	4.1	4	clayy SILT to silty CLAY	115	2.0	14	14	-	-	1.9	8.7	43	2.75	15	-	-
31.66	31.8	32.1	-	31.9	1.2	3.2	3.9	4	clayy SILT to silty CLAY	115	2.0	16	16	-	-	2.2	9.9	40	2.69	15	-	-
31.83	33.3	33.4	-	33.3	1.3	3.0	4.2	4	clayy SILT to silty CLAY	115	2.0	17	17	-	-	2.3	9.9	40	2.70	15	-	-
31.99	31.8	31.8	-	31.8	1.3	3.1	4.4	3	silty CLAY to CLAY	115	1.5	21	21	-	-	2.2	9.9	42	2.73	15	-	-
32.15	32.7	32.6	-	32.8	1.3	3.1	4.2	4	clayy SILT to silty CLAY	115	2.0	16	16	-	-	2.2	9.9	41	2.71	15	-	-
32.32	32.7	32.4	-	32.7	1.2	3.1	3.9	4	clayy SILT to silty CLAY	115	2.0	16	16	-	-	2.2	9.9	40	2.68	15	-	-
32.48	29.9	29.6	-	30.0	1.0	3.1	3.7	4	clayy SILT to silty CLAY	115	2.0	15	15	-	-	2.0	9.2	40	2.70	15	-	-
32.65	27.3	26.8	-	27.3	0.9	3.3	3.6	4	clayy SILT to silty CLAY	115	2.0	14	13	-	-	1.9	8.2	42	2.73	15	-	-
32.81	27.2	26.6	-	27.2	0.9	3.4	3.5	4	clayy SILT to silty CLAY	115	2.0	14	13	-	-	1.8	8.2	42	2.73	15	-	-
32.97	27.5	26.8	-	27.6	0.9	3.4	3.6	4	clayy SILT to silty CLAY	115	2.0	14	13	-	-	1.9	8.2	42	2.73	15	-	-
33.14	31.1	30.2	-	31.2	1.0	3.6	3.5	4	clayy SILT to silty CLAY	115	2.0	16	15	-	-	2.1	9.4	39	2.68	15	-	-
33.30	31.4	30.4	-	31.5	1.0	3.6	3.3	4	clayy SILT to silty CLAY	115	2.0	16	15	-	-	2.1	9.4	38	2.66	15	-	-
33.47	27.9	26.9	-	28.0	0.8	3.7	2.9	4	clayy SILT to silty CLAY	115	2.0	14	13	-	-	1.9	8.3	39	2.67	15	-	-
33.63	28.2	27.0	-	28.2	0.7	4.0	2.7	4	clayy SILT to silty CLAY	115	2.0	14	14	-	-	1.9	8.3	38	2.65	15	-	-
33.79	28.9	27.6	-	28.9	1.0	4.0	3.9	4	clayy SILT to silty CLAY	115	2.0	14	14	-	-	2.0	8.5	43	2.74	15	-	-
33.96	34.2	32.5	-	34.2	1.2	4.0	3.8	4	clayy SILT to silty CLAY	115	2.0	17	16	-	-	2.3	9.9	39	2.68	15	-	-
34.12	38.0	36.0	-	38.1	1.6	3.6	4.5	4	clayy SILT to silty CLAY	115	2.0	19	18	-	-	2.6	9.9	40	2.70	15	-	-
34.29	38.7	36.5	-	38.8	1.6	3.4	4.5	4	clayy SILT to silty CLAY	115	2.0	19	18	-	-	2.7	9.9	40	2.69	15	-	-
34.45	33.6	31.6	-	33.7	1.5	3.2	4.9	3	silty CLAY to CLAY	115	1.5	22	21	-	-	2.3	9.8	44	2.76	15	-	-
34.61	41.2	38.7	126.2	41.2	1.3	2.9	3.4	4	clayy SILT to silty CLAY	115	2.0	21	19	-	-	2.8	9.9	35	2.59	15	1.91	51.2
34.78	29.5	27.5	-	29.4	1.0	-6.1	3.7	4	clayy SILT to silty CLAY	115	2.0	15	14	-	-	2.0	8.5	42	2.73	15	-	-
34.94	20.1	18.7	-	20.0	0.8	-5.8	4.4	3	silty CLAY to CLAY	115	1.5	13	12	-	-	1.3	5.5	53	2.92	15	-	-
35.11	20.9	19.4	-	20.8	0.8	-5.7	4.2	3	silty CLAY to CLAY	115	1.5	14	13	-	-	1.4	5.8	52	2.89	15	-	-
35.27	31.7	29.3	-	31.6	1.0	-5.5	3.5	4	clayy SILT to silty CLAY	115	2.0	16	15	-	-	2.2	9.0	40	2.69	15	-	-
35.43	25.3	23.2	-	25.2	1.1	-5.4	4.7	3	silty CLAY to CLAY	115	1.5	17	15	-	-	1.7	7.0	49	2.85	15	-	-
35.60	19.5	17.8	-	19.4	0.9	-5.4	5.0	3	silty CLAY to CLAY	115	1.5	13	12	-	-	1.3	5.3	57	2.97	15	-	-
35.76	17.6	16.1	-	17.5	0.8	-5.3	5.4	3	silty CLAY to CLAY	115	1.5	12	11	-	-	1.2	4.7	61	3.03	15	-	-
35.93	22.5	20.4	-	22.4	0.7	-5.3	3.5	3	silty CLAY to CLAY	115	1.5	15	14	-	-	1.5	6.1	47	2.82	15	-	-
36.09	17.6	15.9	-	17.5	0.6	-5.3	4.0	3	silty CLAY to CLAY	115	1.5	12	11	-	-	1.2	4.6	55	2.95	15	-	-
36.26	16.6	14.9	-	16.5	0.8	-5.2	5.2	3	silty CLAY to CLAY	115	1.5	11	10	-	-	1.1	4.3	62	3.05	15	-	-
36.42	20.1	18.1	-	20.0	1.0	-5.1	5.7	3	silty CLAY to CLAY	115	1.5	13	12	-	-	1.3	5.3	59	3.00	15	-	-
36.58	28.1	25.1	-	28.0	1.8	-5.1	7.0	3	silty CLAY to CLAY	115	1.5	19	17	-	-	1.9	7.6	55	2.95	15	-	-
36.75	38.9	34.6	-	38.8	1.8	-5.1	5.0	3	silty CLAY to CLAY	115	1.5	26	23	-	-	2.7	9.9	42	2.74	15	-	-
36.91	27.5	24.4	-	27.4	1.7	-5.1	6.7	3	silty CLAY to CLAY	115	1.5	18	16	-	-	1.9	7.4	55	2.94	15	-	-
37.08	31.0	27.3	-	30.9	1.4	-5.0	4.9	3	silty CLAY to CLAY	115	1.5	21	18	-	-	2.1	8.4	47	2.81	15	-	-
37.24	29.6	26.0	-	29.5	1.3	-4.9	4.6	3	silty CLAY to CLAY	115	1.5	20	17	-	-	2.0	8.0	47	2.81	15	-	-
37.40	28.0	24.5	-	27.9	1.2	-4.8	4.5	3	silty CLAY to CLAY	115	1.5	19	16	-	-	1.9	7.5	47	2.82	15	-	-
37.57	36.9	32.2	-	36.8	1.4	-4.9	4.1	4	clayy SILT to silty CLAY	115	2.0	18	16	-	-	2.5	9.9	41	2.71	15	-	-
37.73	32.9	28.6	-	32.8	1.4	-4.8	4.6	3	silty CLAY to CLAY	115	1.5	22	19	-	-	2.2	8.8	45	2.78	15	-	-
37.90	34.0	29.4	-	33.9	1.3	-4.6	4.2	3	silty CLAY to CLAY	115	1.5	23	20	-	-	2.3	9.1	43	2.74	15	-	-
38.06	27.1	23.4	-	27.1	1.1	-4.7	4.5	3	silty CLAY to CLAY	115	1.5	18	16	-	-	1.8	7.1	48	2.84	15	-	-
38.22	23.4	20.2	-	23.3	0.9	-4.6	4.3	3	silty CLAY to CLAY	115	1.5	16	13	-	-	1.6	6.0	51	2.88	15	-	-
38.39	21.3	18.3	-	21.2	0.9	-4.6	4.7	3	silty CLAY to CLAY	115	1.5	14	12	-	-	1.4	5.4	55	2.94	15	-	-
38.55	24.4	20.8	-	24.3	0.7	-4.5	3.4	3	silty CLAY to CLAY	115	1.5	16	14	-	-	1.6	6.2	46	2.80	15	-	-
38.72	23.7	20.2	-	23.6	0.9	-4.5	4.1	3	silty CLAY to CLAY	115	1.5	16	13	-	-	1.6	6.0	50	2.87	15	-	-
38.88	24.3	20.6	-	24.2	0.6	-4.6	2.9	4	clayy SILT to silty CLAY	115	2.0	12	10	-	-	1.6	6.2	44	2.77	15	-	-
39.04	18.3	15.5	-	18.2	0.8	-4.5	4.8	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.2	4.5	60	3.02	15	-	-
39.21	27.2	22.9	-	27.1	0.8	-4.4	3.3	4	clayy SILT to silty CLAY	115	2.0	14	11	-	-	1.8	6.9	44	2.76	15	-	-
39.37	29.2	24.5	-	29.2	0.9	-4.3	3.4	4	clayy SILT to silty CLAY	115	2.0	15	12	-	-	2.0	7.5	43	2.75	15	-	-
39.54	28.8	24.1	-	28.8	1.1	-4.2	4.1	3	silty CLAY to CLAY	115	1.5	19	16	-	-	2.0	7.3	46	2.81	15	-	-
39.70	34.0	28.3	-	33.9	1.4	-4.2	4.3	3	silty CLAY to CLAY	115	1.5	23	19	-	-	2.3	8.7	44	2.77	15	-	-
39.86	38.2	31.6	-	38.1	1.9	-4.2	5.4	3	silty CLAY to CLAY	115	1.5	25	21	-	-	2.6	9.8	46	2.79	15	-	-
40.03	44.8	37.0	-	44.7	2.8	-4.1	6.6	3	silty CLAY to CLAY	115	1.5	30	25	-	-	3.1	9.9	46	2.80	15	-	-
40.19	63.9	52.6	-	63.8	3.4	-3.9	5.5	3	silty CLAY to CLAY	115	1.5	43	35	-	-	4.4	9.9	37	2.64	15	-	-
40.36	58.9	48.3	-	58.8	3.7	-3.9	6.6	3	silty CLAY to CLAY	115	1.5	39	32	-	-	4.1	9.9	42	2.72	15	-	-
40.52	77.5	68.1	202.7	77.4	3.9	-3.8	5.1	4	clayy SILT to silty CLAY	115	2.0	39	34	-	-	5.4	9.9	32	2.54	15	0.00	0.0
40.68	86.9	76.2	197.3	86.8	3.8	-4.4	4.5	4	clayy SILT to silty CLAY	115	2.0	43	38	-	-	6.1	9.9	29	2.46	15	0.00	0.0
40.85	125.7	110.0	143.6	125.6	1.9	-4.7	1.5	6	clean SAND to silty SAND	125	5.0	25	22	70	41	-	-	13	2.00	16	1.18	5.9
41.01	153.0	133.6	172.0	152.9	2.6	-5.6	1.7	6	clean SAND to silty SAND	125	5.0	31	27	77	42	-	-	13	1.99	16	0.00	0.0
41.18	94.8	82.6	183.6	94.7	3.4	-5.7	3.7	4	clayy SILT to silty CLAY	115	2.0	47	41	-	-	6.6	9.9	25	2.38	15	0.00	0.0
41.34	60.1	48.2	-	59.9	3.5	-6.5	6.0	3	silty CLAY to CLAY	115	1.5	40	32	-	-	4.2	9.9	40	2.69	15	-	-
41.50	56.5	45.1	-	56.3	3.3	-6.4	6.2	3	silty CLAY to CLAY	115	1.5	38	30	-	-	3.9	9.9	42	2.72	15	-	-
41.67	48.0	38.3	-	47.9	2.4	-6.8	5.2	3	silty CLAY to CLAY	115	1.5	32	26	-	-	3.3	9.9	41	2.72	15	-	-
41.83	30.4	24.1	-	30.2	1.6	-7.1	5.7	3	silty CLAY to CLAY	115	1.5	20	16	-	-	2.1	7.3	52	2.90	15	-	-
42.00	27.6	21.8	-	27.4	1.1	-7.0	4.4	3	silty CLAY to CLAY	115	1.5	18	15	-	-	1.9	6.6	50	2.86	15	-	-
42.16	28.4	22.4	-	28.3	1.1	-7.0	4.3	3	silty CLAY to CLAY	115	1.5	19	15	-	-	1.9	6.8	49	2.84	15	-	-
42.32	30.3	23.8	-	30.2	1.2	-7.0	4.2	3	silty CLAY to CLAY	115	1.5	20	16	-	-	2.1	7.2	47	2.81	15	-	-
42.49	34.8	27.2	-	34.6	1.3	-7.0	3.9	4	clayy SILT to silty CLAY	115	2.0	17	14	-	-	2.4	8.4	43	2.75	15	-	-
42.65	35.7	27.9	-	35.6	1.2	-7.0	3.6	4	clayy SILT to silty CLAY	115	2.0	18	14	-	-	2.4	8.6	41	2.72	15	-	-
42.82	33.7	26.2	-	33.6	1.1	-7.0	3.6	4	clayy SILT to silty CLAY	115	2.0	17	13	-	-	2.3	8.0	43	2.74	15	-	-
42.98	32.5	25.2	-	32.4	1.2	-7.1	4.1	3	silty CLAY to CLAY	115	1.5	22	17	-	-	2.2	7.7	46	2.79	15	-	-
43.15	32.6	25.2	-	32.4	1.3	-7.1	4.2	3	silty CLAY to CLAY	115	1.5	22	17	-	-	2.2	7.7	46	2.79	15	-	-
43.31	36.3	27.9	-	36.1	1.3	-7.1	4.0	4	clayy SILT to silty CLAY	115	2.0	18	14	-	-	2.5	8.6	43	2.75	15	-	-
43.47	34.0	26.1	-	33.9	1.4	-7.1	4.3	3	silty CLAY to CLAY	115	1.5	23	17	-	-	2.3	8.0	46	2.79	15	-	-
43.64	28.2	21.6	-	28.1	1.1	-7.1	4.3	3	silty CLAY to CLAY	115	1.5	19	14	-	-	1.9	6.5	50	2.86	15	-	-
43.80	26.5	20.2	-	26.4	1.0	-7.1	4.2	3	silty CLAY to CLAY	115	1.5	18	13	-	-	1.8	6.0	51	2.88	15	-	-
43.97	35.9	27.3	-	35.8	1.3	-7.1	3.9	4	clayy SILT to silty CLAY	115	2.0	18	14	-	-	2.4	8.4	43	2.75	15	-	-
44.13	41.6	31.6	-	41.5	1.5	-7.1	3.8	4	clayy SILT to silty CLAY	115	2.0	21	16	-	-	2.8	9.8	40	2.69	15	-	-
44.29	44.3	33.4	-	44.1	1.5	-7.1	3.7	4	clayy SILT to silty CLAY	115	2.0	22	17	-	-	3.0	9.9	38	2.66	15	-	-
44.46	43.2	32.5	-	43.0	1.5	-7.1	3.7	4	clayy SILT to silty CLAY	115	2.0	22	16	-	-	3.0	9.9	39	2.67	15	-	-
44.62	42.4	31.8	-	42.3	1.5	-7.1	3.7	4	clayy SILT to silty CLAY	115	2.0	21	16	-	-	2.9	9.9	39	2.68	15	-	-
44.79	40.9	30.6	-	40.7	1.3	-7.1	3.5	4	clayy SILT to silty CLAY	115	2.0	20	15	-	-	2.8	9.4	39	2.68	15	-	-
44.95	38.8	29.0	-	38.7	1.3	-7.0	3.5	4	clayy SILT to silty CLAY	115	2.0	19	14	-	-	2.7	8.9	40	2.70	15	-	-
45.11	38.5	28.6	-	38.3	1.3	-7.0	3.6	4	clayy SILT to silty CLAY	115	2.0	19	14	-	-	2.6	8.8	41	2.71	15	-	-
45.28	38.8	28.7	-	38.6	1.5	-7.0	4.2	3	silty CLAY to CLAY	115	1.5	26	19	-	-	2.6	8.8	43	2.75	15	-	-
45.44	32.4	23.9	-	32.2	1.7	-7.0	5.8	3	silty CLAY to CLAY	115	1.5	22	16	-	-	2.2	7.2	53	2.91	15	-	-
45.61	26.1	19.2	-	26.0	1.3	-7.0	5.6	3	silty CLAY to CLAY	115	1.5	17	13	-	-	1.7	5.7	57	2.98	15	-	-
45.77	25.7	18.8	-	25.5	0.9	-6.1	4.0	3	silty CLAY to CLAY	115	1.5	17	13	-	-	1.7	5.6	51	2.89	15	-	-
45.93	21.9	16.1	-	21.8	0.8	-6.0	4.3	3	silty CLAY to CLAY	115	1.5	15	11	-	-	1.5	4.7	56	2.97	15	-	-
46.10	20.1	14.7	-	20.0	0.8	-6.1	4.7	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.3	4.2	61	3.03	15	-	-
46.26	18.0	13.1	-	17.9	0.7	-6.0	4.8	3	silty CLAY to CLAY	115	1.5	12	9	-	-	1.2	3.7	64	3.08	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(279).cpt
CPT Date: 3/10/2015 8:35:50 AM
GW During Test: 5 ft

Sounding ID: CPT-04
Project No: 10487.01
Cone/Rig: DDG1268

. Depth ft	. qc PS tsf	* qc1n PS -	. q1ncs PS -	* qt PS tsf	. Slv Stss tsf	. pore prss (psi)	. Frct Rato %	* Mat Typ Zon	* Material Behavior Description	. Unit Wght pcf	. Qc to N	. SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	. Und Shr tsf	. OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
46.43	17.2	12.4	-	17.1	0.7	-6.0	4.8	3	silty CLAY to CLAY	115	1.5	11	8	-	-	1.1	3.5	65	3.10	15	-	-
46.59	17.4	12.5	-	17.2	0.7	-6.0	5.0	3	silty CLAY to CLAY	115	1.5	12	8	-	-	1.1	3.5	66	3.11	15	-	-
46.75	16.7	12.0	-	16.6	0.7	-6.0	5.2	3	silty CLAY to CLAY	115	1.5	11	8	-	-	1.1	3.3	68	3.14	15	-	-
46.92	16.9	12.1	-	16.8	0.7	-6.0	4.8	3	silty CLAY to CLAY	115	1.5	11	8	-	-	1.1	3.4	66	3.11	15	-	-
47.08	19.4	13.9	-	19.3	0.7	-6.0	4.3	3	silty CLAY to CLAY	115	1.5	13	9	-	-	1.3	3.9	60	3.03	15	-	-
47.25	20.3	14.5	-	20.2	0.8	-6.0	4.8	3	silty CLAY to CLAY	115	1.5	14	10	-	-	1.3	4.1	61	3.04	15	-	-
47.41	20.1	14.3	-	20.0	0.8	-6.0	4.5	3	silty CLAY to CLAY	115	1.5	13	10	-	-	1.3	4.1	60	3.03	15	-	-
47.57	19.6	13.9	-	19.5	0.7	-5.9	4.4	3	silty CLAY to CLAY	115	1.5	13	9	-	-	1.3	3.9	61	3.04	15	-	-
47.74	16.7	11.8	-	16.5	0.6	-5.9	4.6	3	silty CLAY to CLAY	115	1.5	11	8	-	-	1.1	3.2	66	3.11	15	-	-
47.90	19.4	13.7	-	19.3	0.6	-5.8	3.9	3	silty CLAY to CLAY	115	1.5	13	9	-	-	1.3	3.9	59	3.01	15	-	-
48.07	22.0	15.4	-	21.8	0.7	-5.8	3.8	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.5	4.4	55	2.95	15	-	-
48.23	22.8	16.0	-	22.7	0.9	-5.8	4.3	3	silty CLAY to CLAY	115	1.5	15	11	-	-	1.5	4.6	57	2.97	15	-	-
48.39	24.4	17.0	-	24.3	1.1	-5.7	5.0	3	silty CLAY to CLAY	115	1.5	16	11	-	-	1.6	5.0	58	2.99	15	-	-
48.56	30.8	21.5	-	30.7	1.4	-5.7	4.9	3	silty CLAY to CLAY	115	1.5	21	14	-	-	2.1	6.4	52	2.90	15	-	-
48.72	33.3	23.1	-	33.2	1.6	-5.7	5.1	3	silty CLAY to CLAY	115	1.5	22	15	-	-	2.3	7.0	51	2.89	15	-	-
48.89	38.4	26.6	-	38.3	1.8	-5.6	5.2	3	silty CLAY to CLAY	115	1.5	26	18	-	-	2.6	8.1	48	2.84	15	-	-
49.05	41.6	28.7	-	41.4	1.4	-5.6	3.7	4	clayy SILT to silty CLAY	115	2.0	21	14	-	-	2.8	8.8	41	2.72	15	-	-
49.22	55.6	44.8	112.7	55.5	1.3	-5.7	2.5	5	silty SAND to sandy SILT	120	4.0	14	11	40	35	-	-	28	2.45	16	2.12	50.4
49.38	51.2	41.2	102.6	51.1	1.1	-5.7	2.2	5	silty SAND to sandy SILT	120	4.0	13	10	38	34	-	-	28	2.44	16	2.29	51.2
49.54	61.3	49.2	117.6	61.2	1.5	-5.7	2.5	5	silty SAND to sandy SILT	120	4.0	15	12	44	36	-	-	27	2.42	16	2.05	45.0
49.71	53.3	42.7	119.1	53.2	1.4	-5.9	2.8	4	clayy SILT to silty CLAY	115	2.0	27	21	-	-	3.7	9.9	31	2.50	15	2.02	51.2
49.87	37.9	25.7	-	37.7	1.3	-6.0	3.6	4	clayy SILT to silty CLAY	115	2.0	19	13	-	-	2.6	7.8	43	2.75	15	-	-
50.04	26.7	18.1	-	26.6	1.4	-5.9	6.0	3	silty CLAY to CLAY	115	1.5	18	12	-	-	1.8	5.3	60	3.02	15	-	-
50.20	38.0	25.6	-	37.9	1.4	-5.4	3.9	4	clayy SILT to silty CLAY	115	2.0	19	13	-	-	2.6	7.8	44	2.77	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

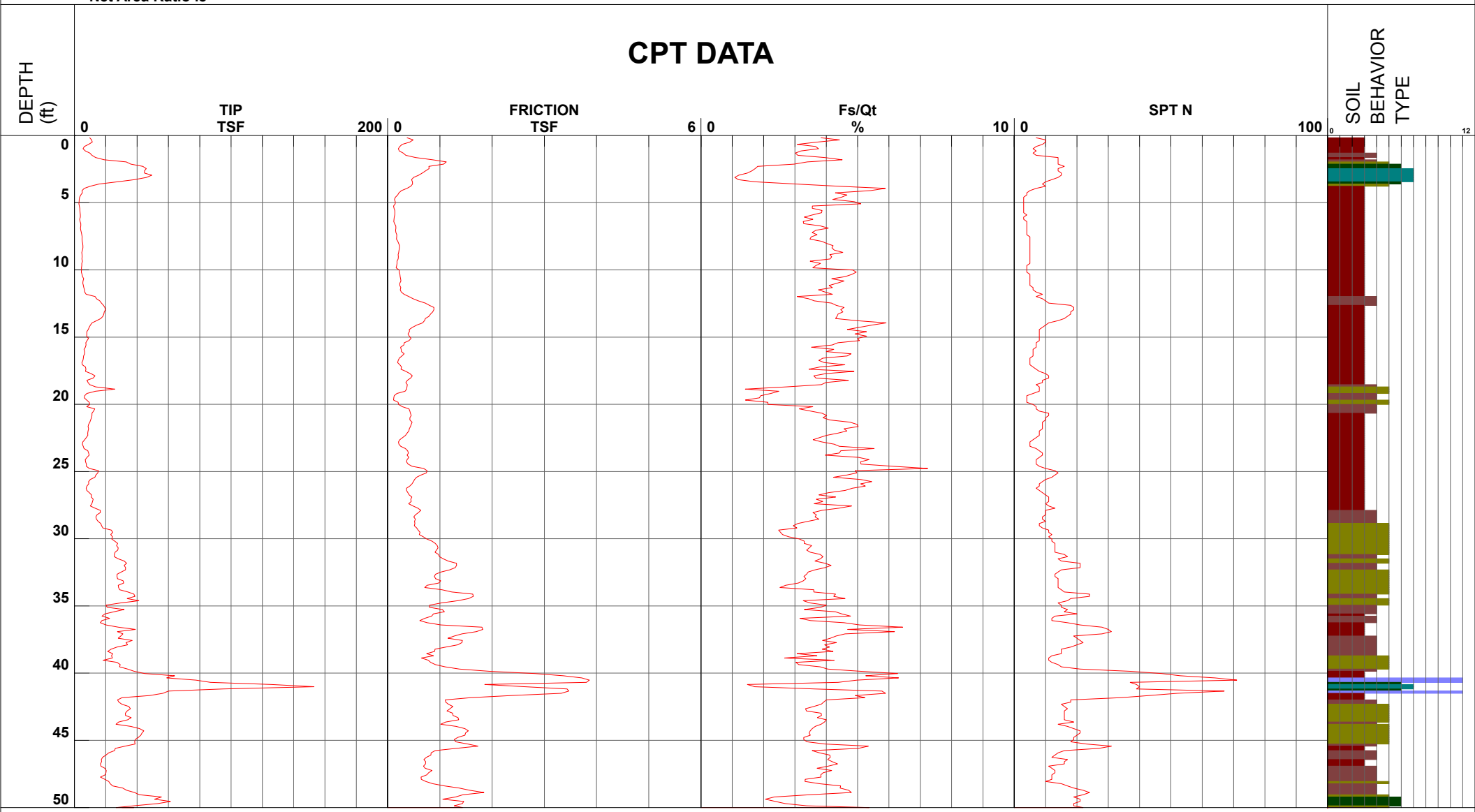
Middle Earth Geo Testing

Wallace-Kuhl

Project	Morning Star Packing	Operator	CB-MM	Filename	SDF(279).cpt
Job Number	10487.01	Cone Number	DDG1268	GPS	
Hole Number	CPT-04	Date and Time	3/10/2015 8:35:50 AM	Maximum Depth	50.52 ft
EST GW Depth During Test		5.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(278).cpt
CPT Date: 3/10/2015 7:35:09 AM
GW During Test: 6 ft

Sounding ID: CPT-05
Project No: 10487.01
Cone/Rig: DDG1268

Depth ft	qc PS tsf	* qc1n PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
0.33	11.3	18.2	-	11.3	0.2	0.0	2.0	4	clayy SILT to silty CLAY	115	2.0	6	9	-	-	0.8	9.9	39	2.68	15	N/A	N/A
0.49	9.0	14.4	-	9.0	0.3	-0.1	3.5	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	9.9	52	2.90	15	N/A	N/A
0.66	9.4	15.0	-	9.4	0.4	-0.3	3.8	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.7	9.9	53	2.91	15	N/A	N/A
0.82	8.1	13.1	-	8.1	0.4	-0.1	4.8	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.6	9.9	60	3.03	15	N/A	N/A
0.98	8.5	13.6	-	8.5	0.4	-1.8	4.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	9.9	59	3.00	15	N/A	N/A
1.15	8.2	13.2	-	8.2	0.4	-2.9	4.9	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.6	9.9	60	3.03	15	N/A	N/A
1.31	8.2	13.1	-	8.1	0.4	-4.4	4.9	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.6	9.9	61	3.03	15	N/A	N/A
1.48	9.0	14.4	-	8.9	0.4	-4.5	5.0	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	9.9	59	3.01	15	N/A	N/A
1.64	10.7	17.2	-	10.6	0.5	-4.2	4.6	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.8	9.9	53	2.92	15	N/A	N/A
1.80	10.4	16.7	-	10.3	0.5	-5.3	5.1	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	9.9	56	2.96	15	N/A	N/A
1.97	11.2	17.9	-	11.0	0.6	-6.1	5.4	3	silty CLAY to CLAY	115	1.5	7	12	-	-	0.8	9.9	56	2.96	15	N/A	N/A
2.13	10.4	16.7	-	10.3	0.5	-6.2	5.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	9.9	57	2.97	15	N/A	N/A
2.30	9.9	15.8	-	9.7	0.5	-6.3	4.9	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	9.9	57	2.97	15	N/A	N/A
2.46	10.0	16.0	-	9.9	0.5	-6.8	5.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	9.9	58	2.99	15	N/A	N/A
2.62	11.3	18.2	-	11.2	0.6	-7.2	5.0	3	silty CLAY to CLAY	115	1.5	8	12	-	-	0.8	9.9	54	2.93	15	N/A	N/A
2.79	10.4	16.6	-	10.2	0.5	-8.1	5.1	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	9.9	56	2.97	15	N/A	N/A
2.95	7.7	12.4	-	7.5	0.5	-8.8	6.5	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	9.9	68	3.14	15	N/A	N/A
3.12	6.3	10.1	-	6.2	0.4	-8.4	6.7	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	9.9	74	3.21	15	N/A	N/A
3.28	5.8	9.4	-	5.7	0.3	-8.1	5.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	9.9	73	3.20	15	N/A	N/A
3.45	5.3	8.6	-	5.2	0.3	-8.1	5.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	8.6	74	3.21	15	N/A	N/A
3.61	4.9	7.9	-	4.8	0.2	-8.0	5.2	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	7.5	76	3.24	15	N/A	N/A
3.77	4.7	7.6	-	4.6	0.2	-8.0	4.8	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	6.9	75	3.23	15	N/A	N/A
3.94	4.7	7.6	-	4.6	0.2	-7.9	4.6	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	6.5	75	3.22	15	N/A	N/A
4.10	4.6	7.4	-	4.5	0.2	-7.9	4.8	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	6.1	76	3.24	15	N/A	N/A
4.27	4.1	6.6	-	4.0	0.2	-7.9	5.0	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	5.2	80	3.29	15	N/A	N/A
4.43	4.0	6.3	-	3.8	0.2	-7.8	4.8	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	4.8	81	3.30	15	N/A	N/A
4.59	3.8	6.1	-	3.6	0.2	-7.8	4.7	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.2	4.4	82	3.31	15	N/A	N/A
4.76	3.6	5.8	-	3.4	0.1	-7.8	4.3	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	4.0	82	3.31	15	N/A	N/A
4.92	3.1	4.9	-	2.9	0.1	-7.8	4.1	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	3.3	86	3.36	15	N/A	N/A
5.09	2.7	4.3	-	2.5	0.1	-7.8	3.7	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	2.7	90	3.40	15	N/A	N/A
5.25	2.6	4.2	-	2.5	0.1	-7.7	3.8	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	2.5	91	3.41	15	N/A	N/A
5.41	2.8	4.5	-	2.7	0.1	-7.7	5.3	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	2.7	95	3.46	15	N/A	N/A
5.58	3.6	5.8	-	3.4	0.1	-7.6	4.6	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	3.4	84	3.33	15	N/A	N/A
5.74	3.5	5.6	-	3.3	0.1	-7.7	4.3	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	3.2	83	3.33	15	N/A	N/A
5.91	3.4	5.4	-	3.2	0.1	-7.6	4.2	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	2.9	85	3.34	15	N/A	N/A
6.07	3.1	4.9	-	2.9	0.1	-7.6	4.1	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	2.6	87	3.37	15	-	-
6.23	3.1	4.9	-	2.9	0.1	-7.6	4.0	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	2.6	87	3.37	15	-	-
6.40	3.0	4.9	-	2.9	0.1	-7.5	4.1	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	2.5	88	3.38	15	-	-
6.56	3.2	5.1	-	3.0	0.1	-7.5	3.1	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	2.6	80	3.29	15	-	-
6.73	2.9	4.6	-	2.7	0.1	-7.5	5.1	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	2.3	95	3.45	15	-	-
6.89	3.3	5.3	-	3.2	0.1	-7.3	4.9	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	2.6	88	3.39	15	-	-
7.05	3.3	5.2	-	3.1	0.1	-7.3	4.9	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	2.6	89	3.40	15	-	-
7.22	3.3	5.3	-	3.2	0.1	-7.3	4.6	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	2.6	88	3.38	15	-	-
7.38	3.7	5.9	-	3.5	0.2	-7.3	4.7	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	2.8	85	3.34	15	-	-
7.55	4.1	6.6	-	4.0	0.2	-7.3	4.7	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	3.2	81	3.30	15	-	-
7.71	5.9	9.4	-	5.7	0.1	-7.4	2.0	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	4.6	55	2.95	15	-	-
7.87	3.7	5.9	-	3.5	0.1	-7.7	3.9	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	2.7	81	3.30	15	-	-
8.04	3.9	6.3	-	3.8	0.2	-7.6	5.1	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	2.9	84	3.34	15	-	-
8.20	8.2	13.2	-	8.1	0.3	-7.6	3.3	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.6	6.4	55	2.94	15	-	-
8.37	9.1	14.5	-	8.9	0.3	-8.2	3.0	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	7.0	51	2.88	15	-	-
8.53	7.5	12.1	-	7.4	0.3	-8.3	4.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	5.7	61	3.03	15	-	-
8.69	6.3	10.1	-	6.1	0.3	-8.4	5.7	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	4.6	72	3.19	15	-	-
8.86	7.5	12.0	-	7.3	0.3	-8.3	4.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	5.5	61	3.04	15	-	-
9.02	8.9	14.3	-	8.7	0.3	-8.4	3.4	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	6.6	53	2.92	15	-	-
9.19	9.0	14.4	-	8.8	0.2	-8.7	2.9	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	6.6	51	2.88	15	-	-
9.35	8.9	14.3	-	8.7	0.3	-8.9	3.8	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	6.4	55	2.95	15	-	-
9.51	11.7	18.7	-	11.5	0.2	-9.0	2.1	4	clayy SILT to silty CLAY	115	2.0	6	9	-	-	0.8	8.4	41	2.70	15	-	-
9.68	17.4	25.5	58.4	17.2	0.2	-9.2	0.9	5	silty SAND to sandy SILT	120	4.0	4	6	22	35	-	-	26	2.39	16	3.63	51.2
9.84	17.9	26.1	48.9	17.7	0.1	-9.3	0.5	5	silty SAND to sandy SILT	120	4.0	4	7	23	35	-	-	22	2.28	16	4.20	51.2
10.01	14.0	20.4	54.7	13.9	0.1	-9.3	0.9	5	silty SAND to sandy SILT	120	4.0	4	5	14	34	-	-	30	2.48	16	3.83	51.2
10.17	9.7	15.5	-	9.5	0.1	-8.9	1.6	4	clayy SILT to silty CLAY	115	2.0	5	8	-	-	0.7	6.6	41	2.71	15	-	-
10.34	8.7	13.9	-	8.5	0.2	-8.3	1.9	4	clayy SILT to silty CLAY	115	2.0	4	7	-	-	0.6	5.8	45	2.79	15	-	-
10.50	6.7	10.8	-	6.5	0.2	-8.2	3.0	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	4.4	59	3.00	15	-	-
10.66	5.5	8.8	-	5.3	0.2	-8.1	4.2	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	3.4	71	3.17	15	-	-
10.83	6.9	11.1	-	6.8	0.2	-8.0	3.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	4.4	60	3.03	15	-	-
10.99	7.4	11.9	-	7.3	0.2	-8.0	3.4	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.7	58	3.00	15	-	-
11.16	7.2	11.5	-	7.0	0.2	-8.1	3.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.5	59	3.00	15	-	-
11.32	7.0	11.3	-	6.9	0.2	-8.0	3.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.3	59	3.01	15	-	-
11.48	6.9	11.0	-	6.7	0.2	-8.0	3.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	4.2	59	3.00	15	-	-
11.65	7.1	11.5	-	7.0	0.2	-7.9	2.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.3	57	2.97	15	-	-
11.81	7.8	12.5	-	7.6	0.3	-7.9	3.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.7	58	3.00	15	-	-
11.98	8.8	14.2	-	8.7	0.3	-7.8	4.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	5.4	57	2.98	15	-	-
12.14	9.6	15.4	-	9.5	0.4	-7.7	4.1	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	5.8	55	2.95	15	-	-
12.30	9.4	15.1	-	9.3	0.3	-7.6	3.7	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	5.6	54	2.93	15	-	-
12.47	10.3	16.5	-	10.1	0.3	-7.6	3.4	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	6.1	50	2.88	15	-	-
12.63	11.5	18.5	-	11.4	0.4	-7.5	3.6	3	silty CLAY to CLAY	115	1.5	8	12	-	-	0.8	6.9	49	2.85	15	-	-
12.80	12.4	19.8	-	12.2	0.4	-7.5	3.7	3	silty CLAY to CLAY	115	1.5	8	13	-	-	0.8	7.4	48	2.83	15	-	-
12.96	13.3	21.4	-	13.2	0.5	-7.5	3.7	3	silty CLAY to CLAY	115	1.5	9	14	-	-	0.9	7.9	46	2.81	15	-	-
13.12	15.7	25.2	-	15.6	0.6	-7.4	3.9	4	clayy SILT to silty CLAY	115	2.0	8	13	-	-	1.1	9.3	44	2.76	15	-	-
13.29	18.5	29.7	-	18.4	0.8	-7.3	4.3	3	silty CLAY to CLAY	115	1.5	12	20	-	-	1.3	9.9	43	2.74	15	-	-
13.45	18.8	30.2	-	18.7	0.9	-7.4	4.9	3	silty CLAY to CLAY	115	1.5	13	20	-	-	1.3	9.9	44	2.77	15	-	-
13.62	18.3	29.3	-	18.1	0.8	-7.4	4.6	3	silty CLAY to CLAY	115	1.5	12	20	-	-	1.3	9.9	44	2.76	15	-	-
13.78	16.9	27.0	-	16.7	0.8	-7.4	4.7	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.2	9.7	46	2.80	15	-	-
13.94	17.0	27.2	-	16.8	0.7	-7.4	4.1	4	clayy SILT to silty CLAY	115	2.0	8	14	-	-	1.2	9.7	43	2.75	15	-	-
14.11	16.4	26.3	-	16.3	0.6	-7.3	4.0	4	clayy SILT to silty CLAY	115	2.0	8	13	-	-	1.1	9.2	44	2.76	15	-	-
14.27	15.9	25.4	-	15.7	0.6	-7.3	4.2	3	silty CLAY to CLAY	115	1.5	11	17	-	-	1.1	8.8	45	2.79	15	-	-
14.44	15.0	24.1	-	14.9	0.7	-7.3	4.7	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.0	8.3	48	2.83	15	-	-
14.60	15.1	24.1	-	14.9	0.7	-7.2	4.8	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.0	8.2	48	2.84	15	-	-
14.76	15.9	25.5	-	15.7	0.7	-7.2	4.7	3	silty CLAY to CLAY	115	1.5	11	17	-	-	1.1	8.6	47	2.82	15	-	-
14.93	16.7	26.8	-	16.6	0.8	-7.2	4.8	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.1	9.1	46	2.81	15	-	-
15.09	17.2	27.6	-	17.0	0.7	-7.3	4.5	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.2	9.2	45	2.78	15	-	-
15.26	16.2	26.0	-	16.1	0.7	-7.3	4.3	3	silty CLAY to CLAY	115	1.5	11	17	-	-	1.1	8.6	45	2.78	15	-	-
15.42	19.0	30.5	-	18.8	0.7	-7.2	4.1	4	clayy SILT to silty CLAY	115	2.0	9	15	-	-	1.3	9.9	41	2.72	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(278).cpt
CPT Date: 3/10/2015 7:35:09 AM
GW During Test: 6 ft

Sounding ID: CPT-05
Project No: 10487.01
Cone/Rig: DDG1268

Depth ft	qc PS tsf	* qc1n PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
15.58	22.0	35.2	-	21.8	0.8	-7.2	3.9	4	clayy SILT to silty CLAY	115	2.0	11	18	-	-	1.5	9.9	38	2.65	15	-	-
15.75	24.1	38.7	-	24.0	1.0	-7.1	4.4	4	clayy SILT to silty CLAY	115	2.0	12	19	-	-	1.7	9.9	38	2.66	15	-	-
15.91	27.1	43.5	-	27.0	1.1	-7.0	4.1	4	clayy SILT to silty CLAY	115	2.0	14	22	-	-	1.9	9.9	35	2.60	15	-	-
16.08	26.8	43.0	-	26.7	1.1	-7.0	4.2	4	clayy SILT to silty CLAY	115	2.0	13	22	-	-	1.9	9.9	36	2.61	15	-	-
16.24	25.7	41.2	-	25.6	1.1	-7.0	4.3	4	clayy SILT to silty CLAY	115	2.0	13	21	-	-	1.8	9.9	37	2.64	15	-	-
16.40	23.4	37.6	-	23.3	1.0	-7.0	4.3	4	clayy SILT to silty CLAY	115	2.0	12	19	-	-	1.6	9.9	39	2.66	15	-	-
16.57	20.9	33.6	-	20.8	0.9	-7.0	4.3	4	clayy SILT to silty CLAY	115	2.0	10	17	-	-	1.4	9.9	41	2.70	15	-	-
16.73	20.0	31.9	-	19.8	0.8	-7.0	4.3	4	clayy SILT to silty CLAY	115	2.0	10	16	-	-	1.4	9.9	41	2.71	15	-	-
16.90	18.9	30.0	-	18.8	0.9	-7.0	5.0	3	silty CLAY to CLAY	115	1.5	13	20	-	-	1.3	9.4	45	2.78	15	-	-
17.06	18.0	28.5	-	17.9	0.8	-7.0	4.8	3	silty CLAY to CLAY	115	1.5	12	19	-	-	1.2	8.9	46	2.79	15	-	-
17.23	14.7	23.0	-	14.5	0.7	-7.1	5.0	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.0	7.1	50	2.87	15	-	-
17.39	12.1	18.8	-	12.0	0.5	-7.1	4.4	3	silty CLAY to CLAY	115	1.5	8	13	-	-	0.8	5.7	53	2.91	15	-	-
17.55	11.0	17.0	-	10.9	0.4	-7.1	4.2	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	5.1	54	2.93	15	-	-
17.72	10.4	16.0	-	10.3	0.4	-7.1	3.8	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	4.8	54	2.93	15	-	-
17.88	9.7	14.8	-	9.5	0.3	-7.1	3.4	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	4.4	54	2.93	15	-	-
18.05	10.2	15.5	-	10.1	0.3	-7.1	3.6	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.7	4.6	54	2.93	15	-	-
18.21	11.1	16.6	-	10.9	0.3	-7.0	3.0	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	5.0	49	2.86	15	-	-
18.37	12.2	18.2	-	12.0	0.5	-7.0	4.9	3	silty CLAY to CLAY	115	1.5	8	12	-	-	0.8	5.5	55	2.95	15	-	-
18.54	13.7	20.4	-	13.6	0.6	-7.0	4.9	3	silty CLAY to CLAY	115	1.5	9	14	-	-	0.9	6.2	53	2.91	15	-	-
18.70	16.9	25.0	-	16.8	0.7	-6.9	4.1	3	silty CLAY to CLAY	115	1.5	11	17	-	-	1.1	7.7	45	2.79	15	-	-
18.87	18.4	27.1	-	18.3	0.6	-6.9	3.3	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.3	8.4	41	2.70	15	-	-
19.03	19.5	28.4	-	19.3	0.7	-6.7	3.8	4	clayy SILT to silty CLAY	115	2.0	10	14	-	-	1.3	8.8	42	2.72	15	-	-
19.19	23.4	33.9	-	23.3	0.9	-6.6	3.8	4	clayy SILT to silty CLAY	115	2.0	12	17	-	-	1.6	9.9	38	2.66	15	-	-
19.36	25.6	36.9	-	25.5	0.9	-6.5	3.8	4	clayy SILT to silty CLAY	115	2.0	13	18	-	-	1.8	9.9	37	2.63	15	-	-
19.52	27.0	38.7	-	26.9	1.1	-6.4	4.4	4	clayy SILT to silty CLAY	115	2.0	14	19	-	-	1.9	9.9	38	2.66	15	-	-
19.69	26.7	37.9	-	26.5	1.1	-6.4	4.3	4	clayy SILT to silty CLAY	115	2.0	13	19	-	-	1.8	9.9	38	2.66	15	-	-
19.85	26.9	38.0	-	26.8	1.1	-6.3	4.4	4	clayy SILT to silty CLAY	115	2.0	13	19	-	-	1.8	9.9	39	2.66	15	-	-
20.01	27.9	39.2	-	27.8	1.1	-6.3	4.2	4	clayy SILT to silty CLAY	115	2.0	14	20	-	-	1.9	9.9	38	2.64	15	-	-
20.18	27.6	38.5	-	27.4	1.1	-6.4	4.2	4	clayy SILT to silty CLAY	115	2.0	14	19	-	-	1.9	9.9	38	2.65	15	-	-
20.34	26.7	37.1	-	26.6	0.9	-6.4	3.6	4	clayy SILT to silty CLAY	115	2.0	13	19	-	-	1.8	9.9	36	2.61	15	-	-
20.51	24.5	33.7	-	24.3	0.8	-6.3	3.3	4	clayy SILT to silty CLAY	115	2.0	12	17	-	-	1.7	9.9	37	2.62	15	-	-
20.67	24.2	33.2	-	24.1	0.8	-6.3	3.4	4	clayy SILT to silty CLAY	115	2.0	12	17	-	-	1.7	9.9	37	2.63	15	-	-
20.83	22.0	30.0	-	21.9	0.9	-6.2	4.1	4	clayy SILT to silty CLAY	115	2.0	11	15	-	-	1.5	9.3	42	2.73	15	-	-
21.00	19.9	27.0	-	19.8	0.8	-6.3	4.4	3	silty CLAY to CLAY	115	1.5	13	18	-	-	1.4	8.4	45	2.78	15	-	-
21.16	17.7	23.8	-	17.5	0.7	-6.3	4.3	3	silty CLAY to CLAY	115	1.5	12	16	-	-	1.2	7.3	47	2.82	15	-	-
21.33	16.6	22.2	-	16.4	0.7	-6.3	4.4	3	silty CLAY to CLAY	115	1.5	11	15	-	-	1.1	6.8	49	2.85	15	-	-
21.49	17.8	23.7	-	17.7	0.7	-6.3	4.1	3	silty CLAY to CLAY	115	1.5	12	16	-	-	1.2	7.3	46	2.81	15	-	-
21.65	20.0	26.5	-	19.9	0.7	-6.3	4.0	4	clayy SILT to silty CLAY	115	2.0	10	13	-	-	1.4	8.2	44	2.76	15	-	-
21.82	23.1	30.5	-	23.0	0.9	-6.2	4.1	4	clayy SILT to silty CLAY	115	2.0	12	15	-	-	1.6	9.5	42	2.72	15	-	-
21.98	20.6	26.9	-	20.4	0.8	-6.4	4.4	3	silty CLAY to CLAY	115	1.5	14	18	-	-	1.4	8.3	45	2.78	15	-	-
22.15	18.8	24.5	-	18.7	0.8	-6.4	4.3	3	silty CLAY to CLAY	115	1.5	13	16	-	-	1.3	7.5	46	2.81	15	-	-
22.31	17.5	22.7	-	17.4	0.7	-6.4	4.1	3	silty CLAY to CLAY	115	1.5	12	15	-	-	1.2	6.9	47	2.82	15	-	-
22.47	17.0	21.9	-	16.9	0.7	-6.5	4.2	3	silty CLAY to CLAY	115	1.5	11	15	-	-	1.1	6.7	48	2.84	15	-	-
22.64	17.5	22.3	-	17.3	0.7	-6.5	4.2	3	silty CLAY to CLAY	115	1.5	12	15	-	-	1.2	6.8	48	2.83	15	-	-
22.80	17.7	22.5	-	17.6	0.7	-6.5	4.3	3	silty CLAY to CLAY	115	1.5	12	15	-	-	1.2	6.9	48	2.84	15	-	-
22.97	21.0	26.6	-	20.9	0.9	-6.4	4.4	3	silty CLAY to CLAY	115	1.5	14	18	-	-	1.4	8.2	45	2.79	15	-	-
23.13	24.6	31.0	-	24.5	1.0	-6.4	4.5	3	silty CLAY to CLAY	115	1.5	16	21	-	-	1.7	9.7	43	2.74	15	-	-
23.30	24.9	31.1	-	24.7	1.1	-6.3	4.6	3	silty CLAY to CLAY	115	1.5	17	21	-	-	1.7	9.7	43	2.74	15	-	-
23.46	26.4	32.9	-	26.2	1.0	-6.4	4.1	4	clayy SILT to silty CLAY	115	2.0	13	16	-	-	1.8	9.9	40	2.69	15	-	-
23.62	25.8	31.9	-	25.6	1.0	-6.5	4.0	4	clayy SILT to silty CLAY	115	2.0	13	16	-	-	1.8	9.9	40	2.69	15	-	-
23.79	25.9	31.9	-	25.7	1.0	-6.5	4.0	4	clayy SILT to silty CLAY	115	2.0	13	16	-	-	1.8	9.9	40	2.70	15	-	-
23.95	28.1	34.5	-	28.0	1.0	-6.5	3.9	4	clayy SILT to silty CLAY	115	2.0	14	17	-	-	1.9	9.9	38	2.66	15	-	-
24.12	27.8	34.0	-	27.7	1.1	-6.6	4.2	4	clayy SILT to silty CLAY	115	2.0	14	17	-	-	1.9	9.9	40	2.69	15	-	-
24.28	28.5	34.6	-	28.4	1.2	-6.7	4.2	4	clayy SILT to silty CLAY	115	2.0	14	17	-	-	2.0	9.9	40	2.69	15	-	-
24.44	30.7	37.0	-	30.5	1.2	-6.7	4.3	4	clayy SILT to silty CLAY	115	2.0	15	19	-	-	2.1	9.9	39	2.67	15	-	-
24.61	32.9	39.6	-	32.8	1.5	-6.8	4.7	4	clayy SILT to silty CLAY	115	2.0	16	20	-	-	2.3	9.9	39	2.67	15	-	-
24.77	34.2	40.8	-	34.1	1.6	-6.8	5.0	3	silty CLAY to CLAY	115	1.5	23	27	-	-	2.4	9.9	40	2.68	15	-	-
24.94	33.6	39.9	-	33.5	1.8	-6.8	5.5	3	silty CLAY to CLAY	115	1.5	22	27	-	-	2.3	9.9	42	2.72	15	-	-
25.10	34.0	40.2	-	33.8	1.9	-7.1	5.8	3	silty CLAY to CLAY	115	1.5	23	27	-	-	2.3	9.9	42	2.73	15	-	-
25.26	32.3	38.0	-	32.1	1.8	-7.3	6.0	3	silty CLAY to CLAY	115	1.5	22	25	-	-	2.2	9.9	44	2.76	15	-	-
25.43	44.5	48.8	161.5	44.3	1.9	-7.3	4.5	4	clayy SILT to silty CLAY	115	2.0	22	24	-	-	3.1	9.9	35	2.60	15	0.00	0.0
25.59	53.4	56.0	166.4	53.3	2.2	-8.4	4.3	4	clayy SILT to silty CLAY	115	2.0	27	28	-	-	3.7	9.9	32	2.54	15	0.00	0.0
25.76	55.6	58.2	140.8	55.4	1.7	-9.7	3.1	4	clayy SILT to silty CLAY	115	2.0	28	29	-	-	3.9	9.9	27	2.43	15	1.21	19.4
25.92	75.9	79.2	138.8	75.7	1.7	-10.6	2.3	5	silty SAND to sandy SILT	120	4.0	19	20	59	40	-	-	20	2.23	16	1.31	11.3
26.08	67.2	70.0	144.4	67.0	1.8	-10.2	2.8	5	silty SAND to sandy SILT	120	4.0	17	17	55	39	-	-	24	2.33	16	1.03	9.2
26.25	59.3	61.5	143.2	59.1	1.8	-10.4	3.1	4	clayy SILT to silty CLAY	115	2.0	30	31	-	-	4.1	9.9	27	2.40	15	1.10	12.5
26.41	113.1	117.0	136.0	112.9	1.1	-10.4	1.0	6	clean SAND to silty SAND	125	5.0	23	23	72	42	-	-	10	1.87	16	1.46	7.1
26.58	115.0	118.6	132.7	114.8	1.0	-10.4	0.9	6	clean SAND to silty SAND	125	5.0	23	24	73	42	-	-	8	1.82	16	1.63	8.2
26.74	82.3	84.7	125.9	82.1	1.3	-10.4	1.7	5	silty SAND to sandy SILT	120	4.0	21	21	62	40	-	-	16	2.12	16	1.89	21.1
26.90	32.3	33.2	109.6	32.3	0.9	1.5	3.0	4	clayy SILT to silty CLAY	115	2.0	16	17	-	-	2.2	9.9	35	2.60	15	2.17	51.2
27.07	22.4	24.9	-	22.4	0.7	1.9	3.6	4	clayy SILT to silty CLAY	115	2.0	11	12	-	-	1.5	7.6	43	2.75	15	-	-
27.23	17.3	19.2	-	17.4	0.6	4.6	3.9	3	silty CLAY to CLAY	115	1.5	12	13	-	-	1.2	5.8	50	2.87	15	-	-
27.40	16.2	17.8	-	16.3	0.6	4.7	3.8	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.1	5.3	52	2.89	15	-	-
27.56	14.8	16.3	-	14.9	0.5	5.0	3.6	3	silty CLAY to CLAY	115	1.5	10	11	-	-	1.0	4.8	53	2.91	15	-	-
27.72	13.7	14.9	-	13.8	0.5	5.2	3.8	3	silty CLAY to CLAY	115	1.5	9	10	-	-	0.9	4.3	56	2.96	15	-	-
27.89	13.9	15.0	-	14.0	0.5	5.4	3.8	3	silty CLAY to CLAY	115	1.5	9	10	-	-	0.9	4.4	56	2.96	15	-	-
28.05	12.9	13.9	-	13.0	0.4	5.4	4.0	3	silty CLAY to CLAY	115	1.5	9	9	-	-	0.8	4.0	59	3.00	15	-	-
28.22	12.5	13.5	-	12.6	0.4	6.1	4.0	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.8	3.9	59	3.01	15	-	-
28.38	11.3	12.1	-	11.4	0.4	6.0	3.8	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.7	3.4	62	3.05	15	-	-
28.54	10.6	11.3	-	10.7	0.3	6.1	3.4	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.7	3.2	62	3.05	15	-	-
28.71	10.8	11.5	-	10.9	0.4	6.4	4.3	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.7	3.2	65	3.10	15	-	-
28.87	14.8	15.6	-	14.9	0.5	6.8	4.1	3	silty CLAY to CLAY	115	1.5	10	10	-	-	1.0	4.6	56	2.96	15	-	-
29.04	33.8	33.7	82.6	33.9	0.5	2.7	1.6	5	silty SAND to sandy SILT	120	4.0	8	8	31	34	-	-	28	2.43	16	2.73	51.2
29.20	42.4	42.1	72.8	42.4	0.4	-4.6	1.0	5	silty SAND to sandy SILT	120	4.0	11	11	38	36	-	-	20	2.22	16	3.03	51.2
29.36	46.6	46.1	81.2	46.5	0.5	-5.4	1.2	5	silty SAND to sandy SILT	120	4.0	12	12	41	36	-	-	20	2.24	16	2.77	48.7
29.53	38.4	38.0	111.8	38.3	1.0	-6.7	2.8	4	clayy SILT to silty CLAY	115	2.0	19	19	-	-	2.6	9.9	32	2.53	15	2.13	51.2
29.69	24.6	25.4	-	24.5	1.0	-6.7	4.5	3	silty CLAY to CLAY	115	1.5	16	17	-	-	1.7	7.8	47	2.81	15	-	-
29.86	28.6	29.3	-	28.5	0.9	-6.4	3.2	4	clayy SILT to silty CLAY	115	2.0	14	15	-	-	2.0	9.1	39	2.66	15	-	-
30.02	37.0	36.3	108.5	36.9	1.0	-6.9	2.7	4	clayy SILT to silty CLAY	115	2.0	19	18	-	-	2.5	9.9	33	2.54	15	2.19	51.2
30.19	29.3	29.8	-	29.2	0.9	-7.0	3.3	4	clayy SILT to silty CLAY	115	2.0	15	15	-	-	2.0	9.3	39	2.67	15	-	-
30.35	22.6	22.9	-	22.5	0.8	-6.4	4.0	3	silty CLAY to CLAY	115	1.5	15	15	-	-	1.5	7.0	47	2.81	15	-	-
30.51	23.5	23.7	-	23.4	0.9	-6.0	4.1	3	silty CLAY to CLAY	115	1.5	16	16	-	-	1.6	7.2	47	2.81	15	-	-
30.68	23.3	23.4	-	23.2	0.9	-5.9	4.2	3	silty CLAY to CLAY	115	1.5	16	16	-	-	1.6	7.1	47	2.82	15	-	-
30.84	22.7	22.6	-	22.5	0.8	-5.8	3.9	3	silty CLAY to CLAY	115	1.5	15	15	-	-	1.5	6.9	47	2.81	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(278).cpt
CPT Date: 3/10/2015 7:35:09 AM
GW During Test: 6 ft

Sounding ID: CPT-05
Project No: 10487.01
Cone/Rig: DDG1268

Depth ft	qc PS tsf	* qc1n PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
31.01	21.7	21.5	-	21.5	0.8	-5.8	4.1	3	silty CLAY to CLAY	115	1.5	14	14	-	-	1.5	6.5	49	2.85	15	-	-
31.17	20.2	20.1	-	20.1	0.8	-5.7	4.3	3	silty CLAY to CLAY	115	1.5	13	13	-	-	1.4	6.0	51	2.89	15	-	-
31.33	21.0	20.8	-	20.9	0.8	-5.5	4.0	3	silty CLAY to CLAY	115	1.5	14	14	-	-	1.4	6.3	49	2.85	15	-	-
31.50	21.2	20.8	-	21.1	0.7	-5.4	3.7	3	silty CLAY to CLAY	115	1.5	14	14	-	-	1.4	6.3	48	2.83	15	-	-
31.66	20.7	20.2	-	20.6	0.7	-5.3	3.8	3	silty CLAY to CLAY	115	1.5	14	13	-	-	1.4	6.1	49	2.84	15	-	-
31.83	21.0	20.5	-	20.9	0.7	-5.2	3.8	3	silty CLAY to CLAY	115	1.5	14	14	-	-	1.4	6.2	48	2.84	15	-	-
31.99	20.5	19.9	-	20.4	0.7	-5.2	4.0	3	silty CLAY to CLAY	115	1.5	14	13	-	-	1.4	6.0	50	2.86	15	-	-
32.15	19.5	18.9	-	19.4	0.7	-5.2	3.9	3	silty CLAY to CLAY	115	1.5	13	13	-	-	1.3	5.6	51	2.88	15	-	-
32.32	19.5	18.8	-	19.4	0.7	-5.2	3.8	3	silty CLAY to CLAY	115	1.5	13	13	-	-	1.3	5.6	50	2.87	15	-	-
32.48	19.7	18.9	-	19.6	0.7	-5.1	4.0	3	silty CLAY to CLAY	115	1.5	13	13	-	-	1.3	5.7	51	2.88	15	-	-
32.65	20.8	19.8	-	20.7	0.7	-5.0	3.8	3	silty CLAY to CLAY	115	1.5	14	13	-	-	1.4	5.9	49	2.85	15	-	-
32.81	20.7	19.7	-	20.6	0.8	-4.9	4.1	3	silty CLAY to CLAY	115	1.5	14	13	-	-	1.4	5.9	50	2.88	15	-	-
32.97	22.6	21.4	-	22.5	0.9	-4.8	4.2	3	silty CLAY to CLAY	115	1.5	15	14	-	-	1.5	6.5	49	2.86	15	-	-
33.14	26.5	25.0	-	26.5	1.1	-4.7	4.5	3	silty CLAY to CLAY	115	1.5	18	17	-	-	1.8	7.7	47	2.82	15	-	-
33.30	28.7	27.0	-	28.6	1.2	-4.5	4.4	3	silty CLAY to CLAY	115	1.5	19	18	-	-	2.0	8.3	45	2.79	15	-	-
33.47	29.6	27.7	-	29.6	1.3	-4.2	4.6	3	silty CLAY to CLAY	115	1.5	20	18	-	-	2.0	8.6	45	2.79	15	-	-
33.63	33.0	30.7	-	32.9	1.3	-4.1	4.2	4	clayy SILT to silty CLAY	115	2.0	16	15	-	-	2.3	9.5	42	2.73	15	-	-
33.79	31.5	29.2	-	31.4	1.4	-4.1	4.7	3	silty CLAY to CLAY	115	1.5	21	19	-	-	2.1	9.0	45	2.78	15	-	-
33.96	31.2	28.8	-	31.1	1.3	-4.0	4.3	3	silty CLAY to CLAY	115	1.5	21	19	-	-	2.1	8.9	44	2.76	15	-	-
34.12	30.5	28.1	-	30.4	1.2	-4.0	4.3	3	silty CLAY to CLAY	115	1.5	20	19	-	-	2.1	8.7	44	2.77	15	-	-
34.29	29.3	26.8	-	29.2	1.2	-3.9	4.5	3	silty CLAY to CLAY	115	1.5	20	18	-	-	2.0	8.3	46	2.79	15	-	-
34.45	29.8	27.2	-	29.7	1.1	-3.8	4.1	3	silty CLAY to CLAY	115	1.5	20	18	-	-	2.0	8.4	44	2.76	15	-	-
34.61	28.7	26.0	-	28.6	1.1	-3.7	4.2	3	silty CLAY to CLAY	115	1.5	19	17	-	-	1.9	8.0	45	2.78	15	-	-
34.78	29.9	27.1	-	29.8	1.2	-3.6	4.5	3	silty CLAY to CLAY	115	1.5	20	18	-	-	2.0	8.3	45	2.79	15	-	-
34.94	28.6	25.8	-	28.5	1.2	-3.5	4.5	3	silty CLAY to CLAY	115	1.5	19	17	-	-	1.9	7.9	46	2.80	15	-	-
35.11	29.0	26.1	-	29.0	1.1	-3.4	4.2	3	silty CLAY to CLAY	115	1.5	19	17	-	-	2.0	8.0	45	2.78	15	-	-
35.27	31.4	28.1	-	31.4	1.3	-3.3	4.3	3	silty CLAY to CLAY	115	1.5	21	19	-	-	2.1	8.7	44	2.76	15	-	-
35.43	36.7	32.7	-	36.6	1.6	-3.4	4.5	3	silty CLAY to CLAY	115	1.5	24	22	-	-	2.5	9.9	42	2.73	15	-	-
35.60	38.0	33.8	-	38.0	1.4	-3.3	4.0	4	clayy SILT to silty CLAY	115	2.0	19	17	-	-	2.6	9.9	39	2.68	15	-	-
35.76	30.5	27.0	-	30.4	1.4	-3.9	4.8	3	silty CLAY to CLAY	115	1.5	20	18	-	-	2.1	8.3	46	2.81	15	-	-
35.93	33.7	29.7	-	33.7	1.4	-3.5	4.4	3	silty CLAY to CLAY	115	1.5	22	20	-	-	2.3	9.2	43	2.75	15	-	-
36.09	28.5	25.0	-	28.4	1.2	-4.5	4.6	3	silty CLAY to CLAY	115	1.5	19	17	-	-	1.9	7.7	47	2.83	15	-	-
36.26	31.4	27.5	-	31.3	0.9	-6.1	3.2	4	clayy SILT to silty CLAY	115	2.0	16	14	-	-	2.1	8.5	40	2.69	15	-	-
36.42	19.2	16.7	-	19.1	0.8	-6.0	5.0	3	silty CLAY to CLAY	115	1.5	13	11	-	-	1.3	4.9	58	2.99	15	-	-
36.58	22.7	19.7	-	22.6	1.0	-5.8	4.7	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.5	5.9	53	2.91	15	-	-
36.75	28.8	24.9	-	28.7	1.1	-5.5	4.1	3	silty CLAY to CLAY	115	1.5	19	17	-	-	2.0	7.6	46	2.79	15	-	-
36.91	29.3	25.3	-	29.2	1.2	-5.7	4.4	3	silty CLAY to CLAY	115	1.5	20	17	-	-	2.0	7.7	46	2.81	15	-	-
37.08	30.7	26.3	-	30.6	1.2	-5.5	4.2	3	silty CLAY to CLAY	115	1.5	20	18	-	-	2.1	8.1	45	2.78	15	-	-
37.24	33.1	28.3	-	33.0	1.3	-5.2	4.2	3	silty CLAY to CLAY	115	1.5	22	19	-	-	2.3	8.7	43	2.75	15	-	-
37.40	34.9	29.7	-	34.8	1.5	-5.2	4.6	3	silty CLAY to CLAY	115	1.5	23	20	-	-	2.4	9.2	44	2.76	15	-	-
37.57	32.0	27.2	-	31.9	1.3	-5.1	4.2	3	silty CLAY to CLAY	115	1.5	21	18	-	-	2.2	8.4	44	2.77	15	-	-
37.73	28.9	24.4	-	28.8	1.1	-5.0	4.1	3	silty CLAY to CLAY	115	1.5	19	16	-	-	2.0	7.5	46	2.80	15	-	-
37.90	24.2	20.4	-	24.1	0.9	-4.8	4.2	3	silty CLAY to CLAY	115	1.5	16	14	-	-	1.6	6.1	50	2.87	15	-	-
38.06	22.6	19.0	-	22.5	0.8	-4.8	4.0	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.5	5.7	51	2.88	15	-	-
38.22	25.6	21.5	-	25.5	0.9	-4.7	3.9	3	silty CLAY to CLAY	115	1.5	17	14	-	-	1.7	6.5	48	2.84	15	-	-
38.39	29.4	24.5	-	29.3	1.1	-4.6	4.0	3	silty CLAY to CLAY	115	1.5	20	16	-	-	2.0	7.5	45	2.79	15	-	-
38.55	31.1	25.8	-	31.0	1.2	-4.6	4.0	3	silty CLAY to CLAY	115	1.5	21	17	-	-	2.1	7.9	44	2.77	15	-	-
38.72	30.6	25.3	-	30.5	1.1	-4.4	3.8	4	clayy SILT to silty CLAY	115	2.0	15	13	-	-	2.1	7.7	44	2.76	15	-	-
38.88	28.4	23.4	-	28.3	0.9	-4.3	3.4	4	clayy SILT to silty CLAY	115	2.0	14	12	-	-	1.9	7.1	44	2.76	15	-	-
39.04	23.8	19.6	-	23.7	0.8	-4.2	3.8	3	silty CLAY to CLAY	115	1.5	16	13	-	-	1.6	5.9	50	2.86	15	-	-
39.21	22.5	18.5	-	22.4	0.7	-4.2	3.5	3	silty CLAY to CLAY	115	1.5	15	12	-	-	1.5	5.5	49	2.86	15	-	-
39.37	22.4	18.2	-	22.3	0.9	-4.1	4.4	3	silty CLAY to CLAY	115	1.5	15	12	-	-	1.5	5.4	54	2.93	15	-	-
39.54	27.0	21.9	-	26.9	1.3	-4.1	5.1	3	silty CLAY to CLAY	115	1.5	18	15	-	-	1.8	6.6	52	2.90	15	-	-
39.70	29.2	23.7	-	29.1	1.7	-4.0	6.5	3	silty CLAY to CLAY	115	1.5	19	16	-	-	2.0	7.2	55	2.94	15	-	-
39.86	41.9	33.8	-	41.8	2.4	-4.0	6.0	3	silty CLAY to CLAY	115	1.5	28	23	-	-	2.9	9.9	46	2.80	15	-	-
40.03	53.7	43.3	-	53.7	3.1	-4.0	6.0	3	silty CLAY to CLAY	115	1.5	36	29	-	-	3.7	9.9	42	2.73	15	-	-
40.19	68.5	59.6	187.1	68.5	3.3	-4.5	5.0	4	clayy SILT to silty CLAY	115	2.0	34	30	-	-	4.8	9.9	34	2.57	15	0.00	0.0
40.36	76.2	66.2	163.2	76.1	2.7	-5.2	3.6	4	clayy SILT to silty CLAY	115	2.0	38	33	-	-	5.3	9.9	28	2.44	15	0.00	0.0
40.52	85.2	73.8	120.0	85.1	1.5	-5.8	1.8	5	silty SAND to sandy SILT	120	4.0	21	18	57	38	-	-	18	2.18	16	2.01	26.1
40.68	105.2	91.0	128.5	105.1	1.6	-6.6	1.6	5	silty SAND to sandy SILT	120	4.0	26	23	64	40	-	-	15	2.08	16	1.82	18.3
40.85	125.9	108.8	131.7	125.8	1.4	-7.0	1.1	6	clean SAND to silty SAND	125	5.0	25	22	70	40	-	-	11	1.92	16	1.72	10.2
41.01	132.4	114.1	140.5	132.3	1.7	-7.6	1.3	6	clean SAND to silty SAND	125	5.0	26	23	71	41	-	-	11	1.94	16	1.30	6.4
41.18	132.8	114.2	139.3	132.7	1.6	-7.7	1.2	6	clean SAND to silty SAND	125	5.0	27	23	71	41	-	-	11	1.93	16	1.35	6.8
41.34	129.7	111.3	142.4	129.5	1.8	-8.2	1.4	6	clean SAND to silty SAND	125	5.0	26	22	71	41	-	-	13	1.98	16	1.20	6.0
41.50	129.6	111.0	144.2	129.4	1.9	-8.2	1.5	6	clean SAND to silty SAND	125	5.0	26	22	70	41	-	-	13	2.00	16	1.11	5.5
41.67	132.6	113.4	145.8	132.5	1.9	-8.6	1.5	6	clean SAND to silty SAND	125	5.0	27	23	71	41	-	-	13	1.99	16	1.04	5.1
41.83	136.0	116.1	151.5	135.9	2.1	-8.9	1.6	6	clean SAND to silty SAND	125	5.0	27	23	72	41	-	-	13	2.00	16	0.78	3.9
42.00	139.8	119.0	153.8	139.6	2.2	-9.1	1.6	6	clean SAND to silty SAND	125	5.0	28	24	73	41	-	-	13	1.99	16	0.68	3.6
42.16	143.1	121.6	156.9	142.9	2.3	-9.1	1.6	6	clean SAND to silty SAND	125	5.0	29	24	73	41	-	-	13	1.99	16	0.57	3.1
42.32	146.7	124.4	161.1	146.5	2.4	-8.9	1.7	6	clean SAND to silty SAND	125	5.0	29	25	74	41	-	-	13	2.00	16	0.00	0.0
42.49	148.7	125.9	164.9	148.6	2.5	-8.7	1.7	6	clean SAND to silty SAND	125	5.0	30	25	75	41	-	-	13	2.01	16	0.00	0.0
42.65	150.6	127.3	166.0	150.5	2.6	-8.5	1.7	6	clean SAND to silty SAND	125	5.0	30	25	75	41	-	-	13	2.00	16	0.00	0.0
42.82	148.9	125.6	163.4	148.7	2.5	-8.4	1.7	6	clean SAND to silty SAND	125	5.0	30	25	75	41	-	-	13	2.00	16	0.00	0.0
42.98	147.5	124.2	160.0	147.3	2.4	-8.3	1.6	6	clean SAND to silty SAND	125	5.0	29	25	74	41	-	-	13	1.99	16	0.00	0.0
43.15	151.3	127.1	159.9	151.2	2.3	-8.2	1.5	6	clean SAND to silty SAND	125	5.0	30	25	75	41	-	-	12	1.97	16	0.48	2.8
43.31	159.1	133.4	160.3	158.9	2.1	-8.0	1.4	6	clean SAND to silty SAND	125	5.0	32	27	77	41	-	-	11	1.91	16	0.00	0.0
43.47	165.5	138.5	156.7	165.4	1.8	-7.9	1.1	6	clean SAND to silty SAND	125	5.0	33	28	78	42	-	-	9	1.83	16	0.58	3.2
43.64	173.0	144.5	152.0	172.8	1.3	-7.8	0.8	6	clean SAND to silty SAND	125	5.0	35	29	79	42	-	-	7	1.72	16	0.78	3.8
43.80	176.9	147.5	147.5	176.8	0.8	-7.7	0.4	6	clean SAND to silty SAND	125	5.0	35	30	80	42	-	-	5	1.57	16	0.98	4.4
43.97	183.1	152.4	152.4	183.0	0.6	-7.4	0.4	6	clean SAND to silty SAND	125	5.0	37	30	81	42	-	-	5	1.51	16	0.76	3.7
44.13	172.3	143.1	143.1	172.1	0.7	-5.4	0.4	6	clean SAND to silty SAND	125	5.0	34	29	79	42	-	-	5	1.56	16	1.19	5.2
44.29	176.6	146.4	146.4	176.5	0.9	-5.0	0.5	6	clean SAND to silty SAND	125	5.0	35	29	80	42	-	-	5	1.61	16	1.03	4.6
44.46	162.9	134.8	139.6	162.8	1.0	-5.1	0.6	6	clean SAND to silty SAND	125	5.0	33	27	77	41	-	-	6	1.70	16	1.36	6.1
44.62	164.2	135.6	139.8	164.1	1.0	-5.0	0.6	6	clean SAND to silty SAND	125	5.0	33	27	77	41	-	-	6	1.69	16	1.35	6.0
44.79	171.6	141.5	141.5	171.5	0.9	-5.3	0.5	6	clean SAND to silty SAND	125	5.0	34	28	78	42	-	-	5	1.63	16	1.27	5.5
44.95	183.8	151.2	151.2	183.7	1.1	-5.6	0.6	6	clean SAND to silty SAND	125	5.0	37	30	81	42	-	-	5	1.63	16	0.81	3.9
45.11	193.2	158.7	162.0	193.1	1.4	-6.0	0.7	6	clean SAND to silty SAND	125	5.0	39	32	82	42	-	-	6	1.67	16	0.00	0.0
45.28	197.5	161.9	166.7	197.4	1.5	-6.2	0.8	6	clean SAND to silty SAND	125	5.0	39	32	83	42	-	-	6	1.69	16	0.00	0.0
45.44	208.5	170.6	173.2	208.4	1.6	-6.4	0.8	6	clean SAND to silty SAND	125	5.0	42	34	85	43	-	-	6	1.67	16	0.00	0.0
45.61	207.6	169.6	171.5	207.4	1.6	-6.5	0.8	6	clean SAND to silty SAND	125	5.0	42	34	84	43	-	-	5	1.66	16	0.00	0.0
45.77	204.9	167.1	167.5	204.8	1.4	-6.3	0.7	6	clean SAND to silty SAND	125	5.0	41	33	84	42	-	-	5	1.65	16	0.00	0.0
45.93	217.0	176.7	176.7	216.9	1.1	-6.2	0.5	6	clean SAND to silty SAND	125	5.0	43	35	86	43	-	-	5	1.55	16	0.00	0.0
46.10	227.8	185.1	185.1	227.7	0.9	-6.0	0.4	6	clean SAND to silty SAND	125	5.0	46	37	87	43	-	-	5	1.47	16	0.00	0.0
46.26	238.8	193.7	193.7	238.7	1.3	-5.8	0.6	6	clean SAND to silty SAND	125	5.0	48	39	89	43	-	-	5	1.53	16	0.00	0.0

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(278).cpt
CPT Date: 3/10/2015 7:35:09 AM
GW During Test: 6 ft

Sounding ID: CPT-05
Project No: 10487.01
Cone/Rig: DDG1268

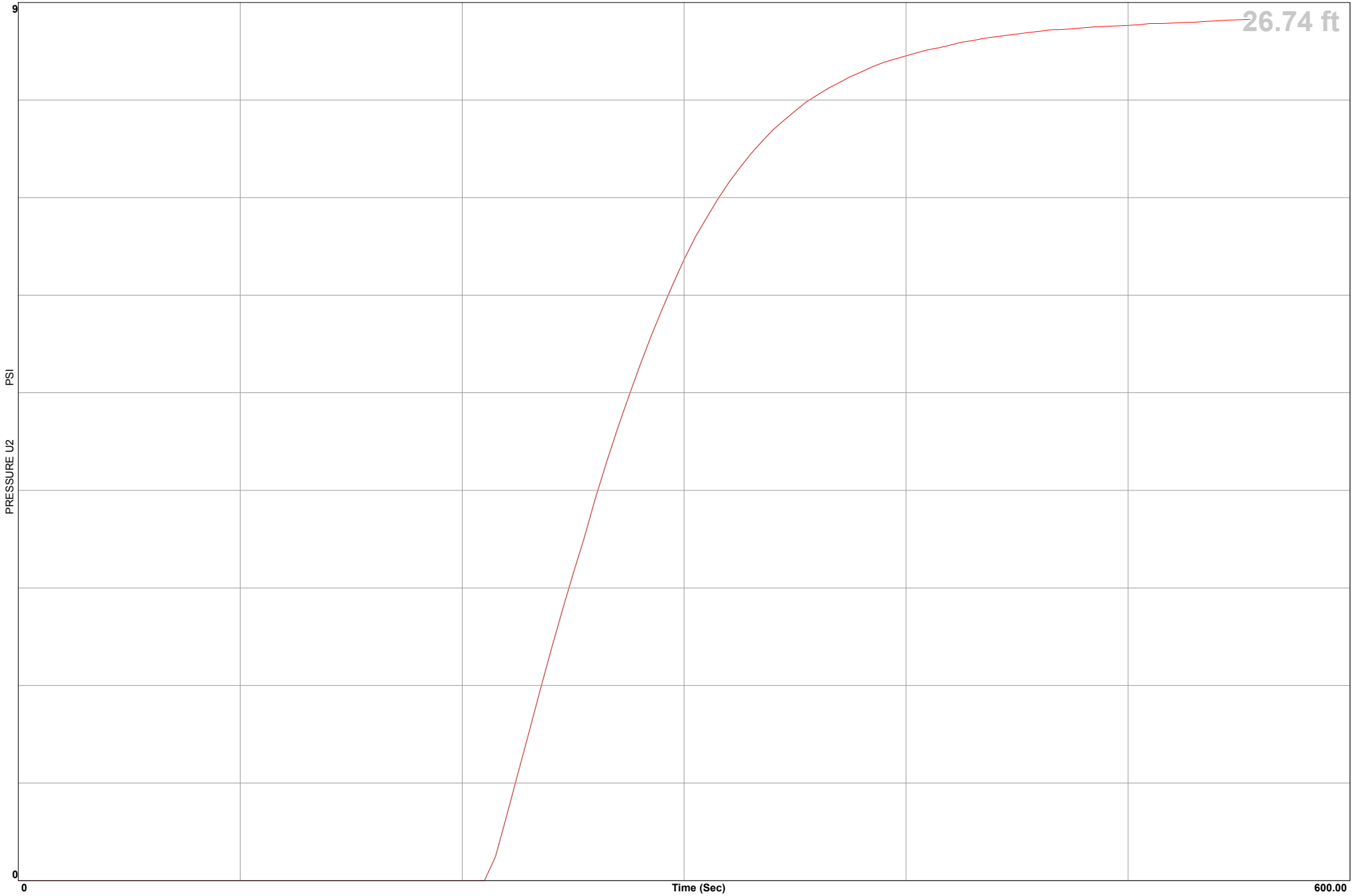
. Depth ft	. qc PS tsf	* qc1n PS -	. q1ncs PS -	* qt PS tsf	. Slv Stss tsf	. pore prss (psi)	. Frct Rato %	* Mat Typ Zon	* Material Behavior Description	. Unit Wght pcf	. Qc to N	. SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	. Und Shr tsf	. OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
46.43	239.6	194.0	194.0	239.5	1.1	-5.5	0.5	6	clean SAND to silty SAND	125	5.0	48	39	89	43	-	-	5	1.49	16	0.00	0.0
46.59	228.2	184.4	184.4	228.1	1.0	-5.3	0.5	6	clean SAND to silty SAND	125	5.0	46	37	87	43	-	-	5	1.50	16	0.00	0.0
46.75	219.5	177.1	177.1	219.6	1.5	4.5	0.7	6	clean SAND to silty SAND	125	5.0	44	35	86	43	-	-	5	1.63	16	0.00	0.0
46.92	230.6	185.7	185.7	230.6	1.7	1.2	0.7	6	clean SAND to silty SAND	125	5.0	46	37	87	43	-	-	5	1.62	16	0.00	0.0
47.08	191.4	153.9	153.9	191.5	1.2	2.5	0.6	6	clean SAND to silty SAND	125	5.0	38	31	81	42	-	-	5	1.64	16	0.70	3.6
47.25	179.8	144.3	144.3	179.8	0.4	-3.0	0.2	6	clean SAND to silty SAND	125	5.0	36	29	79	42	-	-	5	1.45	16	1.14	4.9
47.41	152.3	122.0	122.0	152.3	0.5	-3.6	0.4	6	clean SAND to silty SAND	125	5.0	30	24	74	41	-	-	5	1.59	16	1.98	13.0
47.57	143.7	114.9	115.9	143.5	0.6	-6.9	0.4	6	clean SAND to silty SAND	125	5.0	29	23	72	40	-	-	5	1.66	16	2.07	13.8
47.74	142.4	113.7	125.2	142.2	1.0	-8.4	0.7	6	clean SAND to silty SAND	125	5.0	28	23	71	40	-	-	8	1.79	16	1.93	13.0
47.90	175.4	139.8	147.6	175.2	1.3	-7.9	0.8	6	clean SAND to silty SAND	125	5.0	35	28	78	41	-	-	7	1.73	16	0.97	4.4
48.07	200.0	159.1	159.1	199.9	1.1	-7.8	0.6	6	clean SAND to silty SAND	125	5.0	40	32	82	42	-	-	5	1.61	16	0.52	3.0
48.23	217.8	172.9	172.9	217.6	0.9	-8.0	0.4	6	clean SAND to silty SAND	125	5.0	44	35	85	42	-	-	5	1.49	16	0.00	0.0
48.39	221.6	175.7	175.7	221.4	0.9	-7.9	0.4	6	clean SAND to silty SAND	125	5.0	44	35	86	43	-	-	5	1.49	16	0.00	0.0
48.56	210.2	166.4	166.4	210.0	0.9	-9.7	0.5	6	clean SAND to silty SAND	125	5.0	42	33	84	42	-	-	5	1.53	16	0.00	0.0
48.72	205.7	162.5	162.5	205.5	1.0	-10.1	0.5	6	clean SAND to silty SAND	125	5.0	41	33	83	42	-	-	5	1.56	16	0.00	0.0
48.89	211.8	167.1	167.1	211.6	1.1	-10.6	0.5	6	clean SAND to silty SAND	125	5.0	42	33	84	42	-	-	5	1.57	16	0.00	0.0
49.05	216.8	170.7	176.8	216.6	1.8	-10.6	0.9	6	clean SAND to silty SAND	125	5.0	43	34	85	42	-	-	6	1.70	16	0.00	0.0
49.22	231.5	182.0	192.4	231.3	2.3	-10.8	1.0	6	clean SAND to silty SAND	125	5.0	46	36	87	43	-	-	7	1.73	16	0.00	0.0
49.38	238.3	187.0	197.2	238.1	2.4	-9.9	1.0	6	clean SAND to silty SAND	125	5.0	48	37	88	43	-	-	7	1.72	16	0.00	0.0
49.54	252.0	197.4	200.6	251.8	2.3	-10.5	0.9	6	clean SAND to silty SAND	125	5.0	50	39	89	43	-	-	6	1.67	16	0.00	0.0
49.71	304.0	237.8	237.8	303.8	2.4	-10.5	0.8	6	clean SAND to silty SAND	125	5.0	61	48	95	44	-	-	5	1.57	16	0.00	0.0
49.87	334.3	261.0	261.0	334.1	2.2	-11.0	0.7	6	clean SAND to silty SAND	125	5.0	67	52	95	44	-	-	5	1.48	16	0.00	0.0
50.04	318.5	248.3	248.3	318.3	2.3	-11.5	0.7	6	clean SAND to silty SAND	125	5.0	64	50	95	44	-	-	5	1.53	16	0.00	0.0

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Wallace-Kuhl

Location	Morning Star Packing	Operator	CB-MM	GPS	
Job Number	10487.01	Cone Number	DDG1268		
Hole Number	CPT-05	Date and Time	3/10/2015 7:35:09 AM		
Equilized Pressure	8.8	EST GW Depth During Test	6.3		

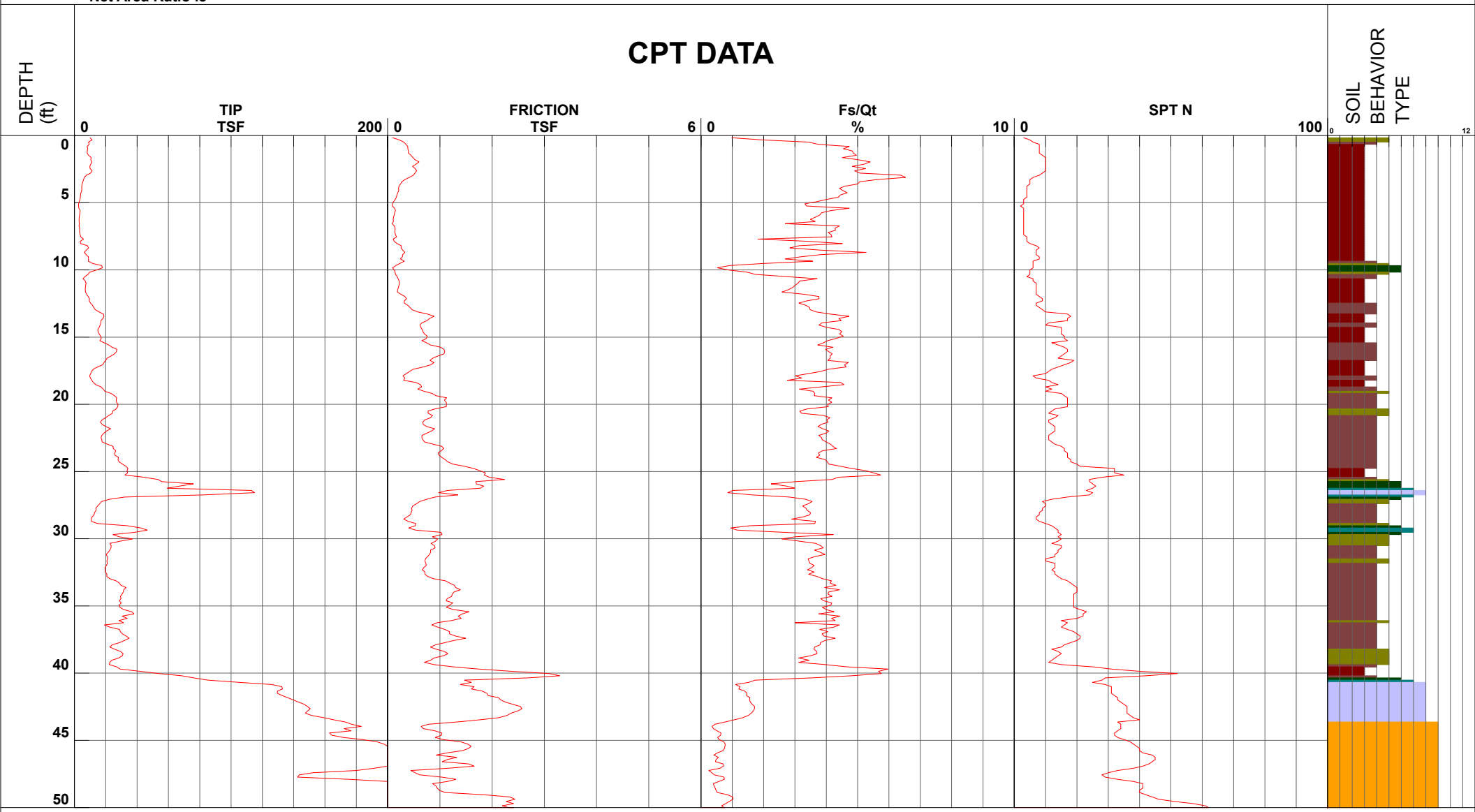


Wallace-Kuhl

Project	Morning Star Packing	Operator	CB-MM	Filename	SDF(278).cpt
Job Number	10487.01	Cone Number	DDG1268	GPS	
Hole Number	CPT-05	Date and Time	3/10/2015 7:35:09 AM	Maximum Depth	50.36 ft
EST GW Depth During Test		6.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(283).cpt
CPT Date: 3/10/2015 1:43:42 PM
GW During Test: 5 ft

Sounding ID: CPT-06
Project No: 10487.01
Cone/Rig: DDG1268

Depth ft	qc PS tsf	* qc1n PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
0.33	7.9	12.7	-	7.9	0.4	0.0	5.5	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.6	9.9	64	3.07	15	N/A	N/A
0.49	7.9	12.7	-	7.9	0.5	-0.2	6.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.6	9.9	66	3.10	15	N/A	N/A
0.66	7.9	12.6	-	7.9	0.5	-1.0	6.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.6	9.9	67	3.12	15	N/A	N/A
0.82	7.2	11.5	-	7.2	0.5	-1.1	7.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	9.9	72	3.18	15	N/A	N/A
0.98	8.0	12.9	-	8.0	0.5	-1.4	6.6	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.6	9.9	67	3.12	15	N/A	N/A
1.15	8.6	13.9	-	8.6	0.4	-1.8	4.9	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	9.9	60	3.02	15	N/A	N/A
1.31	11.5	18.4	-	11.4	0.4	-1.9	3.5	3	silty CLAY to CLAY	115	1.5	8	12	-	-	0.8	9.9	48	2.83	15	N/A	N/A
1.48	12.5	20.0	-	12.4	0.5	-0.3	4.1	3	silty CLAY to CLAY	115	1.5	8	13	-	-	0.9	9.9	48	2.84	15	N/A	N/A
1.64	15.9	25.5	-	15.9	0.8	-0.5	5.2	3	silty CLAY to CLAY	115	1.5	11	17	-	-	1.1	9.9	48	2.83	15	N/A	N/A
1.80	13.0	20.8	-	13.0	0.9	-0.3	7.0	3	silty CLAY to CLAY	115	1.5	9	14	-	-	0.9	9.9	58	2.99	15	N/A	N/A
1.97	34.4	55.1	129.0	34.3	1.0	-1.0	2.8	5	silty SAND to sandy SILT	120	4.0	9	14	47	46	-	-	27	2.41	16	N/A	N/A
2.13	34.1	54.6	127.8	34.1	1.0	-0.5	2.8	5	silty SAND to sandy SILT	120	4.0	9	14	47	46	-	-	27	2.41	16	N/A	N/A
2.30	28.5	45.6	126.8	28.5	0.9	-0.4	3.2	4	clayy SILT to silty CLAY	115	2.0	14	23	-	-	2.0	9.9	31	2.50	15	N/A	N/A
2.46	24.7	39.6	124.6	24.7	0.8	-0.6	3.4	4	clayy SILT to silty CLAY	115	2.0	12	20	-	-	1.7	9.9	34	2.57	15	N/A	N/A
2.62	26.4	42.4	114.6	26.4	0.7	-0.3	2.8	4	clayy SILT to silty CLAY	115	2.0	13	21	-	-	1.9	9.9	30	2.49	15	N/A	N/A
2.79	27.0	43.2	111.6	27.0	0.7	-0.2	2.6	4	clayy SILT to silty CLAY	115	2.0	13	22	-	-	1.9	9.9	29	2.46	15	N/A	N/A
2.95	26.6	42.7	103.1	26.6	0.6	-0.2	2.3	5	silty SAND to sandy SILT	120	4.0	7	11	39	43	-	-	27	2.43	16	N/A	N/A
3.12	21.4	34.4	108.2	21.4	0.6	-0.1	2.9	4	clayy SILT to silty CLAY	115	2.0	11	17	-	-	1.5	9.9	34	2.57	15	N/A	N/A
3.28	17.7	28.4	-	17.7	0.7	-0.1	3.9	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.2	9.9	41	2.71	15	N/A	N/A
3.45	12.7	20.4	-	12.7	0.6	0.0	5.0	3	silty CLAY to CLAY	115	1.5	8	14	-	-	0.9	9.9	52	2.89	15	N/A	N/A
3.61	12.3	19.7	-	12.3	0.6	-0.1	4.6	3	silty CLAY to CLAY	115	1.5	8	13	-	-	0.9	9.9	51	2.88	15	N/A	N/A
3.77	9.3	15.0	-	9.3	0.5	-0.2	5.4	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	9.9	60	3.02	15	N/A	N/A
3.94	6.6	10.6	-	6.6	0.4	-0.1	6.9	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	9.2	74	3.21	15	N/A	N/A
4.10	7.1	11.4	-	7.1	0.4	-0.8	5.8	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	9.5	68	3.14	15	N/A	N/A
4.27	6.9	11.0	-	6.9	0.4	-0.6	6.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	8.9	72	3.18	15	N/A	N/A
4.43	7.3	11.7	-	7.3	0.3	-0.7	4.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	9.1	62	3.05	15	N/A	N/A
4.59	8.7	14.0	-	8.7	0.3	-0.1	3.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	9.9	53	2.92	15	N/A	N/A
4.76	8.2	13.1	-	8.2	0.2	0.2	3.0	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.6	9.5	53	2.91	15	N/A	N/A
4.92	9.2	14.8	-	9.2	0.2	0.1	2.6	4	clayy SILT to silty CLAY	115	2.0	5	7	-	-	0.6	9.9	48	2.84	15	N/A	N/A
5.09	6.6	10.6	-	6.6	0.3	0.3	4.4	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	7.2	65	3.09	15	-	-
5.25	4.4	7.1	-	4.4	0.3	-0.4	6.1	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	4.6	83	3.32	15	-	-
5.41	3.8	6.2	-	3.8	0.2	-0.4	5.9	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	3.9	87	3.37	15	-	-
5.58	4.3	6.9	-	4.3	0.2	-0.3	4.7	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	4.3	78	3.27	15	-	-
5.74	4.6	7.3	-	4.6	0.2	-0.3	4.8	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	4.6	77	3.25	15	-	-
5.91	5.0	7.9	-	5.0	0.3	-0.2	5.5	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	4.9	77	3.26	15	-	-
6.07	5.1	8.1	-	5.1	0.3	-0.2	5.6	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	5.0	77	3.25	15	-	-
6.23	4.3	6.9	-	4.3	0.3	-0.1	7.0	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	4.1	87	3.37	15	-	-
6.40	3.9	6.3	-	3.9	0.3	-0.1	7.6	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	3.7	92	3.43	15	-	-
6.56	4.6	7.3	-	4.6	0.3	0.0	6.8	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	4.2	85	3.35	15	-	-
6.73	3.9	6.3	-	3.9	0.3	-0.1	7.4	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	3.5	92	3.43	15	-	-
6.89	3.8	6.1	-	3.8	0.2	0.0	6.8	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.2	3.3	92	3.42	15	-	-
7.05	4.0	6.4	-	4.0	0.2	0.0	5.7	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	3.5	86	3.36	15	-	-
7.22	3.7	6.0	-	3.7	0.2	0.0	5.9	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	3.2	89	3.39	15	-	-
7.38	3.5	5.6	-	3.5	0.2	0.0	5.3	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	2.9	89	3.39	15	-	-
7.55	3.4	5.4	-	3.4	0.2	0.1	5.1	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	2.8	89	3.40	15	-	-
7.71	3.6	5.8	-	3.6	0.2	0.1	5.1	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	2.9	87	3.37	15	-	-
7.87	3.4	5.5	-	3.4	0.1	0.1	4.8	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	2.7	87	3.38	15	-	-
8.04	3.3	5.2	-	3.3	0.1	0.2	4.6	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	2.5	89	3.39	15	-	-
8.20	3.2	5.2	-	3.2	0.2	0.2	5.9	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	2.5	95	3.46	15	-	-
8.37	3.2	5.2	-	3.2	0.2	0.1	8.5	2	Organic SOILS - Peats	100	1.0	3	5	-	-	0.3	2.4	95	3.55	10	-	-
8.53	4.6	7.3	-	4.6	0.2	0.1	6.0	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.5	83	3.32	15	-	-
8.69	4.2	6.8	-	4.2	0.2	0.0	5.6	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.2	84	3.34	15	-	-
8.86	4.0	6.4	-	4.0	0.2	0.1	5.8	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	3.0	87	3.37	15	-	-
9.02	3.7	6.0	-	3.7	0.2	0.1	6.6	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	2.7	93	3.43	15	-	-
9.19	3.5	5.5	-	3.5	0.2	0.1	6.6	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	2.4	95	3.46	15	-	-
9.35	4.1	6.5	-	4.1	0.2	0.1	5.5	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	2.9	85	3.35	15	-	-
9.51	3.9	6.3	-	3.9	0.2	0.2	6.7	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.2	2.8	91	3.42	15	-	-
9.68	4.1	6.6	-	4.1	0.2	0.2	5.1	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	2.9	83	3.33	15	-	-
9.84	3.6	5.8	-	3.6	0.2	0.2	7.0	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	2.4	95	3.47	15	-	-
10.01	3.2	5.2	-	3.2	0.2	0.2	7.6	2	Organic SOILS - Peats	100	1.0	3	5	-	-	0.3	2.1	95	3.53	10	-	-
10.17	4.1	6.5	-	4.1	0.2	0.7	4.6	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	2.7	82	3.31	15	-	-
10.34	3.4	5.5	-	3.5	0.2	0.7	6.5	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	2.2	95	3.47	15	-	-
10.50	3.9	6.3	-	3.9	0.1	0.8	4.5	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.2	2.6	83	3.32	15	-	-
10.66	3.2	5.2	-	3.2	0.1	0.7	5.4	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	2.0	94	3.45	15	-	-
10.83	3.4	5.4	-	3.4	0.1	0.8	5.1	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	2.1	92	3.42	15	-	-
10.99	4.5	7.2	-	4.5	0.2	0.8	5.2	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.9	81	3.30	15	-	-
11.16	4.7	7.5	-	4.7	0.2	0.8	5.3	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.0	80	3.29	15	-	-
11.32	5.7	9.1	-	5.7	0.2	0.7	4.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	3.7	73	3.20	15	-	-
11.48	5.8	9.3	-	5.8	0.4	0.8	7.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	3.7	81	3.30	15	-	-
11.65	6.0	9.6	-	6.0	0.4	0.8	7.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	3.8	79	3.28	15	-	-
11.81	5.3	8.5	-	5.3	0.3	0.9	6.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.3	3.3	80	3.29	15	-	-
11.98	6.3	10.1	-	6.3	0.2	0.7	3.9	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	4.0	65	3.10	15	-	-
12.14	4.2	6.7	-	4.2	0.2	0.6	6.9	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	2.4	91	3.42	15	-	-
12.30	6.5	10.5	-	6.5	0.2	0.5	3.9	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	4.0	64	3.09	15	-	-
12.47	10.9	17.5	-	10.9	0.2	-1.1	1.8	4	clayy SILT to silty CLAY	115	2.0	5	9	-	-	0.7	7.0	41	2.70	15	-	-
12.63	12.5	17.5	57.7	12.5	0.1	-2.0	1.2	4	clayy SILT to silty CLAY	115	2.0	6	9	-	-	0.9	8.0	35	2.60	15	3.67	51.2
12.80	12.9	17.9	52.2	12.9	0.1	-2.9	0.9	5	silty SAND to sandy SILT	120	4.0	3	4	10	33	-	-	32	2.53	16	3.98	51.2
12.96	14.2	19.7	59.2	14.2	0.2	-3.0	1.2	5	silty SAND to sandy SILT	120	4.0	4	5	13	33	-	-	33	2.55	16	3.59	51.2
13.12	14.8	20.3	59.9	14.7	0.2	-2.9	1.2	5	silty SAND to sandy SILT	120	4.0	4	5	14	33	-	-	32	2.53	16	3.56	51.2
13.29	16.0	21.9	64.0	15.9	0.2	-3.3	1.3	5	silty SAND to sandy SILT	120	4.0	4	5	17	34	-	-	32	2.53	16	3.37	51.2
13.45	15.4	24.3	-	15.3	0.3	-3.6	2.1	4	clayy SILT to silty CLAY	115	2.0	8	12	-	-	1.1	9.5	36	2.60	15	-	-
13.62	13.9	22.4	-	13.9	0.4	-4.1	3.0	4	clayy SILT to silty CLAY	115	2.0	7	11	-	-	0.9	8.5	42	2.73	15	-	-
13.78	11.5	18.5	-	11.5	0.5	-4.5	4.3	3	silty CLAY to CLAY	115	1.5	8	12	-	-	0.8	6.9	52	2.90	15	-	-
13.94	12.2	19.6	-	12.1	0.3	-4.4	3.0	4	clayy SILT to silty CLAY	115	2.0	6	10	-	-	0.8	7.2	45	2.78	15	-	-
14.11	15.3	20.5	67.9	15.2	0.2	-4.6	1.5	4	clayy SILT to silty CLAY	115	2.0	8	10	-	-	1.0	9.1	35	2.60	15	3.21	51.2
14.27	16.4	25.2	77.3	16.3	0.3	-4.7	1.8	4	clayy SILT to silty CLAY	115	2.0	8	13	-	-	1.1	9.7	33	2.56	15	2.89	51.2
14.44	14.9	23.9	-	14.8	0.4	-4.8	2.9	4	clayy SILT to silty CLAY	115	2.0	7	12	-	-	1.0	8.7	40	2.70	15	-	-
14.60	12.2	19.5	-	12.1	0.5	-4.9	4.4	3	silty CLAY to CLAY	115	1.5	8	13	-	-	0.8	7.0	51	2.89	15	-	-
14.76	10.5	16.8	-	10.4	0.5	-4.8	5.7	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	5.8	60	3.02	15	-	-
14.93	8.8	14.2	-	8.8	0.4	-4.7	5.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	4.8	61	3.04	15	-	-
15.09	7.5	12.1	-	7.5	0.3	-4.6	5.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.0	66	3.11	15	-	-
15.26	6.9	11.1	-	6.8	0.3	-4.6	4.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.4	3.6	68	3.14	15	-	-
15.42	7.5	12.0	-	7.4	0.3	-4.5	4.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.9	63	3.07	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(283).cpt
CPT Date: 3/10/2015 1:43:42 PM
GW During Test: 5 ft

Sounding ID: CPT-06
Project No: 10487.01
Cone/Rig: DDG1268

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	SPT R-N1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - -	Fin Ic %	Ic SBT Indx	Nk - -	Vol Strn %	Cycl SStn %
15.58	7.2	11.5	-	7.1	0.3	-4.5	4.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.7	66	3.10	15	-	-
15.75	6.2	10.0	-	6.2	0.3	-4.5	5.6	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	3.1	74	3.21	15	-	-
15.91	6.5	10.4	-	6.4	0.3	-4.5	5.6	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	3.2	73	3.20	15	-	-
16.08	7.1	11.4	-	7.0	0.3	-4.5	4.8	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.6	67	3.12	15	-	-
16.24	7.7	12.4	-	7.6	0.3	-4.4	4.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.8	62	3.04	15	-	-
16.40	8.6	13.8	-	8.5	0.3	-4.4	4.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	4.3	60	3.02	15	-	-
16.57	8.9	14.3	-	8.8	0.4	-4.4	4.7	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	4.4	60	3.03	15	-	-
16.73	7.6	12.2	-	7.5	0.4	-4.4	5.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.7	68	3.14	15	-	-
16.90	7.1	11.4	-	7.0	0.3	-4.4	5.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.4	70	3.16	15	-	-
17.06	7.1	11.3	-	7.0	0.3	-4.3	5.5	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.3	70	3.16	15	-	-
17.23	7.2	11.5	-	7.1	0.3	-4.3	5.5	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.4	70	3.16	15	-	-
17.39	8.0	12.8	-	7.9	0.4	-4.3	5.7	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.5	3.8	67	3.13	15	-	-
17.55	9.0	14.4	-	8.9	0.4	-4.3	4.9	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	4.3	61	3.04	15	-	-
17.72	7.8	12.5	-	7.7	0.4	-4.3	6.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.6	69	3.15	15	-	-
17.88	8.8	14.2	-	8.8	0.3	-4.2	4.2	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	4.1	59	3.00	15	-	-
18.05	8.5	13.5	-	8.4	0.3	-4.2	4.6	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	3.9	62	3.05	15	-	-
18.21	9.3	14.6	-	9.2	0.4	-4.0	5.1	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	4.3	62	3.05	15	-	-
18.37	9.7	15.2	-	9.6	0.4	-4.0	4.9	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	4.5	60	3.02	15	-	-
18.54	9.2	14.4	-	9.1	0.4	-4.0	4.6	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	4.2	60	3.03	15	-	-
18.70	8.8	13.6	-	8.7	0.3	-3.9	4.3	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	3.9	60	3.02	15	-	-
18.87	9.3	14.3	-	9.2	0.4	-3.9	4.3	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	4.2	59	3.01	15	-	-
19.03	10.2	15.5	-	10.1	0.4	-3.8	4.5	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.7	4.6	58	2.99	15	-	-
19.19	10.4	15.8	-	10.4	0.5	-3.8	5.2	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	4.7	60	3.02	15	-	-
19.36	8.6	13.0	-	8.5	0.5	-3.8	6.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	3.7	70	3.17	15	-	-
19.52	6.5	9.8	-	6.5	0.4	-3.8	8.2	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	2.7	84	3.33	15	-	-
19.69	5.7	8.5	-	5.6	0.4	-3.8	9.4	2	Organic SOILS - Peats	100	1.0	6	8	-	-	0.5	2.3	93	3.43	10	-	-
19.85	7.8	11.6	-	7.8	0.4	-3.8	5.4	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.3	69	3.15	15	-	-
20.01	13.2	19.4	-	13.1	0.2	-4.0	1.8	4	clayy SILT to silty CLAY	115	2.0	7	10	-	-	0.9	5.8	39	2.67	15	-	-
20.18	26.6	31.2	62.6	26.5	0.2	-4.0	0.9	5	silty SAND to sandy SILT	120	4.0	7	8	29	35	-	-	23	2.32	16	3.43	51.2
20.34	33.2	38.9	71.9	33.1	0.3	-4.0	1.1	5	silty SAND to sandy SILT	120	4.0	8	10	36	36	-	-	21	2.27	16	3.06	51.2
20.51	36.5	42.6	77.0	36.5	0.4	-3.9	1.1	5	silty SAND to sandy SILT	120	4.0	9	11	39	37	-	-	21	2.25	16	2.90	51.2
20.67	41.1	47.8	82.1	41.0	0.5	-3.5	1.2	5	silty SAND to sandy SILT	120	4.0	10	12	43	38	-	-	20	2.22	16	2.75	46.7
20.83	42.3	49.0	82.7	42.2	0.5	-3.4	1.2	5	silty SAND to sandy SILT	120	4.0	11	12	43	38	-	-	19	2.21	16	2.73	45.3
21.00	39.2	45.3	84.6	39.1	0.5	-3.3	1.4	5	silty SAND to sandy SILT	120	4.0	10	11	41	37	-	-	22	2.27	16	2.68	49.8
21.16	36.0	41.5	94.1	36.0	0.6	-3.2	1.9	5	silty SAND to sandy SILT	120	4.0	9	10	38	37	-	-	26	2.39	16	2.46	51.2
21.33	21.7	30.3	-	21.6	0.7	-3.1	3.3	4	clayy SILT to silty CLAY	115	2.0	11	15	-	-	1.5	9.4	38	2.66	15	-	-
21.49	15.1	20.9	-	15.0	0.6	-2.7	4.5	3	silty CLAY to CLAY	115	1.5	10	14	-	-	1.0	6.3	51	2.88	15	-	-
21.65	24.9	30.7	98.0	24.9	0.6	-2.9	2.5	4	clayy SILT to silty CLAY	115	2.0	12	15	-	-	1.7	9.9	34	2.58	15	2.38	51.2
21.82	18.0	24.7	-	17.9	0.7	-3.4	4.1	3	silty CLAY to CLAY	115	1.5	12	16	-	-	1.2	7.6	46	2.80	15	-	-
21.98	15.7	21.4	-	15.6	0.7	-3.4	4.8	3	silty CLAY to CLAY	115	1.5	10	14	-	-	1.1	6.5	51	2.89	15	-	-
22.15	10.7	14.4	-	10.6	0.6	-3.3	6.2	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.7	4.2	66	3.11	15	-	-
22.31	11.4	15.3	-	11.3	0.5	-3.2	5.2	3	silty CLAY to CLAY	115	1.5	8	10	-	-	0.7	4.5	61	3.04	15	-	-
22.47	13.4	17.9	-	13.3	0.6	-3.1	5.0	3	silty CLAY to CLAY	115	1.5	9	12	-	-	0.9	5.3	56	2.97	15	-	-
22.64	15.0	19.9	-	14.9	0.5	-3.1	3.9	3	silty CLAY to CLAY	115	1.5	10	13	-	-	1.0	6.0	49	2.86	15	-	-
22.80	10.2	13.5	-	10.1	0.5	-3.1	5.5	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.7	3.9	66	3.10	15	-	-
22.97	10.6	14.0	-	10.5	0.5	-3.0	5.3	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.7	4.0	64	3.07	15	-	-
23.13	11.4	14.9	-	11.3	0.4	-3.0	4.4	3	silty CLAY to CLAY	115	1.5	8	10	-	-	0.7	4.3	59	3.00	15	-	-
23.30	9.9	12.9	-	9.9	0.4	-3.0	4.3	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.6	3.7	62	3.05	15	-	-
23.46	9.4	12.2	-	9.4	0.3	-2.9	3.6	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.6	3.4	60	3.03	15	-	-
23.62	9.6	12.3	-	9.5	0.3	-2.9	3.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.6	3.5	58	2.99	15	-	-
23.79	10.6	13.6	-	10.6	0.3	-2.8	3.7	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.7	3.9	58	2.99	15	-	-
23.95	11.1	14.2	-	11.1	0.4	-2.9	4.0	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.7	4.1	58	2.99	15	-	-
24.12	10.1	12.9	-	10.1	0.4	-2.8	4.3	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.7	3.7	62	3.05	15	-	-
24.28	9.8	12.3	-	9.7	0.3	-2.8	4.0	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.6	3.5	62	3.05	15	-	-
24.44	8.8	11.0	-	8.7	0.3	-2.8	4.3	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	3.1	66	3.11	15	-	-
24.61	8.2	10.3	-	8.2	0.3	-2.8	4.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	2.8	68	3.13	15	-	-
24.77	8.6	10.7	-	8.6	0.3	-2.7	3.7	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	2.9	65	3.09	15	-	-
24.94	8.5	10.4	-	8.4	0.3	-2.7	3.8	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.5	2.9	66	3.11	15	-	-
25.10	8.5	10.5	-	8.5	0.3	-2.6	4.0	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.5	2.9	67	3.12	15	-	-
25.26	9.4	11.4	-	9.3	0.3	-2.5	4.1	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.6	3.2	64	3.09	15	-	-
25.43	9.0	10.9	-	9.0	0.3	-2.4	4.3	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	3.0	67	3.12	15	-	-
25.59	9.7	11.7	-	9.6	0.4	-2.4	4.9	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.6	3.3	67	3.12	15	-	-
25.76	12.7	15.3	-	12.7	0.6	-2.3	4.9	3	silty CLAY to CLAY	115	1.5	8	10	-	-	0.8	4.5	60	3.02	15	-	-
25.92	17.6	21.1	-	17.6	0.7	-2.1	4.1	3	silty CLAY to CLAY	115	1.5	12	14	-	-	1.2	6.4	49	2.86	15	-	-
26.08	20.5	24.3	-	20.4	0.8	-2.0	4.1	3	silty CLAY to CLAY	115	1.5	14	16	-	-	1.4	7.4	46	2.80	15	-	-
26.25	20.0	23.7	-	20.0	0.8	-1.9	4.2	3	silty CLAY to CLAY	115	1.5	13	16	-	-	1.4	7.2	47	2.82	15	-	-
26.41	19.1	22.5	-	19.1	0.8	-1.8	4.5	3	silty CLAY to CLAY	115	1.5	13	15	-	-	1.3	6.8	49	2.85	15	-	-
26.58	19.8	23.1	-	19.7	0.8	-1.7	4.3	3	silty CLAY to CLAY	115	1.5	13	15	-	-	1.3	7.0	48	2.83	15	-	-
26.74	20.7	24.1	-	20.7	0.8	-1.6	4.3	3	silty CLAY to CLAY	115	1.5	14	16	-	-	1.4	7.4	47	2.82	15	-	-
26.90	19.9	23.0	-	19.9	0.7	-1.6	4.0	3	silty CLAY to CLAY	115	1.5	13	15	-	-	1.3	7.0	47	2.81	15	-	-
27.07	18.3	21.1	-	18.3	0.7	-1.5	4.2	3	silty CLAY to CLAY	115	1.5	12	14	-	-	1.2	6.4	49	2.85	15	-	-
27.23	15.6	17.9	-	15.6	0.8	-1.5	5.4	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.0	5.3	58	2.99	15	-	-
27.40	14.2	16.2	-	14.2	0.7	-1.6	5.5	3	silty CLAY to CLAY	115	1.5	9	11	-	-	0.9	4.8	61	3.03	15	-	-
27.56	13.0	14.7	-	12.9	0.7	-1.7	6.0	3	silty CLAY to CLAY	115	1.5	9	10	-	-	0.9	4.3	65	3.09	15	-	-
27.72	10.9	12.3	-	10.8	0.6	-1.8	6.9	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.7	3.5	73	3.20	15	-	-
27.89	9.2	10.3	-	9.1	0.5	-1.8	6.2	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	2.8	76	3.24	15	-	-
28.05	8.7	9.8	-	8.7	0.4	-1.6	5.3	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	2.6	75	3.22	15	-	-
28.22	8.2	9.2	-	8.2	0.5	-1.6	7.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	2.4	84	3.33	15	-	-
28.38	11.5	12.7	-	11.4	0.6	-1.6	6.4	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.7	3.6	70	3.17	15	-	-
28.54	11.5	12.7	-	11.5	0.7	-1.7	6.6	3	silty CLAY to CLAY	115	1.5	8	8	-	-	0.8	3.6	71	3.17	15	-	-
28.71	12.7	14.0	-	12.7	0.5	-1.8	4.5	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.8	4.0	61	3.04	15	-	-
28.87	12.1	13.2	-	12.0	0.5	-1.8	4.8	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.8	3.7	64	3.07	15	-	-
29.04	11.9	12.9	-	11.8	0.6	-2.0	5.8	3	silty CLAY to CLAY	115	1.5	8	9	-	-	0.8	3.7	68	3.13	15	-	-
29.20	21.4	23.2	-	21.4	0.7	-1.8	3.7	3	silty CLAY to CLAY	115	1.5	14	15	-	-	1.4	7.0	46	2.79	15	-	-
29.36	29.5	31.8	-	29.5	0.9	-1.9	3.1	4	clayy SILT to silty CLAY	115	2.0	15	16	-	-	2.0	9.9	36	2.62	15	-	-
29.53	39.6	39.8	115.3	39.5	1.1	-2.2	2.8	4	clayy SILT to silty CLAY	115	2.0	20	20	-	-	2.7	9.9	32	2.52	15	2.08	51.2
29.69	44.5	44.7	120.1	44.5	1.2	-2.7	2.8	4	clayy SILT to silty CLAY	115	2.0	22	22	-	-	3.1	9.9	30	2.48	15	2.01	50.5
29.86	28.0	29.7	-	27.9	1.1	-2.5	4.1	4	clayy SILT to silty CLAY	115	2.0	14	15	-	-	1.9	9.2	42	2.73	15	-	-
30.02	23.8	25.2	-	23.7	0.9	-2.2	4.3	3	silty CLAY to CLAY	115	1.5	16	17	-	-	1.6	7.7	46	2.80	15	-	-
30.19	24.1	25.4	-	24.1	0.9	-1.6	4.2	3	silty CLAY to CLAY	115	1.5	16	17	-	-	1.6	7.8	46	2.79	15	-	-
30.35	25.7	27.0	-	25.7	1.1	-1.5	4.5	3	silty CLAY to CLAY	115	1.5	17	18	-	-	1.7	8.3	46	2.79	15	-	-
30.51	29.1	30.3	-	29.0	1.2	-1.4	4.6	3	silty CLAY to CLAY	115	1.5	19	20	-	-	2.0	9.4	43	2.76	15	-	-
30.68	31.5	32.7	-	31.5	1.3	-1.4	4.4	3	silty CLAY to CLAY	115	1.5	21	22	-	-	2.2	9.9	41	2.72	15	-	-
30.84	32.5	33.6	-	32.5	1.3	-1.3	4.4	4	clayy SILT to silty CLAY	115	2.0	16	17	-	-	2.2	9.9	41	2.71	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(283).cpt
CPT Date: 3/10/2015 1:43:42 PM
GW During Test: 5 ft

Sounding ID: CPT-06
Project No: 10487.01
Cone/Rig: DDG1268

Depth ft	qc PS tsf	* qc1n PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR -	* Fin Ic %	* Ic SBT Indx	* Nk -	* Vol Strn %	* Cycl SStn %
31.01	29.5	30.3	-	29.4	1.4	-1.3	4.9	3	silty CLAY to CLAY	115	1.5	20	20	-	-	2.0	9.4	45	2.78	15	-	-
31.17	24.4	25.1	-	24.4	1.6	-1.3	6.9	3	silty CLAY to CLAY	115	1.5	16	17	-	-	1.7	7.7	55	2.94	15	-	-
31.33	31.6	32.3	-	31.6	2.1	-1.0	7.2	3	silty CLAY to CLAY	115	1.5	21	22	-	-	2.2	9.9	50	2.87	15	-	-
31.50	46.3	47.1	-	46.3	2.9	-1.3	6.5	3	silty CLAY to CLAY	115	1.5	31	31	-	-	3.2	9.9	42	2.73	15	-	-
31.66	56.9	55.6	181.6	56.9	2.8	-1.7	5.0	4	clayy SILT to silty CLAY	115	2.0	28	28	-	-	4.0	9.9	35	2.59	15	0.00	0.0
31.83	77.6	75.6	155.2	77.5	2.3	-2.2	3.0	5	silty SAND to sandy SILT	120	4.0	19	19	58	39	-	-	24	2.33	16	0.65	4.2
31.99	88.7	86.2	137.7	88.6	1.8	-3.5	2.0	5	silty SAND to sandy SILT	120	4.0	22	22	62	40	-	-	18	2.17	16	1.46	12.6
32.15	86.4	83.8	139.8	86.3	1.8	-5.1	2.2	5	silty SAND to sandy SILT	120	4.0	22	21	61	40	-	-	19	2.20	16	1.35	11.3
32.32	67.0	64.8	152.0	66.8	2.1	-8.0	3.3	4	clayy SILT to silty CLAY	115	2.0	33	32	-	-	4.7	9.9	27	2.41	15	0.78	6.3
32.48	48.2	46.6	152.9	48.0	2.0	-9.7	4.2	4	clayy SILT to silty CLAY	115	2.0	24	23	-	-	3.3	9.9	35	2.59	15	0.74	43.2
32.65	44.5	43.3	-	44.3	1.7	-11.0	4.0	4	clayy SILT to silty CLAY	115	2.0	22	22	-	-	3.1	9.9	35	2.60	15	-	-
32.81	48.5	46.7	105.4	48.3	1.0	-11.4	2.1	5	silty SAND to sandy SILT	120	4.0	12	12	42	36	-	-	26	2.39	16	2.24	48.1
32.97	46.0	44.1	125.3	45.8	1.4	-11.4	3.1	4	clayy SILT to silty CLAY	115	2.0	23	22	-	-	3.2	9.9	31	2.51	15	1.94	51.2
33.14	64.7	61.9	127.7	64.5	1.5	-11.6	2.4	5	silty SAND to sandy SILT	120	4.0	16	15	51	38	-	-	24	2.33	16	1.86	32.7
33.30	71.7	68.5	167.6	71.4	2.6	-11.7	3.7	4	clayy SILT to silty CLAY	115	2.0	36	34	-	-	5.0	9.9	28	2.43	15	0.00	0.0
33.47	79.0	75.4	218.1	78.8	4.1	-11.8	5.4	4	clayy SILT to silty CLAY	115	2.0	40	38	-	-	5.5	9.9	32	2.52	15	0.00	0.0
33.63	94.4	89.8	247.0	94.1	5.3	-11.7	5.7	9	very stiff fine SOIL	120	2.0	47	45	63	40	-	-	31	2.50	30	0.00	0.0
33.79	99.1	94.1	249.4	98.9	5.4	-11.6	5.6	9	very stiff fine SOIL	120	2.0	50	47	65	40	-	-	30	2.48	30	0.00	0.0
33.96	96.2	91.1	232.3	95.9	4.8	-11.5	5.1	9	very stiff fine SOIL	120	2.0	48	46	64	40	-	-	29	2.45	30	0.00	0.0
34.12	100.1	94.6	228.4	99.8	4.7	-11.5	4.8	9	very stiff fine SOIL	120	2.0	50	47	65	40	-	-	27	2.42	30	0.00	0.0
34.29	110.4	104.1	257.9	110.1	5.9	-11.4	5.4	9	very stiff fine SOIL	120	2.0	55	52	68	41	-	-	28	2.44	30	0.00	0.0
34.45	117.1	110.2	282.9	116.9	6.9	-11.3	6.0	9	very stiff fine SOIL	120	2.0	59	55	70	41	-	-	29	2.46	30	0.00	0.0
34.61	116.1	109.0	277.8	115.9	6.7	-11.3	5.9	9	very stiff fine SOIL	120	2.0	58	54	70	41	-	-	29	2.45	30	0.00	0.0
34.78	99.9	93.6	257.6	99.7	5.8	-11.2	5.9	9	very stiff fine SOIL	120	2.0	50	47	65	40	-	-	31	2.50	30	0.00	0.0
34.94	85.9	80.3	237.5	85.7	4.9	-11.3	5.9	9	very stiff fine SOIL	120	2.0	43	40	60	39	-	-	32	2.54	30	0.00	0.0
35.11	88.9	82.9	211.4	88.7	4.1	-11.5	4.7	4	clayy SILT to silty CLAY	115	2.0	44	41	-	-	6.2	9.9	29	2.45	15	0.00	0.0
35.27	72.9	67.9	208.3	72.7	3.8	-11.4	5.4	4	clayy SILT to silty CLAY	115	2.0	36	34	-	-	5.1	9.9	33	2.56	15	0.00	0.0
35.43	62.8	57.5	-	62.6	3.3	-11.5	5.4	4	clayy SILT to silty CLAY	115	2.0	31	29	-	-	4.4	9.9	36	2.60	15	-	-
35.60	53.8	49.1	-	53.6	2.8	-11.5	5.5	3	silty CLAY to CLAY	115	1.5	36	33	-	-	3.7	9.9	38	2.66	15	-	-
35.76	47.7	43.3	-	47.5	2.4	-11.5	5.2	3	silty CLAY to CLAY	115	1.5	32	29	-	-	3.3	9.9	39	2.68	15	-	-
35.93	46.2	41.7	-	46.0	2.2	-11.5	5.0	3	silty CLAY to CLAY	115	1.5	31	28	-	-	3.2	9.9	39	2.68	15	-	-
36.09	44.1	39.7	-	43.8	2.1	-11.5	5.0	3	silty CLAY to CLAY	115	1.5	29	26	-	-	3.0	9.9	40	2.70	15	-	-
36.26	39.0	35.0	-	38.8	1.9	-11.5	5.0	3	silty CLAY to CLAY	115	1.5	26	23	-	-	2.7	9.9	42	2.74	15	-	-
36.42	36.4	32.5	-	36.2	1.7	-11.5	4.9	3	silty CLAY to CLAY	115	1.5	24	22	-	-	2.5	9.9	43	2.75	15	-	-
36.58	35.3	31.4	-	35.1	1.7	-11.6	5.0	3	silty CLAY to CLAY	115	1.5	24	21	-	-	2.4	9.7	44	2.77	15	-	-
36.75	36.9	32.7	-	36.7	1.7	-11.6	5.0	3	silty CLAY to CLAY	115	1.5	25	22	-	-	2.5	9.9	44	2.76	15	-	-
36.91	37.8	33.4	-	37.6	1.9	-11.7	5.2	3	silty CLAY to CLAY	115	1.5	25	22	-	-	2.6	9.9	44	2.76	15	-	-
37.08	42.7	37.6	-	42.5	2.1	-11.7	5.1	3	silty CLAY to CLAY	115	1.5	28	25	-	-	2.9	9.9	41	2.72	15	-	-
37.24	46.6	40.9	-	46.4	2.4	-11.7	5.3	3	silty CLAY to CLAY	115	1.5	31	27	-	-	3.2	9.9	41	2.71	15	-	-
37.40	50.6	44.2	-	50.4	2.5	-11.7	5.1	3	silty CLAY to CLAY	115	1.5	34	29	-	-	3.5	9.9	39	2.67	15	-	-
37.57	46.9	40.8	-	46.7	2.6	-11.7	5.8	3	silty CLAY to CLAY	115	1.5	31	27	-	-	3.2	9.9	42	2.73	15	-	-
37.73	43.0	37.3	-	42.8	2.9	-11.7	7.1	3	silty CLAY to CLAY	115	1.5	29	25	-	-	3.0	9.9	47	2.82	15	-	-
37.90	53.8	46.5	-	53.6	3.0	-11.7	5.8	3	silty CLAY to CLAY	115	1.5	36	31	-	-	3.7	9.9	40	2.69	15	-	-
38.06	45.5	39.2	-	45.3	3.1	-11.7	7.2	3	silty CLAY to CLAY	115	1.5	30	26	-	-	3.1	9.9	47	2.81	15	-	-
38.22	50.9	43.6	-	50.6	3.5	-11.7	7.1	3	silty CLAY to CLAY	115	1.5	34	29	-	-	3.5	9.9	45	2.78	15	-	-
38.39	60.2	51.4	-	60.0	4.1	-11.7	7.1	3	silty CLAY to CLAY	115	1.5	40	34	-	-	4.2	9.9	42	2.73	15	-	-
38.55	71.7	61.1	-	71.5	4.2	-11.8	6.0	3	silty CLAY to CLAY	115	1.5	48	41	-	-	5.0	9.9	36	2.62	15	-	-
38.72	65.1	55.2	-	64.9	3.6	-11.8	5.7	3	silty CLAY to CLAY	115	1.5	43	37	-	-	4.5	9.9	37	2.64	15	-	-
38.88	55.2	46.6	-	55.0	3.5	-11.6	6.6	3	silty CLAY to CLAY	115	1.5	37	31	-	-	3.8	9.9	42	2.73	15	-	-
39.04	102.5	91.3	199.4	102.3	3.9	-11.6	3.9	4	clayy SILT to silty CLAY	115	2.0	51	46	-	-	7.2	9.9	25	2.37	15	0.00	0.0
39.21	120.6	107.3	219.5	120.4	4.8	-11.7	4.0	9	very stiff fine SOIL	120	2.0	60	54	69	41	-	-	24	2.33	30	0.00	0.0
39.37	68.0	60.4	181.8	67.8	3.1	-11.6	4.7	4	clayy SILT to silty CLAY	115	2.0	34	30	-	-	4.7	9.9	33	2.55	15	0.00	0.0
39.54	39.9	33.2	-	39.7	1.8	-11.5	4.7	3	silty CLAY to CLAY	115	1.5	27	22	-	-	2.7	9.9	42	2.74	15	-	-
39.70	30.7	25.4	-	30.4	1.3	-11.4	4.7	3	silty CLAY to CLAY	115	1.5	20	17	-	-	2.1	7.8	48	2.83	15	-	-
39.86	28.5	23.5	-	28.3	1.4	-11.4	5.3	3	silty CLAY to CLAY	115	1.5	19	16	-	-	1.9	7.1	51	2.89	15	-	-
40.03	26.7	22.0	-	26.4	1.3	-11.4	5.4	3	silty CLAY to CLAY	115	1.5	18	15	-	-	1.8	6.6	53	2.92	15	-	-
40.19	28.7	23.5	-	28.5	1.3	-11.6	4.8	3	silty CLAY to CLAY	115	1.5	19	16	-	-	1.9	7.1	50	2.86	15	-	-
40.36	28.7	23.5	-	28.5	1.3	-11.6	4.7	3	silty CLAY to CLAY	115	1.5	19	16	-	-	1.9	7.1	49	2.86	15	-	-
40.52	29.1	23.7	-	28.8	1.2	-11.6	4.5	3	silty CLAY to CLAY	115	1.5	19	16	-	-	2.0	7.2	48	2.84	15	-	-
40.68	27.8	22.6	-	27.6	1.1	-11.6	4.4	3	silty CLAY to CLAY	115	1.5	19	15	-	-	1.9	6.8	49	2.85	15	-	-
40.85	28.2	22.8	-	27.9	1.0	-11.5	4.0	3	silty CLAY to CLAY	115	1.5	19	15	-	-	1.9	6.9	47	2.82	15	-	-
41.01	27.4	22.1	-	27.2	1.0	-11.5	4.2	3	silty CLAY to CLAY	115	1.5	18	15	-	-	1.9	6.7	48	2.84	15	-	-
41.18	27.7	22.3	-	27.5	1.1	-11.5	4.2	3	silty CLAY to CLAY	115	1.5	18	15	-	-	1.9	6.7	48	2.84	15	-	-
41.34	26.9	21.5	-	26.7	1.1	-11.5	4.4	3	silty CLAY to CLAY	115	1.5	18	14	-	-	1.8	6.5	50	2.87	15	-	-
41.50	27.5	21.9	-	27.2	1.0	-11.5	4.0	3	silty CLAY to CLAY	115	1.5	18	15	-	-	1.9	6.6	48	2.83	15	-	-
41.67	27.2	21.6	-	27.0	1.0	-11.5	3.9	3	silty CLAY to CLAY	115	1.5	18	14	-	-	1.8	6.5	48	2.83	15	-	-
41.83	28.2	22.3	-	28.0	0.9	-11.5	3.4	4	clayy SILT to silty CLAY	115	2.0	14	11	-	-	1.9	6.7	45	2.78	15	-	-
42.00	28.2	22.3	-	28.0	0.9	-11.5	3.5	4	clayy SILT to silty CLAY	115	2.0	14	11	-	-	1.9	6.7	46	2.79	15	-	-
42.16	28.2	22.2	-	27.9	0.9	-11.5	3.7	3	silty CLAY to CLAY	115	1.5	19	15	-	-	1.9	6.7	46	2.80	15	-	-
42.32	28.0	21.9	-	27.7	0.9	-11.5	3.4	4	clayy SILT to silty CLAY	115	2.0	14	11	-	-	1.9	6.6	45	2.79	15	-	-
42.49	27.2	21.3	-	27.0	0.9	-11.5	3.7	3	silty CLAY to CLAY	115	1.5	18	14	-	-	1.8	6.4	47	2.82	15	-	-
42.65	28.8	22.5	-	28.6	1.0	-11.5	3.8	3	silty CLAY to CLAY	115	1.5	19	15	-	-	1.9	6.8	47	2.81	15	-	-
42.82	29.7	23.0	-	29.5	1.2	-11.5	4.6	3	silty CLAY to CLAY	115	1.5	20	15	-	-	2.0	7.0	49	2.85	15	-	-
42.98	34.9	27.0	-	34.7	1.7	-11.5	5.3	3	silty CLAY to CLAY	115	1.5	23	18	-	-	2.4	8.3	48	2.84	15	-	-
43.15	39.2	30.3	-	39.0	2.3	-11.5	6.2	3	silty CLAY to CLAY	115	1.5	26	20	-	-	2.7	9.4	49	2.85	15	-	-
43.31	53.8	41.4	-	53.6	3.1	-11.5	6.0	3	silty CLAY to CLAY	115	1.5	36	28	-	-	3.7	9.9	43	2.74	15	-	-
43.47	63.7	48.8	-	63.5	3.5	-11.5	5.7	3	silty CLAY to CLAY	115	1.5	42	33	-	-	4.4	9.9	39	2.67	15	-	-
43.64	48.7	37.2	-	48.4	3.3	-11.4	7.1	3	silty CLAY to CLAY	115	1.5	32	25	-	-	3.3	9.9	48	2.83	15	-	-
43.80	53.5	40.7	-	53.2	2.5	-11.3	4.9	3	silty CLAY to CLAY	115	1.5	36	27	-	-	3.7	9.9	40	2.68	15	-	-
43.97	46.1	35.0	-	45.9	2.5	-11.2	5.8	3	silty CLAY to CLAY	115	1.5	31	23	-	-	3.2	9.9	45	2.78	15	-	-
44.13	78.3	66.1	159.4	78.0	2.6	-11.3	3.5	4	clayy SILT to silty CLAY	115	2.0	39	33	-	-	5.4	9.9	27	2.42	15	0.48	2.9
44.29	125.2	105.6	147.9	125.0	2.2	-11.4	1.8	5	silty SAND to sandy SILT	120	4.0	31	26	69	40	-	-	15	2.07	16	0.97	5.1
44.46	133.1	112.1	145.9	132.9	2.0	-11.4	1.5	6	clean SAND to silty SAND	125	5.0	27	22	71	41	-	-	13	2.00	16	1.07	5.3
44.62	123.5	103.8	129.9	123.3	1.5	-11.4	1.2	6	clean SAND to silty SAND	125	5.0	25	21	68	40	-	-	12	1.96	16	1.80	13.4
44.79	106.5	89.3	121.1	106.3	1.4	-11.3	1.3	5	silty SAND to sandy SILT	120	4.0	27	22	63	39	-	-	14	2.04	16	2.00	20.0
44.95	89.0	74.5	139.4	88.8	2.1	-11.2	2.4	5	silty SAND to sandy SILT	120	4.0	22	19	57	38	-	-	22	2.27	16	1.35	14.9
45.11	65.6	54.8	141.4	65.4	2.0	-11.1	3.2	4	clayy SILT to silty CLAY	115	2.0	33	27	-	-	4.5	9.9	29	2.46	15	1.23	27.1
45.28	37.7	27.8	-	37.5	1.7	-11.0	5.0	3	silty CLAY to CLAY	115	1.5	25	19	-	-	2.6	8.5	47	2.81	15	-	-
45.44	33.7	24.8	-	33.5	1.7	-11.0	5.4	3	silty CLAY to CLAY	115	1.5	22	17	-	-	2.3	7.5	51	2.88	15	-	-
45.61	42.2	30.9	-	42.0	2.0	-11.0	5.0	3	silty CLAY to CLAY	115	1.5	28	21	-	-	2.9	9.6	45	2.78	15	-	-
45.77	41.5	30.4	-	41.3	2.2	-11.0	5.7	3	silty CLAY to CLAY	115	1.5	28	20	-	-	2.8	9.4	47	2.82	15	-	-
45.93	39.5	28.8	-	39.3	2.0	-11.0	5.5	3	silty CLAY to CLAY	115	1.5	26	19	-	-	2.7	8.9	48	2.83	15	-	-
46.10	36.7	26.6	-	36.4	1.9	-11.0	5.7	3	silty CLAY to CLAY	115	1.5	24	18	-	-	2.5	8.1	50	2.87	15	-	-
46.26	36.3	26.3	-	36.0	1.8	-11.0	5.3	3	silty CLAY to CLAY	115	1.5	24	18	-	-	2.5	8.0	49	2.85	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(283).cpt
CPT Date: 3/10/2015 1:43:42 PM
GW During Test: 5 ft

Sounding ID: CPT-06
Project No: 10487.01
Cone/Rig: DDG1268

. Depth ft	. qc PS tsf	* qc1n PS -	. q1ncs PS -	* qt PS tsf	. Slv Stss tsf	. pore prss (psi)	. Frct Rato %	* Mat Typ Zon	* Material Behavior Description	. Unit Wght pcf	. Qc to N	. SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	. Und Shr tsf	. OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
46.43	31.6	22.8	-	31.4	1.6	-11.0	5.4	3	silty CLAY to CLAY	115	1.5	21	15	-	-	2.1	6.9	52	2.90	15	-	-
46.59	25.4	18.2	-	25.1	1.2	-11.1	5.4	3	silty CLAY to CLAY	115	1.5	17	12	-	-	1.7	5.4	57	2.98	15	-	-
46.75	23.1	16.6	-	22.9	1.0	-11.1	5.1	3	silty CLAY to CLAY	115	1.5	15	11	-	-	1.5	4.8	59	3.01	15	-	-
46.92	18.7	13.4	-	18.5	1.0	-11.1	6.1	3	silty CLAY to CLAY	115	1.5	12	9	-	-	1.2	3.8	68	3.14	15	-	-
47.08	18.9	13.5	-	18.7	0.8	-11.1	5.2	3	silty CLAY to CLAY	115	1.5	13	9	-	-	1.2	3.8	64	3.09	15	-	-
47.25	18.7	13.3	-	18.5	0.9	-11.1	5.6	3	silty CLAY to CLAY	115	1.5	12	9	-	-	1.2	3.8	67	3.11	15	-	-
47.41	18.7	13.2	-	18.4	1.2	-11.2	7.4	3	silty CLAY to CLAY	115	1.5	12	9	-	-	1.2	3.7	73	3.19	15	-	-
47.57	23.8	16.8	-	23.6	1.6	-11.3	7.7	3	silty CLAY to CLAY	115	1.5	16	11	-	-	1.6	4.9	67	3.12	15	-	-
47.74	34.4	24.2	-	34.2	1.7	-11.2	5.4	3	silty CLAY to CLAY	115	1.5	23	16	-	-	2.3	7.4	51	2.88	15	-	-
47.90	29.8	21.0	-	29.6	1.6	-11.2	5.9	3	silty CLAY to CLAY	115	1.5	20	14	-	-	2.0	6.3	56	2.96	15	-	-
48.07	23.2	16.3	-	23.0	1.2	-11.2	6.0	3	silty CLAY to CLAY	115	1.5	15	11	-	-	1.5	4.7	63	3.06	15	-	-
48.23	18.7	13.0	-	18.5	1.1	-11.1	6.7	3	silty CLAY to CLAY	115	1.5	12	9	-	-	1.2	3.7	71	3.17	15	-	-
48.39	23.4	16.3	-	23.2	0.9	-11.1	4.5	3	silty CLAY to CLAY	115	1.5	16	11	-	-	1.6	4.7	57	2.98	15	-	-
48.56	21.8	15.1	-	21.6	1.0	-11.1	5.2	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.4	4.3	61	3.04	15	-	-
48.72	20.3	14.0	-	20.1	0.9	-11.1	5.4	3	silty CLAY to CLAY	115	1.5	14	9	-	-	1.3	4.0	64	3.09	15	-	-
48.89	21.6	14.9	-	21.4	0.9	-11.1	5.0	3	silty CLAY to CLAY	115	1.5	14	10	-	-	1.4	4.3	61	3.04	15	-	-
49.05	21.9	15.1	-	21.7	0.9	-11.0	4.9	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.4	4.3	61	3.03	15	-	-
49.22	22.3	15.3	-	22.1	1.0	-11.0	5.0	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.5	4.4	60	3.03	15	-	-
49.38	22.2	15.2	-	22.0	1.0	-11.0	5.3	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.5	4.4	62	3.05	15	-	-
49.54	22.1	15.0	-	21.8	1.3	-11.0	6.9	3	silty CLAY to CLAY	115	1.5	15	10	-	-	1.5	4.3	68	3.13	15	-	-
49.71	34.3	23.3	-	34.1	1.4	-11.0	4.4	3	silty CLAY to CLAY	115	1.5	23	16	-	-	2.3	7.0	48	2.84	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

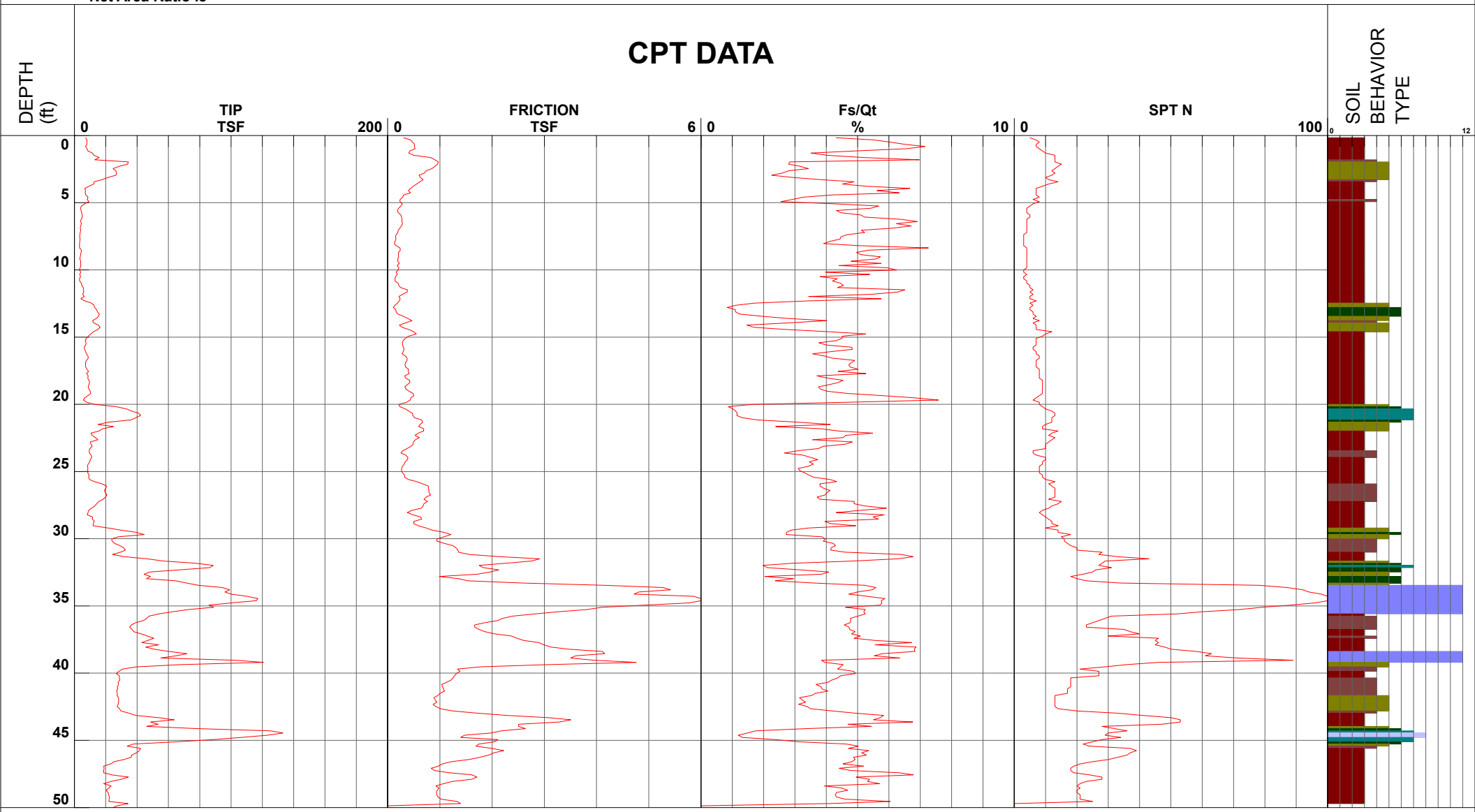
Middle Earth Geo Testing

Wallace-Kuhl

Project	Morning Star Packing	Operator	CB-MM	Filename	SDF(283).cpt
Job Number	10487.01	Cone Number	DDG1268	GPS	
Hole Number	CPT-06	Date and Time	3/10/2015 1:43:42 PM	Maximum Depth	50.03 ft
EST GW Depth During Test		5.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(284).cpt
CPT Date: 3/10/2015 2:21:44 PM
GW During Test: 5 ft

Sounding ID: CPT-07
Project No: 10487.01
Cone/Rig: DDG1268

Depth ft	qc PS tsf	* qc1n PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
0.33	9.7	15.6	-	9.7	0.6	0.1	5.7	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.7	9.9	60	3.02	15	N/A	N/A
0.49	9.7	15.5	-	9.7	0.6	-0.4	6.2	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.7	9.9	61	3.04	15	N/A	N/A
0.66	8.7	14.0	-	8.7	0.6	-1.5	6.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	9.9	66	3.10	15	N/A	N/A
0.82	7.8	12.5	-	7.7	0.6	-1.4	7.2	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	9.9	70	3.16	15	N/A	N/A
0.98	8.1	13.0	-	8.1	0.5	-1.0	6.6	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.6	9.9	67	3.12	15	N/A	N/A
1.15	8.4	13.5	-	8.4	0.5	-1.7	6.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	9.9	65	3.10	15	N/A	N/A
1.31	9.1	14.6	-	9.0	0.6	-2.5	6.8	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	9.9	65	3.09	15	N/A	N/A
1.48	9.5	15.2	-	9.4	0.6	-3.5	6.6	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.7	9.9	63	3.07	15	N/A	N/A
1.64	10.9	17.5	-	10.8	0.7	-3.5	6.9	3	silty CLAY to CLAY	115	1.5	7	12	-	-	0.8	9.9	61	3.03	15	N/A	N/A
1.80	12.6	20.2	-	12.5	0.8	-4.4	6.4	3	silty CLAY to CLAY	115	1.5	8	13	-	-	0.9	9.9	57	2.97	15	N/A	N/A
1.97	15.8	25.4	-	15.8	1.1	-4.1	6.9	3	silty CLAY to CLAY	115	1.5	11	17	-	-	1.1	9.9	53	2.92	15	N/A	N/A
2.13	18.5	29.6	-	18.4	1.2	-4.0	6.7	3	silty CLAY to CLAY	115	1.5	12	20	-	-	1.3	9.9	50	2.86	15	N/A	N/A
2.30	17.2	27.5	-	17.1	1.2	-4.5	7.2	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.2	9.9	52	2.91	15	N/A	N/A
2.46	15.3	24.6	-	15.2	1.1	-4.2	7.3	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.1	9.9	55	2.95	15	N/A	N/A
2.62	14.9	23.8	-	14.8	0.9	-3.9	6.3	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.0	9.9	53	2.91	15	N/A	N/A
2.79	14.3	22.9	-	14.2	0.8	-3.8	5.6	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.0	9.9	51	2.89	15	N/A	N/A
2.95	13.1	21.0	-	13.0	0.7	-3.7	5.7	3	silty CLAY to CLAY	115	1.5	9	14	-	-	0.9	9.9	53	2.92	15	N/A	N/A
3.12	11.1	17.9	-	11.1	0.6	-3.7	5.8	3	silty CLAY to CLAY	115	1.5	7	12	-	-	0.8	9.9	57	2.98	15	N/A	N/A
3.28	9.3	15.0	-	9.3	0.6	-3.6	6.1	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	9.9	62	3.06	15	N/A	N/A
3.45	7.6	12.2	-	7.5	0.5	-3.6	6.4	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	9.9	68	3.14	15	N/A	N/A
3.61	6.8	10.9	-	6.7	0.4	-3.6	6.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	9.9	70	3.17	15	N/A	N/A
3.77	5.8	9.4	-	5.8	0.3	-3.6	6.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	8.6	74	3.22	15	N/A	N/A
3.94	5.5	8.8	-	5.4	0.3	-3.5	5.9	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	7.7	75	3.23	15	N/A	N/A
4.10	4.9	7.9	-	4.8	0.2	-3.4	5.2	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	6.5	76	3.24	15	N/A	N/A
4.27	3.8	6.2	-	3.8	0.2	-3.3	5.9	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	4.8	86	3.36	15	N/A	N/A
4.43	3.8	6.1	-	3.7	0.2	-3.3	5.3	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	4.6	84	3.34	15	N/A	N/A
4.59	3.3	5.3	-	3.2	0.2	-3.2	5.5	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	3.8	90	3.41	15	N/A	N/A
4.76	3.3	5.3	-	3.2	0.1	-3.2	3.9	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	3.7	83	3.32	15	N/A	N/A
4.92	3.0	4.8	-	2.9	0.1	-3.1	5.2	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	3.1	93	3.43	15	N/A	N/A
5.09	3.5	5.6	-	3.4	0.1	-2.9	4.0	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	3.6	82	3.31	15	-	-
5.25	3.1	5.0	-	3.1	0.1	-2.8	3.7	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	3.2	84	3.33	15	-	-
5.41	3.2	5.1	-	3.1	0.1	-2.7	4.1	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	3.2	85	3.35	15	-	-
5.58	4.0	6.5	-	4.0	0.2	-2.7	4.1	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	4.1	77	3.25	15	-	-
5.74	3.6	5.7	-	3.5	0.1	-2.6	4.6	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	3.5	84	3.34	15	-	-
5.91	3.2	5.2	-	3.2	0.1	-2.5	4.4	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	3.1	87	3.37	15	-	-
6.07	3.1	4.9	-	3.0	0.1	-2.5	4.5	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	2.9	89	3.40	15	-	-
6.23	3.2	5.1	-	3.2	0.1	-2.5	3.9	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	3.0	85	3.34	15	-	-
6.40	3.2	5.1	-	3.1	0.1	-2.4	4.3	3	silty CLAY to CLAY	115	1.5	2	3	-	-	0.2	2.9	87	3.37	15	-	-
6.56	3.7	5.9	-	3.7	0.1	-2.4	4.3	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	3.4	82	3.31	15	-	-
6.73	4.0	6.4	-	4.0	0.1	-2.4	4.1	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	3.6	78	3.26	15	-	-
6.89	3.7	6.0	-	3.7	0.2	-2.3	4.9	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	3.3	85	3.34	15	-	-
7.05	4.4	7.1	-	4.4	0.2	-2.3	4.7	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.9	78	3.27	15	-	-
7.22	4.8	7.6	-	4.7	0.2	-2.3	4.6	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	4.2	76	3.23	15	-	-
7.38	4.7	7.6	-	4.7	0.2	-2.3	5.0	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	4.1	78	3.26	15	-	-
7.55	5.1	8.1	-	5.0	0.2	-2.2	5.4	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	4.3	77	3.25	15	-	-
7.71	5.1	8.2	-	5.1	0.2	-2.2	5.2	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	4.3	76	3.24	15	-	-
7.87	4.8	7.7	-	4.8	0.2	-2.2	5.1	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	4.0	78	3.26	15	-	-
8.04	4.6	7.4	-	4.6	0.2	-2.2	4.5	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.8	76	3.24	15	-	-
8.20	4.4	7.1	-	4.4	0.2	-2.1	4.3	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.5	77	3.25	15	-	-
8.37	4.5	7.2	-	4.5	0.2	-2.1	4.0	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.5	75	3.22	15	-	-
8.53	4.7	7.5	-	4.6	0.2	-2.1	4.0	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.6	74	3.21	15	-	-
8.69	4.6	7.4	-	4.6	0.2	-2.0	4.2	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.5	75	3.23	15	-	-
8.86	4.2	6.7	-	4.2	0.2	-2.0	4.5	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	3.1	80	3.29	15	-	-
9.02	4.5	7.3	-	4.5	0.2	-1.8	4.4	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.4	77	3.25	15	-	-
9.19	4.5	7.2	-	4.4	0.1	-1.8	3.0	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.3	70	3.16	15	-	-
9.35	4.4	7.1	-	4.4	0.2	-1.7	4.4	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.2	78	3.26	15	-	-
9.51	4.5	7.3	-	4.5	0.2	-1.9	5.3	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.3	81	3.30	15	-	-
9.68	5.1	8.2	-	5.1	0.2	-1.9	4.2	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.7	72	3.19	15	-	-
9.84	4.8	7.7	-	4.8	0.3	-1.8	6.9	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.4	85	3.35	15	-	-
10.01	4.3	6.9	-	4.2	0.3	-1.8	6.9	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.9	89	3.39	15	-	-
10.17	4.7	7.5	-	4.6	0.2	-1.3	5.5	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.2	81	3.30	15	-	-
10.34	4.6	7.4	-	4.6	0.2	-1.2	4.4	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.1	77	3.25	15	-	-
10.50	4.7	7.6	-	4.7	0.2	-1.2	4.7	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.2	77	3.25	15	-	-
10.66	5.5	8.9	-	5.5	0.2	-1.1	3.1	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	3.8	65	3.09	15	-	-
10.83	4.9	7.9	-	4.9	0.2	-1.1	4.7	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	3.2	76	3.24	15	-	-
10.99	6.9	11.1	-	6.9	0.2	-1.0	3.7	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	4.7	62	3.04	15	-	-
11.16	7.1	11.4	-	7.1	0.2	-1.0	3.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.8	58	3.00	15	-	-
11.32	6.7	10.8	-	6.7	0.2	-1.0	3.8	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	4.4	63	3.06	15	-	-
11.48	5.8	9.3	-	5.8	0.3	-0.9	5.4	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	3.7	74	3.21	15	-	-
11.65	5.8	9.3	-	5.8	0.3	-0.9	5.6	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	3.7	75	3.22	15	-	-
11.81	7.6	12.3	-	7.6	0.5	-0.8	6.8	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.9	71	3.17	15	-	-
11.98	9.5	15.3	-	9.5	0.4	-0.8	5.1	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	6.2	59	3.01	15	-	-
12.14	14.9	23.9	-	14.9	0.4	-0.8	2.8	4	clayy SILT to silty CLAY	115	2.0	7	12	-	-	1.0	9.9	40	2.69	15	-	-
12.30	12.4	19.9	-	12.4	0.3	-1.2	2.6	4	clayy SILT to silty CLAY	115	2.0	6	10	-	-	0.8	8.1	43	2.74	15	-	-
12.47	7.0	11.2	-	7.0	0.3	-1.1	4.0	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	4.3	63	3.07	15	-	-
12.63	5.6	8.9	-	5.5	0.2	-0.9	4.5	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	3.3	72	3.19	15	-	-
12.80	6.0	9.7	-	6.0	0.2	-0.8	4.7	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	3.6	70	3.17	15	-	-
12.96	7.2	11.5	-	7.2	0.3	-0.7	4.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.3	66	3.11	15	-	-
13.12	7.6	12.2	-	7.6	0.4	-0.7	5.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.5	66	3.11	15	-	-
13.29	7.3	11.8	-	7.3	0.3	-0.7	5.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.3	67	3.11	15	-	-
13.45	6.9	11.0	-	6.9	0.3	-0.6	4.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	4.0	66	3.11	15	-	-
13.62	6.6	10.6	-	6.6	0.2	-0.6	4.3	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	3.7	66	3.11	15	-	-
13.78	6.9	11.1	-	6.9	0.2	-0.6	3.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	3.9	63	3.07	15	-	-
13.94	7.1	11.3	-	7.0	0.3	-0.5	4.8	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.0	67	3.12	15	-	-
14.11	7.9	12.6	-	7.9	0.3	-0.5	4.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.4	64	3.08	15	-	-
14.27	8.5	13.6	-	8.5	0.4	-0.5	5.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	4.8	63	3.06	15	-	-
14.44	9.4	15.1	-	9.4	0.4	-0.5	4.6	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	5.3	58	3.00	15	-	-
14.60	10.5	16.9	-	10.5	0.4	-0.4	4.6	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	6.0	56	2.96	15	-	-
14.76	10.6	16.9	-	10.5	0.5	-0.4	5.3	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	5.9	58	2.99	15	-	-
14.93	10.8	17.4	-	10.8	0.5	-0.4	5.5	3	silty CLAY to CLAY	115	1.5	7	12	-	-	0.7	6.0	58	3.00	15	-	-
15.09	11.8	18.9	-	11.8	0.5	-0.4	5.0	3	silty CLAY to CLAY	115	1.5	8	13	-	-	0.8	6.6	55	2.94	15	-	-
15.26	10.3	16.6	-	10.3	0.5	-0.4	5.8	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	5.6	60	3.03	15	-	-
15.42	8.6	13.8	-	8.6	0.5	-0.3	6.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	4.6	68	3.14	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(284).cpt
CPT Date: 3/10/2015 2:21:44 PM
GW During Test: 5 ft

Sounding ID: CPT-07
Project No: 10487.01
Cone/Rig: DDG1268

Depth ft	qc PS tsf	* qc1n PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
15.58	7.5	12.0	-	7.5	0.4	-0.3	6.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.9	72	3.19	15	-	-
15.75	6.4	10.3	-	6.4	0.4	-0.3	7.0	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	3.2	78	3.26	15	-	-
15.91	5.8	9.3	-	5.8	0.3	-0.3	6.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	2.8	81	3.29	15	-	-
16.08	5.1	8.2	-	5.1	0.3	-0.3	6.5	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.4	84	3.33	15	-	-
16.24	4.9	7.8	-	4.9	0.2	-0.3	6.3	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	2.2	85	3.35	15	-	-
16.40	5.2	8.4	-	5.2	0.2	-0.3	5.7	3	silty CLAY to CLAY	115	1.5	3	6	-	-	0.3	2.4	80	3.29	15	-	-
16.57	5.7	9.1	-	5.7	0.3	-0.3	6.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	2.6	80	3.29	15	-	-
16.73	7.4	11.8	-	7.4	0.3	-0.2	5.1	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.6	67	3.13	15	-	-
16.90	8.8	14.2	-	8.8	0.3	-0.2	3.5	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	4.3	55	2.95	15	-	-
17.06	9.1	14.6	-	9.1	0.4	-0.2	4.7	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	4.5	60	3.02	15	-	-
17.23	12.8	20.6	-	12.8	0.5	0.0	3.8	3	silty CLAY to CLAY	115	1.5	9	14	-	-	0.9	6.4	48	2.84	15	-	-
17.39	10.7	17.1	-	10.7	0.4	0.0	4.5	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	5.2	55	2.95	15	-	-
17.55	8.7	13.9	-	8.7	0.3	0.0	4.2	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	4.1	59	3.01	15	-	-
17.72	7.1	11.5	-	7.1	0.3	0.0	4.3	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.3	65	3.09	15	-	-
17.88	5.7	9.2	-	5.7	0.2	0.1	5.3	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	2.5	76	3.24	15	-	-
18.05	5.6	8.9	-	5.6	0.3	0.1	5.8	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	2.4	79	3.28	15	-	-
18.21	5.7	9.0	-	5.7	0.3	0.1	7.0	3	silty CLAY to CLAY	115	1.5	4	6	-	-	0.4	2.4	83	3.33	15	-	-
18.37	8.0	12.6	-	8.0	0.5	0.2	7.0	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	3.6	72	3.19	15	-	-
18.54	6.8	10.6	-	6.8	0.6	0.4	9.7	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.4	2.9	85	3.35	15	-	-
18.70	9.5	14.7	-	9.5	0.5	0.5	6.2	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	4.3	65	3.10	15	-	-
18.87	9.7	15.0	-	9.8	0.6	0.6	6.7	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	4.4	66	3.11	15	-	-
19.03	11.5	17.6	-	11.5	0.6	0.6	6.1	3	silty CLAY to CLAY	115	1.5	8	12	-	-	0.8	5.2	60	3.03	15	-	-
19.19	11.8	17.9	-	11.8	0.7	0.7	6.8	3	silty CLAY to CLAY	115	1.5	8	12	-	-	0.8	5.4	62	3.05	15	-	-
19.36	12.7	19.2	-	12.7	0.8	0.7	6.8	3	silty CLAY to CLAY	115	1.5	8	13	-	-	0.9	5.8	60	3.03	15	-	-
19.52	13.7	20.6	-	13.7	0.9	0.7	6.8	3	silty CLAY to CLAY	115	1.5	9	14	-	-	0.9	6.2	59	3.00	15	-	-
19.69	14.3	21.3	-	14.3	0.9	0.7	6.5	3	silty CLAY to CLAY	115	1.5	10	14	-	-	1.0	6.5	57	2.98	15	-	-
19.85	15.1	22.3	-	15.1	0.9	0.5	6.3	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.0	6.8	56	2.96	15	-	-
20.01	14.2	20.8	-	14.2	0.8	0.5	6.1	3	silty CLAY to CLAY	115	1.5	9	14	-	-	1.0	6.3	56	2.97	15	-	-
20.18	11.5	16.8	-	11.5	0.6	0.7	5.6	3	silty CLAY to CLAY	115	1.5	8	11	-	-	0.8	5.0	60	3.02	15	-	-
20.34	8.9	12.9	-	8.9	0.4	0.8	5.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	3.7	67	3.13	15	-	-
20.51	9.9	14.3	-	9.9	0.4	0.9	5.0	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.7	4.2	62	3.05	15	-	-
20.67	10.6	15.2	-	10.6	0.6	1.1	6.1	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.7	4.5	64	3.08	15	-	-
20.83	13.6	19.4	-	13.6	0.6	1.0	4.6	3	silty CLAY to CLAY	115	1.5	9	13	-	-	0.9	5.8	53	2.91	15	-	-
21.00	10.2	14.4	-	10.2	0.6	1.0	6.3	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.7	4.2	66	3.11	15	-	-
21.16	9.4	13.3	-	9.4	0.6	1.1	7.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	3.8	71	3.17	15	-	-
21.33	16.4	23.0	-	16.5	0.6	1.0	4.0	3	silty CLAY to CLAY	115	1.5	11	15	-	-	1.1	7.0	46	2.81	15	-	-
21.49	16.2	22.5	-	16.2	0.6	0.6	3.8	3	silty CLAY to CLAY	115	1.5	11	15	-	-	1.1	6.9	46	2.80	15	-	-
21.65	10.5	14.5	-	10.5	0.6	0.6	6.2	3	silty CLAY to CLAY	115	1.5	7	10	-	-	0.7	4.2	66	3.11	15	-	-
21.82	8.7	12.0	-	8.7	0.5	0.7	6.3	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.6	3.4	72	3.18	15	-	-
21.98	7.8	10.7	-	7.9	0.4	1.2	6.3	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	3.0	75	3.22	15	-	-
22.15	7.7	10.5	-	7.7	0.3	1.3	5.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	2.9	71	3.18	15	-	-
22.31	7.5	10.2	-	7.6	0.3	1.3	5.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	2.8	74	3.22	15	-	-
22.47	7.8	10.5	-	7.9	0.4	1.5	5.6	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	2.9	73	3.20	15	-	-
22.64	8.4	11.3	-	8.5	0.4	1.5	5.2	3	silty CLAY to CLAY	115	1.5	6	8	-	-	0.5	3.1	69	3.15	15	-	-
22.80	7.1	9.4	-	7.1	0.4	1.5	6.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.4	2.5	79	3.28	15	-	-
22.97	6.2	8.2	-	6.2	0.4	1.5	7.6	3	silty CLAY to CLAY	115	1.5	4	5	-	-	0.4	2.1	89	3.39	15	-	-
23.13	7.9	10.4	-	8.0	0.4	1.5	6.1	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	2.9	75	3.23	15	-	-
23.30	8.2	10.8	-	8.3	0.4	1.5	5.7	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	3.0	73	3.20	15	-	-
23.46	7.2	9.3	-	7.2	0.4	1.7	6.2	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	2.5	80	3.28	15	-	-
23.62	7.8	10.0	-	7.8	0.3	1.7	5.4	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	2.7	74	3.21	15	-	-
23.79	9.9	12.7	-	10.0	0.4	1.8	4.4	3	silty CLAY to CLAY	115	1.5	7	8	-	-	0.6	3.6	63	3.06	15	-	-
23.95	11.6	14.8	-	11.6	0.5	1.9	4.5	3	silty CLAY to CLAY	115	1.5	8	10	-	-	0.8	4.3	59	3.01	15	-	-
24.12	12.2	15.5	-	12.3	0.5	1.9	4.3	3	silty CLAY to CLAY	115	1.5	8	10	-	-	0.8	4.5	57	2.98	15	-	-
24.28	15.3	19.4	-	15.4	0.6	2.1	4.1	3	silty CLAY to CLAY	115	1.5	10	13	-	-	1.0	5.8	51	2.88	15	-	-
24.44	18.0	22.6	-	18.0	0.8	2.1	4.5	3	silty CLAY to CLAY	115	1.5	12	15	-	-	1.2	6.9	49	2.86	15	-	-
24.61	21.5	26.9	-	21.6	1.1	1.8	5.4	3	silty CLAY to CLAY	115	1.5	14	18	-	-	1.5	8.3	49	2.85	15	-	-
24.77	22.7	28.2	-	22.8	1.1	1.9	5.3	3	silty CLAY to CLAY	115	1.5	15	19	-	-	1.5	8.7	47	2.83	15	-	-
24.94	22.8	28.2	-	22.8	1.2	1.9	5.4	3	silty CLAY to CLAY	115	1.5	15	19	-	-	1.6	8.7	48	2.83	15	-	-
25.10	24.6	30.2	-	24.6	1.2	2.2	5.3	3	silty CLAY to CLAY	115	1.5	16	20	-	-	1.7	9.4	46	2.80	15	-	-
25.26	24.6	30.0	-	24.6	1.2	2.2	5.4	3	silty CLAY to CLAY	115	1.5	16	20	-	-	1.7	9.3	46	2.81	15	-	-
25.43	22.8	27.7	-	22.9	1.2	2.1	5.7	3	silty CLAY to CLAY	115	1.5	15	18	-	-	1.6	8.6	49	2.85	15	-	-
25.59	21.1	25.5	-	21.1	1.2	1.7	6.2	3	silty CLAY to CLAY	115	1.5	14	17	-	-	1.4	7.8	52	2.91	15	-	-
25.76	18.7	22.5	-	18.7	1.1	1.6	6.4	3	silty CLAY to CLAY	115	1.5	12	15	-	-	1.3	6.8	56	2.96	15	-	-
25.92	17.0	20.4	-	17.1	1.1	1.2	6.9	3	silty CLAY to CLAY	115	1.5	11	14	-	-	1.1	6.1	59	3.01	15	-	-
26.08	18.7	22.2	-	18.7	1.0	1.2	5.9	3	silty CLAY to CLAY	115	1.5	12	15	-	-	1.3	6.7	54	2.94	15	-	-
26.25	18.0	21.3	-	18.0	1.0	1.1	6.0	3	silty CLAY to CLAY	115	1.5	12	14	-	-	1.2	6.5	56	2.96	15	-	-
26.41	15.8	18.6	-	15.8	1.0	1.2	6.8	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.1	5.5	61	3.04	15	-	-
26.58	14.6	17.1	-	14.6	1.0	1.0	7.3	3	silty CLAY to CLAY	115	1.5	10	11	-	-	1.0	5.0	65	3.09	15	-	-
26.74	15.8	18.5	-	15.9	0.9	1.1	6.3	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.1	5.5	60	3.02	15	-	-
26.90	15.8	18.3	-	15.8	0.8	1.1	5.6	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.1	5.4	58	2.99	15	-	-
27.07	14.5	16.8	-	14.5	0.6	1.1	4.7	3	silty CLAY to CLAY	115	1.5	10	11	-	-	1.0	4.9	57	2.98	15	-	-
27.23	14.0	16.1	-	14.0	0.6	1.2	4.9	3	silty CLAY to CLAY	115	1.5	9	11	-	-	0.9	4.7	59	3.00	15	-	-
27.40	15.9	18.2	-	15.9	0.6	1.2	4.3	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.1	5.4	53	2.92	15	-	-
27.56	15.2	17.3	-	15.2	0.7	1.1	5.3	3	silty CLAY to CLAY	115	1.5	10	12	-	-	1.0	5.1	58	3.00	15	-	-
27.72	17.1	19.4	-	17.1	0.7	1.2	4.7	3	silty CLAY to CLAY	115	1.5	11	13	-	-	1.1	5.8	53	2.92	15	-	-
27.89	18.4	20.7	-	18.4	0.9	1.2	5.2	3	silty CLAY to CLAY	115	1.5	12	14	-	-	1.2	6.2	54	2.92	15	-	-
28.05	21.5	24.2	-	21.6	1.0	1.3	4.8	3	silty CLAY to CLAY	115	1.5	14	16	-	-	1.5	7.4	49	2.85	15	-	-
28.22	20.1	22.4	-	20.1	1.1	1.1	6.0	3	silty CLAY to CLAY	115	1.5	13	15	-	-	1.4	6.8	54	2.94	15	-	-
28.38	22.7	25.2	-	22.7	1.1	1.2	5.0	3	silty CLAY to CLAY	115	1.5	15	17	-	-	1.5	7.7	49	2.85	15	-	-
28.54	17.2	19.0	-	17.2	0.9	0.8	5.8	3	silty CLAY to CLAY	115	1.5	11	13	-	-	1.1	5.7	58	2.99	15	-	-
28.71	14.7	16.2	-	14.7	0.8	1.0	6.0	3	silty CLAY to CLAY	115	1.5	10	11	-	-	1.0	4.7	62	3.05	15	-	-
28.87	15.8	17.4	-	15.9	1.0	1.1	6.8	3	silty CLAY to CLAY	115	1.5	11	12	-	-	1.1	5.1	63	3.07	15	-	-
29.04	17.7	19.3	-	17.7	1.1	1.2	7.1	3	silty CLAY to CLAY	115	1.5	12	13	-	-	1.2	5.8	61	3.04	15	-	-
29.20	21.0	22.8	-	21.0	1.1	1.3	5.7	3	silty CLAY to CLAY	115	1.5	14	15	-	-	1.4	6.9	53	2.92	15	-	-
29.36	21.0	22.6	-	21.0	1.0	1.5	5.0	3	silty CLAY to CLAY	115	1.5	14	15	-	-	1.4	6.9	51	2.88	15	-	-
29.53	20.2	21.7	-	20.2	0.9	1.6	4.7	3	silty CLAY to CLAY	115	1.5	13	14	-	-	1.4	6.6	51	2.88	15	-	-
29.69	21.7	23.2	-	21.7	1.0	1.8	5.2	3	silty CLAY to CLAY	115	1.5	14	15	-	-	1.5	7.1	51	2.89	15	-	-
29.86	24.2	25.8	-	24.3	1.3	1.9	5.7	3	silty CLAY to CLAY	115	1.5	16	17	-	-	1.6	7.9	50	2.88	15	-	-
30.02	27.5	29.2	-	27.6	1.5	2.0	5.9	3	silty CLAY to CLAY	115	1.5	18	19	-	-	1.9	9.0	49	2.85	15	-	-
30.19	30.9	32.6	-	30.9	1.6	2.2	5.4	3	silty CLAY to CLAY	115	1.5	21	22	-	-	2.1	9.9	45	2.78	15	-	-
30.35	29.9	31.4	-	30.0	1.4	2.2	4.8	3	silty CLAY to CLAY	115	1.5	20	21	-	-	2.0	9.8	44	2.76	15	-	-
30.51	31.2	32.6	-	31.2	1.3	2.4	4.5	3	silty CLAY to CLAY	115	1.5	21	22	-	-	2.1	9.9	42	2.73	15	-	-
30.68	31.8	33.1	-	31.8	1.4	2.5	4.8	3	silty CLAY to CLAY	115	1.5	21	22	-	-	2.2	9.9	43	2.74	15	-	-
30.84	30.4	31.5	-	30.4	1.4	2.5	4.9	3	silty CLAY to CLAY	115	1.5	20	21	-	-	2.1	9.8	44	2.76	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(284).cpt
CPT Date: 3/10/2015 2:21:44 PM
GW During Test: 5 ft

Sounding ID: CPT-07
Project No: 10487.01
Cone/Rig: DDG1268

Depth ft	qc PS tsf	qcln PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	SPT R-N1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - -	Fin Ic %	Ic SBT Indx	Nk - -	Vol Strn %	Cycl SStn %
31.01	28.9	29.8	-	29.0	1.4	2.6	5.0	3	silty CLAY to CLAY	115	1.5	19	20	-	-	2.0	9.2	45	2.79	15	-	-
31.17	29.8	30.7	-	29.9	1.6	2.7	5.6	3	silty CLAY to CLAY	115	1.5	20	20	-	-	2.0	9.5	47	2.82	15	-	-
31.33	33.2	34.0	-	33.3	1.8	2.7	5.7	3	silty CLAY to CLAY	115	1.5	22	23	-	-	2.3	9.9	45	2.79	15	-	-
31.50	30.7	31.2	-	30.7	1.7	2.8	5.8	3	silty CLAY to CLAY	115	1.5	20	21	-	-	2.1	9.7	47	2.82	15	-	-
31.66	24.0	24.3	-	24.0	1.2	2.7	5.6	3	silty CLAY to CLAY	115	1.5	16	16	-	-	1.6	7.4	51	2.89	15	-	-
31.83	22.0	22.2	-	22.0	0.9	2.8	4.6	3	silty CLAY to CLAY	115	1.5	15	15	-	-	1.5	6.7	50	2.87	15	-	-
31.99	22.2	22.3	-	22.3	0.9	2.8	4.5	3	silty CLAY to CLAY	115	1.5	15	15	-	-	1.5	6.8	49	2.86	15	-	-
32.15	27.6	27.6	-	27.6	1.5	2.9	5.9	3	silty CLAY to CLAY	115	1.5	18	18	-	-	1.9	8.5	50	2.87	15	-	-
32.32	41.0	40.9	-	41.1	1.9	2.4	4.9	3	silty CLAY to CLAY	115	1.5	27	27	-	-	2.8	9.9	39	2.68	15	-	-
32.48	33.1	32.9	-	33.2	1.9	2.2	6.2	3	silty CLAY to CLAY	115	1.5	22	22	-	-	2.3	9.9	47	2.82	15	-	-
32.65	25.2	24.9	-	25.3	1.5	2.3	6.5	3	silty CLAY to CLAY	115	1.5	17	17	-	-	1.7	7.6	54	2.93	15	-	-
32.81	20.8	20.5	-	20.8	1.3	2.2	6.7	3	silty CLAY to CLAY	115	1.5	14	14	-	-	1.4	6.1	59	3.00	15	-	-
32.97	21.2	20.8	-	21.3	1.4	2.3	7.2	3	silty CLAY to CLAY	115	1.5	14	14	-	-	1.4	6.3	60	3.02	15	-	-
33.14	31.8	31.0	-	31.8	1.7	2.4	5.6	3	silty CLAY to CLAY	115	1.5	21	21	-	-	2.2	9.6	47	2.81	15	-	-
33.30	33.7	32.7	-	33.7	2.0	2.5	6.2	3	silty CLAY to CLAY	115	1.5	22	22	-	-	2.3	9.9	47	2.82	15	-	-
33.47	34.8	33.7	-	34.9	1.7	2.6	5.1	3	silty CLAY to CLAY	115	1.5	23	22	-	-	2.4	9.9	43	2.75	15	-	-
33.63	27.3	26.3	-	27.3	1.3	2.7	5.0	3	silty CLAY to CLAY	115	1.5	18	18	-	-	1.9	8.1	48	2.83	15	-	-
33.79	26.2	25.2	-	26.3	1.2	3.0	5.0	3	silty CLAY to CLAY	115	1.5	17	17	-	-	1.8	7.7	49	2.85	15	-	-
33.96	25.4	24.3	-	25.5	1.5	3.0	6.4	3	silty CLAY to CLAY	115	1.5	17	16	-	-	1.7	7.4	54	2.93	15	-	-
34.12	29.4	28.0	-	29.5	2.0	3.0	7.1	3	silty CLAY to CLAY	115	1.5	20	19	-	-	2.0	8.6	53	2.92	15	-	-
34.29	46.9	44.5	-	47.0	2.5	2.7	5.6	3	silty CLAY to CLAY	115	1.5	31	30	-	-	3.2	9.9	40	2.69	15	-	-
34.45	61.3	57.9	165.1	61.4	2.4	2.1	4.1	4	clayy SILT to silty CLAY	115	2.0	31	29	-	-	4.3	9.9	31	2.52	15	0.00	0.0
34.61	61.0	57.4	-	61.1	3.1	1.5	5.3	4	clayy SILT to silty CLAY	115	2.0	31	29	-	-	4.2	9.9	35	2.60	15	-	-
34.78	49.8	46.6	-	49.8	2.8	1.1	6.0	3	silty CLAY to CLAY	115	1.5	33	31	-	-	3.4	9.9	40	2.70	15	-	-
34.94	45.7	42.6	-	45.7	3.3	1.2	7.5	3	silty CLAY to CLAY	115	1.5	30	28	-	-	3.2	9.9	46	2.80	15	-	-
35.11	53.1	49.3	-	53.1	3.1	1.3	6.0	3	silty CLAY to CLAY	115	1.5	35	33	-	-	3.7	9.9	40	2.69	15	-	-
35.27	43.6	40.3	-	43.6	2.6	1.1	6.4	3	silty CLAY to CLAY	115	1.5	29	27	-	-	3.0	9.9	44	2.77	15	-	-
35.43	42.9	39.5	-	42.9	2.2	1.4	5.3	3	silty CLAY to CLAY	115	1.5	29	26	-	-	3.0	9.9	41	2.71	15	-	-
35.60	34.0	31.2	-	34.0	2.6	1.5	8.0	3	silty CLAY to CLAY	115	1.5	23	21	-	-	2.3	9.7	53	2.92	15	-	-
35.76	27.4	25.0	-	27.4	2.4	1.9	9.5	3	silty CLAY to CLAY	115	1.5	18	17	-	-	1.9	7.6	62	3.04	15	-	-
35.93	33.6	30.6	-	33.7	2.1	3.8	6.7	3	silty CLAY to CLAY	115	1.5	22	20	-	-	2.3	9.5	50	2.87	15	-	-
36.09	27.7	25.1	-	27.7	1.5	4.1	5.8	3	silty CLAY to CLAY	115	1.5	18	17	-	-	1.9	7.7	52	2.89	15	-	-
36.26	27.0	24.4	-	27.1	1.3	4.2	5.4	3	silty CLAY to CLAY	115	1.5	18	16	-	-	1.8	7.4	51	2.88	15	-	-
36.42	24.3	21.8	-	24.4	1.3	4.3	5.8	3	silty CLAY to CLAY	115	1.5	16	15	-	-	1.6	6.6	55	2.94	15	-	-
36.58	23.2	20.8	-	23.3	1.2	4.4	5.7	3	silty CLAY to CLAY	115	1.5	15	14	-	-	1.6	6.3	55	2.95	15	-	-
36.75	20.9	18.7	-	21.0	1.1	4.4	5.8	3	silty CLAY to CLAY	115	1.5	14	12	-	-	1.4	5.5	58	3.00	15	-	-
36.91	19.6	17.5	-	19.7	1.0	4.5	5.8	3	silty CLAY to CLAY	115	1.5	13	12	-	-	1.3	5.1	60	3.02	15	-	-
37.08	18.2	16.2	-	18.3	1.0	4.5	6.0	3	silty CLAY to CLAY	115	1.5	12	11	-	-	1.2	4.7	62	3.06	15	-	-
37.24	17.6	15.5	-	17.7	0.9	4.6	5.7	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.2	4.5	62	3.06	15	-	-
37.40	16.5	14.5	-	16.6	0.9	4.6	6.3	3	silty CLAY to CLAY	115	1.5	11	10	-	-	1.1	4.2	67	3.11	15	-	-
37.57	15.8	13.9	-	15.9	0.8	4.6	5.8	3	silty CLAY to CLAY	115	1.5	11	9	-	-	1.0	4.0	66	3.11	15	-	-
37.73	29.9	26.1	-	30.0	1.1	4.5	4.1	3	silty CLAY to CLAY	115	1.5	20	17	-	-	2.0	8.0	45	2.77	15	-	-
37.90	22.6	19.6	-	22.7	1.3	5.6	6.3	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.5	5.8	59	3.00	15	-	-
38.06	23.8	20.6	-	23.9	1.2	6.1	5.3	3	silty CLAY to CLAY	115	1.5	16	14	-	-	1.6	6.2	54	2.94	15	-	-
38.22	18.9	16.3	-	19.0	0.9	6.4	5.3	3	silty CLAY to CLAY	115	1.5	13	11	-	-	1.3	4.8	60	3.02	15	-	-
38.39	17.6	15.1	-	17.7	0.8	6.5	5.3	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.2	4.4	62	3.05	15	-	-
38.55	15.8	13.5	-	15.9	0.8	6.6	6.0	3	silty CLAY to CLAY	115	1.5	11	9	-	-	1.0	3.8	67	3.12	15	-	-
38.72	16.4	14.0	-	16.6	0.8	6.7	5.7	3	silty CLAY to CLAY	115	1.5	11	9	-	-	1.1	4.0	65	3.10	15	-	-
38.88	19.8	16.8	-	19.9	0.9	6.8	5.0	3	silty CLAY to CLAY	115	1.5	13	11	-	-	1.3	4.9	58	3.00	15	-	-
39.04	19.2	16.2	-	19.3	1.0	7.0	6.0	3	silty CLAY to CLAY	115	1.5	13	11	-	-	1.3	4.7	62	3.06	15	-	-
39.21	17.8	15.1	-	18.0	1.0	7.0	6.1	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.2	4.3	65	3.09	15	-	-
39.37	18.4	15.5	-	18.5	0.8	7.0	5.2	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.2	4.5	61	3.04	15	-	-
39.54	21.4	17.9	-	21.5	0.9	7.3	4.8	3	silty CLAY to CLAY	115	1.5	14	12	-	-	1.4	5.3	56	2.96	15	-	-
39.70	25.4	21.2	-	25.5	1.1	7.2	4.9	3	silty CLAY to CLAY	115	1.5	17	14	-	-	1.7	6.4	52	2.90	15	-	-
39.86	26.3	21.9	-	26.5	1.4	7.1	5.9	3	silty CLAY to CLAY	115	1.5	18	15	-	-	1.8	6.6	55	2.94	15	-	-
40.03	27.4	22.7	-	27.5	1.4	7.0	5.5	3	silty CLAY to CLAY	115	1.5	18	15	-	-	1.8	6.9	53	2.91	15	-	-
40.19	26.8	22.1	-	26.9	1.3	7.2	5.4	3	silty CLAY to CLAY	115	1.5	18	15	-	-	1.8	6.7	53	2.92	15	-	-
40.36	25.2	20.8	-	25.4	1.2	7.1	5.3	3	silty CLAY to CLAY	115	1.5	17	14	-	-	1.7	6.2	54	2.93	15	-	-
40.52	24.3	19.9	-	24.4	1.1	7.2	5.1	3	silty CLAY to CLAY	115	1.5	16	13	-	-	1.6	5.9	54	2.94	15	-	-
40.68	25.7	21.0	-	25.9	1.1	7.3	4.8	3	silty CLAY to CLAY	115	1.5	17	14	-	-	1.7	6.3	52	2.90	15	-	-
40.85	27.3	22.2	-	27.4	1.3	7.2	5.3	3	silty CLAY to CLAY	115	1.5	18	15	-	-	1.8	6.7	53	2.91	15	-	-
41.01	29.7	24.1	-	29.8	1.4	7.2	5.2	3	silty CLAY to CLAY	115	1.5	20	16	-	-	2.0	7.3	50	2.87	15	-	-
41.18	28.9	23.4	-	29.1	1.4	7.3	5.4	3	silty CLAY to CLAY	115	1.5	19	16	-	-	2.0	7.1	52	2.90	15	-	-
41.34	30.4	24.5	-	30.5	1.4	7.1	5.1	3	silty CLAY to CLAY	115	1.5	20	16	-	-	2.1	7.4	50	2.86	15	-	-
41.50	27.8	22.3	-	27.9	1.3	7.1	5.1	3	silty CLAY to CLAY	115	1.5	19	15	-	-	1.9	6.7	52	2.89	15	-	-
41.67	27.3	21.8	-	27.4	1.2	7.4	4.8	3	silty CLAY to CLAY	115	1.5	18	15	-	-	1.8	6.6	51	2.89	15	-	-
41.83	27.9	22.3	-	28.1	1.2	7.4	4.7	3	silty CLAY to CLAY	115	1.5	19	15	-	-	1.9	6.7	50	2.87	15	-	-
42.00	28.5	22.7	-	28.7	1.3	7.4	4.8	3	silty CLAY to CLAY	115	1.5	19	15	-	-	1.9	6.9	50	2.87	15	-	-
42.16	28.1	22.3	-	28.3	1.1	7.4	4.4	3	silty CLAY to CLAY	115	1.5	19	15	-	-	1.9	6.7	49	2.85	15	-	-
42.32	29.2	23.1	-	29.4	1.1	7.6	4.0	3	silty CLAY to CLAY	115	1.5	19	15	-	-	2.0	7.0	47	2.81	15	-	-
42.49	29.6	23.3	-	29.7	1.0	7.7	3.8	3	silty CLAY to CLAY	115	1.5	20	16	-	-	2.0	7.0	46	2.80	15	-	-
42.65	31.2	24.5	-	31.4	1.2	7.8	4.0	3	silty CLAY to CLAY	115	1.5	21	16	-	-	2.1	7.5	46	2.79	15	-	-
42.82	33.8	26.4	-	33.9	1.4	7.8	4.4	3	silty CLAY to CLAY	115	1.5	23	18	-	-	2.3	8.1	46	2.80	15	-	-
42.98	33.0	25.7	-	33.2	1.5	7.8	4.8	3	silty CLAY to CLAY	115	1.5	22	17	-	-	2.2	7.9	48	2.83	15	-	-
43.15	31.5	24.4	-	31.6	1.4	7.7	4.8	3	silty CLAY to CLAY	115	1.5	21	16	-	-	2.1	7.4	49	2.85	15	-	-
43.31	28.6	22.1	-	28.8	1.3	7.8	4.9	3	silty CLAY to CLAY	115	1.5	19	15	-	-	1.9	6.7	51	2.89	15	-	-
43.47	26.3	20.3	-	26.5	1.2	7.8	4.9	3	silty CLAY to CLAY	115	1.5	18	14	-	-	1.8	6.1	53	2.92	15	-	-
43.64	27.6	21.2	-	27.7	1.3	8.0	5.2	3	silty CLAY to CLAY	115	1.5	18	14	-	-	1.9	6.4	53	2.92	15	-	-
43.80	33.8	25.9	-	33.9	1.3	8.0	4.3	3	silty CLAY to CLAY	115	1.5	23	17	-	-	2.3	7.9	46	2.80	15	-	-
43.97	34.2	26.1	-	34.3	1.7	8.1	5.3	3	silty CLAY to CLAY	115	1.5	23	17	-	-	2.3	8.0	49	2.85	15	-	-
44.13	39.2	29.8	-	39.3	2.1	8.4	5.6	3	silty CLAY to CLAY	115	1.5	26	20	-	-	2.7	9.2	48	2.83	15	-	-
44.29	58.0	49.0	149.6	58.1	2.2	8.4	3.9	4	clayy SILT to silty CLAY	115	2.0	29	25	-	-	4.0	9.9	33	2.55	15	0.83	36.0
44.46	41.5	31.4	-	41.6	2.1	5.1	5.4	3	silty CLAY to CLAY	115	1.5	28	21	-	-	2.8	9.7	46	2.80	15	-	-
44.62	45.4	34.2	-	45.5	1.9	5.1	4.5	3	silty CLAY to CLAY	115	1.5	30	23	-	-	3.1	9.9	41	2.71	15	-	-
44.79	39.7	29.8	-	39.8	2.1	4.5	5.7	3	silty CLAY to CLAY	115	1.5	26	20	-	-	2.7	9.2	48	2.83	15	-	-
44.95	39.9	29.9	-	40.0	1.9	4.6	5.1	3	silty CLAY to CLAY	115	1.5	27	20	-	-	2.7	9.2	46	2.79	15	-	-
45.11	41.7	31.1	-	41.7	2.0	4.5	5.1	3	silty CLAY to CLAY	115	1.5	28	21	-	-	2.8	9.6	45	2.78	15	-	-
45.28	36.1	26.8	-	36.1	1.9	4.5	5.5	3	silty CLAY to CLAY	115	1.5	24	18	-	-	2.5	8.2	49	2.86	15	-	-
45.44	34.3	25.4	-	34.4	1.6	4.7	5.0	3	silty CLAY to CLAY	115	1.5	23	17	-	-	2.3	7.8	49	2.84	15	-	-
45.61	33.7	24.9	-	33.8	1.5	4.7	4.9	3	silty CLAY to CLAY	115	1.5	22	17	-	-	2.3	7.6	49	2.85	15	-	-
45.77	36.6	27.0	-	36.7	1.7	4.9	5.0	3	silty CLAY to CLAY	115	1.5	24	18	-	-	2.5	8.3	47	2.82	15	-	-
45.93	37.7	27.7	-	37.8	1.8	4.8	5.3	3	silty CLAY to CLAY	115	1.5	25	18	-	-	2.6	8.5	48	2.83	15	-	-
46.10	38.3	28.0	-	38.4	1.8	4.8	5.0	3	silty CLAY to CLAY	115	1.5	26	19	-	-	2.6	8.6	46	2.81	15	-	-
46.26	37.2	27.1	-	37.3	1.6	4.9	4.8	3	silty CLAY to CLAY	115	1.5	25	18	-	-	2.5	8.3	46	2.81	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(284).cpt
CPT Date: 3/10/2015 2:21:44 PM
GW During Test: 5 ft

Sounding ID: CPT-07
Project No: 10487.01
Cone/Rig: DDG1268

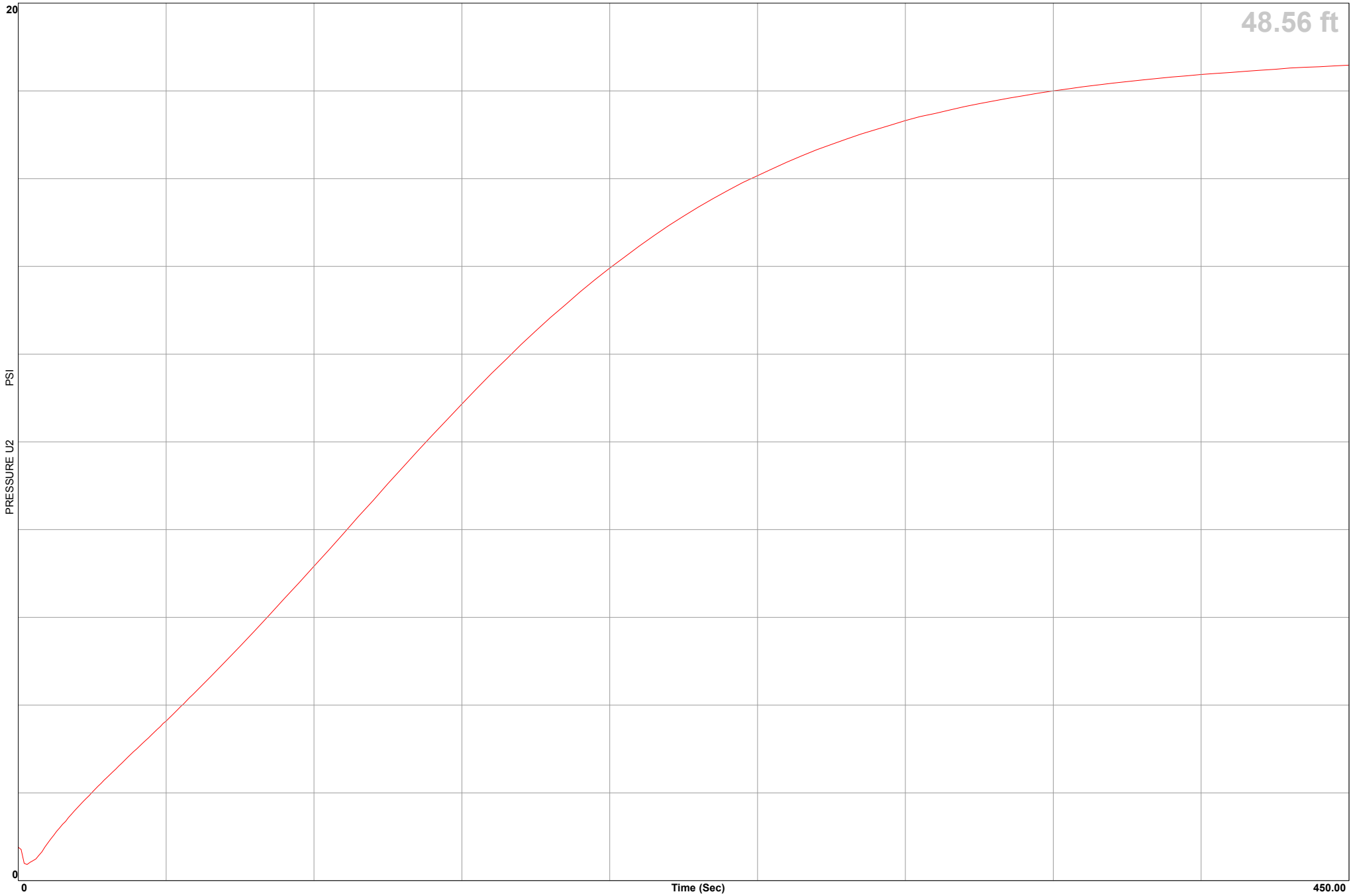
. Depth ft	. qc PS tsf	* qcln PS -	. q1ncs PS -	* qt PS tsf	. Slv Stss tsf	. pore prss (psi)	. Frct Rato %	* Mat Typ Zon	* Material Behavior Description	. Unit Wght pcf	. Qc to N	. SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	. Und Shr tsf	. OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
46.43	34.8	25.3	-	34.9	1.7	4.8	5.4	3	silty CLAY to CLAY	115	1.5	23	17	-	-	2.4	7.7	50	2.87	15	-	-
46.59	34.0	24.7	-	34.1	1.7	4.8	5.5	3	silty CLAY to CLAY	115	1.5	23	16	-	-	2.3	7.5	51	2.88	15	-	-
46.75	30.4	22.0	-	30.5	1.5	4.6	5.5	3	silty CLAY to CLAY	115	1.5	20	15	-	-	2.1	6.6	53	2.92	15	-	-
46.92	29.3	21.1	-	29.3	1.3	4.5	5.0	3	silty CLAY to CLAY	115	1.5	20	14	-	-	2.0	6.3	53	2.91	15	-	-
47.08	26.4	19.0	-	26.5	1.3	4.6	5.3	3	silty CLAY to CLAY	115	1.5	18	13	-	-	1.8	5.6	56	2.97	15	-	-
47.25	24.0	17.2	-	24.1	1.2	4.6	5.8	3	silty CLAY to CLAY	115	1.5	16	11	-	-	1.6	5.0	60	3.03	15	-	-
47.41	23.7	16.9	-	23.8	1.5	4.6	7.2	3	silty CLAY to CLAY	115	1.5	16	11	-	-	1.6	4.9	65	3.10	15	-	-
47.57	30.8	21.9	-	30.9	2.0	4.7	7.2	3	silty CLAY to CLAY	115	1.5	21	15	-	-	2.1	6.6	59	3.00	15	-	-
47.74	95.7	78.3	135.9	95.8	2.0	3.5	2.2	5	silty SAND to sandy SILT	120	4.0	24	20	59	38	-	-	20	2.23	16	1.52	16.9
47.90	155.7	127.2	161.1	155.8	2.4	2.5	1.6	6	clean SAND to silty SAND	125	5.0	31	25	75	41	-	-	12	1.97	16	0.00	0.0
48.07	203.9	166.2	198.3	203.9	3.3	2.0	1.6	6	clean SAND to silty SAND	125	5.0	41	33	84	42	-	-	10	1.90	16	0.00	0.0
48.23	222.4	181.0	218.4	222.4	4.0	1.6	1.8	6	clean SAND to silty SAND	125	5.0	44	36	87	43	-	-	11	1.92	16	0.00	0.0
48.39	229.1	186.1	220.2	229.1	3.9	1.1	1.7	6	clean SAND to silty SAND	125	5.0	46	37	88	43	-	-	10	1.89	16	0.00	0.0
48.56	227.2	184.3	241.1	227.2	5.4	0.7	2.4	5	silty SAND to sandy SILT	120	4.0	57	46	87	43	-	-	13	2.01	16	0.00	0.0
48.72	182.2	147.5	261.3	182.4	7.1	10.4	4.0	8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	12.0	9.9	20	2.24	16	0.00	0.0
48.89	96.9	67.2	-	97.0	6.5	1.9	6.9	9	very stiff fine SOIL	120	2.0	48	34	54	38	-	-	37	2.64	30	-	-
49.05	58.5	40.4	-	58.5	4.0	2.5	7.2	3	silty CLAY to CLAY	115	1.5	39	27	-	-	4.0	9.9	46	2.80	15	-	-
49.22	48.3	33.3	-	48.4	2.7	2.8	5.9	3	silty CLAY to CLAY	115	1.5	32	22	-	-	3.3	9.9	46	2.80	15	-	-
49.38	35.9	24.7	-	36.0	2.3	3.2	7.0	3	silty CLAY to CLAY	115	1.5	24	16	-	-	2.4	7.5	56	2.96	15	-	-
49.54	29.3	20.1	-	29.4	1.8	3.3	7.0	3	silty CLAY to CLAY	115	1.5	20	13	-	-	2.0	6.0	60	3.02	15	-	-
49.71	29.6	20.2	-	29.7	1.5	3.4	5.6	3	silty CLAY to CLAY	115	1.5	20	13	-	-	2.0	6.0	56	2.96	15	-	-
49.87	27.6	18.8	-	27.7	1.3	3.5	5.2	3	silty CLAY to CLAY	115	1.5	18	13	-	-	1.8	5.6	56	2.97	15	-	-
50.04	26.6	18.0	-	26.7	1.2	3.5	5.2	3	silty CLAY to CLAY	115	1.5	18	12	-	-	1.8	5.3	57	2.98	15	-	-
50.20	25.9	17.5	-	26.0	1.3	3.5	5.7	3	silty CLAY to CLAY	115	1.5	17	12	-	-	1.7	5.1	59	3.01	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Wallace-Kuhl

Location	Morning Star Packing	Operator	CB-MM	GPS	
Job Number	10487.01	Cone Number	DDG1268		
Hole Number	CPT-07	Date and Time	3/10/2015 2:21:44 PM		
Equilized Pressure	18.5	EST GW Depth During Test	5.6		

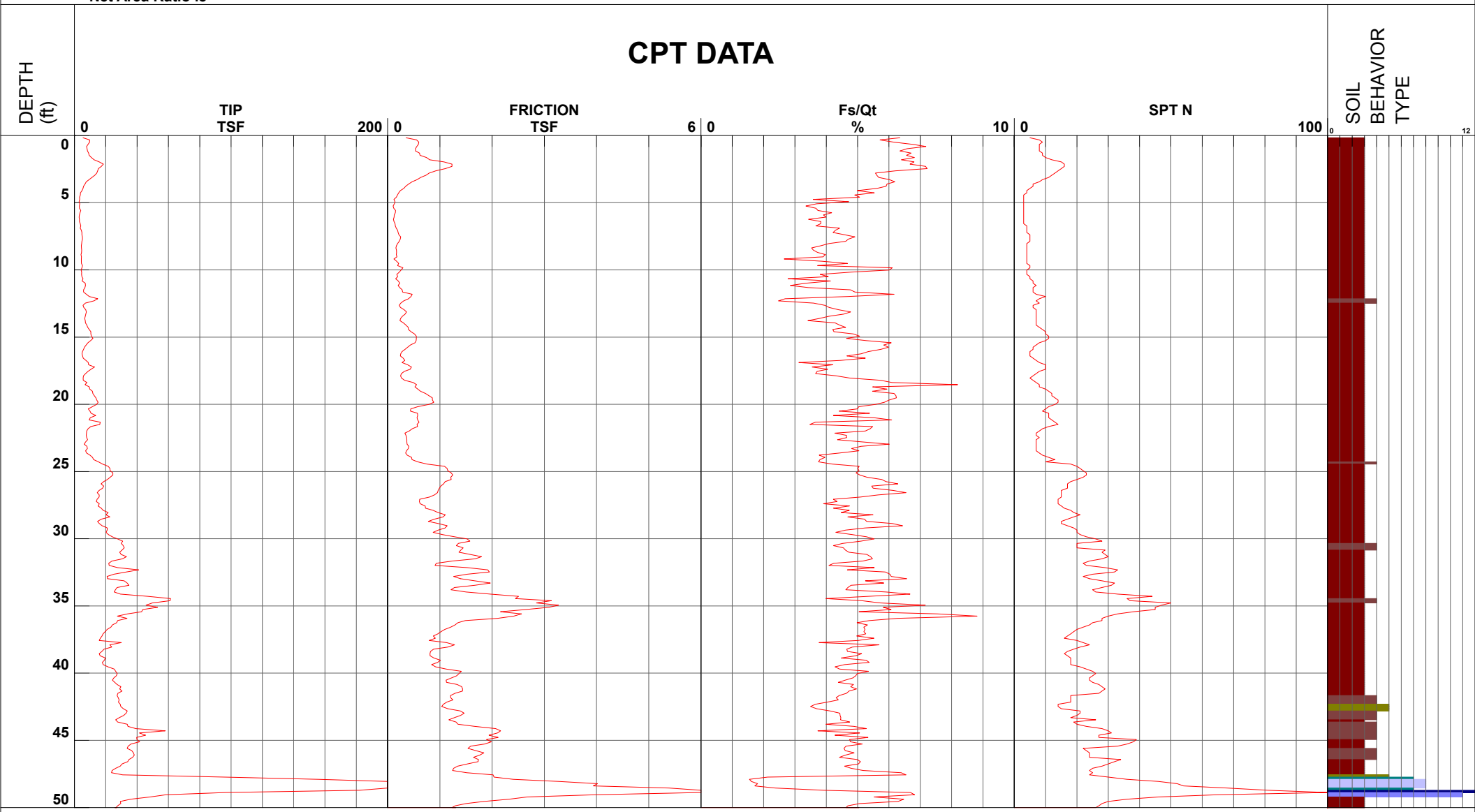


Wallace-Kuhl

Project	Morning Star Packing	Operator	CB-MM	Filename	SDF(284).cpt
Job Number	10487.01	Cone Number	DDG1268	GPS	
Hole Number	CPT-07	Date and Time	3/10/2015 2:21:44 PM	Maximum Depth	50.52 ft
EST GW Depth During Test		5.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(282).cpt
CPT Date: 3/10/2015 11:46:10 AM
GW During Test: 5 ft

Sounding ID: CPT-01
Project No: 10487.01
Cone/Rig: DDG1268

Depth ft	qc PS tsf	* qc1n PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR -	* Fin Ic %	* Ic SBT Indx	* Nk -	* Vol Strn %	* Cycl SStn %
0.33	23.8	38.1	105.3	23.8	0.6	0.2	2.6	4	clayy SILT to silty CLAY	115	2.0	12	19	-	-	1.7	9.9	31	2.50	15	N/A	N/A
0.49	39.3	63.0	131.1	39.3	1.0	0.2	2.6	5	silty SAND to sandy SILT	120	4.0	10	16	52	48	-	-	24	2.34	16	N/A	N/A
0.66	57.9	92.8	164.8	57.9	1.6	0.2	2.8	5	silty SAND to sandy SILT	120	4.0	14	23	65	48	-	-	20	2.24	16	N/A	N/A
0.82	66.6	106.8	177.8	66.6	1.8	0.2	2.8	5	silty SAND to sandy SILT	120	4.0	17	27	69	48	-	-	19	2.20	16	N/A	N/A
0.98	66.5	106.6	182.2	66.5	1.9	0.3	2.9	5	silty SAND to sandy SILT	120	4.0	17	27	69	48	-	-	20	2.22	16	N/A	N/A
1.15	63.0	101.0	166.5	63.0	1.6	0.4	2.6	5	silty SAND to sandy SILT	120	4.0	16	25	67	48	-	-	19	2.19	16	N/A	N/A
1.31	51.2	82.1	161.3	51.2	1.5	0.4	3.0	5	silty SAND to sandy SILT	120	4.0	13	21	60	48	-	-	23	2.30	16	N/A	N/A
1.48	45.7	73.3	151.9	45.7	1.4	0.3	3.0	5	silty SAND to sandy SILT	120	4.0	11	18	57	48	-	-	24	2.34	16	N/A	N/A
1.64	38.5	61.8	137.0	38.5	1.1	0.4	2.9	5	silty SAND to sandy SILT	120	4.0	10	15	51	47	-	-	25	2.38	16	N/A	N/A
1.80	33.3	53.4	132.1	33.3	1.0	0.4	3.0	4	clayy SILT to silty CLAY	115	2.0	17	27	-	-	2.3	9.9	28	2.44	15	N/A	N/A
1.97	31.5	50.5	127.7	31.5	0.9	0.4	3.0	4	clayy SILT to silty CLAY	115	2.0	16	25	-	-	2.2	9.9	29	2.45	15	N/A	N/A
2.13	25.8	41.4	113.2	25.8	0.7	0.5	2.8	4	clayy SILT to silty CLAY	115	2.0	13	21	-	-	1.8	9.9	30	2.49	15	N/A	N/A
2.30	24.4	39.2	-	24.5	1.0	0.5	4.0	4	clayy SILT to silty CLAY	115	2.0	12	20	-	-	1.7	9.9	36	2.62	15	N/A	N/A
2.46	30.5	48.8	-	30.5	1.4	0.3	4.7	4	clayy SILT to silty CLAY	115	2.0	15	24	-	-	2.1	9.9	35	2.60	15	N/A	N/A
2.62	24.1	38.7	-	24.1	1.5	0.2	6.3	3	silty CLAY to CLAY	115	1.5	16	26	-	-	1.7	9.9	44	2.76	15	N/A	N/A
2.79	20.8	33.4	-	20.8	1.2	-1.4	5.6	3	silty CLAY to CLAY	115	1.5	14	22	-	-	1.5	9.9	44	2.77	15	N/A	N/A
2.95	17.2	27.5	-	17.1	0.9	-2.0	5.4	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.2	9.9	47	2.82	15	N/A	N/A
3.12	14.0	22.5	-	14.0	0.8	-1.7	5.6	3	silty CLAY to CLAY	115	1.5	9	15	-	-	1.0	9.9	52	2.89	15	N/A	N/A
3.28	10.7	17.1	-	10.6	0.6	-2.0	6.0	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	9.9	59	3.00	15	N/A	N/A
3.45	8.1	12.9	-	8.0	0.5	-1.6	6.0	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.6	9.9	65	3.10	15	N/A	N/A
3.61	7.4	11.9	-	7.4	0.4	-1.4	5.8	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	9.9	67	3.12	15	N/A	N/A
3.77	6.1	9.8	-	6.1	0.4	-1.7	6.3	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	8.9	74	3.21	15	N/A	N/A
3.94	4.6	7.3	-	4.5	0.3	-1.7	6.8	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	6.2	84	3.33	15	N/A	N/A
4.10	4.0	6.4	-	4.0	0.2	-1.6	6.1	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	5.2	86	3.35	15	N/A	N/A
4.27	3.9	6.3	-	3.9	0.2	-1.6	5.5	3	silty CLAY to CLAY	115	1.5	3	4	-	-	0.3	4.9	84	3.34	15	N/A	N/A
4.43	3.6	5.8	-	3.6	0.2	-1.6	6.3	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	4.3	90	3.40	15	N/A	N/A
4.59	3.5	5.5	-	3.4	0.2	-1.6	6.2	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	3.9	91	3.42	15	N/A	N/A
4.76	3.4	5.4	-	3.3	0.2	-1.5	6.1	3	silty CLAY to CLAY	115	1.5	2	4	-	-	0.2	3.7	92	3.42	15	N/A	N/A
4.92	4.7	7.5	-	4.6	0.2	-1.4	4.6	3	silty CLAY to CLAY	115	1.5	3	5	-	-	0.3	5.0	76	3.23	15	N/A	N/A
5.09	5.2	8.4	-	5.2	0.3	-1.2	5.2	3	silty CLAY to CLAY	115	1.5	3	6	-	-	0.3	5.6	75	3.22	15	-	-
5.25	7.0	11.2	-	6.9	0.2	-1.1	3.7	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	7.5	60	3.03	15	-	-
5.41	8.5	13.7	-	8.5	0.4	-1.3	4.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	9.1	60	3.02	15	-	-
5.58	6.8	10.8	-	6.7	0.3	-1.3	4.9	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	7.0	66	3.11	15	-	-
5.74	13.6	21.8	-	13.5	0.3	-2.2	2.1	4	clayy SILT to silty CLAY	115	2.0	7	11	-	-	0.9	9.9	37	2.64	15	-	-
5.91	9.0	14.4	-	8.9	0.3	-2.1	3.1	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	9.1	52	2.89	15	-	-
6.07	8.4	13.5	-	8.4	0.3	-1.9	4.0	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	8.4	57	2.98	15	-	-
6.23	8.7	14.0	-	8.7	0.4	-1.8	4.5	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	8.6	59	3.00	15	-	-
6.40	8.4	13.5	-	8.4	0.4	-1.7	5.4	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	8.2	63	3.06	15	-	-
6.56	12.8	20.6	-	12.8	0.4	-1.7	2.9	4	clayy SILT to silty CLAY	115	2.0	6	10	-	-	0.9	9.9	43	2.75	15	-	-
6.73	9.2	14.8	-	9.2	0.3	-1.8	3.7	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	8.7	54	2.93	15	-	-
6.89	10.5	16.9	-	10.5	0.3	-1.7	2.5	4	clayy SILT to silty CLAY	115	2.0	5	8	-	-	0.7	9.9	45	2.78	15	-	-
7.05	11.2	18.0	-	11.2	0.3	-1.5	2.4	4	clayy SILT to silty CLAY	115	2.0	6	9	-	-	0.8	9.9	43	2.74	15	-	-
7.22	12.7	20.4	-	12.7	0.3	-1.4	2.3	4	clayy SILT to silty CLAY	115	2.0	6	10	-	-	0.9	9.9	40	2.69	15	-	-
7.38	12.5	20.1	-	12.5	0.4	-1.2	2.9	4	clayy SILT to silty CLAY	115	2.0	6	10	-	-	0.9	9.9	44	2.76	15	-	-
7.55	11.9	19.1	-	11.9	0.4	-1.1	3.5	3	silty CLAY to CLAY	115	1.5	8	13	-	-	0.8	9.9	47	2.82	15	-	-
7.71	12.0	19.3	-	12.0	0.5	-0.8	3.9	3	silty CLAY to CLAY	115	1.5	8	13	-	-	0.8	9.9	49	2.85	15	-	-
7.87	12.6	20.2	-	12.6	0.5	-0.7	3.7	3	silty CLAY to CLAY	115	1.5	8	13	-	-	0.9	9.9	47	2.82	15	-	-
8.04	13.4	21.4	-	13.4	0.5	-0.6	3.5	4	clayy SILT to silty CLAY	115	2.0	7	11	-	-	0.9	9.9	45	2.78	15	-	-
8.20	13.0	20.9	-	13.0	0.5	-0.6	3.9	3	silty CLAY to CLAY	115	1.5	9	14	-	-	0.9	9.9	47	2.82	15	-	-
8.37	12.9	20.7	-	12.9	0.5	-0.6	3.8	3	silty CLAY to CLAY	115	1.5	9	14	-	-	0.9	9.9	47	2.82	15	-	-
8.53	12.9	20.7	-	12.9	0.5	-0.5	3.9	3	silty CLAY to CLAY	115	1.5	9	14	-	-	0.9	9.9	48	2.83	15	-	-
8.69	12.7	20.4	-	12.7	0.5	-0.5	3.9	3	silty CLAY to CLAY	115	1.5	8	14	-	-	0.9	9.9	48	2.83	15	-	-
8.86	11.1	17.7	-	11.1	0.5	-0.5	4.5	3	silty CLAY to CLAY	115	1.5	7	12	-	-	0.8	8.9	53	2.92	15	-	-
9.02	10.6	17.0	-	10.6	0.5	-0.2	4.6	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	8.4	55	2.94	15	-	-
9.19	9.9	15.8	-	9.9	0.5	-0.3	4.9	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	7.7	58	2.99	15	-	-
9.35	8.6	13.8	-	8.6	0.4	-0.3	4.8	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	6.6	61	3.03	15	-	-
9.51	8.0	12.8	-	8.0	0.3	-0.3	4.1	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.5	6.0	59	3.01	15	-	-
9.68	7.6	12.1	-	7.6	0.3	-0.2	3.6	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	5.6	58	3.00	15	-	-
9.84	7.2	11.6	-	7.2	0.3	-0.2	3.9	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	5.3	61	3.04	15	-	-
10.01	7.2	11.6	-	7.2	0.3	-0.1	4.0	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	5.2	62	3.05	15	-	-
10.17	8.2	13.2	-	8.2	0.3	0.1	3.8	3	silty CLAY to CLAY	115	1.5	5	9	-	-	0.6	5.9	58	2.99	15	-	-
10.34	8.8	14.2	-	8.8	0.3	0.1	4.1	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	6.3	57	2.98	15	-	-
10.50	10.6	17.0	-	10.6	0.4	0.2	3.9	3	silty CLAY to CLAY	115	1.5	7	11	-	-	0.7	7.6	52	2.90	15	-	-
10.66	9.7	15.6	-	9.7	0.4	0.2	4.1	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.7	6.9	55	2.95	15	-	-
10.83	8.3	13.4	-	8.3	0.4	0.3	4.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	5.8	61	3.04	15	-	-
10.99	9.0	14.4	-	9.0	0.4	0.3	4.4	3	silty CLAY to CLAY	115	1.5	6	10	-	-	0.6	6.2	58	2.99	15	-	-
11.16	8.7	13.9	-	8.7	0.3	0.3	3.7	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	5.9	56	2.96	15	-	-
11.32	6.6	10.6	-	6.6	0.3	0.4	4.5	3	silty CLAY to CLAY	115	1.5	4	7	-	-	0.4	4.3	67	3.12	15	-	-
11.48	6.8	10.8	-	6.8	0.3	0.4	4.5	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.4	4.4	66	3.11	15	-	-
11.65	7.0	11.3	-	7.0	0.3	0.5	5.0	3	silty CLAY to CLAY	115	1.5	5	8	-	-	0.5	4.5	67	3.12	15	-	-
11.81	8.5	13.6	-	8.5	0.3	0.5	4.5	3	silty CLAY to CLAY	115	1.5	6	9	-	-	0.6	5.5	60	3.02	15	-	-
11.98	17.3	27.7	88.1	17.2	0.4	-0.6	2.2	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.2	9.9	34	2.58	15	2.59	51.2
12.14	22.4	31.5	94.6	22.4	0.5	-0.9	2.3	4	clayy SILT to silty CLAY	115	2.0	11	16	-	-	1.5	9.9	33	2.54	15	2.45	51.2
12.30	13.9	22.3	-	13.9	0.5	-0.8	3.9	3	silty CLAY to CLAY	115	1.5	9	15	-	-	0.9	9.0	46	2.80	15	-	-
12.47	11.4	18.2	-	11.4	0.5	-0.6	4.4	3	silty CLAY to CLAY	115	1.5	8	12	-	-	0.8	7.2	53	2.91	15	-	-
12.63	13.8	22.1	-	13.8	0.4	-0.4	3.4	4	clayy SILT to silty CLAY	115	2.0	7	11	-	-	0.9	8.8	44	2.77	15	-	-
12.80	15.0	24.0	-	15.0	0.5	-0.3	3.6	4	clayy SILT to silty CLAY	115	2.0	7	12	-	-	1.0	9.5	44	2.76	15	-	-
12.96	18.3	29.3	-	18.3	0.7	-0.2	3.9	4	clayy SILT to silty CLAY	115	2.0	9	15	-	-	1.3	9.9	41	2.72	15	-	-
13.12	20.3	32.5	-	20.3	0.8	-0.1	4.1	4	clayy SILT to silty CLAY	115	2.0	10	16	-	-	1.4	9.9	40	2.70	15	-	-
13.29	21.4	34.3	-	21.4	0.9	-0.1	4.4	4	clayy SILT to silty CLAY	115	2.0	11	17	-	-	1.5	9.9	41	2.70	15	-	-
13.45	22.0	35.2	-	22.0	1.0	-0.1	4.7	3	silty CLAY to CLAY	115	1.5	15	23	-	-	1.5	9.9	41	2.71	15	-	-
13.62	21.7	34.9	-	21.7	1.0	-0.1	5.0	3	silty CLAY to CLAY	115	1.5	14	23	-	-	1.5	9.9	42	2.73	15	-	-
13.78	21.4	34.2	-	21.3	0.9	-0.2	4.5	3	silty CLAY to CLAY	115	1.5	14	23	-	-	1.5	9.9	41	2.71	15	-	-
13.94	20.0	32.0	-	20.0	0.9	-0.1	4.5	3	silty CLAY to CLAY	115	1.5	13	21	-	-	1.4	9.9	42	2.73	15	-	-
14.11	20.4	32.7	-	20.4	0.9	-0.1	4.7	3	silty CLAY to CLAY	115	1.5	14	22	-	-	1.4	9.9	42	2.73	15	-	-
14.27	19.9	32.0	-	19.9	1.0	-0.1	5.0	3	silty CLAY to CLAY	115	1.5	13	21	-	-	1.4	9.9	44	2.76	15	-	-
14.44	17.9	28.7	-	17.9	0.9	-0.2	5.4	3	silty CLAY to CLAY	115	1.5	12	19	-	-	1.2	9.9	47	2.82	15	-	-
14.60	17.2	27.6	-	17.2	0.8	-0.2	5.1	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.2	9.9	47	2.82	15	-	-
14.76	16.4	26.3	-	16.4	0.8	-0.1	5.4	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.1	9.4	49	2.85	15	-	-
14.93	16.2	26.0	-	16.2	0.8	-0.1	5.2	3	silty CLAY to CLAY	115	1.5	11	17	-	-	1.1	9.2	48	2.84	15	-	-
15.09	15.0	24.0	-	15.0	0.8	-0.2	5.4	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.0	8.4	51	2.88	15	-	-
15.26	13.7	22.0	-	13.7	0.6	-0.2	5.0	3	silty CLAY to CLAY	115	1.5	9	15	-	-	0.9	7.6	51	2.89	15	-	-
15.42	14.3	22.9	-	14.3	0.6	-0.1	4.6	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.0	7.9	49	2.85	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(282).cpt
CPT Date: 3/10/2015 11:46:10 AM
GW During Test: 5 ft

Sounding ID: CPT-01
Project No: 10487.01
Cone/Rig: DDG1268

Depth ft	qc PS tsf	* qc1n PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
15.58	14.3	22.9	-	14.2	0.6	-0.1	4.6	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.0	7.8	49	2.85	15	-	-
15.75	15.5	24.8	-	15.5	0.6	0.0	4.2	3	silty CLAY to CLAY	115	1.5	10	17	-	-	1.1	8.4	46	2.80	15	-	-
15.91	18.1	29.0	-	18.1	0.7	0.0	4.0	4	clayy SILT to silty CLAY	115	2.0	9	15	-	-	1.2	9.9	42	2.73	15	-	-
16.08	18.3	29.4	-	18.3	0.7	0.0	4.2	4	clayy SILT to silty CLAY	115	2.0	9	15	-	-	1.3	9.9	42	2.74	15	-	-
16.24	18.9	30.3	-	18.9	0.8	0.2	4.3	3	silty CLAY to CLAY	115	1.5	13	20	-	-	1.3	9.9	42	2.73	15	-	-
16.40	21.0	33.7	-	21.0	0.8	0.3	4.0	4	clayy SILT to silty CLAY	115	2.0	11	17	-	-	1.4	9.9	39	2.68	15	-	-
16.57	22.6	36.3	-	22.6	1.0	0.2	4.5	4	clayy SILT to silty CLAY	115	2.0	11	18	-	-	1.6	9.9	40	2.69	15	-	-
16.73	25.4	40.8	-	25.4	1.1	0.2	4.6	4	clayy SILT to silty CLAY	115	2.0	13	20	-	-	1.8	9.9	38	2.66	15	-	-
16.90	23.6	37.8	-	23.6	1.1	-0.4	4.7	3	silty CLAY to CLAY	115	1.5	16	25	-	-	1.6	9.9	40	2.69	15	-	-
17.06	20.8	33.3	-	20.8	0.9	-0.3	4.6	3	silty CLAY to CLAY	115	1.5	14	22	-	-	1.4	9.9	42	2.73	15	-	-
17.23	18.9	30.3	-	18.9	0.8	-0.3	4.7	3	silty CLAY to CLAY	115	1.5	13	20	-	-	1.3	9.7	44	2.76	15	-	-
17.39	16.8	27.0	-	16.8	0.8	-0.3	4.8	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.1	8.5	47	2.81	15	-	-
17.55	15.1	24.3	-	15.1	0.7	-0.2	4.9	3	silty CLAY to CLAY	115	1.5	10	16	-	-	1.0	7.5	49	2.85	15	-	-
17.72	15.9	25.6	-	15.9	0.6	-0.2	4.0	3	silty CLAY to CLAY	115	1.5	11	17	-	-	1.1	7.9	45	2.78	15	-	-
17.88	16.4	26.1	-	16.4	0.6	-0.1	4.1	3	silty CLAY to CLAY	115	1.5	11	17	-	-	1.1	8.1	45	2.77	15	-	-
18.05	17.1	27.1	-	17.1	0.7	-0.1	4.3	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.2	8.4	44	2.77	15	-	-
18.21	17.7	27.8	-	17.7	0.6	0.0	3.6	4	clayy SILT to silty CLAY	115	2.0	9	14	-	-	1.2	8.6	41	2.72	15	-	-
18.37	20.1	31.3	-	20.1	0.7	0.2	3.9	4	clayy SILT to silty CLAY	115	2.0	10	16	-	-	1.4	9.8	40	2.70	15	-	-
18.54	18.2	28.3	-	18.2	0.8	0.3	4.7	3	silty CLAY to CLAY	115	1.5	12	19	-	-	1.2	8.8	45	2.78	15	-	-
18.70	19.6	30.2	-	19.6	0.8	0.2	4.3	3	silty CLAY to CLAY	115	1.5	13	20	-	-	1.3	9.4	43	2.74	15	-	-
18.87	17.2	26.3	-	17.2	0.7	0.1	4.6	3	silty CLAY to CLAY	115	1.5	11	18	-	-	1.2	8.1	46	2.81	15	-	-
19.03	15.0	22.8	-	15.0	0.7	0.1	5.0	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.0	7.0	51	2.88	15	-	-
19.19	17.6	26.7	-	17.6	0.7	0.2	4.0	4	clayy SILT to silty CLAY	115	2.0	9	13	-	-	1.2	8.2	44	2.76	15	-	-
19.36	17.8	26.7	-	17.8	0.7	0.2	4.4	3	silty CLAY to CLAY	115	1.5	12	18	-	-	1.2	8.3	45	2.78	15	-	-
19.52	16.9	25.2	-	16.9	0.8	0.2	4.9	3	silty CLAY to CLAY	115	1.5	11	17	-	-	1.1	7.8	48	2.84	15	-	-
19.69	15.7	23.2	-	15.7	0.7	0.3	5.0	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.1	7.1	50	2.87	15	-	-
19.85	13.6	20.1	-	13.6	0.7	0.3	5.6	3	silty CLAY to CLAY	115	1.5	9	13	-	-	0.9	6.1	56	2.96	15	-	-
20.01	13.9	20.4	-	13.9	0.7	0.3	5.3	3	silty CLAY to CLAY	115	1.5	9	14	-	-	0.9	6.2	54	2.94	15	-	-
20.18	15.1	22.0	-	15.1	0.7	0.3	5.0	3	silty CLAY to CLAY	115	1.5	10	15	-	-	1.0	6.7	51	2.89	15	-	-
20.34	14.1	20.3	-	14.1	0.7	0.3	5.4	3	silty CLAY to CLAY	115	1.5	9	14	-	-	0.9	6.1	54	2.94	15	-	-
20.51	12.8	18.4	-	12.8	0.7	0.3	5.7	3	silty CLAY to CLAY	115	1.5	9	12	-	-	0.9	5.5	58	2.99	15	-	-
20.67	16.7	23.8	-	16.7	0.8	0.5	4.9	3	silty CLAY to CLAY	115	1.5	11	16	-	-	1.1	7.3	49	2.86	15	-	-
20.83	18.6	26.4	-	18.6	0.9	0.4	5.2	3	silty CLAY to CLAY	115	1.5	12	18	-	-	1.3	8.1	48	2.84	15	-	-
21.00	17.3	24.4	-	17.3	1.0	0.3	6.4	3	silty CLAY to CLAY	115	1.5	12	16	-	-	1.2	7.5	54	2.93	15	-	-
21.16	17.7	24.9	-	17.7	1.0	0.2	6.2	3	silty CLAY to CLAY	115	1.5	12	17	-	-	1.2	7.6	53	2.91	15	-	-
21.33	21.0	29.3	-	21.0	1.1	0.2	5.6	3	silty CLAY to CLAY	115	1.5	14	20	-	-	1.4	9.1	48	2.83	15	-	-
21.49	22.0	30.5	-	22.0	1.3	-0.2	6.3	3	silty CLAY to CLAY	115	1.5	15	20	-	-	1.5	9.5	49	2.85	15	-	-
21.65	22.1	30.4	-	22.1	1.5	-0.4	7.1	3	silty CLAY to CLAY	115	1.5	15	20	-	-	1.5	9.5	51	2.89	15	-	-
21.82	22.5	30.8	-	22.5	1.4	-0.6	6.8	3	silty CLAY to CLAY	115	1.5	15	21	-	-	1.5	9.6	50	2.87	15	-	-
21.98	21.6	29.3	-	21.6	1.3	-0.9	6.6	3	silty CLAY to CLAY	115	1.5	14	20	-	-	1.5	9.1	50	2.87	15	-	-
22.15	21.1	28.5	-	21.1	1.3	-0.8	6.5	3	silty CLAY to CLAY	115	1.5	14	19	-	-	1.4	8.8	51	2.88	15	-	-
22.31	22.7	30.5	-	22.6	1.3	-0.7	5.9	3	silty CLAY to CLAY	115	1.5	15	20	-	-	1.5	9.5	48	2.83	15	-	-
22.47	22.7	30.3	-	22.6	1.3	-0.8	6.0	3	silty CLAY to CLAY	115	1.5	15	20	-	-	1.5	9.4	48	2.84	15	-	-
22.64	22.1	29.3	-	22.1	1.3	-0.9	6.1	3	silty CLAY to CLAY	115	1.5	15	20	-	-	1.5	9.1	49	2.86	15	-	-
22.80	22.3	29.5	-	22.3	1.2	-0.9	5.9	3	silty CLAY to CLAY	115	1.5	15	20	-	-	1.5	9.2	48	2.84	15	-	-
22.97	21.8	28.6	-	21.8	1.2	-0.9	5.9	3	silty CLAY to CLAY	115	1.5	15	19	-	-	1.5	8.9	49	2.85	15	-	-
23.13	20.6	26.9	-	20.6	1.2	-1.0	6.1	3	silty CLAY to CLAY	115	1.5	14	18	-	-	1.4	8.3	51	2.88	15	-	-
23.30	18.1	23.5	-	18.1	1.1	-1.4	6.5	3	silty CLAY to CLAY	115	1.5	12	16	-	-	1.2	7.2	55	2.95	15	-	-
23.46	14.6	18.8	-	14.5	0.9	-2.1	7.2	3	silty CLAY to CLAY	115	1.5	10	13	-	-	1.0	5.6	62	3.05	15	-	-
23.62	10.2	13.1	-	10.1	0.8	-2.6	8.8	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.7	3.7	76	3.24	15	-	-
23.79	7.8	10.0	-	7.8	0.6	-2.1	8.8	3	silty CLAY to CLAY	115	1.5	5	7	-	-	0.5	2.7	85	3.35	15	-	-
23.95	7.3	9.3	-	7.3	0.4	-2.0	6.0	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	2.5	79	3.27	15	-	-
24.12	7.5	9.4	-	7.4	0.4	-1.9	6.3	3	silty CLAY to CLAY	115	1.5	5	6	-	-	0.5	2.5	80	3.28	15	-	-
24.28	12.1	15.2	-	12.0	0.5	-1.8	5.0	3	silty CLAY to CLAY	115	1.5	8	10	-	-	0.8	4.4	60	3.03	15	-	-
24.44	13.2	16.5	-	13.1	0.7	-1.9	6.1	3	silty CLAY to CLAY	115	1.5	9	11	-	-	0.9	4.8	62	3.05	15	-	-
24.61	10.3	12.8	-	10.3	0.6	-2.1	6.8	3	silty CLAY to CLAY	115	1.5	7	9	-	-	0.7	3.6	71	3.18	15	-	-
24.77	8.9	11.0	-	8.9	0.8	-2.1	9.9	3	silty CLAY to CLAY	115	1.5	6	7	-	-	0.6	3.1	85	3.34	15	-	-
24.94	17.8	21.9	-	17.8	1.1	-2.0	6.9	3	silty CLAY to CLAY	115	1.5	12	15	-	-	1.2	6.6	58	2.99	15	-	-
25.10	25.3	31.0	-	25.3	1.1	-1.7	4.8	3	silty CLAY to CLAY	115	1.5	17	21	-	-	1.7	9.6	44	2.76	15	-	-
25.26	21.9	26.6	-	21.8	0.9	-1.5	4.4	3	silty CLAY to CLAY	115	1.5	15	18	-	-	1.5	8.2	45	2.79	15	-	-
25.43	21.9	26.5	-	21.9	0.9	-1.3	4.2	3	silty CLAY to CLAY	115	1.5	15	18	-	-	1.5	8.2	45	2.78	15	-	-
25.59	24.3	29.3	-	24.3	1.0	-1.3	4.5	3	silty CLAY to CLAY	115	1.5	16	20	-	-	1.7	9.1	44	2.76	15	-	-
25.76	29.1	34.8	-	29.0	1.3	-1.2	4.8	3	silty CLAY to CLAY	115	1.5	19	23	-	-	2.0	9.9	42	2.72	15	-	-
25.92	36.1	43.1	-	36.1	1.5	-1.1	4.3	4	clayy SILT to silty CLAY	115	2.0	18	22	-	-	2.5	9.9	36	2.62	15	-	-
26.08	37.5	44.4	-	37.4	1.6	-1.1	4.4	4	clayy SILT to silty CLAY	115	2.0	19	22	-	-	2.6	9.9	36	2.62	15	-	-
26.25	35.4	41.8	-	35.4	1.8	-1.1	5.3	3	silty CLAY to CLAY	115	1.5	24	28	-	-	2.4	9.9	40	2.70	15	-	-
26.41	40.3	47.3	-	40.2	2.1	-0.9	5.5	3	silty CLAY to CLAY	115	1.5	27	32	-	-	2.8	9.9	39	2.67	15	-	-
26.58	50.8	59.3	-	50.8	3.0	-0.9	6.0	3	silty CLAY to CLAY	115	1.5	34	40	-	-	3.5	9.9	37	2.63	15	-	-
26.74	62.7	65.7	211.5	62.7	3.5	-1.0	5.7	4	clayy SILT to silty CLAY	115	2.0	31	33	-	-	4.4	9.9	35	2.58	15	0.00	0.0
26.90	58.8	68.0	-	58.7	3.5	-1.0	6.2	9	very stiff fine SOIL	120	2.0	29	34	54	38	-	-	35	2.60	30	-	-
27.07	56.5	65.0	-	56.5	3.4	-0.9	6.2	9	very stiff fine SOIL	120	2.0	28	32	53	38	-	-	36	2.62	30	-	-
27.23	53.4	61.1	-	53.4	3.3	-0.8	6.4	3	silty CLAY to CLAY	115	1.5	36	41	-	-	3.7	9.9	37	2.64	15	-	-
27.40	51.6	58.7	-	51.6	3.2	-0.7	6.5	3	silty CLAY to CLAY	115	1.5	34	39	-	-	3.6	9.9	38	2.66	15	-	-
27.56	57.4	61.6	-	57.4	3.2	-0.6	5.8	4	clayy SILT to silty CLAY	115	2.0	29	31	-	-	4.0	9.9	36	2.61	15	-	-
27.72	46.8	52.7	-	46.8	2.4	-0.8	5.3	4	clayy SILT to silty CLAY	115	2.0	23	26	-	-	3.2	9.9	36	2.62	15	-	-
27.89	43.4	48.7	-	43.4	2.2	-0.4	5.2	4	clayy SILT to silty CLAY	115	2.0	22	24	-	-	3.0	9.9	38	2.64	15	-	-
28.05	49.7	52.7	-	49.6	2.4	-1.0	5.1	4	clayy SILT to silty CLAY	115	2.0	25	26	-	-	3.4	9.9	36	2.61	15	-	-
28.22	61.0	62.5	189.7	61.0	2.9	-1.0	4.9	4	clayy SILT to silty CLAY	115	2.0	31	31	-	-	4.2	9.9	33	2.55	15	0.00	0.0
28.38	105.1	107.3	220.0	105.0	4.2	-3.0	4.0	9	very stiff fine SOIL	120	2.0	53	54	69	41	-	-	24	2.33	30	0.00	0.0
28.54	86.6	88.3	216.2	86.5	4.0	-5.8	4.7	4	clayy SILT to silty CLAY	115	2.0	43	44	-	-	6.1	9.9	28	2.43	15	0.00	0.0
28.71	67.9	69.0	205.3	67.7	3.5	-5.7	5.2	4	clayy SILT to silty CLAY	115	2.0	34	34	-	-	4.7	9.9	32	2.54	15	0.00	0.0
28.87	53.9	56.2	186.7	53.8	2.7	-5.6	5.2	4	clayy SILT to silty CLAY	115	2.0	27	28	-	-	3.7	9.9	35	2.60	15	0.00	0.0
29.04	48.2	52.3	-	48.1	2.5	-5.4	5.4	4	clayy SILT to silty CLAY	115	2.0	24	26	-	-	3.3	9.9	37	2.63	15	-	-
29.20	44.9	46.6	-	44.8	1.9	-5.5	4.4	4	clayy SILT to silty CLAY	115	2.0	22	23	-	-	3.1	9.9	36	2.60	15	-	-
29.36	33.8	36.4	-	33.7	1.7	-5.5	5.2	3	silty CLAY to CLAY	115	1.5	23	24	-	-	2.3	9.9	42	2.73	15	-	-
29.53	30.3	32.4	-	30.2	1.3	-5.5	4.6	3	silty CLAY to CLAY	115	1.5	20	22	-	-	2.1	9.9	42	2.74	15	-	-
29.69	31.8	33.9	-	31.7	1.2	-5.5	3.9	4	clayy SILT to silty CLAY	115	2.0	16	17	-	-	2.2	9.9	39	2.67	15	-	-
29.86	27.6	29.3	-	27.5	1.2	-5.4	4.6	3	silty CLAY to CLAY	115	1.5	18	20	-	-	1.9	9.1	44	2.77	15	-	-
30.02	36.0	38.0	-	35.9	1.5	-5.4	4.4	4	clayy SILT to silty CLAY	115	2.0	18	19	-	-	2.5	9.9	39	2.67	15	-	-
30.19	48.2	48.0	146.4	48.1	1.8	-5.4	3.9	4	clayy SILT to silty CLAY	115	2.0	24	24	-	-	3.3	9.9	33	2.55	15	1.05	40.6
30.35	47.6	49.8	-	47.5	2.2	-5.4	4.7	4	clayy SILT to silty CLAY	115	2.0	24	25	-	-	3.3	9.9	36	2.60	15	-	-
30.51	42.6	44.3	-	42.4	2.2	-5.4	5.5	3	silty CLAY to CLAY	115	1.5	28	30	-	-	2.9	9.9	40	2.69	15	-	-
30.68	43.3	44.8	-	43.2	2.2	-5.3	5.4	3	silty CLAY to CLAY	115	1.5	29	30	-	-	3.0	9.9	39	2.68	15	-	-
30.84	36.3	37.5	-	36.2	1.9	-5.4	5.5	3	silty CLAY to CLAY	115	1.5	24	25	-	-	2.5	9.9	43	2.74	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(282).cpt
CPT Date: 3/10/2015 11:46:10 AM
GW During Test: 5 ft

Sounding ID: CPT-01
Project No: 10487.01
Cone/Rig: DDG1268

Depth ft	qc PS tsf	* qc1n PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	* SPT R-N1 60%	* Rel Den %	* Ftn Ang deg	Und Shr tsf	OCR - -	* Fin Ic %	* Ic SBT Indx	* Nk - -	* Vol Strn %	* Cycl SStn %
31.01	27.9	28.7	-	27.8	1.5	-5.4	5.7	3	silty CLAY to CLAY	115	1.5	19	19	-	-	1.9	8.9	48	2.84	15	-	-
31.17	28.1	28.8	-	28.0	1.4	-5.2	5.2	3	silty CLAY to CLAY	115	1.5	19	19	-	-	1.9	8.9	47	2.81	15	-	-
31.33	31.7	32.3	-	31.6	1.6	-5.2	5.5	3	silty CLAY to CLAY	115	1.5	21	22	-	-	2.2	9.9	45	2.79	15	-	-
31.50	31.7	32.2	-	31.6	2.0	-5.3	6.6	3	silty CLAY to CLAY	115	1.5	21	21	-	-	2.2	9.9	49	2.85	15	-	-
31.66	30.1	30.4	-	30.0	1.7	-5.3	5.9	3	silty CLAY to CLAY	115	1.5	20	20	-	-	2.1	9.4	48	2.83	15	-	-
31.83	30.0	30.2	-	29.9	1.6	-5.3	5.7	3	silty CLAY to CLAY	115	1.5	20	20	-	-	2.0	9.3	47	2.82	15	-	-
31.99	26.4	26.4	-	26.3	1.4	-5.2	5.6	3	silty CLAY to CLAY	115	1.5	18	18	-	-	1.8	8.1	50	2.86	15	-	-
32.15	23.2	23.2	-	23.1	1.4	-5.2	6.5	3	silty CLAY to CLAY	115	1.5	15	15	-	-	1.6	7.0	55	2.95	15	-	-
32.32	22.8	22.6	-	22.7	1.3	-5.1	6.3	3	silty CLAY to CLAY	115	1.5	15	15	-	-	1.5	6.8	55	2.95	15	-	-
32.48	24.2	23.9	-	24.1	1.2	-5.1	5.6	3	silty CLAY to CLAY	115	1.5	16	16	-	-	1.6	7.3	52	2.90	15	-	-
32.65	21.5	21.1	-	21.4	1.1	-5.0	5.5	3	silty CLAY to CLAY	115	1.5	14	14	-	-	1.4	6.4	54	2.93	15	-	-
32.81	22.2	21.7	-	22.1	1.1	-5.0	5.4	3	silty CLAY to CLAY	115	1.5	15	14	-	-	1.5	6.6	53	2.92	15	-	-
32.97	26.2	25.5	-	26.1	1.5	-5.0	6.1	3	silty CLAY to CLAY	115	1.5	17	17	-	-	1.8	7.8	52	2.90	15	-	-
33.14	41.0	39.8	-	40.9	2.2	-5.0	5.7	3	silty CLAY to CLAY	115	1.5	27	27	-	-	2.8	9.9	42	2.74	15	-	-
33.30	53.7	51.3	167.5	53.6	2.4	-5.8	4.6	4	clayy SILT to silty CLAY	115	2.0	27	26	-	-	3.7	9.9	35	2.59	15	0.00	0.0
33.47	45.1	43.4	-	44.9	1.8	-6.0	4.2	4	clayy SILT to silty CLAY	115	2.0	23	22	-	-	3.1	9.9	36	2.61	15	-	-
33.63	29.7	28.5	-	29.6	1.2	-5.9	4.4	3	silty CLAY to CLAY	115	1.5	20	19	-	-	2.0	8.8	44	2.77	15	-	-
33.79	27.1	25.9	-	26.9	0.9	-5.8	3.6	4	clayy SILT to silty CLAY	115	2.0	14	13	-	-	1.8	7.9	43	2.74	15	-	-
33.96	28.3	26.9	-	28.2	1.0	-5.7	3.8	4	clayy SILT to silty CLAY	115	2.0	14	13	-	-	1.9	8.3	43	2.75	15	-	-
34.12	29.6	28.1	-	29.5	1.2	-5.6	4.5	3	silty CLAY to CLAY	115	1.5	20	19	-	-	2.0	8.7	45	2.78	15	-	-
34.29	32.2	30.4	-	32.1	1.4	-5.6	4.6	3	silty CLAY to CLAY	115	1.5	21	20	-	-	2.2	9.4	44	2.76	15	-	-
34.45	32.5	30.5	-	32.4	1.4	-5.6	4.6	3	silty CLAY to CLAY	115	1.5	22	20	-	-	2.2	9.5	44	2.76	15	-	-
34.61	30.4	28.4	-	30.3	1.5	-5.6	5.1	3	silty CLAY to CLAY	115	1.5	20	19	-	-	2.1	8.8	47	2.81	15	-	-
34.78	27.4	25.5	-	27.3	1.6	-5.5	6.5	3	silty CLAY to CLAY	115	1.5	18	17	-	-	1.9	7.8	53	2.92	15	-	-
34.94	33.2	30.8	-	33.1	2.0	-5.5	6.4	3	silty CLAY to CLAY	115	1.5	22	21	-	-	2.3	9.5	49	2.85	15	-	-
35.11	36.5	33.7	-	36.4	2.4	-5.4	6.9	3	silty CLAY to CLAY	115	1.5	24	22	-	-	2.5	9.9	49	2.85	15	-	-
35.27	40.0	36.8	-	39.9	2.4	-5.5	6.4	3	silty CLAY to CLAY	115	1.5	27	25	-	-	2.7	9.9	46	2.79	15	-	-
35.43	40.0	36.7	-	39.9	2.7	-5.4	7.1	3	silty CLAY to CLAY	115	1.5	27	24	-	-	2.8	9.9	48	2.83	15	-	-
35.60	47.1	43.0	-	47.0	3.2	-5.3	7.0	3	silty CLAY to CLAY	115	1.5	31	29	-	-	3.2	9.9	45	2.78	15	-	-
35.76	66.8	61.9	180.9	66.7	3.0	-5.1	4.6	4	clayy SILT to silty CLAY	115	2.0	33	31	-	-	4.6	9.9	32	2.53	15	0.00	0.0
35.93	83.2	77.0	138.6	83.1	1.9	-5.4	2.3	5	silty SAND to sandy SILT	120	4.0	21	19	58	39	-	-	21	2.25	16	1.40	14.8
36.09	95.8	88.4	124.3	95.7	1.4	-6.1	1.5	5	silty SAND to sandy SILT	120	4.0	24	22	63	40	-	-	15	2.07	16	1.96	20.3
36.26	78.4	72.2	126.8	78.3	1.6	-6.5	2.1	5	silty SAND to sandy SILT	120	4.0	20	18	56	39	-	-	20	2.23	16	1.89	27.0
36.42	69.6	63.9	140.5	69.4	1.9	-6.5	2.9	5	silty SAND to sandy SILT	120	4.0	17	16	52	38	-	-	25	2.37	16	1.30	18.8
36.58	37.4	33.3	-	37.2	1.5	-6.4	4.3	4	clayy SILT to silty CLAY	115	2.0	19	17	-	-	2.6	9.9	41	2.71	15	-	-
36.75	22.5	20.0	-	22.4	1.1	-6.3	5.5	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.5	6.0	56	2.96	15	-	-
36.91	21.3	18.9	-	21.2	1.1	-6.2	5.5	3	silty CLAY to CLAY	115	1.5	14	13	-	-	1.4	5.6	57	2.98	15	-	-
37.08	23.2	20.5	-	23.1	1.0	-6.2	5.0	3	silty CLAY to CLAY	115	1.5	15	14	-	-	1.6	6.1	53	2.92	15	-	-
37.24	21.9	19.2	-	21.8	1.0	-6.1	5.1	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.5	5.7	55	2.95	15	-	-
37.40	21.5	18.8	-	21.4	0.9	-6.1	4.9	3	silty CLAY to CLAY	115	1.5	14	13	-	-	1.4	5.6	55	2.95	15	-	-
37.57	22.3	19.4	-	22.1	1.0	-6.1	5.0	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.5	5.8	54	2.94	15	-	-
37.73	22.4	19.4	-	22.3	1.1	-6.1	5.4	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.5	5.8	56	2.96	15	-	-
37.90	20.9	18.1	-	20.8	1.2	-6.1	6.4	3	silty CLAY to CLAY	115	1.5	14	12	-	-	1.4	5.3	61	3.04	15	-	-
38.06	18.6	16.0	-	18.5	1.1	-6.1	6.7	3	silty CLAY to CLAY	115	1.5	12	11	-	-	1.2	4.7	65	3.09	15	-	-
38.22	20.3	17.4	-	20.2	1.1	-6.1	5.9	3	silty CLAY to CLAY	115	1.5	14	12	-	-	1.4	5.1	60	3.03	15	-	-
38.39	22.3	19.1	-	22.2	0.9	-6.2	4.6	3	silty CLAY to CLAY	115	1.5	15	13	-	-	1.5	5.7	54	2.92	15	-	-
38.55	19.5	16.6	-	19.3	0.9	-6.1	5.1	3	silty CLAY to CLAY	115	1.5	13	11	-	-	1.3	4.8	59	3.00	15	-	-
38.72	17.4	14.8	-	17.3	0.8	-6.1	5.1	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.1	4.3	62	3.05	15	-	-
38.88	16.2	13.7	-	16.1	0.7	-6.1	4.7	3	silty CLAY to CLAY	115	1.5	11	9	-	-	1.1	3.9	62	3.05	15	-	-
39.04	17.4	14.7	-	17.3	0.7	-6.0	4.7	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.1	4.2	60	3.03	15	-	-
39.21	18.0	15.1	-	17.9	0.8	-6.0	4.9	3	silty CLAY to CLAY	115	1.5	12	10	-	-	1.2	4.4	60	3.03	15	-	-
39.37	16.6	13.9	-	16.5	0.7	-6.0	5.0	3	silty CLAY to CLAY	115	1.5	11	9	-	-	1.1	4.0	63	3.07	15	-	-
39.54	16.0	13.4	-	15.9	0.6	-6.0	4.6	3	silty CLAY to CLAY	115	1.5	11	9	-	-	1.0	3.8	63	3.06	15	-	-
39.70	15.9	13.2	-	15.8	0.7	-6.0	4.9	3	silty CLAY to CLAY	115	1.5	11	9	-	-	1.0	3.7	64	3.08	15	-	-
39.86	20.9	17.3	-	20.7	1.4	-6.0	7.3	3	silty CLAY to CLAY	115	1.5	14	12	-	-	1.4	5.1	65	3.09	15	-	-
40.03	28.3	23.3	-	28.1	1.7	-6.0	6.4	3	silty CLAY to CLAY	115	1.5	19	16	-	-	1.9	7.1	55	2.95	15	-	-
40.19	34.1	28.0	-	34.0	1.7	-5.7	5.4	3	silty CLAY to CLAY	115	1.5	23	19	-	-	2.3	8.6	48	2.83	15	-	-
40.36	35.4	29.0	-	35.3	1.8	-5.6	5.3	3	silty CLAY to CLAY	115	1.5	24	19	-	-	2.4	8.9	47	2.82	15	-	-
40.52	36.6	29.8	-	36.5	1.8	-5.6	5.2	3	silty CLAY to CLAY	115	1.5	24	20	-	-	2.5	9.2	46	2.80	15	-	-
40.68	34.9	28.4	-	34.8	1.7	-5.6	5.1	3	silty CLAY to CLAY	115	1.5	23	19	-	-	2.4	8.7	47	2.81	15	-	-
40.85	33.1	26.8	-	33.0	1.5	-5.5	4.8	3	silty CLAY to CLAY	115	1.5	22	18	-	-	2.2	8.2	47	2.81	15	-	-
41.01	32.7	26.4	-	32.6	1.3	-5.5	4.3	3	silty CLAY to CLAY	115	1.5	22	18	-	-	2.2	8.1	45	2.79	15	-	-
41.18	30.7	24.7	-	30.6	1.4	-5.4	4.8	3	silty CLAY to CLAY	115	1.5	20	16	-	-	2.1	7.5	48	2.84	15	-	-
41.34	30.4	24.4	-	30.3	1.3	-5.4	4.8	3	silty CLAY to CLAY	115	1.5	20	16	-	-	2.1	7.4	49	2.85	15	-	-
41.50	31.7	25.4	-	31.6	1.5	-5.4	5.0	3	silty CLAY to CLAY	115	1.5	21	17	-	-	2.2	7.7	49	2.85	15	-	-
41.67	31.2	24.8	-	31.1	1.4	-5.4	5.0	3	silty CLAY to CLAY	115	1.5	21	17	-	-	2.1	7.6	49	2.85	15	-	-
41.83	34.4	27.3	-	34.3	1.8	-5.4	5.5	3	silty CLAY to CLAY	115	1.5	23	18	-	-	2.3	8.4	49	2.85	15	-	-
42.00	48.5	38.4	-	48.4	2.0	-5.4	4.2	4	clayy SILT to silty CLAY	115	2.0	24	19	-	-	3.3	9.9	38	2.66	15	-	-
42.16	42.6	33.6	-	42.5	2.1	-5.4	5.3	3	silty CLAY to CLAY	115	1.5	28	22	-	-	2.9	9.9	44	2.77	15	-	-
42.32	36.2	28.4	-	36.0	1.8	-5.4	5.4	3	silty CLAY to CLAY	115	1.5	24	19	-	-	2.5	8.7	48	2.83	15	-	-
42.49	30.2	23.6	-	30.1	1.6	-5.4	5.9	3	silty CLAY to CLAY	115	1.5	20	16	-	-	2.0	7.2	53	2.92	15	-	-
42.65	28.2	22.0	-	28.1	1.5	-5.4	5.9	3	silty CLAY to CLAY	115	1.5	19	15	-	-	1.9	6.6	55	2.94	15	-	-
42.82	28.0	21.8	-	27.9	1.4	-5.4	5.5	3	silty CLAY to CLAY	115	1.5	19	15	-	-	1.9	6.5	54	2.92	15	-	-
42.98	26.5	20.6	-	26.4	1.3	-5.4	5.3	3	silty CLAY to CLAY	115	1.5	18	14	-	-	1.8	6.2	54	2.93	15	-	-
43.15	25.8	19.9	-	25.7	1.3	-5.4	5.4	3	silty CLAY to CLAY	115	1.5	17	13	-	-	1.7	5.9	55	2.95	15	-	-
43.31	24.9	19.2	-	24.8	1.4	-5.4	6.2	3	silty CLAY to CLAY	115	1.5	17	13	-	-	1.7	5.7	59	3.00	15	-	-
43.47	27.8	21.3	-	27.7	1.9	-5.4	7.4	3	silty CLAY to CLAY	115	1.5	19	14	-	-	1.9	6.4	60	3.02	15	-	-
43.64	35.1	26.8	-	35.0	2.6	-5.4	8.1	3	silty CLAY to CLAY	115	1.5	23	18	-	-	2.4	8.2	57	2.97	15	-	-
43.80	46.9	35.8	-	46.8	2.8	-5.5	6.2	3	silty CLAY to CLAY	115	1.5	31	24	-	-	3.2	9.9	46	2.80	15	-	-
43.97	66.8	56.6	158.8	66.7	2.5	-5.8	3.9	4	clayy SILT to silty CLAY	115	2.0	33	28	-	-	4.6	9.9	31	2.51	15	0.49	2.9
44.13	84.5	71.5	152.2	84.4	2.5	-6.0	3.0	5	silty SAND to sandy SILT	120	4.0	21	18	56	38	-	-	25	2.35	16	0.75	5.4
44.29	99.4	83.9	145.6	99.3	2.3	-6.3	2.4	5	silty SAND to sandy SILT	120	4.0	25	21	61	39	-	-	20	2.23	16	1.06	7.4
44.46	116.3	97.9	136.0	116.2	1.8	-6.4	1.6	5	silty SAND to sandy SILT	120	4.0	29	24	66	40	-	-	15	2.06	16	1.55	11.1
44.62	133.8	112.5	144.0	133.7	1.9	-6.5	1.4	6	clean SAND to silty SAND	125	5.0	27	23	71	41	-	-	13	1.98	16	1.17	5.8
44.79	148.5	124.6	148.7	148.4	1.8	-6.3	1.2	6	clean SAND to silty SAND	125	5.0	30	25	74	41	-	-	11	1.90	16	0.95	4.6
44.95	158.7	132.9	156.9	158.6	2.0	-6.4	1.3	6	clean SAND to silty SAND	125	5.0	32	27	76	41	-	-	10	1.89	16	0.60	3.3
45.11	162.0	135.4	168.1	161.8	2.5	-6.3	1.6	6	clean SAND to silty SAND	125	5.0	32	27	77	41	-	-	12	1.95	16	0.00	0.0
45.28	163.7	136.6	168.9	163.6	2.5	-6.0	1.6	6	clean SAND to silty SAND	125	5.0	33	27	77	42	-	-	12	1.95	16	0.00	0.0
45.44	144.5	120.3	163.6	144.5	2.6	-1.9	1.9	5	silty SAND to sandy SILT	120	4.0	36	30	73	41	-	-	14	2.04	16	0.00	0.0
45.61	141.3	117.5	163.0	141.3	2.7	-1.8	1.9	5	silty SAND to sandy SILT	120	4.0	35	29	72	41	-	-	15	2.06	16	0.00	0.0
45.77	130.1	107.9	156.0	130.0	2.5	-1.7	2.0	5	silty SAND to sandy SILT	120	4.0	33	27	70	40	-	-	16	2.09	16	0.62	3.4
45.93	116.4	96.5	146.6	116.4	2.3	-1.6	2.0	5	silty SAND to sandy SILT	120	4.0	29	24	66	40	-	-	17	2.13	16	1.02	6.0
46.10	89.1	73.7	148.2	89.1	2.4	-1.5	2.8	5	silty SAND to sandy SILT	120	4.0	22	18	57	38	-	-	23	2.32	16	0.92	7.1
46.26	54.9	39.7	-	54.9	2.1	-1.4	4.0	4	clayy SILT to silty CLAY	115	2.0	27	20	-	-	3.8	9.9	37	2.63	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Morning Star Packing

Project ID: Wallace-Kuhl
Data File: SDF(282).cpt
CPT Date: 3/10/2015 11:46:10 AM
GW During Test: 5 ft

Sounding ID: CPT-01
Project No: 10487.01
Cone/Rig: DDG1268

Depth ft	qc PS tsf	qcln PS -	qlncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N 60%	SPT R-N1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - -	Fin Ic %	Ic SBT Indx	Nk - -	Vol Strn %	Cycl SStn %
46.43	39.2	28.3	-	39.2	1.7	-1.0	4.5	3	silty CLAY to CLAY	115	1.5	26	19	-	-	2.7	8.7	45	2.78	15	-	-
46.59	32.3	23.2	-	32.3	1.5	-0.6	5.2	3	silty CLAY to CLAY	115	1.5	22	15	-	-	2.2	7.0	51	2.89	15	-	-
46.75	39.8	28.5	-	39.7	1.9	-1.0	5.0	3	silty CLAY to CLAY	115	1.5	27	19	-	-	2.7	8.8	46	2.81	15	-	-
46.92	33.3	23.8	-	33.3	1.8	-1.5	5.8	3	silty CLAY to CLAY	115	1.5	22	16	-	-	2.3	7.2	53	2.91	15	-	-
47.08	25.2	18.0	-	25.2	1.8	-1.7	7.9	3	silty CLAY to CLAY	115	1.5	17	12	-	-	1.7	5.3	66	3.10	15	-	-
47.25	29.5	21.0	-	29.5	1.6	-1.9	5.9	3	silty CLAY to CLAY	115	1.5	20	14	-	-	2.0	6.3	56	2.96	15	-	-
47.41	30.4	21.5	-	30.4	1.5	-2.4	5.5	3	silty CLAY to CLAY	115	1.5	20	14	-	-	2.1	6.5	54	2.93	15	-	-
47.57	28.2	19.8	-	28.1	1.3	-2.9	5.1	3	silty CLAY to CLAY	115	1.5	19	13	-	-	1.9	5.9	54	2.94	15	-	-
47.74	31.3	22.0	-	31.2	0.8	-3.3	3.0	4	clayy SILT to silty CLAY	115	2.0	16	11	-	-	2.1	6.6	43	2.75	15	-	-
47.90	32.1	22.5	-	32.0	1.0	-3.4	3.4	4	clayy SILT to silty CLAY	115	2.0	16	11	-	-	2.2	6.8	45	2.77	15	-	-
48.07	34.9	24.4	-	34.8	0.9	-3.1	2.9	4	clayy SILT to silty CLAY	115	2.0	17	12	-	-	2.4	7.4	41	2.71	15	-	-
48.23	39.2	27.3	-	39.1	1.1	-3.4	3.1	4	clayy SILT to silty CLAY	115	2.0	20	14	-	-	2.7	8.4	39	2.68	15	-	-
48.39	44.9	31.2	-	44.8	2.3	-3.5	5.5	3	silty CLAY to CLAY	115	1.5	30	21	-	-	3.1	9.7	46	2.80	15	-	-
48.56	59.6	41.3	-	59.5	3.8	-3.5	6.6	3	silty CLAY to CLAY	115	1.5	40	28	-	-	4.1	9.9	44	2.77	15	-	-
48.72	70.2	48.5	-	70.1	4.4	-4.0	6.5	3	silty CLAY to CLAY	115	1.5	47	32	-	-	4.9	9.9	41	2.71	15	-	-
48.89	81.6	56.2	-	81.5	5.0	-3.9	6.3	3	silty CLAY to CLAY	115	1.5	54	37	-	-	5.7	9.9	39	2.66	15	-	-
49.05	71.7	49.2	-	71.6	4.8	-4.0	7.0	3	silty CLAY to CLAY	115	1.5	48	33	-	-	5.0	9.9	42	2.74	15	-	-
49.22	58.0	39.7	-	58.0	3.5	-3.6	6.3	3	silty CLAY to CLAY	115	1.5	39	26	-	-	4.0	9.9	44	2.77	15	-	-
49.38	36.1	24.7	-	36.1	2.1	-3.6	6.4	3	silty CLAY to CLAY	115	1.5	24	16	-	-	2.4	7.5	54	2.93	15	-	-
49.54	33.4	22.7	-	33.4	1.8	-3.4	6.0	3	silty CLAY to CLAY	115	1.5	22	15	-	-	2.3	6.9	54	2.94	15	-	-
49.71	42.2	28.6	-	42.2	1.6	-3.4	4.1	3	silty CLAY to CLAY	115	1.5	28	19	-	-	2.9	8.8	43	2.75	15	-	-
49.87	29.9	20.2	-	29.8	1.7	-3.4	6.2	3	silty CLAY to CLAY	115	1.5	20	13	-	-	2.0	6.0	58	2.99	15	-	-
50.04	24.7	16.7	-	24.7	1.4	-3.2	6.5	3	silty CLAY to CLAY	115	1.5	16	11	-	-	1.6	4.9	63	3.07	15	-	-
50.20	29.0	19.5	-	29.0	1.7	-3.0	6.4	3	silty CLAY to CLAY	115	1.5	19	13	-	-	1.9	5.8	59	3.01	15	-	-

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

APPENDIX C

LIQUEFACTION ANALYSES OUTPUT FILES

GeoLogismiki
Geotechnical Engineering Software
Merarhias 56, 621 25 - Serrai, Greece
url: http://www.geologismiki.gr - email: info@geologismiki.gr

LIQUEFACTION ANALYSIS REPORT

Project title : 10487.01 - Morning Star Packing Company Cooling Pond Expansions

Project subtitle : CPT-01

Input parameters and analysis data

In-situ data type:	Cone Penetration Test	5.00 ft
Analysis type:	Deterministic	6.58
Analysis method:	Robertson (1998)	0.44 g
Fines correction method:	Robertson (1998)	1.00

Liquefaction

No Liquefaction

Soil type index legend

- Gravelly sand to dense sand
- Sands: clean sand to silty sand
- Sand mixtures: silty sand to sandy silt
- Silt mixtures: clayey silt to silty clay
- Clays: silty clay to clay
- Organic soils: peats

:: Field input data ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
1	0.16	21.09	0.43	8.96	120.94
2	0.33	23.77	0.62	11.93	120.94
3	0.49	39.25	1.03	10.75	120.94
4	0.66	57.85	1.61	10.28	120.94
5	0.82	66.55	1.84	10.17	120.94
6	0.98	66.47	1.93	11.03	120.94
7	1.15	62.94	1.62	10.75	120.94
8	1.31	51.19	1.54	13.51	120.94
9	1.48	45.69	1.37	14.55	120.94
10	1.64	38.53	1.11	15.68	120.94
11	1.80	33.29	1.01	17.60	120.94
12	1.97	31.46	0.94	18.31	120.94
13	2.13	25.80	0.72	19.65	120.94
14	2.30	24.44	0.98	24.43	120.94
15	2.46	30.45	1.43	24.70	120.94
16	2.62	24.13	1.52	31.12	120.94
17	2.79	20.80	1.17	31.61	120.94
18	2.95	17.12	0.91	33.63	120.94
19	3.12	13.98	0.77	37.19	120.94
20	3.28	10.64	0.63	42.48	120.94
21	3.44	8.03	0.47	47.41	120.94
22	3.61	7.42	0.42	48.96	120.94
23	3.77	6.12	0.37	54.33	120.94
24	3.94	4.54	0.29	62.31	120.94
25	4.10	4.00	0.23	63.92	120.94
26	4.27	3.93	0.20	63.43	120.94
27	4.43	3.62	0.21	68.35	120.94
28	4.59	3.43	0.20	70.34	120.94
29	4.76	3.35	0.19	71.35	120.94
30	4.92	4.63	0.20	59.77	120.94
31	5.09	5.22	0.26	59.66	120.94
32	5.25	6.95	0.25	48.66	120.94
33	5.41	8.53	0.39	49.03	120.94
34	5.58	6.74	0.31	54.14	120.94
35	5.74	13.53	0.27	31.01	120.94
36	5.91	8.95	0.27	42.85	120.94
37	6.07	8.39	0.32	47.47	120.94
38	6.23	8.70	0.38	49.03	120.94
39	6.40	8.42	0.43	52.69	120.94
40	6.56	12.80	0.36	36.71	120.94
41	6.73	9.18	0.32	45.65	120.94
42	6.89	10.49	0.25	38.35	120.94
43	7.05	11.23	0.26	36.79	120.94
44	7.22	12.69	0.29	34.89	120.94
45	7.38	12.50	0.35	38.06	120.94
46	7.55	11.90	0.40	41.32	120.94
47	7.71	12.01	0.45	42.98	120.94
48	7.87	12.60	0.45	41.62	120.94
49	8.04	13.36	0.45	40.03	120.94
50	8.20	13.03	0.49	42.11	120.94
51	8.37	12.92	0.47	42.11	120.94
52	8.53	12.89	0.48	42.56	120.94
53	8.69	12.72	0.48	42.99	120.94
54	8.86	11.06	0.48	47.90	120.94
55	9.02	10.60	0.47	49.33	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
56	9.19	9.87	0.46	51.96	120.94
57	9.35	8.59	0.39	54.55	120.94
58	9.51	8.00	0.30	53.50	120.94
59	9.68	7.57	0.25	53.01	120.94
60	9.84	7.21	0.26	55.73	120.94
61	10.01	7.23	0.27	56.19	120.94
62	10.17	8.22	0.29	52.97	120.94
63	10.33	8.84	0.34	52.65	120.94
64	10.50	10.58	0.39	48.42	120.94
65	10.66	9.72	0.37	51.05	120.94
66	10.83	8.34	0.36	56.82	120.94
67	10.99	8.97	0.36	54.08	120.94
68	11.15	8.66	0.30	52.51	120.94
69	11.32	6.64	0.27	62.19	120.94
70	11.48	6.76	0.27	61.74	120.94
71	11.65	7.05	0.32	62.84	120.94
72	11.81	8.49	0.35	56.74	120.94
73	11.98	17.25	0.37	33.51	120.94
74	12.14	22.39	0.51	30.36	120.94
75	12.30	13.86	0.51	44.89	120.94
76	12.47	11.36	0.47	50.94	120.94
77	12.63	13.80	0.44	43.30	120.94
78	12.80	14.97	0.52	43.01	120.94
79	12.96	18.26	0.69	40.81	120.94
80	13.12	20.27	0.81	39.99	120.94
81	13.29	21.37	0.92	40.30	120.94
82	13.45	21.94	0.99	40.78	120.94
83	13.62	21.73	1.04	41.99	120.94
84	13.78	21.34	0.93	40.95	120.94
85	13.94	19.95	0.87	42.17	120.94
86	14.11	20.36	0.91	42.43	120.94
87	14.27	19.94	0.95	43.95	120.94
88	14.44	17.89	0.93	47.43	120.94
89	14.60	17.18	0.84	47.33	120.94
90	14.76	16.42	0.84	49.17	120.94
91	14.93	16.22	0.80	48.95	120.94
92	15.09	14.99	0.77	51.38	120.94
93	15.26	13.71	0.64	51.93	120.94
94	15.42	14.28	0.62	50.05	120.94
95	15.58	14.25	0.61	49.89	120.94
96	15.75	15.47	0.62	47.25	120.94
97	15.91	18.10	0.69	43.46	120.94
98	16.08	18.32	0.72	44.03	120.94
99	16.24	18.87	0.77	44.03	120.94
100	16.40	21.03	0.80	41.09	120.94
101	16.57	22.61	0.98	41.89	120.94
102	16.73	25.44	1.12	40.16	120.94
103	16.90	23.58	1.07	42.10	120.94
104	17.06	20.75	0.91	44.08	120.94
105	17.22	18.91	0.84	46.04	120.94
106	17.39	16.81	0.76	49.01	120.94
107	17.55	15.12	0.69	51.66	120.94
108	17.72	15.94	0.60	47.41	120.94
109	17.88	16.39	0.63	47.34	120.94
110	18.04	17.08	0.68	47.16	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
111	18.21	17.69	0.61	44.15	120.94
112	18.37	20.05	0.74	42.99	120.94
113	18.54	18.22	0.80	47.69	120.94
114	18.70	19.56	0.80	45.32	120.94
115	18.86	17.18	0.74	49.01	120.94
116	19.03	15.01	0.70	53.41	120.94
117	19.19	17.64	0.66	46.27	120.94
118	19.36	17.77	0.73	47.72	120.94
119	19.52	16.89	0.77	50.78	120.94
120	19.69	15.68	0.73	52.85	120.94
121	19.85	13.64	0.70	58.25	120.94
122	20.01	13.94	0.68	56.86	120.94
123	20.18	15.14	0.70	54.02	120.94
124	20.34	14.06	0.69	57.11	120.94
125	20.51	12.81	0.66	60.53	120.94
126	20.67	16.69	0.76	52.03	120.94
127	20.83	18.58	0.91	50.98	120.94
128	21.00	17.29	1.02	56.14	120.94
129	21.16	17.74	1.02	55.14	120.94
130	21.33	21.03	1.12	50.08	120.94
131	21.49	22.02	1.30	51.18	120.94
132	21.65	22.06	1.47	53.51	120.94
133	21.82	22.47	1.44	52.45	120.94
134	21.98	21.55	1.33	52.79	120.94
135	22.15	21.06	1.29	53.17	120.94
136	22.31	22.64	1.26	50.11	120.94
137	22.47	22.63	1.28	50.40	120.94
138	22.64	22.05	1.28	51.56	120.94
139	22.80	22.30	1.24	50.70	120.94
140	22.97	21.77	1.21	51.33	120.94
141	23.13	20.58	1.17	53.09	120.94
142	23.29	18.09	1.09	57.33	120.94
143	23.46	14.52	0.95	64.69	120.94
144	23.62	10.13	0.77	79.26	120.94
145	23.79	7.82	0.57	88.19	120.94
146	23.95	7.27	0.36	82.24	120.94
147	24.11	7.43	0.38	82.83	120.94
148	24.28	12.05	0.53	63.06	120.94
149	24.44	13.13	0.71	64.64	120.94
150	24.61	10.28	0.60	74.12	120.94
151	24.77	8.89	0.82	90.25	120.94
152	24.93	17.78	1.14	60.21	120.94
153	25.10	25.26	1.14	45.88	120.94
154	25.26	21.82	0.89	47.45	120.94
155	25.43	21.88	0.86	46.94	120.94
156	25.59	24.30	1.02	45.91	120.94
157	25.75	29.04	1.32	43.67	120.94
158	25.92	36.12	1.48	38.12	120.94
159	26.08	37.44	1.59	38.12	120.94
160	26.25	35.38	1.79	42.04	120.94
161	26.41	40.23	2.12	40.51	120.94
162	26.57	50.76	2.95	38.43	120.94
163	26.74	62.67	3.48	34.62	120.94
164	26.90	58.72	3.53	36.92	120.94
165	27.07	56.46	3.43	37.72	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
166	27.23	53.36	3.32	39.04	120.94
167	27.40	51.57	3.24	39.86	120.94
168	27.56	57.39	3.25	36.50	120.94
169	27.72	46.75	2.38	38.06	120.94
170	27.89	43.39	2.18	39.13	120.94
171	28.05	49.63	2.43	36.63	120.94
172	28.22	60.99	2.93	33.28	120.94
173	28.38	105.00	4.19	23.94	120.94
174	28.54	86.51	3.96	28.07	120.94
175	28.71	67.76	3.45	32.85	120.94
176	28.87	53.80	2.72	36.14	120.94
177	29.04	48.16	2.49	38.37	120.94
178	29.20	44.83	1.91	36.51	120.94
179	29.36	33.74	1.66	43.93	120.94
180	29.53	30.17	1.32	44.25	120.94
181	29.69	31.73	1.17	40.63	120.94
182	29.86	27.52	1.19	46.06	120.94
183	30.02	35.90	1.50	40.46	120.94
184	30.18	48.10	1.79	33.72	120.94
185	30.35	47.51	2.16	36.98	120.94
186	30.51	42.47	2.22	41.28	120.94
187	30.68	43.17	2.24	40.90	120.94
188	30.84	36.22	1.90	44.42	120.94
189	31.00	27.82	1.49	50.30	120.94
190	31.17	28.04	1.37	48.55	120.94
191	31.33	31.63	1.64	47.14	120.94
192	31.50	31.65	1.96	50.49	120.94
193	31.66	30.06	1.67	49.60	120.94
194	31.82	29.92	1.60	49.10	120.94
195	31.99	26.32	1.36	51.44	120.94
196	32.15	23.16	1.40	57.56	120.94
197	32.32	22.68	1.32	57.48	120.94
198	32.48	24.14	1.25	53.72	120.94
199	32.64	21.38	1.07	56.19	120.94
200	32.81	22.10	1.09	55.27	120.94
201	32.97	26.11	1.47	53.78	120.94
202	33.14	40.89	2.24	43.87	120.94
203	33.30	53.64	2.40	35.83	120.94
204	33.46	44.96	1.80	37.16	120.94
205	33.63	29.64	1.23	45.74	120.94
206	33.79	26.97	0.89	44.19	120.94
207	33.96	28.18	1.01	44.60	120.94
208	34.12	29.55	1.24	46.28	120.94
209	34.28	32.13	1.40	45.26	120.94
210	34.45	32.39	1.41	45.04	120.94
211	34.61	30.30	1.46	48.33	120.94
212	34.78	27.30	1.64	54.99	120.94
213	34.94	33.07	1.99	50.70	120.94
214	35.10	36.37	2.36	50.20	120.94
215	35.27	39.90	2.42	47.09	120.94
216	35.43	39.94	2.70	49.18	120.94
217	35.60	46.98	3.15	45.97	120.94
218	35.76	66.74	2.96	33.12	120.94
219	35.93	83.14	1.90	21.51	120.94
220	36.09	95.66	1.40	15.56	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
221	36.25	78.27	1.58	20.96	120.94
222	36.42	69.45	1.93	26.22	120.94
223	36.58	37.25	1.51	42.05	120.94
224	36.75	22.41	1.13	57.61	120.94
225	36.91	21.23	1.06	59.00	120.94
226	37.07	23.15	1.05	54.96	120.94
227	37.24	21.82	1.00	56.89	120.94
228	37.40	21.37	0.95	56.84	120.94
229	37.57	22.16	0.99	56.23	120.94
230	37.73	22.30	1.09	57.77	120.94
231	37.89	20.79	1.19	63.05	120.94
232	38.06	18.53	1.11	67.53	120.94
233	38.22	20.19	1.07	62.58	120.94
234	38.39	22.20	0.93	55.36	120.94
235	38.55	19.37	0.88	60.80	120.94
236	38.71	17.33	0.77	63.99	120.94
237	38.88	16.15	0.66	64.62	120.94
238	39.04	17.35	0.72	62.69	120.94
239	39.21	17.94	0.77	62.64	120.94
240	39.37	16.54	0.72	65.50	120.94
241	39.53	15.94	0.64	65.23	120.94
242	39.70	15.86	0.67	66.53	120.94
243	39.86	20.76	1.35	67.11	120.94
244	40.03	28.16	1.65	56.56	120.94
245	40.19	33.97	1.71	49.20	120.94
246	40.35	35.31	1.76	48.28	120.94
247	40.52	36.48	1.79	47.32	120.94
248	40.68	34.82	1.67	48.02	120.94
249	40.85	32.98	1.48	48.10	120.94
250	41.01	32.59	1.30	46.42	120.94
251	41.17	30.62	1.36	49.73	120.94
252	41.34	30.33	1.35	50.10	120.94
253	41.50	31.64	1.48	50.09	120.94
254	41.67	31.07	1.45	50.51	120.94
255	41.83	34.34	1.76	50.02	120.94
256	41.99	48.41	1.96	38.92	120.94
257	42.16	42.56	2.13	45.12	120.94
258	42.32	36.07	1.81	48.73	120.94
259	42.49	30.10	1.64	54.60	120.94
260	42.65	28.09	1.51	56.25	120.94
261	42.81	27.89	1.39	55.06	120.94
262	42.98	26.45	1.27	55.69	120.94
263	43.14	25.73	1.26	56.90	120.94
264	43.31	24.82	1.38	60.57	120.94
265	43.47	27.72	1.87	61.65	120.94
266	43.64	35.01	2.64	58.14	120.94
267	43.80	46.86	2.75	46.66	120.94
268	43.96	66.70	2.51	32.88	120.94
269	44.13	84.42	2.46	25.93	120.94
270	44.29	99.26	2.28	21.03	120.94
271	44.46	116.17	1.82	15.46	120.94
272	44.62	133.69	1.89	13.18	120.94
273	44.78	148.37	1.80	11.05	120.94
274	44.95	158.55	1.97	10.69	120.94
275	45.11	161.82	2.49	12.26	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
276	45.28	163.55	2.50	12.14	120.94
277	45.44	144.43	2.64	14.85	120.94
278	45.60	141.22	2.67	15.39	120.94
279	45.77	130.00	2.52	16.48	120.94
280	45.93	116.36	2.28	17.79	120.94
281	46.10	89.05	2.40	24.61	120.94
282	46.26	54.89	2.11	37.16	120.94
283	46.42	39.22	1.66	45.44	120.94
284	46.59	32.25	1.55	52.36	120.94
285	46.75	39.74	1.86	47.08	120.94
286	46.92	33.27	1.79	53.91	120.94
287	47.08	25.19	1.79	67.53	120.94
288	47.24	29.51	1.59	57.18	120.94
289	47.41	30.38	1.53	55.20	120.94
290	47.57	28.10	1.28	55.47	120.94
291	47.74	31.25	0.84	43.74	120.94
292	47.90	32.05	0.98	45.23	120.94
293	48.06	34.80	0.94	41.36	120.94
294	48.23	39.14	1.12	39.85	120.94
295	48.39	44.84	2.30	46.74	120.94
296	48.56	59.52	3.77	44.94	120.94
297	48.72	70.12	4.35	41.57	120.94
298	48.88	81.51	4.98	38.76	120.94
299	49.05	71.60	4.82	42.79	120.94
300	49.21	57.97	3.48	44.63	120.94
301	49.38	36.07	2.13	54.87	120.94
302	49.54	33.36	1.85	55.57	120.94
303	49.70	42.18	1.63	43.48	120.94
304	49.87	29.83	1.66	58.88	120.94
305	50.03	24.67	1.42	65.19	120.94
306	50.20	28.99	1.66	60.42	120.94

Depth from free surface, at which CPT was performed (ft)
Measured cone resistance
Sleeve friction resistance
Percentage of fines in soil (%)
Bulk soil unit weight (tsf)

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
1	0.16	0.01	0.00	0.01	1.00	0.29	1.40	0.20	1.00	0.20
2	0.33	0.02	0.00	0.02	1.00	0.29	1.40	0.20	1.00	0.20
3	0.49	0.03	0.00	0.03	1.00	0.29	1.40	0.20	1.00	0.20
4	0.66	0.04	0.00	0.04	1.00	0.29	1.40	0.20	1.00	0.20
5	0.82	0.05	0.00	0.05	1.00	0.29	1.40	0.20	1.00	0.20
6	0.98	0.06	0.00	0.06	1.00	0.29	1.40	0.20	1.00	0.20
7	1.15	0.07	0.00	0.07	1.00	0.29	1.40	0.20	1.00	0.20
8	1.31	0.08	0.00	0.08	1.00	0.29	1.40	0.20	1.00	0.20
9	1.48	0.09	0.00	0.09	1.00	0.29	1.40	0.20	1.00	0.20
10	1.64	0.10	0.00	0.10	1.00	0.28	1.40	0.20	1.00	0.20
11	1.80	0.11	0.00	0.11	1.00	0.28	1.40	0.20	1.00	0.20
12	1.97	0.12	0.00	0.12	1.00	0.28	1.40	0.20	1.00	0.20
13	2.13	0.13	0.00	0.13	1.00	0.28	1.40	0.20	1.00	0.20
14	2.30	0.14	0.00	0.14	0.99	0.28	1.40	0.20	1.00	0.20
15	2.46	0.15	0.00	0.15	0.99	0.28	1.40	0.20	1.00	0.20

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
16	2.62	0.16	0.00	0.16	0.99	0.28	1.40	0.20	1.00	0.20
17	2.79	0.17	0.00	0.17	0.99	0.28	1.40	0.20	1.00	0.20
18	2.95	0.18	0.00	0.18	0.99	0.28	1.40	0.20	1.00	0.20
19	3.12	0.19	0.00	0.19	0.99	0.28	1.40	0.20	1.00	0.20
20	3.28	0.20	0.00	0.20	0.99	0.28	1.40	0.20	1.00	0.20
21	3.44	0.21	0.00	0.21	0.99	0.28	1.40	0.20	1.00	0.20
22	3.61	0.22	0.00	0.22	0.99	0.28	1.40	0.20	1.00	0.20
23	3.77	0.23	0.00	0.23	0.99	0.28	1.40	0.20	1.00	0.20
24	3.94	0.24	0.00	0.24	0.99	0.28	1.40	0.20	1.00	0.20
25	4.10	0.25	0.00	0.25	0.99	0.28	1.40	0.20	1.00	0.20
26	4.27	0.26	0.00	0.26	0.99	0.28	1.40	0.20	1.00	0.20
27	4.43	0.27	0.00	0.27	0.99	0.28	1.40	0.20	1.00	0.20
28	4.59	0.28	0.00	0.28	0.99	0.28	1.40	0.20	1.00	0.20
29	4.76	0.29	0.00	0.29	0.99	0.28	1.40	0.20	1.00	0.20
30	4.92	0.30	0.00	0.30	0.99	0.28	1.40	0.20	1.00	0.20
31	5.09	0.31	0.00	0.30	0.99	0.29	1.40	0.20	1.00	0.20
32	5.25	0.32	0.01	0.31	0.99	0.29	1.40	0.21	1.00	0.21
33	5.41	0.33	0.01	0.31	0.99	0.29	1.40	0.21	1.00	0.21
34	5.58	0.34	0.02	0.32	0.99	0.30	1.40	0.21	1.00	0.21
35	5.74	0.35	0.02	0.32	0.99	0.30	1.40	0.22	1.00	0.22
36	5.91	0.36	0.03	0.33	0.99	0.31	1.40	0.22	1.00	0.22
37	6.07	0.37	0.03	0.33	0.99	0.31	1.40	0.22	1.00	0.22
38	6.23	0.38	0.04	0.34	0.99	0.31	1.40	0.22	1.00	0.22
39	6.40	0.39	0.04	0.34	0.99	0.32	1.40	0.23	1.00	0.23
40	6.56	0.40	0.05	0.35	0.98	0.32	1.40	0.23	1.00	0.23
41	6.73	0.41	0.05	0.35	0.98	0.32	1.40	0.23	1.00	0.23
42	6.89	0.42	0.06	0.36	0.98	0.33	1.40	0.23	1.00	0.23
43	7.05	0.43	0.06	0.36	0.98	0.33	1.40	0.24	1.00	0.24
44	7.22	0.44	0.07	0.37	0.98	0.33	1.40	0.24	1.00	0.24
45	7.38	0.45	0.07	0.37	0.98	0.34	1.40	0.24	1.00	0.24
46	7.55	0.46	0.08	0.38	0.98	0.34	1.40	0.24	1.00	0.24
47	7.71	0.47	0.08	0.38	0.98	0.34	1.40	0.25	1.00	0.25
48	7.87	0.48	0.09	0.39	0.98	0.35	1.40	0.25	1.00	0.25
49	8.04	0.49	0.09	0.39	0.98	0.35	1.40	0.25	1.00	0.25
50	8.20	0.50	0.10	0.40	0.98	0.35	1.40	0.25	1.00	0.25
51	8.37	0.51	0.11	0.40	0.98	0.35	1.40	0.25	1.00	0.25
52	8.53	0.52	0.11	0.41	0.98	0.36	1.40	0.26	1.00	0.26
53	8.69	0.53	0.12	0.41	0.98	0.36	1.40	0.26	1.00	0.26
54	8.86	0.54	0.12	0.42	0.98	0.36	1.40	0.26	1.00	0.26
55	9.02	0.55	0.13	0.42	0.98	0.36	1.40	0.26	1.00	0.26
56	9.19	0.56	0.13	0.42	0.98	0.37	1.40	0.26	1.00	0.26
57	9.35	0.57	0.14	0.43	0.98	0.37	1.40	0.26	1.00	0.26
58	9.51	0.57	0.14	0.43	0.98	0.37	1.40	0.27	1.00	0.27
59	9.68	0.59	0.15	0.44	0.98	0.37	1.40	0.27	1.00	0.27
60	9.84	0.59	0.15	0.44	0.98	0.37	1.40	0.27	1.00	0.27
61	10.01	0.61	0.16	0.45	0.98	0.38	1.40	0.27	1.00	0.27
62	10.17	0.61	0.16	0.45	0.98	0.38	1.40	0.27	1.00	0.27
63	10.33	0.62	0.17	0.46	0.98	0.38	1.40	0.27	1.00	0.27
64	10.50	0.63	0.17	0.46	0.98	0.38	1.40	0.27	1.00	0.27
65	10.66	0.64	0.18	0.47	0.98	0.38	1.40	0.27	1.00	0.27
66	10.83	0.65	0.18	0.47	0.97	0.39	1.40	0.28	1.00	0.28
67	10.99	0.66	0.19	0.48	0.97	0.39	1.40	0.28	1.00	0.28
68	11.15	0.67	0.19	0.48	0.97	0.39	1.40	0.28	1.00	0.28
69	11.32	0.68	0.20	0.49	0.97	0.39	1.40	0.28	1.00	0.28
70	11.48	0.69	0.20	0.49	0.97	0.39	1.40	0.28	1.00	0.28

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
71	11.65	0.70	0.21	0.50	0.97	0.39	1.40	0.28	1.00	0.28
72	11.81	0.71	0.21	0.50	0.97	0.40	1.40	0.28	1.00	0.28
73	11.98	0.72	0.22	0.51	0.97	0.40	1.40	0.28	1.00	0.28
74	12.14	0.73	0.22	0.51	0.97	0.40	1.40	0.29	1.00	0.29
75	12.30	0.74	0.23	0.52	0.97	0.40	1.40	0.29	1.00	0.29
76	12.47	0.75	0.23	0.52	0.97	0.40	1.40	0.29	1.00	0.29
77	12.63	0.76	0.24	0.53	0.97	0.40	1.40	0.29	1.00	0.29
78	12.80	0.77	0.24	0.53	0.97	0.40	1.40	0.29	1.00	0.29
79	12.96	0.78	0.25	0.54	0.97	0.41	1.40	0.29	1.00	0.29
80	13.12	0.79	0.25	0.54	0.97	0.41	1.40	0.29	1.00	0.29
81	13.29	0.80	0.26	0.54	0.97	0.41	1.40	0.29	1.00	0.29
82	13.45	0.81	0.26	0.55	0.97	0.41	1.40	0.29	1.00	0.29
83	13.62	0.82	0.27	0.55	0.97	0.41	1.40	0.29	1.00	0.29
84	13.78	0.83	0.27	0.56	0.97	0.41	1.40	0.30	1.00	0.30
85	13.94	0.84	0.28	0.56	0.97	0.41	1.40	0.30	1.00	0.30
86	14.11	0.85	0.28	0.57	0.97	0.41	1.40	0.30	1.00	0.30
87	14.27	0.86	0.29	0.57	0.97	0.42	1.40	0.30	1.00	0.30
88	14.44	0.87	0.29	0.58	0.97	0.42	1.40	0.30	1.00	0.30
89	14.60	0.88	0.30	0.58	0.97	0.42	1.40	0.30	1.00	0.30
90	14.76	0.89	0.30	0.59	0.97	0.42	1.40	0.30	1.00	0.30
91	14.93	0.90	0.31	0.59	0.97	0.42	1.40	0.30	1.00	0.30
92	15.09	0.91	0.31	0.60	0.96	0.42	1.40	0.30	1.00	0.30
93	15.26	0.92	0.32	0.60	0.96	0.42	1.40	0.30	1.00	0.30
94	15.42	0.93	0.33	0.61	0.96	0.42	1.40	0.30	1.00	0.30
95	15.58	0.94	0.33	0.61	0.96	0.42	1.40	0.30	1.00	0.30
96	15.75	0.95	0.34	0.62	0.96	0.43	1.40	0.30	1.00	0.30
97	15.91	0.96	0.34	0.62	0.96	0.43	1.40	0.31	1.00	0.31
98	16.08	0.97	0.35	0.63	0.96	0.43	1.40	0.31	1.00	0.31
99	16.24	0.98	0.35	0.63	0.96	0.43	1.40	0.31	1.00	0.31
100	16.40	0.99	0.36	0.64	0.96	0.43	1.40	0.31	1.00	0.31
101	16.57	1.00	0.36	0.64	0.96	0.43	1.40	0.31	1.00	0.31
102	16.73	1.01	0.37	0.65	0.96	0.43	1.40	0.31	1.00	0.31
103	16.90	1.02	0.37	0.65	0.96	0.43	1.40	0.31	1.00	0.31
104	17.06	1.03	0.38	0.65	0.96	0.43	1.40	0.31	1.00	0.31
105	17.22	1.04	0.38	0.66	0.96	0.43	1.40	0.31	1.00	0.31
106	17.39	1.05	0.39	0.66	0.96	0.43	1.40	0.31	1.00	0.31
107	17.55	1.06	0.39	0.67	0.96	0.43	1.40	0.31	1.00	0.31
108	17.72	1.07	0.40	0.67	0.96	0.44	1.40	0.31	1.00	0.31
109	17.88	1.08	0.40	0.68	0.96	0.44	1.40	0.31	1.00	0.31
110	18.04	1.09	0.41	0.68	0.96	0.44	1.40	0.31	1.00	0.31
111	18.21	1.10	0.41	0.69	0.96	0.44	1.40	0.31	1.00	0.31
112	18.37	1.11	0.42	0.69	0.96	0.44	1.40	0.31	1.00	0.31
113	18.54	1.12	0.42	0.70	0.96	0.44	1.40	0.31	1.00	0.31
114	18.70	1.13	0.43	0.70	0.96	0.44	1.40	0.31	1.00	0.31
115	18.86	1.14	0.43	0.71	0.96	0.44	1.40	0.32	1.00	0.32
116	19.03	1.15	0.44	0.71	0.96	0.44	1.40	0.32	1.00	0.32
117	19.19	1.16	0.44	0.72	0.96	0.44	1.40	0.32	1.00	0.32
118	19.36	1.17	0.45	0.72	0.95	0.44	1.40	0.32	1.00	0.32
119	19.52	1.18	0.45	0.73	0.95	0.44	1.40	0.32	1.00	0.32
120	19.69	1.19	0.46	0.73	0.95	0.44	1.40	0.32	1.00	0.32
121	19.85	1.20	0.46	0.74	0.95	0.44	1.40	0.32	1.00	0.32
122	20.01	1.21	0.47	0.74	0.95	0.45	1.40	0.32	1.00	0.32
123	20.18	1.22	0.47	0.75	0.95	0.45	1.40	0.32	1.00	0.32
124	20.34	1.23	0.48	0.75	0.95	0.45	1.40	0.32	1.00	0.32
125	20.51	1.24	0.48	0.76	0.95	0.45	1.40	0.32	1.00	0.32

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
126	20.67	1.25	0.49	0.76	0.95	0.45	1.40	0.32	1.00	0.32
127	20.83	1.26	0.49	0.77	0.95	0.45	1.40	0.32	1.00	0.32
128	21.00	1.27	0.50	0.77	0.95	0.45	1.40	0.32	1.00	0.32
129	21.16	1.28	0.50	0.77	0.95	0.45	1.40	0.32	1.00	0.32
130	21.33	1.29	0.51	0.78	0.95	0.45	1.40	0.32	1.00	0.32
131	21.49	1.30	0.51	0.78	0.95	0.45	1.40	0.32	1.00	0.32
132	21.65	1.31	0.52	0.79	0.95	0.45	1.40	0.32	1.00	0.32
133	21.82	1.32	0.53	0.79	0.95	0.45	1.40	0.32	1.00	0.32
134	21.98	1.33	0.53	0.80	0.95	0.45	1.40	0.32	1.00	0.32
135	22.15	1.34	0.54	0.80	0.95	0.45	1.40	0.32	1.00	0.32
136	22.31	1.35	0.54	0.81	0.95	0.45	1.40	0.32	1.00	0.32
137	22.47	1.36	0.55	0.81	0.95	0.45	1.40	0.32	1.00	0.32
138	22.64	1.37	0.55	0.82	0.95	0.45	1.40	0.32	1.00	0.32
139	22.80	1.38	0.56	0.82	0.95	0.45	1.40	0.32	1.00	0.32
140	22.97	1.39	0.56	0.83	0.95	0.45	1.40	0.32	1.00	0.32
141	23.13	1.40	0.57	0.83	0.95	0.45	1.40	0.33	1.00	0.33
142	23.29	1.41	0.57	0.84	0.95	0.45	1.40	0.33	1.00	0.33
143	23.46	1.42	0.58	0.84	0.95	0.46	1.40	0.33	1.00	0.33
144	23.62	1.43	0.58	0.85	0.94	0.46	1.40	0.33	1.00	0.33
145	23.79	1.44	0.59	0.85	0.94	0.46	1.40	0.33	1.00	0.33
146	23.95	1.45	0.59	0.86	0.94	0.46	1.40	0.33	1.00	0.33
147	24.11	1.46	0.60	0.86	0.94	0.46	1.40	0.33	1.00	0.33
148	24.28	1.47	0.60	0.87	0.94	0.46	1.40	0.33	1.00	0.33
149	24.44	1.48	0.61	0.87	0.94	0.46	1.40	0.33	1.00	0.33
150	24.61	1.49	0.61	0.88	0.94	0.46	1.40	0.33	1.00	0.33
151	24.77	1.50	0.62	0.88	0.94	0.46	1.40	0.33	1.00	0.33
152	24.93	1.51	0.62	0.89	0.94	0.46	1.40	0.33	1.00	0.33
153	25.10	1.52	0.63	0.89	0.94	0.46	1.40	0.33	1.00	0.33
154	25.26	1.53	0.63	0.89	0.94	0.46	1.40	0.33	1.00	0.33
155	25.43	1.54	0.64	0.90	0.94	0.46	1.40	0.33	1.00	0.33
156	25.59	1.55	0.64	0.90	0.94	0.46	1.40	0.33	1.00	0.33
157	25.75	1.56	0.65	0.91	0.94	0.46	1.40	0.33	1.00	0.33
158	25.92	1.57	0.65	0.91	0.94	0.46	1.40	0.33	1.00	0.33
159	26.08	1.58	0.66	0.92	0.94	0.46	1.40	0.33	1.00	0.33
160	26.25	1.59	0.66	0.92	0.94	0.46	1.40	0.33	1.00	0.33
161	26.41	1.60	0.67	0.93	0.94	0.46	1.40	0.33	1.00	0.33
162	26.57	1.61	0.67	0.93	0.94	0.46	1.40	0.33	1.00	0.33
163	26.74	1.62	0.68	0.94	0.94	0.46	1.40	0.33	1.00	0.33
164	26.90	1.63	0.68	0.94	0.94	0.46	1.40	0.33	1.00	0.33
165	27.07	1.64	0.69	0.95	0.94	0.46	1.40	0.33	1.00	0.33
166	27.23	1.65	0.69	0.95	0.94	0.46	1.40	0.33	1.00	0.33
167	27.40	1.66	0.70	0.96	0.94	0.46	1.40	0.33	1.00	0.33
168	27.56	1.67	0.70	0.96	0.94	0.46	1.40	0.33	1.00	0.33
169	27.72	1.68	0.71	0.97	0.94	0.46	1.40	0.33	1.00	0.33
170	27.89	1.69	0.71	0.97	0.93	0.46	1.40	0.33	1.00	0.33
171	28.05	1.70	0.72	0.98	0.93	0.46	1.40	0.33	1.00	0.33
172	28.22	1.71	0.72	0.98	0.93	0.46	1.40	0.33	1.00	0.33
173	28.38	1.72	0.73	0.99	0.93	0.46	1.40	0.33	1.00	0.33
174	28.54	1.73	0.73	0.99	0.93	0.46	1.40	0.33	1.00	0.33
175	28.71	1.74	0.74	1.00	0.93	0.47	1.40	0.33	1.00	0.33
176	28.87	1.75	0.75	1.00	0.93	0.47	1.40	0.33	1.00	0.33
177	29.04	1.76	0.75	1.01	0.93	0.47	1.40	0.33	1.00	0.33
178	29.20	1.77	0.76	1.01	0.93	0.47	1.40	0.33	1.00	0.33
179	29.36	1.78	0.76	1.01	0.93	0.47	1.40	0.33	1.00	0.33
180	29.53	1.79	0.77	1.02	0.93	0.47	1.40	0.33	1.00	0.33

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
181	29.69	1.80	0.77	1.02	0.93	0.47	1.40	0.33	1.00	0.33
182	29.86	1.81	0.78	1.03	0.93	0.47	1.40	0.33	1.00	0.33
183	30.02	1.82	0.78	1.03	0.93	0.47	1.40	0.33	1.00	0.33
184	30.18	1.82	0.79	1.04	0.93	0.47	1.40	0.33	1.00	0.33
185	30.35	1.83	0.79	1.04	0.93	0.47	1.40	0.33	1.00	0.33
186	30.51	1.84	0.80	1.05	0.93	0.47	1.40	0.33	1.00	0.33
187	30.68	1.85	0.80	1.05	0.93	0.47	1.40	0.33	1.00	0.33
188	30.84	1.86	0.81	1.06	0.92	0.47	1.40	0.33	1.00	0.33
189	31.00	1.87	0.81	1.06	0.92	0.47	1.40	0.33	1.00	0.33
190	31.17	1.88	0.82	1.07	0.92	0.47	1.40	0.33	1.00	0.33
191	31.33	1.89	0.82	1.07	0.92	0.46	1.40	0.33	0.99	0.33
192	31.50	1.90	0.83	1.08	0.92	0.46	1.40	0.33	0.99	0.33
193	31.66	1.91	0.83	1.08	0.92	0.46	1.40	0.33	0.99	0.33
194	31.82	1.92	0.84	1.09	0.92	0.46	1.40	0.33	0.99	0.33
195	31.99	1.93	0.84	1.09	0.91	0.46	1.40	0.33	0.99	0.33
196	32.15	1.94	0.85	1.10	0.91	0.46	1.40	0.33	0.99	0.33
197	32.32	1.95	0.85	1.10	0.91	0.46	1.40	0.33	0.99	0.33
198	32.48	1.96	0.86	1.11	0.91	0.46	1.40	0.33	0.99	0.33
199	32.64	1.97	0.86	1.11	0.91	0.46	1.40	0.33	0.99	0.33
200	32.81	1.98	0.87	1.12	0.91	0.46	1.40	0.33	0.99	0.33
201	32.97	1.99	0.87	1.12	0.91	0.46	1.40	0.33	0.99	0.33
202	33.14	2.00	0.88	1.13	0.91	0.46	1.40	0.33	0.99	0.33
203	33.30	2.01	0.88	1.13	0.90	0.46	1.40	0.33	0.98	0.33
204	33.46	2.02	0.89	1.13	0.90	0.46	1.40	0.33	0.98	0.33
205	33.63	2.03	0.89	1.14	0.90	0.46	1.40	0.33	0.98	0.33
206	33.79	2.04	0.90	1.14	0.90	0.46	1.40	0.33	0.98	0.33
207	33.96	2.05	0.90	1.15	0.90	0.46	1.40	0.33	0.98	0.33
208	34.12	2.06	0.91	1.15	0.90	0.46	1.40	0.33	0.98	0.33
209	34.28	2.07	0.91	1.16	0.90	0.46	1.40	0.33	0.98	0.33
210	34.45	2.08	0.92	1.16	0.89	0.46	1.40	0.33	0.98	0.33
211	34.61	2.09	0.92	1.17	0.89	0.46	1.40	0.33	0.98	0.33
212	34.78	2.10	0.93	1.17	0.89	0.46	1.40	0.33	0.98	0.33
213	34.94	2.11	0.93	1.18	0.89	0.46	1.40	0.33	0.98	0.33
214	35.10	2.12	0.94	1.18	0.89	0.46	1.40	0.33	0.98	0.33
215	35.27	2.13	0.94	1.19	0.89	0.46	1.40	0.33	0.97	0.33
216	35.43	2.14	0.95	1.19	0.89	0.46	1.40	0.33	0.97	0.33
217	35.60	2.15	0.96	1.20	0.89	0.46	1.40	0.33	0.97	0.33
218	35.76	2.16	0.96	1.20	0.88	0.45	1.40	0.33	0.97	0.33
219	35.93	2.17	0.97	1.21	0.88	0.45	1.40	0.33	0.97	0.33
220	36.09	2.18	0.97	1.21	0.88	0.45	1.40	0.32	0.97	0.33
221	36.25	2.19	0.98	1.22	0.88	0.45	1.40	0.32	0.97	0.33
222	36.42	2.20	0.98	1.22	0.88	0.45	1.40	0.32	0.97	0.33
223	36.58	2.21	0.99	1.23	0.88	0.45	1.40	0.32	0.97	0.33
224	36.75	2.22	0.99	1.23	0.88	0.45	1.40	0.32	0.97	0.33
225	36.91	2.23	1.00	1.24	0.87	0.45	1.40	0.32	0.97	0.33
226	37.07	2.24	1.00	1.24	0.87	0.45	1.40	0.32	0.97	0.33
227	37.24	2.25	1.01	1.25	0.87	0.45	1.40	0.32	0.97	0.33
228	37.40	2.26	1.01	1.25	0.87	0.45	1.40	0.32	0.96	0.33
229	37.57	2.27	1.02	1.25	0.87	0.45	1.40	0.32	0.96	0.33
230	37.73	2.28	1.02	1.26	0.87	0.45	1.40	0.32	0.96	0.33
231	37.89	2.29	1.03	1.26	0.87	0.45	1.40	0.32	0.96	0.33
232	38.06	2.30	1.03	1.27	0.87	0.45	1.40	0.32	0.96	0.33
233	38.22	2.31	1.04	1.27	0.86	0.45	1.40	0.32	0.96	0.33
234	38.39	2.32	1.04	1.28	0.86	0.45	1.40	0.32	0.96	0.33
235	38.55	2.33	1.05	1.28	0.86	0.45	1.40	0.32	0.96	0.33

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
236	38.71	2.34	1.05	1.29	0.86	0.45	1.40	0.32	0.96	0.33
237	38.88	2.35	1.06	1.29	0.86	0.45	1.40	0.32	0.96	0.33
238	39.04	2.36	1.06	1.30	0.86	0.45	1.40	0.32	0.96	0.33
239	39.21	2.37	1.07	1.30	0.86	0.45	1.40	0.32	0.96	0.33
240	39.37	2.38	1.07	1.31	0.85	0.44	1.40	0.32	0.96	0.33
241	39.53	2.39	1.08	1.31	0.85	0.44	1.40	0.32	0.96	0.33
242	39.70	2.40	1.08	1.32	0.85	0.44	1.40	0.32	0.95	0.33
243	39.86	2.41	1.09	1.32	0.85	0.44	1.40	0.32	0.95	0.33
244	40.03	2.42	1.09	1.33	0.85	0.44	1.40	0.32	0.95	0.33
245	40.19	2.43	1.10	1.33	0.85	0.44	1.40	0.32	0.95	0.33
246	40.35	2.44	1.10	1.34	0.85	0.44	1.40	0.32	0.95	0.33
247	40.52	2.45	1.11	1.34	0.85	0.44	1.40	0.32	0.95	0.33
248	40.68	2.46	1.11	1.35	0.84	0.44	1.40	0.32	0.95	0.33
249	40.85	2.47	1.12	1.35	0.84	0.44	1.40	0.32	0.95	0.33
250	41.01	2.48	1.12	1.36	0.84	0.44	1.40	0.31	0.95	0.33
251	41.17	2.49	1.13	1.36	0.84	0.44	1.40	0.31	0.95	0.33
252	41.34	2.50	1.13	1.37	0.84	0.44	1.40	0.31	0.95	0.33
253	41.50	2.51	1.14	1.37	0.84	0.44	1.40	0.31	0.95	0.33
254	41.67	2.52	1.14	1.37	0.84	0.44	1.40	0.31	0.95	0.33
255	41.83	2.53	1.15	1.38	0.83	0.44	1.40	0.31	0.95	0.33
256	41.99	2.54	1.15	1.38	0.83	0.44	1.40	0.31	0.95	0.33
257	42.16	2.55	1.16	1.39	0.83	0.44	1.40	0.31	0.94	0.33
258	42.32	2.56	1.17	1.39	0.83	0.44	1.40	0.31	0.94	0.33
259	42.49	2.57	1.17	1.40	0.83	0.44	1.40	0.31	0.94	0.33
260	42.65	2.58	1.18	1.40	0.83	0.44	1.40	0.31	0.94	0.33
261	42.81	2.59	1.18	1.41	0.83	0.43	1.40	0.31	0.94	0.33
262	42.98	2.60	1.19	1.41	0.83	0.43	1.40	0.31	0.94	0.33
263	43.14	2.61	1.19	1.42	0.82	0.43	1.40	0.31	0.94	0.33
264	43.31	2.62	1.20	1.42	0.82	0.43	1.40	0.31	0.94	0.33
265	43.47	2.63	1.20	1.43	0.82	0.43	1.40	0.31	0.94	0.33
266	43.64	2.64	1.21	1.43	0.82	0.43	1.40	0.31	0.94	0.33
267	43.80	2.65	1.21	1.44	0.82	0.43	1.40	0.31	0.94	0.33
268	43.96	2.66	1.22	1.44	0.82	0.43	1.40	0.31	0.94	0.33
269	44.13	2.67	1.22	1.45	0.82	0.43	1.40	0.31	0.94	0.33
270	44.29	2.68	1.23	1.45	0.81	0.43	1.40	0.31	0.94	0.33
271	44.46	2.69	1.23	1.46	0.81	0.43	1.40	0.31	0.94	0.33
272	44.62	2.70	1.24	1.46	0.81	0.43	1.40	0.31	0.94	0.33
273	44.78	2.71	1.24	1.47	0.81	0.43	1.40	0.31	0.93	0.33
274	44.95	2.72	1.25	1.47	0.81	0.43	1.40	0.31	0.93	0.33
275	45.11	2.73	1.25	1.48	0.81	0.43	1.40	0.31	0.93	0.33
276	45.28	2.74	1.26	1.48	0.81	0.43	1.40	0.31	0.93	0.33
277	45.44	2.75	1.26	1.48	0.81	0.43	1.40	0.30	0.93	0.33
278	45.60	2.76	1.27	1.49	0.80	0.43	1.40	0.30	0.93	0.33
279	45.77	2.77	1.27	1.49	0.80	0.42	1.40	0.30	0.93	0.33
280	45.93	2.78	1.28	1.50	0.80	0.42	1.40	0.30	0.93	0.33
281	46.10	2.79	1.28	1.50	0.80	0.42	1.40	0.30	0.93	0.33
282	46.26	2.80	1.29	1.51	0.80	0.42	1.40	0.30	0.93	0.33
283	46.42	2.81	1.29	1.51	0.80	0.42	1.40	0.30	0.93	0.33
284	46.59	2.82	1.30	1.52	0.80	0.42	1.40	0.30	0.93	0.33
285	46.75	2.83	1.30	1.52	0.79	0.42	1.40	0.30	0.93	0.33
286	46.92	2.84	1.31	1.53	0.79	0.42	1.40	0.30	0.93	0.33
287	47.08	2.85	1.31	1.53	0.79	0.42	1.40	0.30	0.93	0.32
288	47.24	2.86	1.32	1.54	0.79	0.42	1.40	0.30	0.93	0.32
289	47.41	2.87	1.32	1.54	0.79	0.42	1.40	0.30	0.92	0.32
290	47.57	2.88	1.33	1.55	0.79	0.42	1.40	0.30	0.92	0.32

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
291	47.74	2.89	1.33	1.55	0.79	0.42	1.40	0.30	0.92	0.32
292	47.90	2.90	1.34	1.56	0.79	0.42	1.40	0.30	0.92	0.32
293	48.06	2.91	1.34	1.56	0.78	0.42	1.40	0.30	0.92	0.32
294	48.23	2.92	1.35	1.57	0.78	0.42	1.40	0.30	0.92	0.32
295	48.39	2.93	1.35	1.57	0.78	0.42	1.40	0.30	0.92	0.32
296	48.56	2.94	1.36	1.58	0.78	0.42	1.40	0.30	0.92	0.32
297	48.72	2.95	1.36	1.58	0.78	0.41	1.40	0.30	0.92	0.32
298	48.88	2.96	1.37	1.59	0.78	0.41	1.40	0.30	0.92	0.32
299	49.05	2.97	1.38	1.59	0.78	0.41	1.40	0.30	0.92	0.32
300	49.21	2.98	1.38	1.60	0.77	0.41	1.40	0.30	0.92	0.32
301	49.38	2.99	1.39	1.60	0.77	0.41	1.40	0.30	0.92	0.32
302	49.54	3.00	1.39	1.60	0.77	0.41	1.40	0.29	0.92	0.32
303	49.70	3.00	1.40	1.61	0.77	0.41	1.40	0.29	0.92	0.32
304	49.87	3.02	1.40	1.61	0.77	0.41	1.40	0.29	0.92	0.32
305	50.03	3.02	1.41	1.62	0.77	0.41	1.40	0.29	0.92	0.32
306	50.20	3.04	1.41	1.62	0.77	0.41	1.40	0.29	0.92	0.32

Depth from free surface, at which CPT was performed (ft)
Total overburden pressure at test point, during earthquake (tsf)
Water pressure at test point, during earthquake (tsf)
Effective overburden pressure, during earthquake (tsf)
Nonlinear shear mass factor
Cyclic Stress Ratio
Magnitude Scaling Factor
CSR adjusted for M=7.5
Effective overburden stress factor
CSR fully adjusted

Point ID			F (%)	n				
1	21.09	1.84	2.04	0.56	281.56	1.14	319.82	2.00
2	23.77	1.96	2.60	0.60	243.62	1.25	305.26	2.00
3	39.25	1.91	2.61	0.58	300.42	1.20	361.36	2.00
4	57.85	1.90	2.78	0.58	364.56	1.18	431.87	2.00
5	66.55	1.89	2.76	0.58	368.22	1.18	434.64	2.00
6	66.47	1.93	2.90	0.59	341.92	1.21	415.16	2.00
7	62.94	1.91	2.57	0.58	292.14	1.20	351.49	2.00
8	51.19	2.02	3.02	0.61	238.84	1.33	317.13	2.00
9	45.69	2.06	3.00	0.63	203.13	1.38	280.84	2.00
10	38.53	2.10	2.89	0.64	164.97	1.45	238.73	2.00
11	33.29	2.16	3.04	0.66	139.96	1.57	219.54	2.00
12	31.46	2.18	2.99	0.66	126.39	1.62	204.44	2.00
13	25.80	2.22	2.79	0.67	100.82	1.72	172.98	2.00
14	24.44	2.35	4.04	0.71	97.74	2.12	207.31	2.00
15	30.45	2.36	4.72	0.71	116.71	2.15	250.43	2.00
16	24.13	2.51	6.34	0.76	96.27	2.82	271.26	2.00
17	20.80	2.52	5.65	0.76	79.47	2.87	228.48	2.00
18	17.12	2.56	5.38	0.78	63.97	3.11	199.20	2.00
19	13.98	2.64	5.59	0.80	51.76	3.11	161.20	2.00
20	10.64	2.74	5.99	0.83	39.60	3.11	123.32	2.00
21	8.03	2.82	5.99	0.85	29.74	3.11	92.62	2.00
22	7.42	2.85	5.83	0.86	26.61	3.11	82.85	2.00
23	6.12	2.94	6.32	0.89	21.82	3.11	67.94	2.00
24	4.54	3.06	6.83	0.92	16.15	3.11	50.28	2.00
25	4.00	3.08	6.14	0.93	13.71	3.11	42.69	2.00
26	3.93	3.07	5.57	0.93	12.88	3.11	40.11	2.00
27	3.62	3.14	6.33	0.95	11.70	3.11	36.44	2.00

Point ID			F (%)	n				
28	3.43	3.17	6.28	0.96	10.75	3.11	33.47	2.00
29	3.35	3.18	6.14	0.96	10.13	3.11	31.56	2.00
30	4.63	3.02	4.68	0.91	13.06	3.11	40.67	2.00
31	5.22	3.02	5.27	0.91	14.47	3.11	45.06	2.00
32	6.95	2.85	3.71	0.86	18.09	3.11	56.35	2.00
33	8.53	2.85	4.81	0.86	22.14	3.11	68.95	2.00
34	6.74	2.93	4.92	0.89	17.56	3.11	54.67	2.00
35	13.53	2.51	2.06	0.76	30.71	2.81	86.18	0.14
36	8.95	2.74	3.17	0.83	21.49	2.81	60.29	2.00
37	8.39	2.83	3.98	0.86	20.39	2.81	57.20	2.00
38	8.70	2.85	4.55	0.86	21.09	2.81	59.17	2.00
39	8.42	2.91	5.42	0.88	20.50	2.81	57.52	2.00
40	12.80	2.63	2.92	0.80	28.48	2.81	79.91	2.00
41	9.18	2.79	3.70	0.85	21.03	2.81	59.01	2.00
42	10.49	2.66	2.50	0.81	22.87	2.81	64.17	2.00
43	11.23	2.63	2.38	0.80	24.04	2.81	67.44	2.00
44	12.69	2.59	2.35	0.78	26.64	3.27	87.09	0.14
45	12.50	2.65	2.94	0.80	26.47	3.27	86.51	2.00
46	11.90	2.72	3.49	0.82	25.34	3.27	82.82	2.00
47	12.01	2.75	3.92	0.83	25.54	3.27	83.47	2.00
48	12.60	2.72	3.73	0.82	26.35	3.27	86.14	2.00
49	13.36	2.69	3.52	0.82	27.45	3.27	89.72	2.00
50	13.03	2.73	3.91	0.83	26.77	3.27	87.49	2.00
51	12.92	2.73	3.83	0.83	26.24	3.27	85.76	2.00
52	12.89	2.74	3.89	0.83	25.96	3.27	84.87	2.00
53	12.72	2.75	3.90	0.83	25.40	3.27	83.03	2.00
54	11.06	2.83	4.52	0.86	22.22	3.27	72.65	2.00
55	10.60	2.86	4.65	0.86	21.17	3.27	69.19	2.00
56	9.87	2.90	4.96	0.88	19.64	3.27	64.19	2.00
57	8.59	2.94	4.82	0.89	16.94	3.27	55.37	2.00
58	8.00	2.92	4.07	0.89	15.46	3.27	50.52	2.00
59	7.57	2.92	3.60	0.88	14.37	3.27	46.96	2.00
60	7.21	2.96	3.95	0.90	13.64	3.27	44.57	2.00
61	7.23	2.97	4.02	0.90	13.54	3.27	44.27	2.00
62	8.22	2.92	3.86	0.88	15.20	3.27	49.69	2.00
63	8.84	2.91	4.12	0.88	16.25	3.27	53.13	2.00
64	10.58	2.84	3.92	0.86	19.16	3.27	62.64	2.00
65	9.72	2.88	4.11	0.87	17.52	3.27	57.27	2.00
66	8.34	2.98	4.74	0.90	15.03	3.27	49.12	2.00
67	8.97	2.93	4.37	0.89	15.94	3.27	52.10	2.00
68	8.66	2.91	3.73	0.88	15.10	3.27	49.35	2.00
69	6.64	3.05	4.56	0.92	11.54	3.27	37.72	2.00
70	6.76	3.05	4.49	0.92	11.63	3.27	38.03	2.00
71	7.05	3.06	5.01	0.93	12.10	3.27	39.55	2.00
72	8.49	2.97	4.48	0.90	14.41	3.27	47.12	2.00
73	17.25	2.56	2.22	0.78	27.75	3.10	85.99	0.14
74	22.39	2.49	2.35	0.76	35.59	2.73	97.23	0.17
75	13.86	2.78	3.87	0.84	22.75	2.73	62.13	2.00
76	11.36	2.88	4.40	0.87	18.65	2.73	50.93	2.00
77	13.80	2.75	3.38	0.83	22.13	2.73	60.44	2.00
78	14.97	2.75	3.64	0.83	23.88	2.73	65.23	2.00
79	18.26	2.71	3.93	0.82	28.95	2.73	79.08	2.00
80	20.27	2.69	4.15	0.82	31.95	2.73	87.28	2.00
81	21.37	2.70	4.46	0.82	33.53	2.73	91.58	2.00
82	21.94	2.71	4.70	0.82	34.26	2.73	93.58	2.00

Point ID			F (%)	n				
83	21.73	2.73	4.98	0.83	33.80	2.73	92.32	2.00
84	21.34	2.71	4.53	0.82	32.80	2.73	89.60	2.00
85	19.95	2.73	4.53	0.83	30.48	2.73	83.27	2.00
86	20.36	2.74	4.67	0.83	30.92	2.73	84.47	2.00
87	19.94	2.76	4.99	0.84	30.20	2.73	82.48	2.00
88	17.89	2.82	5.44	0.86	27.01	2.73	73.79	2.00
89	17.18	2.82	5.13	0.86	25.69	2.73	70.16	2.00
90	16.42	2.85	5.40	0.86	24.44	2.73	66.75	2.00
91	16.22	2.85	5.21	0.86	23.91	2.73	65.32	2.00
92	14.99	2.89	5.44	0.88	21.98	2.73	60.03	2.00
93	13.71	2.90	5.01	0.88	19.85	2.73	54.21	2.00
94	14.28	2.87	4.67	0.87	20.47	2.73	55.93	2.00
95	14.25	2.87	4.57	0.87	20.27	2.73	55.37	2.00
96	15.47	2.82	4.25	0.85	21.80	2.73	59.56	2.00
97	18.10	2.76	4.00	0.84	25.31	2.73	69.14	2.00
98	18.32	2.77	4.18	0.84	25.49	2.73	69.63	2.00
99	18.87	2.77	4.30	0.84	26.14	2.73	71.39	2.00
100	21.03	2.71	3.99	0.82	28.86	2.73	78.85	2.00
101	22.61	2.73	4.53	0.83	30.99	2.73	84.66	2.00
102	25.44	2.69	4.57	0.82	34.66	2.73	94.69	2.00
103	23.58	2.73	4.74	0.83	31.97	2.73	87.34	2.00
104	20.75	2.77	4.63	0.84	27.93	2.73	76.28	2.00
105	18.91	2.80	4.67	0.85	25.28	2.73	69.04	2.00
106	16.81	2.85	4.84	0.86	22.29	2.73	60.88	2.00
107	15.12	2.89	4.94	0.88	19.88	2.73	54.30	2.00
108	15.94	2.82	4.04	0.86	20.70	2.73	56.53	2.00
109	16.39	2.82	4.14	0.86	21.18	2.73	57.85	2.00
110	17.08	2.82	4.27	0.85	21.98	2.73	60.05	2.00
111	17.69	2.77	3.65	0.84	22.52	2.73	61.51	2.00
112	20.05	2.75	3.92	0.83	25.51	2.73	69.69	2.00
113	18.22	2.83	4.67	0.86	23.11	2.73	63.13	2.00
114	19.56	2.79	4.36	0.84	24.66	2.73	67.37	2.00
115	17.18	2.85	4.64	0.86	21.49	2.73	58.70	2.00
116	15.01	2.92	5.05	0.88	18.61	2.73	50.83	2.00
117	17.64	2.80	3.99	0.85	21.71	2.73	59.30	2.00
118	17.77	2.83	4.37	0.86	21.80	2.73	59.54	2.00
119	16.89	2.88	4.90	0.87	20.63	2.73	56.35	2.00
120	15.68	2.91	5.01	0.88	18.98	2.73	51.85	2.00
121	13.64	3.00	5.64	0.91	16.35	2.73	44.65	2.00
122	13.94	2.98	5.34	0.90	16.60	2.73	45.33	2.00
123	15.14	2.93	5.01	0.89	17.96	2.73	49.05	2.00
124	14.06	2.98	5.39	0.90	16.54	2.73	45.18	2.00
125	12.81	3.03	5.71	0.92	14.90	2.73	40.70	2.00
126	16.69	2.90	4.94	0.88	19.53	2.73	53.34	2.00
127	18.58	2.88	5.26	0.87	21.75	2.73	59.42	2.00
128	17.29	2.96	6.38	0.90	20.16	2.73	55.06	2.00
129	17.74	2.95	6.19	0.89	20.57	2.73	56.19	2.00
130	21.03	2.87	5.66	0.87	24.37	2.73	66.56	2.00
131	22.02	2.89	6.29	0.87	25.48	2.73	69.61	2.00
132	22.06	2.92	7.10	0.89	25.47	2.73	69.57	2.00
133	22.47	2.91	6.80	0.88	25.78	2.73	70.42	2.00
134	21.55	2.91	6.58	0.88	24.53	2.73	67.00	2.00
135	21.06	2.92	6.52	0.88	23.80	2.73	65.02	2.00
136	22.64	2.87	5.94	0.87	25.47	2.73	69.58	2.00
137	22.63	2.87	5.99	0.87	25.33	2.73	69.19	2.00

Point ID			F (%)	n				
138	22.05	2.89	6.17	0.88	24.53	2.73	67.00	2.00
139	22.30	2.88	5.93	0.87	24.67	2.73	67.38	2.00
140	21.77	2.89	5.94	0.87	23.92	2.73	65.34	2.00
141	20.58	2.92	6.10	0.88	22.45	2.73	61.31	2.00
142	18.09	2.98	6.54	0.90	19.50	2.73	53.26	2.00
143	14.52	3.09	7.24	0.93	15.34	2.73	41.89	2.00
144	10.13	3.28	8.87	0.99	10.25	2.73	28.01	2.00
145	7.82	3.38	8.91	1.00	7.49	2.73	20.46	2.00
146	7.27	3.31	6.11	1.00	6.80	2.73	18.56	2.00
147	7.43	3.32	6.44	1.00	6.93	2.73	18.94	2.00
148	12.05	3.07	5.04	0.93	12.05	2.73	32.92	2.00
149	13.13	3.09	6.10	0.93	13.22	2.73	36.11	2.00
150	10.28	3.21	6.86	0.97	9.99	2.73	27.28	2.00
151	8.89	3.41	11.03	1.00	8.39	2.73	22.93	2.00
152	17.78	3.03	6.99	0.92	18.13	2.73	49.51	2.00
153	25.26	2.80	4.78	0.85	26.04	2.73	71.12	2.00
154	21.82	2.83	4.39	0.86	22.18	2.73	60.60	2.00
155	21.88	2.82	4.25	0.85	22.12	2.73	60.43	2.00
156	24.30	2.80	4.50	0.85	24.62	2.73	67.24	2.00
157	29.04	2.76	4.80	0.84	29.55	2.73	80.73	2.00
158	36.12	2.66	4.28	0.80	36.83	2.73	100.61	2.00
159	37.44	2.66	4.42	0.80	38.07	2.73	104.00	2.00
160	35.38	2.73	5.30	0.83	35.82	2.73	97.84	2.00
161	40.23	2.70	5.48	0.82	40.73	2.73	111.27	2.00
162	50.76	2.66	6.00	0.81	51.54	2.73	140.79	2.00
163	62.67	2.58	5.70	0.78	63.60	3.23	205.73	2.00
164	58.72	2.63	6.19	0.80	59.33	3.23	191.92	2.00
165	56.46	2.65	6.25	0.80	56.76	3.23	183.60	2.00
166	53.36	2.67	6.41	0.81	53.36	3.23	172.60	2.00
167	51.57	2.69	6.50	0.81	51.30	3.23	165.95	2.00
168	57.39	2.62	5.83	0.79	56.96	3.23	184.27	2.00
169	46.75	2.65	5.29	0.80	45.93	3.23	148.57	2.00
170	43.39	2.67	5.23	0.81	42.34	3.23	136.96	2.00
171	49.63	2.63	5.08	0.80	48.42	3.23	156.64	2.00
172	60.99	2.56	4.94	0.78	59.58	3.07	183.01	2.00
173	105.00	2.34	4.05	0.71	103.03	2.08	213.78	2.00
174	86.51	2.44	4.67	0.74	84.42	2.48	209.61	2.00
175	67.76	2.55	5.23	0.77	65.60	3.02	198.12	2.00
176	53.80	2.62	5.22	0.79	51.57	3.02	155.76	2.00
177	48.16	2.66	5.38	0.81	45.82	3.02	138.38	2.00
178	44.83	2.62	4.43	0.80	42.35	3.02	127.90	2.00
179	33.74	2.76	5.18	0.84	31.36	3.02	94.70	2.00
180	30.17	2.77	4.64	0.84	27.73	3.02	83.76	2.00
181	31.73	2.70	3.91	0.82	29.13	3.02	87.96	2.00
182	27.52	2.80	4.61	0.85	24.93	3.02	75.30	2.00
183	35.90	2.70	4.41	0.82	32.91	3.02	99.38	2.00
184	48.10	2.57	3.86	0.78	44.50	3.12	139.03	0.33
185	47.51	2.63	4.72	0.80	43.76	3.12	136.72	2.00
186	42.47	2.72	5.47	0.82	38.78	3.12	121.16	2.00
187	43.17	2.71	5.41	0.82	39.29	3.12	122.74	2.00
188	36.22	2.77	5.54	0.84	32.54	3.12	101.68	2.00
189	27.82	2.87	5.75	0.87	24.48	3.12	76.47	2.00
190	28.04	2.84	5.24	0.86	24.58	3.12	76.79	2.00
191	31.63	2.82	5.52	0.85	27.84	3.12	86.99	2.00
192	31.65	2.88	6.60	0.87	27.73	3.12	86.63	2.00

Point ID			F (%)	n				
193	30.06	2.86	5.93	0.87	26.14	3.12	81.67	2.00
194	29.92	2.85	5.72	0.86	25.91	3.12	80.94	2.00
195	26.32	2.89	5.59	0.88	22.47	3.12	70.20	2.00
196	23.16	2.99	6.60	0.90	19.45	3.12	60.76	2.00
197	22.68	2.98	6.38	0.90	18.92	3.12	59.12	2.00
198	24.14	2.93	5.63	0.89	20.19	3.12	63.07	2.00
199	21.38	2.97	5.50	0.90	17.59	3.12	54.95	2.00
200	22.10	2.95	5.44	0.89	18.16	3.12	56.75	2.00
201	26.11	2.93	6.10	0.89	21.70	3.12	67.81	2.00
202	40.89	2.76	5.76	0.84	34.98	3.12	109.30	2.00
203	53.64	2.61	4.64	0.79	46.45	3.12	145.13	2.00
204	44.96	2.64	4.20	0.80	38.48	3.12	120.23	2.00
205	29.64	2.80	4.45	0.85	24.56	3.12	76.72	2.00
206	26.97	2.77	3.58	0.84	22.11	3.12	69.09	2.00
207	28.18	2.78	3.87	0.84	23.09	3.12	72.13	2.00
208	29.55	2.80	4.52	0.85	24.18	3.12	75.56	2.00
209	32.13	2.79	4.67	0.84	26.37	3.12	82.39	2.00
210	32.39	2.78	4.64	0.84	26.50	3.12	82.78	2.00
211	30.30	2.84	5.17	0.86	24.53	3.12	76.64	2.00
212	27.30	2.95	6.52	0.89	21.75	3.12	67.96	2.00
213	33.07	2.88	6.43	0.87	26.69	3.12	83.40	2.00
214	36.37	2.87	6.90	0.87	29.44	3.12	91.97	2.00
215	39.90	2.82	6.41	0.85	32.41	3.12	101.26	2.00
216	39.94	2.85	7.14	0.86	32.28	3.12	100.86	2.00
217	46.98	2.80	7.04	0.85	38.23	3.12	119.45	2.00
218	66.74	2.55	4.59	0.77	55.47	3.05	169.32	2.00
219	83.14	2.27	2.34	0.69	70.18	1.86	130.73	0.29
220	95.66	2.09	1.49	0.64	81.46	1.44	117.29	0.23
221	78.27	2.26	2.07	0.69	65.63	1.82	119.34	0.24
222	69.45	2.40	2.86	0.73	57.48	2.29	131.84	0.29
223	37.25	2.73	4.32	0.83	29.39	2.29	67.41	2.00
224	22.41	2.99	5.58	0.90	16.67	2.29	38.23	2.00
225	21.23	3.01	5.57	0.91	15.62	2.29	35.81	2.00
226	23.15	2.95	5.02	0.89	17.18	2.29	39.40	2.00
227	21.82	2.98	5.12	0.90	16.00	2.29	36.69	2.00
228	21.37	2.98	4.95	0.90	15.57	2.29	35.71	2.00
229	22.16	2.97	5.00	0.90	16.15	2.29	37.05	2.00
230	22.30	2.99	5.44	0.90	16.18	2.29	37.12	2.00
231	20.79	3.07	6.45	0.93	14.84	2.29	34.04	2.00
232	18.53	3.13	6.83	0.95	12.92	2.29	29.63	2.00
233	20.19	3.06	6.01	0.93	14.25	2.29	32.68	2.00
234	22.20	2.95	4.67	0.89	15.89	2.29	36.44	2.00
235	19.37	3.03	5.15	0.92	13.51	2.29	30.98	2.00
236	17.33	3.08	5.15	0.93	11.80	2.29	27.07	2.00
237	16.15	3.09	4.77	0.93	10.82	2.29	24.81	2.00
238	17.35	3.06	4.78	0.93	11.73	2.29	26.91	2.00
239	17.94	3.06	4.98	0.93	12.14	2.29	27.85	2.00
240	16.54	3.10	5.08	0.94	10.98	2.29	25.18	2.00
241	15.94	3.10	4.72	0.94	10.47	2.29	24.02	2.00
242	15.86	3.11	4.97	0.94	10.35	2.29	23.75	2.00
243	20.76	3.12	7.37	0.94	14.07	2.29	32.27	2.00
244	28.16	2.97	6.42	0.90	19.88	2.29	45.59	2.00
245	33.97	2.85	5.41	0.86	24.48	2.29	56.16	2.00
246	35.31	2.84	5.36	0.86	25.47	2.29	58.41	2.00
247	36.48	2.82	5.26	0.85	26.32	2.29	60.36	2.00

Point ID			F (%)	n				
248	34.82	2.83	5.16	0.86	24.93	2.29	57.17	2.00
249	32.98	2.84	4.85	0.86	23.43	2.29	53.73	2.00
250	32.59	2.81	4.33	0.85	23.10	2.29	52.99	2.00
251	30.62	2.86	4.82	0.87	21.43	2.29	49.14	2.00
252	30.33	2.87	4.85	0.87	21.12	2.29	48.44	2.00
253	31.64	2.87	5.08	0.87	22.04	2.29	50.55	2.00
254	31.07	2.88	5.06	0.87	21.52	2.29	49.36	2.00
255	34.34	2.87	5.53	0.87	23.92	2.29	54.87	2.00
256	48.41	2.67	4.27	0.81	34.97	2.29	80.21	2.00
257	42.56	2.78	5.33	0.84	30.12	2.29	69.08	2.00
258	36.07	2.85	5.40	0.86	25.02	2.29	57.39	2.00
259	30.10	2.94	5.94	0.89	20.33	2.29	46.62	2.00
260	28.09	2.97	5.93	0.90	18.74	2.29	42.98	2.00
261	27.89	2.95	5.51	0.89	18.56	2.29	42.57	2.00
262	26.45	2.96	5.30	0.90	17.43	2.29	39.97	2.00
263	25.73	2.98	5.43	0.90	16.81	2.29	38.56	2.00
264	24.82	3.03	6.21	0.92	16.01	2.29	36.73	2.00
265	27.72	3.05	7.44	0.92	18.02	2.29	41.32	2.00
266	35.01	2.99	8.17	0.91	23.28	2.29	53.39	2.00
267	46.86	2.81	6.23	0.85	32.26	2.29	73.99	2.00
268	66.70	2.55	3.92	0.77	47.81	3.02	144.54	0.36
269	84.42	2.39	3.01	0.72	61.82	2.26	140.02	0.34
270	99.26	2.26	2.36	0.69	73.80	1.82	134.62	0.31
271	116.17	2.09	1.61	0.63	88.01	1.43	126.19	0.27
272	133.69	2.01	1.44	0.61	102.20	1.31	134.00	0.30
273	148.37	1.93	1.23	0.59	114.37	1.22	138.98	0.33
274	158.55	1.91	1.26	0.58	122.29	1.20	146.84	0.37
275	161.82	1.97	1.57	0.60	123.82	1.27	156.98	0.44
276	163.55	1.97	1.56	0.60	124.97	1.26	157.74	0.44
277	144.43	2.07	1.86	0.63	108.77	1.40	152.17	0.41
278	141.22	2.09	1.93	0.63	105.88	1.43	151.42	0.40
279	130.00	2.12	1.98	0.64	96.71	1.50	144.65	0.36
280	116.36	2.16	2.01	0.66	85.77	1.58	135.69	0.31
281	89.05	2.35	2.78	0.71	63.64	2.14	136.01	0.31
282	54.89	2.64	4.05	0.80	37.17	2.14	79.44	2.00
283	39.22	2.79	4.55	0.85	25.48	2.14	54.46	2.00
284	32.25	2.91	5.25	0.88	20.28	2.14	43.33	2.00
285	39.74	2.82	5.04	0.85	25.61	2.14	54.73	2.00
286	33.27	2.93	5.87	0.89	20.79	2.14	44.43	2.00
287	25.19	3.13	8.00	0.95	14.88	2.14	31.80	2.00
288	29.51	2.98	5.95	0.90	18.01	2.14	38.48	2.00
289	30.38	2.95	5.56	0.89	18.60	2.14	39.74	2.00
290	28.10	2.95	5.09	0.89	17.00	2.14	36.32	2.00
291	31.25	2.76	2.97	0.84	19.50	2.14	41.67	2.00
292	32.05	2.79	3.37	0.84	19.93	2.14	42.59	2.00
293	34.80	2.72	2.94	0.82	21.93	2.14	46.87	2.00
294	39.14	2.69	3.10	0.81	24.93	2.14	53.27	2.00
295	44.84	2.81	5.49	0.85	28.34	2.14	60.56	2.00
296	59.52	2.78	6.67	0.84	38.31	2.14	81.87	2.00
297	70.12	2.72	6.48	0.82	45.70	2.14	97.68	2.00
298	81.51	2.67	6.34	0.81	53.67	2.14	114.70	2.00
299	71.60	2.74	7.02	0.83	46.33	2.14	99.02	2.00
300	57.97	2.78	6.33	0.84	36.88	2.14	78.82	2.00
301	36.07	2.95	6.45	0.89	21.65	2.14	46.28	2.00
302	33.36	2.96	6.08	0.89	19.80	2.14	42.31	2.00

Point ID			F (%)	n				
303	42.18	2.76	4.15	0.83	26.14	2.14	55.87	2.00
304	29.83	3.01	6.20	0.91	17.28	2.14	36.92	2.00
305	24.67	3.10	6.56	0.94	13.75	2.14	29.38	2.00
306	28.99	3.03	6.41	0.92	16.58	2.14	35.44	2.00

:: Settlements calculation for saturated sands ::

Point ID					Settle. (in)
1	21.09	319.82	5.00	0.00	0.00
2	23.77	305.26	5.00	0.00	0.00
3	39.25	361.36	5.00	0.00	0.00
4	57.85	431.87	5.00	0.00	0.00
5	66.55	434.64	5.00	0.00	0.00
6	66.47	415.16	5.00	0.00	0.00
7	62.94	351.49	5.00	0.00	0.00
8	51.19	317.13	5.00	0.00	0.00
9	45.69	280.84	5.00	0.00	0.00
10	38.53	238.73	5.00	0.00	0.00
11	33.29	219.54	5.00	0.00	0.00
12	31.46	204.44	5.00	0.00	0.00
13	25.80	172.98	5.00	0.00	0.00
14	24.44	207.31	5.00	0.00	0.00
15	30.45	250.43	5.00	0.00	0.00
16	24.13	271.26	5.00	0.00	0.00
17	20.80	228.48	5.00	0.00	0.00
18	17.12	199.20	5.00	0.00	0.00
19	13.98	161.20	5.00	0.00	0.00
20	10.64	123.32	5.00	0.00	0.00
21	8.03	92.62	5.00	0.00	0.00
22	7.42	82.85	5.00	0.00	0.00
23	6.12	67.94	5.00	0.00	0.00
24	4.54	50.28	5.00	0.00	0.00
25	4.00	42.69	5.00	0.00	0.00
26	3.93	40.11	5.00	0.00	0.00
27	3.62	36.44	5.00	0.00	0.00
28	3.43	33.47	5.00	0.00	0.00
29	3.35	31.56	5.00	0.00	0.00
30	4.63	40.67	5.00	0.00	0.00
31	5.22	45.06	5.00	0.00	0.00
32	6.95	56.35	5.00	0.00	0.00
33	8.53	68.95	5.00	0.00	0.00
34	6.74	54.67	5.00	0.00	0.00
35	13.53	86.18	0.64	2.64	0.05
36	8.95	60.29	5.00	0.00	0.00
37	8.39	57.20	5.00	0.00	0.00
38	8.70	59.17	5.00	0.00	0.00
39	8.42	57.52	5.00	0.00	0.00
40	12.80	79.91	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
41	9.18	59.01	5.00	0.00	0.00
42	10.49	64.17	5.00	0.00	0.00
43	11.23	67.44	5.00	0.00	0.00
44	12.69	87.09	0.59	2.62	0.05
45	12.50	86.51	5.00	0.00	0.00
46	11.90	82.82	5.00	0.00	0.00
47	12.01	83.47	5.00	0.00	0.00
48	12.60	86.14	5.00	0.00	0.00
49	13.36	89.72	5.00	0.00	0.00
50	13.03	87.49	5.00	0.00	0.00
51	12.92	85.76	5.00	0.00	0.00
52	12.89	84.87	5.00	0.00	0.00
53	12.72	83.03	5.00	0.00	0.00
54	11.06	72.65	5.00	0.00	0.00
55	10.60	69.19	5.00	0.00	0.00
56	9.87	64.19	5.00	0.00	0.00
57	8.59	55.37	5.00	0.00	0.00
58	8.00	50.52	5.00	0.00	0.00
59	7.57	46.96	5.00	0.00	0.00
60	7.21	44.57	5.00	0.00	0.00
61	7.23	44.27	5.00	0.00	0.00
62	8.22	49.69	5.00	0.00	0.00
63	8.84	53.13	5.00	0.00	0.00
64	10.58	62.64	5.00	0.00	0.00
65	9.72	57.27	5.00	0.00	0.00
66	8.34	49.12	5.00	0.00	0.00
67	8.97	52.10	5.00	0.00	0.00
68	8.66	49.35	5.00	0.00	0.00
69	6.64	37.72	5.00	0.00	0.00
70	6.76	38.03	5.00	0.00	0.00
71	7.05	39.55	5.00	0.00	0.00
72	8.49	47.12	5.00	0.00	0.00
73	17.25	85.99	0.49	2.64	0.05
74	22.39	97.23	0.58	2.39	0.05
75	13.86	62.13	5.00	0.00	0.00
76	11.36	50.93	5.00	0.00	0.00
77	13.80	60.44	5.00	0.00	0.00
78	14.97	65.23	5.00	0.00	0.00
79	18.26	79.08	5.00	0.00	0.00
80	20.27	87.28	5.00	0.00	0.00
81	21.37	91.58	5.00	0.00	0.00
82	21.94	93.58	5.00	0.00	0.00
83	21.73	92.32	5.00	0.00	0.00
84	21.34	89.60	5.00	0.00	0.00
85	19.95	83.27	5.00	0.00	0.00
86	20.36	84.47	5.00	0.00	0.00
87	19.94	82.48	5.00	0.00	0.00
88	17.89	73.79	5.00	0.00	0.00
89	17.18	70.16	5.00	0.00	0.00
90	16.42	66.75	5.00	0.00	0.00
91	16.22	65.32	5.00	0.00	0.00
92	14.99	60.03	5.00	0.00	0.00
93	13.71	54.21	5.00	0.00	0.00
94	14.28	55.93	5.00	0.00	0.00
95	14.25	55.37	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
96	15.47	59.56	5.00	0.00	0.00
97	18.10	69.14	5.00	0.00	0.00
98	18.32	69.63	5.00	0.00	0.00
99	18.87	71.39	5.00	0.00	0.00
100	21.03	78.85	5.00	0.00	0.00
101	22.61	84.66	5.00	0.00	0.00
102	25.44	94.69	5.00	0.00	0.00
103	23.58	87.34	5.00	0.00	0.00
104	20.75	76.28	5.00	0.00	0.00
105	18.91	69.04	5.00	0.00	0.00
106	16.81	60.88	5.00	0.00	0.00
107	15.12	54.30	5.00	0.00	0.00
108	15.94	56.53	5.00	0.00	0.00
109	16.39	57.85	5.00	0.00	0.00
110	17.08	60.05	5.00	0.00	0.00
111	17.69	61.51	5.00	0.00	0.00
112	20.05	69.69	5.00	0.00	0.00
113	18.22	63.13	5.00	0.00	0.00
114	19.56	67.37	5.00	0.00	0.00
115	17.18	58.70	5.00	0.00	0.00
116	15.01	50.83	5.00	0.00	0.00
117	17.64	59.30	5.00	0.00	0.00
118	17.77	59.54	5.00	0.00	0.00
119	16.89	56.35	5.00	0.00	0.00
120	15.68	51.85	5.00	0.00	0.00
121	13.64	44.65	5.00	0.00	0.00
122	13.94	45.33	5.00	0.00	0.00
123	15.14	49.05	5.00	0.00	0.00
124	14.06	45.18	5.00	0.00	0.00
125	12.81	40.70	5.00	0.00	0.00
126	16.69	53.34	5.00	0.00	0.00
127	18.58	59.42	5.00	0.00	0.00
128	17.29	55.06	5.00	0.00	0.00
129	17.74	56.19	5.00	0.00	0.00
130	21.03	66.56	5.00	0.00	0.00
131	22.02	69.61	5.00	0.00	0.00
132	22.06	69.57	5.00	0.00	0.00
133	22.47	70.42	5.00	0.00	0.00
134	21.55	67.00	5.00	0.00	0.00
135	21.06	65.02	5.00	0.00	0.00
136	22.64	69.58	5.00	0.00	0.00
137	22.63	69.19	5.00	0.00	0.00
138	22.05	67.00	5.00	0.00	0.00
139	22.30	67.38	5.00	0.00	0.00
140	21.77	65.34	5.00	0.00	0.00
141	20.58	61.31	5.00	0.00	0.00
142	18.09	53.26	5.00	0.00	0.00
143	14.52	41.89	5.00	0.00	0.00
144	10.13	28.01	5.00	0.00	0.00
145	7.82	20.46	5.00	0.00	0.00
146	7.27	18.56	5.00	0.00	0.00
147	7.43	18.94	5.00	0.00	0.00
148	12.05	32.92	5.00	0.00	0.00
149	13.13	36.11	5.00	0.00	0.00
150	10.28	27.28	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
151	8.89	22.93	5.00	0.00	0.00
152	17.78	49.51	5.00	0.00	0.00
153	25.26	71.12	5.00	0.00	0.00
154	21.82	60.60	5.00	0.00	0.00
155	21.88	60.43	5.00	0.00	0.00
156	24.30	67.24	5.00	0.00	0.00
157	29.04	80.73	5.00	0.00	0.00
158	36.12	100.61	5.00	0.00	0.00
159	37.44	104.00	5.00	0.00	0.00
160	35.38	97.84	5.00	0.00	0.00
161	40.23	111.27	5.00	0.00	0.00
162	50.76	140.79	5.00	0.00	0.00
163	62.67	205.73	5.00	0.00	0.00
164	58.72	191.92	5.00	0.00	0.00
165	56.46	183.60	5.00	0.00	0.00
166	53.36	172.60	5.00	0.00	0.00
167	51.57	165.95	5.00	0.00	0.00
168	57.39	184.27	5.00	0.00	0.00
169	46.75	148.57	5.00	0.00	0.00
170	43.39	136.96	5.00	0.00	0.00
171	49.63	156.64	5.00	0.00	0.00
172	60.99	183.01	5.00	0.00	0.00
173	105.00	213.78	5.00	0.00	0.00
174	86.51	209.61	5.00	0.00	0.00
175	67.76	198.12	5.00	0.00	0.00
176	53.80	155.76	5.00	0.00	0.00
177	48.16	138.38	5.00	0.00	0.00
178	44.83	127.90	5.00	0.00	0.00
179	33.74	94.70	5.00	0.00	0.00
180	30.17	83.76	5.00	0.00	0.00
181	31.73	87.96	5.00	0.00	0.00
182	27.52	75.30	5.00	0.00	0.00
183	35.90	99.38	5.00	0.00	0.00
184	48.10	139.03	0.99	0.65	0.01
185	47.51	136.72	5.00	0.00	0.00
186	42.47	121.16	5.00	0.00	0.00
187	43.17	122.74	5.00	0.00	0.00
188	36.22	101.68	5.00	0.00	0.00
189	27.82	76.47	5.00	0.00	0.00
190	28.04	76.79	5.00	0.00	0.00
191	31.63	86.99	5.00	0.00	0.00
192	31.65	86.63	5.00	0.00	0.00
193	30.06	81.67	5.00	0.00	0.00
194	29.92	80.94	5.00	0.00	0.00
195	26.32	70.20	5.00	0.00	0.00
196	23.16	60.76	5.00	0.00	0.00
197	22.68	59.12	5.00	0.00	0.00
198	24.14	63.07	5.00	0.00	0.00
199	21.38	54.95	5.00	0.00	0.00
200	22.10	56.75	5.00	0.00	0.00
201	26.11	67.81	5.00	0.00	0.00
202	40.89	109.30	5.00	0.00	0.00
203	53.64	145.13	5.00	0.00	0.00
204	44.96	120.23	5.00	0.00	0.00
205	29.64	76.72	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
206	26.97	69.09	5.00	0.00	0.00
207	28.18	72.13	5.00	0.00	0.00
208	29.55	75.56	5.00	0.00	0.00
209	32.13	82.39	5.00	0.00	0.00
210	32.39	82.78	5.00	0.00	0.00
211	30.30	76.64	5.00	0.00	0.00
212	27.30	67.96	5.00	0.00	0.00
213	33.07	83.40	5.00	0.00	0.00
214	36.37	91.97	5.00	0.00	0.00
215	39.90	101.26	5.00	0.00	0.00
216	39.94	100.86	5.00	0.00	0.00
217	46.98	119.45	5.00	0.00	0.00
218	66.74	169.32	5.00	0.00	0.00
219	83.14	130.73	0.86	1.05	0.02
220	95.66	117.29	0.69	1.96	0.04
221	78.27	119.34	0.71	1.91	0.04
222	69.45	131.84	0.88	1.04	0.02
223	37.25	67.41	5.00	0.00	0.00
224	22.41	38.23	5.00	0.00	0.00
225	21.23	35.81	5.00	0.00	0.00
226	23.15	39.40	5.00	0.00	0.00
227	21.82	36.69	5.00	0.00	0.00
228	21.37	35.71	5.00	0.00	0.00
229	22.16	37.05	5.00	0.00	0.00
230	22.30	37.12	5.00	0.00	0.00
231	20.79	34.04	5.00	0.00	0.00
232	18.53	29.63	5.00	0.00	0.00
233	20.19	32.68	5.00	0.00	0.00
234	22.20	36.44	5.00	0.00	0.00
235	19.37	30.98	5.00	0.00	0.00
236	17.33	27.07	5.00	0.00	0.00
237	16.15	24.81	5.00	0.00	0.00
238	17.35	26.91	5.00	0.00	0.00
239	17.94	27.85	5.00	0.00	0.00
240	16.54	25.18	5.00	0.00	0.00
241	15.94	24.02	5.00	0.00	0.00
242	15.86	23.75	5.00	0.00	0.00
243	20.76	32.27	5.00	0.00	0.00
244	28.16	45.59	5.00	0.00	0.00
245	33.97	56.16	5.00	0.00	0.00
246	35.31	58.41	5.00	0.00	0.00
247	36.48	60.36	5.00	0.00	0.00
248	34.82	57.17	5.00	0.00	0.00
249	32.98	53.73	5.00	0.00	0.00
250	32.59	52.99	5.00	0.00	0.00
251	30.62	49.14	5.00	0.00	0.00
252	30.33	48.44	5.00	0.00	0.00
253	31.64	50.55	5.00	0.00	0.00
254	31.07	49.36	5.00	0.00	0.00
255	34.34	54.87	5.00	0.00	0.00
256	48.41	80.21	5.00	0.00	0.00
257	42.56	69.08	5.00	0.00	0.00
258	36.07	57.39	5.00	0.00	0.00
259	30.10	46.62	5.00	0.00	0.00
260	28.09	42.98	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
261	27.89	42.57	5.00	0.00	0.00
262	26.45	39.97	5.00	0.00	0.00
263	25.73	38.56	5.00	0.00	0.00
264	24.82	36.73	5.00	0.00	0.00
265	27.72	41.32	5.00	0.00	0.00
266	35.01	53.39	5.00	0.00	0.00
267	46.86	73.99	5.00	0.00	0.00
268	66.70	144.54	1.10	0.43	0.01
269	84.42	140.02	1.02	0.65	0.01
270	99.26	134.62	0.93	1.01	0.02
271	116.17	126.19	0.81	1.45	0.03
272	133.69	134.00	0.93	1.02	0.02
273	148.37	138.98	1.01	0.65	0.01
274	158.55	146.84	1.14	0.43	0.01
275	161.82	156.98	1.34	0.21	0.00
276	163.55	157.74	1.36	0.00	0.00
277	144.43	152.17	1.25	0.30	0.01
278	141.22	151.42	1.23	0.30	0.01
279	130.00	144.65	1.11	0.43	0.01
280	116.36	135.69	0.96	0.67	0.01
281	89.05	136.01	0.96	0.66	0.01
282	54.89	79.44	5.00	0.00	0.00
283	39.22	54.46	5.00	0.00	0.00
284	32.25	43.33	5.00	0.00	0.00
285	39.74	54.73	5.00	0.00	0.00
286	33.27	44.43	5.00	0.00	0.00
287	25.19	31.80	5.00	0.00	0.00
288	29.51	38.48	5.00	0.00	0.00
289	30.38	39.74	5.00	0.00	0.00
290	28.10	36.32	5.00	0.00	0.00
291	31.25	41.67	5.00	0.00	0.00
292	32.05	42.59	5.00	0.00	0.00
293	34.80	46.87	5.00	0.00	0.00
294	39.14	53.27	5.00	0.00	0.00
295	44.84	60.56	5.00	0.00	0.00
296	59.52	81.87	5.00	0.00	0.00
297	70.12	97.68	5.00	0.00	0.00
298	81.51	114.70	5.00	0.00	0.00
299	71.60	99.02	5.00	0.00	0.00
300	57.97	78.82	5.00	0.00	0.00
301	36.07	46.28	5.00	0.00	0.00
302	33.36	42.31	5.00	0.00	0.00
303	42.18	55.87	5.00	0.00	0.00
304	29.83	36.92	5.00	0.00	0.00
305	24.67	29.38	5.00	0.00	0.00
306	28.99	35.44	5.00	0.00	0.00

Total settlement : 0.50

Measured cone resistance
Normalized and adjusted cone resistance
Factor of safety against liquefaction
Post-liquefaction volumentric strain
Calculated settlement

:: Overall liquefaction potential according to Iwasaki ::

Point ID	F			Point ID	F		
1	0.00	9.98	0.00	2	0.00	9.95	0.00
3	0.00	9.93	0.00	4	0.00	9.90	0.00
5	0.00	9.88	0.00	6	0.00	9.85	0.00
7	0.00	9.82	0.00	8	0.00	9.80	0.00
9	0.00	9.77	0.00	10	0.00	9.75	0.00
11	0.00	9.73	0.00	12	0.00	9.70	0.00
13	0.00	9.68	0.00	14	0.00	9.65	0.00
15	0.00	9.63	0.00	16	0.00	9.60	0.00
17	0.00	9.57	0.00	18	0.00	9.55	0.00
19	0.00	9.52	0.00	20	0.00	9.50	0.00
21	0.00	9.48	0.00	22	0.00	9.45	0.00
23	0.00	9.43	0.00	24	0.00	9.40	0.00
25	0.00	9.38	0.00	26	0.00	9.35	0.00
27	0.00	9.32	0.00	28	0.00	9.30	0.00
29	0.00	9.27	0.00	30	0.00	9.25	0.00
31	0.00	9.22	0.00	32	0.00	9.20	0.00
33	0.00	9.18	0.00	34	0.00	9.15	0.00
35	0.36	9.13	0.16	36	0.00	9.10	0.00
37	0.00	9.07	0.00	38	0.00	9.05	0.00
39	0.00	9.02	0.00	40	0.00	9.00	0.00
41	0.00	8.97	0.00	42	0.00	8.95	0.00
43	0.00	8.93	0.00	44	0.41	8.90	0.19
45	0.00	8.88	0.00	46	0.00	8.85	0.00
47	0.00	8.82	0.00	48	0.00	8.80	0.00
49	0.00	8.77	0.00	50	0.00	8.75	0.00
51	0.00	8.72	0.00	52	0.00	8.70	0.00
53	0.00	8.68	0.00	54	0.00	8.65	0.00
55	0.00	8.63	0.00	56	0.00	8.60	0.00
57	0.00	8.58	0.00	58	0.00	8.55	0.00
59	0.00	8.52	0.00	60	0.00	8.50	0.00
61	0.00	8.47	0.00	62	0.00	8.45	0.00
63	0.00	8.43	0.00	64	0.00	8.40	0.00
65	0.00	8.38	0.00	66	0.00	8.35	0.00
67	0.00	8.33	0.00	68	0.00	8.30	0.00
69	0.00	8.27	0.00	70	0.00	8.25	0.00
71	0.00	8.22	0.00	72	0.00	8.20	0.00
73	0.51	8.17	0.22	74	0.42	8.15	0.17
75	0.00	8.13	0.00	76	0.00	8.10	0.00
77	0.00	8.08	0.00	78	0.00	8.05	0.00
79	0.00	8.02	0.00	80	0.00	8.00	0.00
81	0.00	7.97	0.00	82	0.00	7.95	0.00
83	0.00	7.92	0.00	84	0.00	7.90	0.00
85	0.00	7.88	0.00	86	0.00	7.85	0.00
87	0.00	7.83	0.00	88	0.00	7.80	0.00
89	0.00	7.77	0.00	90	0.00	7.75	0.00
91	0.00	7.72	0.00	92	0.00	7.70	0.00
93	0.00	7.67	0.00	94	0.00	7.65	0.00
95	0.00	7.63	0.00	96	0.00	7.60	0.00
97	0.00	7.58	0.00	98	0.00	7.55	0.00
99	0.00	7.53	0.00	100	0.00	7.50	0.00
101	0.00	7.47	0.00	102	0.00	7.45	0.00
103	0.00	7.42	0.00	104	0.00	7.40	0.00
105	0.00	7.38	0.00	106	0.00	7.35	0.00
107	0.00	7.33	0.00	108	0.00	7.30	0.00
109	0.00	7.28	0.00	110	0.00	7.25	0.00
111	0.00	7.22	0.00	112	0.00	7.20	0.00

:: Overall liquefaction potential according to Iwasaki (continued) ::

Point ID	F			Point ID	F		
113	0.00	7.17	0.00	114	0.00	7.15	0.00
115	0.00	7.13	0.00	116	0.00	7.10	0.00
117	0.00	7.08	0.00	118	0.00	7.05	0.00
119	0.00	7.03	0.00	120	0.00	7.00	0.00
121	0.00	6.97	0.00	122	0.00	6.95	0.00
123	0.00	6.92	0.00	124	0.00	6.90	0.00
125	0.00	6.87	0.00	126	0.00	6.85	0.00
127	0.00	6.83	0.00	128	0.00	6.80	0.00
129	0.00	6.78	0.00	130	0.00	6.75	0.00
131	0.00	6.72	0.00	132	0.00	6.70	0.00
133	0.00	6.67	0.00	134	0.00	6.65	0.00
135	0.00	6.62	0.00	136	0.00	6.60	0.00
137	0.00	6.58	0.00	138	0.00	6.55	0.00
139	0.00	6.53	0.00	140	0.00	6.50	0.00
141	0.00	6.47	0.00	142	0.00	6.45	0.00
143	0.00	6.42	0.00	144	0.00	6.40	0.00
145	0.00	6.37	0.00	146	0.00	6.35	0.00
147	0.00	6.33	0.00	148	0.00	6.30	0.00
149	0.00	6.28	0.00	150	0.00	6.25	0.00
151	0.00	6.23	0.00	152	0.00	6.20	0.00
153	0.00	6.17	0.00	154	0.00	6.15	0.00
155	0.00	6.12	0.00	156	0.00	6.10	0.00
157	0.00	6.08	0.00	158	0.00	6.05	0.00
159	0.00	6.03	0.00	160	0.00	6.00	0.00
161	0.00	5.98	0.00	162	0.00	5.95	0.00
163	0.00	5.92	0.00	164	0.00	5.90	0.00
165	0.00	5.87	0.00	166	0.00	5.85	0.00
167	0.00	5.82	0.00	168	0.00	5.80	0.00
169	0.00	5.78	0.00	170	0.00	5.75	0.00
171	0.00	5.73	0.00	172	0.00	5.70	0.00
173	0.00	5.67	0.00	174	0.00	5.65	0.00
175	0.00	5.62	0.00	176	0.00	5.60	0.00
177	0.00	5.57	0.00	178	0.00	5.55	0.00
179	0.00	5.53	0.00	180	0.00	5.50	0.00
181	0.00	5.48	0.00	182	0.00	5.45	0.00
183	0.00	5.42	0.00	184	0.01	5.40	0.00
185	0.00	5.37	0.00	186	0.00	5.35	0.00
187	0.00	5.32	0.00	188	0.00	5.30	0.00
189	0.00	5.28	0.00	190	0.00	5.25	0.00
191	0.00	5.23	0.00	192	0.00	5.20	0.00
193	0.00	5.18	0.00	194	0.00	5.15	0.00
195	0.00	5.12	0.00	196	0.00	5.10	0.00
197	0.00	5.07	0.00	198	0.00	5.05	0.00
199	0.00	5.03	0.00	200	0.00	5.00	0.00
201	0.00	4.98	0.00	202	0.00	4.95	0.00
203	0.00	4.93	0.00	204	0.00	4.90	0.00
205	0.00	4.87	0.00	206	0.00	4.85	0.00
207	0.00	4.82	0.00	208	0.00	4.80	0.00
209	0.00	4.78	0.00	210	0.00	4.75	0.00
211	0.00	4.73	0.00	212	0.00	4.70	0.00
213	0.00	4.68	0.00	214	0.00	4.65	0.00
215	0.00	4.62	0.00	216	0.00	4.60	0.00
217	0.00	4.57	0.00	218	0.00	4.55	0.00
219	0.14	4.52	0.03	220	0.31	4.50	0.07
221	0.29	4.48	0.06	222	0.12	4.45	0.03
223	0.00	4.43	0.00	224	0.00	4.40	0.00

:: Overall liquefaction potential according to Iwasaki (continued) ::

Point ID	F			Point ID	F		
225	0.00	4.37	0.00	226	0.00	4.35	0.00
227	0.00	4.32	0.00	228	0.00	4.30	0.00
229	0.00	4.27	0.00	230	0.00	4.25	0.00
231	0.00	4.23	0.00	232	0.00	4.20	0.00
233	0.00	4.18	0.00	234	0.00	4.15	0.00
235	0.00	4.12	0.00	236	0.00	4.10	0.00
237	0.00	4.07	0.00	238	0.00	4.05	0.00
239	0.00	4.02	0.00	240	0.00	4.00	0.00
241	0.00	3.98	0.00	242	0.00	3.95	0.00
243	0.00	3.93	0.00	244	0.00	3.90	0.00
245	0.00	3.88	0.00	246	0.00	3.85	0.00
247	0.00	3.82	0.00	248	0.00	3.80	0.00
249	0.00	3.77	0.00	250	0.00	3.75	0.00
251	0.00	3.73	0.00	252	0.00	3.70	0.00
253	0.00	3.68	0.00	254	0.00	3.65	0.00
255	0.00	3.63	0.00	256	0.00	3.60	0.00
257	0.00	3.57	0.00	258	0.00	3.55	0.00
259	0.00	3.52	0.00	260	0.00	3.50	0.00
261	0.00	3.48	0.00	262	0.00	3.45	0.00
263	0.00	3.43	0.00	264	0.00	3.40	0.00
265	0.00	3.38	0.00	266	0.00	3.35	0.00
267	0.00	3.32	0.00	268	0.00	3.30	0.00
269	0.00	3.27	0.00	270	0.07	3.25	0.01
271	0.19	3.22	0.03	272	0.07	3.20	0.01
273	0.00	3.18	0.00	274	0.00	3.15	0.00
275	0.00	3.13	0.00	276	0.00	3.10	0.00
277	0.00	3.07	0.00	278	0.00	3.05	0.00
279	0.00	3.02	0.00	280	0.04	3.00	0.01
281	0.04	2.97	0.01	282	0.00	2.95	0.00
283	0.00	2.93	0.00	284	0.00	2.90	0.00
285	0.00	2.88	0.00	286	0.00	2.85	0.00
287	0.00	2.83	0.00	288	0.00	2.80	0.00
289	0.00	2.77	0.00	290	0.00	2.75	0.00
291	0.00	2.72	0.00	292	0.00	2.70	0.00
293	0.00	2.68	0.00	294	0.00	2.65	0.00
295	0.00	2.63	0.00	296	0.00	2.60	0.00
297	0.00	2.58	0.00	298	0.00	2.55	0.00
299	0.00	2.52	0.00	300	0.00	2.50	0.00
301	0.00	2.47	0.00	302	0.00	2.45	0.00
303	0.00	2.43	0.00	304	0.00	2.40	0.00
305	0.00	2.38	0.00	306	0.00	2.35	0.00

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LIQUEFACTION ANALYSIS REPORT

Project title : 10487.01 - Morning Star Packing Company Cooling Pond Expansions

Project subtitle : CPT-02

Input parameters and analysis data

In-situ data type:	Cone Penetration Test	5.00 ft
Analysis type:	Deterministic	6.58
Analysis method:	Robertson (1998)	0.44 g
Fines correction method:	Robertson (1998)	1.00

Liquefaction

No Liquefaction

Soil type index legend

- Gravelly sand to dense sand
- Sands: clean sand to silty sand
- Sand mixtures: silty sand to sandy silt
- Silt mixtures: clayey silt to silty clay
- Clays: silty clay to clay
- Organic soils: peats

:: Field input data ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
1	13.62	13.66	0.30	39.18	120.94
2	13.78	13.71	0.29	38.78	120.94
3	13.94	13.32	0.27	39.26	120.94
4	14.11	12.64	0.23	39.18	120.94
5	14.27	8.91	0.26	53.25	120.94
6	14.44	5.61	0.29	76.97	120.94
7	14.60	6.11	0.28	72.02	120.94
8	14.76	6.11	0.45	82.33	120.94
9	14.93	6.13	0.50	85.29	120.94
10	15.09	7.20	0.42	72.78	120.94
11	15.26	6.34	0.34	75.17	120.94
12	15.42	5.90	0.31	77.32	120.94
13	15.58	6.52	0.30	71.81	120.94
14	15.75	5.25	0.25	80.48	120.94
15	15.91	4.90	0.21	81.00	120.94
16	16.08	4.97	0.20	79.62	120.94
17	16.24	4.99	0.21	80.56	120.94
18	16.40	5.60	0.24	76.92	120.94
19	16.57	6.65	0.30	72.58	120.94
20	16.73	8.17	0.40	67.67	120.94
21	16.90	15.14	0.35	40.70	120.94
22	17.06	24.48	0.26	24.27	120.94
23	17.22	23.95	0.31	26.46	120.94
24	17.39	14.58	0.24	37.73	120.94
25	17.55	8.45	0.22	56.91	120.94
26	17.72	7.55	0.20	60.40	120.94
27	17.88	9.11	0.23	54.42	120.94
28	18.04	10.22	0.27	52.30	120.94
29	18.21	10.59	0.34	55.09	120.94
30	18.37	11.53	0.43	55.26	120.94
31	18.54	13.95	0.56	52.05	120.94
32	18.70	14.17	0.64	53.92	120.94
33	18.86	13.66	0.69	56.91	120.94
34	19.03	13.05	0.67	58.40	120.94
35	19.19	12.09	0.58	59.53	120.94
36	19.36	10.64	0.49	62.38	120.94
37	19.52	9.51	0.41	64.44	120.94
38	19.69	8.73	0.36	66.16	120.94
39	19.85	8.29	0.35	68.84	120.94
40	20.01	7.54	0.36	74.76	120.94
41	20.18	8.37	0.35	68.76	120.94
42	20.34	9.89	0.40	62.91	120.94
43	20.51	11.12	0.40	57.75	120.94
44	20.67	11.81	0.44	57.08	120.94
45	20.83	13.21	0.51	54.85	120.94
46	21.00	17.00	0.62	48.21	120.94
47	21.16	20.49	0.72	43.71	120.94
48	21.33	19.45	0.80	47.46	120.94
49	21.49	18.40	0.84	50.53	120.94
50	21.65	17.42	0.82	52.38	120.94
51	21.82	16.35	0.76	53.79	120.94
52	21.98	13.08	0.61	59.65	120.94
53	22.15	10.62	0.50	65.94	120.94
54	22.31	10.03	0.41	65.04	120.94
55	22.47	8.43	0.40	73.67	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
56	22.64	8.05	0.40	76.46	120.94
57	22.80	8.20	0.39	75.28	120.94
58	22.97	7.78	0.42	80.42	120.94
59	23.13	7.89	0.38	77.65	120.94
60	23.29	8.02	0.41	78.34	120.94
61	23.46	8.39	0.41	75.86	120.94
62	23.62	7.48	0.37	80.58	120.94
63	23.79	6.85	0.34	84.76	120.94
64	23.95	7.10	0.30	80.26	120.94
65	24.11	6.07	0.29	90.47	120.94
66	24.28	7.29	0.32	80.37	120.94
67	24.44	8.33	0.37	75.37	120.94
68	24.61	9.73	0.48	72.43	120.94
69	24.77	13.16	0.84	68.23	120.94
70	24.93	15.09	0.84	61.74	120.94
71	25.10	13.53	0.85	67.33	120.94
72	25.26	22.86	1.04	48.20	120.94
73	25.43	25.99	1.19	45.84	120.94
74	25.59	26.57	1.27	46.12	120.94
75	25.75	27.53	1.31	45.43	120.94
76	25.92	26.04	1.27	47.19	120.94
77	26.08	23.81	1.13	48.68	120.94
78	26.25	24.10	1.07	47.34	120.94
79	26.41	22.86	1.08	49.58	120.94
80	26.57	22.87	1.07	49.61	120.94
81	26.74	25.09	1.12	46.88	120.94
82	26.90	26.90	1.06	43.48	120.94
83	27.07	25.16	1.12	46.93	120.94
84	27.23	26.52	1.07	44.27	120.94
85	27.40	27.03	1.30	46.94	120.94
86	27.56	30.12	1.37	43.96	120.94
87	27.72	29.11	1.37	45.29	120.94
88	27.89	29.29	1.36	45.00	120.94
89	28.05	32.07	1.46	42.96	120.94
90	28.22	32.03	1.54	44.06	120.94
91	28.38	31.87	1.61	45.01	120.94
92	28.54	29.63	1.57	47.43	120.94
93	28.71	25.88	1.43	51.13	120.94
94	28.87	22.31	1.26	55.02	120.94
95	29.04	21.32	1.14	55.23	120.94
96	29.20	21.89	1.12	53.82	120.94
97	29.36	22.07	1.21	55.06	120.94
98	29.53	21.48	1.19	56.01	120.94
99	29.69	21.92	1.20	55.40	120.94
100	29.86	22.78	1.20	53.88	120.94
101	30.02	22.46	1.15	53.80	120.94
102	30.18	23.37	1.10	51.38	120.94
103	30.35	21.96	1.10	54.08	120.94
104	30.51	22.52	1.09	52.98	120.94
105	30.68	19.94	1.08	58.19	120.94
106	30.84	18.17	0.96	60.27	120.94
107	31.00	16.20	0.74	60.97	120.94
108	31.17	15.49	0.71	62.32	120.94
109	31.33	16.92	0.66	57.06	120.94
110	31.50	17.07	0.74	58.75	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
111	31.66	20.21	1.13	59.19	120.94
112	31.82	22.45	1.31	57.42	120.94
113	31.99	19.53	1.11	60.70	120.94
114	32.15	19.93	1.00	57.77	120.94
115	32.32	19.35	0.94	58.12	120.94
116	32.48	19.81	0.90	56.34	120.94
117	32.64	23.29	0.90	49.37	120.94
118	32.81	23.66	1.01	50.85	120.94
119	32.97	23.51	1.05	52.03	120.94
120	33.14	23.62	1.06	52.06	120.94
121	33.30	23.16	1.00	51.96	120.94
122	33.46	22.67	0.94	51.89	120.94
123	33.63	22.67	0.90	51.08	120.94
124	33.79	22.26	0.87	51.46	120.94
125	33.96	21.77	0.82	51.37	120.94
126	34.12	23.06	0.82	49.04	120.94
127	34.28	24.95	1.03	49.90	120.94
128	34.45	34.05	1.45	43.65	120.94
129	34.61	40.44	1.63	39.56	120.94
130	34.78	35.32	1.60	44.15	120.94
131	34.94	35.82	1.63	44.00	120.94
132	35.10	37.10	1.99	46.28	120.94
133	35.27	42.51	2.12	42.36	120.94
134	35.43	29.53	2.00	55.85	120.94
135	35.60	37.78	1.82	44.25	120.94
136	35.76	34.92	1.72	46.28	120.94
137	35.93	32.03	1.56	47.97	120.94
138	36.09	30.65	1.55	49.65	120.94
139	36.25	32.95	1.78	49.41	120.94
140	36.42	36.15	1.91	47.10	120.94
141	36.58	33.50	1.84	49.49	120.94
142	36.75	24.23	1.53	60.08	120.94
143	36.91	28.40	1.68	54.85	120.94
144	37.07	38.28	1.89	44.98	120.94
145	37.24	56.94	2.21	34.02	120.94
146	37.40	67.11	1.78	26.38	120.94
147	37.57	91.54	1.30	16.04	120.94
148	37.73	83.72	1.64	20.15	120.94
149	37.89	70.20	1.80	25.44	120.94
150	38.06	129.43	1.27	9.97	120.94
151	38.22	156.90	1.16	6.79	120.94
152	38.39	133.56	1.23	9.32	120.94
153	38.55	117.99	1.19	11.01	120.94
154	38.71	128.28	0.97	8.43	120.94
155	38.88	138.90	0.74	6.02	120.94
156	39.04	141.23	1.75	11.02	120.94
157	39.21	133.22	1.76	12.01	120.94
158	39.37	171.03	1.39	6.83	120.94
159	39.53	239.94	1.12	2.38	120.94
160	39.70	263.99	1.39	2.38	120.94
161	39.86	233.70	1.79	4.63	120.94
162	40.03	213.40	1.65	5.19	120.94
163	40.19	185.18	1.19	5.14	120.94
164	40.35	182.49	0.72	3.21	120.94
165	40.52	189.67	1.20	4.91	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
166	40.68	188.89	0.89	3.72	120.94
167	40.85	167.59	1.13	6.06	120.94
168	41.01	190.42	0.91	3.74	120.94
169	41.17	226.59	0.80	1.82	120.94
170	41.34	234.41	0.74	1.34	120.94
171	41.50	204.98	0.70	2.23	120.94
172	41.67	160.02	0.47	3.12	120.94
173	41.83	114.16	0.81	9.36	120.94
174	41.99	66.53	1.22	23.25	120.94
175	42.16	35.55	1.12	41.09	120.94
176	42.32	22.25	1.01	59.02	120.94
177	42.49	26.51	0.75	46.23	120.94
178	42.65	17.24	0.67	64.22	120.94
179	42.81	16.08	0.62	66.40	120.94
180	42.98	16.93	0.64	64.51	120.94
181	43.14	20.20	0.68	56.84	120.94
182	43.31	27.91	0.58	40.83	120.94
183	43.47	16.04	0.45	61.22	120.94
184	43.64	12.08	0.38	74.14	120.94
185	43.80	12.96	0.51	76.17	120.94
186	43.96	19.66	0.64	57.39	120.94
187	44.13	24.20	0.74	50.65	120.94
188	44.29	22.98	0.63	50.32	120.94
189	44.46	20.52	0.57	53.67	120.94
190	44.62	18.74	0.51	56.38	120.94
191	44.78	18.46	0.65	61.49	120.94
192	44.95	20.45	0.72	58.25	120.94
193	45.11	21.07	0.81	59.03	120.94
194	45.28	19.18	0.74	62.36	120.94
195	45.44	17.82	0.68	64.72	120.94
196	45.60	24.42	0.98	55.93	120.94
197	45.77	36.06	0.99	39.99	120.94
198	45.93	31.47	1.15	47.77	120.94
199	46.10	30.76	1.08	47.69	120.94
200	46.26	30.62	1.06	47.60	120.94
201	46.42	30.75	1.19	49.56	120.94
202	46.59	30.58	1.22	50.37	120.94
203	46.75	30.13	1.20	50.72	120.94
204	46.92	28.83	1.13	51.67	120.94
205	47.08	26.83	0.96	51.87	120.94
206	47.24	25.46	0.89	53.04	120.94
207	47.41	26.41	0.89	51.56	120.94
208	47.57	28.79	0.97	49.37	120.94
209	47.74	35.59	0.96	40.78	120.94
210	47.90	32.25	0.97	44.69	120.94
211	48.06	31.08	0.98	46.50	120.94
212	48.23	33.04	1.20	47.45	120.94
213	48.39	35.44	1.38	47.07	120.94
214	48.56	34.30	1.57	50.85	120.94
215	48.72	37.87	1.42	45.05	120.94
216	48.88	31.70	1.43	52.66	120.94
217	49.05	28.14	1.14	53.90	120.94
218	49.21	28.54	1.34	56.35	120.94
219	49.38	22.34	1.03	63.24	120.94
220	49.54	21.16	0.72	59.10	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
221	49.70	22.79	0.85	58.60	120.94
222	49.87	34.59	1.20	46.25	120.94
223	50.03	33.63	1.18	47.13	120.94
224	50.20	24.17	1.20	62.83	120.94

Depth from free surface, at which CPT was performed (ft)
Measured cone resistance
Sleeve friction resistance
Percentage of fines in soil (%)
Bulk soil unit weight (tsf)

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
1	13.62	0.82	0.27	0.55	0.97	0.41	1.40	0.29	1.00	0.29
2	13.78	0.83	0.27	0.56	0.97	0.41	1.40	0.30	1.00	0.30
3	13.94	0.84	0.28	0.56	0.97	0.41	1.40	0.30	1.00	0.30
4	14.11	0.85	0.28	0.57	0.97	0.41	1.40	0.30	1.00	0.30
5	14.27	0.86	0.29	0.57	0.97	0.42	1.40	0.30	1.00	0.30
6	14.44	0.87	0.29	0.58	0.97	0.42	1.40	0.30	1.00	0.30
7	14.60	0.88	0.30	0.58	0.97	0.42	1.40	0.30	1.00	0.30
8	14.76	0.89	0.30	0.59	0.97	0.42	1.40	0.30	1.00	0.30
9	14.93	0.90	0.31	0.59	0.97	0.42	1.40	0.30	1.00	0.30
10	15.09	0.91	0.31	0.60	0.96	0.42	1.40	0.30	1.00	0.30
11	15.26	0.92	0.32	0.60	0.96	0.42	1.40	0.30	1.00	0.30
12	15.42	0.93	0.33	0.61	0.96	0.42	1.40	0.30	1.00	0.30
13	15.58	0.94	0.33	0.61	0.96	0.42	1.40	0.30	1.00	0.30
14	15.75	0.95	0.34	0.62	0.96	0.43	1.40	0.30	1.00	0.30
15	15.91	0.96	0.34	0.62	0.96	0.43	1.40	0.31	1.00	0.31
16	16.08	0.97	0.35	0.63	0.96	0.43	1.40	0.31	1.00	0.31
17	16.24	0.98	0.35	0.63	0.96	0.43	1.40	0.31	1.00	0.31
18	16.40	0.99	0.36	0.64	0.96	0.43	1.40	0.31	1.00	0.31
19	16.57	1.00	0.36	0.64	0.96	0.43	1.40	0.31	1.00	0.31
20	16.73	1.01	0.37	0.65	0.96	0.43	1.40	0.31	1.00	0.31
21	16.90	1.02	0.37	0.65	0.96	0.43	1.40	0.31	1.00	0.31
22	17.06	1.03	0.38	0.65	0.96	0.43	1.40	0.31	1.00	0.31
23	17.22	1.04	0.38	0.66	0.96	0.43	1.40	0.31	1.00	0.31
24	17.39	1.05	0.39	0.66	0.96	0.43	1.40	0.31	1.00	0.31
25	17.55	1.06	0.39	0.67	0.96	0.43	1.40	0.31	1.00	0.31
26	17.72	1.07	0.40	0.67	0.96	0.44	1.40	0.31	1.00	0.31
27	17.88	1.08	0.40	0.68	0.96	0.44	1.40	0.31	1.00	0.31
28	18.04	1.09	0.41	0.68	0.96	0.44	1.40	0.31	1.00	0.31
29	18.21	1.10	0.41	0.69	0.96	0.44	1.40	0.31	1.00	0.31
30	18.37	1.11	0.42	0.69	0.96	0.44	1.40	0.31	1.00	0.31
31	18.54	1.12	0.42	0.70	0.96	0.44	1.40	0.31	1.00	0.31
32	18.70	1.13	0.43	0.70	0.96	0.44	1.40	0.31	1.00	0.31
33	18.86	1.14	0.43	0.71	0.96	0.44	1.40	0.32	1.00	0.32
34	19.03	1.15	0.44	0.71	0.96	0.44	1.40	0.32	1.00	0.32
35	19.19	1.16	0.44	0.72	0.96	0.44	1.40	0.32	1.00	0.32
36	19.36	1.17	0.45	0.72	0.95	0.44	1.40	0.32	1.00	0.32
37	19.52	1.18	0.45	0.73	0.95	0.44	1.40	0.32	1.00	0.32
38	19.69	1.19	0.46	0.73	0.95	0.44	1.40	0.32	1.00	0.32
39	19.85	1.20	0.46	0.74	0.95	0.44	1.40	0.32	1.00	0.32
40	20.01	1.21	0.47	0.74	0.95	0.45	1.40	0.32	1.00	0.32
41	20.18	1.22	0.47	0.75	0.95	0.45	1.40	0.32	1.00	0.32
42	20.34	1.23	0.48	0.75	0.95	0.45	1.40	0.32	1.00	0.32

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
43	20.51	1.24	0.48	0.76	0.95	0.45	1.40	0.32	1.00	0.32
44	20.67	1.25	0.49	0.76	0.95	0.45	1.40	0.32	1.00	0.32
45	20.83	1.26	0.49	0.77	0.95	0.45	1.40	0.32	1.00	0.32
46	21.00	1.27	0.50	0.77	0.95	0.45	1.40	0.32	1.00	0.32
47	21.16	1.28	0.50	0.77	0.95	0.45	1.40	0.32	1.00	0.32
48	21.33	1.29	0.51	0.78	0.95	0.45	1.40	0.32	1.00	0.32
49	21.49	1.30	0.51	0.78	0.95	0.45	1.40	0.32	1.00	0.32
50	21.65	1.31	0.52	0.79	0.95	0.45	1.40	0.32	1.00	0.32
51	21.82	1.32	0.53	0.79	0.95	0.45	1.40	0.32	1.00	0.32
52	21.98	1.33	0.53	0.80	0.95	0.45	1.40	0.32	1.00	0.32
53	22.15	1.34	0.54	0.80	0.95	0.45	1.40	0.32	1.00	0.32
54	22.31	1.35	0.54	0.81	0.95	0.45	1.40	0.32	1.00	0.32
55	22.47	1.36	0.55	0.81	0.95	0.45	1.40	0.32	1.00	0.32
56	22.64	1.37	0.55	0.82	0.95	0.45	1.40	0.32	1.00	0.32
57	22.80	1.38	0.56	0.82	0.95	0.45	1.40	0.32	1.00	0.32
58	22.97	1.39	0.56	0.83	0.95	0.45	1.40	0.32	1.00	0.32
59	23.13	1.40	0.57	0.83	0.95	0.45	1.40	0.33	1.00	0.33
60	23.29	1.41	0.57	0.84	0.95	0.45	1.40	0.33	1.00	0.33
61	23.46	1.42	0.58	0.84	0.95	0.46	1.40	0.33	1.00	0.33
62	23.62	1.43	0.58	0.85	0.94	0.46	1.40	0.33	1.00	0.33
63	23.79	1.44	0.59	0.85	0.94	0.46	1.40	0.33	1.00	0.33
64	23.95	1.45	0.59	0.86	0.94	0.46	1.40	0.33	1.00	0.33
65	24.11	1.46	0.60	0.86	0.94	0.46	1.40	0.33	1.00	0.33
66	24.28	1.47	0.60	0.87	0.94	0.46	1.40	0.33	1.00	0.33
67	24.44	1.48	0.61	0.87	0.94	0.46	1.40	0.33	1.00	0.33
68	24.61	1.49	0.61	0.88	0.94	0.46	1.40	0.33	1.00	0.33
69	24.77	1.50	0.62	0.88	0.94	0.46	1.40	0.33	1.00	0.33
70	24.93	1.51	0.62	0.89	0.94	0.46	1.40	0.33	1.00	0.33
71	25.10	1.52	0.63	0.89	0.94	0.46	1.40	0.33	1.00	0.33
72	25.26	1.53	0.63	0.89	0.94	0.46	1.40	0.33	1.00	0.33
73	25.43	1.54	0.64	0.90	0.94	0.46	1.40	0.33	1.00	0.33
74	25.59	1.55	0.64	0.90	0.94	0.46	1.40	0.33	1.00	0.33
75	25.75	1.56	0.65	0.91	0.94	0.46	1.40	0.33	1.00	0.33
76	25.92	1.57	0.65	0.91	0.94	0.46	1.40	0.33	1.00	0.33
77	26.08	1.58	0.66	0.92	0.94	0.46	1.40	0.33	1.00	0.33
78	26.25	1.59	0.66	0.92	0.94	0.46	1.40	0.33	1.00	0.33
79	26.41	1.60	0.67	0.93	0.94	0.46	1.40	0.33	1.00	0.33
80	26.57	1.61	0.67	0.93	0.94	0.46	1.40	0.33	1.00	0.33
81	26.74	1.62	0.68	0.94	0.94	0.46	1.40	0.33	1.00	0.33
82	26.90	1.63	0.68	0.94	0.94	0.46	1.40	0.33	1.00	0.33
83	27.07	1.64	0.69	0.95	0.94	0.46	1.40	0.33	1.00	0.33
84	27.23	1.65	0.69	0.95	0.94	0.46	1.40	0.33	1.00	0.33
85	27.40	1.66	0.70	0.96	0.94	0.46	1.40	0.33	1.00	0.33
86	27.56	1.67	0.70	0.96	0.94	0.46	1.40	0.33	1.00	0.33
87	27.72	1.68	0.71	0.97	0.94	0.46	1.40	0.33	1.00	0.33
88	27.89	1.69	0.71	0.97	0.93	0.46	1.40	0.33	1.00	0.33
89	28.05	1.70	0.72	0.98	0.93	0.46	1.40	0.33	1.00	0.33
90	28.22	1.71	0.72	0.98	0.93	0.46	1.40	0.33	1.00	0.33
91	28.38	1.72	0.73	0.99	0.93	0.46	1.40	0.33	1.00	0.33
92	28.54	1.73	0.73	0.99	0.93	0.46	1.40	0.33	1.00	0.33
93	28.71	1.74	0.74	1.00	0.93	0.47	1.40	0.33	1.00	0.33
94	28.87	1.75	0.75	1.00	0.93	0.47	1.40	0.33	1.00	0.33
95	29.04	1.76	0.75	1.01	0.93	0.47	1.40	0.33	1.00	0.33
96	29.20	1.77	0.76	1.01	0.93	0.47	1.40	0.33	1.00	0.33
97	29.36	1.78	0.76	1.01	0.93	0.47	1.40	0.33	1.00	0.33

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
98	29.53	1.79	0.77	1.02	0.93	0.47	1.40	0.33	1.00	0.33
99	29.69	1.80	0.77	1.02	0.93	0.47	1.40	0.33	1.00	0.33
100	29.86	1.81	0.78	1.03	0.93	0.47	1.40	0.33	1.00	0.33
101	30.02	1.82	0.78	1.03	0.93	0.47	1.40	0.33	1.00	0.33
102	30.18	1.82	0.79	1.04	0.93	0.47	1.40	0.33	1.00	0.33
103	30.35	1.83	0.79	1.04	0.93	0.47	1.40	0.33	1.00	0.33
104	30.51	1.84	0.80	1.05	0.93	0.47	1.40	0.33	1.00	0.33
105	30.68	1.85	0.80	1.05	0.93	0.47	1.40	0.33	1.00	0.33
106	30.84	1.86	0.81	1.06	0.92	0.47	1.40	0.33	1.00	0.33
107	31.00	1.87	0.81	1.06	0.92	0.47	1.40	0.33	1.00	0.33
108	31.17	1.88	0.82	1.07	0.92	0.47	1.40	0.33	1.00	0.33
109	31.33	1.89	0.82	1.07	0.92	0.46	1.40	0.33	0.99	0.33
110	31.50	1.90	0.83	1.08	0.92	0.46	1.40	0.33	0.99	0.33
111	31.66	1.91	0.83	1.08	0.92	0.46	1.40	0.33	0.99	0.33
112	31.82	1.92	0.84	1.09	0.92	0.46	1.40	0.33	0.99	0.33
113	31.99	1.93	0.84	1.09	0.91	0.46	1.40	0.33	0.99	0.33
114	32.15	1.94	0.85	1.10	0.91	0.46	1.40	0.33	0.99	0.33
115	32.32	1.95	0.85	1.10	0.91	0.46	1.40	0.33	0.99	0.33
116	32.48	1.96	0.86	1.11	0.91	0.46	1.40	0.33	0.99	0.33
117	32.64	1.97	0.86	1.11	0.91	0.46	1.40	0.33	0.99	0.33
118	32.81	1.98	0.87	1.12	0.91	0.46	1.40	0.33	0.99	0.33
119	32.97	1.99	0.87	1.12	0.91	0.46	1.40	0.33	0.99	0.33
120	33.14	2.00	0.88	1.13	0.91	0.46	1.40	0.33	0.99	0.33
121	33.30	2.01	0.88	1.13	0.90	0.46	1.40	0.33	0.98	0.33
122	33.46	2.02	0.89	1.13	0.90	0.46	1.40	0.33	0.98	0.33
123	33.63	2.03	0.89	1.14	0.90	0.46	1.40	0.33	0.98	0.33
124	33.79	2.04	0.90	1.14	0.90	0.46	1.40	0.33	0.98	0.33
125	33.96	2.05	0.90	1.15	0.90	0.46	1.40	0.33	0.98	0.33
126	34.12	2.06	0.91	1.15	0.90	0.46	1.40	0.33	0.98	0.33
127	34.28	2.07	0.91	1.16	0.90	0.46	1.40	0.33	0.98	0.33
128	34.45	2.08	0.92	1.16	0.89	0.46	1.40	0.33	0.98	0.33
129	34.61	2.09	0.92	1.17	0.89	0.46	1.40	0.33	0.98	0.33
130	34.78	2.10	0.93	1.17	0.89	0.46	1.40	0.33	0.98	0.33
131	34.94	2.11	0.93	1.18	0.89	0.46	1.40	0.33	0.98	0.33
132	35.10	2.12	0.94	1.18	0.89	0.46	1.40	0.33	0.98	0.33
133	35.27	2.13	0.94	1.19	0.89	0.46	1.40	0.33	0.97	0.33
134	35.43	2.14	0.95	1.19	0.89	0.46	1.40	0.33	0.97	0.33
135	35.60	2.15	0.96	1.20	0.89	0.46	1.40	0.33	0.97	0.33
136	35.76	2.16	0.96	1.20	0.88	0.45	1.40	0.33	0.97	0.33
137	35.93	2.17	0.97	1.21	0.88	0.45	1.40	0.33	0.97	0.33
138	36.09	2.18	0.97	1.21	0.88	0.45	1.40	0.32	0.97	0.33
139	36.25	2.19	0.98	1.22	0.88	0.45	1.40	0.32	0.97	0.33
140	36.42	2.20	0.98	1.22	0.88	0.45	1.40	0.32	0.97	0.33
141	36.58	2.21	0.99	1.23	0.88	0.45	1.40	0.32	0.97	0.33
142	36.75	2.22	0.99	1.23	0.88	0.45	1.40	0.32	0.97	0.33
143	36.91	2.23	1.00	1.24	0.87	0.45	1.40	0.32	0.97	0.33
144	37.07	2.24	1.00	1.24	0.87	0.45	1.40	0.32	0.97	0.33
145	37.24	2.25	1.01	1.25	0.87	0.45	1.40	0.32	0.97	0.33
146	37.40	2.26	1.01	1.25	0.87	0.45	1.40	0.32	0.96	0.33
147	37.57	2.27	1.02	1.25	0.87	0.45	1.40	0.32	0.96	0.33
148	37.73	2.28	1.02	1.26	0.87	0.45	1.40	0.32	0.96	0.33
149	37.89	2.29	1.03	1.26	0.87	0.45	1.40	0.32	0.96	0.33
150	38.06	2.30	1.03	1.27	0.87	0.45	1.40	0.32	0.96	0.33
151	38.22	2.31	1.04	1.27	0.86	0.45	1.40	0.32	0.96	0.33
152	38.39	2.32	1.04	1.28	0.86	0.45	1.40	0.32	0.96	0.33

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
153	38.55	2.33	1.05	1.28	0.86	0.45	1.40	0.32	0.96	0.33
154	38.71	2.34	1.05	1.29	0.86	0.45	1.40	0.32	0.96	0.33
155	38.88	2.35	1.06	1.29	0.86	0.45	1.40	0.32	0.96	0.33
156	39.04	2.36	1.06	1.30	0.86	0.45	1.40	0.32	0.96	0.33
157	39.21	2.37	1.07	1.30	0.86	0.45	1.40	0.32	0.96	0.33
158	39.37	2.38	1.07	1.31	0.85	0.44	1.40	0.32	0.96	0.33
159	39.53	2.39	1.08	1.31	0.85	0.44	1.40	0.32	0.96	0.33
160	39.70	2.40	1.08	1.32	0.85	0.44	1.40	0.32	0.95	0.33
161	39.86	2.41	1.09	1.32	0.85	0.44	1.40	0.32	0.95	0.33
162	40.03	2.42	1.09	1.33	0.85	0.44	1.40	0.32	0.95	0.33
163	40.19	2.43	1.10	1.33	0.85	0.44	1.40	0.32	0.95	0.33
164	40.35	2.44	1.10	1.34	0.85	0.44	1.40	0.32	0.95	0.33
165	40.52	2.45	1.11	1.34	0.85	0.44	1.40	0.32	0.95	0.33
166	40.68	2.46	1.11	1.35	0.84	0.44	1.40	0.32	0.95	0.33
167	40.85	2.47	1.12	1.35	0.84	0.44	1.40	0.32	0.95	0.33
168	41.01	2.48	1.12	1.36	0.84	0.44	1.40	0.31	0.95	0.33
169	41.17	2.49	1.13	1.36	0.84	0.44	1.40	0.31	0.95	0.33
170	41.34	2.50	1.13	1.37	0.84	0.44	1.40	0.31	0.95	0.33
171	41.50	2.51	1.14	1.37	0.84	0.44	1.40	0.31	0.95	0.33
172	41.67	2.52	1.14	1.37	0.84	0.44	1.40	0.31	0.95	0.33
173	41.83	2.53	1.15	1.38	0.83	0.44	1.40	0.31	0.95	0.33
174	41.99	2.54	1.15	1.38	0.83	0.44	1.40	0.31	0.95	0.33
175	42.16	2.55	1.16	1.39	0.83	0.44	1.40	0.31	0.94	0.33
176	42.32	2.56	1.17	1.39	0.83	0.44	1.40	0.31	0.94	0.33
177	42.49	2.57	1.17	1.40	0.83	0.44	1.40	0.31	0.94	0.33
178	42.65	2.58	1.18	1.40	0.83	0.44	1.40	0.31	0.94	0.33
179	42.81	2.59	1.18	1.41	0.83	0.43	1.40	0.31	0.94	0.33
180	42.98	2.60	1.19	1.41	0.83	0.43	1.40	0.31	0.94	0.33
181	43.14	2.61	1.19	1.42	0.82	0.43	1.40	0.31	0.94	0.33
182	43.31	2.62	1.20	1.42	0.82	0.43	1.40	0.31	0.94	0.33
183	43.47	2.63	1.20	1.43	0.82	0.43	1.40	0.31	0.94	0.33
184	43.64	2.64	1.21	1.43	0.82	0.43	1.40	0.31	0.94	0.33
185	43.80	2.65	1.21	1.44	0.82	0.43	1.40	0.31	0.94	0.33
186	43.96	2.66	1.22	1.44	0.82	0.43	1.40	0.31	0.94	0.33
187	44.13	2.67	1.22	1.45	0.82	0.43	1.40	0.31	0.94	0.33
188	44.29	2.68	1.23	1.45	0.81	0.43	1.40	0.31	0.94	0.33
189	44.46	2.69	1.23	1.46	0.81	0.43	1.40	0.31	0.94	0.33
190	44.62	2.70	1.24	1.46	0.81	0.43	1.40	0.31	0.94	0.33
191	44.78	2.71	1.24	1.47	0.81	0.43	1.40	0.31	0.93	0.33
192	44.95	2.72	1.25	1.47	0.81	0.43	1.40	0.31	0.93	0.33
193	45.11	2.73	1.25	1.48	0.81	0.43	1.40	0.31	0.93	0.33
194	45.28	2.74	1.26	1.48	0.81	0.43	1.40	0.31	0.93	0.33
195	45.44	2.75	1.26	1.48	0.81	0.43	1.40	0.30	0.93	0.33
196	45.60	2.76	1.27	1.49	0.80	0.43	1.40	0.30	0.93	0.33
197	45.77	2.77	1.27	1.49	0.80	0.42	1.40	0.30	0.93	0.33
198	45.93	2.78	1.28	1.50	0.80	0.42	1.40	0.30	0.93	0.33
199	46.10	2.79	1.28	1.50	0.80	0.42	1.40	0.30	0.93	0.33
200	46.26	2.80	1.29	1.51	0.80	0.42	1.40	0.30	0.93	0.33
201	46.42	2.81	1.29	1.51	0.80	0.42	1.40	0.30	0.93	0.33
202	46.59	2.82	1.30	1.52	0.80	0.42	1.40	0.30	0.93	0.33
203	46.75	2.83	1.30	1.52	0.79	0.42	1.40	0.30	0.93	0.33
204	46.92	2.84	1.31	1.53	0.79	0.42	1.40	0.30	0.93	0.33
205	47.08	2.85	1.31	1.53	0.79	0.42	1.40	0.30	0.93	0.32
206	47.24	2.86	1.32	1.54	0.79	0.42	1.40	0.30	0.93	0.32
207	47.41	2.87	1.32	1.54	0.79	0.42	1.40	0.30	0.92	0.32

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
208	47.57	2.88	1.33	1.55	0.79	0.42	1.40	0.30	0.92	0.32
209	47.74	2.89	1.33	1.55	0.79	0.42	1.40	0.30	0.92	0.32
210	47.90	2.90	1.34	1.56	0.79	0.42	1.40	0.30	0.92	0.32
211	48.06	2.91	1.34	1.56	0.78	0.42	1.40	0.30	0.92	0.32
212	48.23	2.92	1.35	1.57	0.78	0.42	1.40	0.30	0.92	0.32
213	48.39	2.93	1.35	1.57	0.78	0.42	1.40	0.30	0.92	0.32
214	48.56	2.94	1.36	1.58	0.78	0.42	1.40	0.30	0.92	0.32
215	48.72	2.95	1.36	1.58	0.78	0.41	1.40	0.30	0.92	0.32
216	48.88	2.96	1.37	1.59	0.78	0.41	1.40	0.30	0.92	0.32
217	49.05	2.97	1.38	1.59	0.78	0.41	1.40	0.30	0.92	0.32
218	49.21	2.98	1.38	1.60	0.77	0.41	1.40	0.30	0.92	0.32
219	49.38	2.99	1.39	1.60	0.77	0.41	1.40	0.30	0.92	0.32
220	49.54	3.00	1.39	1.60	0.77	0.41	1.40	0.29	0.92	0.32
221	49.70	3.00	1.40	1.61	0.77	0.41	1.40	0.29	0.92	0.32
222	49.87	3.02	1.40	1.61	0.77	0.41	1.40	0.29	0.92	0.32
223	50.03	3.02	1.41	1.62	0.77	0.41	1.40	0.29	0.92	0.32
224	50.20	3.04	1.41	1.62	0.77	0.41	1.40	0.29	0.92	0.32

Depth from free surface, at which CPT was performed (ft)
Total overburden pressure at test point, during earthquake (tsf)
Water pressure at test point, during earthquake (tsf)
Effective overburden pressure, during earthquake (tsf)
Nonlinear shear mass factor
Cyclic Stress Ratio
Magnitude Scaling Factor
CSR adjusted for M=7.5
Effective overburden stress factor
CSR fully adjusted

Point ID			F (%)	n				
1	13.66	2.68	2.31	0.81	20.53	0.00	0.00	2.00
2	13.71	2.67	2.22	0.81	20.43	0.00	0.00	2.00
3	13.32	2.68	2.19	0.81	19.70	0.00	0.00	2.00
4	12.64	2.68	1.99	0.81	18.47	0.00	0.00	2.00
5	8.91	2.92	3.23	0.88	13.09	0.00	0.00	2.00
6	5.61	3.25	6.04	0.98	8.11	0.00	0.00	2.00
7	6.11	3.19	5.29	0.96	8.78	0.00	0.00	2.00
8	6.11	3.32	8.55	1.00	8.87	0.00	0.00	2.00
9	6.13	3.35	9.58	1.00	8.82	0.00	0.00	2.00
10	7.20	3.20	6.72	0.97	10.33	0.00	0.00	2.00
11	6.34	3.23	6.23	0.98	8.87	0.00	0.00	2.00
12	5.90	3.25	6.14	0.98	8.11	0.00	0.00	2.00
13	6.52	3.18	5.36	0.96	8.94	0.00	0.00	2.00
14	5.25	3.29	5.81	1.00	6.95	0.00	0.00	2.00
15	4.90	3.30	5.25	1.00	6.33	0.00	0.00	2.00
16	4.97	3.28	4.95	0.99	6.36	0.00	0.00	2.00
17	4.99	3.29	5.15	1.00	6.34	0.00	0.00	2.00
18	5.60	3.25	5.14	0.98	7.19	0.00	0.00	2.00
19	6.65	3.19	5.35	0.97	8.67	0.00	0.00	2.00
20	8.17	3.13	5.56	0.95	10.81	0.00	0.00	2.00
21	15.14	2.70	2.48	0.82	19.93	0.00	0.00	2.00
22	24.48	2.35	1.11	0.71	31.30	2.11	65.91	0.11
23	23.95	2.40	1.36	0.73	30.66	2.32	71.06	0.11
24	14.58	2.65	1.79	0.80	18.61	2.32	43.13	2.00
25	8.45	2.98	2.99	0.90	10.56	2.32	24.48	2.00
26	7.55	3.03	3.05	0.92	9.26	2.32	21.46	2.00

Point ID			F (%)	n				
27	9.11	2.94	2.81	0.89	11.27	2.32	26.13	2.00
28	10.22	2.90	2.91	0.88	12.69	2.32	29.40	2.00
29	10.59	2.95	3.64	0.89	13.17	2.32	30.53	2.00
30	11.53	2.95	4.11	0.89	14.38	2.32	33.33	2.00
31	13.95	2.90	4.35	0.88	17.49	2.32	40.54	2.00
32	14.17	2.93	4.91	0.89	17.74	2.32	41.10	2.00
33	13.66	2.98	5.51	0.90	17.02	2.32	39.44	2.00
34	13.05	3.00	5.60	0.91	16.12	2.32	37.35	2.00
35	12.09	3.02	5.35	0.91	14.74	2.32	34.17	2.00
36	10.64	3.06	5.21	0.93	12.75	2.32	29.55	2.00
37	9.51	3.09	4.93	0.93	11.18	2.32	25.92	2.00
38	8.73	3.11	4.72	0.94	10.08	2.32	23.37	2.00
39	8.29	3.15	4.98	0.95	9.46	2.32	21.93	2.00
40	7.54	3.22	5.76	0.97	8.46	2.32	19.61	2.00
41	8.37	3.14	4.93	0.95	9.42	2.32	21.84	2.00
42	9.89	3.06	4.58	0.93	11.26	2.32	26.09	2.00
43	11.12	2.99	4.03	0.90	12.67	2.32	29.37	2.00
44	11.81	2.98	4.19	0.90	13.46	2.32	31.18	2.00
45	13.21	2.94	4.27	0.89	15.10	2.32	34.98	2.00
46	17.00	2.84	3.97	0.86	19.56	2.32	45.34	2.00
47	20.49	2.76	3.75	0.84	23.62	2.32	54.73	2.00
48	19.45	2.83	4.43	0.86	22.33	2.32	51.76	2.00
49	18.40	2.88	4.93	0.87	21.00	2.32	48.67	2.00
50	17.42	2.91	5.10	0.88	19.73	2.32	45.73	2.00
51	16.35	2.93	5.07	0.89	18.34	2.32	42.51	2.00
52	13.08	3.02	5.22	0.91	14.37	2.32	33.30	2.00
53	10.62	3.11	5.42	0.94	11.36	2.32	26.33	2.00
54	10.03	3.09	4.72	0.94	10.56	2.32	24.47	2.00
55	8.43	3.21	5.60	0.97	8.63	2.32	20.00	2.00
56	8.05	3.24	5.92	0.98	8.13	2.32	18.83	2.00
57	8.20	3.23	5.70	0.98	8.24	2.32	19.10	2.00
58	7.78	3.29	6.63	1.00	7.71	2.32	17.87	2.00
59	7.89	3.26	5.90	0.99	7.77	2.32	18.01	2.00
60	8.02	3.27	6.20	0.99	7.87	2.32	18.25	2.00
61	8.39	3.24	5.85	0.98	8.24	2.32	19.09	2.00
62	7.48	3.29	6.05	1.00	7.14	2.32	16.54	2.00
63	6.85	3.34	6.26	1.00	6.35	2.32	14.72	2.00
64	7.10	3.29	5.36	1.00	6.59	2.32	15.27	2.00
65	6.07	3.41	6.39	1.00	5.35	2.32	12.41	2.00
66	7.29	3.29	5.52	1.00	6.71	2.32	15.56	2.00
67	8.33	3.23	5.36	0.98	7.83	2.32	18.15	2.00
68	9.73	3.19	5.85	0.97	9.35	2.32	21.67	2.00
69	13.16	3.14	7.19	0.95	13.13	2.32	30.42	2.00
70	15.09	3.05	6.18	0.92	15.15	2.32	35.10	2.00
71	13.53	3.13	7.04	0.95	13.38	2.32	31.00	2.00
72	22.86	2.84	4.86	0.86	23.33	2.32	54.08	2.00
73	25.99	2.80	4.88	0.85	26.57	2.32	61.58	2.00
74	26.57	2.80	5.06	0.85	27.08	2.32	62.75	2.00
75	27.53	2.79	5.02	0.85	27.97	2.32	64.81	2.00
76	26.04	2.82	5.21	0.85	26.26	2.32	60.86	2.00
77	23.81	2.85	5.10	0.86	23.78	2.32	55.11	2.00
78	24.10	2.82	4.75	0.85	23.95	2.32	55.50	2.00
79	22.86	2.86	5.06	0.87	22.55	2.32	52.26	2.00
80	22.87	2.86	5.04	0.87	22.45	2.32	52.03	2.00
81	25.09	2.82	4.77	0.85	24.64	2.32	57.09	2.00

Point ID			F (%)	n				
82	26.90	2.76	4.19	0.83	26.36	2.32	61.10	2.00
83	25.16	2.82	4.75	0.85	24.47	2.32	56.72	2.00
84	26.52	2.77	4.29	0.84	25.74	2.32	59.64	2.00
85	27.03	2.82	5.11	0.85	26.17	2.32	60.65	2.00
86	30.12	2.76	4.82	0.84	29.19	2.32	67.64	2.00
87	29.11	2.79	5.00	0.84	28.04	2.32	64.99	2.00
88	29.29	2.78	4.92	0.84	28.09	2.32	65.10	2.00
89	32.07	2.75	4.80	0.83	30.76	2.32	71.29	2.00
90	32.03	2.77	5.09	0.84	30.59	2.32	70.90	2.00
91	31.87	2.78	5.33	0.84	30.31	2.32	70.24	2.00
92	29.63	2.82	5.63	0.86	27.96	2.32	64.79	2.00
93	25.88	2.89	5.92	0.87	24.11	2.32	55.87	2.00
94	22.31	2.95	6.12	0.89	20.47	2.32	47.43	2.00
95	21.32	2.95	5.83	0.89	19.39	2.32	44.93	2.00
96	21.89	2.93	5.55	0.89	19.85	2.32	46.01	2.00
97	22.07	2.95	5.96	0.89	19.94	2.32	46.22	2.00
98	21.48	2.96	6.04	0.90	19.27	2.32	44.66	2.00
99	21.92	2.95	5.96	0.89	19.61	2.32	45.45	2.00
100	22.78	2.93	5.73	0.89	20.35	2.32	47.16	2.00
101	22.46	2.93	5.58	0.89	19.95	2.32	46.23	2.00
102	23.37	2.89	5.10	0.88	20.73	2.32	48.05	2.00
103	21.96	2.93	5.46	0.89	19.29	2.32	44.70	2.00
104	22.52	2.92	5.27	0.88	19.74	2.32	45.74	2.00
105	19.94	3.00	5.95	0.91	17.19	2.32	39.84	2.00
106	18.17	3.03	5.86	0.92	15.42	2.32	35.75	2.00
107	16.20	3.04	5.19	0.92	13.50	2.32	31.28	2.00
108	15.49	3.06	5.20	0.92	12.76	2.32	29.57	2.00
109	16.92	2.98	4.42	0.90	14.05	2.32	32.55	2.00
110	17.07	3.00	4.87	0.91	14.11	2.32	32.71	2.00
111	20.21	3.01	6.18	0.91	16.97	2.32	39.32	2.00
112	22.45	2.98	6.38	0.90	18.97	2.32	43.96	2.00
113	19.53	3.03	6.32	0.92	16.18	2.32	37.50	2.00
114	19.93	2.99	5.56	0.90	16.49	2.32	38.21	2.00
115	19.35	2.99	5.42	0.91	15.88	2.32	36.80	2.00
116	19.81	2.97	5.06	0.90	16.24	2.32	37.63	2.00
117	23.29	2.86	4.20	0.87	19.36	2.32	44.86	2.00
118	23.66	2.88	4.64	0.87	19.60	2.32	45.42	2.00
119	23.51	2.90	4.90	0.88	19.38	2.32	44.90	2.00
120	23.62	2.90	4.91	0.88	19.39	2.32	44.94	2.00
121	23.16	2.90	4.74	0.88	18.90	2.32	43.80	2.00
122	22.67	2.90	4.57	0.88	18.39	2.32	42.61	2.00
123	22.67	2.89	4.35	0.87	18.31	2.32	42.44	2.00
124	22.26	2.89	4.32	0.88	17.88	2.32	41.43	2.00
125	21.77	2.89	4.15	0.87	17.37	2.32	40.25	2.00
126	23.06	2.85	3.89	0.86	18.45	2.32	42.76	2.00
127	24.95	2.87	4.51	0.87	20.02	2.32	46.40	2.00
128	34.05	2.76	4.52	0.84	27.97	2.32	64.82	2.00
129	40.44	2.68	4.25	0.81	33.52	2.32	77.69	2.00
130	35.32	2.77	4.82	0.84	28.85	2.32	66.87	2.00
131	35.82	2.76	4.83	0.84	29.18	2.32	67.64	2.00
132	37.10	2.81	5.70	0.85	30.14	2.32	69.85	2.00
133	42.51	2.74	5.24	0.83	34.76	2.32	80.56	2.00
134	29.53	2.96	7.31	0.90	23.29	2.32	53.98	2.00
135	37.78	2.77	5.12	0.84	30.42	2.32	70.51	2.00
136	34.92	2.80	5.26	0.85	27.84	2.32	64.52	2.00

Point ID			F (%)	n				
137	32.03	2.83	5.22	0.86	25.26	2.32	58.53	2.00
138	30.65	2.86	5.43	0.87	23.97	2.32	55.55	2.00
139	32.95	2.86	5.79	0.87	25.82	2.32	59.83	2.00
140	36.15	2.82	5.63	0.85	28.45	2.32	65.92	2.00
141	33.50	2.86	5.88	0.87	26.08	2.32	60.44	2.00
142	24.23	3.02	6.95	0.92	18.14	2.32	42.03	2.00
143	28.40	2.94	6.41	0.89	21.57	2.32	50.00	2.00
144	38.28	2.78	5.24	0.84	29.86	2.32	69.19	2.00
145	56.94	2.57	4.05	0.78	45.66	3.16	144.37	0.36
146	67.11	2.40	2.75	0.73	54.49	2.31	125.86	0.27
147	91.54	2.11	1.46	0.64	76.00	1.47	111.62	0.21
148	83.72	2.23	2.01	0.68	68.68	1.75	120.45	0.24
149	70.20	2.38	2.65	0.72	56.67	2.22	125.63	0.26
150	129.43	1.88	1.00	0.57	108.88	1.17	127.69	0.27
151	156.90	1.74	0.75	0.53	133.29	1.06	141.48	0.34
152	133.56	1.85	0.94	0.56	112.11	1.15	128.77	0.28
153	117.99	1.93	1.03	0.59	98.16	1.21	119.13	0.24
154	128.28	1.81	0.77	0.55	107.41	1.12	119.99	0.24
155	138.90	1.69	0.54	0.52	117.11	1.03	121.13	0.25
156	141.23	1.93	1.26	0.59	117.10	1.21	142.15	0.35
157	133.22	1.96	1.34	0.60	109.81	1.26	137.95	0.32
158	171.03	1.74	0.83	0.53	143.42	1.06	152.42	0.41
159	239.94	1.47	0.47	0.50	202.96	1.00	202.96	2.00
160	263.99	1.47	0.53	0.50	223.08	1.00	223.08	2.00
161	233.70	1.62	0.77	0.50	196.89	1.00	196.89	2.00
162	213.40	1.65	0.78	0.50	179.16	1.00	179.61	2.00
163	185.18	1.65	0.65	0.50	154.94	1.00	155.04	0.43
164	182.49	1.53	0.40	0.50	152.45	1.00	152.45	0.41
165	189.67	1.63	0.64	0.50	158.23	1.00	158.23	0.45
166	188.89	1.56	0.48	0.50	157.29	1.00	157.29	0.44
167	167.59	1.70	0.68	0.52	138.44	1.04	143.37	0.35
168	190.42	1.56	0.48	0.50	157.99	1.00	157.99	0.45
169	226.59	1.42	0.36	0.50	188.07	1.00	188.07	2.00
170	234.41	1.38	0.32	0.50	194.27	1.00	194.27	2.00
171	204.98	1.46	0.35	0.50	169.31	1.00	169.31	2.00
172	160.02	1.52	0.30	0.50	131.47	1.00	131.47	0.29
173	114.16	1.86	0.73	0.56	91.36	1.15	105.08	0.19
174	66.53	2.32	1.91	0.70	50.26	2.01	101.15	0.18
175	35.55	2.71	3.38	0.82	25.00	2.01	50.31	2.00
176	22.25	3.01	5.11	0.91	14.50	2.01	29.19	2.00
177	26.51	2.80	3.14	0.85	17.89	2.01	36.00	2.00
178	17.24	3.08	4.58	0.93	10.65	2.01	21.44	2.00
179	16.08	3.11	4.57	0.94	9.75	2.01	19.62	2.00
180	16.93	3.09	4.47	0.93	10.34	2.01	20.82	2.00
181	20.20	2.98	3.87	0.90	12.80	2.01	25.75	2.00
182	27.91	2.71	2.31	0.82	18.80	2.01	37.83	2.00
183	16.04	3.04	3.38	0.92	9.63	2.01	19.38	2.00
184	12.08	3.21	4.01	0.97	6.65	2.01	13.38	2.00
185	12.96	3.24	4.99	0.98	7.22	2.01	14.53	2.00
186	19.66	2.98	3.74	0.90	12.17	2.01	24.49	2.00
187	24.20	2.88	3.45	0.87	15.52	2.01	31.24	2.00
188	22.98	2.87	3.12	0.87	14.60	2.01	29.39	2.00
189	20.52	2.93	3.19	0.89	12.72	2.01	25.60	2.00
190	18.74	2.97	3.21	0.90	11.36	2.01	22.86	2.00
191	18.46	3.04	4.14	0.92	11.04	2.01	22.21	2.00

Point ID			F (%)	n				
192	20.45	3.00	4.05	0.91	12.45	2.01	25.06	2.00
193	21.07	3.01	4.39	0.91	12.83	2.01	25.81	2.00
194	19.18	3.06	4.53	0.92	11.41	2.01	22.95	2.00
195	17.82	3.09	4.54	0.93	10.38	2.01	20.89	2.00
196	24.42	2.96	4.53	0.90	15.09	2.01	30.37	2.00
197	36.06	2.69	2.96	0.82	23.80	2.01	47.90	2.00
198	31.47	2.83	4.00	0.86	20.15	2.01	40.56	2.00
199	30.76	2.83	3.85	0.86	19.60	2.01	39.43	2.00
200	30.62	2.83	3.80	0.86	19.44	2.01	39.13	2.00
201	30.75	2.86	4.26	0.87	19.40	2.01	39.05	2.00
202	30.58	2.87	4.41	0.87	19.19	2.01	38.63	2.00
203	30.13	2.88	4.39	0.87	18.81	2.01	37.86	2.00
204	28.83	2.89	4.36	0.88	17.83	2.01	35.88	2.00
205	26.83	2.90	3.98	0.88	16.40	2.01	33.01	2.00
206	25.46	2.92	3.94	0.88	15.38	2.01	30.96	2.00
207	26.41	2.89	3.80	0.88	16.02	2.01	32.24	2.00
208	28.79	2.86	3.76	0.87	17.66	2.01	35.54	2.00
209	35.59	2.71	2.94	0.82	22.63	2.01	45.54	2.00
210	32.25	2.78	3.29	0.84	20.09	2.01	40.43	2.00
211	31.08	2.81	3.48	0.85	19.16	2.01	38.56	2.00
212	33.04	2.82	3.98	0.86	20.39	2.01	41.04	2.00
213	35.44	2.82	4.24	0.85	21.97	2.01	44.21	2.00
214	34.30	2.88	5.02	0.87	20.97	2.01	42.20	2.00
215	37.87	2.78	4.07	0.84	23.58	2.01	47.45	2.00
216	31.70	2.91	4.98	0.88	19.05	2.01	38.34	2.00
217	28.14	2.93	4.54	0.89	16.60	2.01	33.41	2.00
218	28.54	2.97	5.24	0.90	16.73	2.01	33.67	2.00
219	22.34	3.07	5.30	0.93	12.47	2.01	25.10	2.00
220	21.16	3.01	3.94	0.91	11.76	2.01	23.67	2.00
221	22.79	3.00	4.28	0.91	12.79	2.01	25.74	2.00
222	34.59	2.80	3.81	0.85	20.88	2.01	42.03	2.00
223	33.63	2.82	3.85	0.85	20.15	2.01	40.56	2.00
224	24.17	3.06	5.68	0.93	13.44	2.01	27.05	2.00

:: Settlements calculation for saturated sands ::

Point ID					Settle. (in)
1	13.66	0.00	5.00	0.00	0.00
2	13.71	0.00	5.00	0.00	0.00
3	13.32	0.00	5.00	0.00	0.00
4	12.64	0.00	5.00	0.00	0.00
5	8.91	0.00	5.00	0.00	0.00
6	5.61	0.00	5.00	0.00	0.00
7	6.11	0.00	5.00	0.00	0.00
8	6.11	0.00	5.00	0.00	0.00
9	6.13	0.00	5.00	0.00	0.00
10	7.20	0.00	5.00	0.00	0.00
11	6.34	0.00	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
12	5.90	0.00	5.00	0.00	0.00
13	6.52	0.00	5.00	0.00	0.00
14	5.25	0.00	5.00	0.00	0.00
15	4.90	0.00	5.00	0.00	0.00
16	4.97	0.00	5.00	0.00	0.00
17	4.99	0.00	5.00	0.00	0.00
18	5.60	0.00	5.00	0.00	0.00
19	6.65	0.00	5.00	0.00	0.00
20	8.17	0.00	5.00	0.00	0.00
21	15.14	0.00	5.00	0.00	0.00
22	24.48	65.91	0.34	3.29	0.06
23	23.95	71.06	0.37	3.09	0.06
24	14.58	43.13	5.00	0.00	0.00
25	8.45	24.48	5.00	0.00	0.00
26	7.55	21.46	5.00	0.00	0.00
27	9.11	26.13	5.00	0.00	0.00
28	10.22	29.40	5.00	0.00	0.00
29	10.59	30.53	5.00	0.00	0.00
30	11.53	33.33	5.00	0.00	0.00
31	13.95	40.54	5.00	0.00	0.00
32	14.17	41.10	5.00	0.00	0.00
33	13.66	39.44	5.00	0.00	0.00
34	13.05	37.35	5.00	0.00	0.00
35	12.09	34.17	5.00	0.00	0.00
36	10.64	29.55	5.00	0.00	0.00
37	9.51	25.92	5.00	0.00	0.00
38	8.73	23.37	5.00	0.00	0.00
39	8.29	21.93	5.00	0.00	0.00
40	7.54	19.61	5.00	0.00	0.00
41	8.37	21.84	5.00	0.00	0.00
42	9.89	26.09	5.00	0.00	0.00
43	11.12	29.37	5.00	0.00	0.00
44	11.81	31.18	5.00	0.00	0.00
45	13.21	34.98	5.00	0.00	0.00
46	17.00	45.34	5.00	0.00	0.00
47	20.49	54.73	5.00	0.00	0.00
48	19.45	51.76	5.00	0.00	0.00
49	18.40	48.67	5.00	0.00	0.00
50	17.42	45.73	5.00	0.00	0.00
51	16.35	42.51	5.00	0.00	0.00
52	13.08	33.30	5.00	0.00	0.00
53	10.62	26.33	5.00	0.00	0.00
54	10.03	24.47	5.00	0.00	0.00
55	8.43	20.00	5.00	0.00	0.00
56	8.05	18.83	5.00	0.00	0.00
57	8.20	19.10	5.00	0.00	0.00
58	7.78	17.87	5.00	0.00	0.00
59	7.89	18.01	5.00	0.00	0.00
60	8.02	18.25	5.00	0.00	0.00
61	8.39	19.09	5.00	0.00	0.00
62	7.48	16.54	5.00	0.00	0.00
63	6.85	14.72	5.00	0.00	0.00
64	7.10	15.27	5.00	0.00	0.00
65	6.07	12.41	5.00	0.00	0.00
66	7.29	15.56	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
67	8.33	18.15	5.00	0.00	0.00
68	9.73	21.67	5.00	0.00	0.00
69	13.16	30.42	5.00	0.00	0.00
70	15.09	35.10	5.00	0.00	0.00
71	13.53	31.00	5.00	0.00	0.00
72	22.86	54.08	5.00	0.00	0.00
73	25.99	61.58	5.00	0.00	0.00
74	26.57	62.75	5.00	0.00	0.00
75	27.53	64.81	5.00	0.00	0.00
76	26.04	60.86	5.00	0.00	0.00
77	23.81	55.11	5.00	0.00	0.00
78	24.10	55.50	5.00	0.00	0.00
79	22.86	52.26	5.00	0.00	0.00
80	22.87	52.03	5.00	0.00	0.00
81	25.09	57.09	5.00	0.00	0.00
82	26.90	61.10	5.00	0.00	0.00
83	25.16	56.72	5.00	0.00	0.00
84	26.52	59.64	5.00	0.00	0.00
85	27.03	60.65	5.00	0.00	0.00
86	30.12	67.64	5.00	0.00	0.00
87	29.11	64.99	5.00	0.00	0.00
88	29.29	65.10	5.00	0.00	0.00
89	32.07	71.29	5.00	0.00	0.00
90	32.03	70.90	5.00	0.00	0.00
91	31.87	70.24	5.00	0.00	0.00
92	29.63	64.79	5.00	0.00	0.00
93	25.88	55.87	5.00	0.00	0.00
94	22.31	47.43	5.00	0.00	0.00
95	21.32	44.93	5.00	0.00	0.00
96	21.89	46.01	5.00	0.00	0.00
97	22.07	46.22	5.00	0.00	0.00
98	21.48	44.66	5.00	0.00	0.00
99	21.92	45.45	5.00	0.00	0.00
100	22.78	47.16	5.00	0.00	0.00
101	22.46	46.23	5.00	0.00	0.00
102	23.37	48.05	5.00	0.00	0.00
103	21.96	44.70	5.00	0.00	0.00
104	22.52	45.74	5.00	0.00	0.00
105	19.94	39.84	5.00	0.00	0.00
106	18.17	35.75	5.00	0.00	0.00
107	16.20	31.28	5.00	0.00	0.00
108	15.49	29.57	5.00	0.00	0.00
109	16.92	32.55	5.00	0.00	0.00
110	17.07	32.71	5.00	0.00	0.00
111	20.21	39.32	5.00	0.00	0.00
112	22.45	43.96	5.00	0.00	0.00
113	19.53	37.50	5.00	0.00	0.00
114	19.93	38.21	5.00	0.00	0.00
115	19.35	36.80	5.00	0.00	0.00
116	19.81	37.63	5.00	0.00	0.00
117	23.29	44.86	5.00	0.00	0.00
118	23.66	45.42	5.00	0.00	0.00
119	23.51	44.90	5.00	0.00	0.00
120	23.62	44.94	5.00	0.00	0.00
121	23.16	43.80	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
122	22.67	42.61	5.00	0.00	0.00
123	22.67	42.44	5.00	0.00	0.00
124	22.26	41.43	5.00	0.00	0.00
125	21.77	40.25	5.00	0.00	0.00
126	23.06	42.76	5.00	0.00	0.00
127	24.95	46.40	5.00	0.00	0.00
128	34.05	64.82	5.00	0.00	0.00
129	40.44	77.69	5.00	0.00	0.00
130	35.32	66.87	5.00	0.00	0.00
131	35.82	67.64	5.00	0.00	0.00
132	37.10	69.85	5.00	0.00	0.00
133	42.51	80.56	5.00	0.00	0.00
134	29.53	53.98	5.00	0.00	0.00
135	37.78	70.51	5.00	0.00	0.00
136	34.92	64.52	5.00	0.00	0.00
137	32.03	58.53	5.00	0.00	0.00
138	30.65	55.55	5.00	0.00	0.00
139	32.95	59.83	5.00	0.00	0.00
140	36.15	65.92	5.00	0.00	0.00
141	33.50	60.44	5.00	0.00	0.00
142	24.23	42.03	5.00	0.00	0.00
143	28.40	50.00	5.00	0.00	0.00
144	38.28	69.19	5.00	0.00	0.00
145	56.94	144.37	1.08	0.43	0.01
146	67.11	125.86	0.79	1.45	0.03
147	91.54	111.62	0.63	2.14	0.04
148	83.72	120.45	0.73	1.89	0.04
149	70.20	125.63	0.79	1.46	0.03
150	129.43	127.69	0.82	1.42	0.03
151	156.90	141.48	1.03	0.64	0.01
152	133.56	128.77	0.83	1.40	0.03
153	117.99	119.13	0.71	1.92	0.04
154	128.28	119.99	0.72	1.90	0.04
155	138.90	121.13	0.74	1.87	0.04
156	141.23	142.15	1.04	0.64	0.01
157	133.22	137.95	0.97	0.66	0.01
158	171.03	152.42	1.23	0.30	0.01
159	239.94	202.96	5.00	0.00	0.00
160	263.99	223.08	5.00	0.00	0.00
161	233.70	196.89	5.00	0.00	0.00
162	213.40	179.61	5.00	0.00	0.00
163	185.18	155.04	1.28	0.21	0.00
164	182.49	152.45	1.23	0.30	0.01
165	189.67	158.23	1.35	0.21	0.00
166	188.89	157.29	1.33	0.21	0.00
167	167.59	143.37	1.07	0.44	0.01
168	190.42	157.99	1.35	0.21	0.00
169	226.59	188.07	5.00	0.00	0.00
170	234.41	194.27	5.00	0.00	0.00
171	204.98	169.31	5.00	0.00	0.00
172	160.02	131.47	0.88	1.05	0.02
173	114.16	105.08	0.57	2.24	0.04
174	66.53	101.15	0.53	2.31	0.04
175	35.55	50.31	5.00	0.00	0.00
176	22.25	29.19	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
177	26.51	36.00	5.00	0.00	0.00
178	17.24	21.44	5.00	0.00	0.00
179	16.08	19.62	5.00	0.00	0.00
180	16.93	20.82	5.00	0.00	0.00
181	20.20	25.75	5.00	0.00	0.00
182	27.91	37.83	5.00	0.00	0.00
183	16.04	19.38	5.00	0.00	0.00
184	12.08	13.38	5.00	0.00	0.00
185	12.96	14.53	5.00	0.00	0.00
186	19.66	24.49	5.00	0.00	0.00
187	24.20	31.24	5.00	0.00	0.00
188	22.98	29.39	5.00	0.00	0.00
189	20.52	25.60	5.00	0.00	0.00
190	18.74	22.86	5.00	0.00	0.00
191	18.46	22.21	5.00	0.00	0.00
192	20.45	25.06	5.00	0.00	0.00
193	21.07	25.81	5.00	0.00	0.00
194	19.18	22.95	5.00	0.00	0.00
195	17.82	20.89	5.00	0.00	0.00
196	24.42	30.37	5.00	0.00	0.00
197	36.06	47.90	5.00	0.00	0.00
198	31.47	40.56	5.00	0.00	0.00
199	30.76	39.43	5.00	0.00	0.00
200	30.62	39.13	5.00	0.00	0.00
201	30.75	39.05	5.00	0.00	0.00
202	30.58	38.63	5.00	0.00	0.00
203	30.13	37.86	5.00	0.00	0.00
204	28.83	35.88	5.00	0.00	0.00
205	26.83	33.01	5.00	0.00	0.00
206	25.46	30.96	5.00	0.00	0.00
207	26.41	32.24	5.00	0.00	0.00
208	28.79	35.54	5.00	0.00	0.00
209	35.59	45.54	5.00	0.00	0.00
210	32.25	40.43	5.00	0.00	0.00
211	31.08	38.56	5.00	0.00	0.00
212	33.04	41.04	5.00	0.00	0.00
213	35.44	44.21	5.00	0.00	0.00
214	34.30	42.20	5.00	0.00	0.00
215	37.87	47.45	5.00	0.00	0.00
216	31.70	38.34	5.00	0.00	0.00
217	28.14	33.41	5.00	0.00	0.00
218	28.54	33.67	5.00	0.00	0.00
219	22.34	25.10	5.00	0.00	0.00
220	21.16	23.67	5.00	0.00	0.00
221	22.79	25.74	5.00	0.00	0.00
222	34.59	42.03	5.00	0.00	0.00
223	33.63	40.56	5.00	0.00	0.00
224	24.17	27.05	5.00	0.00	0.00

Total settlement : 0.62

Measured cone resistance
Normalized and adjusted cone resistance
Factor of safety against liquefaction
Post-liquefaction volumentric strain
Calculated settlement

:: Overall liquefaction potential according to Iwasaki ::

Point ID	F			Point ID	F		
1	0.00	7.92	0.00	2	0.00	7.90	0.00
3	0.00	7.88	0.00	4	0.00	7.85	0.00
5	0.00	7.83	0.00	6	0.00	7.80	0.00
7	0.00	7.77	0.00	8	0.00	7.75	0.00
9	0.00	7.72	0.00	10	0.00	7.70	0.00
11	0.00	7.67	0.00	12	0.00	7.65	0.00
13	0.00	7.63	0.00	14	0.00	7.60	0.00
15	0.00	7.58	0.00	16	0.00	7.55	0.00
17	0.00	7.53	0.00	18	0.00	7.50	0.00
19	0.00	7.47	0.00	20	0.00	7.45	0.00
21	0.00	7.42	0.00	22	0.66	7.40	0.24
23	0.63	7.38	0.23	24	0.00	7.35	0.00
25	0.00	7.33	0.00	26	0.00	7.30	0.00
27	0.00	7.28	0.00	28	0.00	7.25	0.00
29	0.00	7.22	0.00	30	0.00	7.20	0.00
31	0.00	7.17	0.00	32	0.00	7.15	0.00
33	0.00	7.13	0.00	34	0.00	7.10	0.00
35	0.00	7.08	0.00	36	0.00	7.05	0.00
37	0.00	7.03	0.00	38	0.00	7.00	0.00
39	0.00	6.97	0.00	40	0.00	6.95	0.00
41	0.00	6.92	0.00	42	0.00	6.90	0.00
43	0.00	6.87	0.00	44	0.00	6.85	0.00
45	0.00	6.83	0.00	46	0.00	6.80	0.00
47	0.00	6.78	0.00	48	0.00	6.75	0.00
49	0.00	6.72	0.00	50	0.00	6.70	0.00
51	0.00	6.67	0.00	52	0.00	6.65	0.00
53	0.00	6.62	0.00	54	0.00	6.60	0.00
55	0.00	6.58	0.00	56	0.00	6.55	0.00
57	0.00	6.53	0.00	58	0.00	6.50	0.00
59	0.00	6.47	0.00	60	0.00	6.45	0.00
61	0.00	6.42	0.00	62	0.00	6.40	0.00
63	0.00	6.37	0.00	64	0.00	6.35	0.00
65	0.00	6.33	0.00	66	0.00	6.30	0.00
67	0.00	6.28	0.00	68	0.00	6.25	0.00
69	0.00	6.23	0.00	70	0.00	6.20	0.00
71	0.00	6.17	0.00	72	0.00	6.15	0.00
73	0.00	6.12	0.00	74	0.00	6.10	0.00
75	0.00	6.08	0.00	76	0.00	6.05	0.00
77	0.00	6.03	0.00	78	0.00	6.00	0.00
79	0.00	5.98	0.00	80	0.00	5.95	0.00
81	0.00	5.92	0.00	82	0.00	5.90	0.00
83	0.00	5.87	0.00	84	0.00	5.85	0.00
85	0.00	5.82	0.00	86	0.00	5.80	0.00
87	0.00	5.78	0.00	88	0.00	5.75	0.00
89	0.00	5.73	0.00	90	0.00	5.70	0.00
91	0.00	5.67	0.00	92	0.00	5.65	0.00
93	0.00	5.62	0.00	94	0.00	5.60	0.00
95	0.00	5.57	0.00	96	0.00	5.55	0.00
97	0.00	5.53	0.00	98	0.00	5.50	0.00
99	0.00	5.48	0.00	100	0.00	5.45	0.00
101	0.00	5.42	0.00	102	0.00	5.40	0.00
103	0.00	5.37	0.00	104	0.00	5.35	0.00
105	0.00	5.32	0.00	106	0.00	5.30	0.00
107	0.00	5.28	0.00	108	0.00	5.25	0.00
109	0.00	5.23	0.00	110	0.00	5.20	0.00
111	0.00	5.18	0.00	112	0.00	5.15	0.00

:: Overall liquefaction potential according to Iwasaki (continued) ::

Point ID	F			Point ID	F		
113	0.00	5.12	0.00	114	0.00	5.10	0.00
115	0.00	5.07	0.00	116	0.00	5.05	0.00
117	0.00	5.03	0.00	118	0.00	5.00	0.00
119	0.00	4.98	0.00	120	0.00	4.95	0.00
121	0.00	4.93	0.00	122	0.00	4.90	0.00
123	0.00	4.87	0.00	124	0.00	4.85	0.00
125	0.00	4.82	0.00	126	0.00	4.80	0.00
127	0.00	4.78	0.00	128	0.00	4.75	0.00
129	0.00	4.73	0.00	130	0.00	4.70	0.00
131	0.00	4.68	0.00	132	0.00	4.65	0.00
133	0.00	4.62	0.00	134	0.00	4.60	0.00
135	0.00	4.57	0.00	136	0.00	4.55	0.00
137	0.00	4.52	0.00	138	0.00	4.50	0.00
139	0.00	4.48	0.00	140	0.00	4.45	0.00
141	0.00	4.43	0.00	142	0.00	4.40	0.00
143	0.00	4.37	0.00	144	0.00	4.35	0.00
145	0.00	4.32	0.00	146	0.21	4.30	0.04
147	0.37	4.27	0.08	148	0.27	4.25	0.06
149	0.21	4.23	0.04	150	0.18	4.20	0.04
151	0.00	4.18	0.00	152	0.17	4.15	0.04
153	0.29	4.12	0.06	154	0.28	4.10	0.06
155	0.26	4.07	0.06	156	0.00	4.05	0.00
157	0.03	4.02	0.01	158	0.00	4.00	0.00
159	0.00	3.98	0.00	160	0.00	3.95	0.00
161	0.00	3.93	0.00	162	0.00	3.90	0.00
163	0.00	3.88	0.00	164	0.00	3.85	0.00
165	0.00	3.82	0.00	166	0.00	3.80	0.00
167	0.00	3.77	0.00	168	0.00	3.75	0.00
169	0.00	3.73	0.00	170	0.00	3.70	0.00
171	0.00	3.68	0.00	172	0.12	3.65	0.02
173	0.43	3.63	0.08	174	0.47	3.60	0.08
175	0.00	3.57	0.00	176	0.00	3.55	0.00
177	0.00	3.52	0.00	178	0.00	3.50	0.00
179	0.00	3.48	0.00	180	0.00	3.45	0.00
181	0.00	3.43	0.00	182	0.00	3.40	0.00
183	0.00	3.38	0.00	184	0.00	3.35	0.00
185	0.00	3.32	0.00	186	0.00	3.30	0.00
187	0.00	3.27	0.00	188	0.00	3.25	0.00
189	0.00	3.22	0.00	190	0.00	3.20	0.00
191	0.00	3.18	0.00	192	0.00	3.15	0.00
193	0.00	3.13	0.00	194	0.00	3.10	0.00
195	0.00	3.07	0.00	196	0.00	3.05	0.00
197	0.00	3.02	0.00	198	0.00	3.00	0.00
199	0.00	2.97	0.00	200	0.00	2.95	0.00
201	0.00	2.93	0.00	202	0.00	2.90	0.00
203	0.00	2.88	0.00	204	0.00	2.85	0.00
205	0.00	2.83	0.00	206	0.00	2.80	0.00
207	0.00	2.77	0.00	208	0.00	2.75	0.00
209	0.00	2.72	0.00	210	0.00	2.70	0.00
211	0.00	2.68	0.00	212	0.00	2.65	0.00
213	0.00	2.63	0.00	214	0.00	2.60	0.00
215	0.00	2.58	0.00	216	0.00	2.55	0.00
217	0.00	2.52	0.00	218	0.00	2.50	0.00
219	0.00	2.47	0.00	220	0.00	2.45	0.00
221	0.00	2.43	0.00	222	0.00	2.40	0.00
223	0.00	2.38	0.00	224	0.00	2.35	0.00

:: Overall liquefaction potential according to Iwasaki (continued) ::

Point ID	F

Point ID	F

GeoLogismiki
Geotechnical Engineering Software
Merarhias 56, 621 25 - Serrai, Greece
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LIQUEFACTION ANALYSIS REPORT

Project title : 10487.01 - Morning Star Packing Company Cooling Pond Expansions

Project subtitle : CPT-03

Input parameters and analysis data

In-situ data type:	Cone Penetration Test	5.00 ft
Analysis type:	Deterministic	6.58
Analysis method:	Robertson (1998)	0.44 g
Fines correction method:	Robertson (1998)	1.00

Liquefaction

No Liquefaction

Soil type index legend

- Gravelly sand to dense sand
- Sands: clean sand to silty sand
- Sand mixtures: silty sand to sandy silt
- Silt mixtures: clayey silt to silty clay
- Clays: silty clay to clay
- Organic soils: peats

:: Field input data ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
1	0.66	4.90	0.21	32.02	120.94
2	0.82	14.13	0.55	22.44	120.94
3	0.98	13.45	0.70	27.13	120.94
4	1.15	11.85	0.57	28.54	120.94
5	1.31	9.52	0.41	30.46	120.94
6	1.48	7.88	0.34	33.61	120.94
7	1.64	8.02	0.37	35.28	120.94
8	1.80	8.39	0.39	35.66	120.94
9	1.97	8.09	0.38	37.51	120.94
10	2.13	8.17	0.38	37.93	120.94
11	2.30	8.45	0.39	38.15	120.94
12	2.46	12.05	0.67	36.84	120.94
13	2.62	15.54	1.03	36.82	120.94
14	2.79	26.46	1.27	27.09	120.94
15	2.95	25.36	1.32	29.01	120.94
16	3.12	20.91	1.15	32.30	120.94
17	3.28	15.46	0.98	38.40	120.94
18	3.44	12.39	0.64	39.00	120.94
19	3.61	10.58	0.48	40.02	120.94
20	3.77	10.19	0.44	40.35	120.94
21	3.94	23.71	0.46	21.10	120.94
22	4.10	18.66	0.37	24.21	120.94
23	4.27	12.19	0.44	36.85	120.94
24	4.43	19.32	0.53	27.67	120.94
25	4.59	15.15	0.55	34.71	120.94
26	4.76	12.68	0.36	34.38	120.94
27	4.92	13.95	0.32	31.18	120.94
28	5.09	10.16	0.30	39.23	120.94
29	5.25	12.00	0.22	31.05	120.94
30	5.41	14.82	0.12	21.60	120.94
31	5.58	15.48	0.26	27.24	120.94
32	5.74	20.85	0.13	16.16	120.94
33	5.91	25.09	0.28	18.07	120.94
34	6.07	30.21	0.03	7.30	120.94
35	6.23	23.78	0.02	9.27	120.94
36	6.40	18.63	0.06	14.97	120.94
37	6.56	11.44	0.12	27.98	120.94
38	6.73	5.45	0.11	48.86	120.94
39	6.89	14.69	0.06	18.78	120.94
40	7.05	17.23	0.12	19.94	120.94
41	7.22	18.44	0.09	17.05	120.94
42	7.38	26.35	0.41	21.28	120.94
43	7.55	35.00	0.18	11.13	120.94
44	7.71	33.88	0.10	9.17	120.94
45	7.87	25.10	0.11	13.53	120.94
46	8.04	16.91	0.10	19.65	120.94
47	8.20	15.34	0.13	23.81	120.94
48	8.37	11.88	0.14	30.54	120.94
49	8.53	8.29	0.12	38.79	120.94
50	8.69	4.65	0.08	53.76	120.94
51	8.86	4.08	0.07	57.36	120.94
52	9.02	4.64	0.11	59.16	120.94
53	9.19	6.74	0.10	44.31	120.94
54	9.35	5.52	0.09	49.54	120.94
55	9.51	4.88	0.07	52.28	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
56	9.68	4.67	0.08	55.63	120.94
57	9.84	4.76	0.08	54.52	120.94
58	10.01	4.24	0.07	59.00	120.94
59	10.17	3.81	0.04	57.48	120.94
60	10.33	3.71	0.05	61.60	120.94
61	10.50	4.06	0.05	57.15	120.94
62	10.66	3.85	0.05	59.26	120.94
63	10.83	4.16	0.04	55.13	120.94
64	10.99	4.30	0.05	54.51	120.94
65	11.15	4.20	0.06	58.90	120.94
66	11.32	4.43	0.06	57.58	120.94
67	11.48	3.97	0.06	62.81	120.94
68	11.65	4.04	0.06	62.78	120.94
69	11.81	4.28	0.07	62.20	120.94
70	11.98	4.25	0.10	67.90	120.94
71	12.14	6.29	0.18	58.84	120.94
72	12.30	8.31	0.12	43.51	120.94
73	12.47	6.51	0.10	49.78	120.94
74	12.63	6.04	0.13	56.14	120.94
75	12.80	7.29	0.18	53.54	120.94
76	12.96	7.89	0.18	51.37	120.94
77	13.12	9.52	0.26	49.10	120.94
78	13.29	11.53	0.29	44.12	120.94
79	13.45	10.95	0.26	44.43	120.94
80	13.62	10.22	0.23	45.35	120.94
81	13.78	13.75	0.32	40.04	120.94
82	13.94	17.31	0.44	37.16	120.94
83	14.11	20.85	0.56	34.85	120.94
84	14.27	22.56	0.69	35.40	120.94
85	14.44	24.05	0.79	35.36	120.94
86	14.60	24.52	0.84	35.79	120.94
87	14.76	24.94	0.94	36.92	120.94
88	14.93	24.41	0.87	36.56	120.94
89	15.09	23.81	0.84	36.95	120.94
90	15.26	23.87	0.94	38.63	120.94
91	15.42	23.02	0.87	38.66	120.94
92	15.58	22.69	0.71	36.38	120.94
93	15.75	22.94	0.58	33.60	120.94
94	15.91	21.74	0.59	35.39	120.94
95	16.08	20.02	0.64	39.17	120.94
96	16.24	17.59	0.72	45.57	120.94
97	16.40	17.04	0.60	43.91	120.94
98	16.57	15.88	0.49	43.42	120.94
99	16.73	15.58	0.49	44.27	120.94
100	16.90	15.65	0.50	44.44	120.94
101	17.06	15.11	0.47	44.89	120.94
102	17.22	14.98	0.41	43.39	120.94
103	17.39	15.08	0.43	44.24	120.94
104	17.55	15.68	0.50	44.95	120.94
105	17.72	16.25	0.52	44.63	120.94
106	17.88	18.25	0.58	42.10	120.94
107	18.04	19.11	0.61	41.45	120.94
108	18.21	20.29	0.68	41.18	120.94
109	18.37	20.20	0.61	39.88	120.94
110	18.54	17.80	0.52	41.96	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
111	18.70	16.91	0.50	43.18	120.94
112	18.86	16.42	0.48	43.69	120.94
113	19.03	28.96	0.48	26.95	120.94
114	19.19	28.92	0.58	29.04	120.94
115	19.36	22.46	0.55	35.75	120.94
116	19.52	19.10	0.44	37.98	120.94
117	19.69	14.15	0.32	43.84	120.94
118	19.85	13.68	0.28	43.57	120.94
119	20.01	13.07	0.42	51.50	120.94
120	20.18	12.28	0.44	54.84	120.94
121	20.34	12.85	0.37	50.34	120.94
122	20.51	12.89	0.39	51.33	120.94
123	20.67	14.41	0.37	46.36	120.94
124	20.83	12.00	0.36	53.24	120.94
125	21.00	11.72	0.28	50.59	120.94
126	21.16	11.90	0.30	50.97	120.94
127	21.33	12.60	0.38	52.25	120.94
128	21.49	12.62	0.55	58.86	120.94
129	21.65	23.77	0.87	41.75	120.94
130	21.82	24.61	0.68	37.12	120.94
131	21.98	22.13	0.62	39.37	120.94
132	22.15	23.67	0.81	41.08	120.94
133	22.31	24.41	0.92	42.10	120.94
134	22.47	25.26	0.96	41.61	120.94
135	22.64	24.37	0.94	42.68	120.94
136	22.80	24.87	0.91	41.61	120.94
137	22.97	25.03	0.94	41.99	120.94
138	23.13	25.01	1.00	42.98	120.94
139	23.29	24.97	1.02	43.48	120.94
140	23.46	24.18	0.98	44.08	120.94
141	23.62	23.40	0.93	44.50	120.94
142	23.79	23.88	0.97	44.52	120.94
143	23.95	24.61	1.07	45.15	120.94
144	24.11	25.51	1.13	44.85	120.94
145	24.28	25.76	1.09	43.94	120.94
146	24.44	27.44	1.03	41.06	120.94
147	24.61	30.22	1.05	38.20	120.94
148	24.77	31.18	1.21	39.39	120.94
149	24.93	30.04	1.03	38.24	120.94
150	25.10	31.61	1.06	37.06	120.94
151	25.26	30.36	1.12	39.24	120.94
152	25.43	29.53	1.23	41.77	120.94
153	25.59	30.78	1.36	42.08	120.94
154	25.75	31.46	1.32	40.91	120.94
155	25.92	31.76	1.33	40.76	120.94
156	26.08	28.12	1.13	42.51	120.94
157	26.25	24.07	0.94	45.21	120.94
158	26.41	22.44	0.94	47.98	120.94
159	26.57	23.37	1.08	48.94	120.94
160	26.74	27.18	1.26	45.85	120.94
161	26.90	28.51	1.28	44.41	120.94
162	27.07	24.51	0.97	45.57	120.94
163	27.23	20.68	0.70	46.88	120.94
164	27.40	19.56	0.63	47.36	120.94
165	27.56	18.35	0.70	51.88	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
166	27.72	17.73	0.69	53.11	120.94
167	27.89	16.28	0.58	53.89	120.94
168	28.05	16.37	0.56	53.05	120.94
169	28.22	15.59	0.46	52.15	120.94
170	28.38	14.24	0.56	59.66	120.94
171	28.54	16.79	0.60	53.61	120.94
172	28.71	16.67	0.47	50.01	120.94
173	28.87	14.16	0.47	57.24	120.94
174	29.04	13.82	0.46	58.10	120.94
175	29.20	13.46	0.48	60.46	120.94
176	29.36	13.73	0.45	58.31	120.94
177	29.53	13.68	0.47	59.47	120.94
178	29.69	15.22	0.57	57.95	120.94
179	29.86	20.06	0.65	48.47	120.94
180	30.02	19.82	0.68	49.77	120.94
181	30.18	20.03	0.65	48.71	120.94
182	30.35	21.63	0.74	47.81	120.94
183	30.51	25.62	0.97	45.80	120.94
184	30.68	27.99	1.28	47.17	120.94
185	30.84	31.79	1.38	43.70	120.94
186	31.00	31.80	1.45	44.67	120.94
187	31.17	32.72	1.32	42.16	120.94
188	31.33	32.86	1.12	39.47	120.94
189	31.50	31.98	1.21	41.67	120.94
190	31.66	28.33	1.08	44.42	120.94
191	31.82	30.24	1.00	40.84	120.94
192	31.99	31.59	1.11	40.94	120.94
193	32.15	38.08	1.07	34.32	120.94
194	32.32	40.73	1.14	33.19	120.94
195	32.48	39.05	1.26	36.03	120.94
196	32.64	47.35	1.59	33.37	120.94
197	32.81	43.84	1.81	37.80	120.94
198	32.97	40.39	1.60	38.63	120.94
199	33.14	33.11	1.46	44.29	120.94
200	33.30	38.12	1.46	39.34	120.94
201	33.46	42.28	1.57	37.03	120.94
202	33.63	45.32	1.75	36.47	120.94
203	33.79	37.91	1.66	41.74	120.94
204	33.96	35.74	1.77	45.13	120.94
205	34.12	38.30	2.31	47.33	120.94
206	34.28	47.69	2.12	38.05	120.94
207	34.45	55.69	2.39	35.00	120.94
208	34.61	60.39	2.15	31.02	120.94
209	34.78	50.66	1.76	33.48	120.94
210	34.94	50.52	1.86	34.45	120.94
211	35.10	64.51	1.41	24.05	120.94
212	35.27	87.48	0.89	13.42	120.94
213	35.43	113.41	0.79	8.63	120.94
214	35.60	126.05	0.80	7.29	120.94
215	35.76	140.44	0.72	5.50	120.94
216	35.93	159.42	0.71	4.14	120.94
217	36.09	170.39	0.64	3.15	120.94
218	36.25	163.46	0.63	3.51	120.94
219	36.42	148.84	0.62	4.33	120.94
220	36.58	134.15	0.44	4.16	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
221	36.75	126.01	1.27	10.24	120.94
222	36.91	141.75	1.07	7.49	120.94
223	37.07	133.02	0.90	7.35	120.94
224	37.24	112.99	0.64	7.73	120.94
225	37.40	83.84	1.04	15.80	120.94
226	37.57	47.95	1.09	29.53	120.94
227	37.73	23.83	0.91	51.45	120.94
228	37.89	18.48	0.68	57.98	120.94
229	38.06	15.97	0.62	63.42	120.94
230	38.22	21.66	0.58	48.37	120.94
231	38.39	20.48	0.65	52.52	120.94
232	38.55	21.99	0.75	52.16	120.94
233	38.71	18.63	0.72	59.07	120.94
234	38.88	17.49	0.66	60.49	120.94
235	39.04	16.81	0.62	61.60	120.94
236	39.21	15.06	0.60	66.80	120.94
237	39.37	17.64	0.81	64.52	120.94
238	39.53	33.05	0.95	40.26	120.94
239	39.70	46.95	1.36	33.76	120.94
240	39.86	28.95	1.40	52.09	120.94
241	40.03	28.47	1.45	53.48	120.94
242	40.19	33.41	0.89	39.22	120.94
243	40.35	23.46	0.55	45.19	120.94
244	40.52	21.03	0.56	50.20	120.94
245	40.68	23.62	0.70	49.01	120.94
246	40.85	24.71	0.83	50.07	120.94
247	41.01	25.47	0.98	51.60	120.94
248	41.17	25.10	1.09	54.38	120.94
249	41.34	23.58	1.01	55.76	120.94
250	41.50	25.02	0.94	51.96	120.94
251	41.67	24.19	0.97	54.14	120.94
252	41.83	25.68	0.93	50.71	120.94
253	41.99	27.46	0.94	48.20	120.94
254	42.16	26.56	0.98	50.41	120.94
255	42.32	26.72	0.91	49.05	120.94
256	42.49	27.40	0.90	47.89	120.94
257	42.65	29.41	0.91	45.32	120.94
258	42.81	30.82	0.94	44.05	120.94
259	42.98	29.36	0.86	44.60	120.94
260	43.14	28.47	0.88	46.20	120.94
261	43.31	32.95	1.15	44.87	120.94
262	43.47	40.95	1.26	38.41	120.94
263	43.64	38.23	1.36	42.09	120.94
264	43.80	34.69	1.15	43.04	120.94
265	43.96	30.73	1.09	46.99	120.94
266	44.13	29.54	1.07	48.45	120.94
267	44.29	28.36	1.01	49.21	120.94
268	44.46	28.16	0.99	49.12	120.94
269	44.62	30.40	0.99	46.13	120.94
270	44.78	30.75	1.12	47.75	120.94
271	44.95	28.30	1.17	52.12	120.94
272	45.11	31.58	1.07	46.13	120.94
273	45.28	28.50	0.82	45.94	120.94
274	45.44	24.87	0.82	51.81	120.94
275	45.60	28.38	1.31	54.46	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
276	45.77	51.72	1.42	33.09	120.94
277	45.93	36.24	1.30	44.28	120.94
278	46.10	32.32	1.20	47.55	120.94
279	46.26	34.55	1.13	43.90	120.94
280	46.42	27.59	0.89	49.18	120.94
281	46.59	21.47	0.67	55.55	120.94
282	46.75	21.33	0.58	53.40	120.94
283	46.92	16.50	0.49	63.59	120.94
284	47.08	14.66	0.43	67.79	120.94
285	47.24	15.22	0.61	72.80	120.94
286	47.41	17.65	0.93	72.90	120.94
287	47.57	25.86	1.30	59.60	120.94
288	47.74	31.43	1.98	58.95	120.94
289	47.90	39.59	2.44	52.81	120.94
290	48.06	43.82	2.79	51.22	120.94
291	48.23	52.56	2.67	43.22	120.94
292	48.39	76.42	2.37	29.07	120.94
293	48.56	75.63	2.51	30.20	120.94
294	48.72	74.52	3.53	35.88	120.94
295	48.88	78.83	3.45	33.77	120.94
296	49.05	51.64	2.56	43.43	120.94
297	49.21	40.48	1.72	45.90	120.94
298	49.38	38.93	1.52	45.30	120.94
299	49.54	37.29	1.40	45.74	120.94
300	49.70	32.78	1.36	50.55	120.94

Depth from free surface, at which CPT was performed (ft)
Measured cone resistance
Sleeve friction resistance
Percentage of fines in soil (%)
Bulk soil unit weight (tsf)

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
1	0.66	0.04	0.00	0.04	1.00	0.29	1.40	0.20	1.00	0.20
2	0.82	0.05	0.00	0.05	1.00	0.29	1.40	0.20	1.00	0.20
3	0.98	0.06	0.00	0.06	1.00	0.29	1.40	0.20	1.00	0.20
4	1.15	0.07	0.00	0.07	1.00	0.29	1.40	0.20	1.00	0.20
5	1.31	0.08	0.00	0.08	1.00	0.29	1.40	0.20	1.00	0.20
6	1.48	0.09	0.00	0.09	1.00	0.29	1.40	0.20	1.00	0.20
7	1.64	0.10	0.00	0.10	1.00	0.28	1.40	0.20	1.00	0.20
8	1.80	0.11	0.00	0.11	1.00	0.28	1.40	0.20	1.00	0.20
9	1.97	0.12	0.00	0.12	1.00	0.28	1.40	0.20	1.00	0.20
10	2.13	0.13	0.00	0.13	1.00	0.28	1.40	0.20	1.00	0.20
11	2.30	0.14	0.00	0.14	0.99	0.28	1.40	0.20	1.00	0.20
12	2.46	0.15	0.00	0.15	0.99	0.28	1.40	0.20	1.00	0.20
13	2.62	0.16	0.00	0.16	0.99	0.28	1.40	0.20	1.00	0.20
14	2.79	0.17	0.00	0.17	0.99	0.28	1.40	0.20	1.00	0.20
15	2.95	0.18	0.00	0.18	0.99	0.28	1.40	0.20	1.00	0.20
16	3.12	0.19	0.00	0.19	0.99	0.28	1.40	0.20	1.00	0.20
17	3.28	0.20	0.00	0.20	0.99	0.28	1.40	0.20	1.00	0.20
18	3.44	0.21	0.00	0.21	0.99	0.28	1.40	0.20	1.00	0.20
19	3.61	0.22	0.00	0.22	0.99	0.28	1.40	0.20	1.00	0.20
20	3.77	0.23	0.00	0.23	0.99	0.28	1.40	0.20	1.00	0.20
21	3.94	0.24	0.00	0.24	0.99	0.28	1.40	0.20	1.00	0.20

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
22	4.10	0.25	0.00	0.25	0.99	0.28	1.40	0.20	1.00	0.20
23	4.27	0.26	0.00	0.26	0.99	0.28	1.40	0.20	1.00	0.20
24	4.43	0.27	0.00	0.27	0.99	0.28	1.40	0.20	1.00	0.20
25	4.59	0.28	0.00	0.28	0.99	0.28	1.40	0.20	1.00	0.20
26	4.76	0.29	0.00	0.29	0.99	0.28	1.40	0.20	1.00	0.20
27	4.92	0.30	0.00	0.30	0.99	0.28	1.40	0.20	1.00	0.20
28	5.09	0.31	0.00	0.30	0.99	0.29	1.40	0.20	1.00	0.20
29	5.25	0.32	0.01	0.31	0.99	0.29	1.40	0.21	1.00	0.21
30	5.41	0.33	0.01	0.31	0.99	0.29	1.40	0.21	1.00	0.21
31	5.58	0.34	0.02	0.32	0.99	0.30	1.40	0.21	1.00	0.21
32	5.74	0.35	0.02	0.32	0.99	0.30	1.40	0.22	1.00	0.22
33	5.91	0.36	0.03	0.33	0.99	0.31	1.40	0.22	1.00	0.22
34	6.07	0.37	0.03	0.33	0.99	0.31	1.40	0.22	1.00	0.22
35	6.23	0.38	0.04	0.34	0.99	0.31	1.40	0.22	1.00	0.22
36	6.40	0.39	0.04	0.34	0.99	0.32	1.40	0.23	1.00	0.23
37	6.56	0.40	0.05	0.35	0.98	0.32	1.40	0.23	1.00	0.23
38	6.73	0.41	0.05	0.35	0.98	0.32	1.40	0.23	1.00	0.23
39	6.89	0.42	0.06	0.36	0.98	0.33	1.40	0.23	1.00	0.23
40	7.05	0.43	0.06	0.36	0.98	0.33	1.40	0.24	1.00	0.24
41	7.22	0.44	0.07	0.37	0.98	0.33	1.40	0.24	1.00	0.24
42	7.38	0.45	0.07	0.37	0.98	0.34	1.40	0.24	1.00	0.24
43	7.55	0.46	0.08	0.38	0.98	0.34	1.40	0.24	1.00	0.24
44	7.71	0.47	0.08	0.38	0.98	0.34	1.40	0.25	1.00	0.25
45	7.87	0.48	0.09	0.39	0.98	0.35	1.40	0.25	1.00	0.25
46	8.04	0.49	0.09	0.39	0.98	0.35	1.40	0.25	1.00	0.25
47	8.20	0.50	0.10	0.40	0.98	0.35	1.40	0.25	1.00	0.25
48	8.37	0.51	0.11	0.40	0.98	0.35	1.40	0.25	1.00	0.25
49	8.53	0.52	0.11	0.41	0.98	0.36	1.40	0.26	1.00	0.26
50	8.69	0.53	0.12	0.41	0.98	0.36	1.40	0.26	1.00	0.26
51	8.86	0.54	0.12	0.42	0.98	0.36	1.40	0.26	1.00	0.26
52	9.02	0.55	0.13	0.42	0.98	0.36	1.40	0.26	1.00	0.26
53	9.19	0.56	0.13	0.42	0.98	0.37	1.40	0.26	1.00	0.26
54	9.35	0.57	0.14	0.43	0.98	0.37	1.40	0.26	1.00	0.26
55	9.51	0.57	0.14	0.43	0.98	0.37	1.40	0.27	1.00	0.27
56	9.68	0.59	0.15	0.44	0.98	0.37	1.40	0.27	1.00	0.27
57	9.84	0.59	0.15	0.44	0.98	0.37	1.40	0.27	1.00	0.27
58	10.01	0.61	0.16	0.45	0.98	0.38	1.40	0.27	1.00	0.27
59	10.17	0.61	0.16	0.45	0.98	0.38	1.40	0.27	1.00	0.27
60	10.33	0.62	0.17	0.46	0.98	0.38	1.40	0.27	1.00	0.27
61	10.50	0.63	0.17	0.46	0.98	0.38	1.40	0.27	1.00	0.27
62	10.66	0.64	0.18	0.47	0.98	0.38	1.40	0.27	1.00	0.27
63	10.83	0.65	0.18	0.47	0.97	0.39	1.40	0.28	1.00	0.28
64	10.99	0.66	0.19	0.48	0.97	0.39	1.40	0.28	1.00	0.28
65	11.15	0.67	0.19	0.48	0.97	0.39	1.40	0.28	1.00	0.28
66	11.32	0.68	0.20	0.49	0.97	0.39	1.40	0.28	1.00	0.28
67	11.48	0.69	0.20	0.49	0.97	0.39	1.40	0.28	1.00	0.28
68	11.65	0.70	0.21	0.50	0.97	0.39	1.40	0.28	1.00	0.28
69	11.81	0.71	0.21	0.50	0.97	0.40	1.40	0.28	1.00	0.28
70	11.98	0.72	0.22	0.51	0.97	0.40	1.40	0.28	1.00	0.28
71	12.14	0.73	0.22	0.51	0.97	0.40	1.40	0.29	1.00	0.29
72	12.30	0.74	0.23	0.52	0.97	0.40	1.40	0.29	1.00	0.29
73	12.47	0.75	0.23	0.52	0.97	0.40	1.40	0.29	1.00	0.29
74	12.63	0.76	0.24	0.53	0.97	0.40	1.40	0.29	1.00	0.29
75	12.80	0.77	0.24	0.53	0.97	0.40	1.40	0.29	1.00	0.29
76	12.96	0.78	0.25	0.54	0.97	0.41	1.40	0.29	1.00	0.29

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
77	13.12	0.79	0.25	0.54	0.97	0.41	1.40	0.29	1.00	0.29
78	13.29	0.80	0.26	0.54	0.97	0.41	1.40	0.29	1.00	0.29
79	13.45	0.81	0.26	0.55	0.97	0.41	1.40	0.29	1.00	0.29
80	13.62	0.82	0.27	0.55	0.97	0.41	1.40	0.29	1.00	0.29
81	13.78	0.83	0.27	0.56	0.97	0.41	1.40	0.30	1.00	0.30
82	13.94	0.84	0.28	0.56	0.97	0.41	1.40	0.30	1.00	0.30
83	14.11	0.85	0.28	0.57	0.97	0.41	1.40	0.30	1.00	0.30
84	14.27	0.86	0.29	0.57	0.97	0.42	1.40	0.30	1.00	0.30
85	14.44	0.87	0.29	0.58	0.97	0.42	1.40	0.30	1.00	0.30
86	14.60	0.88	0.30	0.58	0.97	0.42	1.40	0.30	1.00	0.30
87	14.76	0.89	0.30	0.59	0.97	0.42	1.40	0.30	1.00	0.30
88	14.93	0.90	0.31	0.59	0.97	0.42	1.40	0.30	1.00	0.30
89	15.09	0.91	0.31	0.60	0.96	0.42	1.40	0.30	1.00	0.30
90	15.26	0.92	0.32	0.60	0.96	0.42	1.40	0.30	1.00	0.30
91	15.42	0.93	0.33	0.61	0.96	0.42	1.40	0.30	1.00	0.30
92	15.58	0.94	0.33	0.61	0.96	0.42	1.40	0.30	1.00	0.30
93	15.75	0.95	0.34	0.62	0.96	0.43	1.40	0.30	1.00	0.30
94	15.91	0.96	0.34	0.62	0.96	0.43	1.40	0.31	1.00	0.31
95	16.08	0.97	0.35	0.63	0.96	0.43	1.40	0.31	1.00	0.31
96	16.24	0.98	0.35	0.63	0.96	0.43	1.40	0.31	1.00	0.31
97	16.40	0.99	0.36	0.64	0.96	0.43	1.40	0.31	1.00	0.31
98	16.57	1.00	0.36	0.64	0.96	0.43	1.40	0.31	1.00	0.31
99	16.73	1.01	0.37	0.65	0.96	0.43	1.40	0.31	1.00	0.31
100	16.90	1.02	0.37	0.65	0.96	0.43	1.40	0.31	1.00	0.31
101	17.06	1.03	0.38	0.65	0.96	0.43	1.40	0.31	1.00	0.31
102	17.22	1.04	0.38	0.66	0.96	0.43	1.40	0.31	1.00	0.31
103	17.39	1.05	0.39	0.66	0.96	0.43	1.40	0.31	1.00	0.31
104	17.55	1.06	0.39	0.67	0.96	0.43	1.40	0.31	1.00	0.31
105	17.72	1.07	0.40	0.67	0.96	0.44	1.40	0.31	1.00	0.31
106	17.88	1.08	0.40	0.68	0.96	0.44	1.40	0.31	1.00	0.31
107	18.04	1.09	0.41	0.68	0.96	0.44	1.40	0.31	1.00	0.31
108	18.21	1.10	0.41	0.69	0.96	0.44	1.40	0.31	1.00	0.31
109	18.37	1.11	0.42	0.69	0.96	0.44	1.40	0.31	1.00	0.31
110	18.54	1.12	0.42	0.70	0.96	0.44	1.40	0.31	1.00	0.31
111	18.70	1.13	0.43	0.70	0.96	0.44	1.40	0.31	1.00	0.31
112	18.86	1.14	0.43	0.71	0.96	0.44	1.40	0.32	1.00	0.32
113	19.03	1.15	0.44	0.71	0.96	0.44	1.40	0.32	1.00	0.32
114	19.19	1.16	0.44	0.72	0.96	0.44	1.40	0.32	1.00	0.32
115	19.36	1.17	0.45	0.72	0.95	0.44	1.40	0.32	1.00	0.32
116	19.52	1.18	0.45	0.73	0.95	0.44	1.40	0.32	1.00	0.32
117	19.69	1.19	0.46	0.73	0.95	0.44	1.40	0.32	1.00	0.32
118	19.85	1.20	0.46	0.74	0.95	0.44	1.40	0.32	1.00	0.32
119	20.01	1.21	0.47	0.74	0.95	0.45	1.40	0.32	1.00	0.32
120	20.18	1.22	0.47	0.75	0.95	0.45	1.40	0.32	1.00	0.32
121	20.34	1.23	0.48	0.75	0.95	0.45	1.40	0.32	1.00	0.32
122	20.51	1.24	0.48	0.76	0.95	0.45	1.40	0.32	1.00	0.32
123	20.67	1.25	0.49	0.76	0.95	0.45	1.40	0.32	1.00	0.32
124	20.83	1.26	0.49	0.77	0.95	0.45	1.40	0.32	1.00	0.32
125	21.00	1.27	0.50	0.77	0.95	0.45	1.40	0.32	1.00	0.32
126	21.16	1.28	0.50	0.77	0.95	0.45	1.40	0.32	1.00	0.32
127	21.33	1.29	0.51	0.78	0.95	0.45	1.40	0.32	1.00	0.32
128	21.49	1.30	0.51	0.78	0.95	0.45	1.40	0.32	1.00	0.32
129	21.65	1.31	0.52	0.79	0.95	0.45	1.40	0.32	1.00	0.32
130	21.82	1.32	0.53	0.79	0.95	0.45	1.40	0.32	1.00	0.32
131	21.98	1.33	0.53	0.80	0.95	0.45	1.40	0.32	1.00	0.32

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
132	22.15	1.34	0.54	0.80	0.95	0.45	1.40	0.32	1.00	0.32
133	22.31	1.35	0.54	0.81	0.95	0.45	1.40	0.32	1.00	0.32
134	22.47	1.36	0.55	0.81	0.95	0.45	1.40	0.32	1.00	0.32
135	22.64	1.37	0.55	0.82	0.95	0.45	1.40	0.32	1.00	0.32
136	22.80	1.38	0.56	0.82	0.95	0.45	1.40	0.32	1.00	0.32
137	22.97	1.39	0.56	0.83	0.95	0.45	1.40	0.32	1.00	0.32
138	23.13	1.40	0.57	0.83	0.95	0.45	1.40	0.33	1.00	0.33
139	23.29	1.41	0.57	0.84	0.95	0.45	1.40	0.33	1.00	0.33
140	23.46	1.42	0.58	0.84	0.95	0.46	1.40	0.33	1.00	0.33
141	23.62	1.43	0.58	0.85	0.94	0.46	1.40	0.33	1.00	0.33
142	23.79	1.44	0.59	0.85	0.94	0.46	1.40	0.33	1.00	0.33
143	23.95	1.45	0.59	0.86	0.94	0.46	1.40	0.33	1.00	0.33
144	24.11	1.46	0.60	0.86	0.94	0.46	1.40	0.33	1.00	0.33
145	24.28	1.47	0.60	0.87	0.94	0.46	1.40	0.33	1.00	0.33
146	24.44	1.48	0.61	0.87	0.94	0.46	1.40	0.33	1.00	0.33
147	24.61	1.49	0.61	0.88	0.94	0.46	1.40	0.33	1.00	0.33
148	24.77	1.50	0.62	0.88	0.94	0.46	1.40	0.33	1.00	0.33
149	24.93	1.51	0.62	0.89	0.94	0.46	1.40	0.33	1.00	0.33
150	25.10	1.52	0.63	0.89	0.94	0.46	1.40	0.33	1.00	0.33
151	25.26	1.53	0.63	0.89	0.94	0.46	1.40	0.33	1.00	0.33
152	25.43	1.54	0.64	0.90	0.94	0.46	1.40	0.33	1.00	0.33
153	25.59	1.55	0.64	0.90	0.94	0.46	1.40	0.33	1.00	0.33
154	25.75	1.56	0.65	0.91	0.94	0.46	1.40	0.33	1.00	0.33
155	25.92	1.57	0.65	0.91	0.94	0.46	1.40	0.33	1.00	0.33
156	26.08	1.58	0.66	0.92	0.94	0.46	1.40	0.33	1.00	0.33
157	26.25	1.59	0.66	0.92	0.94	0.46	1.40	0.33	1.00	0.33
158	26.41	1.60	0.67	0.93	0.94	0.46	1.40	0.33	1.00	0.33
159	26.57	1.61	0.67	0.93	0.94	0.46	1.40	0.33	1.00	0.33
160	26.74	1.62	0.68	0.94	0.94	0.46	1.40	0.33	1.00	0.33
161	26.90	1.63	0.68	0.94	0.94	0.46	1.40	0.33	1.00	0.33
162	27.07	1.64	0.69	0.95	0.94	0.46	1.40	0.33	1.00	0.33
163	27.23	1.65	0.69	0.95	0.94	0.46	1.40	0.33	1.00	0.33
164	27.40	1.66	0.70	0.96	0.94	0.46	1.40	0.33	1.00	0.33
165	27.56	1.67	0.70	0.96	0.94	0.46	1.40	0.33	1.00	0.33
166	27.72	1.68	0.71	0.97	0.94	0.46	1.40	0.33	1.00	0.33
167	27.89	1.69	0.71	0.97	0.93	0.46	1.40	0.33	1.00	0.33
168	28.05	1.70	0.72	0.98	0.93	0.46	1.40	0.33	1.00	0.33
169	28.22	1.71	0.72	0.98	0.93	0.46	1.40	0.33	1.00	0.33
170	28.38	1.72	0.73	0.99	0.93	0.46	1.40	0.33	1.00	0.33
171	28.54	1.73	0.73	0.99	0.93	0.46	1.40	0.33	1.00	0.33
172	28.71	1.74	0.74	1.00	0.93	0.47	1.40	0.33	1.00	0.33
173	28.87	1.75	0.75	1.00	0.93	0.47	1.40	0.33	1.00	0.33
174	29.04	1.76	0.75	1.01	0.93	0.47	1.40	0.33	1.00	0.33
175	29.20	1.77	0.76	1.01	0.93	0.47	1.40	0.33	1.00	0.33
176	29.36	1.78	0.76	1.01	0.93	0.47	1.40	0.33	1.00	0.33
177	29.53	1.79	0.77	1.02	0.93	0.47	1.40	0.33	1.00	0.33
178	29.69	1.80	0.77	1.02	0.93	0.47	1.40	0.33	1.00	0.33
179	29.86	1.81	0.78	1.03	0.93	0.47	1.40	0.33	1.00	0.33
180	30.02	1.82	0.78	1.03	0.93	0.47	1.40	0.33	1.00	0.33
181	30.18	1.82	0.79	1.04	0.93	0.47	1.40	0.33	1.00	0.33
182	30.35	1.83	0.79	1.04	0.93	0.47	1.40	0.33	1.00	0.33
183	30.51	1.84	0.80	1.05	0.93	0.47	1.40	0.33	1.00	0.33
184	30.68	1.85	0.80	1.05	0.93	0.47	1.40	0.33	1.00	0.33
185	30.84	1.86	0.81	1.06	0.92	0.47	1.40	0.33	1.00	0.33
186	31.00	1.87	0.81	1.06	0.92	0.47	1.40	0.33	1.00	0.33

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
187	31.17	1.88	0.82	1.07	0.92	0.47	1.40	0.33	1.00	0.33
188	31.33	1.89	0.82	1.07	0.92	0.46	1.40	0.33	0.99	0.33
189	31.50	1.90	0.83	1.08	0.92	0.46	1.40	0.33	0.99	0.33
190	31.66	1.91	0.83	1.08	0.92	0.46	1.40	0.33	0.99	0.33
191	31.82	1.92	0.84	1.09	0.92	0.46	1.40	0.33	0.99	0.33
192	31.99	1.93	0.84	1.09	0.91	0.46	1.40	0.33	0.99	0.33
193	32.15	1.94	0.85	1.10	0.91	0.46	1.40	0.33	0.99	0.33
194	32.32	1.95	0.85	1.10	0.91	0.46	1.40	0.33	0.99	0.33
195	32.48	1.96	0.86	1.11	0.91	0.46	1.40	0.33	0.99	0.33
196	32.64	1.97	0.86	1.11	0.91	0.46	1.40	0.33	0.99	0.33
197	32.81	1.98	0.87	1.12	0.91	0.46	1.40	0.33	0.99	0.33
198	32.97	1.99	0.87	1.12	0.91	0.46	1.40	0.33	0.99	0.33
199	33.14	2.00	0.88	1.13	0.91	0.46	1.40	0.33	0.99	0.33
200	33.30	2.01	0.88	1.13	0.90	0.46	1.40	0.33	0.98	0.33
201	33.46	2.02	0.89	1.13	0.90	0.46	1.40	0.33	0.98	0.33
202	33.63	2.03	0.89	1.14	0.90	0.46	1.40	0.33	0.98	0.33
203	33.79	2.04	0.90	1.14	0.90	0.46	1.40	0.33	0.98	0.33
204	33.96	2.05	0.90	1.15	0.90	0.46	1.40	0.33	0.98	0.33
205	34.12	2.06	0.91	1.15	0.90	0.46	1.40	0.33	0.98	0.33
206	34.28	2.07	0.91	1.16	0.90	0.46	1.40	0.33	0.98	0.33
207	34.45	2.08	0.92	1.16	0.89	0.46	1.40	0.33	0.98	0.33
208	34.61	2.09	0.92	1.17	0.89	0.46	1.40	0.33	0.98	0.33
209	34.78	2.10	0.93	1.17	0.89	0.46	1.40	0.33	0.98	0.33
210	34.94	2.11	0.93	1.18	0.89	0.46	1.40	0.33	0.98	0.33
211	35.10	2.12	0.94	1.18	0.89	0.46	1.40	0.33	0.98	0.33
212	35.27	2.13	0.94	1.19	0.89	0.46	1.40	0.33	0.97	0.33
213	35.43	2.14	0.95	1.19	0.89	0.46	1.40	0.33	0.97	0.33
214	35.60	2.15	0.96	1.20	0.89	0.46	1.40	0.33	0.97	0.33
215	35.76	2.16	0.96	1.20	0.88	0.45	1.40	0.33	0.97	0.33
216	35.93	2.17	0.97	1.21	0.88	0.45	1.40	0.33	0.97	0.33
217	36.09	2.18	0.97	1.21	0.88	0.45	1.40	0.32	0.97	0.33
218	36.25	2.19	0.98	1.22	0.88	0.45	1.40	0.32	0.97	0.33
219	36.42	2.20	0.98	1.22	0.88	0.45	1.40	0.32	0.97	0.33
220	36.58	2.21	0.99	1.23	0.88	0.45	1.40	0.32	0.97	0.33
221	36.75	2.22	0.99	1.23	0.88	0.45	1.40	0.32	0.97	0.33
222	36.91	2.23	1.00	1.24	0.87	0.45	1.40	0.32	0.97	0.33
223	37.07	2.24	1.00	1.24	0.87	0.45	1.40	0.32	0.97	0.33
224	37.24	2.25	1.01	1.25	0.87	0.45	1.40	0.32	0.97	0.33
225	37.40	2.26	1.01	1.25	0.87	0.45	1.40	0.32	0.96	0.33
226	37.57	2.27	1.02	1.25	0.87	0.45	1.40	0.32	0.96	0.33
227	37.73	2.28	1.02	1.26	0.87	0.45	1.40	0.32	0.96	0.33
228	37.89	2.29	1.03	1.26	0.87	0.45	1.40	0.32	0.96	0.33
229	38.06	2.30	1.03	1.27	0.87	0.45	1.40	0.32	0.96	0.33
230	38.22	2.31	1.04	1.27	0.86	0.45	1.40	0.32	0.96	0.33
231	38.39	2.32	1.04	1.28	0.86	0.45	1.40	0.32	0.96	0.33
232	38.55	2.33	1.05	1.28	0.86	0.45	1.40	0.32	0.96	0.33
233	38.71	2.34	1.05	1.29	0.86	0.45	1.40	0.32	0.96	0.33
234	38.88	2.35	1.06	1.29	0.86	0.45	1.40	0.32	0.96	0.33
235	39.04	2.36	1.06	1.30	0.86	0.45	1.40	0.32	0.96	0.33
236	39.21	2.37	1.07	1.30	0.86	0.45	1.40	0.32	0.96	0.33
237	39.37	2.38	1.07	1.31	0.85	0.44	1.40	0.32	0.96	0.33
238	39.53	2.39	1.08	1.31	0.85	0.44	1.40	0.32	0.96	0.33
239	39.70	2.40	1.08	1.32	0.85	0.44	1.40	0.32	0.95	0.33
240	39.86	2.41	1.09	1.32	0.85	0.44	1.40	0.32	0.95	0.33
241	40.03	2.42	1.09	1.33	0.85	0.44	1.40	0.32	0.95	0.33

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
242	40.19	2.43	1.10	1.33	0.85	0.44	1.40	0.32	0.95	0.33
243	40.35	2.44	1.10	1.34	0.85	0.44	1.40	0.32	0.95	0.33
244	40.52	2.45	1.11	1.34	0.85	0.44	1.40	0.32	0.95	0.33
245	40.68	2.46	1.11	1.35	0.84	0.44	1.40	0.32	0.95	0.33
246	40.85	2.47	1.12	1.35	0.84	0.44	1.40	0.32	0.95	0.33
247	41.01	2.48	1.12	1.36	0.84	0.44	1.40	0.31	0.95	0.33
248	41.17	2.49	1.13	1.36	0.84	0.44	1.40	0.31	0.95	0.33
249	41.34	2.50	1.13	1.37	0.84	0.44	1.40	0.31	0.95	0.33
250	41.50	2.51	1.14	1.37	0.84	0.44	1.40	0.31	0.95	0.33
251	41.67	2.52	1.14	1.37	0.84	0.44	1.40	0.31	0.95	0.33
252	41.83	2.53	1.15	1.38	0.83	0.44	1.40	0.31	0.95	0.33
253	41.99	2.54	1.15	1.38	0.83	0.44	1.40	0.31	0.95	0.33
254	42.16	2.55	1.16	1.39	0.83	0.44	1.40	0.31	0.94	0.33
255	42.32	2.56	1.17	1.39	0.83	0.44	1.40	0.31	0.94	0.33
256	42.49	2.57	1.17	1.40	0.83	0.44	1.40	0.31	0.94	0.33
257	42.65	2.58	1.18	1.40	0.83	0.44	1.40	0.31	0.94	0.33
258	42.81	2.59	1.18	1.41	0.83	0.43	1.40	0.31	0.94	0.33
259	42.98	2.60	1.19	1.41	0.83	0.43	1.40	0.31	0.94	0.33
260	43.14	2.61	1.19	1.42	0.82	0.43	1.40	0.31	0.94	0.33
261	43.31	2.62	1.20	1.42	0.82	0.43	1.40	0.31	0.94	0.33
262	43.47	2.63	1.20	1.43	0.82	0.43	1.40	0.31	0.94	0.33
263	43.64	2.64	1.21	1.43	0.82	0.43	1.40	0.31	0.94	0.33
264	43.80	2.65	1.21	1.44	0.82	0.43	1.40	0.31	0.94	0.33
265	43.96	2.66	1.22	1.44	0.82	0.43	1.40	0.31	0.94	0.33
266	44.13	2.67	1.22	1.45	0.82	0.43	1.40	0.31	0.94	0.33
267	44.29	2.68	1.23	1.45	0.81	0.43	1.40	0.31	0.94	0.33
268	44.46	2.69	1.23	1.46	0.81	0.43	1.40	0.31	0.94	0.33
269	44.62	2.70	1.24	1.46	0.81	0.43	1.40	0.31	0.94	0.33
270	44.78	2.71	1.24	1.47	0.81	0.43	1.40	0.31	0.93	0.33
271	44.95	2.72	1.25	1.47	0.81	0.43	1.40	0.31	0.93	0.33
272	45.11	2.73	1.25	1.48	0.81	0.43	1.40	0.31	0.93	0.33
273	45.28	2.74	1.26	1.48	0.81	0.43	1.40	0.31	0.93	0.33
274	45.44	2.75	1.26	1.48	0.81	0.43	1.40	0.30	0.93	0.33
275	45.60	2.76	1.27	1.49	0.80	0.43	1.40	0.30	0.93	0.33
276	45.77	2.77	1.27	1.49	0.80	0.42	1.40	0.30	0.93	0.33
277	45.93	2.78	1.28	1.50	0.80	0.42	1.40	0.30	0.93	0.33
278	46.10	2.79	1.28	1.50	0.80	0.42	1.40	0.30	0.93	0.33
279	46.26	2.80	1.29	1.51	0.80	0.42	1.40	0.30	0.93	0.33
280	46.42	2.81	1.29	1.51	0.80	0.42	1.40	0.30	0.93	0.33
281	46.59	2.82	1.30	1.52	0.80	0.42	1.40	0.30	0.93	0.33
282	46.75	2.83	1.30	1.52	0.79	0.42	1.40	0.30	0.93	0.33
283	46.92	2.84	1.31	1.53	0.79	0.42	1.40	0.30	0.93	0.33
284	47.08	2.85	1.31	1.53	0.79	0.42	1.40	0.30	0.93	0.32
285	47.24	2.86	1.32	1.54	0.79	0.42	1.40	0.30	0.93	0.32
286	47.41	2.87	1.32	1.54	0.79	0.42	1.40	0.30	0.92	0.32
287	47.57	2.88	1.33	1.55	0.79	0.42	1.40	0.30	0.92	0.32
288	47.74	2.89	1.33	1.55	0.79	0.42	1.40	0.30	0.92	0.32
289	47.90	2.90	1.34	1.56	0.79	0.42	1.40	0.30	0.92	0.32
290	48.06	2.91	1.34	1.56	0.78	0.42	1.40	0.30	0.92	0.32
291	48.23	2.92	1.35	1.57	0.78	0.42	1.40	0.30	0.92	0.32
292	48.39	2.93	1.35	1.57	0.78	0.42	1.40	0.30	0.92	0.32
293	48.56	2.94	1.36	1.58	0.78	0.42	1.40	0.30	0.92	0.32
294	48.72	2.95	1.36	1.58	0.78	0.41	1.40	0.30	0.92	0.32
295	48.88	2.96	1.37	1.59	0.78	0.41	1.40	0.30	0.92	0.32
296	49.05	2.97	1.38	1.59	0.78	0.41	1.40	0.30	0.92	0.32

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
297	49.21	2.98	1.38	1.60	0.77	0.41	1.40	0.30	0.92	0.32
298	49.38	2.99	1.39	1.60	0.77	0.41	1.40	0.30	0.92	0.32
299	49.54	3.00	1.39	1.60	0.77	0.41	1.40	0.29	0.92	0.32
300	49.70	3.00	1.40	1.61	0.77	0.41	1.40	0.29	0.92	0.32

Depth from free surface, at which CPT was performed (ft)
Total overburden pressure at test point, during earthquake (tsf)
Water pressure at test point, during earthquake (tsf)
Effective overburden pressure, during earthquake (tsf)
Nonlinear shear mass factor
Cyclic Stress Ratio
Magnitude Scaling Factor
CSR adjusted for M=7.5
Effective overburden stress factor
CSR fully adjusted

Point ID			F (%)	n				
1	4.90	2.53	4.38	0.77	57.25	2.92	167.30	2.00
2	14.13	2.30	3.89	0.70	113.32	1.94	220.02	2.00
3	13.45	2.42	5.21	0.73	105.34	2.39	251.30	2.00
4	11.85	2.45	4.84	0.74	84.66	2.53	214.39	2.00
5	9.52	2.49	4.34	0.76	63.72	2.74	174.78	2.00
6	7.88	2.56	4.33	0.78	50.41	3.11	156.82	2.00
7	8.02	2.60	4.67	0.79	48.49	3.32	160.86	2.00
8	8.39	2.61	4.68	0.79	47.35	3.32	157.08	2.00
9	8.09	2.64	4.83	0.80	43.27	3.32	143.55	2.00
10	8.17	2.65	4.73	0.80	41.24	3.32	136.80	2.00
11	8.45	2.66	4.68	0.80	40.19	3.32	133.34	2.00
12	12.05	2.63	5.66	0.80	53.75	3.32	178.31	2.00
13	15.54	2.63	6.72	0.80	66.08	3.32	219.23	2.00
14	26.46	2.42	4.82	0.73	95.64	2.38	227.74	2.00
15	25.36	2.46	5.25	0.75	90.11	2.58	232.80	2.00
16	20.91	2.54	5.57	0.77	73.87	2.95	218.25	2.00
17	15.46	2.66	6.41	0.81	55.71	2.95	164.60	2.00
18	12.39	2.67	5.27	0.81	43.03	2.95	127.14	2.00
19	10.58	2.69	4.65	0.81	35.52	2.95	104.96	2.00
20	10.19	2.70	4.40	0.82	33.06	2.95	97.69	2.00
21	23.71	2.26	1.97	0.69	61.90	1.83	113.24	2.00
22	18.66	2.34	2.02	0.71	48.97	2.10	102.85	2.00
23	12.19	2.63	3.70	0.80	34.77	2.10	73.03	2.00
24	19.32	2.43	2.77	0.74	49.72	2.44	121.36	2.00
25	15.15	2.59	3.73	0.78	40.22	3.25	130.53	2.00
26	12.68	2.58	2.88	0.78	32.48	3.21	104.12	2.00
27	13.95	2.51	2.38	0.76	33.98	2.82	95.99	2.00
28	10.16	2.68	3.07	0.81	25.59	2.82	72.28	2.00
29	12.00	2.51	1.85	0.76	28.18	2.81	79.18	0.13
30	14.82	2.27	0.83	0.69	31.76	1.87	59.41	0.10
31	15.48	2.42	1.73	0.73	34.58	2.40	82.86	0.13
32	20.85	2.11	0.62	0.64	41.56	1.48	61.34	0.10
33	25.09	2.17	1.11	0.66	50.72	1.60	81.19	0.13
34	30.21	1.76	0.10	0.54	52.65	1.00	52.65	0.09
35	23.78	1.85	0.09	0.56	42.33	1.00	42.33	0.09
36	18.63	2.07	0.35	0.63	35.15	1.00	35.15	0.08
37	11.44	2.44	1.07	0.74	23.82	2.47	58.92	0.10
38	5.45	2.85	2.22	0.86	12.31	2.47	30.44	2.00
39	14.69	2.19	0.42	0.67	27.88	1.00	27.88	0.07

Point ID			F (%)	n				
40	17.23	2.23	0.71	0.68	32.90	1.74	57.17	0.10
41	18.44	2.14	0.49	0.65	33.98	1.00	33.98	0.08
42	26.35	2.27	1.58	0.69	50.45	1.84	93.05	0.15
43	35.00	1.93	0.51	0.59	60.13	1.22	73.26	0.12
44	33.88	1.85	0.29	0.56	56.32	1.00	56.32	0.10
45	25.10	2.02	0.43	0.61	43.42	1.00	43.42	0.09
46	16.91	2.22	0.59	0.67	30.46	1.72	52.25	0.09
47	15.34	2.33	0.89	0.71	28.24	2.06	58.28	0.10
48	11.88	2.50	1.26	0.76	22.47	2.75	61.87	0.10
49	8.29	2.67	1.54	0.81	15.99	2.75	44.01	2.00
50	4.65	2.93	1.91	0.89	9.04	2.75	24.88	2.00
51	4.08	2.98	1.91	0.90	7.80	2.75	21.48	2.00
52	4.64	3.01	2.71	0.91	9.00	2.75	24.77	2.00
53	6.74	2.77	1.64	0.84	12.59	2.75	34.66	2.00
54	5.52	2.86	1.73	0.87	10.24	2.75	28.18	2.00
55	4.88	2.90	1.68	0.88	8.92	2.75	24.54	2.00
56	4.67	2.96	1.96	0.89	8.49	2.75	23.37	2.00
57	4.76	2.94	1.83	0.89	8.54	2.75	23.50	2.00
58	4.24	3.01	2.00	0.91	7.51	2.75	20.68	2.00
59	3.81	2.99	1.38	0.90	6.50	2.75	17.89	2.00
60	3.71	3.05	1.76	0.92	6.32	2.75	17.38	2.00
61	4.06	2.98	1.48	0.90	6.83	2.75	18.79	2.00
62	3.85	3.01	1.52	0.91	6.38	2.75	17.57	2.00
63	4.16	2.95	1.26	0.89	6.81	2.75	18.74	2.00
64	4.30	2.94	1.26	0.89	6.98	2.75	19.22	2.00
65	4.20	3.01	1.68	0.91	6.82	2.75	18.78	2.00
66	4.43	2.99	1.66	0.90	7.15	2.75	19.68	2.00
67	3.97	3.06	1.90	0.93	6.30	2.75	17.36	2.00
68	4.04	3.06	1.93	0.93	6.36	2.75	17.51	2.00
69	4.28	3.05	2.05	0.92	6.73	2.75	18.52	2.00
70	4.25	3.13	2.89	0.95	6.70	2.75	18.46	2.00
71	6.29	3.01	3.19	0.91	10.19	2.75	28.06	2.00
72	8.31	2.76	1.63	0.83	13.05	2.75	35.93	2.00
73	6.51	2.86	1.72	0.87	10.07	2.75	27.73	2.00
74	6.04	2.96	2.37	0.90	9.36	2.75	25.77	2.00
75	7.29	2.92	2.69	0.89	11.37	2.75	31.30	2.00
76	7.89	2.89	2.60	0.88	12.22	2.75	33.64	2.00
77	9.52	2.85	2.93	0.86	14.77	2.75	40.67	2.00
78	11.53	2.77	2.69	0.84	17.72	2.75	48.77	2.00
79	10.95	2.77	2.52	0.84	16.64	2.75	45.81	2.00
80	10.22	2.79	2.40	0.84	15.36	2.75	42.28	2.00
81	13.75	2.69	2.46	0.82	20.59	2.75	56.67	2.00
82	17.31	2.64	2.67	0.80	25.80	2.75	71.02	2.00
83	20.85	2.59	2.81	0.78	30.86	3.26	100.71	0.17
84	22.56	2.60	3.19	0.79	33.34	3.26	108.79	2.00
85	24.05	2.60	3.40	0.79	35.36	3.33	117.63	0.23
86	24.52	2.61	3.56	0.79	35.89	3.33	119.39	2.00
87	24.94	2.63	3.91	0.80	36.43	3.33	121.17	2.00
88	24.41	2.62	3.69	0.80	35.33	3.33	117.51	2.00
89	23.81	2.63	3.66	0.80	34.24	3.33	113.90	2.00
90	23.87	2.67	4.10	0.81	34.28	3.33	114.02	2.00
91	23.02	2.67	3.92	0.81	32.79	3.33	109.08	2.00
92	22.69	2.62	3.25	0.79	31.86	3.33	105.97	2.00
93	22.94	2.56	2.64	0.78	31.71	3.11	98.63	0.17
94	21.74	2.60	2.82	0.79	29.97	3.11	93.20	2.00

Point ID			F (%)	n				
95	20.02	2.68	3.35	0.81	27.62	3.11	85.91	2.00
96	17.59	2.79	4.36	0.85	24.35	3.11	75.74	2.00
97	17.04	2.76	3.74	0.84	23.28	3.11	72.42	2.00
98	15.88	2.75	3.28	0.83	21.42	3.11	66.62	2.00
99	15.58	2.77	3.36	0.84	20.89	3.11	64.98	2.00
100	15.65	2.77	3.39	0.84	20.85	3.11	64.85	2.00
101	15.11	2.78	3.31	0.84	19.97	3.11	62.11	2.00
102	14.98	2.75	2.92	0.83	19.58	3.11	60.90	2.00
103	15.08	2.77	3.10	0.84	19.62	3.11	61.03	2.00
104	15.68	2.78	3.40	0.84	20.36	3.11	63.33	2.00
105	16.25	2.78	3.46	0.84	20.99	3.11	65.30	2.00
106	18.25	2.73	3.36	0.83	23.47	3.11	73.01	2.00
107	19.11	2.72	3.38	0.82	24.47	3.11	76.11	2.00
108	20.29	2.71	3.55	0.82	25.89	3.11	80.52	2.00
109	20.20	2.69	3.20	0.82	25.53	3.11	79.42	2.00
110	17.80	2.73	3.12	0.83	22.27	3.11	69.27	2.00
111	16.91	2.75	3.15	0.83	21.01	3.11	65.35	2.00
112	16.42	2.76	3.11	0.84	20.25	3.11	63.00	2.00
113	28.96	2.41	1.73	0.73	35.23	2.37	83.38	0.13
114	28.92	2.46	2.08	0.75	35.20	2.59	91.03	0.15
115	22.46	2.61	2.59	0.79	27.29	2.59	70.59	2.00
116	19.10	2.65	2.45	0.80	22.97	2.59	59.41	2.00
117	14.15	2.76	2.43	0.84	16.71	2.59	43.21	2.00
118	13.68	2.76	2.24	0.84	15.99	2.59	41.36	2.00
119	13.07	2.89	3.58	0.88	15.33	2.59	39.65	2.00
120	12.28	2.94	3.98	0.89	14.29	2.59	36.95	2.00
121	12.85	2.87	3.19	0.87	14.82	2.59	38.34	2.00
122	12.89	2.89	3.38	0.87	14.80	2.59	38.27	2.00
123	14.41	2.81	2.84	0.85	16.50	2.59	42.67	2.00
124	12.00	2.92	3.37	0.88	13.54	2.59	35.01	2.00
125	11.72	2.88	2.71	0.87	13.04	2.59	33.74	2.00
126	11.90	2.88	2.83	0.87	13.19	2.59	34.12	2.00
127	12.60	2.90	3.32	0.88	14.00	2.59	36.20	2.00
128	12.62	3.01	4.88	0.91	14.06	2.59	36.36	2.00
129	23.77	2.72	3.88	0.83	27.11	2.59	70.11	2.00
130	24.61	2.64	2.92	0.80	27.76	2.59	71.80	2.00
131	22.13	2.68	2.98	0.81	24.77	2.59	64.05	2.00
132	23.67	2.71	3.62	0.82	26.52	2.59	68.59	2.00
133	24.41	2.73	4.00	0.83	27.30	2.59	70.60	2.00
134	25.26	2.72	4.01	0.82	28.14	2.59	72.77	2.00
135	24.37	2.74	4.09	0.83	26.98	2.59	69.78	2.00
136	24.87	2.72	3.89	0.82	27.39	2.59	70.83	2.00
137	25.03	2.73	3.99	0.83	27.44	2.59	70.96	2.00
138	25.01	2.75	4.23	0.83	27.31	2.59	70.63	2.00
139	24.97	2.76	4.33	0.83	27.14	2.59	70.20	2.00
140	24.18	2.77	4.30	0.84	26.11	2.59	67.52	2.00
141	23.40	2.77	4.23	0.84	25.10	2.59	64.91	2.00
142	23.88	2.77	4.31	0.84	25.51	2.59	65.97	2.00
143	24.61	2.79	4.61	0.84	26.22	2.59	67.82	2.00
144	25.51	2.78	4.70	0.84	27.10	2.59	70.08	2.00
145	25.76	2.76	4.47	0.84	27.21	2.59	70.38	2.00
146	27.44	2.71	3.98	0.82	28.87	2.59	74.66	2.00
147	30.22	2.66	3.66	0.81	31.71	2.59	82.00	2.00
148	31.18	2.68	4.09	0.81	32.65	2.59	84.45	2.00
149	30.04	2.66	3.61	0.81	31.22	2.59	80.74	2.00

Point ID			F (%)	n				
150	31.61	2.63	3.51	0.80	32.74	2.59	84.68	2.00
151	30.36	2.68	3.87	0.81	31.30	2.59	80.95	2.00
152	29.53	2.72	4.39	0.83	30.32	2.59	78.41	2.00
153	30.78	2.73	4.67	0.83	31.53	2.59	81.55	2.00
154	31.46	2.71	4.42	0.82	32.09	2.59	82.99	2.00
155	31.76	2.71	4.40	0.82	32.25	2.59	83.41	2.00
156	28.12	2.74	4.26	0.83	28.27	2.59	73.12	2.00
157	24.07	2.79	4.17	0.84	23.88	2.59	61.77	2.00
158	22.44	2.83	4.51	0.86	22.08	2.59	57.12	2.00
159	23.37	2.85	4.98	0.86	22.97	2.59	59.41	2.00
160	27.18	2.80	4.93	0.85	26.81	2.59	69.35	2.00
161	28.51	2.77	4.75	0.84	28.06	2.59	72.56	2.00
162	24.51	2.79	4.25	0.85	23.78	2.59	61.51	2.00
163	20.68	2.82	3.69	0.85	19.72	2.59	51.01	2.00
164	19.56	2.82	3.51	0.86	18.47	2.59	47.78	2.00
165	18.35	2.90	4.21	0.88	17.16	2.59	44.39	2.00
166	17.73	2.92	4.30	0.88	16.45	2.59	42.56	2.00
167	16.28	2.93	3.97	0.89	14.89	2.59	38.52	2.00
168	16.37	2.92	3.79	0.88	14.91	2.59	38.56	2.00
169	15.59	2.90	3.31	0.88	14.04	2.59	36.31	2.00
170	14.24	3.02	4.46	0.91	12.64	2.59	32.68	2.00
171	16.79	2.93	3.98	0.89	15.11	2.59	39.08	2.00
172	16.67	2.87	3.14	0.87	14.90	2.59	38.54	2.00
173	14.16	2.98	3.79	0.90	12.35	2.59	31.95	2.00
174	13.82	2.99	3.81	0.91	11.95	2.59	30.92	2.00
175	13.46	3.03	4.15	0.92	11.54	2.59	29.86	2.00
176	13.73	3.00	3.76	0.91	11.75	2.59	30.38	2.00
177	13.68	3.01	3.97	0.91	11.64	2.59	30.10	2.00
178	15.22	2.99	4.24	0.91	13.08	2.59	33.83	2.00
179	20.06	2.84	3.57	0.86	17.70	2.59	45.79	2.00
180	19.82	2.86	3.78	0.87	17.40	2.59	44.99	2.00
181	20.03	2.85	3.57	0.86	17.52	2.59	45.31	2.00
182	21.63	2.83	3.73	0.86	18.97	2.59	49.07	2.00
183	25.62	2.80	4.08	0.85	22.70	2.59	58.70	2.00
184	27.99	2.82	4.90	0.85	24.85	2.59	64.27	2.00
185	31.79	2.76	4.60	0.84	28.35	2.59	73.32	2.00
186	31.80	2.78	4.86	0.84	28.24	2.59	73.05	2.00
187	32.72	2.73	4.29	0.83	29.00	2.59	74.99	2.00
188	32.86	2.68	3.61	0.81	29.02	2.59	75.07	2.00
189	31.98	2.72	4.01	0.82	28.07	2.59	72.61	2.00
190	28.33	2.77	4.10	0.84	24.56	2.59	63.52	2.00
191	30.24	2.71	3.52	0.82	26.25	2.59	67.89	2.00
192	31.59	2.71	3.73	0.82	27.39	2.59	70.83	2.00
193	38.08	2.58	2.95	0.78	33.32	3.20	106.56	0.19
194	40.73	2.55	2.93	0.77	35.64	3.06	109.07	0.20
195	39.05	2.61	3.41	0.79	33.94	3.06	103.87	2.00
196	47.35	2.56	3.50	0.78	41.43	3.08	127.69	0.27
197	43.84	2.65	4.33	0.80	38.01	3.08	117.17	2.00
198	40.39	2.67	4.16	0.81	34.74	3.08	107.09	2.00
199	33.11	2.77	4.70	0.84	27.98	3.08	86.25	2.00
200	38.12	2.68	4.05	0.81	32.44	3.08	99.98	2.00
201	42.28	2.63	3.90	0.80	36.08	3.08	111.22	2.00
202	45.32	2.62	4.03	0.79	38.67	3.08	119.21	2.00
203	37.91	2.72	4.62	0.83	31.85	3.08	98.18	2.00
204	35.74	2.78	5.27	0.84	29.76	3.08	91.72	2.00

Point ID			F (%)	n				
205	38.30	2.82	6.38	0.85	31.86	3.08	98.22	2.00
206	47.69	2.65	4.65	0.80	40.18	3.08	123.86	2.00
207	55.69	2.59	4.46	0.79	47.15	3.28	154.74	0.42
208	60.39	2.51	3.68	0.76	51.27	2.81	143.92	0.36
209	50.66	2.56	3.62	0.78	42.48	3.10	131.50	0.29
210	50.52	2.58	3.85	0.78	42.19	3.21	135.59	0.31
211	64.51	2.34	2.26	0.71	54.70	2.09	114.09	0.22
212	87.48	2.02	1.05	0.61	75.54	1.32	99.95	0.17
213	113.41	1.82	0.71	0.56	99.01	1.12	111.31	0.21
214	126.05	1.76	0.64	0.54	110.28	1.08	118.92	0.24
215	140.44	1.67	0.52	0.51	123.31	1.01	125.13	0.26
216	159.42	1.59	0.45	0.50	140.09	1.00	140.09	0.34
217	170.39	1.52	0.38	0.50	149.57	1.00	149.57	0.39
218	163.46	1.55	0.39	0.50	143.12	1.00	143.12	0.35
219	148.84	1.60	0.42	0.50	129.87	1.00	129.87	0.28
220	134.15	1.59	0.33	0.50	116.63	1.00	116.63	0.23
221	126.01	1.89	1.03	0.58	107.84	1.18	127.55	0.27
222	141.75	1.77	0.77	0.54	122.04	1.09	132.45	0.30
223	133.02	1.76	0.68	0.54	114.21	1.08	123.41	0.25
224	112.99	1.78	0.58	0.54	96.40	1.09	105.39	0.19
225	83.84	2.10	1.28	0.64	69.66	1.45	101.30	0.18
226	47.95	2.47	2.39	0.75	38.11	2.64	100.62	0.17
227	23.83	2.89	4.21	0.88	17.52	2.64	46.25	2.00
228	18.48	2.99	4.23	0.91	13.04	2.64	34.42	2.00
229	15.97	3.07	4.53	0.93	10.92	2.64	28.82	2.00
230	21.66	2.84	3.01	0.86	15.62	2.64	41.25	2.00
231	20.48	2.91	3.56	0.88	14.55	2.64	38.42	2.00
232	21.99	2.90	3.84	0.88	15.71	2.64	41.48	2.00
233	18.63	3.01	4.43	0.91	12.88	2.64	34.01	2.00
234	17.49	3.03	4.33	0.92	11.91	2.64	31.46	2.00
235	16.81	3.05	4.30	0.92	11.32	2.64	29.89	2.00
236	15.06	3.12	4.73	0.94	9.86	2.64	26.03	2.00
237	17.64	3.09	5.31	0.93	11.84	2.64	31.27	2.00
238	33.05	2.70	3.10	0.82	24.37	2.64	64.33	2.00
239	46.95	2.57	3.06	0.78	35.61	3.13	111.44	0.21
240	28.95	2.90	5.28	0.88	20.67	3.13	64.67	2.00
241	28.47	2.92	5.55	0.89	20.18	3.13	63.16	2.00
242	33.41	2.68	2.89	0.81	24.36	3.13	76.24	2.00
243	23.46	2.79	2.60	0.84	16.35	3.13	51.17	2.00
244	21.03	2.87	3.01	0.87	14.32	3.13	44.81	2.00
245	23.62	2.85	3.32	0.86	16.28	3.13	50.95	2.00
246	24.71	2.87	3.75	0.87	17.03	3.13	53.30	2.00
247	25.47	2.89	4.25	0.88	17.52	3.13	54.83	2.00
248	25.10	2.94	4.84	0.89	17.12	3.13	53.58	2.00
249	23.58	2.96	4.78	0.90	15.88	3.13	49.70	2.00
250	25.02	2.90	4.18	0.88	16.99	3.13	53.17	2.00
251	24.19	2.93	4.49	0.89	16.26	3.13	50.88	2.00
252	25.68	2.88	4.00	0.87	17.40	3.13	54.44	2.00
253	27.46	2.84	3.76	0.86	18.74	3.13	58.63	2.00
254	26.56	2.87	4.08	0.87	17.94	3.13	56.14	2.00
255	26.72	2.85	3.78	0.86	18.04	3.13	56.43	2.00
256	27.40	2.83	3.64	0.86	18.51	3.13	57.92	2.00
257	29.41	2.79	3.41	0.84	20.02	3.13	62.65	2.00
258	30.82	2.77	3.34	0.84	21.05	3.13	65.86	2.00
259	29.36	2.78	3.23	0.84	19.88	3.13	62.20	2.00

Point ID			F (%)	n				
260	28.47	2.80	3.40	0.85	19.11	3.13	59.78	2.00
261	32.95	2.78	3.79	0.84	22.39	3.13	70.06	2.00
262	40.95	2.66	3.30	0.81	28.52	3.13	89.26	2.00
263	38.23	2.73	3.82	0.83	26.24	3.13	82.12	2.00
264	34.69	2.75	3.58	0.83	23.52	3.13	73.61	2.00
265	30.73	2.82	3.88	0.85	20.42	3.13	63.89	2.00
266	29.54	2.84	4.00	0.86	19.44	3.13	60.83	2.00
267	28.36	2.85	3.94	0.86	18.51	3.13	57.91	2.00
268	28.16	2.85	3.87	0.86	18.30	3.13	57.27	2.00
269	30.40	2.80	3.58	0.85	19.95	3.13	62.43	2.00
270	30.75	2.83	3.98	0.86	20.08	3.13	62.85	2.00
271	28.30	2.90	4.56	0.88	18.14	3.13	56.75	2.00
272	31.58	2.80	3.72	0.85	20.61	3.13	64.49	2.00
273	28.50	2.80	3.18	0.85	18.36	3.13	57.44	2.00
274	24.87	2.90	3.71	0.88	15.56	3.13	48.69	2.00
275	28.38	2.94	5.11	0.89	17.89	3.13	55.98	2.00
276	51.72	2.55	2.90	0.77	35.52	3.05	108.30	0.20
277	36.24	2.77	3.90	0.84	23.66	3.05	72.14	2.00
278	32.32	2.83	4.08	0.86	20.69	3.05	63.10	2.00
279	34.55	2.76	3.56	0.84	22.35	3.05	68.14	2.00
280	27.59	2.85	3.60	0.86	17.22	3.05	52.51	2.00
281	21.47	2.96	3.59	0.89	12.78	3.05	38.97	2.00
282	21.33	2.92	3.12	0.88	12.69	3.05	38.70	2.00
283	16.50	3.07	3.61	0.93	9.18	3.05	27.99	2.00
284	14.66	3.13	3.65	0.95	7.86	3.05	23.97	2.00
285	15.22	3.20	4.97	0.97	8.14	3.05	24.82	2.00
286	17.65	3.20	6.26	0.97	9.70	3.05	29.58	2.00
287	25.86	3.02	5.64	0.91	15.37	3.05	46.88	2.00
288	31.43	3.01	6.93	0.91	19.06	3.05	58.11	2.00
289	39.59	2.91	6.64	0.88	24.71	3.05	75.33	2.00
290	43.82	2.89	6.82	0.87	27.56	3.05	84.03	2.00
291	52.56	2.75	5.38	0.83	33.90	3.05	103.38	2.00
292	76.42	2.46	3.22	0.75	51.87	2.59	134.33	0.31
293	75.63	2.49	3.45	0.76	51.02	2.71	138.48	0.33
294	74.52	2.61	4.93	0.79	49.37	2.71	134.00	2.00
295	78.83	2.57	4.55	0.78	52.50	3.13	164.37	2.00
296	51.64	2.75	5.27	0.83	32.81	3.13	102.72	2.00
297	40.48	2.80	4.59	0.85	25.08	3.13	78.52	2.00
298	38.93	2.79	4.22	0.84	24.00	3.13	75.16	2.00
299	37.29	2.80	4.09	0.85	22.82	3.13	71.46	2.00
300	32.78	2.88	4.55	0.87	19.56	3.13	61.25	2.00

:: Settlements calculation for saturated sands ::

Point ID					Settle. (in)
1	4.90	167.30	5.00	0.00	0.00
2	14.13	220.02	5.00	0.00	0.00
3	13.45	251.30	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
4	11.85	214.39	5.00	0.00	0.00
5	9.52	174.78	5.00	0.00	0.00
6	7.88	156.82	5.00	0.00	0.00
7	8.02	160.86	5.00	0.00	0.00
8	8.39	157.08	5.00	0.00	0.00
9	8.09	143.55	5.00	0.00	0.00
10	8.17	136.80	5.00	0.00	0.00
11	8.45	133.34	5.00	0.00	0.00
12	12.05	178.31	5.00	0.00	0.00
13	15.54	219.23	5.00	0.00	0.00
14	26.46	227.74	5.00	0.00	0.00
15	25.36	232.80	5.00	0.00	0.00
16	20.91	218.25	5.00	0.00	0.00
17	15.46	164.60	5.00	0.00	0.00
18	12.39	127.14	5.00	0.00	0.00
19	10.58	104.96	5.00	0.00	0.00
20	10.19	97.69	5.00	0.00	0.00
21	23.71	113.24	5.00	0.00	0.00
22	18.66	102.85	5.00	0.00	0.00
23	12.19	73.03	5.00	0.00	0.00
24	19.32	121.36	5.00	0.00	0.00
25	15.15	130.53	5.00	0.00	0.00
26	12.68	104.12	5.00	0.00	0.00
27	13.95	95.99	5.00	0.00	0.00
28	10.16	72.28	5.00	0.00	0.00
29	12.00	79.18	0.61	2.83	0.05
30	14.82	59.41	0.47	3.58	0.07
31	15.48	82.86	0.62	2.73	0.06
32	20.85	61.34	0.47	3.49	0.07
33	25.09	81.19	0.59	2.77	0.06
34	30.21	52.65	0.42	3.95	0.08
35	23.78	42.33	0.38	4.73	0.09
36	18.63	35.15	0.35	5.51	0.11
37	11.44	58.92	0.43	3.61	0.07
38	5.45	30.44	5.00	0.00	0.00
39	14.69	27.88	0.31	5.80	0.11
40	17.23	57.17	0.41	3.70	0.07
41	18.44	33.98	0.33	5.66	0.12
42	26.35	93.05	0.64	2.48	0.05
43	35.00	73.26	0.48	3.02	0.06
44	33.88	56.32	0.39	3.74	0.07
45	25.10	43.42	0.35	4.63	0.09
46	16.91	52.25	0.37	3.98	0.08
47	15.34	58.28	0.39	3.64	0.07
48	11.88	61.87	0.40	3.46	0.07
49	8.29	44.01	5.00	0.00	0.00
50	4.65	24.88	5.00	0.00	0.00
51	4.08	21.48	5.00	0.00	0.00
52	4.64	24.77	5.00	0.00	0.00
53	6.74	34.66	5.00	0.00	0.00
54	5.52	28.18	5.00	0.00	0.00
55	4.88	24.54	5.00	0.00	0.00
56	4.67	23.37	5.00	0.00	0.00
57	4.76	23.50	5.00	0.00	0.00
58	4.24	20.68	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
59	3.81	17.89	5.00	0.00	0.00
60	3.71	17.38	5.00	0.00	0.00
61	4.06	18.79	5.00	0.00	0.00
62	3.85	17.57	5.00	0.00	0.00
63	4.16	18.74	5.00	0.00	0.00
64	4.30	19.22	5.00	0.00	0.00
65	4.20	18.78	5.00	0.00	0.00
66	4.43	19.68	5.00	0.00	0.00
67	3.97	17.36	5.00	0.00	0.00
68	4.04	17.51	5.00	0.00	0.00
69	4.28	18.52	5.00	0.00	0.00
70	4.25	18.46	5.00	0.00	0.00
71	6.29	28.06	5.00	0.00	0.00
72	8.31	35.93	5.00	0.00	0.00
73	6.51	27.73	5.00	0.00	0.00
74	6.04	25.77	5.00	0.00	0.00
75	7.29	31.30	5.00	0.00	0.00
76	7.89	33.64	5.00	0.00	0.00
77	9.52	40.67	5.00	0.00	0.00
78	11.53	48.77	5.00	0.00	0.00
79	10.95	45.81	5.00	0.00	0.00
80	10.22	42.28	5.00	0.00	0.00
81	13.75	56.67	5.00	0.00	0.00
82	17.31	71.02	5.00	0.00	0.00
83	20.85	100.71	0.59	2.32	0.05
84	22.56	108.79	5.00	0.00	0.00
85	24.05	117.63	0.78	1.60	0.03
86	24.52	119.39	5.00	0.00	0.00
87	24.94	121.17	5.00	0.00	0.00
88	24.41	117.51	5.00	0.00	0.00
89	23.81	113.90	5.00	0.00	0.00
90	23.87	114.02	5.00	0.00	0.00
91	23.02	109.08	5.00	0.00	0.00
92	22.69	105.97	5.00	0.00	0.00
93	22.94	98.63	0.56	2.36	0.05
94	21.74	93.20	5.00	0.00	0.00
95	20.02	85.91	5.00	0.00	0.00
96	17.59	75.74	5.00	0.00	0.00
97	17.04	72.42	5.00	0.00	0.00
98	15.88	66.62	5.00	0.00	0.00
99	15.58	64.98	5.00	0.00	0.00
100	15.65	64.85	5.00	0.00	0.00
101	15.11	62.11	5.00	0.00	0.00
102	14.98	60.90	5.00	0.00	0.00
103	15.08	61.03	5.00	0.00	0.00
104	15.68	63.33	5.00	0.00	0.00
105	16.25	65.30	5.00	0.00	0.00
106	18.25	73.01	5.00	0.00	0.00
107	19.11	76.11	5.00	0.00	0.00
108	20.29	80.52	5.00	0.00	0.00
109	20.20	79.42	5.00	0.00	0.00
110	17.80	69.27	5.00	0.00	0.00
111	16.91	65.35	5.00	0.00	0.00
112	16.42	63.00	5.00	0.00	0.00
113	28.96	83.38	0.42	2.71	0.06

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
114	28.92	91.03	0.47	2.52	0.05
115	22.46	70.59	5.00	0.00	0.00
116	19.10	59.41	5.00	0.00	0.00
117	14.15	43.21	5.00	0.00	0.00
118	13.68	41.36	5.00	0.00	0.00
119	13.07	39.65	5.00	0.00	0.00
120	12.28	36.95	5.00	0.00	0.00
121	12.85	38.34	5.00	0.00	0.00
122	12.89	38.27	5.00	0.00	0.00
123	14.41	42.67	5.00	0.00	0.00
124	12.00	35.01	5.00	0.00	0.00
125	11.72	33.74	5.00	0.00	0.00
126	11.90	34.12	5.00	0.00	0.00
127	12.60	36.20	5.00	0.00	0.00
128	12.62	36.36	5.00	0.00	0.00
129	23.77	70.11	5.00	0.00	0.00
130	24.61	71.80	5.00	0.00	0.00
131	22.13	64.05	5.00	0.00	0.00
132	23.67	68.59	5.00	0.00	0.00
133	24.41	70.60	5.00	0.00	0.00
134	25.26	72.77	5.00	0.00	0.00
135	24.37	69.78	5.00	0.00	0.00
136	24.87	70.83	5.00	0.00	0.00
137	25.03	70.96	5.00	0.00	0.00
138	25.01	70.63	5.00	0.00	0.00
139	24.97	70.20	5.00	0.00	0.00
140	24.18	67.52	5.00	0.00	0.00
141	23.40	64.91	5.00	0.00	0.00
142	23.88	65.97	5.00	0.00	0.00
143	24.61	67.82	5.00	0.00	0.00
144	25.51	70.08	5.00	0.00	0.00
145	25.76	70.38	5.00	0.00	0.00
146	27.44	74.66	5.00	0.00	0.00
147	30.22	82.00	5.00	0.00	0.00
148	31.18	84.45	5.00	0.00	0.00
149	30.04	80.74	5.00	0.00	0.00
150	31.61	84.68	5.00	0.00	0.00
151	30.36	80.95	5.00	0.00	0.00
152	29.53	78.41	5.00	0.00	0.00
153	30.78	81.55	5.00	0.00	0.00
154	31.46	82.99	5.00	0.00	0.00
155	31.76	83.41	5.00	0.00	0.00
156	28.12	73.12	5.00	0.00	0.00
157	24.07	61.77	5.00	0.00	0.00
158	22.44	57.12	5.00	0.00	0.00
159	23.37	59.41	5.00	0.00	0.00
160	27.18	69.35	5.00	0.00	0.00
161	28.51	72.56	5.00	0.00	0.00
162	24.51	61.51	5.00	0.00	0.00
163	20.68	51.01	5.00	0.00	0.00
164	19.56	47.78	5.00	0.00	0.00
165	18.35	44.39	5.00	0.00	0.00
166	17.73	42.56	5.00	0.00	0.00
167	16.28	38.52	5.00	0.00	0.00
168	16.37	38.56	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
169	15.59	36.31	5.00	0.00	0.00
170	14.24	32.68	5.00	0.00	0.00
171	16.79	39.08	5.00	0.00	0.00
172	16.67	38.54	5.00	0.00	0.00
173	14.16	31.95	5.00	0.00	0.00
174	13.82	30.92	5.00	0.00	0.00
175	13.46	29.86	5.00	0.00	0.00
176	13.73	30.38	5.00	0.00	0.00
177	13.68	30.10	5.00	0.00	0.00
178	15.22	33.83	5.00	0.00	0.00
179	20.06	45.79	5.00	0.00	0.00
180	19.82	44.99	5.00	0.00	0.00
181	20.03	45.31	5.00	0.00	0.00
182	21.63	49.07	5.00	0.00	0.00
183	25.62	58.70	5.00	0.00	0.00
184	27.99	64.27	5.00	0.00	0.00
185	31.79	73.32	5.00	0.00	0.00
186	31.80	73.05	5.00	0.00	0.00
187	32.72	74.99	5.00	0.00	0.00
188	32.86	75.07	5.00	0.00	0.00
189	31.98	72.61	5.00	0.00	0.00
190	28.33	63.52	5.00	0.00	0.00
191	30.24	67.89	5.00	0.00	0.00
192	31.59	70.83	5.00	0.00	0.00
193	38.08	106.56	0.58	2.22	0.04
194	40.73	109.07	0.60	2.18	0.04
195	39.05	103.87	5.00	0.00	0.00
196	47.35	127.69	0.82	1.42	0.03
197	43.84	117.17	5.00	0.00	0.00
198	40.39	107.09	5.00	0.00	0.00
199	33.11	86.25	5.00	0.00	0.00
200	38.12	99.98	5.00	0.00	0.00
201	42.28	111.22	5.00	0.00	0.00
202	45.32	119.21	5.00	0.00	0.00
203	37.91	98.18	5.00	0.00	0.00
204	35.74	91.72	5.00	0.00	0.00
205	38.30	98.22	5.00	0.00	0.00
206	47.69	123.86	5.00	0.00	0.00
207	55.69	154.74	1.27	0.21	0.00
208	60.39	143.92	1.07	0.44	0.01
209	50.66	131.50	0.87	1.05	0.02
210	50.52	135.59	0.93	1.00	0.02
211	64.51	114.09	0.65	2.04	0.04
212	87.48	99.95	0.52	2.34	0.05
213	113.41	111.31	0.62	2.14	0.04
214	126.05	118.92	0.71	1.92	0.04
215	140.44	125.13	0.78	1.46	0.03
216	159.42	140.09	1.00	0.65	0.01
217	170.39	149.57	1.17	0.31	0.01
218	163.46	143.12	1.05	0.44	0.01
219	148.84	129.87	0.85	1.39	0.03
220	134.15	116.63	0.68	1.98	0.04
221	126.01	127.55	0.82	1.42	0.03
222	141.75	132.45	0.89	1.03	0.02
223	133.02	123.41	0.76	1.49	0.03

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
224	112.99	105.39	0.57	2.24	0.05
225	83.84	101.30	0.53	2.31	0.04
226	47.95	100.62	0.52	2.32	0.05
227	23.83	46.25	5.00	0.00	0.00
228	18.48	34.42	5.00	0.00	0.00
229	15.97	28.82	5.00	0.00	0.00
230	21.66	41.25	5.00	0.00	0.00
231	20.48	38.42	5.00	0.00	0.00
232	21.99	41.48	5.00	0.00	0.00
233	18.63	34.01	5.00	0.00	0.00
234	17.49	31.46	5.00	0.00	0.00
235	16.81	29.89	5.00	0.00	0.00
236	15.06	26.03	5.00	0.00	0.00
237	17.64	31.27	5.00	0.00	0.00
238	33.05	64.33	5.00	0.00	0.00
239	46.95	111.44	0.63	2.14	0.04
240	28.95	64.67	5.00	0.00	0.00
241	28.47	63.16	5.00	0.00	0.00
242	33.41	76.24	5.00	0.00	0.00
243	23.46	51.17	5.00	0.00	0.00
244	21.03	44.81	5.00	0.00	0.00
245	23.62	50.95	5.00	0.00	0.00
246	24.71	53.30	5.00	0.00	0.00
247	25.47	54.83	5.00	0.00	0.00
248	25.10	53.58	5.00	0.00	0.00
249	23.58	49.70	5.00	0.00	0.00
250	25.02	53.17	5.00	0.00	0.00
251	24.19	50.88	5.00	0.00	0.00
252	25.68	54.44	5.00	0.00	0.00
253	27.46	58.63	5.00	0.00	0.00
254	26.56	56.14	5.00	0.00	0.00
255	26.72	56.43	5.00	0.00	0.00
256	27.40	57.92	5.00	0.00	0.00
257	29.41	62.65	5.00	0.00	0.00
258	30.82	65.86	5.00	0.00	0.00
259	29.36	62.20	5.00	0.00	0.00
260	28.47	59.78	5.00	0.00	0.00
261	32.95	70.06	5.00	0.00	0.00
262	40.95	89.26	5.00	0.00	0.00
263	38.23	82.12	5.00	0.00	0.00
264	34.69	73.61	5.00	0.00	0.00
265	30.73	63.89	5.00	0.00	0.00
266	29.54	60.83	5.00	0.00	0.00
267	28.36	57.91	5.00	0.00	0.00
268	28.16	57.27	5.00	0.00	0.00
269	30.40	62.43	5.00	0.00	0.00
270	30.75	62.85	5.00	0.00	0.00
271	28.30	56.75	5.00	0.00	0.00
272	31.58	64.49	5.00	0.00	0.00
273	28.50	57.44	5.00	0.00	0.00
274	24.87	48.69	5.00	0.00	0.00
275	28.38	55.98	5.00	0.00	0.00
276	51.72	108.30	0.61	2.19	0.04
277	36.24	72.14	5.00	0.00	0.00
278	32.32	63.10	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
279	34.55	68.14	5.00	0.00	0.00
280	27.59	52.51	5.00	0.00	0.00
281	21.47	38.97	5.00	0.00	0.00
282	21.33	38.70	5.00	0.00	0.00
283	16.50	27.99	5.00	0.00	0.00
284	14.66	23.97	5.00	0.00	0.00
285	15.22	24.82	5.00	0.00	0.00
286	17.65	29.58	5.00	0.00	0.00
287	25.86	46.88	5.00	0.00	0.00
288	31.43	58.11	5.00	0.00	0.00
289	39.59	75.33	5.00	0.00	0.00
290	43.82	84.03	5.00	0.00	0.00
291	52.56	103.38	5.00	0.00	0.00
292	76.42	134.33	0.95	1.01	0.02
293	75.63	138.48	1.01	0.65	0.01
294	74.52	134.00	5.00	0.00	0.00
295	78.83	164.37	5.00	0.00	0.00
296	51.64	102.72	5.00	0.00	0.00
297	40.48	78.52	5.00	0.00	0.00
298	38.93	75.16	5.00	0.00	0.00
299	37.29	71.46	5.00	0.00	0.00
300	32.78	61.25	5.00	0.00	0.00

Total settlement : 2.46

Measured cone resistance
Normalized and adjusted cone resistance
Factor of safety against liquefaction
Post-liquefaction volumentric strain
Calculated settlement

:: Overall liquefaction potential according to Iwasaki ::

Point ID	F			Point ID	F		
1	0.00	9.90	0.00	2	0.00	9.88	0.00
3	0.00	9.85	0.00	4	0.00	9.82	0.00
5	0.00	9.80	0.00	6	0.00	9.77	0.00
7	0.00	9.75	0.00	8	0.00	9.73	0.00
9	0.00	9.70	0.00	10	0.00	9.68	0.00
11	0.00	9.65	0.00	12	0.00	9.63	0.00
13	0.00	9.60	0.00	14	0.00	9.57	0.00
15	0.00	9.55	0.00	16	0.00	9.52	0.00
17	0.00	9.50	0.00	18	0.00	9.48	0.00
19	0.00	9.45	0.00	20	0.00	9.43	0.00
21	0.00	9.40	0.00	22	0.00	9.38	0.00
23	0.00	9.35	0.00	24	0.00	9.32	0.00
25	0.00	9.30	0.00	26	0.00	9.27	0.00
27	0.00	9.25	0.00	28	0.00	9.22	0.00
29	0.39	9.20	0.18	30	0.53	9.18	0.24
31	0.38	9.15	0.18	32	0.53	9.13	0.24
33	0.41	9.10	0.19	34	0.58	9.07	0.26
35	0.62	9.05	0.27	36	0.65	9.02	0.30
37	0.57	9.00	0.25	38	0.00	8.97	0.00
39	0.69	8.95	0.30	40	0.59	8.93	0.26
41	0.67	8.90	0.31	42	0.36	8.88	0.15
43	0.52	8.85	0.24	44	0.61	8.82	0.26
45	0.65	8.80	0.28	46	0.63	8.77	0.28

:: Overall liquefaction potential according to Iwasaki (continued) ::

Point ID	F			Point ID	F		
47	0.61	8.75	0.26	48	0.60	8.72	0.27
49	0.00	8.70	0.00	50	0.00	8.68	0.00
51	0.00	8.65	0.00	52	0.00	8.63	0.00
53	0.00	8.60	0.00	54	0.00	8.58	0.00
55	0.00	8.55	0.00	56	0.00	8.52	0.00
57	0.00	8.50	0.00	58	0.00	8.47	0.00
59	0.00	8.45	0.00	60	0.00	8.43	0.00
61	0.00	8.40	0.00	62	0.00	8.38	0.00
63	0.00	8.35	0.00	64	0.00	8.33	0.00
65	0.00	8.30	0.00	66	0.00	8.27	0.00
67	0.00	8.25	0.00	68	0.00	8.22	0.00
69	0.00	8.20	0.00	70	0.00	8.17	0.00
71	0.00	8.15	0.00	72	0.00	8.13	0.00
73	0.00	8.10	0.00	74	0.00	8.08	0.00
75	0.00	8.05	0.00	76	0.00	8.02	0.00
77	0.00	8.00	0.00	78	0.00	7.97	0.00
79	0.00	7.95	0.00	80	0.00	7.92	0.00
81	0.00	7.90	0.00	82	0.00	7.88	0.00
83	0.41	7.85	0.17	84	0.00	7.83	0.00
85	0.22	7.80	0.09	86	0.00	7.77	0.00
87	0.00	7.75	0.00	88	0.00	7.72	0.00
89	0.00	7.70	0.00	90	0.00	7.67	0.00
91	0.00	7.65	0.00	92	0.00	7.63	0.00
93	0.44	7.60	0.17	94	0.00	7.58	0.00
95	0.00	7.55	0.00	96	0.00	7.53	0.00
97	0.00	7.50	0.00	98	0.00	7.47	0.00
99	0.00	7.45	0.00	100	0.00	7.42	0.00
101	0.00	7.40	0.00	102	0.00	7.38	0.00
103	0.00	7.35	0.00	104	0.00	7.33	0.00
105	0.00	7.30	0.00	106	0.00	7.28	0.00
107	0.00	7.25	0.00	108	0.00	7.22	0.00
109	0.00	7.20	0.00	110	0.00	7.17	0.00
111	0.00	7.15	0.00	112	0.00	7.13	0.00
113	0.58	7.10	0.21	114	0.53	7.08	0.18
115	0.00	7.05	0.00	116	0.00	7.03	0.00
117	0.00	7.00	0.00	118	0.00	6.97	0.00
119	0.00	6.95	0.00	120	0.00	6.92	0.00
121	0.00	6.90	0.00	122	0.00	6.87	0.00
123	0.00	6.85	0.00	124	0.00	6.83	0.00
125	0.00	6.80	0.00	126	0.00	6.78	0.00
127	0.00	6.75	0.00	128	0.00	6.72	0.00
129	0.00	6.70	0.00	130	0.00	6.67	0.00
131	0.00	6.65	0.00	132	0.00	6.62	0.00
133	0.00	6.60	0.00	134	0.00	6.58	0.00
135	0.00	6.55	0.00	136	0.00	6.53	0.00
137	0.00	6.50	0.00	138	0.00	6.47	0.00
139	0.00	6.45	0.00	140	0.00	6.42	0.00
141	0.00	6.40	0.00	142	0.00	6.37	0.00
143	0.00	6.35	0.00	144	0.00	6.33	0.00
145	0.00	6.30	0.00	146	0.00	6.28	0.00
147	0.00	6.25	0.00	148	0.00	6.23	0.00
149	0.00	6.20	0.00	150	0.00	6.17	0.00
151	0.00	6.15	0.00	152	0.00	6.12	0.00
153	0.00	6.10	0.00	154	0.00	6.08	0.00
155	0.00	6.05	0.00	156	0.00	6.03	0.00
157	0.00	6.00	0.00	158	0.00	5.98	0.00

:: Overall liquefaction potential according to Iwasaki (continued) ::

Point ID	F			Point ID	F		
159	0.00	5.95	0.00	160	0.00	5.92	0.00
161	0.00	5.90	0.00	162	0.00	5.87	0.00
163	0.00	5.85	0.00	164	0.00	5.82	0.00
165	0.00	5.80	0.00	166	0.00	5.78	0.00
167	0.00	5.75	0.00	168	0.00	5.73	0.00
169	0.00	5.70	0.00	170	0.00	5.67	0.00
171	0.00	5.65	0.00	172	0.00	5.62	0.00
173	0.00	5.60	0.00	174	0.00	5.57	0.00
175	0.00	5.55	0.00	176	0.00	5.53	0.00
177	0.00	5.50	0.00	178	0.00	5.48	0.00
179	0.00	5.45	0.00	180	0.00	5.42	0.00
181	0.00	5.40	0.00	182	0.00	5.37	0.00
183	0.00	5.35	0.00	184	0.00	5.32	0.00
185	0.00	5.30	0.00	186	0.00	5.28	0.00
187	0.00	5.25	0.00	188	0.00	5.23	0.00
189	0.00	5.20	0.00	190	0.00	5.18	0.00
191	0.00	5.15	0.00	192	0.00	5.12	0.00
193	0.42	5.10	0.11	194	0.40	5.07	0.11
195	0.00	5.05	0.00	196	0.18	5.03	0.04
197	0.00	5.00	0.00	198	0.00	4.98	0.00
199	0.00	4.95	0.00	200	0.00	4.93	0.00
201	0.00	4.90	0.00	202	0.00	4.87	0.00
203	0.00	4.85	0.00	204	0.00	4.82	0.00
205	0.00	4.80	0.00	206	0.00	4.78	0.00
207	0.00	4.75	0.00	208	0.00	4.73	0.00
209	0.13	4.70	0.03	210	0.07	4.68	0.02
211	0.35	4.65	0.08	212	0.48	4.62	0.12
213	0.38	4.60	0.08	214	0.29	4.57	0.07
215	0.22	4.55	0.05	216	0.00	4.52	0.00
217	0.00	4.50	0.00	218	0.00	4.48	0.00
219	0.15	4.45	0.04	220	0.32	4.43	0.07
221	0.18	4.40	0.04	222	0.11	4.37	0.02
223	0.24	4.35	0.05	224	0.43	4.32	0.10
225	0.47	4.30	0.10	226	0.48	4.27	0.11
227	0.00	4.25	0.00	228	0.00	4.23	0.00
229	0.00	4.20	0.00	230	0.00	4.18	0.00
231	0.00	4.15	0.00	232	0.00	4.12	0.00
233	0.00	4.10	0.00	234	0.00	4.07	0.00
235	0.00	4.05	0.00	236	0.00	4.02	0.00
237	0.00	4.00	0.00	238	0.00	3.98	0.00
239	0.37	3.95	0.08	240	0.00	3.93	0.00
241	0.00	3.90	0.00	242	0.00	3.88	0.00
243	0.00	3.85	0.00	244	0.00	3.82	0.00
245	0.00	3.80	0.00	246	0.00	3.77	0.00
247	0.00	3.75	0.00	248	0.00	3.73	0.00
249	0.00	3.70	0.00	250	0.00	3.68	0.00
251	0.00	3.65	0.00	252	0.00	3.63	0.00
253	0.00	3.60	0.00	254	0.00	3.57	0.00
255	0.00	3.55	0.00	256	0.00	3.52	0.00
257	0.00	3.50	0.00	258	0.00	3.48	0.00
259	0.00	3.45	0.00	260	0.00	3.43	0.00
261	0.00	3.40	0.00	262	0.00	3.38	0.00
263	0.00	3.35	0.00	264	0.00	3.32	0.00
265	0.00	3.30	0.00	266	0.00	3.27	0.00
267	0.00	3.25	0.00	268	0.00	3.22	0.00
269	0.00	3.20	0.00	270	0.00	3.18	0.00

:: Overall liquefaction potential according to Iwasaki (continued) ::

Point ID	F		
271	0.00	3.15	0.00
273	0.00	3.10	0.00
275	0.00	3.05	0.00
277	0.00	3.00	0.00
279	0.00	2.95	0.00
281	0.00	2.90	0.00
283	0.00	2.85	0.00
285	0.00	2.80	0.00
287	0.00	2.75	0.00
289	0.00	2.70	0.00
291	0.00	2.65	0.00
293	0.00	2.60	0.00
295	0.00	2.55	0.00
297	0.00	2.50	0.00
299	0.00	2.45	0.00

Point ID	F		
272	0.00	3.13	0.00
274	0.00	3.07	0.00
276	0.39	3.02	0.06
278	0.00	2.97	0.00
280	0.00	2.93	0.00
282	0.00	2.88	0.00
284	0.00	2.83	0.00
286	0.00	2.77	0.00
288	0.00	2.72	0.00
290	0.00	2.68	0.00
292	0.05	2.63	0.01
294	0.00	2.58	0.00
296	0.00	2.52	0.00
298	0.00	2.47	0.00
300	0.00	2.43	0.00

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LIQUEFACTION ANALYSIS REPORT

Project title : 10487.01 - Morning Star Packing Company Cooling Pond Expansions

Project subtitle : CPT-04

Input parameters and analysis data

In-situ data type:	Cone Penetration Test	5.00 ft
Analysis type:	Deterministic	6.58
Analysis method:	Robertson (1998)	0.44 g
Fines correction method:	Robertson (1998)	1.00

Liquefaction

No Liquefaction

Soil type index legend

- Gravelly sand to dense sand
- Sands: clean sand to silty sand
- Sand mixtures: silty sand to sandy silt
- Silt mixtures: clayey silt to silty clay
- Clays: silty clay to clay
- Organic soils: peats

:: Field input data ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
1	0.16	9.75	0.37	17.43	120.94
2	0.33	11.02	0.49	20.91	120.94
3	0.49	11.40	0.42	20.86	120.94
4	0.66	9.04	0.28	22.58	120.94
5	0.82	6.35	0.23	29.13	120.94
6	0.98	5.45	0.20	32.59	120.94
7	1.15	7.00	0.22	29.39	120.94
8	1.31	9.89	0.30	26.15	120.94
9	1.48	11.25	0.35	26.03	120.94
10	1.64	13.54	0.54	27.57	120.94
11	1.80	19.05	0.86	26.40	120.94
12	1.97	33.04	1.12	19.19	120.94
13	2.13	36.04	1.07	17.65	120.94
14	2.30	43.69	0.79	12.50	120.94
15	2.46	45.86	0.79	12.12	120.94
16	2.62	44.69	0.73	12.10	120.94
17	2.79	44.76	0.66	11.70	120.94
18	2.95	49.38	0.59	9.93	120.94
19	3.12	45.98	0.50	9.96	120.94
20	3.28	38.26	0.46	12.08	120.94
21	3.44	27.65	0.47	17.63	120.94
22	3.61	15.74	0.48	29.47	120.94
23	3.77	10.05	0.44	40.86	120.94
24	3.94	6.28	0.37	54.03	120.94
25	4.10	4.88	0.26	58.40	120.94
26	4.27	5.03	0.22	54.80	120.94
27	4.43	4.13	0.19	61.19	120.94
28	4.59	3.31	0.15	66.79	120.94
29	4.76	3.08	0.13	68.52	120.94
30	4.92	2.95	0.14	73.24	120.94
31	5.09	2.82	0.14	76.16	120.94
32	5.25	3.17	0.11	66.90	120.94
33	5.41	3.41	0.12	65.36	120.94
34	5.58	3.50	0.14	66.52	120.94
35	5.74	3.60	0.14	66.11	120.94
36	5.91	3.80	0.14	63.79	120.94
37	6.07	3.78	0.13	63.14	120.94
38	6.23	3.37	0.12	68.06	120.94
39	6.40	3.59	0.12	65.20	120.94
40	6.56	4.03	0.13	62.53	120.94
41	6.73	4.08	0.16	65.05	120.94
42	6.89	3.85	0.16	68.20	120.94
43	7.05	4.11	0.15	64.99	120.94
44	7.22	4.45	0.16	62.70	120.94
45	7.38	4.69	0.17	62.36	120.94
46	7.55	4.90	0.17	60.75	120.94
47	7.71	4.85	0.17	61.12	120.94
48	7.87	5.02	0.19	62.28	120.94
49	8.04	5.28	0.21	62.03	120.94
50	8.20	5.41	0.23	62.54	120.94
51	8.37	5.42	0.23	62.66	120.94
52	8.53	5.09	0.22	64.97	120.94
53	8.69	4.68	0.21	68.74	120.94
54	8.86	4.89	0.20	66.11	120.94
55	9.02	4.92	0.21	66.56	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
56	9.19	4.84	0.20	67.13	120.94
57	9.35	5.11	0.18	63.08	120.94
58	9.51	4.71	0.18	67.24	120.94
59	9.68	4.72	0.17	66.84	120.94
60	9.84	4.54	0.16	67.88	120.94
61	10.01	4.52	0.22	73.99	120.94
62	10.17	4.48	0.22	75.06	120.94
63	10.33	4.90	0.24	72.02	120.94
64	10.50	5.22	0.24	69.60	120.94
65	10.66	5.94	0.25	64.41	120.94
66	10.83	5.55	0.25	68.28	120.94
67	10.99	5.35	0.23	68.76	120.94
68	11.15	5.74	0.23	65.91	120.94
69	11.32	6.02	0.25	65.32	120.94
70	11.48	6.45	0.24	61.73	120.94
71	11.65	6.61	0.26	62.26	120.94
72	11.81	7.51	0.31	60.14	120.94
73	11.98	13.21	0.40	42.91	120.94
74	12.14	14.20	0.49	43.29	120.94
75	12.30	16.30	0.59	41.67	120.94
76	12.47	17.36	0.72	42.75	120.94
77	12.63	18.61	0.80	42.20	120.94
78	12.80	19.44	0.89	42.44	120.94
79	12.96	19.88	0.88	41.83	120.94
80	13.12	19.07	0.86	42.92	120.94
81	13.29	18.81	0.82	42.79	120.94
82	13.45	18.27	0.79	43.32	120.94
83	13.62	16.86	0.72	44.79	120.94
84	13.78	14.28	0.71	50.55	120.94
85	13.94	11.37	0.67	58.87	120.94
86	14.11	10.25	0.56	60.09	120.94
87	14.27	9.42	0.47	61.01	120.94
88	14.44	8.89	0.41	61.30	120.94
89	14.60	7.94	0.42	66.91	120.94
90	14.76	7.95	0.39	65.72	120.94
91	14.93	7.90	0.42	67.56	120.94
92	15.09	9.03	0.45	63.00	120.94
93	15.26	8.13	0.41	66.35	120.94
94	15.42	7.33	0.32	66.86	120.94
95	15.58	7.47	0.31	65.73	120.94
96	15.75	7.06	0.25	64.60	120.94
97	15.91	6.17	0.26	72.52	120.94
98	16.08	6.68	0.27	69.10	120.94
99	16.24	6.65	0.32	72.93	120.94
100	16.40	5.91	0.27	76.74	120.94
101	16.57	5.79	0.22	74.16	120.94
102	16.73	5.45	0.20	76.06	120.94
103	16.90	4.90	0.19	81.35	120.94
104	17.06	5.12	0.23	83.15	120.94
105	17.22	7.12	0.27	67.79	120.94
106	17.39	7.41	0.25	65.05	120.94
107	17.55	7.16	0.35	72.93	120.94
108	17.72	10.69	0.42	57.64	120.94
109	17.88	13.20	0.47	50.93	120.94
110	18.04	12.01	0.44	53.66	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
111	18.21	8.04	0.38	69.50	120.94
112	18.37	8.74	0.35	64.01	120.94
113	18.54	9.85	0.38	60.12	120.94
114	18.70	13.57	0.37	46.79	120.94
115	18.86	25.77	0.36	26.97	120.94
116	19.03	13.45	0.33	45.93	120.94
117	19.19	7.95	0.18	58.16	120.94
118	19.36	6.58	0.12	62.00	120.94
119	19.52	6.34	0.12	63.13	120.94
120	19.69	7.91	0.11	52.46	120.94
121	19.85	9.47	0.20	53.19	120.94
122	20.01	9.79	0.21	52.50	120.94
123	20.18	7.91	0.28	67.40	120.94
124	20.34	13.05	0.41	51.23	120.94
125	20.51	12.22	0.43	54.84	120.94
126	20.67	11.31	0.43	58.71	120.94
127	20.83	11.28	0.45	59.61	120.94
128	21.00	10.98	0.43	60.02	120.94
129	21.16	10.37	0.42	62.77	120.94
130	21.33	9.90	0.47	67.11	120.94
131	21.49	9.11	0.45	70.86	120.94
132	21.65	8.75	0.44	72.56	120.94
133	21.82	9.13	0.41	69.48	120.94
134	21.98	8.79	0.41	71.30	120.94
135	22.15	8.56	0.37	71.18	120.94
136	22.31	8.58	0.34	69.60	120.94
137	22.47	7.60	0.29	72.96	120.94
138	22.64	6.58	0.23	77.66	120.94
139	22.80	5.40	0.21	88.43	120.94
140	22.97	5.12	0.22	93.63	120.94
141	23.13	5.71	0.25	89.28	120.94
142	23.29	6.20	0.34	90.80	120.94
143	23.46	8.62	0.38	73.00	120.94
144	23.62	9.08	0.40	71.17	120.94
145	23.79	9.44	0.37	67.99	120.94
146	23.95	8.16	0.41	78.10	120.94
147	24.11	7.01	0.37	85.93	120.94
148	24.28	7.16	0.36	84.13	120.94
149	24.44	7.69	0.39	81.42	120.94
150	24.61	7.68	0.47	85.94	120.94
151	24.77	9.58	0.69	81.33	120.94
152	24.93	15.39	0.75	58.80	120.94
153	25.10	14.92	0.74	60.00	120.94
154	25.26	13.71	0.64	61.22	120.94
155	25.43	13.09	0.55	60.86	120.94
156	25.59	10.10	0.52	72.89	120.94
157	25.75	9.09	0.49	78.26	120.94
158	25.92	9.15	0.47	76.80	120.94
159	26.08	8.05	0.42	82.66	120.94
160	26.25	7.50	0.36	84.07	120.94
161	26.41	7.89	0.36	81.03	120.94
162	26.57	9.50	0.39	71.59	120.94
163	26.74	10.94	0.41	65.45	120.94
164	26.90	10.79	0.46	68.60	120.94
165	27.07	12.03	0.44	62.35	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
166	27.23	11.60	0.45	64.65	120.94
167	27.40	11.12	0.40	64.80	120.94
168	27.56	10.09	0.48	73.91	120.94
169	27.72	13.20	0.58	63.45	120.94
170	27.89	16.46	0.63	54.99	120.94
171	28.05	16.52	0.59	53.67	120.94
172	28.22	14.44	0.53	57.97	120.94
173	28.38	13.76	0.50	59.28	120.94
174	28.54	14.10	0.53	59.29	120.94
175	28.71	15.16	0.51	55.61	120.94
176	28.87	16.84	0.52	51.35	120.94
177	29.04	17.40	0.51	49.86	120.94
178	29.20	18.19	0.56	49.47	120.94
179	29.36	23.55	0.58	40.53	120.94
180	29.53	24.49	0.62	40.13	120.94
181	29.69	23.22	0.60	41.70	120.94
182	29.86	24.33	0.68	41.86	120.94
183	30.02	23.83	0.75	44.07	120.94
184	30.18	25.77	0.85	43.26	120.94
185	30.35	27.70	0.91	41.84	120.94
186	30.51	26.90	0.95	43.61	120.94
187	30.68	27.95	0.96	42.57	120.94
188	30.84	27.72	0.93	42.45	120.94
189	31.00	25.99	0.91	44.39	120.94
190	31.17	25.60	0.97	46.22	120.94
191	31.33	25.51	0.99	46.77	120.94
192	31.50	27.96	1.06	44.52	120.94
193	31.66	31.87	1.16	41.20	120.94
194	31.82	33.30	1.32	41.78	120.94
195	31.99	31.80	1.32	43.53	120.94
196	32.15	32.74	1.29	42.23	120.94
197	32.32	32.68	1.19	41.01	120.94
198	32.48	29.98	1.03	41.86	120.94
199	32.64	27.29	0.92	43.64	120.94
200	32.81	27.21	0.89	43.38	120.94
201	32.97	27.54	0.92	43.47	120.94
202	33.14	31.14	1.02	40.67	120.94
203	33.30	31.47	0.98	39.77	120.94
204	33.46	27.99	0.75	40.15	120.94
205	33.63	28.20	0.71	39.08	120.94
206	33.79	28.92	1.04	44.00	120.94
207	33.96	34.20	1.23	40.68	120.94
208	34.12	38.02	1.63	41.51	120.94
209	34.28	38.75	1.64	41.00	120.94
210	34.45	33.67	1.55	45.22	120.94
211	34.61	41.20	1.34	35.98	120.94
212	34.78	29.44	1.03	43.64	120.94
213	34.94	19.99	0.80	55.36	120.94
214	35.10	20.83	0.80	53.55	120.94
215	35.27	31.66	1.05	41.47	120.94
216	35.43	25.22	1.09	50.98	120.94
217	35.60	19.43	0.88	58.70	120.94
218	35.76	17.56	0.84	62.97	120.94
219	35.93	22.39	0.71	48.90	120.94
220	36.09	17.49	0.62	57.45	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
221	36.25	16.52	0.76	64.31	120.94
222	36.42	20.05	1.02	60.68	120.94
223	36.58	27.97	1.81	56.80	120.94
224	36.75	38.84	1.82	43.68	120.94
225	36.91	27.41	1.70	56.65	120.94
226	37.07	30.88	1.42	48.33	120.94
227	37.24	29.54	1.28	48.28	120.94
228	37.40	27.93	1.16	48.89	120.94
229	37.57	36.81	1.43	41.95	120.94
230	37.73	32.84	1.42	46.20	120.94
231	37.89	33.90	1.34	44.06	120.94
232	38.06	27.07	1.11	49.85	120.94
233	38.22	23.36	0.91	52.55	120.94
234	38.39	21.23	0.90	56.76	120.94
235	38.55	24.31	0.75	47.78	120.94
236	38.71	23.63	0.88	51.73	120.94
237	38.88	24.20	0.65	45.83	120.94
238	39.04	18.24	0.78	61.78	120.94
239	39.21	27.10	0.82	45.31	120.94
240	39.37	29.17	0.91	44.16	120.94
241	39.53	28.77	1.10	47.81	120.94
242	39.70	33.89	1.37	45.23	120.94
243	39.86	38.09	1.95	46.87	120.94
244	40.03	44.75	2.81	47.43	120.94
245	40.19	63.83	3.36	37.85	120.94
246	40.35	58.84	3.71	42.45	120.94
247	40.52	77.44	3.86	34.01	120.94
248	40.68	86.83	3.80	30.42	120.94
249	40.85	125.57	1.86	13.69	120.94
250	41.01	152.85	2.63	13.25	120.94
251	41.17	94.71	3.44	26.69	120.94
252	41.34	59.95	3.47	40.88	120.94
253	41.50	56.37	3.33	42.38	120.94
254	41.67	47.93	2.37	42.32	120.94
255	41.83	30.26	1.59	53.48	120.94
256	41.99	27.44	1.10	51.03	120.94
257	42.16	28.30	1.11	49.95	120.94
258	42.32	30.23	1.16	48.09	120.94
259	42.49	34.66	1.25	43.96	120.94
260	42.65	35.61	1.19	42.23	120.94
261	42.81	33.62	1.13	43.67	120.94
262	42.98	32.39	1.24	46.73	120.94
263	43.14	32.44	1.25	46.84	120.94
264	43.31	36.14	1.35	43.91	120.94
265	43.47	33.90	1.36	46.64	120.94
266	43.64	28.10	1.11	50.94	120.94
267	43.80	26.42	1.02	52.08	120.94
268	43.96	35.78	1.31	44.08	120.94
269	44.13	41.53	1.48	40.57	120.94
270	44.29	44.17	1.54	39.12	120.94
271	44.46	43.04	1.49	39.53	120.94
272	44.62	42.29	1.48	40.10	120.94
273	44.78	40.76	1.34	39.93	120.94
274	44.95	38.74	1.27	41.03	120.94
275	45.11	38.35	1.30	41.79	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
276	45.28	38.64	1.53	44.26	120.94
277	45.44	32.24	1.73	53.99	120.94
278	45.60	25.99	1.31	58.56	120.94
279	45.77	25.56	0.91	52.56	120.94
280	45.93	21.85	0.83	58.27	120.94
281	46.10	20.03	0.83	62.67	120.94
282	46.26	17.89	0.74	66.65	120.94
283	46.42	17.09	0.69	67.95	120.94
284	46.59	17.27	0.73	68.42	120.94
285	46.75	16.58	0.73	70.86	120.94
286	46.92	16.81	0.69	68.99	120.94
287	47.08	19.28	0.72	62.47	120.94
288	47.24	20.25	0.85	63.28	120.94
289	47.41	20.04	0.78	62.40	120.94
290	47.57	19.50	0.75	63.01	120.94
291	47.74	16.58	0.64	68.91	120.94
292	47.90	19.28	0.64	60.92	120.94
293	48.06	21.86	0.73	57.00	120.94
294	48.23	22.72	0.86	58.29	120.94
295	48.39	24.30	1.09	59.58	120.94
296	48.56	30.75	1.37	53.04	120.94
297	48.72	33.23	1.57	52.26	120.94
298	48.88	38.32	1.84	49.22	120.94
299	49.05	41.46	1.44	41.91	120.94
300	49.21	55.51	1.30	30.62	120.94
301	49.38	51.13	1.05	30.44	120.94
302	49.54	61.21	1.46	29.27	120.94
303	49.70	53.19	1.43	33.36	120.94
304	49.87	37.76	1.27	43.75	120.94
305	50.03	26.61	1.43	61.49	120.94
306	50.20	37.88	1.38	45.09	120.94

Depth from free surface, at which CPT was performed (ft)
Measured cone resistance
Sleeve friction resistance
Percentage of fines in soil (%)
Bulk soil unit weight (tsf)

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
1	0.16	0.01	0.00	0.01	1.00	0.29	1.40	0.20	1.00	0.20
2	0.33	0.02	0.00	0.02	1.00	0.29	1.40	0.20	1.00	0.20
3	0.49	0.03	0.00	0.03	1.00	0.29	1.40	0.20	1.00	0.20
4	0.66	0.04	0.00	0.04	1.00	0.29	1.40	0.20	1.00	0.20
5	0.82	0.05	0.00	0.05	1.00	0.29	1.40	0.20	1.00	0.20
6	0.98	0.06	0.00	0.06	1.00	0.29	1.40	0.20	1.00	0.20
7	1.15	0.07	0.00	0.07	1.00	0.29	1.40	0.20	1.00	0.20
8	1.31	0.08	0.00	0.08	1.00	0.29	1.40	0.20	1.00	0.20
9	1.48	0.09	0.00	0.09	1.00	0.29	1.40	0.20	1.00	0.20
10	1.64	0.10	0.00	0.10	1.00	0.28	1.40	0.20	1.00	0.20
11	1.80	0.11	0.00	0.11	1.00	0.28	1.40	0.20	1.00	0.20
12	1.97	0.12	0.00	0.12	1.00	0.28	1.40	0.20	1.00	0.20
13	2.13	0.13	0.00	0.13	1.00	0.28	1.40	0.20	1.00	0.20
14	2.30	0.14	0.00	0.14	0.99	0.28	1.40	0.20	1.00	0.20
15	2.46	0.15	0.00	0.15	0.99	0.28	1.40	0.20	1.00	0.20

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
16	2.62	0.16	0.00	0.16	0.99	0.28	1.40	0.20	1.00	0.20
17	2.79	0.17	0.00	0.17	0.99	0.28	1.40	0.20	1.00	0.20
18	2.95	0.18	0.00	0.18	0.99	0.28	1.40	0.20	1.00	0.20
19	3.12	0.19	0.00	0.19	0.99	0.28	1.40	0.20	1.00	0.20
20	3.28	0.20	0.00	0.20	0.99	0.28	1.40	0.20	1.00	0.20
21	3.44	0.21	0.00	0.21	0.99	0.28	1.40	0.20	1.00	0.20
22	3.61	0.22	0.00	0.22	0.99	0.28	1.40	0.20	1.00	0.20
23	3.77	0.23	0.00	0.23	0.99	0.28	1.40	0.20	1.00	0.20
24	3.94	0.24	0.00	0.24	0.99	0.28	1.40	0.20	1.00	0.20
25	4.10	0.25	0.00	0.25	0.99	0.28	1.40	0.20	1.00	0.20
26	4.27	0.26	0.00	0.26	0.99	0.28	1.40	0.20	1.00	0.20
27	4.43	0.27	0.00	0.27	0.99	0.28	1.40	0.20	1.00	0.20
28	4.59	0.28	0.00	0.28	0.99	0.28	1.40	0.20	1.00	0.20
29	4.76	0.29	0.00	0.29	0.99	0.28	1.40	0.20	1.00	0.20
30	4.92	0.30	0.00	0.30	0.99	0.28	1.40	0.20	1.00	0.20
31	5.09	0.31	0.00	0.30	0.99	0.29	1.40	0.20	1.00	0.20
32	5.25	0.32	0.01	0.31	0.99	0.29	1.40	0.21	1.00	0.21
33	5.41	0.33	0.01	0.31	0.99	0.29	1.40	0.21	1.00	0.21
34	5.58	0.34	0.02	0.32	0.99	0.30	1.40	0.21	1.00	0.21
35	5.74	0.35	0.02	0.32	0.99	0.30	1.40	0.22	1.00	0.22
36	5.91	0.36	0.03	0.33	0.99	0.31	1.40	0.22	1.00	0.22
37	6.07	0.37	0.03	0.33	0.99	0.31	1.40	0.22	1.00	0.22
38	6.23	0.38	0.04	0.34	0.99	0.31	1.40	0.22	1.00	0.22
39	6.40	0.39	0.04	0.34	0.99	0.32	1.40	0.23	1.00	0.23
40	6.56	0.40	0.05	0.35	0.98	0.32	1.40	0.23	1.00	0.23
41	6.73	0.41	0.05	0.35	0.98	0.32	1.40	0.23	1.00	0.23
42	6.89	0.42	0.06	0.36	0.98	0.33	1.40	0.23	1.00	0.23
43	7.05	0.43	0.06	0.36	0.98	0.33	1.40	0.24	1.00	0.24
44	7.22	0.44	0.07	0.37	0.98	0.33	1.40	0.24	1.00	0.24
45	7.38	0.45	0.07	0.37	0.98	0.34	1.40	0.24	1.00	0.24
46	7.55	0.46	0.08	0.38	0.98	0.34	1.40	0.24	1.00	0.24
47	7.71	0.47	0.08	0.38	0.98	0.34	1.40	0.25	1.00	0.25
48	7.87	0.48	0.09	0.39	0.98	0.35	1.40	0.25	1.00	0.25
49	8.04	0.49	0.09	0.39	0.98	0.35	1.40	0.25	1.00	0.25
50	8.20	0.50	0.10	0.40	0.98	0.35	1.40	0.25	1.00	0.25
51	8.37	0.51	0.11	0.40	0.98	0.35	1.40	0.25	1.00	0.25
52	8.53	0.52	0.11	0.41	0.98	0.36	1.40	0.26	1.00	0.26
53	8.69	0.53	0.12	0.41	0.98	0.36	1.40	0.26	1.00	0.26
54	8.86	0.54	0.12	0.42	0.98	0.36	1.40	0.26	1.00	0.26
55	9.02	0.55	0.13	0.42	0.98	0.36	1.40	0.26	1.00	0.26
56	9.19	0.56	0.13	0.42	0.98	0.37	1.40	0.26	1.00	0.26
57	9.35	0.57	0.14	0.43	0.98	0.37	1.40	0.26	1.00	0.26
58	9.51	0.57	0.14	0.43	0.98	0.37	1.40	0.27	1.00	0.27
59	9.68	0.59	0.15	0.44	0.98	0.37	1.40	0.27	1.00	0.27
60	9.84	0.59	0.15	0.44	0.98	0.37	1.40	0.27	1.00	0.27
61	10.01	0.61	0.16	0.45	0.98	0.38	1.40	0.27	1.00	0.27
62	10.17	0.61	0.16	0.45	0.98	0.38	1.40	0.27	1.00	0.27
63	10.33	0.62	0.17	0.46	0.98	0.38	1.40	0.27	1.00	0.27
64	10.50	0.63	0.17	0.46	0.98	0.38	1.40	0.27	1.00	0.27
65	10.66	0.64	0.18	0.47	0.98	0.38	1.40	0.27	1.00	0.27
66	10.83	0.65	0.18	0.47	0.97	0.39	1.40	0.28	1.00	0.28
67	10.99	0.66	0.19	0.48	0.97	0.39	1.40	0.28	1.00	0.28
68	11.15	0.67	0.19	0.48	0.97	0.39	1.40	0.28	1.00	0.28
69	11.32	0.68	0.20	0.49	0.97	0.39	1.40	0.28	1.00	0.28
70	11.48	0.69	0.20	0.49	0.97	0.39	1.40	0.28	1.00	0.28

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
71	11.65	0.70	0.21	0.50	0.97	0.39	1.40	0.28	1.00	0.28
72	11.81	0.71	0.21	0.50	0.97	0.40	1.40	0.28	1.00	0.28
73	11.98	0.72	0.22	0.51	0.97	0.40	1.40	0.28	1.00	0.28
74	12.14	0.73	0.22	0.51	0.97	0.40	1.40	0.29	1.00	0.29
75	12.30	0.74	0.23	0.52	0.97	0.40	1.40	0.29	1.00	0.29
76	12.47	0.75	0.23	0.52	0.97	0.40	1.40	0.29	1.00	0.29
77	12.63	0.76	0.24	0.53	0.97	0.40	1.40	0.29	1.00	0.29
78	12.80	0.77	0.24	0.53	0.97	0.40	1.40	0.29	1.00	0.29
79	12.96	0.78	0.25	0.54	0.97	0.41	1.40	0.29	1.00	0.29
80	13.12	0.79	0.25	0.54	0.97	0.41	1.40	0.29	1.00	0.29
81	13.29	0.80	0.26	0.54	0.97	0.41	1.40	0.29	1.00	0.29
82	13.45	0.81	0.26	0.55	0.97	0.41	1.40	0.29	1.00	0.29
83	13.62	0.82	0.27	0.55	0.97	0.41	1.40	0.29	1.00	0.29
84	13.78	0.83	0.27	0.56	0.97	0.41	1.40	0.30	1.00	0.30
85	13.94	0.84	0.28	0.56	0.97	0.41	1.40	0.30	1.00	0.30
86	14.11	0.85	0.28	0.57	0.97	0.41	1.40	0.30	1.00	0.30
87	14.27	0.86	0.29	0.57	0.97	0.42	1.40	0.30	1.00	0.30
88	14.44	0.87	0.29	0.58	0.97	0.42	1.40	0.30	1.00	0.30
89	14.60	0.88	0.30	0.58	0.97	0.42	1.40	0.30	1.00	0.30
90	14.76	0.89	0.30	0.59	0.97	0.42	1.40	0.30	1.00	0.30
91	14.93	0.90	0.31	0.59	0.97	0.42	1.40	0.30	1.00	0.30
92	15.09	0.91	0.31	0.60	0.96	0.42	1.40	0.30	1.00	0.30
93	15.26	0.92	0.32	0.60	0.96	0.42	1.40	0.30	1.00	0.30
94	15.42	0.93	0.33	0.61	0.96	0.42	1.40	0.30	1.00	0.30
95	15.58	0.94	0.33	0.61	0.96	0.42	1.40	0.30	1.00	0.30
96	15.75	0.95	0.34	0.62	0.96	0.43	1.40	0.30	1.00	0.30
97	15.91	0.96	0.34	0.62	0.96	0.43	1.40	0.31	1.00	0.31
98	16.08	0.97	0.35	0.63	0.96	0.43	1.40	0.31	1.00	0.31
99	16.24	0.98	0.35	0.63	0.96	0.43	1.40	0.31	1.00	0.31
100	16.40	0.99	0.36	0.64	0.96	0.43	1.40	0.31	1.00	0.31
101	16.57	1.00	0.36	0.64	0.96	0.43	1.40	0.31	1.00	0.31
102	16.73	1.01	0.37	0.65	0.96	0.43	1.40	0.31	1.00	0.31
103	16.90	1.02	0.37	0.65	0.96	0.43	1.40	0.31	1.00	0.31
104	17.06	1.03	0.38	0.65	0.96	0.43	1.40	0.31	1.00	0.31
105	17.22	1.04	0.38	0.66	0.96	0.43	1.40	0.31	1.00	0.31
106	17.39	1.05	0.39	0.66	0.96	0.43	1.40	0.31	1.00	0.31
107	17.55	1.06	0.39	0.67	0.96	0.43	1.40	0.31	1.00	0.31
108	17.72	1.07	0.40	0.67	0.96	0.44	1.40	0.31	1.00	0.31
109	17.88	1.08	0.40	0.68	0.96	0.44	1.40	0.31	1.00	0.31
110	18.04	1.09	0.41	0.68	0.96	0.44	1.40	0.31	1.00	0.31
111	18.21	1.10	0.41	0.69	0.96	0.44	1.40	0.31	1.00	0.31
112	18.37	1.11	0.42	0.69	0.96	0.44	1.40	0.31	1.00	0.31
113	18.54	1.12	0.42	0.70	0.96	0.44	1.40	0.31	1.00	0.31
114	18.70	1.13	0.43	0.70	0.96	0.44	1.40	0.31	1.00	0.31
115	18.86	1.14	0.43	0.71	0.96	0.44	1.40	0.32	1.00	0.32
116	19.03	1.15	0.44	0.71	0.96	0.44	1.40	0.32	1.00	0.32
117	19.19	1.16	0.44	0.72	0.96	0.44	1.40	0.32	1.00	0.32
118	19.36	1.17	0.45	0.72	0.95	0.44	1.40	0.32	1.00	0.32
119	19.52	1.18	0.45	0.73	0.95	0.44	1.40	0.32	1.00	0.32
120	19.69	1.19	0.46	0.73	0.95	0.44	1.40	0.32	1.00	0.32
121	19.85	1.20	0.46	0.74	0.95	0.44	1.40	0.32	1.00	0.32
122	20.01	1.21	0.47	0.74	0.95	0.45	1.40	0.32	1.00	0.32
123	20.18	1.22	0.47	0.75	0.95	0.45	1.40	0.32	1.00	0.32
124	20.34	1.23	0.48	0.75	0.95	0.45	1.40	0.32	1.00	0.32
125	20.51	1.24	0.48	0.76	0.95	0.45	1.40	0.32	1.00	0.32

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
126	20.67	1.25	0.49	0.76	0.95	0.45	1.40	0.32	1.00	0.32
127	20.83	1.26	0.49	0.77	0.95	0.45	1.40	0.32	1.00	0.32
128	21.00	1.27	0.50	0.77	0.95	0.45	1.40	0.32	1.00	0.32
129	21.16	1.28	0.50	0.77	0.95	0.45	1.40	0.32	1.00	0.32
130	21.33	1.29	0.51	0.78	0.95	0.45	1.40	0.32	1.00	0.32
131	21.49	1.30	0.51	0.78	0.95	0.45	1.40	0.32	1.00	0.32
132	21.65	1.31	0.52	0.79	0.95	0.45	1.40	0.32	1.00	0.32
133	21.82	1.32	0.53	0.79	0.95	0.45	1.40	0.32	1.00	0.32
134	21.98	1.33	0.53	0.80	0.95	0.45	1.40	0.32	1.00	0.32
135	22.15	1.34	0.54	0.80	0.95	0.45	1.40	0.32	1.00	0.32
136	22.31	1.35	0.54	0.81	0.95	0.45	1.40	0.32	1.00	0.32
137	22.47	1.36	0.55	0.81	0.95	0.45	1.40	0.32	1.00	0.32
138	22.64	1.37	0.55	0.82	0.95	0.45	1.40	0.32	1.00	0.32
139	22.80	1.38	0.56	0.82	0.95	0.45	1.40	0.32	1.00	0.32
140	22.97	1.39	0.56	0.83	0.95	0.45	1.40	0.32	1.00	0.32
141	23.13	1.40	0.57	0.83	0.95	0.45	1.40	0.33	1.00	0.33
142	23.29	1.41	0.57	0.84	0.95	0.45	1.40	0.33	1.00	0.33
143	23.46	1.42	0.58	0.84	0.95	0.46	1.40	0.33	1.00	0.33
144	23.62	1.43	0.58	0.85	0.94	0.46	1.40	0.33	1.00	0.33
145	23.79	1.44	0.59	0.85	0.94	0.46	1.40	0.33	1.00	0.33
146	23.95	1.45	0.59	0.86	0.94	0.46	1.40	0.33	1.00	0.33
147	24.11	1.46	0.60	0.86	0.94	0.46	1.40	0.33	1.00	0.33
148	24.28	1.47	0.60	0.87	0.94	0.46	1.40	0.33	1.00	0.33
149	24.44	1.48	0.61	0.87	0.94	0.46	1.40	0.33	1.00	0.33
150	24.61	1.49	0.61	0.88	0.94	0.46	1.40	0.33	1.00	0.33
151	24.77	1.50	0.62	0.88	0.94	0.46	1.40	0.33	1.00	0.33
152	24.93	1.51	0.62	0.89	0.94	0.46	1.40	0.33	1.00	0.33
153	25.10	1.52	0.63	0.89	0.94	0.46	1.40	0.33	1.00	0.33
154	25.26	1.53	0.63	0.89	0.94	0.46	1.40	0.33	1.00	0.33
155	25.43	1.54	0.64	0.90	0.94	0.46	1.40	0.33	1.00	0.33
156	25.59	1.55	0.64	0.90	0.94	0.46	1.40	0.33	1.00	0.33
157	25.75	1.56	0.65	0.91	0.94	0.46	1.40	0.33	1.00	0.33
158	25.92	1.57	0.65	0.91	0.94	0.46	1.40	0.33	1.00	0.33
159	26.08	1.58	0.66	0.92	0.94	0.46	1.40	0.33	1.00	0.33
160	26.25	1.59	0.66	0.92	0.94	0.46	1.40	0.33	1.00	0.33
161	26.41	1.60	0.67	0.93	0.94	0.46	1.40	0.33	1.00	0.33
162	26.57	1.61	0.67	0.93	0.94	0.46	1.40	0.33	1.00	0.33
163	26.74	1.62	0.68	0.94	0.94	0.46	1.40	0.33	1.00	0.33
164	26.90	1.63	0.68	0.94	0.94	0.46	1.40	0.33	1.00	0.33
165	27.07	1.64	0.69	0.95	0.94	0.46	1.40	0.33	1.00	0.33
166	27.23	1.65	0.69	0.95	0.94	0.46	1.40	0.33	1.00	0.33
167	27.40	1.66	0.70	0.96	0.94	0.46	1.40	0.33	1.00	0.33
168	27.56	1.67	0.70	0.96	0.94	0.46	1.40	0.33	1.00	0.33
169	27.72	1.68	0.71	0.97	0.94	0.46	1.40	0.33	1.00	0.33
170	27.89	1.69	0.71	0.97	0.93	0.46	1.40	0.33	1.00	0.33
171	28.05	1.70	0.72	0.98	0.93	0.46	1.40	0.33	1.00	0.33
172	28.22	1.71	0.72	0.98	0.93	0.46	1.40	0.33	1.00	0.33
173	28.38	1.72	0.73	0.99	0.93	0.46	1.40	0.33	1.00	0.33
174	28.54	1.73	0.73	0.99	0.93	0.46	1.40	0.33	1.00	0.33
175	28.71	1.74	0.74	1.00	0.93	0.47	1.40	0.33	1.00	0.33
176	28.87	1.75	0.75	1.00	0.93	0.47	1.40	0.33	1.00	0.33
177	29.04	1.76	0.75	1.01	0.93	0.47	1.40	0.33	1.00	0.33
178	29.20	1.77	0.76	1.01	0.93	0.47	1.40	0.33	1.00	0.33
179	29.36	1.78	0.76	1.01	0.93	0.47	1.40	0.33	1.00	0.33
180	29.53	1.79	0.77	1.02	0.93	0.47	1.40	0.33	1.00	0.33

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
181	29.69	1.80	0.77	1.02	0.93	0.47	1.40	0.33	1.00	0.33
182	29.86	1.81	0.78	1.03	0.93	0.47	1.40	0.33	1.00	0.33
183	30.02	1.82	0.78	1.03	0.93	0.47	1.40	0.33	1.00	0.33
184	30.18	1.82	0.79	1.04	0.93	0.47	1.40	0.33	1.00	0.33
185	30.35	1.83	0.79	1.04	0.93	0.47	1.40	0.33	1.00	0.33
186	30.51	1.84	0.80	1.05	0.93	0.47	1.40	0.33	1.00	0.33
187	30.68	1.85	0.80	1.05	0.93	0.47	1.40	0.33	1.00	0.33
188	30.84	1.86	0.81	1.06	0.92	0.47	1.40	0.33	1.00	0.33
189	31.00	1.87	0.81	1.06	0.92	0.47	1.40	0.33	1.00	0.33
190	31.17	1.88	0.82	1.07	0.92	0.47	1.40	0.33	1.00	0.33
191	31.33	1.89	0.82	1.07	0.92	0.46	1.40	0.33	0.99	0.33
192	31.50	1.90	0.83	1.08	0.92	0.46	1.40	0.33	0.99	0.33
193	31.66	1.91	0.83	1.08	0.92	0.46	1.40	0.33	0.99	0.33
194	31.82	1.92	0.84	1.09	0.92	0.46	1.40	0.33	0.99	0.33
195	31.99	1.93	0.84	1.09	0.91	0.46	1.40	0.33	0.99	0.33
196	32.15	1.94	0.85	1.10	0.91	0.46	1.40	0.33	0.99	0.33
197	32.32	1.95	0.85	1.10	0.91	0.46	1.40	0.33	0.99	0.33
198	32.48	1.96	0.86	1.11	0.91	0.46	1.40	0.33	0.99	0.33
199	32.64	1.97	0.86	1.11	0.91	0.46	1.40	0.33	0.99	0.33
200	32.81	1.98	0.87	1.12	0.91	0.46	1.40	0.33	0.99	0.33
201	32.97	1.99	0.87	1.12	0.91	0.46	1.40	0.33	0.99	0.33
202	33.14	2.00	0.88	1.13	0.91	0.46	1.40	0.33	0.99	0.33
203	33.30	2.01	0.88	1.13	0.90	0.46	1.40	0.33	0.98	0.33
204	33.46	2.02	0.89	1.13	0.90	0.46	1.40	0.33	0.98	0.33
205	33.63	2.03	0.89	1.14	0.90	0.46	1.40	0.33	0.98	0.33
206	33.79	2.04	0.90	1.14	0.90	0.46	1.40	0.33	0.98	0.33
207	33.96	2.05	0.90	1.15	0.90	0.46	1.40	0.33	0.98	0.33
208	34.12	2.06	0.91	1.15	0.90	0.46	1.40	0.33	0.98	0.33
209	34.28	2.07	0.91	1.16	0.90	0.46	1.40	0.33	0.98	0.33
210	34.45	2.08	0.92	1.16	0.89	0.46	1.40	0.33	0.98	0.33
211	34.61	2.09	0.92	1.17	0.89	0.46	1.40	0.33	0.98	0.33
212	34.78	2.10	0.93	1.17	0.89	0.46	1.40	0.33	0.98	0.33
213	34.94	2.11	0.93	1.18	0.89	0.46	1.40	0.33	0.98	0.33
214	35.10	2.12	0.94	1.18	0.89	0.46	1.40	0.33	0.98	0.33
215	35.27	2.13	0.94	1.19	0.89	0.46	1.40	0.33	0.97	0.33
216	35.43	2.14	0.95	1.19	0.89	0.46	1.40	0.33	0.97	0.33
217	35.60	2.15	0.96	1.20	0.89	0.46	1.40	0.33	0.97	0.33
218	35.76	2.16	0.96	1.20	0.88	0.45	1.40	0.33	0.97	0.33
219	35.93	2.17	0.97	1.21	0.88	0.45	1.40	0.33	0.97	0.33
220	36.09	2.18	0.97	1.21	0.88	0.45	1.40	0.32	0.97	0.33
221	36.25	2.19	0.98	1.22	0.88	0.45	1.40	0.32	0.97	0.33
222	36.42	2.20	0.98	1.22	0.88	0.45	1.40	0.32	0.97	0.33
223	36.58	2.21	0.99	1.23	0.88	0.45	1.40	0.32	0.97	0.33
224	36.75	2.22	0.99	1.23	0.88	0.45	1.40	0.32	0.97	0.33
225	36.91	2.23	1.00	1.24	0.87	0.45	1.40	0.32	0.97	0.33
226	37.07	2.24	1.00	1.24	0.87	0.45	1.40	0.32	0.97	0.33
227	37.24	2.25	1.01	1.25	0.87	0.45	1.40	0.32	0.97	0.33
228	37.40	2.26	1.01	1.25	0.87	0.45	1.40	0.32	0.96	0.33
229	37.57	2.27	1.02	1.25	0.87	0.45	1.40	0.32	0.96	0.33
230	37.73	2.28	1.02	1.26	0.87	0.45	1.40	0.32	0.96	0.33
231	37.89	2.29	1.03	1.26	0.87	0.45	1.40	0.32	0.96	0.33
232	38.06	2.30	1.03	1.27	0.87	0.45	1.40	0.32	0.96	0.33
233	38.22	2.31	1.04	1.27	0.86	0.45	1.40	0.32	0.96	0.33
234	38.39	2.32	1.04	1.28	0.86	0.45	1.40	0.32	0.96	0.33
235	38.55	2.33	1.05	1.28	0.86	0.45	1.40	0.32	0.96	0.33

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
236	38.71	2.34	1.05	1.29	0.86	0.45	1.40	0.32	0.96	0.33
237	38.88	2.35	1.06	1.29	0.86	0.45	1.40	0.32	0.96	0.33
238	39.04	2.36	1.06	1.30	0.86	0.45	1.40	0.32	0.96	0.33
239	39.21	2.37	1.07	1.30	0.86	0.45	1.40	0.32	0.96	0.33
240	39.37	2.38	1.07	1.31	0.85	0.44	1.40	0.32	0.96	0.33
241	39.53	2.39	1.08	1.31	0.85	0.44	1.40	0.32	0.96	0.33
242	39.70	2.40	1.08	1.32	0.85	0.44	1.40	0.32	0.95	0.33
243	39.86	2.41	1.09	1.32	0.85	0.44	1.40	0.32	0.95	0.33
244	40.03	2.42	1.09	1.33	0.85	0.44	1.40	0.32	0.95	0.33
245	40.19	2.43	1.10	1.33	0.85	0.44	1.40	0.32	0.95	0.33
246	40.35	2.44	1.10	1.34	0.85	0.44	1.40	0.32	0.95	0.33
247	40.52	2.45	1.11	1.34	0.85	0.44	1.40	0.32	0.95	0.33
248	40.68	2.46	1.11	1.35	0.84	0.44	1.40	0.32	0.95	0.33
249	40.85	2.47	1.12	1.35	0.84	0.44	1.40	0.32	0.95	0.33
250	41.01	2.48	1.12	1.36	0.84	0.44	1.40	0.31	0.95	0.33
251	41.17	2.49	1.13	1.36	0.84	0.44	1.40	0.31	0.95	0.33
252	41.34	2.50	1.13	1.37	0.84	0.44	1.40	0.31	0.95	0.33
253	41.50	2.51	1.14	1.37	0.84	0.44	1.40	0.31	0.95	0.33
254	41.67	2.52	1.14	1.37	0.84	0.44	1.40	0.31	0.95	0.33
255	41.83	2.53	1.15	1.38	0.83	0.44	1.40	0.31	0.95	0.33
256	41.99	2.54	1.15	1.38	0.83	0.44	1.40	0.31	0.95	0.33
257	42.16	2.55	1.16	1.39	0.83	0.44	1.40	0.31	0.94	0.33
258	42.32	2.56	1.17	1.39	0.83	0.44	1.40	0.31	0.94	0.33
259	42.49	2.57	1.17	1.40	0.83	0.44	1.40	0.31	0.94	0.33
260	42.65	2.58	1.18	1.40	0.83	0.44	1.40	0.31	0.94	0.33
261	42.81	2.59	1.18	1.41	0.83	0.43	1.40	0.31	0.94	0.33
262	42.98	2.60	1.19	1.41	0.83	0.43	1.40	0.31	0.94	0.33
263	43.14	2.61	1.19	1.42	0.82	0.43	1.40	0.31	0.94	0.33
264	43.31	2.62	1.20	1.42	0.82	0.43	1.40	0.31	0.94	0.33
265	43.47	2.63	1.20	1.43	0.82	0.43	1.40	0.31	0.94	0.33
266	43.64	2.64	1.21	1.43	0.82	0.43	1.40	0.31	0.94	0.33
267	43.80	2.65	1.21	1.44	0.82	0.43	1.40	0.31	0.94	0.33
268	43.96	2.66	1.22	1.44	0.82	0.43	1.40	0.31	0.94	0.33
269	44.13	2.67	1.22	1.45	0.82	0.43	1.40	0.31	0.94	0.33
270	44.29	2.68	1.23	1.45	0.81	0.43	1.40	0.31	0.94	0.33
271	44.46	2.69	1.23	1.46	0.81	0.43	1.40	0.31	0.94	0.33
272	44.62	2.70	1.24	1.46	0.81	0.43	1.40	0.31	0.94	0.33
273	44.78	2.71	1.24	1.47	0.81	0.43	1.40	0.31	0.93	0.33
274	44.95	2.72	1.25	1.47	0.81	0.43	1.40	0.31	0.93	0.33
275	45.11	2.73	1.25	1.48	0.81	0.43	1.40	0.31	0.93	0.33
276	45.28	2.74	1.26	1.48	0.81	0.43	1.40	0.31	0.93	0.33
277	45.44	2.75	1.26	1.48	0.81	0.43	1.40	0.30	0.93	0.33
278	45.60	2.76	1.27	1.49	0.80	0.43	1.40	0.30	0.93	0.33
279	45.77	2.77	1.27	1.49	0.80	0.42	1.40	0.30	0.93	0.33
280	45.93	2.78	1.28	1.50	0.80	0.42	1.40	0.30	0.93	0.33
281	46.10	2.79	1.28	1.50	0.80	0.42	1.40	0.30	0.93	0.33
282	46.26	2.80	1.29	1.51	0.80	0.42	1.40	0.30	0.93	0.33
283	46.42	2.81	1.29	1.51	0.80	0.42	1.40	0.30	0.93	0.33
284	46.59	2.82	1.30	1.52	0.80	0.42	1.40	0.30	0.93	0.33
285	46.75	2.83	1.30	1.52	0.79	0.42	1.40	0.30	0.93	0.33
286	46.92	2.84	1.31	1.53	0.79	0.42	1.40	0.30	0.93	0.33
287	47.08	2.85	1.31	1.53	0.79	0.42	1.40	0.30	0.93	0.32
288	47.24	2.86	1.32	1.54	0.79	0.42	1.40	0.30	0.93	0.32
289	47.41	2.87	1.32	1.54	0.79	0.42	1.40	0.30	0.92	0.32
290	47.57	2.88	1.33	1.55	0.79	0.42	1.40	0.30	0.92	0.32

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
291	47.74	2.89	1.33	1.55	0.79	0.42	1.40	0.30	0.92	0.32
292	47.90	2.90	1.34	1.56	0.79	0.42	1.40	0.30	0.92	0.32
293	48.06	2.91	1.34	1.56	0.78	0.42	1.40	0.30	0.92	0.32
294	48.23	2.92	1.35	1.57	0.78	0.42	1.40	0.30	0.92	0.32
295	48.39	2.93	1.35	1.57	0.78	0.42	1.40	0.30	0.92	0.32
296	48.56	2.94	1.36	1.58	0.78	0.42	1.40	0.30	0.92	0.32
297	48.72	2.95	1.36	1.58	0.78	0.41	1.40	0.30	0.92	0.32
298	48.88	2.96	1.37	1.59	0.78	0.41	1.40	0.30	0.92	0.32
299	49.05	2.97	1.38	1.59	0.78	0.41	1.40	0.30	0.92	0.32
300	49.21	2.98	1.38	1.60	0.77	0.41	1.40	0.30	0.92	0.32
301	49.38	2.99	1.39	1.60	0.77	0.41	1.40	0.30	0.92	0.32
302	49.54	3.00	1.39	1.60	0.77	0.41	1.40	0.29	0.92	0.32
303	49.70	3.00	1.40	1.61	0.77	0.41	1.40	0.29	0.92	0.32
304	49.87	3.02	1.40	1.61	0.77	0.41	1.40	0.29	0.92	0.32
305	50.03	3.02	1.41	1.62	0.77	0.41	1.40	0.29	0.92	0.32
306	50.20	3.04	1.41	1.62	0.77	0.41	1.40	0.29	0.92	0.32

Depth from free surface, at which CPT was performed (ft)
Total overburden pressure at test point, during earthquake (tsf)
Water pressure at test point, during earthquake (tsf)
Effective overburden pressure, during earthquake (tsf)
Nonlinear shear mass factor
Cyclic Stress Ratio
Magnitude Scaling Factor
CSR adjusted for M=7.5
Effective overburden stress factor
CSR fully adjusted

Point ID			F (%)	n				
1	9.75	2.15	3.83	0.65	197.56	1.56	307.65	2.00
2	11.02	2.26	4.43	0.69	159.77	1.81	289.79	2.00
3	11.40	2.25	3.71	0.69	125.61	1.81	227.34	2.00
4	9.04	2.30	3.09	0.70	84.93	1.95	165.98	2.00
5	6.35	2.46	3.69	0.75	59.15	2.60	153.58	2.00
6	5.45	2.54	3.80	0.77	47.27	2.99	141.29	2.00
7	7.00	2.47	3.23	0.75	50.68	2.62	133.01	2.00
8	9.89	2.39	3.03	0.73	61.26	2.29	140.05	2.00
9	11.25	2.39	3.12	0.73	63.60	2.27	144.62	2.00
10	13.54	2.43	3.98	0.74	72.96	2.43	177.35	2.00
11	19.05	2.40	4.53	0.73	94.18	2.31	217.69	2.00
12	33.04	2.21	3.41	0.67	135.06	1.68	227.07	2.00
13	36.04	2.16	2.98	0.66	135.75	1.57	213.38	2.00
14	43.69	1.98	1.82	0.60	140.78	1.28	180.03	2.00
15	45.86	1.97	1.73	0.60	140.68	1.26	177.44	2.00
16	44.69	1.97	1.63	0.60	131.93	1.26	166.31	2.00
17	44.76	1.95	1.49	0.59	126.13	1.24	156.72	2.00
18	49.38	1.88	1.21	0.57	129.61	1.17	151.79	2.00
19	45.98	1.88	1.08	0.57	116.89	1.17	137.02	2.00
20	38.26	1.97	1.20	0.60	98.51	1.26	124.06	2.00
21	27.65	2.16	1.73	0.65	75.52	1.57	118.64	2.00
22	15.74	2.47	3.07	0.75	47.99	2.63	126.37	2.00
23	10.05	2.71	4.50	0.82	32.74	2.63	86.22	2.00
24	6.28	2.93	6.12	0.89	21.47	2.63	56.53	2.00
25	4.88	3.00	5.69	0.91	16.35	2.63	43.06	2.00
26	5.03	2.94	4.52	0.89	15.87	2.63	41.78	2.00
27	4.13	3.04	4.98	0.92	12.92	2.63	34.03	2.00

Point ID			F (%)	n				
28	3.31	3.12	4.91	0.94	10.15	2.63	26.73	2.00
29	3.08	3.14	4.66	0.95	9.11	2.63	23.99	2.00
30	2.95	3.20	5.44	0.97	8.58	2.63	22.59	2.00
31	2.82	3.24	5.75	0.98	8.04	2.63	21.17	2.00
32	3.17	3.12	3.96	0.94	8.61	2.63	22.68	2.00
33	3.41	3.10	3.94	0.94	9.11	2.63	23.99	2.00
34	3.50	3.11	4.29	0.94	9.26	2.63	24.38	2.00
35	3.60	3.11	4.27	0.94	9.38	2.63	24.69	2.00
36	3.80	3.08	3.93	0.93	9.67	2.63	25.48	2.00
37	3.78	3.07	3.67	0.93	9.44	2.63	24.85	2.00
38	3.37	3.14	4.04	0.95	8.36	2.63	22.00	2.00
39	3.59	3.10	3.67	0.94	8.71	2.63	22.93	2.00
40	4.03	3.06	3.64	0.93	9.63	2.63	25.37	2.00
41	4.08	3.09	4.24	0.94	9.72	2.63	25.60	2.00
42	3.85	3.14	4.57	0.95	9.10	2.63	23.95	2.00
43	4.11	3.09	4.10	0.94	9.51	2.63	25.04	2.00
44	4.45	3.06	3.94	0.93	10.13	2.63	26.67	2.00
45	4.69	3.06	4.10	0.93	10.57	2.63	27.83	2.00
46	4.90	3.03	3.88	0.92	10.85	2.63	28.58	2.00
47	4.85	3.04	3.84	0.92	10.60	2.63	27.92	2.00
48	5.02	3.06	4.26	0.93	10.92	2.63	28.76	2.00
49	5.28	3.05	4.43	0.92	11.37	2.63	29.95	2.00
50	5.41	3.06	4.65	0.93	11.56	2.63	30.43	2.00
51	5.42	3.06	4.61	0.93	11.43	2.63	30.09	2.00
52	5.09	3.09	4.74	0.94	10.62	2.63	27.97	2.00
53	4.68	3.14	5.10	0.95	9.68	2.63	25.49	2.00
54	4.89	3.11	4.61	0.94	9.93	2.63	26.15	2.00
55	4.92	3.11	4.69	0.94	9.89	2.63	26.04	2.00
56	4.84	3.12	4.65	0.95	9.60	2.63	25.27	2.00
57	5.11	3.07	3.92	0.93	9.93	2.63	26.15	2.00
58	4.71	3.12	4.34	0.95	9.08	2.63	23.91	2.00
59	4.72	3.12	4.18	0.94	8.97	2.63	23.61	2.00
60	4.54	3.13	4.10	0.95	8.50	2.63	22.39	2.00
61	4.52	3.21	5.59	0.97	8.52	2.63	22.43	2.00
62	4.48	3.23	5.74	0.98	8.35	2.63	21.99	2.00
63	4.90	3.19	5.51	0.96	9.06	2.63	23.86	2.00
64	5.22	3.16	5.23	0.96	9.54	2.63	25.13	2.00
65	5.94	3.09	4.67	0.93	10.73	2.63	28.26	2.00
66	5.55	3.14	5.16	0.95	9.95	2.63	26.19	2.00
67	5.35	3.14	4.95	0.95	9.45	2.63	24.88	2.00
68	5.74	3.11	4.62	0.94	10.03	2.63	26.41	2.00
69	6.02	3.10	4.72	0.94	10.44	2.63	27.50	2.00
70	6.45	3.05	4.19	0.92	11.04	2.63	29.07	2.00
71	6.61	3.05	4.42	0.92	11.24	2.63	29.60	2.00
72	7.51	3.02	4.63	0.92	12.74	2.63	33.54	2.00
73	13.21	2.75	3.24	0.83	21.82	2.63	57.46	2.00
74	14.20	2.75	3.61	0.83	23.39	2.63	61.59	2.00
75	16.30	2.72	3.78	0.82	26.65	2.63	70.17	2.00
76	17.36	2.74	4.34	0.83	28.34	2.63	74.62	2.00
77	18.61	2.73	4.49	0.83	30.17	2.63	79.44	2.00
78	19.44	2.74	4.74	0.83	31.35	2.63	82.56	2.00
79	19.88	2.73	4.63	0.83	31.77	2.63	83.66	2.00
80	19.07	2.75	4.71	0.83	30.31	2.63	79.82	2.00
81	18.81	2.74	4.56	0.83	29.60	2.63	77.96	2.00
82	18.27	2.75	4.53	0.83	28.55	2.63	75.18	2.00

Point ID			F (%)	n				
83	16.86	2.78	4.50	0.84	26.16	2.63	68.89	2.00
84	14.28	2.88	5.25	0.87	22.19	2.63	58.44	2.00
85	11.37	3.01	6.35	0.91	17.66	2.63	46.51	2.00
86	10.25	3.02	5.92	0.92	15.69	2.63	41.32	2.00
87	9.42	3.04	5.53	0.92	14.22	2.63	37.44	2.00
88	8.89	3.04	5.15	0.92	13.22	2.63	34.82	2.00
89	7.94	3.12	5.91	0.94	11.71	2.63	30.84	2.00
90	7.95	3.10	5.50	0.94	11.59	2.63	30.53	2.00
91	7.90	3.13	5.93	0.95	11.45	2.63	30.16	2.00
92	9.03	3.07	5.53	0.93	13.05	2.63	34.36	2.00
93	8.13	3.11	5.67	0.94	11.59	2.63	30.51	2.00
94	7.33	3.12	4.97	0.94	10.22	2.63	26.91	2.00
95	7.47	3.10	4.76	0.94	10.33	2.63	27.20	2.00
96	7.06	3.09	4.05	0.93	9.57	2.63	25.19	2.00
97	6.17	3.19	4.98	0.97	8.23	2.63	21.68	2.00
98	6.68	3.15	4.65	0.95	8.89	2.63	23.42	2.00
99	6.65	3.20	5.57	0.97	8.84	2.63	23.27	2.00
100	5.91	3.25	5.56	0.98	7.67	2.63	20.19	2.00
101	5.79	3.21	4.65	0.97	7.37	2.63	19.41	2.00
102	5.45	3.24	4.58	0.98	6.81	2.63	17.93	2.00
103	4.90	3.30	4.91	1.00	5.96	2.63	15.70	2.00
104	5.12	3.32	5.68	1.00	6.24	2.63	16.43	2.00
105	7.12	3.13	4.41	0.95	8.99	2.63	23.68	2.00
106	7.41	3.09	3.99	0.94	9.29	2.63	24.47	2.00
107	7.16	3.20	5.69	0.97	8.98	2.63	23.65	2.00
108	10.69	2.99	4.41	0.90	13.68	2.63	36.02	2.00
109	13.20	2.88	3.91	0.87	16.90	2.63	44.49	2.00
110	12.01	2.93	4.03	0.89	15.22	2.63	40.07	2.00
111	8.04	3.15	5.44	0.95	9.88	2.63	26.03	2.00
112	8.74	3.08	4.55	0.93	10.70	2.63	28.17	2.00
113	9.85	3.02	4.32	0.92	12.08	2.63	31.81	2.00
114	13.57	2.81	2.97	0.85	16.69	2.63	43.94	2.00
115	25.77	2.41	1.48	0.73	31.37	2.37	74.31	0.12
116	13.45	2.80	2.71	0.85	16.28	2.37	38.57	2.00
117	7.95	3.00	2.60	0.91	9.14	2.37	21.65	2.00
118	6.58	3.05	2.31	0.92	7.28	2.37	17.24	2.00
119	6.34	3.07	2.28	0.93	6.91	2.37	16.38	2.00
120	7.91	2.91	1.66	0.88	8.80	2.37	20.84	2.00
121	9.47	2.92	2.43	0.88	10.78	2.37	25.53	2.00
122	9.79	2.91	2.43	0.88	11.11	2.37	26.32	2.00
123	7.91	3.13	4.19	0.95	8.80	2.37	20.85	2.00
124	13.05	2.89	3.45	0.87	15.10	2.37	35.77	2.00
125	12.22	2.94	3.89	0.89	14.02	2.37	33.22	2.00
126	11.31	3.00	4.33	0.91	12.85	2.37	30.44	2.00
127	11.28	3.02	4.50	0.91	12.74	2.37	30.19	2.00
128	10.98	3.02	4.39	0.91	12.28	2.37	29.10	2.00
129	10.37	3.06	4.66	0.93	11.47	2.37	27.18	2.00
130	9.90	3.12	5.44	0.94	10.86	2.37	25.73	2.00
131	9.11	3.17	5.78	0.96	9.84	2.37	23.31	2.00
132	8.75	3.19	5.87	0.97	9.34	2.37	22.12	2.00
133	9.13	3.15	5.31	0.95	9.71	2.37	23.00	2.00
134	8.79	3.18	5.45	0.96	9.24	2.37	21.89	2.00
135	8.56	3.18	5.16	0.96	8.89	2.37	21.06	2.00
136	8.58	3.16	4.73	0.95	8.84	2.37	20.94	2.00
137	7.60	3.20	4.58	0.97	7.61	2.37	18.03	2.00

Point ID			F (%)	n				
138	6.58	3.26	4.48	0.99	6.34	2.37	15.03	2.00
139	5.40	3.39	5.14	1.00	4.89	2.37	11.57	2.00
140	5.12	3.44	5.77	1.00	4.51	2.37	10.67	2.00
141	5.71	3.40	5.80	1.00	5.18	2.37	12.27	2.00
142	6.20	3.41	7.09	1.00	5.72	2.37	13.56	2.00
143	8.62	3.20	5.31	0.97	8.49	2.37	20.11	2.00
144	9.08	3.18	5.21	0.96	8.96	2.37	21.23	2.00
145	9.44	3.13	4.66	0.95	9.29	2.37	22.01	2.00
146	8.16	3.26	6.07	0.99	7.81	2.37	18.51	2.00
147	7.01	3.36	6.72	1.00	6.45	2.37	15.27	2.00
148	7.16	3.34	6.36	1.00	6.57	2.37	15.56	2.00
149	7.69	3.30	6.27	1.00	7.13	2.37	16.90	2.00
150	7.68	3.36	7.56	1.00	7.07	2.37	16.74	2.00
151	9.58	3.30	8.52	1.00	9.18	2.37	21.74	2.00
152	15.39	3.00	5.44	0.91	15.45	2.37	36.59	2.00
153	14.92	3.02	5.53	0.91	14.85	2.37	35.18	2.00
154	13.71	3.04	5.24	0.92	13.44	2.37	31.85	2.00
155	13.09	3.03	4.78	0.92	12.68	2.37	30.04	2.00
156	10.10	3.20	6.02	0.97	9.41	2.37	22.29	2.00
157	9.09	3.27	6.57	0.99	8.27	2.37	19.59	2.00
158	9.15	3.25	6.15	0.98	8.27	2.37	19.60	2.00
159	8.05	3.32	6.53	1.00	7.04	2.37	16.69	2.00
160	7.50	3.34	6.13	1.00	6.40	2.37	15.16	2.00
161	7.89	3.30	5.76	1.00	6.77	2.37	16.05	2.00
162	9.50	3.18	4.90	0.96	8.42	2.37	19.95	2.00
163	10.94	3.10	4.42	0.94	9.87	2.37	23.38	2.00
164	10.79	3.14	5.06	0.95	9.67	2.37	22.90	2.00
165	12.03	3.06	4.26	0.92	10.88	2.37	25.78	2.00
166	11.60	3.09	4.53	0.93	10.39	2.37	24.60	2.00
167	11.12	3.09	4.24	0.94	9.83	2.37	23.28	2.00
168	10.09	3.21	5.75	0.97	8.73	2.37	20.69	2.00
169	13.20	3.07	5.03	0.93	11.85	2.37	28.08	2.00
170	16.46	2.95	4.30	0.89	15.08	2.37	35.73	2.00
171	16.52	2.93	3.98	0.89	15.06	2.37	35.68	2.00
172	14.44	2.99	4.17	0.91	12.90	2.37	30.55	2.00
173	13.76	3.01	4.16	0.91	12.15	2.37	28.78	2.00
174	14.10	3.01	4.28	0.91	12.43	2.37	29.45	2.00
175	15.16	2.96	3.84	0.90	13.41	2.37	31.77	2.00
176	16.84	2.89	3.45	0.87	15.00	2.37	35.55	2.00
177	17.40	2.87	3.27	0.87	15.48	2.37	36.67	2.00
178	18.19	2.86	3.39	0.87	16.19	2.37	38.34	2.00
179	23.55	2.70	2.68	0.82	21.35	2.37	50.59	2.00
180	24.49	2.69	2.73	0.82	22.17	2.37	52.53	2.00
181	23.22	2.72	2.82	0.82	20.85	2.37	49.40	2.00
182	24.33	2.73	3.02	0.83	21.83	2.37	51.72	2.00
183	23.83	2.77	3.39	0.84	21.26	2.37	50.37	2.00
184	25.77	2.75	3.54	0.83	23.04	2.37	54.58	2.00
185	27.70	2.73	3.52	0.83	24.78	2.37	58.72	2.00
186	26.90	2.76	3.78	0.84	23.92	2.37	56.67	2.00
187	27.95	2.74	3.70	0.83	24.81	2.37	58.79	2.00
188	27.72	2.74	3.61	0.83	24.50	2.37	58.03	2.00
189	25.99	2.77	3.75	0.84	22.76	2.37	53.92	2.00
190	25.60	2.80	4.10	0.85	22.29	2.37	52.81	2.00
191	25.51	2.81	4.20	0.85	22.11	2.37	52.39	2.00
192	27.96	2.77	4.08	0.84	24.31	2.37	57.59	2.00

Point ID			F (%)	n				
193	31.87	2.71	3.86	0.82	27.86	2.37	66.01	2.00
194	33.30	2.72	4.20	0.83	29.08	2.37	68.89	2.00
195	31.80	2.76	4.42	0.83	27.56	2.37	65.30	2.00
196	32.74	2.73	4.20	0.83	28.33	2.37	67.12	2.00
197	32.68	2.71	3.86	0.82	28.17	2.37	66.74	2.00
198	29.98	2.73	3.66	0.83	25.59	2.37	60.62	2.00
199	27.29	2.76	3.63	0.84	23.03	2.37	54.56	2.00
200	27.21	2.75	3.54	0.83	22.87	2.37	54.17	2.00
201	27.54	2.76	3.60	0.83	23.07	2.37	54.66	2.00
202	31.14	2.70	3.49	0.82	26.25	2.37	62.18	2.00
203	31.47	2.69	3.31	0.81	26.46	2.37	62.68	2.00
204	27.99	2.69	2.91	0.82	23.24	2.37	55.06	2.00
205	28.20	2.67	2.71	0.81	23.35	2.37	55.32	2.00
206	28.92	2.76	3.86	0.84	23.84	2.37	56.49	2.00
207	34.20	2.70	3.83	0.82	28.46	2.37	67.43	2.00
208	38.02	2.72	4.53	0.82	31.72	2.37	75.14	2.00
209	38.75	2.71	4.47	0.82	32.25	2.37	76.41	2.00
210	33.67	2.79	4.90	0.84	27.61	2.37	65.41	2.00
211	41.20	2.61	3.43	0.79	34.27	2.37	81.18	2.00
212	29.44	2.76	3.76	0.84	23.76	2.37	56.28	2.00
213	19.99	2.95	4.49	0.89	15.38	2.37	36.43	2.00
214	20.83	2.92	4.27	0.89	16.05	2.37	38.03	2.00
215	31.66	2.72	3.54	0.82	25.44	2.37	60.26	2.00
216	25.22	2.88	4.70	0.87	19.69	2.37	46.64	2.00
217	19.43	3.00	5.07	0.91	14.62	2.37	34.63	2.00
218	17.56	3.06	5.47	0.93	12.94	2.37	30.65	2.00
219	22.39	2.85	3.51	0.86	17.09	2.37	40.49	2.00
220	17.49	2.98	4.02	0.90	12.81	2.37	30.36	2.00
221	16.52	3.08	5.29	0.93	11.90	2.37	28.19	2.00
222	20.05	3.03	5.71	0.92	14.81	2.37	35.08	2.00
223	27.97	2.97	7.01	0.90	21.35	2.37	50.59	2.00
224	38.84	2.76	4.97	0.84	30.57	2.37	72.41	2.00
225	27.41	2.97	6.74	0.90	20.73	2.37	49.11	2.00
226	30.88	2.84	4.97	0.86	23.66	2.37	56.05	2.00
227	29.54	2.84	4.68	0.86	22.47	2.37	53.22	2.00
228	27.93	2.85	4.50	0.86	21.05	2.37	49.88	2.00
229	36.81	2.73	4.14	0.83	28.42	2.37	67.33	2.00
230	32.84	2.80	4.65	0.85	24.96	2.37	59.13	2.00
231	33.90	2.77	4.24	0.84	25.79	2.37	61.11	2.00
232	27.07	2.87	4.49	0.87	20.03	2.37	47.45	2.00
233	23.36	2.91	4.30	0.88	16.93	2.37	40.10	2.00
234	21.23	2.97	4.75	0.90	15.09	2.37	35.76	2.00
235	24.31	2.83	3.40	0.86	17.64	2.37	41.79	2.00
236	23.63	2.90	4.12	0.88	16.96	2.37	40.19	2.00
237	24.20	2.80	2.96	0.85	17.46	2.37	41.37	2.00
238	18.24	3.05	4.90	0.92	12.44	2.37	29.47	2.00
239	27.10	2.79	3.33	0.84	19.65	2.37	46.55	2.00
240	29.17	2.77	3.40	0.84	21.25	2.37	50.34	2.00
241	28.77	2.83	4.16	0.86	20.77	2.37	49.21	2.00
242	33.89	2.79	4.36	0.84	24.79	2.37	58.73	2.00
243	38.09	2.82	5.46	0.85	27.95	2.37	66.21	2.00
244	44.75	2.82	6.65	0.86	33.03	2.37	78.25	2.00
245	63.83	2.65	5.48	0.80	48.38	2.37	114.62	2.00
246	58.84	2.74	6.58	0.83	44.03	2.37	104.32	2.00
247	77.44	2.57	5.15	0.78	59.09	3.16	186.75	2.00

Point ID			F (%)	n				
248	86.83	2.49	4.51	0.76	66.69	2.74	182.68	2.00
249	125.57	2.03	1.51	0.62	100.60	1.34	134.52	0.31
250	152.85	2.01	1.75	0.61	122.78	1.31	161.42	2.00
251	94.71	2.41	3.73	0.73	72.83	2.34	170.46	2.00
252	59.95	2.71	6.04	0.82	44.17	2.34	103.38	2.00
253	56.37	2.74	6.17	0.83	41.19	2.34	96.41	2.00
254	47.93	2.73	5.21	0.83	34.63	2.34	81.05	2.00
255	30.26	2.92	5.73	0.89	20.76	2.34	48.59	2.00
256	27.44	2.88	4.43	0.87	18.65	2.34	43.65	2.00
257	28.30	2.87	4.32	0.87	19.25	2.34	45.06	2.00
258	30.23	2.84	4.21	0.86	20.68	2.34	48.41	2.00
259	34.66	2.76	3.90	0.84	24.06	2.34	56.32	2.00
260	35.61	2.73	3.61	0.83	24.77	2.34	57.97	2.00
261	33.62	2.76	3.66	0.84	23.15	2.34	54.18	2.00
262	32.39	2.81	4.18	0.85	22.05	2.34	51.61	2.00
263	32.44	2.81	4.20	0.85	22.02	2.34	51.53	2.00
264	36.14	2.76	4.02	0.84	24.78	2.34	58.00	2.00
265	33.90	2.81	4.35	0.85	22.95	2.34	53.72	2.00
266	28.10	2.88	4.37	0.87	18.51	2.34	43.32	2.00
267	26.42	2.90	4.27	0.88	17.20	2.34	40.26	2.00
268	35.78	2.77	3.95	0.84	24.21	2.34	56.66	2.00
269	41.53	2.70	3.80	0.82	28.50	2.34	66.70	2.00
270	44.17	2.67	3.72	0.81	30.43	2.34	71.22	2.00
271	43.04	2.68	3.69	0.81	29.49	2.34	69.02	2.00
272	42.29	2.69	3.74	0.82	28.83	2.34	67.47	2.00
273	40.76	2.69	3.52	0.82	27.64	2.34	64.70	2.00
274	38.74	2.71	3.54	0.82	26.04	2.34	60.95	2.00
275	38.35	2.72	3.65	0.83	25.65	2.34	60.03	2.00
276	38.64	2.77	4.27	0.84	25.66	2.34	60.05	2.00
277	32.24	2.93	5.86	0.89	20.66	2.34	48.37	2.00
278	25.99	3.00	5.64	0.91	16.11	2.34	37.72	2.00
279	25.56	2.91	3.99	0.88	15.92	2.34	37.26	2.00
280	21.85	3.00	4.35	0.91	13.16	2.34	30.80	2.00
281	20.03	3.06	4.80	0.93	11.78	2.34	27.57	2.00
282	17.89	3.12	4.91	0.94	10.21	2.34	23.90	2.00
283	17.09	3.13	4.86	0.95	9.62	2.34	22.51	2.00
284	17.27	3.14	5.03	0.95	9.69	2.34	22.69	2.00
285	16.58	3.17	5.28	0.96	9.16	2.34	21.45	2.00
286	16.81	3.15	4.91	0.95	9.31	2.34	21.79	2.00
287	19.28	3.06	4.36	0.93	11.04	2.34	25.83	2.00
288	20.25	3.07	4.87	0.93	11.63	2.34	27.22	2.00
289	20.04	3.06	4.57	0.93	11.47	2.34	26.84	2.00
290	19.50	3.07	4.50	0.93	11.06	2.34	25.88	2.00
291	16.58	3.15	4.67	0.95	8.99	2.34	21.04	2.00
292	19.28	3.04	3.93	0.92	10.87	2.34	25.45	2.00
293	21.86	2.98	3.84	0.90	12.63	2.34	29.57	2.00
294	22.72	3.00	4.35	0.91	13.13	2.34	30.73	2.00
295	24.30	3.02	5.09	0.91	14.10	2.34	33.00	2.00
296	30.75	2.92	4.92	0.88	18.52	2.34	43.34	2.00
297	33.23	2.90	5.19	0.88	20.14	2.34	47.14	2.00
298	38.32	2.85	5.21	0.86	23.60	2.34	55.25	2.00
299	41.46	2.73	3.74	0.83	26.04	2.34	60.94	2.00
300	55.51	2.50	2.47	0.76	36.49	2.76	100.76	0.18
301	51.13	2.49	2.19	0.76	33.38	2.74	91.52	0.15
302	61.21	2.47	2.50	0.75	40.42	2.61	105.55	0.19

Point ID			F (%)	n				
303	53.19	2.56	2.85	0.78	34.35	3.08	105.84	0.19
304	37.76	2.76	3.67	0.84	23.11	3.08	71.20	2.00
305	26.61	3.04	6.07	0.92	15.08	3.08	46.46	2.00
306	37.88	2.78	3.97	0.84	22.99	3.08	70.83	2.00

:: Settlements calculation for saturated sands ::

Point ID					Settle. (in)
1	9.75	307.65	5.00	0.00	0.00
2	11.02	289.79	5.00	0.00	0.00
3	11.40	227.34	5.00	0.00	0.00
4	9.04	165.98	5.00	0.00	0.00
5	6.35	153.58	5.00	0.00	0.00
6	5.45	141.29	5.00	0.00	0.00
7	7.00	133.01	5.00	0.00	0.00
8	9.89	140.05	5.00	0.00	0.00
9	11.25	144.62	5.00	0.00	0.00
10	13.54	177.35	5.00	0.00	0.00
11	19.05	217.69	5.00	0.00	0.00
12	33.04	227.07	5.00	0.00	0.00
13	36.04	213.38	5.00	0.00	0.00
14	43.69	180.03	5.00	0.00	0.00
15	45.86	177.44	5.00	0.00	0.00
16	44.69	166.31	5.00	0.00	0.00
17	44.76	156.72	5.00	0.00	0.00
18	49.38	151.79	5.00	0.00	0.00
19	45.98	137.02	5.00	0.00	0.00
20	38.26	124.06	5.00	0.00	0.00
21	27.65	118.64	5.00	0.00	0.00
22	15.74	126.37	5.00	0.00	0.00
23	10.05	86.22	5.00	0.00	0.00
24	6.28	56.53	5.00	0.00	0.00
25	4.88	43.06	5.00	0.00	0.00
26	5.03	41.78	5.00	0.00	0.00
27	4.13	34.03	5.00	0.00	0.00
28	3.31	26.73	5.00	0.00	0.00
29	3.08	23.99	5.00	0.00	0.00
30	2.95	22.59	5.00	0.00	0.00
31	2.82	21.17	5.00	0.00	0.00
32	3.17	22.68	5.00	0.00	0.00
33	3.41	23.99	5.00	0.00	0.00
34	3.50	24.38	5.00	0.00	0.00
35	3.60	24.69	5.00	0.00	0.00
36	3.80	25.48	5.00	0.00	0.00
37	3.78	24.85	5.00	0.00	0.00
38	3.37	22.00	5.00	0.00	0.00
39	3.59	22.93	5.00	0.00	0.00
40	4.03	25.37	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
41	4.08	25.60	5.00	0.00	0.00
42	3.85	23.95	5.00	0.00	0.00
43	4.11	25.04	5.00	0.00	0.00
44	4.45	26.67	5.00	0.00	0.00
45	4.69	27.83	5.00	0.00	0.00
46	4.90	28.58	5.00	0.00	0.00
47	4.85	27.92	5.00	0.00	0.00
48	5.02	28.76	5.00	0.00	0.00
49	5.28	29.95	5.00	0.00	0.00
50	5.41	30.43	5.00	0.00	0.00
51	5.42	30.09	5.00	0.00	0.00
52	5.09	27.97	5.00	0.00	0.00
53	4.68	25.49	5.00	0.00	0.00
54	4.89	26.15	5.00	0.00	0.00
55	4.92	26.04	5.00	0.00	0.00
56	4.84	25.27	5.00	0.00	0.00
57	5.11	26.15	5.00	0.00	0.00
58	4.71	23.91	5.00	0.00	0.00
59	4.72	23.61	5.00	0.00	0.00
60	4.54	22.39	5.00	0.00	0.00
61	4.52	22.43	5.00	0.00	0.00
62	4.48	21.99	5.00	0.00	0.00
63	4.90	23.86	5.00	0.00	0.00
64	5.22	25.13	5.00	0.00	0.00
65	5.94	28.26	5.00	0.00	0.00
66	5.55	26.19	5.00	0.00	0.00
67	5.35	24.88	5.00	0.00	0.00
68	5.74	26.41	5.00	0.00	0.00
69	6.02	27.50	5.00	0.00	0.00
70	6.45	29.07	5.00	0.00	0.00
71	6.61	29.60	5.00	0.00	0.00
72	7.51	33.54	5.00	0.00	0.00
73	13.21	57.46	5.00	0.00	0.00
74	14.20	61.59	5.00	0.00	0.00
75	16.30	70.17	5.00	0.00	0.00
76	17.36	74.62	5.00	0.00	0.00
77	18.61	79.44	5.00	0.00	0.00
78	19.44	82.56	5.00	0.00	0.00
79	19.88	83.66	5.00	0.00	0.00
80	19.07	79.82	5.00	0.00	0.00
81	18.81	77.96	5.00	0.00	0.00
82	18.27	75.18	5.00	0.00	0.00
83	16.86	68.89	5.00	0.00	0.00
84	14.28	58.44	5.00	0.00	0.00
85	11.37	46.51	5.00	0.00	0.00
86	10.25	41.32	5.00	0.00	0.00
87	9.42	37.44	5.00	0.00	0.00
88	8.89	34.82	5.00	0.00	0.00
89	7.94	30.84	5.00	0.00	0.00
90	7.95	30.53	5.00	0.00	0.00
91	7.90	30.16	5.00	0.00	0.00
92	9.03	34.36	5.00	0.00	0.00
93	8.13	30.51	5.00	0.00	0.00
94	7.33	26.91	5.00	0.00	0.00
95	7.47	27.20	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
96	7.06	25.19	5.00	0.00	0.00
97	6.17	21.68	5.00	0.00	0.00
98	6.68	23.42	5.00	0.00	0.00
99	6.65	23.27	5.00	0.00	0.00
100	5.91	20.19	5.00	0.00	0.00
101	5.79	19.41	5.00	0.00	0.00
102	5.45	17.93	5.00	0.00	0.00
103	4.90	15.70	5.00	0.00	0.00
104	5.12	16.43	5.00	0.00	0.00
105	7.12	23.68	5.00	0.00	0.00
106	7.41	24.47	5.00	0.00	0.00
107	7.16	23.65	5.00	0.00	0.00
108	10.69	36.02	5.00	0.00	0.00
109	13.20	44.49	5.00	0.00	0.00
110	12.01	40.07	5.00	0.00	0.00
111	8.04	26.03	5.00	0.00	0.00
112	8.74	28.17	5.00	0.00	0.00
113	9.85	31.81	5.00	0.00	0.00
114	13.57	43.94	5.00	0.00	0.00
115	25.77	74.31	0.37	2.98	0.06
116	13.45	38.57	5.00	0.00	0.00
117	7.95	21.65	5.00	0.00	0.00
118	6.58	17.24	5.00	0.00	0.00
119	6.34	16.38	5.00	0.00	0.00
120	7.91	20.84	5.00	0.00	0.00
121	9.47	25.53	5.00	0.00	0.00
122	9.79	26.32	5.00	0.00	0.00
123	7.91	20.85	5.00	0.00	0.00
124	13.05	35.77	5.00	0.00	0.00
125	12.22	33.22	5.00	0.00	0.00
126	11.31	30.44	5.00	0.00	0.00
127	11.28	30.19	5.00	0.00	0.00
128	10.98	29.10	5.00	0.00	0.00
129	10.37	27.18	5.00	0.00	0.00
130	9.90	25.73	5.00	0.00	0.00
131	9.11	23.31	5.00	0.00	0.00
132	8.75	22.12	5.00	0.00	0.00
133	9.13	23.00	5.00	0.00	0.00
134	8.79	21.89	5.00	0.00	0.00
135	8.56	21.06	5.00	0.00	0.00
136	8.58	20.94	5.00	0.00	0.00
137	7.60	18.03	5.00	0.00	0.00
138	6.58	15.03	5.00	0.00	0.00
139	5.40	11.57	5.00	0.00	0.00
140	5.12	10.67	5.00	0.00	0.00
141	5.71	12.27	5.00	0.00	0.00
142	6.20	13.56	5.00	0.00	0.00
143	8.62	20.11	5.00	0.00	0.00
144	9.08	21.23	5.00	0.00	0.00
145	9.44	22.01	5.00	0.00	0.00
146	8.16	18.51	5.00	0.00	0.00
147	7.01	15.27	5.00	0.00	0.00
148	7.16	15.56	5.00	0.00	0.00
149	7.69	16.90	5.00	0.00	0.00
150	7.68	16.74	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
151	9.58	21.74	5.00	0.00	0.00
152	15.39	36.59	5.00	0.00	0.00
153	14.92	35.18	5.00	0.00	0.00
154	13.71	31.85	5.00	0.00	0.00
155	13.09	30.04	5.00	0.00	0.00
156	10.10	22.29	5.00	0.00	0.00
157	9.09	19.59	5.00	0.00	0.00
158	9.15	19.60	5.00	0.00	0.00
159	8.05	16.69	5.00	0.00	0.00
160	7.50	15.16	5.00	0.00	0.00
161	7.89	16.05	5.00	0.00	0.00
162	9.50	19.95	5.00	0.00	0.00
163	10.94	23.38	5.00	0.00	0.00
164	10.79	22.90	5.00	0.00	0.00
165	12.03	25.78	5.00	0.00	0.00
166	11.60	24.60	5.00	0.00	0.00
167	11.12	23.28	5.00	0.00	0.00
168	10.09	20.69	5.00	0.00	0.00
169	13.20	28.08	5.00	0.00	0.00
170	16.46	35.73	5.00	0.00	0.00
171	16.52	35.68	5.00	0.00	0.00
172	14.44	30.55	5.00	0.00	0.00
173	13.76	28.78	5.00	0.00	0.00
174	14.10	29.45	5.00	0.00	0.00
175	15.16	31.77	5.00	0.00	0.00
176	16.84	35.55	5.00	0.00	0.00
177	17.40	36.67	5.00	0.00	0.00
178	18.19	38.34	5.00	0.00	0.00
179	23.55	50.59	5.00	0.00	0.00
180	24.49	52.53	5.00	0.00	0.00
181	23.22	49.40	5.00	0.00	0.00
182	24.33	51.72	5.00	0.00	0.00
183	23.83	50.37	5.00	0.00	0.00
184	25.77	54.58	5.00	0.00	0.00
185	27.70	58.72	5.00	0.00	0.00
186	26.90	56.67	5.00	0.00	0.00
187	27.95	58.79	5.00	0.00	0.00
188	27.72	58.03	5.00	0.00	0.00
189	25.99	53.92	5.00	0.00	0.00
190	25.60	52.81	5.00	0.00	0.00
191	25.51	52.39	5.00	0.00	0.00
192	27.96	57.59	5.00	0.00	0.00
193	31.87	66.01	5.00	0.00	0.00
194	33.30	68.89	5.00	0.00	0.00
195	31.80	65.30	5.00	0.00	0.00
196	32.74	67.12	5.00	0.00	0.00
197	32.68	66.74	5.00	0.00	0.00
198	29.98	60.62	5.00	0.00	0.00
199	27.29	54.56	5.00	0.00	0.00
200	27.21	54.17	5.00	0.00	0.00
201	27.54	54.66	5.00	0.00	0.00
202	31.14	62.18	5.00	0.00	0.00
203	31.47	62.68	5.00	0.00	0.00
204	27.99	55.06	5.00	0.00	0.00
205	28.20	55.32	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
206	28.92	56.49	5.00	0.00	0.00
207	34.20	67.43	5.00	0.00	0.00
208	38.02	75.14	5.00	0.00	0.00
209	38.75	76.41	5.00	0.00	0.00
210	33.67	65.41	5.00	0.00	0.00
211	41.20	81.18	5.00	0.00	0.00
212	29.44	56.28	5.00	0.00	0.00
213	19.99	36.43	5.00	0.00	0.00
214	20.83	38.03	5.00	0.00	0.00
215	31.66	60.26	5.00	0.00	0.00
216	25.22	46.64	5.00	0.00	0.00
217	19.43	34.63	5.00	0.00	0.00
218	17.56	30.65	5.00	0.00	0.00
219	22.39	40.49	5.00	0.00	0.00
220	17.49	30.36	5.00	0.00	0.00
221	16.52	28.19	5.00	0.00	0.00
222	20.05	35.08	5.00	0.00	0.00
223	27.97	50.59	5.00	0.00	0.00
224	38.84	72.41	5.00	0.00	0.00
225	27.41	49.11	5.00	0.00	0.00
226	30.88	56.05	5.00	0.00	0.00
227	29.54	53.22	5.00	0.00	0.00
228	27.93	49.88	5.00	0.00	0.00
229	36.81	67.33	5.00	0.00	0.00
230	32.84	59.13	5.00	0.00	0.00
231	33.90	61.11	5.00	0.00	0.00
232	27.07	47.45	5.00	0.00	0.00
233	23.36	40.10	5.00	0.00	0.00
234	21.23	35.76	5.00	0.00	0.00
235	24.31	41.79	5.00	0.00	0.00
236	23.63	40.19	5.00	0.00	0.00
237	24.20	41.37	5.00	0.00	0.00
238	18.24	29.47	5.00	0.00	0.00
239	27.10	46.55	5.00	0.00	0.00
240	29.17	50.34	5.00	0.00	0.00
241	28.77	49.21	5.00	0.00	0.00
242	33.89	58.73	5.00	0.00	0.00
243	38.09	66.21	5.00	0.00	0.00
244	44.75	78.25	5.00	0.00	0.00
245	63.83	114.62	5.00	0.00	0.00
246	58.84	104.32	5.00	0.00	0.00
247	77.44	186.75	5.00	0.00	0.00
248	86.83	182.68	5.00	0.00	0.00
249	125.57	134.52	0.92	1.01	0.02
250	152.85	161.42	5.00	0.00	0.00
251	94.71	170.46	5.00	0.00	0.00
252	59.95	103.38	5.00	0.00	0.00
253	56.37	96.41	5.00	0.00	0.00
254	47.93	81.05	5.00	0.00	0.00
255	30.26	48.59	5.00	0.00	0.00
256	27.44	43.65	5.00	0.00	0.00
257	28.30	45.06	5.00	0.00	0.00
258	30.23	48.41	5.00	0.00	0.00
259	34.66	56.32	5.00	0.00	0.00
260	35.61	57.97	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
261	33.62	54.18	5.00	0.00	0.00
262	32.39	51.61	5.00	0.00	0.00
263	32.44	51.53	5.00	0.00	0.00
264	36.14	58.00	5.00	0.00	0.00
265	33.90	53.72	5.00	0.00	0.00
266	28.10	43.32	5.00	0.00	0.00
267	26.42	40.26	5.00	0.00	0.00
268	35.78	56.66	5.00	0.00	0.00
269	41.53	66.70	5.00	0.00	0.00
270	44.17	71.22	5.00	0.00	0.00
271	43.04	69.02	5.00	0.00	0.00
272	42.29	67.47	5.00	0.00	0.00
273	40.76	64.70	5.00	0.00	0.00
274	38.74	60.95	5.00	0.00	0.00
275	38.35	60.03	5.00	0.00	0.00
276	38.64	60.05	5.00	0.00	0.00
277	32.24	48.37	5.00	0.00	0.00
278	25.99	37.72	5.00	0.00	0.00
279	25.56	37.26	5.00	0.00	0.00
280	21.85	30.80	5.00	0.00	0.00
281	20.03	27.57	5.00	0.00	0.00
282	17.89	23.90	5.00	0.00	0.00
283	17.09	22.51	5.00	0.00	0.00
284	17.27	22.69	5.00	0.00	0.00
285	16.58	21.45	5.00	0.00	0.00
286	16.81	21.79	5.00	0.00	0.00
287	19.28	25.83	5.00	0.00	0.00
288	20.25	27.22	5.00	0.00	0.00
289	20.04	26.84	5.00	0.00	0.00
290	19.50	25.88	5.00	0.00	0.00
291	16.58	21.04	5.00	0.00	0.00
292	19.28	25.45	5.00	0.00	0.00
293	21.86	29.57	5.00	0.00	0.00
294	22.72	30.73	5.00	0.00	0.00
295	24.30	33.00	5.00	0.00	0.00
296	30.75	43.34	5.00	0.00	0.00
297	33.23	47.14	5.00	0.00	0.00
298	38.32	55.25	5.00	0.00	0.00
299	41.46	60.94	5.00	0.00	0.00
300	55.51	100.76	0.54	2.32	0.04
301	51.13	91.52	0.47	2.51	0.05
302	61.21	105.55	0.59	2.24	0.04
303	53.19	105.84	0.59	2.23	0.04
304	37.76	71.20	5.00	0.00	0.00
305	26.61	46.46	5.00	0.00	0.00
306	37.88	70.83	5.00	0.00	0.00

Total settlement : 0.26

Measured cone resistance
Normalized and adjusted cone resistance
Factor of safety against liquefaction
Post-liquefaction volumentric strain
Calculated settlement

:: Overall liquefaction potential according to Iwasaki ::

Point ID	F			Point ID	F		
1	0.00	9.98	0.00	2	0.00	9.95	0.00
3	0.00	9.93	0.00	4	0.00	9.90	0.00
5	0.00	9.88	0.00	6	0.00	9.85	0.00
7	0.00	9.82	0.00	8	0.00	9.80	0.00
9	0.00	9.77	0.00	10	0.00	9.75	0.00
11	0.00	9.73	0.00	12	0.00	9.70	0.00
13	0.00	9.68	0.00	14	0.00	9.65	0.00
15	0.00	9.63	0.00	16	0.00	9.60	0.00
17	0.00	9.57	0.00	18	0.00	9.55	0.00
19	0.00	9.52	0.00	20	0.00	9.50	0.00
21	0.00	9.48	0.00	22	0.00	9.45	0.00
23	0.00	9.43	0.00	24	0.00	9.40	0.00
25	0.00	9.38	0.00	26	0.00	9.35	0.00
27	0.00	9.32	0.00	28	0.00	9.30	0.00
29	0.00	9.27	0.00	30	0.00	9.25	0.00
31	0.00	9.22	0.00	32	0.00	9.20	0.00
33	0.00	9.18	0.00	34	0.00	9.15	0.00
35	0.00	9.13	0.00	36	0.00	9.10	0.00
37	0.00	9.07	0.00	38	0.00	9.05	0.00
39	0.00	9.02	0.00	40	0.00	9.00	0.00
41	0.00	8.97	0.00	42	0.00	8.95	0.00
43	0.00	8.93	0.00	44	0.00	8.90	0.00
45	0.00	8.88	0.00	46	0.00	8.85	0.00
47	0.00	8.82	0.00	48	0.00	8.80	0.00
49	0.00	8.77	0.00	50	0.00	8.75	0.00
51	0.00	8.72	0.00	52	0.00	8.70	0.00
53	0.00	8.68	0.00	54	0.00	8.65	0.00
55	0.00	8.63	0.00	56	0.00	8.60	0.00
57	0.00	8.58	0.00	58	0.00	8.55	0.00
59	0.00	8.52	0.00	60	0.00	8.50	0.00
61	0.00	8.47	0.00	62	0.00	8.45	0.00
63	0.00	8.43	0.00	64	0.00	8.40	0.00
65	0.00	8.38	0.00	66	0.00	8.35	0.00
67	0.00	8.33	0.00	68	0.00	8.30	0.00
69	0.00	8.27	0.00	70	0.00	8.25	0.00
71	0.00	8.22	0.00	72	0.00	8.20	0.00
73	0.00	8.17	0.00	74	0.00	8.15	0.00
75	0.00	8.13	0.00	76	0.00	8.10	0.00
77	0.00	8.08	0.00	78	0.00	8.05	0.00
79	0.00	8.02	0.00	80	0.00	8.00	0.00
81	0.00	7.97	0.00	82	0.00	7.95	0.00
83	0.00	7.92	0.00	84	0.00	7.90	0.00
85	0.00	7.88	0.00	86	0.00	7.85	0.00
87	0.00	7.83	0.00	88	0.00	7.80	0.00
89	0.00	7.77	0.00	90	0.00	7.75	0.00
91	0.00	7.72	0.00	92	0.00	7.70	0.00
93	0.00	7.67	0.00	94	0.00	7.65	0.00
95	0.00	7.63	0.00	96	0.00	7.60	0.00
97	0.00	7.58	0.00	98	0.00	7.55	0.00
99	0.00	7.53	0.00	100	0.00	7.50	0.00
101	0.00	7.47	0.00	102	0.00	7.45	0.00
103	0.00	7.42	0.00	104	0.00	7.40	0.00
105	0.00	7.38	0.00	106	0.00	7.35	0.00
107	0.00	7.33	0.00	108	0.00	7.30	0.00
109	0.00	7.28	0.00	110	0.00	7.25	0.00
111	0.00	7.22	0.00	112	0.00	7.20	0.00

:: Overall liquefaction potential according to Iwasaki (continued) ::

Point ID	F			Point ID	F		
113	0.00	7.17	0.00	114	0.00	7.15	0.00
115	0.63	7.13	0.22	116	0.00	7.10	0.00
117	0.00	7.08	0.00	118	0.00	7.05	0.00
119	0.00	7.03	0.00	120	0.00	7.00	0.00
121	0.00	6.97	0.00	122	0.00	6.95	0.00
123	0.00	6.92	0.00	124	0.00	6.90	0.00
125	0.00	6.87	0.00	126	0.00	6.85	0.00
127	0.00	6.83	0.00	128	0.00	6.80	0.00
129	0.00	6.78	0.00	130	0.00	6.75	0.00
131	0.00	6.72	0.00	132	0.00	6.70	0.00
133	0.00	6.67	0.00	134	0.00	6.65	0.00
135	0.00	6.62	0.00	136	0.00	6.60	0.00
137	0.00	6.58	0.00	138	0.00	6.55	0.00
139	0.00	6.53	0.00	140	0.00	6.50	0.00
141	0.00	6.47	0.00	142	0.00	6.45	0.00
143	0.00	6.42	0.00	144	0.00	6.40	0.00
145	0.00	6.37	0.00	146	0.00	6.35	0.00
147	0.00	6.33	0.00	148	0.00	6.30	0.00
149	0.00	6.28	0.00	150	0.00	6.25	0.00
151	0.00	6.23	0.00	152	0.00	6.20	0.00
153	0.00	6.17	0.00	154	0.00	6.15	0.00
155	0.00	6.12	0.00	156	0.00	6.10	0.00
157	0.00	6.08	0.00	158	0.00	6.05	0.00
159	0.00	6.03	0.00	160	0.00	6.00	0.00
161	0.00	5.98	0.00	162	0.00	5.95	0.00
163	0.00	5.92	0.00	164	0.00	5.90	0.00
165	0.00	5.87	0.00	166	0.00	5.85	0.00
167	0.00	5.82	0.00	168	0.00	5.80	0.00
169	0.00	5.78	0.00	170	0.00	5.75	0.00
171	0.00	5.73	0.00	172	0.00	5.70	0.00
173	0.00	5.67	0.00	174	0.00	5.65	0.00
175	0.00	5.62	0.00	176	0.00	5.60	0.00
177	0.00	5.57	0.00	178	0.00	5.55	0.00
179	0.00	5.53	0.00	180	0.00	5.50	0.00
181	0.00	5.48	0.00	182	0.00	5.45	0.00
183	0.00	5.42	0.00	184	0.00	5.40	0.00
185	0.00	5.37	0.00	186	0.00	5.35	0.00
187	0.00	5.32	0.00	188	0.00	5.30	0.00
189	0.00	5.28	0.00	190	0.00	5.25	0.00
191	0.00	5.23	0.00	192	0.00	5.20	0.00
193	0.00	5.18	0.00	194	0.00	5.15	0.00
195	0.00	5.12	0.00	196	0.00	5.10	0.00
197	0.00	5.07	0.00	198	0.00	5.05	0.00
199	0.00	5.03	0.00	200	0.00	5.00	0.00
201	0.00	4.98	0.00	202	0.00	4.95	0.00
203	0.00	4.93	0.00	204	0.00	4.90	0.00
205	0.00	4.87	0.00	206	0.00	4.85	0.00
207	0.00	4.82	0.00	208	0.00	4.80	0.00
209	0.00	4.78	0.00	210	0.00	4.75	0.00
211	0.00	4.73	0.00	212	0.00	4.70	0.00
213	0.00	4.68	0.00	214	0.00	4.65	0.00
215	0.00	4.62	0.00	216	0.00	4.60	0.00
217	0.00	4.57	0.00	218	0.00	4.55	0.00
219	0.00	4.52	0.00	220	0.00	4.50	0.00
221	0.00	4.48	0.00	222	0.00	4.45	0.00
223	0.00	4.43	0.00	224	0.00	4.40	0.00

:: Overall liquefaction potential according to Iwasaki (continued) ::

Point ID	F			Point ID	F		
225	0.00	4.37	0.00	226	0.00	4.35	0.00
227	0.00	4.32	0.00	228	0.00	4.30	0.00
229	0.00	4.27	0.00	230	0.00	4.25	0.00
231	0.00	4.23	0.00	232	0.00	4.20	0.00
233	0.00	4.18	0.00	234	0.00	4.15	0.00
235	0.00	4.12	0.00	236	0.00	4.10	0.00
237	0.00	4.07	0.00	238	0.00	4.05	0.00
239	0.00	4.02	0.00	240	0.00	4.00	0.00
241	0.00	3.98	0.00	242	0.00	3.95	0.00
243	0.00	3.93	0.00	244	0.00	3.90	0.00
245	0.00	3.88	0.00	246	0.00	3.85	0.00
247	0.00	3.82	0.00	248	0.00	3.80	0.00
249	0.08	3.77	0.02	250	0.00	3.75	0.00
251	0.00	3.73	0.00	252	0.00	3.70	0.00
253	0.00	3.68	0.00	254	0.00	3.65	0.00
255	0.00	3.63	0.00	256	0.00	3.60	0.00
257	0.00	3.57	0.00	258	0.00	3.55	0.00
259	0.00	3.52	0.00	260	0.00	3.50	0.00
261	0.00	3.48	0.00	262	0.00	3.45	0.00
263	0.00	3.43	0.00	264	0.00	3.40	0.00
265	0.00	3.38	0.00	266	0.00	3.35	0.00
267	0.00	3.32	0.00	268	0.00	3.30	0.00
269	0.00	3.27	0.00	270	0.00	3.25	0.00
271	0.00	3.22	0.00	272	0.00	3.20	0.00
273	0.00	3.18	0.00	274	0.00	3.15	0.00
275	0.00	3.13	0.00	276	0.00	3.10	0.00
277	0.00	3.07	0.00	278	0.00	3.05	0.00
279	0.00	3.02	0.00	280	0.00	3.00	0.00
281	0.00	2.97	0.00	282	0.00	2.95	0.00
283	0.00	2.93	0.00	284	0.00	2.90	0.00
285	0.00	2.88	0.00	286	0.00	2.85	0.00
287	0.00	2.83	0.00	288	0.00	2.80	0.00
289	0.00	2.77	0.00	290	0.00	2.75	0.00
291	0.00	2.72	0.00	292	0.00	2.70	0.00
293	0.00	2.68	0.00	294	0.00	2.65	0.00
295	0.00	2.63	0.00	296	0.00	2.60	0.00
297	0.00	2.58	0.00	298	0.00	2.55	0.00
299	0.00	2.52	0.00	300	0.46	2.50	0.06
301	0.53	2.47	0.07	302	0.41	2.45	0.05
303	0.41	2.43	0.05	304	0.00	2.40	0.00
305	0.00	2.38	0.00	306	0.00	2.35	0.00

GeoLogismiki
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Merarhias 56, 621 25 - Serrai, Greece
url: http://www.geologismiki.gr - email: info@geologismiki.gr

LIQUEFACTION ANALYSIS REPORT

Project title : 10487.01 - Morning Star Packing Company Cooling Pond Expansions

Project subtitle : CPT-05

Input parameters and analysis data

In-situ data type:	Cone Penetration Test	5.00 ft
Analysis type:	Deterministic	6.58
Analysis method:	Robertson (1998)	0.44 g
Fines correction method:	Robertson (1998)	1.00

Liquefaction

No Liquefaction

Soil type index legend

- Gravelly sand to dense sand
- Sands: clean sand to silty sand
- Sand mixtures: silty sand to sandy silt
- Silt mixtures: clayey silt to silty clay
- Clays: silty clay to clay
- Organic soils: peats

:: Field input data ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
1	0.16	9.97	0.10	8.71	120.94
2	0.33	11.32	0.22	14.10	120.94
3	0.49	8.99	0.31	21.98	120.94
4	0.66	9.37	0.35	24.21	120.94
5	0.82	8.14	0.39	29.53	120.94
6	0.98	8.47	0.39	30.04	120.94
7	1.15	8.19	0.40	32.45	120.94
8	1.31	8.10	0.40	33.83	120.94
9	1.48	8.91	0.44	34.08	120.94
10	1.64	10.67	0.48	31.73	120.94
11	1.80	10.35	0.52	34.36	120.94
12	1.97	11.06	0.60	35.37	120.94
13	2.13	10.31	0.54	36.52	120.94
14	2.30	9.76	0.48	37.01	120.94
15	2.46	9.90	0.52	38.68	120.94
16	2.62	11.23	0.56	36.73	120.94
17	2.79	10.24	0.52	39.12	120.94
18	2.95	7.59	0.49	47.85	120.94
19	3.12	6.19	0.41	52.53	120.94
20	3.28	5.71	0.33	52.26	120.94
21	3.44	5.23	0.27	53.11	120.94
22	3.61	4.81	0.25	55.44	120.94
23	3.77	4.61	0.22	55.71	120.94
24	3.94	4.60	0.21	55.98	120.94
25	4.10	4.50	0.21	57.68	120.94
26	4.27	4.02	0.19	61.53	120.94
27	4.43	3.84	0.18	62.61	120.94
28	4.59	3.67	0.17	64.30	120.94
29	4.76	3.48	0.14	64.94	120.94
30	4.92	2.96	0.11	68.83	120.94
31	5.09	2.55	0.09	72.12	120.94
32	5.25	2.51	0.09	73.49	120.94
33	5.41	2.72	0.13	77.58	120.94
34	5.58	3.49	0.15	68.33	120.94
35	5.74	3.38	0.13	68.34	120.94
36	5.91	3.25	0.13	69.68	120.94
37	6.07	2.97	0.11	72.28	120.94
38	6.23	2.95	0.11	72.12	120.94
39	6.40	2.92	0.11	73.72	120.94
40	6.56	3.08	0.09	67.43	120.94
41	6.73	2.78	0.13	79.97	120.94
42	6.89	3.22	0.14	74.92	120.94
43	7.05	3.16	0.14	76.13	120.94
44	7.22	3.22	0.13	74.93	120.94
45	7.38	3.55	0.15	72.71	120.94
46	7.55	4.00	0.17	69.63	120.94
47	7.71	5.74	0.11	48.16	120.94
48	7.87	3.57	0.13	70.38	120.94
49	8.04	3.83	0.18	73.61	120.94
50	8.20	8.13	0.26	48.60	120.94
51	8.37	8.95	0.26	45.51	120.94
52	8.53	7.43	0.29	54.13	120.94
53	8.69	6.18	0.33	64.35	120.94
54	8.86	7.39	0.29	54.76	120.94
55	9.02	8.77	0.28	48.39	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
56	9.19	8.87	0.24	46.03	120.94
57	9.35	8.78	0.32	50.58	120.94
58	9.51	11.54	0.23	37.59	120.94
59	9.68	17.27	0.16	23.66	120.94
60	9.84	17.74	0.09	19.68	120.94
61	10.01	13.91	0.13	26.96	120.94
62	10.17	9.55	0.14	38.28	120.94
63	10.33	8.53	0.15	42.61	120.94
64	10.50	6.59	0.18	54.87	120.94
65	10.66	5.34	0.20	65.79	120.94
66	10.83	6.82	0.22	56.70	120.94
67	10.99	7.32	0.23	54.86	120.94
68	11.15	7.06	0.22	55.54	120.94
69	11.32	6.91	0.20	55.89	120.94
70	11.48	6.76	0.19	55.96	120.94
71	11.65	7.03	0.18	54.13	120.94
72	11.81	7.65	0.26	55.92	120.94
73	11.98	8.72	0.33	55.08	120.94
74	12.14	9.51	0.36	53.28	120.94
75	12.30	9.30	0.32	52.26	120.94
76	12.47	10.17	0.32	49.25	120.94
77	12.63	11.44	0.39	47.92	120.94
78	12.80	12.27	0.43	47.12	120.94
79	12.96	13.23	0.46	45.83	120.94
80	13.12	15.59	0.58	43.60	120.94
81	13.29	18.40	0.76	42.39	120.94
82	13.45	18.74	0.89	44.33	120.94
83	13.62	18.15	0.80	43.92	120.94
84	13.78	16.76	0.75	45.83	120.94
85	13.94	16.85	0.65	43.57	120.94
86	14.11	16.29	0.62	43.99	120.94
87	14.27	15.75	0.63	45.71	120.94
88	14.44	14.90	0.66	48.50	120.94
89	14.60	14.95	0.68	48.93	120.94
90	14.76	15.77	0.70	47.73	120.94
91	14.93	16.62	0.76	47.24	120.94
92	15.09	17.08	0.74	46.02	120.94
93	15.26	16.12	0.66	46.29	120.94
94	15.42	18.88	0.74	42.83	120.94
95	15.58	21.86	0.82	39.62	120.94
96	15.75	24.01	1.01	39.90	120.94
97	15.91	27.03	1.08	37.21	120.94
98	16.08	26.72	1.09	37.85	120.94
99	16.24	25.59	1.08	39.09	120.94
100	16.40	23.34	0.97	40.53	120.94
101	16.57	20.83	0.86	42.70	120.94
102	16.73	19.86	0.81	43.44	120.94
103	16.90	18.79	0.89	47.05	120.94
104	17.06	17.95	0.83	47.66	120.94
105	17.22	14.58	0.68	52.43	120.94
106	17.39	11.99	0.49	54.94	120.94
107	17.55	10.91	0.42	56.49	120.94
108	17.72	10.31	0.36	56.30	120.94
109	17.88	9.58	0.29	56.28	120.94
110	18.04	10.13	0.33	56.02	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
111	18.21	10.96	0.30	51.71	120.94
112	18.37	12.06	0.54	57.45	120.94
113	18.54	13.65	0.63	54.93	120.94
114	18.70	16.82	0.65	47.47	120.94
115	18.86	18.35	0.58	42.71	120.94
116	19.03	19.34	0.70	43.71	120.94
117	19.19	23.32	0.85	40.49	120.94
118	19.36	25.49	0.92	38.92	120.94
119	19.52	26.94	1.13	40.21	120.94
120	19.69	26.57	1.09	40.17	120.94
121	19.85	26.78	1.12	40.50	120.94
122	20.01	27.79	1.13	39.46	120.94
123	20.18	27.46	1.12	39.87	120.94
124	20.34	26.62	0.91	37.83	120.94
125	20.51	24.36	0.77	38.45	120.94
126	20.67	24.13	0.78	38.94	120.94
127	20.83	21.87	0.86	43.92	120.94
128	21.00	19.84	0.82	46.80	120.94
129	21.16	17.56	0.71	49.16	120.94
130	21.33	16.46	0.67	50.91	120.94
131	21.49	17.70	0.68	48.47	120.94
132	21.65	19.87	0.75	45.69	120.94
133	21.82	23.02	0.90	43.46	120.94
134	21.98	20.47	0.84	46.72	120.94
135	22.15	18.73	0.75	48.35	120.94
136	22.31	17.41	0.66	49.14	120.94
137	22.47	16.92	0.65	50.29	120.94
138	22.64	17.36	0.67	49.91	120.94
139	22.80	17.60	0.71	50.28	120.94
140	22.97	20.93	0.87	47.13	120.94
141	23.13	24.53	1.04	44.27	120.94
142	23.29	24.76	1.07	44.60	120.94
143	23.46	26.27	1.02	41.83	120.94
144	23.62	25.65	0.96	41.86	120.94
145	23.79	25.76	0.98	42.04	120.94
146	23.95	28.04	1.04	40.11	120.94
147	24.11	27.74	1.10	41.48	120.94
148	24.28	28.41	1.15	41.44	120.94
149	24.44	30.57	1.25	40.33	120.94
150	24.61	32.83	1.47	40.58	120.94
151	24.77	34.08	1.64	41.15	120.94
152	24.93	33.49	1.77	43.05	120.94
153	25.10	33.86	1.87	43.75	120.94
154	25.26	32.15	1.85	45.49	120.94
155	25.43	44.34	1.95	35.63	120.94
156	25.59	53.31	2.24	32.27	120.94
157	25.75	55.48	1.69	27.40	120.94
158	25.92	75.75	1.70	20.15	120.94
159	26.08	67.08	1.84	23.81	120.94
160	26.25	59.13	1.77	26.54	120.94
161	26.41	112.91	1.15	9.80	120.94
162	26.57	114.81	0.98	8.58	120.94
163	26.74	82.16	1.34	16.40	120.94
164	26.90	32.32	0.91	35.06	120.94
165	27.07	22.43	0.75	44.70	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
166	27.23	17.41	0.62	51.59	120.94
167	27.40	16.23	0.55	52.89	120.94
168	27.56	14.92	0.48	54.28	120.94
169	27.72	13.76	0.46	57.18	120.94
170	27.89	13.94	0.47	57.14	120.94
171	28.05	12.94	0.45	59.98	120.94
172	28.22	12.61	0.44	60.80	120.94
173	28.38	11.36	0.37	63.06	120.94
174	28.54	10.71	0.31	63.01	120.94
175	28.71	10.90	0.39	66.84	120.94
176	28.87	14.87	0.54	57.31	120.94
177	29.04	33.85	0.53	27.99	120.94
178	29.20	42.37	0.40	20.04	120.94
179	29.36	46.48	0.54	20.49	120.94
180	29.53	38.32	1.02	32.55	120.94
181	29.69	24.53	1.04	48.20	120.94
182	29.86	28.49	0.86	39.71	120.94
183	30.02	36.92	0.96	32.96	120.94
184	30.18	29.20	0.92	40.05	120.94
185	30.35	22.53	0.83	48.08	120.94
186	30.51	23.40	0.90	47.99	120.94
187	30.68	23.22	0.91	48.64	120.94
188	30.84	22.56	0.82	48.16	120.94
189	31.00	21.56	0.82	50.14	120.94
190	31.17	20.16	0.80	52.57	120.94
191	31.33	20.95	0.76	50.19	120.94
192	31.50	21.08	0.72	49.18	120.94
193	31.66	20.58	0.71	49.99	120.94
194	31.82	20.96	0.73	49.77	120.94
195	31.99	20.41	0.74	51.18	120.94
196	32.15	19.46	0.69	52.11	120.94
197	32.32	19.46	0.66	51.56	120.94
198	32.48	19.66	0.71	52.44	120.94
199	32.64	20.69	0.71	50.39	120.94
200	32.81	20.62	0.77	51.84	120.94
201	32.97	22.51	0.88	50.59	120.94
202	33.14	26.47	1.11	48.11	120.94
203	33.30	28.65	1.18	46.26	120.94
204	33.46	29.58	1.28	46.40	120.94
205	33.63	32.90	1.30	42.81	120.94
206	33.79	31.43	1.39	45.72	120.94
207	33.96	31.12	1.27	44.61	120.94
208	34.12	30.43	1.24	45.10	120.94
209	34.28	29.22	1.22	46.56	120.94
210	34.45	29.73	1.14	44.77	120.94
211	34.61	28.59	1.12	46.05	120.94
212	34.78	29.82	1.25	46.32	120.94
213	34.94	28.53	1.19	47.27	120.94
214	35.10	28.96	1.12	45.87	120.94
215	35.27	31.36	1.26	44.75	120.94
216	35.43	36.64	1.56	42.65	120.94
217	35.60	37.99	1.43	40.06	120.94
218	35.76	30.40	1.35	47.42	120.94
219	35.93	33.68	1.41	44.25	120.94
220	36.09	28.43	1.22	48.48	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
221	36.25	31.32	0.94	40.71	120.94
222	36.42	19.09	0.85	59.42	120.94
223	36.58	22.61	0.96	54.11	120.94
224	36.75	28.74	1.09	46.47	120.94
225	36.91	29.24	1.19	47.26	120.94
226	37.07	30.57	1.18	45.57	120.94
227	37.24	32.97	1.30	44.27	120.94
228	37.40	34.81	1.49	44.65	120.94
229	37.57	31.93	1.27	45.25	120.94
230	37.73	28.80	1.10	46.99	120.94
231	37.89	24.08	0.92	51.29	120.94
232	38.06	22.55	0.82	52.24	120.94
233	38.22	25.56	0.92	49.08	120.94
234	38.39	29.32	1.08	46.32	120.94
235	38.55	31.00	1.15	45.23	120.94
236	38.71	30.48	1.07	44.72	120.94
237	38.88	28.29	0.88	44.61	120.94
238	39.04	23.76	0.82	50.58	120.94
239	39.21	22.46	0.70	50.38	120.94
240	39.37	22.28	0.89	54.94	120.94
241	39.53	26.91	1.25	52.99	120.94
242	39.70	29.14	1.74	55.92	120.94
243	39.86	41.82	2.37	46.83	120.94
244	40.03	53.67	3.09	42.35	120.94
245	40.19	68.46	3.29	35.24	120.94
246	40.35	76.09	2.68	29.09	120.94
247	40.52	85.07	1.47	19.19	120.94
248	40.68	105.08	1.60	15.69	120.94
249	40.85	125.80	1.39	11.36	120.94
250	41.01	132.26	1.65	11.87	120.94
251	41.17	132.67	1.60	11.58	120.94
252	41.34	129.55	1.81	12.99	120.94
253	41.50	129.42	1.90	13.44	120.94
254	41.67	132.46	1.92	13.15	120.94
255	41.83	135.87	2.12	13.55	120.94
256	41.99	139.59	2.16	13.27	120.94
257	42.16	142.94	2.26	13.23	120.94
258	42.32	146.51	2.39	13.33	120.94
259	42.49	148.58	2.54	13.63	120.94
260	42.65	150.46	2.57	13.53	120.94
261	42.81	148.71	2.49	13.47	120.94
262	42.98	147.34	2.36	13.20	120.94
263	43.14	151.16	2.29	12.49	120.94
264	43.31	158.94	2.13	11.10	120.94
265	43.47	165.38	1.77	9.14	120.94
266	43.64	172.83	1.32	6.73	120.94
267	43.80	176.78	0.78	4.04	120.94
268	43.96	182.97	0.64	3.04	120.94
269	44.13	172.13	0.68	3.81	120.94
270	44.29	176.52	0.90	4.66	120.94
271	44.46	162.81	1.04	6.23	120.94
272	44.62	164.07	1.03	6.11	120.94
273	44.78	171.46	0.91	5.04	120.94
274	44.95	183.66	1.05	4.96	120.94
275	45.11	193.10	1.40	5.81	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
276	45.28	197.35	1.53	6.04	120.94
277	45.44	208.35	1.60	5.65	120.94
278	45.60	207.42	1.55	5.56	120.94
279	45.77	204.80	1.44	5.31	120.94
280	45.93	216.90	1.14	3.68	120.94
281	46.10	227.69	0.93	2.50	120.94
282	46.26	238.68	1.32	3.41	120.94
283	46.42	239.42	1.14	2.82	120.94
284	46.59	228.09	1.04	2.92	120.94
285	46.75	219.55	1.55	4.97	120.94
286	46.92	230.52	1.65	4.79	120.94
287	47.08	191.39	1.15	5.06	120.94
288	47.24	179.73	0.44	2.31	120.94
289	47.41	152.24	0.53	4.29	120.94
290	47.57	143.52	0.61	5.49	120.94
291	47.74	142.24	1.04	8.25	120.94
292	47.90	175.24	1.31	6.82	120.94
293	48.06	199.85	1.15	4.65	120.94
294	48.23	217.59	0.86	2.72	120.94
295	48.39	221.39	0.92	2.83	120.94
296	48.56	210.01	0.95	3.40	120.94
297	48.72	205.50	0.99	3.77	120.94
298	48.88	211.63	1.10	3.94	120.94
299	49.05	216.55	1.84	6.22	120.94
300	49.21	231.29	2.34	6.85	120.94
301	49.38	238.05	2.44	6.76	120.94
302	49.54	251.74	2.27	5.66	120.94
303	49.70	303.78	2.41	3.97	120.94
304	49.87	334.04	2.20	2.68	120.94
305	50.03	318.29	2.32	3.35	120.94

Depth from free surface, at which CPT was performed (ft)
Measured cone resistance
Sleeve friction resistance
Percentage of fines in soil (%)
Bulk soil unit weight (tsf)

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
1	0.16	0.01	0.00	0.01	1.00	0.29	1.40	0.20	1.00	0.20
2	0.33	0.02	0.00	0.02	1.00	0.29	1.40	0.20	1.00	0.20
3	0.49	0.03	0.00	0.03	1.00	0.29	1.40	0.20	1.00	0.20
4	0.66	0.04	0.00	0.04	1.00	0.29	1.40	0.20	1.00	0.20
5	0.82	0.05	0.00	0.05	1.00	0.29	1.40	0.20	1.00	0.20
6	0.98	0.06	0.00	0.06	1.00	0.29	1.40	0.20	1.00	0.20
7	1.15	0.07	0.00	0.07	1.00	0.29	1.40	0.20	1.00	0.20
8	1.31	0.08	0.00	0.08	1.00	0.29	1.40	0.20	1.00	0.20
9	1.48	0.09	0.00	0.09	1.00	0.29	1.40	0.20	1.00	0.20
10	1.64	0.10	0.00	0.10	1.00	0.28	1.40	0.20	1.00	0.20
11	1.80	0.11	0.00	0.11	1.00	0.28	1.40	0.20	1.00	0.20
12	1.97	0.12	0.00	0.12	1.00	0.28	1.40	0.20	1.00	0.20
13	2.13	0.13	0.00	0.13	1.00	0.28	1.40	0.20	1.00	0.20
14	2.30	0.14	0.00	0.14	0.99	0.28	1.40	0.20	1.00	0.20
15	2.46	0.15	0.00	0.15	0.99	0.28	1.40	0.20	1.00	0.20
16	2.62	0.16	0.00	0.16	0.99	0.28	1.40	0.20	1.00	0.20

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
17	2.79	0.17	0.00	0.17	0.99	0.28	1.40	0.20	1.00	0.20
18	2.95	0.18	0.00	0.18	0.99	0.28	1.40	0.20	1.00	0.20
19	3.12	0.19	0.00	0.19	0.99	0.28	1.40	0.20	1.00	0.20
20	3.28	0.20	0.00	0.20	0.99	0.28	1.40	0.20	1.00	0.20
21	3.44	0.21	0.00	0.21	0.99	0.28	1.40	0.20	1.00	0.20
22	3.61	0.22	0.00	0.22	0.99	0.28	1.40	0.20	1.00	0.20
23	3.77	0.23	0.00	0.23	0.99	0.28	1.40	0.20	1.00	0.20
24	3.94	0.24	0.00	0.24	0.99	0.28	1.40	0.20	1.00	0.20
25	4.10	0.25	0.00	0.25	0.99	0.28	1.40	0.20	1.00	0.20
26	4.27	0.26	0.00	0.26	0.99	0.28	1.40	0.20	1.00	0.20
27	4.43	0.27	0.00	0.27	0.99	0.28	1.40	0.20	1.00	0.20
28	4.59	0.28	0.00	0.28	0.99	0.28	1.40	0.20	1.00	0.20
29	4.76	0.29	0.00	0.29	0.99	0.28	1.40	0.20	1.00	0.20
30	4.92	0.30	0.00	0.30	0.99	0.28	1.40	0.20	1.00	0.20
31	5.09	0.31	0.00	0.30	0.99	0.29	1.40	0.20	1.00	0.20
32	5.25	0.32	0.01	0.31	0.99	0.29	1.40	0.21	1.00	0.21
33	5.41	0.33	0.01	0.31	0.99	0.29	1.40	0.21	1.00	0.21
34	5.58	0.34	0.02	0.32	0.99	0.30	1.40	0.21	1.00	0.21
35	5.74	0.35	0.02	0.32	0.99	0.30	1.40	0.22	1.00	0.22
36	5.91	0.36	0.03	0.33	0.99	0.31	1.40	0.22	1.00	0.22
37	6.07	0.37	0.03	0.33	0.99	0.31	1.40	0.22	1.00	0.22
38	6.23	0.38	0.04	0.34	0.99	0.31	1.40	0.22	1.00	0.22
39	6.40	0.39	0.04	0.34	0.99	0.32	1.40	0.23	1.00	0.23
40	6.56	0.40	0.05	0.35	0.98	0.32	1.40	0.23	1.00	0.23
41	6.73	0.41	0.05	0.35	0.98	0.32	1.40	0.23	1.00	0.23
42	6.89	0.42	0.06	0.36	0.98	0.33	1.40	0.23	1.00	0.23
43	7.05	0.43	0.06	0.36	0.98	0.33	1.40	0.24	1.00	0.24
44	7.22	0.44	0.07	0.37	0.98	0.33	1.40	0.24	1.00	0.24
45	7.38	0.45	0.07	0.37	0.98	0.34	1.40	0.24	1.00	0.24
46	7.55	0.46	0.08	0.38	0.98	0.34	1.40	0.24	1.00	0.24
47	7.71	0.47	0.08	0.38	0.98	0.34	1.40	0.25	1.00	0.25
48	7.87	0.48	0.09	0.39	0.98	0.35	1.40	0.25	1.00	0.25
49	8.04	0.49	0.09	0.39	0.98	0.35	1.40	0.25	1.00	0.25
50	8.20	0.50	0.10	0.40	0.98	0.35	1.40	0.25	1.00	0.25
51	8.37	0.51	0.11	0.40	0.98	0.35	1.40	0.25	1.00	0.25
52	8.53	0.52	0.11	0.41	0.98	0.36	1.40	0.26	1.00	0.26
53	8.69	0.53	0.12	0.41	0.98	0.36	1.40	0.26	1.00	0.26
54	8.86	0.54	0.12	0.42	0.98	0.36	1.40	0.26	1.00	0.26
55	9.02	0.55	0.13	0.42	0.98	0.36	1.40	0.26	1.00	0.26
56	9.19	0.56	0.13	0.42	0.98	0.37	1.40	0.26	1.00	0.26
57	9.35	0.57	0.14	0.43	0.98	0.37	1.40	0.26	1.00	0.26
58	9.51	0.57	0.14	0.43	0.98	0.37	1.40	0.27	1.00	0.27
59	9.68	0.59	0.15	0.44	0.98	0.37	1.40	0.27	1.00	0.27
60	9.84	0.59	0.15	0.44	0.98	0.37	1.40	0.27	1.00	0.27
61	10.01	0.61	0.16	0.45	0.98	0.38	1.40	0.27	1.00	0.27
62	10.17	0.61	0.16	0.45	0.98	0.38	1.40	0.27	1.00	0.27
63	10.33	0.62	0.17	0.46	0.98	0.38	1.40	0.27	1.00	0.27
64	10.50	0.63	0.17	0.46	0.98	0.38	1.40	0.27	1.00	0.27
65	10.66	0.64	0.18	0.47	0.98	0.38	1.40	0.27	1.00	0.27
66	10.83	0.65	0.18	0.47	0.97	0.39	1.40	0.28	1.00	0.28
67	10.99	0.66	0.19	0.48	0.97	0.39	1.40	0.28	1.00	0.28
68	11.15	0.67	0.19	0.48	0.97	0.39	1.40	0.28	1.00	0.28
69	11.32	0.68	0.20	0.49	0.97	0.39	1.40	0.28	1.00	0.28
70	11.48	0.69	0.20	0.49	0.97	0.39	1.40	0.28	1.00	0.28
71	11.65	0.70	0.21	0.50	0.97	0.39	1.40	0.28	1.00	0.28

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
72	11.81	0.71	0.21	0.50	0.97	0.40	1.40	0.28	1.00	0.28
73	11.98	0.72	0.22	0.51	0.97	0.40	1.40	0.28	1.00	0.28
74	12.14	0.73	0.22	0.51	0.97	0.40	1.40	0.29	1.00	0.29
75	12.30	0.74	0.23	0.52	0.97	0.40	1.40	0.29	1.00	0.29
76	12.47	0.75	0.23	0.52	0.97	0.40	1.40	0.29	1.00	0.29
77	12.63	0.76	0.24	0.53	0.97	0.40	1.40	0.29	1.00	0.29
78	12.80	0.77	0.24	0.53	0.97	0.40	1.40	0.29	1.00	0.29
79	12.96	0.78	0.25	0.54	0.97	0.41	1.40	0.29	1.00	0.29
80	13.12	0.79	0.25	0.54	0.97	0.41	1.40	0.29	1.00	0.29
81	13.29	0.80	0.26	0.54	0.97	0.41	1.40	0.29	1.00	0.29
82	13.45	0.81	0.26	0.55	0.97	0.41	1.40	0.29	1.00	0.29
83	13.62	0.82	0.27	0.55	0.97	0.41	1.40	0.29	1.00	0.29
84	13.78	0.83	0.27	0.56	0.97	0.41	1.40	0.30	1.00	0.30
85	13.94	0.84	0.28	0.56	0.97	0.41	1.40	0.30	1.00	0.30
86	14.11	0.85	0.28	0.57	0.97	0.41	1.40	0.30	1.00	0.30
87	14.27	0.86	0.29	0.57	0.97	0.42	1.40	0.30	1.00	0.30
88	14.44	0.87	0.29	0.58	0.97	0.42	1.40	0.30	1.00	0.30
89	14.60	0.88	0.30	0.58	0.97	0.42	1.40	0.30	1.00	0.30
90	14.76	0.89	0.30	0.59	0.97	0.42	1.40	0.30	1.00	0.30
91	14.93	0.90	0.31	0.59	0.97	0.42	1.40	0.30	1.00	0.30
92	15.09	0.91	0.31	0.60	0.96	0.42	1.40	0.30	1.00	0.30
93	15.26	0.92	0.32	0.60	0.96	0.42	1.40	0.30	1.00	0.30
94	15.42	0.93	0.33	0.61	0.96	0.42	1.40	0.30	1.00	0.30
95	15.58	0.94	0.33	0.61	0.96	0.42	1.40	0.30	1.00	0.30
96	15.75	0.95	0.34	0.62	0.96	0.43	1.40	0.30	1.00	0.30
97	15.91	0.96	0.34	0.62	0.96	0.43	1.40	0.31	1.00	0.31
98	16.08	0.97	0.35	0.63	0.96	0.43	1.40	0.31	1.00	0.31
99	16.24	0.98	0.35	0.63	0.96	0.43	1.40	0.31	1.00	0.31
100	16.40	0.99	0.36	0.64	0.96	0.43	1.40	0.31	1.00	0.31
101	16.57	1.00	0.36	0.64	0.96	0.43	1.40	0.31	1.00	0.31
102	16.73	1.01	0.37	0.65	0.96	0.43	1.40	0.31	1.00	0.31
103	16.90	1.02	0.37	0.65	0.96	0.43	1.40	0.31	1.00	0.31
104	17.06	1.03	0.38	0.65	0.96	0.43	1.40	0.31	1.00	0.31
105	17.22	1.04	0.38	0.66	0.96	0.43	1.40	0.31	1.00	0.31
106	17.39	1.05	0.39	0.66	0.96	0.43	1.40	0.31	1.00	0.31
107	17.55	1.06	0.39	0.67	0.96	0.43	1.40	0.31	1.00	0.31
108	17.72	1.07	0.40	0.67	0.96	0.44	1.40	0.31	1.00	0.31
109	17.88	1.08	0.40	0.68	0.96	0.44	1.40	0.31	1.00	0.31
110	18.04	1.09	0.41	0.68	0.96	0.44	1.40	0.31	1.00	0.31
111	18.21	1.10	0.41	0.69	0.96	0.44	1.40	0.31	1.00	0.31
112	18.37	1.11	0.42	0.69	0.96	0.44	1.40	0.31	1.00	0.31
113	18.54	1.12	0.42	0.70	0.96	0.44	1.40	0.31	1.00	0.31
114	18.70	1.13	0.43	0.70	0.96	0.44	1.40	0.31	1.00	0.31
115	18.86	1.14	0.43	0.71	0.96	0.44	1.40	0.32	1.00	0.32
116	19.03	1.15	0.44	0.71	0.96	0.44	1.40	0.32	1.00	0.32
117	19.19	1.16	0.44	0.72	0.96	0.44	1.40	0.32	1.00	0.32
118	19.36	1.17	0.45	0.72	0.95	0.44	1.40	0.32	1.00	0.32
119	19.52	1.18	0.45	0.73	0.95	0.44	1.40	0.32	1.00	0.32
120	19.69	1.19	0.46	0.73	0.95	0.44	1.40	0.32	1.00	0.32
121	19.85	1.20	0.46	0.74	0.95	0.44	1.40	0.32	1.00	0.32
122	20.01	1.21	0.47	0.74	0.95	0.45	1.40	0.32	1.00	0.32
123	20.18	1.22	0.47	0.75	0.95	0.45	1.40	0.32	1.00	0.32
124	20.34	1.23	0.48	0.75	0.95	0.45	1.40	0.32	1.00	0.32
125	20.51	1.24	0.48	0.76	0.95	0.45	1.40	0.32	1.00	0.32
126	20.67	1.25	0.49	0.76	0.95	0.45	1.40	0.32	1.00	0.32

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
127	20.83	1.26	0.49	0.77	0.95	0.45	1.40	0.32	1.00	0.32
128	21.00	1.27	0.50	0.77	0.95	0.45	1.40	0.32	1.00	0.32
129	21.16	1.28	0.50	0.77	0.95	0.45	1.40	0.32	1.00	0.32
130	21.33	1.29	0.51	0.78	0.95	0.45	1.40	0.32	1.00	0.32
131	21.49	1.30	0.51	0.78	0.95	0.45	1.40	0.32	1.00	0.32
132	21.65	1.31	0.52	0.79	0.95	0.45	1.40	0.32	1.00	0.32
133	21.82	1.32	0.53	0.79	0.95	0.45	1.40	0.32	1.00	0.32
134	21.98	1.33	0.53	0.80	0.95	0.45	1.40	0.32	1.00	0.32
135	22.15	1.34	0.54	0.80	0.95	0.45	1.40	0.32	1.00	0.32
136	22.31	1.35	0.54	0.81	0.95	0.45	1.40	0.32	1.00	0.32
137	22.47	1.36	0.55	0.81	0.95	0.45	1.40	0.32	1.00	0.32
138	22.64	1.37	0.55	0.82	0.95	0.45	1.40	0.32	1.00	0.32
139	22.80	1.38	0.56	0.82	0.95	0.45	1.40	0.32	1.00	0.32
140	22.97	1.39	0.56	0.83	0.95	0.45	1.40	0.32	1.00	0.32
141	23.13	1.40	0.57	0.83	0.95	0.45	1.40	0.33	1.00	0.33
142	23.29	1.41	0.57	0.84	0.95	0.45	1.40	0.33	1.00	0.33
143	23.46	1.42	0.58	0.84	0.95	0.46	1.40	0.33	1.00	0.33
144	23.62	1.43	0.58	0.85	0.94	0.46	1.40	0.33	1.00	0.33
145	23.79	1.44	0.59	0.85	0.94	0.46	1.40	0.33	1.00	0.33
146	23.95	1.45	0.59	0.86	0.94	0.46	1.40	0.33	1.00	0.33
147	24.11	1.46	0.60	0.86	0.94	0.46	1.40	0.33	1.00	0.33
148	24.28	1.47	0.60	0.87	0.94	0.46	1.40	0.33	1.00	0.33
149	24.44	1.48	0.61	0.87	0.94	0.46	1.40	0.33	1.00	0.33
150	24.61	1.49	0.61	0.88	0.94	0.46	1.40	0.33	1.00	0.33
151	24.77	1.50	0.62	0.88	0.94	0.46	1.40	0.33	1.00	0.33
152	24.93	1.51	0.62	0.89	0.94	0.46	1.40	0.33	1.00	0.33
153	25.10	1.52	0.63	0.89	0.94	0.46	1.40	0.33	1.00	0.33
154	25.26	1.53	0.63	0.89	0.94	0.46	1.40	0.33	1.00	0.33
155	25.43	1.54	0.64	0.90	0.94	0.46	1.40	0.33	1.00	0.33
156	25.59	1.55	0.64	0.90	0.94	0.46	1.40	0.33	1.00	0.33
157	25.75	1.56	0.65	0.91	0.94	0.46	1.40	0.33	1.00	0.33
158	25.92	1.57	0.65	0.91	0.94	0.46	1.40	0.33	1.00	0.33
159	26.08	1.58	0.66	0.92	0.94	0.46	1.40	0.33	1.00	0.33
160	26.25	1.59	0.66	0.92	0.94	0.46	1.40	0.33	1.00	0.33
161	26.41	1.60	0.67	0.93	0.94	0.46	1.40	0.33	1.00	0.33
162	26.57	1.61	0.67	0.93	0.94	0.46	1.40	0.33	1.00	0.33
163	26.74	1.62	0.68	0.94	0.94	0.46	1.40	0.33	1.00	0.33
164	26.90	1.63	0.68	0.94	0.94	0.46	1.40	0.33	1.00	0.33
165	27.07	1.64	0.69	0.95	0.94	0.46	1.40	0.33	1.00	0.33
166	27.23	1.65	0.69	0.95	0.94	0.46	1.40	0.33	1.00	0.33
167	27.40	1.66	0.70	0.96	0.94	0.46	1.40	0.33	1.00	0.33
168	27.56	1.67	0.70	0.96	0.94	0.46	1.40	0.33	1.00	0.33
169	27.72	1.68	0.71	0.97	0.94	0.46	1.40	0.33	1.00	0.33
170	27.89	1.69	0.71	0.97	0.93	0.46	1.40	0.33	1.00	0.33
171	28.05	1.70	0.72	0.98	0.93	0.46	1.40	0.33	1.00	0.33
172	28.22	1.71	0.72	0.98	0.93	0.46	1.40	0.33	1.00	0.33
173	28.38	1.72	0.73	0.99	0.93	0.46	1.40	0.33	1.00	0.33
174	28.54	1.73	0.73	0.99	0.93	0.46	1.40	0.33	1.00	0.33
175	28.71	1.74	0.74	1.00	0.93	0.47	1.40	0.33	1.00	0.33
176	28.87	1.75	0.75	1.00	0.93	0.47	1.40	0.33	1.00	0.33
177	29.04	1.76	0.75	1.01	0.93	0.47	1.40	0.33	1.00	0.33
178	29.20	1.77	0.76	1.01	0.93	0.47	1.40	0.33	1.00	0.33
179	29.36	1.78	0.76	1.01	0.93	0.47	1.40	0.33	1.00	0.33
180	29.53	1.79	0.77	1.02	0.93	0.47	1.40	0.33	1.00	0.33
181	29.69	1.80	0.77	1.02	0.93	0.47	1.40	0.33	1.00	0.33

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
182	29.86	1.81	0.78	1.03	0.93	0.47	1.40	0.33	1.00	0.33
183	30.02	1.82	0.78	1.03	0.93	0.47	1.40	0.33	1.00	0.33
184	30.18	1.82	0.79	1.04	0.93	0.47	1.40	0.33	1.00	0.33
185	30.35	1.83	0.79	1.04	0.93	0.47	1.40	0.33	1.00	0.33
186	30.51	1.84	0.80	1.05	0.93	0.47	1.40	0.33	1.00	0.33
187	30.68	1.85	0.80	1.05	0.93	0.47	1.40	0.33	1.00	0.33
188	30.84	1.86	0.81	1.06	0.92	0.47	1.40	0.33	1.00	0.33
189	31.00	1.87	0.81	1.06	0.92	0.47	1.40	0.33	1.00	0.33
190	31.17	1.88	0.82	1.07	0.92	0.47	1.40	0.33	1.00	0.33
191	31.33	1.89	0.82	1.07	0.92	0.46	1.40	0.33	0.99	0.33
192	31.50	1.90	0.83	1.08	0.92	0.46	1.40	0.33	0.99	0.33
193	31.66	1.91	0.83	1.08	0.92	0.46	1.40	0.33	0.99	0.33
194	31.82	1.92	0.84	1.09	0.92	0.46	1.40	0.33	0.99	0.33
195	31.99	1.93	0.84	1.09	0.91	0.46	1.40	0.33	0.99	0.33
196	32.15	1.94	0.85	1.10	0.91	0.46	1.40	0.33	0.99	0.33
197	32.32	1.95	0.85	1.10	0.91	0.46	1.40	0.33	0.99	0.33
198	32.48	1.96	0.86	1.11	0.91	0.46	1.40	0.33	0.99	0.33
199	32.64	1.97	0.86	1.11	0.91	0.46	1.40	0.33	0.99	0.33
200	32.81	1.98	0.87	1.12	0.91	0.46	1.40	0.33	0.99	0.33
201	32.97	1.99	0.87	1.12	0.91	0.46	1.40	0.33	0.99	0.33
202	33.14	2.00	0.88	1.13	0.91	0.46	1.40	0.33	0.99	0.33
203	33.30	2.01	0.88	1.13	0.90	0.46	1.40	0.33	0.98	0.33
204	33.46	2.02	0.89	1.13	0.90	0.46	1.40	0.33	0.98	0.33
205	33.63	2.03	0.89	1.14	0.90	0.46	1.40	0.33	0.98	0.33
206	33.79	2.04	0.90	1.14	0.90	0.46	1.40	0.33	0.98	0.33
207	33.96	2.05	0.90	1.15	0.90	0.46	1.40	0.33	0.98	0.33
208	34.12	2.06	0.91	1.15	0.90	0.46	1.40	0.33	0.98	0.33
209	34.28	2.07	0.91	1.16	0.90	0.46	1.40	0.33	0.98	0.33
210	34.45	2.08	0.92	1.16	0.89	0.46	1.40	0.33	0.98	0.33
211	34.61	2.09	0.92	1.17	0.89	0.46	1.40	0.33	0.98	0.33
212	34.78	2.10	0.93	1.17	0.89	0.46	1.40	0.33	0.98	0.33
213	34.94	2.11	0.93	1.18	0.89	0.46	1.40	0.33	0.98	0.33
214	35.10	2.12	0.94	1.18	0.89	0.46	1.40	0.33	0.98	0.33
215	35.27	2.13	0.94	1.19	0.89	0.46	1.40	0.33	0.97	0.33
216	35.43	2.14	0.95	1.19	0.89	0.46	1.40	0.33	0.97	0.33
217	35.60	2.15	0.96	1.20	0.89	0.46	1.40	0.33	0.97	0.33
218	35.76	2.16	0.96	1.20	0.88	0.45	1.40	0.33	0.97	0.33
219	35.93	2.17	0.97	1.21	0.88	0.45	1.40	0.33	0.97	0.33
220	36.09	2.18	0.97	1.21	0.88	0.45	1.40	0.32	0.97	0.33
221	36.25	2.19	0.98	1.22	0.88	0.45	1.40	0.32	0.97	0.33
222	36.42	2.20	0.98	1.22	0.88	0.45	1.40	0.32	0.97	0.33
223	36.58	2.21	0.99	1.23	0.88	0.45	1.40	0.32	0.97	0.33
224	36.75	2.22	0.99	1.23	0.88	0.45	1.40	0.32	0.97	0.33
225	36.91	2.23	1.00	1.24	0.87	0.45	1.40	0.32	0.97	0.33
226	37.07	2.24	1.00	1.24	0.87	0.45	1.40	0.32	0.97	0.33
227	37.24	2.25	1.01	1.25	0.87	0.45	1.40	0.32	0.97	0.33
228	37.40	2.26	1.01	1.25	0.87	0.45	1.40	0.32	0.96	0.33
229	37.57	2.27	1.02	1.25	0.87	0.45	1.40	0.32	0.96	0.33
230	37.73	2.28	1.02	1.26	0.87	0.45	1.40	0.32	0.96	0.33
231	37.89	2.29	1.03	1.26	0.87	0.45	1.40	0.32	0.96	0.33
232	38.06	2.30	1.03	1.27	0.87	0.45	1.40	0.32	0.96	0.33
233	38.22	2.31	1.04	1.27	0.86	0.45	1.40	0.32	0.96	0.33
234	38.39	2.32	1.04	1.28	0.86	0.45	1.40	0.32	0.96	0.33
235	38.55	2.33	1.05	1.28	0.86	0.45	1.40	0.32	0.96	0.33
236	38.71	2.34	1.05	1.29	0.86	0.45	1.40	0.32	0.96	0.33

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
237	38.88	2.35	1.06	1.29	0.86	0.45	1.40	0.32	0.96	0.33
238	39.04	2.36	1.06	1.30	0.86	0.45	1.40	0.32	0.96	0.33
239	39.21	2.37	1.07	1.30	0.86	0.45	1.40	0.32	0.96	0.33
240	39.37	2.38	1.07	1.31	0.85	0.44	1.40	0.32	0.96	0.33
241	39.53	2.39	1.08	1.31	0.85	0.44	1.40	0.32	0.96	0.33
242	39.70	2.40	1.08	1.32	0.85	0.44	1.40	0.32	0.95	0.33
243	39.86	2.41	1.09	1.32	0.85	0.44	1.40	0.32	0.95	0.33
244	40.03	2.42	1.09	1.33	0.85	0.44	1.40	0.32	0.95	0.33
245	40.19	2.43	1.10	1.33	0.85	0.44	1.40	0.32	0.95	0.33
246	40.35	2.44	1.10	1.34	0.85	0.44	1.40	0.32	0.95	0.33
247	40.52	2.45	1.11	1.34	0.85	0.44	1.40	0.32	0.95	0.33
248	40.68	2.46	1.11	1.35	0.84	0.44	1.40	0.32	0.95	0.33
249	40.85	2.47	1.12	1.35	0.84	0.44	1.40	0.32	0.95	0.33
250	41.01	2.48	1.12	1.36	0.84	0.44	1.40	0.31	0.95	0.33
251	41.17	2.49	1.13	1.36	0.84	0.44	1.40	0.31	0.95	0.33
252	41.34	2.50	1.13	1.37	0.84	0.44	1.40	0.31	0.95	0.33
253	41.50	2.51	1.14	1.37	0.84	0.44	1.40	0.31	0.95	0.33
254	41.67	2.52	1.14	1.37	0.84	0.44	1.40	0.31	0.95	0.33
255	41.83	2.53	1.15	1.38	0.83	0.44	1.40	0.31	0.95	0.33
256	41.99	2.54	1.15	1.38	0.83	0.44	1.40	0.31	0.95	0.33
257	42.16	2.55	1.16	1.39	0.83	0.44	1.40	0.31	0.94	0.33
258	42.32	2.56	1.17	1.39	0.83	0.44	1.40	0.31	0.94	0.33
259	42.49	2.57	1.17	1.40	0.83	0.44	1.40	0.31	0.94	0.33
260	42.65	2.58	1.18	1.40	0.83	0.44	1.40	0.31	0.94	0.33
261	42.81	2.59	1.18	1.41	0.83	0.43	1.40	0.31	0.94	0.33
262	42.98	2.60	1.19	1.41	0.83	0.43	1.40	0.31	0.94	0.33
263	43.14	2.61	1.19	1.42	0.82	0.43	1.40	0.31	0.94	0.33
264	43.31	2.62	1.20	1.42	0.82	0.43	1.40	0.31	0.94	0.33
265	43.47	2.63	1.20	1.43	0.82	0.43	1.40	0.31	0.94	0.33
266	43.64	2.64	1.21	1.43	0.82	0.43	1.40	0.31	0.94	0.33
267	43.80	2.65	1.21	1.44	0.82	0.43	1.40	0.31	0.94	0.33
268	43.96	2.66	1.22	1.44	0.82	0.43	1.40	0.31	0.94	0.33
269	44.13	2.67	1.22	1.45	0.82	0.43	1.40	0.31	0.94	0.33
270	44.29	2.68	1.23	1.45	0.81	0.43	1.40	0.31	0.94	0.33
271	44.46	2.69	1.23	1.46	0.81	0.43	1.40	0.31	0.94	0.33
272	44.62	2.70	1.24	1.46	0.81	0.43	1.40	0.31	0.94	0.33
273	44.78	2.71	1.24	1.47	0.81	0.43	1.40	0.31	0.93	0.33
274	44.95	2.72	1.25	1.47	0.81	0.43	1.40	0.31	0.93	0.33
275	45.11	2.73	1.25	1.48	0.81	0.43	1.40	0.31	0.93	0.33
276	45.28	2.74	1.26	1.48	0.81	0.43	1.40	0.31	0.93	0.33
277	45.44	2.75	1.26	1.48	0.81	0.43	1.40	0.30	0.93	0.33
278	45.60	2.76	1.27	1.49	0.80	0.43	1.40	0.30	0.93	0.33
279	45.77	2.77	1.27	1.49	0.80	0.42	1.40	0.30	0.93	0.33
280	45.93	2.78	1.28	1.50	0.80	0.42	1.40	0.30	0.93	0.33
281	46.10	2.79	1.28	1.50	0.80	0.42	1.40	0.30	0.93	0.33
282	46.26	2.80	1.29	1.51	0.80	0.42	1.40	0.30	0.93	0.33
283	46.42	2.81	1.29	1.51	0.80	0.42	1.40	0.30	0.93	0.33
284	46.59	2.82	1.30	1.52	0.80	0.42	1.40	0.30	0.93	0.33
285	46.75	2.83	1.30	1.52	0.79	0.42	1.40	0.30	0.93	0.33
286	46.92	2.84	1.31	1.53	0.79	0.42	1.40	0.30	0.93	0.33
287	47.08	2.85	1.31	1.53	0.79	0.42	1.40	0.30	0.93	0.32
288	47.24	2.86	1.32	1.54	0.79	0.42	1.40	0.30	0.93	0.32
289	47.41	2.87	1.32	1.54	0.79	0.42	1.40	0.30	0.92	0.32
290	47.57	2.88	1.33	1.55	0.79	0.42	1.40	0.30	0.92	0.32
291	47.74	2.89	1.33	1.55	0.79	0.42	1.40	0.30	0.92	0.32

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
292	47.90	2.90	1.34	1.56	0.79	0.42	1.40	0.30	0.92	0.32
293	48.06	2.91	1.34	1.56	0.78	0.42	1.40	0.30	0.92	0.32
294	48.23	2.92	1.35	1.57	0.78	0.42	1.40	0.30	0.92	0.32
295	48.39	2.93	1.35	1.57	0.78	0.42	1.40	0.30	0.92	0.32
296	48.56	2.94	1.36	1.58	0.78	0.42	1.40	0.30	0.92	0.32
297	48.72	2.95	1.36	1.58	0.78	0.41	1.40	0.30	0.92	0.32
298	48.88	2.96	1.37	1.59	0.78	0.41	1.40	0.30	0.92	0.32
299	49.05	2.97	1.38	1.59	0.78	0.41	1.40	0.30	0.92	0.32
300	49.21	2.98	1.38	1.60	0.77	0.41	1.40	0.30	0.92	0.32
301	49.38	2.99	1.39	1.60	0.77	0.41	1.40	0.30	0.92	0.32
302	49.54	3.00	1.39	1.60	0.77	0.41	1.40	0.29	0.92	0.32
303	49.70	3.00	1.40	1.61	0.77	0.41	1.40	0.29	0.92	0.32
304	49.87	3.02	1.40	1.61	0.77	0.41	1.40	0.29	0.92	0.32
305	50.03	3.02	1.41	1.62	0.77	0.41	1.40	0.29	0.92	0.32

Depth from free surface, at which CPT was performed (ft)
Total overburden pressure at test point, during earthquake (tsf)
Water pressure at test point, during earthquake (tsf)
Effective overburden pressure, during earthquake (tsf)
Nonlinear shear mass factor
Cyclic Stress Ratio
Magnitude Scaling Factor
CSR adjusted for M=7.5
Effective overburden stress factor
CSR fully adjusted

Point ID			F (%)	n				
1	9.97	1.83	0.98	0.55	126.79	1.13	142.90	2.00
2	11.32	2.04	1.95	0.62	125.01	1.36	169.80	2.00
3	8.99	2.29	3.46	0.70	102.51	1.90	194.99	2.00
4	9.37	2.34	3.76	0.71	91.69	2.10	192.59	2.00
5	8.14	2.47	4.77	0.75	76.48	2.64	201.88	2.00
6	8.47	2.49	4.59	0.75	70.20	2.70	189.28	2.00
7	8.19	2.54	4.90	0.77	62.70	2.97	186.40	2.00
8	8.10	2.57	4.95	0.78	57.28	3.14	179.72	2.00
9	8.91	2.57	5.05	0.78	57.49	3.17	182.16	2.00
10	10.67	2.52	4.58	0.77	61.36	2.89	177.27	2.00
11	10.35	2.58	5.11	0.78	57.20	3.20	183.19	2.00
12	11.06	2.60	5.50	0.79	57.77	3.20	185.02	2.00
13	10.31	2.62	5.32	0.79	51.32	3.20	164.37	2.00
14	9.76	2.63	4.95	0.80	45.90	3.20	147.01	2.00
15	9.90	2.67	5.38	0.81	44.97	3.20	144.04	2.00
16	11.23	2.63	5.02	0.80	47.49	3.20	152.10	2.00
17	10.24	2.67	5.20	0.81	42.17	3.20	135.07	2.00
18	7.59	2.83	6.64	0.86	32.26	3.20	103.32	2.00
19	6.19	2.91	6.87	0.88	25.90	3.20	82.96	2.00
20	5.71	2.90	5.91	0.88	22.72	3.20	72.75	2.00
21	5.23	2.92	5.38	0.88	19.98	3.20	63.99	2.00
22	4.81	2.95	5.36	0.89	17.81	3.20	57.04	2.00
23	4.61	2.96	4.94	0.90	16.38	3.20	52.47	2.00
24	4.60	2.96	4.77	0.90	15.71	3.20	50.30	2.00
25	4.50	2.99	4.93	0.90	14.94	3.20	47.85	2.00
26	4.02	3.04	5.13	0.92	13.05	3.20	41.78	2.00
27	3.84	3.06	4.92	0.93	12.05	3.20	38.60	2.00
28	3.67	3.08	4.89	0.93	11.18	3.20	35.81	2.00
29	3.48	3.09	4.50	0.94	10.23	3.20	32.75	2.00

Point ID			F (%)	n				
30	2.96	3.15	4.26	0.95	8.43	3.20	27.00	2.00
31	2.55	3.19	3.93	0.97	7.04	3.20	22.56	2.00
32	2.51	3.21	4.04	0.97	6.83	3.20	21.87	2.00
33	2.72	3.26	5.60	0.99	7.48	3.20	23.96	2.00
34	3.49	3.14	4.75	0.95	9.31	3.20	29.82	2.00
35	3.38	3.14	4.43	0.95	8.83	3.20	28.29	2.00
36	3.25	3.16	4.40	0.96	8.35	3.20	26.76	2.00
37	2.97	3.19	4.33	0.97	7.50	3.20	24.03	2.00
38	2.95	3.19	4.15	0.97	7.31	3.20	23.42	2.00
39	2.92	3.21	4.35	0.97	7.15	3.20	22.88	2.00
40	3.08	3.13	3.19	0.95	7.27	3.20	23.29	2.00
41	2.78	3.29	5.38	0.99	6.68	3.20	21.39	2.00
42	3.22	3.22	5.07	0.98	7.64	3.20	24.46	2.00
43	3.16	3.24	5.14	0.98	7.39	3.20	23.66	2.00
44	3.22	3.22	4.85	0.98	7.39	3.20	23.66	2.00
45	3.55	3.20	4.89	0.97	8.07	3.20	25.83	2.00
46	4.00	3.16	4.84	0.96	8.98	3.20	28.77	2.00
47	5.74	2.84	2.03	0.86	11.99	3.20	38.39	2.00
48	3.57	3.17	4.06	0.96	7.68	3.20	24.61	2.00
49	3.83	3.21	5.31	0.97	8.30	3.20	26.59	2.00
50	8.13	2.84	3.38	0.86	16.85	3.20	53.97	2.00
51	8.95	2.79	3.05	0.85	18.16	3.20	58.16	2.00
52	7.43	2.93	4.18	0.89	15.33	3.20	49.10	2.00
53	6.18	3.08	5.87	0.93	12.96	3.20	41.49	2.00
54	7.39	2.94	4.19	0.89	14.93	3.20	47.80	2.00
55	8.77	2.84	3.43	0.86	17.24	3.20	55.22	2.00
56	8.87	2.80	2.91	0.85	17.07	3.20	54.66	2.00
57	8.78	2.88	3.87	0.87	17.05	3.20	54.61	2.00
58	11.54	2.64	2.14	0.80	21.21	3.20	67.92	2.00
59	17.27	2.33	0.94	0.71	29.47	2.05	60.41	0.10
60	17.74	2.22	0.54	0.67	29.21	1.72	50.18	0.09
61	13.91	2.41	0.94	0.73	23.63	2.37	55.95	0.10
62	9.55	2.66	1.59	0.81	16.75	2.37	39.65	2.00
63	8.53	2.74	1.90	0.83	14.99	2.37	35.50	2.00
64	6.59	2.95	3.08	0.89	11.77	2.37	27.87	2.00
65	5.34	3.10	4.31	0.94	9.56	2.37	22.64	2.00
66	6.82	2.97	3.55	0.90	12.05	2.37	28.53	2.00
67	7.32	2.95	3.45	0.89	12.81	2.37	30.33	2.00
68	7.06	2.96	3.37	0.90	12.21	2.37	28.92	2.00
69	6.91	2.96	3.29	0.90	11.81	2.37	27.97	2.00
70	6.76	2.96	3.15	0.90	11.41	2.37	27.02	2.00
71	7.03	2.93	2.92	0.89	11.72	2.37	27.75	2.00
72	7.65	2.96	3.68	0.90	12.82	2.37	30.36	2.00
73	8.72	2.95	4.15	0.89	14.61	2.37	34.59	2.00
74	9.51	2.92	4.13	0.88	15.81	2.37	37.43	2.00
75	9.30	2.90	3.72	0.88	15.24	2.37	36.08	2.00
76	10.17	2.86	3.41	0.86	16.45	2.37	38.95	2.00
77	11.44	2.83	3.62	0.86	18.42	2.37	43.62	2.00
78	12.27	2.82	3.73	0.85	19.63	2.37	46.47	2.00
79	13.23	2.80	3.73	0.85	21.00	2.37	49.71	2.00
80	15.59	2.76	3.90	0.84	24.58	2.37	58.21	2.00
81	18.40	2.74	4.33	0.83	28.89	2.37	68.40	2.00
82	18.74	2.77	4.97	0.84	29.42	2.37	69.66	2.00
83	18.15	2.76	4.63	0.84	28.18	2.37	66.73	2.00
84	16.76	2.80	4.74	0.85	25.90	2.37	61.32	2.00

Point ID			F (%)	n				
85	16.85	2.76	4.09	0.84	25.64	2.37	60.72	2.00
86	16.29	2.76	4.00	0.84	24.58	2.37	58.21	2.00
87	15.75	2.80	4.26	0.85	23.68	2.37	56.08	2.00
88	14.90	2.84	4.71	0.86	22.34	2.37	52.89	2.00
89	14.95	2.85	4.81	0.86	22.28	2.37	52.74	2.00
90	15.77	2.83	4.72	0.86	23.32	2.37	55.21	2.00
91	16.62	2.82	4.83	0.85	24.42	2.37	57.82	2.00
92	17.08	2.80	4.58	0.85	24.86	2.37	58.87	2.00
93	16.12	2.81	4.32	0.85	23.23	2.37	54.99	2.00
94	18.88	2.74	4.14	0.83	27.00	2.37	63.92	2.00
95	21.86	2.68	3.92	0.81	30.95	2.37	73.29	2.00
96	24.01	2.69	4.40	0.82	33.93	2.37	80.34	2.00
97	27.03	2.64	4.14	0.80	37.81	2.37	89.51	2.00
98	26.72	2.65	4.24	0.80	37.19	2.37	88.04	2.00
99	25.59	2.67	4.37	0.81	35.46	2.37	83.95	2.00
100	23.34	2.70	4.32	0.82	32.14	2.37	76.10	2.00
101	20.83	2.74	4.35	0.83	28.50	2.37	67.48	2.00
102	19.86	2.75	4.29	0.83	26.98	2.37	63.89	2.00
103	18.79	2.82	5.00	0.85	25.49	2.37	60.35	2.00
104	17.95	2.83	4.89	0.86	24.16	2.37	57.19	2.00
105	14.58	2.91	5.02	0.88	19.42	2.37	45.98	2.00
106	11.99	2.95	4.49	0.89	15.67	2.37	37.10	2.00
107	10.91	2.97	4.29	0.90	14.07	2.37	33.30	2.00
108	10.31	2.97	3.87	0.90	13.10	2.37	31.02	2.00
109	9.58	2.97	3.43	0.90	11.98	2.37	28.36	2.00
110	10.13	2.96	3.64	0.90	12.65	2.37	29.96	2.00
111	10.96	2.90	3.09	0.88	13.60	2.37	32.20	2.00
112	12.06	2.98	4.96	0.90	15.18	2.37	35.94	2.00
113	13.65	2.95	5.00	0.89	17.18	2.37	40.67	2.00
114	16.82	2.83	4.14	0.86	21.08	2.37	49.90	2.00
115	18.35	2.74	3.37	0.83	22.77	2.37	53.90	2.00
116	19.34	2.76	3.82	0.84	23.98	2.37	56.79	2.00
117	23.32	2.70	3.84	0.82	28.86	2.37	68.34	2.00
118	25.49	2.67	3.80	0.81	31.39	2.37	74.33	2.00
119	26.94	2.70	4.38	0.82	33.17	2.37	78.53	2.00
120	26.57	2.69	4.28	0.82	32.49	2.37	76.93	2.00
121	26.78	2.70	4.38	0.82	32.60	2.37	77.19	2.00
122	27.79	2.68	4.24	0.81	33.63	2.37	79.63	2.00
123	27.46	2.69	4.27	0.81	33.05	2.37	78.25	2.00
124	26.62	2.65	3.57	0.80	31.69	2.37	75.04	2.00
125	24.36	2.66	3.34	0.81	28.74	2.37	68.05	2.00
126	24.13	2.67	3.39	0.81	28.33	2.37	67.07	2.00
127	21.87	2.76	4.17	0.84	25.61	2.37	60.64	2.00
128	19.84	2.81	4.41	0.85	23.06	2.37	54.59	2.00
129	17.56	2.85	4.35	0.86	20.17	2.37	47.76	2.00
130	16.46	2.88	4.42	0.87	18.74	2.37	44.37	2.00
131	17.70	2.84	4.16	0.86	20.08	2.37	47.55	2.00
132	19.87	2.79	4.02	0.85	22.54	2.37	53.36	2.00
133	23.02	2.76	4.14	0.83	26.12	2.37	61.85	2.00
134	20.47	2.81	4.39	0.85	23.03	2.37	54.54	2.00
135	18.73	2.84	4.32	0.86	20.85	2.37	49.37	2.00
136	17.41	2.85	4.10	0.86	19.18	2.37	45.42	2.00
137	16.92	2.87	4.21	0.87	18.52	2.37	43.85	2.00
138	17.36	2.87	4.22	0.87	18.92	2.37	44.80	2.00
139	17.60	2.87	4.36	0.87	19.11	2.37	45.24	2.00

Point ID			F (%)	n				
140	20.93	2.82	4.45	0.85	22.82	2.37	54.04	2.00
141	24.53	2.77	4.48	0.84	26.80	2.37	63.44	2.00
142	24.76	2.78	4.60	0.84	26.93	2.37	63.77	2.00
143	26.27	2.73	4.11	0.83	28.43	2.37	67.31	2.00
144	25.65	2.73	3.98	0.83	27.58	2.37	65.31	2.00
145	25.76	2.73	4.03	0.83	27.57	2.37	65.27	2.00
146	28.04	2.69	3.90	0.82	29.94	2.37	70.89	2.00
147	27.74	2.72	4.19	0.82	29.51	2.37	69.86	2.00
148	28.41	2.72	4.27	0.82	30.10	2.37	71.27	2.00
149	30.57	2.70	4.30	0.82	32.32	2.37	76.53	2.00
150	32.83	2.70	4.69	0.82	34.67	2.37	82.08	2.00
151	34.08	2.71	5.03	0.82	35.90	2.37	85.00	2.00
152	33.49	2.75	5.52	0.83	35.15	2.37	83.22	2.00
153	33.86	2.76	5.79	0.84	35.40	2.37	83.82	2.00
154	32.15	2.79	6.04	0.85	33.42	2.37	79.13	2.00
155	44.34	2.61	4.55	0.79	46.11	2.37	109.16	2.00
156	53.31	2.53	4.32	0.77	55.36	2.95	163.36	2.00
157	55.48	2.42	3.13	0.74	57.18	2.41	137.97	0.32
158	75.75	2.23	2.29	0.68	77.76	1.75	136.38	0.32
159	67.08	2.33	2.80	0.71	68.69	2.06	141.76	0.34
160	59.13	2.40	3.08	0.73	60.27	2.33	140.14	0.34
161	112.91	1.88	1.03	0.57	114.00	1.17	132.95	0.30
162	114.81	1.82	0.86	0.55	115.40	1.12	129.54	0.28
163	82.16	2.12	1.67	0.64	82.65	1.49	123.21	0.25
164	32.32	2.59	2.96	0.79	31.86	3.29	104.81	0.19
165	22.43	2.78	3.60	0.84	21.61	3.29	71.10	2.00
166	17.41	2.89	3.90	0.88	16.36	3.29	53.82	2.00
167	16.23	2.91	3.80	0.88	15.06	3.29	49.56	2.00
168	14.92	2.94	3.63	0.89	13.65	3.29	44.90	2.00
169	13.76	2.98	3.79	0.90	12.40	3.29	40.80	2.00
170	13.94	2.98	3.83	0.90	12.52	3.29	41.18	2.00
171	12.94	3.02	4.00	0.91	11.45	3.29	37.66	2.00
172	12.61	3.03	3.99	0.92	11.05	3.29	36.36	2.00
173	11.36	3.07	3.81	0.93	9.74	3.29	32.04	2.00
174	10.71	3.07	3.42	0.93	9.03	3.29	29.71	2.00
175	10.90	3.12	4.31	0.94	9.18	3.29	30.19	2.00
176	14.87	2.98	4.09	0.90	13.06	3.29	42.97	2.00
177	33.85	2.44	1.65	0.74	31.61	2.47	78.24	0.12
178	42.37	2.23	0.99	0.68	39.77	1.75	69.42	0.11
179	46.48	2.24	1.20	0.68	43.66	1.78	77.74	0.12
180	38.32	2.54	2.80	0.77	35.64	2.98	106.34	0.19
181	24.53	2.84	4.58	0.86	22.14	2.98	66.07	2.00
182	28.49	2.69	3.21	0.81	25.86	2.98	77.17	2.00
183	36.92	2.55	2.72	0.77	33.88	3.03	102.77	0.18
184	29.20	2.69	3.36	0.82	26.33	3.03	79.89	2.00
185	22.53	2.84	4.00	0.86	19.83	3.03	60.17	2.00
186	23.40	2.83	4.16	0.86	20.58	3.03	62.43	2.00
187	23.22	2.85	4.26	0.86	20.31	3.03	61.62	2.00
188	22.56	2.84	3.97	0.86	19.60	3.03	59.47	2.00
189	21.56	2.87	4.18	0.87	18.57	3.03	56.34	2.00
190	20.16	2.91	4.38	0.88	17.17	3.03	52.08	2.00
191	20.95	2.87	4.00	0.87	17.84	3.03	54.11	2.00
192	21.08	2.85	3.77	0.86	17.88	3.03	54.24	2.00
193	20.58	2.87	3.81	0.87	17.34	3.03	52.60	2.00
194	20.96	2.86	3.84	0.87	17.62	3.03	53.44	2.00

Point ID			F (%)	n				
195	20.41	2.89	4.00	0.87	17.03	3.03	51.65	2.00
196	19.46	2.90	3.94	0.88	16.08	3.03	48.77	2.00
197	19.46	2.89	3.79	0.88	16.01	3.03	48.56	2.00
198	19.66	2.91	4.03	0.88	16.12	3.03	48.89	2.00
199	20.69	2.87	3.81	0.87	16.99	3.03	51.55	2.00
200	20.62	2.90	4.11	0.88	16.85	3.03	51.11	2.00
201	22.51	2.88	4.27	0.87	18.49	3.03	56.08	2.00
202	26.47	2.84	4.52	0.86	21.98	3.03	66.67	2.00
203	28.65	2.80	4.44	0.85	23.86	3.03	72.38	2.00
204	29.58	2.81	4.63	0.85	24.60	3.03	74.61	2.00
205	32.90	2.74	4.21	0.83	27.49	3.03	83.40	2.00
206	31.43	2.80	4.74	0.85	26.05	3.03	79.02	2.00
207	31.12	2.78	4.37	0.84	25.68	3.03	77.92	2.00
208	30.43	2.78	4.36	0.84	24.97	3.03	75.76	2.00
209	29.22	2.81	4.51	0.85	23.80	3.03	72.20	2.00
210	29.73	2.78	4.12	0.84	24.17	3.03	73.34	2.00
211	28.59	2.80	4.22	0.85	23.07	3.03	70.00	2.00
212	29.82	2.81	4.50	0.85	24.05	3.03	72.95	2.00
213	28.53	2.82	4.49	0.85	22.83	3.03	69.25	2.00
214	28.96	2.80	4.19	0.85	23.13	3.03	70.18	2.00
215	31.36	2.78	4.30	0.84	25.12	3.03	76.21	2.00
216	36.64	2.74	4.52	0.83	29.60	3.03	89.79	2.00
217	37.99	2.69	4.00	0.82	30.70	3.03	93.13	2.00
218	30.40	2.82	4.78	0.86	23.98	3.03	72.75	2.00
219	33.68	2.77	4.46	0.84	26.73	3.03	81.08	2.00
220	28.43	2.84	4.65	0.86	22.12	3.03	67.11	2.00
221	31.32	2.70	3.24	0.82	24.62	3.03	74.69	2.00
222	19.09	3.01	5.01	0.91	14.03	3.03	42.55	2.00
223	22.61	2.93	4.71	0.89	16.95	3.03	51.41	2.00
224	28.74	2.81	4.12	0.85	22.08	3.03	67.00	2.00
225	29.24	2.82	4.39	0.85	22.40	3.03	67.97	2.00
226	30.57	2.79	4.18	0.85	23.46	3.03	71.17	2.00
227	32.97	2.77	4.22	0.84	25.38	3.03	77.00	2.00
228	34.81	2.78	4.59	0.84	26.80	3.03	81.30	2.00
229	31.93	2.79	4.27	0.84	24.33	3.03	73.79	2.00
230	28.80	2.82	4.15	0.85	21.65	3.03	65.67	2.00
231	24.08	2.89	4.21	0.87	17.66	3.03	53.57	2.00
232	22.55	2.90	4.05	0.88	16.34	3.03	49.57	2.00
233	25.56	2.85	3.98	0.86	18.76	3.03	56.90	2.00
234	29.32	2.81	4.01	0.85	21.77	3.03	66.04	2.00
235	31.00	2.79	4.02	0.84	23.07	3.03	69.99	2.00
236	30.48	2.78	3.80	0.84	22.59	3.03	68.52	2.00
237	28.29	2.78	3.41	0.84	20.76	3.03	62.97	2.00
238	23.76	2.88	3.84	0.87	16.96	3.03	51.46	2.00
239	22.46	2.87	3.49	0.87	15.87	3.03	48.16	2.00
240	22.28	2.95	4.47	0.89	15.60	3.03	47.32	2.00
241	26.91	2.92	5.11	0.88	19.20	3.03	58.24	2.00
242	29.14	2.96	6.52	0.90	20.80	3.03	63.10	2.00
243	41.82	2.81	6.02	0.85	30.87	3.03	93.66	2.00
244	53.67	2.74	6.03	0.83	40.25	3.03	122.09	2.00
245	68.46	2.60	4.99	0.79	52.23	3.31	173.01	2.00
246	76.09	2.46	3.64	0.75	58.67	2.59	152.05	0.41
247	85.07	2.21	1.78	0.67	66.91	1.68	112.50	0.21
248	105.08	2.10	1.56	0.64	83.62	1.45	121.05	0.24
249	125.80	1.94	1.13	0.59	101.48	1.23	124.63	0.26

Point ID			F (%)	n				
250	132.26	1.96	1.27	0.60	106.41	1.25	133.03	0.30
251	132.67	1.95	1.23	0.59	106.62	1.24	131.96	0.29
252	129.55	2.00	1.42	0.61	103.37	1.30	134.57	0.31
253	129.42	2.02	1.50	0.61	102.90	1.32	136.26	0.32
254	132.46	2.01	1.48	0.61	105.22	1.31	137.80	0.32
255	135.87	2.02	1.59	0.61	107.62	1.33	143.12	0.35
256	139.59	2.01	1.58	0.61	110.48	1.32	145.37	0.37
257	142.94	2.01	1.61	0.61	112.95	1.31	148.37	0.38
258	146.51	2.01	1.66	0.61	115.53	1.32	152.35	0.41
259	148.58	2.02	1.74	0.62	116.81	1.33	155.82	0.43
260	150.46	2.02	1.74	0.61	118.11	1.33	156.93	0.44
261	148.71	2.02	1.70	0.61	116.49	1.33	154.42	0.42
262	147.34	2.01	1.63	0.61	115.24	1.31	151.22	0.40
263	151.16	1.98	1.54	0.60	118.33	1.28	151.24	0.40
264	158.94	1.93	1.36	0.59	124.87	1.22	152.02	0.41
265	165.38	1.85	1.09	0.56	130.77	1.14	149.36	0.39
266	172.83	1.73	0.77	0.53	137.97	1.06	146.17	0.37
267	176.78	1.58	0.45	0.50	142.17	1.00	142.17	0.35
268	182.97	1.51	0.36	0.50	146.98	1.00	146.98	0.38
269	172.13	1.57	0.40	0.50	137.90	1.00	137.90	0.32
270	176.52	1.62	0.52	0.50	141.23	1.00	141.23	0.34
271	162.81	1.71	0.65	0.52	129.01	1.04	134.41	0.31
272	164.07	1.70	0.64	0.52	129.88	1.04	134.77	0.31
273	171.46	1.64	0.54	0.50	136.42	1.00	135.95	0.31
274	183.66	1.64	0.58	0.50	146.03	1.00	146.03	0.37
275	193.10	1.68	0.73	0.51	152.71	1.03	156.76	0.44
276	197.35	1.70	0.79	0.52	155.63	1.04	161.11	2.00
277	208.35	1.67	0.78	0.51	164.53	1.02	167.91	2.00
278	207.42	1.67	0.76	0.51	163.61	1.02	166.39	2.00
279	204.80	1.66	0.71	0.50	161.46	1.01	162.63	2.00
280	216.90	1.56	0.53	0.50	171.15	1.00	171.15	2.00
281	227.69	1.48	0.41	0.50	179.47	1.00	179.47	2.00
282	238.68	1.54	0.56	0.50	187.94	1.00	187.94	2.00
283	239.42	1.50	0.48	0.50	188.23	1.00	188.23	2.00
284	228.09	1.51	0.46	0.50	178.91	1.00	178.91	2.00
285	219.55	1.64	0.71	0.50	171.86	1.00	171.86	2.00
286	230.52	1.63	0.73	0.50	180.26	1.00	180.26	2.00
287	191.39	1.64	0.61	0.50	149.02	1.00	148.57	0.39
288	179.73	1.46	0.25	0.50	139.61	1.00	139.61	0.33
289	152.24	1.60	0.35	0.50	117.71	1.00	117.71	0.23
290	143.52	1.67	0.44	0.51	110.32	1.00	110.32	0.20
291	142.24	1.81	0.74	0.55	107.33	1.11	119.25	0.24
292	175.24	1.74	0.76	0.53	133.63	1.06	141.98	0.35
293	199.85	1.62	0.58	0.50	154.24	1.00	154.24	0.42
294	217.59	1.49	0.40	0.50	167.87	1.00	167.87	2.00
295	221.39	1.50	0.42	0.50	170.58	1.00	170.58	2.00
296	210.01	1.54	0.46	0.50	161.43	1.00	161.43	2.00
297	205.50	1.56	0.49	0.50	157.67	1.00	157.67	0.44
298	211.63	1.57	0.53	0.50	162.20	1.00	162.20	2.00
299	216.55	1.71	0.86	0.52	164.39	1.04	171.21	2.00
300	231.29	1.74	1.02	0.53	174.73	1.06	185.82	2.00
301	238.05	1.73	1.04	0.53	179.70	1.06	190.54	2.00
302	251.74	1.67	0.91	0.51	191.31	1.02	195.29	2.00
303	303.78	1.58	0.80	0.50	232.03	1.00	232.03	2.00
304	334.04	1.49	0.66	0.50	254.98	1.00	254.98	2.00

Point ID			F (%)	n				
305	318.29	1.54	0.73	0.50	242.48	1.00	242.48	2.00

:: Settlements calculation for saturated sands ::

Point ID					Settle. (in)
1	9.97	142.90	5.00	0.00	0.00
2	11.32	169.80	5.00	0.00	0.00
3	8.99	194.99	5.00	0.00	0.00
4	9.37	192.59	5.00	0.00	0.00
5	8.14	201.88	5.00	0.00	0.00
6	8.47	189.28	5.00	0.00	0.00
7	8.19	186.40	5.00	0.00	0.00
8	8.10	179.72	5.00	0.00	0.00
9	8.91	182.16	5.00	0.00	0.00
10	10.67	177.27	5.00	0.00	0.00
11	10.35	183.19	5.00	0.00	0.00
12	11.06	185.02	5.00	0.00	0.00
13	10.31	164.37	5.00	0.00	0.00
14	9.76	147.01	5.00	0.00	0.00
15	9.90	144.04	5.00	0.00	0.00
16	11.23	152.10	5.00	0.00	0.00
17	10.24	135.07	5.00	0.00	0.00
18	7.59	103.32	5.00	0.00	0.00
19	6.19	82.96	5.00	0.00	0.00
20	5.71	72.75	5.00	0.00	0.00
21	5.23	63.99	5.00	0.00	0.00
22	4.81	57.04	5.00	0.00	0.00
23	4.61	52.47	5.00	0.00	0.00
24	4.60	50.30	5.00	0.00	0.00
25	4.50	47.85	5.00	0.00	0.00
26	4.02	41.78	5.00	0.00	0.00
27	3.84	38.60	5.00	0.00	0.00
28	3.67	35.81	5.00	0.00	0.00
29	3.48	32.75	5.00	0.00	0.00
30	2.96	27.00	5.00	0.00	0.00
31	2.55	22.56	5.00	0.00	0.00
32	2.51	21.87	5.00	0.00	0.00
33	2.72	23.96	5.00	0.00	0.00
34	3.49	29.82	5.00	0.00	0.00
35	3.38	28.29	5.00	0.00	0.00
36	3.25	26.76	5.00	0.00	0.00
37	2.97	24.03	5.00	0.00	0.00
38	2.95	23.42	5.00	0.00	0.00
39	2.92	22.88	5.00	0.00	0.00
40	3.08	23.29	5.00	0.00	0.00
41	2.78	21.39	5.00	0.00	0.00
42	3.22	24.46	5.00	0.00	0.00
43	3.16	23.66	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
44	3.22	23.66	5.00	0.00	0.00
45	3.55	25.83	5.00	0.00	0.00
46	4.00	28.77	5.00	0.00	0.00
47	5.74	38.39	5.00	0.00	0.00
48	3.57	24.61	5.00	0.00	0.00
49	3.83	26.59	5.00	0.00	0.00
50	8.13	53.97	5.00	0.00	0.00
51	8.95	58.16	5.00	0.00	0.00
52	7.43	49.10	5.00	0.00	0.00
53	6.18	41.49	5.00	0.00	0.00
54	7.39	47.80	5.00	0.00	0.00
55	8.77	55.22	5.00	0.00	0.00
56	8.87	54.66	5.00	0.00	0.00
57	8.78	54.61	5.00	0.00	0.00
58	11.54	67.92	5.00	0.00	0.00
59	17.27	60.41	0.38	3.53	0.07
60	17.74	50.18	0.34	4.11	0.08
61	13.91	55.95	0.36	3.76	0.08
62	9.55	39.65	5.00	0.00	0.00
63	8.53	35.50	5.00	0.00	0.00
64	6.59	27.87	5.00	0.00	0.00
65	5.34	22.64	5.00	0.00	0.00
66	6.82	28.53	5.00	0.00	0.00
67	7.32	30.33	5.00	0.00	0.00
68	7.06	28.92	5.00	0.00	0.00
69	6.91	27.97	5.00	0.00	0.00
70	6.76	27.02	5.00	0.00	0.00
71	7.03	27.75	5.00	0.00	0.00
72	7.65	30.36	5.00	0.00	0.00
73	8.72	34.59	5.00	0.00	0.00
74	9.51	37.43	5.00	0.00	0.00
75	9.30	36.08	5.00	0.00	0.00
76	10.17	38.95	5.00	0.00	0.00
77	11.44	43.62	5.00	0.00	0.00
78	12.27	46.47	5.00	0.00	0.00
79	13.23	49.71	5.00	0.00	0.00
80	15.59	58.21	5.00	0.00	0.00
81	18.40	68.40	5.00	0.00	0.00
82	18.74	69.66	5.00	0.00	0.00
83	18.15	66.73	5.00	0.00	0.00
84	16.76	61.32	5.00	0.00	0.00
85	16.85	60.72	5.00	0.00	0.00
86	16.29	58.21	5.00	0.00	0.00
87	15.75	56.08	5.00	0.00	0.00
88	14.90	52.89	5.00	0.00	0.00
89	14.95	52.74	5.00	0.00	0.00
90	15.77	55.21	5.00	0.00	0.00
91	16.62	57.82	5.00	0.00	0.00
92	17.08	58.87	5.00	0.00	0.00
93	16.12	54.99	5.00	0.00	0.00
94	18.88	63.92	5.00	0.00	0.00
95	21.86	73.29	5.00	0.00	0.00
96	24.01	80.34	5.00	0.00	0.00
97	27.03	89.51	5.00	0.00	0.00
98	26.72	88.04	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
99	25.59	83.95	5.00	0.00	0.00
100	23.34	76.10	5.00	0.00	0.00
101	20.83	67.48	5.00	0.00	0.00
102	19.86	63.89	5.00	0.00	0.00
103	18.79	60.35	5.00	0.00	0.00
104	17.95	57.19	5.00	0.00	0.00
105	14.58	45.98	5.00	0.00	0.00
106	11.99	37.10	5.00	0.00	0.00
107	10.91	33.30	5.00	0.00	0.00
108	10.31	31.02	5.00	0.00	0.00
109	9.58	28.36	5.00	0.00	0.00
110	10.13	29.96	5.00	0.00	0.00
111	10.96	32.20	5.00	0.00	0.00
112	12.06	35.94	5.00	0.00	0.00
113	13.65	40.67	5.00	0.00	0.00
114	16.82	49.90	5.00	0.00	0.00
115	18.35	53.90	5.00	0.00	0.00
116	19.34	56.79	5.00	0.00	0.00
117	23.32	68.34	5.00	0.00	0.00
118	25.49	74.33	5.00	0.00	0.00
119	26.94	78.53	5.00	0.00	0.00
120	26.57	76.93	5.00	0.00	0.00
121	26.78	77.19	5.00	0.00	0.00
122	27.79	79.63	5.00	0.00	0.00
123	27.46	78.25	5.00	0.00	0.00
124	26.62	75.04	5.00	0.00	0.00
125	24.36	68.05	5.00	0.00	0.00
126	24.13	67.07	5.00	0.00	0.00
127	21.87	60.64	5.00	0.00	0.00
128	19.84	54.59	5.00	0.00	0.00
129	17.56	47.76	5.00	0.00	0.00
130	16.46	44.37	5.00	0.00	0.00
131	17.70	47.55	5.00	0.00	0.00
132	19.87	53.36	5.00	0.00	0.00
133	23.02	61.85	5.00	0.00	0.00
134	20.47	54.54	5.00	0.00	0.00
135	18.73	49.37	5.00	0.00	0.00
136	17.41	45.42	5.00	0.00	0.00
137	16.92	43.85	5.00	0.00	0.00
138	17.36	44.80	5.00	0.00	0.00
139	17.60	45.24	5.00	0.00	0.00
140	20.93	54.04	5.00	0.00	0.00
141	24.53	63.44	5.00	0.00	0.00
142	24.76	63.77	5.00	0.00	0.00
143	26.27	67.31	5.00	0.00	0.00
144	25.65	65.31	5.00	0.00	0.00
145	25.76	65.27	5.00	0.00	0.00
146	28.04	70.89	5.00	0.00	0.00
147	27.74	69.86	5.00	0.00	0.00
148	28.41	71.27	5.00	0.00	0.00
149	30.57	76.53	5.00	0.00	0.00
150	32.83	82.08	5.00	0.00	0.00
151	34.08	85.00	5.00	0.00	0.00
152	33.49	83.22	5.00	0.00	0.00
153	33.86	83.82	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
154	32.15	79.13	5.00	0.00	0.00
155	44.34	109.16	5.00	0.00	0.00
156	53.31	163.36	5.00	0.00	0.00
157	55.48	137.97	0.98	0.65	0.01
158	75.75	136.38	0.96	0.66	0.01
159	67.08	141.76	1.05	0.64	0.01
160	59.13	140.14	1.02	0.65	0.01
161	112.91	132.95	0.90	1.03	0.02
162	114.81	129.54	0.85	1.07	0.02
163	82.16	123.21	0.77	1.50	0.03
164	32.32	104.81	0.57	2.25	0.04
165	22.43	71.10	5.00	0.00	0.00
166	17.41	53.82	5.00	0.00	0.00
167	16.23	49.56	5.00	0.00	0.00
168	14.92	44.90	5.00	0.00	0.00
169	13.76	40.80	5.00	0.00	0.00
170	13.94	41.18	5.00	0.00	0.00
171	12.94	37.66	5.00	0.00	0.00
172	12.61	36.36	5.00	0.00	0.00
173	11.36	32.04	5.00	0.00	0.00
174	10.71	29.71	5.00	0.00	0.00
175	10.90	30.19	5.00	0.00	0.00
176	14.87	42.97	5.00	0.00	0.00
177	33.85	78.24	0.37	2.86	0.06
178	42.37	69.42	0.33	3.15	0.06
179	46.48	77.74	0.37	2.87	0.06
180	38.32	106.34	0.57	2.22	0.05
181	24.53	66.07	5.00	0.00	0.00
182	28.49	77.17	5.00	0.00	0.00
183	36.92	102.77	0.54	2.28	0.04
184	29.20	79.89	5.00	0.00	0.00
185	22.53	60.17	5.00	0.00	0.00
186	23.40	62.43	5.00	0.00	0.00
187	23.22	61.62	5.00	0.00	0.00
188	22.56	59.47	5.00	0.00	0.00
189	21.56	56.34	5.00	0.00	0.00
190	20.16	52.08	5.00	0.00	0.00
191	20.95	54.11	5.00	0.00	0.00
192	21.08	54.24	5.00	0.00	0.00
193	20.58	52.60	5.00	0.00	0.00
194	20.96	53.44	5.00	0.00	0.00
195	20.41	51.65	5.00	0.00	0.00
196	19.46	48.77	5.00	0.00	0.00
197	19.46	48.56	5.00	0.00	0.00
198	19.66	48.89	5.00	0.00	0.00
199	20.69	51.55	5.00	0.00	0.00
200	20.62	51.11	5.00	0.00	0.00
201	22.51	56.08	5.00	0.00	0.00
202	26.47	66.67	5.00	0.00	0.00
203	28.65	72.38	5.00	0.00	0.00
204	29.58	74.61	5.00	0.00	0.00
205	32.90	83.40	5.00	0.00	0.00
206	31.43	79.02	5.00	0.00	0.00
207	31.12	77.92	5.00	0.00	0.00
208	30.43	75.76	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
209	29.22	72.20	5.00	0.00	0.00
210	29.73	73.34	5.00	0.00	0.00
211	28.59	70.00	5.00	0.00	0.00
212	29.82	72.95	5.00	0.00	0.00
213	28.53	69.25	5.00	0.00	0.00
214	28.96	70.18	5.00	0.00	0.00
215	31.36	76.21	5.00	0.00	0.00
216	36.64	89.79	5.00	0.00	0.00
217	37.99	93.13	5.00	0.00	0.00
218	30.40	72.75	5.00	0.00	0.00
219	33.68	81.08	5.00	0.00	0.00
220	28.43	67.11	5.00	0.00	0.00
221	31.32	74.69	5.00	0.00	0.00
222	19.09	42.55	5.00	0.00	0.00
223	22.61	51.41	5.00	0.00	0.00
224	28.74	67.00	5.00	0.00	0.00
225	29.24	67.97	5.00	0.00	0.00
226	30.57	71.17	5.00	0.00	0.00
227	32.97	77.00	5.00	0.00	0.00
228	34.81	81.30	5.00	0.00	0.00
229	31.93	73.79	5.00	0.00	0.00
230	28.80	65.67	5.00	0.00	0.00
231	24.08	53.57	5.00	0.00	0.00
232	22.55	49.57	5.00	0.00	0.00
233	25.56	56.90	5.00	0.00	0.00
234	29.32	66.04	5.00	0.00	0.00
235	31.00	69.99	5.00	0.00	0.00
236	30.48	68.52	5.00	0.00	0.00
237	28.29	62.97	5.00	0.00	0.00
238	23.76	51.46	5.00	0.00	0.00
239	22.46	48.16	5.00	0.00	0.00
240	22.28	47.32	5.00	0.00	0.00
241	26.91	58.24	5.00	0.00	0.00
242	29.14	63.10	5.00	0.00	0.00
243	41.82	93.66	5.00	0.00	0.00
244	53.67	122.09	5.00	0.00	0.00
245	68.46	173.01	5.00	0.00	0.00
246	76.09	152.05	1.22	0.30	0.01
247	85.07	112.50	0.64	2.12	0.04
248	105.08	121.05	0.74	1.87	0.04
249	125.80	124.63	0.78	1.47	0.03
250	132.26	133.03	0.90	1.03	0.02
251	132.67	131.96	0.89	1.04	0.02
252	129.55	134.57	0.92	1.01	0.02
253	129.42	136.26	0.95	0.66	0.01
254	132.46	137.80	0.98	0.66	0.01
255	135.87	143.12	1.07	0.44	0.01
256	139.59	145.37	1.11	0.43	0.01
257	142.94	148.37	1.16	0.31	0.01
258	146.51	152.35	1.24	0.30	0.01
259	148.58	155.82	1.31	0.21	0.00
260	150.46	156.93	1.33	0.21	0.00
261	148.71	154.42	1.28	0.21	0.00
262	147.34	151.22	1.22	0.30	0.01
263	151.16	151.24	1.22	0.30	0.01

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
264	158.94	152.02	1.23	0.30	0.01
265	165.38	149.36	1.18	0.31	0.01
266	172.83	146.17	1.13	0.43	0.01
267	176.78	142.17	1.06	0.44	0.01
268	182.97	146.98	1.14	0.43	0.01
269	172.13	137.90	0.99	0.66	0.01
270	176.52	141.23	1.04	0.64	0.01
271	162.81	134.41	0.93	1.01	0.02
272	164.07	134.77	0.94	1.01	0.02
273	171.46	135.95	0.96	0.66	0.01
274	183.66	146.03	1.13	0.43	0.01
275	193.10	156.76	1.34	0.21	0.00
276	197.35	161.11	5.00	0.00	0.00
277	208.35	167.91	5.00	0.00	0.00
278	207.42	166.39	5.00	0.00	0.00
279	204.80	162.63	5.00	0.00	0.00
280	216.90	171.15	5.00	0.00	0.00
281	227.69	179.47	5.00	0.00	0.00
282	238.68	187.94	5.00	0.00	0.00
283	239.42	188.23	5.00	0.00	0.00
284	228.09	178.91	5.00	0.00	0.00
285	219.55	171.86	5.00	0.00	0.00
286	230.52	180.26	5.00	0.00	0.00
287	191.39	148.57	1.18	0.31	0.01
288	179.73	139.61	1.03	0.65	0.01
289	152.24	117.71	0.71	1.95	0.04
290	143.52	110.32	0.63	2.16	0.04
291	142.24	119.25	0.73	1.91	0.04
292	175.24	141.98	1.07	0.44	0.01
293	199.85	154.24	1.30	0.21	0.00
294	217.59	167.87	5.00	0.00	0.00
295	221.39	170.58	5.00	0.00	0.00
296	210.01	161.43	5.00	0.00	0.00
297	205.50	157.67	1.38	0.00	0.00
298	211.63	162.20	5.00	0.00	0.00
299	216.55	171.21	5.00	0.00	0.00
300	231.29	185.82	5.00	0.00	0.00
301	238.05	190.54	5.00	0.00	0.00
302	251.74	195.29	5.00	0.00	0.00
303	303.78	232.03	5.00	0.00	0.00
304	334.04	254.98	5.00	0.00	0.00
305	318.29	242.48	5.00	0.00	0.00

Total settlement : 1.19

Measured cone resistance
Normalized and adjusted cone resistance
Factor of safety against liquefaction
Post-liquefaction volumentric strain
Calculated settlement

:: Overall liquefaction potential according to Iwasaki ::

Point ID	F		
1	0.00	9.98	0.00
3	0.00	9.93	0.00
5	0.00	9.88	0.00

Point ID	F		
2	0.00	9.95	0.00
4	0.00	9.90	0.00
6	0.00	9.85	0.00

:: Overall liquefaction potential according to Iwasaki (continued) ::

Point ID	F			Point ID	F		
7	0.00	9.82	0.00	8	0.00	9.80	0.00
9	0.00	9.77	0.00	10	0.00	9.75	0.00
11	0.00	9.73	0.00	12	0.00	9.70	0.00
13	0.00	9.68	0.00	14	0.00	9.65	0.00
15	0.00	9.63	0.00	16	0.00	9.60	0.00
17	0.00	9.57	0.00	18	0.00	9.55	0.00
19	0.00	9.52	0.00	20	0.00	9.50	0.00
21	0.00	9.48	0.00	22	0.00	9.45	0.00
23	0.00	9.43	0.00	24	0.00	9.40	0.00
25	0.00	9.38	0.00	26	0.00	9.35	0.00
27	0.00	9.32	0.00	28	0.00	9.30	0.00
29	0.00	9.27	0.00	30	0.00	9.25	0.00
31	0.00	9.22	0.00	32	0.00	9.20	0.00
33	0.00	9.18	0.00	34	0.00	9.15	0.00
35	0.00	9.13	0.00	36	0.00	9.10	0.00
37	0.00	9.07	0.00	38	0.00	9.05	0.00
39	0.00	9.02	0.00	40	0.00	9.00	0.00
41	0.00	8.97	0.00	42	0.00	8.95	0.00
43	0.00	8.93	0.00	44	0.00	8.90	0.00
45	0.00	8.88	0.00	46	0.00	8.85	0.00
47	0.00	8.82	0.00	48	0.00	8.80	0.00
49	0.00	8.77	0.00	50	0.00	8.75	0.00
51	0.00	8.72	0.00	52	0.00	8.70	0.00
53	0.00	8.68	0.00	54	0.00	8.65	0.00
55	0.00	8.63	0.00	56	0.00	8.60	0.00
57	0.00	8.58	0.00	58	0.00	8.55	0.00
59	0.62	8.52	0.28	60	0.66	8.50	0.27
61	0.64	8.47	0.28	62	0.00	8.45	0.00
63	0.00	8.43	0.00	64	0.00	8.40	0.00
65	0.00	8.38	0.00	66	0.00	8.35	0.00
67	0.00	8.33	0.00	68	0.00	8.30	0.00
69	0.00	8.27	0.00	70	0.00	8.25	0.00
71	0.00	8.22	0.00	72	0.00	8.20	0.00
73	0.00	8.17	0.00	74	0.00	8.15	0.00
75	0.00	8.13	0.00	76	0.00	8.10	0.00
77	0.00	8.08	0.00	78	0.00	8.05	0.00
79	0.00	8.02	0.00	80	0.00	8.00	0.00
81	0.00	7.97	0.00	82	0.00	7.95	0.00
83	0.00	7.92	0.00	84	0.00	7.90	0.00
85	0.00	7.88	0.00	86	0.00	7.85	0.00
87	0.00	7.83	0.00	88	0.00	7.80	0.00
89	0.00	7.77	0.00	90	0.00	7.75	0.00
91	0.00	7.72	0.00	92	0.00	7.70	0.00
93	0.00	7.67	0.00	94	0.00	7.65	0.00
95	0.00	7.63	0.00	96	0.00	7.60	0.00
97	0.00	7.58	0.00	98	0.00	7.55	0.00
99	0.00	7.53	0.00	100	0.00	7.50	0.00
101	0.00	7.47	0.00	102	0.00	7.45	0.00
103	0.00	7.42	0.00	104	0.00	7.40	0.00
105	0.00	7.38	0.00	106	0.00	7.35	0.00
107	0.00	7.33	0.00	108	0.00	7.30	0.00
109	0.00	7.28	0.00	110	0.00	7.25	0.00
111	0.00	7.22	0.00	112	0.00	7.20	0.00
113	0.00	7.17	0.00	114	0.00	7.15	0.00
115	0.00	7.13	0.00	116	0.00	7.10	0.00
117	0.00	7.08	0.00	118	0.00	7.05	0.00

:: Overall liquefaction potential according to Iwasaki (continued) ::

Point ID	F			Point ID	F		
119	0.00	7.03	0.00	120	0.00	7.00	0.00
121	0.00	6.97	0.00	122	0.00	6.95	0.00
123	0.00	6.92	0.00	124	0.00	6.90	0.00
125	0.00	6.87	0.00	126	0.00	6.85	0.00
127	0.00	6.83	0.00	128	0.00	6.80	0.00
129	0.00	6.78	0.00	130	0.00	6.75	0.00
131	0.00	6.72	0.00	132	0.00	6.70	0.00
133	0.00	6.67	0.00	134	0.00	6.65	0.00
135	0.00	6.62	0.00	136	0.00	6.60	0.00
137	0.00	6.58	0.00	138	0.00	6.55	0.00
139	0.00	6.53	0.00	140	0.00	6.50	0.00
141	0.00	6.47	0.00	142	0.00	6.45	0.00
143	0.00	6.42	0.00	144	0.00	6.40	0.00
145	0.00	6.37	0.00	146	0.00	6.35	0.00
147	0.00	6.33	0.00	148	0.00	6.30	0.00
149	0.00	6.28	0.00	150	0.00	6.25	0.00
151	0.00	6.23	0.00	152	0.00	6.20	0.00
153	0.00	6.17	0.00	154	0.00	6.15	0.00
155	0.00	6.12	0.00	156	0.00	6.10	0.00
157	0.02	6.08	0.00	158	0.04	6.05	0.01
159	0.00	6.03	0.00	160	0.00	6.00	0.00
161	0.10	5.98	0.03	162	0.15	5.95	0.04
163	0.23	5.92	0.07	164	0.43	5.90	0.13
165	0.00	5.87	0.00	166	0.00	5.85	0.00
167	0.00	5.82	0.00	168	0.00	5.80	0.00
169	0.00	5.78	0.00	170	0.00	5.75	0.00
171	0.00	5.73	0.00	172	0.00	5.70	0.00
173	0.00	5.67	0.00	174	0.00	5.65	0.00
175	0.00	5.62	0.00	176	0.00	5.60	0.00
177	0.63	5.57	0.18	178	0.67	5.55	0.18
179	0.63	5.53	0.17	180	0.43	5.50	0.12
181	0.00	5.48	0.00	182	0.00	5.45	0.00
183	0.46	5.42	0.12	184	0.00	5.40	0.00
185	0.00	5.37	0.00	186	0.00	5.35	0.00
187	0.00	5.32	0.00	188	0.00	5.30	0.00
189	0.00	5.28	0.00	190	0.00	5.25	0.00
191	0.00	5.23	0.00	192	0.00	5.20	0.00
193	0.00	5.18	0.00	194	0.00	5.15	0.00
195	0.00	5.12	0.00	196	0.00	5.10	0.00
197	0.00	5.07	0.00	198	0.00	5.05	0.00
199	0.00	5.03	0.00	200	0.00	5.00	0.00
201	0.00	4.98	0.00	202	0.00	4.95	0.00
203	0.00	4.93	0.00	204	0.00	4.90	0.00
205	0.00	4.87	0.00	206	0.00	4.85	0.00
207	0.00	4.82	0.00	208	0.00	4.80	0.00
209	0.00	4.78	0.00	210	0.00	4.75	0.00
211	0.00	4.73	0.00	212	0.00	4.70	0.00
213	0.00	4.68	0.00	214	0.00	4.65	0.00
215	0.00	4.62	0.00	216	0.00	4.60	0.00
217	0.00	4.57	0.00	218	0.00	4.55	0.00
219	0.00	4.52	0.00	220	0.00	4.50	0.00
221	0.00	4.48	0.00	222	0.00	4.45	0.00
223	0.00	4.43	0.00	224	0.00	4.40	0.00
225	0.00	4.37	0.00	226	0.00	4.35	0.00
227	0.00	4.32	0.00	228	0.00	4.30	0.00
229	0.00	4.27	0.00	230	0.00	4.25	0.00

:: Overall liquefaction potential according to Iwasaki (continued) ::

Point ID	F		
231	0.00	4.23	0.00
233	0.00	4.18	0.00
235	0.00	4.12	0.00
237	0.00	4.07	0.00
239	0.00	4.02	0.00
241	0.00	3.98	0.00
243	0.00	3.93	0.00
245	0.00	3.88	0.00
247	0.36	3.82	0.07
249	0.22	3.77	0.04
251	0.11	3.73	0.02
253	0.05	3.68	0.01
255	0.00	3.63	0.00
257	0.00	3.57	0.00
259	0.00	3.52	0.00
261	0.00	3.48	0.00
263	0.00	3.43	0.00
265	0.00	3.38	0.00
267	0.00	3.32	0.00
269	0.01	3.27	0.00
271	0.07	3.22	0.01
273	0.04	3.18	0.01
275	0.00	3.13	0.00
277	0.00	3.07	0.00
279	0.00	3.02	0.00
281	0.00	2.97	0.00
283	0.00	2.93	0.00
285	0.00	2.88	0.00
287	0.00	2.83	0.00
289	0.29	2.77	0.04
291	0.27	2.72	0.04
293	0.00	2.68	0.00
295	0.00	2.63	0.00
297	0.00	2.58	0.00
299	0.00	2.52	0.00
301	0.00	2.47	0.00
303	0.00	2.43	0.00
305	0.00	2.38	0.00

Point ID	F		
232	0.00	4.20	0.00
234	0.00	4.15	0.00
236	0.00	4.10	0.00
238	0.00	4.05	0.00
240	0.00	4.00	0.00
242	0.00	3.95	0.00
244	0.00	3.90	0.00
246	0.00	3.85	0.00
248	0.26	3.80	0.05
250	0.10	3.75	0.02
252	0.08	3.70	0.01
254	0.02	3.65	0.00
256	0.00	3.60	0.00
258	0.00	3.55	0.00
260	0.00	3.50	0.00
262	0.00	3.45	0.00
264	0.00	3.40	0.00
266	0.00	3.35	0.00
268	0.00	3.30	0.00
270	0.00	3.25	0.00
272	0.06	3.20	0.01
274	0.00	3.15	0.00
276	0.00	3.10	0.00
278	0.00	3.05	0.00
280	0.00	3.00	0.00
282	0.00	2.95	0.00
284	0.00	2.90	0.00
286	0.00	2.85	0.00
288	0.00	2.80	0.00
290	0.37	2.75	0.05
292	0.00	2.70	0.00
294	0.00	2.65	0.00
296	0.00	2.60	0.00
298	0.00	2.55	0.00
300	0.00	2.50	0.00
302	0.00	2.45	0.00
304	0.00	2.40	0.00

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LIQUEFACTION ANALYSIS REPORT

Project title : 10487.01 - Morning Star Packing Company Cooling Pond Expansions

Project subtitle : CPT-06

Input parameters and analysis data

In-situ data type:	Cone Penetration Test	5.00 ft
Analysis type:	Deterministic	6.58
Analysis method:	Robertson (1998)	0.44 g
Fines correction method:	Robertson (1998)	1.00

Liquefaction

No Liquefaction

Soil type index legend

- Gravelly sand to dense sand
- Sands: clean sand to silty sand
- Sand mixtures: silty sand to sandy silt
- Silt mixtures: clayey silt to silty clay
- Clays: silty clay to clay
- Organic soils: peats

:: Field input data ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
1	0.16	7.16	0.31	20.38	120.94
2	0.33	7.94	0.44	25.58	120.94
3	0.49	7.92	0.48	29.05	120.94
4	0.66	7.87	0.51	32.17	120.94
5	0.82	7.16	0.51	36.08	120.94
6	0.98	8.01	0.53	35.24	120.94
7	1.15	8.62	0.42	32.08	120.94
8	1.31	11.43	0.40	26.32	120.94
9	1.48	12.45	0.50	27.88	120.94
10	1.64	15.88	0.83	29.23	120.94
11	1.80	12.96	0.90	36.12	120.94
12	1.97	34.33	0.97	17.17	120.94
13	2.13	34.05	0.95	17.51	120.94
14	2.30	28.44	0.90	20.62	120.94
15	2.46	24.66	0.85	23.07	120.94
16	2.62	26.42	0.74	20.74	120.94
17	2.79	26.95	0.70	20.29	120.94
18	2.95	26.59	0.60	19.42	120.94
19	3.12	21.43	0.62	24.37	120.94
20	3.28	17.69	0.68	30.01	120.94
21	3.44	12.69	0.62	37.84	120.94
22	3.61	12.30	0.55	37.72	120.94
23	3.77	9.34	0.49	44.65	120.94
24	3.94	6.59	0.44	55.24	120.94
25	4.10	7.07	0.40	51.75	120.94
26	4.27	6.86	0.43	54.98	120.94
27	4.43	7.30	0.30	47.76	120.94
28	4.59	8.73	0.28	41.66	120.94
29	4.76	8.20	0.24	41.80	120.94
30	4.92	9.23	0.23	38.52	120.94
31	5.09	6.62	0.28	52.01	120.94
32	5.25	4.42	0.25	66.31	120.94
33	5.41	3.84	0.21	69.54	120.94
34	5.58	4.28	0.19	63.17	120.94
35	5.74	4.55	0.20	62.59	120.94
36	5.91	4.95	0.25	63.22	120.94
37	6.07	5.08	0.27	63.34	120.94
38	6.23	4.30	0.27	71.78	120.94
39	6.40	3.94	0.27	76.22	120.94
40	6.56	4.56	0.28	70.53	120.94
41	6.73	3.94	0.26	76.56	120.94
42	6.89	3.78	0.23	76.35	120.94
43	7.05	3.98	0.20	71.79	120.94
44	7.22	3.73	0.19	74.54	120.94
45	7.38	3.50	0.16	74.73	120.94
46	7.55	3.39	0.15	75.44	120.94
47	7.71	3.61	0.16	73.76	120.94
48	7.87	3.43	0.14	74.46	120.94
49	8.04	3.27	0.13	75.50	120.94
50	8.20	3.24	0.16	81.14	120.94
51	8.37	3.24	0.24	90.14	120.94
52	8.53	4.55	0.24	72.32	120.94
53	8.69	4.21	0.21	73.60	120.94
54	8.86	4.01	0.20	76.10	120.94
55	9.02	3.73	0.21	81.10	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
56	9.19	3.46	0.19	83.96	120.94
57	9.35	4.07	0.19	75.59	120.94
58	9.51	3.92	0.23	80.89	120.94
59	9.68	4.13	0.18	74.28	120.94
60	9.84	3.62	0.22	85.61	120.94
61	10.01	3.24	0.20	91.94	120.94
62	10.17	4.09	0.16	73.83	120.94
63	10.33	3.46	0.19	86.58	120.94
64	10.50	3.94	0.15	75.02	120.94
65	10.66	3.25	0.14	85.44	120.94
66	10.83	3.39	0.14	83.39	120.94
67	10.99	4.49	0.20	74.75	120.94
68	11.15	4.71	0.21	73.92	120.94
69	11.32	5.68	0.25	67.68	120.94
70	11.48	5.82	0.38	75.08	120.94
71	11.65	5.98	0.37	73.83	120.94
72	11.81	5.31	0.29	75.00	120.94
73	11.98	6.30	0.22	61.72	120.94
74	12.14	4.18	0.24	85.42	120.94
75	12.30	6.52	0.22	61.37	120.94
76	12.47	10.88	0.19	39.72	120.94
77	12.63	12.49	0.14	32.63	120.94
78	12.80	12.88	0.11	29.71	120.94
79	12.96	14.18	0.16	30.58	120.94
80	13.12	14.72	0.16	30.15	120.94
81	13.29	15.91	0.20	30.05	120.94
82	13.45	15.36	0.30	35.63	120.94
83	13.62	13.88	0.39	42.27	120.94
84	13.78	11.48	0.46	51.89	120.94
85	13.94	12.17	0.34	45.26	120.94
86	14.11	15.25	0.22	33.11	120.94
87	14.27	16.36	0.28	33.55	120.94
88	14.44	14.84	0.40	41.27	120.94
89	14.60	12.11	0.50	51.78	120.94
90	14.76	10.38	0.55	60.11	120.94
91	14.93	8.78	0.40	61.91	120.94
92	15.09	7.47	0.34	66.67	120.94
93	15.26	6.84	0.30	68.80	120.94
94	15.42	7.44	0.28	63.99	120.94
95	15.58	7.11	0.29	66.64	120.94
96	15.75	6.18	0.30	75.04	120.94
97	15.91	6.44	0.31	73.99	120.94
98	16.08	7.07	0.30	68.33	120.94
99	16.24	7.64	0.27	63.39	120.94
100	16.40	8.56	0.34	62.06	120.94
101	16.57	8.82	0.37	62.61	120.94
102	16.73	7.53	0.37	70.49	120.94
103	16.90	7.06	0.34	72.40	120.94
104	17.06	7.01	0.33	72.52	120.94
105	17.22	7.14	0.34	72.33	120.94
106	17.39	7.93	0.40	70.20	120.94
107	17.55	8.92	0.39	64.28	120.94
108	17.72	7.75	0.41	72.44	120.94
109	17.88	8.78	0.33	62.11	120.94
110	18.04	8.45	0.34	65.02	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
111	18.21	9.21	0.42	64.84	120.94
112	18.37	9.65	0.42	63.01	120.94
113	18.54	9.16	0.38	63.50	120.94
114	18.70	8.74	0.33	63.51	120.94
115	18.86	9.22	0.35	62.39	120.94
116	19.03	10.11	0.41	60.95	120.94
117	19.19	10.37	0.49	63.19	120.94
118	19.36	8.55	0.50	73.62	120.94
119	19.52	6.47	0.44	87.61	120.94
120	19.69	5.65	0.43	96.62	120.94
121	19.85	7.79	0.36	72.64	120.94
122	20.01	13.10	0.21	41.84	120.94
123	20.18	26.53	0.23	22.80	120.94
124	20.34	33.14	0.34	21.09	120.94
125	20.51	36.47	0.40	20.59	120.94
126	20.67	41.03	0.47	19.50	120.94
127	20.83	42.21	0.48	19.14	120.94
128	21.00	39.13	0.52	21.36	120.94
129	21.16	35.97	0.65	25.63	120.94
130	21.33	21.63	0.67	40.89	120.94
131	21.49	15.04	0.62	53.41	120.94
132	21.65	24.87	0.59	34.92	120.94
133	21.82	17.95	0.69	48.35	120.94
134	21.98	15.63	0.69	53.96	120.94
135	22.15	10.61	0.58	68.95	120.94
136	22.31	11.31	0.52	63.82	120.94
137	22.47	13.31	0.61	59.10	120.94
138	22.64	14.92	0.53	52.11	120.94
139	22.80	10.15	0.49	68.51	120.94
140	22.97	10.56	0.49	66.51	120.94
141	23.13	11.33	0.44	61.48	120.94
142	23.29	9.88	0.37	65.06	120.94
143	23.46	9.38	0.29	63.40	120.94
144	23.62	9.53	0.26	60.60	120.94
145	23.79	10.59	0.35	60.92	120.94
146	23.95	11.09	0.39	60.94	120.94
147	24.11	10.11	0.38	65.15	120.94
148	24.28	9.71	0.34	65.22	120.94
149	24.44	8.76	0.32	69.62	120.94
150	24.61	8.20	0.28	71.34	120.94
151	24.77	8.60	0.27	67.96	120.94
152	24.93	8.42	0.27	69.16	120.94
153	25.10	8.50	0.28	69.97	120.94
154	25.26	9.35	0.32	67.49	120.94
155	25.43	8.98	0.32	69.97	120.94
156	25.59	9.63	0.40	70.29	120.94
157	25.75	12.71	0.55	62.55	120.94
158	25.92	17.60	0.67	51.63	120.94
159	26.08	20.43	0.78	48.26	120.94
160	26.25	19.97	0.78	49.37	120.94
161	26.41	19.10	0.79	51.38	120.94
162	26.57	19.73	0.79	50.29	120.94
163	26.74	20.71	0.82	49.09	120.94
164	26.90	19.86	0.74	49.02	120.94
165	27.07	18.32	0.70	51.48	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
166	27.23	15.58	0.76	60.34	120.94
167	27.40	14.20	0.70	63.10	120.94
168	27.56	12.93	0.68	67.43	120.94
169	27.72	10.83	0.64	76.08	120.94
170	27.89	9.15	0.47	79.33	120.94
171	28.05	8.70	0.38	77.96	120.94
172	28.22	8.20	0.48	87.43	120.94
173	28.38	11.45	0.63	73.22	120.94
174	28.54	11.50	0.65	73.91	120.94
175	28.71	12.70	0.50	63.55	120.94
176	28.87	12.03	0.50	66.22	120.94
177	29.04	11.83	0.59	70.57	120.94
178	29.20	21.37	0.74	47.57	120.94
179	29.36	29.49	0.85	38.22	120.94
180	29.53	39.52	1.08	32.35	120.94
181	29.69	44.47	1.21	30.51	120.94
182	29.86	27.93	1.08	43.96	120.94
183	30.02	23.74	0.95	48.04	120.94
184	30.18	24.09	0.94	47.48	120.94
185	30.35	25.67	1.08	47.48	120.94
186	30.51	29.03	1.25	45.24	120.94
187	30.68	31.47	1.31	43.14	120.94
188	30.84	32.49	1.35	42.54	120.94
189	31.00	29.44	1.36	46.42	120.94
190	31.17	24.41	1.56	56.77	120.94
191	31.33	31.61	2.14	52.13	120.94
192	31.50	46.31	2.91	43.34	120.94
193	31.66	56.85	2.75	35.62	120.94
194	31.82	77.52	2.25	24.26	120.94
195	31.99	88.60	1.75	18.50	120.94
196	32.15	86.26	1.83	19.54	120.94
197	32.32	66.85	2.13	27.43	120.94
198	32.48	48.05	1.96	35.97	120.94
199	32.64	44.34	1.71	36.53	120.94
200	32.81	48.33	0.99	26.72	120.94
201	32.97	45.83	1.36	32.27	120.94
202	33.14	64.49	1.53	24.55	120.94
203	33.30	71.46	2.59	28.55	120.94
204	33.46	78.85	4.13	32.64	120.94
205	33.63	94.15	5.27	31.33	120.94
206	33.79	98.92	5.42	30.41	120.94
207	33.96	95.97	4.81	29.49	120.94
208	34.12	99.86	4.72	28.19	120.94
209	34.28	110.18	5.86	28.78	120.94
210	34.45	116.92	6.87	29.63	120.94
211	34.61	115.91	6.68	29.46	120.94
212	34.78	99.75	5.77	31.40	120.94
213	34.94	85.74	4.91	33.28	120.94
214	35.10	88.70	4.10	29.59	120.94
215	35.27	72.74	3.82	34.33	120.94
216	35.43	62.62	3.26	36.52	120.94
217	35.60	53.67	2.82	39.25	120.94
218	35.76	47.57	2.39	40.66	120.94
219	35.93	46.00	2.20	40.50	120.94
220	36.09	43.89	2.11	41.45	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
221	36.25	38.84	1.86	43.80	120.94
222	36.42	36.23	1.66	44.59	120.94
223	36.58	35.10	1.67	45.87	120.94
224	36.75	36.70	1.75	45.08	120.94
225	36.91	37.65	1.86	45.26	120.94
226	37.07	42.53	2.05	42.54	120.94
227	37.24	46.44	2.37	41.88	120.94
228	37.40	50.46	2.48	39.78	120.94
229	37.57	46.73	2.61	43.46	120.94
230	37.73	42.86	2.90	48.74	120.94
231	37.89	53.64	2.99	41.05	120.94
232	38.06	45.37	3.13	48.13	120.94
233	38.22	50.67	3.46	45.88	120.94
234	38.39	60.00	4.11	42.93	120.94
235	38.55	71.56	4.15	37.17	120.94
236	38.71	64.92	3.60	38.01	120.94
237	38.88	55.02	3.50	43.30	120.94
238	39.04	102.30	3.95	26.12	120.94
239	39.21	120.42	4.76	24.55	120.94
240	39.37	67.82	3.08	34.27	120.94
241	39.53	39.70	1.78	43.54	120.94
242	39.70	30.48	1.34	48.99	120.94
243	39.86	28.30	1.39	52.83	120.94
244	40.03	26.50	1.32	54.85	120.94
245	40.19	28.52	1.28	51.18	120.94
246	40.35	28.51	1.25	50.89	120.94
247	40.52	28.90	1.21	49.82	120.94
248	40.68	27.67	1.13	50.41	120.94
249	40.85	27.99	1.03	48.52	120.94
250	41.01	27.25	1.05	49.98	120.94
251	41.17	27.55	1.07	49.96	120.94
252	41.34	26.73	1.09	51.63	120.94
253	41.50	27.28	1.00	49.38	120.94
254	41.67	27.00	0.96	49.11	120.94
255	41.83	28.02	0.89	46.36	120.94
256	41.99	28.06	0.91	46.85	120.94
257	42.16	27.99	0.94	47.54	120.94
258	42.32	27.78	0.87	46.64	120.94
259	42.49	27.03	0.92	48.79	120.94
260	42.65	28.64	1.01	47.97	120.94
261	42.81	29.51	1.25	50.51	120.94
262	42.98	34.73	1.72	49.65	120.94
263	43.14	39.07	2.29	50.20	120.94
264	43.31	53.65	3.08	43.38	120.94
265	43.47	63.51	3.51	39.72	120.94
266	43.64	48.48	3.29	48.65	120.94
267	43.80	53.29	2.51	40.23	120.94
268	43.96	45.92	2.51	45.77	120.94
269	44.13	78.08	2.64	28.99	120.94
270	44.29	125.03	2.18	15.67	120.94
271	44.46	132.93	1.98	13.68	120.94
272	44.62	123.30	1.47	12.57	120.94
273	44.78	106.28	1.40	14.87	120.94
274	44.95	88.84	2.10	22.88	120.94
275	45.11	65.44	2.05	30.81	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
276	45.28	37.54	1.75	47.69	120.94
277	45.44	33.52	1.69	51.89	120.94
278	45.60	42.00	1.99	45.65	120.94
279	45.77	41.36	2.22	48.35	120.94
280	45.93	39.38	2.03	48.72	120.94
281	46.10	36.48	1.93	51.08	120.94
282	46.26	36.09	1.77	49.90	120.94
283	46.42	31.40	1.55	53.55	120.94
284	46.59	25.19	1.22	59.15	120.94
285	46.75	22.97	1.05	60.77	120.94
286	46.92	18.54	0.97	70.74	120.94
287	47.08	18.78	0.84	66.95	120.94
288	47.24	18.57	0.89	69.11	120.94
289	47.41	18.51	1.18	75.56	120.94
290	47.57	23.65	1.62	68.92	120.94
291	47.74	34.22	1.71	52.12	120.94
292	47.90	29.68	1.61	57.46	120.94
293	48.06	23.06	1.23	64.66	120.94
294	48.23	18.52	1.07	73.79	120.94
295	48.39	23.24	0.92	58.60	120.94
296	48.56	21.63	0.98	63.51	120.94
297	48.72	20.12	0.95	66.82	120.94
298	48.88	21.43	0.93	63.21	120.94
299	49.05	21.73	0.94	62.67	120.94
300	49.21	22.17	0.97	62.29	120.94
301	49.38	22.01	1.02	63.93	120.94
302	49.54	21.89	1.33	70.00	120.94
303	49.70	34.10	1.39	49.37	120.94

Depth from free surface, at which CPT was performed (ft)
Measured cone resistance
Sleeve friction resistance
Percentage of fines in soil (%)
Bulk soil unit weight (tsf)

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
1	0.16	0.01	0.00	0.01	1.00	0.29	1.40	0.20	1.00	0.20
2	0.33	0.02	0.00	0.02	1.00	0.29	1.40	0.20	1.00	0.20
3	0.49	0.03	0.00	0.03	1.00	0.29	1.40	0.20	1.00	0.20
4	0.66	0.04	0.00	0.04	1.00	0.29	1.40	0.20	1.00	0.20
5	0.82	0.05	0.00	0.05	1.00	0.29	1.40	0.20	1.00	0.20
6	0.98	0.06	0.00	0.06	1.00	0.29	1.40	0.20	1.00	0.20
7	1.15	0.07	0.00	0.07	1.00	0.29	1.40	0.20	1.00	0.20
8	1.31	0.08	0.00	0.08	1.00	0.29	1.40	0.20	1.00	0.20
9	1.48	0.09	0.00	0.09	1.00	0.29	1.40	0.20	1.00	0.20
10	1.64	0.10	0.00	0.10	1.00	0.28	1.40	0.20	1.00	0.20
11	1.80	0.11	0.00	0.11	1.00	0.28	1.40	0.20	1.00	0.20
12	1.97	0.12	0.00	0.12	1.00	0.28	1.40	0.20	1.00	0.20
13	2.13	0.13	0.00	0.13	1.00	0.28	1.40	0.20	1.00	0.20
14	2.30	0.14	0.00	0.14	0.99	0.28	1.40	0.20	1.00	0.20
15	2.46	0.15	0.00	0.15	0.99	0.28	1.40	0.20	1.00	0.20
16	2.62	0.16	0.00	0.16	0.99	0.28	1.40	0.20	1.00	0.20
17	2.79	0.17	0.00	0.17	0.99	0.28	1.40	0.20	1.00	0.20
18	2.95	0.18	0.00	0.18	0.99	0.28	1.40	0.20	1.00	0.20

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
19	3.12	0.19	0.00	0.19	0.99	0.28	1.40	0.20	1.00	0.20
20	3.28	0.20	0.00	0.20	0.99	0.28	1.40	0.20	1.00	0.20
21	3.44	0.21	0.00	0.21	0.99	0.28	1.40	0.20	1.00	0.20
22	3.61	0.22	0.00	0.22	0.99	0.28	1.40	0.20	1.00	0.20
23	3.77	0.23	0.00	0.23	0.99	0.28	1.40	0.20	1.00	0.20
24	3.94	0.24	0.00	0.24	0.99	0.28	1.40	0.20	1.00	0.20
25	4.10	0.25	0.00	0.25	0.99	0.28	1.40	0.20	1.00	0.20
26	4.27	0.26	0.00	0.26	0.99	0.28	1.40	0.20	1.00	0.20
27	4.43	0.27	0.00	0.27	0.99	0.28	1.40	0.20	1.00	0.20
28	4.59	0.28	0.00	0.28	0.99	0.28	1.40	0.20	1.00	0.20
29	4.76	0.29	0.00	0.29	0.99	0.28	1.40	0.20	1.00	0.20
30	4.92	0.30	0.00	0.30	0.99	0.28	1.40	0.20	1.00	0.20
31	5.09	0.31	0.00	0.30	0.99	0.29	1.40	0.20	1.00	0.20
32	5.25	0.32	0.01	0.31	0.99	0.29	1.40	0.21	1.00	0.21
33	5.41	0.33	0.01	0.31	0.99	0.29	1.40	0.21	1.00	0.21
34	5.58	0.34	0.02	0.32	0.99	0.30	1.40	0.21	1.00	0.21
35	5.74	0.35	0.02	0.32	0.99	0.30	1.40	0.22	1.00	0.22
36	5.91	0.36	0.03	0.33	0.99	0.31	1.40	0.22	1.00	0.22
37	6.07	0.37	0.03	0.33	0.99	0.31	1.40	0.22	1.00	0.22
38	6.23	0.38	0.04	0.34	0.99	0.31	1.40	0.22	1.00	0.22
39	6.40	0.39	0.04	0.34	0.99	0.32	1.40	0.23	1.00	0.23
40	6.56	0.40	0.05	0.35	0.98	0.32	1.40	0.23	1.00	0.23
41	6.73	0.41	0.05	0.35	0.98	0.32	1.40	0.23	1.00	0.23
42	6.89	0.42	0.06	0.36	0.98	0.33	1.40	0.23	1.00	0.23
43	7.05	0.43	0.06	0.36	0.98	0.33	1.40	0.24	1.00	0.24
44	7.22	0.44	0.07	0.37	0.98	0.33	1.40	0.24	1.00	0.24
45	7.38	0.45	0.07	0.37	0.98	0.34	1.40	0.24	1.00	0.24
46	7.55	0.46	0.08	0.38	0.98	0.34	1.40	0.24	1.00	0.24
47	7.71	0.47	0.08	0.38	0.98	0.34	1.40	0.25	1.00	0.25
48	7.87	0.48	0.09	0.39	0.98	0.35	1.40	0.25	1.00	0.25
49	8.04	0.49	0.09	0.39	0.98	0.35	1.40	0.25	1.00	0.25
50	8.20	0.50	0.10	0.40	0.98	0.35	1.40	0.25	1.00	0.25
51	8.37	0.51	0.11	0.40	0.98	0.35	1.40	0.25	1.00	0.25
52	8.53	0.52	0.11	0.41	0.98	0.36	1.40	0.26	1.00	0.26
53	8.69	0.53	0.12	0.41	0.98	0.36	1.40	0.26	1.00	0.26
54	8.86	0.54	0.12	0.42	0.98	0.36	1.40	0.26	1.00	0.26
55	9.02	0.55	0.13	0.42	0.98	0.36	1.40	0.26	1.00	0.26
56	9.19	0.56	0.13	0.42	0.98	0.37	1.40	0.26	1.00	0.26
57	9.35	0.57	0.14	0.43	0.98	0.37	1.40	0.26	1.00	0.26
58	9.51	0.57	0.14	0.43	0.98	0.37	1.40	0.27	1.00	0.27
59	9.68	0.59	0.15	0.44	0.98	0.37	1.40	0.27	1.00	0.27
60	9.84	0.59	0.15	0.44	0.98	0.37	1.40	0.27	1.00	0.27
61	10.01	0.61	0.16	0.45	0.98	0.38	1.40	0.27	1.00	0.27
62	10.17	0.61	0.16	0.45	0.98	0.38	1.40	0.27	1.00	0.27
63	10.33	0.62	0.17	0.46	0.98	0.38	1.40	0.27	1.00	0.27
64	10.50	0.63	0.17	0.46	0.98	0.38	1.40	0.27	1.00	0.27
65	10.66	0.64	0.18	0.47	0.98	0.38	1.40	0.27	1.00	0.27
66	10.83	0.65	0.18	0.47	0.97	0.39	1.40	0.28	1.00	0.28
67	10.99	0.66	0.19	0.48	0.97	0.39	1.40	0.28	1.00	0.28
68	11.15	0.67	0.19	0.48	0.97	0.39	1.40	0.28	1.00	0.28
69	11.32	0.68	0.20	0.49	0.97	0.39	1.40	0.28	1.00	0.28
70	11.48	0.69	0.20	0.49	0.97	0.39	1.40	0.28	1.00	0.28
71	11.65	0.70	0.21	0.50	0.97	0.39	1.40	0.28	1.00	0.28
72	11.81	0.71	0.21	0.50	0.97	0.40	1.40	0.28	1.00	0.28
73	11.98	0.72	0.22	0.51	0.97	0.40	1.40	0.28	1.00	0.28

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
74	12.14	0.73	0.22	0.51	0.97	0.40	1.40	0.29	1.00	0.29
75	12.30	0.74	0.23	0.52	0.97	0.40	1.40	0.29	1.00	0.29
76	12.47	0.75	0.23	0.52	0.97	0.40	1.40	0.29	1.00	0.29
77	12.63	0.76	0.24	0.53	0.97	0.40	1.40	0.29	1.00	0.29
78	12.80	0.77	0.24	0.53	0.97	0.40	1.40	0.29	1.00	0.29
79	12.96	0.78	0.25	0.54	0.97	0.41	1.40	0.29	1.00	0.29
80	13.12	0.79	0.25	0.54	0.97	0.41	1.40	0.29	1.00	0.29
81	13.29	0.80	0.26	0.54	0.97	0.41	1.40	0.29	1.00	0.29
82	13.45	0.81	0.26	0.55	0.97	0.41	1.40	0.29	1.00	0.29
83	13.62	0.82	0.27	0.55	0.97	0.41	1.40	0.29	1.00	0.29
84	13.78	0.83	0.27	0.56	0.97	0.41	1.40	0.30	1.00	0.30
85	13.94	0.84	0.28	0.56	0.97	0.41	1.40	0.30	1.00	0.30
86	14.11	0.85	0.28	0.57	0.97	0.41	1.40	0.30	1.00	0.30
87	14.27	0.86	0.29	0.57	0.97	0.42	1.40	0.30	1.00	0.30
88	14.44	0.87	0.29	0.58	0.97	0.42	1.40	0.30	1.00	0.30
89	14.60	0.88	0.30	0.58	0.97	0.42	1.40	0.30	1.00	0.30
90	14.76	0.89	0.30	0.59	0.97	0.42	1.40	0.30	1.00	0.30
91	14.93	0.90	0.31	0.59	0.97	0.42	1.40	0.30	1.00	0.30
92	15.09	0.91	0.31	0.60	0.96	0.42	1.40	0.30	1.00	0.30
93	15.26	0.92	0.32	0.60	0.96	0.42	1.40	0.30	1.00	0.30
94	15.42	0.93	0.33	0.61	0.96	0.42	1.40	0.30	1.00	0.30
95	15.58	0.94	0.33	0.61	0.96	0.42	1.40	0.30	1.00	0.30
96	15.75	0.95	0.34	0.62	0.96	0.43	1.40	0.30	1.00	0.30
97	15.91	0.96	0.34	0.62	0.96	0.43	1.40	0.31	1.00	0.31
98	16.08	0.97	0.35	0.63	0.96	0.43	1.40	0.31	1.00	0.31
99	16.24	0.98	0.35	0.63	0.96	0.43	1.40	0.31	1.00	0.31
100	16.40	0.99	0.36	0.64	0.96	0.43	1.40	0.31	1.00	0.31
101	16.57	1.00	0.36	0.64	0.96	0.43	1.40	0.31	1.00	0.31
102	16.73	1.01	0.37	0.65	0.96	0.43	1.40	0.31	1.00	0.31
103	16.90	1.02	0.37	0.65	0.96	0.43	1.40	0.31	1.00	0.31
104	17.06	1.03	0.38	0.65	0.96	0.43	1.40	0.31	1.00	0.31
105	17.22	1.04	0.38	0.66	0.96	0.43	1.40	0.31	1.00	0.31
106	17.39	1.05	0.39	0.66	0.96	0.43	1.40	0.31	1.00	0.31
107	17.55	1.06	0.39	0.67	0.96	0.43	1.40	0.31	1.00	0.31
108	17.72	1.07	0.40	0.67	0.96	0.44	1.40	0.31	1.00	0.31
109	17.88	1.08	0.40	0.68	0.96	0.44	1.40	0.31	1.00	0.31
110	18.04	1.09	0.41	0.68	0.96	0.44	1.40	0.31	1.00	0.31
111	18.21	1.10	0.41	0.69	0.96	0.44	1.40	0.31	1.00	0.31
112	18.37	1.11	0.42	0.69	0.96	0.44	1.40	0.31	1.00	0.31
113	18.54	1.12	0.42	0.70	0.96	0.44	1.40	0.31	1.00	0.31
114	18.70	1.13	0.43	0.70	0.96	0.44	1.40	0.31	1.00	0.31
115	18.86	1.14	0.43	0.71	0.96	0.44	1.40	0.32	1.00	0.32
116	19.03	1.15	0.44	0.71	0.96	0.44	1.40	0.32	1.00	0.32
117	19.19	1.16	0.44	0.72	0.96	0.44	1.40	0.32	1.00	0.32
118	19.36	1.17	0.45	0.72	0.95	0.44	1.40	0.32	1.00	0.32
119	19.52	1.18	0.45	0.73	0.95	0.44	1.40	0.32	1.00	0.32
120	19.69	1.19	0.46	0.73	0.95	0.44	1.40	0.32	1.00	0.32
121	19.85	1.20	0.46	0.74	0.95	0.44	1.40	0.32	1.00	0.32
122	20.01	1.21	0.47	0.74	0.95	0.45	1.40	0.32	1.00	0.32
123	20.18	1.22	0.47	0.75	0.95	0.45	1.40	0.32	1.00	0.32
124	20.34	1.23	0.48	0.75	0.95	0.45	1.40	0.32	1.00	0.32
125	20.51	1.24	0.48	0.76	0.95	0.45	1.40	0.32	1.00	0.32
126	20.67	1.25	0.49	0.76	0.95	0.45	1.40	0.32	1.00	0.32
127	20.83	1.26	0.49	0.77	0.95	0.45	1.40	0.32	1.00	0.32
128	21.00	1.27	0.50	0.77	0.95	0.45	1.40	0.32	1.00	0.32

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
129	21.16	1.28	0.50	0.77	0.95	0.45	1.40	0.32	1.00	0.32
130	21.33	1.29	0.51	0.78	0.95	0.45	1.40	0.32	1.00	0.32
131	21.49	1.30	0.51	0.78	0.95	0.45	1.40	0.32	1.00	0.32
132	21.65	1.31	0.52	0.79	0.95	0.45	1.40	0.32	1.00	0.32
133	21.82	1.32	0.53	0.79	0.95	0.45	1.40	0.32	1.00	0.32
134	21.98	1.33	0.53	0.80	0.95	0.45	1.40	0.32	1.00	0.32
135	22.15	1.34	0.54	0.80	0.95	0.45	1.40	0.32	1.00	0.32
136	22.31	1.35	0.54	0.81	0.95	0.45	1.40	0.32	1.00	0.32
137	22.47	1.36	0.55	0.81	0.95	0.45	1.40	0.32	1.00	0.32
138	22.64	1.37	0.55	0.82	0.95	0.45	1.40	0.32	1.00	0.32
139	22.80	1.38	0.56	0.82	0.95	0.45	1.40	0.32	1.00	0.32
140	22.97	1.39	0.56	0.83	0.95	0.45	1.40	0.32	1.00	0.32
141	23.13	1.40	0.57	0.83	0.95	0.45	1.40	0.33	1.00	0.33
142	23.29	1.41	0.57	0.84	0.95	0.45	1.40	0.33	1.00	0.33
143	23.46	1.42	0.58	0.84	0.95	0.46	1.40	0.33	1.00	0.33
144	23.62	1.43	0.58	0.85	0.94	0.46	1.40	0.33	1.00	0.33
145	23.79	1.44	0.59	0.85	0.94	0.46	1.40	0.33	1.00	0.33
146	23.95	1.45	0.59	0.86	0.94	0.46	1.40	0.33	1.00	0.33
147	24.11	1.46	0.60	0.86	0.94	0.46	1.40	0.33	1.00	0.33
148	24.28	1.47	0.60	0.87	0.94	0.46	1.40	0.33	1.00	0.33
149	24.44	1.48	0.61	0.87	0.94	0.46	1.40	0.33	1.00	0.33
150	24.61	1.49	0.61	0.88	0.94	0.46	1.40	0.33	1.00	0.33
151	24.77	1.50	0.62	0.88	0.94	0.46	1.40	0.33	1.00	0.33
152	24.93	1.51	0.62	0.89	0.94	0.46	1.40	0.33	1.00	0.33
153	25.10	1.52	0.63	0.89	0.94	0.46	1.40	0.33	1.00	0.33
154	25.26	1.53	0.63	0.89	0.94	0.46	1.40	0.33	1.00	0.33
155	25.43	1.54	0.64	0.90	0.94	0.46	1.40	0.33	1.00	0.33
156	25.59	1.55	0.64	0.90	0.94	0.46	1.40	0.33	1.00	0.33
157	25.75	1.56	0.65	0.91	0.94	0.46	1.40	0.33	1.00	0.33
158	25.92	1.57	0.65	0.91	0.94	0.46	1.40	0.33	1.00	0.33
159	26.08	1.58	0.66	0.92	0.94	0.46	1.40	0.33	1.00	0.33
160	26.25	1.59	0.66	0.92	0.94	0.46	1.40	0.33	1.00	0.33
161	26.41	1.60	0.67	0.93	0.94	0.46	1.40	0.33	1.00	0.33
162	26.57	1.61	0.67	0.93	0.94	0.46	1.40	0.33	1.00	0.33
163	26.74	1.62	0.68	0.94	0.94	0.46	1.40	0.33	1.00	0.33
164	26.90	1.63	0.68	0.94	0.94	0.46	1.40	0.33	1.00	0.33
165	27.07	1.64	0.69	0.95	0.94	0.46	1.40	0.33	1.00	0.33
166	27.23	1.65	0.69	0.95	0.94	0.46	1.40	0.33	1.00	0.33
167	27.40	1.66	0.70	0.96	0.94	0.46	1.40	0.33	1.00	0.33
168	27.56	1.67	0.70	0.96	0.94	0.46	1.40	0.33	1.00	0.33
169	27.72	1.68	0.71	0.97	0.94	0.46	1.40	0.33	1.00	0.33
170	27.89	1.69	0.71	0.97	0.93	0.46	1.40	0.33	1.00	0.33
171	28.05	1.70	0.72	0.98	0.93	0.46	1.40	0.33	1.00	0.33
172	28.22	1.71	0.72	0.98	0.93	0.46	1.40	0.33	1.00	0.33
173	28.38	1.72	0.73	0.99	0.93	0.46	1.40	0.33	1.00	0.33
174	28.54	1.73	0.73	0.99	0.93	0.46	1.40	0.33	1.00	0.33
175	28.71	1.74	0.74	1.00	0.93	0.47	1.40	0.33	1.00	0.33
176	28.87	1.75	0.75	1.00	0.93	0.47	1.40	0.33	1.00	0.33
177	29.04	1.76	0.75	1.01	0.93	0.47	1.40	0.33	1.00	0.33
178	29.20	1.77	0.76	1.01	0.93	0.47	1.40	0.33	1.00	0.33
179	29.36	1.78	0.76	1.01	0.93	0.47	1.40	0.33	1.00	0.33
180	29.53	1.79	0.77	1.02	0.93	0.47	1.40	0.33	1.00	0.33
181	29.69	1.80	0.77	1.02	0.93	0.47	1.40	0.33	1.00	0.33
182	29.86	1.81	0.78	1.03	0.93	0.47	1.40	0.33	1.00	0.33
183	30.02	1.82	0.78	1.03	0.93	0.47	1.40	0.33	1.00	0.33

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
184	30.18	1.82	0.79	1.04	0.93	0.47	1.40	0.33	1.00	0.33
185	30.35	1.83	0.79	1.04	0.93	0.47	1.40	0.33	1.00	0.33
186	30.51	1.84	0.80	1.05	0.93	0.47	1.40	0.33	1.00	0.33
187	30.68	1.85	0.80	1.05	0.93	0.47	1.40	0.33	1.00	0.33
188	30.84	1.86	0.81	1.06	0.92	0.47	1.40	0.33	1.00	0.33
189	31.00	1.87	0.81	1.06	0.92	0.47	1.40	0.33	1.00	0.33
190	31.17	1.88	0.82	1.07	0.92	0.47	1.40	0.33	1.00	0.33
191	31.33	1.89	0.82	1.07	0.92	0.46	1.40	0.33	0.99	0.33
192	31.50	1.90	0.83	1.08	0.92	0.46	1.40	0.33	0.99	0.33
193	31.66	1.91	0.83	1.08	0.92	0.46	1.40	0.33	0.99	0.33
194	31.82	1.92	0.84	1.09	0.92	0.46	1.40	0.33	0.99	0.33
195	31.99	1.93	0.84	1.09	0.91	0.46	1.40	0.33	0.99	0.33
196	32.15	1.94	0.85	1.10	0.91	0.46	1.40	0.33	0.99	0.33
197	32.32	1.95	0.85	1.10	0.91	0.46	1.40	0.33	0.99	0.33
198	32.48	1.96	0.86	1.11	0.91	0.46	1.40	0.33	0.99	0.33
199	32.64	1.97	0.86	1.11	0.91	0.46	1.40	0.33	0.99	0.33
200	32.81	1.98	0.87	1.12	0.91	0.46	1.40	0.33	0.99	0.33
201	32.97	1.99	0.87	1.12	0.91	0.46	1.40	0.33	0.99	0.33
202	33.14	2.00	0.88	1.13	0.91	0.46	1.40	0.33	0.99	0.33
203	33.30	2.01	0.88	1.13	0.90	0.46	1.40	0.33	0.98	0.33
204	33.46	2.02	0.89	1.13	0.90	0.46	1.40	0.33	0.98	0.33
205	33.63	2.03	0.89	1.14	0.90	0.46	1.40	0.33	0.98	0.33
206	33.79	2.04	0.90	1.14	0.90	0.46	1.40	0.33	0.98	0.33
207	33.96	2.05	0.90	1.15	0.90	0.46	1.40	0.33	0.98	0.33
208	34.12	2.06	0.91	1.15	0.90	0.46	1.40	0.33	0.98	0.33
209	34.28	2.07	0.91	1.16	0.90	0.46	1.40	0.33	0.98	0.33
210	34.45	2.08	0.92	1.16	0.89	0.46	1.40	0.33	0.98	0.33
211	34.61	2.09	0.92	1.17	0.89	0.46	1.40	0.33	0.98	0.33
212	34.78	2.10	0.93	1.17	0.89	0.46	1.40	0.33	0.98	0.33
213	34.94	2.11	0.93	1.18	0.89	0.46	1.40	0.33	0.98	0.33
214	35.10	2.12	0.94	1.18	0.89	0.46	1.40	0.33	0.98	0.33
215	35.27	2.13	0.94	1.19	0.89	0.46	1.40	0.33	0.97	0.33
216	35.43	2.14	0.95	1.19	0.89	0.46	1.40	0.33	0.97	0.33
217	35.60	2.15	0.96	1.20	0.89	0.46	1.40	0.33	0.97	0.33
218	35.76	2.16	0.96	1.20	0.88	0.45	1.40	0.33	0.97	0.33
219	35.93	2.17	0.97	1.21	0.88	0.45	1.40	0.33	0.97	0.33
220	36.09	2.18	0.97	1.21	0.88	0.45	1.40	0.32	0.97	0.33
221	36.25	2.19	0.98	1.22	0.88	0.45	1.40	0.32	0.97	0.33
222	36.42	2.20	0.98	1.22	0.88	0.45	1.40	0.32	0.97	0.33
223	36.58	2.21	0.99	1.23	0.88	0.45	1.40	0.32	0.97	0.33
224	36.75	2.22	0.99	1.23	0.88	0.45	1.40	0.32	0.97	0.33
225	36.91	2.23	1.00	1.24	0.87	0.45	1.40	0.32	0.97	0.33
226	37.07	2.24	1.00	1.24	0.87	0.45	1.40	0.32	0.97	0.33
227	37.24	2.25	1.01	1.25	0.87	0.45	1.40	0.32	0.97	0.33
228	37.40	2.26	1.01	1.25	0.87	0.45	1.40	0.32	0.96	0.33
229	37.57	2.27	1.02	1.25	0.87	0.45	1.40	0.32	0.96	0.33
230	37.73	2.28	1.02	1.26	0.87	0.45	1.40	0.32	0.96	0.33
231	37.89	2.29	1.03	1.26	0.87	0.45	1.40	0.32	0.96	0.33
232	38.06	2.30	1.03	1.27	0.87	0.45	1.40	0.32	0.96	0.33
233	38.22	2.31	1.04	1.27	0.86	0.45	1.40	0.32	0.96	0.33
234	38.39	2.32	1.04	1.28	0.86	0.45	1.40	0.32	0.96	0.33
235	38.55	2.33	1.05	1.28	0.86	0.45	1.40	0.32	0.96	0.33
236	38.71	2.34	1.05	1.29	0.86	0.45	1.40	0.32	0.96	0.33
237	38.88	2.35	1.06	1.29	0.86	0.45	1.40	0.32	0.96	0.33
238	39.04	2.36	1.06	1.30	0.86	0.45	1.40	0.32	0.96	0.33

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
239	39.21	2.37	1.07	1.30	0.86	0.45	1.40	0.32	0.96	0.33
240	39.37	2.38	1.07	1.31	0.85	0.44	1.40	0.32	0.96	0.33
241	39.53	2.39	1.08	1.31	0.85	0.44	1.40	0.32	0.96	0.33
242	39.70	2.40	1.08	1.32	0.85	0.44	1.40	0.32	0.95	0.33
243	39.86	2.41	1.09	1.32	0.85	0.44	1.40	0.32	0.95	0.33
244	40.03	2.42	1.09	1.33	0.85	0.44	1.40	0.32	0.95	0.33
245	40.19	2.43	1.10	1.33	0.85	0.44	1.40	0.32	0.95	0.33
246	40.35	2.44	1.10	1.34	0.85	0.44	1.40	0.32	0.95	0.33
247	40.52	2.45	1.11	1.34	0.85	0.44	1.40	0.32	0.95	0.33
248	40.68	2.46	1.11	1.35	0.84	0.44	1.40	0.32	0.95	0.33
249	40.85	2.47	1.12	1.35	0.84	0.44	1.40	0.32	0.95	0.33
250	41.01	2.48	1.12	1.36	0.84	0.44	1.40	0.31	0.95	0.33
251	41.17	2.49	1.13	1.36	0.84	0.44	1.40	0.31	0.95	0.33
252	41.34	2.50	1.13	1.37	0.84	0.44	1.40	0.31	0.95	0.33
253	41.50	2.51	1.14	1.37	0.84	0.44	1.40	0.31	0.95	0.33
254	41.67	2.52	1.14	1.37	0.84	0.44	1.40	0.31	0.95	0.33
255	41.83	2.53	1.15	1.38	0.83	0.44	1.40	0.31	0.95	0.33
256	41.99	2.54	1.15	1.38	0.83	0.44	1.40	0.31	0.95	0.33
257	42.16	2.55	1.16	1.39	0.83	0.44	1.40	0.31	0.94	0.33
258	42.32	2.56	1.17	1.39	0.83	0.44	1.40	0.31	0.94	0.33
259	42.49	2.57	1.17	1.40	0.83	0.44	1.40	0.31	0.94	0.33
260	42.65	2.58	1.18	1.40	0.83	0.44	1.40	0.31	0.94	0.33
261	42.81	2.59	1.18	1.41	0.83	0.43	1.40	0.31	0.94	0.33
262	42.98	2.60	1.19	1.41	0.83	0.43	1.40	0.31	0.94	0.33
263	43.14	2.61	1.19	1.42	0.82	0.43	1.40	0.31	0.94	0.33
264	43.31	2.62	1.20	1.42	0.82	0.43	1.40	0.31	0.94	0.33
265	43.47	2.63	1.20	1.43	0.82	0.43	1.40	0.31	0.94	0.33
266	43.64	2.64	1.21	1.43	0.82	0.43	1.40	0.31	0.94	0.33
267	43.80	2.65	1.21	1.44	0.82	0.43	1.40	0.31	0.94	0.33
268	43.96	2.66	1.22	1.44	0.82	0.43	1.40	0.31	0.94	0.33
269	44.13	2.67	1.22	1.45	0.82	0.43	1.40	0.31	0.94	0.33
270	44.29	2.68	1.23	1.45	0.81	0.43	1.40	0.31	0.94	0.33
271	44.46	2.69	1.23	1.46	0.81	0.43	1.40	0.31	0.94	0.33
272	44.62	2.70	1.24	1.46	0.81	0.43	1.40	0.31	0.94	0.33
273	44.78	2.71	1.24	1.47	0.81	0.43	1.40	0.31	0.93	0.33
274	44.95	2.72	1.25	1.47	0.81	0.43	1.40	0.31	0.93	0.33
275	45.11	2.73	1.25	1.48	0.81	0.43	1.40	0.31	0.93	0.33
276	45.28	2.74	1.26	1.48	0.81	0.43	1.40	0.31	0.93	0.33
277	45.44	2.75	1.26	1.48	0.81	0.43	1.40	0.30	0.93	0.33
278	45.60	2.76	1.27	1.49	0.80	0.43	1.40	0.30	0.93	0.33
279	45.77	2.77	1.27	1.49	0.80	0.42	1.40	0.30	0.93	0.33
280	45.93	2.78	1.28	1.50	0.80	0.42	1.40	0.30	0.93	0.33
281	46.10	2.79	1.28	1.50	0.80	0.42	1.40	0.30	0.93	0.33
282	46.26	2.80	1.29	1.51	0.80	0.42	1.40	0.30	0.93	0.33
283	46.42	2.81	1.29	1.51	0.80	0.42	1.40	0.30	0.93	0.33
284	46.59	2.82	1.30	1.52	0.80	0.42	1.40	0.30	0.93	0.33
285	46.75	2.83	1.30	1.52	0.79	0.42	1.40	0.30	0.93	0.33
286	46.92	2.84	1.31	1.53	0.79	0.42	1.40	0.30	0.93	0.33
287	47.08	2.85	1.31	1.53	0.79	0.42	1.40	0.30	0.93	0.32
288	47.24	2.86	1.32	1.54	0.79	0.42	1.40	0.30	0.93	0.32
289	47.41	2.87	1.32	1.54	0.79	0.42	1.40	0.30	0.92	0.32
290	47.57	2.88	1.33	1.55	0.79	0.42	1.40	0.30	0.92	0.32
291	47.74	2.89	1.33	1.55	0.79	0.42	1.40	0.30	0.92	0.32
292	47.90	2.90	1.34	1.56	0.79	0.42	1.40	0.30	0.92	0.32
293	48.06	2.91	1.34	1.56	0.78	0.42	1.40	0.30	0.92	0.32

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
294	48.23	2.92	1.35	1.57	0.78	0.42	1.40	0.30	0.92	0.32
295	48.39	2.93	1.35	1.57	0.78	0.42	1.40	0.30	0.92	0.32
296	48.56	2.94	1.36	1.58	0.78	0.42	1.40	0.30	0.92	0.32
297	48.72	2.95	1.36	1.58	0.78	0.41	1.40	0.30	0.92	0.32
298	48.88	2.96	1.37	1.59	0.78	0.41	1.40	0.30	0.92	0.32
299	49.05	2.97	1.38	1.59	0.78	0.41	1.40	0.30	0.92	0.32
300	49.21	2.98	1.38	1.60	0.77	0.41	1.40	0.30	0.92	0.32
301	49.38	2.99	1.39	1.60	0.77	0.41	1.40	0.30	0.92	0.32
302	49.54	3.00	1.39	1.60	0.77	0.41	1.40	0.29	0.92	0.32
303	49.70	3.00	1.40	1.61	0.77	0.41	1.40	0.29	0.92	0.32

Depth from free surface, at which CPT was performed (ft)
Total overburden pressure at test point, during earthquake (tsf)
Water pressure at test point, during earthquake (tsf)
Effective overburden pressure, during earthquake (tsf)
Nonlinear shear mass factor
Cyclic Stress Ratio
Magnitude Scaling Factor
CSR adjusted for M=7.5
Effective overburden stress factor
CSR fully adjusted

Point ID			F (%)	n				
1	7.16	2.24	4.32	0.68	164.05	1.77	290.64	2.00
2	7.94	2.38	5.53	0.72	133.22	2.23	297.18	2.00
3	7.92	2.46	6.06	0.75	108.68	2.59	281.21	2.00
4	7.87	2.53	6.56	0.77	92.27	2.94	271.22	2.00
5	7.16	2.61	7.21	0.79	76.37	2.94	224.47	2.00
6	8.01	2.60	6.62	0.79	73.02	3.31	241.83	2.00
7	8.62	2.53	4.97	0.77	65.58	2.93	192.06	2.00
8	11.43	2.40	3.54	0.73	71.08	2.30	163.74	2.00
9	12.45	2.44	4.06	0.74	72.77	2.46	179.18	2.00
10	15.88	2.47	5.23	0.75	88.01	2.61	229.40	2.00
11	12.96	2.62	7.03	0.79	73.64	2.61	191.96	2.00
12	34.33	2.14	2.84	0.65	134.82	1.54	207.66	2.00
13	34.05	2.15	2.81	0.65	127.89	1.56	199.84	2.00
14	28.44	2.25	3.19	0.68	106.89	1.79	191.41	2.00
15	24.66	2.31	3.45	0.70	92.03	2.00	183.80	2.00
16	26.42	2.25	2.80	0.68	90.96	1.80	163.73	2.00
17	26.95	2.24	2.62	0.68	88.27	1.76	155.77	2.00
18	26.59	2.21	2.27	0.67	82.70	1.70	140.45	2.00
19	21.43	2.35	2.94	0.71	68.74	2.11	145.36	2.00
20	17.69	2.48	3.88	0.75	58.46	2.69	157.43	2.00
21	12.69	2.65	4.97	0.80	43.61	2.69	117.44	2.00
22	12.30	2.65	4.59	0.80	40.56	2.69	109.24	2.00
23	9.34	2.78	5.40	0.84	31.35	2.69	84.43	2.00
24	6.59	2.95	6.92	0.89	22.76	2.69	61.28	2.00
25	7.07	2.90	5.84	0.88	23.04	2.69	62.03	2.00
26	6.86	2.95	6.59	0.89	21.98	2.69	59.19	2.00
27	7.30	2.83	4.34	0.86	21.60	2.69	58.16	2.00
28	8.73	2.72	3.37	0.82	24.13	2.69	64.97	2.00
29	8.20	2.73	3.03	0.83	21.94	2.69	59.08	2.00
30	9.23	2.66	2.63	0.81	23.54	2.69	63.40	2.00
31	6.62	2.90	4.43	0.88	17.81	2.69	47.95	2.00
32	4.42	3.11	6.11	0.94	12.35	2.69	33.26	2.00
33	3.84	3.15	5.94	0.96	10.59	2.69	28.52	2.00

Point ID			F (%)	n				
34	4.28	3.07	4.70	0.93	11.36	2.69	30.58	2.00
35	4.55	3.06	4.84	0.93	11.91	2.69	32.07	2.00
36	4.95	3.07	5.50	0.93	12.87	2.69	34.66	2.00
37	5.08	3.07	5.63	0.93	13.04	2.69	35.12	2.00
38	4.30	3.18	7.01	0.96	11.13	2.69	29.98	2.00
39	3.94	3.24	7.66	0.98	10.13	2.69	27.27	2.00
40	4.56	3.17	6.83	0.96	11.44	2.69	30.79	2.00
41	3.94	3.25	7.50	0.98	9.81	2.69	26.43	2.00
42	3.78	3.24	6.89	0.98	9.21	2.69	24.81	2.00
43	3.98	3.18	5.74	0.96	9.44	2.69	25.42	2.00
44	3.73	3.22	5.92	0.97	8.73	2.69	23.50	2.00
45	3.50	3.22	5.34	0.97	8.00	2.69	21.54	2.00
46	3.39	3.23	5.17	0.98	7.61	2.69	20.48	2.00
47	3.61	3.21	5.10	0.97	8.00	2.69	21.55	2.00
48	3.43	3.22	4.79	0.97	7.45	2.69	20.06	2.00
49	3.27	3.23	4.59	0.98	6.96	2.69	18.74	2.00
50	3.24	3.30	5.97	1.00	6.93	2.69	18.66	2.00
51	3.24	3.40	8.61	1.00	6.82	2.69	18.36	2.00
52	4.55	3.19	6.03	0.97	9.63	2.69	25.93	2.00
53	4.21	3.21	5.67	0.97	8.74	2.69	23.53	2.00
54	4.01	3.24	5.89	0.98	8.21	2.69	22.12	2.00
55	3.73	3.30	6.69	1.00	7.58	2.69	20.42	2.00
56	3.46	3.33	6.65	1.00	6.83	2.69	18.40	2.00
57	4.07	3.23	5.56	0.98	8.00	2.69	21.54	2.00
58	3.92	3.30	6.74	1.00	7.68	2.69	20.69	2.00
59	4.13	3.22	5.12	0.97	7.88	2.69	21.23	2.00
60	3.62	3.35	7.11	1.00	6.81	2.69	18.35	2.00
61	3.24	3.42	7.68	1.00	5.87	2.69	15.80	2.00
62	4.09	3.21	4.67	0.97	7.48	2.69	20.14	2.00
63	3.46	3.36	6.55	1.00	6.19	2.69	16.66	2.00
64	3.94	3.23	4.51	0.98	7.00	2.69	18.84	2.00
65	3.25	3.35	5.40	1.00	5.57	2.69	14.99	2.00
66	3.39	3.33	5.18	1.00	5.78	2.69	15.57	2.00
67	4.49	3.22	5.22	0.97	7.85	2.69	21.15	2.00
68	4.71	3.21	5.29	0.97	8.19	2.69	22.05	2.00
69	5.68	3.13	4.94	0.95	9.85	2.69	26.52	2.00
70	5.82	3.23	7.37	0.98	10.23	2.69	27.56	2.00
71	5.98	3.21	7.10	0.97	10.39	2.69	27.99	2.00
72	5.31	3.23	6.29	0.98	9.00	2.69	24.24	2.00
73	6.30	3.05	3.88	0.92	10.41	2.69	28.03	2.00
74	4.18	3.35	6.96	1.00	6.74	2.69	18.15	2.00
75	6.52	3.04	3.89	0.92	10.59	2.69	28.52	2.00
76	10.88	2.69	1.84	0.81	17.08	2.69	45.99	2.00
77	12.49	2.54	1.18	0.77	19.06	2.99	57.07	0.10
78	12.88	2.48	0.89	0.75	19.28	2.66	51.29	0.09
79	14.18	2.50	1.16	0.76	21.28	2.76	58.67	0.10
80	14.72	2.49	1.17	0.75	21.93	2.71	59.40	0.10
81	15.91	2.49	1.30	0.75	23.62	2.70	63.71	0.10
82	15.36	2.61	2.06	0.79	23.13	2.70	62.38	2.00
83	13.88	2.73	2.98	0.83	21.12	2.70	56.96	2.00
84	11.48	2.90	4.36	0.88	17.64	2.70	47.58	2.00
85	12.17	2.79	3.02	0.84	18.25	2.70	49.22	2.00
86	15.25	2.55	1.56	0.77	22.06	3.05	67.30	0.11
87	16.36	2.56	1.79	0.78	23.64	3.10	73.38	0.12
88	14.84	2.72	2.89	0.82	21.74	3.10	67.49	2.00

Point ID			F (%)	n				
89	12.11	2.90	4.41	0.88	17.92	3.10	55.65	2.00
90	10.38	3.02	5.79	0.92	15.37	3.10	47.73	2.00
91	8.78	3.05	5.07	0.92	12.72	3.10	39.50	2.00
92	7.47	3.12	5.18	0.94	10.63	3.10	33.01	2.00
93	6.84	3.15	5.04	0.95	9.56	3.10	29.69	2.00
94	7.44	3.08	4.34	0.93	10.33	3.10	32.07	2.00
95	7.11	3.12	4.64	0.94	9.78	3.10	30.36	2.00
96	6.18	3.23	5.75	0.98	8.37	3.10	25.98	2.00
97	6.44	3.21	5.74	0.97	8.69	3.10	26.97	2.00
98	7.07	3.14	4.87	0.95	9.49	3.10	29.45	2.00
99	7.64	3.07	4.12	0.93	10.18	3.10	31.61	2.00
100	8.56	3.05	4.48	0.92	11.46	3.10	35.58	2.00
101	8.82	3.06	4.77	0.93	11.77	3.10	36.53	2.00
102	7.53	3.17	5.72	0.96	9.90	3.10	30.73	2.00
103	7.06	3.19	5.67	0.97	9.13	3.10	28.36	2.00
104	7.01	3.19	5.58	0.97	8.98	3.10	27.89	2.00
105	7.14	3.19	5.62	0.97	9.10	3.10	28.24	2.00
106	7.93	3.16	5.82	0.96	10.15	3.10	31.51	2.00
107	8.92	3.08	5.00	0.93	11.39	3.10	35.38	2.00
108	7.75	3.19	6.16	0.97	9.76	3.10	30.29	2.00
109	8.78	3.05	4.25	0.92	10.97	3.10	34.06	2.00
110	8.45	3.09	4.67	0.94	10.47	3.10	32.52	2.00
111	9.21	3.09	5.18	0.94	11.46	3.10	35.58	2.00
112	9.65	3.07	4.97	0.93	11.95	3.10	37.11	2.00
113	9.16	3.07	4.69	0.93	11.19	3.10	34.74	2.00
114	8.74	3.07	4.34	0.93	10.53	3.10	32.68	2.00
115	9.22	3.06	4.37	0.93	11.09	3.10	34.42	2.00
116	10.11	3.04	4.57	0.92	12.19	3.10	37.83	2.00
117	10.37	3.07	5.30	0.93	12.50	3.10	38.80	2.00
118	8.55	3.21	6.80	0.97	10.10	3.10	31.37	2.00
119	6.47	3.38	8.40	1.00	7.27	3.10	22.58	2.00
120	5.65	3.48	9.69	1.00	6.09	3.10	18.91	2.00
121	7.79	3.20	5.50	0.97	8.84	3.10	27.45	2.00
122	13.10	2.73	1.81	0.83	15.11	3.10	46.91	2.00
123	26.53	2.31	0.91	0.70	30.67	1.97	60.53	0.10
124	33.14	2.26	1.06	0.69	38.32	1.83	70.08	0.11
125	36.47	2.25	1.15	0.68	42.06	1.79	75.22	0.12
126	41.03	2.22	1.19	0.67	47.15	1.70	80.37	0.13
127	42.21	2.20	1.18	0.67	48.29	1.68	81.01	0.13
128	39.13	2.27	1.36	0.69	44.71	1.85	82.75	0.13
129	35.97	2.38	1.87	0.72	41.21	2.24	92.12	0.15
130	21.63	2.71	3.30	0.82	24.76	2.24	55.34	2.00
131	15.04	2.92	4.53	0.88	16.94	2.24	37.87	2.00
132	24.87	2.59	2.52	0.79	28.12	3.27	92.01	0.15
133	17.95	2.84	4.14	0.86	20.15	3.27	65.93	2.00
134	15.63	2.93	4.81	0.89	17.37	3.27	56.82	2.00
135	10.61	3.15	6.30	0.95	11.39	3.27	37.26	2.00
136	11.31	3.08	5.27	0.93	12.10	3.27	39.60	2.00
137	13.31	3.01	5.07	0.91	14.37	3.27	47.02	2.00
138	14.92	2.90	3.94	0.88	16.08	3.27	52.60	2.00
139	10.15	3.14	5.61	0.95	10.53	3.27	34.46	2.00
140	10.56	3.11	5.32	0.94	10.93	3.27	35.76	2.00
141	11.33	3.04	4.47	0.92	11.72	3.27	38.34	2.00
142	9.88	3.09	4.39	0.94	9.98	3.27	32.64	2.00
143	9.38	3.07	3.65	0.93	9.31	3.27	30.46	2.00

Point ID			F (%)	n				
144	9.53	3.03	3.15	0.92	9.40	3.27	30.76	2.00
145	10.59	3.04	3.78	0.92	10.56	3.27	34.57	2.00
146	11.09	3.04	4.03	0.92	11.07	3.27	36.24	2.00
147	10.11	3.10	4.38	0.94	9.92	3.27	32.47	2.00
148	9.71	3.10	4.09	0.94	9.40	3.27	30.76	2.00
149	8.76	3.16	4.34	0.95	8.29	3.27	27.13	2.00
150	8.20	3.18	4.21	0.96	7.61	3.27	24.90	2.00
151	8.60	3.13	3.78	0.95	7.99	3.27	26.16	2.00
152	8.42	3.15	3.85	0.95	7.75	3.27	25.35	2.00
153	8.50	3.16	4.05	0.96	7.79	3.27	25.48	2.00
154	9.35	3.13	4.13	0.95	8.67	3.27	28.36	2.00
155	8.98	3.16	4.36	0.96	8.22	3.27	26.88	2.00
156	9.63	3.16	4.93	0.96	8.88	3.27	29.06	2.00
157	12.71	3.06	4.95	0.93	12.14	3.27	39.72	2.00
158	17.60	2.89	4.18	0.88	17.25	3.27	56.44	2.00
159	20.43	2.84	4.13	0.86	20.16	3.27	65.97	2.00
160	19.97	2.86	4.26	0.87	19.58	3.27	64.07	2.00
161	19.10	2.89	4.50	0.88	18.58	3.27	60.81	2.00
162	19.73	2.87	4.37	0.87	19.15	3.27	62.65	2.00
163	20.71	2.85	4.31	0.86	20.06	3.27	65.65	2.00
164	19.86	2.85	4.04	0.86	19.08	3.27	62.43	2.00
165	18.32	2.89	4.18	0.88	17.39	3.27	56.90	2.00
166	15.58	3.03	5.48	0.92	14.51	3.27	47.49	2.00
167	14.20	3.07	5.55	0.93	13.02	3.27	42.59	2.00
168	12.93	3.13	6.02	0.95	11.65	3.27	38.13	2.00
169	10.83	3.24	7.02	0.98	9.45	3.27	30.93	2.00
170	9.15	3.28	6.27	0.99	7.67	3.27	25.11	2.00
171	8.70	3.26	5.38	0.99	7.16	3.27	23.45	2.00
172	8.20	3.37	7.41	1.00	6.62	3.27	21.65	2.00
173	11.45	3.20	6.47	0.97	9.85	3.27	32.24	2.00
174	11.50	3.21	6.68	0.97	9.85	3.27	32.23	2.00
175	12.70	3.07	4.59	0.93	10.97	3.27	35.90	2.00
176	12.03	3.11	4.83	0.94	10.25	3.27	33.55	2.00
177	11.83	3.17	5.82	0.96	10.00	3.27	32.73	2.00
178	21.37	2.83	3.76	0.86	19.32	3.27	63.23	2.00
179	29.49	2.66	3.07	0.81	27.16	3.27	88.89	2.00
180	39.52	2.54	2.86	0.77	36.81	2.96	108.99	0.20
181	44.47	2.50	2.84	0.76	41.47	2.75	113.97	0.22
182	27.93	2.76	4.13	0.84	25.33	2.75	69.60	2.00
183	23.74	2.83	4.31	0.86	21.18	2.75	58.21	2.00
184	24.09	2.83	4.23	0.86	21.42	2.75	58.88	2.00
185	25.67	2.83	4.55	0.86	22.84	2.75	62.77	2.00
186	29.03	2.79	4.59	0.84	25.95	2.75	71.32	2.00
187	31.47	2.75	4.41	0.83	28.16	2.75	77.39	2.00
188	32.49	2.74	4.39	0.83	29.01	2.75	79.74	2.00
189	29.44	2.81	4.93	0.85	26.01	2.75	71.49	2.00
190	24.41	2.97	6.93	0.90	21.15	2.75	58.13	2.00
191	31.61	2.90	7.21	0.88	27.80	2.75	76.42	2.00
192	46.31	2.75	6.56	0.83	41.43	2.75	113.88	2.00
193	56.85	2.61	5.01	0.79	51.16	2.75	140.61	2.00
194	77.52	2.35	2.98	0.71	70.38	2.10	148.14	0.38
195	88.60	2.19	2.02	0.66	80.59	1.63	131.45	0.29
196	86.26	2.22	2.17	0.67	78.15	1.71	133.43	0.30
197	66.85	2.42	3.28	0.74	59.77	2.42	144.42	0.36
198	48.05	2.61	4.26	0.79	42.17	2.42	101.90	2.00

Point ID			F (%)	n				
199	44.34	2.62	4.05	0.80	38.63	2.42	93.34	2.00
200	48.33	2.41	2.13	0.73	42.29	2.34	99.11	0.17
201	45.83	2.54	3.10	0.77	39.77	2.95	117.40	0.23
202	64.49	2.35	2.46	0.71	56.74	2.13	120.95	0.24
203	71.46	2.45	3.73	0.74	62.72	2.53	158.92	0.45
204	78.85	2.54	5.38	0.77	69.02	3.00	206.71	2.00
205	94.15	2.51	5.72	0.76	82.54	2.84	234.62	2.00
206	98.92	2.49	5.59	0.76	86.58	2.74	237.07	2.00
207	95.97	2.47	5.12	0.75	83.71	2.64	220.61	2.00
208	99.86	2.44	4.83	0.74	86.99	2.50	217.03	2.00
209	110.18	2.46	5.42	0.75	95.82	2.56	245.19	2.00
210	116.92	2.48	5.98	0.75	101.40	2.65	268.79	2.00
211	115.91	2.47	5.87	0.75	100.21	2.63	263.79	2.00
212	99.75	2.52	5.91	0.76	85.57	2.85	243.93	2.00
213	85.74	2.56	5.87	0.78	72.95	3.07	224.09	2.00
214	88.70	2.48	4.74	0.75	75.52	2.65	199.87	2.00
215	72.74	2.58	5.41	0.78	61.15	3.20	195.68	2.00
216	62.62	2.62	5.40	0.80	52.13	3.20	166.80	2.00
217	53.67	2.68	5.48	0.81	44.16	3.20	141.29	2.00
218	47.57	2.70	5.27	0.82	38.75	3.20	124.00	2.00
219	46.00	2.70	5.02	0.82	37.28	3.20	119.30	2.00
220	43.89	2.72	5.05	0.82	35.34	3.20	113.08	2.00
221	38.84	2.76	5.07	0.84	30.90	3.20	98.86	2.00
222	36.23	2.78	4.89	0.84	28.57	3.20	91.42	2.00
223	35.10	2.80	5.07	0.85	27.50	3.20	87.98	2.00
224	36.70	2.78	5.07	0.84	28.75	3.20	91.98	2.00
225	37.65	2.79	5.25	0.84	29.43	3.20	94.17	2.00
226	42.53	2.74	5.10	0.83	33.45	3.20	107.04	2.00
227	46.44	2.73	5.36	0.83	36.59	3.20	117.08	2.00
228	50.46	2.69	5.14	0.81	39.87	3.20	127.58	2.00
229	46.73	2.76	5.87	0.83	36.52	3.20	116.86	2.00
230	42.86	2.85	7.14	0.86	33.06	3.20	105.79	2.00
231	53.64	2.71	5.82	0.82	42.03	3.20	134.48	2.00
232	45.37	2.84	7.26	0.86	34.88	3.20	111.61	2.00
233	50.67	2.80	7.16	0.85	39.13	3.20	125.21	2.00
234	60.00	2.75	7.12	0.83	46.67	3.20	149.35	2.00
235	71.56	2.64	6.00	0.80	56.23	3.20	179.91	2.00
236	64.92	2.65	5.76	0.80	50.63	3.20	161.99	2.00
237	55.02	2.75	6.65	0.83	42.20	3.20	135.04	2.00
238	102.30	2.39	3.95	0.73	81.74	2.28	186.69	2.00
239	120.42	2.35	4.03	0.71	96.54	2.13	205.84	2.00
240	67.82	2.58	4.71	0.78	52.58	3.19	167.85	2.00
241	39.70	2.76	4.76	0.84	29.53	3.19	94.26	2.00
242	30.48	2.85	4.76	0.86	22.01	3.19	70.26	2.00
243	28.30	2.91	5.35	0.88	20.14	3.19	64.30	2.00
244	26.50	2.94	5.47	0.89	18.63	3.19	59.48	2.00
245	28.52	2.89	4.90	0.87	20.21	3.19	64.51	2.00
246	28.51	2.88	4.80	0.87	20.14	3.19	64.29	2.00
247	28.90	2.86	4.58	0.87	20.39	3.19	65.10	2.00
248	27.67	2.87	4.46	0.87	19.36	3.19	61.81	2.00
249	27.99	2.84	4.05	0.86	19.58	3.19	62.52	2.00
250	27.25	2.87	4.24	0.87	18.92	3.19	60.39	2.00
251	27.55	2.87	4.27	0.87	19.08	3.19	60.92	2.00
252	26.73	2.89	4.50	0.88	18.35	3.19	58.59	2.00
253	27.28	2.86	4.05	0.87	18.76	3.19	59.89	2.00

Point ID			F (%)	n				
254	27.00	2.85	3.91	0.86	18.49	3.19	59.03	2.00
255	28.02	2.81	3.48	0.85	19.27	3.19	61.52	2.00
256	28.06	2.81	3.57	0.85	19.22	3.19	61.37	2.00
257	27.99	2.83	3.70	0.86	19.09	3.19	60.93	2.00
258	27.78	2.81	3.45	0.85	18.89	3.19	60.31	2.00
259	27.03	2.85	3.77	0.86	18.21	3.19	58.13	2.00
260	28.64	2.83	3.86	0.86	19.37	3.19	61.83	2.00
261	29.51	2.88	4.63	0.87	19.88	3.19	63.45	2.00
262	34.73	2.86	5.36	0.87	23.68	3.19	75.59	2.00
263	39.07	2.87	6.27	0.87	26.77	3.19	85.46	2.00
264	53.65	2.75	6.03	0.83	37.76	3.19	120.53	2.00
265	63.51	2.69	5.76	0.81	45.21	3.19	144.34	2.00
266	48.48	2.85	7.18	0.86	33.43	3.19	106.74	2.00
267	53.29	2.70	4.95	0.82	37.36	3.19	119.28	2.00
268	45.92	2.80	5.79	0.85	31.53	3.19	100.65	2.00
269	78.08	2.46	3.50	0.75	56.62	2.58	146.14	0.37
270	125.03	2.10	1.78	0.64	95.02	1.45	137.43	0.32
271	132.93	2.03	1.52	0.62	101.63	1.34	135.81	0.31
272	123.30	1.99	1.22	0.60	94.31	1.28	120.89	0.24
273	106.28	2.07	1.35	0.63	80.16	1.40	112.23	0.21
274	88.84	2.31	2.44	0.70	64.87	1.98	128.45	0.28
275	65.44	2.50	3.26	0.76	46.20	2.78	128.57	0.28
276	37.54	2.83	5.02	0.86	24.72	2.78	68.78	2.00
277	33.52	2.90	5.50	0.88	21.64	2.78	60.21	2.00
278	42.00	2.79	5.06	0.85	27.82	2.78	77.42	2.00
279	41.36	2.84	5.76	0.86	27.15	2.78	75.55	2.00
280	39.38	2.85	5.54	0.86	25.66	2.78	71.41	2.00
281	36.48	2.89	5.74	0.87	23.46	2.78	65.27	2.00
282	36.09	2.87	5.31	0.87	23.16	2.78	64.46	2.00
283	31.40	2.92	5.43	0.89	19.71	2.78	54.86	2.00
284	25.19	3.01	5.45	0.91	15.23	2.78	42.39	2.00
285	22.97	3.03	5.20	0.92	13.64	2.78	37.96	2.00
286	18.54	3.17	6.18	0.96	10.43	2.78	29.03	2.00
287	18.78	3.12	5.24	0.94	10.62	2.78	29.54	2.00
288	18.57	3.15	5.69	0.95	10.41	2.78	28.95	2.00
289	18.51	3.23	7.53	0.98	10.23	2.78	28.46	2.00
290	23.65	3.15	7.77	0.95	13.68	2.78	38.08	2.00
291	34.22	2.90	5.44	0.88	21.18	2.78	58.94	2.00
292	29.68	2.98	5.99	0.90	17.88	2.78	49.76	2.00
293	23.06	3.09	6.13	0.93	13.25	2.78	36.88	2.00
294	18.52	3.21	6.83	0.97	10.08	2.78	28.04	2.00
295	23.24	3.00	4.54	0.91	13.42	2.78	37.35	2.00
296	21.63	3.07	5.24	0.93	12.21	2.78	33.98	2.00
297	20.12	3.12	5.52	0.94	11.12	2.78	30.96	2.00
298	21.43	3.07	5.05	0.93	12.01	2.78	33.41	2.00
299	21.73	3.06	5.00	0.93	12.17	2.78	33.87	2.00
300	22.17	3.06	5.03	0.92	12.43	2.78	34.58	2.00
301	22.01	3.08	5.37	0.93	12.24	2.78	34.07	2.00
302	21.89	3.16	7.05	0.96	12.00	2.78	33.39	2.00
303	34.10	2.86	4.48	0.87	20.48	2.78	56.99	2.00

Point ID	F (%)	n

:: Settlements calculation for saturated sands ::

Point ID					Settle. (in)
1	7.16	290.64	5.00	0.00	0.00
2	7.94	297.18	5.00	0.00	0.00
3	7.92	281.21	5.00	0.00	0.00
4	7.87	271.22	5.00	0.00	0.00
5	7.16	224.47	5.00	0.00	0.00
6	8.01	241.83	5.00	0.00	0.00
7	8.62	192.06	5.00	0.00	0.00
8	11.43	163.74	5.00	0.00	0.00
9	12.45	179.18	5.00	0.00	0.00
10	15.88	229.40	5.00	0.00	0.00
11	12.96	191.96	5.00	0.00	0.00
12	34.33	207.66	5.00	0.00	0.00
13	34.05	199.84	5.00	0.00	0.00
14	28.44	191.41	5.00	0.00	0.00
15	24.66	183.80	5.00	0.00	0.00
16	26.42	163.73	5.00	0.00	0.00
17	26.95	155.77	5.00	0.00	0.00
18	26.59	140.45	5.00	0.00	0.00
19	21.43	145.36	5.00	0.00	0.00
20	17.69	157.43	5.00	0.00	0.00
21	12.69	117.44	5.00	0.00	0.00
22	12.30	109.24	5.00	0.00	0.00
23	9.34	84.43	5.00	0.00	0.00
24	6.59	61.28	5.00	0.00	0.00
25	7.07	62.03	5.00	0.00	0.00
26	6.86	59.19	5.00	0.00	0.00
27	7.30	58.16	5.00	0.00	0.00
28	8.73	64.97	5.00	0.00	0.00
29	8.20	59.08	5.00	0.00	0.00
30	9.23	63.40	5.00	0.00	0.00
31	6.62	47.95	5.00	0.00	0.00
32	4.42	33.26	5.00	0.00	0.00
33	3.84	28.52	5.00	0.00	0.00
34	4.28	30.58	5.00	0.00	0.00
35	4.55	32.07	5.00	0.00	0.00
36	4.95	34.66	5.00	0.00	0.00
37	5.08	35.12	5.00	0.00	0.00
38	4.30	29.98	5.00	0.00	0.00
39	3.94	27.27	5.00	0.00	0.00
40	4.56	30.79	5.00	0.00	0.00
41	3.94	26.43	5.00	0.00	0.00
42	3.78	24.81	5.00	0.00	0.00
43	3.98	25.42	5.00	0.00	0.00
44	3.73	23.50	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
45	3.50	21.54	5.00	0.00	0.00
46	3.39	20.48	5.00	0.00	0.00
47	3.61	21.55	5.00	0.00	0.00
48	3.43	20.06	5.00	0.00	0.00
49	3.27	18.74	5.00	0.00	0.00
50	3.24	18.66	5.00	0.00	0.00
51	3.24	18.36	5.00	0.00	0.00
52	4.55	25.93	5.00	0.00	0.00
53	4.21	23.53	5.00	0.00	0.00
54	4.01	22.12	5.00	0.00	0.00
55	3.73	20.42	5.00	0.00	0.00
56	3.46	18.40	5.00	0.00	0.00
57	4.07	21.54	5.00	0.00	0.00
58	3.92	20.69	5.00	0.00	0.00
59	4.13	21.23	5.00	0.00	0.00
60	3.62	18.35	5.00	0.00	0.00
61	3.24	15.80	5.00	0.00	0.00
62	4.09	20.14	5.00	0.00	0.00
63	3.46	16.66	5.00	0.00	0.00
64	3.94	18.84	5.00	0.00	0.00
65	3.25	14.99	5.00	0.00	0.00
66	3.39	15.57	5.00	0.00	0.00
67	4.49	21.15	5.00	0.00	0.00
68	4.71	22.05	5.00	0.00	0.00
69	5.68	26.52	5.00	0.00	0.00
70	5.82	27.56	5.00	0.00	0.00
71	5.98	27.99	5.00	0.00	0.00
72	5.31	24.24	5.00	0.00	0.00
73	6.30	28.03	5.00	0.00	0.00
74	4.18	18.15	5.00	0.00	0.00
75	6.52	28.52	5.00	0.00	0.00
76	10.88	45.99	5.00	0.00	0.00
77	12.49	57.07	0.34	3.70	0.07
78	12.88	51.29	0.32	4.04	0.08
79	14.18	58.67	0.34	3.62	0.07
80	14.72	59.40	0.34	3.58	0.07
81	15.91	63.71	0.36	3.38	0.07
82	15.36	62.38	5.00	0.00	0.00
83	13.88	56.96	5.00	0.00	0.00
84	11.48	47.58	5.00	0.00	0.00
85	12.17	49.22	5.00	0.00	0.00
86	15.25	67.30	0.36	3.23	0.07
87	16.36	73.38	0.39	3.01	0.06
88	14.84	67.49	5.00	0.00	0.00
89	12.11	55.65	5.00	0.00	0.00
90	10.38	47.73	5.00	0.00	0.00
91	8.78	39.50	5.00	0.00	0.00
92	7.47	33.01	5.00	0.00	0.00
93	6.84	29.69	5.00	0.00	0.00
94	7.44	32.07	5.00	0.00	0.00
95	7.11	30.36	5.00	0.00	0.00
96	6.18	25.98	5.00	0.00	0.00
97	6.44	26.97	5.00	0.00	0.00
98	7.07	29.45	5.00	0.00	0.00
99	7.64	31.61	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
100	8.56	35.58	5.00	0.00	0.00
101	8.82	36.53	5.00	0.00	0.00
102	7.53	30.73	5.00	0.00	0.00
103	7.06	28.36	5.00	0.00	0.00
104	7.01	27.89	5.00	0.00	0.00
105	7.14	28.24	5.00	0.00	0.00
106	7.93	31.51	5.00	0.00	0.00
107	8.92	35.38	5.00	0.00	0.00
108	7.75	30.29	5.00	0.00	0.00
109	8.78	34.06	5.00	0.00	0.00
110	8.45	32.52	5.00	0.00	0.00
111	9.21	35.58	5.00	0.00	0.00
112	9.65	37.11	5.00	0.00	0.00
113	9.16	34.74	5.00	0.00	0.00
114	8.74	32.68	5.00	0.00	0.00
115	9.22	34.42	5.00	0.00	0.00
116	10.11	37.83	5.00	0.00	0.00
117	10.37	38.80	5.00	0.00	0.00
118	8.55	31.37	5.00	0.00	0.00
119	6.47	22.58	5.00	0.00	0.00
120	5.65	18.91	5.00	0.00	0.00
121	7.79	27.45	5.00	0.00	0.00
122	13.10	46.91	5.00	0.00	0.00
123	26.53	60.53	0.32	3.53	0.07
124	33.14	70.08	0.35	3.13	0.06
125	36.47	75.22	0.37	2.95	0.06
126	41.03	80.37	0.40	2.80	0.05
127	42.21	81.01	0.40	2.78	0.05
128	39.13	82.75	0.41	2.73	0.06
129	35.97	92.12	0.48	2.50	0.05
130	21.63	55.34	5.00	0.00	0.00
131	15.04	37.87	5.00	0.00	0.00
132	24.87	92.01	0.47	2.50	0.05
133	17.95	65.93	5.00	0.00	0.00
134	15.63	56.82	5.00	0.00	0.00
135	10.61	37.26	5.00	0.00	0.00
136	11.31	39.60	5.00	0.00	0.00
137	13.31	47.02	5.00	0.00	0.00
138	14.92	52.60	5.00	0.00	0.00
139	10.15	34.46	5.00	0.00	0.00
140	10.56	35.76	5.00	0.00	0.00
141	11.33	38.34	5.00	0.00	0.00
142	9.88	32.64	5.00	0.00	0.00
143	9.38	30.46	5.00	0.00	0.00
144	9.53	30.76	5.00	0.00	0.00
145	10.59	34.57	5.00	0.00	0.00
146	11.09	36.24	5.00	0.00	0.00
147	10.11	32.47	5.00	0.00	0.00
148	9.71	30.76	5.00	0.00	0.00
149	8.76	27.13	5.00	0.00	0.00
150	8.20	24.90	5.00	0.00	0.00
151	8.60	26.16	5.00	0.00	0.00
152	8.42	25.35	5.00	0.00	0.00
153	8.50	25.48	5.00	0.00	0.00
154	9.35	28.36	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
155	8.98	26.88	5.00	0.00	0.00
156	9.63	29.06	5.00	0.00	0.00
157	12.71	39.72	5.00	0.00	0.00
158	17.60	56.44	5.00	0.00	0.00
159	20.43	65.97	5.00	0.00	0.00
160	19.97	64.07	5.00	0.00	0.00
161	19.10	60.81	5.00	0.00	0.00
162	19.73	62.65	5.00	0.00	0.00
163	20.71	65.65	5.00	0.00	0.00
164	19.86	62.43	5.00	0.00	0.00
165	18.32	56.90	5.00	0.00	0.00
166	15.58	47.49	5.00	0.00	0.00
167	14.20	42.59	5.00	0.00	0.00
168	12.93	38.13	5.00	0.00	0.00
169	10.83	30.93	5.00	0.00	0.00
170	9.15	25.11	5.00	0.00	0.00
171	8.70	23.45	5.00	0.00	0.00
172	8.20	21.65	5.00	0.00	0.00
173	11.45	32.24	5.00	0.00	0.00
174	11.50	32.23	5.00	0.00	0.00
175	12.70	35.90	5.00	0.00	0.00
176	12.03	33.55	5.00	0.00	0.00
177	11.83	32.73	5.00	0.00	0.00
178	21.37	63.23	5.00	0.00	0.00
179	29.49	88.89	5.00	0.00	0.00
180	39.52	108.99	0.60	2.18	0.04
181	44.47	113.97	0.65	2.04	0.04
182	27.93	69.60	5.00	0.00	0.00
183	23.74	58.21	5.00	0.00	0.00
184	24.09	58.88	5.00	0.00	0.00
185	25.67	62.77	5.00	0.00	0.00
186	29.03	71.32	5.00	0.00	0.00
187	31.47	77.39	5.00	0.00	0.00
188	32.49	79.74	5.00	0.00	0.00
189	29.44	71.49	5.00	0.00	0.00
190	24.41	58.13	5.00	0.00	0.00
191	31.61	76.42	5.00	0.00	0.00
192	46.31	113.88	5.00	0.00	0.00
193	56.85	140.61	5.00	0.00	0.00
194	77.52	148.14	1.14	0.43	0.01
195	88.60	131.45	0.87	1.05	0.02
196	86.26	133.43	0.90	1.02	0.02
197	66.85	144.42	1.08	0.43	0.01
198	48.05	101.90	5.00	0.00	0.00
199	44.34	93.34	5.00	0.00	0.00
200	48.33	99.11	0.51	2.35	0.05
201	45.83	117.40	0.69	1.96	0.04
202	64.49	120.95	0.73	1.88	0.04
203	71.46	158.92	1.35	0.00	0.00
204	78.85	206.71	5.00	0.00	0.00
205	94.15	234.62	5.00	0.00	0.00
206	98.92	237.07	5.00	0.00	0.00
207	95.97	220.61	5.00	0.00	0.00
208	99.86	217.03	5.00	0.00	0.00
209	110.18	245.19	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
210	116.92	268.79	5.00	0.00	0.00
211	115.91	263.79	5.00	0.00	0.00
212	99.75	243.93	5.00	0.00	0.00
213	85.74	224.09	5.00	0.00	0.00
214	88.70	199.87	5.00	0.00	0.00
215	72.74	195.68	5.00	0.00	0.00
216	62.62	166.80	5.00	0.00	0.00
217	53.67	141.29	5.00	0.00	0.00
218	47.57	124.00	5.00	0.00	0.00
219	46.00	119.30	5.00	0.00	0.00
220	43.89	113.08	5.00	0.00	0.00
221	38.84	98.86	5.00	0.00	0.00
222	36.23	91.42	5.00	0.00	0.00
223	35.10	87.98	5.00	0.00	0.00
224	36.70	91.98	5.00	0.00	0.00
225	37.65	94.17	5.00	0.00	0.00
226	42.53	107.04	5.00	0.00	0.00
227	46.44	117.08	5.00	0.00	0.00
228	50.46	127.58	5.00	0.00	0.00
229	46.73	116.86	5.00	0.00	0.00
230	42.86	105.79	5.00	0.00	0.00
231	53.64	134.48	5.00	0.00	0.00
232	45.37	111.61	5.00	0.00	0.00
233	50.67	125.21	5.00	0.00	0.00
234	60.00	149.35	5.00	0.00	0.00
235	71.56	179.91	5.00	0.00	0.00
236	64.92	161.99	5.00	0.00	0.00
237	55.02	135.04	5.00	0.00	0.00
238	102.30	186.69	5.00	0.00	0.00
239	120.42	205.84	5.00	0.00	0.00
240	67.82	167.85	5.00	0.00	0.00
241	39.70	94.26	5.00	0.00	0.00
242	30.48	70.26	5.00	0.00	0.00
243	28.30	64.30	5.00	0.00	0.00
244	26.50	59.48	5.00	0.00	0.00
245	28.52	64.51	5.00	0.00	0.00
246	28.51	64.29	5.00	0.00	0.00
247	28.90	65.10	5.00	0.00	0.00
248	27.67	61.81	5.00	0.00	0.00
249	27.99	62.52	5.00	0.00	0.00
250	27.25	60.39	5.00	0.00	0.00
251	27.55	60.92	5.00	0.00	0.00
252	26.73	58.59	5.00	0.00	0.00
253	27.28	59.89	5.00	0.00	0.00
254	27.00	59.03	5.00	0.00	0.00
255	28.02	61.52	5.00	0.00	0.00
256	28.06	61.37	5.00	0.00	0.00
257	27.99	60.93	5.00	0.00	0.00
258	27.78	60.31	5.00	0.00	0.00
259	27.03	58.13	5.00	0.00	0.00
260	28.64	61.83	5.00	0.00	0.00
261	29.51	63.45	5.00	0.00	0.00
262	34.73	75.59	5.00	0.00	0.00
263	39.07	85.46	5.00	0.00	0.00
264	53.65	120.53	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
265	63.51	144.34	5.00	0.00	0.00
266	48.48	106.74	5.00	0.00	0.00
267	53.29	119.28	5.00	0.00	0.00
268	45.92	100.65	5.00	0.00	0.00
269	78.08	146.14	1.13	0.43	0.01
270	125.03	137.43	0.98	0.66	0.01
271	132.93	135.81	0.95	0.66	0.01
272	123.30	120.89	0.74	1.88	0.04
273	106.28	112.23	0.64	2.13	0.04
274	88.84	128.45	0.85	1.41	0.03
275	65.44	128.57	0.85	1.41	0.03
276	37.54	68.78	5.00	0.00	0.00
277	33.52	60.21	5.00	0.00	0.00
278	42.00	77.42	5.00	0.00	0.00
279	41.36	75.55	5.00	0.00	0.00
280	39.38	71.41	5.00	0.00	0.00
281	36.48	65.27	5.00	0.00	0.00
282	36.09	64.46	5.00	0.00	0.00
283	31.40	54.86	5.00	0.00	0.00
284	25.19	42.39	5.00	0.00	0.00
285	22.97	37.96	5.00	0.00	0.00
286	18.54	29.03	5.00	0.00	0.00
287	18.78	29.54	5.00	0.00	0.00
288	18.57	28.95	5.00	0.00	0.00
289	18.51	28.46	5.00	0.00	0.00
290	23.65	38.08	5.00	0.00	0.00
291	34.22	58.94	5.00	0.00	0.00
292	29.68	49.76	5.00	0.00	0.00
293	23.06	36.88	5.00	0.00	0.00
294	18.52	28.04	5.00	0.00	0.00
295	23.24	37.35	5.00	0.00	0.00
296	21.63	33.98	5.00	0.00	0.00
297	20.12	30.96	5.00	0.00	0.00
298	21.43	33.41	5.00	0.00	0.00
299	21.73	33.87	5.00	0.00	0.00
300	22.17	34.58	5.00	0.00	0.00
301	22.01	34.07	5.00	0.00	0.00
302	21.89	33.39	5.00	0.00	0.00
303	34.10	56.99	5.00	0.00	0.00

Total settlement : 1.37

Measured cone resistance
Normalized and adjusted cone resistance
Factor of safety against liquefaction
Post-liquefaction volumentric strain
Calculated settlement

:: Overall liquefaction potential according to Iwasaki ::

Point ID	F			Point ID	F		
1	0.00	9.98	0.00	2	0.00	9.95	0.00
3	0.00	9.93	0.00	4	0.00	9.90	0.00
5	0.00	9.88	0.00	6	0.00	9.85	0.00
7	0.00	9.82	0.00	8	0.00	9.80	0.00
9	0.00	9.77	0.00	10	0.00	9.75	0.00
11	0.00	9.73	0.00	12	0.00	9.70	0.00

:: Overall liquefaction potential according to Iwasaki (continued) ::

Point ID	F			Point ID	F		
13	0.00	9.68	0.00	14	0.00	9.65	0.00
15	0.00	9.63	0.00	16	0.00	9.60	0.00
17	0.00	9.57	0.00	18	0.00	9.55	0.00
19	0.00	9.52	0.00	20	0.00	9.50	0.00
21	0.00	9.48	0.00	22	0.00	9.45	0.00
23	0.00	9.43	0.00	24	0.00	9.40	0.00
25	0.00	9.38	0.00	26	0.00	9.35	0.00
27	0.00	9.32	0.00	28	0.00	9.30	0.00
29	0.00	9.27	0.00	30	0.00	9.25	0.00
31	0.00	9.22	0.00	32	0.00	9.20	0.00
33	0.00	9.18	0.00	34	0.00	9.15	0.00
35	0.00	9.13	0.00	36	0.00	9.10	0.00
37	0.00	9.07	0.00	38	0.00	9.05	0.00
39	0.00	9.02	0.00	40	0.00	9.00	0.00
41	0.00	8.97	0.00	42	0.00	8.95	0.00
43	0.00	8.93	0.00	44	0.00	8.90	0.00
45	0.00	8.88	0.00	46	0.00	8.85	0.00
47	0.00	8.82	0.00	48	0.00	8.80	0.00
49	0.00	8.77	0.00	50	0.00	8.75	0.00
51	0.00	8.72	0.00	52	0.00	8.70	0.00
53	0.00	8.68	0.00	54	0.00	8.65	0.00
55	0.00	8.63	0.00	56	0.00	8.60	0.00
57	0.00	8.58	0.00	58	0.00	8.55	0.00
59	0.00	8.52	0.00	60	0.00	8.50	0.00
61	0.00	8.47	0.00	62	0.00	8.45	0.00
63	0.00	8.43	0.00	64	0.00	8.40	0.00
65	0.00	8.38	0.00	66	0.00	8.35	0.00
67	0.00	8.33	0.00	68	0.00	8.30	0.00
69	0.00	8.27	0.00	70	0.00	8.25	0.00
71	0.00	8.22	0.00	72	0.00	8.20	0.00
73	0.00	8.17	0.00	74	0.00	8.15	0.00
75	0.00	8.13	0.00	76	0.00	8.10	0.00
77	0.66	8.08	0.26	78	0.68	8.05	0.28
79	0.66	8.02	0.26	80	0.66	8.00	0.26
81	0.64	7.97	0.27	82	0.00	7.95	0.00
83	0.00	7.92	0.00	84	0.00	7.90	0.00
85	0.00	7.88	0.00	86	0.64	7.85	0.26
87	0.61	7.83	0.23	88	0.00	7.80	0.00
89	0.00	7.77	0.00	90	0.00	7.75	0.00
91	0.00	7.72	0.00	92	0.00	7.70	0.00
93	0.00	7.67	0.00	94	0.00	7.65	0.00
95	0.00	7.63	0.00	96	0.00	7.60	0.00
97	0.00	7.58	0.00	98	0.00	7.55	0.00
99	0.00	7.53	0.00	100	0.00	7.50	0.00
101	0.00	7.47	0.00	102	0.00	7.45	0.00
103	0.00	7.42	0.00	104	0.00	7.40	0.00
105	0.00	7.38	0.00	106	0.00	7.35	0.00
107	0.00	7.33	0.00	108	0.00	7.30	0.00
109	0.00	7.28	0.00	110	0.00	7.25	0.00
111	0.00	7.22	0.00	112	0.00	7.20	0.00
113	0.00	7.17	0.00	114	0.00	7.15	0.00
115	0.00	7.13	0.00	116	0.00	7.10	0.00
117	0.00	7.08	0.00	118	0.00	7.05	0.00
119	0.00	7.03	0.00	120	0.00	7.00	0.00
121	0.00	6.97	0.00	122	0.00	6.95	0.00
123	0.68	6.92	0.25	124	0.65	6.90	0.22

:: Overall liquefaction potential according to Iwasaki (continued) ::

Point ID	F			Point ID	F		
125	0.63	6.87	0.22	126	0.60	6.85	0.20
127	0.60	6.83	0.20	128	0.59	6.80	0.21
129	0.52	6.78	0.17	130	0.00	6.75	0.00
131	0.00	6.72	0.00	132	0.53	6.70	0.17
133	0.00	6.67	0.00	134	0.00	6.65	0.00
135	0.00	6.62	0.00	136	0.00	6.60	0.00
137	0.00	6.58	0.00	138	0.00	6.55	0.00
139	0.00	6.53	0.00	140	0.00	6.50	0.00
141	0.00	6.47	0.00	142	0.00	6.45	0.00
143	0.00	6.42	0.00	144	0.00	6.40	0.00
145	0.00	6.37	0.00	146	0.00	6.35	0.00
147	0.00	6.33	0.00	148	0.00	6.30	0.00
149	0.00	6.28	0.00	150	0.00	6.25	0.00
151	0.00	6.23	0.00	152	0.00	6.20	0.00
153	0.00	6.17	0.00	154	0.00	6.15	0.00
155	0.00	6.12	0.00	156	0.00	6.10	0.00
157	0.00	6.08	0.00	158	0.00	6.05	0.00
159	0.00	6.03	0.00	160	0.00	6.00	0.00
161	0.00	5.98	0.00	162	0.00	5.95	0.00
163	0.00	5.92	0.00	164	0.00	5.90	0.00
165	0.00	5.87	0.00	166	0.00	5.85	0.00
167	0.00	5.82	0.00	168	0.00	5.80	0.00
169	0.00	5.78	0.00	170	0.00	5.75	0.00
171	0.00	5.73	0.00	172	0.00	5.70	0.00
173	0.00	5.67	0.00	174	0.00	5.65	0.00
175	0.00	5.62	0.00	176	0.00	5.60	0.00
177	0.00	5.57	0.00	178	0.00	5.55	0.00
179	0.00	5.53	0.00	180	0.40	5.50	0.11
181	0.35	5.48	0.09	182	0.00	5.45	0.00
183	0.00	5.42	0.00	184	0.00	5.40	0.00
185	0.00	5.37	0.00	186	0.00	5.35	0.00
187	0.00	5.32	0.00	188	0.00	5.30	0.00
189	0.00	5.28	0.00	190	0.00	5.25	0.00
191	0.00	5.23	0.00	192	0.00	5.20	0.00
193	0.00	5.18	0.00	194	0.00	5.15	0.00
195	0.13	5.12	0.03	196	0.10	5.10	0.03
197	0.00	5.07	0.00	198	0.00	5.05	0.00
199	0.00	5.03	0.00	200	0.49	5.00	0.13
201	0.31	4.98	0.08	202	0.27	4.95	0.07
203	0.00	4.93	0.00	204	0.00	4.90	0.00
205	0.00	4.87	0.00	206	0.00	4.85	0.00
207	0.00	4.82	0.00	208	0.00	4.80	0.00
209	0.00	4.78	0.00	210	0.00	4.75	0.00
211	0.00	4.73	0.00	212	0.00	4.70	0.00
213	0.00	4.68	0.00	214	0.00	4.65	0.00
215	0.00	4.62	0.00	216	0.00	4.60	0.00
217	0.00	4.57	0.00	218	0.00	4.55	0.00
219	0.00	4.52	0.00	220	0.00	4.50	0.00
221	0.00	4.48	0.00	222	0.00	4.45	0.00
223	0.00	4.43	0.00	224	0.00	4.40	0.00
225	0.00	4.37	0.00	226	0.00	4.35	0.00
227	0.00	4.32	0.00	228	0.00	4.30	0.00
229	0.00	4.27	0.00	230	0.00	4.25	0.00
231	0.00	4.23	0.00	232	0.00	4.20	0.00
233	0.00	4.18	0.00	234	0.00	4.15	0.00
235	0.00	4.12	0.00	236	0.00	4.10	0.00

:: Overall liquefaction potential according to Iwasaki (continued) ::

Point ID	F		
237	0.00	4.07	0.00
239	0.00	4.02	0.00
241	0.00	3.98	0.00
243	0.00	3.93	0.00
245	0.00	3.88	0.00
247	0.00	3.82	0.00
249	0.00	3.77	0.00
251	0.00	3.73	0.00
253	0.00	3.68	0.00
255	0.00	3.63	0.00
257	0.00	3.57	0.00
259	0.00	3.52	0.00
261	0.00	3.48	0.00
263	0.00	3.43	0.00
265	0.00	3.38	0.00
267	0.00	3.32	0.00
269	0.00	3.27	0.00
271	0.05	3.22	0.01
273	0.36	3.18	0.06
275	0.15	3.13	0.02
277	0.00	3.07	0.00
279	0.00	3.02	0.00
281	0.00	2.97	0.00
283	0.00	2.93	0.00
285	0.00	2.88	0.00
287	0.00	2.83	0.00
289	0.00	2.77	0.00
291	0.00	2.72	0.00
293	0.00	2.68	0.00
295	0.00	2.63	0.00
297	0.00	2.58	0.00
299	0.00	2.52	0.00
301	0.00	2.47	0.00
303	0.00	2.43	0.00

Point ID	F		
238	0.00	4.05	0.00
240	0.00	4.00	0.00
242	0.00	3.95	0.00
244	0.00	3.90	0.00
246	0.00	3.85	0.00
248	0.00	3.80	0.00
250	0.00	3.75	0.00
252	0.00	3.70	0.00
254	0.00	3.65	0.00
256	0.00	3.60	0.00
258	0.00	3.55	0.00
260	0.00	3.50	0.00
262	0.00	3.45	0.00
264	0.00	3.40	0.00
266	0.00	3.35	0.00
268	0.00	3.30	0.00
270	0.02	3.25	0.00
272	0.26	3.20	0.04
274	0.15	3.15	0.03
276	0.00	3.10	0.00
278	0.00	3.05	0.00
280	0.00	3.00	0.00
282	0.00	2.95	0.00
284	0.00	2.90	0.00
286	0.00	2.85	0.00
288	0.00	2.80	0.00
290	0.00	2.75	0.00
292	0.00	2.70	0.00
294	0.00	2.65	0.00
296	0.00	2.60	0.00
298	0.00	2.55	0.00
300	0.00	2.50	0.00
302	0.00	2.45	0.00

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LIQUEFACTION ANALYSIS REPORT

Project title : 10487.01 - Morning Star Packing Company Cooling Pond Expansions

Project subtitle : CPT-07

Input parameters and analysis data

In-situ data type:	Cone Penetration Test	5.00 ft
Analysis type:	Deterministic	6.58
Analysis method:	Robertson (1998)	0.44 g
Fines correction method:	Robertson (1998)	1.00

Liquefaction

No Liquefaction

Soil type index legend

- Gravelly sand to dense sand
- Sands: clean sand to silty sand
- Sand mixtures: silty sand to sandy silt
- Silt mixtures: clayey silt to silty clay
- Clays: silty clay to clay
- Organic soils: peats

:: Field input data ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
1	0.16	5.56	0.35	26.00	120.94
2	0.33	9.72	0.55	24.48	120.94
3	0.49	9.68	0.60	27.59	120.94
4	0.66	8.69	0.59	31.70	120.94
5	0.82	7.75	0.56	35.33	120.94
6	0.98	8.08	0.53	35.18	120.94
7	1.15	8.37	0.53	35.74	120.94
8	1.31	9.05	0.61	36.79	120.94
9	1.48	9.40	0.62	37.26	120.94
10	1.64	10.86	0.74	37.04	120.94
11	1.80	12.51	0.80	35.38	120.94
12	1.97	15.78	1.08	34.42	120.94
13	2.13	18.41	1.23	33.14	120.94
14	2.30	17.11	1.23	35.64	120.94
15	2.46	15.26	1.11	37.69	120.94
16	2.62	14.81	0.92	36.45	120.94
17	2.79	14.23	0.80	36.03	120.94
18	2.95	13.05	0.73	37.81	120.94
19	3.12	11.10	0.63	40.81	120.94
20	3.28	9.29	0.56	44.98	120.94
21	3.44	7.53	0.47	49.53	120.94
22	3.61	6.72	0.40	51.60	120.94
23	3.77	5.79	0.35	55.05	120.94
24	3.94	5.45	0.31	56.22	120.94
25	4.10	4.85	0.24	57.39	120.94
26	4.27	3.79	0.21	65.54	120.94
27	4.43	3.77	0.19	64.43	120.94
28	4.59	3.24	0.17	69.68	120.94
29	4.76	3.26	0.12	64.56	120.94
30	4.92	2.93	0.14	73.01	120.94
31	5.09	3.42	0.13	65.16	120.94
32	5.25	3.10	0.11	66.71	120.94
33	5.41	3.15	0.12	68.23	120.94
34	5.58	4.01	0.15	62.53	120.94
35	5.74	3.53	0.15	68.16	120.94
36	5.91	3.19	0.13	70.38	120.94
37	6.07	3.02	0.12	72.89	120.94
38	6.23	3.17	0.11	69.26	120.94
39	6.40	3.15	0.12	71.80	120.94
40	6.56	3.67	0.14	67.73	120.94
41	6.73	3.98	0.15	65.20	120.94
42	6.89	3.69	0.16	71.02	120.94
43	7.05	4.39	0.19	65.98	120.94
44	7.22	4.73	0.20	64.07	120.94
45	7.38	4.70	0.22	66.04	120.94
46	7.55	5.03	0.25	65.89	120.94
47	7.71	5.07	0.24	65.24	120.94
48	7.87	4.78	0.22	66.85	120.94
49	8.04	4.59	0.19	66.12	120.94
50	8.20	4.38	0.17	66.72	120.94
51	8.37	4.46	0.16	65.18	120.94
52	8.53	4.63	0.17	64.73	120.94
53	8.69	4.58	0.17	65.98	120.94
54	8.86	4.17	0.17	70.29	120.94
55	9.02	4.49	0.18	68.09	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
56	9.19	4.44	0.12	62.43	120.94
57	9.35	4.42	0.17	69.06	120.94
58	9.51	4.51	0.21	72.37	120.94
59	9.68	5.09	0.19	65.04	120.94
60	9.84	4.77	0.29	76.61	120.94
61	10.01	4.26	0.26	80.34	120.94
62	10.17	4.64	0.22	73.32	120.94
63	10.33	4.57	0.17	69.96	120.94
64	10.50	4.72	0.19	70.49	120.94
65	10.66	5.53	0.15	59.73	120.94
66	10.83	4.92	0.20	70.19	120.94
67	10.99	6.91	0.23	57.33	120.94
68	11.15	7.06	0.20	54.54	120.94
69	11.32	6.71	0.23	58.99	120.94
70	11.48	5.80	0.28	69.13	120.94
71	11.65	5.82	0.29	69.88	120.94
72	11.81	7.63	0.47	66.87	120.94
73	11.98	9.51	0.45	56.59	120.94
74	12.14	14.89	0.40	39.05	120.94
75	12.30	12.40	0.31	41.55	120.94
76	12.47	6.98	0.25	60.50	120.94
77	12.63	5.54	0.22	69.17	120.94
78	12.80	6.01	0.25	67.57	120.94
79	12.96	7.16	0.31	64.04	120.94
80	13.12	7.58	0.36	64.23	120.94
81	13.29	7.33	0.33	64.59	120.94
82	13.45	6.88	0.28	64.61	120.94
83	13.62	6.58	0.25	64.76	120.94
84	13.78	6.90	0.24	61.94	120.94
85	13.94	7.05	0.30	65.52	120.94
86	14.11	7.88	0.35	63.23	120.94
87	14.27	8.48	0.39	62.24	120.94
88	14.44	9.43	0.40	58.04	120.94
89	14.60	10.54	0.45	55.63	120.94
90	14.76	10.54	0.51	58.21	120.94
91	14.93	10.83	0.55	58.47	120.94
92	15.09	11.80	0.55	55.06	120.94
93	15.26	10.33	0.55	60.82	120.94
94	15.42	8.63	0.52	68.59	120.94
95	15.58	7.49	0.44	72.22	120.94
96	15.75	6.41	0.38	78.11	120.94
97	15.91	5.81	0.33	80.98	120.94
98	16.08	5.14	0.27	84.56	120.94
99	16.24	4.88	0.25	86.12	120.94
100	16.40	5.24	0.24	81.38	120.94
101	16.57	5.65	0.30	81.32	120.94
102	16.73	7.36	0.33	69.18	120.94
103	16.90	8.84	0.28	57.73	120.94
104	17.06	9.11	0.38	62.24	120.94
105	17.22	12.83	0.45	50.77	120.94
106	17.39	10.67	0.43	57.63	120.94
107	17.55	8.67	0.32	61.98	120.94
108	17.72	7.14	0.26	67.91	120.94
109	17.88	5.74	0.25	79.06	120.94
110	18.04	5.59	0.27	82.42	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
111	18.21	5.67	0.32	86.39	120.94
112	18.37	8.00	0.49	75.21	120.94
113	18.54	6.78	0.55	88.28	120.94
114	18.70	9.51	0.52	68.04	120.94
115	18.86	9.75	0.58	69.11	120.94
116	19.03	11.50	0.63	63.02	120.94
117	19.19	11.79	0.73	64.84	120.94
118	19.36	12.74	0.79	63.16	120.94
119	19.52	13.73	0.86	61.42	120.94
120	19.69	14.31	0.86	59.80	120.94
121	19.85	15.09	0.88	58.17	120.94
122	20.01	14.17	0.79	58.91	120.94
123	20.18	11.49	0.58	62.67	120.94
124	20.34	8.89	0.44	70.32	120.94
125	20.51	9.93	0.44	64.70	120.94
126	20.67	10.63	0.57	66.71	120.94
127	20.83	13.61	0.57	55.63	120.94
128	21.00	10.19	0.56	68.87	120.94
129	21.16	9.44	0.57	73.52	120.94
130	21.33	16.45	0.60	49.12	120.94
131	21.49	16.17	0.56	48.83	120.94
132	21.65	10.46	0.57	68.70	120.94
133	21.82	8.73	0.47	74.44	120.94
134	21.98	7.86	0.41	77.78	120.94
135	22.15	7.74	0.33	74.35	120.94
136	22.31	7.55	0.35	77.18	120.94
137	22.47	7.86	0.36	75.93	120.94
138	22.64	8.47	0.37	72.15	120.94
139	22.80	7.13	0.37	82.40	120.94
140	22.97	6.21	0.37	92.30	120.94
141	23.13	7.97	0.41	78.30	120.94
142	23.29	8.26	0.40	75.90	120.94
143	23.46	7.18	0.36	82.60	120.94
144	23.62	7.80	0.34	76.76	120.94
145	23.79	9.96	0.37	65.35	120.94
146	23.95	11.60	0.46	61.75	120.94
147	24.11	12.26	0.46	59.57	120.94
148	24.28	15.38	0.58	53.44	120.94
149	24.44	18.01	0.75	51.62	120.94
150	24.61	21.53	1.09	50.96	120.94
151	24.77	22.75	1.14	49.69	120.94
152	24.93	22.82	1.15	49.88	120.94
153	25.10	24.58	1.22	48.07	120.94
154	25.26	24.58	1.25	48.59	120.94
155	25.43	22.83	1.21	51.08	120.94
156	25.59	21.08	1.22	54.55	120.94
157	25.75	18.69	1.10	58.00	120.94
158	25.92	17.06	1.07	61.71	120.94
159	26.08	18.68	1.02	56.73	120.94
160	26.25	18.02	0.99	57.92	120.94
161	26.41	15.79	0.97	63.70	120.94
162	26.57	14.58	0.95	67.47	120.94
163	26.74	15.86	0.90	62.24	120.94
164	26.90	15.77	0.80	60.45	120.94
165	27.07	14.53	0.61	59.34	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
166	27.23	14.02	0.61	60.99	120.94
167	27.40	15.94	0.62	55.68	120.94
168	27.56	15.18	0.72	60.68	120.94
169	27.72	17.13	0.72	55.44	120.94
170	27.89	18.40	0.87	55.80	120.94
171	28.05	21.56	0.96	51.04	120.94
172	28.22	20.10	1.10	56.60	120.94
173	28.38	22.68	1.06	50.89	120.94
174	28.54	17.18	0.90	59.90	120.94
175	28.71	14.74	0.78	64.64	120.94
176	28.87	15.86	0.97	65.56	120.94
177	29.04	17.73	1.14	63.65	120.94
178	29.20	21.02	1.10	55.23	120.94
179	29.36	20.97	0.97	53.10	120.94
180	29.53	20.22	0.87	52.83	120.94
181	29.69	21.72	1.05	53.22	120.94
182	29.86	24.24	1.28	52.45	120.94
183	30.02	27.54	1.52	50.52	120.94
184	30.18	30.88	1.57	46.74	120.94
185	30.35	29.93	1.35	45.39	120.94
186	30.51	31.20	1.32	43.48	120.94
187	30.68	31.81	1.45	44.41	120.94
188	30.84	30.41	1.40	45.63	120.94
189	31.00	28.93	1.36	47.14	120.94
190	31.17	29.88	1.58	48.59	120.94
191	31.33	33.23	1.80	46.87	120.94
192	31.50	30.69	1.68	48.80	120.94
193	31.66	24.02	1.24	53.31	120.94
194	31.82	21.98	0.93	51.97	120.94
195	31.99	22.23	0.91	51.11	120.94
196	32.15	27.59	1.52	51.65	120.94
197	32.32	41.05	1.92	40.73	120.94
198	32.48	33.14	1.95	49.00	120.94
199	32.64	25.25	1.52	55.66	120.94
200	32.81	20.83	1.26	60.78	120.94
201	32.97	21.27	1.39	61.92	120.94
202	33.14	31.79	1.67	48.12	120.94
203	33.30	33.71	1.96	48.90	120.94
204	33.46	34.86	1.67	44.76	120.94
205	33.63	27.32	1.28	49.65	120.94
206	33.79	26.27	1.21	50.38	120.94
207	33.96	25.45	1.50	55.82	120.94
208	34.12	29.48	1.96	54.84	120.94
209	34.28	46.95	2.51	41.34	120.94
210	34.45	61.34	2.45	32.39	120.94
211	34.61	61.05	3.13	36.41	120.94
212	34.78	49.82	2.85	41.66	120.94
213	34.94	45.70	3.27	47.43	120.94
214	35.10	53.09	3.09	40.98	120.94
215	35.27	43.62	2.65	45.36	120.94
216	35.43	42.88	2.16	42.47	120.94
217	35.60	33.98	2.56	54.89	120.94
218	35.76	27.42	2.41	63.43	120.94
219	35.93	33.64	2.11	51.57	120.94
220	36.09	27.71	1.49	53.12	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
221	36.25	27.04	1.34	52.37	120.94
222	36.42	24.32	1.29	56.30	120.94
223	36.58	23.29	1.21	57.08	120.94
224	36.75	20.97	1.09	60.16	120.94
225	36.91	19.69	1.02	61.92	120.94
226	37.07	18.31	0.96	64.42	120.94
227	37.24	17.68	0.88	64.46	120.94
228	37.40	16.59	0.91	68.78	120.94
229	37.57	15.91	0.79	68.26	120.94
230	37.73	29.96	1.13	45.82	120.94
231	37.89	22.64	1.28	60.38	120.94
232	38.06	23.90	1.15	55.85	120.94
233	38.22	18.98	0.88	61.63	120.94
234	38.39	17.65	0.82	64.06	120.94
235	38.55	15.90	0.81	69.47	120.94
236	38.71	16.53	0.81	67.52	120.94
237	38.88	19.85	0.88	59.96	120.94
238	39.04	19.26	1.01	64.24	120.94
239	39.21	17.94	0.96	66.96	120.94
240	39.37	18.49	0.84	62.90	120.94
241	39.53	21.50	0.92	57.23	120.94
242	39.70	25.48	1.12	53.40	120.94
243	39.86	26.44	1.41	56.16	120.94
244	40.03	27.46	1.37	53.97	120.94
245	40.19	26.86	1.32	54.39	120.94
246	40.35	25.33	1.22	55.63	120.94
247	40.52	24.37	1.12	55.77	120.94
248	40.68	25.83	1.13	53.41	120.94
249	40.85	27.40	1.33	53.96	120.94
250	41.01	29.78	1.42	51.63	120.94
251	41.17	29.01	1.44	53.07	120.94
252	41.34	30.45	1.43	51.04	120.94
253	41.50	27.86	1.29	52.99	120.94
254	41.67	27.37	1.20	52.55	120.94
255	41.83	28.04	1.21	51.63	120.94
256	41.99	28.63	1.25	51.47	120.94
257	42.16	28.21	1.13	50.41	120.94
258	42.32	29.34	1.07	47.81	120.94
259	42.49	29.68	1.03	46.91	120.94
260	42.65	31.35	1.15	46.59	120.94
261	42.81	33.87	1.39	46.79	120.94
262	42.98	33.15	1.46	48.64	120.94
263	43.14	31.56	1.40	49.89	120.94
264	43.31	28.71	1.28	52.37	120.94
265	43.47	26.41	1.17	54.54	120.94
266	43.64	27.68	1.31	54.61	120.94
267	43.80	33.86	1.35	46.65	120.94
268	43.96	34.28	1.67	50.04	120.94
269	44.13	39.27	2.07	48.49	120.94
270	44.29	58.08	2.16	35.10	120.94
271	44.46	41.57	2.10	46.64	120.94
272	44.62	45.46	1.94	41.90	120.94
273	44.78	39.77	2.12	48.66	120.94
274	44.95	40.00	1.89	46.46	120.94
275	45.11	41.71	1.99	45.74	120.94

:: Field input data (continued) ::

Point ID	Depth (ft)			Fines content (%)	Unit weight (pcf)
276	45.28	36.11	1.86	50.39	120.94
277	45.44	34.37	1.59	49.64	120.94
278	45.60	33.77	1.54	49.87	120.94
279	45.77	36.69	1.69	48.17	120.94
280	45.93	37.72	1.84	48.70	120.94
281	46.10	38.32	1.76	47.36	120.94
282	46.26	37.24	1.64	47.28	120.94
283	46.42	34.90	1.74	51.09	120.94
284	46.59	34.10	1.73	52.08	120.94
285	46.75	30.48	1.53	54.74	120.94
286	46.92	29.31	1.34	54.05	120.94
287	47.08	26.44	1.26	57.76	120.94
288	47.24	24.06	1.24	62.15	120.94
289	47.41	23.75	1.51	67.14	120.94
290	47.57	30.89	2.02	60.13	120.94
291	47.74	95.71	2.04	21.20	120.94
292	47.90	155.70	2.40	12.92	120.94
293	48.06	203.84	3.28	11.04	120.94
294	48.23	222.33	4.02	11.38	120.94
295	48.39	229.07	3.94	10.75	120.94
296	48.56	227.16	5.39	13.77	120.94
297	48.72	182.26	7.12	21.45	120.94
298	48.88	96.93	6.48	37.60	120.94
299	49.05	58.51	3.99	46.82	120.94
300	49.21	48.34	2.67	46.76	120.94
301	49.38	35.95	2.32	56.78	120.94
302	49.54	29.36	1.84	61.66	120.94
303	49.70	29.63	1.50	57.01	120.94
304	49.87	27.64	1.29	57.48	120.94
305	50.03	26.63	1.23	58.38	120.94
306	50.20	25.98	1.31	60.89	120.94

Depth from free surface, at which CPT was performed (ft)
Measured cone resistance
Sleeve friction resistance
Percentage of fines in soil (%)
Bulk soil unit weight (tsf)

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
1	0.16	0.01	0.00	0.01	1.00	0.29	1.40	0.20	1.00	0.20
2	0.33	0.02	0.00	0.02	1.00	0.29	1.40	0.20	1.00	0.20
3	0.49	0.03	0.00	0.03	1.00	0.29	1.40	0.20	1.00	0.20
4	0.66	0.04	0.00	0.04	1.00	0.29	1.40	0.20	1.00	0.20
5	0.82	0.05	0.00	0.05	1.00	0.29	1.40	0.20	1.00	0.20
6	0.98	0.06	0.00	0.06	1.00	0.29	1.40	0.20	1.00	0.20
7	1.15	0.07	0.00	0.07	1.00	0.29	1.40	0.20	1.00	0.20
8	1.31	0.08	0.00	0.08	1.00	0.29	1.40	0.20	1.00	0.20
9	1.48	0.09	0.00	0.09	1.00	0.29	1.40	0.20	1.00	0.20
10	1.64	0.10	0.00	0.10	1.00	0.28	1.40	0.20	1.00	0.20
11	1.80	0.11	0.00	0.11	1.00	0.28	1.40	0.20	1.00	0.20
12	1.97	0.12	0.00	0.12	1.00	0.28	1.40	0.20	1.00	0.20
13	2.13	0.13	0.00	0.13	1.00	0.28	1.40	0.20	1.00	0.20
14	2.30	0.14	0.00	0.14	0.99	0.28	1.40	0.20	1.00	0.20
15	2.46	0.15	0.00	0.15	0.99	0.28	1.40	0.20	1.00	0.20

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
16	2.62	0.16	0.00	0.16	0.99	0.28	1.40	0.20	1.00	0.20
17	2.79	0.17	0.00	0.17	0.99	0.28	1.40	0.20	1.00	0.20
18	2.95	0.18	0.00	0.18	0.99	0.28	1.40	0.20	1.00	0.20
19	3.12	0.19	0.00	0.19	0.99	0.28	1.40	0.20	1.00	0.20
20	3.28	0.20	0.00	0.20	0.99	0.28	1.40	0.20	1.00	0.20
21	3.44	0.21	0.00	0.21	0.99	0.28	1.40	0.20	1.00	0.20
22	3.61	0.22	0.00	0.22	0.99	0.28	1.40	0.20	1.00	0.20
23	3.77	0.23	0.00	0.23	0.99	0.28	1.40	0.20	1.00	0.20
24	3.94	0.24	0.00	0.24	0.99	0.28	1.40	0.20	1.00	0.20
25	4.10	0.25	0.00	0.25	0.99	0.28	1.40	0.20	1.00	0.20
26	4.27	0.26	0.00	0.26	0.99	0.28	1.40	0.20	1.00	0.20
27	4.43	0.27	0.00	0.27	0.99	0.28	1.40	0.20	1.00	0.20
28	4.59	0.28	0.00	0.28	0.99	0.28	1.40	0.20	1.00	0.20
29	4.76	0.29	0.00	0.29	0.99	0.28	1.40	0.20	1.00	0.20
30	4.92	0.30	0.00	0.30	0.99	0.28	1.40	0.20	1.00	0.20
31	5.09	0.31	0.00	0.30	0.99	0.29	1.40	0.20	1.00	0.20
32	5.25	0.32	0.01	0.31	0.99	0.29	1.40	0.21	1.00	0.21
33	5.41	0.33	0.01	0.31	0.99	0.29	1.40	0.21	1.00	0.21
34	5.58	0.34	0.02	0.32	0.99	0.30	1.40	0.21	1.00	0.21
35	5.74	0.35	0.02	0.32	0.99	0.30	1.40	0.22	1.00	0.22
36	5.91	0.36	0.03	0.33	0.99	0.31	1.40	0.22	1.00	0.22
37	6.07	0.37	0.03	0.33	0.99	0.31	1.40	0.22	1.00	0.22
38	6.23	0.38	0.04	0.34	0.99	0.31	1.40	0.22	1.00	0.22
39	6.40	0.39	0.04	0.34	0.99	0.32	1.40	0.23	1.00	0.23
40	6.56	0.40	0.05	0.35	0.98	0.32	1.40	0.23	1.00	0.23
41	6.73	0.41	0.05	0.35	0.98	0.32	1.40	0.23	1.00	0.23
42	6.89	0.42	0.06	0.36	0.98	0.33	1.40	0.23	1.00	0.23
43	7.05	0.43	0.06	0.36	0.98	0.33	1.40	0.24	1.00	0.24
44	7.22	0.44	0.07	0.37	0.98	0.33	1.40	0.24	1.00	0.24
45	7.38	0.45	0.07	0.37	0.98	0.34	1.40	0.24	1.00	0.24
46	7.55	0.46	0.08	0.38	0.98	0.34	1.40	0.24	1.00	0.24
47	7.71	0.47	0.08	0.38	0.98	0.34	1.40	0.25	1.00	0.25
48	7.87	0.48	0.09	0.39	0.98	0.35	1.40	0.25	1.00	0.25
49	8.04	0.49	0.09	0.39	0.98	0.35	1.40	0.25	1.00	0.25
50	8.20	0.50	0.10	0.40	0.98	0.35	1.40	0.25	1.00	0.25
51	8.37	0.51	0.11	0.40	0.98	0.35	1.40	0.25	1.00	0.25
52	8.53	0.52	0.11	0.41	0.98	0.36	1.40	0.26	1.00	0.26
53	8.69	0.53	0.12	0.41	0.98	0.36	1.40	0.26	1.00	0.26
54	8.86	0.54	0.12	0.42	0.98	0.36	1.40	0.26	1.00	0.26
55	9.02	0.55	0.13	0.42	0.98	0.36	1.40	0.26	1.00	0.26
56	9.19	0.56	0.13	0.42	0.98	0.37	1.40	0.26	1.00	0.26
57	9.35	0.57	0.14	0.43	0.98	0.37	1.40	0.26	1.00	0.26
58	9.51	0.57	0.14	0.43	0.98	0.37	1.40	0.27	1.00	0.27
59	9.68	0.59	0.15	0.44	0.98	0.37	1.40	0.27	1.00	0.27
60	9.84	0.59	0.15	0.44	0.98	0.37	1.40	0.27	1.00	0.27
61	10.01	0.61	0.16	0.45	0.98	0.38	1.40	0.27	1.00	0.27
62	10.17	0.61	0.16	0.45	0.98	0.38	1.40	0.27	1.00	0.27
63	10.33	0.62	0.17	0.46	0.98	0.38	1.40	0.27	1.00	0.27
64	10.50	0.63	0.17	0.46	0.98	0.38	1.40	0.27	1.00	0.27
65	10.66	0.64	0.18	0.47	0.98	0.38	1.40	0.27	1.00	0.27
66	10.83	0.65	0.18	0.47	0.97	0.39	1.40	0.28	1.00	0.28
67	10.99	0.66	0.19	0.48	0.97	0.39	1.40	0.28	1.00	0.28
68	11.15	0.67	0.19	0.48	0.97	0.39	1.40	0.28	1.00	0.28
69	11.32	0.68	0.20	0.49	0.97	0.39	1.40	0.28	1.00	0.28
70	11.48	0.69	0.20	0.49	0.97	0.39	1.40	0.28	1.00	0.28

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
71	11.65	0.70	0.21	0.50	0.97	0.39	1.40	0.28	1.00	0.28
72	11.81	0.71	0.21	0.50	0.97	0.40	1.40	0.28	1.00	0.28
73	11.98	0.72	0.22	0.51	0.97	0.40	1.40	0.28	1.00	0.28
74	12.14	0.73	0.22	0.51	0.97	0.40	1.40	0.29	1.00	0.29
75	12.30	0.74	0.23	0.52	0.97	0.40	1.40	0.29	1.00	0.29
76	12.47	0.75	0.23	0.52	0.97	0.40	1.40	0.29	1.00	0.29
77	12.63	0.76	0.24	0.53	0.97	0.40	1.40	0.29	1.00	0.29
78	12.80	0.77	0.24	0.53	0.97	0.40	1.40	0.29	1.00	0.29
79	12.96	0.78	0.25	0.54	0.97	0.41	1.40	0.29	1.00	0.29
80	13.12	0.79	0.25	0.54	0.97	0.41	1.40	0.29	1.00	0.29
81	13.29	0.80	0.26	0.54	0.97	0.41	1.40	0.29	1.00	0.29
82	13.45	0.81	0.26	0.55	0.97	0.41	1.40	0.29	1.00	0.29
83	13.62	0.82	0.27	0.55	0.97	0.41	1.40	0.29	1.00	0.29
84	13.78	0.83	0.27	0.56	0.97	0.41	1.40	0.30	1.00	0.30
85	13.94	0.84	0.28	0.56	0.97	0.41	1.40	0.30	1.00	0.30
86	14.11	0.85	0.28	0.57	0.97	0.41	1.40	0.30	1.00	0.30
87	14.27	0.86	0.29	0.57	0.97	0.42	1.40	0.30	1.00	0.30
88	14.44	0.87	0.29	0.58	0.97	0.42	1.40	0.30	1.00	0.30
89	14.60	0.88	0.30	0.58	0.97	0.42	1.40	0.30	1.00	0.30
90	14.76	0.89	0.30	0.59	0.97	0.42	1.40	0.30	1.00	0.30
91	14.93	0.90	0.31	0.59	0.97	0.42	1.40	0.30	1.00	0.30
92	15.09	0.91	0.31	0.60	0.96	0.42	1.40	0.30	1.00	0.30
93	15.26	0.92	0.32	0.60	0.96	0.42	1.40	0.30	1.00	0.30
94	15.42	0.93	0.33	0.61	0.96	0.42	1.40	0.30	1.00	0.30
95	15.58	0.94	0.33	0.61	0.96	0.42	1.40	0.30	1.00	0.30
96	15.75	0.95	0.34	0.62	0.96	0.43	1.40	0.30	1.00	0.30
97	15.91	0.96	0.34	0.62	0.96	0.43	1.40	0.31	1.00	0.31
98	16.08	0.97	0.35	0.63	0.96	0.43	1.40	0.31	1.00	0.31
99	16.24	0.98	0.35	0.63	0.96	0.43	1.40	0.31	1.00	0.31
100	16.40	0.99	0.36	0.64	0.96	0.43	1.40	0.31	1.00	0.31
101	16.57	1.00	0.36	0.64	0.96	0.43	1.40	0.31	1.00	0.31
102	16.73	1.01	0.37	0.65	0.96	0.43	1.40	0.31	1.00	0.31
103	16.90	1.02	0.37	0.65	0.96	0.43	1.40	0.31	1.00	0.31
104	17.06	1.03	0.38	0.65	0.96	0.43	1.40	0.31	1.00	0.31
105	17.22	1.04	0.38	0.66	0.96	0.43	1.40	0.31	1.00	0.31
106	17.39	1.05	0.39	0.66	0.96	0.43	1.40	0.31	1.00	0.31
107	17.55	1.06	0.39	0.67	0.96	0.43	1.40	0.31	1.00	0.31
108	17.72	1.07	0.40	0.67	0.96	0.44	1.40	0.31	1.00	0.31
109	17.88	1.08	0.40	0.68	0.96	0.44	1.40	0.31	1.00	0.31
110	18.04	1.09	0.41	0.68	0.96	0.44	1.40	0.31	1.00	0.31
111	18.21	1.10	0.41	0.69	0.96	0.44	1.40	0.31	1.00	0.31
112	18.37	1.11	0.42	0.69	0.96	0.44	1.40	0.31	1.00	0.31
113	18.54	1.12	0.42	0.70	0.96	0.44	1.40	0.31	1.00	0.31
114	18.70	1.13	0.43	0.70	0.96	0.44	1.40	0.31	1.00	0.31
115	18.86	1.14	0.43	0.71	0.96	0.44	1.40	0.32	1.00	0.32
116	19.03	1.15	0.44	0.71	0.96	0.44	1.40	0.32	1.00	0.32
117	19.19	1.16	0.44	0.72	0.96	0.44	1.40	0.32	1.00	0.32
118	19.36	1.17	0.45	0.72	0.95	0.44	1.40	0.32	1.00	0.32
119	19.52	1.18	0.45	0.73	0.95	0.44	1.40	0.32	1.00	0.32
120	19.69	1.19	0.46	0.73	0.95	0.44	1.40	0.32	1.00	0.32
121	19.85	1.20	0.46	0.74	0.95	0.44	1.40	0.32	1.00	0.32
122	20.01	1.21	0.47	0.74	0.95	0.45	1.40	0.32	1.00	0.32
123	20.18	1.22	0.47	0.75	0.95	0.45	1.40	0.32	1.00	0.32
124	20.34	1.23	0.48	0.75	0.95	0.45	1.40	0.32	1.00	0.32
125	20.51	1.24	0.48	0.76	0.95	0.45	1.40	0.32	1.00	0.32

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
126	20.67	1.25	0.49	0.76	0.95	0.45	1.40	0.32	1.00	0.32
127	20.83	1.26	0.49	0.77	0.95	0.45	1.40	0.32	1.00	0.32
128	21.00	1.27	0.50	0.77	0.95	0.45	1.40	0.32	1.00	0.32
129	21.16	1.28	0.50	0.77	0.95	0.45	1.40	0.32	1.00	0.32
130	21.33	1.29	0.51	0.78	0.95	0.45	1.40	0.32	1.00	0.32
131	21.49	1.30	0.51	0.78	0.95	0.45	1.40	0.32	1.00	0.32
132	21.65	1.31	0.52	0.79	0.95	0.45	1.40	0.32	1.00	0.32
133	21.82	1.32	0.53	0.79	0.95	0.45	1.40	0.32	1.00	0.32
134	21.98	1.33	0.53	0.80	0.95	0.45	1.40	0.32	1.00	0.32
135	22.15	1.34	0.54	0.80	0.95	0.45	1.40	0.32	1.00	0.32
136	22.31	1.35	0.54	0.81	0.95	0.45	1.40	0.32	1.00	0.32
137	22.47	1.36	0.55	0.81	0.95	0.45	1.40	0.32	1.00	0.32
138	22.64	1.37	0.55	0.82	0.95	0.45	1.40	0.32	1.00	0.32
139	22.80	1.38	0.56	0.82	0.95	0.45	1.40	0.32	1.00	0.32
140	22.97	1.39	0.56	0.83	0.95	0.45	1.40	0.32	1.00	0.32
141	23.13	1.40	0.57	0.83	0.95	0.45	1.40	0.33	1.00	0.33
142	23.29	1.41	0.57	0.84	0.95	0.45	1.40	0.33	1.00	0.33
143	23.46	1.42	0.58	0.84	0.95	0.46	1.40	0.33	1.00	0.33
144	23.62	1.43	0.58	0.85	0.94	0.46	1.40	0.33	1.00	0.33
145	23.79	1.44	0.59	0.85	0.94	0.46	1.40	0.33	1.00	0.33
146	23.95	1.45	0.59	0.86	0.94	0.46	1.40	0.33	1.00	0.33
147	24.11	1.46	0.60	0.86	0.94	0.46	1.40	0.33	1.00	0.33
148	24.28	1.47	0.60	0.87	0.94	0.46	1.40	0.33	1.00	0.33
149	24.44	1.48	0.61	0.87	0.94	0.46	1.40	0.33	1.00	0.33
150	24.61	1.49	0.61	0.88	0.94	0.46	1.40	0.33	1.00	0.33
151	24.77	1.50	0.62	0.88	0.94	0.46	1.40	0.33	1.00	0.33
152	24.93	1.51	0.62	0.89	0.94	0.46	1.40	0.33	1.00	0.33
153	25.10	1.52	0.63	0.89	0.94	0.46	1.40	0.33	1.00	0.33
154	25.26	1.53	0.63	0.89	0.94	0.46	1.40	0.33	1.00	0.33
155	25.43	1.54	0.64	0.90	0.94	0.46	1.40	0.33	1.00	0.33
156	25.59	1.55	0.64	0.90	0.94	0.46	1.40	0.33	1.00	0.33
157	25.75	1.56	0.65	0.91	0.94	0.46	1.40	0.33	1.00	0.33
158	25.92	1.57	0.65	0.91	0.94	0.46	1.40	0.33	1.00	0.33
159	26.08	1.58	0.66	0.92	0.94	0.46	1.40	0.33	1.00	0.33
160	26.25	1.59	0.66	0.92	0.94	0.46	1.40	0.33	1.00	0.33
161	26.41	1.60	0.67	0.93	0.94	0.46	1.40	0.33	1.00	0.33
162	26.57	1.61	0.67	0.93	0.94	0.46	1.40	0.33	1.00	0.33
163	26.74	1.62	0.68	0.94	0.94	0.46	1.40	0.33	1.00	0.33
164	26.90	1.63	0.68	0.94	0.94	0.46	1.40	0.33	1.00	0.33
165	27.07	1.64	0.69	0.95	0.94	0.46	1.40	0.33	1.00	0.33
166	27.23	1.65	0.69	0.95	0.94	0.46	1.40	0.33	1.00	0.33
167	27.40	1.66	0.70	0.96	0.94	0.46	1.40	0.33	1.00	0.33
168	27.56	1.67	0.70	0.96	0.94	0.46	1.40	0.33	1.00	0.33
169	27.72	1.68	0.71	0.97	0.94	0.46	1.40	0.33	1.00	0.33
170	27.89	1.69	0.71	0.97	0.93	0.46	1.40	0.33	1.00	0.33
171	28.05	1.70	0.72	0.98	0.93	0.46	1.40	0.33	1.00	0.33
172	28.22	1.71	0.72	0.98	0.93	0.46	1.40	0.33	1.00	0.33
173	28.38	1.72	0.73	0.99	0.93	0.46	1.40	0.33	1.00	0.33
174	28.54	1.73	0.73	0.99	0.93	0.46	1.40	0.33	1.00	0.33
175	28.71	1.74	0.74	1.00	0.93	0.47	1.40	0.33	1.00	0.33
176	28.87	1.75	0.75	1.00	0.93	0.47	1.40	0.33	1.00	0.33
177	29.04	1.76	0.75	1.01	0.93	0.47	1.40	0.33	1.00	0.33
178	29.20	1.77	0.76	1.01	0.93	0.47	1.40	0.33	1.00	0.33
179	29.36	1.78	0.76	1.01	0.93	0.47	1.40	0.33	1.00	0.33
180	29.53	1.79	0.77	1.02	0.93	0.47	1.40	0.33	1.00	0.33

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
181	29.69	1.80	0.77	1.02	0.93	0.47	1.40	0.33	1.00	0.33
182	29.86	1.81	0.78	1.03	0.93	0.47	1.40	0.33	1.00	0.33
183	30.02	1.82	0.78	1.03	0.93	0.47	1.40	0.33	1.00	0.33
184	30.18	1.82	0.79	1.04	0.93	0.47	1.40	0.33	1.00	0.33
185	30.35	1.83	0.79	1.04	0.93	0.47	1.40	0.33	1.00	0.33
186	30.51	1.84	0.80	1.05	0.93	0.47	1.40	0.33	1.00	0.33
187	30.68	1.85	0.80	1.05	0.93	0.47	1.40	0.33	1.00	0.33
188	30.84	1.86	0.81	1.06	0.92	0.47	1.40	0.33	1.00	0.33
189	31.00	1.87	0.81	1.06	0.92	0.47	1.40	0.33	1.00	0.33
190	31.17	1.88	0.82	1.07	0.92	0.47	1.40	0.33	1.00	0.33
191	31.33	1.89	0.82	1.07	0.92	0.46	1.40	0.33	0.99	0.33
192	31.50	1.90	0.83	1.08	0.92	0.46	1.40	0.33	0.99	0.33
193	31.66	1.91	0.83	1.08	0.92	0.46	1.40	0.33	0.99	0.33
194	31.82	1.92	0.84	1.09	0.92	0.46	1.40	0.33	0.99	0.33
195	31.99	1.93	0.84	1.09	0.91	0.46	1.40	0.33	0.99	0.33
196	32.15	1.94	0.85	1.10	0.91	0.46	1.40	0.33	0.99	0.33
197	32.32	1.95	0.85	1.10	0.91	0.46	1.40	0.33	0.99	0.33
198	32.48	1.96	0.86	1.11	0.91	0.46	1.40	0.33	0.99	0.33
199	32.64	1.97	0.86	1.11	0.91	0.46	1.40	0.33	0.99	0.33
200	32.81	1.98	0.87	1.12	0.91	0.46	1.40	0.33	0.99	0.33
201	32.97	1.99	0.87	1.12	0.91	0.46	1.40	0.33	0.99	0.33
202	33.14	2.00	0.88	1.13	0.91	0.46	1.40	0.33	0.99	0.33
203	33.30	2.01	0.88	1.13	0.90	0.46	1.40	0.33	0.98	0.33
204	33.46	2.02	0.89	1.13	0.90	0.46	1.40	0.33	0.98	0.33
205	33.63	2.03	0.89	1.14	0.90	0.46	1.40	0.33	0.98	0.33
206	33.79	2.04	0.90	1.14	0.90	0.46	1.40	0.33	0.98	0.33
207	33.96	2.05	0.90	1.15	0.90	0.46	1.40	0.33	0.98	0.33
208	34.12	2.06	0.91	1.15	0.90	0.46	1.40	0.33	0.98	0.33
209	34.28	2.07	0.91	1.16	0.90	0.46	1.40	0.33	0.98	0.33
210	34.45	2.08	0.92	1.16	0.89	0.46	1.40	0.33	0.98	0.33
211	34.61	2.09	0.92	1.17	0.89	0.46	1.40	0.33	0.98	0.33
212	34.78	2.10	0.93	1.17	0.89	0.46	1.40	0.33	0.98	0.33
213	34.94	2.11	0.93	1.18	0.89	0.46	1.40	0.33	0.98	0.33
214	35.10	2.12	0.94	1.18	0.89	0.46	1.40	0.33	0.98	0.33
215	35.27	2.13	0.94	1.19	0.89	0.46	1.40	0.33	0.97	0.33
216	35.43	2.14	0.95	1.19	0.89	0.46	1.40	0.33	0.97	0.33
217	35.60	2.15	0.96	1.20	0.89	0.46	1.40	0.33	0.97	0.33
218	35.76	2.16	0.96	1.20	0.88	0.45	1.40	0.33	0.97	0.33
219	35.93	2.17	0.97	1.21	0.88	0.45	1.40	0.33	0.97	0.33
220	36.09	2.18	0.97	1.21	0.88	0.45	1.40	0.32	0.97	0.33
221	36.25	2.19	0.98	1.22	0.88	0.45	1.40	0.32	0.97	0.33
222	36.42	2.20	0.98	1.22	0.88	0.45	1.40	0.32	0.97	0.33
223	36.58	2.21	0.99	1.23	0.88	0.45	1.40	0.32	0.97	0.33
224	36.75	2.22	0.99	1.23	0.88	0.45	1.40	0.32	0.97	0.33
225	36.91	2.23	1.00	1.24	0.87	0.45	1.40	0.32	0.97	0.33
226	37.07	2.24	1.00	1.24	0.87	0.45	1.40	0.32	0.97	0.33
227	37.24	2.25	1.01	1.25	0.87	0.45	1.40	0.32	0.97	0.33
228	37.40	2.26	1.01	1.25	0.87	0.45	1.40	0.32	0.96	0.33
229	37.57	2.27	1.02	1.25	0.87	0.45	1.40	0.32	0.96	0.33
230	37.73	2.28	1.02	1.26	0.87	0.45	1.40	0.32	0.96	0.33
231	37.89	2.29	1.03	1.26	0.87	0.45	1.40	0.32	0.96	0.33
232	38.06	2.30	1.03	1.27	0.87	0.45	1.40	0.32	0.96	0.33
233	38.22	2.31	1.04	1.27	0.86	0.45	1.40	0.32	0.96	0.33
234	38.39	2.32	1.04	1.28	0.86	0.45	1.40	0.32	0.96	0.33
235	38.55	2.33	1.05	1.28	0.86	0.45	1.40	0.32	0.96	0.33

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
236	38.71	2.34	1.05	1.29	0.86	0.45	1.40	0.32	0.96	0.33
237	38.88	2.35	1.06	1.29	0.86	0.45	1.40	0.32	0.96	0.33
238	39.04	2.36	1.06	1.30	0.86	0.45	1.40	0.32	0.96	0.33
239	39.21	2.37	1.07	1.30	0.86	0.45	1.40	0.32	0.96	0.33
240	39.37	2.38	1.07	1.31	0.85	0.44	1.40	0.32	0.96	0.33
241	39.53	2.39	1.08	1.31	0.85	0.44	1.40	0.32	0.96	0.33
242	39.70	2.40	1.08	1.32	0.85	0.44	1.40	0.32	0.95	0.33
243	39.86	2.41	1.09	1.32	0.85	0.44	1.40	0.32	0.95	0.33
244	40.03	2.42	1.09	1.33	0.85	0.44	1.40	0.32	0.95	0.33
245	40.19	2.43	1.10	1.33	0.85	0.44	1.40	0.32	0.95	0.33
246	40.35	2.44	1.10	1.34	0.85	0.44	1.40	0.32	0.95	0.33
247	40.52	2.45	1.11	1.34	0.85	0.44	1.40	0.32	0.95	0.33
248	40.68	2.46	1.11	1.35	0.84	0.44	1.40	0.32	0.95	0.33
249	40.85	2.47	1.12	1.35	0.84	0.44	1.40	0.32	0.95	0.33
250	41.01	2.48	1.12	1.36	0.84	0.44	1.40	0.31	0.95	0.33
251	41.17	2.49	1.13	1.36	0.84	0.44	1.40	0.31	0.95	0.33
252	41.34	2.50	1.13	1.37	0.84	0.44	1.40	0.31	0.95	0.33
253	41.50	2.51	1.14	1.37	0.84	0.44	1.40	0.31	0.95	0.33
254	41.67	2.52	1.14	1.37	0.84	0.44	1.40	0.31	0.95	0.33
255	41.83	2.53	1.15	1.38	0.83	0.44	1.40	0.31	0.95	0.33
256	41.99	2.54	1.15	1.38	0.83	0.44	1.40	0.31	0.95	0.33
257	42.16	2.55	1.16	1.39	0.83	0.44	1.40	0.31	0.94	0.33
258	42.32	2.56	1.17	1.39	0.83	0.44	1.40	0.31	0.94	0.33
259	42.49	2.57	1.17	1.40	0.83	0.44	1.40	0.31	0.94	0.33
260	42.65	2.58	1.18	1.40	0.83	0.44	1.40	0.31	0.94	0.33
261	42.81	2.59	1.18	1.41	0.83	0.43	1.40	0.31	0.94	0.33
262	42.98	2.60	1.19	1.41	0.83	0.43	1.40	0.31	0.94	0.33
263	43.14	2.61	1.19	1.42	0.82	0.43	1.40	0.31	0.94	0.33
264	43.31	2.62	1.20	1.42	0.82	0.43	1.40	0.31	0.94	0.33
265	43.47	2.63	1.20	1.43	0.82	0.43	1.40	0.31	0.94	0.33
266	43.64	2.64	1.21	1.43	0.82	0.43	1.40	0.31	0.94	0.33
267	43.80	2.65	1.21	1.44	0.82	0.43	1.40	0.31	0.94	0.33
268	43.96	2.66	1.22	1.44	0.82	0.43	1.40	0.31	0.94	0.33
269	44.13	2.67	1.22	1.45	0.82	0.43	1.40	0.31	0.94	0.33
270	44.29	2.68	1.23	1.45	0.81	0.43	1.40	0.31	0.94	0.33
271	44.46	2.69	1.23	1.46	0.81	0.43	1.40	0.31	0.94	0.33
272	44.62	2.70	1.24	1.46	0.81	0.43	1.40	0.31	0.94	0.33
273	44.78	2.71	1.24	1.47	0.81	0.43	1.40	0.31	0.93	0.33
274	44.95	2.72	1.25	1.47	0.81	0.43	1.40	0.31	0.93	0.33
275	45.11	2.73	1.25	1.48	0.81	0.43	1.40	0.31	0.93	0.33
276	45.28	2.74	1.26	1.48	0.81	0.43	1.40	0.31	0.93	0.33
277	45.44	2.75	1.26	1.48	0.81	0.43	1.40	0.30	0.93	0.33
278	45.60	2.76	1.27	1.49	0.80	0.43	1.40	0.30	0.93	0.33
279	45.77	2.77	1.27	1.49	0.80	0.42	1.40	0.30	0.93	0.33
280	45.93	2.78	1.28	1.50	0.80	0.42	1.40	0.30	0.93	0.33
281	46.10	2.79	1.28	1.50	0.80	0.42	1.40	0.30	0.93	0.33
282	46.26	2.80	1.29	1.51	0.80	0.42	1.40	0.30	0.93	0.33
283	46.42	2.81	1.29	1.51	0.80	0.42	1.40	0.30	0.93	0.33
284	46.59	2.82	1.30	1.52	0.80	0.42	1.40	0.30	0.93	0.33
285	46.75	2.83	1.30	1.52	0.79	0.42	1.40	0.30	0.93	0.33
286	46.92	2.84	1.31	1.53	0.79	0.42	1.40	0.30	0.93	0.33
287	47.08	2.85	1.31	1.53	0.79	0.42	1.40	0.30	0.93	0.32
288	47.24	2.86	1.32	1.54	0.79	0.42	1.40	0.30	0.93	0.32
289	47.41	2.87	1.32	1.54	0.79	0.42	1.40	0.30	0.92	0.32
290	47.57	2.88	1.33	1.55	0.79	0.42	1.40	0.30	0.92	0.32

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) (continued) ::

Point ID	Depth (ft)	Sigma (tsf)	u (tsf)	Sigma' (tsf)		CSR	MSF			
291	47.74	2.89	1.33	1.55	0.79	0.42	1.40	0.30	0.92	0.32
292	47.90	2.90	1.34	1.56	0.79	0.42	1.40	0.30	0.92	0.32
293	48.06	2.91	1.34	1.56	0.78	0.42	1.40	0.30	0.92	0.32
294	48.23	2.92	1.35	1.57	0.78	0.42	1.40	0.30	0.92	0.32
295	48.39	2.93	1.35	1.57	0.78	0.42	1.40	0.30	0.92	0.32
296	48.56	2.94	1.36	1.58	0.78	0.42	1.40	0.30	0.92	0.32
297	48.72	2.95	1.36	1.58	0.78	0.41	1.40	0.30	0.92	0.32
298	48.88	2.96	1.37	1.59	0.78	0.41	1.40	0.30	0.92	0.32
299	49.05	2.97	1.38	1.59	0.78	0.41	1.40	0.30	0.92	0.32
300	49.21	2.98	1.38	1.60	0.77	0.41	1.40	0.30	0.92	0.32
301	49.38	2.99	1.39	1.60	0.77	0.41	1.40	0.30	0.92	0.32
302	49.54	3.00	1.39	1.60	0.77	0.41	1.40	0.29	0.92	0.32
303	49.70	3.00	1.40	1.61	0.77	0.41	1.40	0.29	0.92	0.32
304	49.87	3.02	1.40	1.61	0.77	0.41	1.40	0.29	0.92	0.32
305	50.03	3.02	1.41	1.62	0.77	0.41	1.40	0.29	0.92	0.32
306	50.20	3.04	1.41	1.62	0.77	0.41	1.40	0.29	0.92	0.32

Depth from free surface, at which CPT was performed (ft)
Total overburden pressure at test point, during earthquake (tsf)
Water pressure at test point, during earthquake (tsf)
Effective overburden pressure, during earthquake (tsf)
Nonlinear shear mass factor
Cyclic Stress Ratio
Magnitude Scaling Factor
CSR adjusted for M=7.5
Effective overburden stress factor
CSR fully adjusted

Point ID			F (%)	n				
1	5.56	2.39	6.35	0.72	157.48	2.27	357.76	2.00
2	9.72	2.35	5.72	0.72	157.59	2.13	334.92	2.00
3	9.68	2.43	6.17	0.74	128.04	2.43	311.47	2.00
4	8.69	2.52	6.80	0.77	100.90	2.89	291.12	2.00
5	7.75	2.60	7.25	0.79	81.54	3.32	270.92	2.00
6	8.08	2.60	6.64	0.79	73.58	3.30	243.13	2.00
7	8.37	2.61	6.43	0.79	67.74	3.30	223.82	2.00
8	9.05	2.63	6.80	0.80	67.11	3.30	221.76	2.00
9	9.40	2.64	6.66	0.80	63.26	3.30	209.02	2.00
10	10.86	2.63	6.90	0.80	67.21	3.30	222.09	2.00
11	12.51	2.60	6.48	0.79	70.32	3.30	232.35	2.00
12	15.78	2.58	6.88	0.78	81.71	3.21	262.29	2.00
13	18.41	2.55	6.74	0.77	88.25	3.05	269.53	2.00
14	17.11	2.61	7.26	0.79	79.70	3.05	243.42	2.00
15	15.26	2.65	7.32	0.80	68.95	3.05	210.59	2.00
16	14.81	2.62	6.30	0.79	62.68	3.05	191.42	2.00
17	14.23	2.61	5.66	0.79	56.96	3.05	173.97	2.00
18	13.05	2.65	5.71	0.80	50.84	3.05	155.28	2.00
19	11.10	2.71	5.80	0.82	42.45	3.05	129.65	2.00
20	9.29	2.78	6.18	0.84	35.26	3.05	107.69	2.00
21	7.53	2.86	6.41	0.87	28.33	3.05	86.52	2.00
22	6.72	2.89	6.18	0.88	24.51	3.05	74.87	2.00
23	5.79	2.95	6.20	0.89	20.70	3.05	63.22	2.00
24	5.45	2.97	5.94	0.90	18.80	3.05	57.41	2.00
25	4.85	2.98	5.32	0.90	16.14	3.05	49.29	2.00
26	3.79	3.10	6.01	0.94	12.57	3.05	38.39	2.00
27	3.77	3.09	5.34	0.93	11.94	3.05	36.47	2.00

Point ID			F (%)	n				
28	3.24	3.16	5.62	0.96	10.07	3.05	30.75	2.00
29	3.26	3.09	3.99	0.93	9.48	3.05	28.96	2.00
30	2.93	3.20	5.33	0.97	8.51	3.05	25.98	2.00
31	3.42	3.10	4.10	0.94	9.45	3.05	28.87	2.00
32	3.10	3.12	3.78	0.94	8.39	3.05	25.64	2.00
33	3.15	3.14	4.15	0.95	8.46	3.05	25.83	2.00
34	4.01	3.06	4.11	0.93	10.53	3.05	32.15	2.00
35	3.53	3.14	4.68	0.95	9.26	3.05	28.29	2.00
36	3.19	3.17	4.45	0.96	8.21	3.05	25.06	2.00
37	3.02	3.20	4.61	0.97	7.67	3.05	23.41	2.00
38	3.17	3.15	3.94	0.95	7.84	3.05	23.94	2.00
39	3.15	3.18	4.41	0.96	7.73	3.05	23.61	2.00
40	3.67	3.13	4.32	0.95	8.88	3.05	27.13	2.00
41	3.98	3.10	4.12	0.94	9.46	3.05	28.90	2.00
42	3.69	3.17	5.03	0.96	8.78	3.05	26.80	2.00
43	4.39	3.11	4.79	0.94	10.28	3.05	31.38	2.00
44	4.73	3.08	4.67	0.93	10.90	3.05	33.28	2.00
45	4.70	3.11	5.09	0.94	10.76	3.05	32.86	2.00
46	5.03	3.11	5.44	0.94	11.42	3.05	34.87	2.00
47	5.07	3.10	5.22	0.94	11.33	3.05	34.60	2.00
48	4.78	3.12	5.17	0.94	10.54	3.05	32.19	2.00
49	4.59	3.11	4.59	0.94	9.90	3.05	30.24	2.00
50	4.38	3.12	4.35	0.94	9.29	3.05	28.37	2.00
51	4.46	3.10	4.01	0.94	9.29	3.05	28.37	2.00
52	4.63	3.09	4.06	0.94	9.54	3.05	29.15	2.00
53	4.58	3.11	4.22	0.94	9.35	3.05	28.55	2.00
54	4.17	3.16	4.59	0.96	8.42	3.05	25.71	2.00
55	4.49	3.14	4.46	0.95	8.97	3.05	27.39	2.00
56	4.44	3.06	3.05	0.93	8.55	3.05	26.12	2.00
57	4.42	3.15	4.44	0.95	8.61	3.05	26.28	2.00
58	4.51	3.19	5.39	0.97	8.79	3.05	26.86	2.00
59	5.09	3.09	4.23	0.94	9.71	3.05	29.65	2.00
60	4.77	3.25	7.01	0.98	9.26	3.05	28.28	2.00
61	4.26	3.29	7.04	1.00	8.11	3.05	24.77	2.00
62	4.64	3.20	5.53	0.97	8.65	3.05	26.42	2.00
63	4.57	3.16	4.43	0.96	8.31	3.05	25.37	2.00
64	4.72	3.17	4.71	0.96	8.53	3.05	26.04	2.00
65	5.53	3.02	3.15	0.91	9.74	3.05	29.76	2.00
66	4.92	3.16	4.78	0.96	8.72	3.05	26.63	2.00
67	6.91	2.98	3.71	0.90	12.13	3.05	37.03	2.00
68	7.06	2.94	3.16	0.89	12.17	3.05	37.17	2.00
69	6.71	3.01	3.83	0.91	11.55	3.05	35.29	2.00
70	5.80	3.15	5.43	0.95	10.02	3.05	30.60	2.00
71	5.82	3.16	5.60	0.96	9.96	3.05	30.43	2.00
72	7.63	3.12	6.81	0.94	13.23	3.05	40.42	2.00
73	9.51	2.97	5.09	0.90	16.13	3.05	49.27	2.00
74	14.89	2.67	2.82	0.81	24.17	3.05	73.83	2.00
75	12.40	2.72	2.63	0.82	19.96	3.05	60.95	2.00
76	6.98	3.03	4.04	0.92	11.28	3.05	34.47	2.00
77	5.54	3.15	4.60	0.95	8.80	3.05	26.88	2.00
78	6.01	3.13	4.70	0.95	9.52	3.05	29.08	2.00
79	7.16	3.08	4.94	0.93	11.39	3.05	34.78	2.00
80	7.58	3.08	5.34	0.93	12.03	3.05	36.73	2.00
81	7.33	3.09	5.13	0.93	11.48	3.05	35.06	2.00
82	6.88	3.09	4.63	0.93	10.59	3.05	32.33	2.00

Point ID			F (%)	n				
83	6.58	3.09	4.31	0.94	9.96	3.05	30.43	2.00
84	6.90	3.05	3.89	0.92	10.34	3.05	31.59	2.00
85	7.05	3.10	4.86	0.94	10.60	3.05	32.37	2.00
86	7.88	3.07	4.97	0.93	11.83	3.05	36.13	2.00
87	8.48	3.05	5.15	0.92	12.69	3.05	38.77	2.00
88	9.43	2.99	4.64	0.91	14.00	3.05	42.74	2.00
89	10.54	2.96	4.63	0.90	15.58	3.05	47.59	2.00
90	10.54	3.00	5.32	0.91	15.56	3.05	47.52	2.00
91	10.83	3.00	5.53	0.91	15.90	3.05	48.55	2.00
92	11.80	2.95	5.04	0.89	17.16	3.05	52.42	2.00
93	10.33	3.03	5.81	0.92	14.93	3.05	45.60	2.00
94	8.63	3.14	6.81	0.95	12.34	3.05	37.70	2.00
95	7.49	3.19	6.68	0.97	10.50	3.05	32.08	2.00
96	6.41	3.26	7.04	0.99	8.79	3.05	26.84	2.00
97	5.81	3.30	6.89	1.00	7.79	3.05	23.79	2.00
98	5.14	3.34	6.59	1.00	6.65	3.05	20.32	2.00
99	4.88	3.36	6.40	1.00	6.18	3.05	18.86	2.00
100	5.24	3.30	5.75	1.00	6.68	3.05	20.41	2.00
101	5.65	3.30	6.38	1.00	7.25	3.05	22.15	2.00
102	7.36	3.15	5.17	0.95	9.62	3.05	29.37	2.00
103	8.84	2.99	3.53	0.90	11.49	3.05	35.09	2.00
104	9.11	3.05	4.75	0.92	11.90	3.05	36.36	2.00
105	12.83	2.88	3.86	0.87	16.85	3.05	51.46	2.00
106	10.67	2.99	4.48	0.90	13.86	3.05	42.32	2.00
107	8.67	3.05	4.22	0.92	10.98	3.05	33.55	2.00
108	7.14	3.13	4.31	0.95	8.80	3.05	26.86	2.00
109	5.74	3.28	5.32	0.99	6.83	3.05	20.87	2.00
110	5.59	3.32	5.90	1.00	6.58	3.05	20.09	2.00
111	5.67	3.36	7.11	1.00	6.63	3.05	20.26	2.00
112	8.00	3.23	7.08	0.98	9.84	3.05	30.05	2.00
113	6.78	3.38	9.81	1.00	8.10	3.05	24.74	2.00
114	9.51	3.13	6.22	0.95	11.68	3.05	35.66	2.00
115	9.75	3.15	6.72	0.95	11.94	3.05	36.47	2.00
116	11.50	3.07	6.08	0.93	14.12	3.05	43.14	2.00
117	11.79	3.09	6.83	0.94	14.46	3.05	44.17	2.00
118	12.74	3.07	6.85	0.93	15.60	3.05	47.64	2.00
119	13.73	3.04	6.82	0.92	16.77	3.05	51.23	2.00
120	14.31	3.02	6.54	0.91	17.38	3.05	53.08	2.00
121	15.09	3.00	6.35	0.91	18.25	3.05	55.73	2.00
122	14.17	3.01	6.08	0.91	16.95	3.05	51.76	2.00
123	11.49	3.06	5.63	0.93	13.42	3.05	40.99	2.00
124	8.89	3.17	5.78	0.96	10.06	3.05	30.71	2.00
125	9.93	3.09	5.03	0.93	11.25	3.05	34.37	2.00
126	10.63	3.12	6.09	0.94	12.11	3.05	36.99	2.00
127	13.61	2.96	4.65	0.90	15.62	3.05	47.70	2.00
128	10.19	3.15	6.29	0.95	11.41	3.05	34.85	2.00
129	9.44	3.21	7.03	0.97	10.43	3.05	31.87	2.00
130	16.45	2.85	3.96	0.86	18.68	3.05	57.05	2.00
131	16.17	2.85	3.78	0.86	18.22	3.05	55.65	2.00
132	10.46	3.14	6.26	0.95	11.43	3.05	34.92	2.00
133	8.73	3.22	6.35	0.97	9.26	3.05	28.29	2.00
134	7.86	3.26	6.30	0.99	8.14	3.05	24.87	2.00
135	7.74	3.22	5.16	0.97	7.90	3.05	24.14	2.00
136	7.55	3.25	5.64	0.98	7.64	3.05	23.32	2.00
137	7.86	3.24	5.61	0.98	7.95	3.05	24.28	2.00

Point ID			F (%)	n				
138	8.47	3.19	5.18	0.96	8.60	3.05	26.27	2.00
139	7.13	3.32	6.38	1.00	6.99	3.05	21.34	2.00
140	6.21	3.43	7.71	1.00	5.82	3.05	17.78	2.00
141	7.97	3.27	6.18	0.99	7.87	3.05	24.04	2.00
142	8.26	3.24	5.78	0.98	8.14	3.05	24.87	2.00
143	7.18	3.32	6.26	1.00	6.84	3.05	20.89	2.00
144	7.80	3.25	5.40	0.98	7.49	3.05	22.89	2.00
145	9.96	3.10	4.40	0.94	9.87	3.05	30.16	2.00
146	11.60	3.05	4.51	0.92	11.67	3.05	35.64	2.00
147	12.26	3.02	4.30	0.91	12.33	3.05	37.66	2.00
148	15.38	2.92	4.14	0.88	15.72	3.05	48.00	2.00
149	18.01	2.89	4.56	0.88	18.56	3.05	56.68	2.00
150	21.53	2.88	5.42	0.87	22.38	3.05	68.37	2.00
151	22.75	2.86	5.35	0.87	23.60	3.05	72.08	2.00
152	22.82	2.87	5.40	0.87	23.56	3.05	71.96	2.00
153	24.58	2.84	5.27	0.86	25.34	3.05	77.38	2.00
154	24.58	2.84	5.40	0.86	25.22	3.05	77.03	2.00
155	22.83	2.89	5.68	0.87	23.23	3.05	70.94	2.00
156	21.08	2.94	6.22	0.89	21.26	3.05	64.94	2.00
157	18.69	2.99	6.43	0.91	18.60	3.05	56.80	2.00
158	17.06	3.05	6.91	0.92	16.77	3.05	51.22	2.00
159	18.68	2.97	5.95	0.90	18.37	3.05	56.12	2.00
160	18.02	2.99	6.02	0.91	17.58	3.05	53.69	2.00
161	15.79	3.08	6.81	0.93	15.16	3.05	46.30	2.00
162	14.58	3.13	7.35	0.95	13.82	3.05	42.20	2.00
163	15.86	3.05	6.29	0.92	15.06	3.05	45.99	2.00
164	15.77	3.03	5.67	0.92	14.87	3.05	45.42	2.00
165	14.53	3.01	4.76	0.91	13.49	3.05	41.19	2.00
166	14.02	3.04	4.91	0.92	12.89	3.05	39.37	2.00
167	15.94	2.96	4.36	0.90	14.78	3.05	45.14	2.00
168	15.18	3.03	5.32	0.92	13.95	3.05	42.60	2.00
169	17.13	2.95	4.68	0.89	15.85	3.05	48.41	2.00
170	18.40	2.96	5.21	0.90	17.07	3.05	52.13	2.00
171	21.56	2.88	4.85	0.87	20.18	3.05	61.63	2.00
172	20.10	2.97	6.00	0.90	18.63	3.05	56.91	2.00
173	22.68	2.88	5.06	0.87	21.11	3.05	64.48	2.00
174	17.18	3.02	5.79	0.91	15.53	3.05	47.42	2.00
175	14.74	3.09	5.99	0.93	13.02	3.05	39.75	2.00
176	15.86	3.10	6.85	0.94	14.07	3.05	42.97	2.00
177	17.73	3.07	7.14	0.93	15.84	3.05	48.39	2.00
178	21.02	2.95	5.71	0.89	19.00	3.05	58.03	2.00
179	20.97	2.92	5.04	0.88	18.86	3.05	57.60	2.00
180	20.22	2.91	4.72	0.88	18.03	3.05	55.08	2.00
181	21.72	2.92	5.25	0.88	19.41	3.05	59.29	2.00
182	24.24	2.91	5.71	0.88	21.76	3.05	66.47	2.00
183	27.54	2.88	5.91	0.87	24.85	3.05	75.90	2.00
184	30.88	2.81	5.42	0.85	27.95	3.05	85.38	2.00
185	29.93	2.79	4.81	0.84	26.92	3.05	82.22	2.00
186	31.20	2.76	4.48	0.83	28.02	3.05	85.59	2.00
187	31.81	2.77	4.83	0.84	28.48	3.05	86.99	2.00
188	30.41	2.79	4.91	0.85	27.04	3.05	82.58	2.00
189	28.93	2.82	5.04	0.85	25.53	3.05	77.97	2.00
190	29.88	2.84	5.65	0.86	26.31	3.05	80.34	2.00
191	33.23	2.82	5.74	0.85	29.34	3.05	89.61	2.00
192	30.69	2.85	5.83	0.86	26.84	3.05	81.97	2.00

Point ID			F (%)	n				
193	24.02	2.92	5.60	0.88	20.52	3.05	62.67	2.00
194	21.98	2.90	4.64	0.88	18.55	3.05	56.66	2.00
195	22.23	2.89	4.46	0.87	18.70	3.05	57.12	2.00
196	27.59	2.89	5.94	0.88	23.54	3.05	71.89	2.00
197	41.05	2.71	4.90	0.82	35.84	3.05	109.48	2.00
198	33.14	2.85	6.25	0.86	28.41	3.05	86.78	2.00
199	25.25	2.96	6.53	0.90	21.10	3.05	64.44	2.00
200	20.83	3.03	6.70	0.92	16.99	3.05	51.89	2.00
201	21.27	3.05	7.23	0.92	17.31	3.05	52.85	2.00
202	31.79	2.84	5.60	0.86	26.75	3.05	81.71	2.00
203	33.71	2.85	6.20	0.86	28.36	3.05	86.61	2.00
204	34.86	2.78	5.08	0.84	29.33	3.05	89.57	2.00
205	27.32	2.86	5.06	0.87	22.45	3.05	68.58	2.00
206	26.27	2.87	5.00	0.87	21.43	3.05	65.45	2.00
207	25.45	2.96	6.41	0.90	20.57	3.05	62.81	2.00
208	29.48	2.94	7.16	0.89	24.02	3.05	73.37	2.00
209	46.95	2.72	5.58	0.82	39.45	3.05	120.50	2.00
210	61.34	2.54	4.13	0.77	52.22	2.97	154.89	0.43
211	61.05	2.62	5.31	0.79	51.65	2.97	153.20	2.00
212	49.82	2.72	5.97	0.82	41.51	2.97	123.12	2.00
213	45.70	2.82	7.51	0.86	37.66	2.97	111.68	2.00
214	53.09	2.71	6.06	0.82	44.07	2.97	130.71	2.00
215	43.62	2.79	6.38	0.84	35.64	2.97	105.71	2.00
216	42.88	2.74	5.30	0.83	34.95	2.97	103.67	2.00
217	33.98	2.95	8.05	0.89	26.98	2.97	80.03	2.00
218	27.42	3.07	9.56	0.93	21.23	2.97	62.96	2.00
219	33.64	2.89	6.69	0.88	26.55	2.97	78.74	2.00
220	27.71	2.92	5.82	0.88	21.44	2.97	63.60	2.00
221	27.04	2.91	5.41	0.88	20.81	2.97	61.73	2.00
222	24.32	2.97	5.83	0.90	18.41	2.97	54.59	2.00
223	23.29	2.98	5.73	0.90	17.47	2.97	51.82	2.00
224	20.97	3.02	5.84	0.92	15.45	2.97	45.82	2.00
225	19.69	3.05	5.85	0.92	14.32	2.97	42.47	2.00
226	18.31	3.09	5.97	0.93	13.10	2.97	38.86	2.00
227	17.68	3.09	5.68	0.93	12.53	2.97	37.17	2.00
228	16.59	3.14	6.37	0.95	11.56	2.97	34.29	2.00
229	15.91	3.14	5.83	0.95	10.97	2.97	32.53	2.00
230	29.96	2.80	4.07	0.85	22.62	2.97	67.08	2.00
231	22.64	3.03	6.30	0.92	16.36	2.97	48.52	2.00
232	23.90	2.96	5.33	0.90	17.37	2.97	51.52	2.00
233	18.98	3.05	5.28	0.92	13.30	2.97	39.43	2.00
234	17.65	3.08	5.36	0.93	12.15	2.97	36.04	2.00
235	15.90	3.15	5.97	0.95	10.67	2.97	31.65	2.00
236	16.53	3.13	5.72	0.95	11.14	2.97	33.03	2.00
237	19.85	3.02	5.05	0.91	13.79	2.97	40.89	2.00
238	19.26	3.08	5.98	0.93	13.22	2.97	39.20	2.00
239	17.94	3.12	6.15	0.94	12.10	2.97	35.88	2.00
240	18.49	3.06	5.24	0.93	12.52	2.97	37.14	2.00
241	21.50	2.98	4.79	0.90	14.90	2.97	44.18	2.00
242	25.48	2.92	4.86	0.88	18.00	2.97	53.39	2.00
243	26.44	2.97	5.86	0.90	18.63	2.97	55.25	2.00
244	27.46	2.93	5.46	0.89	19.39	2.97	57.52	2.00
245	26.86	2.94	5.41	0.89	18.85	2.97	55.91	2.00
246	25.33	2.96	5.34	0.90	17.58	2.97	52.15	2.00
247	24.37	2.96	5.10	0.90	16.78	2.97	49.77	2.00

Point ID			F (%)	n				
248	25.83	2.92	4.82	0.88	17.88	2.97	53.04	2.00
249	27.40	2.93	5.33	0.89	19.00	2.97	56.36	2.00
250	29.78	2.89	5.19	0.88	20.81	2.97	61.71	2.00
251	29.01	2.92	5.41	0.88	20.11	2.97	59.66	2.00
252	30.45	2.88	5.13	0.87	21.18	2.97	62.83	2.00
253	27.86	2.92	5.09	0.88	19.11	2.97	56.68	2.00
254	27.37	2.91	4.84	0.88	18.68	2.97	55.41	2.00
255	28.04	2.89	4.73	0.88	19.15	2.97	56.78	2.00
256	28.63	2.89	4.79	0.88	19.53	2.97	57.92	2.00
257	28.21	2.87	4.41	0.87	19.17	2.97	56.87	2.00
258	29.34	2.83	3.98	0.86	20.03	2.97	59.40	2.00
259	29.68	2.82	3.82	0.85	20.24	2.97	60.02	2.00
260	31.35	2.81	4.01	0.85	21.43	2.97	63.55	2.00
261	33.87	2.81	4.45	0.85	23.22	2.97	68.87	2.00
262	33.15	2.84	4.79	0.86	22.55	2.97	66.88	2.00
263	31.56	2.87	4.82	0.87	21.27	2.97	63.07	2.00
264	28.71	2.91	4.89	0.88	19.04	2.97	56.46	2.00
265	26.41	2.94	4.92	0.89	17.25	2.97	51.15	2.00
266	27.68	2.94	5.23	0.89	18.10	2.97	53.69	2.00
267	33.86	2.81	4.31	0.85	22.78	2.97	67.55	2.00
268	34.28	2.87	5.28	0.87	22.89	2.97	67.88	2.00
269	39.27	2.84	5.65	0.86	26.48	2.97	78.53	2.00
270	58.08	2.59	3.90	0.79	40.96	3.29	134.93	0.31
271	41.57	2.81	5.41	0.85	28.05	3.29	92.41	2.00
272	45.46	2.73	4.54	0.83	31.03	3.29	102.22	2.00
273	39.77	2.85	5.71	0.86	26.50	3.29	87.31	2.00
274	40.00	2.81	5.08	0.85	26.68	3.29	87.90	2.00
275	41.71	2.80	5.10	0.85	27.86	3.29	91.78	2.00
276	36.11	2.87	5.56	0.87	23.59	3.29	77.71	2.00
277	34.37	2.86	5.02	0.87	22.32	3.29	73.53	2.00
278	33.77	2.87	4.96	0.87	21.82	3.29	71.89	2.00
279	36.69	2.84	4.97	0.86	23.87	3.29	78.65	2.00
280	37.72	2.85	5.27	0.86	24.50	3.29	80.72	2.00
281	38.32	2.82	4.97	0.86	24.90	3.29	82.05	2.00
282	37.24	2.82	4.77	0.85	24.08	3.29	79.33	2.00
283	34.90	2.89	5.42	0.87	22.22	3.29	73.21	2.00
284	34.10	2.90	5.54	0.88	21.56	3.29	71.03	2.00
285	30.48	2.94	5.53	0.89	18.92	3.29	62.32	2.00
286	29.31	2.93	5.06	0.89	18.08	3.29	59.57	2.00
287	26.44	2.99	5.35	0.90	15.97	3.29	52.60	2.00
288	24.06	3.05	5.86	0.92	14.20	3.29	46.79	2.00
289	23.75	3.12	7.25	0.94	13.84	3.29	45.58	2.00
290	30.89	3.02	7.20	0.92	18.72	3.29	61.67	2.00
291	95.71	2.26	2.19	0.69	67.71	1.84	124.41	0.26
292	155.70	2.00	1.57	0.61	114.81	1.30	149.08	0.39
293	203.84	1.93	1.63	0.59	152.02	1.21	184.65	2.00
294	222.33	1.94	1.83	0.59	165.42	1.23	203.30	2.00
295	229.07	1.91	1.74	0.58	170.72	1.20	205.38	2.00
296	227.16	2.03	2.40	0.62	166.57	1.34	223.39	2.00
297	182.26	2.27	3.97	0.69	129.03	1.86	239.75	2.00
298	96.93	2.65	6.89	0.80	64.39	1.86	119.65	2.00
299	58.51	2.81	7.18	0.85	37.16	1.86	69.06	2.00
300	48.34	2.81	5.88	0.85	30.28	1.86	56.26	2.00
301	35.95	2.97	7.05	0.90	21.50	1.86	39.94	2.00
302	29.36	3.05	6.99	0.92	16.99	1.86	31.57	2.00

Point ID			F (%)	n				
303	29.63	2.98	5.63	0.90	17.26	1.86	32.08	2.00
304	27.64	2.99	5.25	0.90	15.91	1.86	29.56	2.00
305	26.63	3.00	5.21	0.91	15.18	1.86	28.21	2.00
306	25.98	3.04	5.70	0.92	14.65	1.86	27.22	2.00

:: Settlements calculation for saturated sands ::

Point ID					Settle. (in)
1	5.56	357.76	5.00	0.00	0.00
2	9.72	334.92	5.00	0.00	0.00
3	9.68	311.47	5.00	0.00	0.00
4	8.69	291.12	5.00	0.00	0.00
5	7.75	270.92	5.00	0.00	0.00
6	8.08	243.13	5.00	0.00	0.00
7	8.37	223.82	5.00	0.00	0.00
8	9.05	221.76	5.00	0.00	0.00
9	9.40	209.02	5.00	0.00	0.00
10	10.86	222.09	5.00	0.00	0.00
11	12.51	232.35	5.00	0.00	0.00
12	15.78	262.29	5.00	0.00	0.00
13	18.41	269.53	5.00	0.00	0.00
14	17.11	243.42	5.00	0.00	0.00
15	15.26	210.59	5.00	0.00	0.00
16	14.81	191.42	5.00	0.00	0.00
17	14.23	173.97	5.00	0.00	0.00
18	13.05	155.28	5.00	0.00	0.00
19	11.10	129.65	5.00	0.00	0.00
20	9.29	107.69	5.00	0.00	0.00
21	7.53	86.52	5.00	0.00	0.00
22	6.72	74.87	5.00	0.00	0.00
23	5.79	63.22	5.00	0.00	0.00
24	5.45	57.41	5.00	0.00	0.00
25	4.85	49.29	5.00	0.00	0.00
26	3.79	38.39	5.00	0.00	0.00
27	3.77	36.47	5.00	0.00	0.00
28	3.24	30.75	5.00	0.00	0.00
29	3.26	28.96	5.00	0.00	0.00
30	2.93	25.98	5.00	0.00	0.00
31	3.42	28.87	5.00	0.00	0.00
32	3.10	25.64	5.00	0.00	0.00
33	3.15	25.83	5.00	0.00	0.00
34	4.01	32.15	5.00	0.00	0.00
35	3.53	28.29	5.00	0.00	0.00
36	3.19	25.06	5.00	0.00	0.00
37	3.02	23.41	5.00	0.00	0.00
38	3.17	23.94	5.00	0.00	0.00
39	3.15	23.61	5.00	0.00	0.00
40	3.67	27.13	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
41	3.98	28.90	5.00	0.00	0.00
42	3.69	26.80	5.00	0.00	0.00
43	4.39	31.38	5.00	0.00	0.00
44	4.73	33.28	5.00	0.00	0.00
45	4.70	32.86	5.00	0.00	0.00
46	5.03	34.87	5.00	0.00	0.00
47	5.07	34.60	5.00	0.00	0.00
48	4.78	32.19	5.00	0.00	0.00
49	4.59	30.24	5.00	0.00	0.00
50	4.38	28.37	5.00	0.00	0.00
51	4.46	28.37	5.00	0.00	0.00
52	4.63	29.15	5.00	0.00	0.00
53	4.58	28.55	5.00	0.00	0.00
54	4.17	25.71	5.00	0.00	0.00
55	4.49	27.39	5.00	0.00	0.00
56	4.44	26.12	5.00	0.00	0.00
57	4.42	26.28	5.00	0.00	0.00
58	4.51	26.86	5.00	0.00	0.00
59	5.09	29.65	5.00	0.00	0.00
60	4.77	28.28	5.00	0.00	0.00
61	4.26	24.77	5.00	0.00	0.00
62	4.64	26.42	5.00	0.00	0.00
63	4.57	25.37	5.00	0.00	0.00
64	4.72	26.04	5.00	0.00	0.00
65	5.53	29.76	5.00	0.00	0.00
66	4.92	26.63	5.00	0.00	0.00
67	6.91	37.03	5.00	0.00	0.00
68	7.06	37.17	5.00	0.00	0.00
69	6.71	35.29	5.00	0.00	0.00
70	5.80	30.60	5.00	0.00	0.00
71	5.82	30.43	5.00	0.00	0.00
72	7.63	40.42	5.00	0.00	0.00
73	9.51	49.27	5.00	0.00	0.00
74	14.89	73.83	5.00	0.00	0.00
75	12.40	60.95	5.00	0.00	0.00
76	6.98	34.47	5.00	0.00	0.00
77	5.54	26.88	5.00	0.00	0.00
78	6.01	29.08	5.00	0.00	0.00
79	7.16	34.78	5.00	0.00	0.00
80	7.58	36.73	5.00	0.00	0.00
81	7.33	35.06	5.00	0.00	0.00
82	6.88	32.33	5.00	0.00	0.00
83	6.58	30.43	5.00	0.00	0.00
84	6.90	31.59	5.00	0.00	0.00
85	7.05	32.37	5.00	0.00	0.00
86	7.88	36.13	5.00	0.00	0.00
87	8.48	38.77	5.00	0.00	0.00
88	9.43	42.74	5.00	0.00	0.00
89	10.54	47.59	5.00	0.00	0.00
90	10.54	47.52	5.00	0.00	0.00
91	10.83	48.55	5.00	0.00	0.00
92	11.80	52.42	5.00	0.00	0.00
93	10.33	45.60	5.00	0.00	0.00
94	8.63	37.70	5.00	0.00	0.00
95	7.49	32.08	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
96	6.41	26.84	5.00	0.00	0.00
97	5.81	23.79	5.00	0.00	0.00
98	5.14	20.32	5.00	0.00	0.00
99	4.88	18.86	5.00	0.00	0.00
100	5.24	20.41	5.00	0.00	0.00
101	5.65	22.15	5.00	0.00	0.00
102	7.36	29.37	5.00	0.00	0.00
103	8.84	35.09	5.00	0.00	0.00
104	9.11	36.36	5.00	0.00	0.00
105	12.83	51.46	5.00	0.00	0.00
106	10.67	42.32	5.00	0.00	0.00
107	8.67	33.55	5.00	0.00	0.00
108	7.14	26.86	5.00	0.00	0.00
109	5.74	20.87	5.00	0.00	0.00
110	5.59	20.09	5.00	0.00	0.00
111	5.67	20.26	5.00	0.00	0.00
112	8.00	30.05	5.00	0.00	0.00
113	6.78	24.74	5.00	0.00	0.00
114	9.51	35.66	5.00	0.00	0.00
115	9.75	36.47	5.00	0.00	0.00
116	11.50	43.14	5.00	0.00	0.00
117	11.79	44.17	5.00	0.00	0.00
118	12.74	47.64	5.00	0.00	0.00
119	13.73	51.23	5.00	0.00	0.00
120	14.31	53.08	5.00	0.00	0.00
121	15.09	55.73	5.00	0.00	0.00
122	14.17	51.76	5.00	0.00	0.00
123	11.49	40.99	5.00	0.00	0.00
124	8.89	30.71	5.00	0.00	0.00
125	9.93	34.37	5.00	0.00	0.00
126	10.63	36.99	5.00	0.00	0.00
127	13.61	47.70	5.00	0.00	0.00
128	10.19	34.85	5.00	0.00	0.00
129	9.44	31.87	5.00	0.00	0.00
130	16.45	57.05	5.00	0.00	0.00
131	16.17	55.65	5.00	0.00	0.00
132	10.46	34.92	5.00	0.00	0.00
133	8.73	28.29	5.00	0.00	0.00
134	7.86	24.87	5.00	0.00	0.00
135	7.74	24.14	5.00	0.00	0.00
136	7.55	23.32	5.00	0.00	0.00
137	7.86	24.28	5.00	0.00	0.00
138	8.47	26.27	5.00	0.00	0.00
139	7.13	21.34	5.00	0.00	0.00
140	6.21	17.78	5.00	0.00	0.00
141	7.97	24.04	5.00	0.00	0.00
142	8.26	24.87	5.00	0.00	0.00
143	7.18	20.89	5.00	0.00	0.00
144	7.80	22.89	5.00	0.00	0.00
145	9.96	30.16	5.00	0.00	0.00
146	11.60	35.64	5.00	0.00	0.00
147	12.26	37.66	5.00	0.00	0.00
148	15.38	48.00	5.00	0.00	0.00
149	18.01	56.68	5.00	0.00	0.00
150	21.53	68.37	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
151	22.75	72.08	5.00	0.00	0.00
152	22.82	71.96	5.00	0.00	0.00
153	24.58	77.38	5.00	0.00	0.00
154	24.58	77.03	5.00	0.00	0.00
155	22.83	70.94	5.00	0.00	0.00
156	21.08	64.94	5.00	0.00	0.00
157	18.69	56.80	5.00	0.00	0.00
158	17.06	51.22	5.00	0.00	0.00
159	18.68	56.12	5.00	0.00	0.00
160	18.02	53.69	5.00	0.00	0.00
161	15.79	46.30	5.00	0.00	0.00
162	14.58	42.20	5.00	0.00	0.00
163	15.86	45.99	5.00	0.00	0.00
164	15.77	45.42	5.00	0.00	0.00
165	14.53	41.19	5.00	0.00	0.00
166	14.02	39.37	5.00	0.00	0.00
167	15.94	45.14	5.00	0.00	0.00
168	15.18	42.60	5.00	0.00	0.00
169	17.13	48.41	5.00	0.00	0.00
170	18.40	52.13	5.00	0.00	0.00
171	21.56	61.63	5.00	0.00	0.00
172	20.10	56.91	5.00	0.00	0.00
173	22.68	64.48	5.00	0.00	0.00
174	17.18	47.42	5.00	0.00	0.00
175	14.74	39.75	5.00	0.00	0.00
176	15.86	42.97	5.00	0.00	0.00
177	17.73	48.39	5.00	0.00	0.00
178	21.02	58.03	5.00	0.00	0.00
179	20.97	57.60	5.00	0.00	0.00
180	20.22	55.08	5.00	0.00	0.00
181	21.72	59.29	5.00	0.00	0.00
182	24.24	66.47	5.00	0.00	0.00
183	27.54	75.90	5.00	0.00	0.00
184	30.88	85.38	5.00	0.00	0.00
185	29.93	82.22	5.00	0.00	0.00
186	31.20	85.59	5.00	0.00	0.00
187	31.81	86.99	5.00	0.00	0.00
188	30.41	82.58	5.00	0.00	0.00
189	28.93	77.97	5.00	0.00	0.00
190	29.88	80.34	5.00	0.00	0.00
191	33.23	89.61	5.00	0.00	0.00
192	30.69	81.97	5.00	0.00	0.00
193	24.02	62.67	5.00	0.00	0.00
194	21.98	56.66	5.00	0.00	0.00
195	22.23	57.12	5.00	0.00	0.00
196	27.59	71.89	5.00	0.00	0.00
197	41.05	109.48	5.00	0.00	0.00
198	33.14	86.78	5.00	0.00	0.00
199	25.25	64.44	5.00	0.00	0.00
200	20.83	51.89	5.00	0.00	0.00
201	21.27	52.85	5.00	0.00	0.00
202	31.79	81.71	5.00	0.00	0.00
203	33.71	86.61	5.00	0.00	0.00
204	34.86	89.57	5.00	0.00	0.00
205	27.32	68.58	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
206	26.27	65.45	5.00	0.00	0.00
207	25.45	62.81	5.00	0.00	0.00
208	29.48	73.37	5.00	0.00	0.00
209	46.95	120.50	5.00	0.00	0.00
210	61.34	154.89	1.27	0.21	0.00
211	61.05	153.20	5.00	0.00	0.00
212	49.82	123.12	5.00	0.00	0.00
213	45.70	111.68	5.00	0.00	0.00
214	53.09	130.71	5.00	0.00	0.00
215	43.62	105.71	5.00	0.00	0.00
216	42.88	103.67	5.00	0.00	0.00
217	33.98	80.03	5.00	0.00	0.00
218	27.42	62.96	5.00	0.00	0.00
219	33.64	78.74	5.00	0.00	0.00
220	27.71	63.60	5.00	0.00	0.00
221	27.04	61.73	5.00	0.00	0.00
222	24.32	54.59	5.00	0.00	0.00
223	23.29	51.82	5.00	0.00	0.00
224	20.97	45.82	5.00	0.00	0.00
225	19.69	42.47	5.00	0.00	0.00
226	18.31	38.86	5.00	0.00	0.00
227	17.68	37.17	5.00	0.00	0.00
228	16.59	34.29	5.00	0.00	0.00
229	15.91	32.53	5.00	0.00	0.00
230	29.96	67.08	5.00	0.00	0.00
231	22.64	48.52	5.00	0.00	0.00
232	23.90	51.52	5.00	0.00	0.00
233	18.98	39.43	5.00	0.00	0.00
234	17.65	36.04	5.00	0.00	0.00
235	15.90	31.65	5.00	0.00	0.00
236	16.53	33.03	5.00	0.00	0.00
237	19.85	40.89	5.00	0.00	0.00
238	19.26	39.20	5.00	0.00	0.00
239	17.94	35.88	5.00	0.00	0.00
240	18.49	37.14	5.00	0.00	0.00
241	21.50	44.18	5.00	0.00	0.00
242	25.48	53.39	5.00	0.00	0.00
243	26.44	55.25	5.00	0.00	0.00
244	27.46	57.52	5.00	0.00	0.00
245	26.86	55.91	5.00	0.00	0.00
246	25.33	52.15	5.00	0.00	0.00
247	24.37	49.77	5.00	0.00	0.00
248	25.83	53.04	5.00	0.00	0.00
249	27.40	56.36	5.00	0.00	0.00
250	29.78	61.71	5.00	0.00	0.00
251	29.01	59.66	5.00	0.00	0.00
252	30.45	62.83	5.00	0.00	0.00
253	27.86	56.68	5.00	0.00	0.00
254	27.37	55.41	5.00	0.00	0.00
255	28.04	56.78	5.00	0.00	0.00
256	28.63	57.92	5.00	0.00	0.00
257	28.21	56.87	5.00	0.00	0.00
258	29.34	59.40	5.00	0.00	0.00
259	29.68	60.02	5.00	0.00	0.00
260	31.35	63.55	5.00	0.00	0.00

:: Settlements calculation for saturated sands (continued) ::

Point ID					Settle. (in)
261	33.87	68.87	5.00	0.00	0.00
262	33.15	66.88	5.00	0.00	0.00
263	31.56	63.07	5.00	0.00	0.00
264	28.71	56.46	5.00	0.00	0.00
265	26.41	51.15	5.00	0.00	0.00
266	27.68	53.69	5.00	0.00	0.00
267	33.86	67.55	5.00	0.00	0.00
268	34.28	67.88	5.00	0.00	0.00
269	39.27	78.53	5.00	0.00	0.00
270	58.08	134.93	0.94	1.01	0.02
271	41.57	92.41	5.00	0.00	0.00
272	45.46	102.22	5.00	0.00	0.00
273	39.77	87.31	5.00	0.00	0.00
274	40.00	87.90	5.00	0.00	0.00
275	41.71	91.78	5.00	0.00	0.00
276	36.11	77.71	5.00	0.00	0.00
277	34.37	73.53	5.00	0.00	0.00
278	33.77	71.89	5.00	0.00	0.00
279	36.69	78.65	5.00	0.00	0.00
280	37.72	80.72	5.00	0.00	0.00
281	38.32	82.05	5.00	0.00	0.00
282	37.24	79.33	5.00	0.00	0.00
283	34.90	73.21	5.00	0.00	0.00
284	34.10	71.03	5.00	0.00	0.00
285	30.48	62.32	5.00	0.00	0.00
286	29.31	59.57	5.00	0.00	0.00
287	26.44	52.60	5.00	0.00	0.00
288	24.06	46.79	5.00	0.00	0.00
289	23.75	45.58	5.00	0.00	0.00
290	30.89	61.67	5.00	0.00	0.00
291	95.71	124.41	0.80	1.48	0.03
292	155.70	149.08	1.20	0.31	0.01
293	203.84	184.65	5.00	0.00	0.00
294	222.33	203.30	5.00	0.00	0.00
295	229.07	205.38	5.00	0.00	0.00
296	227.16	223.39	5.00	0.00	0.00
297	182.26	239.75	5.00	0.00	0.00
298	96.93	119.65	5.00	0.00	0.00
299	58.51	69.06	5.00	0.00	0.00
300	48.34	56.26	5.00	0.00	0.00
301	35.95	39.94	5.00	0.00	0.00
302	29.36	31.57	5.00	0.00	0.00
303	29.63	32.08	5.00	0.00	0.00
304	27.64	29.56	5.00	0.00	0.00
305	26.63	28.21	5.00	0.00	0.00
306	25.98	27.22	5.00	0.00	0.00

Total settlement : 0.06

Measured cone resistance
Normalized and adjusted cone resistance
Factor of safety against liquefaction
Post-liquefaction volumentric strain
Calculated settlement

:: Overall liquefaction potential according to Iwasaki ::

Point ID	F			Point ID	F		
1	0.00	9.98	0.00	2	0.00	9.95	0.00
3	0.00	9.93	0.00	4	0.00	9.90	0.00
5	0.00	9.88	0.00	6	0.00	9.85	0.00
7	0.00	9.82	0.00	8	0.00	9.80	0.00
9	0.00	9.77	0.00	10	0.00	9.75	0.00
11	0.00	9.73	0.00	12	0.00	9.70	0.00
13	0.00	9.68	0.00	14	0.00	9.65	0.00
15	0.00	9.63	0.00	16	0.00	9.60	0.00
17	0.00	9.57	0.00	18	0.00	9.55	0.00
19	0.00	9.52	0.00	20	0.00	9.50	0.00
21	0.00	9.48	0.00	22	0.00	9.45	0.00
23	0.00	9.43	0.00	24	0.00	9.40	0.00
25	0.00	9.38	0.00	26	0.00	9.35	0.00
27	0.00	9.32	0.00	28	0.00	9.30	0.00
29	0.00	9.27	0.00	30	0.00	9.25	0.00
31	0.00	9.22	0.00	32	0.00	9.20	0.00
33	0.00	9.18	0.00	34	0.00	9.15	0.00
35	0.00	9.13	0.00	36	0.00	9.10	0.00
37	0.00	9.07	0.00	38	0.00	9.05	0.00
39	0.00	9.02	0.00	40	0.00	9.00	0.00
41	0.00	8.97	0.00	42	0.00	8.95	0.00
43	0.00	8.93	0.00	44	0.00	8.90	0.00
45	0.00	8.88	0.00	46	0.00	8.85	0.00
47	0.00	8.82	0.00	48	0.00	8.80	0.00
49	0.00	8.77	0.00	50	0.00	8.75	0.00
51	0.00	8.72	0.00	52	0.00	8.70	0.00
53	0.00	8.68	0.00	54	0.00	8.65	0.00
55	0.00	8.63	0.00	56	0.00	8.60	0.00
57	0.00	8.58	0.00	58	0.00	8.55	0.00
59	0.00	8.52	0.00	60	0.00	8.50	0.00
61	0.00	8.47	0.00	62	0.00	8.45	0.00
63	0.00	8.43	0.00	64	0.00	8.40	0.00
65	0.00	8.38	0.00	66	0.00	8.35	0.00
67	0.00	8.33	0.00	68	0.00	8.30	0.00
69	0.00	8.27	0.00	70	0.00	8.25	0.00
71	0.00	8.22	0.00	72	0.00	8.20	0.00
73	0.00	8.17	0.00	74	0.00	8.15	0.00
75	0.00	8.13	0.00	76	0.00	8.10	0.00
77	0.00	8.08	0.00	78	0.00	8.05	0.00
79	0.00	8.02	0.00	80	0.00	8.00	0.00
81	0.00	7.97	0.00	82	0.00	7.95	0.00
83	0.00	7.92	0.00	84	0.00	7.90	0.00
85	0.00	7.88	0.00	86	0.00	7.85	0.00
87	0.00	7.83	0.00	88	0.00	7.80	0.00
89	0.00	7.77	0.00	90	0.00	7.75	0.00
91	0.00	7.72	0.00	92	0.00	7.70	0.00
93	0.00	7.67	0.00	94	0.00	7.65	0.00
95	0.00	7.63	0.00	96	0.00	7.60	0.00
97	0.00	7.58	0.00	98	0.00	7.55	0.00
99	0.00	7.53	0.00	100	0.00	7.50	0.00
101	0.00	7.47	0.00	102	0.00	7.45	0.00
103	0.00	7.42	0.00	104	0.00	7.40	0.00
105	0.00	7.38	0.00	106	0.00	7.35	0.00
107	0.00	7.33	0.00	108	0.00	7.30	0.00
109	0.00	7.28	0.00	110	0.00	7.25	0.00
111	0.00	7.22	0.00	112	0.00	7.20	0.00

:: Overall liquefaction potential according to Iwasaki (continued) ::

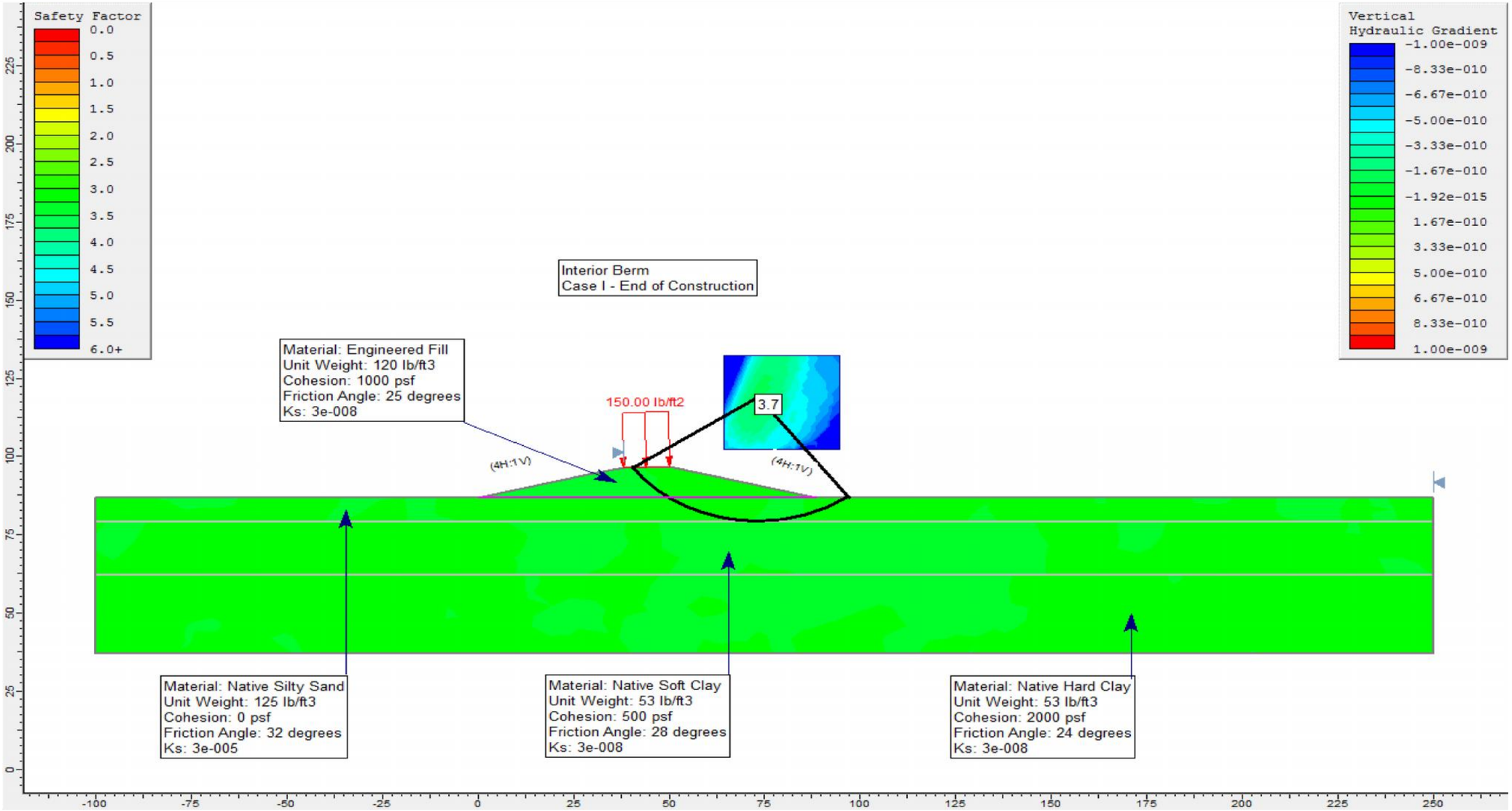
Point ID	F			Point ID	F		
113	0.00	7.17	0.00	114	0.00	7.15	0.00
115	0.00	7.13	0.00	116	0.00	7.10	0.00
117	0.00	7.08	0.00	118	0.00	7.05	0.00
119	0.00	7.03	0.00	120	0.00	7.00	0.00
121	0.00	6.97	0.00	122	0.00	6.95	0.00
123	0.00	6.92	0.00	124	0.00	6.90	0.00
125	0.00	6.87	0.00	126	0.00	6.85	0.00
127	0.00	6.83	0.00	128	0.00	6.80	0.00
129	0.00	6.78	0.00	130	0.00	6.75	0.00
131	0.00	6.72	0.00	132	0.00	6.70	0.00
133	0.00	6.67	0.00	134	0.00	6.65	0.00
135	0.00	6.62	0.00	136	0.00	6.60	0.00
137	0.00	6.58	0.00	138	0.00	6.55	0.00
139	0.00	6.53	0.00	140	0.00	6.50	0.00
141	0.00	6.47	0.00	142	0.00	6.45	0.00
143	0.00	6.42	0.00	144	0.00	6.40	0.00
145	0.00	6.37	0.00	146	0.00	6.35	0.00
147	0.00	6.33	0.00	148	0.00	6.30	0.00
149	0.00	6.28	0.00	150	0.00	6.25	0.00
151	0.00	6.23	0.00	152	0.00	6.20	0.00
153	0.00	6.17	0.00	154	0.00	6.15	0.00
155	0.00	6.12	0.00	156	0.00	6.10	0.00
157	0.00	6.08	0.00	158	0.00	6.05	0.00
159	0.00	6.03	0.00	160	0.00	6.00	0.00
161	0.00	5.98	0.00	162	0.00	5.95	0.00
163	0.00	5.92	0.00	164	0.00	5.90	0.00
165	0.00	5.87	0.00	166	0.00	5.85	0.00
167	0.00	5.82	0.00	168	0.00	5.80	0.00
169	0.00	5.78	0.00	170	0.00	5.75	0.00
171	0.00	5.73	0.00	172	0.00	5.70	0.00
173	0.00	5.67	0.00	174	0.00	5.65	0.00
175	0.00	5.62	0.00	176	0.00	5.60	0.00
177	0.00	5.57	0.00	178	0.00	5.55	0.00
179	0.00	5.53	0.00	180	0.00	5.50	0.00
181	0.00	5.48	0.00	182	0.00	5.45	0.00
183	0.00	5.42	0.00	184	0.00	5.40	0.00
185	0.00	5.37	0.00	186	0.00	5.35	0.00
187	0.00	5.32	0.00	188	0.00	5.30	0.00
189	0.00	5.28	0.00	190	0.00	5.25	0.00
191	0.00	5.23	0.00	192	0.00	5.20	0.00
193	0.00	5.18	0.00	194	0.00	5.15	0.00
195	0.00	5.12	0.00	196	0.00	5.10	0.00
197	0.00	5.07	0.00	198	0.00	5.05	0.00
199	0.00	5.03	0.00	200	0.00	5.00	0.00
201	0.00	4.98	0.00	202	0.00	4.95	0.00
203	0.00	4.93	0.00	204	0.00	4.90	0.00
205	0.00	4.87	0.00	206	0.00	4.85	0.00
207	0.00	4.82	0.00	208	0.00	4.80	0.00
209	0.00	4.78	0.00	210	0.00	4.75	0.00
211	0.00	4.73	0.00	212	0.00	4.70	0.00
213	0.00	4.68	0.00	214	0.00	4.65	0.00
215	0.00	4.62	0.00	216	0.00	4.60	0.00
217	0.00	4.57	0.00	218	0.00	4.55	0.00
219	0.00	4.52	0.00	220	0.00	4.50	0.00
221	0.00	4.48	0.00	222	0.00	4.45	0.00
223	0.00	4.43	0.00	224	0.00	4.40	0.00

:: Overall liquefaction potential according to Iwasaki (continued) ::

Point ID	F			Point ID	F		
225	0.00	4.37	0.00	226	0.00	4.35	0.00
227	0.00	4.32	0.00	228	0.00	4.30	0.00
229	0.00	4.27	0.00	230	0.00	4.25	0.00
231	0.00	4.23	0.00	232	0.00	4.20	0.00
233	0.00	4.18	0.00	234	0.00	4.15	0.00
235	0.00	4.12	0.00	236	0.00	4.10	0.00
237	0.00	4.07	0.00	238	0.00	4.05	0.00
239	0.00	4.02	0.00	240	0.00	4.00	0.00
241	0.00	3.98	0.00	242	0.00	3.95	0.00
243	0.00	3.93	0.00	244	0.00	3.90	0.00
245	0.00	3.88	0.00	246	0.00	3.85	0.00
247	0.00	3.82	0.00	248	0.00	3.80	0.00
249	0.00	3.77	0.00	250	0.00	3.75	0.00
251	0.00	3.73	0.00	252	0.00	3.70	0.00
253	0.00	3.68	0.00	254	0.00	3.65	0.00
255	0.00	3.63	0.00	256	0.00	3.60	0.00
257	0.00	3.57	0.00	258	0.00	3.55	0.00
259	0.00	3.52	0.00	260	0.00	3.50	0.00
261	0.00	3.48	0.00	262	0.00	3.45	0.00
263	0.00	3.43	0.00	264	0.00	3.40	0.00
265	0.00	3.38	0.00	266	0.00	3.35	0.00
267	0.00	3.32	0.00	268	0.00	3.30	0.00
269	0.00	3.27	0.00	270	0.06	3.25	0.01
271	0.00	3.22	0.00	272	0.00	3.20	0.00
273	0.00	3.18	0.00	274	0.00	3.15	0.00
275	0.00	3.13	0.00	276	0.00	3.10	0.00
277	0.00	3.07	0.00	278	0.00	3.05	0.00
279	0.00	3.02	0.00	280	0.00	3.00	0.00
281	0.00	2.97	0.00	282	0.00	2.95	0.00
283	0.00	2.93	0.00	284	0.00	2.90	0.00
285	0.00	2.88	0.00	286	0.00	2.85	0.00
287	0.00	2.83	0.00	288	0.00	2.80	0.00
289	0.00	2.77	0.00	290	0.00	2.75	0.00
291	0.20	2.72	0.03	292	0.00	2.70	0.00
293	0.00	2.68	0.00	294	0.00	2.65	0.00
295	0.00	2.63	0.00	296	0.00	2.60	0.00
297	0.00	2.58	0.00	298	0.00	2.55	0.00
299	0.00	2.52	0.00	300	0.00	2.50	0.00
301	0.00	2.47	0.00	302	0.00	2.45	0.00
303	0.00	2.43	0.00	304	0.00	2.40	0.00
305	0.00	2.38	0.00	306	0.00	2.35	0.00

APPENDIX D

SLOPE STABILITY ANALYSES



NOTES

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2. The General Limit Equilibrium method of analysis satisfies both moment and equilibrium for the potential failure surface shown.
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5. Ground surface profiles were generated using drawing files provided by Seigfried Engineers of Stockton, California.
6. Analyses performed using entry and exit mode.

MORNING STAR PACKING COMPANY
COOLING POND EXPANSION
Williams, California

SLOPE STABILITY AND SEEPAGE ANALYSIS

April 2015 WKA No. 10487.01

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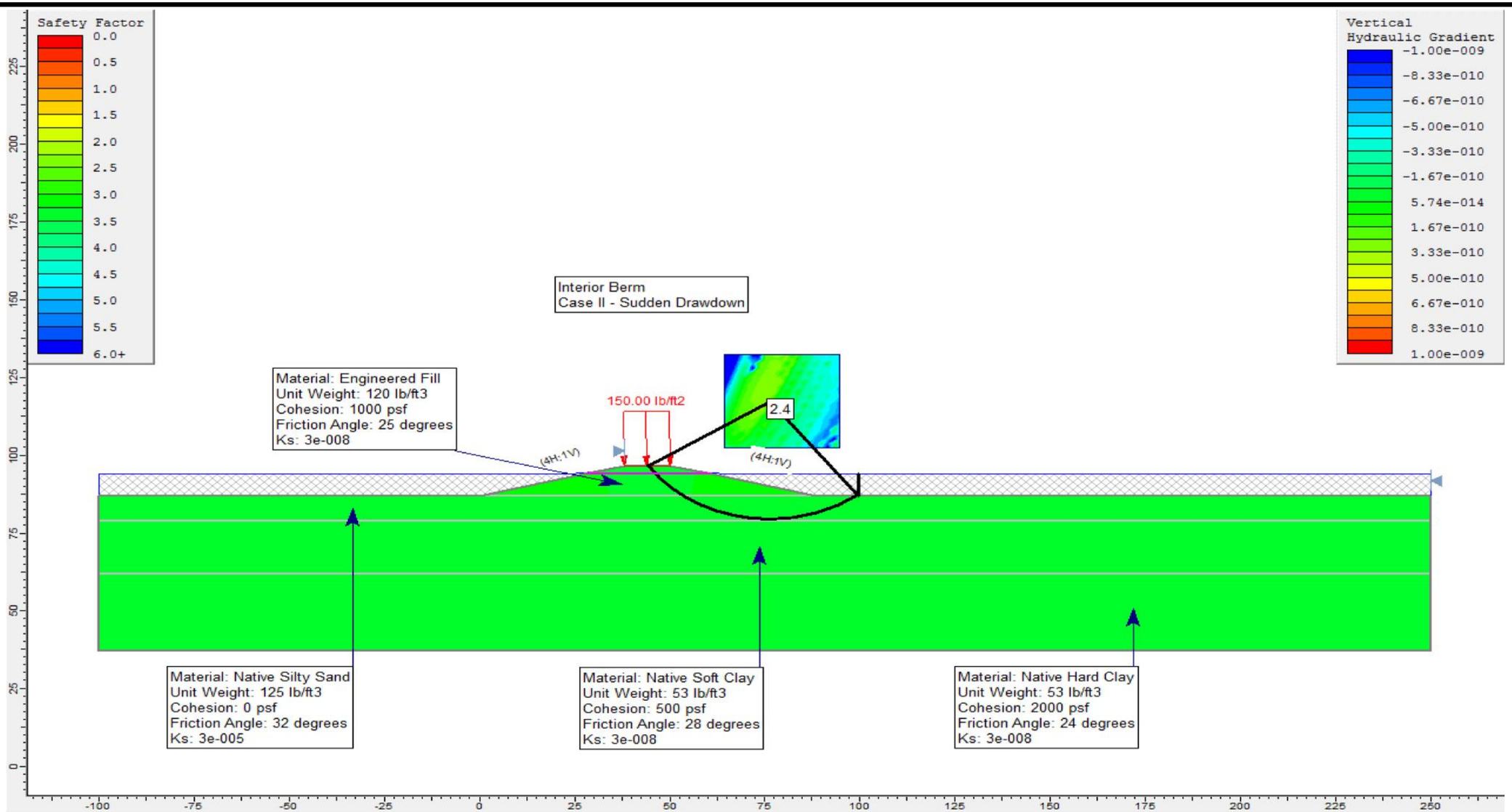
FIGURE D1



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Williams, California

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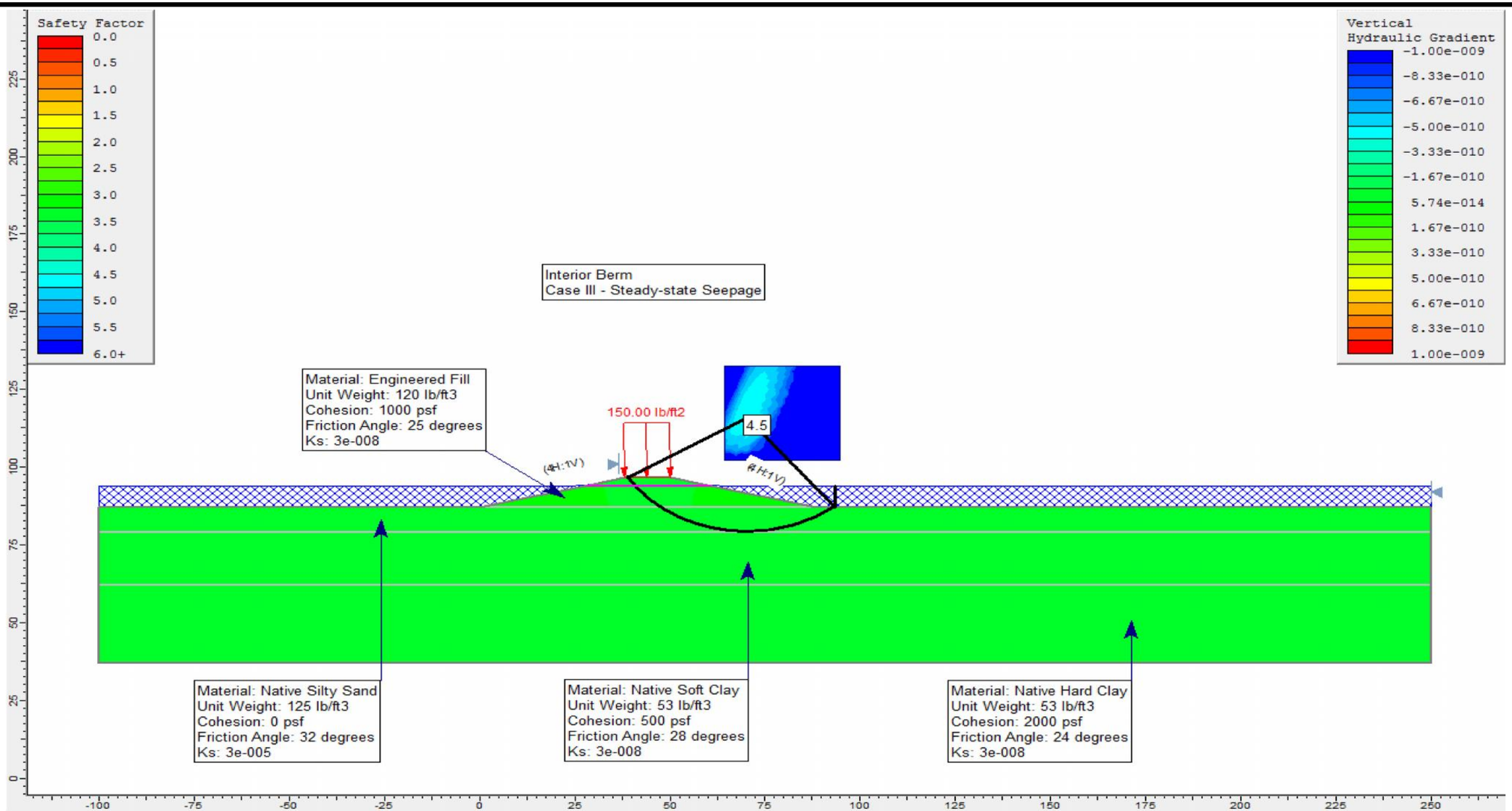
FIGURE D2



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Williams, California

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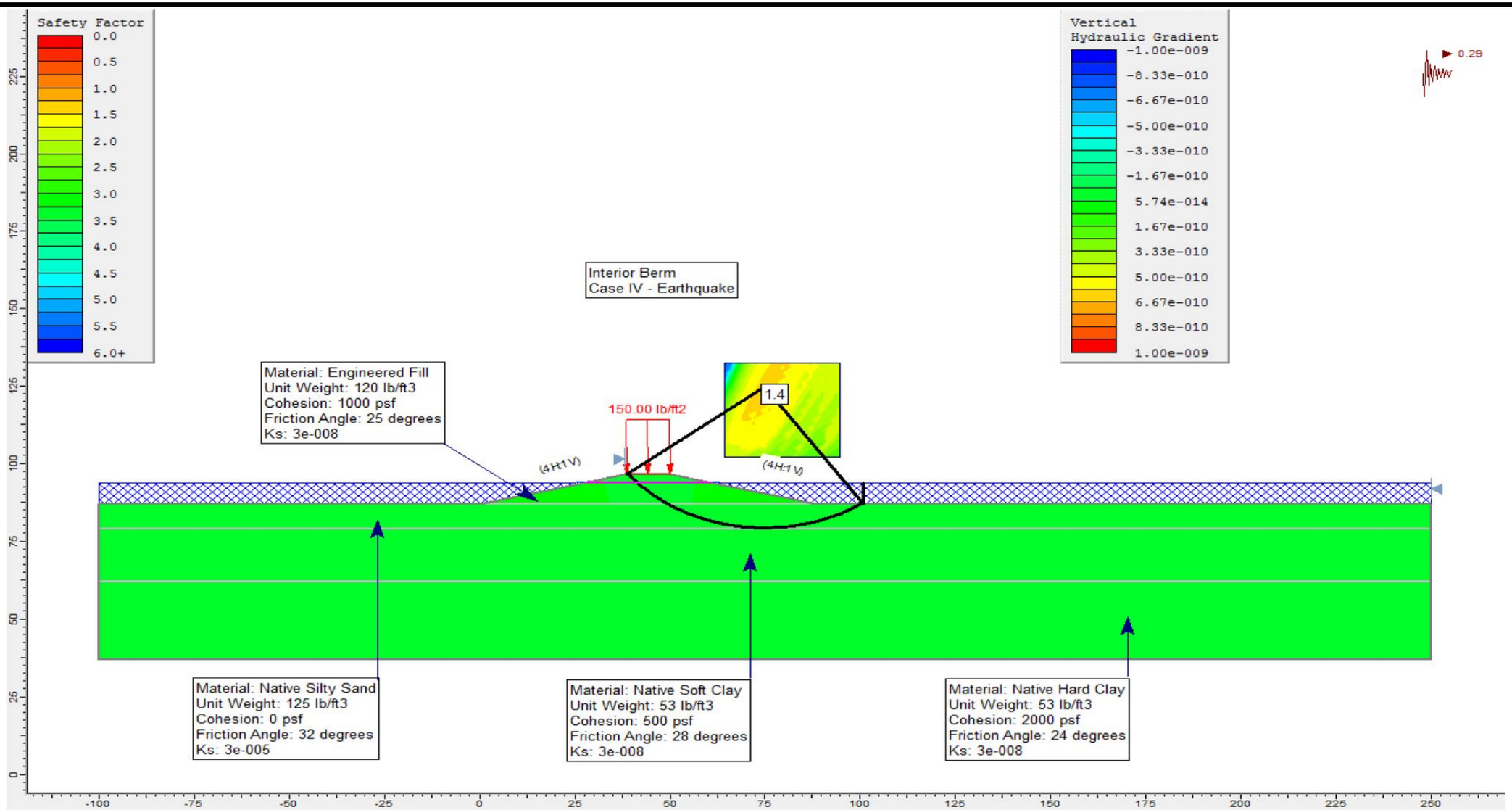
FIGURE D3



NOTES

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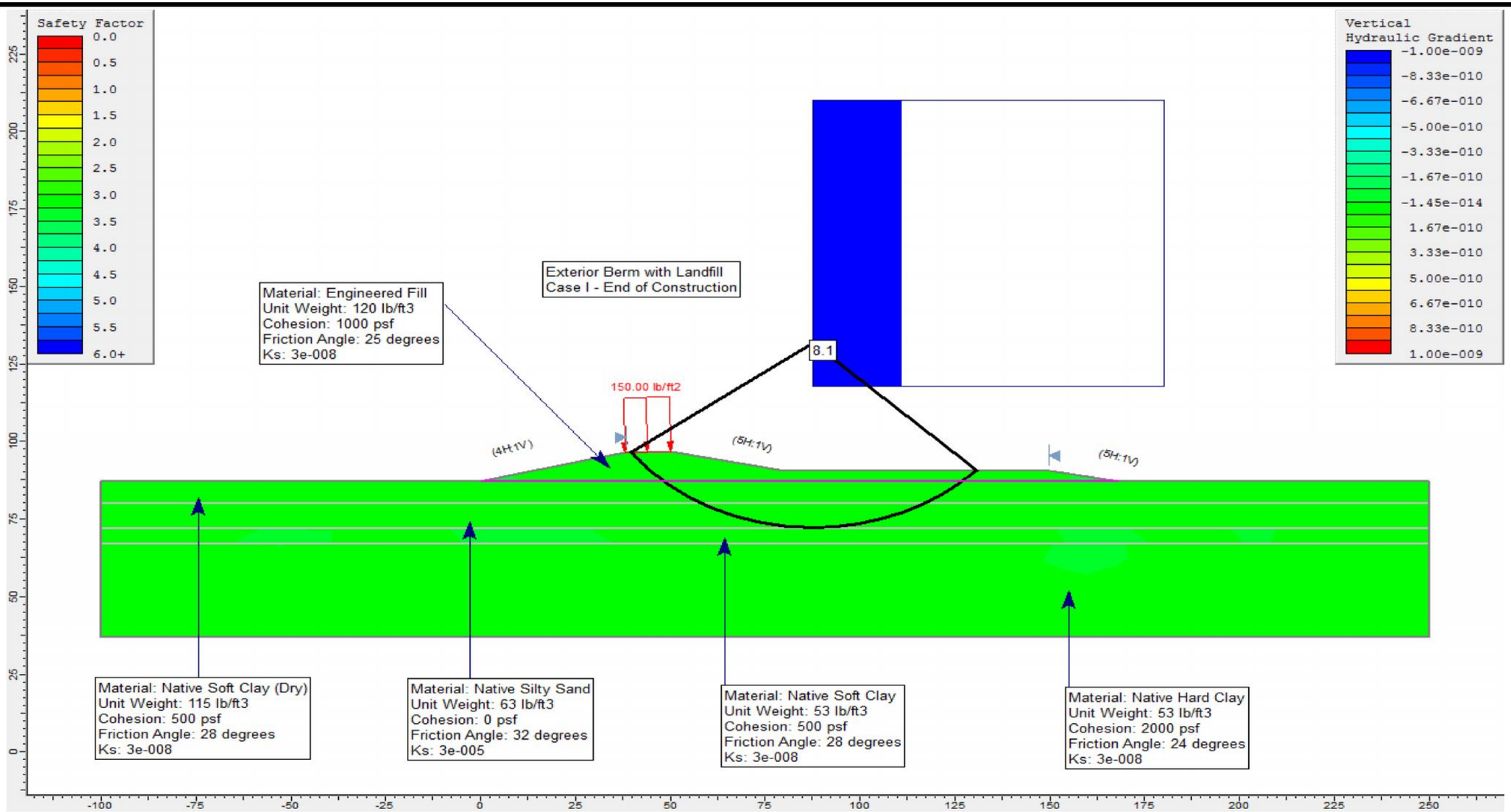
FIGURE D4



NOTES

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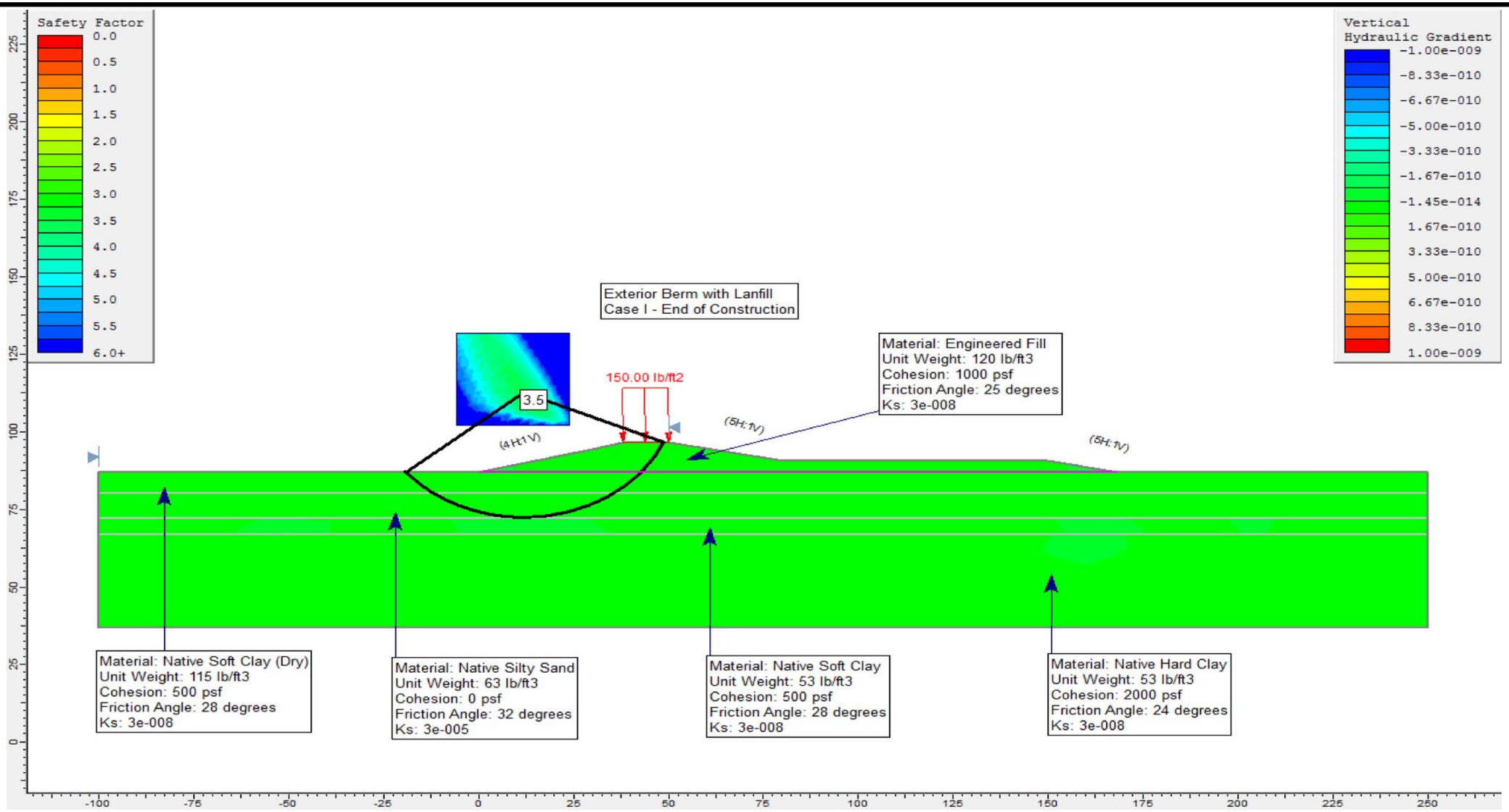
FIGURE D5



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Williams, California

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FIGURE D6

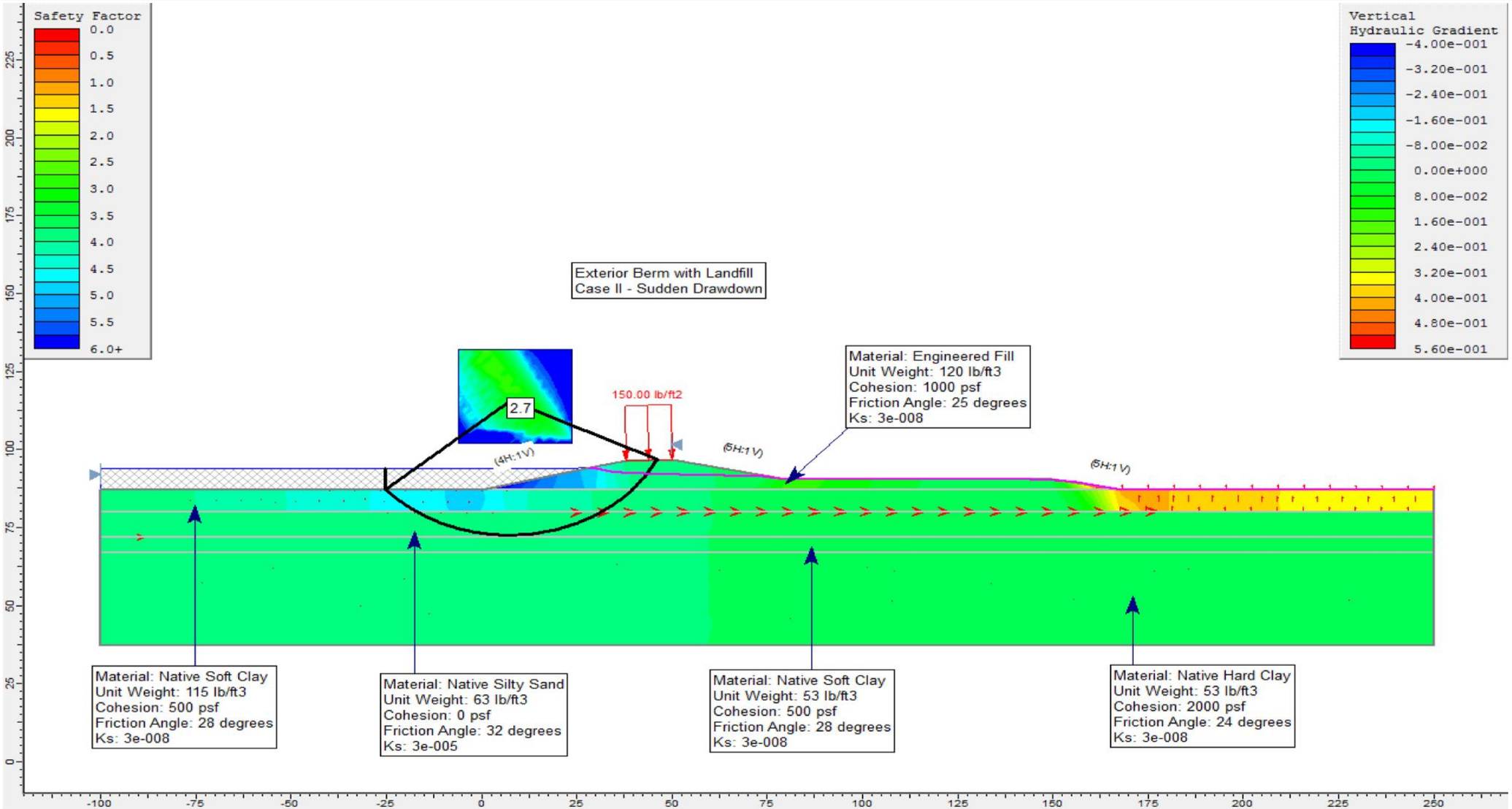

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FIGURE D7

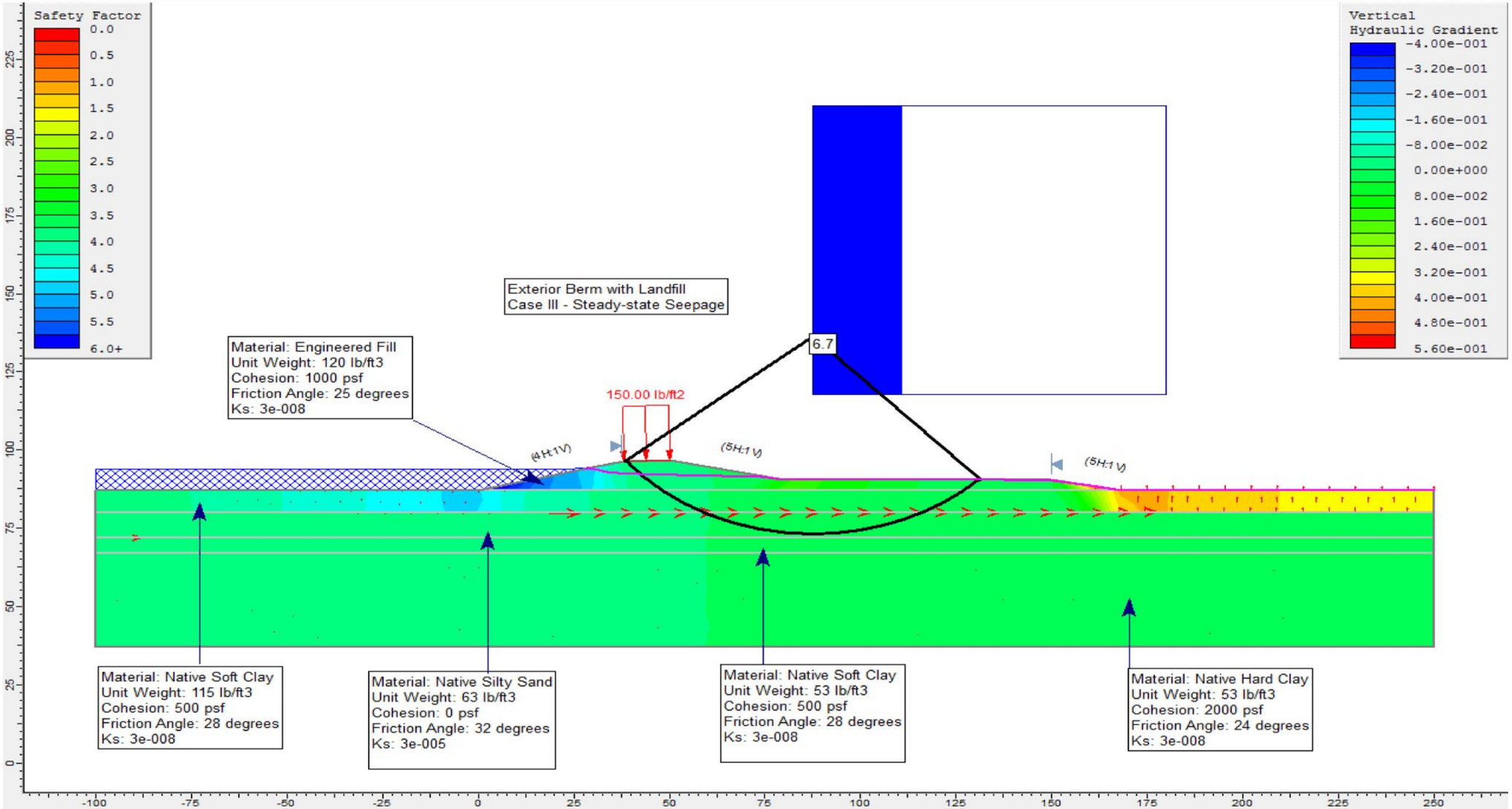

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FIGURE D8

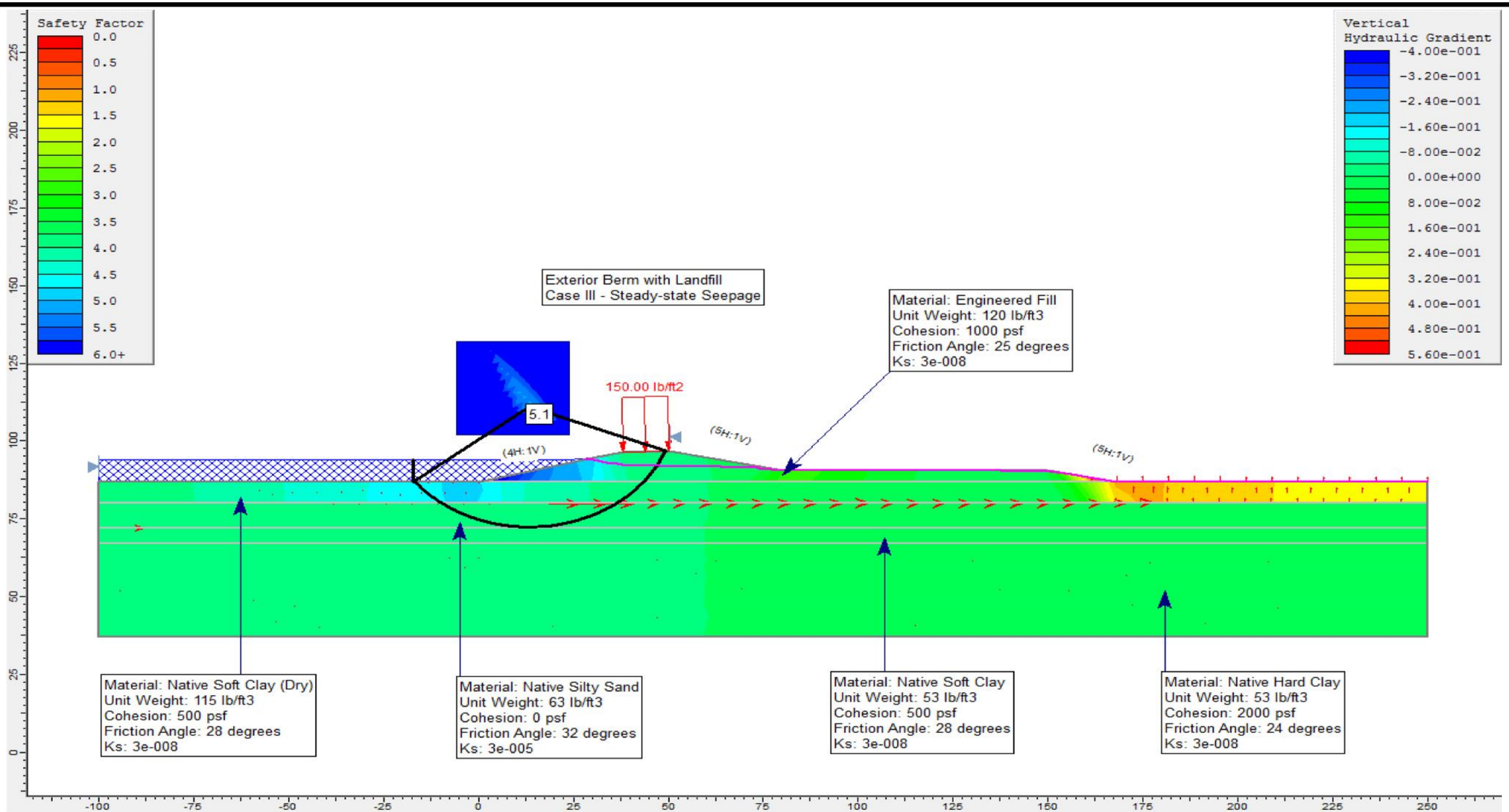

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FIGURE D9

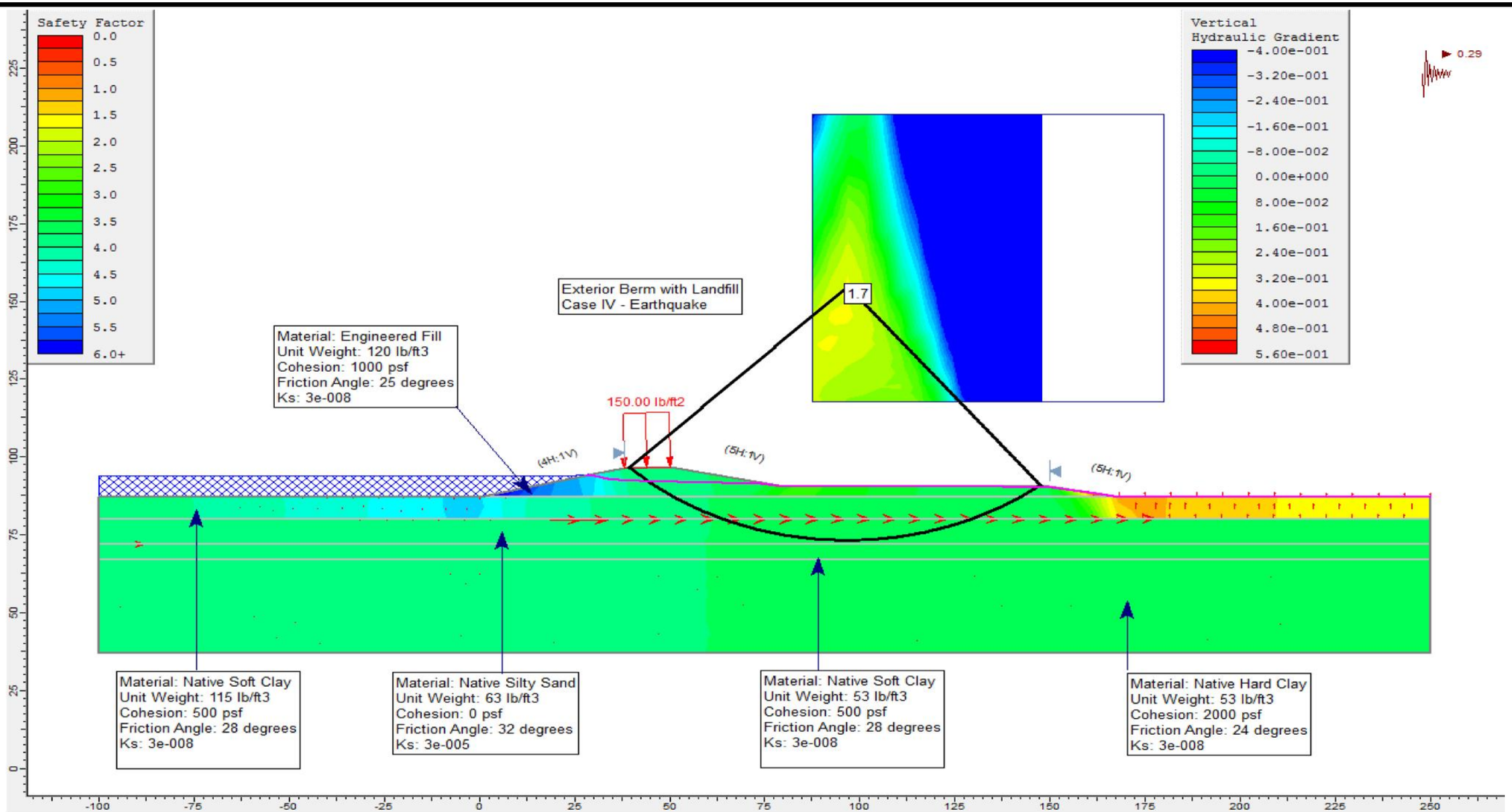

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FIGURE D10

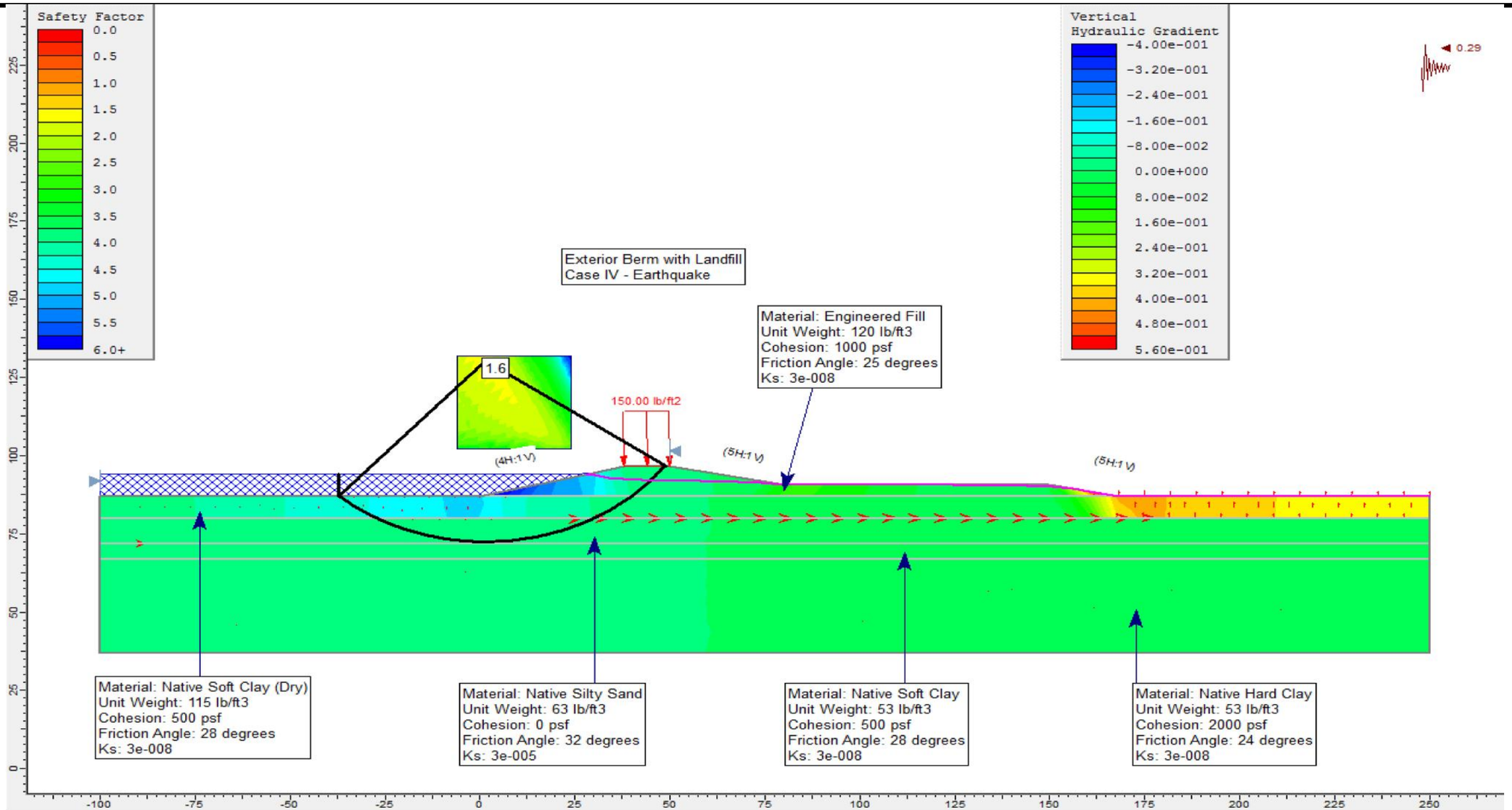

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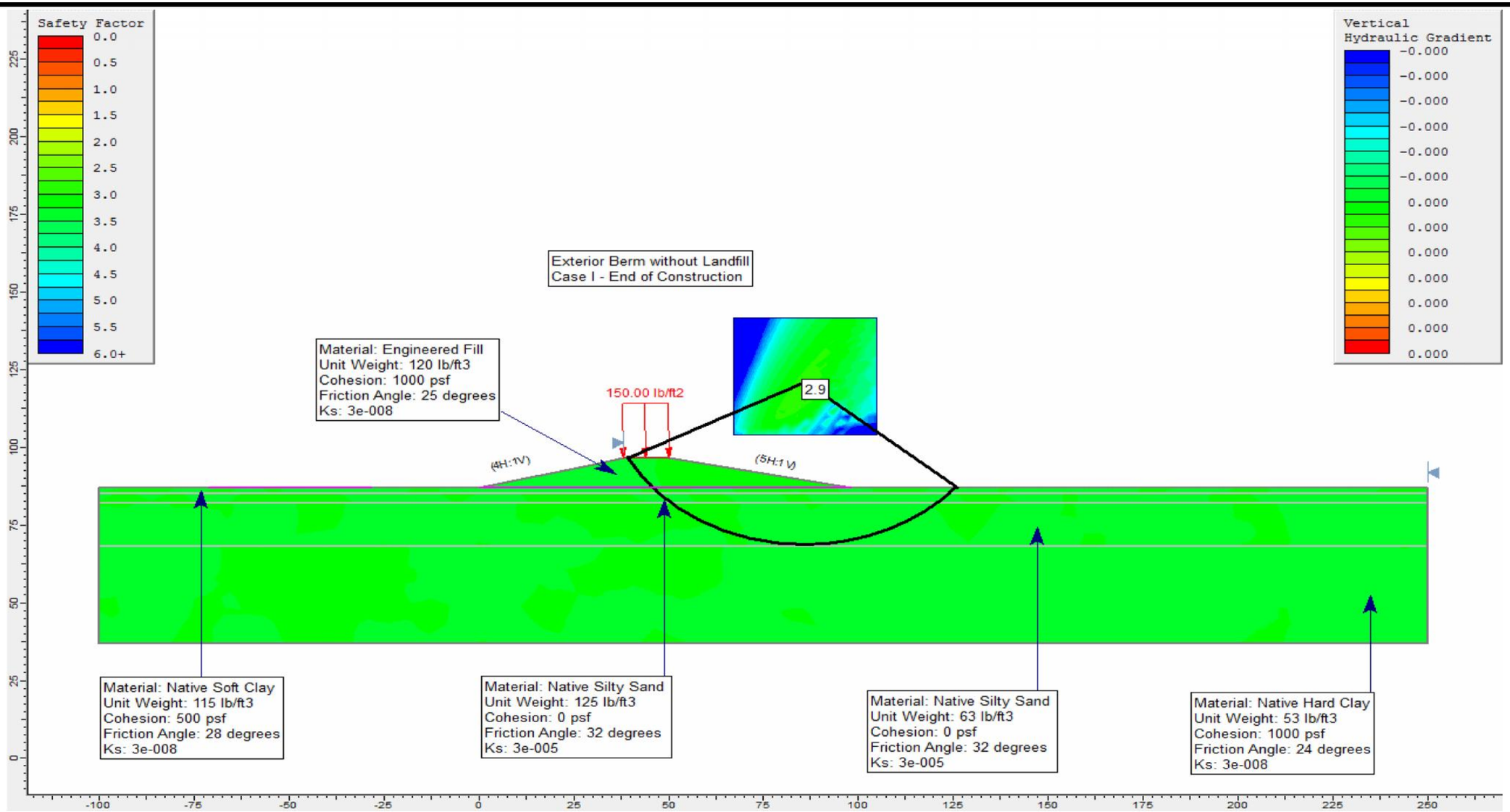
FIGURE D11



NOTES

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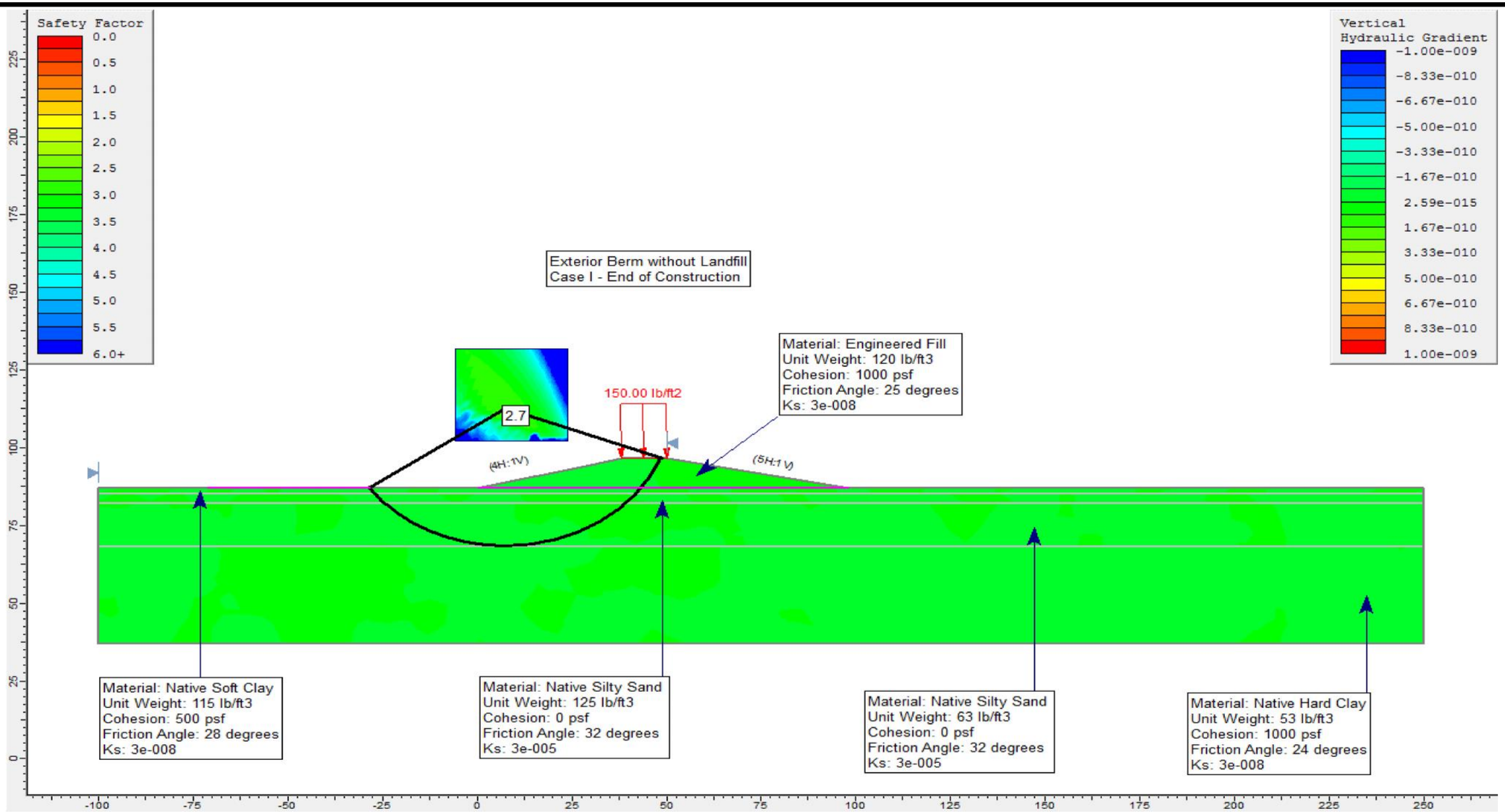
FIGURE D12



NOTES

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FIGURE D13

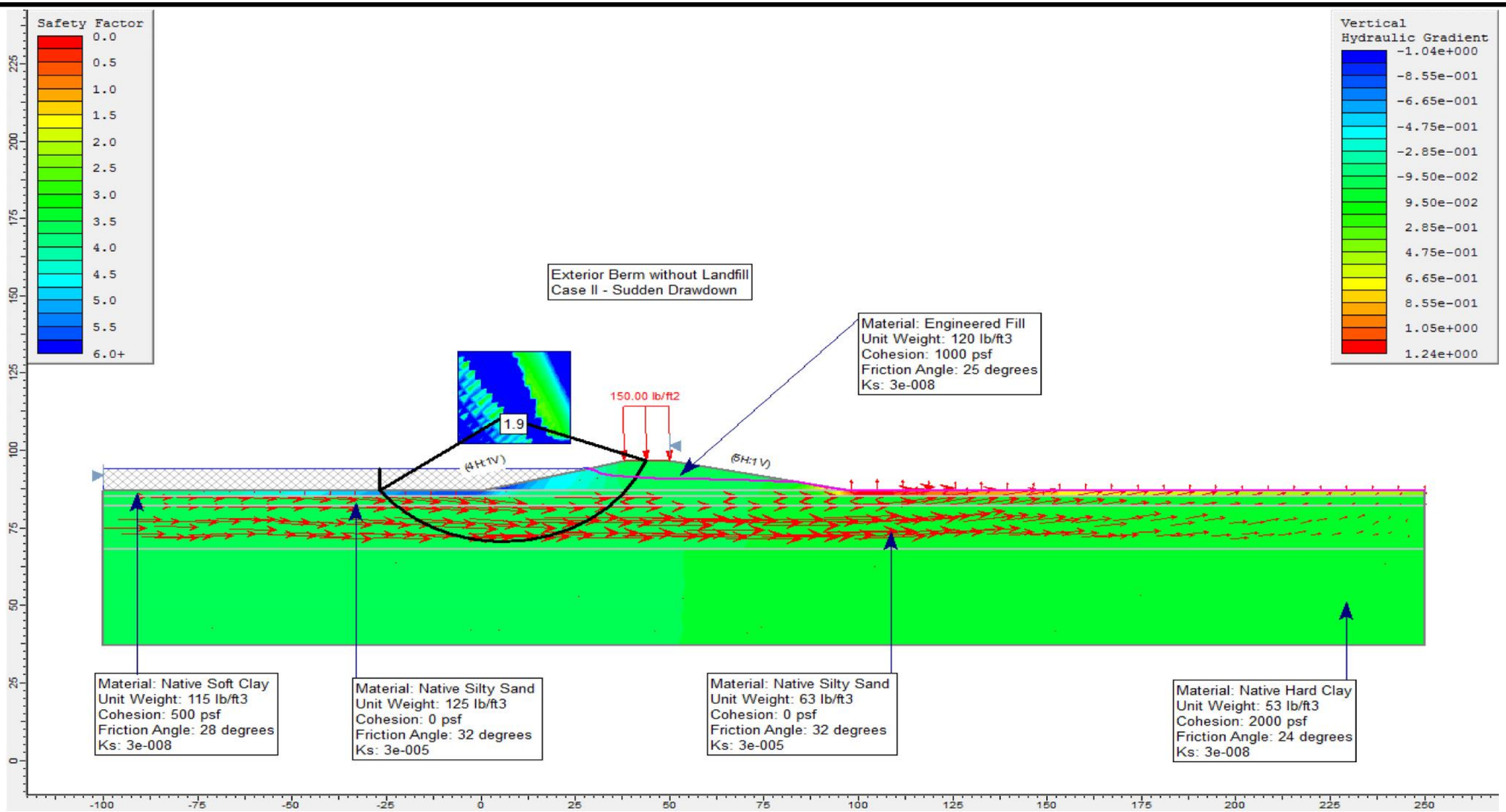

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FIGURE D14

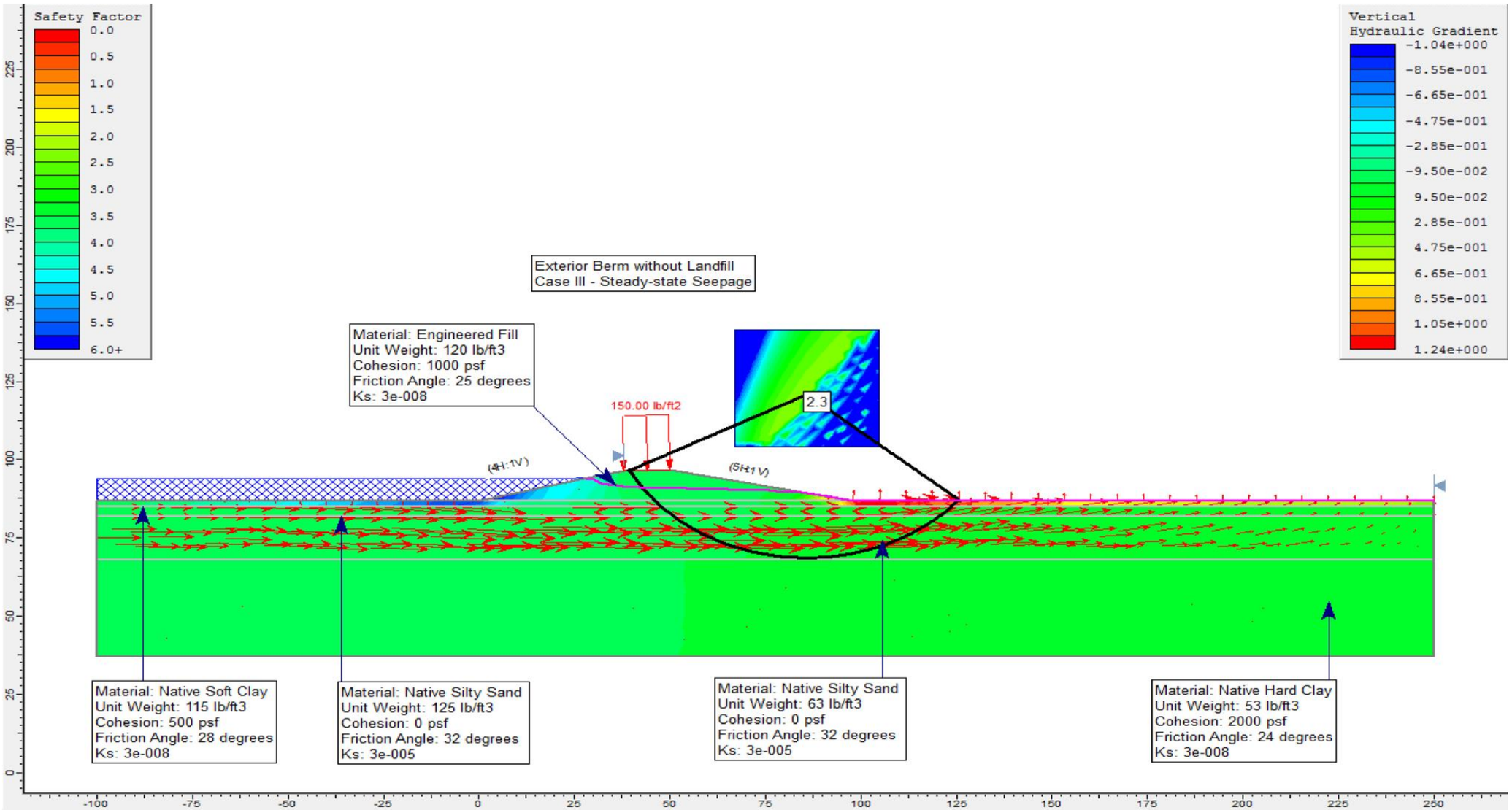

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FIGURE D15

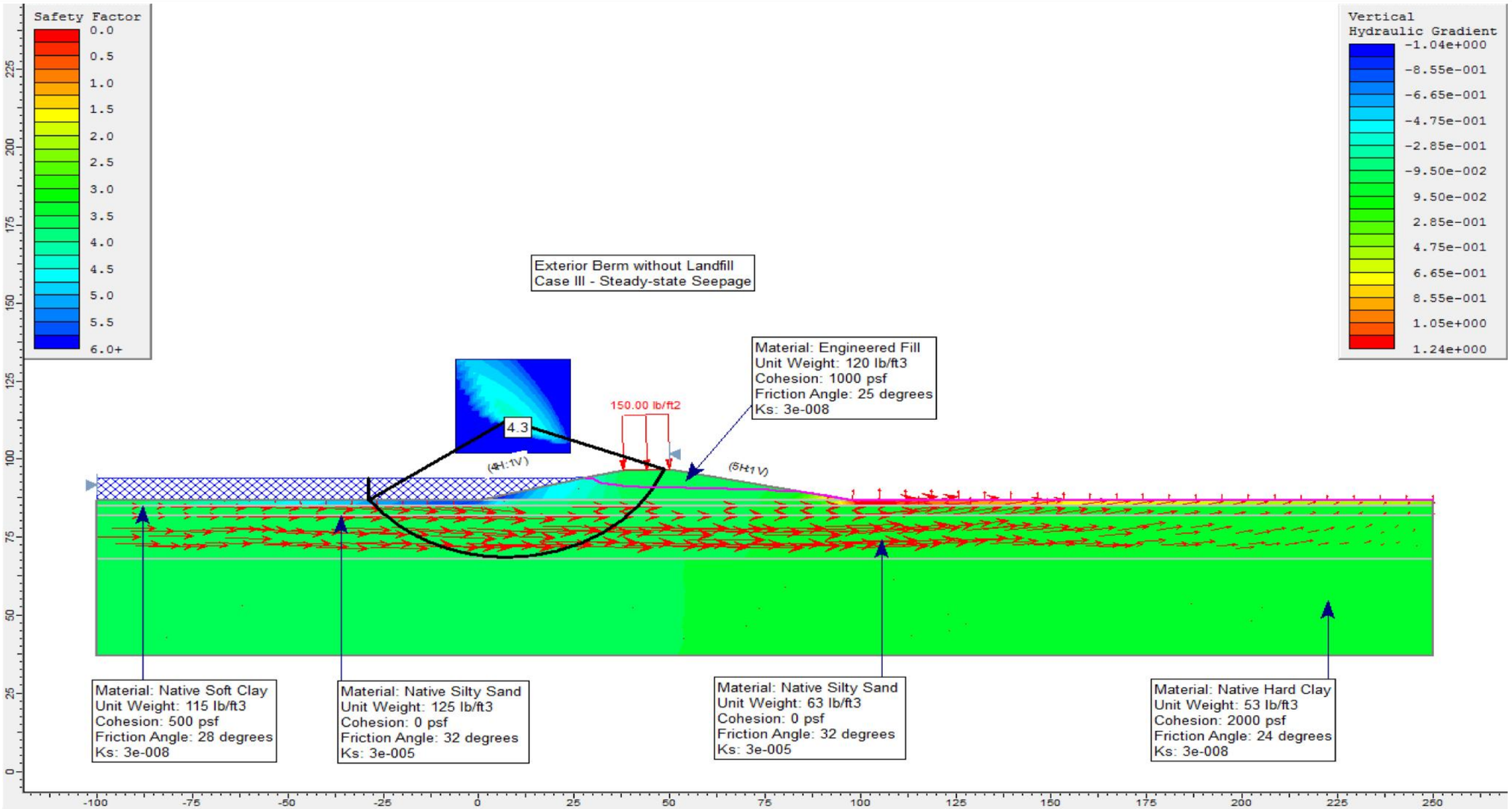

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FIGURE D16

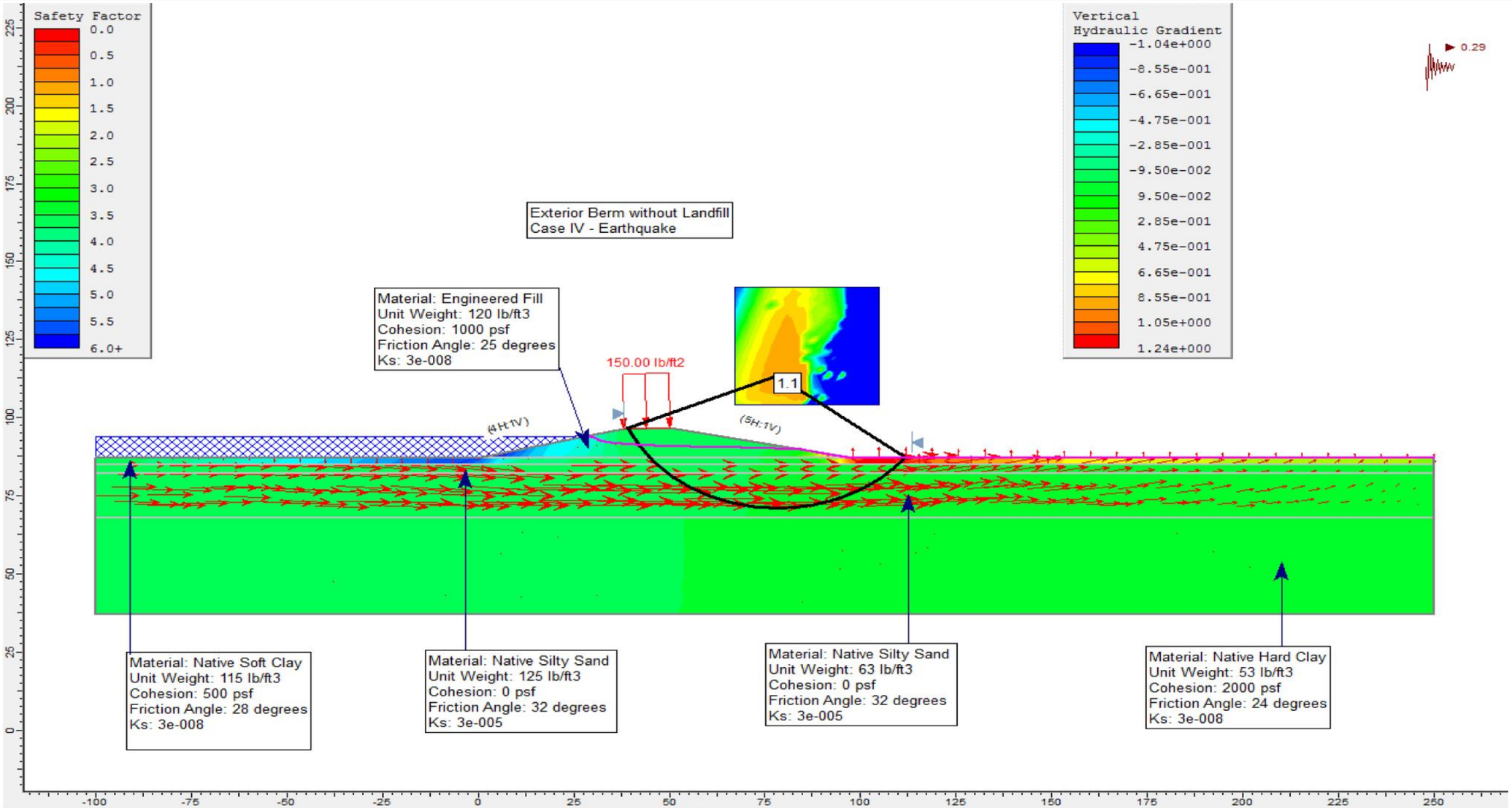

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FIGURE D17

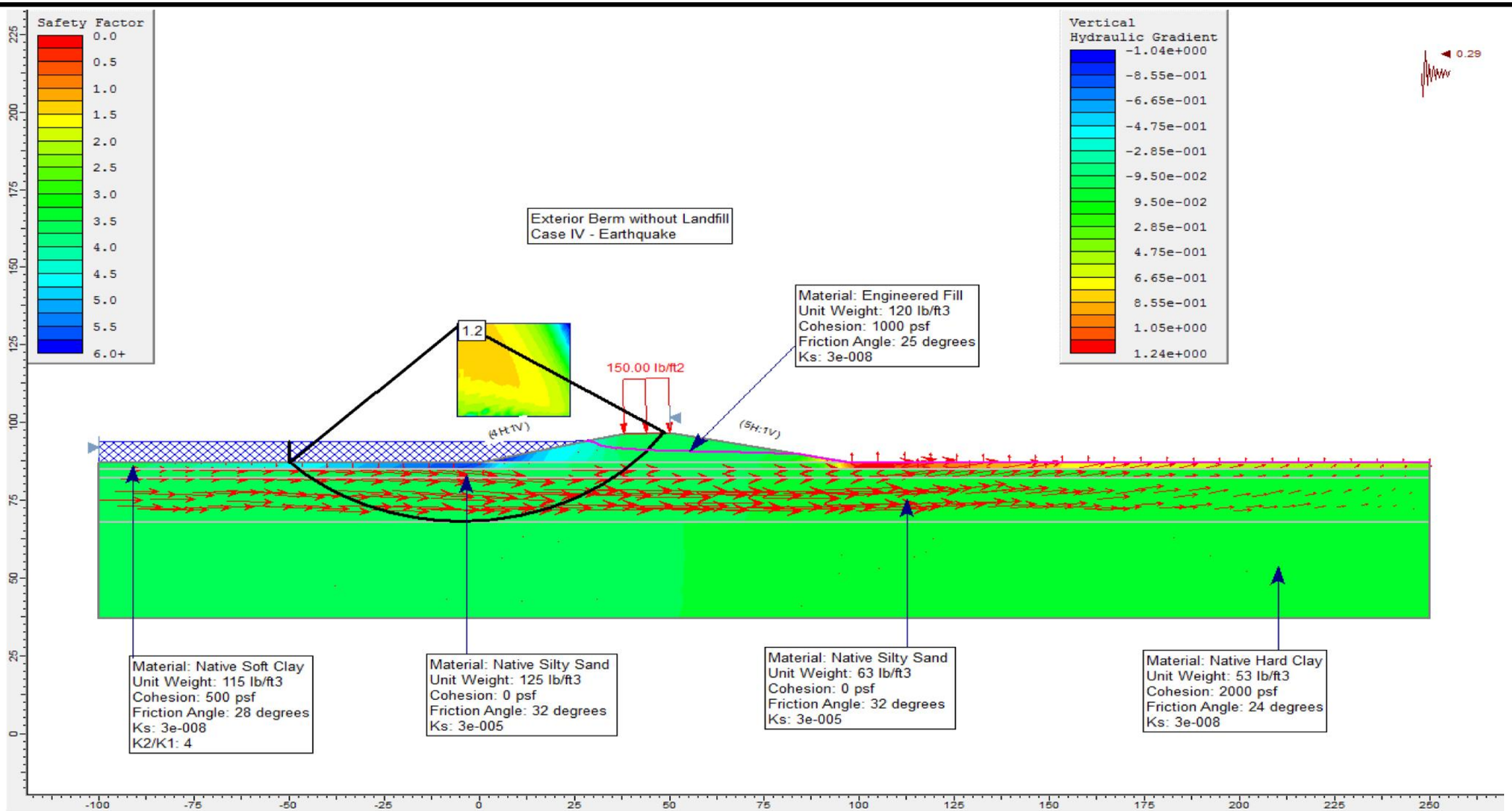

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FIGURE D18

Attachment B

Farm Grounds

Morning Star Packing - Williams

LEGEND

- Field Boundary
- Irrigation Supply
- Natural Drain
- Tailwater Drain
- Collection System

122°8'0"W 122°7'30"W 122°7'0"W 122°6'30"W

39°9'0"N 39°8'30"N 39°8'0"N 39°7'30"N

Abel

MW9

Field MS1

Field MS2

Field MS3

MW8

Field MS5

Field MS6

Field MS11

Field MS14

MW6

Field MS15

Field MS16

MW5

Field MS18a

Field MS18b

MW7

Effluent Sample Location

5

MW3

MW2

MW4

Field MS24

MW1

CUSTOM MAPPING SERVICES

Custom Mapping Services, L.L.C. does not guarantee the accuracy or content of the data used in this map. Map is intended for pictorial use only and is not to be used for legal purposes.

Map Scale 1:14,400 1 Inch = 1,200 Feet

0 300 600 1,200 1,800 2,400 Feet

N

Data Source:
Aerial Photography: Summer 2012
Projection: UTM Zone 10N, NAD 83
State of California: Colusa County

Map Source:
Custom Mapping Services, L.L.C.
Prairieville, LA (225) 677-7207
Map Date: February 27, 2014
Map ID: CMS2014-038