Exhibit W. Tamanend Business Park East Site Preliminary Geotechnical Engineering Report

CSRS
IMAGINE SHAPE DELIVER

STRATUM ENGINEERING, LLC
Geotechnical Engineering ◆ Testing and Inspection Services

Tamanend Business Park East Site Preliminary Geotechnical Engineering Report

May 13, 2016

WREDCO
100 Mariner's Boulevard, Suite 10
Mandeville, Louisiana 70448

Attn: Mr. Scott Gilbert

Re: Geotechnical Engineering Report
General Site Characterization
Tamanend Business Park East
St. Tammany Parish, Louisiana
Project No. G16-025

Dear Mr. Gilbert:

Stratum Engineering, LLC (SE) is pleased to submit our Geotechnical Engineering Report for the above referenced project. The report includes the results of field and laboratory testing, as well as recommendations regarding the suitability of the site for future industrial developments.

We appreciate the opportunity to perform this geotechnical study and look forward to continued participation during the design and construction phases of this project. If you have any questions pertaining to this report, or if we may be of further service, please contact our office.

Respectfully submitted,
STRATUM ENGINEERING, LLC

William "Dean" McInnis, P.E.
Project Manager

Tony Y. Maroun, P.E.
Principal

STATE OF LOUISIANA
TONY Y. MAROUN
License No. 26198
PROFESSIONAL ENGINEER
CIVIL ENGINEERING
5/13/16

WDM/TYM:nsv

GEOTECHNICAL ENGINEERING REPORT

GENERAL SITE CHARACTERIZATION
TAMANEND BUSINESS PARK EAST
ST. TAMMANY PARISH, LOUISIANA

SE PROJECT NO. G16-025

PREPARED FOR

WREDCO
C/O MR. SCOTT GILBERT
100 MARINER'S BOULEVARD, SUITE 10
MANDEVILLE, LOUISIANA 70448

MAY 13, 2016

BY

STRATUM ENGINEERING, LLC
585 JOHNNY F. SMITH AVENUE
SLIDELL, LOUISIANA 70460

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EXECUTIVE SUMMARY

A exploration of the subsurface conditions has been completed at the Tamanend Business Park East site in St. Tammany Parish to assess its suitability for potential future industrial developments.

The site encompasses about 30 acres of undeveloped property situated off Louisiana Highway 434, a few miles north of Interstate 12 in St. Tammany Parish. The property is located at the north end of the future Tamanend Development which is currently under construction. The site is heavily wooded with a cleared pathway bisecting the property. Topographic information was not available to us during this study; however, it was assumed that two (2) to 3 feet of cut and fill may be needed to reach the design grades. It is understood that the site will be marketed for industrial type developments. Typical facilities could be pre-engineered metal buildings or cast-in-place concrete structures.

Based on the borings, about eight (8) to 10 inches of silty sandy topsoil with organics covered the surface. The topsoil was underlain by medium dense silt with sand to about 2 feet near boring B-1 or firm to stiff lean clay to a depth of approximately 4 feet near boring B-2. The surficial material was generally followed by stiff to very stiff sandy lean clay to a depth of about 12 feet where loose to medium sand was encountered and extended to about 37 feet. The sand was underlain by firm to stiff fat clay to approximately 48 feet and the deep boring was terminated in very stiff lean clay at a depth of 50 feet, the maximum depth explored. Groundwater was encountered at a depth of about 4 ½ feet during drilling.

Based on the field data and laboratory test results, the soils encountered near the surface consist mostly of medium dense sandy silts or very stiff lean clays. The near surface silty soils encountered at the site are generally stable when dry. However, they are moisture sensitive and can lose their support capabilities if they become saturated. Therefore, depending on the site condition at the time of construction, some of the silty soils may have to be removed and replaced with compacted structural fill.

Provided the site is prepared as recommended, the soils at the site are generally suitable for supporting the structures on shallow foundations with floor slabs-on-grade. Although the soil condition at the site is fair, the foundation type will also depend on the type of structure and the magnitude of the structural loads.

The recommendations provided in this report are preliminary in nature and were formulated based on anticipated loading conditions for typical business park or industrial structures. Furthermore, the recommendations were based on a few borings drilled across the site at accessible locations. Therefore, additional borings will be necessary when the type of facility is identified and the location of the structure is finalized to verify the soil conditions and provide final site specific recommendations for the structure.

The owner/designer should not rely solely on this Executive Summary and must read and evaluate the entire contents of this report prior to utilizing our engineering recommendations in preparation of design/construction documents.

PROJECT INFORMATION

Project Authorization

Stratum Engineering, LLC (SE) has completed a geotechnical exploration to characterize the Tamanend Business Park East site for a potential future development in St. Tammany Parish, Louisiana. The exploration was accomplished in general accordance with SE Proposal No. G16-036, dated March 24, 2016.

Project Description

The property is located along the I-12 corridor within the existing Tamanend Development which is currently under construction. In anticipation of a business park or industrial type developments on this property, the site will be characterized to verify the soil conditions and provide preliminary foundation recommendations for typical structures which could be constructed at the site.

Generally, industrial developments could consist of multiple structures with associated light and heavy duty pavements. The buildings may be single story structures with steel frames and load bearing masonry or tilt up walls, or could be of cast-in-place concrete. Depending on the building spans, maximum interior column load could range from 100 to 150 kips. Maximum wall loads are assumed to be 3 to 4 kips per foot. Depending on the facility type, floor loads could range between 250 to 650 psf or greater. The facilities may be dock high, requiring 4 to 5 feet of fill to reach the building finished floor elevation.

Traffic associated with industrial facilities could consist of heavy tractor trailers with an average daily traffic (ADT) of 100 to 300 trucks per day for a design life of 20 years. For these types of facilities, rigid pavements are widely considered for their longevity and ability to support the high volume of traffic.

Purpose and Scope of Services

The purpose of this study was to explore the subsurface conditions at the site and to enable an evaluation of a cost effective foundation system for potential future industrial facilities.

The scope of services included drilling one (1) boring to a depth of 50 feet and one (1) boring to a depth of 20 feet at accessible locations across the site. In addition to drilling the soil borings, our scope of services included a reconnaissance of the project site, select laboratory testing, and preparation of this geotechnical report. This report briefly outlines the testing procedures, presents available project information, describes the site and subsurface conditions, and provides results of analysis and recommendations regarding the following:

- Preliminary foundation type, depths, allowable bearing capacities, and estimate of settlements;
- Seismic site classification;
- Typical soil parameters for flexible and rigid pavements;
- Site preparation, including subgrade preparation and fill compaction requirements.

The scope of geotechnical 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.

SITE AND SUBSURFACE CONDITIONS

Site Description and Location

The site encompasses approximately 30 acres of undeveloped property located on the north end of the Tamanend Development near the Lacombe area of St. Tammany Parish. The property is heavily wooded with an existing cleared pathway bisecting the area. Detailed grading information was not available at the time this report was prepared. However, it was assumed that two (2) to 3 feet of cut and fill may be needed to reach the design grades.

Field Exploration

The field exploration included a reconnaissance of the project site, drilling the required soil test borings and recovering undisturbed and representative disturbed soil samples. Level of groundwater encountered in the soil borings was also measured and recorded.

The number of borings was suggested by CSRS, the Project Managers for the site, to support the Louisiana Economic Development (LED) Site Certification process. A total of two (2) borings were drilled to depths of 20 to 50 feet below the existing ground surface. The boring depths are in reference to the existing ground surface at the time of the field exploration. The borings were located in the field by a Stratum Engineering representative at accessible locations across the site. The approximate locations of the borings are indicated on an aerial photo of the property included in the Appendix.

Drilling and Sampling

The borings were drilled with an All-Terrain Vehicle (ATV) mounted drilling rig. Auger and wet rotary drilling techniques were used to advance the borings. Samples were generally obtained continuously from the ground surface to a depth of ten feet and at maximum five foot intervals thereafter. Drilling and sampling techniques were accomplished in general accordance with ASTM Standards.

Undisturbed samples of cohesive soils were generally obtained using thin-wall tube sampling procedures 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 wrapped in aluminum foil prior to placement in a plastic wrapping to preserve moisture. The samples were transported to the laboratory in containers to prevent disturbance.

For cohesionless soils and semi-cohesive soils, Standard Penetration Tests (SPT) were performed to obtain standard penetration values of the soil. The standard penetration value (N) is defined as the number of blows of a 140-pound hammer, falling 30 inches, required to advance the split-barrel sampler one (1) foot into the soil. Samples of granular soils were obtained utilizing a two (2) inch O.D. split-barrel sampler in general accordance with procedures for "Penetration Test and Split-Barrel Sampling of Soils" (ASTM D1586). To perform the test and obtain a sample, the sampler is lowered 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 three (3) successive increments of six (6) inches penetration. The "N" value is obtained by adding the second and 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. The split spoon samples were identified according to the project number, boring number, and depth, and were also placed in polyethylene plastic wrapping to protect against moisture loss.

The laboratory testing program included supplementary visual classification and water content tests on all of the soil samples. In addition, selected samples were subjected to unconfined compression testing, percent passing the #200 sieve and Atterberg Limits determination. Additional estimates of unconfined compressive strength were made using a hand penetrometer. The laboratory testing was performed in general accordance with ASTM Standard Procedures.

Subsurface Conditions

Based on the borings, about eight (8) to 10 inches of silty sandy topsoil with organics covered the surface. The topsoil was underlain by medium dense gray silt with sand or firm to stiff tannish gray lean clay extending to about 4 feet. The silty material was generally followed by stiff to very stiff tannish gray lean clay or sandy lean clay extending to a depth of about 12 feet. At that depth, loose to medium tan silty and poorly graded sands were encountered and extended to about 37 feet and were followed by firm to stiff gray fat clay to approximately 48 feet. The fat clay was underlain by very stiff blue green lean clay extending to the maximum depth explored of 50 feet.

The above subsurface description is of a generalized 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 boring locations. These records include soil descriptions, stratification, penetration resistances, and locations of the samples and laboratory test data. The stratification 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 stratification represents the approximate boundary between subsurface materials and the actual transition may be gradual. Water level information obtained during field operations is also shown on the boring logs. The samples, which were not altered by laboratory testing, will be retained for 60 days from the date of this report and then will be discarded.

Groundwater Conditions

Groundwater was encountered at a depth of approximately 4 ½ feet during the drilling operations. It should be noted that groundwater levels will fluctuate with seasonal variations in rainfall, extended periods of drought or surface runoff. Therefore, it is recommended that the actual groundwater level at the site be determined by the contractor at the time of the construction activities.

IBC Site Classification

The *International Building Code (IBC), 2012 edition*, was reviewed to determine the site classification for seismic design. Based on the soils encountered in the borings and our experience in the general vicinity, the site can be classified as Site Class "D", as outlined in Section 1613.3.2 of the Building Code.

EVALUATION AND RECOMMENDATIONS

General

It is our understanding the site will be marketed for a potential business park or an industrial type of development. Grading information was unavailable at the time this report was prepared. However, typical structures could be dock high facilities requiring as much as four (4) to 5 feet of fill to reach the design grade. Otherwise, single story structures with slabs-on-grade could require about 2 to 3 feet of cut and fill to achieve the design grade.

The results of the exploration indicate that the near surface soils present at this site are generally adequate to support typical industrial facilities on a shallow foundation system. However, the recommendations provided are preliminary in nature and were formulated based on assumed loading conditions for typical industrial structures. Consequently, additional borings will be necessary when the type of facilities are identified and the locations of the structures are finalized to verify the soil conditions and provide final site specific recommendations for the structures.

Site Preparation

Site preparation is expected to include, but not be limited to, clearing of the site, stripping of the topsoil, organics and other deleterious materials, and removal of any soft material encountered in the building and parking areas. Based on the borings, about ten (10) inches of silty sandy topsoil with organics was encountered at the site. However, the actual stripping depth should be determined by a representative of the Geotechnical Engineer at the time of construction.

The borings were conducted at accessible locations along an established pathway which bisected the site. The surface was relatively dry and stable. However, the silty soil encountered near the surface is moisture sensitive and could lose its strength if saturated with water. Depending on the site condition at the time of construction, about 12 to 24 inches of the near surface moisture sensitive soil may have to be undercut prior to fill placement.

The subgrade in the building and pavement areas should be proofrolled with a tandem axle dump truck or a similar heavily loaded rubber tired vehicle weighing 15 to 20 tons. Soils which are observed to rut or deflect excessively under the moving load should be undercut and replaced with properly compacted structural fill. The proofrolling and undercutting activities should be witnessed by a representative of the Geotechnical Engineer and should be performed during a period of dry weather.

After subgrade preparation and observation have been completed, structural fill placement may begin. The fill should consist of silty sand, sandy clay or clayey sand and should be free of organics or other deleterious materials. The fill should have a liquid limit less than 40 and a plasticity index less than 18 percent. Structural fill soils with plasticity indices in this range will require close moisture content control to achieve the recommended degree of compaction. The structural fill should be compacted to at least 95 percent of the fill's maximum dry density as determined by ASTM D698 (Standard Proctor).

The fill should be placed in maximum lifts of 8 inches of loose material and should be compacted within 1 percentage point below to 3 percentage points above the optimum moisture content. If water must be added, it should be uniformly applied and thoroughly mixed into the soil by disking or scarifying. Each lift of compacted fill should be tested by a representative of the Geotechnical Engineer prior to placement of subsequent lifts. The edge of compacted structural fill should extend at least 10 feet beyond the edge of building prior to sloping.

Crowning the building pad during fill placement, particularly in wet periods, is highly recommended to minimize ponding of water and allow rapid runoff of surface water. Construction traffic should not be allowed on the building pad during wet weather, where practical.

Shallow Foundations

Based on the field data and laboratory test results, the site is suitable to support future industrial developments on shallow foundations bearing at least two (2) feet below the finished grade. Shallow spread and continuous wall footings bearing in the compacted structural fill or in the naturally occurring stiff clay can be designed for maximum allowable bearing pressures of 2,500 and 2,000 pounds per square foot, respectively. Minimum dimensions of 24 inches for spread footings and 18 inches for continuous footings should be used in the design, even if the resulting bearing pressure is less than the allowable bearing pressure, to minimize the possibility of a local bearing failure. The recommended preliminary bearing capacities include a factor of safety of 3.0.

The foundation excavations should be observed by a representative of Stratum Engineering prior to steel or concrete placement to assess that the foundation materials are consistent with the materials discussed in this report. Soft or loose soil zones encountered at the bottom of the footing excavations should be removed to the level of firm, suitable bearing soils or adequately compacted fill as directed by the Geotechnical Engineer.

The footing excavations should be observed and concrete placed as quickly as possible to avoid exposure of the footing bottoms to wetting and drying. Surface run-off water should be drained away from the excavations and not be allowed to pond. If it is required that footing excavations be left open for more than one day, they should be protected to reduce changes in moisture content of the bearing soils.

Settlement

Areal settlement under a building is generally caused by the amount of fill placed, the size of the building footprint and the subsurface soil conditions encountered in the building area. Similarly, footing settlement depends on the footing size as well as the soil conditions below the footing. At the time this report was prepared, the type of structures had not been identified and the amount of fill needed to achieve the design grade was not known. However, based on the subsurface conditions encountered at the site, areal settlement is anticipated to be minimal with the addition of two (2) to 3 feet of fill. Furthermore, based on the assumed structural loads, foundation settlement will be less than one (1) inch provided the footings are designed for the recommended bearing pressure.

Floor Slabs

Floor slabs-on-grade may be supported on compacted low plasticity structural fill. Placement of new structural fill and preparation of the existing subgrade beneath the floor slabs should be prepared as outlined in the "Site Preparation" section of this report. Proofrolling, as discussed earlier in this report, should be accomplished to identify any soft or unstable soils which should be removed from the floor slab areas prior to fill placement and/or floor slab construction.

For design purposes, a Modulus of Subgrade Reaction (k) of 125 pci can be used for the compacted structural fill. This can be increased with the addition of a 4 to 6 inch layer of 610 limestone below the floor slabs. In addition to improving the Modulus of Subgrade Reaction, the aggregate base will evenly distribute the load over the subgrade and provide a better working table during construction.

The floor slabs should have an adequate number of joints to reduce cracks resulting from any differential movement and shrinkage. The floor slabs should not be rigidly connected to columns, walls or foundations. Polyethylene sheeting should be placed on top of the aggregate base to act as a vapor barrier and protect the slabs from potential problems commonly associated with moisture migration through floor slabs in a controlled environment.

Parameters for Pavement Design

Parking areas and drives associated with an industrial park are expected to consist generally of light duty pavement for employee parking as well as heavy duty pavement for large truck staging areas, parking areas and drives.

Based on the field data and laboratory test results, the near surface soil consists of sandy silts or lean clays. Typical California Bearing Ratio (CBR) values for the existing silty subgrade or imported clayey sand structural fill were estimated to be on the order of 4 to 5 corresponding to a Modulus of Subgrade Reaction (k) of about 125 pci which may be used for the design of flexible and rigid pavements, respectively. These values may be used with consideration given to the frequency and magnitude of anticipated traffic loads associated with the type of facilities being constructed.

CONSTRUCTION CONSIDERATIONS

Moisture Sensitive Soils/Weather Related Concerns

The upper silty soils encountered at the site are extremely sensitive to changes in moisture content and may lose significant strength if allowed to become saturated. In addition, soils that become wet may be slow to dry and thus significantly retard the progress of grading and compaction activities. During wet weather periods, increases in the moisture content of the upper soils can cause some reduction in the soil strength and support capabilities. Therefore, it will be advantageous to perform earthwork construction activities during dry weather. The site contractor shall be responsible for maintaining a firm, unyielding and stable subgrade condition. Should the near surface soils become wet, the contractor should be prepared to mitigate these conditions by repeated aeration and exposure to sunlight or by chemical treatment.

REPORT LIMITATIONS

The recommendations submitted in this report are based on the limited subsurface information obtained by SE and the preliminary design assumptions typically associated with the type of structures anticipated for the planned development. These recommendations are preliminary and generalized in nature, as such SE will not be responsible for their use in the design of a specific structure without performing a detailed investigation and determining if changes in the recommendations are required.

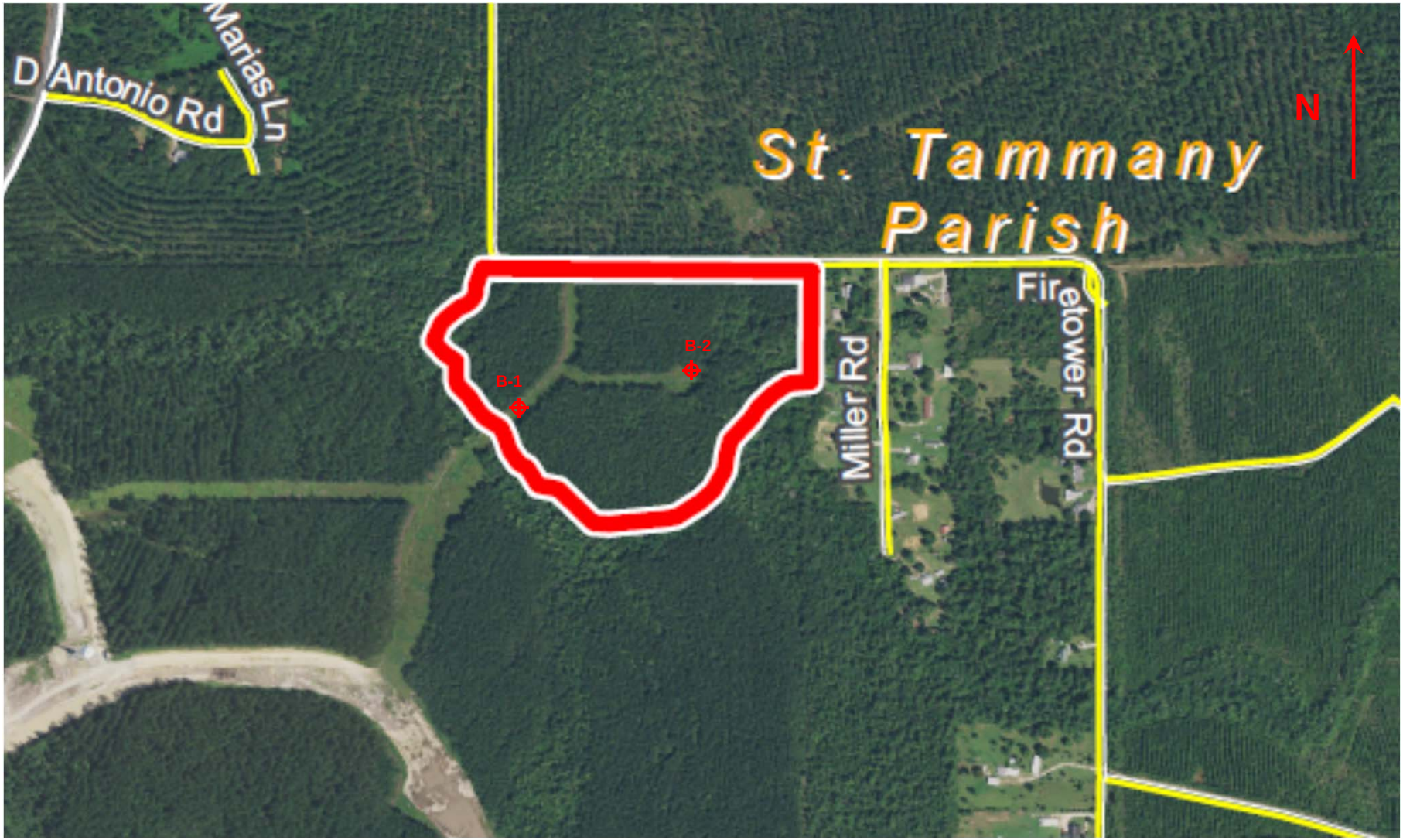
The Geotechnical Engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed.

Once specific plans for the development are complete, the Geotechnical Engineer should be retained and provided the opportunity to conduct a more thorough geotechnical investigation and analysis utilizing the detailed design plans and specifications for the structures to be constructed.

This report has been prepared for the exclusive use of WREDCO for marketing and planning of the Tamanend Business Park East site in St. Tammany Parish, Louisiana.

APPENDIX

STRATUM ENGINEERING, LLC



= Proposed Boring Location

STRATUM ENGINEERING, LLC

BORING LOCATION PLAN

GEOTECHNICAL ENGINEERING SERVICES
GENERAL SITE CHARACTERIZATION
TAMANEND BUSINESS PARK EAST
ST. TAMMANY PARISH, LOUISIANA

STRATUM ENGINEERING, LLC

LOG OF BORING B-1

GENERAL SITE CHARACTERIZATION
TAMANEND BUSINESS PARK EAST
ST. TAMMANY PARISH, LOUISIANA

TYPE OF BORING: WET ROTARY **LOCATION:** WEST SIDE OF PROPERTY **PROJECT NO.:** G16-025

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENTROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
			10" Silty Sandy Topsoil with organics			2.25			28	22	1	72
			Medium gray Silt with sand									
			Firm tannish gray Lean Clay with sand		0.54	0.75		107	22	27	8	73
5			-becomes very stiff at 4' ▽			2.25			22			
			Stiff to very stiff tannish gray Sandy Lean Clay		1.15	2.00		108	19			
10						1.50			22	28	9	60
			Medium tan Poorly Graded Sand	15					24			8
15												
20				14					17			
25				22					16			1
30				25					16			
35			-becomes dense at 33'	41					18			1
			Firm to stiff gray Fat Clay with shell fragments			1.00			48			
40												
45					0.86	1.25		72	52			
			Very stiff blue green Lean Clay			2.50			30			
50												

DEPTH OF BORING: 50 Feet **GROUNDWATER:** Encountered at 4 ½ Feet During Drilling
DATE: 4/25/2016

STRATUM ENGINEERING, LLC

LOG OF BORING B-2

GENERAL SITE CHARACTERIZATION
TAMANEND BUSINESS PARK EAST
ST. TAMMANY PARISH, LOUISIANA

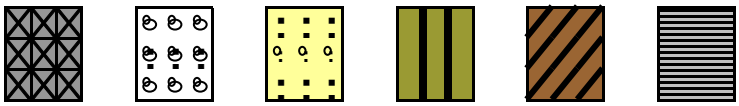
TYPE OF BORING: WET ROTARY **LOCATION:** EAST SIDE OF PROPERTY **PROJECT NO.:** G16-025

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENTROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
			8" Silty Sandy Topsoil with organics			1.00			26			
			Firm to stiff gray Lean Clay with silt seams and sand lenses		0.71	0.75		99	24			
5			Stiff to very stiff tannish gray Lean Clay with sand ▽			2.00			19			
					2.27	2.50		112	19	43	28	77
10			Very stiff gray Sandy Lean Clay			2.50			19			
15			Loose gray Silty Sand	9					22			46
20			Medium tan Poorly Graded Sand	22					22			7
			Boring Terminated at 20 Feet									
25												
30												
35												
40												
45												
50												

DEPTH OF BORING: 20 Feet **GROUNDWATER:** Encountered at 4 ½ Feet During Drilling
DATE: 4/25/2016

KEY TO TERMS AND SYMBOLS USED ON LOGS

SOIL TYPE

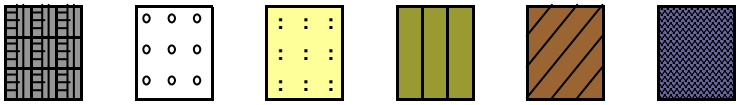


ROCK | GRAVEL | SAND | SILT | CLAY | PEAT

SAMPLER TYPE

NO SAMPLE | AUGER SAMPLE | SHELBY TUBE | SPLIT SPOON

MODIFIERS



STONE | GRAVELY | SANDY | SILTY | CLAYEY | FILL

NO RECOVERY | ROCK CORE | 2" SHELBY TUBE | TXDOT CONE

UNIFIED SOIL CLASSIFICATION SYSTEM - ASTM D 2487 (1980)

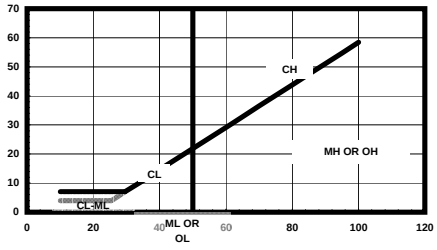
MAJOR DIVISIONS			LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS LESS THAN 50% PASSING NO. 200 SIEVE	GRAVEL & GRAVELY SOILS LESS THAN 50% PASSING NO. 4 SIEVE	CLEAN GRAVEL (LITTLE OR NO FINES	GW	WELL GRADED GRAVEL, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			GP	POORLY GRADED GRAVEL, GRAVEL-SAND 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 0.5
STIFF	0.5 TO 1.0
VERY STIFF	1.0 TO 2.0
HARD	> 2.0 OR 2.0+

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

DELAYED GROUNDWATER LVL

LEVEL GROUNDWATER ENCOUNTERED

CLASSIFICATION OF GRANULAR SOILS

U.S. STANDARD SIEVE SIZE(S)

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

BOUL--DERS	COBBLES	GRAVEL		SAND			SILT	CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE		

152	76.2	19.1	4.76	2.0	0.42	0.075	0.002

GRAIN SIZE IN MM