MARK LOUDERMILK
ARCHITECTURE

ADDENDUM NO. 2
FEBRUARY 3, 2023

Waterford Office
MLA Project No: 21035

The following revisions and additional information are incorporated as a portion of the bidding documents for the project:

REQUESTS FOR INFORMATION

1. Please clarify if the following should be included in bids:
    a. Builders Risk Insurance. **Response: Yes**
    b. Payment and Performance Bonds. **Response: No**
    c. Building Permit Fees. **Response: No**
    d. Tap Fee or Water Meter Fee: **Response: No**
    e. Development Fees: **Response: No**
2. Can CAD civil drawings be made available to bidders? **Response: Attached.**
3. Should Landscape Scopes be included in bids? **Response: Erosion control stabilization and grassing needs to be followed per civil plans. All other landscaping to be provided by owner.**
4. Ceiling Plan has note paint underside of stairs with zinc primer and a urethane topcoat. If this system applies, then an epoxy intermediate coat is required with final coat of urethane on top.
    a. Would zinc primer be shop applied? **Response: Yes; intermediate and finish coat should be field applied.**
    b. Would this system apply to the railings, stairs & stringers as well? **Response: Yes, for any portions of steel left exposed. The treads should be covered with carpet.**
    c. Any rust is typically touched up with metal primer and topcoat (industrial enamel rust inhibitors). Would this be a possible alternative? **Response: Price as shown. See response to item 14 below regarding submission of value engineering possibilities.**
5. Do the outside air and exhaust air ducts need to be insulated? If so, what r-factor? **Response: Yes. R-8.**
6. A601. Are stairs to be carpet per the finish schedule? **Response: Yes**
7. Specifications Item 18 notes wet wall only. The drawings note wall tile on all toilet rooms 6' high. Confirm which is to be priced. **Response: Price only the wet wall please.**
8. Provide the location of the utility transformer. **Response: This is yet to be determined by the utility provider.**
9. Provide a detail for the transformer pad. **Response: This will be provided by the utility provider.**

10. Is there any site lighting? If so, provide a drawing and fixture schedule for the site lighting? **Response: Yes. Site lighting plan and conduit layout from electrical engineer will be shown in addendum no. 3.**
11. Does power need to be included for various site items (heaters for Backflow devices, power for sign, Sewage lift station, or PIV valve for Sprinkler main pipe)? **Response: Waiting on response from engineer. We will provide response within addendum no. 3.**
12. S202 & S203, Note 2, calls for 2" phos. painted 20 GA composite metal deck, and S403, Detail 2, calls for 3" 20 GA galvanized composite metal deck. Confirm deck type and sizing at concrete on metal deck locations. **Response: All metal deck should be galvanized G60 not phos. painted.**
13. A201, Detail 1, Curtainwall system is called out in one location. However, the system is showing 10' high, which can be storefront to match the remainder of the storefront system. Confirm curtainwall is desired and, if it is, at what locations. **Response: No curtain wall on the project. Storefront is acceptable.**
14. Is the Bid Form issued with the Instructions to Bidders the only mandatory deliverable to be included in Bid Day envelope? **Response: Yes, but the owner is also accepting any ideas for possible value engineering discussion items on separate letterhead.**
15. Provide a copy of the geotechnical report for this project. **Response: Attached.**
16. C2. Are sidewalks to be shown around both buildings? **Response: See annotated site plan for extents of building A walkways. We understand to install for future building B might be premature in the sequence of construction.**
17. A302 Section 1, Foundation Note 4" footing drain. Is this required on this project? If so, can it be shown on civil drawings? **Response: See new sheet DL1.**
18. P101. Shows roof drains on north and south sides exiting from building. Civil drawings do not show these drain lines connecting to storm system. Please review. **Response: See new sheet DL1.**
19. A210 & A202 show cantilevered canopies. S305 & S306 show canopies with overhead rods. Provide clarification. **Response: All aluminum canopies should be priced as cantilevered with no overhead rods.**

SUBSTITUTION REQUESTS

1. Duro-Last is an approved manufacturer of 60 mil PVC roofing membrane.
2. Soprema is an approved manufacturer of 60 mil PVC roofing membrane.

SUPPLEMENTAL (ATTACHED) INFORMATION

1. Geotechnical report: 21035__geotech_210504.pdf
2. New civil engineering sheet DL1
3. CAD file of civil plans: 21035_C1_230131.dwg
4. Updated Bid Form: 21035_bidform_rev01.pdf.
5. Architect-annotated sidewalk plan: 21035_archsite_230203.pdf

END OF ADDENDUM

ECS Southeast, LLP

Geotechnical Engineering Report

Offices at Waterford

Leland, Brunswick County, North Carolina

ECS Project No. 22:30227

May 4, 2021

May 4, 2021

Mr. Steve Anderson
SAMM Properties, INC
10 South Cardinal Drive
Wilmington, North Carolina 28403

ECS Project No. 22:30227

Reference: Geotechnical Engineering Report
Offices at Waterford
Leland, Brunswick County, North Carolina

Dear Mr. Anderson:

ECS Southeast, LLP (ECS) has finished the subsurface exploration and geotechnical engineering analyses for the above-referenced project. Our services were performed in general accordance with our agreed to scope of work. This report presents our understanding of the geotechnical aspects of the project along with the results of the field exploration and our design and construction recommendations.

It has been our pleasure to be of service to SAMM Properties, INC during the design phase of this project. We would appreciate the opportunity to remain involved during the continuation of the design phase, and we would like to provide our services during construction phase operations as well to verify subsurface conditions assumed for this report. Should you have questions concerning the information contained in this report, or if we can be of further assistance to you, please contact us.

Respectfully submitted,

ECS Southeast, LLP

Annemarie Crumrine, PE
Project Manager
ACrumrine@ecslimited.com

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Principal Engineer
WGoins@ecslimited.com

NORTH CAROLINA PROFESSIONAL SEAL 033751 ENGINEER WINSLOW E. GOINS
5/04/21

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EXECUTIVE SUMMARY

The following summarizes the main findings of the exploration, particularly those that may have a cost impact on the planned development. Further, our principal foundation recommendations are summarized. Information gleaned from the executive summary should not be utilized in lieu of reading the geotechnical report.

- The geotechnical exploration performed for the site included six (6) electronic cone penetration test (CPT) soundings drilled to refusal and termination depths of approximately 25 to 38.5 feet. Three (3) Kessler dynamic cone penetrometer (DCP) tests with hand auger borings were performed in the proposed pavements.

- Provided the subgrades are prepared as recommended in this report, the planned building may be supported by conventional shallow foundations consisting of column or strip footings bearing on compacted structural fill and natural soils using a net allowable soil bearing pressure of 2,000 psf.

- Groundwater was encountered in the soundings at depths ranging from approximately 4.4 feet to 5.75 feet below existing grade. Hand auger borings, K-1 through K-3 did not encounter groundwater at the depths explored.

Please note this Executive Summary is an important part of this report and should be considered a ***"summary"*** only. The subsequent sections of this report constitute our findings, conclusions, and recommendations in their entirety.

1.0 INTRODUCTION

The purpose of this study was to provide geotechnical information for the design of foundations and pavements for the proposed office buildings located off of Olde Regent Way in Leland, North Carolina. The recommendations developed for this report are based on project information supplied by Mr. Parker Anderson and Mr. Steve Anderson of SAMM Properties INC and Mr. Brandon Lisk of McKinley Building Corporation.

Our services were provided in accordance with our Proposal No. 22:25002, dated April 5, 2021, as authorized by Mr. Anderson of SAMM Properties, INC on April 15, 2021, which includes our Terms and Conditions of Service.

This report contains the procedures and results of our subsurface exploration programs, review of existing site conditions, engineering analyses, and recommendations for the design and construction of the project.

The report includes the following items.

- A brief review and description of our field test procedures and the results of testing conducted;
- A review of surface topographical features and site conditions;
- A review of subsurface soil stratigraphy with pertinent available physical properties;
- Preliminary foundation recommendations;
  - Allowable bearing pressure;
  - Settlement estimates (total and differential);
- Site development recommendations;
- Suitability of soils for use as fill material;
- Pavement design recommendations;
- Seismic site class and liquefaction recommendations;
- Discussion of groundwater impact;
- Compaction recommendations;
- Site vicinity map;
- Exploration location plan;
- Hand Auger boring logs with Kessler DCP test results; and
- CPT sounding logs.

2.0 PROJECT INFORMATION

2.1 PROJECT LOCATION/CURRENT SITE USE/PAST SITE USE

The proposed site is located off of Olde Regent Way in Leland, North Carolina. The site is bounded on the east by Olde Regent Way, on the south by the existing parking lot, on the north by an existing retention pond, and on the west by an undeveloped wooded lot. Figure 2.1.1 below shows an image of where the site is located.

Figure 2.1.1 Site Location

At the time of our exploration, the site currently consisted of an undeveloped wooded lot. There is an existing retention pond located along the northern border of the site. Based on our site visit and approximate elevations from Google Earth, the site is relatively level with typical elevations on site ranging from approximately 26 to 30 feet.

2.2 PROPOSED CONSTRUCTION

The following information explains our understanding and assumptions of the planned development including proposed building and related infrastructure.

SUBJECT	DESIGN INFORMATION / ASSUMPTIONS
Usage	Office
Building Footprints	Approximately 10,400 square feet each
Column Loads	Up to 300 kips
Wall Loads	Up to 8 kips per linear foot (klf)
Finish Floor Elevation	within +/- 3 feet of existing grades

ECS understands the project consists of construction of two new approximately 10,400 square foot office buildings with associated paved parking and drives throughout the site.

3.0 FIELD EXPLORATION TESTING

Our exploration procedures are explained in greater detail in Appendix B including the Reference Notes for Cone Penetration Soundings. Our scope of work included performing six (6) CPT Soundings and three (3) hand auger borings with Kessler DCP tests. Our approximate CPT soundings and hand auger borings locations are shown on the Exploration Location Diagram in Appendix A.

3.1 SUBSURFACE CHARACTERIZATION

The subsurface conditions encountered were generally consistent with published geological mapping. The following sections provide generalized characterizations of the soil. Please refer to the CPT sounding logs in Appendix B.

The site is located in the Coastal Plain Physiographic Province of North Carolina. The Coastal Plain is composed of seven terraces, each representing a former level of the Atlantic Ocean. Soils in this area generally consist of sedimentary materials transported from other areas by the ocean or rivers. These deposits vary in thickness from a thin veneer along the western edge of the region to more than 10,000 feet near the coast. The sedimentary deposits of the Coastal Plain rest upon consolidated rocks similar to those underlying the Piedmont and Mountain Physiographic Provinces. In general, shallow unconfined groundwater movement within the overlying soils is largely controlled by topographic gradients. Recharge occurs primarily by infiltration along higher elevations and typically discharges into streams or other surface water bodies. The elevation of the shallow water table is transient and can vary greatly with seasonal fluctuations in precipitation.

Table 3.1.1 Subsurface Stratigraphy

Approximate Depth Range	Stratum	Description	Ranges of N*-Values(1) blows per foot (bpf)
0 to (0.2-0.33) (Surface cover)	N/A	Topsoil was encountered on-site with an observed thickness of approximately 2 to 4 inches. Deeper topsoil or organic laden soils are likely present in wet, poorly drained areas and potentially unexplored areas of the site.	N/A
(0.2-0.33) to 3.5	I	Very Loose to Medium Dense, CLAYEY, SILTY, and CLEAN SAND (SC, SM, SP)	2 to 19
3.5 to 15	II	Very Loose to Very Dense, SILTY TO CLEAN SAND (SM, SP) and Very Soft to Firm, CLAYEY SILT (ML) and SILTY, SANDY LEAN, and LEAN CLAY (CL-ML, CL).	2 to 71
15 to 22	III	Very Loose to Very Dense, SILTY TO CLEAN and CEMENTED SAND (SM, SP) with occasional interbedded layers of Soft to Stiff, SILTY and SANDY LEAN CLAY (CL-ML, CL)	3 to 80
22 to 38.5	IV	Medium Dense to Very Dense, SILTY TO CLEAN and CEMENTED SAND (SM, SP).	20 to 66

Notes: (1) Equivalent Corrected Standard Penetration Test Resistances

3.2 GROUNDWATER OBSERVATIONS

Water levels were measured in our CPT soundings and are shown in Appendix B. Groundwater depths measured at the time of exploration ranged from approximately 4.4 to 5.75 feet below the ground surface. In the hand auger borings, K-1 through K-3, groundwater was not encountered at the depths explored. Variations in the long-term water table may occur as a result of changes in precipitation, evaporation, surface water runoff, construction activities, and other factors.

4.0 DESIGN RECOMMENDATIONS

4.1 SHALLOW FOUNDATIONS

Provided subgrades and structural fills are prepared as recommended in this report and the assumed column and wall loads provided in the table in Section 2.2, the proposed structure can be supported by shallow foundations including column footings and continuous wall footings. We recommend the foundation design use the following parameters*:*

Design Parameter	Column Footing	Wall Footing
Net Allowable Bearing Pressure(1)	2,000 psf	2,000 psf
Recommended Bearing Soil Material	Stratum I Soils or Structural Fill	Stratum I Soils or Structural Fill
Minimum Width	30 inches	18 inches
Minimum Footing Embedment Depth (below slab or finished grade) (2)	12 inches	12 inches
Minimum Exterior Frost Depth (below final exterior grade)	6 inches	6 inches
Estimated Total Settlement (3)	Less than 1- inch	Less than 1- inch
Estimated Differential Settlement (4)	Less than ½ inches between columns	Less than ½ inches

Notes:

(1) Net allowable bearing pressure is the applied pressure in excess of the surrounding overburden soils above the base of the foundation.
(2) For bearing considerations and frost penetration requirements.
(3) Based on assumed structural loads. If final loads are different, ECS must be contacted to update foundation recommendations and settlement calculations.
(4) Based on maximum column/wall loads and variability in borings. Differential settlement can be re-evaluated once the foundation plans are finished.

Potential Undercuts: A majority of the soils at the estimated foundation bearing elevation are anticipated to be adequate for support of the proposed structure. If soft or loose soils are observed at the footing bearing elevations, the soils should be undercut and removed. Undercut should be backfilled with structural fill up to the original design bottom of footing elevation; the original footing may be constructed on top of the structural fill.

4.2 SLABS ON GRADE

The on-site natural soils are generally considered adequate for support of the slab-on-grade floor slabs. Based on the assumption that the finished floor elevation is around current grades, it appears that the slabs for the structure will likely bear on the Stratum I soils SAND (SM, SP) or structural fill. The following graphic depicts our soil-supported slab recommendations:

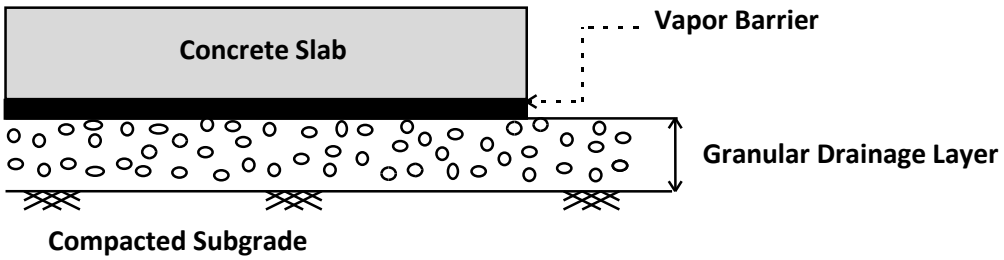


Figure 4.3.1

1. Drainage Layer Thickness: 6 inches
2. Drainage Layer Material: GRAVEL (GP), SAND containing <5% fines passing #200 sieve (SP, SW)

Soft or yielding soils may be encountered in some areas. Those soils should be removed and replaced with compacted Structural Fill in accordance with the recommendations included in this report.

Subgrade Modulus: Provided the Structural Fill and Granular Drainage Layer are constructed in accordance with our recommendations, the slab may be designed assuming a modulus of subgrade reaction, k_1 of 150 pci (lbs./cu. inch). The modulus of subgrade reaction value is based on a 1 ft by 1 ft plate load test basis.

Vapor Barrier: Before the placement of concrete, a vapor barrier may be placed on top of the granular drainage layer to provide additional protection against moisture penetration through the floor slab. Curing of the slab should be performed in accordance with ACI specifications to reduce the potential for uneven drying, curling and/or cracking of the slab. Depending on proposed flooring material types, the structural engineer and/or the architect may choose to do away with the vapor barrier.

Slab Isolation: Soil-supported slabs should be isolated from the foundations and foundation-supported elements of the structure so that differential movement between the foundations and slab will not induce excessive shear and bending stresses in the floor slab. Where the structural configuration inhibits the use of a free-floating slab such as in a drop down footing/monolithic slab configuration, the slab should be designed to avoid overstressing of the slab.

4.4 SEISMIC DESIGN CONSIDERATIONS

Seismic Site Classification: The International Building Code (IBC) 2015 requires site classification for seismic design based on the upper 100 feet of a soil profile. At least two methods are utilized in classifying sites, namely the shear wave velocity (v_s) method and the Standard Penetration Resistance (N-value) method. The first method (shear wave velocity) was used in classifying this site.

Based upon our interpretation of the subsurface conditions, the appropriate Seismic Site Classification is "D".

Liquefaction: When a saturated soil with little to approximately no cohesion liquefies during a major earthquake, it experiences a temporary loss of shear strength as a result of a transient rise in excess pore water pressure generated by strong ground motion. Flow failure, lateral spreading, differential settlement, loss of bearing, ground fissures, and sand boils are evidence of excess pore pressure generation and liquefaction.

The potential for liquefaction at the site is considered low based upon the CPT results and the liquefaction index procedure developed by Iwasaki (1982). Based on our CPT results and our evaluation using a site peak ground acceleration of 0.18 (PGA_m) per IBC 2015, an earthquake event with a magnitude of 7.3 and procedures developed by Roberson (2009) and Boulanger & Idriss (2014), the liquefaction induced settlement at the subject site is estimated to be approximately 2 inches or less.

Ground Motion Parameters: In addition to the seismic site classification, ECS has determined the design spectral response acceleration parameters following the IBC 2015 methodology. The Mapped Reponses were estimated from the ATC Hazards by Location Tool available from the USGS website (https://hazards.atcouncil.org). The design responses for the short (0.2 sec, S_{DS}) and 1-second period (S_{D1}) are noted in bold at the far right end of the following table.

GROUND MOTION PARAMETERS – SITE CLASS D [IBC 2015 Method]								
Period (sec)	**Mapped Spectral Response Accelerations (g)**		**Values of Site Coefficient for Site Class**		**Maximum Spectral Response Acceleration Adjusted for Site Class (g)**		**Design Spectral Response Acceleration (g)**	
Reference	Figures 1613.3.1 (1) & (2)		Tables 1613.3.3 (1) & (2)		Eqs. 16-37 & 16-38		Eqs. 16-39 & 16-40	
0.2	S_S	0.229	F_a	1.6	$S_{MS}=F_aS_s$	0.367	$S_{DS}=2/3\ S_{MS}$	**0.244**
1.0	S_1	0.095	F_v	2.4	$S_{M1}=F_vS_1$	0.227	$S_{D1}=2/3\ S_{M1}$	**0.151**

The Site Class definition should not be confused with the Seismic Design Category designation which the Structural Engineer typically assesses.

4.4 PAVEMENTS

Subgrade Characteristics: Based on the results of our hand auger borings, it appears that the pavement subgrades will consist mainly of SILTY and CLEAN SAND (SM, SP) or Approved Structural Fill.

California Bearing Ratio (CBR) values were obtained from the Kessler DCP tests performed on site adjacent to the hand auger borings. For preliminary design purposes, provided subgrade preparation recommendations are followed, we recommend assuming a preliminary CBR value of 10.

We were not provided traffic loading information so we have assumed loadings typical of this type of project. Our recommended pavement sections are based on up to 20,000 ESALs over a 20 year design life for light duty and up to 75,000 ESALs over a 20 year design life for heavy duty.

The preliminary pavement sections below are guidelines that may or may not comply with local jurisdictional minimums.

PROPOSED PAVEMENT SECTIONS				
MATERIAL	FLEXIBLE PAVEMENT		RIGID PAVEMENT	
	Heavy Duty	Light Duty	Heavy Duty	Light Duty
Portland Cement Concrete (f'_c = 4000 psi)	-	-	6.5 in.	5 in.
Asphalt Surface Course	3 in	2 in	-	-
Graded Aggregate Base Course	6 in	6 in	-	-

In general, heavy duty sections are areas that will be subjected to trucks, buses, or other similar vehicles including main drive lanes of the development. Light duty sections are appropriate for vehicular traffic and parking areas.

Large, front loading trash dumpsters frequently impose concentrated front wheel loads on pavements during loading. This type of loading typically results in rutting of asphalt pavement and ultimately pavement failures. For preliminary design purposes, we recommend that the pavement in trash pickup areas consist of a 6.5-inch thick, 4,000 psi, reinforced concrete slab. When traffic loading becomes available ECS or the Civil Engineer can design the pavements.

Prior to subbase placement and paving, CBR testing of the subgrade soils (both natural and fill soils) should be performed to determine the soil engineering properties for final pavement design.

5.0 SITE CONSTRUCTION RECOMMENDATIONS

5.1 SUBGRADE PREPARATION

5.1.1 Stripping and Grubbing

The subgrade preparation should consist of stripping vegetation, rootmat, topsoil, existing fill, existing foundations, existing pavements, and soft or loose materials from the 10-foot expanded building and 5-foot expanded pavement limits. Soundings performed in "undisturbed" areas of the site contained an observed thickness of approximately 2 to 4 inches of topsoil. Deeper topsoil or organic laden soils may be present in wet, low-lying, and poorly drained areas. ECS should be retained to verify that topsoil, existing foundations, and substandard surficial materials have been removed prior to the placement of structural fill or construction of structures.

5.1.2 Proofrolling

Prior to fill placement or other construction on subgrades, the subgrades should be evaluated by an ECS field technician. The exposed subgrade should be proofrolled with construction equipment having a minimum axle load of 10 tons [e.g. tandem-axle dump truck loaded to capacity]. Proofrolling should be traversed in two perpendicular directions with overlapping passes of the vehicle under the observation of an ECS technician. This procedure is intended to assist in identifying localized yielding materials.

Where proofrolling identifies areas that are unsteady or "pumping" subgrade those areas should be repaired prior to the placement of subsequent Structural Fill or other construction materials. Methods of stabilization include undercutting and moisture conditioning. The situation should be discussed with ECS to determine the appropriate procedure. Test pits may be excavated to explore the shallow subsurface materials to help in determining the cause of the observed unsteady materials, and to assist in the evaluation of appropriate remedial actions to stabilize the subgrade.

5.2 EARTHWORK OPERATIONS

5.2.1 Structural Fill

Prior to placement of Structural Fill, bulk samples (about 50 pounds) of on-site and/or off-site borrow should be submitted to ECS for laboratory testing, which typically include Atterberg limits, natural moisture content, grain-size distribution, and moisture-density relationships (i.e., Proctors) for compaction. Import materials should be tested prior to being hauled to the site to determine if they meet project specifications. Alternatively, Proctor data from other accredited laboratories can be submitted if the test results are within the last 90 days.

Structural Fill Materials: Materials selected for use as structural fill should consist of inorganic soils with the following engineering properties and compaction requirements.

STRUCTURAL FILL INDEX PROPERTIES	
Subject	**Property**
Building and Pavement Areas	LL < 40, PI<10
Max. Particle Size	3 inches
Fines Content	Max. 20 % < #200 sieve
Max. organic content	5% by dry weight

STRUCTURAL FILL COMPACTION REQUIREMENTS	
Subject	**Requirement**
Compaction Standard	Standard Proctor, ASTM D698
Required Compaction	98% of Max. Dry Density
Dry Unit Weight	>100 pcf
Moisture Content	-2 to +2 % points of the soil's optimum value
Loose Thickness	8 inches prior to compaction

On-Site Borrow Suitability: Significant natural deposits of possible fill material are present on the site. The on-site near surface sands (SP, SM) with fines contents less than 20 percent should meet the recommendations for re-use as structural fill.

Fill Placement: Fill materials should not be placed on frozen soils, on frost-heaved soils, and/or on excessively wet soils. Borrow fill materials should not contain frozen materials at the time of placement, and frozen or frost-heaved soils should be removed prior to placement of structural fill or other fill soils and aggregates. Excessively wet soils or aggregates should be scarified, aerated, and moisture conditioned.

5.3 FOUNDATION AND SLAB OBSERVATIONS

Protection of Foundation Excavations: Exposure to the environment may weaken the soils at the footing bearing level if the foundation excavations remain open for too long a time. Therefore, foundation concrete should be placed the same day that excavations are made. If the bearing soils are softened by surface water intrusion or exposure, the softened soils must be removed from the foundation excavation bottom immediately prior to placement of concrete. If the excavation must remain open overnight, or if rainfall becomes imminent while the bearing soils are exposed, a 1 to 3-inch thick "mud mat" of "lean" concrete should be placed on the bearing soils before the placement of reinforcing steel.

Footing Subgrade Observations: A majority of the soils encountered on site at the foundation bearing elevation are anticipated to be adequate for support of the proposed structure. It is important to have ECS observe the foundation subgrade prior to placing foundation concrete, to confirm the bearing soils are what was anticipated.

Slab Subgrade Verification: Prior to placement of a drainage layer, the subgrade should be prepared in accordance with the recommendations found in **Section 5.1.2 Proofrolling**.

5.4 UTILITY INSTALLATIONS

Utility Subgrades: The soils encountered in the upper 4 feet our exploration are expected to be generally adequate for support of utility pipes. The pipe subgrades should be observed and probed for stability by ECS. Loose or unsteady materials encountered should be removed and replaced with compacted Structural Fill, or pipe stone bedding material.

Utility Backfilling: The granular bedding material (AASHTO #57 stone) should be 4 inches thick, but not less than that specified by the civil engineer's project drawings and specifications. We recommend that the bedding materials be placed up to the springline of the pipe. Fill placed for support of the utilities, as well as backfill over the utilities, should meets the requirements for structural fill and fill placement.

Excavation Safety: Excavations and slopes should be constructed and maintained in accordance with OSHA excavation safety standards. The contractor is solely responsible for designing, constructing, and maintaining steady temporary excavations and slopes. 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. The slope height, slope inclination, or excavation depth, including utility trench excavation depth, should not exceed those specified in local, state, and federal safety regulations. ECS is providing this information solely as a service to our client. ECS is not assuming responsibility for construction site safety or the contractor's activities; such responsibility is not being implied and should not be inferred.

6.0 CLOSING

ECS has prepared this report to guide the geotechnical-related design and construction aspects of the project. We performed these services in accordance with the standard of care expected of professionals in the industry performing similar services on projects of like size and complexity at this time in the region. No other representation, expressed or implied, and no warranty or guarantee is included or intended in this report.

The description of the proposed project is based on information provided to ECS by Mr. Parker Anderson and Mr. Steve Anderson of SAMM Properties INC and Mr. Brandon Lisk of McKinley Building Corporation. If this information is untrue or changes, either because of our interpretation of the documents provided or site or design changes that may occur later, ECS should be contacted so we can review our recommendations and provide additional or alternate recommendations that reflect the proposed construction.

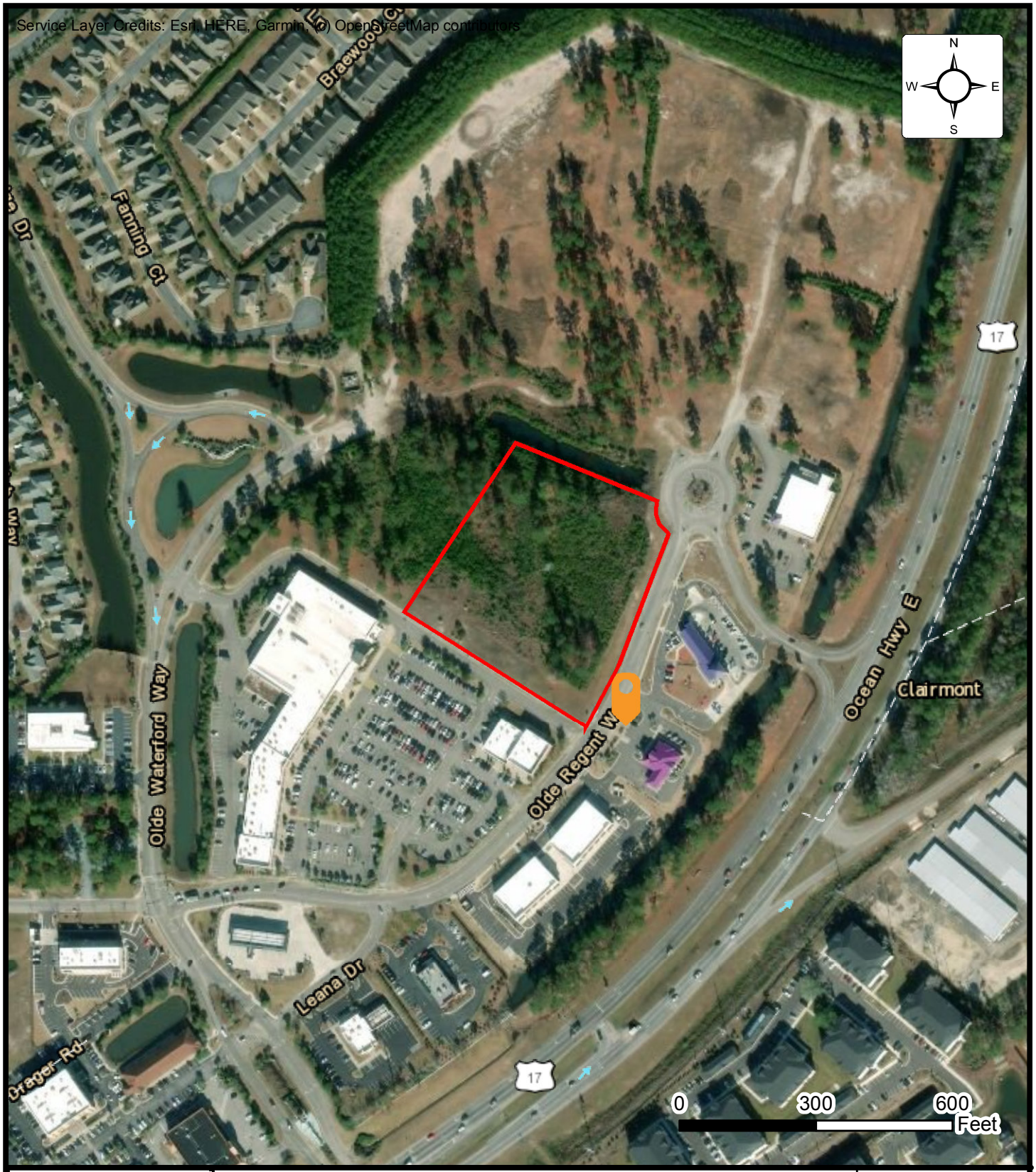
We recommend that ECS review the project plans and specifications so we can confirm that those plans/specifications are in accordance with the recommendations of this geotechnical report.

Field observations and quality assurance testing during earthwork and foundation installation are an extension of, and integral to, the geotechnical design. We recommend that ECS be retained to apply our expertise throughout the geotechnical phases of construction, and to provide consultation and recommendation should issues arise.

ECS is not responsible for the conclusions, opinions, or recommendations of others based on the data in this report.

APPENDIX A – Diagrams & Reports

Site Location Diagram
Exploration Location Diagram

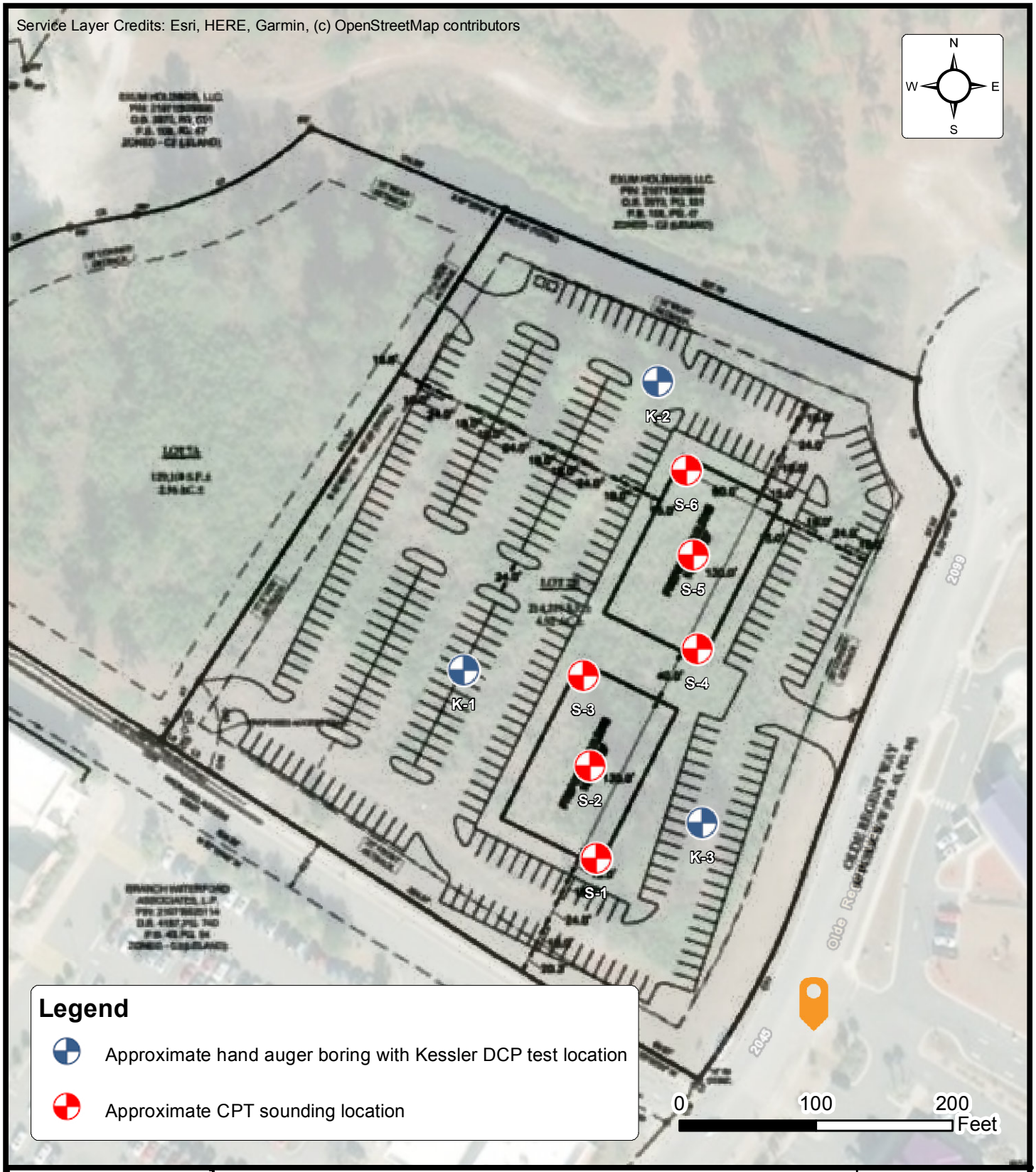


SITE LOCATION DIAGRAM
OFFICES AT WATERFORD

LELAND, NORTH CAROLINA

SAMM PROPERTIES, LLC

ENGINEER	WEG
SCALE	AS NOTED
PROJECT NO.	22:30227
SHEET	1 OF 2
DATE	5/4/2021



BORING LOCATION DIAGRAM
OFFICES AT WATERFORD

LELAND, NORTH CAROLINA

SAMM PROPERTIES, LLC

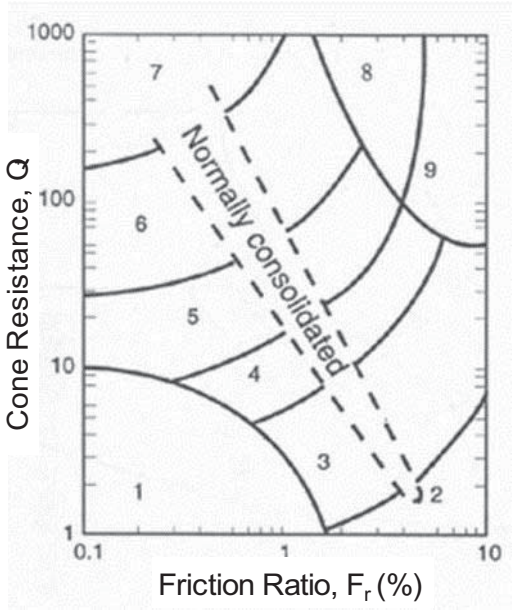
ENGINEER	WEG
SCALE	AS NOTED
PROJECT NO.	22:30227
SHEET	2 OF 2
DATE	5/4/2021

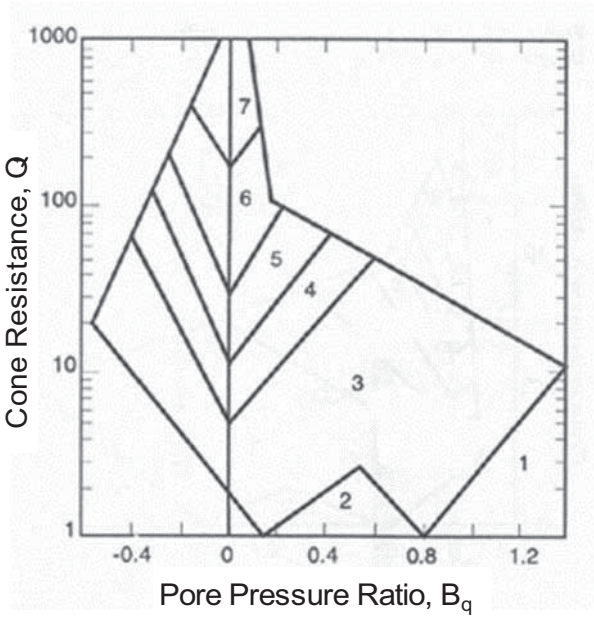
APPENDIX B – Field Operations

Reference Notes for CPT Sounding Logs
Cone Penetration Test Sounding Logs (S-1 and S-6)
Reference Notes for Boring Logs
Hand Auger Boring Logs (K-1 through K-3)
Kessler DCP Test Data

REFERENCE NOTES FOR CONE PENETRATION TEST (CPT) SOUNDINGS

In the CPT sounding procedure (ASTM-D-5778), an electronically instrumented cone penetrometer is hydraulically advanced through soil to measure point resistance (q_c), pore water pressure (u_2), and sleeve friction (f_s). These values are recorded continuously as the cone is pushed to the desired depth. CPT data is corrected for depth and used to estimate soil classifications and intrinsic soil parameters such as angle of internal friction, preconsolidation pressure, and undrained shear strength. The graphs below represent one of the accepted methods of CPT soil behavior classification (Robertson, 1990).





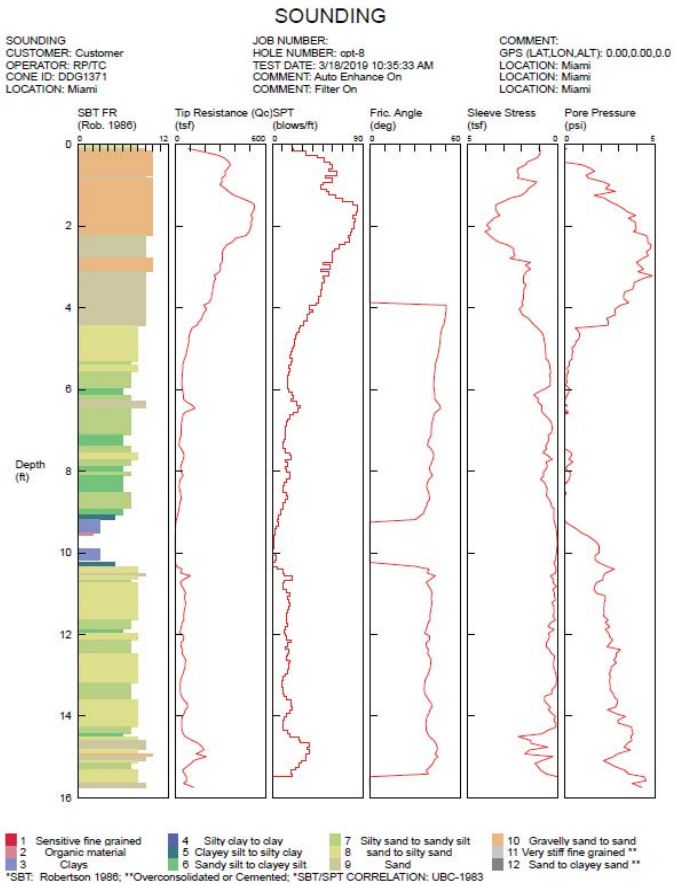
1. Sensitive, Fine Grained
2. Organic Soils-Peats
3. Clays; Clay to Silty Clay
4. Clayey Silt to Silty Clay
5. Silty Sand to Sandy Silt
6. Clean Sands to Silty Sands
7. Gravelly Sand to Sand
8. Very Stiff Sand to Clayey Sand
9. Very Stiff Fine Grained

The following table presents a correlation of corrected cone tip resistance (q_t) to soil consistency or relative density:

SAND		SILT/CLAY	
Corrected Cone Tip Resistance (q_t) (tsf)	**Relative Density**	**Corrected Cone Tip Resistance (q_t) (tsf)**	**Relative Density**
<20	Very Loose	<5	Very Soft
20-40	Loose	5-10	Soft
40-120	Medium Dense	10-15	Firm
		15-30	Stiff
120-200	Dense	30-45	Very Stiff
>200	Very Dense	45-60	Hard
		>60	Very Hard

SUBSURFACE EXPLORATION PROCEDURE: CONE PENETRATION TESTING (CPT) ASTM D 5778

In the CPT sounding procedure, an electronically instrumented cone penetrometer is hydraulically advanced through soil to measure point resistance (qc), pore water pressure (U2), and sleeve friction (fs). These values are recorded continuously as the cone is pushed to the desired depth. CPT data is corrected for depth and used to estimate soil classifications and intrinsic soil parameters such as angle of internal friction, pre-consolidation pressure, and undrained shear strength.



CPT Procedure:

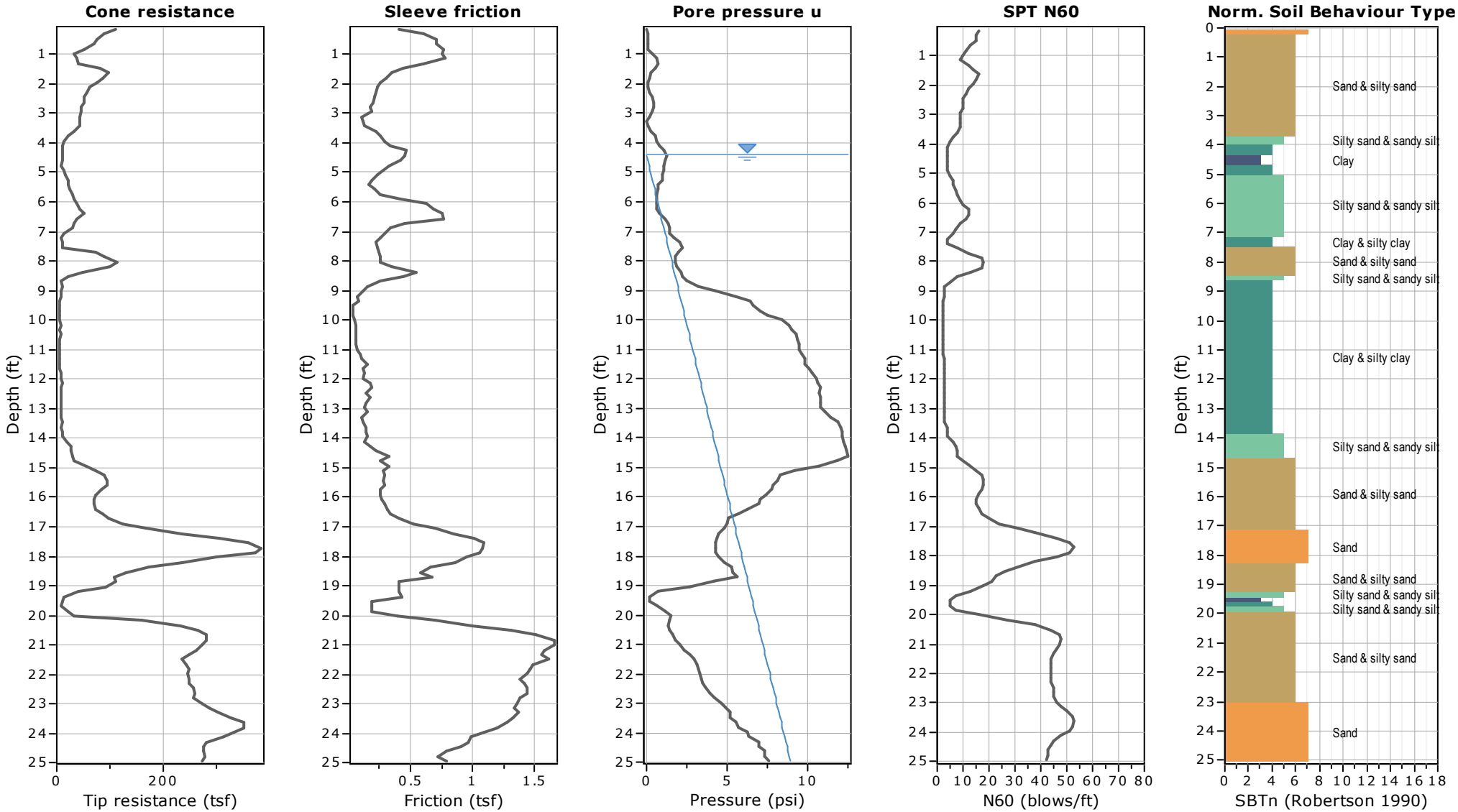
- Involves the direct push of an electronically instrumented cone penetrometer* through the soil
- Values are recorded continuously
- CPT data is corrected and correlated to soil parameters

**CPT Penetrometer Size May Vary*

ECS Southeast, LLP
6714 Netherlands Drive
Wilmington, NC 28403
ECS Project # 22-30227

Project: **Offices at Waterford**
Location: **Leland, Brunswick County, North Carolina**

CPT: S-1
Total depth: 24.93 ft, Date: 4/22/2021
Cone Operator: Cory Robison

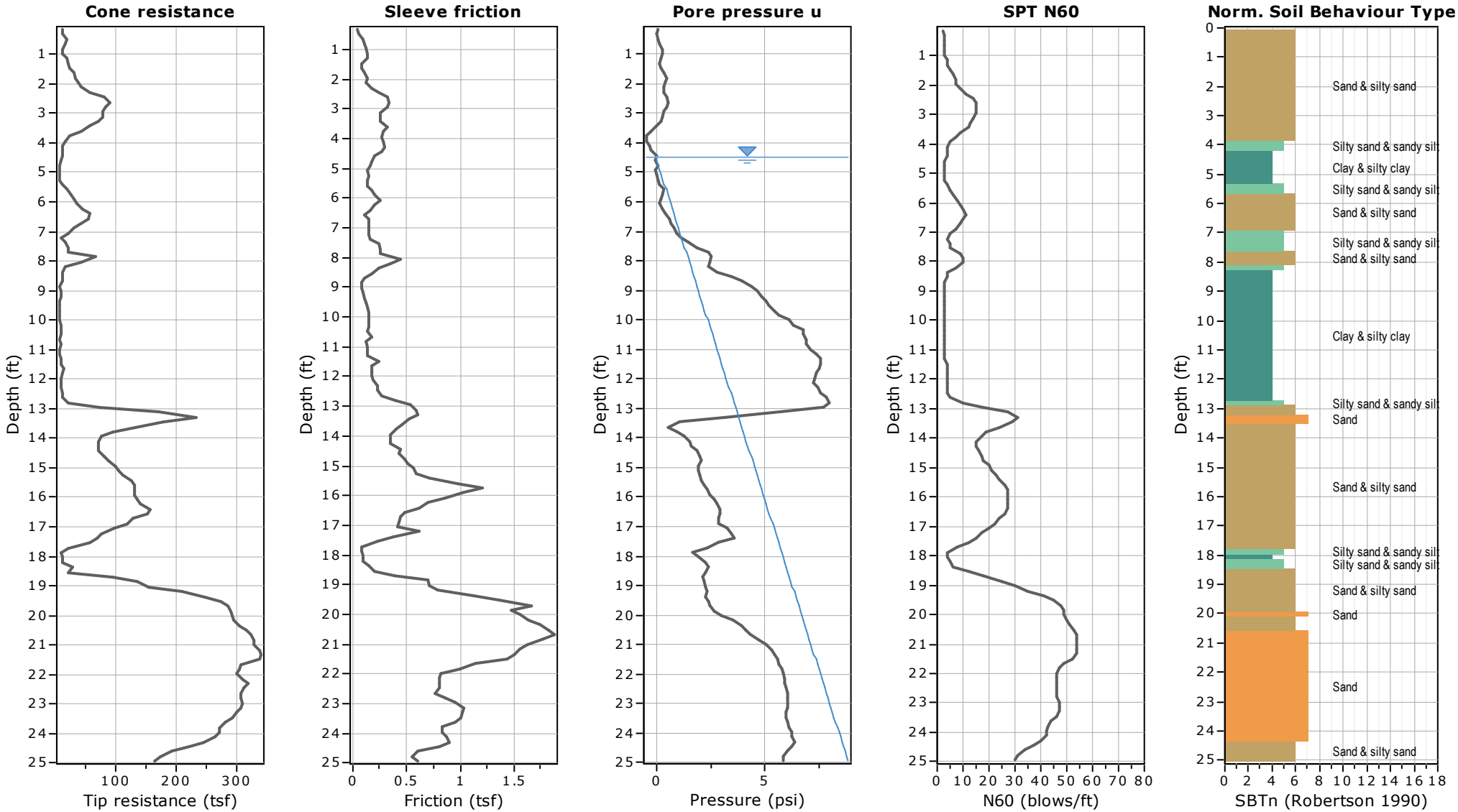


ECS Southeast, LLP
6714 Netherlands Drive
Wilmington, NC 28403
ECS Project # 22-30227

CPT: S-2

Project: **Offices at Waterford**
Location: **Leland, Brunswick County, North Carolina**

Total depth: 24.93 ft, Date: 4/22/2021
Cone Operator: Cory Robison

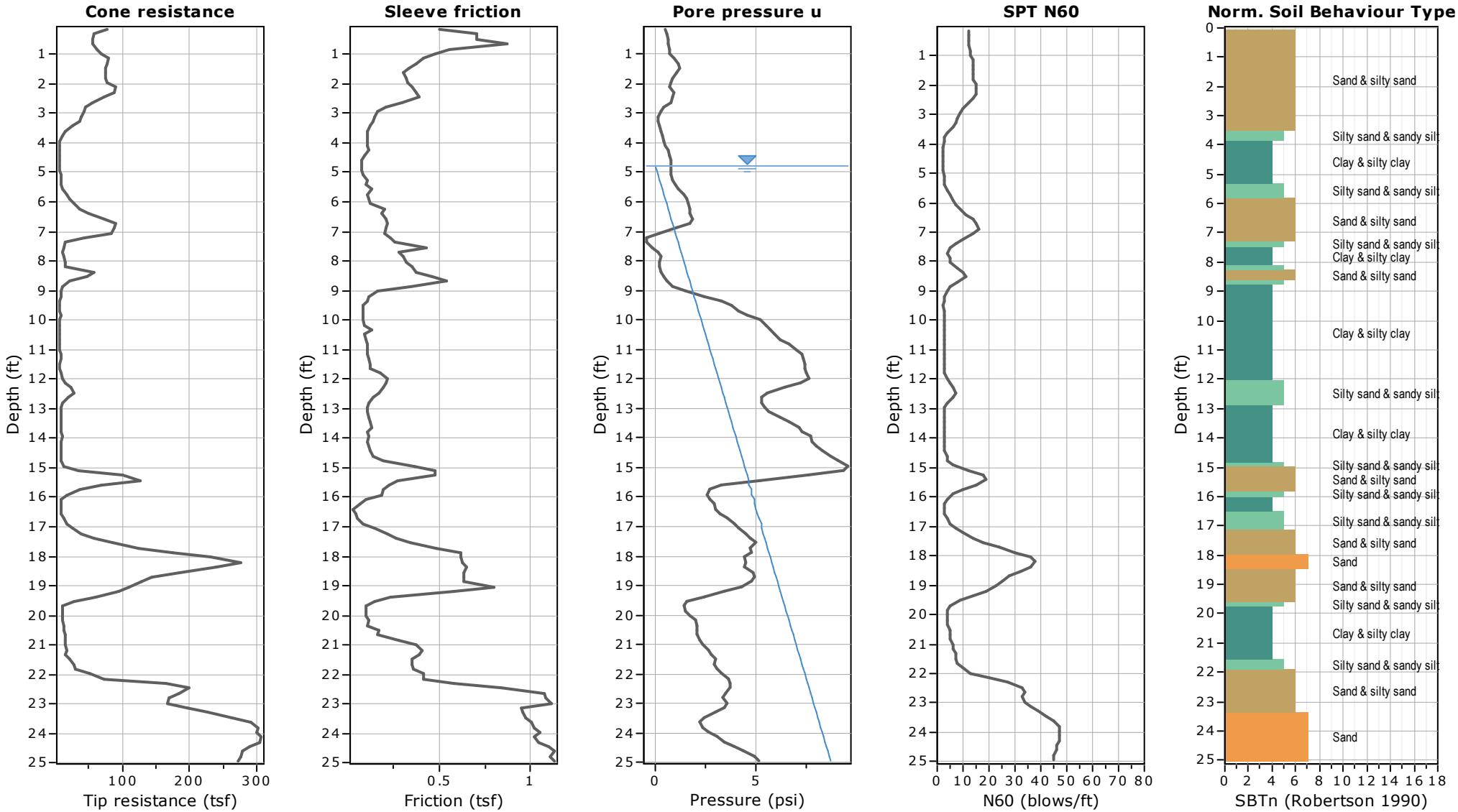


ECS Southeast, LLP
6714 Netherlands Drive
Wilmington, NC 28403
ECS Project # 22-30227

CPT: S-3

Project: **Offices at Waterford**
Location: **Leland, Brunswick County, North Carolina**

Total depth: 24.93 ft, Date: 4/22/2021
Cone Operator: Cory Robison

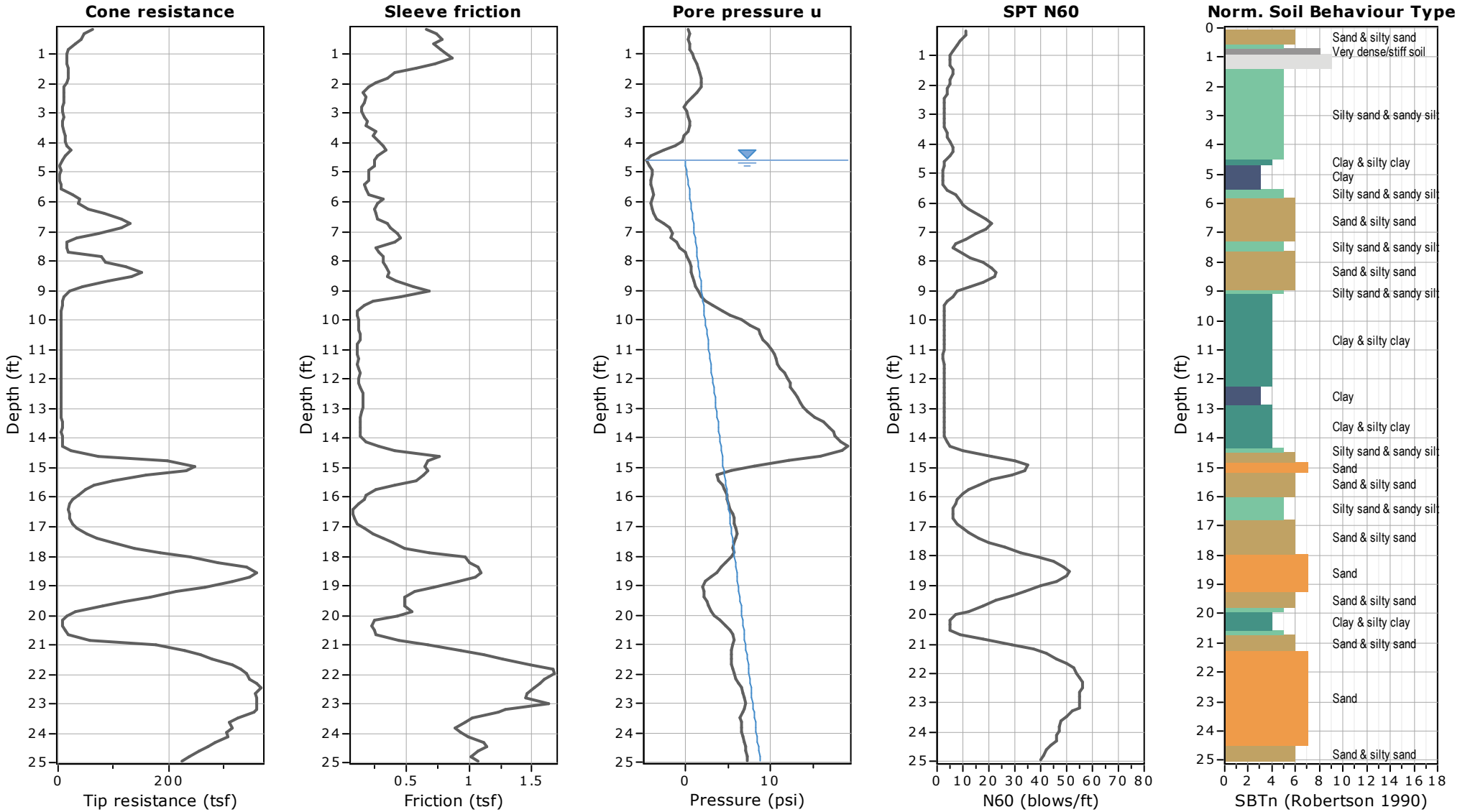


ECS Southeast, LLP
6714 Netherlands Drive
Wilmington, NC 28403
ECS Project # 22-30227

CPT: S-4

Project: **Offices at Waterford**
Location: **Leland, Brunswick County, North Carolina**

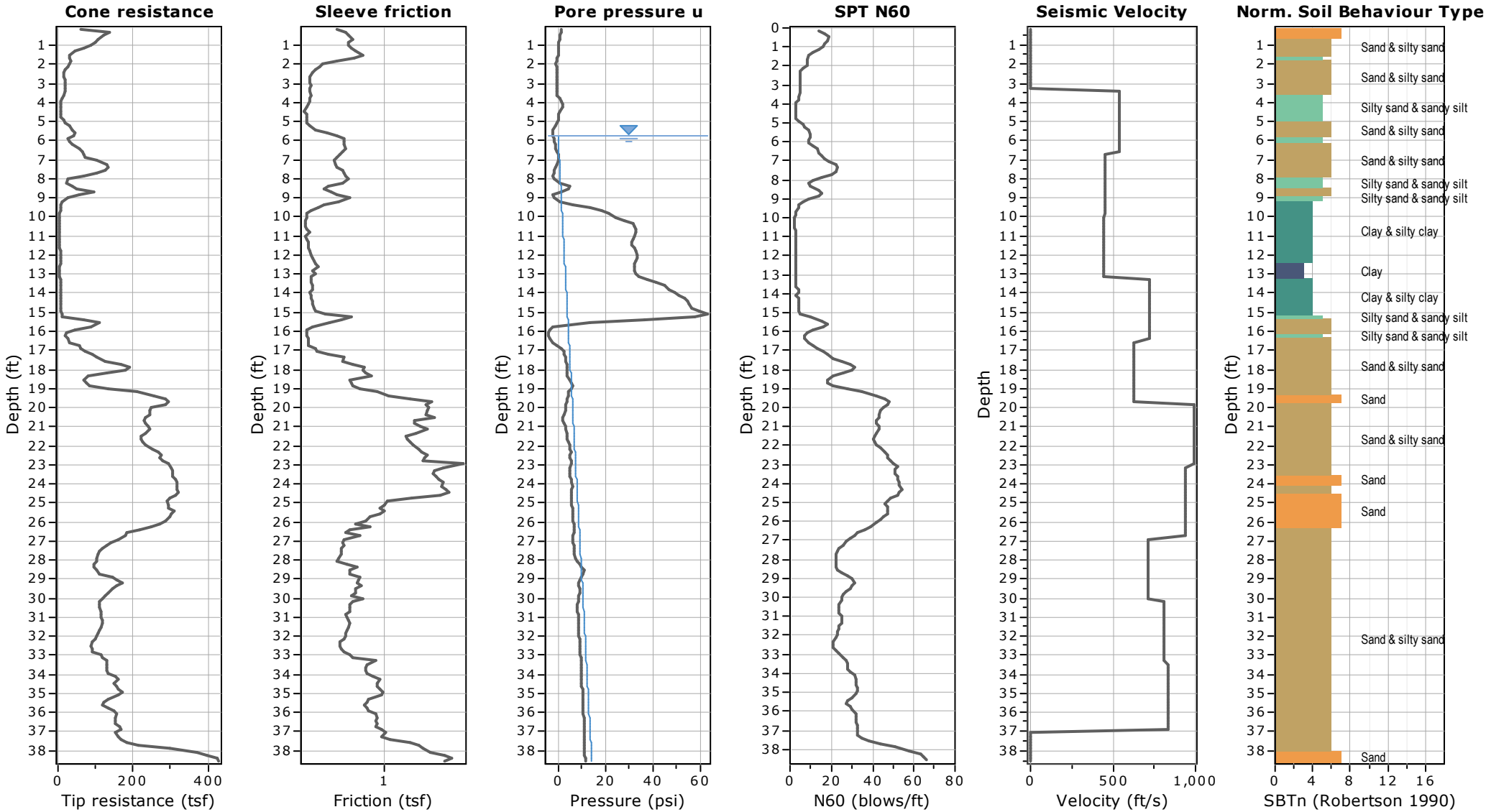
Total depth: 24.93 ft, Date: 4/22/2021
Cone Operator: Cory Robison



ECS Southeast, LLP
6714 Netherlands Drive
Wilmington, NC 28403
ECS Project # 22-30227

Project: **Offices at Waterford**
Location: **Leland, Brunswick County, North Carolina**

CPT: S-5
Total depth: 38.55 ft, Date: 4/22/2021
Cone Operator: Cory Robison

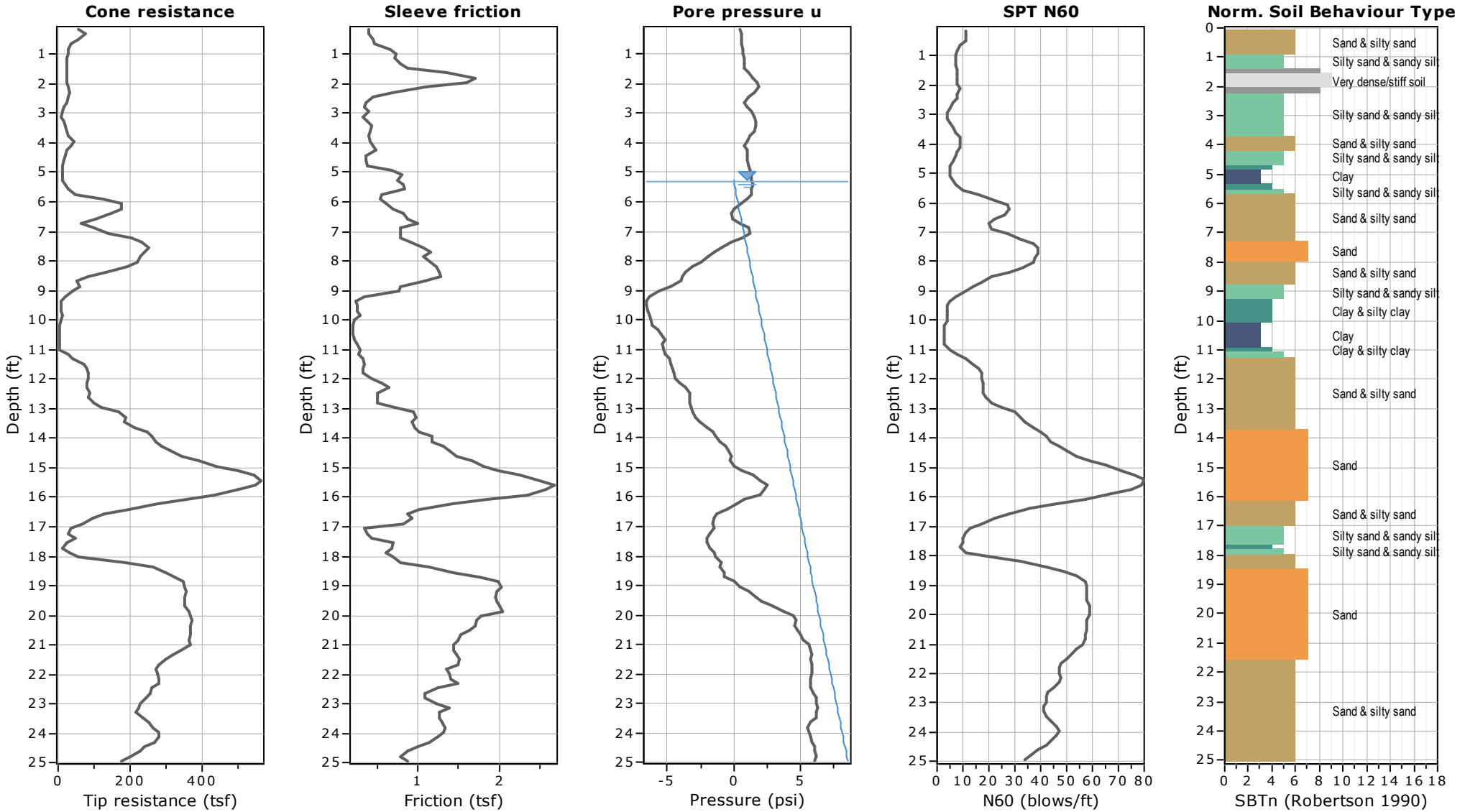


ECS Southeast, LLP
6714 Netherlands Drive
Wilmington, NC 28403
ECS Project # 22-30227

CPT: S-6

Project: **Offices at Waterford**
Location: **Leland, Brunswick County, North Carolina**

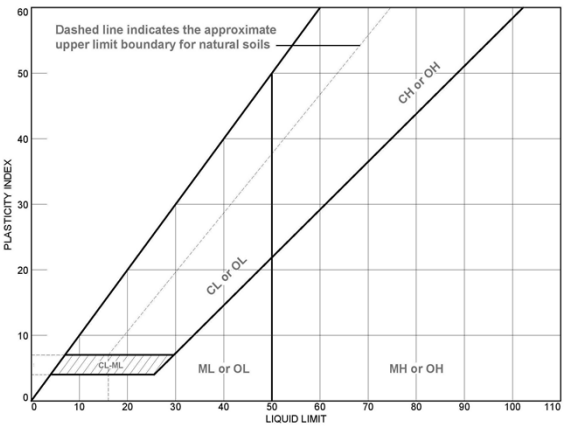
Total depth: 24.93 ft, Date: 4/22/2021
Cone Operator: Cory Robison



Unified Soil Classification System
(ASTM Designation D-2487)

Major Division			Group Symbol	Typical Names	Classification on basis of percentage of fines	Classification Criteria
Coarse-grained soils More than 50% retained on No. 200 sieve	Gravels More than 50% of coarse fraction retained on No. 4 sieve		GW	Well-graded gravels and gravel-sand mixtures, little or no fines	GW, GP, SW, SP GM, GC, SM, SC Borderline classification requiring use of dual symbol	$C_u = D_{60}/D_{10}$ Greater than 4 $C_z = (D_{30})^2/(D_{10}xD_{60})$ Between 1 and 3
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines		Not meeting both criteria for GW
			GM	Silty gravels, gravel-sand-silt mixtures		Atterberg limits plot below "A" line or plasticity index less than 4
			GC	Clayey gravels, gravel-sand-clay mixtures		Atterberg limits plot above "A" line and plasticity index greater than 7
	Sands More than 50% of coarse fraction passes No. 4 sieve		SW	Well-graded sands and gravelly sands, little or no fines	Less than 5% Pass No. 200 sieve More than 12% Pass No. 200 sieve 5% to 12% Pass No. 200 sieve	$C_u = D_{60}/D_{10}$ Greater than 6 $C_z = (D_{30})^2/(D_{10}xD_{60})$ Between 1 and 3
			SP	Poorly graded sands and gravelly sands, little or no fines		Not meeting both criteria for SW
			SM	Silty sands, sand-silt mixtures		Atterberg limits plot below "A" line or plasticity index less than 4
			SC	Clayey sands, sand-clay mixtures		Atterberg limits plot above "A" line and plasticity index greater than 7
Fine-grained soils 50% or more passing No. 200 sieve	Silts and Clays Liquid limit 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands		
			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 sands or silts, elastic silts		
			CH	Inorganic clays of high plasticitiy, fat clays		
			OH	Organic clays of medium to high plasticity		
Highly organic soils			Pt	Peat, muck and other highly organic soils		Fibrous organic matter; will char, burn, or glow

Note: U-line represents approximate upper limit of LL and PI combinations for natural soils (empirically determined). ASTM-D2487.



Plasticity chart for the classification of fine-grained soils.
Tests made on fraction finer than No. 40 sieve

UNIFIED SOIL CLASSIFICATION SYSTEM

CLIENT:	PROJECT NO.:	SHEET:
SAMM Properties, LLC	**22:30227**	**1 of 1**
PROJECT NAME:	HAND AUGER NO.:	SURFACE ELEVATION:
Offices at Waterford	**K-1**	
SITE LOCATION:		STATION:
Olde Regent Way, Leland, North Carolina 28451		
NORTHING:	EASTING:	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			Topsoil Thickness[3.00"]					
			(SP) FINE TO MEDIUM SAND, tan to brown, moist					
			(SM) SILTY FINE TO MEDIUM SAND, brown to gray, moist					
			(CL) SANDY LEAN CLAY, gray, moist					
			END OF DRILLING AT 4.0 FT					
5								

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDRY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT

▽ WL (First Encountered)	▼ WL (Seasonal High)	ECS REP:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
▼ WL (Completion)			**Apr 16 2021**	**English**	

HAND AUGER LOG

DCP TEST DATA

Project: *Offices at Waterford* **Date:** 16-Apr-21
Location: K-1 **Soil Type(s):** SAND (SP, SM)

Hammer
○ 10.1 lbs.
● 17.6 lbs.
○ Both hammers used

Soil Type
○ CH
○ CL
● All other soils

No. of Blows	Cumulative Penetration (mm)	Type of Hammer
0	0	1
5	114	1
5	259	1
5	391	1
5	498	1
5	572	1
5	668	1
5	826	1
2	879	1
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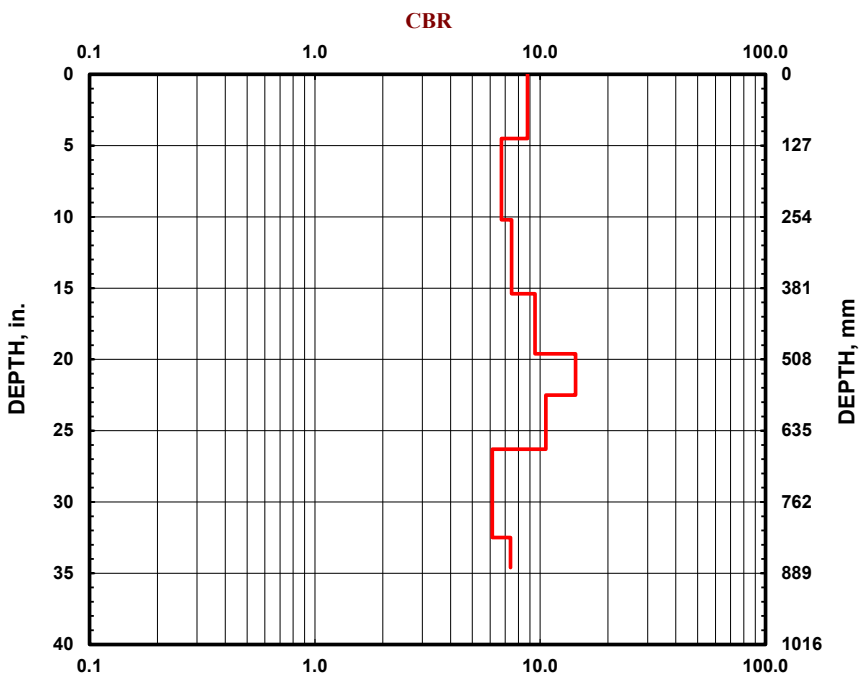

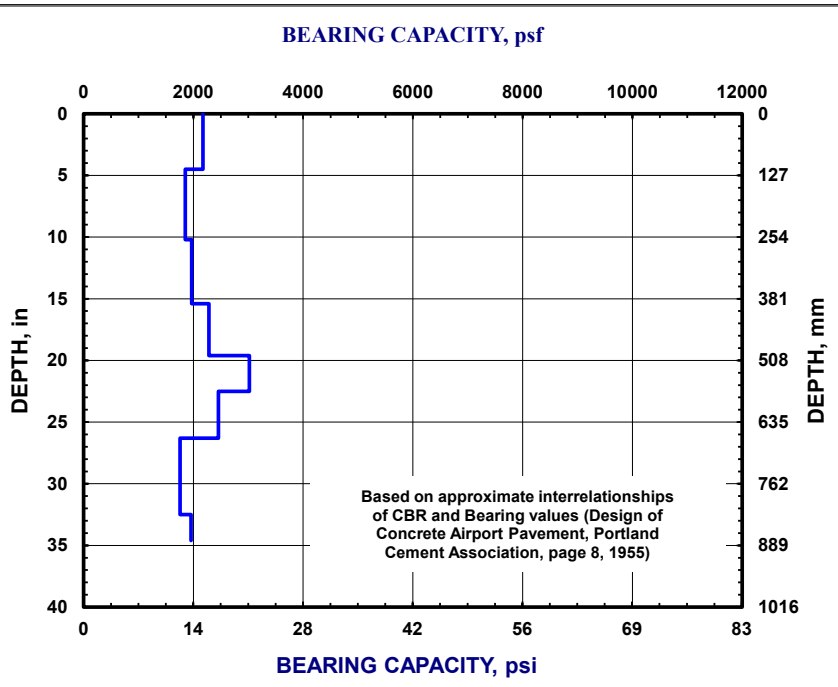

Based on approximate interrelationships of CBR and Bearing values (Design of Concrete Airport Pavement, Portland Cement Association, page 8, 1955)

CLIENT:	PROJECT NO.:	SHEET:
SAMM Properties, LLC	**22:30227**	**1 of 1**
PROJECT NAME:	HAND AUGER NO.:	SURFACE ELEVATION:
Offices at Waterford	**K-2**	
SITE LOCATION:		STATION:
Olde Regent Way, Leland, North Carolina 28451		
NORTHING:	EASTING:	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			Topsoil Thickness[2.00"]					
			(SM) SILTY FINE SAND, brown, moist, with hard pan					
			(SC) CLAYEY FINE TO MEDIUM SAND, brown to gray, moist					
			END OF DRILLING AT 4.0 FT					
5								

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDRY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT

▽ WL (First Encountered)	▼ WL (Seasonal High)	ECS REP:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
▼ WL (Completion)			**Apr 16 2021**	**English**	

HAND AUGER LOG

DCP TEST DATA

Project: *Offices at Waterford*
Date: 16-Apr-21
Location: K-2
Soil Type(s): SAND (SM, SC)

Hammer
○ 10.1 lbs.
● 17.6 lbs.
○ Both hammers used

Soil Type
○ CH
○ CL
● All other soils

No. of Blows	Cumulative Penetration (mm)	Type of Hammer
0	0	1
10	102	1
5	254	1
5	358	1
5	478	1
5	556	1
5	650	1
5	803	1
3	897	1
		1
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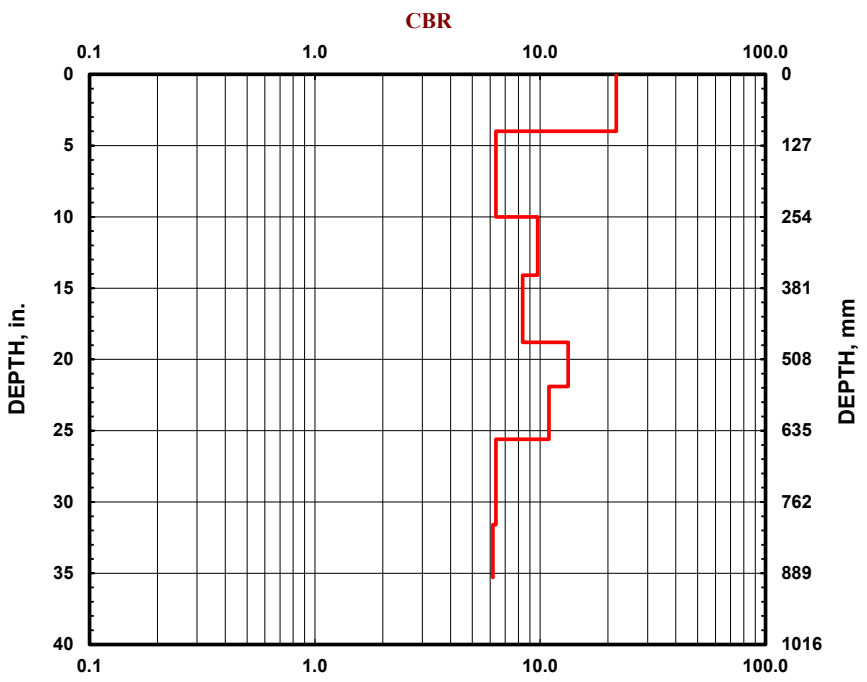
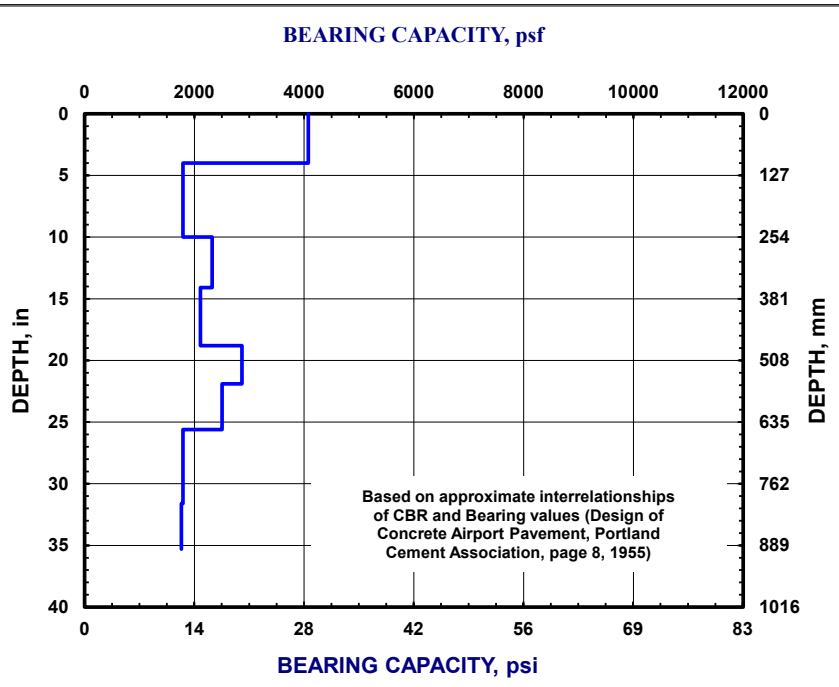
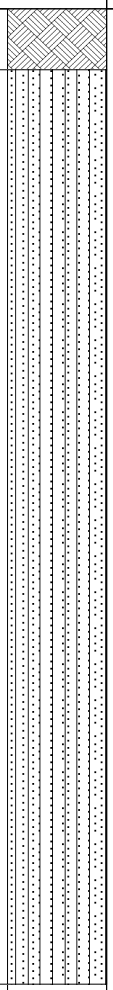




Based on approximate interrelationships of CBR and Bearing values (Design of Concrete Airport Pavement, Portland Cement Association, page 8, 1955)

CLIENT:	PROJECT NO.:	SHEET:
SAMM Properties, LLC	**22:30227**	**1 of 1**
PROJECT NAME:	HAND AUGER NO.:	SURFACE ELEVATION:
Offices at Waterford	**K-3**	
SITE LOCATION:		STATION:
Olde Regent Way, Leland, North Carolina 28451		
NORTHING:	EASTING:	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			Topsoil Thickness[3.00"]					
			(SM) SILTY FINE SAND, dark brown to gray, moist					
			END OF DRILLING AT 4.0 FT					
5								



REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDRY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT

▽ WL (First Encountered)	▼ WL (Seasonal High)	ECS REP:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
▼ WL (Completion)			**Apr 16 2021**	**English**	

HAND AUGER LOG

DCP TEST DATA

Project: *Offices at Waterford* **Date:** 16-Apr-21
Location: K-3 **Soil Type(s):** SAND (SM)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Cumulative Penetration (mm)	Type of Hammer
0	0	1
1	74	1
3	196	1
5	340	1
5	478	1
5	566	1
5	627	1
5	709	1
5	823	1
2	884	1
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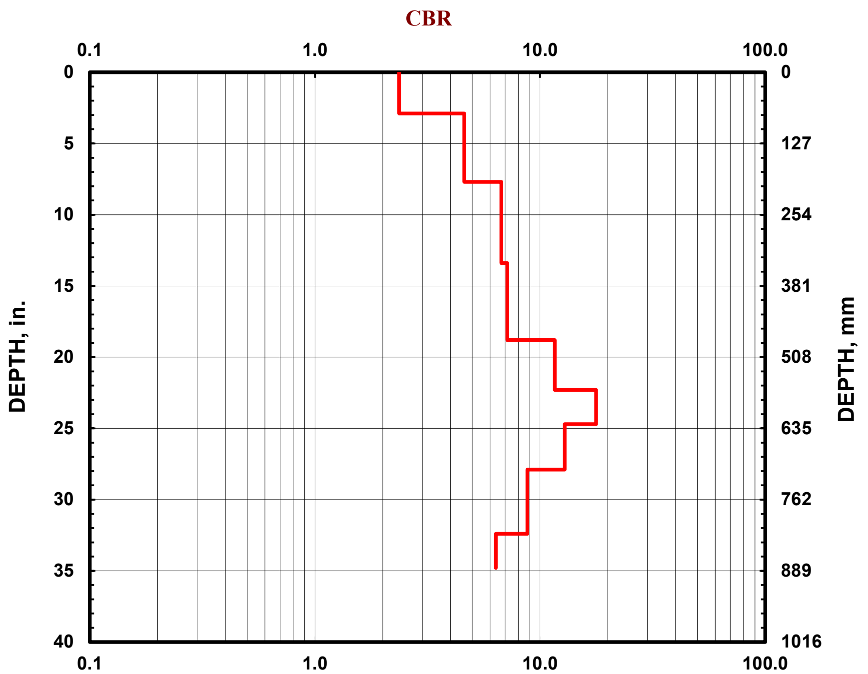
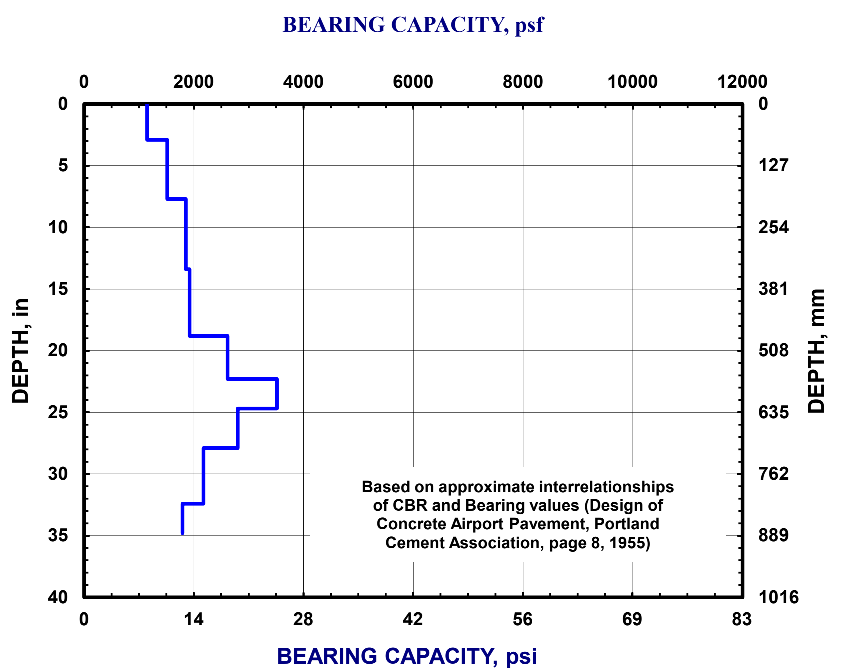




APPENDIX C – Supplemental Report Documents

GBA Document

Important Information about This

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.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Geotechnical-Engineering 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 given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled*. No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- 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;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the 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. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be*, and, in general, *if you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying it. A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed*. The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include 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 personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old.*

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration.*** Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

BUILDING A

BUILDING B

ONLY INSTALL CURB/GUTTER AT THESE LOCATIONS; SIDEWALKS WILL BE POURED AFTER BUILDING B IS COMPLETED

6" C-900 PVC FIREMAIN

(2) 3" SDR 21 PVC WATER SERVICES

WHEEL STOPS (TYP)

35' CORNER SETBACK

30' REAR SETBACK MAP BOOK 928 PAGE 26

23 LF 18" HDPE

TSF

R25.0'

24.0'

30.0'

40.0'

18.0'

9.0' (TYP)

8.0'

5.0'

MARK LOUDERMILK ARCHITECTURE

BID FORM

The Shoppes & Offices at Waterford Building A
MLA Project No: 21035
Deadline for Receipt of Bids: 3:00 PM EST, February 16, 2023

I certify that this bid is made without prior understanding, agreement or connection with any corporation firm, or person submitting a bid for the same services and is in all respects fair and without collusion or fraud. I understand collusive bidding is a violation of state and federal law and can result in fines, prison sentences, and civil damage awards. I agree to abide by all conditions of this bid and certify that I am authorized to sign this bid for the bidder.

I acknowledge receipt of the following addenda (place check mark beside each):

Addendum No. 1	January 27, 2023	_____
Addendum No. 2	February 3, 2023	_____
Addendum No. 3	February 10, 2023	_____

The undersigned, as bidder, proposes and agrees if this proposal is accepted to contract with the owner for **The Shoppes & Offices at Waterford Building A** for the furnishing of all materials, equipment, and labor necessary to complete the construction of the work described in these documents in full and complete accordance with plans, specifications, and contract documents, and to the full and entire satisfaction of the Owner for the sum of:

BASE BID: _____

Dollars $ _____

Timeline for Construction (contract to substantial completion): _____ **calendar days**

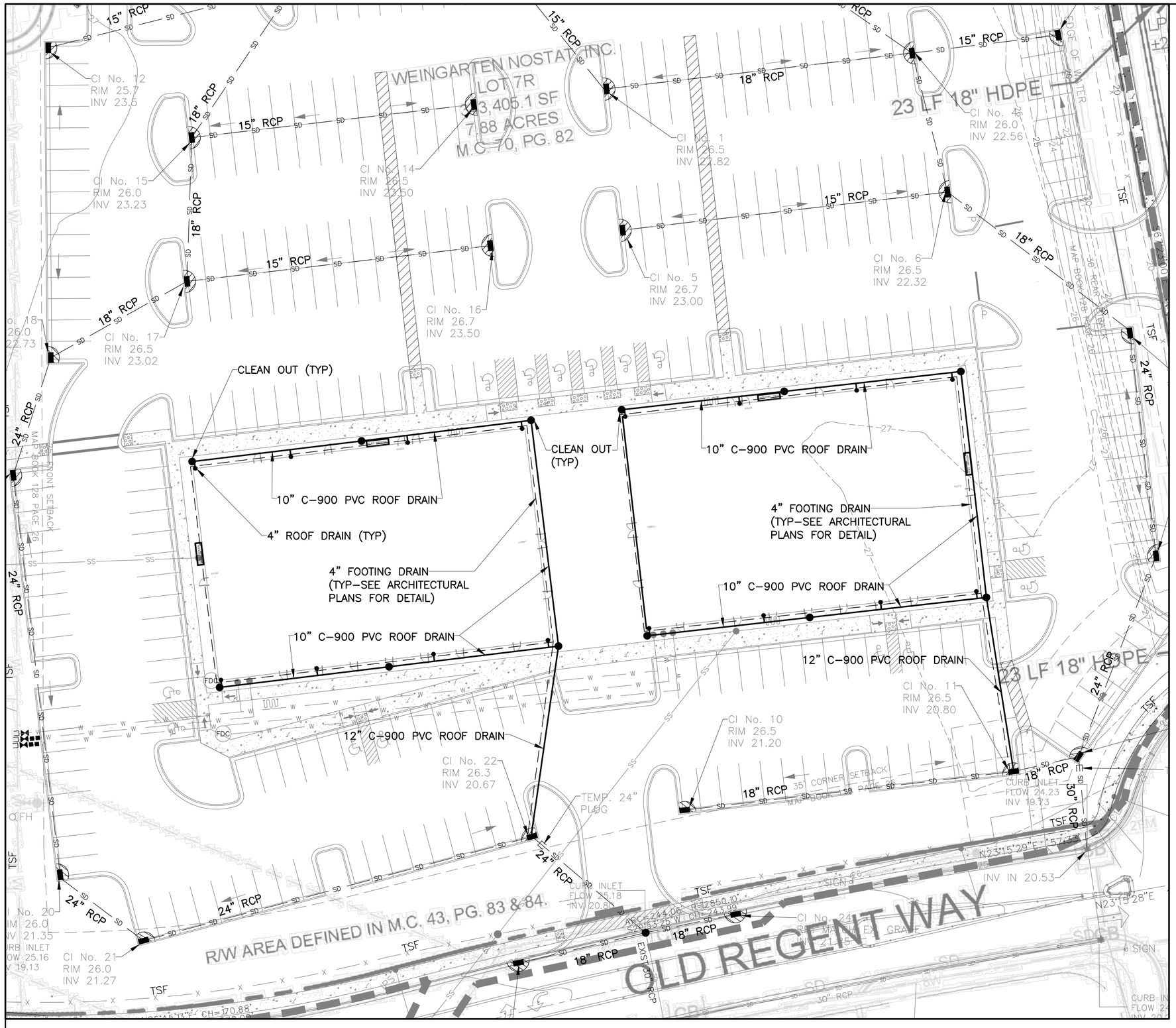
Respectively submitted this _____ day of _____ 2022

By: _____
(Authorized Signature)

Title: _____

NC License #: _____

Email: _____



LOCATION MAP
NTS

REVISIONS		
No. Date	Description	By
R5 02.03.23	CREATED SHEET	EJW

SITE DATA:

OWNER:		FORDWATER PROPERTIES, LLC
OWNER ADDRESS:		332 MILITARY CUTOFF ROAD WILMINGTON, NC 28405
SITE ADDRESS:		1566 & 1574 OLD REGENT WAY
BRUNSWICK Co. PARCEL No.		0470003811
TOTAL AREA		(214,217 SF) 4.92 ACRES
DISTURBED AREA		5.2 ACRES
ZONING		LI-C-2
USE		OFFICE/RETAIL
No. OF BUILDINGS		2
PROPOSED BUILDING FOOTPRINTS		25,650 SF
BUILDING USE		OFFICE/RETAIL
BUILDING COVERAGE		12%
BUILDING HEIGHT		50'
SETBACKS (REQUIRED)-	FRONT	25'
	REAR	20'
	SIDE	7.5'
SETBACKS (PROPOSED)-	FRONT	108'
	REAR	199'
	SIDE	87'
PARKING REQUIRED (OFFICE) 51,300 SF		
MINIMUM: 2/1,000 SF		102
MAXIMUM: 3.5/1,000 SF		180
PARKING REQUIRED (RETAIL) 25,650 SF		
MINIMUM: 2/1,000 SF		51
MAXIMUM: 5/1,000 SF		128
PARKING REQUIRED (TOTAL MINIMUM)		153
PARKING REQUIRED (TOTAL MAXIMUM)		336
PARKING PROVIDED		336
IMPERVIOUS AREAS:		
BUILDING		25,650 SF
ASPHALT		124,000 SF
CONCRETE		7,380 SF
FUTURE IMPERVIOUS AREA		25,053 SF
TOTAL IMPERVIOUS AREA		182,083 SF
WATER FLOW		10,158 GPD
SEWER FLOW		9,234 GPD
BICYCLE PARKING (REQUIRED)		
1 PER 100 PARKING SPACES (301-400 PARKING SPACES)		4 BIKE RACKS
BICYCLE PARKING (PROPOSED)		4 BIKE RACKS

NOTES:
1) SURVEY PROVIDED BY MICHAEL UNDERWOOD AND ASSOCIATES, PA
2) ARCHITECT IS MARK LOUDERMILK
3) LIGHTING PLAN AS PER BEMC.
4) TRIP GENERATION: 20 PER 1,000 SF x 5 = 100 TRIPS PER DAY
5) ALL SIGNAGE WILL BE PERMITTED THROUGH TOWN OF LELAND. PERMITTING MUST BE APPLIED FOR AND REVIEWED SEPARATELY. CONTACT TOWN OF LELAND REGARDING SIGNAGE.
6) TACTILE WARNING MAT COLOR SHALL BE BURGUNDY OR RED TINTED.
7) ALL SIGNAGE SHOULD COMPLY WITH MUTCD STANDARDS.
8) NO SURFACE WATERS, WETLANDS, REGULATORY FLOOD ZONES, PROTECTED VEGETATED SETBACKS, OR PROTECTED RIPARIAN BUFFERS EXIST ON SITE.
9) BUILDING TO HAVE STYLE 3200 KNOX BOX PER FIRE CODE.
10) PROPOSED CURB AND GUTTER WITHIN ROW MUST MATCH EXISTING CURB AND GUTTER.
11) ALL STRIPING WITHIN THE TOWN ROW SHALL BE THERMOPLASTIC AND COMPLY WITH MUTCD STANDARDS, INCLUDING PEDESTRIAN CROSSWALKS.

LEGEND

- SS — SEWER
- W — WATER
- SD — STORMWATER
- LIMITS OF DISTURBANCE
- TSF — TEMPORARY SILT FENCE
- 23.5 — PROPOSED SPOT ELEVATION

SITE PLAN

BAR SCALE 1"=20'

30' 15' 0' 30' 60' 90'

**NOTE:
1) CONTRACTOR SHALL FIELD VERIFY SIZE, MATERIAL, INVERTS AND LOCATION OF ALL EXISTING UTILITIES PRIOR TO INSTALLATION OF PROPOSED CONNECTIONS.

ROOF AND FOOTING DRAIN PLAN

WATERFORD OFFICES

LELAND, NORTH CAROLINA

TRIPP ENGINEERING, P.C.
419 Chestnut Street
Wilmington, North Carolina 28401
Phone 910-763-5100
Fax 910-763-5631

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034844 PHILIP G. TRIPP

PRELIMINARY FOR REVIEW ONLY (DO NOT USE FOR CONSTRUCTION)

DATE	02-11-22
DESIGN	PGT
DRAWN	EJW

DL1

21005