



Report of Geotechnical Exploration

Project:

Proposed McMath Residence

115 Ann Street
Covington, Louisiana

GeoCon Project No. DL 2524-21

Prepared For:

Mr. Don McMath
1125 North Causeway Boulevard
Mandeville, Louisiana 70471

Date: March 10, 2021

Prepared By:
GeoCon Engineering & Materials Testing, Inc.
22885 McAuliffe Drive
Robertsdale, Alabama 36567

GeoCon

Engineering & Materials Testing, Inc.

March 10, 2021

Mr. Don McMath
1125 North Causeway Boulevard
Mandeville, Louisiana 70471

RE: **Report of Geotechnical Exploration**
Proposed McMath Residence
115 Ann Street
Covington, Louisiana
GeoCon Project No. DL 2524-21

Dear Mr. McMath:

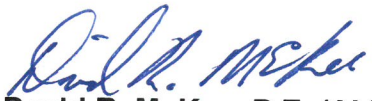
GeoCon Engineering & Materials Testing, Inc. is pleased to submit this report of geotechnical exploration for the above referenced project. Included in this report is a summary of our understanding of the project, results of the field exploration, and our recommendations for site preparation and foundation construction and design. This testing has been performed in general accordance with our earlier discussions with you.

Enclosed please find our report with our evaluations and recommendations followed by an Appendix which includes a Site Location Map, Test Location Plan, graphical logs of the soundings and boring, important notes about your Geotechnical Report and the Terms & Conditions that govern our work.

We appreciate the opportunity to have provided you with our geotechnical engineering services. If you have any questions concerning this report, or if we can be of any further assistance, please contact our office.

Sincerely,

GeoCon, Inc.


David R. McKee, P.E. (AL)
Geotechnical Engineer



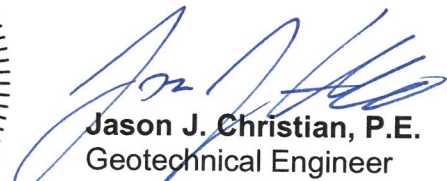

Jason J. Christian, P.E.
Geotechnical Engineer

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1.0 Project Description

The project subject to this report is the construction of a new residential structure located at 115 Ann Street in Covington, Louisiana. The attached Site Location Map (Figure 1) shows the location of the subject site. During our January 2021 field exploration, the area of the proposed house was clear and open. Ground elevations in the area of the proposed house appeared to be relatively flat. It is our understanding that the area of the proposed house was previously occupied by a residential structure.

Based on the provided information, the project subject to this report includes a new two-story residential structure that will include typical wood frame construction and be supported on shallow spread foundations with rigidly connected concrete grade beams. We also understand that the house will include a crawl space below the first floor.

Note: If our understanding of the above project information differs from the actual project plans and specifications or if revisions to the project plans are made after this report, we should be contacted for analysis and comment as needed.

2.0 Subsurface Exploration

Soil conditions were investigated by performing two (2) Cone Penetration Test (CPT) soundings to depths of about 25 to 42 feet and one (1) soil test boring to a depth of about 4 feet in the proposed house area. The test soundings and boring were located at the site by GeoCon personnel who used the provided site plan and existing site features as reference. The general test locations are shown on the attached Test Location Plan (Figure 2).

CPT testing was performed in accordance with ASTM D-5778 using a Vertek S4 electronic CPT rig. CPT testing includes pushing an electronic cone on a series of rods into the ground at a constant rate. The electronic cone collects continuous measurements of the resistance to penetration of the cone tip and side friction sleeve. Correlations between Cone Resistance values and Standard Penetration Test (SPT) "N" values were performed using methods developed by Robertson, Campanella and Wightman. The CPT logs attached in the appendix shows the cone tip friction, sleeve friction, pore pressure, friction ratio, correlated "N" value and the soil behavior type (SBT).

The hand auger boring included dynamic cone penetration (DCP) soundings to evaluate soil density/consistency characteristics. A 1½-inch diameter cone is seated to penetrate any loose cuttings, then driven in 1¾-inch increments with blows from a 15 pound weight falling 20 inches. The number of blows required to drive the cone the 1¾-inch increments is an index to soil strength and compressibility.

Samples from Boring B-1 were visually classified by GeoCon, Inc. personnel, placed in containers and transported to our laboratory for further testing and for further review by our engineering staff. Samples will be retained at our lab for a period of 60 days after the date of this report. If no written instructions are given to GeoCon, we will discard the samples after 60 days.

3.0 Soil Conditions Encountered

The test soundings and boring initially penetrated about 4 to 6 inches of organic topsoil material. Below the topsoil material, the test soundings generally penetrated sandy clay and clay soils to depths of about 2½ to 3 feet below the existing ground surface. Below the sandy clay and clay soils, the soundings penetrated silty sand soils to depths of about 4 to 6½ feet. Below the silty sand soils, the soundings penetrated clay soils with sand layers to sounding termination at depths of about 25 to 42 feet below the existing ground surface.

Based on the cone tip friction and correlated N-values, the upper clay soils were in a very soft to firm condition. The silty sand soils encountered across the soil profile were generally in a firm to very firm condition. The deeper clay soils penetrated across the soil profile were in a soft to firm condition. The soil conditions observed at the CPT and boring locations are described in more detail on the CPT Sounding Logs and Soil Boring Log attached in the Appendix.

4.0 Ground Water Conditions Encountered

Ground water was encountered at depths of about 1½ to 9 feet below the existing ground surface at the sounding and boring locations at the time of the field exploration. Based on the subsurface conditions encountered, we anticipate the shallow groundwater observed in the upper 1½ to 3 feet at sounding C-2 and boring B-1 may represent a perched groundwater condition. Ground water conditions are subject to seasonal variations and are expected to fluctuate in response to local variations in precipitation and drainage conditions. Considering the relatively short time frame of the field exploration, ground water levels may not have had sufficient time to stabilize. Therefore, actual depths to ground water may vary. We anticipate that ground water may be encountered in the process of constructing the foundation.

5.0 Site Grading Recommendations

We recommend that areas beneath and 5 feet beyond the house footprint be designated as the "house pad". Due to the soft subsurface soils, no more than 12 inches of fill should be placed in the house pad area. The weight of additional fill could potentially cause consolidation of the soft soils at the site that could result in structural settlement.

The initial phase of site grading should include the removal of any surface vegetation, organic topsoil, root systems or buried debris material from within the "house pad". About 4 to 6 inches of organic topsoil was encountered at the test locations, however; deeper undercuts may be required in areas to remove old tree stumps, root ball systems, old foundation systems, buried debris, etc. Following topsoil removal and prior to placement of fill within the house pad, the top 12 inches of the exposed native subgrade should be compacted to at least 95% ASTM D-698 standard density. A GeoCon Earthwork technician should observe the exposed subgrade and perform compaction testing to verify that unsuitable soils had been removed and that the subgrade was properly compacted.

6.0 Shallow Foundation Recommendations

Foundation Design. Provided the foundation footings are prepared as outlined below, individual spread footings can be designed using an allowable soil bearing pressure of up to 1,000 psf. The project structural engineer can determine the required foundation depths and sizes based on the actual design loads, building code requirements, and other structural considerations. We recommend that the individual spread footings be rigidly connected with steel reinforced (rebar) concrete grade beams to help limit differential settlement between the column foundations.

Lateral and uplift loads can be resisted by passive pressure of the soil acting against the side of the individual footings and/or the friction developed between the base of the footing and the underlying soil. For compacted backfill and firm native soils, the passive pressure may be taken as the equivalent to the pressure exerted by a fluid weighing 350 pounds per cubic foot (pcf). A coefficient of friction equal to 0.32 may be used for calculating the frictional resistance at the base of spread footings. These lateral resistance values are based on the assumption that the foundation can withstand horizontal movements on the order of ¼ inch. Spread foundation depths can be increased for uplift resistance as required. A soil unit weight of 100 pcf can be used for backfill atop foundations.

Provided foundations bear atop firm compacted native material or structural fill, we anticipate that total settlements will be less than about one inch. We anticipate that differential settlements will be less than about ½ inch.

Foundation Construction. Following foundation excavation, the footing bearing soils should be thoroughly compacted with mechanical compaction equipment prior to placement of reinforcing steel (rebar) and concrete. Footing bearing soils should be compacted to at least 95% standard density. Proper compaction of footing bearing soils is important to help limit excessive foundation settlement.

GeoCon, Inc. should be called to observe and perform compaction testing on the footing excavations prior to the placement of reinforcing steel (rebar) and concrete to determine if the bearing soils are satisfactory for support of the foundation. Excessively loose footing bearing soils will require re-compaction or stabilization as per the recommendations of GeoCon's geotechnical engineer.

We recommend that all footing excavations be extended to final grade and the footings constructed as soon as possible to reduce the potential for disturbance of the bearing soils. The foundation bearing area should be level or suitably benched and be free of loose soil, ponded water, mud and debris.

Foundation concrete should not be placed on soils that have been disturbed by ground water seepage or rainwater. If shallow ground water is encountered at the planned bottom of footing elevation, the footings will require being undercut by a minimum depth of 12 inches below the planned bottom of footing excavation. The resulting excavation should be replaced with a clean open-graded crushed aggregate (similar to No. 57 or 67 stone). The initial 6 inches of stone should be "choked" into the subgrade soils. The remaining stone should be placed in 6 inch lifts and be seated in-place with a mechanical compactor.

7.0 Placement of Structural Fill

Structural fill (if any) should be placed in 8 to 12 inch loose lifts and compacted to at least 95% ASTM D-698 standard compaction at moisture contents within +/- 3% of the material's optimal moisture content. Structural fill should be sandy in nature and should meet the following minimum requirements:

- 1) Exhibit SP or SP-SM soil classification according to the Unified Soil Classification System
- 2) Have a maximum of 10% soil fines passing the No. 200 sieve
- 3) Have a maximum Liquid Limit (LL) of 20%
- 4) Have a Plasticity Index (PI) of 0% (Non-Plastic)
- 5) Have a minimum standard Proctor (ASTM D-698) maximum dry density of 100 pcf

8.0 Closure

This report has been prepared for the exclusive use of Mr. McMath and his project design professionals for specific application to the above referenced project in accordance with generally accepted current standards of geotechnical engineering practices common to the local area.

The comments and recommendations of this report provide manageable and reasonable solutions to the advancement of the project based on the collected test data and the provided design information. Significant changes in site conditions or project design may result in alternative solutions to the design required or may permit more manageable and economical construction techniques. Should such significant changes occur, we will be available to offer supplemental comment.

The comments and recommendations of this report are based upon our interpretation of the information supplied by the client, the data collected at the two (2) soil test soundings, one (1) soil boring and the site conditions observed at the time of testing. A significant amount of interpolation was necessary. Because it is not possible to know or predict detailed conditions hidden beneath the ground surface, our comments and recommendations are presented as opinions and judgements, as opposed to statements of fact.

Improper site preparation, extremes in climatic conditions, significant changes in grade, time, etc., can affect the ground water, surface and subsurface conditions. If conditions are encountered as the construction advances which vary significantly from those described by this report, we should be contacted for additional comment.

We have not intended to reflect specific volumes of subsurface conditions at the site. Volumetric estimates often require a large number of borings placed on a close grid with the collected data associated with civil engineering cross-sections. If volume estimates are required of us for the design/development of this project to advance, please contact us for further comment. Again, we recommend that GeoCon be retained to provide construction material's testing during the house construction to verify that proper soil compaction is achieved.

APPENDIX

- A-1 Site Location Map
- A-2 Test Location Plan
- A-3 Graphical Logs of the Soundings and Boring
- A-4 Important Notes About Your Geotechnical Report
- A-5 Terms & Conditions Sheet



GEOCON, INC.

22885 McAuliffe Drive
 Robertsdale, Alabama 36567

NOT TO SCALE

SITE LOCATION MAP

Proposed Residential Structure
 115 Ann Street
 Covington, LA
 DL 2524-21

Figure 1

Date
 1/14/2021

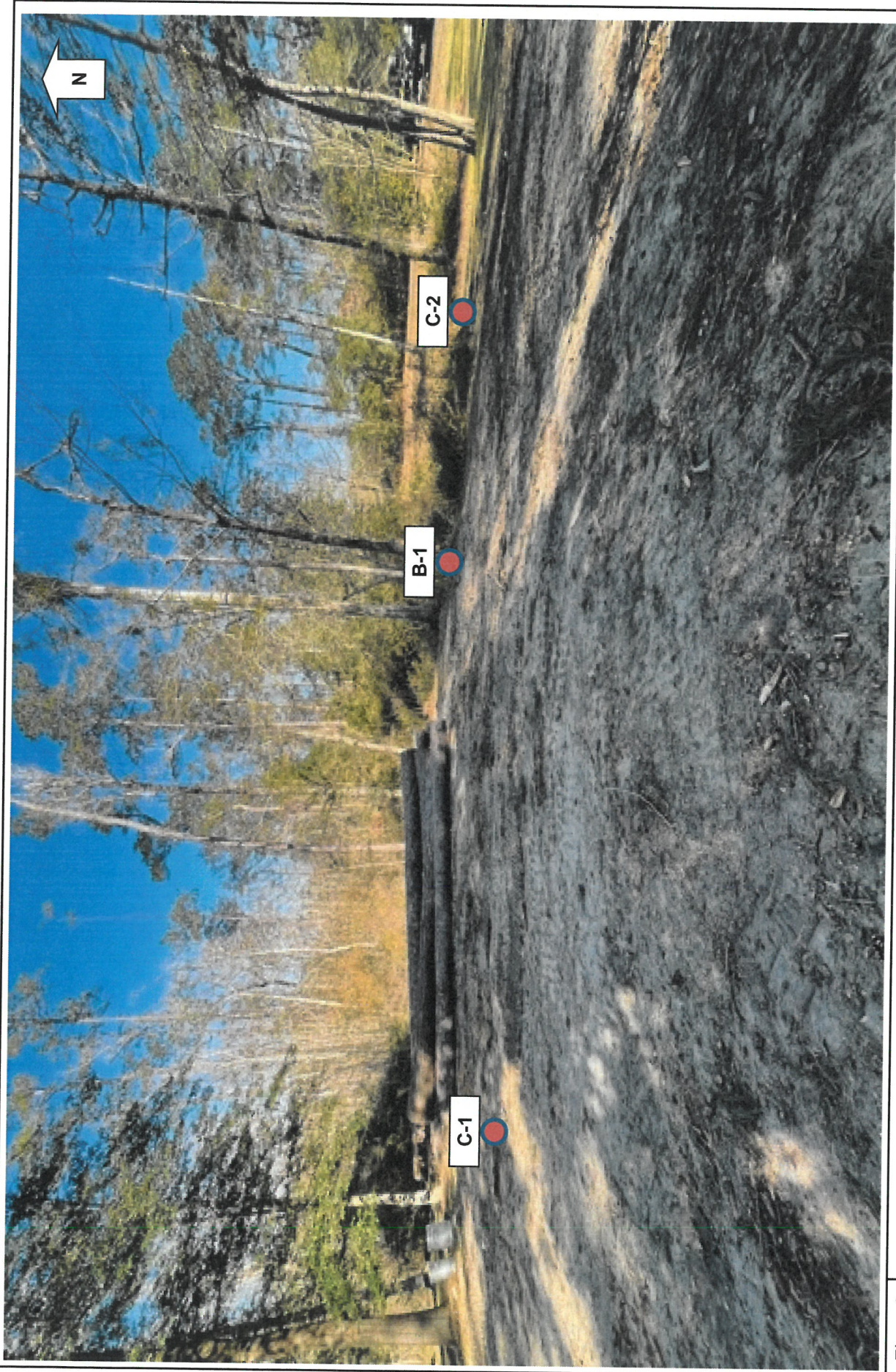


Figure 2

NOT TO SCALE

TEST LOCATION PLAN

Proposed Residential Structure
 115 Ann Street
 Covington, LA
 DL 2524-21

GEOCON, INC.

22885 McAuliffe Drive
 Robertsdale, AL 36567

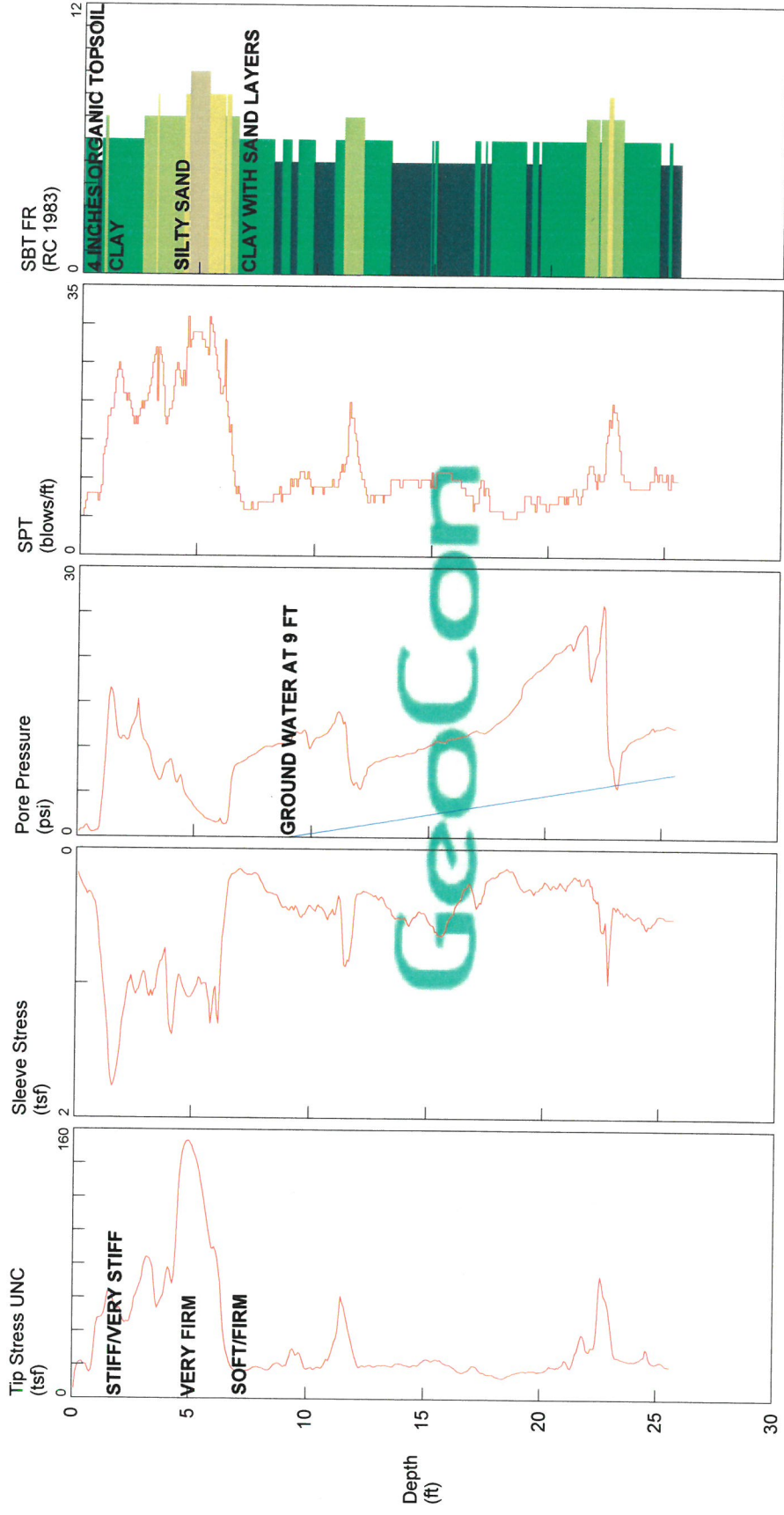
Date

1/14/2021

C-1

CPT Testing Done By: GeoCon
 Proposed: Residential Structure
 CUSTOMER: Don McMath
 LOCATION: Covington, LA
 HOLE NUMBER: C-1

JOB NUMBER: DL 2524-21
 TEST DATE: 1/13/2021
 OPERATOR: Chris Rea

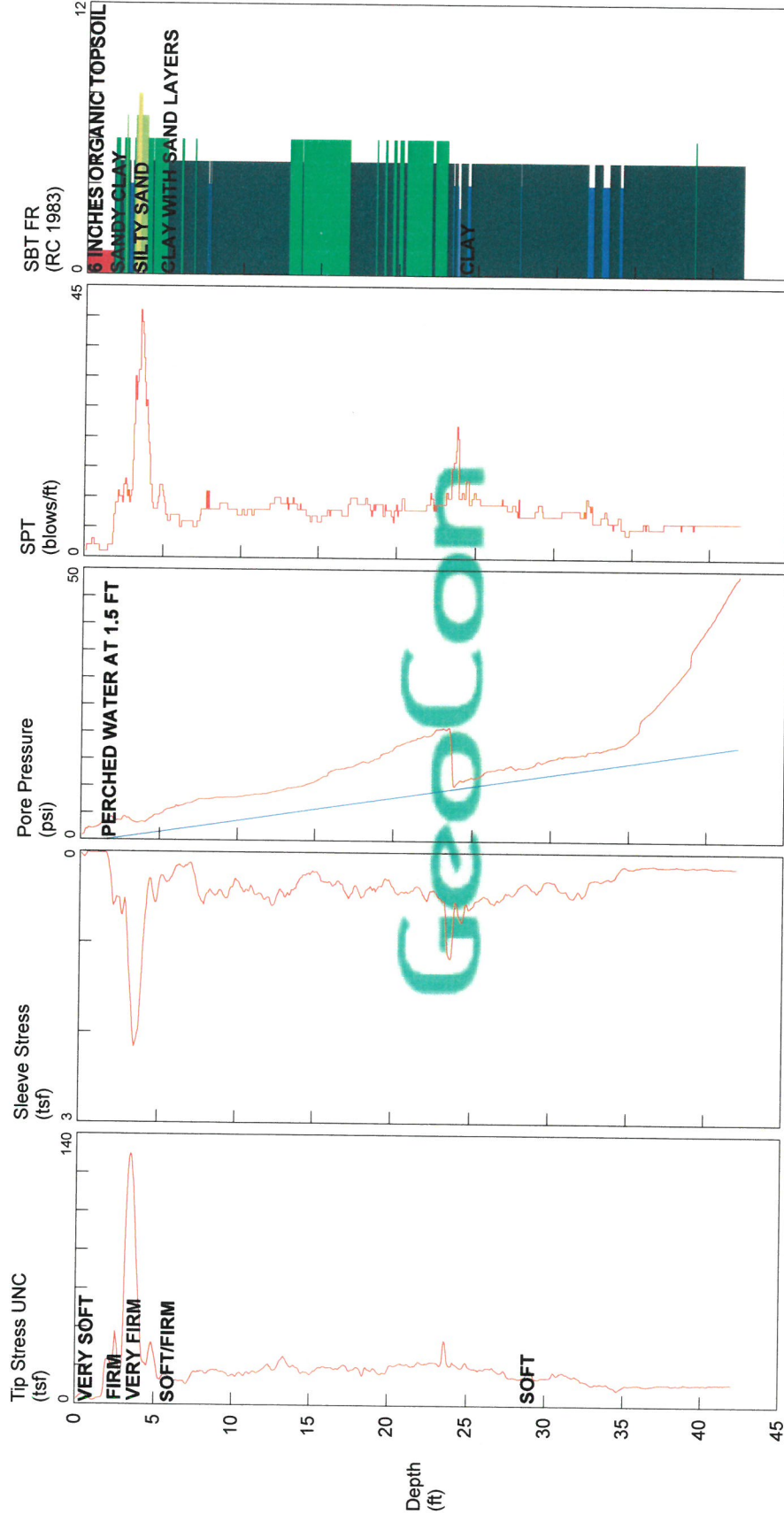


- 1 sensitive fine grained
 - 2 organic material
 - 3 clay
 - 4 silty clay to clay
 - 5 clayey silt to silty clay
 - 6 sandy silt to clayey silt
 - 7 silty sand to sandy silt
 - 8 sand to silty sand
 - 9 sand
 - 10 gravelly sand to sand
 - 11 very stiff fine grained (*)
 - 12 sand to clayey sand (*)
- *SBT/SPT CORRELATION: UBC-1983

C-2

CPT Testing Done By: GeoCon
 Proposed: Residential Structure
 CUSTOMER: Don McMath
 LOCATION: Covington, LA
 HOLE NUMBER: C-2

JOB NUMBER: DL 2524-21
 TEST DATE: 1/13/2021
 OPERATOR: Chris Rea



- 1 sensitive fine grained
- 2 organic material
- 3 clay
- 4 silty clay to clay
- 5 clayey silt to silty clay
- 6 sandy silt to clayey silt
- 7 silty sand to sandy silt
- 8 sand to silty sand
- 9 sand
- 10 gravelly sand to sand
- 11 very stiff fine grained (*)
- 12 sand to clayey sand (*)

*SBT/SPT CORRELATION: UBC-1983


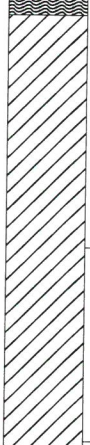
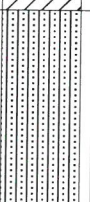
DRILL HOLE LOG

BORING NO.: B-1

PROJECT: Proposed Residential Structure
 CLIENT: Don McMath
 LOCATION: Covington, LA
 DRILLER: Chris Rea
 DRILL RIG:
 DEPTH TO WATER > INITIAL ∇ : 3

PROJECT NO.: DL 2524-21
 DATE: 1/13/2021
 ELEVATION:
 LOGGED BY: Jason Christian

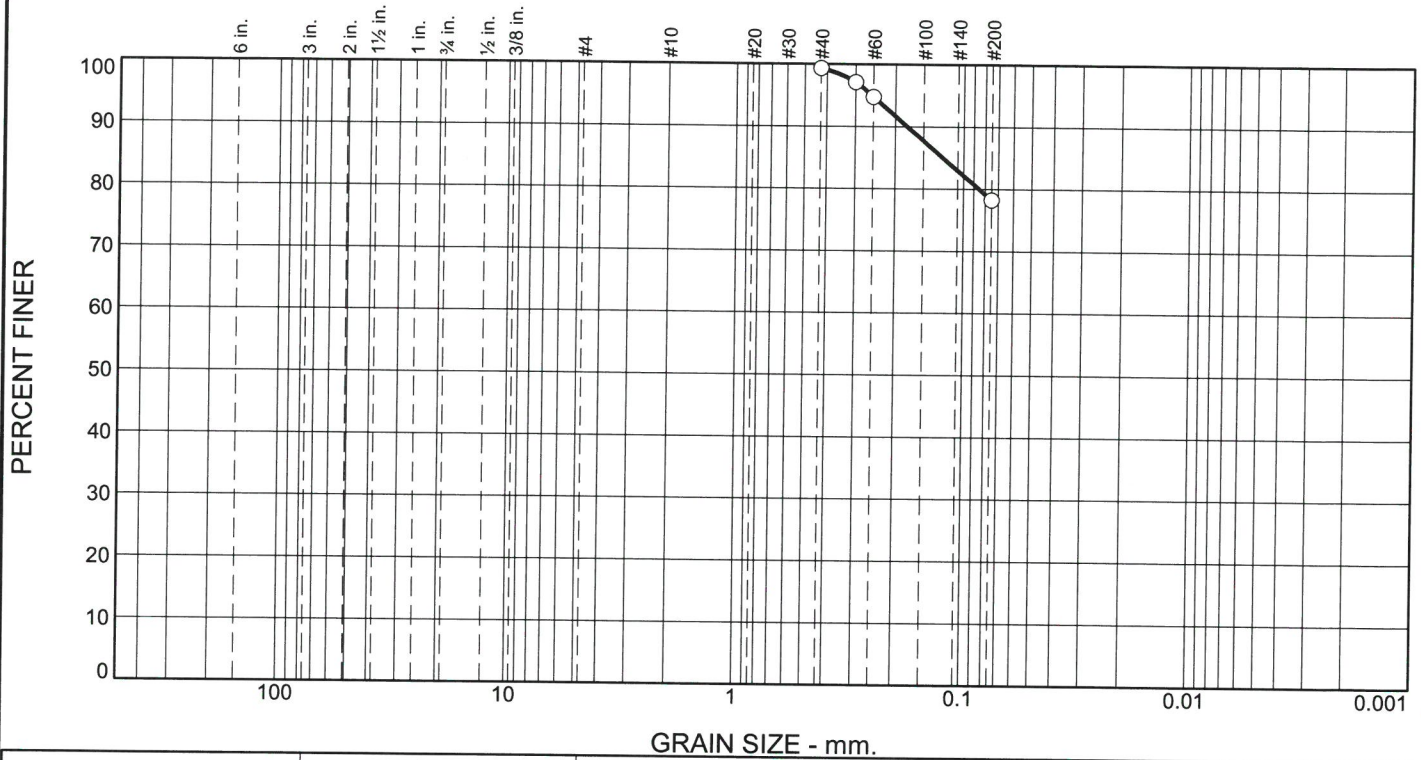
AT COMPLETION ∇ :

| ELEVATION/ DEPTH | WELL DETAIL | SOIL SYMBOLS, SAMPLERS AND TEST DATA | USCS | Description | NM | DD | STANDARD PENETRATION TEST | | |
|---------------------|----------------|---|------|---|----|----|---------------------------|---|--------------|
| | | | | | | | DEPTH | N | CURVE |
| | | | | | | | | | 10 30 50 |
| 0 | |  | | 4 Inches Organic Topsoil | | | | | |
| 1 | |  | CL | Tan Sandy Clay, Soft | | | | 5 | • |
| 2 | | | | | | | | | |
| 3 | |  | SM | Tan Silty Sand, Very Loose Perched Water at 3 ft | | | | 3 | • |
| 4 | | | | Boring Terminated at 4 ft | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |

"N Value" Equal to DCP Soundings

This information pertains only to this boring and should not be interpreted as being indicative of the site.

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| | | | | | 21.0 | | 78.3 |

| TEST RESULTS | | | |
|--------------|---------------|------------------|----------------|
| Opening Size | Percent Finer | Spec.* (Percent) | Pass? (X=Fail) |
| #40 | 99.3 | | |
| #50 | 97.1 | | |
| #60 | 94.8 | | |
| #200 | 78.3 | | |

Material Description

Tan Clay

Atterberg Limits (ASTM D 4318)

PL= 17 LL= 38 PI= 12

Classification

USCS (D 2487)= CL AASHTO (M 145)=

Coefficients

D₉₀= 0.1773 D₈₅= 0.1231 D₆₀=

D₅₀= D₃₀= D₁₅=

D₁₀= C_u= C_c=

Remarks

Moisture 11.6%

Date Received: _____ Date Tested: 1/15/2021

Tested By: CR _____

Checked By: JJC _____

Title: _____

* (no specification provided)

Location: Covington, LA

Sample Number: C-1 Depth: 1 ft

Date Sampled: _____

GeoCon

Robertsdale, Alabama

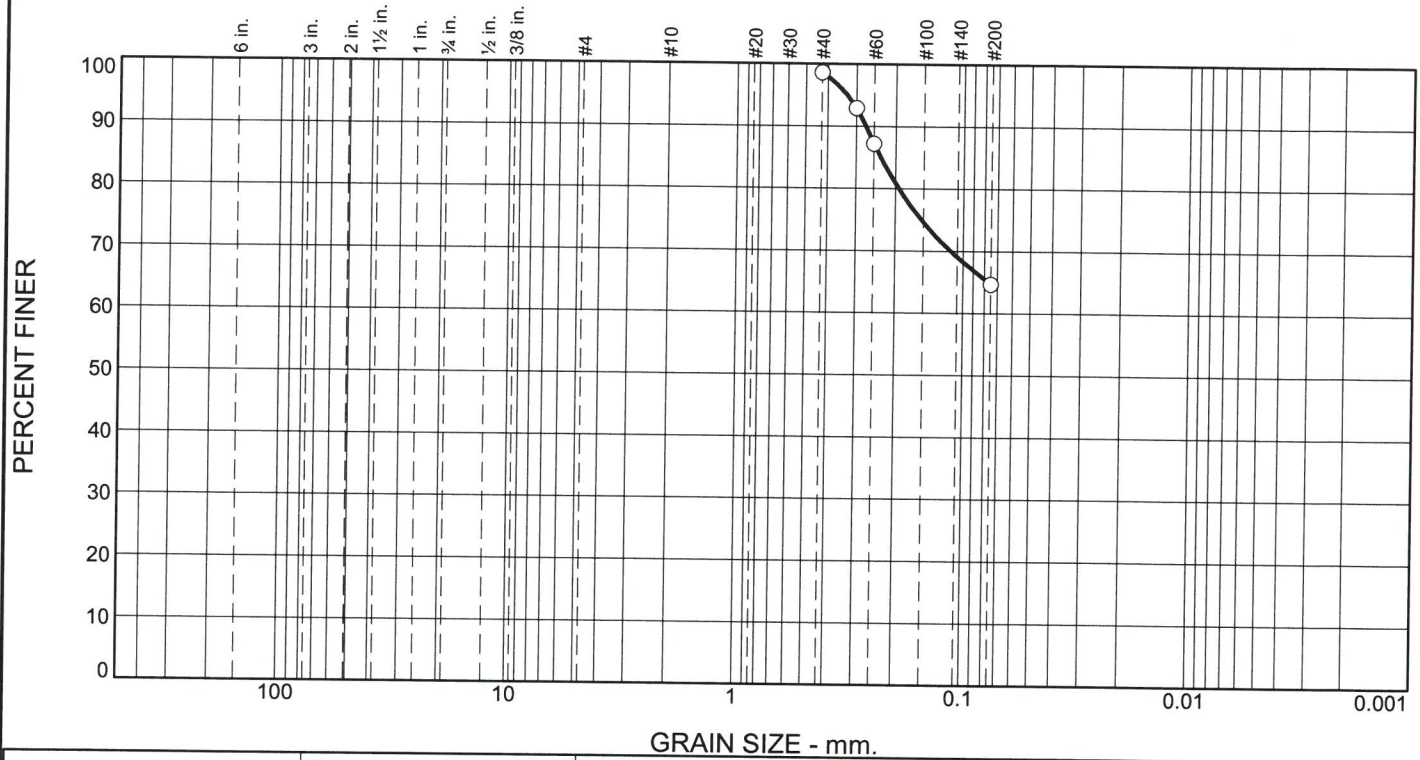
Client: Don McMath

Project: Proposed Residential Structure

Project No: DL 2524-21

Figure _____

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| | | | | | 33.9 | | 64.7 |

| TEST RESULTS | | | |
|--------------|---------------|------------------|----------------|
| Opening Size | Percent Finer | Spec.* (Percent) | Pass? (X=Fail) |
| #40 | 98.6 | | |
| #50 | 92.9 | | |
| #60 | 87.2 | | |
| #200 | 64.7 | | |

Material Description

Gray Sandy Clay

Atterberg Limits (ASTM D 4318)

PL= 16 LL= 30 PI= 14

Classification

USCS (D 2487)= CL AASHTO (M 145)=

Coefficients

D₉₀= 0.2725 D₈₅= 0.2327 D₆₀=
 D₅₀= D₃₀= D₁₅=
 D₁₀= C_u= C_c=

Moisture 17.1%

Remarks

Date Received: _____ Date Tested: 1/15/2021

Tested By: CR

Checked By: JJC

Title: _____

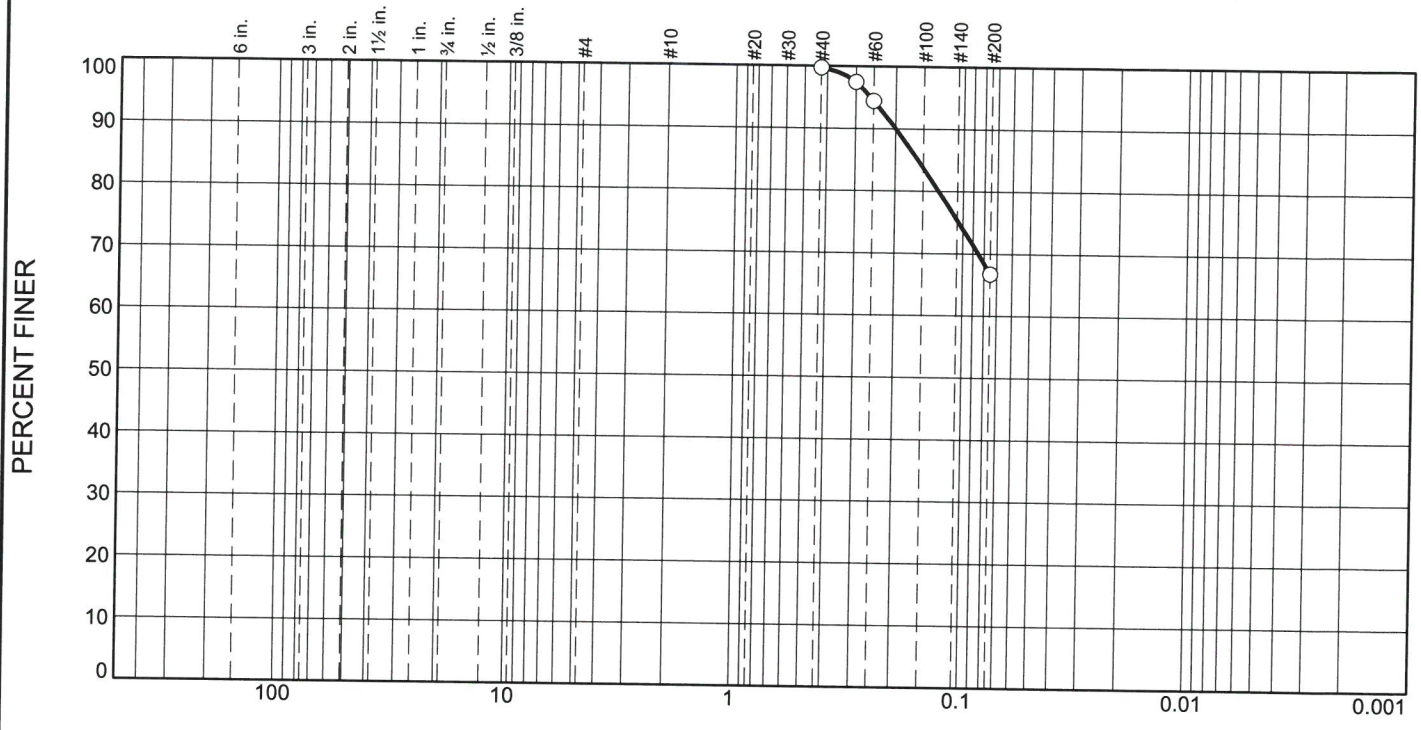
* (no specification provided)

Location: Covington, LA Depth: 2.5 ft

Date Sampled: _____

| | |
|---|---|
| <p>GeoCon</p> <p>Robertsdale, Alabama</p> | <p>Client: Don McMath</p> <p>Project: Proposed Residential Structure</p> <p>Project No: DL 2524-21</p> |
| <p>Figure</p> | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| | | | | | 32.9 | 66.8 | |

| TEST RESULTS | | | |
|--------------|---------------|------------------|----------------|
| Opening Size | Percent Finer | Spec.* (Percent) | Pass? (X=Fail) |
| #40 | 99.7 | | |
| #50 | 97.5 | | |
| #60 | 94.5 | | |
| #200 | 66.8 | | |

Material Description

Tan Sandy Clay

Atterberg Limits (ASTM D 4318)

PL= 17 LL= 29 PI= 12

Classification

USCS (D 2487)= CL AASHTO (M 145)=

Coefficients

D₉₀= 0.1998 D₈₅= 0.1589 D₆₀=

D₅₀= D₃₀= D₁₅=

D₁₀= C_u= C_c=

Remarks

Date Received: _____ Date Tested: 1/15/2021

Tested By: CR

Checked By: JJC

Title: _____

* (no specification provided)

Location: Covington, LA Sample Number: B-1 Depth: 1 ft Date Sampled: _____

| | |
|---|---|
| <p style="font-size: 1.2em; margin: 0;">GeoCon</p> <p style="font-size: 1.2em; margin: 0;">Robertsdale, Alabama</p> | <p>Client: Don McMath</p> <p>Project: Proposed Residential Structure</p> <p>Project No: DL 2524-21</p> <p style="text-align: right;">Figure</p> |
|---|---|

SOIL CLASSIFICATION CHART

| MAJOR DIVISIONS | | | SYMBOLS | | TYPICAL DESCRIPTIONS | |
|--|--|---|---|---|---|--|
| | | | GRAPH | LETTER | | |
| COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE | GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE | CLEAN GRAVELS (LITTLE OR NO FINES) | | GW | WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES | |
| | | (LITTLE OR NO FINES) | | GP | POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES | |
| | | GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES) | | GM | SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES | |
| | | (APPRECIABLE AMOUNT OF FINES) | | GC | CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES | |
| | SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE | CLEAN SANDS (LITTLE OR NO FINES) | | SW | WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES | |
| | | (LITTLE OR NO FINES) | | SP | POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES | |
| | | SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES) | | SM | SILTY SANDS, SAND - SILT MIXTURES | |
| | | (APPRECIABLE AMOUNT OF FINES) | | SC | CLAYEY SANDS, SAND - CLAY MIXTURES | |
| | | FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE | SILTS AND CLAYS LIQUID LIMIT LESS THAN 50 | | ML | INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY |
| | | | | | CL | INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS |
| | OL | | | ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY | | |
| SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50 | | | MH | INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS | | |
| | | | CH | INORGANIC CLAYS OF HIGH PLASTICITY | | |
| | | OH | ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS | | | |
| HIGHLY ORGANIC SOILS | | | | PT | PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS | |

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

Important Information about Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you — should apply the report for any purpose or project except the one originally contemplated.*

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time to perform additional study.* Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that

have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely on Your ASFE-Member Geotechnical Engineer for Additional Assistance

Membership in ASFE/THE BEST PEOPLE ON EARTH exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

ASFE THE GEOPROFESSIONAL BUSINESS ASSOCIATION

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TERMS AND CONDITIONS

SERVICES TO BE PROVIDED. GeoCon Engineering & Material Testing, Inc. (hereinafter GeoCon) is an independent consultant and agrees to provide Client, for its sole benefit and exclusive use, consulting services set forth in our proposal.

PAYMENT TERMS. Client agrees to pay our Invoice prior to GeoCon issuing the subject report. If payment is not received, GeoCon reserves the right to suspend all work until payment is received. No deduction shall be made from our invoice on account of liquidated damages or other sums withheld from payments to contractors or others.

TERMINATION. Either party may terminate this Agreement without cause upon 20 days advance notice in writing. In the event Client requests termination prior to completion of the proposed services, Client agrees to pay GeoCon for all costs incurred plus reasonable charges associated with termination of the work.

PROFESSIONAL LIABILITY. Notwithstanding any other provision of this Agreement, the Engineer's and GeoCon's total liability to the Owner for any loss or damages from claims arising out of or in connection with this Agreement from any cause including the Engineer's strict liability, breach of contract, or professional negligence, errors and omissions (whether claimed in tort, contract, strict liability, nuisance, by statute or otherwise) shall not exceed the lesser of the total contract price of this Agreement or the proceeds paid under Engineer's liability insurance in effect at the time such claims are made. The Owner hereby releases the Engineer from any liability exceeding such amount. In no event shall either party to this Agreement be liable to the other for special, indirect, incidental or consequential damages, whether or not such damages were foreseeable at the time of the commencement of the work under this Agreement.

SITE OPERATIONS. Client will arrange for right-of-entry to all applicable properties for the purpose of performing studies, tests and evaluations pursuant to the agreed services. Client represents that it possesses necessary permits and licenses required for its activities at the site.

OWNERSHIP AND USE OF PROJECT DOCUMENTS. All documents are instruments of service in respect to the Services, and Engineer shall retain an ownership and proprietary property interest therein (including the right of reuse at the discretion of the Engineer) whether or not the Services are completed. Client may make and retain copies of documents for information and reference in connection with the services by Client. Such documents are not intended or represented to be suitable for reuse by Client or others on extensions of the services or on any other project. Any such reuse or modification without written verification or adaptation by Engineer, as appropriate for the specific purpose intended, will be at Client's sole risk and without liability or legal exposure to Engineer or to Engineer's consultants. Client shall indemnify and hold harmless Engineer and Engineer's consultants from all claims, damages, and expenses including attorneys' fees arising out of or resulting therefrom.

ADDITIONAL SERVICES OF CONSULTANT. If authorized in writing by the Client, GeoCon shall furnish additional services that are not considered as an integral part of the Scope of Services outlined in the Proposal Acceptance Sheet. Under this Agreement, all costs for additional services will be negotiated as to activities and compensation. In addition, it is possible that unforeseen conditions may be encountered that could substantially alter the original scope of services. If this occurs, GeoCon will promptly notify and consult with Client and any additional services will be negotiated.

ASSIGNABILITY. GeoCon shall not assign any interest on this Agreement, and shall not transfer any interest in the same (whether by assignment or novation), without the prior written consent of the Client; provided, however, that claims for money by GeoCon against Client under this Agreement may be assigned to a bank, trust company, or other financial institution without such approval. Written notice of any such assignment or transfer shall be promptly furnished to the Client.

SERVICES TO BE CONFIDENTIAL. All services, including opinions, designs, drawings, plans, specifications, reports and other services and information, to be furnished by GeoCon under this Agreement are confidential and shall not be divulged, in whole or in part, to any person, other than to duly authorized representatives of the client, without prior written approval of the Client, except by testimony under oath in a judicial proceeding or as otherwise required by law. GeoCon shall take all necessary steps to ensure that no member of its organization divulges any such information except as may be required by law.

CLAIMS. The parties agree to attempt to resolve any dispute without resort to litigation. However, in the event a claim is made that results in litigation, and the claimant does not prevail at trial, then the claimant shall pay all costs incurred in defending the claim, including reasonable attorney's fees. The claim will be considered proven if the judgment obtained and retained through any applicable appeal is at least ten percent greater than the sum offered to resolve the matter prior to the commencement of trial.

SEVERABILITY. It is understood and agreed by the parties hereto, that if any part, term or provision of this Agreement is held by any court of competent jurisdiction to be illegal or in conflict with any applicable law, the validity of the remaining portion or portions of this Agreement shall not be affected and the rights and obligations of the parties shall be construed and enforced as if the Agreement did not contain the particular part, term or provision held to be invalid.

SURVIVAL. All obligations arising prior to the termination of this Agreement and all provisions of this Agreement allocating responsibility or liability between Client and GEOCON shall survive the completion of the services and the termination of this Agreement.

INTEGRATION. This Agreement, the attached documents and those incorporated herein constitute the entire Agreement between the parties and cannot be changed except by a written instrument signed by both parties.

GOVERNING LAW. This Agreement shall be governed in all respects by the laws of the State of Alabama and venue shall be in Baldwin County, Alabama.

Client Sign Here: _____

Date: _____

1/25/21