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REPORT OF GEOTECHNICAL SUBSURFACE EXPLORATION
CAROLINA RESERVE COMMONS
CHARLOTTE HIGHWAY (HWY 621)
INDIAN LAND, SOUTH CAROLINA

SUMMIT PROJECT NO. 1506.G0277

Prepared For:

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August 22, 2022

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Subject: **Report of Geotechnical Subsurface Exploration**
Carolina Reserve Commons
Charlotte Highway (Hwy 621)
Indian Land, South Carolina
SUMMIT Project No. 1506.G0277

Dear Mr. Christenbury:

SUMMIT Engineering, Laboratory & Testing, Inc. (**SUMMIT**) has completed a geotechnical subsurface exploration for the Carolina Reserve Commons site located off of Charlotte Highway (Hwy 621) in Indian Land, South Carolina. This subsurface exploration was performed in general accordance with our Proposal No. 1506.G0277 dated March 24, 2022. This report contains a brief description of the project information provided to us, general site and subsurface conditions revealed during our geotechnical subsurface exploration and our general recommendations regarding foundation design and construction.

SUMMIT appreciates the opportunity to be of service to you on this project. If you have any questions concerning the information presented herein or if we can be of further assistance, please feel free to call us at (704) 504-1717.

Sincerely yours,
SUMMIT Engineering, Laboratory & Testing, Inc.

SOUTH CAROLINA
SUMMIT ENGINEERING, LABORATORY & TESTING, INC.
No. 5545
CERTIFICATE OF AUTHORIZATION

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TABLE OF CONTENTS

SECTION **Page**

EXECUTIVE SUMMARY

SUMMIT has completed a geotechnical subsurface exploration for the Carolina Reserve Commons project. The purpose of this exploration was to obtain general information regarding the subsurface conditions and to provide geotechnical recommendations regarding foundation support of the proposed construction. This exploration consisted of twenty-four (24) soil test borings (identified as B-1 through B-20 and SW-21 through SW-24). The approximate test locations are shown on Figure 2 provided in Appendix 1. The following geotechnical engineering information was obtained as a result of the soil test borings:

- **Surface Materials –** Surficial organic (topsoil) soils were observed at the existing ground surface of the borings with estimated thicknesses ranging from approximately 3 to 4 inches.

- **Residual Soils -** Residual (undisturbed) soils were encountered below the surface materials and extended to either the maximum boring termination depth, partially weathered rock (PWR), or auger refusal. These residual soils generally consisted of elastic silts (MH) and sandy silts (ML). The Standard Penetration Resistances (SPT N-values) in the residual soils ranged from 6 to greater than 50 bpf.

- **Partially Weathered Rock (PWR) and Auger Refusal –** Partially weathered rock (PWR) conditions were encountered in Borings B-9, B-15, B-17, B-19, B-20, SW-21 and SW-24 at approximate depths ranging from 3 to 12 feet below the existing ground surface. Auger refusal conditions were encountered in nine (9) of the Borings at approximate depths ranging from 5.7 to 14.6 feet below the existing ground surface.

- **Groundwater Levels -** At the time of drilling, groundwater was not observed in the borings. After waiting over 24-hours, groundwater was not observed in Borings SW-21 through SW-24.

- **Foundation Support -** Based on the results of our borings, the proposed structures can be adequately supported on shallow foundation systems provided site preparation and compacted fill recommendation procedures outlined in this report are implemented concerning unsuitable soils such as soils with N-values less than 7 bpf. An allowable net bearing pressure of up to 2,500 pounds per square foot (psf) can be used for design of the foundations bearing on approved undisturbed residual soils, or on structural fill compacted to at least 95 percent of its Standard Proctor maximum dry density.

- **Seismic Site Class –** We have determined the Seismic Site Classification for this project site in accordance with Chapter 20 of ASCE 7 “Minimum Design Loads Criteria for Buildings and Other Structures, Site Class Definitions using SPT N-Values. We recommend this project be designed using a Seismic Site Class of “D” (Stiff soil profile) as defined in Table 20.3-1.

- **Special Construction Considerations:** Special considerations are warranted concerning soils with SPT N-values less than 7 bpf. Dependent on final grades, the contractor can anticipate that some undercutting and/or foundation extension may be necessary through unsuitable soils if encountered during grading and construction. Should unsuitable soils be encountered during the grading and construction activities, these soils should be inspected in the field by a Geotechnical Engineer-of-Record and/or their designee prior to remediation. Additional testing such as test pit excavations and/or hand auger borings may be required in order to further explore these soil conditions, depths and locations.

  - Soils with SPT N-values less than 7 bpf: Soils that exhibited SPT N-values less than 7 bpf are considered not suitable for the direct support of the proposed construction. These soil conditions were encountered in Borings B-13, SW-22, and SW-23 at shallow depths.

    Depending on the final design grades, if the lower consistency soils are present in the near-surface (i.e., upper 1.5 to 3 feet), some undercutting, re-working or stabilization may be required. Stabilization measures could potentially consist of using a geogrid and subsequent layers of stone or using soil bridge lifts (in non-structural areas). Specific stabilization recommendations can typically be developed at the time of construction through routine field engineering decisions.

  - Difficult Excavation: The results of the borings indicated that the excavation of residual soils is possible with conventional excavating techniques. However, please note that partially weathered rock (PWR) conditions were encountered in seven (7) of the borings and auger refusal conditions were encountered in nine (9) of the borings performed for this exploration. Dependent on final grades and locations, the contractor should anticipate the excavations of PWR and auger refusal conditions will require specialized equipment and procedures.

Please note that the information provided in this executive summary is intended to be a brief overview of project information and recommendations from the geotechnical report. The information in the executive summary should not be used without first reading the geotechnical report in its entirety and the recommendations described therein.

1.0 INTRODUCTION

1.1. Site and Project Description

The Carolina Reserve Commons site is located at Charlotte Highway (Hwy 621) in Indian Land, South Carolina. A vicinity map showing the project's general location is provided as Figure 1. The subject property is approximately 63.9 acres comprised of portions of Lancaster County Tax Parcel ID Numbers 0013-00-067.00, 0013-00-135.00, and 0013-00-067.02. At the time of our field exploration, the subject site was wooded, undeveloped land with a creek.

The Client (LENNAR) provided **SUMMIT** a plan sheet titled "Conceptual Site Plan", prepared by MPV that indicated the configurations of the proposed construction planned for this project. Based on the provided information, we understand the project is planned to include multi-family structures, parking lots and drive lanes, roadways, utilities, and three (3) best-management-practice (BMP) ponds.

At the time of report preparation, **SUMMIT** had not been provided structural details of the planned construction indicating proposed loads, foundation bearing elevations, or finished floor elevations. For this report, **SUMMIT** assumed the proposed structures will be supported on a shallow foundation system consisting of spread, strip, and/or combined footings and that wall loads will be on the order of 1 to 3 kips per foot and column loads on the order of 10 to 15 kips. Also, grading plans were not available at the time of this report and we have assumed that maximum cut/fill depths will be on the order of 1 to 3 feet over the existing ground surface.

1.2. Purpose of Subsurface Exploration

The purpose of this exploration was to obtain general geotechnical information regarding the subsurface conditions and to provide general preliminary recommendations regarding the geotechnical aspects of site preparation and foundation design. This report contains the following items:

- General subsurface conditions,
- Boring logs and an approximate “Boring Location Plan”,
- Suitable foundation types,
- Allowable bearing pressures for design of shallow foundations,
- Anticipated excavation difficulties during site grading and/or utility installation,
- Remedial measures to correct unsatisfactory soil conditions during site development, as needed,
- Drainage requirements around structures and under floor slabs, as needed,
- Construction considerations,
- Pavement subgrade support guidelines,
- Seismic Site Classification.

2.0 EXPLORATION PROCEDURES

2.1. Field Exploration

SUMMIT visited the site on August 8th through 10th of 2022 and performed a subsurface exploration that consisted of twenty-four (24) soil test borings (identified as B-1 through B-20 and SW-21 though SW-24). The approximate locations of the borings are shown on the Figure 2 - "Boring Location Plan" provided in Appendix 1. The borings were located by professionals from our office using the provided plan, recreation-grade handheld GPS, existing topography, and aerial maps as reference. Since the boring locations were not surveyed, the location of the borings should be considered approximate.

The soil test borings were performed using an ATV-mounted CME 550X drill rig and extended to approximate depths of 5.7 to 20 feet below the existing ground surface. Hollow-stem, continuous flight auger drilling techniques were used to advance the borings into the ground. Standard Penetration Tests (SPT) were performed within the mechanical borings at designated intervals in general accordance with ASTM D 1586. The SPT "N" value represents the number of blows required to drive a split-barrel sampler 12 inches with a 140-pound hammer falling from a height of 30 inches. When properly evaluated, the SPT results can be used as an index for estimating soil strength and density. In conjunction with the penetration testing, representative soil samples were obtained from each test location and returned to our laboratory for visual classification in general accordance with ASTM D 2488. Water level measurements were attempted at the termination of drilling. The results of these tests are presented on the individual boring logs provided in Appendix 2 at the respective test depth.

3.0 AREA GEOLOGY AND SUBSURFACE CONDITIONS

3.1. Physiography and Area Geology

The subject property is located in Indian Land, South Carolina, which is located in the south central Piedmont Physiographic Province. The Piedmont Province generally consists of well-rounded hills and ridges which are dissected by a well-developed system of draws and streams. The Piedmont Province is predominantly underlain by metamorphic rock (formed by heat, pressure and/or chemical action) and igneous rock (formed directly from molten material) which were initially formed during the Precambrian and Paleozoic eras. The volcanic and sedimentary rocks deposited in the Piedmont Province during the Precambrian era were the host of the metamorphism and were generally changed to gneiss and schist. The more recent Paleozoic era had periods of igneous emplacement, with episodes of regional metamorphism resulting in the majority of the rock types seen today.

The topographic relief found throughout the Piedmont Province has developed from differential weathering of theses igneous and metamorphic rock formations. Ridges developed along the more easily weathered and erodible rock. Because of the continued chemical and physical weathering, the rocks in the Piedmont Province are generally covered with a mantle of soil that has weathered in-place from the parent bedrock below. These soils have variable thicknesses and are referred to as residual soils, as they are the result of in-place weathering. Residual soils are typically fine-grained and have a higher clay content near the ground surface because of the advanced weathering. Similarly, residual soils typically become more coarse-grained with increasing depth because of decreased weathering. As weathering decreases with depth, residual soils generally retain the overall appearance, texture, gradation and foliations of their parent rock.

3.2. Generalized Subsurface Stratigraphy

General subsurface conditions observed during our geotechnical exploration are described herein. For more detailed soil descriptions and stratifications at a particular field test location, the respective "Boring Logs", provided in Appendix 2 should be reviewed. The horizontal stratification lines designating the interface between various strata represents approximate boundaries. Transitions between different strata in the field may be gradual in both the horizontal and vertical directions. Therefore, subsurface stratigraphy between test locations may vary.

3.2.1. Surface Materials

Surficial organic (topsoil) soils were observed at the existing ground surface with thicknesses ranging from approximately 3 to 4 inches. The surficial organic soil depths provided in this report and on the individual "Boring Logs" are based on observations of field personnel and should be considered approximate. Please note that the thickness of surface materials at the site should be expected to vary, and measurements necessary for detailed quantity estimation were not performed for this report. For planning purposes, we suggest considering a topsoil thickness of about 12 inches to account for existing vegetation and shallow roots.

Surficial Organic Soil is typically a dark-colored soil material containing roots, fibrous matter, and/or other organic components, and is generally unsuitable for engineering purposes. **SUMMIT** has not performed any laboratory testing to determine the organic content or other horticultural properties of the observed surficial organic soils. Therefore, the phrase "surficial organic soil" is not intended to indicate suitability for landscaping and/or other purposes.

3.2.2. Alluvial Soils

Alluvial (water-deposited) soils were not encountered in any of the borings performed during this exploration. Alluvial soils are typically encountered in or near drainage features, pond bottoms, creeks and in low-lying areas. Alluvial soils are generally loose and/or under-compacted and, as such, are typically unsuitable for supporting the proposed construction. Therefore, remediation may be required wherever alluvial soils are encountered during grading activities. If these soils are encountered during site grading activities, the extent of the alluvial soils should be inspected in the field by the Geotechnical Engineer-of-Record or and/or their designee. Additional testing such as test pit excavations and/or hand auger borings may be required in order to further explored the alluvial soils.

3.2.3. Existing Fill Soils

Existing fill (disturbed) soils were not encountered in the borings performed for this exploration. Even though fill soils were not encountered during this exploration, there is a possibility of existing fill soils and deleterious inclusions within the in-place soils existing on the site.

If fill soils are encountered at other locations in the field during construction, the fill soils should be inspected by the Geotechnical Engineer-of-Record and/or their designee, with respect to the criteria outlined in Section 5.0 of this report.

3.2.4. Residual Soils

Residual (undisturbed) soils were encountered below the surface materials and extended to either the maximum termination depth, partially weathered rock (PWR), or auger refusal. These residual soils generally consisted of stiff to very stiff elastic silts (MH) and firm to very hard sandy silts (ML). The Standard Penetration Resistances (SPT N-values) in the residual soils ranged from 6 to greater than 50 bpf with SPT N-values less than 7

occurring at Borings B-13, SW-22, and SW-23.

3.2.5. Partially Weathered Rock and Auger Refusal

Partially weathered rock (PWR) conditions were encountered in seven (7) of the borings at approximate depths ranging from 6 to 14.6 feet below the existing ground surface. PWR is defined as soil-like material exhibiting SPT N-values in excess of 100 bpf. When sampled, the PWR generally breaks down into sandy silts (ML).

Auger refusal conditions were encountered in nine (9) of the borings at approximate depths ranging from 6 to 14.6 feet below the existing ground surface. Auger refusal is defined as material that could not be penetrated by the drilling equipment used during our field exploration. Materials that might result in auger refusal include large boulders, rock ledges, lenses, seams or the top of parent bedrock. Core drilling techniques would be required to evaluate the character and continuity of the refusal material. However, rock coring was beyond the scope of this exploration and not performed.

The following table summarizes the approximate depths that PWR and auger refusal conditions were encountered in the borings performed for this exploration.

Summary Table of Partially Weathered Rock and Auger Refusal Depths

Boring No.	Partially Weathered Rock Approx. Depth, (feet)[1]	Auger Refusal Approx. Depth, (feet)[1]
B-5	---	12.8
B-9	3	6
B-10	---	5.7
B-15	12	14.6
B-17	8	9.7
B-19	8	9.7
B-20	8	9.6
SW-21	6	7.3
SW-24	6	5.8

[1]Depths were measured from the existing ground surface at the time drilling was performed.
"---" When PWR or auger refusal conditions were not encountered in the borings.

3.2.6. Groundwater Level Measurements

At the time of drilling, groundwater was not observed in the borings performed during this exploration. After waiting over 24-hours, groundwater was not observed in Borings SW-21 through SW-24. However, the moisture conditions of the soil samples were noted and the cave-in depths within each borehole were measured at the time of drilling. Both moisture conditions within the soil and caving soils may be an indication of the presence of groundwater.

It should be noted that groundwater levels tend to fluctuate with seasonal and climatic variations, as well as with some types of construction operations. Therefore, water may be encountered during construction at depths not indicated in the borings performed for this exploration.

4.0 EVALUATIONS AND RECOMMENDATIONS

4.1. General

Our preliminary evaluation and recommendations are based on the project information outlined previously and on the data obtained from the field and laboratory testing program. If the structural loading, geometry, or proposed building locations are changed or significantly differ from those outlined, or if conditions are encountered during construction that differ from those encountered by the borings, **SUMMIT** requests the opportunity to review our recommendations based on the new information and make the necessary changes.

Grading plan information with proposed foundation bearing elevations was not available for our review at the time of this report. Finish grade elevations of proposed construction in conjunction with the proposed foundation bearing elevation can have a significant effect on design and construction considerations. **SUMMIT** should be provided the opportunity to review the project grading plans prior to their finalization with respect to the recommendations contained in this report.

4.2. Shallow Foundation Recommendations

Based on the results of the soil test borings, and our assumptions regarding site grading and assumed structural building loads, the proposed structures can be adequately supported on shallow foundation systems provided site preparation and compacted fill recommendation procedures outlined in this report are implemented concerning unsuitable soils such as soils with N-values less than 7 bpf. An allowable net bearing pressure of up to 2,500 pounds per square foot (psf) can be used for design of the foundations bearing on approved undisturbed residual soils, or on approved structural fill compacted to at least 95 percent of its Standard Proctor maximum dry density. Please refer to section 5.0 of this report for more information.

Provided the procedures and recommendations outlined in this report are implemented and using the assumed loads, we have estimated a total settlement of less than 1 inch for footing design pressures of 2,500 psf.

To avoid punching type bearing capacity failure, we recommend wall foundation widths of 18 inches or more. Exterior foundations and foundations in unheated areas should be designed to bear at least 12 inches below finished grade for frost protection. To reduce the effects of seasonal moisture variations in the soils, for frost protection and for bearing capacity, it is recommended that all foundations be embedded at least 12 inches below the lowest adjacent grade.

All footing excavations and undercutting remediation operations should be inspected by the Geotechnical Engineer-of-Record or and/or their designee to confirm that suitable soils are present at and below the proposed bearing elevation and that the backfill operations are completed with the recommendations of this report. This evaluation may include hand-auger and DCP testing. If DCP testing encounters lower penetration resistances than anticipated or unsuitable materials are observed beneath the footing excavations, these bearing soils should be corrected per the Geotechnical Engineer-of-Record's recommendations.

4.3. Retaining Wall Recommendations (if used)

Design Parameters for backfill properties (i.e., friction angle, earth pressure coefficients) should use the values in the table below. These parameters are based on suitable soils with a minimum moist unit weight of 120 pcf. **SUMMIT** should be retained to test the actual soils used for construction to verify these design assumptions. To reduce long term creep or deflections to the wall system, desirable wall backfill soils should be used. These include non-plastic, granular soils (sands and gravels). However, these soils may not be available on site.

Soil Parameters for Wall Backfill

Backfill Type	Allowable Bearing Capacity (psf)	Friction Angle (deg)	Modulus of Subgrade Reaction (pci)	Active Earth Pressure Coefficient K_a	Passive Earth Pressure Coefficient Kp	Coefficient of Earth Pressure at Rest Ko	Slide Friction
Residuum	2,500	28°	200	0.361	2.77	0.531	0.4
Fill	2,500	24°	150	0.421	2.37	0.593	0.4

Additional Testing is Required to verify these estimated designed parameters.

Soils classified as elastic silts (MH) and/or fat clays (CH) shall not be used for wall backfill or in the retained zone as shown in Table 1610.1 of the 2018 IBC. If on-site soils are used as backfill within the reinforced zone, the wall designer should address the need for wall drainage and the possibility of long-term, time-dependent movement or creep in their design.

At the time of report preparation, we were not provided retaining wall plans or specifications. Therefore, we request the opportunity to review the wall plans and specifications once they are finalized and make any necessary changes to our recommendations. Also, we recommend an external stability analysis (including global stability) of the proposed wall(s) be conducted once the site layout and wall geometry is complete.

4.4. Seismic Site Class

SUMMIT has determined the Seismic Site Classification for this project site in accordance with Chapter 20 of ASCE 7 “Minimum Design Loads Criteria for Buildings and Other Structures and the 2018 IBC, Site Class Definitions using SPT N-Values. We recommend this project be designed using a Seismic Site Class of “D” (Stiff soil profile as defined in Table 20.3-1.

4.5. Low to Moderate Plasticity Moisture Sensitive Soils (MH)

Low to moderate plasticity and moisture sensitive elastic silt (MH) soils were encountered in ten (10) of the borings performed during this exploration. These fine-grained soils are susceptible to moisture intrusion and can become soft when exposed to weather and/or water infiltration. Consequently, some undercutting and/or reworking (drying) of the near-surface soils may be required depending upon the site management practices and weather conditions present during construction.

Should these materials be left in-place, special consideration should be given to providing positive drainage away from the structure and discharging roof drains a minimum of 5 feet from the foundations to reduce infiltration of surface water to the subgrade materials.

Note: Since Low to Moderate Plasticity and Moisture Sensitive Soils can become remolded (i.e., softened) under the weight of repeated construction traffic and changes in moisture conditions, these soils should be evaluated and closely monitored by the Geotechnical Engineer-of-Record or and/or their designee prior to and during fill placement. Additional testing and inspections of moisture sensitive soils may be warranted such as laboratory testing, field density (compaction) testing, hand auger borings with dynamic cone penetrometer (DCP) testing and/or test pit excavations.

4.6. Wet Weather Conditions

Contractors should be made aware of the moisture sensitivity of the near soils and potential compaction difficulties. If construction is undertaken during wet weather conditions, the surficial soils may become saturated, soft, and unworkable. The contractor can anticipate reworking and/or recompacting soils may be needed when excessive moisture conditions occur. Additionally, subgrade stabilization techniques, such as chemical (lime or lime-fly ash) treatment, may be needed to provide a more weather-resistant working surface during construction. Therefore, we recommend that consideration be given to construction during the dryer months.

Surface runoff should be drained away from excavations and not allowed to pond. Concrete for foundations should be placed as soon as practical after the excavation is made. That is, the exposed foundation soils should not be allowed to become excessively dry or wet before placement of concrete. Bearing soils exposed to moisture variations may become highly disturbed resulting in the need for undercutting prior to placement of concrete. If excavations must remain open overnight, or if rainfall becomes imminent while the bearing soils are exposed, we recommend that a 2- to 4-inch-thick "mud-mat" of lean (2000 psi) concrete be placed on the bearing soils before work stops for the night.

SUMMIT recommends that special care be given to providing adequate drainage away from the building areas to reduce infiltration of surface water to the base course and subgrade materials. If these materials are allowed to become saturated during the life of the slab section, a strength reduction of the materials may result causing a reduced life of the section.

4.7. Floor Slabs

Slab-on-grade floor systems may be supported on approved residual soils, or newly compacted fill, provided the site preparation and fill placement procedures outlined in this report are implemented. Depending upon the amount of cuts and/or fills, unsuitable soils, such as areas which deflect, rut or pump excessively during proof-rolling may require remediation as described in Section 5.2. We recommend non-monolithic floor slabs be isolated from other structural components to allow independent movement of the slab and the building foundation elements.

The proposed slab-on-grade floor slab should be designed to withstand the planned dead and live loads. Based on the use of granular fill material, soils encountered in our borings and our experience, a modulus of subgrade reaction (k) of 125 pci can be used to design the floor slab supported on the subgrade soils. A higher modules value may be available once the structural soils and/or supporting soils has been identified. We recommend a minimum of 4-inch thickness of crushed stone (SCDOT MACADAM stone gradation or equivalent) compacted to a minimum of

98 percent of the material's Standard Proctor maximum dry density (ASTM D 698) be placed as floor slab base course.

Immediately prior to constructing a floor slab, the areas should be proof-rolled to detect any softened, loosened or disturbed areas that may have been exposed to wet weather or construction traffic. Areas that are found to be disturbed or indicate pumping action during the proof-rolling should be undercut and replaced with adequately compacted structural fill. This proof-rolling should be observed by a **SUMMIT** staff professional or a senior soils technician under his/her direction. Proof-rolling procedures are outlined in the "Site Preparation" section of this report.

4.8. Pavements Subgrade Preparation

The pavement sections can be adequately supported on approved non-high plasticity residual soils, or newly compacted fill, provided the site preparation and fill placement procedures outlined in this report are implemented. Immediately prior to constructing the pavement section, we recommend that the areas be proofrolled to detect any softened, loosened or disturbed areas that may have been exposed to wet weather or construction traffic. Areas that are found to be disturbed or indicate instability during the proofrolling should be undercut and replaced with adequately compacted structural fill or repaired as recommended by the Geotechnical Engineer-of-Record. This proofrolling should be observed by a **SUMMIT** professional or a senior soils technician under his/her direction. Proofrolling procedures are outlined in the "Site Preparation" section of this report.

Due to the presence of near surface low to moderate plasticity elastic silts (MH), remediation of pavement subgrade soils may be recommended (as determined by the Geotechnical Engineer-of-Record during construction) including undercutting and replacement with additional SCDOT MACADAM stone. Alternatively, lime stabilization of pavement subgrade may be a more economical option and **SUMMIT** can provide lime stabilization mix design services if requested.

This may be more pronounced depending on the time of the year and seasonal conditions at the time of pavement construction. We recommend contingency for some remediation efforts for the subgrade soils be considered during the planning stage.

4.9. Cut and Fill Slopes

Permanent project slopes should be designed with geometry of 3 horizontal to 1 vertical (3H:1V) or flatter. The tops and bases of all slopes should be located 10 feet or more from structural limits and 5 feet or more from parking limits. Fill slopes should be constructed utilizing properly compacted, structural fill according to the recommendations provided in this report. In addition, fill slopes should be overbuilt and cut to finished grade during construction to achieve proper compaction on the slope face. All slopes should be seeded, stabilized and maintained after construction and adhere to local, state and federal municipal standards, if applicable.

Immediately prior to constructing the project slopes, the areas should be proof-rolled to detect any softened, loosened or disturbed areas that may have been exposed to wet weather or construction traffic. Areas that are found to be disturbed or indicate pumping action during the proof-rolling should be undercut and replaced with adequately compacted structural fill. This proof-rolling should be observed by a **SUMMIT** staff professional or a senior soils technician under his/her direction. Proof-rolling procedures are outlined in the “Site Preparation” section of this report.

Structural fill should not be placed on a subgrade with a slope steeper than 5 horizontal to 1 vertical (5H:1V), unless the fill is confined by an opposing slope, such as in a ravine. Otherwise, where steeper slopes exist, the subgrade should be benched to allow for fill placement on a horizontal surface.

5.0 CONSTRUCTION CONSIDERATIONS

5.1. Abandoned Utilities/Structures

SUMMIT recommends that any existing utility lines and foundations be removed from within proposed building and pavement areas. The utility backfill and foundation material should be removed and the subgrade in the excavations should be inspected by a geotechnical professional prior to fill placement. The subgrade inspection should consist of visual observations, probing with a steel rod and/or performing hand auger borings with Dynamic Cone Penetrometer tests to explore their suitability of receiving structural fill. Once the excavations are inspected and approved, they should be backfilled with adequately compacted structural fill. Excavation backfill under proposed new foundations should consist of properly compacted structural fill, crushed stone, flowable fill or lean concrete as approved by the Geotechnical Engineer-of-Record.

5.2. Site Preparation

Based on the results of our borings, and dependent on final grades, the contractor can anticipate that some undercutting and/or foundation extension through soils with N-values less than 7 bpf may be required prior to building construction and/or fill placement. If these soils are encountered during the grading activities, the extent of the undercut required should be determined in the field by the Geotechnical Engineer-of-Record and/or their designee. Additional testing such as test pit excavations and/or hand auger borings may be required to further explore these soil conditions, depths and locations.

Topsoil, organic laden/stained soils, construction debris and other unsuitable materials should be stripped/removed from the proposed construction limits. Stripping and clearing should extend 10 feet or more beyond the planned construction limits. Upon completion of the stripping operations, we recommend areas planned for support of foundations, floor slabs, parking areas, slope areas and structural fill be proof-rolled with a loaded dump truck or similar pneumatic tired

vehicle (minimum loaded weight of 20 tons) under the observations of a staff professional. After excavation of the site has been completed, the exposed subgrade in cut areas should also be proof-rolled. The proof-rolling procedures should consist of four complete passes of the exposed areas, with two of the passes being in a direction perpendicular to the proceeding ones. Any areas which deflect, rut or pump excessively during proof-rolling or fail to "tighten up" after successive passes should be undercut to suitable soils and replaced with compacted fill.

The extent of any undercut required should be determined in the field by a **SUMMIT** staff professional or engineer while monitoring construction activity. After the proof-rolling operation has been completed and approved, final site grading should proceed immediately. If construction progresses during wet weather, the proof-rolling operation should be repeated after any inclement weather event with at least one pass in each direction immediately prior to placing fill material or aggregate base course stone. If unstable conditions are experienced during this operation, then undercutting or reworking of the unstable soils may be required.

5.3. Difficult Excavation

Based on the results of our soil test borings and dependent on final grades, it appears that the majority of general excavation for footings and utilities will be possible with conventional excavating techniques. We anticipate that the residual soils can be excavated using pans, scrapers, backhoes, and front end loaders. Depending on the location, excavations deeper than approximately 3 to 14.6 feet may require specialized equipment and procedures.

Partially weathered rock (PWR) conditions were encountered in seven (7) of the borings and auger refusal conditions were encountered in nine (9) of the borings performed for this exploration. The depth and thickness of partially weathered rock, boulders, and rock lenses or seams can vary dramatically in short distances and between the boring locations; therefore, soft/hard weathered rock, boulders or bedrock may be encountered during construction at locations or depths, between the boring locations, not encountered during this exploration.

The actual rippability of these in-place materials is however, dependent on many factors such as the operator's skill level, equipment, and the techniques used during excavation, degree of weathering within the formation, rock hardness, rock structure (i.e., foliations or bedding), jointing and fracture spacing and necessary size or width of excavation. Rippability of weathered rock is typically more difficult in confined excavations.

The table below may be used as a quick reference for rippability of in-place materials.

Summary of Rippability Based on SPT N-Values

N-Values as Shown on Boring Logs	Description of N-Values	Anticipated Rippability
60 > N-Value	N-values less than 60 bpf	These materials may generally be excavated with heavy-duty equipment such as a Caterpillar D-8 with a single-shank ripper
60 < N-Value < 50/3"	N-values more than 60 bpf, but less than 50 blows per 3 inches of penetration	These materials are considered marginally excavatable, even with heavy-duty equipment.
50/3" < N-Value	N-values more than 50 blows per 3 inches of penetration	Blasting and/or removal with impact hammers is typically required to excavate these materials.
*This table is for general information only. Actual rippability is dependent upon many other factors as stated above.		

Care should be exercised during excavations for footings on rock to reduce disturbance to the foundation elevation. The bottom of each footing should be approximately level. When blasting is utilized for foundation excavation in rock, charges should be held above design grades. Actual grades for setting charges should be selected by the contractor and he should be responsible for any damage caused by the blasting. All loose rock should be carefully cleaned from the bottom of the excavation prior to pouring concrete. Footing excavations in which the rock subgrade has been loosened due to blasting should be deepened to an acceptable bearing elevation.

In our professional opinion, a clear and appropriate definition of rock should be included in the project specifications to reduce the potential for misunderstandings. A sample definition of rock for excavation specifications is provided below:

Rock is defined as any material that cannot be dislodged during mass grading by a Caterpillar D-8 tractor, or equivalent, equipped with a hydraulically operated power ripper without the use of drilling and blasting. For rock removal in confined excavations (e.g., utility excavations) marginally excavatable materials (softer PWR 50/3"-50/6") may be accomplished using a large trackhoe Caterpillar 325, or equivalent with rock teeth without the use of drilling and blasting. However harder materials (PWR 50/0"-50/3") in confined excavations will not likely be possible with conventional equipment and typically requires blasting. Boulders or masses of rock exceeding ½ cubic yard in volume shall also be considered rock excavation. This classification does not include materials such as loose rock, concrete, or other materials that can be removed by means other than drilling and blasting, but which for any reason, such as economic reasons, the Contractor chooses to remove by drilling and blasting.

5.4. Temporary Excavation Stability

Localized areas of soft or unsuitable soils not detected by our borings, or in unexplored areas, may be encountered once grading operations begin. Vertical cuts in these soils may be unstable and may present a significant hazard because they can fail without warning. Therefore, temporary construction slopes greater than 5 feet in height should not be steeper than two horizontal to one vertical (2H:1V), and excavated material should not be placed within 10 feet of the crest of any excavated slope. In addition, runoff water should be diverted away from the crest of the excavated slopes to prevent erosion and sloughing.

Should excavations extend below final grades, shoring and bracing or flattening (laying back) of the slopes may be required to obtain a safe working environment. Excavation should be sloped or shored in accordance with local, state and federal regulations, including OSHA (29 CFR Part 1926) excavation trench safety standards.

5.5. Structural Fill

Soil to be used as structural fill should be free of organic matter, roots or other deleterious materials. Structural fill should have a plasticity index (PI) less than 25 and a liquid limit (LL) less than 50 or as approved by the Geotechnical Engineer-of-Record. The structural fill should exhibit a maximum dry density of at least 90 pounds per cubic foot, as determined by a Standard Proctor compaction test (ASTM-D 698). Compacted structural fill should consist of materials classified as either CL, ML, SC, SM, SP, SW, GC, GM, GP, or GW per ASTM D-2487 or as approved by the Geotechnical Engineer-of-Record. Off-site borrow soil should also meet these same classification requirements. Non-organic, low-plasticity on-site soils are expected to meet this criterion. However, successful reuse of the excavated, on-site soils as compacted structural fill will depend on the moisture content of the soils encountered during excavation. We anticipate that scarifying and drying of portions of the on-site soils will be required before the recommended compaction can be achieved. Drying of these soils will likely result in some delay.

All structural fill soils should be placed within the proposed structural pad and extending at least 5 feet beyond the perimeter of the pad and foundation limits. All structural fill soils should be placed in thin (not greater than 8 inches) loose lifts and compacted to a minimum of 95 percent of the soil's Standard Proctor maximum dry density (ASTM D 698) at/or near optimum moisture content (±2 percent). The upper 2 feet of structural fill should be compacted to a minimum of 100 percent of the soil's Standard Proctor maximum dry density (ASTM D 698) at/or near optimum moisture content (±2 percent). Some manipulation of the moisture content (such as wetting, drying) may be required during the filling operation to obtain the required degree of compaction. The manipulation of the moisture content is highly dependent on weather conditions and site drainage conditions. Therefore, the grading contractor should be prepared to both dry and wet the fill materials to obtain the specified compaction during grading. Sufficient density tests should be performed to confirm the required compaction of the fill material.

5.6. Suitability of Excavated Soils for Re-Use

The soils encountered in the borings should be suitable to be used as structural fill material provided the recommendations in this report are implemented. These soils may be utilized as non-structural fill and backfill at landscaped or non-pavement areas of the project. We recommend non-structural fill to be compacted to at least 92 percent of the soil's Standard Proctor Maximum Dry Density to reduce settlement of the fill soils particularly over utility trenches.

However, if approved by the Geotechnical Engineer-of-Record, high plasticity soils encountered during general site grading can be mixed/blended and/or mixed with lower plasticity soils and used as structural fill. We recommend that mixed soils be used below the top five (5) feet at deeper fill locations and adequate drainage be provided away from structural and pavement areas. The top five (5) feet should consist of materials classified as either CL, ML, SC, SM, SP, SW, GC, GM, GP or GW per ASTM D-2487 or as approved by the Geotechnical Engineer-of-Record. All fill soils should be placed in thin (not greater than 8 inches) loose lifts and compacted to a minimum of 95 percent of the soil's Standard Proctor maximum dry density (ASTM D 698) at near optimum moisture content (±2 percent).

We assumed that the limits of the excavation will be stripped of existing pavements, above and below ground obstructions, stumps, root systems, and organic surface soils (topsoil) and discarded. The thickness of organic surface soils (topsoil) encountered at soil test boring locations are indicated on the soil test boring logs included in the Appendix of this report.

5.7. Engineering Services During Construction

As previously stated, the engineering recommendations provided in this report are based on the project information outlined above and the data obtained from field and laboratory tests. However, unlike other engineering materials like steel and concrete, the extent and properties of geologic materials (soil) vary significantly. Regardless of the thoroughness of a geotechnical engineering exploration, there is always a possibility that conditions between borings will be different from those at the boring locations, that conditions are not as anticipated by the designers, or that the construction process has altered the subsurface conditions. This report does not reflect variations that may occur between the boring locations. Therefore, conditions on the site may vary between the discrete locations observed at the time of our subsurface exploration.

The nature and extent of variations between the borings may not become evident until construction is underway. To account for this variability, professional observation, testing and monitoring of subsurface conditions during construction should be provided as an extension of our engineering services. These services will help in evaluating the Contractor's conformance with the plans and specifications. Because of our unique position to understand the intent of the geotechnical engineering recommendations, retaining us for these services will also allow us to provide consistent service through the project construction. Geotechnical engineering construction observations should be performed under the supervision of the Geotechnical Engineer-of-Record from our office who is familiar with the intent of the recommendations presented herein. This observation is recommended to evaluate whether the conditions anticipated in the design actually exist or whether the recommendations presented herein should be modified where necessary. Observation and testing of compacted structural fill and backfill should also be provided by our firm.

6.0 RELIANCE AND QUALIFICATIONS OF REPORT

This geotechnical subsurface exploration has been provided for the sole use of LENNAR. This geotechnical subsurface exploration should not be relied upon by other parties without the express written consent of **SUMMIT** and LENNAR.

The analyses and recommendations submitted in this report were based, in part, on data obtained from this exploration. If the above-described project conditions are incorrect or changed after the issuing of this report, or subsurface conditions encountered during construction are different from those reported, **SUMMIT** should be notified and these recommendations should be re-evaluated based on the changed conditions to make appropriate revisions. We have prepared this report according to generally accepted geotechnical engineering practices. No warranty, express or implied, is made as to the professional advice included in this report.

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APPENDIX 1 – Figures

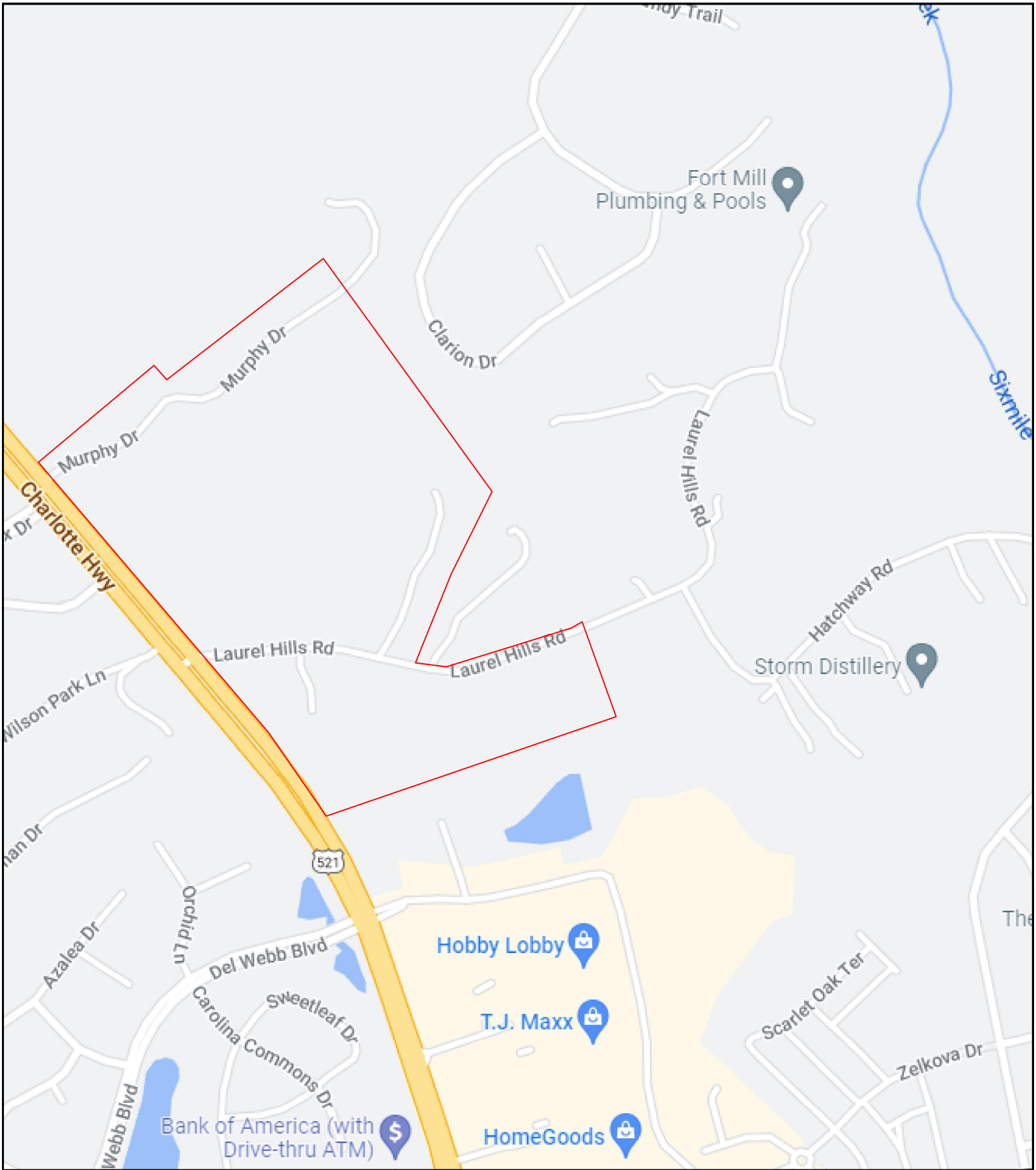

Figure 1
Site Location Plan

SCALE: NTS

Carolina Reserve Commons
Charlotte Highway (Hwy 621)
Indian Land, South Carolina

SUMMIT Project No.: 1506.G0277

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Fort Mill, South Carolina 29715
(803) 504-1717

Figure 2
Boring Location Plan

Approx. Soil Test Boring Location

SCALE: NTS

Carolina Reserve Commons
Charlotte Highway (Hwy 621)
Indian Land, South Carolina

SUMMIT Project No.: 1506.G0277

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APPENDIX 2 – Boring Logs

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KEY TO SYMBOLS

CLIENT Lennar **PROJECT NAME** Carolina Reserve Commons

PROJECT NUMBER 1506.G0277 **PROJECT LOCATION** Indian Land, South Carolina

LITHOLOGIC SYMBOLS
(Unified Soil Classification System)


BLANK


MH: USCS Elastic Silt


MLS: USCS Sandy Silt


TOPSOIL: Topsoil


PWR: Partially Weathered Rock

SAMPLER SYMBOLS


Standard Penetration Test

WELL CONSTRUCTION SYMBOLS

ABBREVIATIONS

LL - LIQUID LIMIT (%)
PI - PLASTIC INDEX (%)
W - MOISTURE CONTENT (%)
DD - DRY DENSITY (PCF)
NP - NON PLASTIC
-200 - PERCENT PASSING NO. 200 SIEVE
PP - POCKET PENETROMETER (TSF)

TV - TORVANE
PID - PHOTOIONIZATION DETECTOR
UC - UNCONFINED COMPRESSION
ppm - PARTS PER MILLION


Water Level at Time Drilling, or as Shown


Water Level at End of Drilling, or as Shown


Water Level After 24 Hours, or as Shown

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SUBSURFACE DIAGRAM

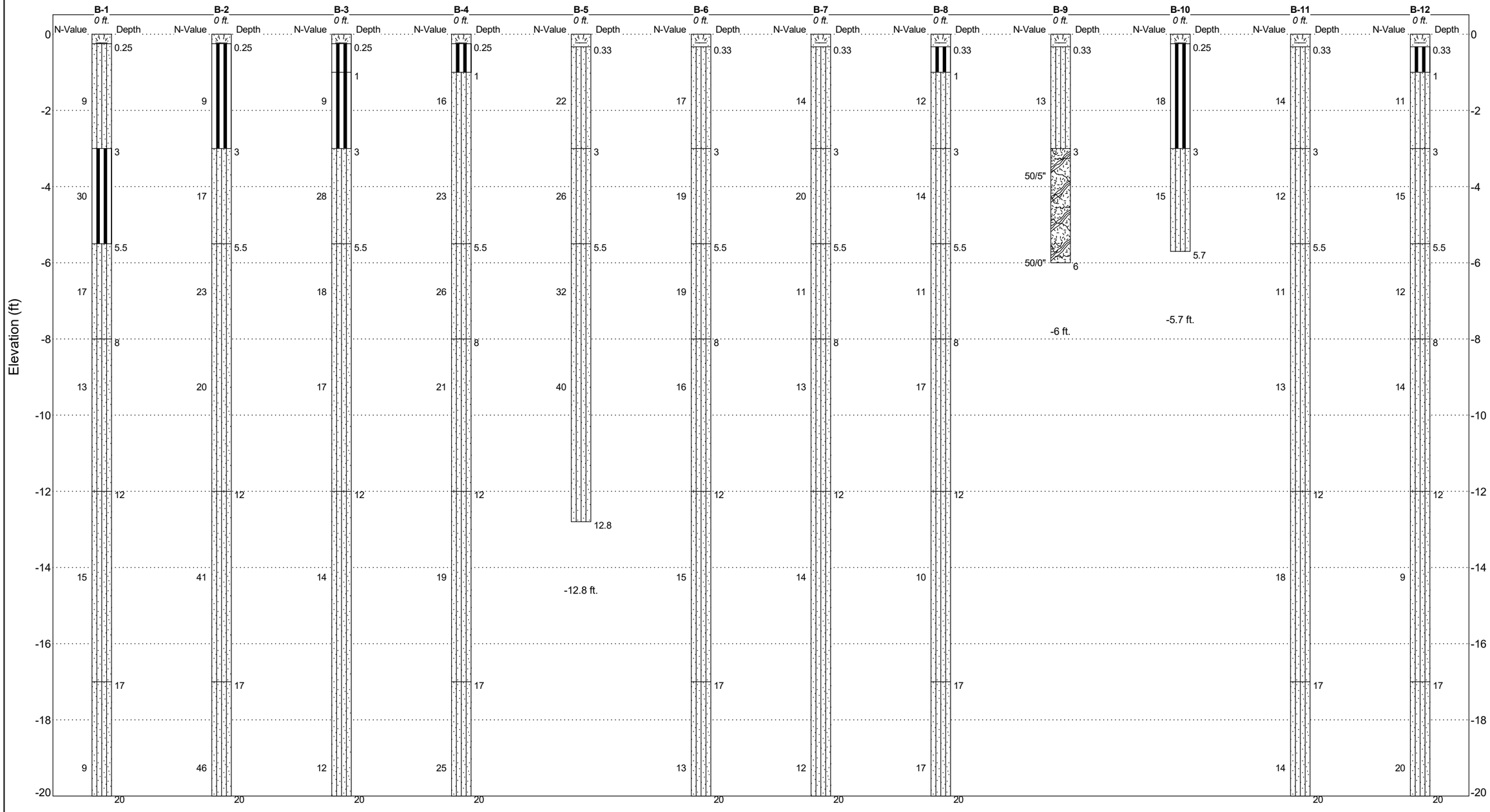
CLIENT Lennar

PROJECT NUMBER 1506.G0277

PROJECT NAME Carolina Reserve Commons

PROJECT LOCATION Indian Land, South Carolina

Topsoil
Partially Weathered Rock
USCS Sandy Silt
USCS Elastic Silt



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SUBSURFACE DIAGRAM

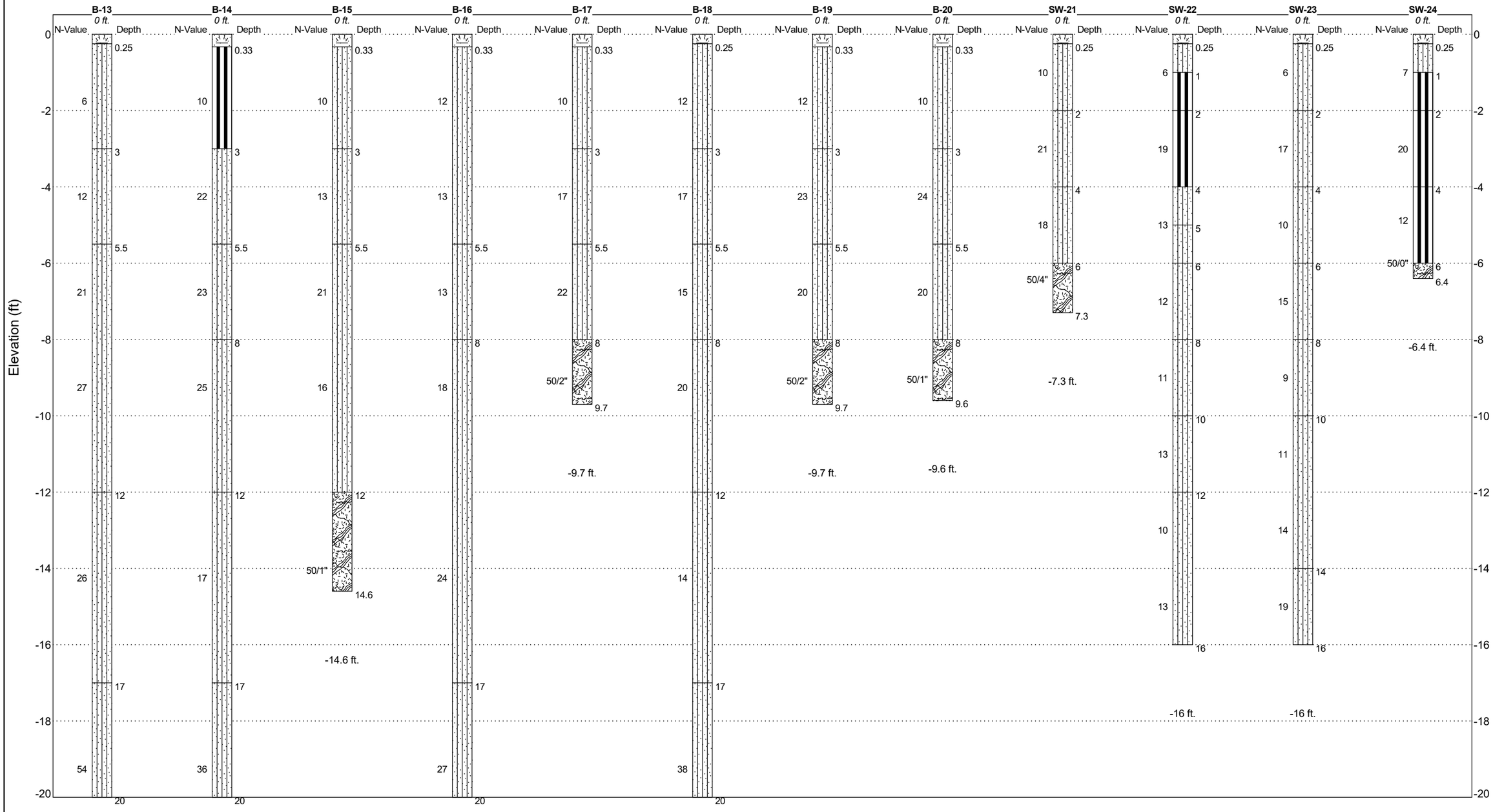
CLIENT Lennar

PROJECT NUMBER 1506.G0277

PROJECT NAME Carolina Reserve Commons

PROJECT LOCATION Indian Land, South Carolina

Topsoil
USCS Sandy Silt
USCS Elastic Silt
Partially Weathered Rock



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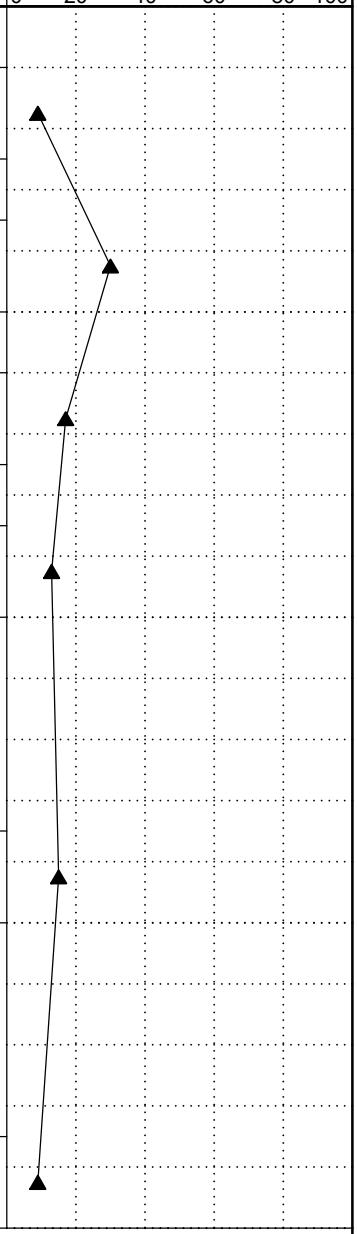
BORING NUMBER B-1

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/10/22 **COMPLETED** 8/10/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth @ 15.2' bgs
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING ---
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 3" of TOPSOIL			
		(ML) RESIDUUM: Stiff Reddish Brown Slightly Clayey Sandy SILT	SPT 1		4-4-5 (9)
		(MH) Very Stiff Reddish Brown Sandy Elastic SILT	SPT 2		8-11-19 (30)
5.0		(ML) Very Stiff Reddish Brown and Light Brown Sandy SILT	SPT 3		6-7-10 (17)
		(ML) Stiff Reddish Brown and Light Brown Sandy SILT	SPT 4		4-6-7 (13)
10.0		(ML) Stiff Moist Reddish Brown and Light Brown Sandy SILT	SPT 5		5-6-9 (15)
15.0		15.2ft			
		(ML) Stiff Moist Reddish Brown and Light Brown Sandy SILT with Manganese Stains	SPT 6		3-4-5 (9)
20.0		Bottom of Boring at 20 feet bgs, Boring Terminated			



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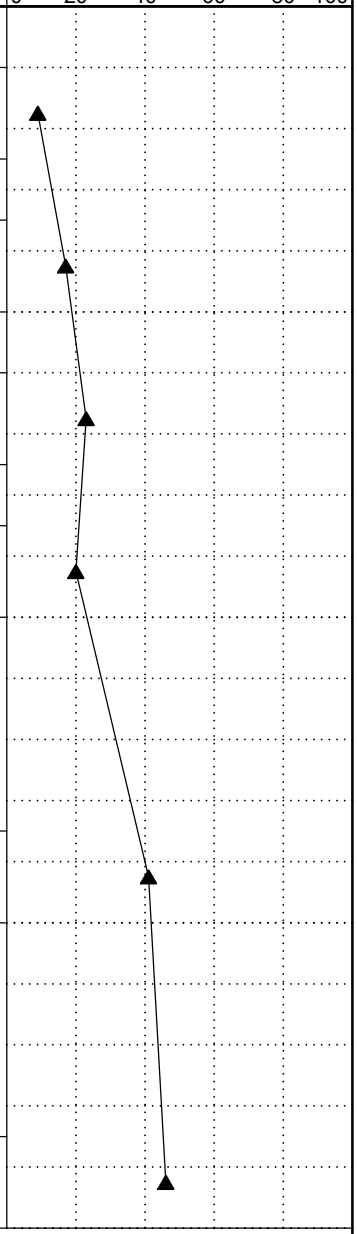
BORING NUMBER B-2

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/10/22 **COMPLETED** 8/10/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth @ 12.7' bgs
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING ---
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 3" of TOPSOIL			
		(MH) RESIDUUM: Stiff Reddish Brown Sandy Elastic SILT	SPT 1		3-4-5 (9)
		(ML) Very Stiff Reddish Brown and Brown Sandy SILT	SPT 2		6-7-10 (17)
5.0		(ML) Very Stiff Reddish Brown and Dark Brown Micaceous Sandy SILT with Manganese Stains	SPT 3		8-10-13 (23)
			SPT 4		7-9-11 (20)
10.0		(ML) Hard Reddish Brown Sandy SILT with Manganese Stains 12.7ft ▽	SPT 5		11-18-23 (41)
15.0		(ML) Hard Moist Reddish Brown and Brown Sandy SILT with Manganese Stains	SPT 6		13-20-26 (46)
20.0		Bottom of Boring at 20 feet bgs, Boring Terminated			



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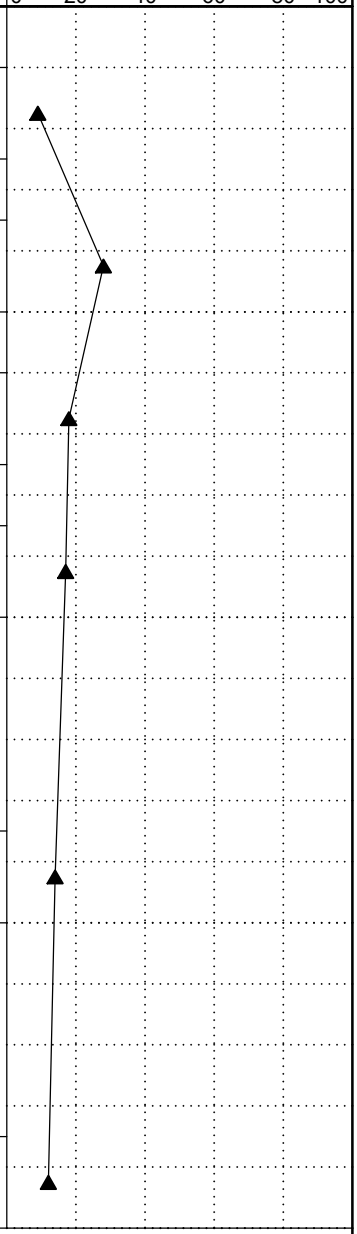
BORING NUMBER B-3

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/10/22 **COMPLETED** 8/10/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth @ 13.6' bgs
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING ---
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 3" of TOPSOIL			
		(MH) RESIDUUM: Moist Reddish Brown Sandy Elastic SILT			
		(MH) Stiff Reddish Brown Sandy Elastic SILT	SPT 1		3-4-5 (9)
		(ML) Very Stiff Reddish Brown Sandy SILT	SPT 2		7-11-17 (28)
5.0					
		(ML) Very Stiff Reddish Brown and Light Brown Sandy SILT	SPT 3		5-8-10 (18)
			SPT 4		4-7-10 (17)
10.0					
		(ML) Stiff Moist Reddish Brown and Brown Sandy SILT with Manganese Stains			
		13.6ft ▽	SPT 5		4-6-8 (14)
15.0					
			SPT 6		4-5-7 (12)
20.0		Bottom of Boring at 20 feet bgs, Boring Terminated			



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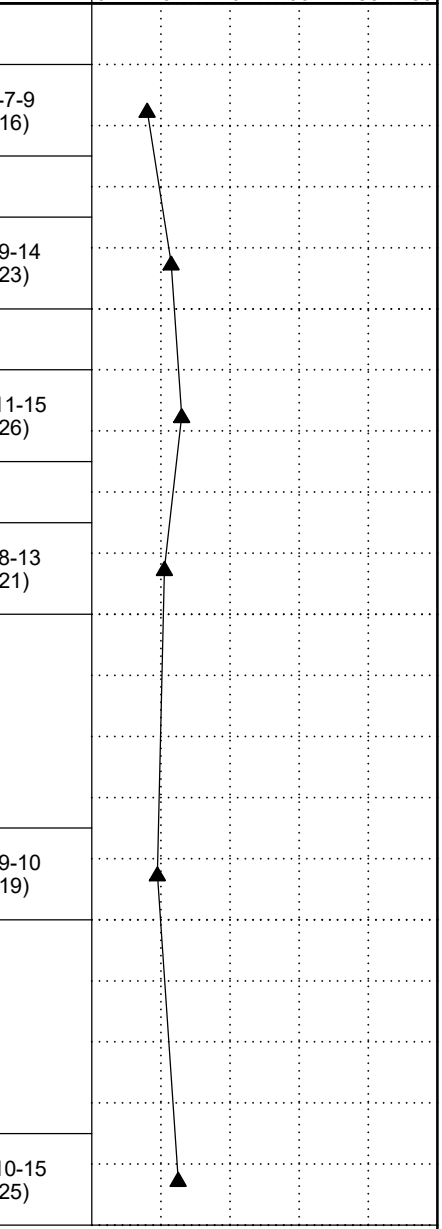
BORING NUMBER B-4

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/11/22 **COMPLETED** 8/11/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth @ 14.3' bgs
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING ---
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 3" of TOPSOIL			
		(MH) RESIDUUM: Reddish Brown Sandy Elastic SILT			
		(ML) Very Stiff Reddish Brown Slightly Clayey Sandy SILT	SPT 1		6-7-9 (16)
			SPT 2		7-9-14 (23)
5.0					
		(ML) Very Stiff Reddish Brown and Light Brown Sandy SILT with Sand Seams	SPT 3		7-11-15 (26)
		(ML) Very Stiff Reddish Brown and Light Brown Sandy SILT			
			SPT 4		6-8-13 (21)
10.0					
		(ML) Very Stiff Reddish Brown and Light Brown Sandy SILT with Manganese Stains			
		14.3ft ▽	SPT 5		6-9-10 (19)
15.0					
		(ML) Very Stiff Reddish Brown and Brown Sandy SILT with Manganese Stains			
			SPT 6		7-10-15 (25)
20.0		Bottom of Boring at 20 feet bgs, Boring Terminated			

▲ SPT N VALUE ▲
0 20 40 60 80 100
PL MC LL
0 20 40 60 80 100
☐ FINES CONTENT (%) ☐
0 20 40 60 80 100



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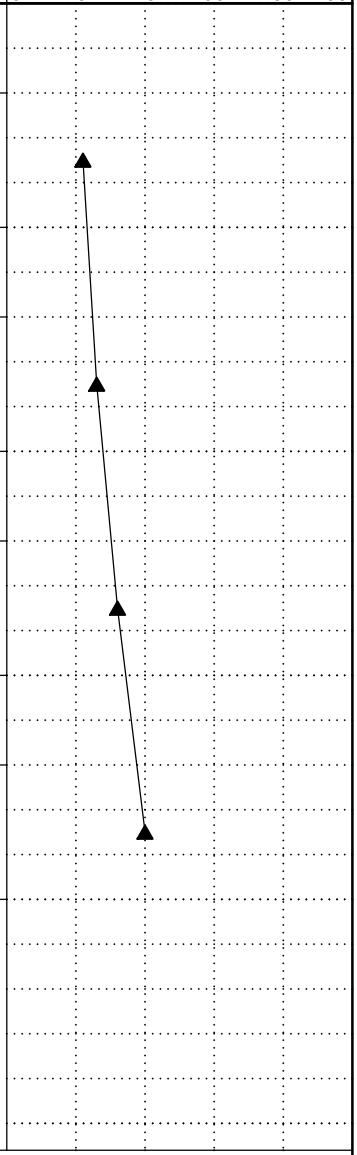
BORING NUMBER B-5

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/10/22 **COMPLETED** 8/10/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth @ 8.6' bgs
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING ---
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 4" of TOPSOIL			
		(ML) RESIDUUM: Very Stiff Reddish Brown and Light Brown Slightly Clayey Sandy SILT	SPT 1		6-9-13 (22)
2.5					
		(ML) Very Stiff Light Brown and Reddish Brown Sandy SILT	SPT 2		8-12-14 (26)
5.0					
		(ML) Hard Light Brown and Gray Sandy SILT with Manganese Stains	SPT 3		11-14-18 (32)
7.5					
		8.6ft ▽	SPT 4		10-14-26 (40)
10.0					
12.5		Bottom of Boring at 12.8 feet bgs, Auger Refusal			
15.0					



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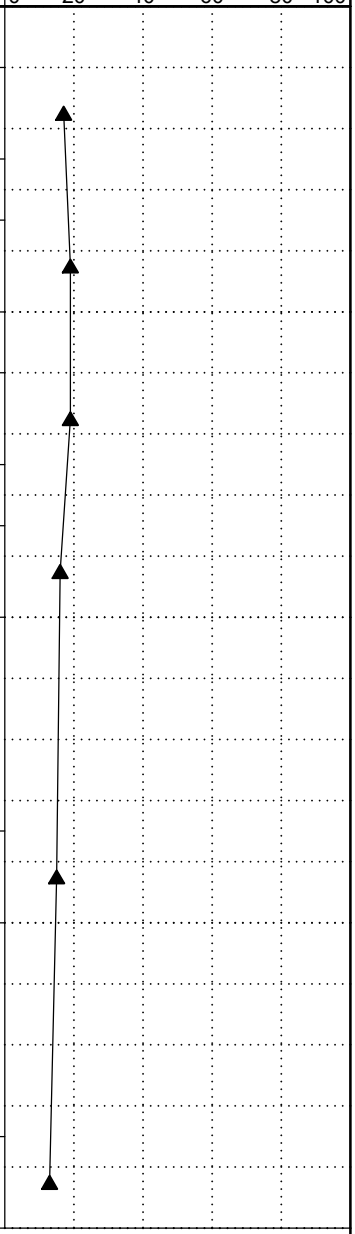
BORING NUMBER B-6

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/10/22 **COMPLETED** 8/10/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth @ 13' bgs
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING ---
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 4" of TOPSOIL			
		(ML) RESIDUUM: Very Stiff Reddish Brown and Light Brown Sandy SILT	SPT 1		6-8-9 (17)
		(ML) Very Stiff Light Brown and Reddish Brown Sandy SILT	SPT 2		6-8-11 (19)
5.0		(ML) Very Stiff Light Brown, Reddish Brown, and White Sandy SILT	SPT 3		5-7-12 (19)
		(ML) Very Stiff Light Brown, Yellowish Brown, and White Sandy SILT	SPT 4		8-7-9 (16)
10.0		(ML) Stiff Moist Light Brown, Yellowish Brown, and White Sandy SILT with Manganese Stains 13ft	SPT 5		6-7-8 (15)
15.0		(ML) Stiff Moist Light Brown and Yellowish Brown Sandy SILT with Manganese Stains	SPT 6		4-5-8 (13)
20.0		Bottom of Boring at 20 feet bgs, Boring Terminated			



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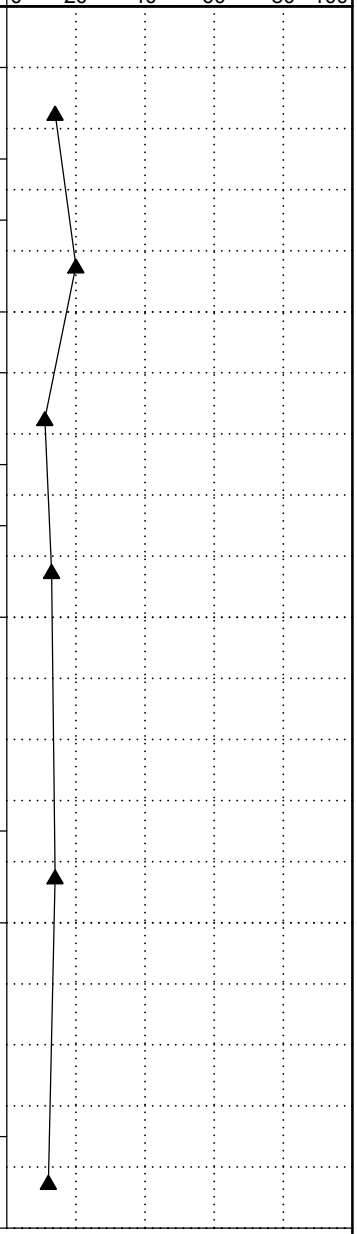
CPAYNE@SUMMIT-COMPANIES.COM

BORING NUMBER B-7

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/10/22 **COMPLETED** 8/10/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth @ 13' bgs
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING ---
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 4" of TOPSOIL			
		(ML) RESIDUUM: Stiff Reddish Brown and Yellowish Brown Sandy SILT	SPT 1		5-6-8 (14)
		(ML) Very Stiff Light Brown, Yellowish Brown, and White Sandy SILT	SPT 2		7-9-11 (20)
5.0		(ML) Stiff Brown and Yellowish Brown Sandy SILT	SPT 3		5-5-6 (11)
		(ML) Stiff Moist Reddish Brown, Yellowish Brown, and Gray Sandy SILT with Manganese Stains	SPT 4		4-6-7 (13)
10.0		(ML) Stiff Moist Light Brown, Brown, and Gray Sandy SILT with Sand Seams and Manganese Stains 13ft	SPT 5		6-6-8 (14)
15.0			SPT 6		4-5-7 (12)
20.0		Bottom of Boring at 20 feet bgs, Boring Terminated			



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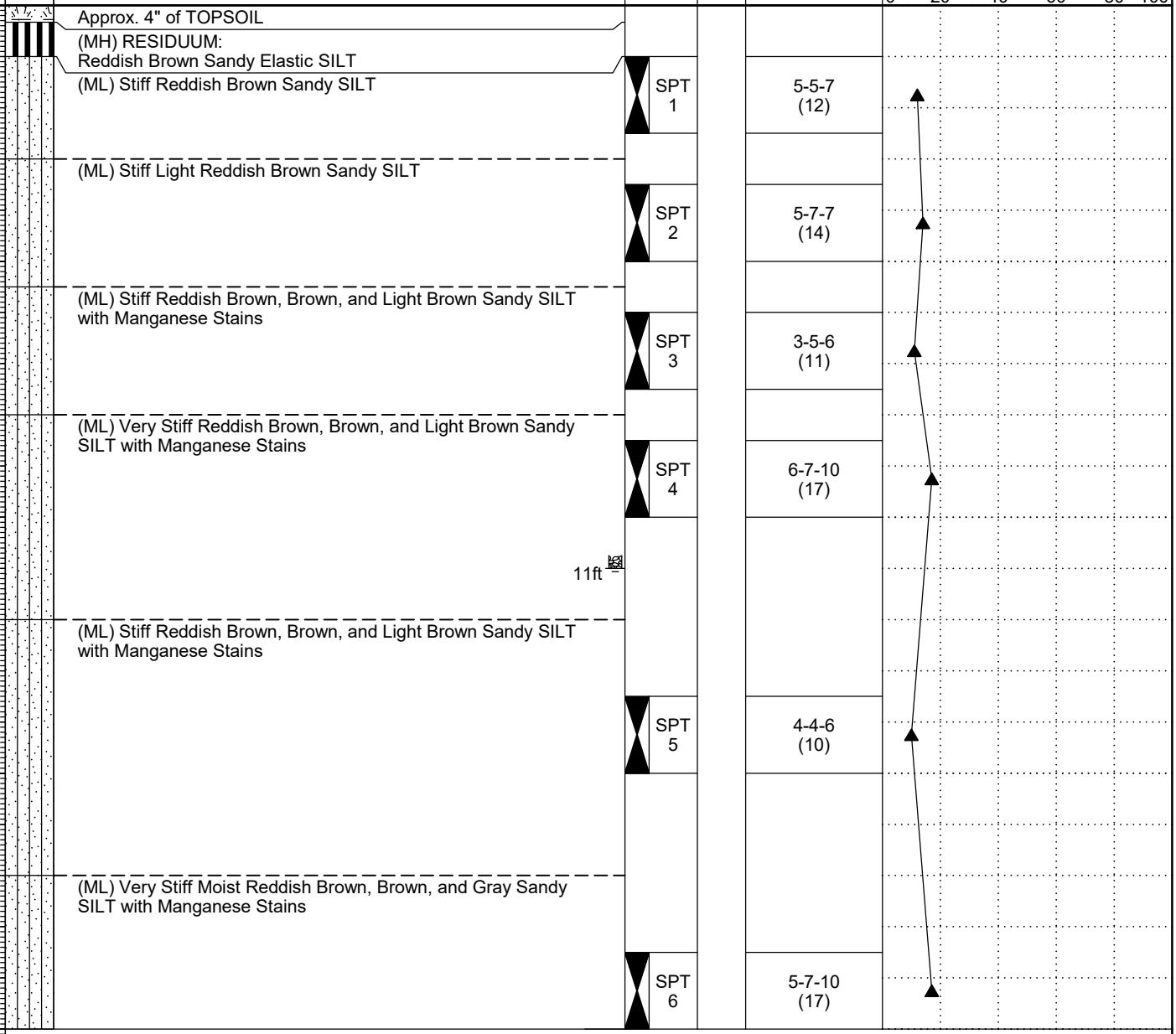
BORING NUMBER B-8

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/9/22 **COMPLETED** 8/9/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth @ 11' bgs
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING ---
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 4" of TOPSOIL			
		(MH) RESIDUUM: Reddish Brown Sandy Elastic SILT			
		(ML) Stiff Reddish Brown Sandy SILT	SPT 1		5-5-7 (12)
		(ML) Stiff Light Reddish Brown Sandy SILT	SPT 2		5-7-7 (14)
5.0		(ML) Stiff Reddish Brown, Brown, and Light Brown Sandy SILT with Manganese Stains	SPT 3		3-5-6 (11)
		(ML) Very Stiff Reddish Brown, Brown, and Light Brown Sandy SILT with Manganese Stains	SPT 4		6-7-10 (17)
10.0		11ft ▽			
		(ML) Stiff Reddish Brown, Brown, and Light Brown Sandy SILT with Manganese Stains	SPT 5		4-4-6 (10)
15.0		(ML) Very Stiff Moist Reddish Brown, Brown, and Gray Sandy SILT with Manganese Stains	SPT 6		5-7-10 (17)
20.0		Bottom of Boring at 20 feet bgs, Boring Terminated			

▲ SPT N VALUE ▲
0 20 40 60 80 100
PL MC LL
0 20 40 60 80 100
☐ FINES CONTENT (%) ☐
0 20 40 60 80 100



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BORING NUMBER B-9

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/9/22 **COMPLETED** 8/9/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth @ 3' bgs
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING ---
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 4" of TOPSOIL			
		(ML) RESIDUUM: Stiff Brown and Light Brown Sandy SILT	SPT 1		4-6-7 (13)
2.5		(ML) Partially Weathered Rock When Sampled Becomes Brown and Light Brown Micaceous Sandy SILT (3ft)	SPT 2		50 (50/5")
5.0		Bottom of Boring at 6 feet bgs, Auger Refusal	SPT 3		50 (50/0")
7.5					

▲ SPT N VALUE ▲
0 20 40 60 80 100
PL MC LL
0 20 40 60 80 100
☐ FINES CONTENT (%) ☐
0 20 40 60 80 100

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BORING NUMBER B-10

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/10/22 **COMPLETED** 8/10/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth @ 3' bgs
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING ---
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	▲ SPT N VALUE ▲ 0 20 40 60 80 100
		Approx. 3" of TOPSOIL				PL MC LL 0 20 40 60 80 100
		(MH) RESIDUUM: Very Stiff Reddish Brown Sandy Elastic SILT	SPT 1		5-7-11 (18)	☐ FINES CONTENT (%) ☐ 0 20 40 60 80 100
2.5		(ML) Stiff Reddish Brown Sandy SILT 3ft				
			SPT 2		5-6-9 (15)	
5.0						
		Bottom of Boring at 5.7 feet bgs, Auger Refusal				
7.5						

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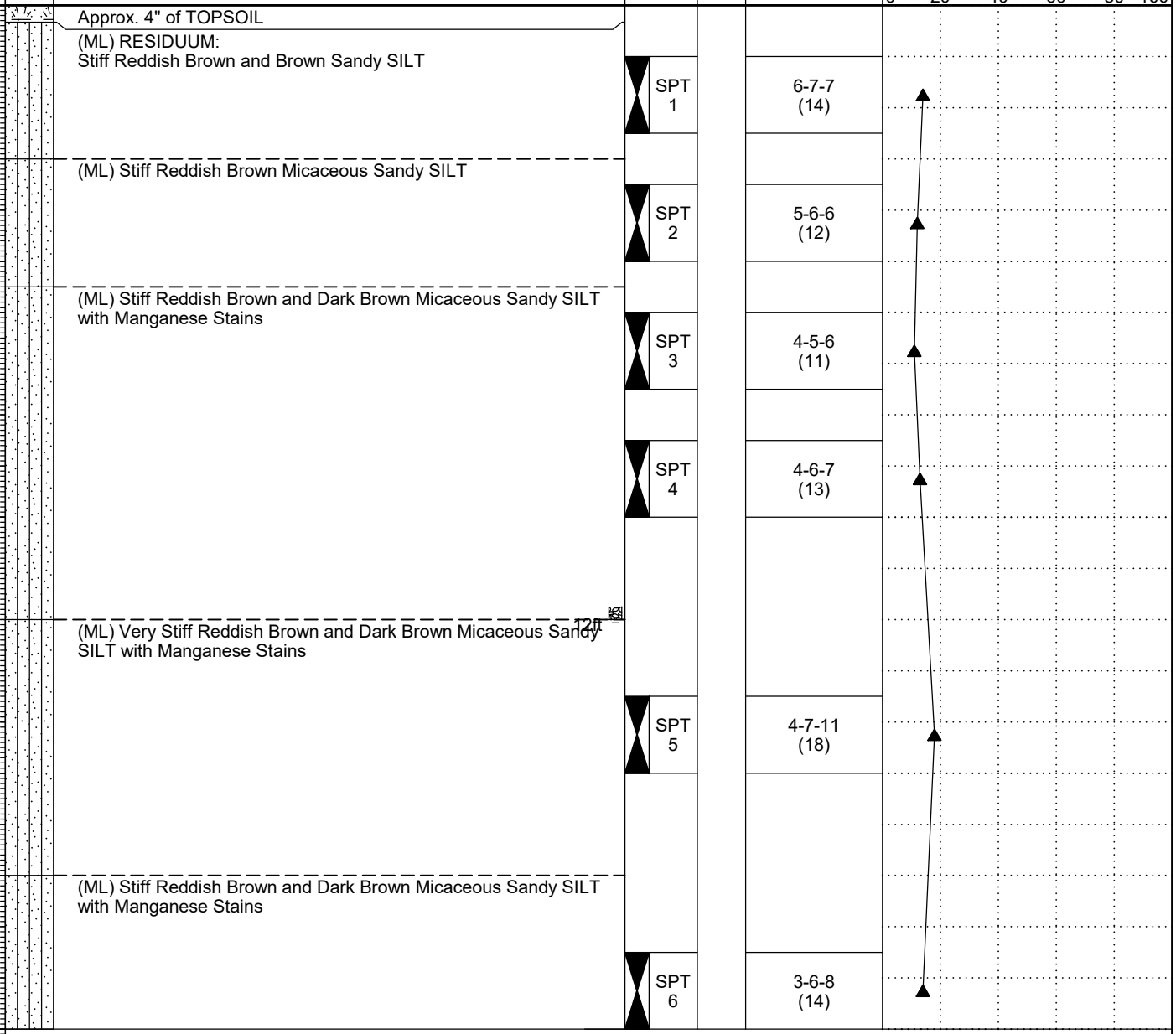
BORING NUMBER B-11

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/9/22 **COMPLETED** 8/9/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth @ 12' bgs
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING ---
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 4" of TOPSOIL			
		(ML) RESIDUUM: Stiff Reddish Brown and Brown Sandy SILT	SPT 1		6-7-7 (14)
		(ML) Stiff Reddish Brown Micaceous Sandy SILT	SPT 2		5-6-6 (12)
5.0					
		(ML) Stiff Reddish Brown and Dark Brown Micaceous Sandy SILT with Manganese Stains	SPT 3		4-5-6 (11)
			SPT 4		4-6-7 (13)
10.0					
		(ML) Very Stiff Reddish Brown and Dark Brown Micaceous Sandy SILT with Manganese Stains (12ft)	SPT 5		4-7-11 (18)
15.0					
		(ML) Stiff Reddish Brown and Dark Brown Micaceous Sandy SILT with Manganese Stains	SPT 6		3-6-8 (14)
20.0		Bottom of Boring at 20 feet bgs, Boring Terminated			

▲ SPT N VALUE ▲
0 20 40 60 80 100
PL MC LL
0 20 40 60 80 100
☐ FINES CONTENT (%) ☐
0 20 40 60 80 100



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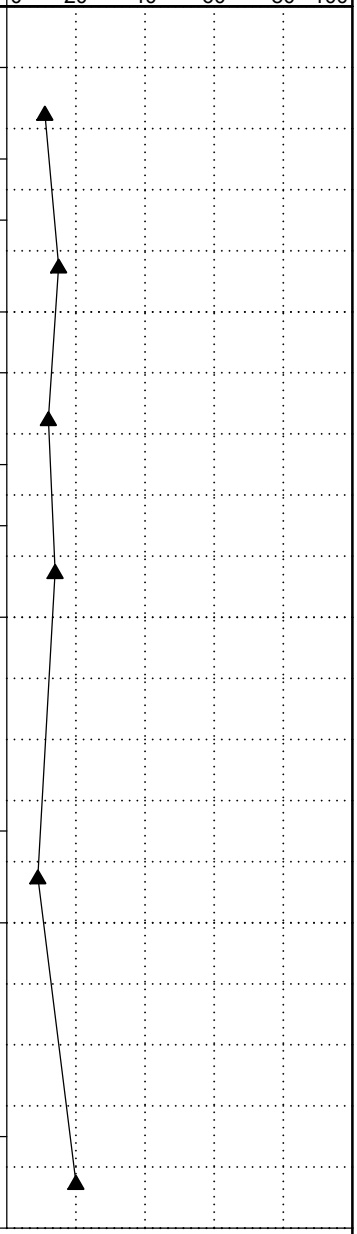
BORING NUMBER B-12

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/1/22 **COMPLETED** 8/1/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth @ 14.2' bgs
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING ---
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 4" of TOPSOIL			
		(MH) RESIDUUM: Reddish Brown Sandy Elastic SILT			
		(ML) Stiff Reddish Brown Slightly Clayey Sandy SILT	SPT 1		3-5-6 (11)
		(ML) Stiff Reddish Brown Sandy SILT	SPT 2		6-7-8 (15)
5.0		(ML) Stiff Reddish Brown and Light Brown Sandy SILT	SPT 3		5-5-7 (12)
		(ML) Stiff Light Brown and White Sandy SILT	SPT 4		6-6-8 (14)
10.0		(ML) Stiff Light Brown, Reddish Brown, and White Sandy SILT with Manganese Stains			
		14.2ft ▽	SPT 5		3-3-6 (9)
15.0		(ML) Very Stiff Yellowish Brown, Reddish Brown, and White Sandy SILT with Manganese Stains			
			SPT 6		7-9-11 (20)
20.0		Bottom of Boring at 20 feet bgs, Boring Terminated			



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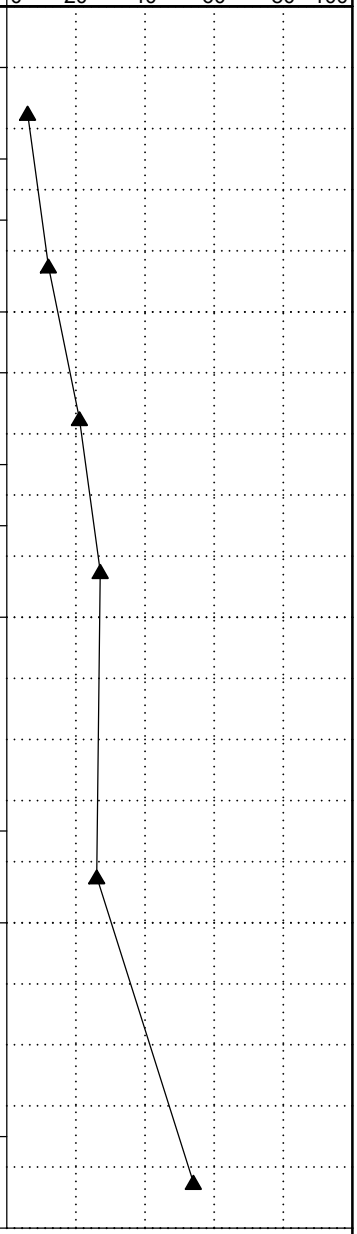
BORING NUMBER B-13

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/8/22 **COMPLETED** 8/8/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth @ 11.1' bgs
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING ---
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 3" of TOPSOIL			
		(ML) RESIDUUM: Firm Reddish Brown Slightly Clayey Sandy SILT	SPT 1		2-3-3 (6)
		(ML) Stiff Reddish Brown Sandy SILT	SPT 2		5-5-7 (12)
5.0					
		(ML) Very Stiff Light Reddish Brown and Light Brown Sandy SILT with Manganese Stains	SPT 3		5-8-13 (21)
			SPT 4		8-12-15 (27)
10.0		11.1ft ▽			
		(ML) Very Stiff Moist Reddish Brown Sandy SILT with Manganese Stains	SPT 5		8-11-15 (26)
15.0					
		(ML) Very Hard Moist Reddish Brown Sandy SILT with Manganese Stains	SPT 6		16-23-31 (54)
20.0		Bottom of Boring at 20 feet bgs, Boring Terminated			



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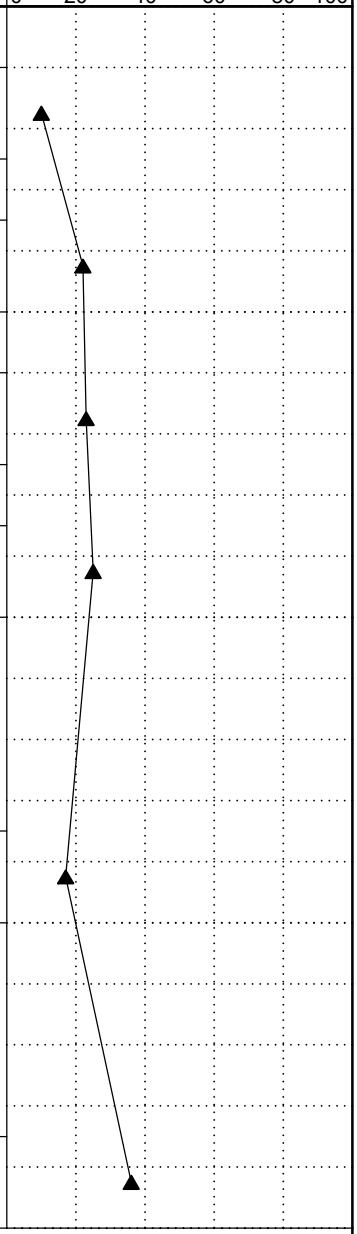
BORING NUMBER B-14

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/1/22 **COMPLETED** 8/1/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth @ 14.5' bgs
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING ---
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 4" of TOPSOIL			
		(MH) RESIDUUM: Stiff Reddish Brown Sandy Elastic SILT	SPT 1		4-5-5 (10)
		(ML) Very Stiff Reddish Brown Sandy SILT	SPT 2		7-10-12 (22)
5.0		(ML) Very Stiff Reddish Brown and Light Brown Sandy SILT	SPT 3		8-10-13 (23)
		(ML) Very Stiff Reddish Brown Sandy SILT	SPT 4		6-10-15 (25)
10.0		(ML) Very Stiff Reddish Brown, Light Brown, and White Sandy SILT with Manganese Stains			
		14.5ft ▽	SPT 5		5-7-10 (17)
15.0		(ML) Hard Reddish Brown, Light Brown, and White Sandy SILT with Manganese Stains			
			SPT 6		10-15-21 (36)
20.0		Bottom of Boring at 20 feet bgs, Boring Terminated			



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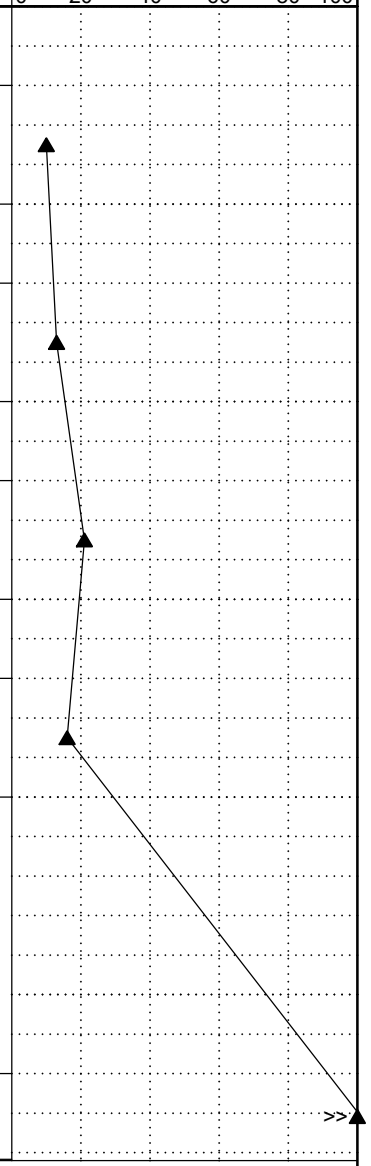
BORING NUMBER B-15

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/8/22 **COMPLETED** 8/8/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth @ 11' bgs
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING ---
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 4" of TOPSOIL			
		(ML) RESIDUUM: Stiff Reddish Brown Slightly Clayey Sandy SILT	SPT 1		4-4-6 (10)
2.5		(ML) Stiff Reddish Brown and Yellowish Brown Sandy SILT	SPT 2		4-6-7 (13)
5.0		(ML) Very Stiff Pinkish Red and Light Brown Sandy SILT	SPT 3		6-9-12 (21)
7.5			SPT 4		3-6-10 (16)
10.0		11ft ▽			
12.5		(ML) Partially Weathered Rock When Sampled Becomes Reddish Brown, Olive Brown, and White Sandy SILT with Manganese Stains	SPT 5		12-37-50 (50/1")
15.0		Bottom of Boring at 14.6 feet bgs, Auger Refusal			

▲ SPT N VALUE ▲
0 20 40 60 80 100
PL MC LL
0 20 40 60 80 100
☐ FINES CONTENT (%) ☐
0 20 40 60 80 100



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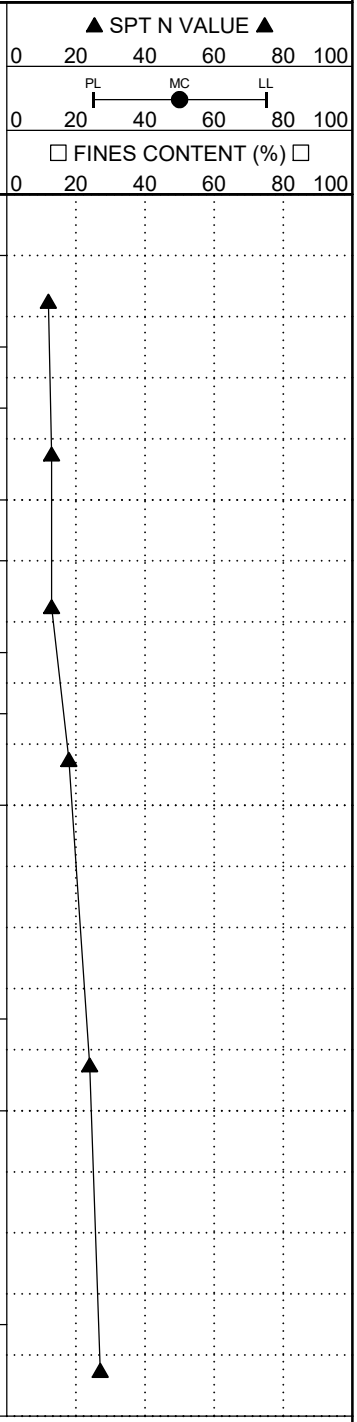
BORING NUMBER B-16

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/9/22 **COMPLETED** 8/9/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth @ 13' bgs
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING ---
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 4" of TOPSOIL			
		(ML) RESIDUUM: Stiff Light Brown and Reddish Brown Sandy SILT	SPT 1		4-5-7 (12)
			SPT 2		5-6-7 (13)
5.0		(ML) Stiff Light Brown, Reddish Brown, and White Sandy SILT with Clay Seams	SPT 3		5-5-8 (13)
		(ML) Very Stiff Light Brown and White Sandy SILT	SPT 4		4-7-11 (18)
10.0					
		13ft ▽	SPT 5		8-10-14 (24)
15.0		(ML) Very Stiff Light Gray and Light Brown Sandy SILT			
			SPT 6		8-11-16 (27)
20.0		Bottom of Boring at 20 feet bgs, Boring Terminated			



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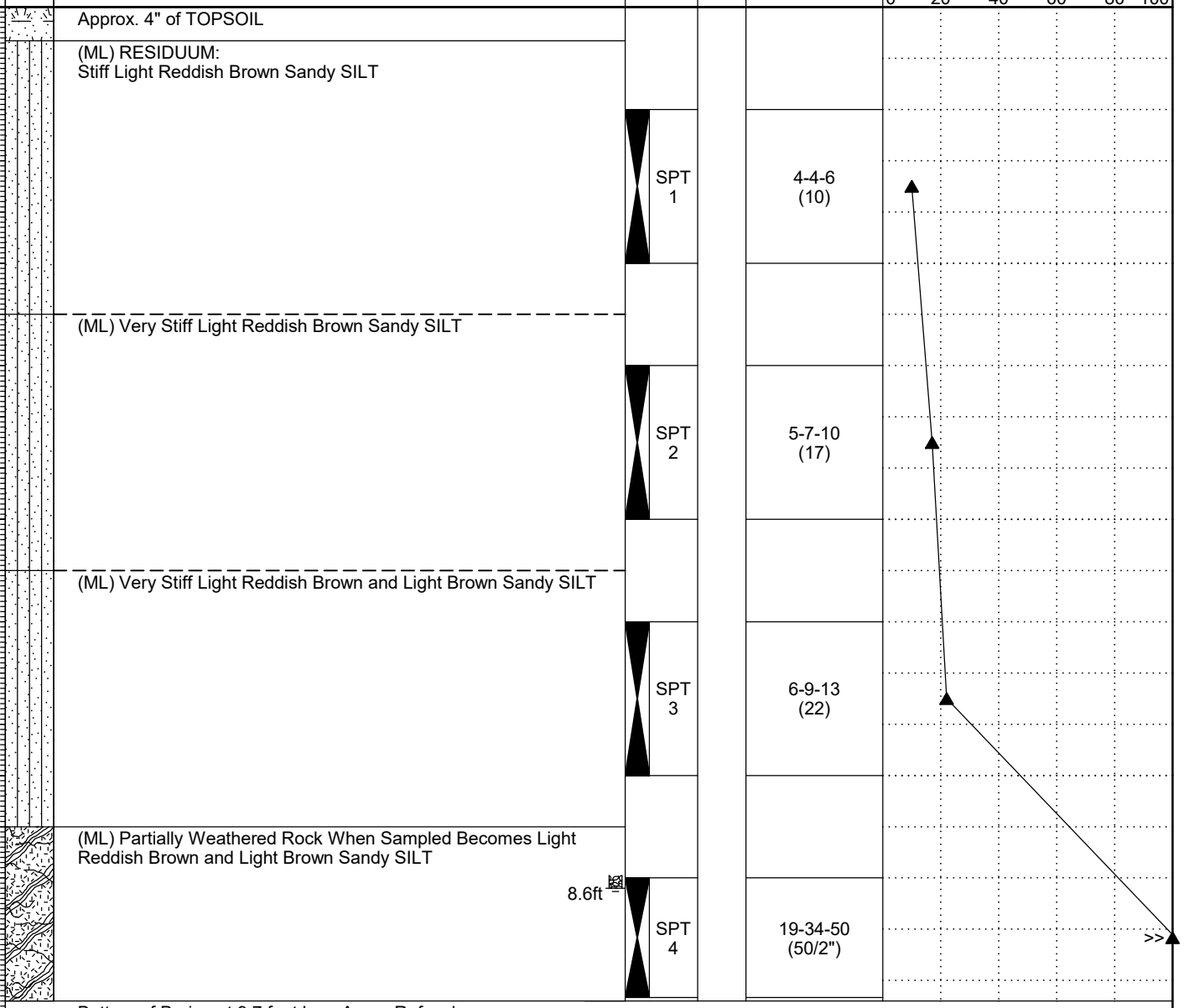
BORING NUMBER B-17

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/8/22 **COMPLETED** 8/8/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth @ 8.6' bgs
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING ---
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 4" of TOPSOIL			
		(ML) RESIDUUM: Stiff Light Reddish Brown Sandy SILT	SPT 1		4-4-6 (10)
2.5		(ML) Very Stiff Light Reddish Brown Sandy SILT	SPT 2		5-7-10 (17)
5.0		(ML) Very Stiff Light Reddish Brown and Light Brown Sandy SILT	SPT 3		6-9-13 (22)
7.5		(ML) Partially Weathered Rock When Sampled Becomes Light Reddish Brown and Light Brown Sandy SILT	SPT 4		19-34-50 (50/2")
		8.6ft			
10.0		Bottom of Boring at 9.7 feet bgs, Auger Refusal			

▲ SPT N VALUE ▲
0 20 40 60 80 100
PL MC LL
0 20 40 60 80 100
☐ FINES CONTENT (%) ☐
0 20 40 60 80 100



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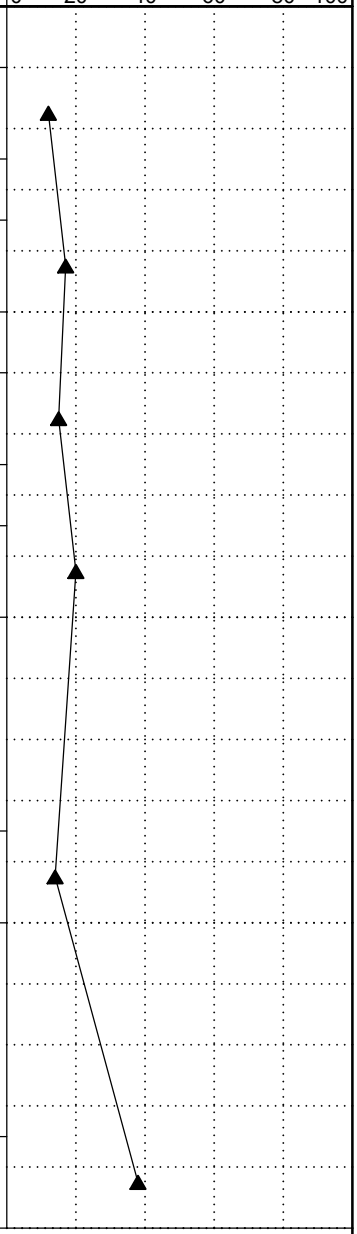
BORING NUMBER B-18

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/8/22 **COMPLETED** 8/8/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth @ 13' bgs
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING ---
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 3" of TOPSOIL			
		(ML) RESIDUUM: Stiff Brown and Light Brown Slightly Clayey Sandy SILT	SPT 1		3-5-7 (12)
		(ML) Very Stiff Brown and Light Brown Slightly Clayey Sandy SILT	SPT 2		5-7-10 (17)
5.0		(ML) Stiff Light Brown and Reddish Brown Sandy SILT with Clay Seams	SPT 3		6-7-8 (15)
		(ML) Very Stiff White, Gray, and Light Reddish Brown Sandy SILT	SPT 4		8-9-11 (20)
10.0		(ML) Stiff White, Gray, and Light Reddish Brown Sandy SILT			
		13ft ▽	SPT 5		5-6-8 (14)
15.0		(ML) Hard White, Gray, and Light Reddish Brown Sandy SILT			
			SPT 6		12-17-21 (38)
20.0		Bottom of Boring at 20 feet bgs, Boring Terminated			



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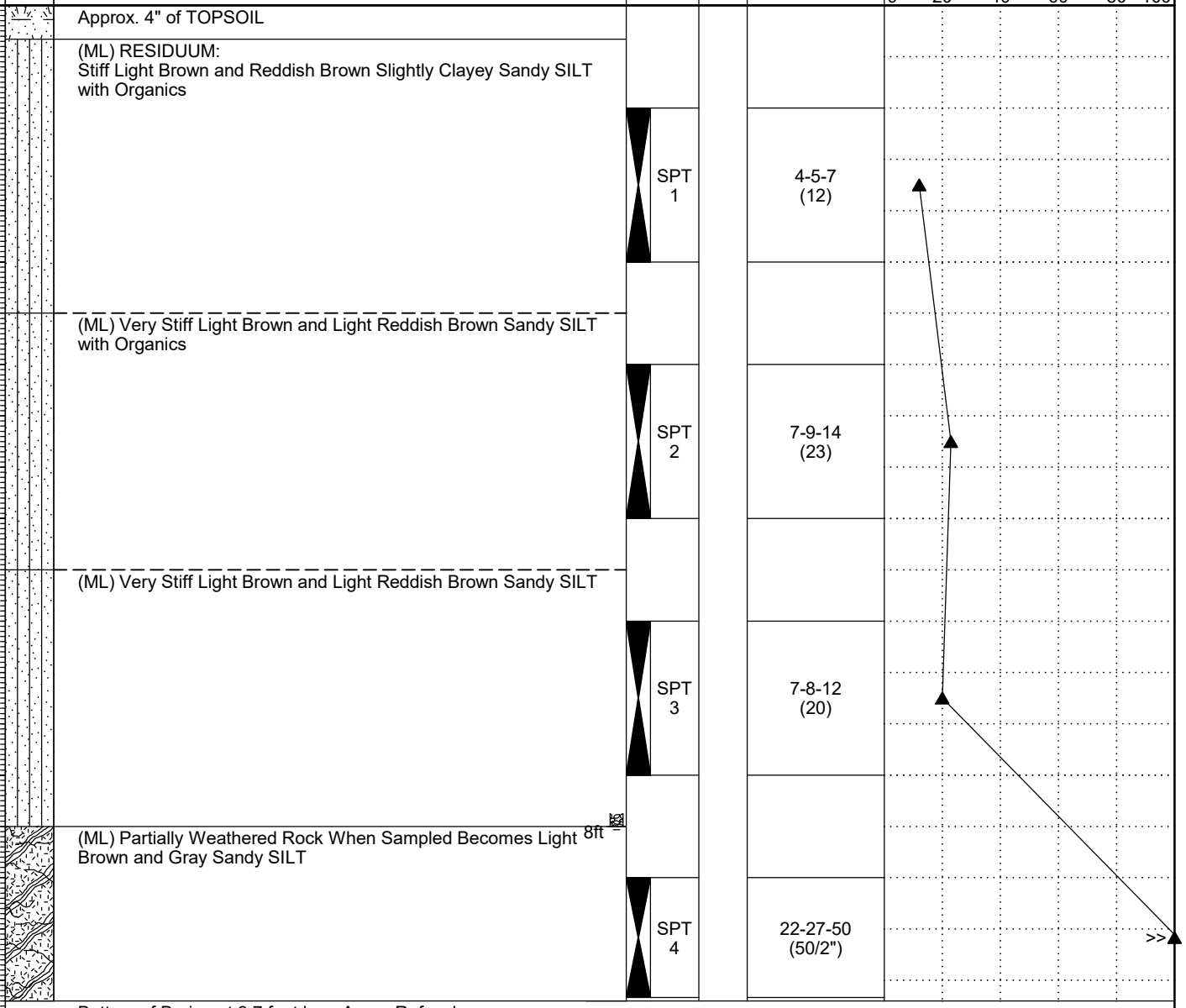
BORING NUMBER B-19

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/8/22 **COMPLETED** 8/8/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth @ 8' bgs
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING ---
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 4" of TOPSOIL			
		(ML) RESIDUUM: Stiff Light Brown and Reddish Brown Slightly Clayey Sandy SILT with Organics	SPT 1		4-5-7 (12)
2.5		(ML) Very Stiff Light Brown and Light Reddish Brown Sandy SILT with Organics	SPT 2		7-9-14 (23)
5.0		(ML) Very Stiff Light Brown and Light Reddish Brown Sandy SILT	SPT 3		7-8-12 (20)
7.5		(ML) Partially Weathered Rock When Sampled Becomes Light Brown and Gray Sandy SILT 8ft	SPT 4		22-27-50 (50/2")
10.0		Bottom of Boring at 9.7 feet bgs, Auger Refusal			

▲ SPT N VALUE ▲
0 20 40 60 80 100
PL MC LL
0 20 40 60 80 100
☐ FINES CONTENT (%) ☐
0 20 40 60 80 100



SUMMIT ENGINEERING
3575 CENTRE CIRCLE
FORT MILL, SC 29715
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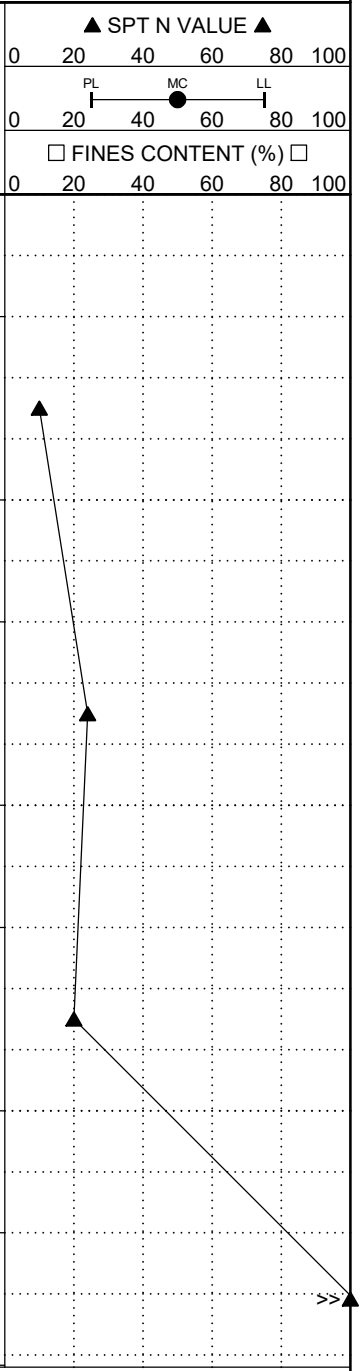
BORING NUMBER B-20

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/8/22 **COMPLETED** 8/8/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth NE
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING ---
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 4" of TOPSOIL			
		(ML) RESIDUUM: Stiff Light Reddish Brown and Light Brown Slightly Clayey Sandy SILT	SPT 1		3-4-6 (10)
2.5		(ML) Very Stiff Light Brown, White, and Light Reddish Brown Sandy SILT with Clay Seams	SPT 2		8-11-13 (24)
5.0		(ML) Very Stiff Light Brown, White, and Light Reddish Brown Sandy SILT	SPT 3		9-9-11 (20)
7.5		(ML) Partially Weathered Rock When Sampled Becomes Light Brown Sandy SILT	SPT 4		20-36-50 (50/1")
10.0		Bottom of Boring at 9.6 feet bgs, Auger Refusal			



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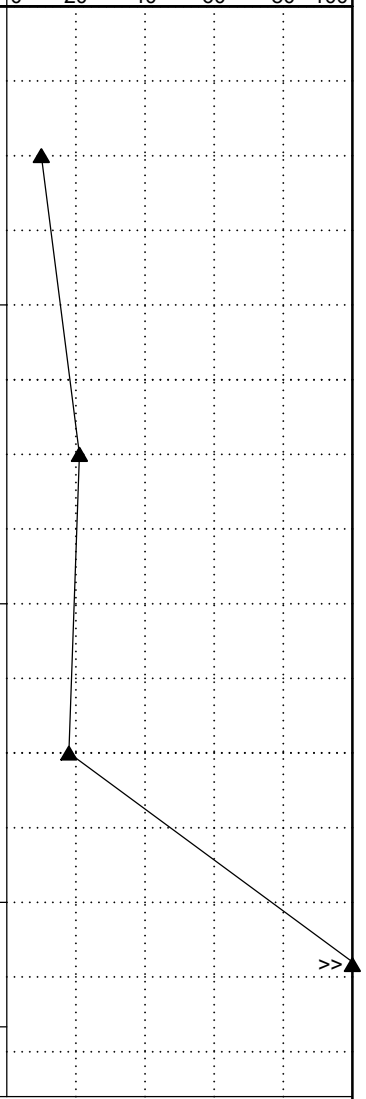
BORING NUMBER SW-21

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/8/22 **COMPLETED** 8/8/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth NE
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING --- GW NE > 24 hrs
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 3" of Topsoil			
		(ML) RESIDUUM: Stiff White (2.5Y, 8/1) and Pale Brown (2.5Y, 8/3) Sandy SILT	SPT 1		4-4-6-8 (10)
2.5		(ML) Very Stiff Very Pale Brown (10YR, 8/4), Reddish Yellow (7.5YR, 7/8), and Light Red (2.5YR, 6/8) Sandy SILT	SPT 2		8-10-11-13 (21)
5.0		(ML) Very Stiff White (2.5Y, 8/1), Brownish Yellow (10YR, 6/8), and Light Gray (10YR, 7/2) Sandy SILT	SPT 3		7-9-9-11 (18)
		(ML) Partially Weathered Rock When Sampled Becomes White (2.5Y, 8/1) and Yellow (10YR, 8/6) Sandy SILT	SPT 4		12-50 (50/4")
7.5		Bottom of Boring at 7.3 feet bgs, Auger Refusal			



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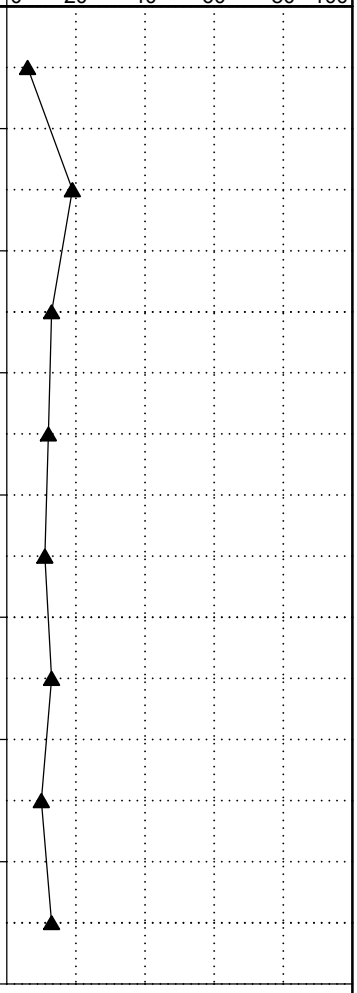
BORING NUMBER SW-22

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/8/22 **COMPLETED** 8/8/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth NE
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING --- GW NE > 24 hrs
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 3" of TOPSOIL			
		(ML) Firm Yellow (10YR, 7/6) Sandy SILT	SPT 1		2-2-4-4 (6)
		(MH) Firm Yellowish Red (5YR, 5/8) Sandy Elastic SILT			
		(MH) Very Stiff Yellowish Red (5YR, 5/8) Sandy Elastic SILT	SPT 2		7-8-11-13 (19)
		(ML) Stiff Yellowish Red (5YR, 5/8) Slightly Clayey Sandy SILT			
5.0		(ML) Stiff Moist Yellowish Red (5YR, 5/8) and Pink (2.5YR, 8/4) Sandy SILT	SPT 3		3-6-7-11 (13)
		(ML) Stiff Moist Reddish Yellow (5YR, 7/6) and Yellow (10YR, 8/8) Sandy SILT	SPT 4		4-5-7-8 (12)
		(ML) Stiff Moist Light Reddish Brown (2.5YR, 6/4), Yellow (10YR, 7/8), and White (2.5Y, 8/1) Sandy SILT with Manganese Stains	SPT 5		5-5-6-7 (11)
10.0		(ML) Stiff Moist Reddish Yellow (5YR, 6/4) and Strong Brown (7.5YR, 5/8) Sandy SILT with Manganese Stains	SPT 6		6-6-7-9 (13)
		(ML) Stiff Moist Light Reddish Brown (2.5YR, 7/4) and Yellow (10YR, 7/8) Sandy SILT with Manganese Stains	SPT 7		3-4-6-7 (10)
15.0			SPT 8		2-5-8-10 (13)
		Bottom of Boring at 16 feet bgs, Boring Terminated			
20.0					



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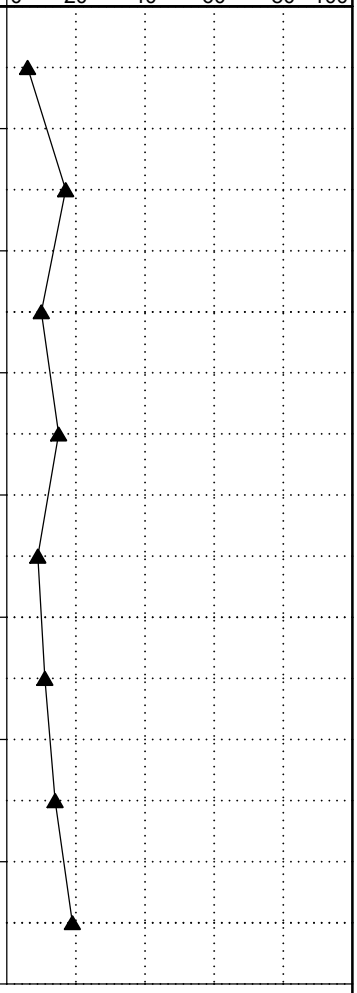
BORING NUMBER SW-23

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/9/22 **COMPLETED** 8/9/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth NE
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING --- GW NE > 24 hrs
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 3" of TOPSOIL			
		(ML) RESIDUUM: Firm Yellowish Red (5YR, 5/6) Slightly Clayey Sandy SILT	SPT 1		2-3-3-4 (6)
		(ML) Very Stiff Moist Dark Reddish Brown (5YR, 3/4) Slightly Clayey Sandy SILT	SPT 2		6-8-9-11 (17)
5.0		(ML) Stiff Moist Dark Reddish Brown (5YR, 3/4) and Yellowish Brown (10YR, 5/6) Sandy SILT	SPT 3		2-4-6-6 (10)
		(ML) Stiff Yellowish Red (5YR, 4/6), Yellowish Brown (10YR, 5/8), and Light Gray (10YR, 7/2) Sandy SILT	SPT 4		6-9-6-8 (15)
10.0		(ML) Stiff Brownish Yellow (10YR, 6/6), Light Gray (10YR, 7/2), and Reddish Yellow (7.5YR, 6/6) Sandy SILT with Sand Seams and Manganese Stains	SPT 5		2-4-5-6 (9)
		(ML) Stiff Moist Brownish Yellow (10YR, 6/8), Yellow (10YR, 7/6), and White (2.5Y, 8/1) Sandy SILT	SPT 6		4-5-6-6 (11)
			SPT 7		3-5-9-11 (14)
15.0		(ML) Very Stiff Moist Very Pale Brown (10YR, 7/4), Yellow (10YR, 7/6), and White (2.5Y, 8/1) Sandy SILT with Manganese Stains	SPT 8		3-8-11-15 (19)
		Bottom of Boring at 16 feet bgs, Boring Terminated			
20.0					



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BORING NUMBER SW-24

CLIENT Lennar
PROJECT NAME Carolina Reserve Commons
PROJECT NUMBER 1506.G0277
PROJECT LOCATION Indian Land, South Carolina
DATE STARTED 8/10/22 **COMPLETED** 8/10/22
GROUND ELEVATION _____ **HOLE SIZE** 6 inches
DRILLING CONTRACTOR SUMMIT
GROUND WATER/CAVE-IN:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING --- GW NE ATD / Caved in Depth NE
LOGGED BY C. Whitener **CHECKED BY** N. Sacks
AT END OF DRILLING --- GW NE > 24 hrs
NOTES See Figure 2 "Boring Location Plan" for Approx. Boring Location
AFTER DRILLING ---

ELEVATION (ft.)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)
		Approx. 3" of TOPSOIL			
		(ML) RESIDUUM: Firm Brownish Yellow (10YR, 6/8) Sandy SILT			
		(MH) Firm Yellowish Red (5YR, 5/8) Sandy Elastic SILT	SPT 1		2-3-4-6 (7)
2.5		(MH) Very Stiff Red (2.5YR, 4/8) and Yellow (10YR, 7/8) Sandy Elastic SILT	SPT 2		5-7-13-17 (20)
5.0		(MH) Very Stiff Red (2.5YR, 4/8) and Yellow (10YR, 7/8) Sandy Elastic SILT with Rock Fragments	SPT 3		4-8-27-50 (12)
		Partially Weathered Rock No Sample Recovery	SPT 4		50 (50/0")
		Bottom of Boring at 6.4 feet bgs, Auger Refusal			
7.5