Exhibit U. Allstar Site Geotechnical Study Report

GEOTECHNICAL INVESTIGATION

WESTVIEW CROSSING SUBDIVISION
PORT ALLEN, LOUISIANA

REPORT DATE:

JUNE 11, 2008

PREPARED FOR:

TATUM ENGINEERING, INC.
BATON ROUGE, LOUISIANA

PREPARED BY:

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June 11, 2008

Mr. Jim Tatum, P.E.
Tatum Engineering, Inc.
6920 North Merchant Court
Baton Rouge, LA 70809

Re: Geotechnical Investigation
Westview Crossing Subdivision
Port Allen, Louisiana
AQT No. 910800168

Dear Mr. Tatum,

Submitted herein are the results of our geotechnical investigation for the proposed Westview Crossing Subdivision in Baton Rouge, Louisiana. This work was authorized by Mr. Jim Tatum.

In general, the soil borings encountered a stiff to very stiff silty clay (Unified Soil Classification System symbol, CL) and clay (CH) "crust" in the upper 2 to 4 feet, overlying soft to firm clay, silty clay, and very silty clay (ML-CL). Measurable groundwater was typically encountered at a depth of 6 to 7 feet below the ground surface and rose to around 4 to 5 feet after stabilizing for about 20 minutes. During the test pit observations, the presence of water was observed in the bottom of five (5) of the six (6) test pits at about 8 feet. The water infiltration rate was characterized as minimal to low at the time of the test pit observations.

Guideline recommendations for site preparation, infrastructure installation, and recommendations for project pavements are provided in the attached report.

We appreciate this opportunity to work with you, and look forward to providing QA/QC testing services during construction. Please contact this office if you have any questions.

Sincerely,

Stephen E Greaber

Stephen E. Greaber, P.E.
attachment

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APPENDICES

1.0 INTRODUCTION

Tatum Engineering, Inc. is designing a new subdivision called Westview Crossing on Court Street in Port Allen, Louisiana. The site is located near latitude 30° 27' 06.9" N and longitude 91° 14' 00.2" W. A site vicinity map indicating the general location of the proposed development is illustrated on Figure 1. More detailed information regarding proposed construction is provided in Paragraph 2.2.

1.1 Purpose

Aquaterra Engineering, LLC was retained by Tatum Engineering to conduct a geotechnical investigation for the proposed development. The investigation was intended to provide an understanding of the subsurface conditions and to develop options available for foundation and pavement design at this development.

1.2 Scope

The geotechnical investigation conducted for this project included the following:

- Site Reconnaissance: A visual review and documentation of site conditions pertinent to the geotechnical study at the time of our field exploration.
- Test Pit Observations: Six test pits were performed by a site contractor and observed by our geotechnical engineer.
- Soil Borings: Nine soil borings were drilled and sampled at the locations illustrated on Figure 2. Detailed soil boring logs are included in Appendix A.
- Laboratory Testing: The determination of index and engineering properties of selected soil samples by performing geotechnical laboratory testing on selected soil samples. The results of the testing program are incorporated in this report.
- Engineering Evaluations & Reporting: The performance of engineering analyses for pertinent design recommendations and the development of this report.

1.3 Procedures

This investigation followed procedures established by our firm as routine for a geotechnical investigation of this nature with sampling and analyses in general accordance with appropriate guidelines established by ASTM. Appendix A describes the field and laboratory procedures utilized to accomplish this geotechnical investigation.

1.4 Limitations

The analyses and recommendations presented in this report are based upon the assumption that the soil borings made for this investigation represent the soil and groundwater conditions throughout the site. Variations in soil or groundwater conditions may occur between or away from the boring locations. If conditions different from those described in Section 3 are encountered or are expected, this office should be promptly notified so that the effects of the varying conditions can be determined, and any necessary changes to these analyses and recommendations can be made.

This investigation program and these recommendations are intended for specific application to the project generally described in Section 2 at the site described in Paragraph 3.1. The data or the analyses and recommendations presented in this report are not necessarily applicable for any other project or location. If the nature of the project should change from the descriptions provided in Section 2, these recommendations should be reevaluated.

The only warranty made regarding our services that we have used that degree of care and skill ordinarily exercised under similar conditions by reputable members of our profession practicing in the same or similar locality. No other warranty is expressed or implied.

2.0 PROJECT INFORMATION

The following paragraphs present the project information that was available at the time this report was prepared. Should this information be incorrect, or change significantly, please contact this office so that our analysis and recommendations can be re-evaluated.

2.1 Information Sources

Information related to this project was provided by Tatum Engineering, Inc. representative, Mr. Jim Tatum in an email, and through Mr. Ryan Estess during telephone conversations. The information provided included a conceptual plan view drawing and survey of the proposed development.

2.2 Anticipated Construction

We understand that you are designing a new single family home subdivision called Westview Crossing on Court Street in Port Allen, Louisiana. We anticipate that one to two feet of compacted fill material may be placed to achieve the final grade. The subdivision plan includes excavation of one or two ponds near the approximate center of the site. No other excavations other than those for foundation and miscellaneous small utility construction will be required.

3.0 SITE CONDITIONS

In a geotechnical investigation of this nature, local topography and surface conditions, geologic setting and site-specific soil and groundwater conditions are important. The following paragraphs summarize our findings relative to these topics.

3.1 Physical Setting

The site is located in an agricultural field off Court Street in Port Allen, Louisiana (see Figure 1). The site consisted of some heavy brush and briars up to four feet tall, and sugar cane remnants. There is a maximum elevation difference of 2 feet across the site. Standing water was not present at the time of the investigation. Our drilling equipment was able to traverse the site with difficulty due to the elevation differences between agricultural field rows.

3.2 Geologic Setting

The site is in an area of Natural Levee deposits, very close to Alluvial deposits of Holocene age. These Holocene Age deposits are broadly present throughout the area and are commonly characterized by a firm to stiff clay and silty clay "crust" overlying softer clay soils. At greater depth significant silt and sand layering may be present. The soils within the Natural Levee deposits are typically normally consolidated and tend to be compressible.

3.3 Soil Conditions

In general, the soil borings typically encountered a stiff to very stiff silty clay (Unified Soil Classification System symbol, CL) and clay (CH) "crust" in the upper 2 to 4 feet, overlying soft to firm clay, silty clay, and very silty clay (ML-CL). The soil boring logs in Appendix A include the field and laboratory data collected and a description of soil conditions specific to each boring.

Test pits were excavated by a site contractor on April 30, 2008. Aquaterra observed the test pits to field classify the general soil strata and observe groundwater infiltration conditions. The test pits were excavated prior to our arrival to approximately 10 feet. Some caving of the upper soils was noted, resulting in observable test pit depths of 8 feet. The observed soil strata was recorded in a field book and are summarized on Table 1. The observed soil types encountered in the test pits were generally consistent with the soil strata defined by the nearby soil borings.

3.4 Groundwater Conditions

As described in Appendix A, the soil borings were dry augered to a maximum depth of 10 feet to document groundwater conditions at the time of our investigation. Measurable groundwater was typically encountered at a depth of 6 to 7 feet below the ground surface and rose to around 4 to 5 feet after stabilizing for about 20 minutes.

During the test pit observations, the presence of water was observed in the bottom of five of the six (6) test pits at about 8 feet. The water infiltration rate was characterized as minimal to low at the time of the test pit observations.

Groundwater levels will vary with rainfall and other seasonal variations. The depth to groundwater should be verified prior to the initiation of activities that could be impacted by groundwater.

4.0 GEOTECHNICAL CONSIDERATIONS

The information provided by the designers for this project has been combined with our findings from the site investigation to develop guideline recommendations for site preparation, shallow foundations, infrastructure installation, and recommendations for project pavements. The following paragraphs summarize these considerations.

Miscellaneous infrastructure and the major sewer system may be supported on shallow foundations bearing in the natural firm to stiff silty clay (CL), clay (CH), and very silty clay (CL-ML). Detailed recommendations for shallow foundations are provided in Section 6 of this report.

Based on information provided to this office, the infrastructure depth will be a minimum of 6 feet. Other than the sewer and storm drain lines and the proposed pond excavations, it is our understanding that the development will have no subterranean structures. Groundwater is expected to be encountered in excavations below a depth of approximately 6 feet. Observations during the test pit excavations and the results of the soil classifications suggest that the infiltration rate will be relatively low. Detailed recommendations for the storm and sanitary sewer line installation are provided in Section 7 of this report.

Pavement options include both rigid and flexible pavements with some subgrade improvement required. Detailed recommendations for the design of project pavements are provided in Section 8 of this report.

Appropriate quality control and quality assurance provisions are essential to the successful implementation of the recommendations provided in the subsequent paragraphs for site preparation, installation of storm and sanitary sewer line, and pavement design. Section 9 addresses the required quality control and quality assurance provisions that are within the scope of this project.

5.0 SITE PREPARATION

A critical aspect of the successful construction project is site preparation. Good site preparation is also critical to the overall performance of the foundation and pavement system. This section provides recommendations for site drainage, clearing & grubbing, mitigation of unstable soils, excavations, and fill placement.

5.1 Site Drainage

At the time of our exploration, the site was recently used for agricultural purposes. The site appeared to drain by agricultural rows to drainage ditches around the perimeter and through the subject site. The Three Canal is located along the approximate east boundary of the site, and is on the order of 10 to 15 feet lower than the site elevations.

Standing water was not noted in the low areas of the rows at the time of our site observations. Effective drainage should be maintained to remove storm water from the site as rapidly as possible. The near-surface soils can deteriorate rapidly if construction is attempted during seasonal wet periods, unless excellent controlled drainage is provided. Good drainage should be instituted at the start of construction, and maintained subsequent to construction to remove water from the site. Such provisions for good drainage also apply to long term conditions.

5.2 Clearing and Grubbing

Site preparation should include clearing and grubbing to remove objectionable materials that may be present within the area of proposed construction. Objectionable materials that should be removed include: stumps, roots, organic matter, old foundations, and any rubble or debris that may be present. Soils containing objectionable materials should not be used for backfill. Where trees must be removed, care should be taken to remove the entire root ball, such that the only remaining roots measure one inch in diameter or less.

Care should be exercised during the clearing and grubbing process to minimize disturbance of the surface soils. It is expected that the upper approximate 6 inches of organic laden/cultivated soil may require stripping; however, the upper approximate 2 to 4 feet are relatively stable. Weaker soil conditions can be expected below 2 to 4 feet. Minimal site excavation in the planned building and roadway areas is recommended to maximize the benefit of the stiffer upper soils.

5.3 Mitigation of Unstable Soils

The in-place soils must be stable prior to the placement of fill materials or structures over them. At the time of this investigation, the near-surface clays (CH) and silty clays (CL) were described as stiff. After initial clearing and grading, the subgrade should be proof rolled with a loaded tandem axle truck to confirm stability of the subgrade prior to placement of fill and or pavements. The proof roll operations should not be performed immediately after a rain event.

These soils can be susceptible to disturbance, especially in the presence of free moisture. It is recommended that initial site preparation activities be commenced in the typically drier summer months. If the contractor controls drainage and limits construction disturbance, these soils should remain stable. If an area becomes disturbed and begins to "pump" under construction traffic, the area should be properly mitigated. Mitigation would likely include processing to remove excess moisture, or overexcavation and backfilling. Should mitigation be required, this office should be notified so that the project geotechnical engineer can visit the site and prescribe the appropriate mitigation.

5.4 Excavations

We anticipate that excavations on the order of 6 feet deep will be required to install site utilities. Excavations placed into the natural firm to stiff silty clays (CL) and clays (CH) should be capable of standing on near vertical slopes for short-term conditions. The leaner firm very silty clays (CL-ML) encountered at some of the boring locations may exhibit a tendency to cave if left open for extended periods. Based on conditions at the time of our exploration, groundwater will likely be encountered in excavations below about 6 feet. The depth to groundwater should be evaluated prior to excavations being placed. The observations during the test pit excavations suggest relatively low groundwater infiltration rates are expected, which suggests conventional dewatering (gravity ditches or pumps) should be sufficient during typical utility installations.

All excavations should be made and kept in compliance with the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) regulations (29 CFR Part 1926). These regulations require that excavations greater than five feet in depth be sloped, benched, sheeted, or braced to protect employees working in or near the excavation against the risk of collapse.

5.5 Fill Materials

The soil borings made in the area of the planned ponds (B-3, B-6, B-7, and B-8) encountered soils ranging from very silty clay (CL-ML) to moderately plastic clay (CH) to a depth of 10 feet. The in-situ moisture content of the soils in these borings ranged from 24 to 35 percent. The soil types encountered are considered generally suitable for use as engineering fill at the project site. However, the in-situ moisture content is expected to be on the order of 8 to 15 percent wet of optimum, which suggests significant drying and processing would be required to achieve conditions conducive for adequate compaction.

Imported fill material used to raise the site grade should be either a low plasticity clay (USCS classification, CL), or a clayey sand (SC). Fill materials should be free of roots, construction debris, organic matter or any other type deleterious matter. Imported clayey soil should have a liquid limit of less than 45 and a plasticity index of between 8 and 25.

For the most part, the on-site clays (CH) and very silty clays (ML-CL) do not satisfy the above specification.

5.6 Fill Placement/Compaction

Soil material to be used as fill should be placed in loose lifts graded to provide a uniform thickness not exceeding nine inches. The surface of each preceding, compacted lift should be lightly scarified to ensure adequate bonding between lifts.

The moisture content during compaction should be maintained within five percent of its optimum as determined by the standard Proctor compaction test (ASTM D 698). The minimum compaction requirements are a function of the future use of the area. These requirements are as follows:

- Structural Fill: (beneath footings, building pads or parking/driveway areas) at least 95 percent of its maximum density as determined by the standard Proctor compaction test (ASTM D 698), and
- Grading Fill: (outside of the areas listed above) at least 90 percent of its maximum density as determined by the standard Proctor compaction test (ASTM D 698).

6.0 SHALLOW FOUNDATIONS

As noted in Section 4, shallow foundations can be used to support the sewer system and miscellaneous infrastructure. The following paragraphs provide recommendations for shallow foundation construction.

6.1 Bearing Stratum/Depth

Miscellaneous shallow foundations may bear in the natural material visually identified as stiff to firm clay (CH), silty clay (CL), or clayey silt (ML-CL). Footings should bear at a depth of at least 18 inches below the final exterior grade. Minimum footing widths are also recommended. Continuous footings should be at least 16 inches wide and square footings should be at least 24 inches wide. The exposed subgrade soils should be prepared as described in Section 5. The following general precautions are recommended to protect the bearing surface from degradation:

- Verify that the excavations are completely within the material described above as the bearing stratum and remove and replace any unacceptable soils using the provisions noted in Section 5,
- Provide positive drainage away from the foundations, both during and after construction,
- Avoid excavations during inclement weather and place concrete within the excavations within 24 hours after completion of the excavations,
- Remove any free water in the excavation prior to placing concrete,
- Place a "mudmat" of lean concrete to seal the bearing stratum in the event wet conditions are experienced or expected, and
- Minimize traffic in excavations to only that necessary to place the steel and concrete for the footings.

Construction monitoring of the bearing surface is recommended to verify that the provisions of this paragraph are being followed. This construction monitoring should be performed by a representative of this firm in accordance with Section 8.

6.2 Bearing Capacity

Foundations for miscellaneous infrastructure and sewer system that are constructed in accordance with the provisions of Paragraph 6.1 may be proportioned for the maximum net allowable soil bearing pressure of 1300 pounds per square foot (psf).

The recommended bearing capacity value includes an adequate factor of safety against bearing capacity failure, and takes into consideration the weight of concrete below grade.

6.3 Settlement/Movements

Depending on specific loading and bearing depth considerations, shallow foundations placed on the natural stiff to firm clay (CH), silty clay (CL), and very silty clay (CL-ML) may be subject to consolidation settlements. More detailed information regarding settlements can be provided for specific loading conditions.

7.0 STORM & SANITARY SEWER LINE INSTALLATION RECOMMENDATIONS

The excavations for the proposed storm and sewer drain lines will be made within the firm to stiff clay (CH), silty clay (CL) and very silty clay (CL-ML). In order to provide uniform support, it is suggested that a minimum 6 inches of granular bedding material be installed within the base of the excavation. The sewer and storm drain lines may then be placed on the bedding material. Storm drains on the order of 6 feet deep and sewer depths ranging from 4 to 7 feet deep are expected.

Fill used to backfill the excavations should meet the specifications provided in Section 5 of this report and accordance with local building codes. The on-site clays (CH) and silty clays (CL) are expected to be wet of optimum and should not be used as fill material unless they are dried to near (+/- 5%) optimum moisture. If the excavation is less than about two feet in width, use of granular soil will facilitate compaction. Completed excavations in areas that will not be covered by project pavements should be capped with excess cohesive material to minimize.

No special excavation methods are expected within the firm silty clays (CL) and clays (CH). However, some temporary shoring (e.g., sliding box) may be required in areas below the water table (> 6 feet) and where the firm very silty clays (CL-ML) soils are encountered.

Excavations that will be greater than 5 feet should be placed in accordance with the OSHA regulations referenced in Paragraph 5.4. If groundwater is encountered during the excavations, a gravity or pumping system may be used to remove the water from the area. Groundwater depths should be confirmed before excavations begin.

8.0 PAVEMENT CONSIDERATIONS

Subdivision roadways will be constructed as part of this development. The following paragraphs present our guideline recommendations for pavement subgrade preparation. Pavement design analyses were performed for estimated traffic types and volumes.

Soil borings placed across the site encountered generally stiff silty clays (CL) and moderately plastic clays (CH) in the upper 2 feet. We expect that some fill may be placed to achieve the final road design grade. All fill must be placed and compacted in accordance with Section 5 of this report. Subgrade preparation for pavement construction should consist of clearing, grubbing and stripping to remove organic containing topsoil, roots and other organic materials. The thickness of such grubbing efforts is anticipated to range from 6 to 12 inches. The presence of the former cane rows will require some initial filling and compaction to establish a uniform initial grade. The recommendations provided in Paragraph 5.2 for site preparation also apply to paving areas.

Based on the results of this investigation, Aquaterra recommends that rigid pavements be considered for this site. Flexible pavements (asphalt), if selected for use, should be designed based on a subgrade bearing value (CBR) of 4 for the in-place soils. Rigid pavements (concrete) should be designed based on a modulus of subgrade reaction (k) of 150 pounds per cubic inch (pci) for the in-place soils.

Anticipated traffic volumes and loading conditions for this subdivision were not provided, but were assumed based on experience with similar projects. The pavements within the facility could be considered standard duty traffic areas. Traffic estimates used in the determination of required pavement thicknesses assume a 20-year design period and are summarized in the following insert table.

Traffic Volumes Assumed for Analysis

Traffic Type	Estimated Traffic (vehicles/lane/day)
	Standard Duty
Automobiles	500
2-axle and 3-axle Trucks	3
4-axle Delivery Trucks	1
5-axle Semi-Trailer Trucks	None

The architect or engineer responsible for the final pavement design should review this traffic information for accuracy. If these traffic assumptions are not correct, please advise this office so that the pavement designs can be re-analyzed and revised thickness designs developed.

8.1 Flexible Pavement Thickness Design

Two options are given for minimum flexible pavement design. Option 1 is 3 inches of asphalt pavement over 6 inches of granular base over 9 inches of lime treated subgrade. The requirement for lime treatment may be waived in lieu of a minimum 12 inches of compacted select engineering fill. Option 2 is 3 inches of asphalt pavement over 12 inches of lime and cement treated subbase.

The asphaltic concrete surface course should meet the requirements of the *Louisiana Department of Transportation Standard Specifications for Road and Bridge Construction, 2006 Edition* for a Type III Marshal Mix Design (*2000 Edition LADOTD Specifications*) asphalt.

Granular base course for flexible pavement options should consist of stone complying with the gradation requirements outlined in LADOTD Section 1003.03 for a Size No. 610 material. Alternately, a well graded crushed recycled concrete material could be substituted, provided the gradation requirements are satisfied.

Chemical treatment of the subgrade/subbase soils can be accomplished using hydrated lime followed by Portland cement. For the soils at this site, we recommend a minimum 4% by dry soil weight of hydrated lime. After a minimum 72-hour mellowing period, for paving options that include cement treatment, we recommend a minimum 8% by dry soil weight of Portland cement. The final lime and cement application rate should be confirmed through a mix design process at the time of construction considering the actual subgrade soils.

Alternate materials may be acceptable as approved by the project geotechnical engineer.

8.2 Rigid Pavement Thickness Design

Rigid pavements should be designed and constructed using a minimum 6 inch plain concrete pavement thickness plain (non-reinforced) concrete over a compacted and stable subgrade.

The following information is provided for information purposes and is derived from ACI330R-01 "*Guide for Design and Construction of Concrete Parking Lots*". It is recommended that the design engineer refer to this document for more detailed information.

8.2.1 Concrete Strength and Mix Design. The concrete used for the pavement should consist of a pavement mix with a minimum 28-day compressive strength of 4,000 pounds per square inch or a minimum 28-day flexural strength of 600 pounds per square inch. The mix design should be proportioned to provide adequate durability and have adequate workability for efficient placement, finishing and texturing.

8.2.2 Contraction Joints. Rigid pavements should be constructed with transverse contraction joints spaced not more than 12.5 feet on center. Contraction joints should also be located in the longitudinal direction with spacing of not greater than 12.5 feet. These contraction joints should be either grooved (tooled) or saw cut. The timing of grooving or saw cutting is critical to the prevention of shrinkage cracks in the pavement. Begin saw cutting within 4 to 6 hours after concrete placement or as soon as the concrete allows when using an early-entry saw. The depth of the contraction joint should be at least 1/4 of the slab thickness. Aggregate interlock joints will be sufficient reinforcement for the contraction joints.

8.2.3 Construction Joints. Construction joints provide the interface between areas of concrete placed at different times. Construction joints should be installed at the intended location of contraction joints in order to prevent odd-sized slabs. Construction joints in the Light Load Condition pavement areas should consist of either butt joints or thickened edge butt joints. Construction joints in the Medium/Heavy Load Condition pavement areas should consist of either, butt joint, thickened edge butt joints, or keyed joints. Keyed joint should only be used in pavements that have a thickness of 6 inches or greater. Keyed joints can be either slip-formed or formed. If keyed joints are used, it is important that the keyways have proper dimensions to avoid creating weak joints. The key could consist of either a trapezoidal key or a half-round key. For either of these designs, the total height of the key should not exceed 20% of the slab thickness (0.2d) and the center of the key should be located in the center of the slab. Metal forms with improper keyway dimensions or "leave-in-place" keyed shapes should not be used. Thickened edges for thickened edge butt joints should begin 3 feet from the joint with the pavement thickness at the joint increased to at least 20% of the original pavement thickness or 2 inches, whichever is greater.

8.2.4 Isolation (Expansion) Joints. Concrete pavement slabs should be separated from permanent structures or fixed objects (buildings, light standard foundations, drop inlets, etc.) using isolation or expansion joints. Expansion joints are not recommended for routine use as regularly spaced joints as they are difficult to construct, difficult to maintain, and are subject to the development of pavement distress and premature failure. Isolation joints are full-depth vertical joints usually filled with a compressible material. Where subject to traffic and wheel loadings, we recommend that the isolation joints be constructed with the free edge thickened by at least 20% of the original pavement thickness or 2 inches, whichever is greater.

8.2.5 Joint Reinforcement. The use of dowels is not recommended in pavements that are 7 inches or less in thickness. Tie bars should be used to tie only the first longitudinal joint from the pavement edge in order to keep the outside slab from separating from the pavement. Tie bars are not required in interior joints of parking lots or other wide paved areas. Tie bars should be used on the centerline longitudinal joints of entrance driveways and access roads if there are no curbs. Tie bars should consist of 1/2-inch by 24-inch deformed bars spaced 30 inches on center.

8.2.6 Joint Design and Location. The design, location, and construction of pavement joints should be in accordance with the recommendations of the American Concrete Institute in ACI publication ACI330R-01 "*Guide for Design and Construction of Concrete Parking Lots*". Care should be taken to provide additional joints, and possibly wire reinforcement in odd-shaped slabs in order to prevent random cracking.

8.2.7 Garbage Dumpster Pad

A garbage dumpster pad may be constructed at this site. The garbage dumpster pad should be large enough to hold the largest expected container with approximately 3 to 5 feet of extra space on each side. Additionally, the pad should contain an approach apron on the loading side of the pad that is large enough to accommodate half the length of the anticipated collection vehicle. Additional apron area should be provided if the waste vehicles will be making turning movements in the vicinity of the pad. The pad for garbage dumpsters should be designed as a structural slab for the anticipated loading conditions. A typical design for small to medium containers would consist of an 8-inch thick concrete slab with a mat of reinforcing steel. Reinforcement should consist of No. 4 bars spaced at 12 inches on center in both directions having a minimum cover of 2 inches. Tooled contraction joints should be provided at intervals that will provide a slab size that does not exceed 20 feet by 20 feet. Expansion joints should not be placed in these pads, unless they are required where the container pad directly abuts a building or other fixed structure.

9.0 QUALITY CONSIDERATIONS

This report is issued as a preliminary design tool. Subsequent designs may alter the current assumptions regarding site construction, and recommendations of this report may not be applicable. This report contains recommendations for design and for construction practices related to site preparation and shallow foundation design. Several recommendations have been made in this report, which assume that the conditions required for the design recommendations have been provided. Certain quality considerations are essential to the satisfactory design and construction of this project.

9.1 Review of Plans and Specifications

This report will be used to provide data and recommendations to the designers for site preparation, foundation design, and pavement design. During final design, questions may arise which require further review of site conditions, clarification of the recommendations provided in this report or development of more specific recommendations. We are available to resolve any questions or needs for clarification of the recommendations presented in this report.

If modifications to the construction plans are made during final design, the recommendations of this report may not apply. Aquaterra should review the final plans and specifications for this project prior to bidding. This review is also necessary to ensure that the recommendations of this report have been properly communicated, and that the plans and specifications adequately reflect these recommendations.

9.2 Geotechnical Engineer-of-Record

The construction process is an integral design component with respect to the geotechnical aspects of a project. Because geotechnical engineering is an inexact science due to the variability of natural processes and because we sample only a small portion of the soils affecting the performance of the proposed structure, unanticipated or changed conditions can be disclosed during grading and foundation construction. Proper geotechnical observation and testing during construction is required to allow the geotechnical engineer the opportunity to verify assumptions made during the design process. Therefore, Aquaterra should be retained during the construction to observe compliance with the design concepts and geotechnical recommendations, and to recommend design changes in the event that subsurface conditions or methods of construction differ from those assumed while completing this report.

If these services are provided by others, Aquaterra will cease to be the Geotechnical-Engineer-of-Record at the time another consultant or testing entity is retained for monitoring the construction process, and we can not assume responsibility for any potential claims that may arise during or after construction as a result of varying conditions, misuse or misinterpretation of our report by others.

9.3 Construction Quality Testing and Consulting

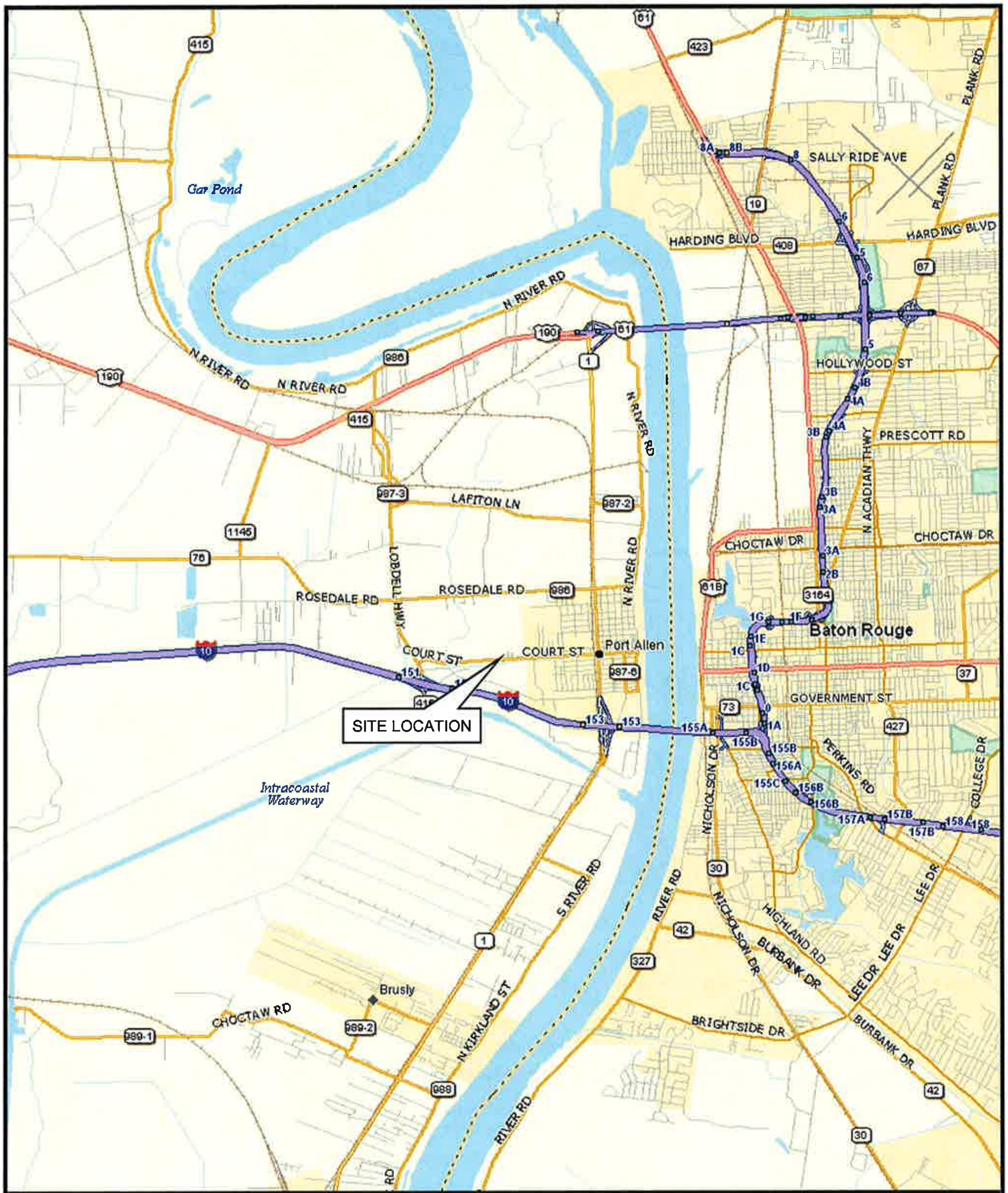
This report contains recommendations for construction practices related to site preparation, shallow foundation, and pavement construction. Failure to comply with the recommendations of this report can create conditions which are detrimental to the success of the project, and an inferior product can result. Therefore, documentation of the contractors' compliance with these practices is considered a necessity.

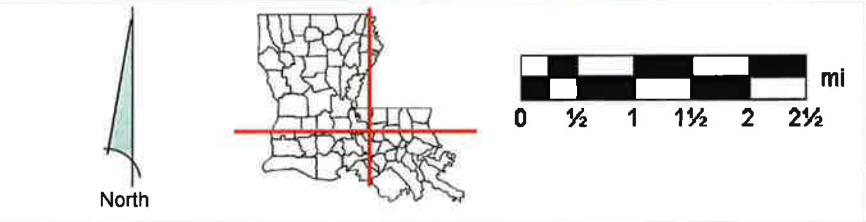
Construction Quality Control (the collection of field and laboratory data to document conformance with specifications) and Quality Assurance (the collection and evaluation of test results and frequencies to confirm that the objectives of construction are met) are an integral part of the successful construction project. These quality control and quality assurance services should be provided by Aquaterra as the Geotechnical Engineer-of-Record.

Subsequent to our review of the project plans and specifications, we should provide a construction quality testing plan.

FIGURES

GEOTECHNICAL INVESTIGATION
WESTVIEW CROSSING SUBDIVISION
PORT ALLEN, LOUISIANA





SITE VICINITY MAP

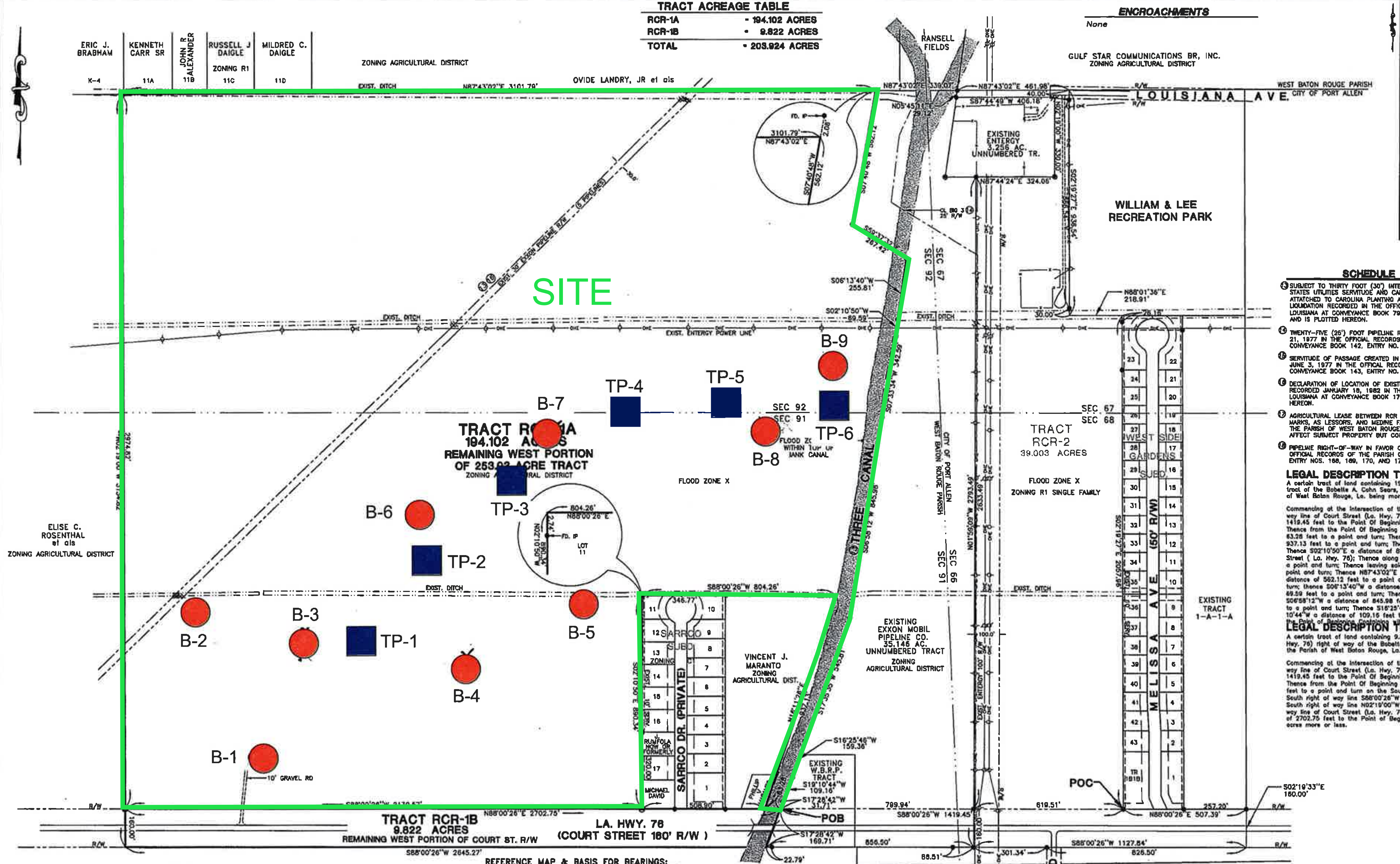
Westview Crossing
Port Allen, Louisiana

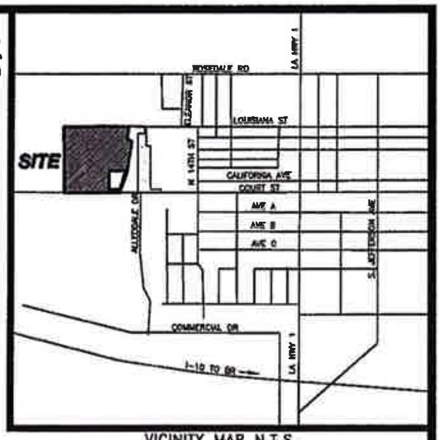
R. James Tatum, Inc.
Baton Rouge, Louisiana

Engr: SEG
910800168

aquaterra engineering

Fig No.
1





VICINITY MAP N.T.S.

TRACT ACREAGE TABLE

RCR-1A	- 194.102 ACRES
RCR-1B	- 9.822 ACRES
TOTAL	- 203.924 ACRES

ENCROACHMENTS

None

SCHEDULE B SECTION 2 (EXCEPTIONS)

⑬ SUBJECT TO THIRTY FOOT (30') INTERSTATE PIPELINE CO. RIGHT OF WAY, ONE HUNDRED FOOT (100') GULF STATES UTILITIES SERVITUDE AND CANAL RUNNING THROUGH THE PROPERTY, AS SHOWN ON THE MAP ATTATCHED TO CAROLINA PLANTING AND LUMBER COMPANY (IN LIQUIDATION) FINAL DISTRIBUTION IN COMPLETE LIQUIDATION RECORDED IN THE OFFICIAL RECORDS OF THE PARISH OF WEST BATON ROUGE, STATE OF LOUISIANA AT CONVEYANCE BOOK 79, ENTRY NO. 75. 30' SERV & CANAL DOES AFFECT SUBJECT PROPERTY AND IS PLOTTED HEREON.

⑭ TWENTY-FIVE (25') FOOT PIPELINE RIGHT-OF-WAY IN FAVOR OF BIG THREE INDUSTRIES RECORDED ON MARCH 21, 1977 IN THE OFFICIAL RECORDS OF THE PARISH OF WES BATON ROUGE, STATE OF LOUISIANA AT CONVEYANCE BOOK 142, ENTRY NO. 146. DOES NOT AFFECT SUBJECT PROPERTY AND ID PLOTTED HEREON.

⑮ SERVITUDE OF PASSAGE CREATED IN ACT OF SALE OF 3.44 ACRE TRACT TO GULF STATES UTILITIES RECORDED JUNE 3, 1977 IN THE OFFICAL RECORDS OF THE PARISH OF WEST BATON ROUGE, STATE OF LOUISIANA AT CONVEYANCE BOOK 143, ENTRY NO. 199. DOES NOT AFFECT SUBJECT PROPERTY.

⑯ DECLARATION OF LOCATION OF EXISTING RIGHT OF WAY SERVITUDES IN FAVOR OF EXXON PIPELINE COMPANY RECORDED JANUARY 18, 1982 IN THE OFFICIAL RECORDS OF THE PARISH OF WEST BATON ROUGE, STATE OF LOUISIANA AT CONVEYANCE BOOK 178, ENTRY NO. 88. DOES AFFECT SUBJECT PROPERTY AND IS PLOTTED HEREON.

⑰ AGRICULTURAL LEASE BETWEEN RCR REALTY, LLC, PAUL MARKS, JR., MARION KAHN MARKS AND PETER JOSEPH MARKS, AS LESSORS, AND MEDINE FARMS, AS LESSEE, RECORDED MAY 27, 2003 IN THE OFFICIAL RECORDS OF THE PARISH OF WEST BATON ROUGE , STATE OF LOUISIANA AT CONVEYANCE BOOK 441, ENTRY NO. 603. MAY AFFECT SUBJECT PROPERTY BUT CONTAINS NO PLOTTABLE ITEMS.

⑱ PIPELINE RIGHT-OF-WAY IN FAVOR OF SHELL PIPELINE COMPANY, LP, RECORDED JULY 8, 2005 IN THE OFFICIAL RECORDS OF THE PARISH OF WEST BATON ROUGE, STATE OF LOUISIANA AT CONVEYANCE BOOK 958, ENTRY NOS. 168, 169, 170, AND 171. DOES NOT AFFECT SUBJECT PROPERTY AND IS NOT PLOTTED HEREON.

LEGAL DESCRIPTION TRACT RCR-1A

A certain tract of land containing 194.102 acres and being the remaining west portion of a 253.93 acre tract of the Bobette A. Cohn Sears, et al property, located in Sections 91 & 92 T7S-R12E, in the Parish of West Baton Rouge, La. being more particularly described as follows:

Commencing at the intersection of the west line of West Side Gardens Subdivision and the North right of way line of Court Street (La. Hwy. 76) Thence along said North right of way line S88°00'26"W a distance of 1419.45 feet to the Point Of Beginning:
Thence from the Point Of Beginning continue along said North right of way line S88°00'26"W a distance of 63.26 feet to a point and turn; Thence leaving said North right of way line N16°11'26"E a distance of 937.13 feet to a point and turn; Thence S88°00'26"W a distance of 804.26 feet to a point and turn; Thence S02°10'50"E a distance of 890.34 feet to a point and turn on the North right of way line of Court Street (La. Hwy. 76); Thence along said North right of way line S88°00'26"W a distance of 2130.57 feet to a point and turn; Thence leaving said North right of way line N02°19'00"W a distance of 2974.82 feet to a point and turn; Thence N87°43'02"E a distance of 3101.79 feet to a point and turn; Thence S07°40'48"W a distance of 562.12 feet to a point and turn; Thence S59°37'32"E a distance of 267.42 feet to a point and turn; thence S06°13'40"W a distance of 255.61 feet to a point and turn; Thence S02°10'50"W a distance of 69.59 feet to a point and turn; Thence S07°33'34"W a distance of 342.59 feet to a point and turn; Thence S06°58'12"W a distance of 845.98 feet to a point and turn; Thence S17°35'35"W a distance of 545.61 feet to a point and turn; Thence S16°25'46"W a distance of 159.36 feet to a point and turn; Thence S19° 10'44"W a distance of 109.16 feet to a point and turn; Thence S17°28'42"W a distance of 31.71 feet to the Point of Beginning Containing within said bounds 8,455,091 square feet or 194.102 acres more or less.

LEGAL DESCRIPTION TRACT RCR-1B

A certain tract of land containing 9.822 acres and being the remaining west portion of the Court Street (La. Hwy. 76) right of way of the Bobette A. Cohn Sears, et al property, located in Section 91 T7S-R12E, in the Parish of West Baton Rouge, La. being more particularly described as follows:

Commencing at the intersection of the west line of West Side Gardens Subdivision and the North right of way line of Court Street (La. Hwy. 76) Thence along said North right of way line S88°00'26"W a distance of 1419.45 feet to the Point Of Beginning:
Thence from the Point Of Beginning leaving said North right of way line S17°28'42"W a distance of 169.71 feet to a point and turn on the South right of way line of Court Street (La. Hwy. 76); Thence along said South right of way line S88°00'26"W a distance of 2645.27 feet to a point and turn; Thence leaving said South right of way line N02°19'00"W a distance of 160.00 feet to a point and turn on the North right of way line of Court Street (La. Hwy. 76); Thence along said North right of way line N88°00'26"E a distance of 2702.75 feet to the Point of Beginning Containing within said bounds 427,842 square feet or 9.822 acres more or less.

FLOOD NOTE:

IN ACCORDANCE WITH H.U.D. FIRM INSURANCE RATE MAPS NO. 22121C0043C & 22121C0081C DATED 9/7/2000 OF WEST BATON ROUGE PARISH & INCORPORATED AREAS SUBJECT PROPERTY IS LOCATED IN FLOOD ZONES "X" & "AE"

BASE FLOOD ELEVATIONS ARE SUBJECT TO CHANGE AND SHOULD BE VERIFIED WITH THE LATEST FEMA FLOOD MAPS

GENERAL NOTES:

ZONING: AGRICULTURAL DISTRICT

WATER: CITY OF PORT ALLEN
SEWER: CITY OF PORT ALLEN

THE SURVEY SHOWN HEREON IS MADE IN ACCORDANCE WITH THE MINIMUM STANDARDS FOR PROPERTY BOUNDARY SURVEYS AS ADOPTED BY THE LOUISIANA STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS AND IS CLASSIFIED AS A CLASS C SUBURBAN SURVEY

REFERENCE MAP & BASIS FOR BEARINGS:

(1) MAP SHOWING SURVEY OF A PORTION OF THE CAROLINA PLANTING AND LUMBER CO., INC. LOC IN SEC'S 66,67,91 & 92, T7S-R12E, WBRP FOR CAROLINA PLANTING & LUMBER CO., INC. BY Wm J. DAWSON CE DATED 8-21-1956. ** USED AS BASIS FOR BEARINGS

(2) PLAN SHOWING SURVEY OF 3 PLOTS OF GND BEING A PART OF CARIOLINA PLANTATION BY R. SWART CE DATED 8-1-1935

(3) MAP SHOWING SURVEY OF TR I & TR II CONTAINING 23.975 AC. FORMERLY BEING A PORTION OF THE LOUIS COHN & MRS JULIA COHN MARKS PROP. LOC. IN SEC'S 66 & 67, T7S-R12E, SED, WBRP, LA. FOR ALBERT M. BANKSTON BY JAMES M THERIOT PLS DATED 4-10-1984

(4) MAP SHOWING SURVEY OF A 15.83 AC. TR. BEING A PORTION OF THE HENRY LOUIS COHN & MRS. JULIA COHN MARKS PROP. LOC. IN SEC. 66, T7S-R12E IN WBRP, LA BY Wm J. DAWSON CE DATED 3-16-1962

(5) FINAL PLAT OF SARRCO SUBD BEING THE SUBDIVISION OF THE REMAINING OF THE REMAINING PORTION OF THE PETER RUMFOLA PROP. IN SEC. 92, T7S-R12E, WBRP, LA. FOR SARROC INC. BY WALLACE J HARGRAVE PLS DATED 3-17-1982

(6) SURVEY OF A 35.146 AC. TR TO BE ACQUIRED FROM BOBETTE A. COHN SEARS, ET AL FOR EXXON PIPELINE CO. BY HYDRO CONSULTANTS, INC. DATED 2-2-1995

(7) FINAL PLAT WEST SIDE GARDENS SUBD. LOTS 1-43 & THE RESUB OF TR. 1-B-1-B INTO 1-B-1-B-1 BEING A PORTION OF THE LOUIS COHN & JULIA COHN MARKS PROP. LOC IN SEC. 67, T7S-R12E, SED, CITY OF PORT ALLEN, WBRP, LA. FOR FONTAINE/WARD PROP., L.L.C. & DBB, L.L.C. BY LANDSOURCE, INC. DATED 3-12-2002

SURVEYORS CERTIFICATION

THIS IS TO CERTIFY TO A & D MEDICAL, LLC AND STEWARD TITLE INSURANCE COMPANY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE "MINIMUM STANDARD DETAIL REQUIREMENT FOR ALTA/ACSM LAND SURVEYS", JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND ACSM IN 1999; AND MEETS THE ACCURACY REQUIREMENTS OF A SURVEY, AS DEFINED THEREIN."

RUSSEL L. MISTRIC
REGISTRATION NO. 04598
IN THE STATE OF LOUISIANA
DATE: 11-02-2005
DATE OF LAST REVISION:

LEGEND

FOUND IRON PIPE	●
SET 1/2" IRON PIPE	○
FOUND IRON REBAR	●
FOUND CONC. MONUMENT	◉
PIPELINE SIGN	⊓

DATE: 11-02-2005
FIELD BK: NO: 543 & 588
JOB NO: 5264
DRAWN BY: R. MISTRIC

C. MISTRIC SURVEYORS, INC.
11841 COURSEY BLVD. PH: (225) 292-5955
BATON ROUGE, LA. FAX: (225) 293-8503
EMAIL: CMISTRIC@CMISTRIC.COM

200 0 200 400 600
Scale 1" = 200'

🔴	10 foot soil boring
■	Test Pit

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Soil Boring Locations

FIGURE 2

MAP FILE NO. 2-2-362

TABLES

Pit #	Depth (feet)	Soil Description	Groundwater Conditions
1	0-3.5	Dark Brown Clay	Water at Bottom of Pit
	3.5-8	Fm Tan & Brown Silty Clay	(Negligible flow)
2	0 - 2	Brown Silty Clay	Water at Bottom of Pit
	2 - 6	Gray Clay	(Negligible flow)
	6 - 7	Dk Gray-BK Clay (organics)	
	7 - 9	Gray Clay	
3	0 - 6	Brown Very Silty Clay	Water at Bottom of Pit
	6 - 7	Dark Gray & Black Clay w/ organics	(Negligible flow)
	7 - 9	Gray Clay	
4	0 - 5	Brown & Gray Silty Clay	Water at Bottom of Pit
	5 - 8	Brown & Gray Clay slightly silty	(Low flow)
5	0 -1	Brown Clay	Water at Bottom of Pit
	1 - 3	Brown Very Silty Clay	(Some flow in observed)
	3 - 6	Dark Gray Clay w/organics	
	6 - 8	Gray Very Silty Clay	
6	0 - 2	Brown Clay	No water noted at Bottom of Pit
	2 - 5	Dark Gray Silty Clay	
	5 - 8	Gray & Brown Very Silty Clay	

Test Pit Observations - 4/30/2008

Westview Crossing Subdivision

Engr: SEG

910800168

aquaterra engineering

Table

1

APPENDIX A

DESCRIPTION OF FIELD AND LABORATORY PROCEDURES

SOIL BORING LOGS

SOIL BORING LEGEND

This geotechnical investigation was conducted utilizing standard procedures developed by Aquaterra Engineering, LLC for investigations of this nature. The following paragraphs describe the field and laboratory procedures utilized. Soil boring logs which provide data collected and a description of soil and groundwater conditions are also included. The appendix also provides a legend that describes the terms and symbols used in the boring logs.

FIELD INVESTIGATION

The field included a site reconnaissance to document site characteristics pertinent to the geotechnical investigation and the conduct of a soil exploration program. The information collected during the field investigation was documented by an Aquaterra Engineering Technician.

Site Reconnaissance

The engineering technician walked the project site and documented observations that are of significance to the geotechnical investigation. Such observations include: topography, vegetation, trees, drainage, other structures, surface soil conditions, and trafficability.

These observations were reported to the project engineer in the form of field notes. The project engineer reviewed the results of the field reconnaissance with the engineering technician in a project meeting subsequent to the field investigation.

Soil Borings

The soil borings were advanced using our track mounted drilling rigs and equipment at the approximate locations shown on Figure 2. These locations were measured from known points.

Soil Boring Advancement. The borings were advanced by rotating a four-inch diameter, short-flight earth auger with the drilling rig, removing the auger from each boring, and cleaning the cuttings from the auger before sampling or reinserting the auger back into the borings. This technique allowed for the observation of soil cuttings and description of soil conditions encountered. This dry auger technique allows detection of free groundwater within the borings.

Soil Sampling. The soil sampling program included the collection of undisturbed and disturbed soil samples. Relatively undisturbed samples were obtained by pushing a three-inch diameter, Shelby tube sampler a distance of two feet into the soil in general accordance with ASTM D1587. Depths at which these undisturbed samples were obtained are indicated by a shaded portion in the "Samples" column of the attached boring logs.

After the Shelby tube was removed from each boring, the sample was visually classified. Relative strength estimates of the sample were obtained by penetrometer readings. These penetrometer readings in units of tons per square foot are indicated by the symbol "(P)" in the "Field Test Results" column of the boring logs. The Shelby tube was then sealed in the field to minimize moisture loss and transportation to the Aquaterra laboratory.

Disturbed soil samples were also collected during the exploration by the auger method in accordance with ASTM D 1452 (AASHTO T203). The spiral-type (solid-stem) auger consisted of a flat thin metal strip, machine twisted to a spiral configuration of uniform pitch having at one end, a sharpened or hardened point, with a means of attaching a shaft or extension at the opposite end. Depths at which these auger samples were obtained are indicated by a bold vertical line in the "Samples" column of the attached boring logs. The soil content from the auger was visually classified, labeled and placed in a sealed container to minimize moisture loss during transportation to the laboratory.

Groundwater Observations. During the soil boring advancement and sampling operation, observations for free groundwater were made. Information regarding water level observations is recorded in the "groundwater" column on the soil boring logs. Other information regarding water level observations has been noted under "Groundwater Level Data" at the bottom of the soil boring logs.

Boring Abandonment. Upon completion of the field investigation phase of this study, the shallow soil borings were sealed using soil cuttings.

LABORATORY TESTING

The soil samples were delivered to the Aquaterra laboratory for testing. The project engineer reviewed the soil boring log developed in the field and assigned laboratory testing on select samples to provide the data necessary for the anticipated designs.

Laboratory testing was accomplished to determine the engineering properties of the soils encountered. These procedures are discussed below.

Index Properties

Moisture Content. Moisture content tests were performed to better understand the classification and shrink/swell potential of the soils encountered. These tests were performed in general accordance with ASTM D 2216. The results of these tests are tabulated within the Laboratory Data section of the attached boring logs.

Atterberg Limits. Liquid limit (LL) and plastic limit (PL) determinations were performed to assist in classification by the Unified Soil Classification System (USCS). These tests were performed in general accordance with ASTM D 4318. The plasticity index (PI) was calculated as LL - PL for each Atterberg limit determination. The results of these tests are tabulated within the Laboratory Data section of the attached boring logs.

Strength Tests

Unconfined Compression. The undrained shear strength of selected undisturbed soil samples was determined by means of unconfined compression tests (ASTM D 2166). In an unconfined compression test, a cylindrical sample of soil is subjected to a uniformly increasing axial strain until failure develops. For cohesive soils, the undrained shear strength, or cohesion, is taken to be equal to one-half of the maximum observed normal stress on the sample during the test.

The results of the unconfined compression tests are provided as undrained shear strength values within the Laboratory Data section of the attached boring logs. Also shown are the natural water contents and unit dry weights determined as a part of each compression test.

PROJECT: Geotechnical Investigation
Westview Crossing
Port Allen, Louisiana

CLIENT: Tatum Engineering, Inc.
Baton Rouge, Louisiana

SOIL BORING LOG

No. B-1

SHEET 1 OF 1

FILE: 910800168
DATE: May 28, 2008
DRILLER: A. Lyons
TECH.: B. Alexander
ENGINEER: S. Greaber

Location: See Figure 2.

Lat.: 30° 27' 06.9" Long.: 91° 14' 00.2"

FIELD DATA				LABORATORY DATA								
Depth (feet)	Samples	Groundwater Level	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf) Moist	Unit Weight (pcf) Dry	Percent Fines	Natural Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 20 40 60 80)	Plasticity Index PI	DESCRIPTION	Strata Break Depth	Soil Type
	■		3.00 (P)	2.18	115	92		23 / 25 / 58	35	Very stiff dark brown **CLAY (CH)** - slightly silty	2.0	▨
	■		2.00 (P)							Stiff dark brown **SILTY CLAY (CL)**		▨
		▽										
5	■		1.00 (P)	1.01	114	90		27				
		▽								- firm and very silty below 6'		
	■		0.75 (P)									
										- gray below 8'		
	■		0.25	0.63	115	87		24 / 32 / 36	12		10.0	
10										**Borehole Terminated at 10'**		
15												
20												
25												

STRATA BOUNDARIES MAY NOT BE EXACT

Groundwater Level Data

▽ First encountered at 6 ft. 5 in.

▽ Rose to 4 ft. after 20 min.

Advancement Method

Short-flight Auger: 0' - 10'

Abandonment Method

Hole backfilled with soil cuttings upon completion.

Notes

6-inch topsoil

aquaterra
engineering

PROJECT: Geotechnical Investigation
Westview Crossing
Port Allen, Louisiana

CLIENT: Tatum Engineering, Inc.
Baton Rouge, Louisiana

SOIL BORING LOG

No. B-2

SHEET 1 OF 1

FILE: 910800168
DATE: May 28, 2008
DRILLER: A. Lyons
TECH.: B. Alexander
ENGINEER: S. Greaber

Location: See Figure 2.

Lat.: 30° 27' 12.9" Long.: 91° 14'03.4"

FIELD DATA				LABORATORY DATA								
Depth (feet)	Samples	Groundwater Level	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf) Moist	Unit Weight (pcf) Dry	Percent Fines	Natural Moisture Content and Atterberg Limits (Plastic Limit, Moisture Content, Liquid Limit; 20 40 60 80)	Plasticity Index PI	DESCRIPTION	Strata Break Depth	Soil Type
	■		1.50 (P)					30		Stiff brown **SILTY CLAY (CL)**		▨
	■		1.75 (P)	1.06	112	86		20 43 29	23	- with fenods 2' - 4'		▨
5	■	▽	0.50 (P)							- firm brown and gray below 4'	6.0	▨
	■	▽	0.50 (P)	0.70	114	88		23 30 30	7	Firm brown and gray **VERY SILTY CLAY (CL-ML)**		▨
	■									- slightly sandy below 8'		▨
	■		0.50 (P)								10.0	▨
10										**Borehole Terminated at 10'**		
15												
20												
25										*STRATA BOUNDARIES MAY NOT BE EXACT*		

Groundwater Level Data

▽ First encountered at 7 ft.

▽ Rose to 5 ft. 5 in. after 20 min.

Advancement Method

Short-flight Auger: 0' - 10'

Abandonment Method

Hole backfilled with soil cuttings upon completion.

Notes

6-inch topsoil

aquaterra engineering

PROJECT: Geotechnical Investigation
Westview Crossing
Port Allen, Louisiana

CLIENT: Tatum Engineering, Inc.
Baton Rouge, Louisiana

SOIL BORING LOG

No. B-3

SHEET 1 OF 1

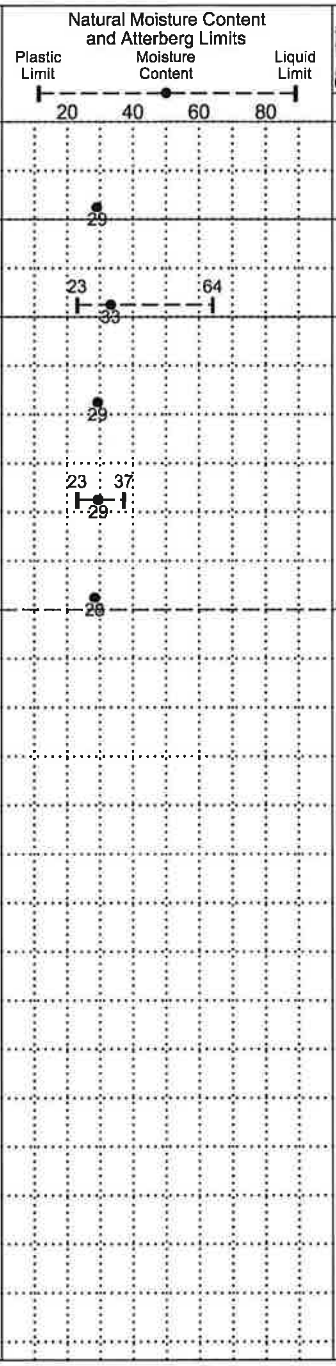
FILE: 910800168
DATE: May 28, 2008
DRILLER: A. Lyons
TECH.: B. Alexander
ENGINEER: S. Greaber

Location: See Figure 2.

Lat.: 30° 27' 12.5" Long.: 91° 13' 58.0"

FIELD DATA: Depth (feet) | Samples | Groundwater Level | Field Test Results

LABORATORY DATA: Undrained Shear Strength (ksf) | Unit Weight (pcf) Moist, Dry | Percent Fines | Natural Moisture Content and Atterberg Limits | Plasticity Index PI



DESCRIPTION	PI	Strata Break Depth
Stiff brown **SILTY CLAY (CL)**		2.0
Stiff brown **CLAY (CH)**	41	4.0
Stiff brown **SILTY CLAY (CL)** - firm below 6'	14	10.0

Borehole Terminated at 10'

Depth (feet): 5, 10, 15, 20, 25

STRATA BOUNDARIES MAY NOT BE EXACT

Groundwater Level Data

☒ No free water encountered

Advancement Method

Short-flight Auger: 0' - 10'

Abandonment Method

Hole backfilled with soil cuttings upon completion.

Notes

5-inch topsoil

aquaterra engineering

PROJECT: Geotechnical Investigation
Westview Crossing
Port Allen, Louisiana

CLIENT: Tatum Engineering, Inc.
Baton Rouge, Louisiana

SOIL BORING LOG

No. B-4

SHEET 1 OF 1

FILE: 910800168
DATE: June 2, 2008
DRILLER: A. Lyons
TECH.: B. Alexander
ENGINEER: S. Greaber

Location: See Figure 2.

Lat.: 30° 27' 12.3" Long.: 91° 13' 50.8"

FIELD DATA				LABORATORY DATA											
Depth (feet)	Samples	Groundwater Level	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf) Moist	Unit Weight (pcf) Dry	Percent Fines	Natural Moisture Content and Atterberg Limits: Plastic Limit	Moisture Content	Liquid Limit	Plasticity Index PI	DESCRIPTION	Strata Break Depth	Soil Type
			1.50 (P)						25			Stiff brown and gray **SILTY CLAY (CL)** - trace sand	2.0	▨
		▽	0.50 (P)	0.51	110	81		23	36	60	37	Firm brown **CLAY (CH)**		▨
5			0.50 (P)						48			- gray and wet below 4'		▨
		▽	0.75 (P)	0.58	114	76		17	49	71	54		8.0	▨
			0.50 (P)					19	31	49	30	Firm tan and gray **SILTY CLAY (CL)**	10.0	▨
10												**Borehole Terminated at 10'**		
15														
20														
25												*STRATA BOUNDARIES MAY NOT BE EXACT*		

Moisture scale: 20 40 60 80

Groundwater Level Data

▽ First enountered at 7 ft.
▽ Rose to 3 ft. 5 in. after 20 min.

Advancement Method

Short-flight Auger: 0' - 10'

Abandonment Method

Hole backfilled with soil cuttings upon completion.

Notes

5-inch topsoil

aquaterra engineering

PROJECT: Geotechnical Investigation
Westview Crossing
Port Allen, Louisiana

CLIENT: Tatum Engineering, Inc.
Baton Rouge, Louisiana

SOIL BORING LOG

No. B-5

SHEET 1 OF 1

FILE: 910800168
DATE: June 2, 2008
DRILLER: A. Lyons
TECH.: B. Alexander
ENGINEER: S. Greaber

Location: See Figure 2.

Lat.: 30° 27' 13.9" Long.: 91° 13' 46.0"

FIELD DATA		LABORATORY DATA										
Depth (feet)	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf) Moist	Unit Weight (pcf) Dry	Percent Fines	Plastic Limit	Moisture Content	Liquid Limit	Plasticity Index PI	DESCRIPTION	Strata Break Depth	Soil Type
	3.00 (P)					22	14	33	11	Very stiff brown **SILTY CLAY (CL)**	2.0	▨
	0.50 (P)					21	26	28	7	Firm tan and gray **VERY SILTY CLAY (CL-ML)**		▨
5	0.25 (P)	0.803 (t)	117	93			26				6.0	
	1.00 (P)					19	37	63	44	Firm to stiff gray **CLAY (CH)** - trace silt pockets	8.0	▨
	1.00 (P)						29			Firm to stiff tan and gray **SILTY CLAY (CL)**	10.0	▨
10										**Borehole Terminated at 10'**		
15												
20												
25												

Moisture Content scale: 20 40 60 80

STRATA BOUNDARIES MAY NOT BE EXACT

Groundwater Level Data

▽ First enountered at 8 ft.
▽ Rose to 7 ft. after 20 min.

Advancement Method

Short-flight Auger: 0' - 10'

Abandonment Method

Hole backfilled with soil cuttings upon completion.

Notes

5-inch topsoil
(t) - Unconsolidated undrained triaxial test at overburden confining pressure

aquaterra engineering

AQ LOG LOGS.0910800168.GPJ AQUATERR.GDT 6/10/08

PROJECT: Geotechnical Investigation
Westview Crossing
Port Allen, Louisiana

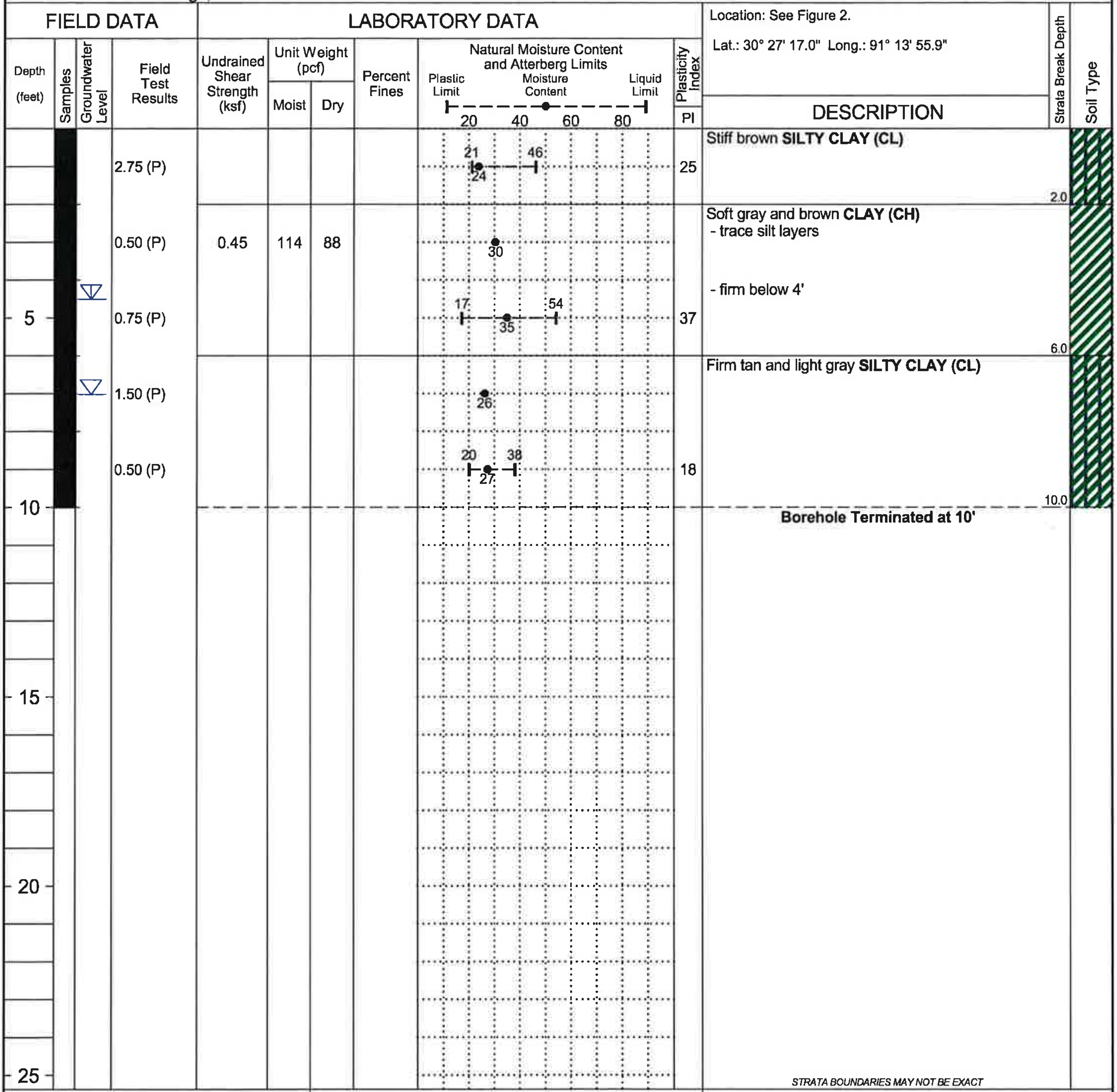
CLIENT: Tatum Engineering, Inc.
Baton Rouge, Louisiana

SOIL BORING LOG
No. B-6
SHEET 1 OF 1

FILE: 910800168
DATE: June 2, 2008
DRILLER: A. Lyons
TECH.: B. Alexander
ENGINEER: S. Greaber

Location: See Figure 2.

Lat.: 30° 27' 17.0" Long.: 91° 13' 55.9"



Depth (feet)	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf) Moist	Unit Weight (pcf) Dry	Percent Fines	Plastic Limit	Moisture Content	Liquid Limit	PI	DESCRIPTION	Strata Break Depth
0–2	2.75 (P)					21	24	46	25	Stiff brown **SILTY CLAY (CL)**	2.0
2–4	0.50 (P)	0.45	114	88			30			Soft gray and brown **CLAY (CH)** - trace silt layers	
4–6	0.75 (P)					17	35	54	37	- firm below 4'	6.0
6–8	1.50 (P)						26			Firm tan and light gray **SILTY CLAY (CL)**	
8–10	0.50 (P)					20	27	38	18		10.0

Borehole Terminated at 10'

Groundwater Level Data

▽ First enountered at 7 ft.

▽ Rose to 4 ft. 5 in. after 20 min.

Advancement Method

Short-flight Auger: 0' - 10'

Abandonment Method

Hole backfilled with soil cuttings upon completion.

Notes

5-inch topsoil

aquaterra engineering

AQ LOG LOGS.0910800168.GPJ AQUATERR.GDT 6/10/08

PROJECT:	Geotechnical Investigation Westview Crossing Port Allen, Louisiana	FILE:	910800168
		DATE:	June 2, 2008
		DRILLER:	A. Lyons
CLIENT:	Tatum Engineering, Inc. Baton Rouge, Louisiana	TECH.:	B. Alexander
		ENGINEER:	S. Greaber

SOIL BORING LOG

No. B-7

SHEET 1 OF 1

Location: See Figure 2.

Lat.: 30° 27' 21.4" Long.: 91° 13' 47.7"

FIELD DATA				LABORATORY DATA								
Depth (feet)	Samples	Groundwater Level	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf) Moist	Unit Weight (pcf) Dry	Percent Fines	Natural Moisture Content and Atterberg Limits (Plastic Limit, Moisture Content, Liquid Limit) 20 40 60 80	Plasticity Index PI	DESCRIPTION	Strata Break Depth	Soil Type
	■		0.50 (P)					23 37 24	14	Firm brown **SILTY CLAY (CL)**	2.0	▨
	□							22 28 25	6	Firm gray and brown **VERY SILTY CLAY (CL-ML)**		▨
5	■	∇	0.50 (P)	0.698 (t)	111	85		31		- tan and gray below 4'	6.0	▨
	■	∇	0.50 (P)							Firm gray and brown **CLAY (CH)**		▨
	□							33			10.0	▨
10										**Borehole Terminated at 10'**		
15												
20												
25										*STRATA BOUNDARIES MAY NOT BE EXACT*		

Groundwater Level Data

∇ First enountered at 7 ft.

∇ Rose to 7 ft. after 20 min.

Advancement Method

Short-flight Auger: 0' - 10'

Abandonment Method

Hole backfilled with soil cuttings upon completion.

Notes

5-inch topsoil
(t) - Unconsolidated undrained triaxial test at overburden confining pressure

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PROJECT: Geotechnical Investigation
Westview Crossing
Port Allen, Louisiana

CLIENT: Tatum Engineering, Inc.
Baton Rouge, Louisiana

SOIL BORING LOG

No. B-8

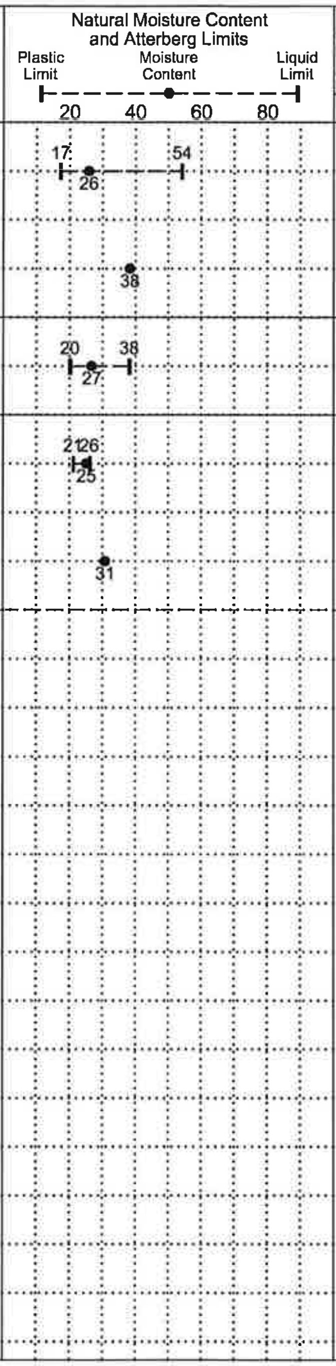
SHEET 1 OF 1

FILE: 910800168
DATE: June 2, 2008
DRILLER: A. Lyons
TECH.: B. Alexander
ENGINEER: S. Greaber

Location: See Figure 2.

Lat.: 30° 27' 21.9" Long.: 91° 13' 35.7"

FIELD DATA				LABORATORY DATA							
Depth (feet)	Samples	Groundwater Level	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf) Moist	Unit Weight (pcf) Dry	Percent Fines	Plasticity Index PI	DESCRIPTION	Strata Break Depth	Soil Type
	■		2.00 (P)					37	Stiff brown **CLAY (CH)** - trace silt pockets		
	■	▽	1.25 (P)	0.80	111	80				4.0	
5	■	▽	0.50 (P)					18	Firm tan **SILTY CLAY (CL)**	6.0	
	■		0.50 (P)	0.749 (t)	119	95		5	Firm tan and gray **VERY SILTY CLAY (CL-ML)** - trace sand to 6'		
	■		0.50 (P)							10.0	
10									**Borehole Terminated at 10'**		
15											
20											
25											



STRATA BOUNDARIES MAY NOT BE EXACT

Groundwater Level Data	Advancement Method	Notes
▽ First encounter at 6 ft. ▽ Rose to 4 ft. after 20 min	Short-flight Auger: 0' - 10'	5-inch topsoil (t) - Unconsolidated undrained triaxial test at overburden confining pressure
	Abandonment Method	
	Hole backfilled with soil cuttings upon completion.	

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PROJECT: Geotechnical Investigation
Westview Crossing
Port Allen, Louisiana

CLIENT: Tatum Engineering, Inc.
Baton Rouge, Louisiana

SOIL BORING LOG
No. B-9
SHEET 1 OF 1

FILE: 910800168
DATE: June 2, 2008
DRILLER: A. Lyons
TECH.: B. Alexander
ENGINEER: S. Greaber

Location: See Figure 2.
Lat.: 30° 27' 25.4" Long.: 91° 13' 33.7"

FIELD DATA				LABORATORY DATA											
Depth (feet)	Samples	Groundwater Level	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf) Moist	Dry	Percent Fines	Plastic Limit	Moisture Content	Liquid Limit	Plasticity Index PI	DESCRIPTION	Strata Break Depth	Soil Type
	■		1.00 (P)					17	27	54	37	Firm to stiff brown and gray **CLAY (CH)**	2.0	▨
	■		0.50 (P)	0.38	119	93		19	28	38	19	Soft dark gray **SILTY CLAY (CL)**	4.0	▨
5	■		0.50 (P)						26			Firm gray **VERY SILTY CLAY (CL-ML)** - trace sand		▨
	■		0.50 (P)	0.575 (t)	119	95		21	26	25	4			▨
	■		0.50 (P)						27				10.0	▨
10												**Borehole Terminated at 10'**		
15														
20														
25														

STRATA BOUNDARIES MAY NOT BE EXACT

Groundwater Level Data
☒ No free water encountered

Advancement Method
Short-flight Auger: 0' - 10'

Abandonment Method
Hole backfilled with soil cuttings upon completion.

Notes
5-inch topsoil
(t) - Unconsolidated undrained triaxial test at overburden confining pressure

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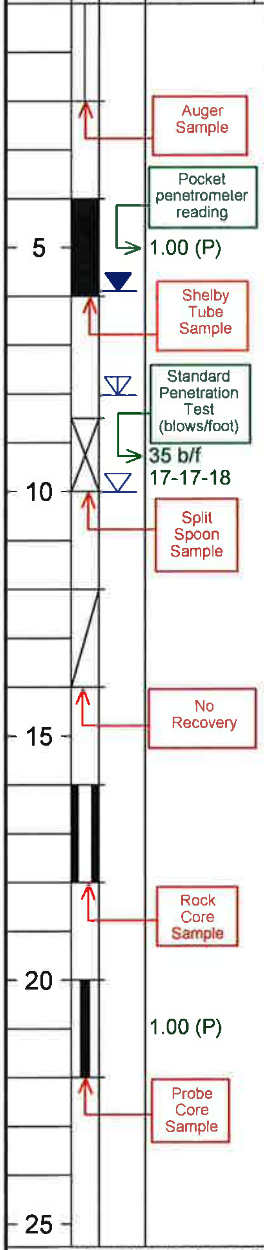
SOIL BORING LEGEND

FIELD DATA				LABORATORY DATA						Location: Coordinate (North & East) Latitude Longitude Surface Elevation: Elev.	
Depth (feet)	Samples	Groundwater Level	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf)		Other/ Percent Finer	Natural Moisture Content and Atterberg Limits Plastic Limit ⊢ — — Moisture Content — ● — — ⊣ Liquid Limit 20 40 60 80	Plasticity Index	DESCRIPTION	Soil Type
					Moist	Dry			PI		



TERMS DESCRIBING CONSISTENCY

Noncohesive Soils

(includes gravels, sands and silts) Consistency determined by Standard Penetration Resistance

Descriptive Term	Standard Penetration Resistance (blows per foot)
Very Loose	less than 4
Loose	5 to 9
Medium Dense	10 to 29
Dense	30 to 50
Very Dense	above 50

Cohesive Soils

(includes clays) Consistency determined by laboratory shear strength testing or by field visual-manual procedures.

Descriptive Term	Undrained Shear Strength (kips per sq. ft.)
Very Soft	less than 0.25
Soft	0.25 to 0.50
Firm	0.50 to 1.00
Stiff	1.00 to 2.00
Very Stiff	2.00 to 4.00
Hard	above 4.00

FIELD TESTING

Standard Penetration Testing	Pocket Penetrometer
The penetration resistance is the number of blows required to drive the split-spoon sampler the final 12 inches of penetration.	Strength estimates of relatively undisturbed samples are obtained by penetrometer readings. The measured units are in tons per square foot (tsf).

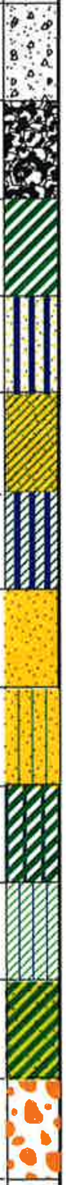
NOTES REGARDING SOIL DESCRIPTION

Soil descriptions provide classifications according to ASTM D2487 - Classifications of Soils for Engineering Purposes. Where laboratory data are available for shear strength and for classification verification, the data are utilized. Where no laboratory data exist, the descriptions are based upon the field classifications as made during the exploration according to ASTM D2488 - Description and Identification of Soils (Visual - Manual Procedure).

Soil structure as described on the boring logs can be defined as follows:

Layer: A soil deposit with a thickness in excess of one inch
Seam: A soil layer with a thickness of less than one inch.
Homogeneous: Having the same color and appearance throughout and lacking fissures.
Fissured: Having definite planes of discontinuity within a soil mass.
Slickensided: A fissured condition with fracture planes that appear polished and glossy.
Jointed: A fissured condition with fracture planes that are numerous and limited in extent.
Laminated: Numerous thin seams of soil types which vary in texture or color.
Calcareous: Containing obvious quantities of calcium carbonate.
Indurated: Hardened by pressure or cementation.
Friable: Easily crumbled.
Organic: Containing remains of living organisms.

CONCRETE
FILL
CLAY
SANDY SILT
CLAYEY SAND
CLAYEY SILT
SAND
SILTY SAND
SILTY CLAY
CLAYEY SILT/SILTY CLAY
SANDY CLAY
GRAVEL



STRATA BOUNDARIES MAY NOT BE EXACT

Groundwater Level Data	Advancement Method	Notes
▽ Water initially encountered during dry augering ▽ Groundwater level after a specified observation period ▼ Stabilized water level after an extended period of observation Actual depth to water may vary from the conditions observed in the borings. The presence of groundwater is masked in borings advanced by rotary wash methods.	Description of methodology used to advance soil boring. **Abandonment Method** Description of methodology used to abandon or fill the completed borehole.	Notes describing other laboratory tests or surface conditions.

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