DAMMON ENGINEERING, INC.
dammonengineering.com
ARCHITECTS *ENGINEERS*
CONSULTING *DESIGN* *STUDIES* *EXPERT WITNESS*
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26 October 2010

RE: Slidell Memorial Hospital
Women's Imaging Center - New Wing
1495 Gause Boulevard
Slidell, Louisiana 70458

Dear Plan Holder:

This letter acknowledges receipt of Pre-Bid Meeting Minutes and all attachments (24 total pages).

Please Print Name & Company:

_____

Signature: Date:

_____ _____

Sincerely,

Dammon Engineering, Inc.

Robert Wiltse
Chief Architect

Slidell Memorial Hospital
Women's Imaging Center
Monday October 19, 2010 at 10:00am
Pre-Bid Meeting in Conference Room A @ SMH

Attendees:

Barry Winters	Ben Galloway	Robert Wiltse
Jennie Tiffany	Pete Dammon	Mike Palermo
Frank Anzalone	Aaron Baillie	Ted Modica
Craig Alphonso	Fred Estopinal	James Westervelt
Jay Morrison	Marcus Canal	Patricia Shurden
Kenneth Decker	Richard Mancini	Ronnie Galloway
Dickie Boudreaux		

Minutes:

- Meeting started promptly at 10am.
- Barry Winters started meeting and introductions of Ben Galloway and Robert Wiltse were made.
- Barry states November 9, 2010 @ 10am Bid Opening will be in this same room, Conference Room A. The clock on the wall will serve as the official clock.
- Robert reviews key points:
  - The intent of Pre-Bid Meeting is to be helpful to all parties involved. Nothing discussed at the Pre-Bid can change the Bid Documents. Published Addenda will provide official answers to questions not covered by the Bid Documents.
  - Bid Envelope – Show SMH bid number on outside of bid envelope, in addition conforming with state public bid law requirements. Sample bid form is provided in Spec. Manual.
  - Unit price and Allowance:
    - Unit Price: Provide Unit Price No. 1 in bid.
    - Allowances:
      1. Water Feature $2K
      2. Chandelier $1K
      3. Reshim MRI 2 times $7k each or $14K total
      4. Relocate CT Chiller $9,950 coordinate with Siemens
      5. Carpet Tile $30 per sq. yd.
  - Facility Mission – 24 hour, 7 day a week operation engaged in continuously operating critical healthcare activities of a highly sensitive nature. – Operation of facility to be continued with out disruption to the existing facility.
  - 240-day construction time
  - Sheet C-2 shows demo site plan.
  - Mechanical, Plumbing and Electrical should be fully functional at all times to the existing building during the construction of the new wing.
  - Do NOT block any Fire Exits for any reason.

- Spec. Section 00830 – Has parking loading and fire lane information.
- Spec. Section 10500 – Site plan information for temp. personnel parking, etc.
- Spec. Section 00840 – Life safety issues. Contractors shall pay close attention.
- Project includes relocating several pieces of equipment (see sheet A-2), which has specific demo notes. Remove equipment, relocate and return room back to clean room condition.
- Sheet A-10 has interior elevations indicating which rooms will be receiving relocated equipment with very specific information on it.
- Addendum #1 has been drafted and is in review.
- Review plan sets have been sent to DHH and Fire Marshall.
- Dammon Engineering is working with the City of Slidell for permit review with "Contractor to be determined" on the permit. The Contractor will go to the City and adopt and pay for the permit.

- Barry states, Open for questions:
  - Are there going to be any impact fees?
    - The City of Slidell has responded that there are no impact fees.
  - Excalibur would like to request to change bid time from 10am to 2pm on November 9, 2010.
    - Barry states it will be taken into consideration.
    - After considering this request and checking with the schedule of events and the required internal approval process, SMH has chosen to keep the bid opening time as advertised.
  - Is the site plan submittal under temporary facilities part of the bid package?
    - Robert states it is not part of the bid package.
  - Are the existing special systems contact information provided? (Fire Alarm, etc)
    - Robert states the contact information is provided.
  - Robert states Stratum did the soil report.
  - A bidder asks, can the soil report be provided to the bidders?
    - Robert states it can be provided. See attachments.
  - Is soil and concrete testing paid by owner?
    - Robert states the owner will pay for the testing.
- Barry ended the meeting @ 10:20am and stated we were going to meet on site for a tour of the property.

- Questions / Comments from the on-site meeting:
  - A contractor suggests adding pictures of the all the equipment that needs to be relocated. Barry agrees that would be helpful. See attachments.
  - A bidder suggests an allowance for a temporary CT chiller.
    - It is the preference to proceed with the timeframes noted in the plans and specs. in lieu of providing an allowance. It would be the bidder's option to provide a temporary chiller.
  - A contractor asks if the sign in sheet will be in addendum? Barry stated it will be a part of addendum one.
  - A bidder expressed concern for the sewer line tie-in.
    - Tie-in to remain as detailed.

- A bidder made a request for the availability of 11"x17" plan documents.
    - Bidders can download pdf's from BidSync or ISQ Ft.
- A bidder made a request for a construction-fencing layout.
    - It will be the burden of the bidder / contractor to determine the actual fencing layout. Chain link fencing, portable chain link fencing, and wood enclosure fending will all be required. The fencing layout will no doubt vary over the course of the project. The Bidder should carefully review requirements in the construction documents giving special consideration to safety and the ongoing operation of the facility. The fencing layout will be a part of the submittals for review by the Architect and the Owner as listed in the specification manual and discussed at the Pre-Bid Meeting.
- Barry stated that in the event that a contractor needs to come back and see the site, the hospital will be happy to accommodate the contractor by sending an email to Barry Winters at wintersb@smhplus.org to set a date and time.
- All contractor/bidder questions need to be submitted no later than one week prior to bid opening.

- Left the site @ 11:05am.

STRATUM ENGINEERING, LLC

Geotechnical Engineering ◆ Testing and Inspection Services

July 08, 2010

Slidell Memorial Hospital
1001 Gause Boulevard
Slidell, Louisiana 70458

Attn: Mr. Bruce W. Clement, FACHE
Chief Ancillary Officer

Re: Geotechnical Engineering Report
Proposed Addition to Women's Medical Imaging
1495 Gause Boulevard
Slidell, Louisiana
Project No. G10-014

Dear Mr. Clement:

Stratum Engineering, LLC (SE) is please to submit our Geotechnical Engineering Report for the above referenced project. This report includes our field data and laboratory test results as well as recommendations for foundation and pavement design.

We appreciate the opportunity to perform this Geotechnical Study and look forward to working with you 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 do not hesitate to call.

Respectfully submitted,
STRATUM ENGINEERING, LLC

Srilakshmi D. Nagarajan
Project Manager

Tony Y. Maroun, PE
Principal

STATE OF LOUISIANA
TONY Y. MAROUN
License No. 26198
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

SND/TYM:snd

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EXECUTIVE SUMMARY

An exploration and evaluation of the subsurface conditions have been completed for the proposed addition to the Woman's Medical Imaging to be constructed at 1495 Gause Boulevard in Slidell, Louisiana.

The site of the proposed addition encompasses a concrete parking lot and a grass covered area located southeast of the existing facility. The project includes the construction of a single story new breast imaging center and a future MRI center addition to the existing Medical Diagnostic Imaging Facility. New parking areas and drives are also planned on the eastside to accommodate the addition.

Detailed structural loading information was not provided at the time of this report. Therefore, maximum column and wall loads were assumed to be about 50 kips and 2 kips per linear foot, respectively. Detailed grading information was not available at the time of this report. However, we understand that the average elevation in the new building area is about +15.0 feet. Therefore, about 1.5 feet of fill will be needed to match the existing building design grade of 16.4 feet.

Two (2) borings were drilled in the proposed building area to depths of 20 feet and 40 feet below the existing ground surface. Based on the borings, 6 inches of concrete and 8 inches of sandy topsoil with organics covered the surface at Borings B-1 and B-2, respectively. The topsoil and concrete was followed by stiff to very stiff brown sandy clay, medium dense to dense gray tan silty sand and clayey sand extending to a depth of 8 feet. The sandy clay was underlain by medium dense to dense light brown to gray tan poorly graded sand and silty sand extending to a depth of 33 feet. This was followed by firm tan gray sandy clay and very soft gray fat clay extending to the termination depth of the boring at 40 feet. Groundwater was encountered at a depth of about 7 feet upon completion of drilling operations.

Provided the site is prepared as recommended in the report, the proposed new Breast Imaging Center and future MRI Center may be supported on a shallow foundation system. Spread footings and continuous footings bearing at least two (2) feet below the finished grade in the stiff clay or on compacted structural fill, could be designed for maximum net allowable bearing pressures of 2,500 psf and 2,000 psf, respectively. The floor slab may be soil supported on a minimum of two (2) feet of low plasticity compacted structural fill. Details related to site development, foundation design and construction considerations are included in the subsequent sections of this report.

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 for the Proposed Addition to the Women's Medical Imaging center to be constructed at 1495 Gause Boulevard in Slidell, Louisiana. This exploration was accomplished in general accordance with SE Proposal No. G10-043 dated May 11, 2010.

Project Description

The project includes the construction of a single story new breast imaging center (approximately 4,220 square feet) and a future MRI center (approximately 1,440 square feet). New parking areas and drives are planned to accommodate the facility. The addition will have a steel frame and load bearing walls.

Detailed structural loading information was not provided at the time of this report. Therefore, maximum column and wall loads were assumed to be about 50 kips and 2 kips per linear foot, respectively.

The geotechnical recommendations presented in this report are based on the available project information, building location, and the subsurface materials described in this report. If any of the noted information is incorrect, please inform SE in writing so that we may amend the recommendations presented in this report if appropriate and if desired by the client. SE will not be responsible for the implementation of its recommendations when it is not notified of changes in the project.

Purpose and Scope of Services

The purpose of this study was to explore the subsurface conditions at the site to enable an evaluation of cost effective foundation and pavement systems for the proposed structure. A total of two (2) borings were drilled to depths of 20 and 40 feet below the existing ground surface within the proposed building. Our scope of services included a reconnaissance of the project site, drilling the soil borings, select laboratory testing, and preparation of this geotechnical report. The report briefly outlines the testing procedures, presents available project information, describes the site and subsurface conditions, and presents recommendations regarding the following:

- Foundation type, allowable bearing capacity, and an estimate of settlement;
- Flexible and rigid pavement recommendations;
- Site preparation, including subgrade preparation and compaction requirement;
- Comments regarding factors that will impact construction and performance of the proposed construction.

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 Location and Description

The site of the proposed addition to the Women's Medical Imaging is located at 1495 Gause Boulevard, within the southwest quadrant of the intersection of Gause Boulevard and Lakewood Drive in Slidell, Louisiana. The proposed building area is currently a concrete parking lot for the existing facility and encompasses a grassy area with scattered trees.

Detailed grading information was not available to us at the time this report was prepared. However, since the average elevation in the addition which is about +15.0 feet, will likely have the same finished floor elevation as the existing building, it was estimated that about 1.5 feet of fill will be needed to achieve the floor slab design grade of 16.4 feet. About one (1) foot of fill will be required in the parking lot.

Drilling, Sampling, and Laboratory Testing Procedures

The borings were drilled with a truck mounted drilling rig. 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 D-1586). 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

Two (2) borings (B-1 and B-2) were drilled within the proposed building footprint. Based on the borings, 6 inches of concrete and 8 inches of sandy topsoil with organics covered the surface at Borings B-1 and B-2, respectively. The topsoil and concrete was followed by stiff to very stiff brown sandy clay, medium dense to dense gray tan silty sand and clayey sand extending to a depth of 8 feet. The sandy clay was underlain by medium dense to dense light brown to gray tan poorly graded sand and silty sand extending to a depth of 33 feet. This was followed by firm tan gray sandy clay and very soft gray fat clay extending to the termination depth of the boring at 40 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 about 7 feet upon completion of drilling operations. It should be noted that groundwater levels will fluctuate with seasonal variations in rainfall (heavy rainfall and extended periods of dry weather), surface runoff. Perched water may be encountered between the interface of the granular soils, and the underlying natural low permeability cohesive soils. Therefore, it is recommended that the actual groundwater levels at the site be determined by the contractor at the time of the construction activities.

IBC Site Classification

The International Building Code (IBC), 2003 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 1615.1.1 of the 2003 IBC.

EVALUATION AND RECOMMENDATIONS

General

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

Provided that the near surface soil condition is prepared as recommended in the report, the proposed addition to the Women's Medical Imaging Center may be supported on a shallow foundation system bearing in the stiff sandy clay or dense clayey sand. Details related to site preparation, foundation and pavement recommendations, as well as construction considerations are presented in subsequent sections of this report.

Site Preparation

Site preparation is expected to include but not limited to stripping of all topsoil organics and removal of the concrete from the area to be developed. Utility lines in the area should be located and re-routed as necessary.

The exposed subgrade in the building and parking areas should be proof rolled with a rubber tired vehicle weighing about 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, the initial layer of fill should be placed in a relatively uniform horizontal lift and be adequately keyed into the stripped and scarified subgrade soils. Sandy clays or clayey sands can be used as structural fill. The fill should have a maximum liquid limit of 40 and have a maximum plasticity index of 18 percent.

The fill should be placed in maximum lifts of eight (8) inches of loose materials and should be compacted within one (1) percentage point below and three (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. The fill should be compacted to at least 95 percent of the Standard Proctor maximum dry density as determined by ASTM Designation D698. Adequate drainage should be provided prior to and during site work. The site should be graded to promote rapid runoff.

Shallow Footings

Based on the field data and laboratory test results, the proposed addition may be supported on a shallow foundation system. Spread footings and continuous footings bearing at least two (2) feet below the finished grade on the stiff sandy clay or compacted structural fill, could be designed for maximum net allowable bearing pressures of 2,500 psf and 2,000 psf, respectively. Minimum dimensions of twenty-four (24) inches for column footings and eighteen (18) inches for continuous footings should be used in foundation design to minimize the possibility of a localized bearing failure. The above bearing capacities include a design factor of safety of three (3).

The uplift resistance of shallow spread footings formed in open excavations should be limited to the weight of the foundation concrete and the soil above it. For preliminary design purposes, the uplift resistance can be computed by using a total unit weight of 115 pcf for the structural fill placed and compacted above the footing and the unit weight of 150 pcf for the concrete. Concrete reinforcing steel should be properly sized to resist the uplift forces. We recommend that a factor of safety of at least 1.5 be used when determining the allowable uplift resistance of spread footings.

Soil resistance to horizontal forces is developed by lateral earth pressures acting on the face of the footing and by friction or adhesion on the footing base. We recommend that the allowable passive pressure be computed for spread footing below grade using the following equation:

$$P_p = 1500 + 120\ H\ (Clay)$$

where P_p is the lateral soil resistance in psf (pounds per square foot) and H is the depth in feet. For exterior footings, H is measured from one (1) foot below adjacent finished grade, provided that the adjacent finished grade extends level and at least beyond a point that makes a 45-degree angle from the bottom of the exterior footing to the finished ground surface.

The top foot of passive resistance at foundations should be neglected unless the ground surface around the footing is covered by concrete or pavement. The resistance to sliding of spread footing bearing in structural fill can be computed by multiplying the footing base contact area by a sliding friction factor of 0.38. Spread footings should also be sized to resist overturning due to moment forces.

The foundation excavations should be observed by a representative of SE prior to steel or concrete placement to assess that the foundation materials are capable of supporting the design loads and 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 soils or adequately compacted fill as directed by the geotechnical engineer. Cavities formed as a result of excavation of soft or loose soil zones should be backfilled with compacted structural fill or graded crushed stone, as determined by the Geotechnical Engineer.

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 prior to or after concrete placement. The foundation concrete should be placed during the same day the excavation is made. If it is required that footing excavations be left open for more than one day, they should be protected to reduce evaporation or entry of moisture.

Settlement

Settlement of spread footing designed for the recommended bearing pressure is estimated to be less than one (1) inch. Differential settlement is estimated to be 50 percent of the total settlement. While the magnitude of the total settlement is generally considered tolerable for structures of the type proposed, the design of any masonry walls should include provisions for liberally spaced, vertical control joints to minimize the effects of cosmetic cracking.

Floor Slab

The soil supported floor slab for the proposed building addition should bear on a minimum of two (2) feet of compacted structural fill. Placement of the new fill and preparation of the subgrade should be performed in accordance with the Site Preparation section of the report to identify any soft or unstable soils which should be removed from the floor slab area prior to additional fill placement and/or floor slab construction. Polyethylene sheeting should be placed between the fill and the floor slab to act as a vapor barrier. The floor slab should have an adequate number of joints to reduce cracking resulting from any differential movement and shrinkage.

Pavement Recommendations

The performance of pavements depends upon several factors including (1) the characteristics of the supporting soils: (2) the magnitude and frequency of wheel load applications; (3) quality of construction materials; (4) the contractor's placement and workmanship abilities, and (5) the desired period of design life. SE has evaluated both rigid and flexible pavements for your considerations.

Although a grading plan for the parking lot was not available at the time this report was prepared, it was estimated that about 1 foot of fill will be required to reach the parking lot design grades. Traffic was assumed to consist mainly of cars, light trucks and occasional heavy delivery and/or solid waste-collection trucks.

The recommended pavement sections presented are considered typical and minimum for the assumed parameters in the general site area and anticipated traffic condition. We understand that budgetary considerations sometimes warrant thinner pavement sections than those presented. However, the owner and the project designers should be aware that thinner pavement sections may result in increased maintenance cost and lower than anticipated pavement life. The pavement sections should be prepared as discussed in the site preparation section of this report.

Our scope of services did not include extensive sampling for determination of Coefficient of Subgrade Reaction (K) and California Bearing Ratio (CBR) of the existing subgrade or potential sources of imported fill for the specific purpose of a detailed pavement analysis. Instead, we have assumed pavement related design parameters that are considered to be typical for the area soil types.

The pavement design assumes the subgrade soils will be prepared to achieve a Coefficient of subgrade reaction (k) of 100 psi per inch, which could be used for rigid pavement design and a CBR of 3 for flexible pavement design. The recommended pavement sections are summarized in the following table.

FLEXIBLE PAVEMENT		
Pavement Materials	Minimum Thickness, Inches Light Duty	Heavy Duty
Asphaltic Concrete Wearing Course	3	4
Compacted 610 Limestone Base	8	10
Compacted Structural Fill	12	12

RIGID PAVEMENT		
Pavement Materials	Minimum Thickness, Inches Light Duty	Heavy Duty
Portland Cement Concrete	5	7
Compacted Granular Fill	12	12

Portland Cement Concrete pavements should be utilized where waste disposal containers are located. The concrete paved area in trash enclosures should be sufficiently large so that the front wheels of the collection truck are supported on the rigid pavement. In this area and in areas, which will be accessed by heavy trucks (solid waste trucks, delivery trucks, etc.), a minimum concrete pavement thickness of seven (7) inches is recommended underlain by 12 inches of compacted granular fill.

Proper finishing of concrete pavement requires the use of appropriate construction joints to reduce the potential for cracking. Construction joints should be designed in accordance with current Portland Cement Association guidelines. Joints should be connected with smooth, greased or sleeved dowels and should be sealed to reduce the potential for water infiltration into pavement joints and subsequent infiltration into the supporting soils. The design of steel reinforcement should be in accordance with accepted codes. The concrete should have a minimum compressive strength of 3,500 psi at 28 days. The concrete should also be designed with 5 ± 1 percent entrained air to improve workability and durability.

The asphaltic concrete should meet the requirements of the latest edition of the Louisiana Standard Specifications for Road and Bridges (LSSRB) and should be compacted to a minimum of 95 percent of the density of the laboratory molded specimen. The crushed limestone base should meet the requirements of the latest edition of LSSRB, Section 1003.03, and should be compacted to at least 95 percent of the maximum dry density as determined by ASTM D698.

CONSTRUCTION CONSIDERATIONS

It is recommended that SE be retained to provide observation and testing of construction activities involved in the foundations, pavements, and related activities of this project. SE cannot accept any responsibility for any conditions which deviate from those described in this report, nor for the performance of the foundations and pavements if not engaged to also provide construction observation and testing for this project.

Moisture Sensitive Soils/Weather Related Concerns

The upper soils encountered at this site are sensitive to disturbances caused by construction traffic and changes in moisture content. During wet weather periods, an increase in the moisture content of the soil can cause significant reduction in the soil strength and support capabilities. In addition, soils that become wet may be slow to dry and thus significantly retard the progress of grading and compaction activities. It will, therefore, be advantageous to perform earthwork and foundation construction activities during dry weather.

Drainage and Groundwater Concerns

Water should not be allowed to collect in the foundation excavations, floor slab area, or on the prepared subgrade in the construction area either during or after construction. Undercut or excavated areas should be sloped toward one corner to facilitate removal of any collected rainwater, groundwater, or surface runoff. Positive site surface drainage should be provided to reduce infiltration of surface water around the building.

Groundwater was encountered at a depth of 7 feet upon completion of drilling operations. However, it is possible that seasonal variations will cause fluctuations of the water table. Additionally, perched water may be encountered in discontinuous zones within the overburden. Any water accumulation should be removed from the excavations by pumping. Should excessive and uncontrolled amounts of seepage occur, the geotechnical engineer should be consulted.

Excavations

In Federal Register, Volume 54, No. 209 (October 1989), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) amended its "Construction Standards for Excavations, 29 CFR, part 1928, Subpart P". This document was issued to better ensure the safety of workmen entering trenches or excavations. It is mandated by this federal regulation that excavations, whether they be utility trenches, basement excavation or footing excavation, be constructed in accordance with the new OSHA guidelines. It is our understanding

that these regulations are being strictly enforced and if they are not closely followed, the owner and the contractor could be liable for substantial penalties.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractor's "responsible person", as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations.

We are providing this information solely as a service to our client. SE does not assume responsibility for construction site safety or the contractor's or other parties' compliance with local, state, and federal safety or other regulations.

REPORT LIMITATIONS

The recommendations submitted in this report are based on the available subsurface information obtained by SE and design details furnished by you. If there are any revisions to the plans for this project, or if deviations from the subsurface conditions noted in this report are encountered during construction, SE should be notified immediately to determine if changes in the foundation recommendations are required. If SE is not notified of such changes, SE will not be responsible for the impact of those changes on the project.

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.

After the plans and specifications are more complete, the geotechnical engineer should be retained and provided the opportunity to review the final design plans and specifications to check that our engineering recommendations have been properly incorporated in to the design documents. At that time, it may be necessary to submit supplementary recommendations. If SE is not retained to perform these functions, SE will not be responsible for the impact of those conditions on the project. This report has been prepared for the exclusive use of Slidell Memorial Hospital for the specific application to the proposed addition to the Women's Medical Imaging to be constructed at 1495 Gause Boulevard in Slidell, Louisiana.

APPENDIX

⊕ = BORING LOCATION

STRATUM ENGINEERING, LLC

BORING LOCATION PLAN

PROJECT NO.: G10-014

GEOTECHNICAL ENGINEERING SERVICES
PROPOSED ADDITION TO WMI
1495 GAUSE BOULEVARD
SLIDELL, LOUISIANA

STRATUM ENGINEERING, LLC

LOG OF BORING B-1

PROPOSED SLIDELL MEMORIAL
SLIDELL, LA

TYPE OF BORING: WET ROTARY | LOCATION: BUILDING AREA | PROJECT NO.: G10-014

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	ORGANIC CONTENT, %	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENTROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
			6" of Concrete										
			Dense brown to gray tan Clayey Sand				2.25			15			
			-with roots				2		120	12			47
5			Very stiff light tannish gray Sandy Clay				2.75			20			
			▼				1.50			17			
10			Medium dense gray tan Silty Sand				2			18			13
15				10						22			15
20			Medium dense gray tan Poorly Graded Sand	22						22			
25			Boring Terminated at 20 Feet										
30													
35													
40													
45													
50													

DEPTH OF BORING: 20 feet
DATE: 5/20/2010

GROUNDWATER: 7' Upon Completion

STRATUM ENGINEERING, LLC

LOG OF BORING B-2

PROPOSED SLIDELL MEMORIAL
SLIDELL, LA

TYPE OF BORING: WET ROTARY | LOCATION: BUILDING AREA | PROJECT NO.: G10-014

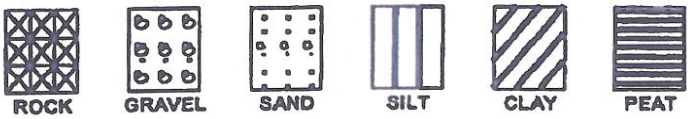
DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	ORGANIC CONTENT, %	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENTROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
			8" of Sandy topsoil with Organics										
			Stiff brown Sandy Clay				1.5			15			
			Medium dense light brown Clayey Sand				2		124	14	19	6	39
5			Medium dense to dense light brown Poorly Graded Sand ▼	26						16			
				26						20			
10				15						22			
15				22						25			3
20				27	22					22			
25				47						20			
30				43						24			7
35			Firm tan gray Sandy Clay with shell fragments	6						35			
40			Very soft gray Fat Clay with Silt pockets	2						30			
			Boring Terminated at 40'										
45													
50													

DEPTH OF BORING: 40 feet
DATE: 5/20/2010

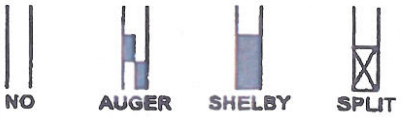
GROUNDWATER: 7' Upon Completion

KEY TO TERMS AND SYMBOLS USED ON LOGS

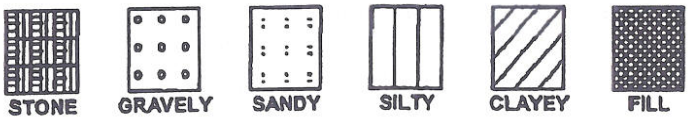
SOIL TYPE

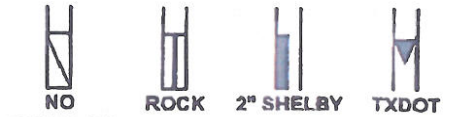


SAMPLER TYPE



MODIFIERS





UNIFIED SOIL CLASSIFICATION SYSTEM - ASTM D 2487 (1980)

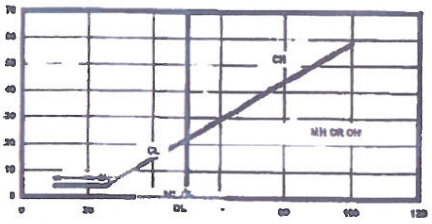
MAJOR DIVISIONS			LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS: MORE THAN 50% PASSING NO. 200 SIEVE	GRAVEL & GRAVELLY SOILS: LESS THAN 50% PASSING NO. 4 SIEVE	CLEAN GRAVEL (LITTLE OR NO FINES)	GW	WELL GRADED GRAVEL, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			GP	POORLY GRADED GRAVEL, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH 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, GRAVELLY SAND (LITTLE FINES)
			SP	POORLY GRADED SANDS, GRAVELLY SAND (LITTLE FINES)
		SANDS WITH APPREA. FINES	SM	SILTY SANDS, SAND-SILT MIXTURES
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS: 50% OR MORE 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, GRAVELLY 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

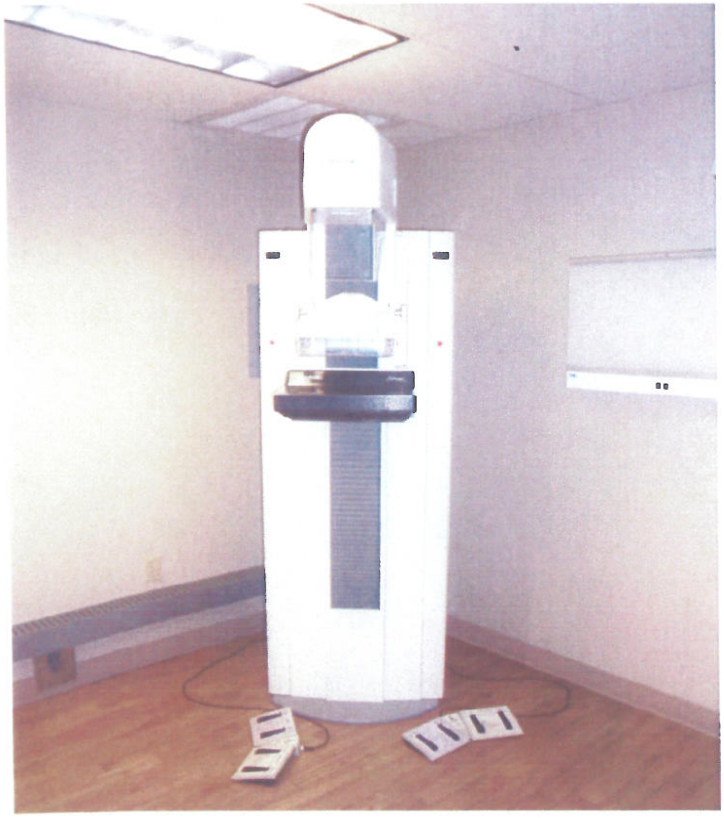
U.S. STANDARD SIEVE SIZE(S)

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

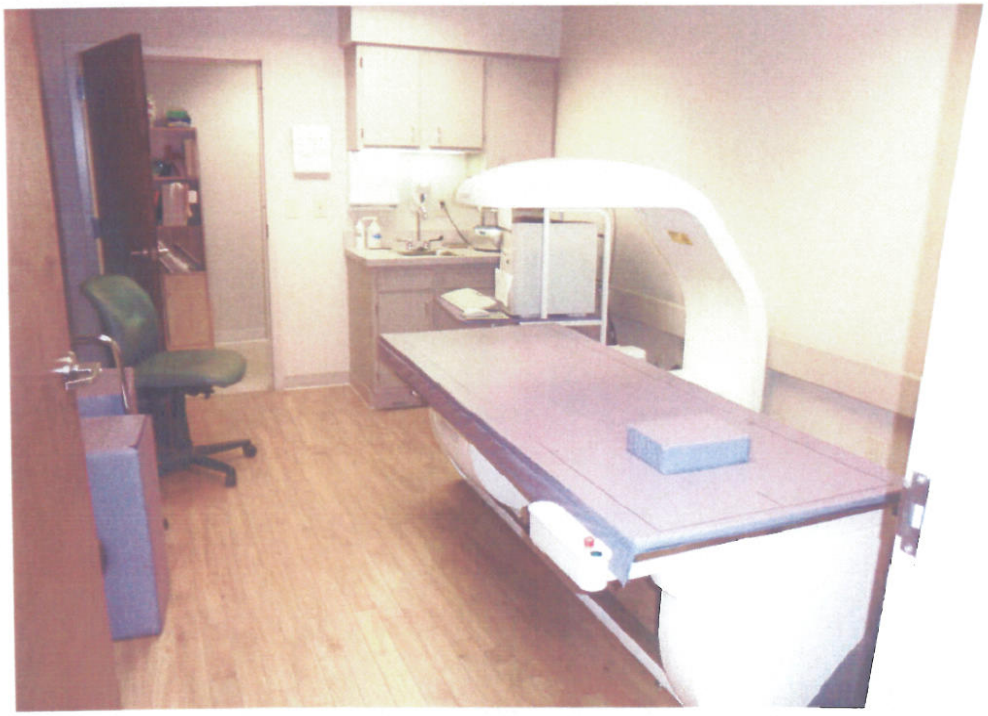
BOULDERS	COBBLES	GRAVEL: COARSE	GRAVEL: FINE	SAND: COARSE	SAND: MEDIUM	SAND: FINE	SILT OR CLAY	CLAY
152	76.2	19.1	4.76	2.0	0.42	0.074		0.002

GRAIN SIZE IN MM

WOMEN'S IMAGING CENTER
MAMMO ROOM



WOMEN'S IMAGING CENTER
DEXA ROOM



WOMEN'S IMAGING CENTER
ULTRASOUND ROOM