

Mr. Dammon,

The lab work is now complete for the proposed Clement Residence to be constructed at 3 Jennifer Lane in Slidell, Louisiana and we are working on the report. However, at your request, we are providing you with a preliminary summary of our findings and recommendations for your use while you await the final report submittal.

The site encompasses about 1.3 acres of land designated as lots 23A and 23B adjacent to Bayou Bonfouca in Slidell. The property is mainly undeveloped with the exception of a boat slip and a small covered area near the Palms Inlet. The property is currently covered with short surface vegetation with a few sparse trees.

The project includes the construction of a 2-story elevated residence with a ground floor slab used for parking. The building will be elevated above the ground floor slab using concrete masonry unit (CMU) columns. The residence will have a footprint of approximately 3,500 square feet. Detailed structural loads were not available at the time this preliminary summary was prepared; however, a maximum column load of 25 kips is anticipated for the structure. Based on conversations with Dammon Engineering, we understand that about six (6) feet of fill will be required to reach the ground floor design grade.

A total of two (2) borings were drilled to depths of 20 and 50 feet below the existing ground surface in the building area. Based on the borings, the site is generally covered with about six (6) inches of silty sandy topsoil with organics. The topsoil was followed by alternating layers of firm to stiff lean clay and lean clay with sand extending to around 27 feet. Loose to medium dense sand was encountered below the clays extending to a depth of at least 50 feet, the maximum depth explored. Groundwater was encountered at an approximate depth of about 11 ½ feet during the drilling operations.

The results of the exploration indicate that the near surface soils present at the site are fair and suitable for supporting the structure on a shallow foundation system. Spread footings and continuous footings, bearing at least two (2) feet below the finished grades on compacted structural fill, could be designed for maximum allowable bearing pressures of 2,500 and 2,000 psf, respectively, based on dead loads and design live loads. However, consideration should be given to the fact that the site is susceptible to frequent flooding. A shallow foundation system could become inundated with flood water that would soften the bearing soil and could cause some settlements that may not be tolerated by the structure. Consequently, a pile foundation system consisting of small treated timber piles was also evaluated for support of the proposed residential structure.

Site preparation is expected to include, but not be limited to, clearing the building area of trees as well as stripping the vegetation particularly in the non-pile supported areas. Utility lines in the area should be re-routed as necessary.

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

After subgrade preparation and observation have been completed, structural fill placement may begin. The structural fill should consist of sandy clay or clayey sand. The fill should be free of organic or other deleterious materials, having a liquid limit less than 40 and a plasticity index between 10 and 18 percent. Structural fill with plasticity indices in this range will require close moisture content control to achieve the recommended degree of compaction. The structural fill should be compacted to at least 95 percent of the fill's maximum dry density as determined by ASTM D698 (Standard Proctor).

The structural fill should be placed in relatively uniform horizontal lifts and be adequately keyed into the stripped and proofrolled soils. All fill should be placed in maximum lifts of 8 inches of loose material and should be compacted within 1 percentage point below to 3 percentage points above the optimum moisture content. If water must be added, it should be uniformly applied and thoroughly mixed into the soil by disking or scarifying. Each lift of compacted fill should be tested by a representative of the Geotechnical Engineer prior to placement of subsequent lifts. The edge of compacted structural fill should extend at least 5 feet beyond the edge of the building prior to sloping.

Should a deep foundation system be utilized, consideration was given to small treated timber piles for support of the proposed building including the floor slab. The piles should meet the requirements of ASTM D25 for size and the American Association of Wood Preserver (AAWP) for quality and treatment.

The piles will generally derive their support through "skin friction" along their embedded lengths and through "end bearing" when tipped in the medium dense sand stratum encountered at about 27 feet below the existing ground surface. The small timber piles should have minimum tip and butt diameters of 6 and 8 inches, respectively. They should conform to ASTM D25 and the American Wood Preservers Association (AWPA) Standards for quality and treatment, respectively.

The recommended pile lengths and corresponding capacities are from the existing ground surface at the time of drilling. The recommended pile lengths and the estimated corresponding allowable capacities are presented in the following table:

<b>Estimated Allowable Single Pile Load Capacity in Tons*</b> <b>F.S. = 2.0 in Compression</b> <b>F.S. = 3.0 in Tension</b>		
<b>Pile Penetration in feet</b>	<b>Small Treated Timber Pile (6" Tip – 8" Butt)</b>	
	<b>Compression</b>	<b>Tension</b>
±30	8+	4

\* Capacities are soil pile related capacities and consideration should be given to the structural integrity of the pile member.

The recommended capacities are soil/pile related capacities and the final design capacity should be governed by the building code for the type of pile used. The estimated pile capacities include a factor safety of two (2) in compression and three (3) in tension. However, if more fill than what is indicated in the report will be required in the building area, the above pile capacities should be evaluated further to account for the additional negative skin friction imparted on the piles.

If you have any questions pertaining to these preliminary recommendations or would like to discuss the project further, please feel free to contact our office. The final report is being assembled and will be issued within the next couple of days.