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Exhibit W. Angel Ranch Site Preliminary Geotechnical Engineering Report

October 22, 2014

Baton Rouge Area Chamber
564 Laurel Street
Baton Rouge, LA 70801

Attention : Mr. Jim A. Cavanaugh
Site Development Director
Email: jim@brac.org
Phone: (225) 339-1163

Re: **Preliminary Geotechnical Site Evaluation Report**
Angel Ranch Site Study
Ascension Parish, Louisiana
PSI Project No. 0254616

Dear Mr. Cavanaugh:

Professional Service Industries, Inc. is pleased to submit this Geotechnical Site Evaluation Report for the Preliminary Angel Ranch Site Study. This report includes the results of field and laboratory testing, and information regarding the compatibility of this site with industrial development, suitability of soils for building foundations and on-site roadways, requirements of soil augmentation for construction of a typical 100,000 square feet (sf) industrial manufacturing building and depth of groundwater.

We appreciate the opportunity to perform this Preliminary Geotechnical Site Evaluation Report. If you have any questions pertaining to this report, or if we may be of further service, please contact our office.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.

Leslie C. Chandler, P.E.
Project Engineer
Geotechnical Services

Name: Leslie C. Chandler, P.E.
Date: OCT. 22, 2014
License No.: 38292

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GEOTECHNICAL SITE EVALUATION REPORT

ANGEL RANCH SITE STUDY
ASCENSION PARISH, LOUISIANA
PSI PROJECT NO.: 0254616

PREPARED FOR

BATON ROUGE AREA CHAMBER
564 LAUREL STREET
BATON ROUGE, LA 70801

OCTOBER 22, 2014

BY
PROFESSIONAL SERVICE INDUSTRIES, INC.
11950 INDUSTRIPLEX BLVD.
BATON ROUGE, LOUISIANA 70809

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APPENDIX

PROJECT INFORMATION

Project Authorization

Professional Service Industries, Inc. (PSI) has completed a Preliminary Geotechnical Site Study at the Angel Ranch site, located in general vicinity north of The City of New Roads, Louisiana. Our services were provided in general accordance with PSI Proposal No. 254-132935, dated September 5, 2014. Authorization to provide our services was provided by Mr. Iain Vasey (Executive Director Baton Rouge Area Chamber) who signed our Proposal on September 12, 2014.

Project Description

The site for the requested geotechnical evaluation is approximately 730 acres in size and is located just north of the City of New Roads in Pointe Coupee Parish, Louisiana. The undeveloped site is generally located north of Highway 10 and east of Ferry Road. Primary objectives for this preliminary report are to provide information regarding the compatibility of this site with industrial development, suitability of soils for building foundations and on-site roadways, requirements of soil augmentation for construction of a typical 100,000 square feet (sf) industrial manufacturing building, and the depth of the free groundwater table.

This geotechnical site evaluation report will provide an initial baseline of the site subsurface conditions that will likely be encountered during future site development. However, as with any geotechnical investigation, particularly given the size of this project site and relatively limited number of borings performed, variations between borings may and should be expected to exist, and there remains a distinct possibility that other conditions may exist on site that were not encountered within the scope of this exploration.

The opinions and information to be presented in this report are estimates for preliminary consideration only, are based on limited geotechnical exploration, and are not to be used for final design and construction.

Purpose and Scope of Services

The purposes of PSI's geotechnical services are to:

- Drill and sample 5 soil borings at the site, per the clients' request. Two borings (B-1 and B-2) were drilled and sampled to a depth of approximately 75 feet each; and three borings (B-3, B-4, and B-5) were drilled and sampled to a depth of approximately 25 feet each below the existing grades;
- Evaluate subsurface soil conditions and groundwater depths at the project site;
- Perform limited laboratory testing on selected soil samples recovered from the project site; and,
- Provide information regarding the compatibility of this site with industrial development, suitability of soils for building foundations and on-site roadways, requirements of soil augmentation for construction of a typical 100,000 sf industrial manufacturing building and depth of groundwater.

The scope of services did not include an environmental assessment for determining the presence or absence of wetlands, or hazardous or toxic materials in the soil, surface water, groundwater, or air on or below, or around this site. Any statements in this report or on the boring logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes. Prior to development of this site, an environmental assessment is advisable. Additionally, PSI did

not provide any service to investigate or detect the presence of moisture, mold or other biological contaminants in or around any structure, or any service that was designed or intended to prevent or lower the risk of the occurrence or the amplification of the same. Client acknowledges that mold is ubiquitous to the environment with mold amplification occurring when building materials are impacted by moisture. Client further acknowledges that site conditions are outside of PSI's control, and that mold amplification will likely occur, or continue to occur, in the presence of moisture. As such, PSI cannot and shall not be held responsible for the occurrence or recurrence of mold amplification.

SITE AND SUBSURFACE CONDITIONS

Site Location and Description

The project site is located approximately two miles northeast of the City of New Roads, Louisiana, bounded generally by the Mississippi River to the north and undeveloped property to the east, south and west (as illustrated on the Site Vicinity Map provided on Figure No. 1 in the Appendix). The site was undeveloped and covered by grass and sugar cane fields at the time of PSI's field exploration, and the ground surface appeared to be topographically level. PSI's Truck-mounted drill rig was used to perform this field exploration.

Site Geology

Based on the Geological Map of Louisiana (1984), the site is located within the Natural Levees Formation (Qnl) geologic unit. The Natural Levees geologic unit is characterized by gray and brown silt and silty clay with some very fine sand. Per USGS, these deposits are encountered on past and present courses of major streams. Natural Levee deposits in the site vicinity are relatively weak and compressible in nature.

Field Exploration

The field exploration included mobilization to the site by a PSI drilling crew, drilling of the soil borings, and recovering soil samples. Borings B-1 and B-2 were drilled and sampled to a depth of approximately 75 feet each below the existing grade. Borings B-3, B-4, and B-5 were drilled and sampled to a terminal depth of approximately 25 feet each below existing grade (as illustrated in the Boring Location Plan on Figure No. 2 in the Appendix). Borings B-1 and B-2 were drilled utilizing wet-rotary drilling techniques, while Borings B-3 through B-5 were drilled and sampled utilizing hollow-stem augers. Drilling and sampling activities were performed in general accordance with referenced ASTM procedures or other accepted methods. The shallower soil borings (i.e., 25 feet deep) were backfilled with soil cuttings upon completion of drilling and groundwater observations; while the deeper soil borings (i.e., 75 feet deep) were backfilled with a cement/bentonite grout mixture per LA DOTD requirements.

Undisturbed samples of cohesive soils were generally obtained using three-inch-diameter, thin-wall tube samplers (Shelby tube) in general accordance with the procedures for "Thin-Walled Tube Geotechnical Sampling of Soils" (ASTM D1587). These samples were extruded in the field with a hydraulic ram and were identified according to boring number and depth, wrapped in aluminum foil, placed in polyethylene plastic wrapping to protect against moisture loss and transported to the laboratory in containers to minimize disturbance.

For cohesionless soils, Standard Penetration Tests (SPT) were performed to obtain standard penetration values of the soil using a 140-pound hammer, falling 30 inches. The test is performed by lowering the standard penetrometer sampler to the bottom of the previously cleaned drill hole and advanced by blows from the hammer. The number of blows is recorded for each of the three consecutive 6-inch increments. The "SPT-N" value is obtained by adding the second and the third incremental numbers. The results of the standard penetration test indicate the relative density of cohesionless soils, and thereby provide a basis for estimating the relative strength and compressibility of the soil profile components. Soil samples were obtained utilizing a two-inch O.D. split-barrel sampler in general accordance with procedures for "Penetration Test and Split-Barrel Sampling of Soils" (ASTM D 1586). These samples were identified according to boring number and depth, placed in polyethylene plastic wrapping to protect against moisture loss and transported to the laboratory.

Laboratory Testing

Selected soil samples were tested in the laboratory to determine material properties for our evaluation. Visual classifications were performed in the laboratory. Physical testing included determination of moisture contents, Atterberg limits classification testing and unconfined compressive strength tests (to supplement the field pocket penetrometer testing). The laboratory testing was performed in general accordance with ASTM procedures. Samples not altered by laboratory testing will be retained for sixty days from the date of this report and then be discarded.

Subsurface Conditions

Boring B-1 disclosed about 6 feet of very stiff fat clay underlain very loose to dense silty and clayey sand to boring termination depth of approximately 75 feet below grade. A medium dense, brown silty sand was encountered from a depth of approximately 6 to 12 feet; which is underlain by a very loose to loose silty, clayey sand from a depth of approximately 12 to 22 feet below the ground surface. Soils encountered below a depth of approximately 22 feet generally consist of medium dense silty sand, and medium dense to very dense sand with silt to the maximum depth explored at B-1, approximately 75 feet.

Boring B-2 disclosed about 6 feet of firm fat clay underlain by about 30 feet of firm lean clay, which is in turn underlain by a firm, fat clay to the boring termination depth of about 75 feet below the existing grade.

Borings B-3 and B-5 disclosed about 4 to 8 feet of firm and stiff fat clay underlain by about 10 to 13 feet of very soft to firm lean clay, which is in turn underlain by very loose silty, clayey sand to the boring termination depth of about 25 feet below the existing grade.

Boring B-4 disclosed about 8 feet of stiff lean clay underlain by soft to firm fat clay to the boring termination depth of about 25 feet below the existing grade.

The above subsurface description is generalized in nature to highlight the major subsurface stratification features and material characteristics. The boring logs included in the Appendix should be reviewed for specific information at the individual boring locations. These records include soil descriptions, stratifications, penetration resistances, locations of the samples, and laboratory test data. The stratifications shown on the boring logs represent the conditions only at the actual boring locations. Variations may occur and should be expected between boring

locations. The stratifications represent the approximate boundary between subsurface materials and the actual transition may be gradual.

Groundwater Information

The free groundwater table was encountered as shown in the Table below:

Boring No.	Depth to Groundwater During Drilling (Feet)	Depth to Groundwater at End of Drilling (Feet)
B-1*	15	11
B-2*	9	8-1/2
B-3	17-1/2	16
B-4	20	19
B-5	8	7

*Boring was drilled using wet rotary drilling techniques; therefore the initial depth to groundwater was not measured in this boring.

It should be noted that groundwater level fluctuations at this site may occur due to seasonal and climatic variations, the stage of the Mississippi River due to its relative close proximity to the project site, alteration of drainage patterns, land usage and ground cover. We recommend the Contractor determine the actual groundwater levels at the time any future construction activities begin.

Seismic Design Considerations

The design of structures must consider dynamic forces resulting from seismic events. These forces are dependent upon the magnitude of the earthquake event as well as the properties of the soils that underlie the site. As part of the procedure to evaluate seismic forces, the evaluation of the Seismic Site Class, which categorizes the site based upon the characteristics of the subsurface profile within the upper 100 feet of the ground surface, is required. To define the Site Class for this project, we have interpreted the results of soil test borings drilled within the project site and estimated appropriate soil properties below the base of the borings to a depth of 100 feet as permitted by the International Building Code, 2012 edition. The estimated soil properties were based upon our experience with subsurface conditions in the general site area. Based upon our evaluation, the subsurface conditions within the site are consistent with the characteristics of a Site Class “E” as defined in Table 1613.5.2 of the building code.

EVALUATION AND DISCUSSIONS

The type and depth of foundation suitable for a given structure primarily depends on several factors including the subsurface conditions, the function of the structure, the loads it may carry, the cost of the foundation and the criteria set by the Design Engineer with respect to vertical and differential movement which the structure can withstand without damage.

Based on the limited number of soil borings, field data and laboratory test results, the proposed site is generally feasible for industrial development. The subsurface soils explored are suitable for building foundations and site roadways after proper preparation. Fat clay soils with high shrink-swell potential (Plasticity indices ranging from 28 to 64) were encountered at the ground surface in all of the borings. Potential Vertical Rise (PVR) should be further evaluated. PVR in portions of this site could be mitigated by undercutting the fat clay soils to a predetermined depth and replacing with moisture-conditioned, properly compacted lean clay (CL) soils, or with

the addition of chemical treatment such as lime mixing. Detailed column loads for a typical 100,000 sq. ft. industrial manufacturing building were not provided at the time of this study; however, the structural column loads are anticipated to be on the order of 60 to 100 kips, with wall loads on the order of 3.0 kips per lineal foot.

The choice of type of deep foundation should be based on the tolerance criteria for the performance of the structures and economics of construction. Driven piling or auger-cast-piles should be viable foundation types considering the subsurface and groundwater conditions encountered. Lightly-loaded equipment pads may be able to be supported on shallow spread footings, or mat foundations, as long as the PVR issues described above are mitigated. These foundations will be governed by the anticipated load and settlement tolerances.

Please note that site pavement should be underlain by at least 12 inches of properly compacted low plasticity engineered fill material or otherwise or treated with hydrated lime/fly ash/kiln dust prior to base material placement due to the surficial fat clay soils.

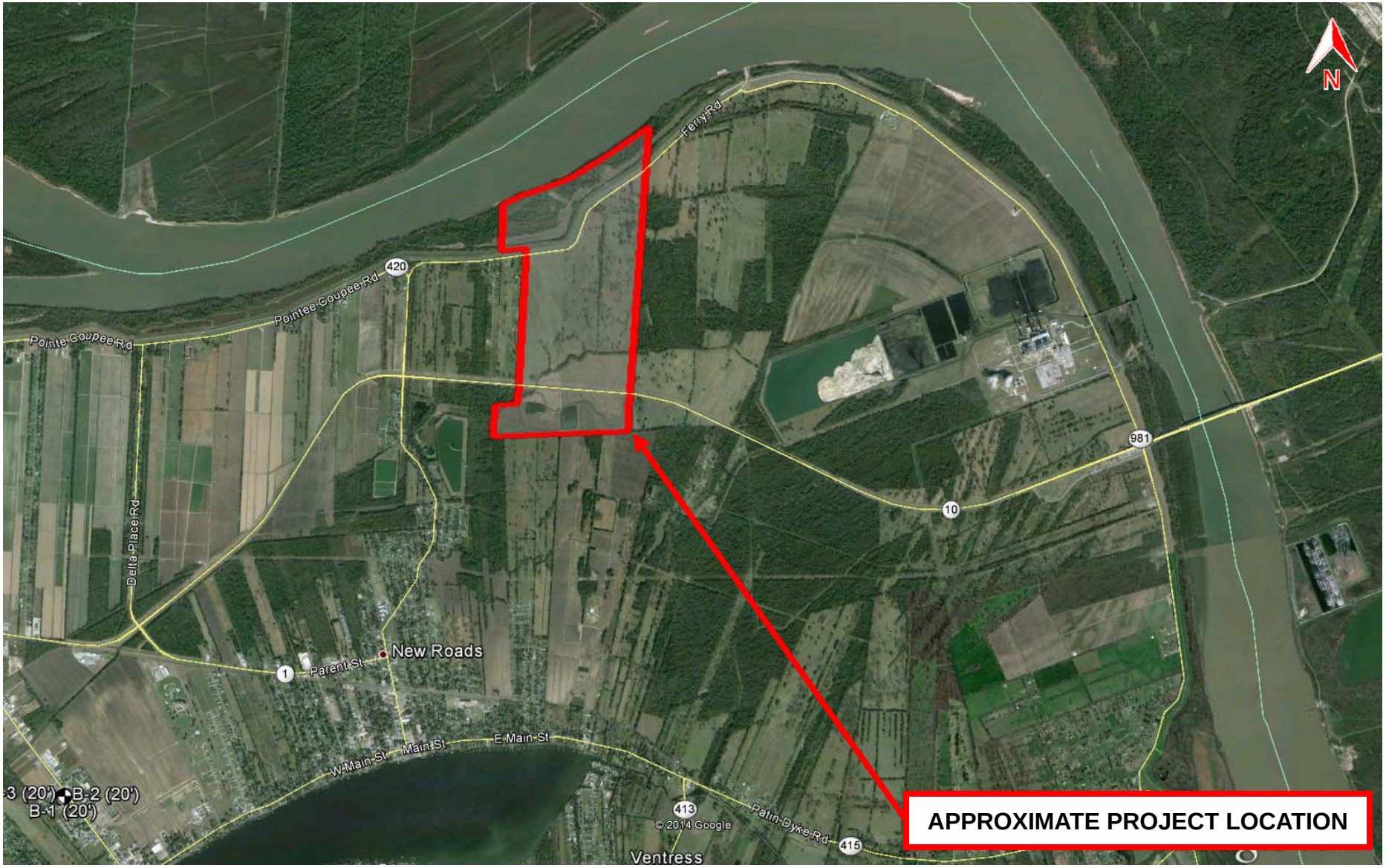
As stated previously, PSI's opinions and information presented in this site evaluation report are provided for planning purposes and preliminary considerations only; they are based on a very limited geotechnical exploration, and are not to be used for final design and construction.

REPORT LIMITATIONS

The preliminary information submitted in this report is based on the available subsurface data obtained by PSI at the time of our field exploration. PSI warrants that the preliminary findings contained herein have been made in accordance with generally accepted drilling procedures and visual soil classification methods in the local area. No other warranties are implied or expressed. This report has been prepared for the exclusive use of the Baton Rouge Area Chamber for the specific purpose of determining general subsurface information at the site of the referenced project. Upon authorization through a supplemental services agreement, PSI will be available to perform a thorough geotechnical study and provide complete and final recommendations.

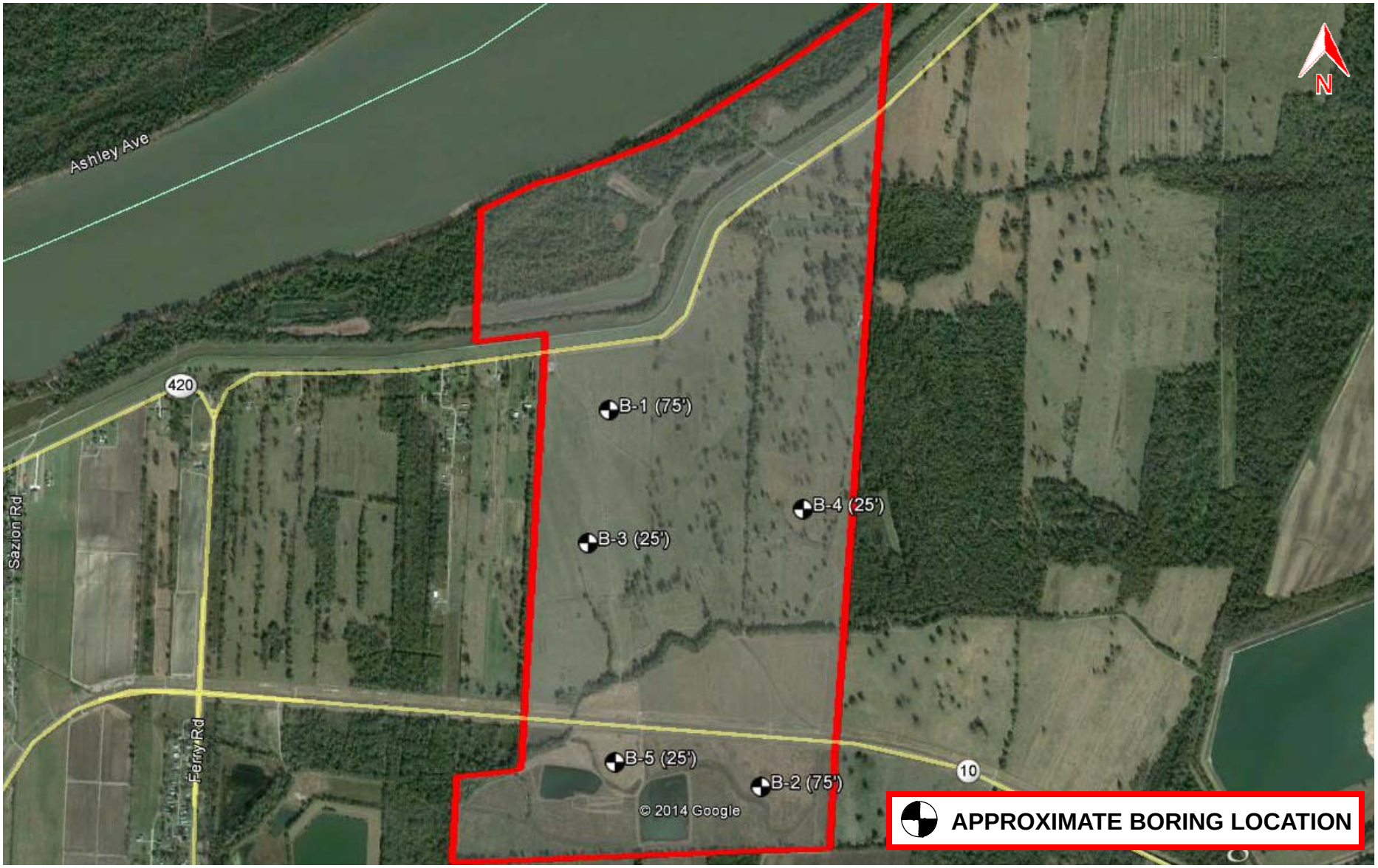
APPENDIX

SITE VICINITY MAP



GEOTECHNICAL ENGINEERING SERVICES ANGEL RANCH SITE STUDY NEW ROADS, LOUISIANA		DATE: 10/2014 DRAWN: WV	psi Information To Build On Engineering • Consulting • Testing
FIGURE 1	PSI PROJECT NO.: 0254616-01	CHKD: LC	

BORING LOCATION PLAN



GEOTECHNICAL ENGINEERING SERVICES ANGEL RANCH SITE STUDY NEW ROADS, LOUISIANA		DATE:	10/2014
		DRAWN:	WV
FIGURE 2	PSI PROJECT NO.: 0254616-01	CHKD:	LC

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LOG OF BORING B-1

Angel Ranch
New Roads, Louisiana

TYPE OF BORING: Wet Rotary | LOCATION: | PSI Project No.: 0254616

DEPTH, FT.	SOIL TYPE	USCS SYMBOL	SAMPLES	SOIL DESCRIPTION	N-BLOWS/FT.	MOISTURE CONTENT (%)	LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	% PASSING No. 200 SIEVE	SHEAR STRENGTH (tsf) ○ HP ● UC △ TV ▲ UU 0.0 0.5 1.0 1.5	SHEAR STRENGTH (tsf) HAND PEN (tsf)	SHEAR STRENGTH (tsf) UC (tsf)	SHEAR STRENGTH (tsf) TORVANE (tsf)	SHEAR STRENGTH (tsf) UU (tsf)	UNIT DRY WEIGHT (pcf)
		CH		Very stiff brown **Fat Clay**, with trace of organics		18						2.25				
2.5		CH		Very stiff brown and gray **Fat Clay**		28						1.63	1.53			95
5.0						26						1.13				
		SM		Medium dense brown **Silty Sand**	12	12										
7.5					11	17				51						
10.0				▼												
12.5		SC-SM		Very loose to loose **Silty, Clayey Sand**												
				▽	9	33										
15.0																
17.5																
20.0					4	33										
22.5		SM		Medium dense gray **Silty Sand**												
					17	25				18						
25.0																
27.5																
					20	22	77	21	56							
30.0																
32.5																
					23	22										
35.0																
37.5																
					22	23										
40.0																
42.5																
					20	21										
45.0																
47.5		SP-SM		Dense gray **Sand with Silt**												
					37	19				8						
50.0																

DEPTH OF BORING: 75 FEET
DATE DRILLED: 10/8/14
NOTE:

▽ GROUNDWATER DURING DRILLING: 15 feet
▼ GROUNDWATER UPON COMPLETION: 11 feet
▼ DELAYED GROUNDWATER: N / A

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22171 MCH Road
Mandeville, Louisiana 70471

LOG OF BORING B-1

Angel Ranch
New Roads, Louisiana

TYPE OF BORING: Wet Rotary | LOCATION: | PSI Project No.: 0254616

DEPTH, FT.	SOIL TYPE	USCS SYMBOL	SAMPLES	SOIL DESCRIPTION	N-BLOWS/FT.	MOISTURE CONTENT (%)	LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	% PASSING No. 200 SIEVE	SHEAR STRENGTH (tsf) ○ HP ● UC △ TV ▲ UU 0.0 0.5 1.0 1.5	SHEAR STRENGTH (tsf) HAND PEN (tsf)	SHEAR STRENGTH (tsf) UC (tsf)	SHEAR STRENGTH (tsf) TORVANE (tsf)	SHEAR STRENGTH (tsf) UU (tsf)	UNIT DRY WEIGHT (pcf)
52.5		SP-SM		Dense gray **Sand with Silt**												
					38	20										
55.0																
57.5																
		SP-SM		Medium dense gray **Sand with Silt**	20	23										
60.0																
62.5																
					27	22										
65.0																
67.5																
		SP-SM		Very dense gray **Sand with Silt**	51	19										
70.0																
72.5																
					53	19										
75.0				Boring terminated at 75 feet												
77.5																
80.0																
82.5																
85.0																
87.5																
90.0																
92.5																
95.0																
97.5																
100.0																

DEPTH OF BORING: 75 FEET
DATE DRILLED: 10/8/14
NOTE:

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LOG OF BORING B-2

Angel Ranch
New Roads, Louisiana

TYPE OF BORING: Wet Rotary | LOCATION: | PSI Project No.: 0254616

DEPTH, FT.	SOIL TYPE	USCS SYMBOL	SAMPLES	SOIL DESCRIPTION	N-BLOWS/FT.	MOISTURE CONTENT (%)	LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	% PASSING No. 200 SIEVE	SHEAR STRENGTH (tsf) ○ HP ● UC △ TV ▲ UU 0.0 0.5 1.0 1.5	SHEAR STRENGTH (tsf) HAND PEN (tsf)	SHEAR STRENGTH (tsf) UC (tsf)	SHEAR STRENGTH (tsf) TORVANE (tsf)	SHEAR STRENGTH (tsf) UU (tsf)	UNIT DRY WEIGHT (pcf)
		CH		Firm brown and gray **Fat Clay**, with traces of organics		23						2.25				
2.5						31						0.50				
5.0						33	58	17	41			0.50	0.35			86
		CL		Firm gray **Lean Clay**, with silt and sand seams		33						1.25				
7.5																
				▼	9	33										
10.0																
12.5																
						36	45	16	29					0.25	0.37	85
15.0																
17.5																
						37								0.25		
20.0																
22.5																
						43								0.15		
25.0																
27.5																
						41								0.20		
30.0																
32.5																
						34								0.20	0.36	84
35.0																
37.5																
		CH		Firm gray **Fat Clay**, with silt and sand seams		53								0.10		
40.0																
42.5																
						57								0.30		
45.0																
47.5																
						34						0.50				
50.0																

DEPTH OF BORING: 75 FEET
DATE DRILLED: 10/9/14
NOTE:

▽ GROUNDWATER DURING DRILLING: 9 feet
▼ GROUNDWATER UPON COMPLETION: 8.5 feet
▼ DELAYED GROUNDWATER: N / A

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Mandeville, Louisiana 70471

LOG OF BORING B-2

Angel Ranch
New Roads, Louisiana

TYPE OF BORING: Wet Rotary | LOCATION: | PSI Project No.: 0254616

DEPTH, FT.	SOIL TYPE	USCS SYMBOL	SAMPLES	SOIL DESCRIPTION	N-BLOWS/FT.	MOISTURE CONTENT (%)	LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	% PASSING No. 200 SIEVE	SHEAR STRENGTH (tsf) ○ HP ● UC △ TV ▲ UU 0.0 0.5 1.0 1.5	SHEAR STRENGTH (tsf) HAND PEN (tsf)	SHEAR STRENGTH (tsf) UC (tsf)	SHEAR STRENGTH (tsf) TORVANE (tsf)	SHEAR STRENGTH (tsf) UU (tsf)	UNIT DRY WEIGHT (pcf)
52.5		CH		Firm gray **Fat Clay**, with silt and sand seams												
55.0						40					△▲			0.20	0.47	77
57.5																
60.0						33					△			0.25		
62.5																
65.0						49					○	0.75				
67.5																
70.0						32					△			0.25		
72.5																
75.0						30					○	0.38				
77.5				Boring terminated at 75 feet												
80.0																
82.5																
85.0																
87.5																
90.0																
92.5																
95.0																
97.5																
100.0																

DEPTH OF BORING: 75 FEET
DATE DRILLED: 10/9/14
NOTE:

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LOG OF BORING B-3

Angel Ranch
New Roads, Louisiana

TYPE OF BORING: Hollow Stem Auger | LOCATION: | PSI Project No.: 0254616

DEPTH, FT.	SOIL TYPE	USCS SYMBOL	SAMPLES	SOIL DESCRIPTION	N-BLOWS/FT.	MOISTURE CONTENT (%)	LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	% PASSING No. 200 SIEVE	SHEAR STRENGTH (tsf) ○ HP ● UC △ TV ▲ UU 0.0 0.5 1.0 1.5	SHEAR STRENGTH (tsf) HAND PEN (tsf)	SHEAR STRENGTH (tsf) UC (tsf)	SHEAR STRENGTH (tsf) TORVANE (tsf)	SHEAR STRENGTH (tsf) UU (tsf)	UNIT DRY WEIGHT (pcf)
0		CH		Stiff gray and brown **Fat Clay**, with trace of organics		19						2.25				
2.5						32	72	20	52			0.88	0.88			89
5.0				- Trace organics, 4 to 6 feet		38						0.75				
7.5						37						0.50				
10.0		CL		Soft to firm brown **Lean Clay**, with silt seams		30						0.50	0.31			94
12.5																
15.0						30								0.15		
17.5				▼ ▽												
20.0		SC-SM		Very loose brown **Silty, Clayey Sand**		33										
22.5																
25.0					WOH	35										
				Boring Terminated at 25 feet	WOH											
27.5																
30.0																
32.5																
35.0																
37.5																
40.0																
42.5																
45.0																
47.5																
50.0																

DEPTH OF BORING: 25 FEET
DATE DRILLED: 10/8/14
NOTE:

▽ GROUNDWATER DURING DRILLING: 17.5 feet
▼ GROUNDWATER UPON COMPLETION: 16 feet
▼ DELAYED GROUNDWATER: N / A

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LOG OF BORING B-4

Angel Ranch
New Roads, Louisiana

TYPE OF BORING: Hollow Stem Auger | LOCATION: | PSI Project No.: 0254616

DEPTH, FT.	SOIL TYPE	USCS SYMBOL	SAMPLES	SOIL DESCRIPTION	N-BLOWS/FT.	MOISTURE CONTENT (%)	LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	% PASSING No. 200 SIEVE	SHEAR STRENGTH (tsf) ○ HP ● UC △ TV ▲ UU 0.0 0.5 1.0 1.5	SHEAR STRENGTH (tsf) HAND PEN (tsf)	SHEAR STRENGTH (tsf) UC (tsf)	SHEAR STRENGTH (tsf) TORVANE (tsf)	SHEAR STRENGTH (tsf) UU (tsf)	UNIT DRY WEIGHT (pcf)
		CL		Stiff brown and gray **Lean Clay**, with silt and sand seams		27	49	21	28			2.00				
2.5						28						1.50	1.00			90
5.0						29						1.00				
7.5						37						0.75				
		CH		Soft to firm brown **Fat Clay**, with traces of silt and sand		39	59	19	40			0.75	0.52			86
10.0																
12.5																
15.0						43						0.88				
17.5																
				▼		37						0.75				
20.0				▽												
22.5																
25.0						32					△			0.15		
				Boring terminated at 25 feet												
27.5																
30.0																
32.5																
35.0																
37.5																
40.0																
42.5																
45.0																
47.5																
50.0																

DEPTH OF BORING: 25 FEET
DATE DRILLED: 10/9/14
NOTE:

▽ GROUNDWATER DURING DRILLING: 20 feet
▼ GROUNDWATER UPON COMPLETION: 19 feet
▼ DELAYED GROUNDWATER: N / A

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LOG OF BORING B-5

Angel Ranch
New Roads, Louisiana

TYPE OF BORING: Hollow Stem Auger | LOCATION: | PSI Project No.: 0254616

DEPTH, FT.	SOIL TYPE	USCS SYMBOL	SAMPLES	SOIL DESCRIPTION	N-BLOWS/FT.	MOISTURE CONTENT (%)	LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	% PASSING No. 200 SIEVE	SHEAR STRENGTH (tsf) ○ HP ● UC △ TV ▲ UU 0.0 0.5 1.0 1.5	SHEAR STRENGTH (tsf) HAND PEN (tsf)	SHEAR STRENGTH (tsf) UC (tsf)	SHEAR STRENGTH (tsf) TORVANE (tsf)	SHEAR STRENGTH (tsf) UU (tsf)	UNIT DRY WEIGHT (pcf)
2.5		CH		Firm brown **Fat Clay**, with traces of silt and sand		31	86	22	64			1.00				
						31						0.50				
5.0		CL		Very soft to soft brown **Lean Clay**, with silt and sand		28	34	18	16				0.12	0.20		94
7.5				▼ ▽		29								0.05		
10.0						32				88				0.05		
12.5																
15.0					4	32										
17.5		SC-SM		Loose gray **Silty, Clayey Sand**												
20.0					6	33				58						
22.5																
25.0					7	32										
				Boring terminated at 25 feet												
27.5																
30.0																
32.5																
35.0																
37.5																
40.0																
42.5																
45.0																
47.5																
50.0																

DEPTH OF BORING: 25 FEET
DATE DRILLED: 10/9/14
NOTE:

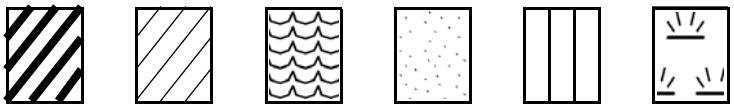
▽ GROUNDWATER DURING DRILLING: 8 feet
▼ GROUNDWATER UPON COMPLETION: 7 feet
▼ DELAYED GROUNDWATER: N / A

BORINGLOG_JEFFERSON - PSIHOUSTON.GDT - 10/22/14 10:44 - 0254

psi Information To Build On
Engineering • Consulting • Testing
Geotechnical Consulting Services
22171 MCH Road
Mandeville, Louisiana 70471

KEY TO TERMS AND SYMBOLS USED ON LOGS

SOIL TYPE

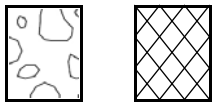


FAT CLAY | LEAN CLAY | ORGANIC CLAY | SAND | SILT | PEAT

SAMPLER TYPE

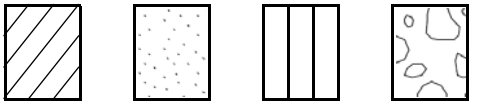
NO RECOVERY | AUGER SAMPLE | SHELBY TUBE | SPLIT SPOON

SOIL TYPE



GRAVEL | FILL

MODIFIERS



CLAYEY | SANDY | SILTY | GRAVELY

GROUNDWATER DURING DRILLING

GROUNDWATER UPON COMPLETION

UNIFIED SOIL CLASSIFICATION SYSTEM - ASTM D 2487 (1980)

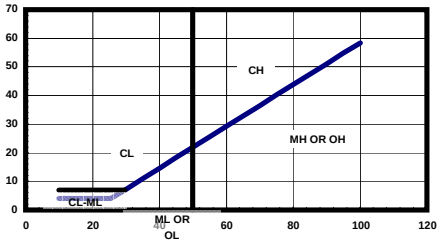
MAJOR DIVISIONS			LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS LESS THAN 50% PASSING NO. 200 SIEVE	GRAVEL & GRAVELY SOILS LESS THAN 50% PASSING NO. 4 SIEVE	CLEAN GRAVEL (LITTLE OR NO FINES	GW	WELL GRADED GRAVEL, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			GP	POORLY GRADED GRAVEL, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		W/ APPRECIABLE FINES	GM	SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SANDS MORE THAN 50% PASSING NO. 4 SIEVE	CLEAN SANDS LITTLE FINES	SW	WELL GRADED SAND, GRAVELY SAND (LITTLE FINES)
			SP	POORLY GRADED SANDS, GRAVELY SAND (L.FINES)
		SANDS WITH APPREA. FINES	SM	SILTY SANDS, SAND-SILT MIXTURES
			SC	CLAYEY SANDS,SAND-CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS & VERY FINE SANDS,ROCK FLOUR SILTY OR CLAYEY FINE SANDS OR CLAYEY SILT W/ LOW PI
			CL	INORGANIC CLAY OF LOW TO MEDIUM PI LEAN CLAY GRAVELY CLAYS, SANDY CLAYS, SILTY CLAYS
			OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PI
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 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 MED TO HIGH PI, ORGANIC SILT
HIGHLY ORGANIC SOIL			PT	PEAT AND OTHER HIGHLY ORGANIC SOILS
UNCLASSIFIED FILL MATERIALS				ARTIFICIALLY DEPOSITED AND OTHER UNCLASSIFIED SOILS AND MAN MADE SOIL MIXTURES

CONSISTENCY OF COHESIVE SOILS

CONSISTENCY	SHEAR STRENGTH IN TONS/FT^2
VERY SOFT	0 TO 0.125
SOFT	0.125 TO 0.25
FIRM	0.25 TO .50
STIFF	0.50 TO 1.00
VERY STIFF	1.00 TO 2.00
HARD	> 2.00 OR 2.00+

RELATIVE DENSITY - GRANULAR SOILS

CONSISTENCY	N-VALUE (BLOWS/FOOT)
VERY LOOSE	0-4
LOOSE	4-9
MEDIUM DENSE	10-29
DENSE	30-49
VERY DENSE	> 50 OR 50+



ABBREVIATIONS

HP - HAND PENETROMETER
TV - TORVANE
MV - MINIATURE VANE
UC - UNCONFINED COMPRESSION TEST
UU - UNCONSOLIDATED UNDRAINED TRAIXIAL
CU - CONSOLIDATED UNDRAINED

NOTE: PLOT INDICATES SHEAR STRENGTH AS OBTAINED BY ABOVE TESTS

CLASSIFICATION OF GRANULAR SOILS

U.S. STANDARD SIEVE SIZE(S)

6"	3"	3/4"	4	10	40	200

BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY	CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE		

152	76.2	19.1	4.76	2.0	0.42	0.074	0.002

GRAIN SIZE IN MM