ECS Southeast, LLP

Report of Preliminary Subsurface Exploration

Promenade II

Lancaster, Lancaster County, South Carolina

ECS Project No. 08:15149

June 28, 2022

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Mr. Doug Kyle
Hutton Indian Land, LLC
736 Cherry Street
Chattanooga, Tennessee 37402

ECS Project No. 08:15149

Reference: Report of Preliminary Subsurface Exploration
Promenade II
Lancaster, Lancaster County, South Carolina

Dear Mr. Kyle:

ECS Southeast, LLP (ECS) has completed the subsurface exploration, laboratory testing, and geotechnical engineering recommendations 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 laboratory testing conducted, and our design and construction recommendations.

It has been our pleasure to be of service to Hutton Indian Land, LLC 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 to confirm subsurface conditions assumed for this report. Should you have any 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

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EXECUTIVE SUMMARY

This report contains the results of our subsurface exploration and geotechnical engineering recommendations for the proposed single-family residential subdivision located in Lancaster, Lancaster County, South Carolina.

- Existing fill soils were encountered at Boring B-18 to a depth of approximately 2 feet below the existing ground surface and at Hand Auger Boring HA-2 to a depth of at least 3 feet. Records of existing fill placement were not provided to us; therefore, the fill is considered undocumented. ECS does not recommend supporting project foundations, slabs-on-grades, pavements, or new Structural Fill on undocumented fill soils. The risk associated with undocumented fill can be mitigated by undercutting and removing existing fill and replacement with Structural Fill. Existing fill meeting the requirements of Structural Fill can be re-used as backfill following undercutting/excavation.

- Potentially expansive, moisture sensitive Elastic SILT (MH) was encountered at 11 of the 20 mechanical borings and 4 of the 9 hand auger borings to depths ranging from approximately 1 to 12 feet below the existing ground surface. Expansive MH soils with Plasticity Index (PI) greater than 30 and CH soils should not be used for direct support of project foundations, slabs-on-grade, and pavement subgrade elevations. A minimum separation of 2 feet should be provided between expansive MH soils (PI > 30) and CH soils and the bottom of foundations, slabs, and pavement sections.

- Partially Weathered Rock (PWR) was encountered at 2 of the 20 mechanical boring locations beginning at depths ranging from approximately 5.5 to 22 feet below the existing ground surface. Auger refusal material (i.e. possible rock) was encountered at Boring B-13 at a depth of approximately 21 feet below the existing ground surface. Additionally, hand auger boring refusal (i.e. bucket refusal) was encountered at each hand auger boring location at depths ranging from approximately 0.3 to 5.2 feet below existing grades. Depending on final grades and planned utility depths, difficult excavation into PWR and/or rock should be anticipated during mass grading and/or foundation and utility excavations. Grading plans should be developed to limit the amount of PWR and/or rock material removed due to potential cost and constructability impacts associated with difficult material removal.

- Test Pits, additional mechanical borings, and/or geophysical testing (i.e. seismic refraction arrays) are recommended to further explore the extents of the PWR and/or rock and to estimate the rippability and excavation characteristics of the subsurface materials.

The above information 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 entire geotechnical report.

1.0 INTRODUCTION

1.1 GENERAL

The purpose of this exploration was to provide preliminary geotechnical information for the proposed commercial development located east of the intersection of Charlotte Highway and Laurel Hill Road in Lancaster, Lancaster County, South Carolina. The recommendations developed for this report are based on project information supplied by Hutton Indian Land, LLC. Our services were provided in accordance with our Proposal No. 08:27696P, dated April 21, 2022, as authorized by Mr. Doug Kyle of Hutton Indian Land, LLC on April 28, 2022, which includes the incorporated terms and conditions.

This report contains the procedures and results of our preliminary subsurface exploration and laboratory testing programs, review of existing site conditions, engineering analyses, and preliminary recommendations for the design and construction of the geotechnical aspects of the project. The report includes the following items:

- Information on site conditions including geologic information and special site features.
- Description of the field exploration and laboratory tests performed.
- Final logs of the soil borings and records of the field exploration and laboratory tests.
- General recommendation regarding site suitability to support the proposed development.
- Evaluation of the onsite soil characteristics encountered in the soil borings with regard to suitability of the on-site materials for re-use as Structural Fill for mass grading operations and pavement support.
- Recommendations for minimum soil cover during frost heaving, compaction requirements for fill and backfill areas, and slab-on-grade construction.
- Recommendations regarding site preparation and construction observations testing.

2.0 PROJECT INFORMATION

2.1 PROJECT LOCATION/CURRENT SITE USE/PAST SITE USE

The project site is located east of the intersection of Charlotte Highway and Laurel Hill Road in Lancaster, Lancaster County, South Carolina, as shown in the figure below, and included on the Site Location Diagram in Appendix A. The approximately 61-acre site is identified as Lancaster County Parcel Identification Numbers (PINs) 001300067.00, 001300067.01, 001300067.04, 001300135, and 001300067.02.

Based on our review of available aerial photography and our site visit, the site currently consists mainly of undeveloped, moderately wooded land, a grass field, seven single-family residences (some in various states of demolition), an unpaved drive (Murphy Drive), and a paved roadway (Laurel Hills Road). The following is a brief summary of the site history:

- As early as 1955, the majority of the site consisted of dense woodlands with open agricultural fields in the southwest and northwest portions of the site. Laurel Hills Road bisected the southern portion of the site in a generally east-west direction, and various small structures (possible cottages and/or storage structures) were noted adjacent to the roadway. Murphy Drive existed within the northern portion of the site.
- Sometime between 1968 and 1983, three single-family residences were constructed to the south of Laurel Hill Road.
- Between 1983 and 1995, three additional residences were constructed on the property, to the north of Laurel Hill Road.
- Between 1998 and 2004, a residence was constructed off Murphy Drive.
- Between late 2017 and early 2018, one of the residences south of Laurel Hill Road had been demolished.

Based on our review of available historical imagery, it appears that the site has remained generally similar to its current condition since approximately 2018.

Based on the Client provided site plan prepared by Banks Engineering, PLLC, existing ground surface elevations within the planned commercial development and off-site sanitary sewer areas range from approximately 582 feet to approximately 642 feet.

The previous use discussion is not considered a comprehensive or in-depth review of the site history, rather a quick overview of available aerial imagery.

2.2 PROPOSED CONSTRUCTION

Based on our review of the site plan prepared by Banks Engineering, PLLC dated April 13, 2022, we understand the initial site development will include commercial out parcels along Charlotte Highway, associated paved roadways, a stormwater pond, and an off-site sanitary sewer utility north of the site. Based on the provided preliminary site grading plans, we anticipate maximum cut and fill depths of approximately 15 and 5 feet, respectively.

3.0 FIELD EXPLORATION AND LABORATORY TESTING

Our exploration procedures are explained in greater detail in Appendix B including the inserts titled Subsurface Exploration Procedure. Our scope of work included drilling twenty (20) mechanical borings and nine (9) hand auger borings coupled with dynamic core penetrometer (DCP) tests. The borings were field located using GPS technology and their approximate locations are shown on the Boring Location Diagram in Appendix A. Preliminary ground surface elevations noted on our boring logs were estimated from the Client provided site plan prepared by Banks Engineering, PLLC and should be considered preliminary and approximate. The users of the reported elevations do so at their own risk.

3.1 SUBSURFACE CHARACTERIZATION

The site is located in the Piedmont Physiographic Province of South Carolina. The native soils in the Piedmont Province consist mainly of residuum with underlying saprolites weathered from the parent bedrock, which can be found in both weathered and unweathered states. In a mature weathering profile of the Piedmont Province, the soils are generally found to be finer grained at the surface where more extensive weathering has occurred. The particle size of the soils generally becomes more granular with increasing depth and gradually changes first to weathered and finally to unweathered parent bedrock.

The natural geology in portions of the site has been modified in the past by grading that included the disturbance of near surface soils and/or placement of fill materials. The quality of man-made fills can vary significantly, and it is often difficult to assess the engineering properties of existing fills. Furthermore, there is no specific correlation between N-values from standard penetration tests performed in soil test borings and the degree of compaction of existing fill soils; however, a qualitative assessment of existing fills can sometimes be made based on the N-values obtained and observations of the materials sampled in the test borings.

The following sections provide generalized characterizations of the subsurface conditions. Please refer to the boring logs in Appendix B for detailed information at a specific location.

GENERALIZED SUBSURFACE CONDITIONS(1)			
Approximate Depth (ft)	**Stratum**	**Description**	**Ranges of SPT (2) N-values (bpf)**
0 to 0.2	NA	Surficial Organic Laden Materials. (3)	N/A
0 to 3	I	Fill – Elastic SILT (MH)	15
3 to 50	II	RESIDUAL – Sandy SILT (ML), Elastic SILT (MH), and Sandy CLAY (CL), and silty SAND (SM)	4 to 75
22 to 40	III	PARTIALLY WEATHERED ROCK (PWR) sampled as Sandy SILT (ML) (4) (5)	100+ (50/6" to 50/3")

Notes:
(1) Based on mechanical soil borings
(2) Standard Penetration Test in blows per foot (bpf).
(3) Surficial materials are driller reported and should not be used in surficial material take-offs. Since mechanical clearing was used to gain access to the boring locations, surficial organic laden materials/soils may have been removed at the boring locations. Our experience indicates that organic laden soil depths in wooded areas generally range from 6 to 12 inches or greater, depending on the amount of vegetation.
(4) PWR is defined as residual material exhibiting SPT N-values greater than 100 bpf.
(5) PWR was encountered at Borings B-9 and B-10

The subsurface conditions encountered by the hand auger borings generally consisted of Elastic SILT (MH), Sandy SILT (ML), and Silty SAND (SM) with occasional rock fragments. Based on dynamic cone penetrometer (DCP) testing recorded with the hand auger borings, DCP test values ranged from about 6 blows per increment (bpi) to greater than 25 bpi. Hand auger boring refusal (i.e. bucket refusal) was encountered at each hand auger boring location at depths ranging from approximately 0.3 to 5.2 feet below existing grades.

3.2 GROUNDWATER OBSERVATIONS

Groundwater measurements were attempted at the termination of drilling and prior to demobilization from the site. Groundwater was encountered at Borings B-19 and B-20 at the time of drilling at depths ranging from approximately 21 to 30 feet below existing grades. Groundwater was not apparent at the

remainder of the boring locations at the time of drilling within the explored depths. Variations in the long-term water table may occur as a result of changes in precipitation, evaporation, surface water runoff, depth of restrictive clay and PWR layers, construction activities, and other factors.

3.3 LABORATORY TESTING

The laboratory testing consisted of selected tests performed on samples obtained during our field exploration operations. Classification, moisture content, Atterberg limits, and percent fines tests were performed on select samples. The test results are included on the boring logs in Appendix B and the Laboratory Testing Summary in Appendix C.

Each sample was visually classified on the basis of texture and plasticity in accordance with ASTM D2488 Standard Practice for Description and Identification of Soils (Visual-Manual Procedures) and including USCS classification symbols, and ASTM D2487 Standard Practice for Classification for Engineering Purposes (Unified Soil Classification System, USCS). After classification, the samples were grouped in the major zones noted on the boring logs in Appendix B. The group symbols for each soil type are indicated in parentheses along with the soil descriptions. The stratification lines between strata on the logs are approximate; in situ, the transitions may be gradual.

4.0 DESIGN RECOMMENDATIONS

4.1 FOUNDATIONS AND SLABS

Depending on the structure types, finished grades, and relative subsurface profiles at the final structure locations, conventional shallow foundations appear feasible for support of the anticipated commercial structures with maximum column loads of 100 kips. At this time, a preliminary allowable design bearing pressure of 3,000 psf for conventional shallow foundations bearing on low plasticity residual soils, PWR, or newly placed Structural Fill soils appears feasible. Please note that the provided preliminary bearing capacity may vary once the structure types, finished grades, and locations are finalized.

Potential expansive, moisture sensitive Elastic SILTS (MH) soils were encountered at 10 of the 20 boring locations. CH and MH (P1>30) soils should not be used for direct support of project foundations and slabs-on-grade. A minimum separation of 2 feet should be provided between MH soils and the bottom of foundations and slabs-on-grade.

Concrete slabs-on-grade can be adequately supported on undisturbed low plasticity residual soils or newly placed Structural Fill provided the recommendations outlined herein are implemented. Because PWR and auger refusal (possible rock) conditions were encountered in some borings, it is possible that some foundations may transition between these dense natural materials and soil over short distances. In such instances, the PWR and/or possible rock should be over excavated 12 inches and replaced with structural fill.

More specific bearing pressure, settlement, floor slab, and any potential groundwater related recommendations can be provided once final site plans, loading information, finished grades, and bearing elevations of structures are known. Additional field testing may be necessary once the project grading requirements are known.

4.2 PAVEMENT CONSIDERATIONS

Moisture sensitive soils (MH and CH soils) were encountered at approximately half of the borings locations and extend to depths ranging from approximately 1 to 12 feet below existing grades. MH soils with a PI greater than 30 and CH soils, should not be used for direct support of pavements. MH (PI>30) and CH soils encountered within proposed pavement areas should be undercut and replaced with low plasticity Structural Fill to a minimum depth of 2 feet below pavement areas.

Undisturbed low-plasticity residual soils or newly placed engineered fill can provide adequate support for pavement structures and walkways designed for appropriate subgrade strength and traffic characteristics. For the design and construction of exterior pavements, the subgrades should be prepared in accordance with the recommendations in this report.

We emphasize that good base course drainage is essential for successful pavement performance. Water buildup in the base course may result in premature pavement failures. The subgrade and pavement should be graded to provide positive runoff to either the outer limits of the paved area or to catch basins so that standing water will not accumulate on the subgrade or pavement.

The pavement at locations for refuse dumpsters should be properly designed for the high axial loads and twisting movements of the trucks. Consideration should be given to the use of concrete pavement for the dumpster and approach areas.

When the traffic volumes, wheel loading conditions, and service life have been estimated, ECS can perform pavement analyses for flexible and rigid pavements for an additional fee.

4.3 CUT AND FILL SLOPES

A detailed grading plan was not provided at the time of this report. We recommend that permanent cut slopes with less than 15 feet crest height through undisturbed residual soils be constructed at 2:1 (horizontal: vertical) or flatter. Where permanent cut slopes expose PWR or rock, steeper slopes may be considered. ECS will need to evaluate those conditions prior to recommending a final slope inclination. Permanent fill slopes less than 15 feet tall may be constructed using Structural Fill at a slope of 2.5:1 or flatter. However, a slope of 3:1 or flatter may be desirable to permit establishment of vegetation, safe mowing, and maintenance. Flatter slopes may be necessary for heights exceeding the noted values. Fill slopes should be over-built and cut back to the final grades. The surface of cut and fill slopes should be properly compacted. Permanent and temporary slopes should be protected using vegetation or other means to prevent erosion.

Slope stability analyses should be performed on cut and fill slopes exceeding 15 feet in height, to determine a slope inclination resulting in a factor of safety greater than 1.3. Upon finalization of site civil drawings, ECS should be contacted to perform slope stability analysis and determine if further exploration and testing is necessary.

The outside face of building foundations and the edges of pavements placed near slopes should be located an appropriate distance from the slope. Buildings or pavements placed at the top of fill slopes should be placed a distance equal to at least 1/3 of the height of the slope behind the crest of the slope. Buildings or pavements near the bottom of a slope should be located at least 1/2 of the height of the slope from the toe of the slope. Slopes with structures located closer than these limits or slopes taller than the height

limits indicated should be specifically evaluated by ECS and may require approval from the building code official.

Temporary slopes in confined or open excavations in soil should perform satisfactorily at inclinations of 2:1. Excavations should conform to applicable OSHA regulations. Appropriately sized ditches or other appropriate storm water controls should run above and parallel to the crest of permanent slopes to divert surface runoff away from the slope face.

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, and soft or unsuitable materials from the 5-foot expanded pavement limits, and 5 feet beyond the toe of structural fills. ECS should be retained to observe that topsoil and unsuitable surficial materials have been removed prior to the placement of Structural Fill or new overlying construction.

5.1.2 Proofrolling

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

Where proofrolling identifies areas that are unstable or “pumping”, those areas should be repaired prior to the placement of any subsequent Structural Fill or other construction materials. Methods of stabilization include undercutting, moisture conditioning, or chemical stabilization. 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 unstable materials, and to assist in selecting appropriate remedial actions to stabilize the subgrade.

5.2 EARTHWORK CONSIDERATIONS

5.2.1 Existing Man-Placed Fill

Existing fill soils were encountered at Boring B-18 to a depth of approximately 2 feet below the existing ground surface and at Hand Auger Boring HA-2 to a depth of at least 3 feet. Records of existing fill placement were not provided to us; therefore, the fill is considered undocumented. ECS does not recommend supporting project foundations, slabs-on-grades, pavements, or new Structural Fill on undocumented fill soils. The risk associated with undocumented fill can be mitigated by undercutting and removing existing fill and replacement with Structural Fill. Existing fill meeting the requirements of Structural Fill can be re-used as backfill following undercutting/excavation.

Undocumented fill poses risks associated with undetected deleterious inclusions within the fill and/or deleterious materials at the virgin ground/fill interface that are covered by the fill. Deleterious materials can consist of significant amounts of organics derived from organic rich strippings, rubbish, construction or demolition debris, stumps and roots and logs. If these materials are covered over by or are within undocumented fill, the organic materials tend to decompose slowly in the anaerobic conditions in or under the fill. Decomposition can occur over periods ranging from several years to several decades. As

the organic materials decompose, a void is created which can create soft conditions and even subsidence in areas above the organics. Additionally, subsidence can occur as the result of voids within nested debris or shot rock materials within the fill matrix. These conditions sometimes are encountered in discreet pockets that can go undetected by normal subsurface exploration techniques, i.e. soil test borings and test pits. Existing fill encountered within structural areas should be removed and replaced with Structural Fill.

5.2.2 Expansive and Moisture Sensitive Soils

Potentially expansive and moisture sensitive soils are those materials classified as Elastic SILT (MH) and Fat CLAY (CH). Elastic SILT (MH) was encountered at Borings B-1 through B-5, B-7, B-11, B-14, B-17, B-18, and B-19 and Hand Auger Borings HA-1, HA-5, HA-7, and HA-8 to depths ranging from 1 to 12 feet below the existing ground surface. Moisture sensitive soils will degrade quickly when disturbed by construction traffic and/or with elevated moisture content.

High plasticity, expansive, moisture sensitive soils (MH soils with a Plasticity Index greater than 30 and CH soils) should not be used for direct support of slabs, foundations, and pavements. MH soils (PI>30) and CH soils encountered within proposed structural areas should be undercut and replaced with low plasticity Structural Fill to a minimum depth of 2 feet below subgrade elevations in slab, foundation, and pavement areas. Upon completion of the undercut, the resulting subgrade soils should be evaluated for stability prior to the placement of Structural Fill. The recommended separation can also be provided by the addition of Structural Fill. Alternatively, chemical (lime) stabilization may be considered to improve/modify high plasticity, moisture sensitive soils in lieu of undercut and replacement and/or for re-use as Structural Fill.

Based on limited laboratory testing performed, the on-site MH soils have plasticity index (PI) values ranging from 17 to 21. ECS recommends additional index property testing and expansion index testing on the onsite MH and CH soils to further evaluate the characteristics and shrink/swell potential of these soils.

5.2.3 Partially Weathered Rock and Rock

Partially Weathered Rock (PWR) was encountered at Borings B-9 and B-10, beginning at depths of approximately 22 and 5.5 feet below the existing ground surface, respectively.

Additionally, hand auger boring refusal (i.e. bucket refusal) was encountered at each hand auger boring location at depths ranging from approximately 0.3 to 5.2 feet below existing grades. Hand auger refusal could be the result of dense materials and/or inclusions of rock fragments within the soil matrix.

ECS recommends performing additional subsurface exploration including test pit excavations, additional borings, and/or geophysical testing (i.e. seismic refraction) to explore the excavation characteristics (i.e., rippability) of the subsurface materials.

Depending on final grades and planned utility depths, difficult excavation into PWR and/or rock may be encountered during mass grading and/or foundation and utility excavations. Grading plans should be developed to limit the amount of PWR and/or rock material removed due to potential cost and constructability impacts associated with difficult material removal.

Our experience indicates rock in a weathered, boulder, and/or massive form varies erratically in location and depth within the Piedmont Geologic Province, of which Lancaster County is part. Due to the variability of the Piedmont geology, there is always potential that these materials could be encountered at shallower depths between the boring locations. The depth to, and thickness of weathered rock, rock lenses or seams, and bedrock, can vary dramatically in short distances and between boring locations. Consequently, significantly different conditions may be encountered intermediate of the actual boring locations.

In mass excavation for general site work, dense soils and PWR can usually be removed by ripping with a single-tooth ripper attached to a large crawler tractor or by breaking it out with large front-end loader. In confined excavations such as foundations, utility trenches, etc., removal of PWR may require use of heavy-duty backhoes, pneumatic spades, or blasting. Rock excavation techniques such as blasting and/or hammering should be anticipated for materials where auger refusal materials are encountered in mechanical borings.

As a general guide, we recommend the following definitions be used to define rock:

General Excavation

Rip Rock: Material that cannot be removed by scrapers, loaders, pans, dozers, or graders; and requires the use of a single-tooth ripper mounted on a crawler tractor having a minimum draw bar pull rated at not less than 56,000 pounds.

Blast Rock: Material which cannot be excavated with a single-tooth ripper mounted on a crawler tractor having a minimum draw bar pull rated at not less than 56,000 pounds (Caterpillar D-8 or equivalent) or by a Caterpillar 977 front-end loader or equivalent; and occupying an original volume of at least one (1) cubic yard.

Trench Excavation

Blast Rock: Material which cannot be excavated with a backhoe having a bucket curling force rated at not less than 25,700 pounds (Caterpillar Model 225 or equivalent) and occupying an original volume of at least one-half (1/2) cubic yard.

5.2.4 Structural Fill

Prior to placement of Structural Fill, representative bulk samples (about 50 pounds) of on-site and/or off-site borrow should be submitted to ECS for laboratory testing, which will 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.

Structural Fill Materials: Materials for use as Structural Fill should consist of inorganic soils classified as CL, ML, SC, SW, SP, GM, and GC, or a combination of these group symbols, per ASTM D2487. The materials should not contain organic matter debris and should contain no particle sizes greater than 4 inches in the largest dimension. Open graded materials and gravels (GW and GP), which contain void space in their masses should not be used in structural fills unless properly encapsulated with filter fabric. Structural Fill material should have the index properties shown in the following table.

STRUCTURAL FILL INDEX PROPERTIES	
Subject	**Property**
Building and Pavement Areas	LL < 50, PI < 30
Maximum Particle Size	4 inches
Maximum Organic Content	5% by dry weight
Minimum Dry Unit Weight (ASTM D698)	90 pounds per cubic foot

STRUCTURAL FILL COMPACTION REQUIREMENTS	
Subject	**Requirement**
Compaction Standard	Standard Proctor, ASTM D698
Required Compaction (greater than 24 inches below finished soil subgrade)	95% of Maximum Dry Density
Required Compaction (within 24 inches of finished soil subgrade)	100% of Maximum Dry Density
Moisture Content	-3 to +3 % of the soil's optimum value
Loose Lift Thickness (Maximum) (1)	8 inches prior to compaction

(1) Thinner loose lift thickness may be required depending on the type of equipment used.

Unsatisfactory Materials: Unsatisfactory fill materials include materials which do not satisfy the requirements for Structural Fill, as well as topsoil and organic materials (OH, OL), Elastic SILT (MH), and Fat CLAY (CH).

On-Site Borrow Suitability: Natural deposits of soils that meet the definition of Structural Fill are present on the site including residual soils classified as Lean CLAY (CL), Sandy SILT (ML), and Silty SAND (SM); however, selective mining and/or soil exchange may be required to obtain these materials. Rippable/excavatable partially weathered rock (PWR) materials may require processing (i.e. crushing and/or screening) to use as Structural Fill depending on the resulting rock fragment size (i.e., greater than 4 inches nominal diameter) and ability of compaction equipment to break down the PWR materials.

Given the presence of moisture sensitive MH and/or CH soils on this site, and to reduce the amount of potential import material to the site, the Owner can consider allowing soils with a maximum Liquid Limit of 65 and maximum Plasticity Index of 30 to be used as Structural Fill at depths greater than 4 feet below pavement subgrades outside the expanded building limits and within non-structural areas. Chemical (lime) treatment of on-site MH and/or CH soils may also be considered to improve/modify these soils for re-use as Structural Fill.

Fill Compaction Control: The expanded limits of the proposed construction areas should be well defined, including the limits of the fill zones for buildings, slopes, etc., at the time of fill placement. Grade controls should be maintained throughout the filling operations. Filling operations should be observed on a full-time basis by ECS to determine that the minimum compaction requirements are being achieved.

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.

Where fill materials will be placed to widen existing embankment fills, or placed up against sloping ground, the soil subgrade should be scarified, and the new fill benched or keyed into the existing material. Fill material should be placed in horizontal lifts.

5.2.5 General Construction Considerations

Because the site has been previously disturbed and/or filled, we emphasize the importance of comprehensive subgrade evaluations prior to Structural Fill placement and/or other construction activities. These evaluations may include proofrolling the subgrade soils, performing hand auger borings, and excavation of test pits within previously filled and built-over areas. The mentioned evaluations would help in identifying areas of soft, loose, otherwise unsuitable materials, or buried debris, which would require remedial activities. We recommend a contingency for unforeseen conditions in the earthwork phase of construction.

Moisture Conditioning: During the cooler and wetter periods of the year, delays and additional costs should be anticipated. At these times, reduction of soil moisture may need to be accomplished by a combination of mechanical manipulation and the use of chemical additives, such as lime or cement, in order to lower moisture contents to levels appropriate for compaction. Alternatively, during the drier times of the year, such as the summer months, moisture may need to be added to the soil to provide adequate moisture for successful compaction according to the project requirements.

Subgrade Protection: Measures should also be taken to limit site disturbance, especially from rubber-tired heavy construction equipment, and to control and remove surface water from development areas, including structural areas. It would be advisable to designate a haul road and construction staging area to limit the areas of disturbance and to prevent construction traffic from excessively degrading sensitive subgrade soils and existing pavement areas. Haul roads and construction staging areas could be covered with excess depths of aggregate to protect those subgrades. The aggregate can later be removed and used as Structural Fill provided it meets project specifications.

Surface Drainage: Surface drainage conditions should be properly maintained. Surface water should be directed away from the construction area, and the work area should be sloped away from the construction area at a gradient of 1 percent or greater to reduce the potential of ponding water and the subsequent saturation of the surface soils. At the end of each workday, the subgrade soils should be sealed by rolling the surface with a smooth drum roller to minimize infiltration of surface water.

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 stable 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. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations. 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.

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 2 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: With the exception of the high plasticity soils, the soils at the foundation bearing elevation are anticipated to be adequate for support of the proposed structures. 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 Observations: Provided high plasticity are remediated, the soils at the finished soil subgrade elevation are anticipated to be satisfactory for support of the proposed slabs-on-grade. Prior to construction of slabs, 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 our exploration are anticipated to be generally acceptable for support of utility pipes; however, depending on final utility grades and PWR encountered at the site, difficult excavation may be encountered at utility excavations. PWR and/or rock materials encountered at utility subgrade excavations should be undercut an additional 6-inches and replaced with bedding material to reduce potential point load stress. The pipe subgrades should be observed and probed for stability by ECS. Loose or unsuitable materials encountered should be removed and replaced with suitable compacted Structural Fill, or pipe stone bedding material.

Utility Backfilling: Granular bedding material should be at least 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 satisfy the requirements for Structural Fill.

6.0 CLOSING

ECS has prepared this preliminary 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 limited information provided to ECS by the Client. If any of this information is inaccurate 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

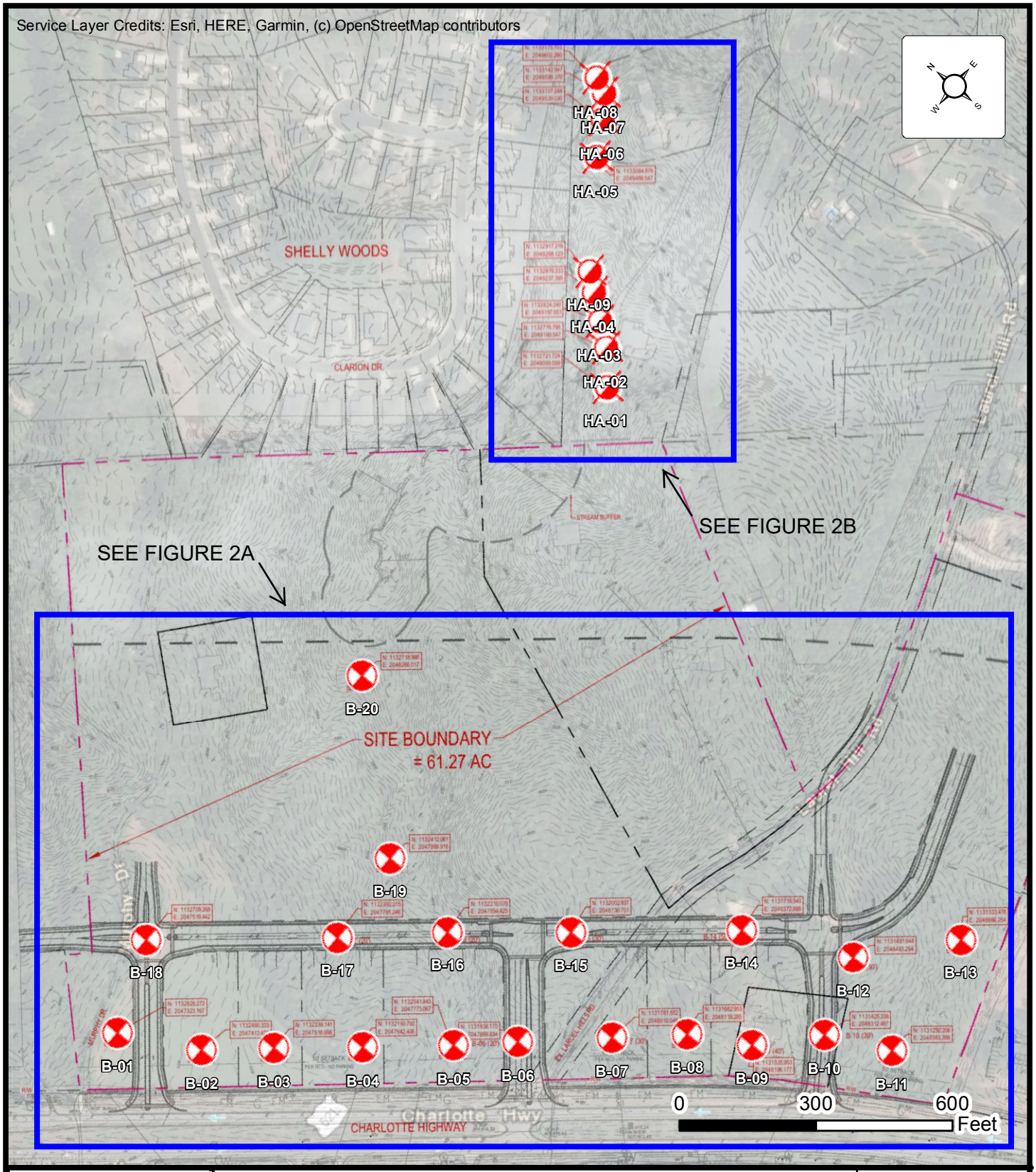
Site Location Diagram
Boring Location Diagram
Subsurface Cross Sections A-A’ through E-E’

SITE LOCATION DIAGRAM
PROMENADE II

CHARLOTTE HWY, LANCASTER, SOUTH CAROLINA

HUTTON INDIAN LAND, LLC

ENGINEER	CJC
SCALE	AS NOTED
PROJECT NO.	08:15149
FIGURE	1
DATE	6/28/2022

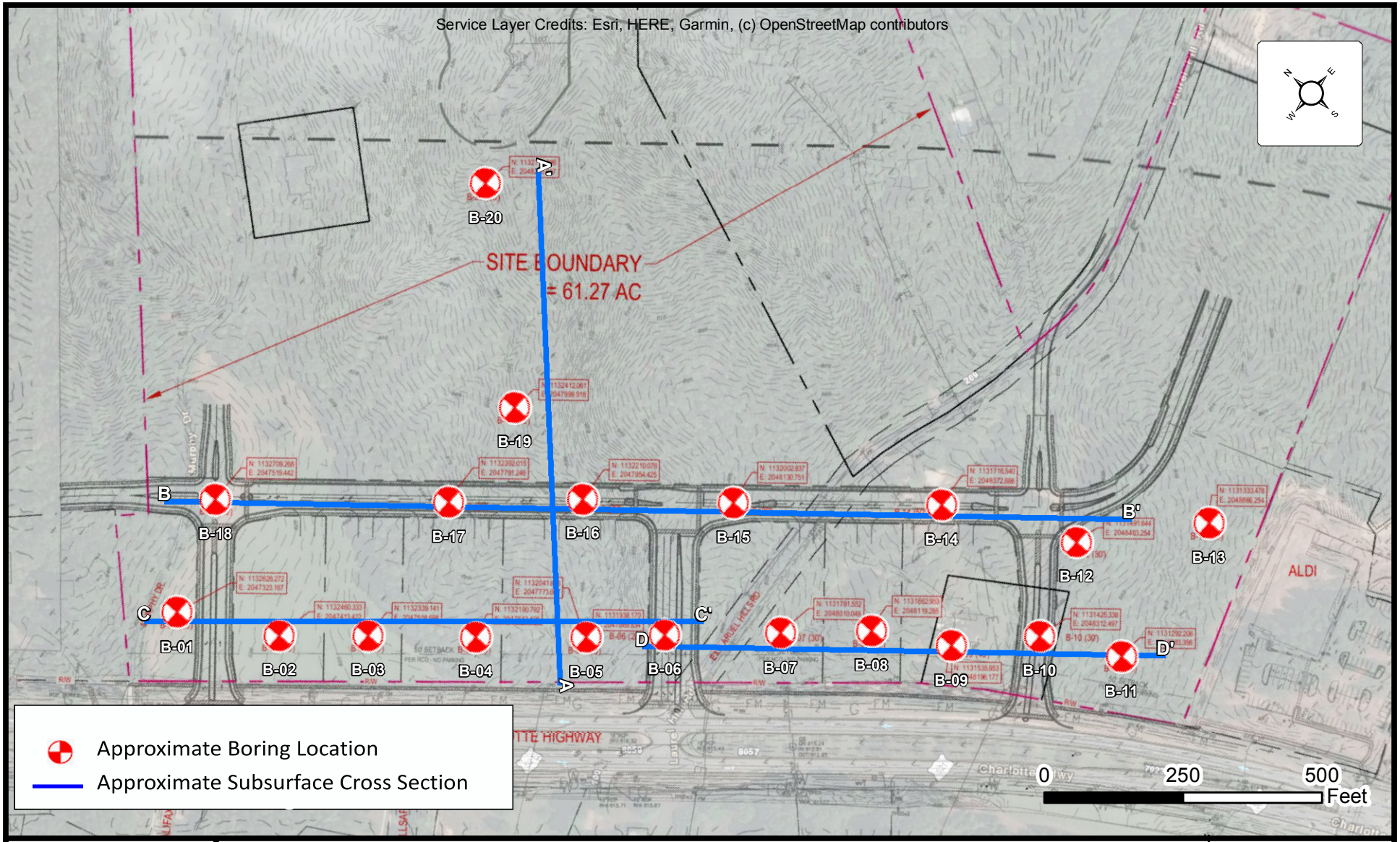


BORING LOCATION DIAGRAM
PROMENADE II

CHARLOTTE HWY, LANCASTER, SOUTH CAROLINA

HUTTON INDIAN LAND, LLC

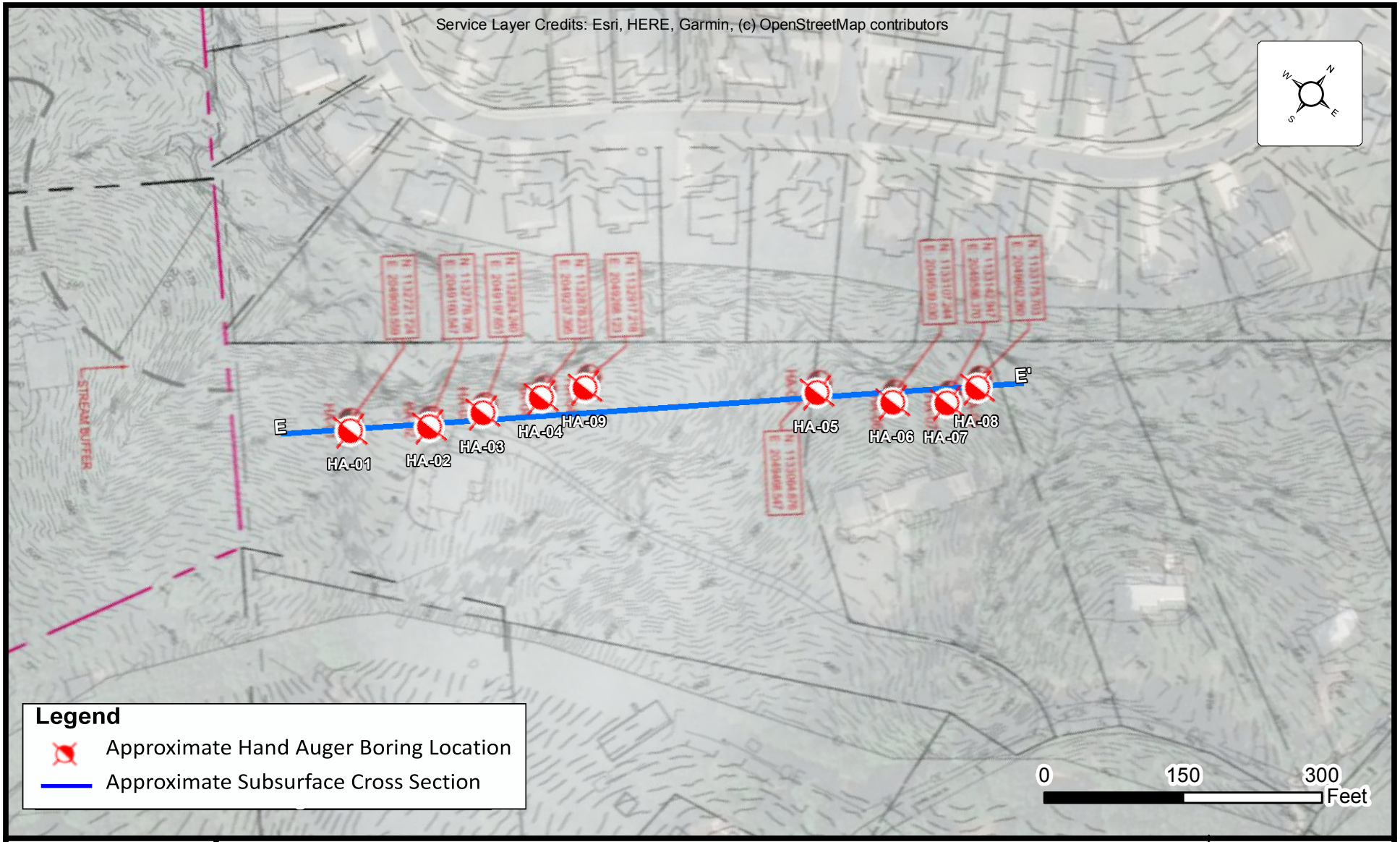
ENGINEER	CJC
SCALE	AS NOTED
PROJECT NO.	08:15149
FIGURE	2
DATE	6/28/2022



BORING LOCATION DIAGRAM
PROMENADE II

CHARLOTTE HWY, LANCASTER, SOUTH CAROLINA
HUTTON INDIAN LAND, LLC

ENGINEER	CJC
SCALE	AS NOTED
PROJECT NO.	08:15149
FIGURE	2A
DATE	6/28/2022



BORING LOCATION DIAGRAM
PROMENADE II

CHARLOTTE HWY, LANCASTER, SOUTH CAROLINA
HUTTON INDIAN LAND, LLC

ENGINEER	CJC
SCALE	AS NOTED
PROJECT NO.	08:15149
FIGURE	2B
DATE	6/28/2022

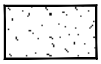
APPENDIX B – Field Operations

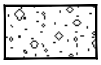
Reference Notes for Boring Logs
Subsurface Exploration Procedure: Standard Penetration Testing (SPT)
Subsurface Exploration Procedure: Hand Auger Borings/DCP Testing
Boring Logs
Hand Auger Logs

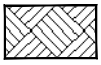
REFERENCE NOTES FOR BORING LOGS

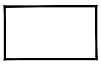
MATERIAL[1,2]

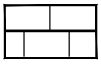

ASPHALT


CONCRETE


GRAVEL

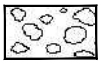

TOPSOIL

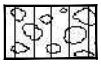

VOID


BRICK

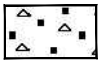

AGGREGATE BASE COURSE

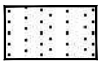

GW **WELL-GRADED GRAVEL**
gravel-sand mixtures, little or no fines

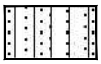

GP **POORLY-GRADED GRAVEL**
gravel-sand mixtures, little or no fines


GM **SILTY GRAVEL**
gravel-sand-silt mixtures

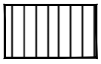

GC **CLAYEY GRAVEL**
gravel-sand-clay mixtures

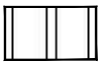

SW **WELL-GRADED SAND**
gravelly sand, little or no fines

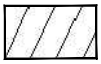

SP **POORLY-GRADED SAND**
gravelly sand, little or no fines


SM **SILTY SAND**
sand-silt mixtures

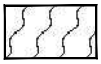

SC **CLAYEY SAND**
sand-clay mixtures

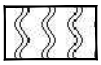

ML **SILT**
non-plastic to medium plasticity

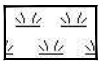

MH **ELASTIC SILT**
high plasticity


CL **LEAN CLAY**
low to medium plasticity


CH **FAT CLAY**
high plasticity


OL **ORGANIC SILT or CLAY**
non-plastic to low plasticity


OH **ORGANIC SILT or CLAY**
high plasticity


PT **PEAT**
highly organic soils

DRILLING SAMPLING SYMBOLS & ABBREVIATIONS

SS	Split Spoon Sampler	PM	Pressuremeter Test
ST	Shelby Tube Sampler	RD	Rock Bit Drilling
WS	Wash Sample	RC	Rock Core, NX, BX, AX
BS	Bulk Sample of Cuttings	REC	Rock Sample Recovery %
PA	Power Auger (no sample)	RQD	Rock Quality Designation %
HSA	Hollow Stem Auger		

PARTICLE SIZE IDENTIFICATION

DESIGNATION		PARTICLE SIZES
Boulders		12 inches (300 mm) or larger
Cobbles		3 inches to 12 inches (75 mm to 300 mm)
Gravel:	Coarse	¾ inch to 3 inches (19 mm to 75 mm)
	Fine	4.75 mm to 19 mm (No. 4 sieve to ¾ inch)
Sand:	Coarse	2.00 mm to 4.75 mm (No. 10 to No. 4 sieve)
	Medium	0.425 mm to 2.00 mm (No. 40 to No. 10 sieve)
	Fine	0.074 mm to 0.425 mm (No. 200 to No. 40 sieve)
Silt & Clay ("Fines")		<0.074 mm (smaller than a No. 200 sieve)

COHESIVE SILTS & CLAYS

UNCONFINED COMPRESSIVE STRENGTH, Q_P[4]	SPT[5] (BPF)	CONSISTENCY[7] (COHESIVE)
<0.25	<2	Very Soft
0.25 - <0.50	2 - 4	Soft
0.50 - <1.00	5 - 8	Firm
1.00 - <2.00	9 - 15	Stiff
2.00 - <4.00	16 - 30	Very Stiff
4.00 - 8.00	31 - 50	Hard
>8.00	>50	Very Hard

GRAVELS, SANDS & NON-COHESIVE SILTS

SPT[5]	DENSITY
<5	Very Loose
5 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
>50	Very Dense

RELATIVE AMOUNT[7]	COARSE GRAINED (%)[8]	FINE GRAINED (%)[8]
Trace	≤5	≤5
With	10 - 20	10 - 25
Adjective *(ex: "Silty")*	25 - 45	30 - 45

WATER LEVELS[6]

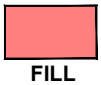

WL (First Encountered)


WL (Completion)


WL (Seasonal High Water)


WL (Stabilized)

FILL AND ROCK


FILL


POSSIBLE FILL


PROBABLE FILL


ROCK

[1]Classifications and symbols per ASTM D 2488-17 (Visual-Manual Procedure) unless noted otherwise.

[2]To be consistent with general practice, "POORLY GRADED" has been removed from GP, GP-GM, GP-GC, SP, SP-SM, SP-SC soil types on the boring logs.

[3]Non-ASTM designations are included in soil descriptions and symbols along with ASTM symbol [Ex: (SM-FILL)].

[4]Typically estimated via pocket penetrometer or Torvane shear test and expressed in tons per square foot (tsf).

[5]Standard Penetration Test (SPT) refers to the number of hammer blows (blow count) of a 140 lb. hammer falling 30 inches on a 2 inch OD split spoon sampler required to drive the sampler 12 inches (ASTM D 1586). "N-value" is another term for "blow count" and is expressed in blows per foot (bpf). SPT correlations per 7.4.2 Method B and need to be corrected if using an auto hammer.

[6]The water levels are those levels actually measured in the borehole at the times indicated by the symbol. The measurements are relatively reliable when augering, without adding fluids, in granular soils. In clay and cohesive silts, the determination of water levels may require several days for the water level to stabilize. In such cases, additional methods of measurement are generally employed.

[7]Minor deviation from ASTM D 2488-17 Note 14.

[8]Percentages are estimated to the nearest 5% per ASTM D 2488-17.

SUBSURFACE EXPLORATION PROCEDURE: STANDARD PENETRATION TESTING (SPT) ASTM D 1586 Split-Barrel Sampling

Standard Penetration Testing, or **SPT**, is the most frequently used subsurface exploration test performed worldwide. This test provides samples for identification purposes, as well as a measure of penetration resistance, or N-value. The N-Value, or blow counts, when corrected and correlated, can approximate engineering properties of soils used for geotechnical design and engineering purposes.

SPT Procedure:

- Involves driving a hollow tube (split-spoon) into the ground by dropping a 140-lb hammer a height of 30-inches at desired depth
- Recording the number of hammer blows required to drive split-spoon a distance of 12 inches (in 3 or 4 Increments of 6 inches each)

- Auger is advanced* and an additional SPT is performed
- One SPT test is typically performed for every two to five feet

- Obtain two-inch diameter soil sample

**Drilling Methods May Vary—* The predominant drilling methods used for SPT are open hole fluid rotary drilling and hollow-stem auger drilling.

SUBSURFACE EXPLORATION PROCEDURES:

HAND AUGER BORINGS
DYNAMIC CONE PENETROMETER (DCP) TESTS
WILDCAT DYNAMIC CONE PENETROMETER (WDCP) TESTS
KESSLER DYNAMIC CONE PENETROMETER (KDCP) TESTS

Hand auger borings coupled with dynamic cone penetrometer testing are often performed to evaluate shallow subsurface explorations and/or locations with limited access to larger equipment.

Hand Auger Boring Procedure:

The hand auger borings were conducted in general conformance with ASTM D1452. In this procedure, the auger boring is performed by manually rotating and advancing an auger to the desired depths while periodically removing the auger from the hole to clear and examine the auger cuttings. The auger cuttings were visually classified in the field. Stratification lines shown on the hand auger boring logs represent approximate boundaries between physical soil types.

Dynamic Cone Penetrometer (DCP) Test Procedure:

The dynamic cone penetrometer testing was performed in general accordance with ASTM SPT 399. In this procedure, a sliding hammer with a 15 pound steel mass is dropped 20 inches on a cone tip and the number of blows to penetrate 1.75 inches is recorded. The results are presented in blows per increment (bpi).

Wildcat Dynamic Cone Penetrometer (WDCP) Test Procedure:

For the WDCP test, a sliding hammer is dropped on a cone tip and the resulting penetration of the cone is recorded. The 35 lb hammer is repeated dropped from a height of 15 inches and the number of hammer drops (blows per increment) is recorded over continuous 10 centimeter lengths.

Kessler Dynamic Cone Penetrometer (KDCP) Test Procedure:

For the KDCP test, a sliding hammer is dropped on a cone tip and the resulting penetration of the cone is recorded. The Kessler DCP was improved and patented by the US Army Corps of Engineers. The Kessler DCP used for testing has a 4.8 kg (10 lb) or 8 kg (17 lb) hammer. The hammer is repeatedly dropped from a height of 22 inches and the penetration is recorded. The DCP is primarily used to determine in place soil shear strength in road construction. It has a CBR range from less than 0.5 to 100% and bearing value range from 430 to 10,800 psf.

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Land, LLC	**08:15149**	**B-01**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Promenade II	**A.E. Drilling Services, Inc.**		
SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**			LOSS OF CIRCULATION
NORTHING: **1132627.9**	EASTING: **2047317.8**	STATION:	SURFACE ELEVATION: **631.00**
			BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0					Topsoil Thickness[4.00"]			
	S-1	SS	18	18	(MH) Residuum, ELASTIC SILT, reddish brown, moist, stiff			5-6-8 (14)
	S-2	SS	18	18	(ML) SANDY SILT, orangish red, moist, stiff			6-6-6 (12)
5							626	
	S-3	SS	18	18	(ML) SANDY SILT, orangish red to light reddish brown, moist, very stiff to stiff			9-11-13 (24)
	S-4	SS	18	18				15-7-8 (15)
10							621	
	S-5	SS	18	18				5-7-7 (14)
15							616	
	S-6	SS	18	18				6-4-6 (10)
20					**END OF BORING AT 20 FT**		611	
25							606	
30							601	

Plastic Limit Water Content Liquid Limit

⊗ STANDARD PENETRATION BLOWS/FT

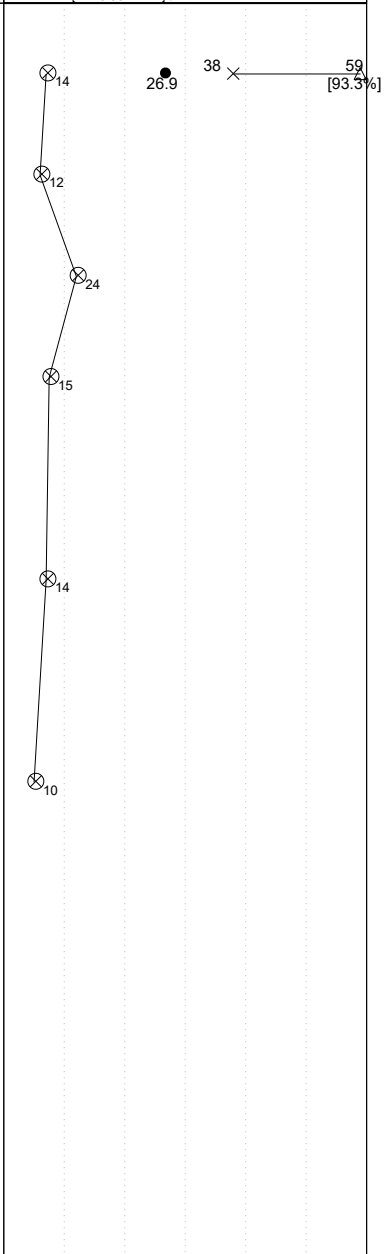
ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

○ CALIBRATED PENETROMETER TON/SF

[FINES CONTENT] %



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

▽ WL (First Encountered) **GNE**	BORING STARTED: **Jun 01 2022**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **Jun 01 2022**		HAMMER TYPE: **Automatic**
▼ WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY: **JMS13**	DRILLING METHOD: **2.25 HSA**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Land, LLC	**08:15149**	**B-02**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Promenade II	**A.E. Drilling Services, Inc.**		
SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**			LOSS OF CIRCULATION
NORTHING: **1132462.6**	EASTING: **2047406.9**	STATION:	SURFACE ELEVATION: **623.00**
			BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0					Topsoil Thickness[6.00"]			
	S-1	SS	18	18	(MH) Residuum, ELASTIC SILT, reddish brown, moist, stiff to very stiff			3-4-5 (9)
	S-2	SS	18	18				7-7-11 (18)
5					(ML) SANDY SILT, orangish red to light orangish red, moist, very stiff to stiff		618	
	S-3	SS	18	18				15-18-20 (38)
	S-4	SS	18	18				5-6-7 (13)
10							613	
	S-5	SS	18	18	(ML) SANDY SILT, contains slight rock fragments, light orange to orangish red, moist, firm			6-4-4 (8)
15							608	
	S-6	SS	18	18				5-4-4 (8)
20					**END OF BORING AT 20 FT**		603	
25							598	
30							593	

Plastic Limit Water Content Liquid Limit

⊗ STANDARD PENETRATION BLOWS/FT

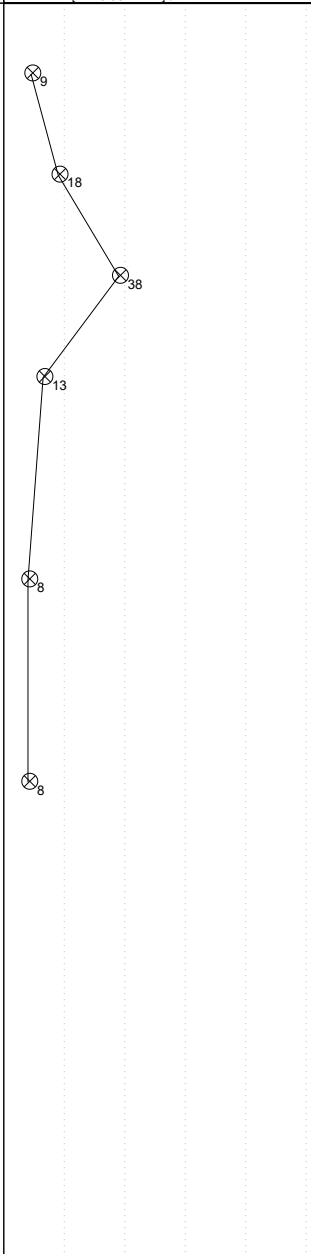
ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

○ CALIBRATED PENETROMETER TON/SF

[FINES CONTENT] %



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

▽ WL (First Encountered) **GNE**	BORING STARTED: **Jun 01 2022**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **Jun 01 2022**		HAMMER TYPE: **Automatic**
▼ WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY: **JMS13**	DRILLING METHOD: **2.25 HSA**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Land, LLC	**08:15149**	**B-03**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Promenade II	**A.E. Drilling Services, Inc.**		
SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**			LOSS OF CIRCULATION
NORTHING: **1132342.7**	EASTING: **2047512.4**	STATION:	SURFACE ELEVATION: **616.00**	BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
					Topsoil Thickness[6.00"]			
	S-1	SS	18	18	(MH) Residuum, ELASTIC SILT, reddish brown, moist, stiff			4-5-7 (12)
	S-2	SS	18	18	(MH) ELASTIC SILT, reddish brown, moist, very stiff to hard			7-7-11 (18)
5	S-3	SS	18	18			611	14-15-19 (34)
	S-4	SS	18	18	(ML) SANDY SILT, light reddish orange to light orangish pink, moist, stiff to firm			5-5-6 (11)
10							606	
	S-5	SS	18	18				4-4-4 (8)
15							601	
	S-6	SS	18	18				4-4-4 (8)
20					**END OF BORING AT 20 FT**		596	
25							591	
30							586	

Plastic Limit Water Content Liquid Limit

STANDARD PENETRATION BLOWS/FT

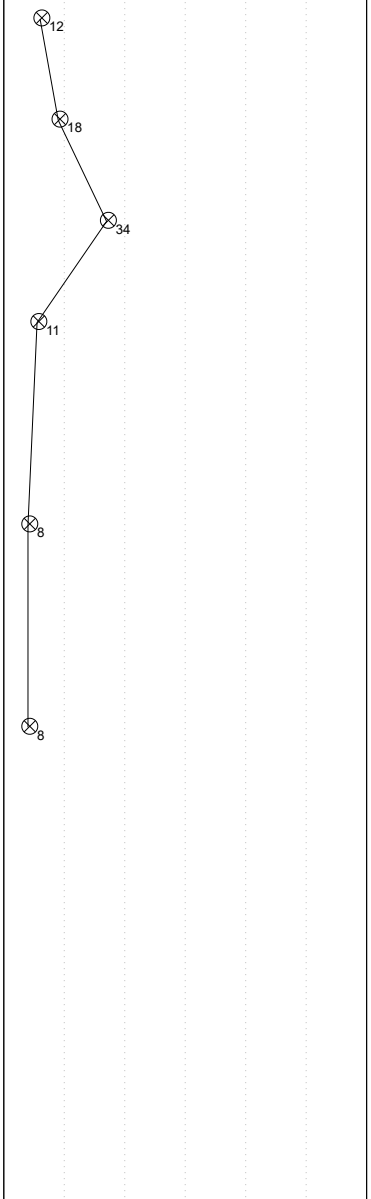
ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

CALIBRATED PENETROMETER TON/SF

[FINES CONTENT] %



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

WL (First Encountered) **GNE**	BORING STARTED: **Jun 01 2022**		CAVE IN DEPTH:
WL (Completion)	BORING COMPLETED: **Jun 01 2022**		HAMMER TYPE: **Automatic**
WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY: **JMS13**	DRILLING METHOD: **2.25 HSA**
WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Land, LLC	**08:15149**	**B-04**	**1 of 1**
PROJECT NAME: **Promenade II**	DRILLER/CONTRACTOR:		
SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**			LOSS OF CIRCULATION
NORTHING: **1132195.1**	EASTING: **2047638.2**	STATION:	SURFACE ELEVATION: **616.00**
			BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0					Topsoil Thickness[3.00"]			
	S-1	SS	18	18	(MH) Residuum, ELASTIC SILT, reddish brown, moist, very stiff to hard			6-8-11 (19)
	S-2	SS	18	18				10-11-18 (29)
5							611	
	S-3	SS	18	18				20-20-25 (45)
	S-4	SS	18	18				10-8-9 (17)
10							606	
					(ML) SANDY SILT, reddish brown, moist, stiff to firm			
	S-5	SS	18	18				7-6-6 (12)
15							601	
	S-6	SS	18	18				4-4-4 (8)
20					**END OF BORING AT 20 FT**		596	
25							591	
30							586	

Plastic Limit Water Content Liquid Limit

⊗ STANDARD PENETRATION BLOWS/FT

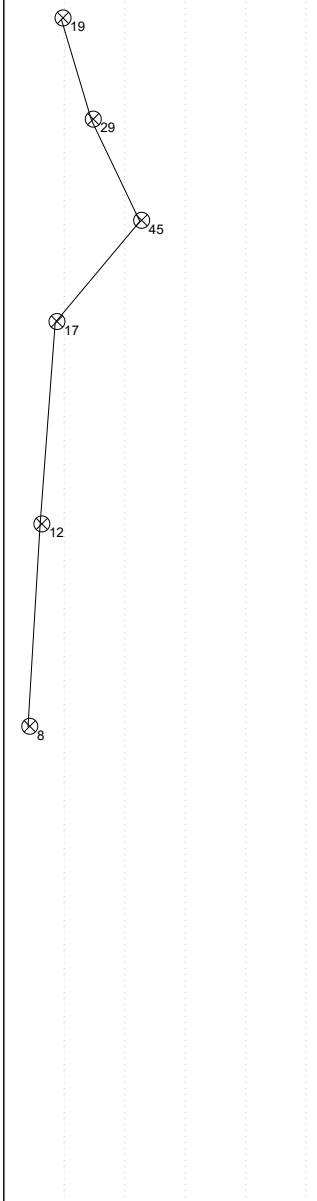
ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

○ CALIBRATED PENETROMETER TON/SF

[FINES CONTENT] %



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

▽ WL (First Encountered) **GNE**	BORING STARTED: **May 31 2022**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **May 31 2022**		HAMMER TYPE: **Automatic**
▼ WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY: **JMS13**	DRILLING METHOD: **2.25 HSA**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Land, LLC	**08:15149**	**B-05**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
Promenade II	

SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**

LOSS OF CIRCULATION

NORTHING:	EASTING:	STATION:	SURFACE ELEVATION:
1132045.0	**2047769.2**		**606.00**

BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0					Topsoil Thickness[3.00"]			
	S-1	SS	18	18	(MH) Residuum, ELASTIC SILT, contains slight rock fragments, reddish brown, moist, stiff to very stiff			4-4-5 (9)
	S-2	SS	18	18	(ML) SANDY SILT, contains slight rock fragments, reddish brown and orange, moist, very stiff		601	3-10-10 (20)
5	S-3	SS	18	18				10-14-16 (30)
	S-4	SS	18	18	(ML) SANDY SILT, light orangish red and white to red and brown, moist, firm		596	5-4-4 (8)
10								
	S-5	SS	18	18			591	3-3-4 (7)
15								
	S-6	SS	18	18	(ML) SANDY SILT, white, moist, hard			12-19-25 (44)
20					**END OF BORING AT 20 FT**		586	
25							581	
30							576	

Plastic Limit Water Content Liquid Limit

STANDARD PENETRATION BLOWS/FT

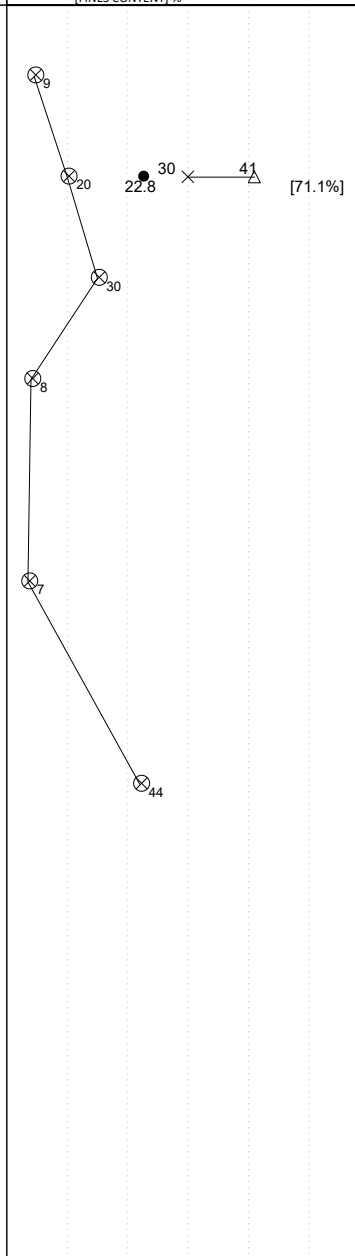
ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

CALIBRATED PENETROMETER TON/SF

[FINES CONTENT] %



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

▽ WL (First Encountered) **GNE**	BORING STARTED: **May 31 2022**	CAVE IN DEPTH:	
▼ WL (Completion)	BORING COMPLETED: **May 31 2022**	HAMMER TYPE: **Automatic**	
▼ WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY: **JMS13**	DRILLING METHOD: **2.25 HSA**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Land, LLC	**08:15149**	**B-06**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Promenade II	**A.E. Drilling Services, Inc.**		
SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**			LOSS OF CIRCULATION
NORTHING: **1131941.6**	EASTING: **2047865.8**	STATION:	SURFACE ELEVATION: **614.00**	BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
					Topsoil Thickness[4.00"]			
	S-1	SS	18	18	(ML) Residuum, SANDY SILT, light red to light red and white, moist, firm to stiff			3-3-3 (6)
	S-2	SS	18	18				6-4-5 (9)
5	S-3	SS	18	18			609	7-7-7 (14)
	S-4	SS	18	18	(ML) SANDY SILT, dark red and brown, moist, very stiff to hard			7-6-10 (16)
10							604	
	S-5	SS	18	18				13-17-24 (41)
15							599	
	S-6	SS	18	18	(ML) SANDY SILT, dark red and brown, moist, very hard			7-20-31 (51)
20					**END OF BORING AT 20 FT**		594	
25							589	
30							584	

Plastic Limit Water Content Liquid Limit

⊗ STANDARD PENETRATION BLOWS/FT

ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

○ CALIBRATED PENETROMETER TON/SF

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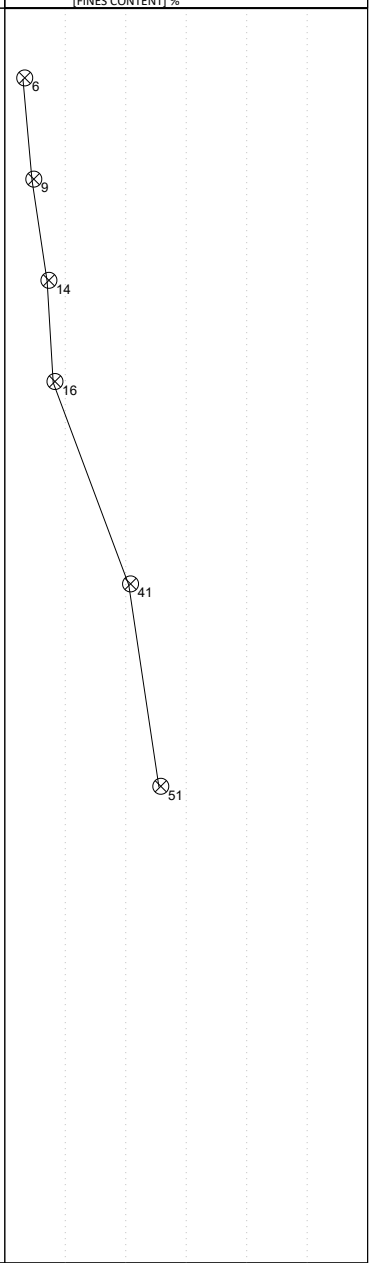

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **GNE**	BORING STARTED: **May 31 2022**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **May 31 2022**		HAMMER TYPE: **Automatic**
▼ WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY: **JMS13**	DRILLING METHOD: **2.25 HSA**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Land, LLC	**08:15149**	**B-08**	**1 of 2**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Promenade II	**A.E. Drilling Services, Inc.**		
SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**			LOSS OF CIRCULATION
NORTHING: **1131666.6**	EASTING: **2048117.4**	STATION:	SURFACE ELEVATION: **634.00**
			BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
					Topsoil Thickness[6.00"]			
	S-1	SS	18	18	(ML) Residuum, SANDY SILT, light reddish brown, moist, firm			2-4-4 (8)
	S-2	SS	18	18	(ML) SANDY SILT, light reddish brown to light brown and orange, moist, stiff and very stiff			12-10-16 (26)
5	S-3	SS	18	18			629	8-15-15 (30)
	S-4	SS	18	18				6-5-5 (10)
10							624	
	S-5	SS	18	18				17-9-9 (18)
15							619	
	S-6	SS	18	18				17-14-10 (24)
20							614	
	S-7	SS	18	18				20-10-7 (17)
25							609	
	S-8	SS	18	18				10-11-12 (23)
30							604	

Plastic Limit Water Content Liquid Limit
X———●———△
⊗ STANDARD PENETRATION BLOWS/FT
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
○ CALIBRATED PENETROMETER TON/SF
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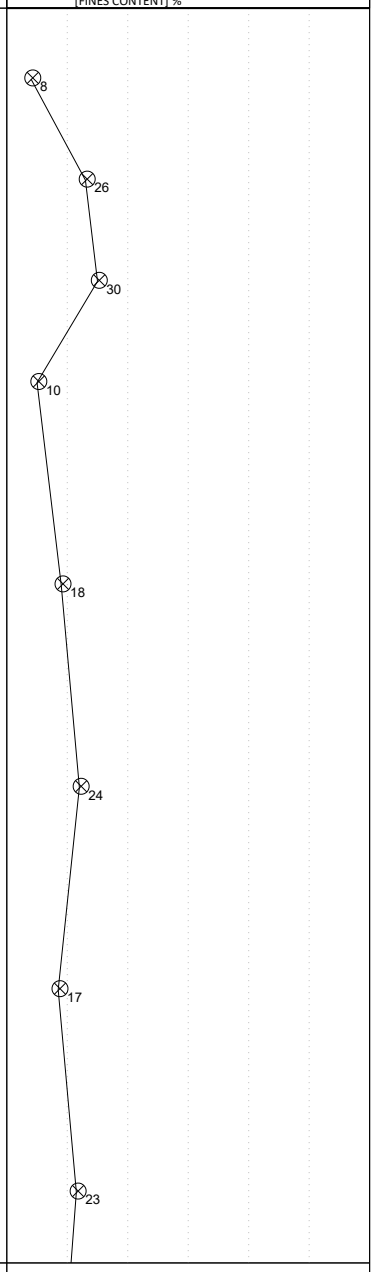

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THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **GNE**	BORING STARTED: **May 25 2022**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **May 25 2022**		HAMMER TYPE: **Automatic**
▼ WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY: **JMS13**	DRILLING METHOD: **2.25 HSA**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Land, LLC	**08:15149**	**B-08**	**2 of 2**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Promenade II	**A.E. Drilling Services, Inc.**		
SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**			LOSS OF CIRCULATION
NORTHING: **1131666.6**	EASTING: **2048117.4**	STATION:	SURFACE ELEVATION: **634.00**
			BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
35	S-9	SS	18	18	(ML) SANDY SILT, light reddish brown to light brown and orange, moist, stiff and very stiff		599	9-8-10 (18)
40	S-10	SS	18	18	**END OF BORING AT 40 FT**		594	8-9-8 (17)
45							589	
50							584	
55							579	
60							574	

Plastic Limit Water Content Liquid Limit
X———●———△
⊗ STANDARD PENETRATION BLOWS/FT
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
○ CALIBRATED PENETROMETER TON/SF
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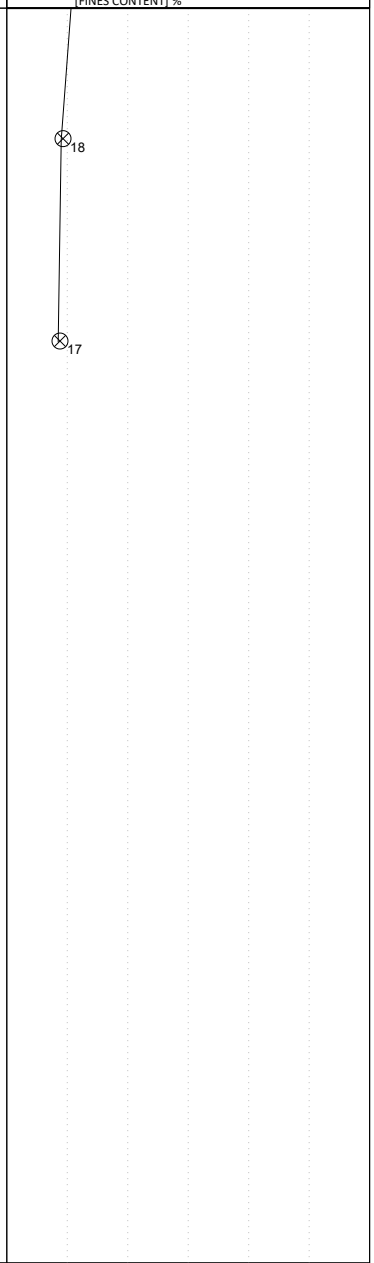

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **GNE**	BORING STARTED: **May 25 2022**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **May 25 2022**		HAMMER TYPE: **Automatic**
▼ WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY: **JMS13**	DRILLING METHOD: **2.25 HSA**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Land, LLC	**08:15149**	**B-07**	**1 of 1**
PROJECT NAME: **Promenade II**	DRILLER/CONTRACTOR: **A.E. Drilling Services, Inc.**		
SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**			LOSS OF CIRCULATION
NORTHING: **1131787.6**	EASTING: **2048005.6**	STATION:	SURFACE ELEVATION: **625.00**

BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
					Topsoil Thickness[4.00"]			
	S-1	SS	18	18	(MH) Residuum, ELASTIC SILT, reddish brown, moist, stiff			3-6-6 (12)
	S-2	SS	18	18				7-7-7 (14)
5							620	
	S-3	SS	18	18	(ML) SANDY SILT, light reddish brown to dark reddish brown, moist, stiff and very stiff			9-10-10 (20)
	S-4	SS	18	18				4-6-8 (14)
10							615	
	S-5	SS	18	18				8-8-11 (19)
15							610	
	S-6	SS	18	18				7-8-10 (18)
20							605	
	S-7	SS	18	18				11-11-13 (24)
25							600	
	S-8	SS	18	18				8-14-15 (29)
30					**END OF BORING AT 30 FT**		595	

Plastic Limit Water Content Liquid Limit

X———●———△

⊗ STANDARD PENETRATION BLOWS/FT

ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

○ CALIBRATED PENETROMETER TON/SF

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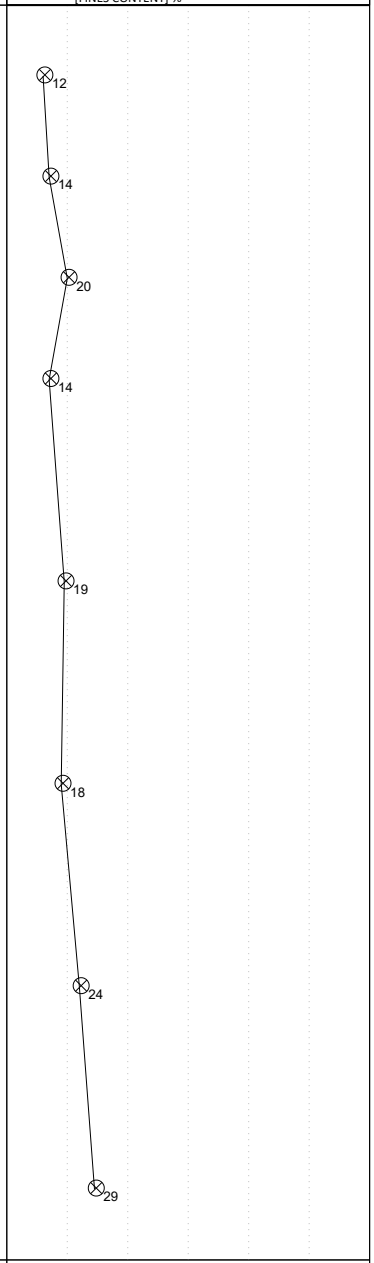

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **GNE**	BORING STARTED: **May 25 2022**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **May 25 2022**		HAMMER TYPE: **Automatic**
▼ WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY: **JMS13**	DRILLING METHOD: **2.25 HSA**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Land, LLC	**08:15149**	**B-09**	**1 of 2**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Promenade II	**A.E. Drilling Services, Inc.**		
SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**			LOSS OF CIRCULATION
NORTHING: **1131541.6**	EASTING: **2048191.2**	STATION:	SURFACE ELEVATION: **635.00**
			BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
					Topsoil Thickness[3.00"]			
	S-1	SS	18	18	(ML) Residuum, SANDY SILT, light reddish brown, moist, stiff to very stiff			4-6-5 (11)
	S-2	SS	18	18				6-14-12 (26)
5							630	
	S-3	SS	18	18	(ML) SANDY SILT, light reddish brown, moist, hard to very hard			14-16-17 (33)
	S-4	SS	18	18				27-17-40 (57)
10							625	
	S-5	SS	18	18	(ML) SANDY SILT, light reddish brown to light orangish brown and brown, moist, very stiff to hard			33-10-10 (20)
15							620	
	S-6	SS	18	18				30-20-20 (40)
20							615	
	S-7	SS	6	6	(PWR) PARTIALLY WEATHERED ROCK SAMPLED AS SANDY SILT, light orangish brown			50/5" (50/5')
25							610	
	S-8	SS	5	5				50/5" (50/5")
30							605	

Plastic Limit Water Content Liquid Limit

⊗ STANDARD PENETRATION BLOWS/FT

ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

○ CALIBRATED PENETROMETER TON/SF

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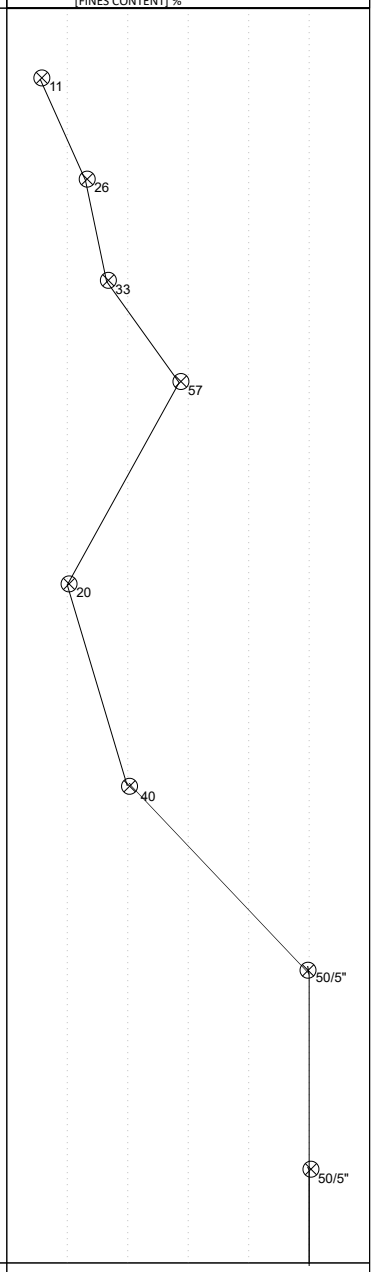

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THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **GNE**	BORING STARTED: **May 25 2022**	CAVE IN DEPTH:	
▼ WL (Completion)	BORING COMPLETED: **May 25 2022**	HAMMER TYPE: **Automatic**	
▼ WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY:	DRILLING METHOD: **2.25 HSA**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Trail, LLC	**08:15149**	**B-09**	**2 of 2**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Promenade II	**A.E. Drilling Services, Inc.**		
SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**			LOSS OF CIRCULATION
NORTHING: **1131541.6**	EASTING: **2048191.2**	STATION:	SURFACE ELEVATION: **635.00**
			BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
35	S-9	SS	4	4	(PWR) PARTIALLY WEATHERED ROCK SAMPLED AS SANDY SILT, light orangish brown		600	50/4" (50/4")
40	S-10	SS	3	3	**END OF BORING AT 38.75 FT**		595	50/3" (50/3")
45							590	
50							585	
55							580	
60							575	

Plastic Limit Water Content Liquid Limit

⊗ STANDARD PENETRATION BLOWS/FT

ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

○ CALIBRATED PENETROMETER TON/SF

[FINES CONTENT] %

50/4"

50/3"

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

▽ WL (First Encountered) **GNE**	BORING STARTED: **May 25 2022**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **May 25 2022**		HAMMER TYPE: **Automatic**
▼ WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY:	DRILLING METHOD: **2.25 HSA**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Land, LLC	**08:15149**	**B-10**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Promenade II	**A.E. Drilling Services, Inc.**		
SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**			LOSS OF CIRCULATION
NORTHING: **1131433.2**	EASTING: **2048309.4**	STATION:	SURFACE ELEVATION: **628.00**
			BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0					Topsoil Thickness[4.00"]			
	S-1	SS	18	18	(ML) Residuum, SANDY SILT, light orangish red, moist, very stiff			5-7-9 (16)
	S-2	SS	18	18	(ML) SANDY SILT, light brown and white, moist, very hard			3-16-50 (66)
5	S-3	SS	2	2	(PWR) PARTIALLY WEATHERED ROCK SAMPLED AS SANDY SILT, light brown and white		623	50/2" (50/2")
	S-4	SS	8	8				12-50/2" (50/2")
10							618	
	S-5	SS	2	2				50/2" (50/2")
15							613	
	S-6	SS	11	11				6-50/5" (50/5")
20							608	
	S-7	SS	18	18	(ML) SANDY SILT, light brown and white, moist, hard			6-17-23 (40)
25							603	
	S-8	SS	5	5	(PWR) PARTIALLY WEATHERED ROCK SAMPLED AS SANDY SILT, light reddish brown			50/5" (50/5")
30					**END OF BORING AT 28.92 FT**		598	

Plastic Limit Water Content Liquid Limit

STANDARD PENETRATION BLOWS/FT

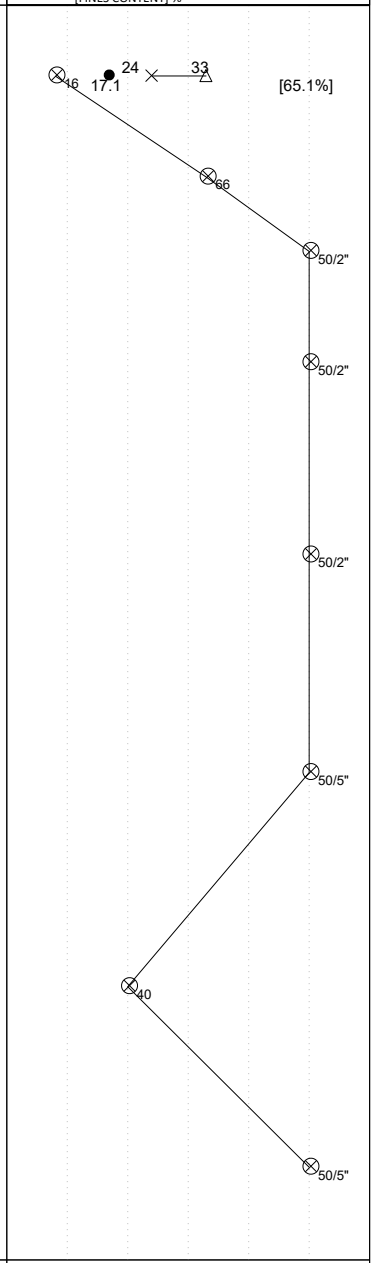
ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

CALIBRATED PENETROMETER TON/SF

[FINES CONTENT] %



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

WL (First Encountered) **GNE**	BORING STARTED: **May 24 2022**		CAVE IN DEPTH:
WL (Completion)	BORING COMPLETED: **May 24 2022**		HAMMER TYPE: **Automatic**
WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY: **JMS13**	DRILLING METHOD: **2.25 HSA**
WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Trail, LLC	**08:15149**	**B-11**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Promenade II	**A.E. Drilling Services, Inc.**		
SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**			LOSS OF CIRCULATION
NORTHING: **1131298.1**	EASTING: **2048378.2**	STATION:	SURFACE ELEVATION: **619.00**
			BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
					Topsoil Thickness[5.00"]			
	S-1	SS	18	18	(MH) Residuum, ELASTIC SILT, reddish brown to reddish brown and white, moist, stiff to very stiff			3-5-7 (12)
	S-2	SS	18	18				14-6-6 (12)
5							614	
	S-3	SS	18	18				14-12-12 (24)
					(ML) SANDY SILT, light orange and white to light brown and white, moist, firm and stiff			
	S-4	SS	18	18				4-4-6 (10)
10							609	
	S-5	SS	18	18				8-6-6 (12)
15							604	
	S-6	SS	18	18				4-3-4 (7)
20							599	
	S-7	SS	18	18				5-5-8 (13)
25							594	
	S-8	SS	18	18				6-14-17 (31)
30					**END OF BORING AT 30 FT**		589	

Plastic Limit Water Content Liquid Limit

⊗ STANDARD PENETRATION BLOWS/FT

ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

○ CALIBRATED PENETROMETER TON/SF

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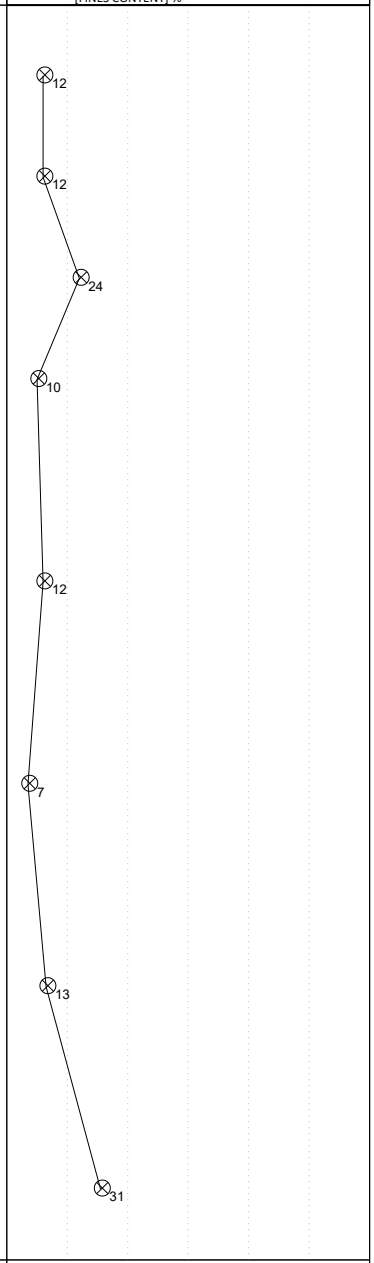


THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **GNE**	BORING STARTED: **May 24 2022**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **May 24 2022**		HAMMER TYPE: **Automatic**
▼ WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY: **JMS13**	DRILLING METHOD: **2.25 HSA**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Trail, LLC	**08:15149**	**B-13**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Promenade II	**A.E. Drilling Services, Inc.**		
SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**			LOSS OF CIRCULATION
NORTHING: **1131339.0**	EASTING: **2048663.6**	STATION:	SURFACE ELEVATION: **612.00**
			BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
					Topsoil Thickness[4.00"]			
	S-1	SS	18	18	(ML) Residuum, SANDY SILT, light reddish brown to pink to white, moist, stiff to very stiff			5-6-7 (13)
	S-2	SS	18	18				4-5-6 (11)
5							607	
	S-3	SS	18	18				8-9-8 (17)
	S-4	SS	18	18				14-6-8 (14)
10							602	
					(ML) SANDY SILT, grayish white, moist, very hard			
	S-5	SS	18	18				20-20-40 (60)
15							597	
					(ML) SANDY SILT, white, moist, very stiff			
	S-6	SS	18	18				14-17-12 (29)
20							592	
	~~S-7~~	~~SS~~	~~0~~	~~0~~	**AUGER REFUSAL AT 21 FT**			50/0" (50/0")
25							587	
30							582	

Plastic Limit Water Content Liquid Limit

STANDARD PENETRATION BLOWS/FT

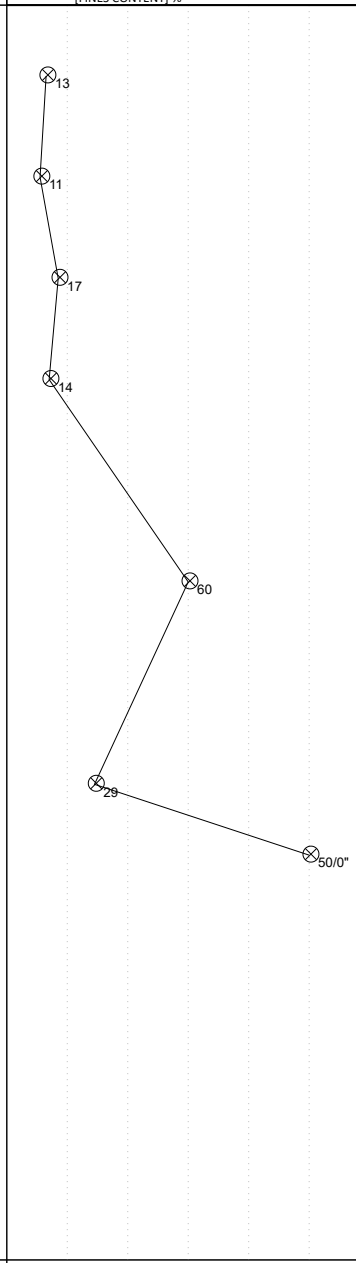
ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

CALIBRATED PENETROMETER TON/SF

[FINES CONTENT] %



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

WL (First Encountered) **GNE**	BORING STARTED: **May 24 2022**		CAVE IN DEPTH:
WL (Completion)	BORING COMPLETED: **May 24 2022**		HAMMER TYPE: **Automatic**
WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY: **JMS13**	DRILLING METHOD: **2.25 HSA**
WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Trail, LLC	**08:15149**	**B-12**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Promenade II	**A.E. Drilling Services, Inc.**		
SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**			LOSS OF CIRCULATION
NORTHING: **1131495.3**	EASTING: **2048480.6**	STATION:	SURFACE ELEVATION: **629.00**	BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
					Topsoil Thickness[3.00"]			
	S-1	SS	18	18	(ML) Residuum, SANDY SILT, reddish brown to pink to white to light brownish white, moist, stiff and very stiff			3-6-6 (12)
	S-2	SS	18	18				4-5-10 (15)
5							624	
	S-3	SS	18	18				11-13-13 (26)
	S-4	SS	18	18				5-11-9 (20)
10							619	
	S-5	SS	18	18				9-6-5 (11)
15							614	
	S-6	SS	18	18				8-11-11 (22)
20							609	
	S-7	SS	18	18				11-12-13 (25)
25					(ML) SANDY SILT, pinkish white, moist, hard		604	
	S-8	SS	18	18				13-20-16 (36)
30					**END OF BORING AT 30 FT**		599	

Plastic Limit Water Content Liquid Limit

⊗ STANDARD PENETRATION BLOWS/FT

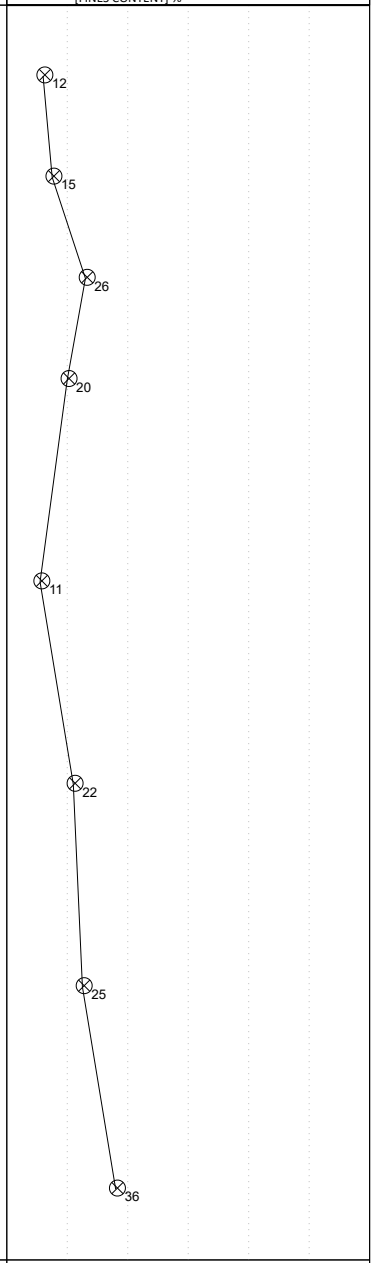
ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

○ CALIBRATED PENETROMETER TON/SF

[FINES CONTENT] %



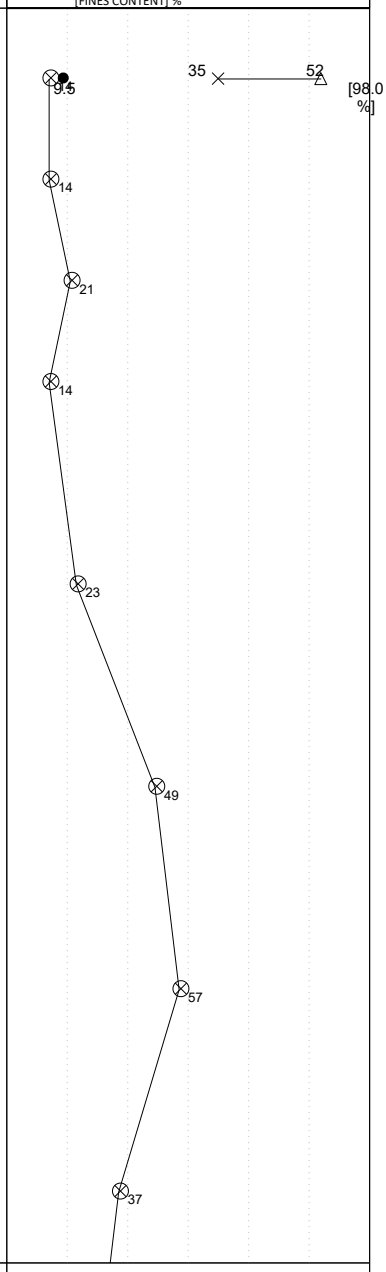
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **GNE**	BORING STARTED: **May 24 2022**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **May 24 2022**		HAMMER TYPE: **Automatic**
▼ WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY: **JMS13**	DRILLING METHOD: **2.25 HSA**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Trail, LLC	**08:15149**	**B-14**	**1 of 2**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Promenade II	**A.E. Drilling Services, Inc.**		
SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**			LOSS OF CIRCULATION
NORTHING: **1131721.3**	EASTING: **2048371.2**	STATION:	SURFACE ELEVATION: **641.00**
			BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
					Topsoil Thickness[4.00"]			
	S-1	SS	18	18	(MH) Residuum, ELASTIC SILT, light reddish brown, moist, stiff			4-7-7 (14)
	S-2	SS	18	18	(ML) SANDY SILT, light reddish brown to dark pink, moist, stiff and very stiff			8-6-8 (14)
5	S-3	SS	18	18			636	10-10-11 (21)
	S-4	SS	18	18				4-7-7 (14)
10							631	
	S-5	SS	18	18				7-10-13 (23)
15							626	
	S-6	SS	18	18	(ML) SANDY SILT, dark pink to dark reddish brown to light brown, moist, hard and very hard			10-20-29 (49)
20							621	
	S-7	SS	18	18				12-17-40 (57)
25							616	
	S-8	SS	18	18				12-17-20 (37)
30							611	



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

▽ WL (First Encountered) **GNE**	BORING STARTED: **May 24 2022**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **May 24 2022**		HAMMER TYPE: **Automatic**
▼ WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY: **JMS13**	DRILLING METHOD: **2.25 HSA**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Trail, LLC	**08:15149**	**B-14**	**2 of 2**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Promenade II	**A.E. Drilling Services, Inc.**		
SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**			LOSS OF CIRCULATION
NORTHING: **1131721.3**	EASTING: **2048371.2**	STATION:	SURFACE ELEVATION: **641.00**	BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
35	S-9	SS	18	18	(ML) SANDY SILT, dark pink to dark reddish brown to light brown, moist, hard and very hard (ML) SANDY SILT, light brown to medium brown, moist, very stiff to very hard		606	30-12-17 (29)
40	S-10	SS	18	18			601	20-12-11 (23)
45	S-11	SS	18	18			596	10-10-24 (34)
50	S-12	SS	18	18	**END OF BORING AT 50 FT**		591	9-17-20 (37)
55							586	
60							581	

Plastic Limit Water Content Liquid Limit

⊗ STANDARD PENETRATION BLOWS/FT

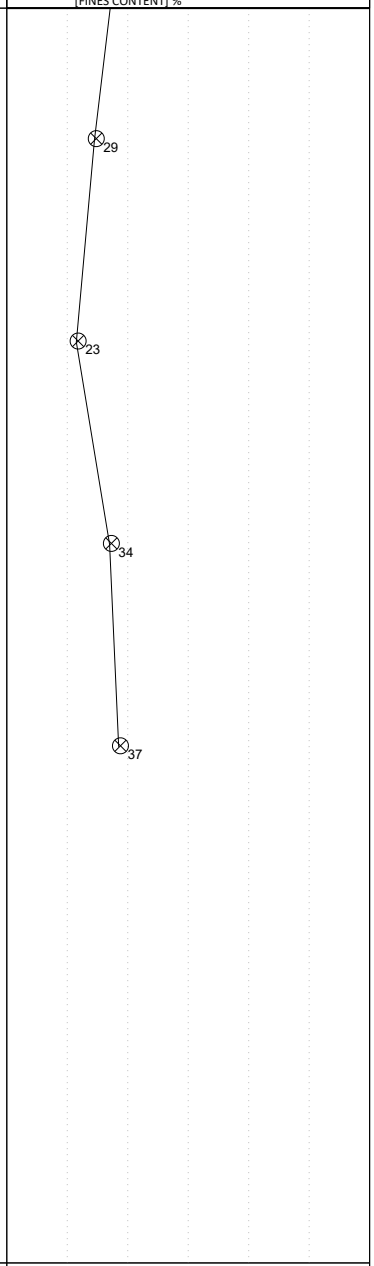
ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

○ CALIBRATED PENETROMETER TON/SF

[FINES CONTENT] %



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

▽ WL (First Encountered) **GNE**	BORING STARTED: **May 24 2022**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **May 24 2022**		HAMMER TYPE: **Automatic**
▼ WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY: **JMS13**	DRILLING METHOD: **2.25 HSA**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Trail, LLC	**08:15149**	**B-15**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Promenade II	**A.E. Drilling Services, Inc.**		
SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**			LOSS OF CIRCULATION
NORTHING: **1132006.4**	EASTING: **2048125.8**	STATION:	SURFACE ELEVATION: **626.00**	BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
					Topsoil Thickness[6.00"]			
	S-1	SS	18	18	(ML) Residuum, SANDY SILT, light reddish brown to light reddish orange, moist, firm to stiff			4-4-4 (8)
	S-2	SS	18	18				6-7-7 (14)
5							621	
	S-3	SS	18	18	(ML) SANDY SILT, light orange and white, moist, very stiff			9-12-13 (25)
	S-4	SS	18	18				12-12-10 (22)
10							616	
	S-5	SS	18	8				24-8-8 (16)
15							611	
	S-6	SS	18	18				6-8-8 (16)
20							606	
	S-7	SS	18	18				8-10-8 (18)
25							601	
	S-8	SS	18	18				8-9-10 (19)
30					**END OF BORING AT 30 FT**		596	

Plastic Limit Water Content Liquid Limit

STANDARD PENETRATION BLOWS/FT

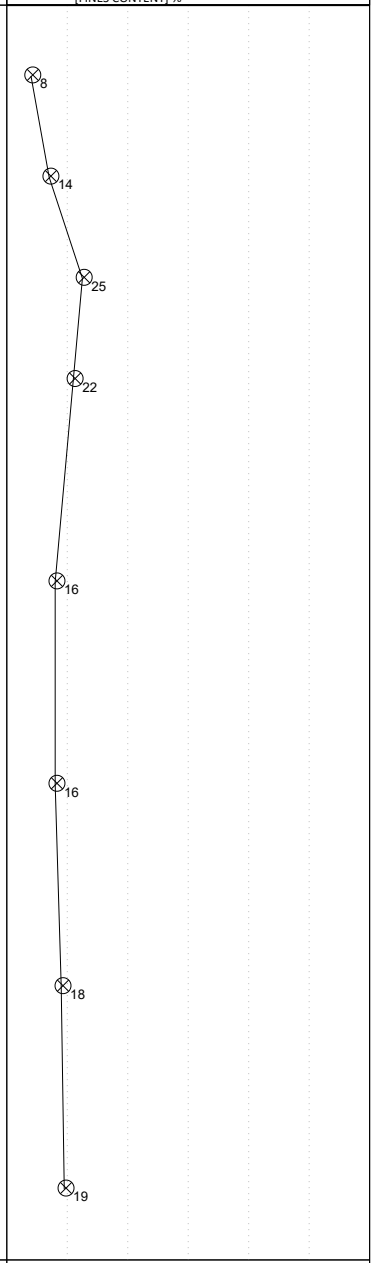
ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

CALIBRATED PENETROMETER TON/SF

[FINES CONTENT] %



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

WL (First Encountered) **GNE**	BORING STARTED: **May 25 2022**		CAVE IN DEPTH:
WL (Completion)	BORING COMPLETED: **May 25 2022**		HAMMER TYPE: **Automatic**
WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY: **JMS13**	DRILLING METHOD: **2.25 HSA**
WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Trail, LLC	**08:15149**	**B-16**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Promenade II	**A.E. Drilling Services, Inc.**		
SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**			LOSS OF CIRCULATION
NORTHING: **1132214.6**	EASTING: **2047952.9**	STATION:	SURFACE ELEVATION: **598.00**	BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
					Topsoil Thickness[4.00"]			
	S-1	SS	18	18	(ML) Residuum, SANDY SILT, orange, moist, firm to stiff			2-2-3 (5)
	S-2	SS	18	18				2-4-6 (10)
5							593	
	S-3	SS	18	18	(ML) SANDY SILT, contains slight rock fragments, light brownish gray and light red and white, moist, hard			6-21-14 (35)
	S-4	SS	18	18				10-17-18 (35)
10							588	
	S-5	SS	18	18	(SM) SILTY SAND WITH GRAVEL, light brown and white, moist, very dense			10-25-50 (75)
15							583	
	S-6	SS	18	18				10-25-50 (75)
20					**END OF BORING AT 20 FT**		578	
25							573	
30							568	

Plastic Limit Water Content Liquid Limit

STANDARD PENETRATION BLOWS/FT

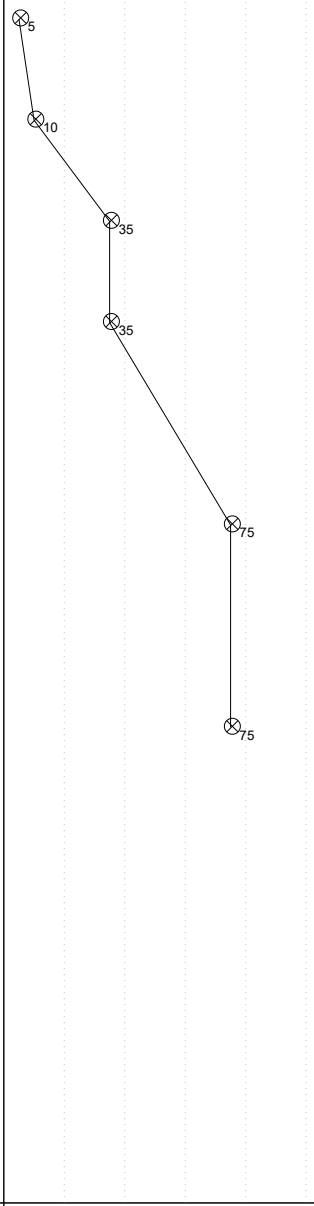
ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

CALIBRATED PENETROMETER TON/SF

[FINES CONTENT] %



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

WL (First Encountered) **GNE**	BORING STARTED: **May 27 2022**		CAVE IN DEPTH:
WL (Completion)	BORING COMPLETED: **May 27 2022**		HAMMER TYPE: **Automatic**
WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY: **JMS13**	DRILLING METHOD: **2.25 HSA**
WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Trail, LLC	**08:15149**	**B-17**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Promenade II	**A.E. Drilling Services, Inc.**		
SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**			LOSS OF CIRCULATION
NORTHING: **1132392.4**	EASTING: **2047788.9**	STATION:	SURFACE ELEVATION: **612.00**	BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0					Topsoil Thickness[6.00"]			
	S-1	SS	18	18	(MH) Residuum, ELASTIC SILT, light brown to reddish brown, moist, stiff to very stiff			4-5-6 (11)
	S-2	SS	18	18				5-8-8 (16)
5							607	
	S-3	SS	18	18	(ML) SANDY SILT, pink and orange to light orange to gray and white, moist, very stiff to stiff			9-10-11 (21)
	S-4	SS	18	18				9-8-8 (16)
10							602	
	S-5	SS	18	18				9-7-6 (13)
15							597	
	S-6	SS	18	18				9-6-8 (14)
20					**END OF BORING AT 20 FT**		592	
25							587	
30							582	

Plastic Limit Water Content Liquid Limit

STANDARD PENETRATION BLOWS/FT

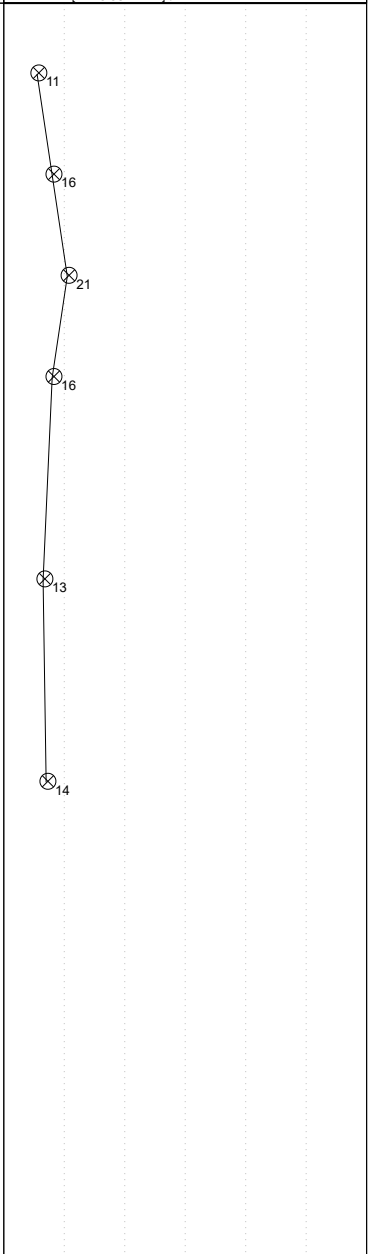
ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

CALIBRATED PENETROMETER TON/SF

[FINES CONTENT] %



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

WL (First Encountered) **GNE**	BORING STARTED: **May 27 2022**		CAVE IN DEPTH:
WL (Completion)	BORING COMPLETED: **May 27 2022**		HAMMER TYPE: **Automatic**
WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY: **JMS13**	DRILLING METHOD: **2.25 HSA**
WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Trail, LLC	**08:15149**	**B-18**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
Promenade II	**A.E. Drilling Services, Inc.**

SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**

LOSS OF CIRCULATION

NORTHING:	EASTING:	STATION:	SURFACE ELEVATION:
1132711.6	**2047515.6**		**634.00**

BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
					Topsoil Thickness[3.00"]			
	S-1	SS	18	18	(MH FILL) ELASTIC SILT, contains slight wood, reddish brown, moist, stiff			5-7-8 (15)
					(MH) Residuum, ELASTIC SILT, reddish brown, moist, stiff			
	S-2	SS	18	18	(ML) SANDY SILT, reddish brown, moist, stiff			6-7-8 (15)
5							629	
	S-3	SS	18	18	(ML) SANDY SILT, light reddish brown, moist, hard			12-15-17 (32)
	S-4	SS	18	18	(ML) SANDY SILT, pink and orange to reddish brown and orange, moist, stiff to firm			13-6-8 (14)
10							624	
	S-5	SS	18	18				10-6-6 (12)
15							619	
	S-6	SS	18	18				6-3-5 (8)
20					**END OF BORING AT 20 FT**		614	
25							609	
30							604	

Plastic Limit Water Content Liquid Limit

STANDARD PENETRATION BLOWS/FT

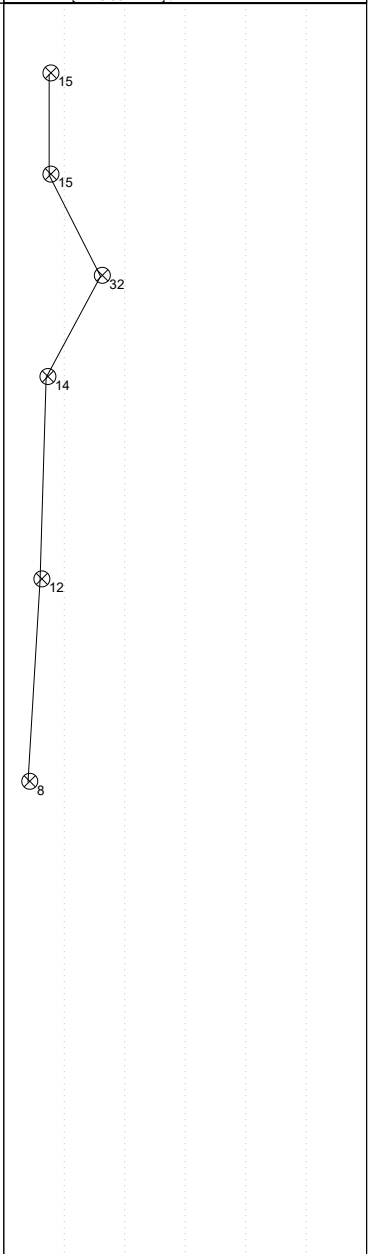
ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

CALIBRATED PENETROMETER TON/SF

[FINES CONTENT] %



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

▽ WL (First Encountered) **GNE**	BORING STARTED: **Jun 01 2022**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **Jun 01 2022**		HAMMER TYPE: **Automatic**
▼ WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY: **JMS13**	DRILLING METHOD: **2.25 HSA**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Trail, LLC	**08:15149**	**B-19**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Promenade II	**A.E. Drilling Services, Inc.**		
SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**			LOSS OF CIRCULATION
NORTHING: **1132415.5**	EASTING: **2047995.7**	STATION:	SURFACE ELEVATION: **597.00**	BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
					Topsoil Thickness[6.00"]			
	S-1	SS	18	18	(MH) Residuum, ELASTIC SILT, reddish orange, moist, stiff to very stiff			2-5-6 (11)
	S-2	SS	18	18	(ML) SANDY SILT, reddish orange, moist, very stiff			6-10-8 (18)
5							592	
	S-3	SS	18	18	(CL) LEAN CLAY, contains rock fragments, reddish orange to gray, moist, very stiff			9-11-11 (22)
	S-4	SS	18	18				6-9-9 (18)
10							587	
					(ML) SANDY SILT, orangish brown to orangish brown and black, moist, firm			
	S-5	SS	18	18				5-4-4 (8)
15							582	
	S-6	SS	18	18				2-2-3 (5)
20							577	
					(ML) SANDY SILT, orangish brown and black, moist, very stiff to hard			
	S-7	SS	18	18				4-8-8 (16)
25							572	
	S-8	SS	18	18				8-15-16 (31)
30					**END OF BORING AT 30 FT**		567	

Plastic Limit Water Content Liquid Limit

STANDARD PENETRATION BLOWS/FT

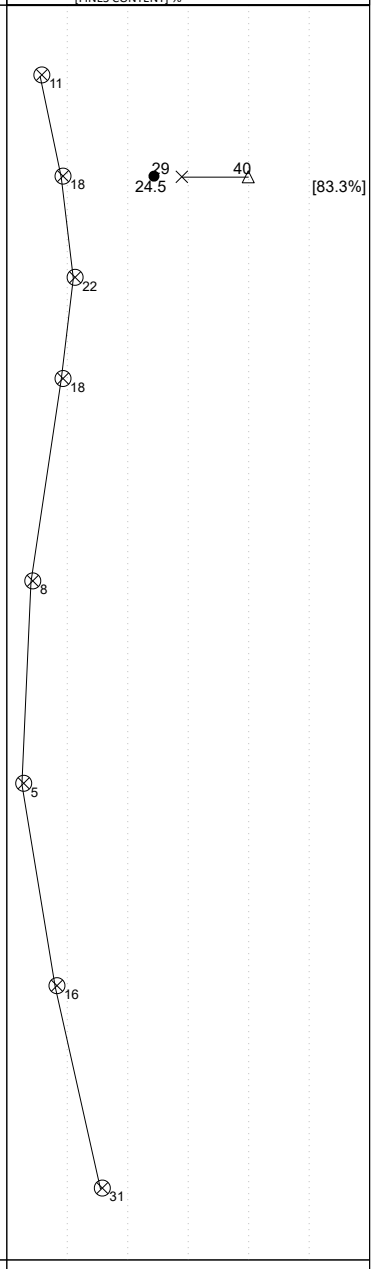
ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

CALIBRATED PENETROMETER TON/SF

[FINES CONTENT] %



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

WL (First Encountered) **30.00**	BORING STARTED: **May 27 2022**		CAVE IN DEPTH:
WL (Completion) **27.00**	BORING COMPLETED: **May 27 2022**		HAMMER TYPE: **Automatic**
WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY: **JMS13**	DRILLING METHOD: **2.25 HSA**
WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Hutton Indian Trail, LLC	**08:15149**	**B-20**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
Promenade II	**A.E. Drilling Services, Inc.**		
SITE LOCATION: **Charlotte Hwy, Lancaster, South Carolina 29707**			LOSS OF CIRCULATION
NORTHING: **1132720.3**	EASTING: **2048264.3**	STATION:	SURFACE ELEVATION: **583.00**	BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
					Topsoil Thickness[4.00"]			
	S-1	SS	18	18	(ML) Residuum, SANDY SILT, yellowish orange, moist, stiff			5-6-6 (12)
	S-2	SS	18	18	(ML) SANDY SILT, light gray, moist, stiff			4-6-9 (15)
5							578	
	S-3	SS	18	18	(ML) SANDY SILT, white to black and orange, moist, very stiff to stiff			6-9-7 (16)
	S-4	SS	18	18				5-4-6 (10)
10							573	
	S-5	SS	18	18	(CL) LEAN CLAY WITH SAND, brown, moist, stiff to firm			3-3-6 (9)
15							568	
	S-6	SS	18	18				3-3-4 (7)
20						▼	563	
	S-7	SS	18	18				2-2-2 (4)
25						▽	558	
	S-8	SS	18	18	(CL) LEAN CLAY WITH GRAVEL, brown, moist, hard			22-19-17 (36)
30					**END OF BORING AT 30 FT**		553	

Plastic Limit Water Content Liquid Limit

⊗ STANDARD PENETRATION BLOWS/FT

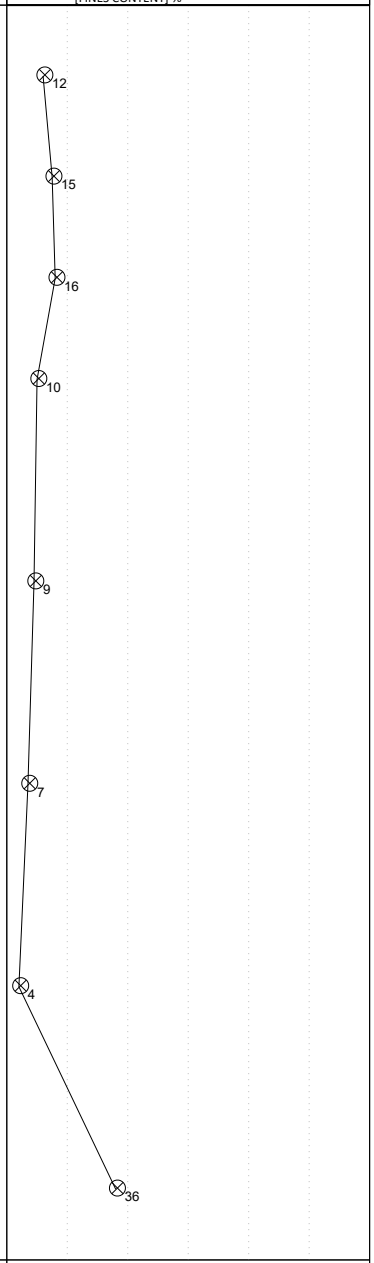
ROCK QUALITY DESIGNATION & RECOVERY

RQD

REC

○ CALIBRATED PENETROMETER TON/SF

[FINES CONTENT] %



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

▽ WL (First Encountered) **25.00**	BORING STARTED: **May 31 2022**	CAVE IN DEPTH:	
▼ WL (Completion) **21.00**	BORING COMPLETED: **May 31 2022**	HAMMER TYPE: **Automatic**	
▼ WL (Seasonal High Water)	EQUIPMENT: **ATV CME 45**	LOGGED BY: **JMS13**	DRILLING METHOD: **2.25 HSA**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	SHEET:
Hutton Indian Trail, LLC	**08:15149**	**1 of 1**
PROJECT NAME:	HAND AUGER NO.:	SURFACE ELEVATION:
Promenade II	**HA-01**	**579**
SITE LOCATION:		STATION:
Charlotte Hwy, Lancaster, South Carolina 29707		
NORTHING: **1132712.5**	EASTING: **2049093.9**	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			(MH) Residuum, ELASTIC SILT, contains rock fragments, orangish brown, moist	VD	3-19-25	S-1		
				VD	23-20-22	S-2		
				VD	21-25+	S-3		
				VD	25+	S-4		
				VD	25+	S-5		
5		574		VD	25+	S-6		
			BUCKET REFUSAL AT 5.3 FT					
10		569						
15								

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)		GML	**May 04 2022**	**English**	

HAND AUGER LOG

CLIENT:	PROJECT NO.:	SHEET:
Hutton Indian Trail, LLC	**08:15149**	**1 of 1**
PROJECT NAME:	HAND AUGER NO.:	SURFACE ELEVATION:
Promenade II	**HA-02**	**575**
SITE LOCATION:		STATION:
Charlotte Hwy, Lancaster, South Carolina 29707		
NORTHING: **1132768.4**	EASTING: **2049159.2**	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			(ML FILL) FILL, SANDY SILT, orangish brown, moist	D	21-16-15	S-1		
			(SM FILL) FILL, SILTY SAND, contains rock fragments, dark brown, moist	E	6-6-5	S-2		
				M	10-15-13	S-3		
			BUCKET REFUSAL AT 3 FT					
5		570						
10		565						
15								

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)		GML	**May 04 2022**	**English**	

HAND AUGER LOG

CLIENT:	PROJECT NO.:	SHEET:
Hutton Indian Trail, LLC	**08:15149**	**1 of 1**
PROJECT NAME:	HAND AUGER NO.:	SURFACE ELEVATION:
Promenade II	**HA-03**	**570**
SITE LOCATION:		STATION:
Charlotte Hwy, Lancaster, South Carolina 29707		
NORTHING: **1132815.8**	EASTING: **2049195.6**	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			(ML) Residuum, SANDY SILT, contains rock fragments	VD	25+	S-1		
			BUCKET REFUSAL AT 0.3 FT					
5		565						
10		560						
15								

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)		GML	**May 04 2022**	**English**	

HAND AUGER LOG

CLIENT:	PROJECT NO.:	SHEET:
Hutton Indian Trail, LLC	**08:15149**	**1 of 1**
PROJECT NAME:	HAND AUGER NO.:	SURFACE ELEVATION:
Promenade II	**HA-04**	**568**
SITE LOCATION:		STATION:
Charlotte Hwy, Lancaster, South Carolina 29707		
NORTHING: **1132867.0**	EASTING: **2049235.0**	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			(SM) Residuum, SILTY SAND, contains rock fragments, light brown and brown, moist	D	22-25+	S-1		
			BUCKET REFUSAL AT 1.2 FT	VD	25+	S-2		
5		563						
10		558						
15								

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)		GML	**May 04 2022**	**English**	

HAND AUGER LOG

CLIENT:	PROJECT NO.:	SHEET:
Hutton Indian Trail, LLC	**08:15149**	**1 of 1**
PROJECT NAME:	HAND AUGER NO.:	SURFACE ELEVATION:
Promenade II	**HA-05**	**552**
SITE LOCATION:		STATION:
Charlotte Hwy, Lancaster, South Carolina 29707		
NORTHING: **1133053.6**	EASTING: **2049467.0**	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			(MH) Residuum, ELASTIC SILT, contains roots and rock fragments, reddish brown, moist	M	15-17-17	S-1		
			(ML) SANDY SILT, trace clay, contains rock fragments, reddish brown, moist	VD	25+	S-2		
			BUCKET REFUSAL AT 1.5 FT					
5		547						
10		542						
15								

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)		GML	**May 04 2022**	**English**	

HAND AUGER LOG

CLIENT:	PROJECT NO.:	SHEET:
Hutton Indian Trail, LLC	**08:15149**	**1 of 1**
PROJECT NAME:	HAND AUGER NO.:	SURFACE ELEVATION:
Promenade II	**HA-06**	**556**
SITE LOCATION:		STATION:
Charlotte Hwy, Lancaster, South Carolina 29707		
NORTHING: **1133095.8**	EASTING: **2049538.5**	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			(ML) Residuum, SANDY SILT, contains rock fragments, reddish brown, moist	VD	24-25+	S-1		
			BUCKET REFUSAL AT 0.6 FT					
5		551						
10		546						
15								

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)		GML	**May 04 2022**	**English**	

HAND AUGER LOG

CLIENT:	PROJECT NO.:	SHEET:
Hutton Indian Trail, LLC	**08:15149**	**1 of 1**
PROJECT NAME:	HAND AUGER NO.:	SURFACE ELEVATION:
Promenade II	**HA-07**	**551**
SITE LOCATION:		STATION:
Charlotte Hwy, Lancaster, South Carolina 29707		
NORTHING: **1133130.7**	EASTING: **2049584.8**	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			(MH) Residuum, ELASTIC SILT, contains fragments, reddish brown to light brown, moist	D	23-25+	S-1		
				D	24-25+	S-2		
				M	16-15-11	S-3		
				VD	25+	S-4		
			BUCKET REFUSAL AT 3.5 FT					
5		546						
10		541						
15								

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)		GML	**May 04 2022**	**English**	

HAND AUGER LOG

CLIENT:	PROJECT NO.:	SHEET:
Hutton Indian Trail, LLC	**08:15149**	**1 of 1**
PROJECT NAME:	HAND AUGER NO.:	SURFACE ELEVATION:
Promenade II	**HA-08**	**542**
SITE LOCATION:		STATION:
Charlotte Hwy, Lancaster, South Carolina 29707		
NORTHING: **1133164.4**	EASTING: **2049600.6**	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			(MH) Residuum, ELASTIC SILT, trace sand, brown to reddish brown, moist	E	16-12-12	S-1		
				E	23-21-15	S-2		
			(ML) SANDY SILT, contains rock fragments, brown, moist	E	25+	S-3		
			BUCKET REFUSAL AT 2.2 FT					
5		537						
10		532						
15								

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)		GML	**May 04 2022**	**English**	

HAND AUGER LOG

CLIENT:	PROJECT NO.:	SHEET:
Hutton Indian Trail, LLC	**08:15149**	**1 of 1**
PROJECT NAME:	HAND AUGER NO.:	SURFACE ELEVATION:
Promenade II	**HA-09**	**565**
SITE LOCATION:		STATION:
Charlotte Hwy, Lancaster, South Carolina 29707		
NORTHING: **1132904.6**	EASTING: **2049265.9**	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			(ML) Residuum, SANDY SILT, contains rock fragments, brown, moist	E	5-4-12	S-1		
				E	23-25+	S-2		
			BUCKET REFUSAL AT 1.5 FT					
5		560						
10		555						
15								

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)		GML	**May 04 2022**	**English**	

HAND AUGER LOG

APPENDIX C – Laboratory Testing

Laboratory Testing Summary

Laboratory Testing Summary

Sample Location	Sample Number	Depth (feet)	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		<Maximum Density (pcf)	<Optimum Moisture (%)	0.1 in.	0.2 in.	
B-01	S-1	1-2.5	26.9	MH	59	38	21	93.3					
B-05	S-2	3.5-5	22.8	ML	41	30	11	71.1					
B-10	S-1	1-2.5	17.1	ML	33	24	9	65.1					
B-14	S-1	1-2.5	9.5	MH	52	35	17	98.0					
B-19	S-2	3.5-5	24.5	ML	40	29	11	83.3					
HA-07	D35-25	1-2	27.2	ML	47	30	17	95.2					

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1 < See test report for D4718 corrected values

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

Project: Promenade II
Client: Hutton Indian Land, LLC

Project No.: 08:15149
Date Reported: 6/28/2022

Office / Lab	Address	Office Number / Fax
ECS Southeast LLP - Charlotte	1812 Center Park Drive Suite D Charlotte, NC 28217	(704)525-5152 (704)357-0023

Tested by	Checked by	Approved by	Date Received
EBlackwood	AHuxtable	AHuxtable	6/7/2022

APPENDIX D – Other Information

GBA Important Information About This Geotechnical-Engineering Report

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.***

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